MINNESOTA DEPARTMENT OF TRANSPORTATION
BLUE EARTH COUNTY DEPARTMENT OF PUBLIC WORKS
CSAH 10 & CR 166
CONSTRUCTION PLANS FOR GRADING, COLD INPLACE RECYCLE & BITUMINOUS SURFACING

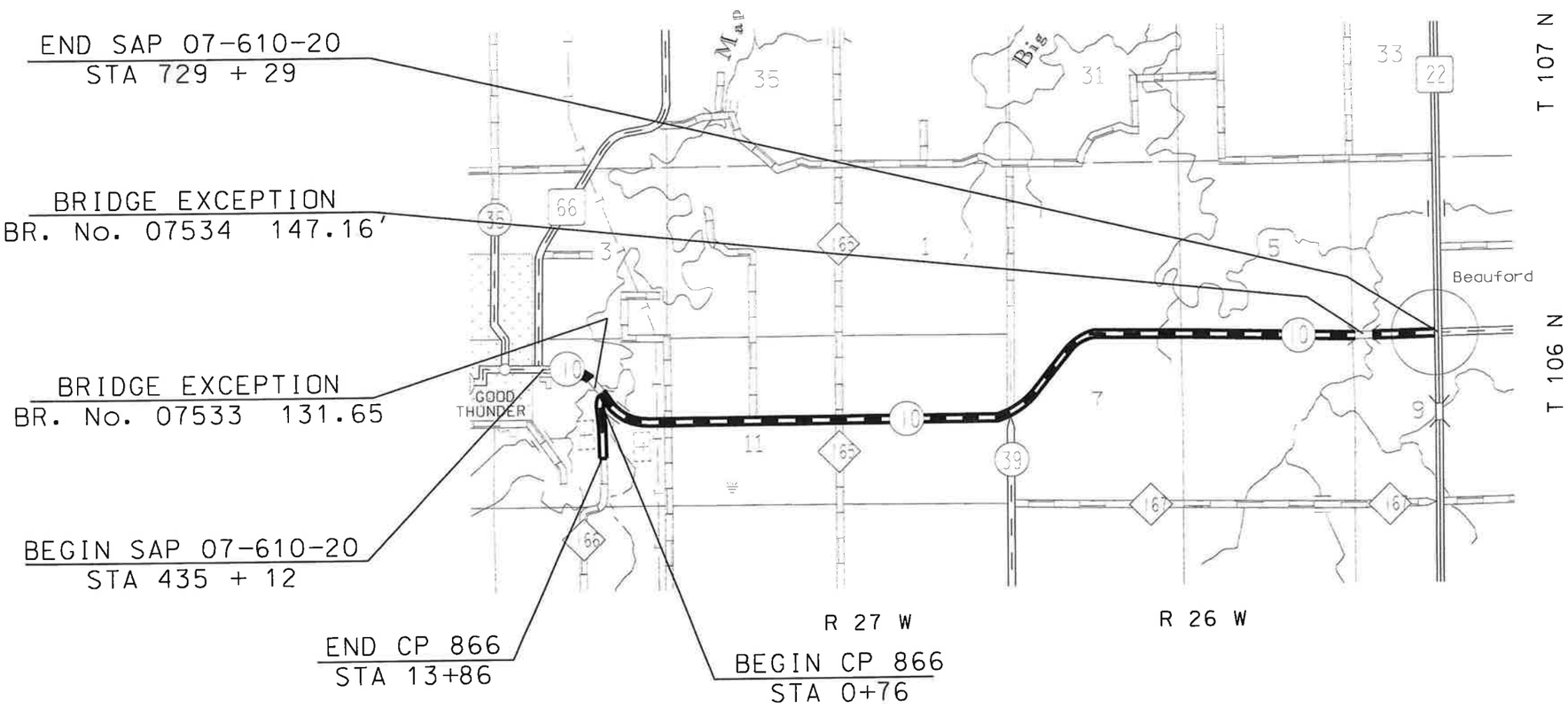
STATE AID PROJECT NO. 07-610-20
BETWEEN TH 66 & TH 22
FROM A POINT 1345' EAST & 954' SO.
OF THE NW COR. OF SEC. 10-106-27
TO
THE N 1/4 COR. OF SEC 9-106-26

GROSS LENGTH	29417.00 FEET	5.571 MILES
BRIDGE 07533	131.65 FEET	0.025 MILES
BRIDGE 07534	147.16 FEET	0.028 MILES
NET LENGTH	29138.19 FEET	5.518 MILES

COUNTY PROJECT NO. 866

BETWEEN CSAH 10 & 1/4 MILE
SOUTH OF CSAH 10
IN SECTION 10-106-27

GROSS LENGTH	1310.00 FEET	0.248 MILES
BRIDGE	0 FEET	0 MILES
NET LENGTH	1310.00 FEET	0.248 MILES



PROJECT LOCATION

BLUE EARTH COUNTY

DESIGN DESIGNATION CSAH 10

ADT (CURRENT YEAR) 2011 = 1,106
ADT (FUTURE YEAR) 2031 = 1,770
T (HEAVY COMMERCIAL)
10 TON DESIGN
R VALUE 10
SIGMA N 18 172,000
SOIL FACTOR

DESIGN SPEED 40 MPH
BASED ON STOPPING SIGHT DISTANCE
HEIGHT OF EYE 3.5 - HEIGHT OF OBJECT 2'
DESIGN SPEED NOT ACHIEVED AT :

DESIGN DESIGNATION CR 166

ADT (CURRENT YEAR) 2011 = 20
5 TON DESIGN
SOIL FACTOR 130
DESIGN SPEED 35 MPH
BASED ON STOPPING SIGHT DISTANCE
HEIGHT OF EYE 3.5 - HEIGHT OF OBJECT 2'

FOR PLANS AND UTILITIES SYMBOLS SEE TECHNICAL MANUAL

GOVERNING SPECIFICATIONS

THE 2005 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.

INDEX OF SHEETS

SHEET No'S	1	TITLE
SHEET No'S	2	EST. QUANTITIES
SHEET No'S	3 - 13	TYPICAL SECTIONS
SHEET No'S	14 - 27	TABULATIONS AND DETAILS
SHEET No'S	28 - 37	TURF ESTABLISHMENT
SHEET No'S	38 - 57	PLAN & PROFILES
SHEET No'S	58 - 78	X-SECTIONS

THIS PLAN CONTAINS 78 SHEETS

SCALE

PLAN	100'	
PROFILE	100' HORIZ.	10' VERT.
INDEX MAP	1 MILE	
CROSS SECTIONS	10' HORIZ.	10' VERT.

UTILITIES

ONE CALL:	1-800-252-1166
ELECTRIC:	
BENCO	1-507-387-7963
EXCEL	1-507-387-9632
TELEPHONE:	
HICKORY TECH	1-507-387-1730

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

I HERE BY 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.

COUNTY ENGINEER — DATE 22 Apr 11

BLUE EARTH COUNTY — REG. No. 14720

DISTRICT STATE AID ENG'R : REVIEWED FOR COMPLIANCE WITH STATE-AID RULES/POLICY — DATE: 4/22/11

APPROVED FOR STATE AID FUNDING: STATE AID ENGINEER for — DATE: 4/22/11

CSAH 10 SAP 07-610-20 SHEET No. 1 OF 78 SHEETS

title.dgn 4/22/2011 10:17:38 AM

STATEMENT OF ESTIMATED QUANTITIES

PAGE	ITEM No.	ITEM	UNIT	CSAH 10 PARTIC QUANTITY	CR 166 NON-PARTIC QUANTITY	TOTAL EST. QUANTITY	TOTAL FINAL QUANTITY
15	2101.502	CLEARING	TREE	27		27	
15	2101.507	GRUBBING	TREE	27		27	
22	2104.501	REMOVE PIPE DRAIN	LIN. FT.	9,170		9,170	
21	2104.501	REMOVE PIPE CULVERTS	LIN. FT.	347		347	
49	2104.501	REMOVE FENCE	LIN. FT.	175		175	
25	2104.501	REMOVE GUARDRAIL	LIN. FT.	600		600	
15	2104.503	REMOVE BITUMINOUS PAVEMENT	SQ. FT.	217,945		217,945	
25	2104.509	REMOVE TWISTED END TREATMENT	EACH	8		8	
15	2104.513	SAWING BIT PAVEMENT (FULL DEPTH)	LIN. FT.	356		356	
16	2105.501	COMMON EXCAVATION	C. Y.	41,640		(P) 41,640	
16	2105.523	COMMON BORROW (EV)	C. Y.	9,970		9,970	
16	2105.533	SALVAGED AGGREGATE (EV)	C. Y.	5,555		(P) 5,555	
16	2105.535	SALVAGED TOPSOIL (EV)	C. Y.	7,527		7,527	
16	2105.550	SUBSOILING	ACRE	8		8	
13	2105.603	SHOULDER TRENCHING	LIN. FT.	43,055		43,055	
18	2112.619	AGGREGATE BASE PREPARATION (STRINGLINE)	RD STA	84		84	
18	2118.501	AGGREGATE SURFACING CL-2 (M)	TON	524		524	
22	2123.507	2 CU YD SHOVEL	HOUR	25		25	
18	2211.501	AGGREGATE BASE CL-5	TON	27,256		27,256	
18	2221.501	AGGREGATE SHOULDERING, CL-1 (M)	TON	2,820	106	2,926	
18	2221.501	AGGREGATE SHOULDERING, CL-5	TON	3,674		3,674	
19	2331.604	COLD INPLACE RECYCLE BITUMINOUS MIXTURE	S.Y.	66,313		66,313	
19	2331.609	BITUMINOUS MATERIAL FOR MIXTURE	TON	437		437	
19	2355.502	BITUMINOUS MATERIAL FOR FOG SEAL	GAL	4,973		4,973	
20	2357.502	BITUMINOUS MATERIAL FOR TACK COAT	GALLON	6,164	189	6,353	
19	2360.609	BITUMINOUS MATERIAL FOR MIXTURE (PG 58 - 34)	TON	1,583	23	1,606	
19	2360.609	BITUMINOUS AGGREGATE (GRAVEL INTERMEDIATE)	TON	7,501	118	7,619	
19	2360.609	BITUMINOUS AGGREGATE (GRAVEL FINE)	TON	5,441	79	5,520	
19	2360.609	BITUMINOUS AGGREGATE (RAP)	TON	881	0	881	
19	2360.609	BITUMINOUS AGGREGATE (CLASS A COARSE)	TON	8,294	118	8,412	
19	2360.609	BITUMINOUS AGGREGATE (CLASS A FINE)	TON	5,089	79	5,168	
19	2360.609	BITUMINOUS (PRODUCE, HAUL, & LAY)	TON	28,791	416	29,207	
25	2411.507	CONCRETE END POST	EACH	8		8	
21	2501.511	18" C.S. PIPE CULVERT	LIN. FT.	482		482	
21	2501.511	12" RC PIPE CULVERT CL-III	LIN. FT.	64		64	
21	2501.511	36" RC PIPE CULVERT CL-III	LIN. FT.	144		144	
21	2501.511	48" RC PIPE CULVERT CL-V	LIN. FT.	192		192	
21	2501.515	18" GS PIPE APRON	EACH	22		22	
21	2501.515	12" RC PIPE APRON	EACH	2		2	
21	2501.515	36" RC PIPE APRON	EACH	4		4	
21	2501.515	48" RC PIPE APRON	EACH	2		2	
23	2502.501	4" PRECAST CONCRETE HEADWALL	EACH	55		55	
23	2502.521	4" T.P. PIPE DRAIN	LIN. FT.	1,192		1,192	
22	2502.521	6" T.P. PIPE DRAIN	LIN. FT.	170		170	
22	2502.521	8" T.P. PIPE DRAIN	LIN. FT.	260		260	
22	2502.521	10" T.P. PIPE DRAIN	LIN. FT.	240		240	
22	2502.521	24" R.C. PIPE DRAIN	LIN. FT.	135		135	
22	2502.541	4" PERFORATED P.E. PIPE DRAIN	LIN. FT.	2,860		2,860	
22	2502.541	6" PERFORATED P.E. PIPE DRAIN	LIN. FT.	1,180		1,180	
22	2502.601	PIPE DRAIN RISER 6" PE	EACH	2		2	
22	2502.601	PIPE DRAIN RISER 12" TP	EACH	2		2	
22	2502.602	CAP EXISTING TILE	EACH	24		24	
23	2502.603	4" PERFORATED P.E. ROAD PIPE DRAIN	LIN. FT.	52,200		52,200	
21	2511.501	RANDOM RIPRAP CL - V	C. Y.	55		55	
25	2554.501	TRAFFIC BARRIER, DESIGN SPECIAL	LIN. FT.	200		200	
25	2554.501	TRAFFIC BARRIER, DESIGN 8338	LIN. FT.	922		922	
25	2554.523	END TREATMENT - ET 2000	EACH	8		8	
25	2554.602	T-BARRIER BRIDGE CONN DES 8318	EACH	8		8	
	2563.613	PORTABLE CHANGEABLE MESSAGE SIGN	UNIT DAY	10		10	

STATEMENT OF ESTIMATED QUANTITIES

PAGE	ITEM No.	ITEM	UNIT	CSAH 10 PARTIC QUANTITY	CR 166 NON-PARTIC QUANTITY	TOTAL EST. QUANTITY	TOTAL FINAL QUANTITY
28	2573.502	SILT FENCE, TYPE HEAVY DUTY	LIN. FT.	100		100	
28	2573.502	SILT FENCE, TYPE MACHINE SLICED	LIN. FT.	200		200	
28	2573.512	TEMPORARY DITCH CHECK, TYPE 2	LIN. FT.	735		735	
28	2573.513	TEMPORARY DITCH CHECK, TYPE 7	C.Y.	20		20	
28	2573.530	STORM DRAIN INLET PROTECTION	EACH	4		4	
28	2573.540	FILTER LOG, TYPE STRAW BIOROLL	LIN. FT.	200		200	
	2573.550	EROSION CONTROL SUPERVISOR	L.S.	1.00		1	
29	2575.501	SEEDING	ACRE	39		39	
29	2575.502	SEED, MIXTURE 150	LBS.	300		300	
29	2575.502	SEED, MIXTURE 270	LBS.	415		415	
29	2575.502	SEED, MIXTURE 280	LBS.	1,414		1,414	
29	2575.511	MULCH MATERIAL TYPE 1	TON	72		72	
29	2575.519	DISC ANCHORING	ACRE	36		36	
29	2575.523	EROSION CONTROL BLANKETS, CATEGORY 1	SQ. YD.	16,756		16,756	
28	2575.523	EROSION CONTROL BLANKETS, CATEGORY 4	SQ. YD.	2,700		2,700	
29	2575.532	COMMERCIAL FERTILIZER ANA 20-10-20	LBS.	10,876		10,876	
29	2575.560	HYDROLIC SOIL STABILIZER TYPE 5	LBS.	6,300		6,300	
38	2580.501	TEMPORARY LANE MARKING	LIN. FT.	4,704	96	4,800	
38	2582.501	PAVEMENT MESSAGE (LEFT ARROW) - PAINT	EACH	2		2	
38	2582.501	PAVEMENT MESSAGE (RIGHT ARROW) - PAINT	EACH	2		2	
38	2582.502	4" SOLID LINE WHITE - PAINT	LIN. FT.	60,640	2,500	63,140	
38	2582.502	4" SOLID LINE YELLOW - PAINT	LIN. FT.	15,455		15,455	
38	2582.502	4" BROKEN LINE YELLOW - PAINT	LIN. FT.	4,793		4,793	
38	2582.502	4" DOUBLE SOLID LINE YELLOW - PAINT	LIN. FT.	7,040	1,250	8,290	
38	2582.502	24" SOLID LINE YELLOW - PAINT	LIN. FT.	160		160	

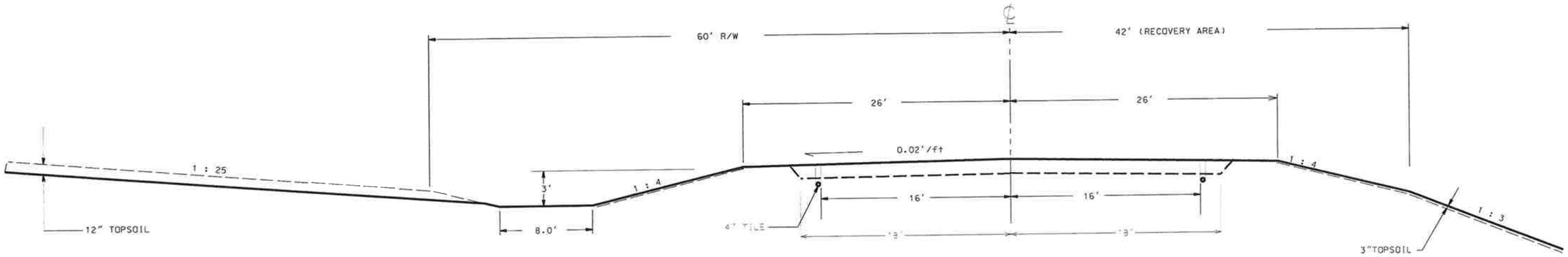
THE FOLLOWING STANDARD PLATES, APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION, SHALL APPLY ON THIS PROJECT.

STANDARD PLATES

PLATE NO.	DESCRIPTION
3000 L	REINFORCED CONCRETE PIPE
3040 F	CORRUGATED METAL PIPE CULVERT
3100 G	CONCRETE APRON FOR REINFORCED CONCRETE PIPE
3123 J	METAL APRON FOR C.S. PIPE
3124 B	METAL APRON CONNECTION
3131 C	PRECAST CONCRETE HEADWALL FOR SUBSURFACE DRAINS
3133 C	RIPRAP AT RCP OUTLETS
3145 F	CONCRETE PIPE TIES (EYE BOLT TIE)
3221 C	CORRUGATED STEEL PIPE COUPLING BAND
8000 I	STANDARD BARRICADES
8318 C	GUARDRAIL ANCHORAGE PLATE FOR BRIDGE AND BCT'S
8338D	W-BEAM GUARDRAIL & END ANCHORAGES

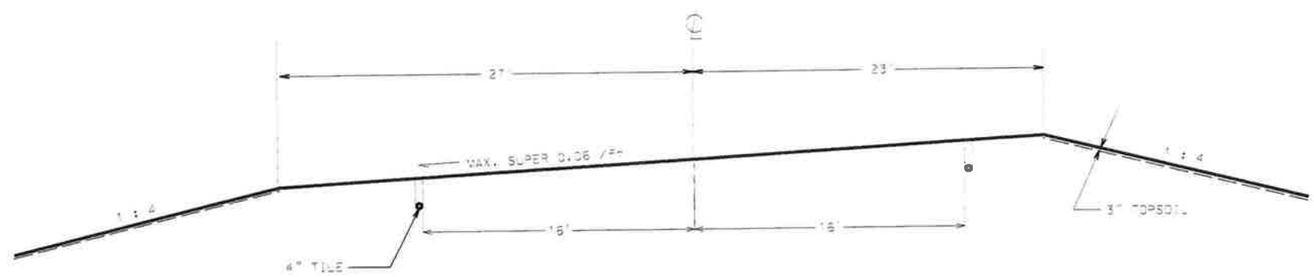
TYPICAL REGRADE SECTION

STA 560+00 TO STA 622+00



SUPER ELEVATED CURVE SECTION

STA 575+00 TO STA 588+67
STA 604+95 TO STA 618+99



GRADING TYPICAL

CERTIFIED BY Alan Forsberg ALAN FORSBERG LIC. NO. 14720 FEB. 19, 2010 PROFESSIONAL ENGINEER

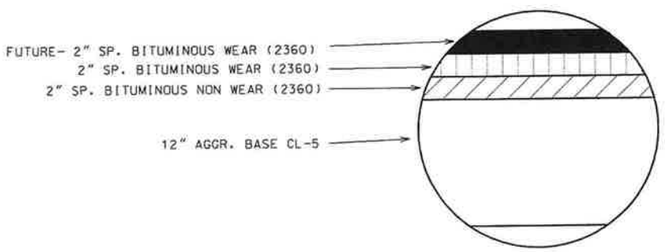
CSAH 10 SAP 07-610-20 SHEET 3 OF 78 SHEETS

P:/CSAH/10/GT-22/TYP G-1.dgn 6/7/2011 2:08:06 PM

CSAH 10 TYPICAL BITUM SURFACING
FOR REGRADE SECTIONS

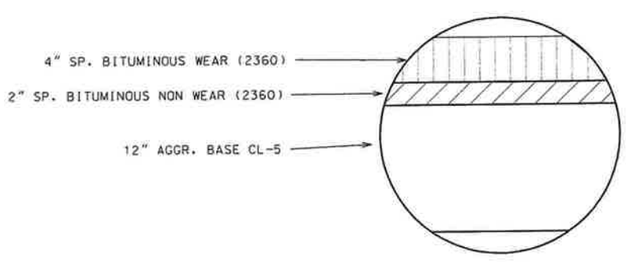
DETAIL "A"

STA 560+00 TO 622+00

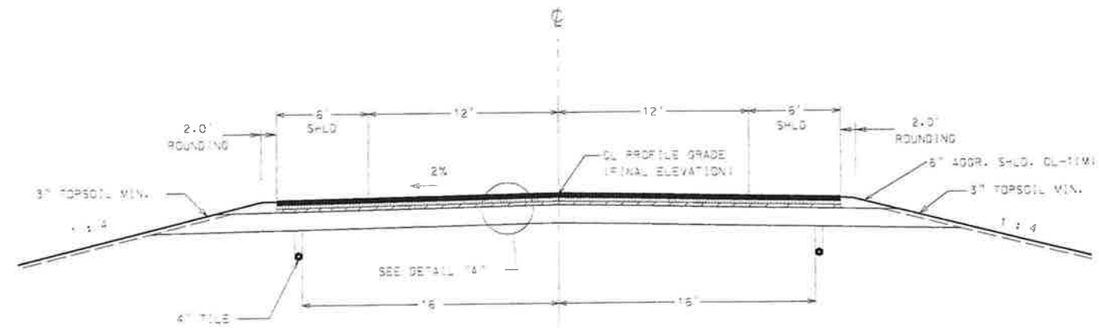


DETAIL "A"

STA 643+00 TO 644+60

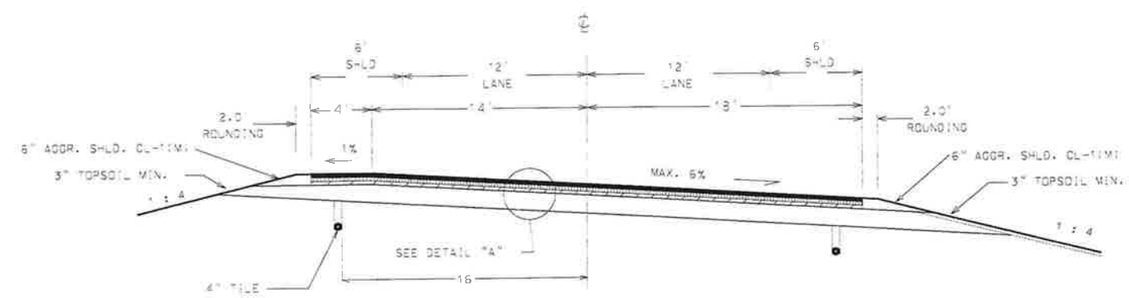


STA 560 + 06 to STA 575 + 00
STA 588 + 67 to STA 604 + 96
STA 618 + 99 to STA 622 + 00
STA 643 + 00 to STA 644 + 60



SUPER ELEVATED CURVE SECTION

STA 575 + 00 to STA 588 + 67
STA 604 + 96 to STA 618 + 99



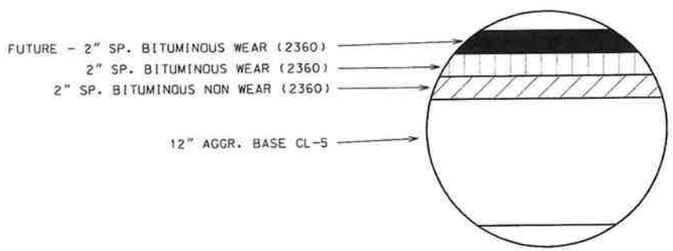
SURFACING SECTIONS

CERTIFIED BY Alan Forsberg ALAN FORSBERG LIC. NO. 14720 PROFESSIONAL ENGINEER MARCH 18, 2011

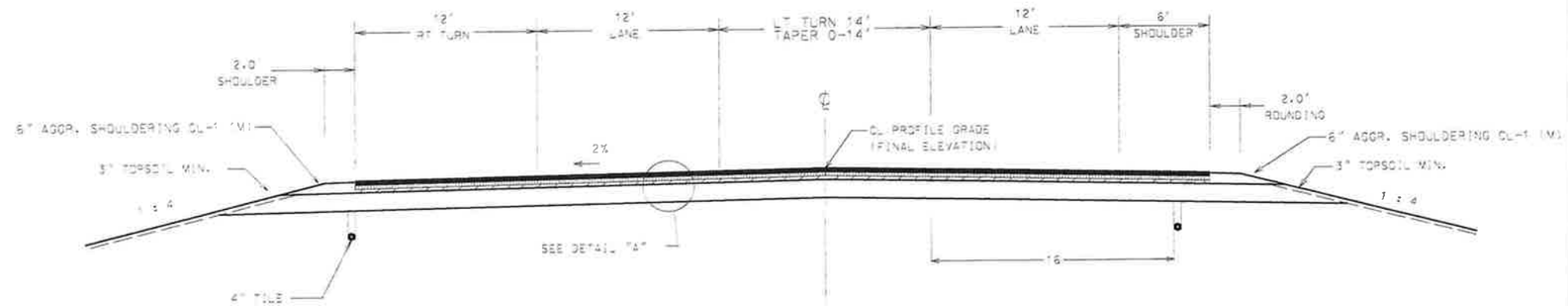
CSAH 10 TYPICAL BITUM SURFACING
FOR REGRADE SECTIONS
WITH TURNLANES

STA 581+30 TO 597+00

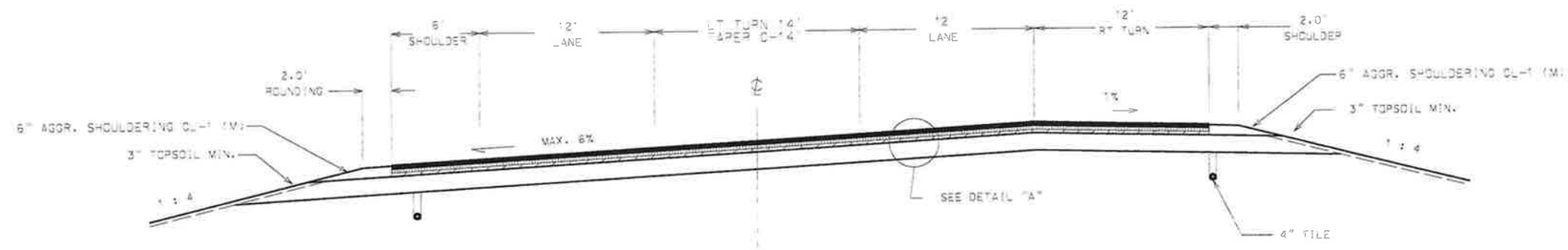
DETAIL "A"



TURNLANE SECTION



SUPER ELEVATED TURNLANE SECTION



SURFACING SECTIONS

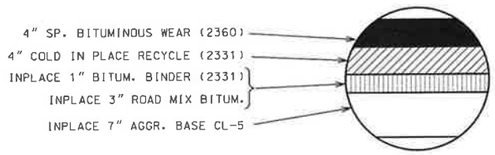
CERTIFIED BY Alan Forsberg ALAN FORSBERG LIC. NO. 14720 PROFESSIONAL ENGINEER MARCH 18, 2011

CSAH 10 SAP 07-610-20 SHEET 5 OF 78 SHEETS

P:/CSAH/10/GT-22/TYP B-3.dgn 4/22/2011 9:50:44 AM

CSAH 10 TYPICAL BITUM. SURFACING FOR COLD IN PLACE SECTIONS

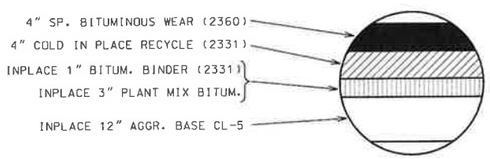
DETAIL "A"



DETAIL "B"

STA 438 + 25 to STA 452 + 45
STA 458 + 60 to STA 480 + 85

(*) 4' AGGR SHLD



DETAIL "B"

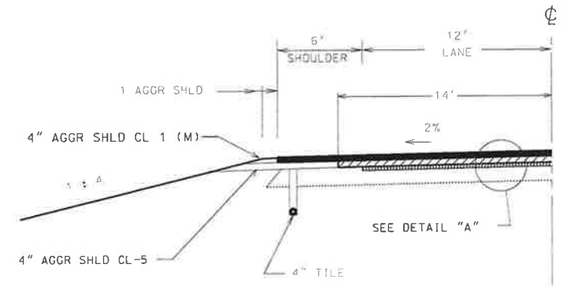
STA 693 + 29 to STA 702 + 85
STA 709 + 75 to STA 721 + 29

(*) 2' AGGR SHLD

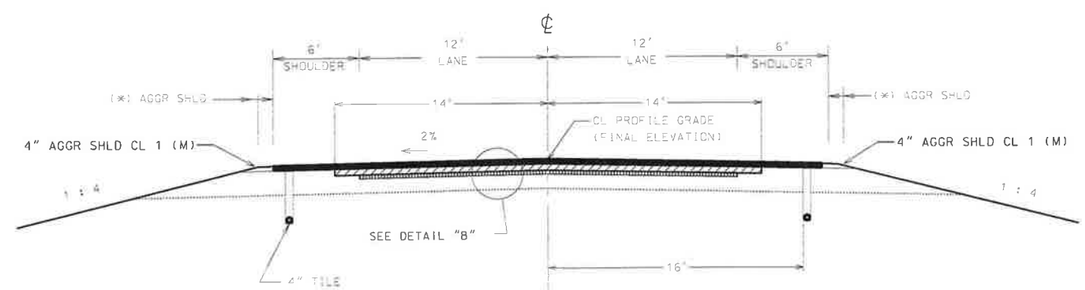
CONSTRUCTION NOTES:

(1) MILL EXISTING 24' WIDE MAT 4" DEEP.
RELAYING COLD IN PLACE RECYCLING AT 28'.

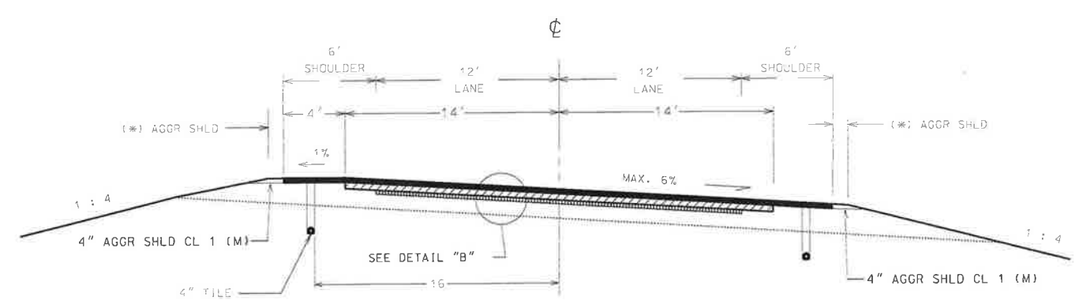
STA 480 + 85 to STA 560 + 06
STA 622 + 00 to STA 643 + 00
STA 644 + 60 to STA 693 + 29
STA 721 + 29 to STA 728 + 00



STA 438 + 25 to STA 452 + 45
STA 458 + 60 to STA 480 + 85
STA 693 + 29 to STA 702 + 85
STA 709 + 75 to STA 721 + 29



SUPER ELEVATED CURVE SECTION

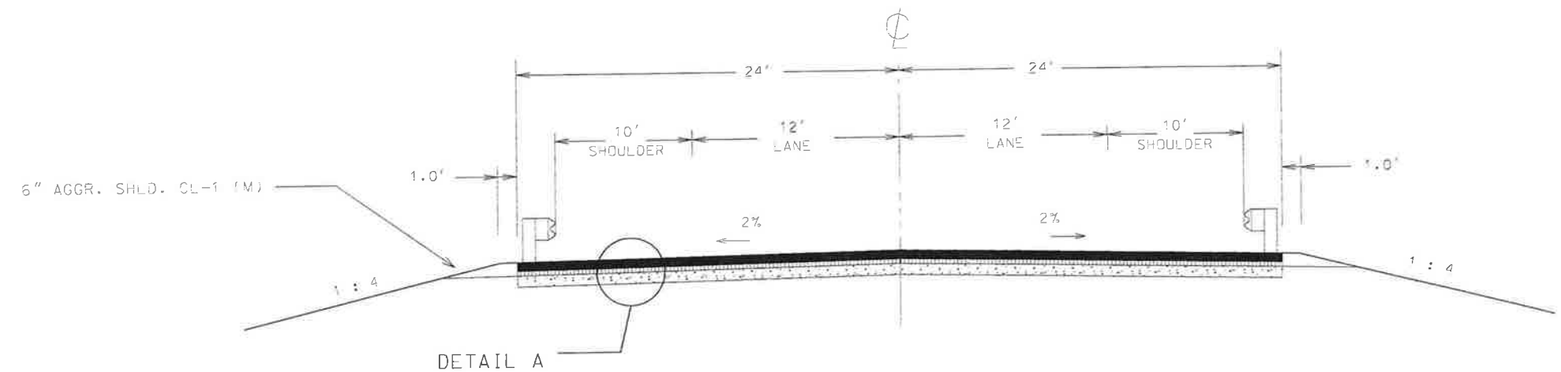


SURFACING SECTIONS

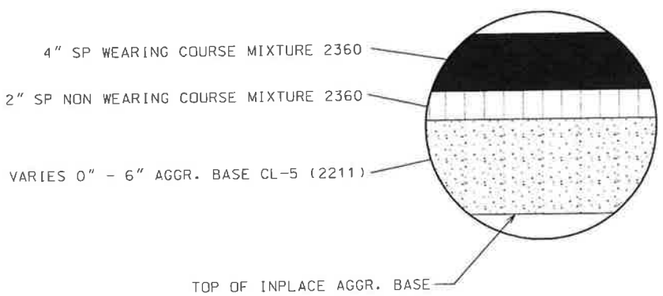
CERTIFIED BY Alan Forsberg ALAN FORSBERG LIC. NO. 14720 PROFESSIONAL ENGINEER MARCH 18, 2011

GUARDRAIL TYPICAL SECTION

BRIDGE # 07533 - GOOD THUNDER
STA 452+45 TO STA 454+60
STA 455+92 TO STA 458+60

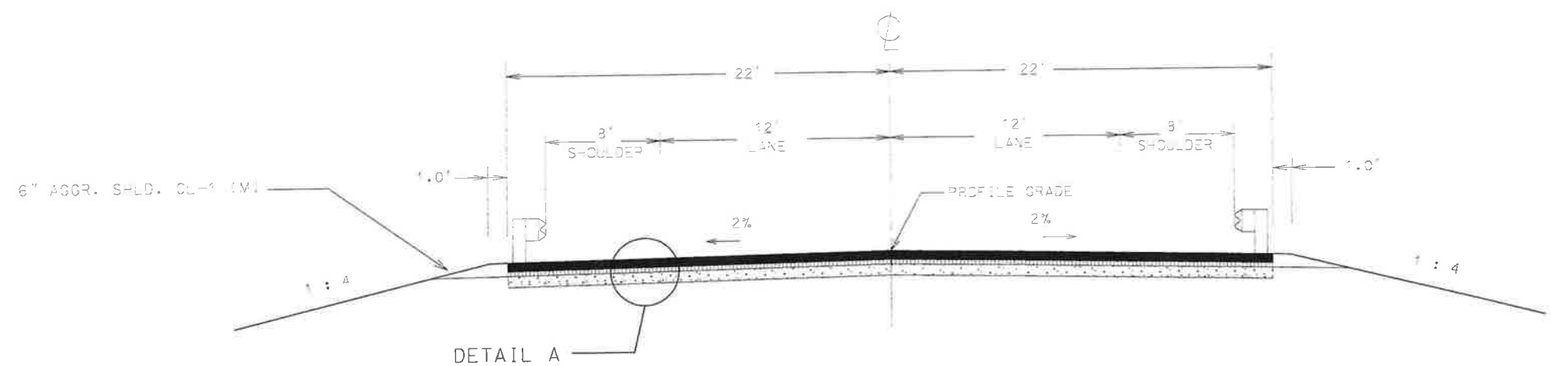


DETAIL "A"



GUARDRAIL TYPICAL SECTION

BRIDGE # 07534 - BEAUFORD
STA 702+85 TO STA 705+55
STA 707+02 TO STA 709+75



TYPICALS

CERTIFIED BY Alan Forsberg ALAN FORSBERG LIC. NO. 14720 MARCH 18, 2011 PROFESSIONAL ENGINEER

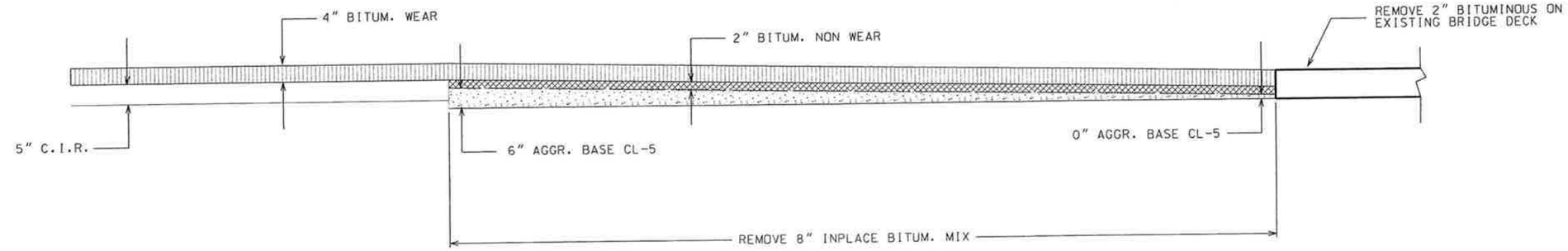
CSAH 10 SAP 07-610-20 SHEET 7 OF 78 SHEETS

P:/CSAH/10/GT-22/TYP B-6.dgn 4/22/2011 9:51:35 AM

TRANSITION TO BRIDGE DECKS

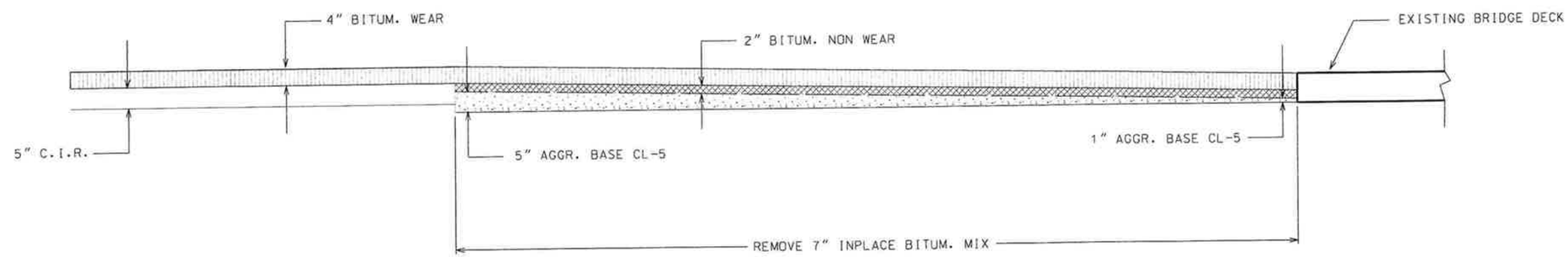
BRIDGE No. 07533 - GOOD THUNDER

STA 452 + 45 TO STA 454 + 60
STA 455 + 92 TO STA 458 + 60



BRIDGE No. 07534 - BEAUFORD

STA 702 + 85 TO STA 705 + 52
STA 707 + 02 TO STA 709 + 75



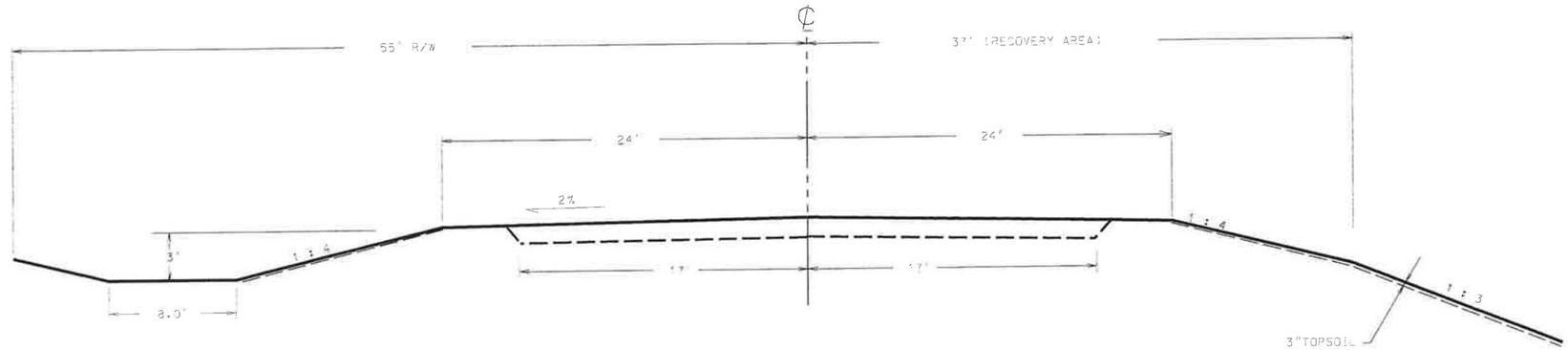
DETAILS

CERTIFIED BY Alan Forsberg ALAN FORSBERG LIC. NO. 14720 PROFESSIONAL ENGINEER MARCH 18, 2011

CSAH 10 SAP 07-610-20 SHEET 8 OF 78 SHEETS

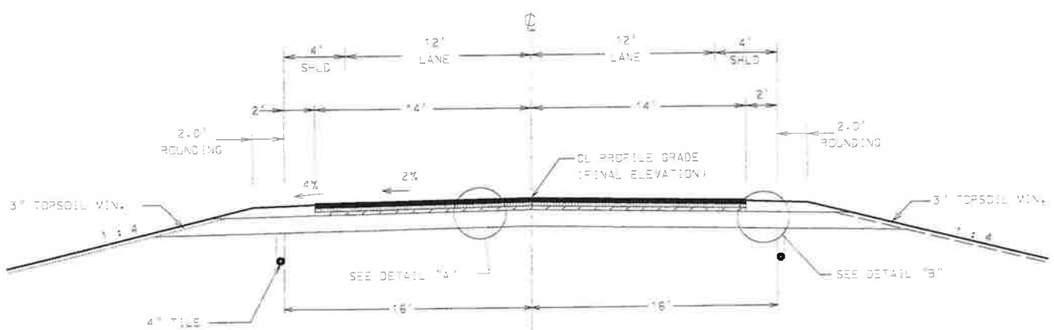
CSAH 39 AND 568 AVE NORTH
GRADING SECTION

STA 0+50 TO STA 5+00 CSAH 39
STA 10+50 TO STA 15+50 568 AVE. NORTH



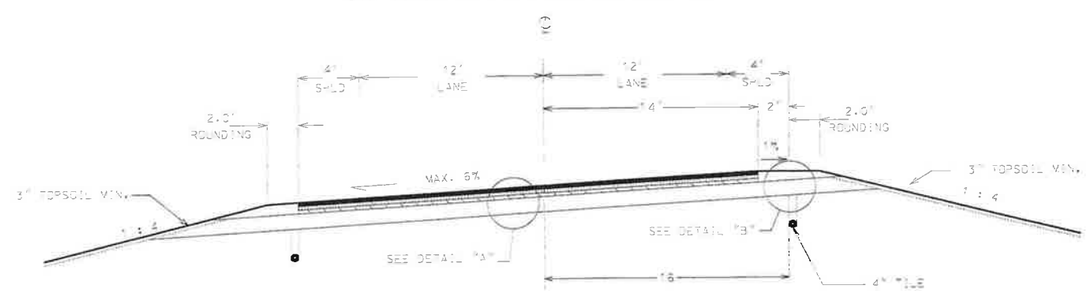
CSAH 39 AND 568 AVE NORTH
SURFACING SECTION

STA 0+50 TO STA 5+00 CSAH 39
STA 10+50 TO STA 15+50 568 AVE. NORTH

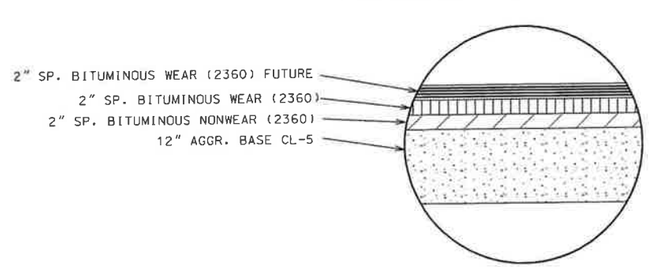


SUPER ELEVATED CURVE SECTION

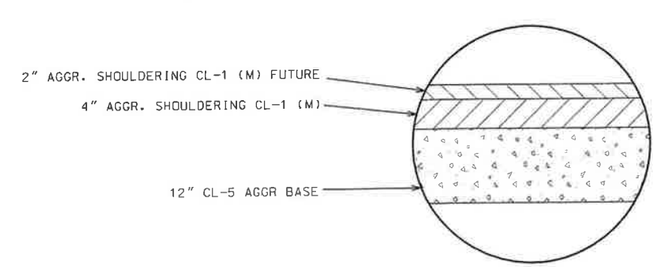
STA 0+50 TO STA 3+60 CSAH 39
STA 10+50 TO STA 14+25 568 AVE. NORTH



DETAIL "A"



DETAIL "B"



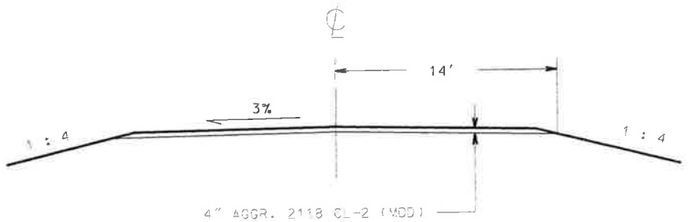
TYPICAL SECTIONS

CERTIFIED BY Alan Forsberg ALAN FORSBERG LIC. NO. 14720 MARCH 18, 2011 PROFESSIONAL ENGINEER

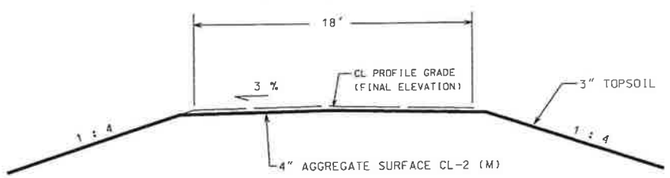
CSAH 10 SAP 07-610-20 SHEET 9 OF 78 SHEETS

P:/CSAH/10/GT-22/TYP B-5.dgn 4/22/2011 9:53:05 AM

TWP RDS SURFACING SECTION

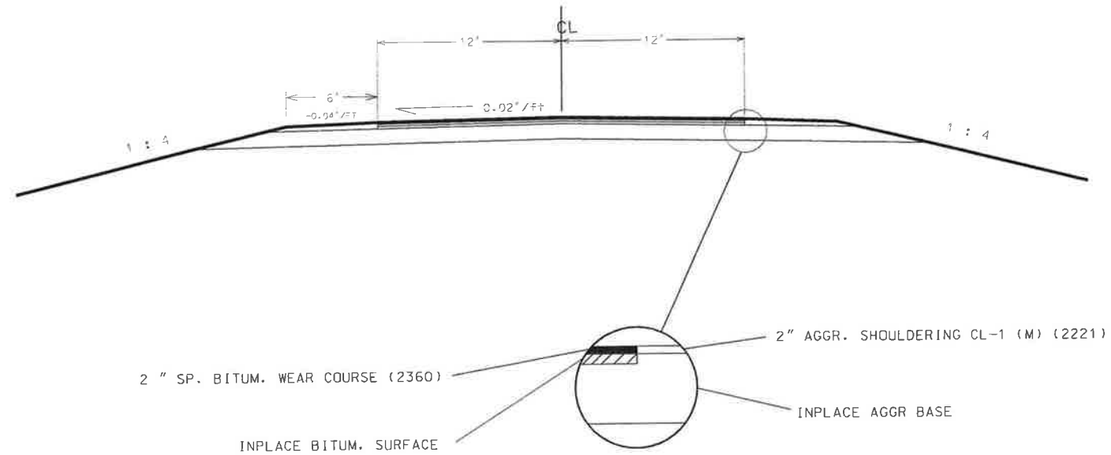


AGGREGATE SURFACING FOR DRIVEWAYS



CR 166 OVERLAY SECTION

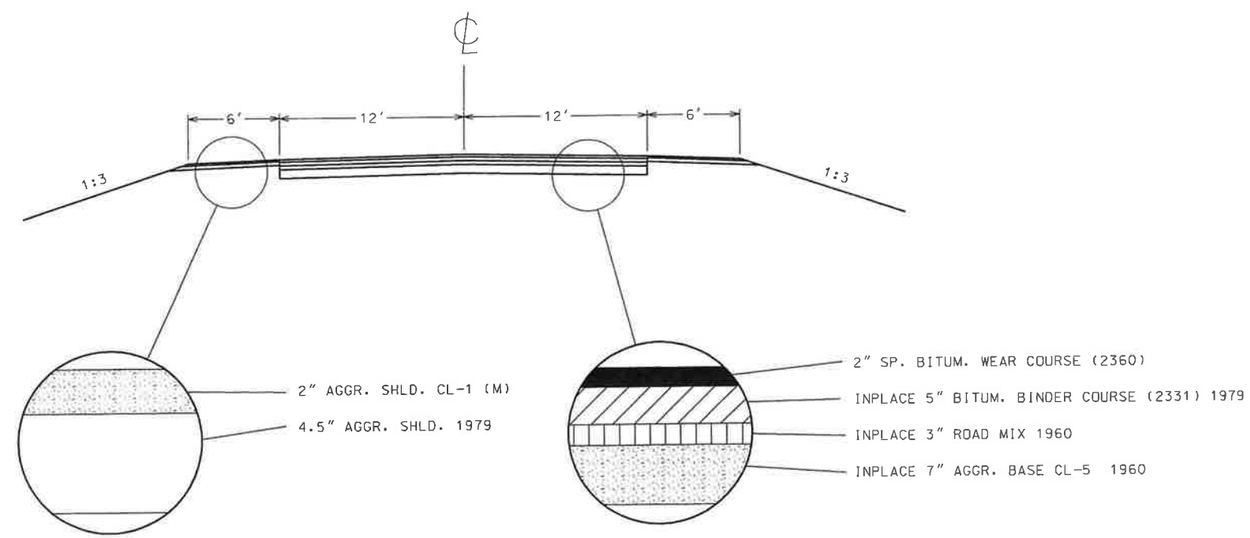
STA 0+76 TO STA 13+80



568 AVE NORTH OVERLAY

(PHASE 2)

STA 15+50 TO STA 25+50



TYPICAL SECTIONS

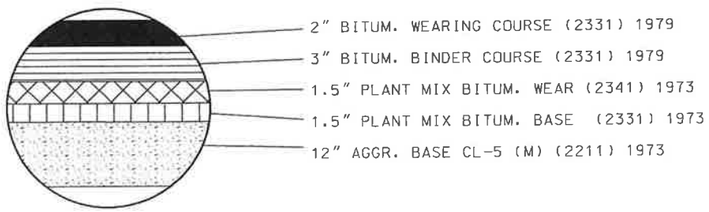
CERTIFIED BY Alan Forsberg ALAN FORSBERG LIC. NO. 14720 PROFESSIONAL ENGINEER MARCH 18, 2011

CSAH 10 SAP 07-610-20 SHEET 10 OF 78 SHEETS

P:/CSAH/10/GT-22/TYP B-4.dgn 4/22/2011 9:53:39 AM

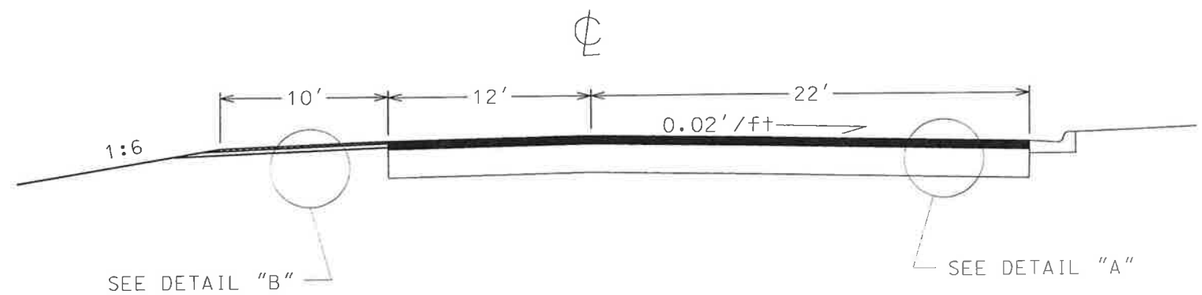
CSAH 10 EXISTING TYPICAL SECTIONS

DETAIL "A"

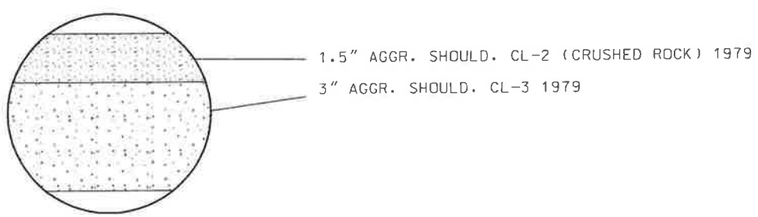


EXISTING C&G TYPICAL SECTION

STA 435 + 12 TO STA 437 + 97

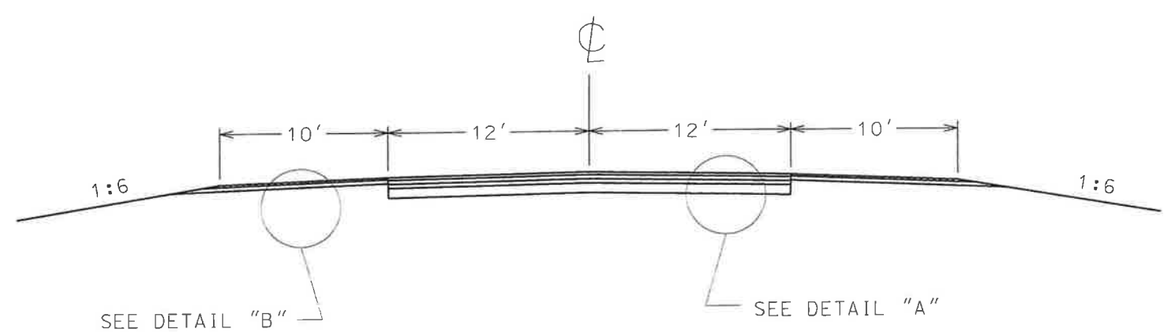


DETAIL "B"



EXISTING TYPICAL SECTION

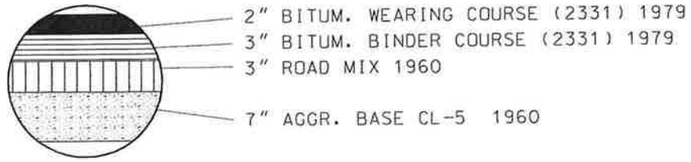
STA 437 + 97 TO STA 454 + 44
STA 455 + 76 TO STA 480 + 85



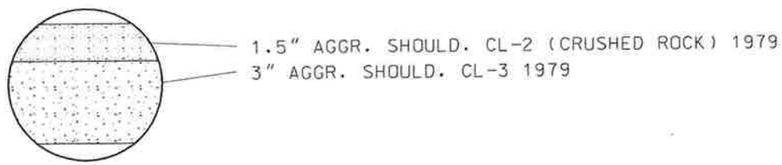
EXISTING TYPICAL SECTIONS

CERTIFIED BY Alan Forsberg PROFESSIONAL ENGINEER REG. NO. 14720 MAR. 18, 2011

DETAIL "A"

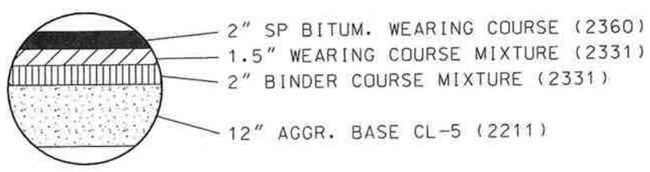


DETAIL "B"



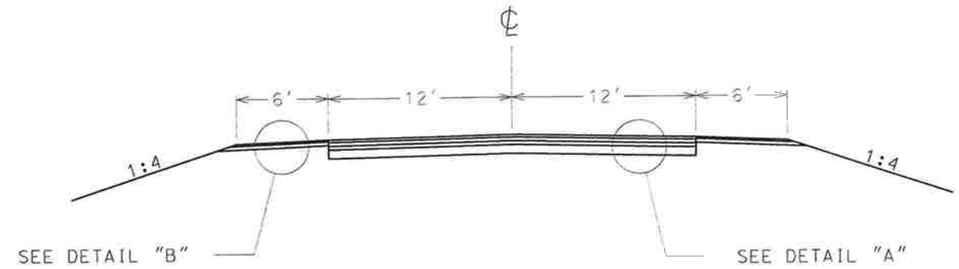
DETAIL "C"

DETAIL "D"

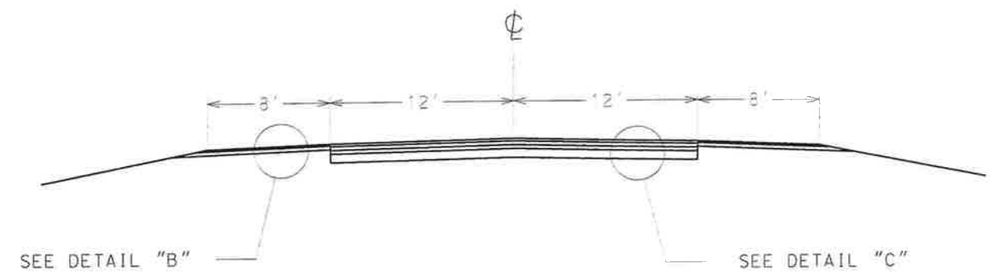


CSAH 10 EXISTING TYPICAL SECTIONS

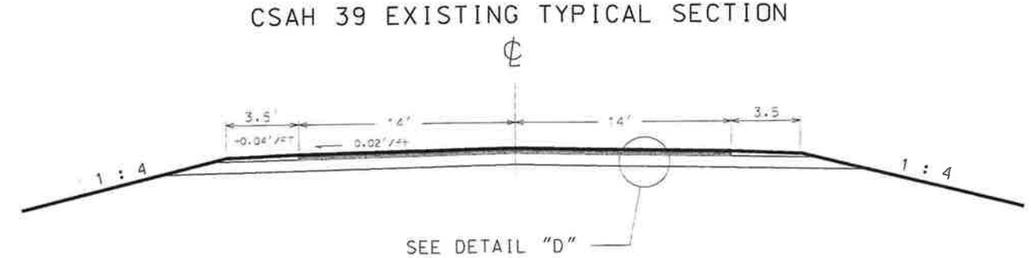
STA 480 + 85 TO STA 693 + 29
STA 721 + 29 TO STA 729 + 29
568TH AVE. NORTH



STA 693 + 29 TO STA 705 + 55
STA 707 + 02 TO STA 72' + 29



CSAH 39 EXISTING TYPICAL SECTION



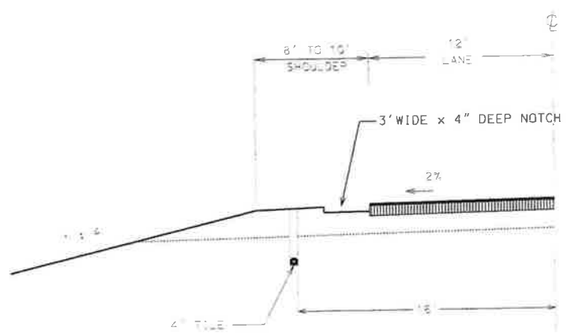
EXISTING TYPICAL SECTIONS

CERTIFIED BY Alan Forsberg PROFESSIONAL ENGINEER REG. NO. 14720 MAR. 18, 2011

2105.603
SHOULDER TRENCHING

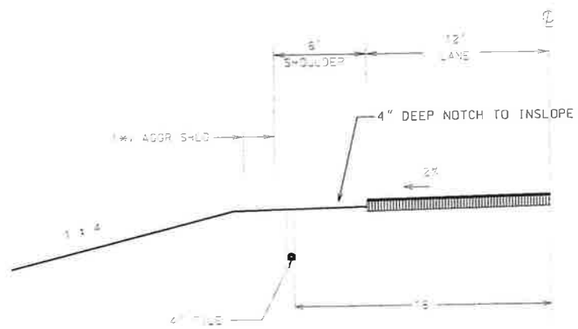
AREA 1

STA 438 + 25 to STA 452 + 45
STA 458 + 60 to STA 480 + 85
STA 693 + 29 to STA 702 + 85
STA 709 + 75 to STA 721 + 29



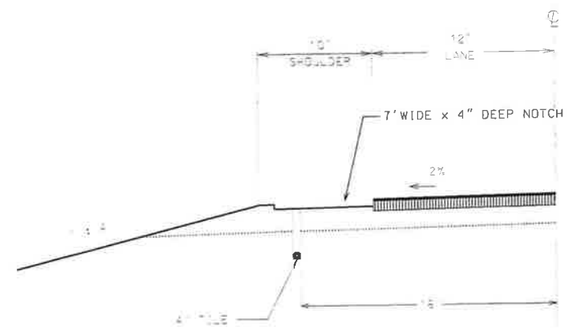
AREA 2

STA 480 + 85 to STA 560 + 06
STA 622 + 00 to STA 643 + 00
STA 644 + 60 to STA 693 + 29
STA 721 + 29 to STA 728 + 00



AREA 3

STA 435 + 50 TO STA 438 + 25 LT



CONSTRUCTION NOTES FOR SHOULDER TRENCHING

(1) BID ITEM 2105.603 SHOULDER TRENCHING SHALL INCLUDE

IN AREA 1
NOTCHING SHOULDER 3.0' WIDE AND 4" DEEP THEN RESHAPING AND COMPACTING SHOULDER AFTER COLD IN PLACE RECYCLING.

IN AREA 2
NOTCHING ENTIRE SHOULDER 4" DEEP TO MAKE ROOM FOR COLD INPLACE RECYCLING AND 4" OF AGGREGATE SHOULDER CL-5.

IN AREA 3
NOTCH 7' WIDE AND 4" DEEP TO MAKE ROOM FOR 6' BITUMINOUS SHOULDER, THEN RESHAPING AND COMPACTING SHOULDER AFTER BITUMINOUS SHOULDER.

(2) MILL EXISTING 24' WIDE MAT 4" DEEP.
RELAYING COLD IN PLACE RECYCLING AT 28'.

(3) EXCESS MATERIAL FROM NOTCHING AND 4" ROAD TILE TRENCH SHALL BE LEVELED OUT ON INSLOPE INCLUDED IN BID ITEM SHOULDER TRENCHING.

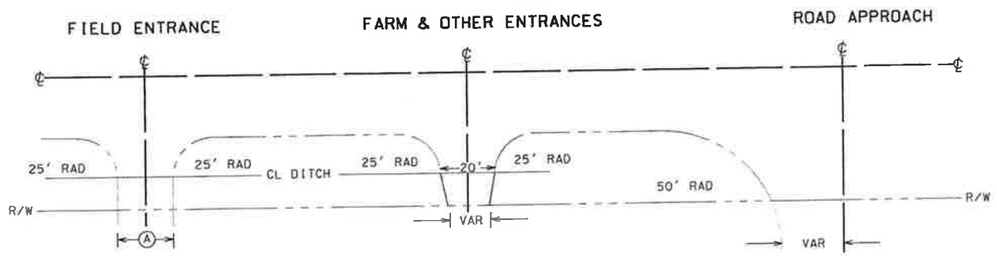
SHOULDER TRENCHING

STATION					LOCATION	AREA	LIN. FT.
STA	438 + 25	TO	452 + 45		RT	1	1,420
STA	458 + 60	TO	480 + 85		RT	1	2,225
STA	480 + 85	TO	560 + 0		RT	2	7,915
STA	622 + 0	TO	643 + 0		RT	2	2,100
STA	644 + 60	TO	693 + 29		RT	2	4,869
STA	693 + 29	TO	702 + 85		RT	1	956
STA	709 + 75	TO	721 + 29		RT	1	1,154
STA	721 + 29	TO	728 + 80		RT	2	751
STA	435 + 50	TO	438 + 25		LT	3	275
STA	438 + 25	TO	452 + 45		LT	1	1,420
STA	458 + 60	TO	480 + 85		LT	1	2,225
STA	480 + 85	TO	560 + 0		LT	2	7,915
STA	622 + 0	TO	643 + 0		LT	2	2,100
STA	644 + 60	TO	693 + 29		LT	2	4,869
STA	693 + 29	TO	702 + 85		LT	1	956
STA	709 + 75	TO	721 + 29		LT	1	1,154
STA	721 + 29	TO	728 + 80		LT	2	751
					TOTALS		43,055

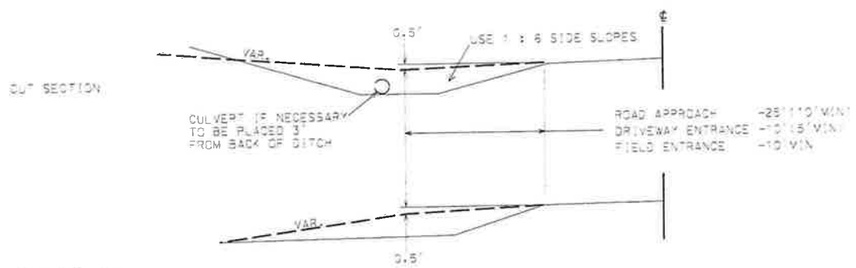
TRENCH EXCAVATION DETAILS

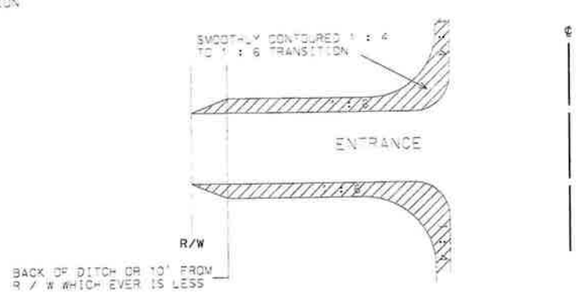
CERTIFIED BY Alan Forsberg ALAN FORSBERG LIC. NO. 14720 MARCH 31, 2011 PROFESSIONAL ENGINEER

SUBGRADE APPROACHES AND ENTRANCES DETAIL



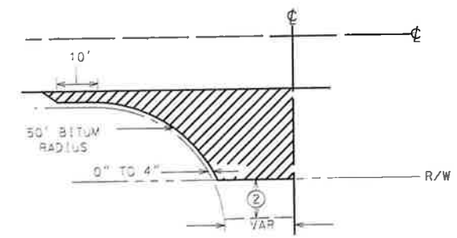
(A) 20' FOR SINGLE F.E.
28' FOR DOUBLE F.E.





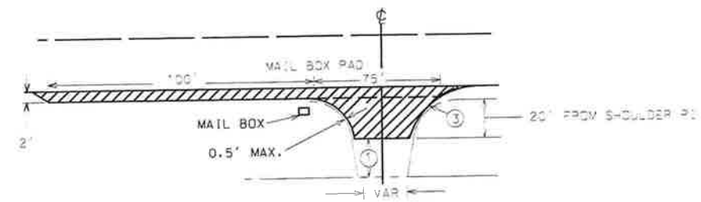
BITUMINOUS APPROACHES AND ENTRANCES DETAIL

ROAD APPROACH



MINIMUM DEPTH 6" OF BIT

FARM & OTHER ENTRANCES



MINIMUM DEPTH 6" OF BIT

CHECK FOR MAIL BOX LOCATION WITH LANDOWNERS

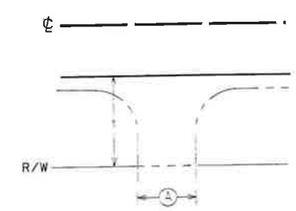
(1) FINISH WITH AGGR. MATERIAL FROM EDGE OF BITUM. TO R/W LINE

(2) FINISH WITH AGGR. MATERIAL MIN. OF 10'

(3) BITUM. RADIUS TO BE STAKED IN FIELD BY ENGINEER - 25' MIN (FOR FARM D.W. CONSIDER 30' TO 40' MAX)

CONTRACTOR WILL BE REQUIRED TO HAND FINISH SHOULDERS ON ALL APPROACHES AND ENTRANCES AS DIRECTED BY ENGINEER.

FIELD ENTRANCE



(A) 20' FOR SINGLE F.E.
28' FOR DOUBLE F.E.

DETAILS FOR DW'S
& APPROACHES

CERTIFIED BY Alan Forsberg ALAN FORSBERG LIC. NO. 14720 PROFESSIONAL ENGINEER MAR. 18, 2011

2101 CLEAR & GRUBBING

STATION	LOCATION	CLEAR TREE	GRUB TREE
MAINLINE			
STA 643 + 0 TO 645 + 0	LT	27	27
	TOTALS	**27**	**27**

SAW AND MILL BITUMINOUS

STATION TO STATION		LENGTH	AVE. WIDTH	AVE. DEPTH	REMOVE BITUM SQ. FT.	SAW BITUM FULL DEPTH LIN FT
CSAH 10						
STA 452 + 45						24
STA 452 + 45 TO 454 + 60	BRIDGE TAPERS	215	29	8"	6,550	
STA 454 + 60 TO 455 + 92	BRIDGE DECK	132	44	2"	5,800	
STA 455 + 92 TO 458 + 60	BRIDGE TAPERS	268	32	8"	8,576	
STA 458 + 60						24
STA 560 + 6	TIE IN STATION			8"		24
STA 560 + 6 TO 580 + 42	REGRADE SECTION	2036	24	8"	49,101	
STA 580 + 42 TO 588 + 92	REGRADE SECTION	850	50	8"	41,863	
STA 588 + 92 TO 594 + 49	REGRADE SECTION	557	28	8"	15,795	
STA 614 + 90 TO 622 + 0	REGRADE SECTION	710	24	8"	16,580	
STA 622 + 0				8"		24
STA 643 + 0						28
STA 643 + 0 TO 644 + 60	PIPE REGRADE SECTION	160	28	8"	4,480	
STA 644 + 60						28
STA 702 + 85						24
STA 702 + 85 TO 705 + 55	BRIDGE TAPERS	270	35	8"	9,450	
STA 707 + 0 TO 709 + 75	BRIDGE TAPERS	275	36	8"	9,900	
STA 709 + 75						24
4 DRIVEWAYS @ 650	ESTIMATED SQ. FT. EACH			8"	2,600	
2 INTERSECTIONS @ 1000	ESTIMATED SQ. FT. EACH			8"	2,000	
CSAH 39						
STA 2 + 20 TO 5 + 0	OBLITERATE	280	28	8"	5,400	
STA 5 + 0	TIE IN STATION			8"		28
568th AVE.						
STA 15 + 50	CL			8"		24
OBLITERATE 2						
STA 30 + 12	CL			8"		104
STA 30 + 12 TO 47 + 0	OBLITERATE 2	1688	24	8"	39,850	
				TOTAL	**217,945**	**356**

P:\CSAH\10\GT-22\Excel\[Bitum-remove.XLS]A

BALANCE 1	Topsoil Subcut Exc	Salvage Topsoil Exc	Common Exc	Common Borrow Exc	Embankment
CSAH 10 (Sta 559 to 624)	6,117	7,527	24,179	9,970	29,115
CSAH 10 (Sta 643 to 645)			538		2,102
CSAH 39			1,073		2,926
568 AVE. NORTH			2,416		1,147
OBLITERATE 1			3,305		766
OBLITERATE 2			4,012		1,664
TOTALS	6,117	7,527	35,523	9,970	37,720
(TOPSOIL SUBCUT +COMMON + COMMON BORROW) / EMBANKMENT = BALANCE				1.37 %	

Excavation Summary	Common Exc CU. YD.	Common Borrow Exc CU. YD.	Topsoil Salvage Exc CU. YD.
Topsoil Subcut Balance 1	6,117		
Salvage Topsoil Balance 1			7,527
Common Exc Balance 1	35,523		
Common Borrow Balance 1		9,970	
CSAH 12 TOTALS	**41,640**	**9,970**	**7,527**

SUBSOILING	ACRE
CSAH 10	
STA 576+00 TO 591+00 LT	5.3
OBLIT 2	
STA 30+20 TO 45+75	2.9
TOTALS	8

CONSTRUCTION NOTES:

ALL UTILITY POLES & OTHER UNYIELDING OBJECTS SHALL
BE REMOVED AND RELOCATED OUTSIDE RECOVERY AREA.

2105 COMMON EXCAVATION

MATERIAL FROM THE TOP 1.0' OF THE NATURAL TOPSOIL SHALL
NOT BE USED IN THE UPPER 2.0' OF THE SUBGRADE.
EXCESS TOPSOIL SHALL BE DESPOSED OF ON INSLOPES OF ROADBED

SUBCUT 1.0' MIN BELOW PROFILE GRADE AS SHOWN ON X-SECTIONS,
BACKFILL WITH SELECT GRADING MATERIAL.
INCLUDED IN COMMON EXCAVATION.

IN EMBANKMENT AREAS STA 589 TO STA 616 STRIP 1.5' TOPSOIL SUBCUT AS SHOWN ON X-SECTIONS.
PAID FOR AS COMMON EXC

3" OF TOPSOIL WILL BE REQUIRED ON ALL DISTURBED AREAS EXCEPT
SALVAGED TOPSOIL AREAS & DITCH BOTTOMS.
STOCKPILING & PLACEMENT OF TOPSOIL SHALL BE INCIDENTAL TO COMMON EXC.

2105 SALVAGED TOPSOIL (EV)

STA 576 TO STA 588 STRIP TOPSOIL FROM 20' RT TO LT CONSTRUCTION LIMIT,
TOPSOIL FOR CULTIVATED AREAS ARE CALCULATED AT 12" DEEP
FOR ESTIMATING PURPOSES. ALL DARK SOILS SHALL BE SALVAGED.
THE ENGINEER WILL DETERMINE THE ACTUAL LIMITS BY FIELD
MEASUREMENTS DURING CONSTRUCTION AS TRUE ELEVATIONS ARE DISCLOSED.

2105 SALVAGED AGGR. (EV)
STOCKPILING & PLACEMENT OF SALVAGE AGGR. WILL BE INCIDENTAL TO 2105.533 SALVAGED AGGR. (EV)
SALVAGE AGGREGATE SHALL BE USED FOR PIPE BEDDING, ACCESS FOR LOCAL RESIDENTS
ANY REMAINDER STOCKPILE SHALL BE REMOVE BY BLUE EARTH COUNTY MAINTENANCE FORCES

SALVAGED AGGREGATE

STATION TO STATION	LENGTH	WIDTH	AVE. DEPTH INCH	SALV AGGR CU YDS
STA 560 + 0 TO 580 + 0 RT	2075	36	7	1,614
STA 580 + 50 TO 589 + 0 RT	1025	54	7	1,196
STA 589 + 0 TO 594 + 0 LT	675	36	7	525
STA 30 + 0 TO 622 + 0 OBLIERATE 2	2360	36	7	1,836
STA 643 + 0 TO 644 + 60	160	36	7	124
STA 2 + 50 TO 5 + 0 CSAH 39	180	36	7	140
2 INTERSECTIONS @ 60 ESTIMATED CU.YDS. EACH			7	120
			TOTAL	**5,555**

EXCAVATION QUANTITIES

6/8/11 10:54 AM
P:\CSAH\10\GT to 22\Excel\[Dirt-Balance.xls]Summary

CERTIFIED BY Alan Forsberg REG. NO. 14720 6/8/11
ALAN FORSBERG PROFESSIONAL ENGINEER

CSAH 39
STA 586+00 RT

	Common C.Y.	EMB C.Y.
0+50.00	0	0
1+00.00	30	340
2+00.00	24	411
3+00.00	115	732
3+59.82	261	737
4+00.00	238	303
5+00.00	338	329
6+00.00	67	74
	1,073	2,926

OBLITERATE 1
STA 580+00 TO 585+00 RT

	Common C.Y.	EMB C.Y.
20+00.00	0	0
21+00.00	343	80
22+00.00	372	106
23+00.00	533	122
24+00.00	746	110
25+00.00	707	102
26+00.00	431	126
26+70.00	173	120
	3,305	766

568 AVE. NORTH
STA 5920+23 LT

	Common C.Y.	EMB C.Y.
11+00.00	148	68
12+00.00	519	335
13+00.00	760	342
14+00.00	626	171
15+00.00	306	178
15+60.00	57	53
16+00.00	0	0
	2,416	1,147

OBLITERATE 2
STA 615+00 LT

	Common C.Y.	EMB C.Y.
30+00.00	0	0
31+00.00	43	88
32+00.00	50	232
33+00.00	18	237
34+00.00	39	152
35+00.00	55	112
36+00.00	50	173
37+00.00	62	243
38+00.00	245	163
39+00.00	453	62
40+00.00	475	33
41+00.00	478	19
42+00.00	598	15
43+00.00	639	12
44+00.00	492	31
45+00.00	315	92
46+00.00	0	0
	4,012	1,664

CSAH 10 (Sta 559 to 624)

Sta	Topsoil Subcut C.Y.	Topsoil Salvage C.Y.	Common C.Y.	Common Borrow	EMB C.Y.
559+00.00	0	0	0	0	0
560+00.00	0	0	192	0	88
561+00.00	0	0	329	0	186
562+00.00	0	0	197	0	225
563+00.00	0	0	124	0	263
564+00.00	0	0	119	0	301
565+00.00	0	0	98	0	365
566+00.00	0	0	76	0	478
567+00.00	0	0	66	0	621
568+00.00	0	0	82	0	674
569+00.00	0	0	109	0	554
570+00.00	0	0	197	0	355
571+00.00	0	0	307	0	260
572+00.00	0	0	394	0	253
573+00.00	0	0	363	0	263
574+00.00	0	0	275	0	290
575+00.00	0	0	339	0	258
576+00.00	31	0	392	0	266
577+00.00	31	93	461	13	306
578+00.00	0	252	672	89	290
579+00.00	0	377	893	209	262
580+00.00	0	469	867	320	207
581+00.00	0	522	785	404	175
582+00.00	0	572	951	509	174
583+00.00	0	622	1,047	646	187
584+00.00	0	669	1,012	787	205
585+00.00	0	740	1,046	996	218
586+00.00	0	815	1,046	1,393	269
587+00.00	0	876	1,242	1,804	356
588+00.00	0	861	1,216	1,713	379
589+00.00	31	534	863	913	615
590+00.00	144	125	603	174	1,223
591+00.00	228	0	416	0	1.386
592+00.00	228	0	302	0	945
593+00.00	228	0	254	0	601
594+00.00	228	0	263	0	558
595+00.00	228	0	143	0	770
596+00.00	228	0	83	0	865
597+00.00	228	0	170	0	642
598+00.00	228	0	218	0	492
599+00.00	228	0	208	0	449
600+00.00	228	0	200	0	404
601+00.00	228	0	167	0	436
602+00.00	228	0	120	0	529
603+00.00	228	0	58	0	675

CSAH 10 (Sta 559 to 624)

Sta	Topsoil Subcut C.Y.	Topsoil Salvage C.Y.	Common C.Y.	Common Borrow	EMB C.Y.
604+00.00	228	0	52	0	743
605+00.00	228	0	83	0	743
606+00.00	228	0	91	0	796
607+00.00	228	0	95	0	836
608+00.00	228	0	124	0	824
609+00.00	228	0	135	0	863
610+00.00	228	0	161	0	856
611+00.00	228	0	290	0	629
612+00.00	228	0	482	0	352
613+00.00	228	0	596	0	236
614+00.00	228	0	733	0	299
615+00.00	228	0	709	0	449
616+00.00	147	0	459	0	450
617+00.00	33	0	298	0	299
618+00.00	0	0	190	0	241
619+00.00	0	0	105	0	312
620+00.00	0	0	73	0	352
621+00.00	0	0	145	0	271
622+00.00	0	0	250	0	174
623+00.00	0	0	143	0	72
624+00.00	0	0	0	0	0
	6,117	7,527	24,179	9,970	29,115

CSAH 10 (Sta 643 to 645)

Sta	Topsoil Subcut C.Y.	Topsoil Salvage C.Y.	Common C.Y.	Common Borrow	EMB C.Y.
643+00.00	0	0	118	0	77
643+20.00	0	0	46	0	33
643+40.00	0	0	43	0	134
643+60.00	0	0	42	0	353
643+80.00	0	0	43	0	622
644+00.00	0	0	44	0	490
644+60.00	0	0	147	0	361
645+00.00	0	0	55	0	32
	0	0	538	0	2,102

EXCAVATION QUANTITIES

P:\CSAH\10\GT-22\Excel\[Dirt-Balance.xls]Balance

CERTIFIED BY Alan Forsberg REG. NO. 14726 06/07/11
ALAN FORSBERG PROFESSIONAL ENGINEER

AGGREGATE SHLD. AND SURF.

LOCATION	LENGTH FEET	WIDTH FEET	DEPTH INCHES	AGGR. SHLD CL-1(M) TON	AGGR. SHLD CL-5 TON	AGGR. SURF. CL-2 (M) TON
CSAH 10						
RIGHT SIDE						
STA 438 + 26 TO STA 452 + 40	1,414	4	4	132		
STA 452 + 45 TO STA 454 + 60	215	1	6	8		
STA 455 + 92 TO STA 458 + 60	268	1	6	9		
STA 458 + 60 TO STA 480 + 43	2,183	4	4	204		
STA 480 + 43 TO STA 560 + 0	7,957	1	4	186		
STA 560 + 0 TO STA 622 + 0	6,200	2	4	289		
STA 622 + 0 TO STA 643 + 0	2,100	1	4	49		
STA 643 + 0 TO STA 644 + 60	160	2	6	11		
STA 644 + 60 TO STA 693 + 0	4,840	1	4	113		
STA 693 + 0 TO STA 702 + 85	985	2	4	46		
STA 702 + 85 TO STA 705 + 55	270	1	6	9		
STA 707 + 2 TO STA 708 + 45	143	1	6	5		
STA 708 + 45 TO STA 720 + 0	1,155	2	4	54		
STA 720 + 0 TO STA 728 + 50	850	1	4	20		
LEFT SIDE						
STA 435 + 50 TO STA 453 + 51	1,801	4	4	168		
STA 453 + 51 TO STA 454 + 72	121	1	6	4		
STA 456 + 0 TO STA 458 + 60	260	1	6	9		
STA 458 + 60 TO STA 480 + 43	2,183	4	4	204		
STA 480 + 43 TO STA 560 + 0	7,957	1	4	186		
STA 560 + 0 TO STA 622 + 0	6,200	2	4	289		
STA 622 + 0 TO STA 643 + 0	2,100	1	4	49		
STA 643 + 0 TO STA 644 + 60	160	2	6	11		
STA 644 + 60 TO STA 693 + 0	4,840	1	4	113		
STA 693 + 0 TO STA 704 + 10	1,110	2	4	52		
STA 704 + 10 TO STA 705 + 55	145	1	6	5		
STA 707 + 2 TO STA 709 + 75	273	1	6	10		
STA 709 + 75 TO STA 720 + 0	1,025	2	4	48		
STA 720 + 0 TO STA 728 + 50	850	1	4	20		
26 FIELD ENTRANCES @ 15 TONS				390		
23 DRIVEWAYS @ 10 TONS						230
6 INTERSECTIONS @ 30 TONS						180
CSAH 39						
STA 0 + 94 TO STA 3 + 60 RT	266	1	4	6		
STA 3 + 60 TO STA 5 + 0 RT	140	4	4	13		
STA 0 + 94 TO STA 5 + 0 LT	406	4	4	38		
568th AVE.						
STA 10 + 21 TO STA 14 + 25 RT	404	1	4	9		
STA 14 + 25 TO STA 15 + 50 RT	125	4	4	12		
STA 10 + 21 TO STA 15 + 50 LT	529	4	4	49		
STA 11 + 60 DOYEN DW LT	125	15	4			44
STA 13 + 80 DOYEN DW LT	125	12	4			35
STA 25 + 50 SOHRE DW LT	125	12	4			35
AGGR SHOULDER CL 5						
STA 480 + 50 TO STA 560 + 0 RT	7,950	5	4		928	
STA 622 + 0 TO STA 643 + 0 RT	2,100	5	4		245	
STA 644 + 60 TO STA 693 + 0 RT	4,840	5	4		565	
STA 720 + 0 TO STA 728 + 50 RT	850	5	4		99	
STA 480 + 50 TO STA 560 + 0 LT	7,950	5	4		928	
STA 622 + 0 TO STA 643 + 0 LT	2,100	5	4		245	
STA 644 + 60 TO STA 693 + 0 LT	4,840	5	4		565	
STA 720 + 0 TO STA 728 + 50 LT	850	5	4		99	
			CSAH 10 TOTAL	2,820	3,674	524
CR 166						
STA 0 + 76 STA 13 + 86 RT	1,310	4	2	61		
STA 0 + 76 STA 3 + 66 LT	290	1	2	3		
STA 3 + 66 STA 8 + 62 LT	496	4	2	23		
STA 8 + 62 STA 10 + 32 LT	170	1	2	2		
STA 10 + 32 STA 13 + 86 LT	354	4	2	17		
			CR 166 TOTAL	106		0
			AGGREGATE TOTALS	2,926	3,674	524

AGGREGATE BASE CL-5

LOCATION	LENGTH FEET	WIDTH FEET	AREA SQ. FT.	DEPTH INCHES	AGGR. BASE CL-5 TON
CSAH 10					
STA 452 + 45 TO STA 454 + 60	215	56.1	12,065	3	211
STA 455 + 92 TO STA 458 + 60	268	59.4	15,906	3	278
STA 560 + 6 TO STA 575 + 0	1,494	48.4	72,318	12	5,062
STA 575 + 0 TO STA 581 + 25	625	47.5	29,685	12	2,078
STA 581 + 25 TO STA 586 + 0	475	62.0	29,440	12	2,061
STA 586 + 0 TO STA 588 + 67	267	60.6	16,181	12	1,133
STA 588 + 67 TO STA 592 + 23	356	62.4	22,215	12	1,555
STA 592 + 23 TO STA 597 + 4	481	60.8	29,240	12	2,047
STA 597 + 4 TO STA 604 + 95	791	48.5	38,350	12	2,685
STA 604 + 95 TO STA 619 + 0	1,405	47.3	66,455	12	4,652
STA 619 + 0 TO STA 622 + 0	300	48.5	14,548	12	1,018
STA 643 + 0 TO STA 644 + 60	160	48.4	7,744	12	542
STA 702 + 85 TO STA 705 + 55	270	53.3	14,403	3	252
STA 707 + 2 TO STA 709 + 75	273	54.5	14,880	3	260
CSAH 39					
STA 0 + 10 TO STA 3 + 60 RT	350	43.5	15,217	12	1,065
STA 3 + 60 TO STA 4 + 96 RT	136	44.6	6,065	12	425
568th AVE.					
STA 10 + 30 TO STA 14 + 25 RT	395	45.4	17,950	12	1,257
STA 14 + 25 TO STA 15 + 50 LT	125	44.6	5,575	12	390
10 FIELD ENTRANCES @ 15 TONS					150
5 DRIVEWAYS @ 15 TONS					75
2 INTERSECTIONS @ 30 TONS					60
				TOTAL	27,256

AGGR. BASE PREP. STRING LINE

LOCATION	LENGTH FEET	STRING LINE RD. STA.
CSAH 10		
STA 451 + 90 TO STA 454 + 60	270	3
STA 455 + 92 TO STA 458 + 60	268	3
STA 560 + 0 TO STA 622 + 0	6,200	62
STA 643 + 0 TO STA 644 + 60	160	2
STA 702 + 85 TO STA 705 + 55	270	3
STA 707 + 0 TO STA 709 + 75	275	3
CSAH 39		
STA 0 + 50 TO STA 5 + 0	450	5
568th AVE.		
STA 10 + 50 TO STA 15 + 50	500	5
TOTAL		84

CERTIFIED BY Alan Forsberg LIC. NO. 14720 MAR. 18, 2011

P:\CSAH\10\GT-22\Excel\[aggr.xls]A

SUPERPAVE BITUM. QUANTITIES

	MIX TONS	TOTAL AGGR. TONS	BITUM MAT'L TON	BITUM GRAVEL INTER. TON	BITUM GRAVEL FINE TON	RAP TON	BITUM CL. "A" COARSE TON	BITUM CL. "A" FINE TON	PRODUCE HAUL LAY TON
NONWEAR			5.5%	15%	20%	20%	33%	12%	
	4,663	4,407	256	661	881	881	1,454	529	4,663
WEAR			5.5%	30%	20%	0%	30%	20%	
	24,128	22,801	1,327	6,840	4,560	0	6,840	4,560	24,128
CSAH 10 TOTALS			1,583	7,501	5,441	881	8,294	5,089	28,791
NONPARTICIPATING									
WEAR			5.5%	30%	20%	0%	30%	20%	
	416	393	23	118	79	0	118	79	416
CR 166 TOTALS			23	118	79	0	118	79	416
TOTALS			1,606	7,619	5,520	881	8,412	5,168	29,207

COLD INPLACE RECYCLE

MILL DEPTH 4" PLACE DEPTH 4"

STATION TO STATION	LENGTH	WIDTH	COLD RECYLE SQ.YD.	BITUM MAT'L TON	FOG SEAL GAL.
MAINLINE				3%	
STA 438 + 26 TO 452 + 45	1,419	28	4,415	29	331
STA 458 + 60 TO 560 + 6	10,146	28	31,565	208	2,367
STA 622 + 0 TO 643 + 0	2,100	28	6,533	43	490
STA 644 + 60 TO 702 + 85	5,825	28	18,122	120	1,359
STA 709 + 75 TO 728 + 0	1,825	28	5,678	37	426
TOTAL			66,313	437	4973

BASIS FOR PLANNED QUANTITIES

AGGREGATE BASE, SHOULDERING, & SURFACING
COMPACTED DRY DENSITY - 140 LBS. PER CU. FT.

BITUMINOUS SURFACE
BITUM. MAT'L FOR TACK COAT 0.05 GALS. PER SQ. YD.
BITUM. COURSES, 110 LBS. PER 1" / SQ. YD.
BITUM. MAT'L FOR MIXTURE ESTIMATED AT 5.5%

COLD INPLACE RECYCLEING
BITUM. MAT'L FOR FOG SEAL 0.075 GALS. PER SQ. YD.
BITUM. COURSES, 110 LBS. PER 1" / SQ. YD.
BITUM. MAT'L FOR COLD MIXTURE EMULSION ESTIMATED AT 3%

SUPERPAVE BITUM. NONWEAR

LOCATION	LENGTH FEET	AVER WIDTH FEET	DEPTH INCHES	BINDER TON
BITUM. NON WEAR				
STA 452 + 45 TO STA 453 + 51	106	42	2	54
STA 453 + 51 TO STA 454 + 60	109	48	2	64
BRIDGE # 07533				
STA 455 + 92 TO STA 457 + 5	113	48	2	66
STA 457 + 5 TO STA 458 + 60	155	46	2	87
STA 560 + 0 TO STA 581 + 28	2128	36	2	936
STA 581 + 28 TO STA 585 + 34	406	48	2	238
STA 585 + 34 TO STA 586 + 74	140	52	2	89
STA 586 + 74 TO STA 591 + 52	478	50	2	292
STA 591 + 52 TO STA 592 + 97	145	53	2	94
STA 592 + 97 TO STA 597 + 3	406	48	2	238
STA 592 + 97 TO STA 622 + 0	2903	36	2	1277
STA 643 + 0 TO STA 644 + 60	160	36	2	70
STA 702 + 85 TO STA 704 + 10	125	40	2	61
STA 704 + 10 TO STA 705 + 55	145	44	2	78
BRIDGE # 07534				
STA 707 + 2 TO STA 708 + 45	143	44	2	77
STA 708 + 45 TO STA 709 + 75	130	40	2	64
(CSAH 39)				
STA 0 + 94 TO STA 3 + 60	266	32	2	104
STA 3 + 60 TO STA 5 + 0	140	28	2	48
(568th Ave)				
STA 10 + 21 TO STA 14 + 25	404	32	2	158
STA 14 + 25 TO STA 15 + 50	125	28	2	43
6 INTERSECTIONS @ 30 TONS				180
23 DRIVEWAYS @ 15 TONS				345
			TOTALS	4663

SUPERPAVE BITUM. WEAR

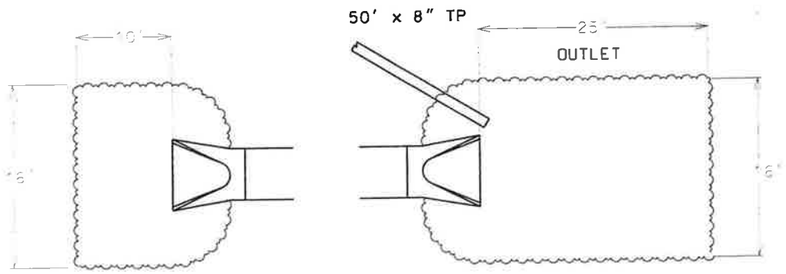
LOCATION	LENGTH FEET	AVER WIDTH FEET	DEPTH INCHES	WEAR TON	TACK COAT GAL
BITUM. WEAR					
STA 435 + 12 TO STA 438 + 26 SH. LT	314	6	4	46	10
STA 438 + 26 TO STA 452 + 45	1419	36	4	1,249	284
STA 452 + 45 TO STA 453 + 51	106	42	4	109	25
STA 453 + 51 TO STA 454 + 60	109	48	4	128	29
BRIDGE # 07533					
STA 455 + 92 TO STA 457 + 5	113	48	4	133	30
STA 457 + 5 TO STA 458 + 60	155	46	4	174	40
STA 458 + 60 TO STA 560 + 0	10140	36	4	8,923	2,028
STA 560 + 0 TO STA 581 + 28	2128	36	2	936	426
STA 581 + 28 TO STA 585 + 34	406	48	2	238	108
STA 585 + 34 TO STA 586 + 74	140	52	2	89	40
STA 586 + 74 TO STA 591 + 52	478	50	2	292	133
STA 591 + 52 TO STA 592 + 97	145	53	2	94	43
STA 592 + 97 TO STA 597 + 3	406	48	2	238	108
STA 592 + 97 TO STA 622 + 0	2903	36	2	1,277	581
STA 622 + 0 TO STA 643 + 0	2100	36	4	1,848	420
STA 643 + 0 TO STA 644 + 60	160	36	4	141	32
STA 644 + 60 TO STA 702 + 85	5825	36	4	5,126	1,165
STA 702 + 85 TO STA 704 + 10	125	40	4	122	28
STA 704 + 10 TO STA 705 + 55	145	44	4	156	35
BRIDGE # 07534					
STA 707 + 2 TO STA 708 + 45	143	44	4	154	35
STA 708 + 45 TO STA 709 + 75	130	40	4	127	29
STA 709 + 75 TO STA 728 + 50	1875	36	4	1,650	375
(CSAH 39)					
STA 0 + 94 TO STA 3 + 60	266	32	2	104	47
STA 3 + 60 TO STA 5 + 0	140	28	2	48	22
(568th Ave)					
STA 10 + 21 TO STA 14 + 25	404	32	2	158	72
STA 14 + 25 TO STA 15 + 50	125	28	2	43	19
6 INTERSECTIONS @ 30 TONS				180	
23 DRIVEWAYS @ 15 TONS				345	
			CSAH 10 TOTALS	24,128	6,164
NONPARTICIPATING					
(CR 166)					
STA 0 + 76 TO STA 3 + 66	290	27	2	96	44
STA 3 + 66 TO STA 8 + 62	496	24	2	145	66
STA 8 + 62 TO STA 10 + 32	170	34	2	71	32
STA 10 + 32 TO STA 13 + 86	354	24	2	104	47
			CR 166 TOTALS	416	189
			TOTALS	24,544	6,353

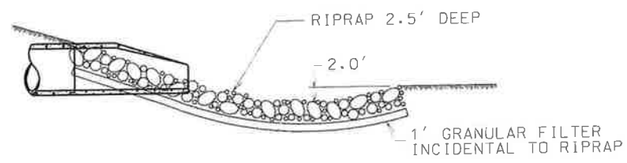
CERTIFIED BY Alan Forsberg LIC. NO. 14720 MAR. 19, 2011

P:\CSAH\10\GT-22\Excel\[10-SUPERPAVE.xls]Sheet1

RIPRAP DETAIL 48" RC PIPE

STA 643+80





INLET
15 CU. YDS. CL V
2 /1/2' DEEP

OUTLET
40 CU. YDS. CL V
2 1/2' DEEP

SURFACE DRAINAGE

STATION	LOCATION	IN PLACE	REMARKS	REMOVE CULVERT	RIPRAP CL - V	18" C.S		12" RC CL III		36" RC CL-III		48" RC CL - V	
				LIN.FT.	CU.YDS.	L.F.	APR	L.F.	APR	L.F.	APR	L.F.	APR
CSAH 10													
560+05	LT FE					38	2						
563+80	RT FE	18" x 32' CS		32		42	2						
571+00	LT FE					40	2						
572+00	RT DW	15"x36' RC		36		42	2						
575+00	RT DW	DRY											
580+00	RT FE	15"x36' CS		36		44	2						
594+96	CL									72	2		
595+04	CL									72	2		
597+05	RT FE					50	2						
606+00	CL							64	2				
613+55	LT FE					40	2						
616+35	DW LT	DRY											
616+40	RT FE					42	2						
618+00	LT FE	DRY											
643+80	CL				55							192	2
568 AVE													
11+60	LT DW	15"x36' RC		36		44	2						
14+50	RT FE	15"x36' RC		36		50	2						
OBLIT 2													
30+45	CL FE					50	2						
30+55		18"x60' CS		60									
42+20	CL FE	18"x75' RC		75									
43+55	LT	15"x36' RC		36									
			TOTAL	347	55	482	22	64	2	144	4	192	2

CULVERT DETAILS

CERTIFIED BY Alan Forsberg LIC. NO. 14720 PROFESSIONAL ENGINEER MARCH 18, 2011

Detail-Culvert.DGN 6/8/2011 11:38:19 AM

REMOVE SUBSURFACE DRAINS

					REMOVE DRAIN TILE LIN.FT.	CAP EXISTING TILE EACH
CSAH 10						
567+70	60' LT	TO	589+70	180' LT	2350	
576+50	LT				30	1
577+25	LT				65	1
578+00	LT				100	1
579+00	LT				175	1
579+75	LT				200	1
579+50	110' LT	TO	588+30	255' LT	920	
579+80	30' LT	TO	589+00	220' LT	1010	
580+30	LT				50	1
581+00	LT				80	1
581+85	LT				110	1
582+60	LT				135	1
583+30	LT				200	1
584+00	LT				180	1
584+80	LT				170	1
585+50	LT				125	1
586+40	LT				100	1
587+50	LT				30	1
597+60	LT				60	
597+65	CL				170	
598+30	CL				180	
599+70	CL				250	1
601+15	CL				250	1
602+60	CL				250	1
604+00	CL				240	1
605+40	CL				240	1
605+80	70' RT	TO	611+60	70' LT	590	
606+90	15' LT	TO	609+55	70' LT	270	
610+30	70' RT	TO	611+30	30' RT	105	1
611+65	35' RT				70	1
612+75	30' RT				80	1
613+30	50' RT				85	1
614+60	15' RT	TO	617+65	70'RT	300	
					9170	**24**

SUBSURFACE DRAINS 2502

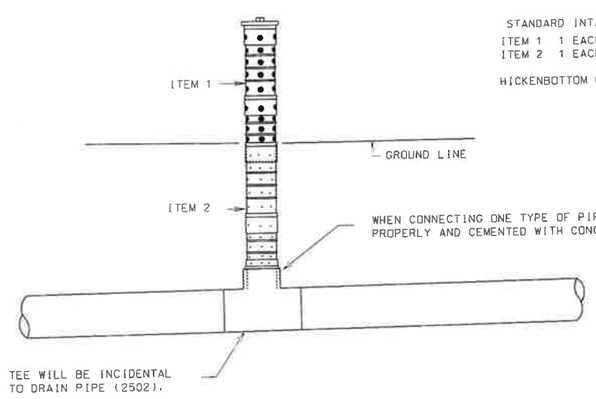
STATION		LOCATION	6" TP L.F.	8" TP L.F.	10" TP L.F.	24" RC L.F.	4" PE L.F.	6" PE L.F.	CONST 6" RISER EACH	CONST 12" RISER EACH
CSAH 10										
595+35		CL				135				2
595+50	TO 607+00	70' LT						1180		
597+15		CL	170							
597+65	TO 605+65	70' RT					800			
605+00		CL			240					
606+00	TO 617+60	70' RT					1160			
606+70		CL		210					2	
607+50	TO 611+50	70' LT					400			
643+80		LT		50						
568 AVE										
10+70	TO 15+65	48' LT					500			
		TOTAL	**170**	**260**	**240**	**135**	**2860**	**1180**	**2**	**2**

TILE SIZE AND LOCATION SHALL BE VERIFIED IN FIELD BEFORE ORDERING PIPE & RISERS.

2123.507 2 CU. YD. SHOVEL - ESTIMATED AT 25 HOURS
TO BE USED FOR TILE EXPLORATION & SEDIMENT REMOVAL.

CAP EXISTING TILE LINES AND GPS IT'S LOCATION.

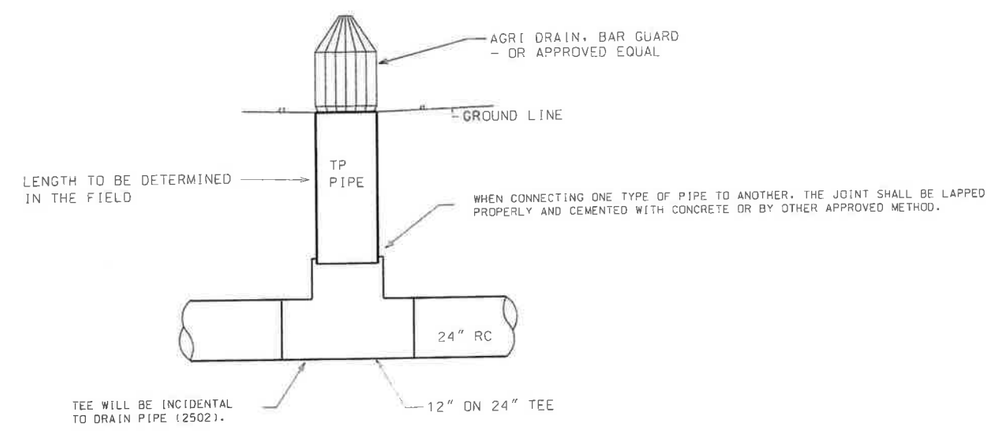
PIPE DRAIN RISERS
6" PE



STANDARD INTAKE PARTS
ITEM 1 1 EACH - 36" ORANGE SECTION W/1" HOLES
ITEM 2 1 EACH - 36" SECTION W/5/16" HOLES

HICKENBOTTOM OR APPROVED EQUAL

PIPE DRAIN RISER
12" TP



DETAILS

CERTIFIED BY Alan Forsberg PROFESSIONAL ENGINEER REG. NO. 14720 MARCH 18, 2011

4" ROAD TILE LT SIDE

STATION	LOC.	REMARKS	DEPTH	4" T.P. LIN FT	4" P.E. PERF. LIN FT	CONCRETE HEADWALL EACH
439 + 00	LT	High Point	4'			
TO					1400	
453 + 00	LT	Low Point	4'	24		1
BR						
457 + 50	LT	High Point	3'			
TO					350	
461 + 00	LT	Low Point	4'	24		1
TO					1500	
476 + 00	LT	Headwall	4'	24		1
TO					400	
480 + 00	LT	High Point	3'			
INT						
481 + 30	LT	Low Point	4'	24		1
TO					470	
486 + 00	LT	High Point	4'			
DRW						
487 + 50	LT	Low Point	4'	24		1
TO					550	
493 + 00	LT		4'			
TO					300	
496 + 00	LT	High Point	2'			
DRW						
498 + 00	LT	High Point	3'			
TO						
502 +00	LT		3'			
TO					850	
506 + 50	LT	Low Point	4'	24		1
INT						
508 + 00	LT	Low Point	4'	24		1
TO					600	
514 + 00	LT	High Point	3'			
TO					1700	
531 + 00	LT	Low Point	4'	24		1
TO					200	
533 + 00	LT	High Point	3.5'			
INT						
534 + 50	LT	Low Point	4'	24		1
TO					1350	
548 + 00	LT	High Point	4'			
TO					1030	
558 + 30	LT	Low Point	4'	24		1
Regrade	Area					
560 + 00	LT	Low Point	2.5'	24		1
TO						
562 + 00	LT		2.5'			
TO						
563 + 00	LT		3'			
TO					800	
568 + 00	LT	Headwall	3'	24		1
TO					700	
575 + 00	16' LT	High Point	3'			
TO						
580 + 00	16' LT		3'			
TO	581+0 Shoulder Dist - 2'					
586 + 00	23' LT		3'			
TO					1150	
586 + 50	23' LT	Low Point	2.5	20		1
Grade Break						
586 + 60	23' LT	High Point	2'			
TO					490	
591 + 50	23' LT	Low Point	2'	20		1
INT						
592 + 00	30' LT	High Point	2'			
TO					290	
594 + 90	26' LT	Low Point	2'	20		1
Culv						
595 + 10	26' LT	Low Point	2'	20		1
TO						
597 + 00	16' LT		2'			
TO					1090	
606 + 00	16' LT	DI	2'	18		1
TO					1200	
618 + 00	LT	High Point	2'			
TO					400	
622 + 00	LT	Low Point	2'	20		1
Grade Break						
623 + 00	LT	High Point	3'			
TO					600	
TOTAL LT SIDE				406	17420	18

4" ROAD TILE RT SIDE

STATION	LOC.	REMARKS	DEPTH	4" T.P. LIN FT	4" P.E. PERF. LIN FT	CONCRETE HEADWALL EACH
439 + 00	RT	High Point	4'			
TO					1450	
453 + 50	RT	Low Point	4'	24		1
BR						
459 + 50	RT	High Point	3'			
TO					250	
462 + 00	RT	Low Point	4'	24		1
TO					1400	
476 + 00	RT	Headwall	4'	24		1
TO					400	
480 + 00	RT	High Point	3'			
INT						
481 + 30	RT	Low Point	4'	24		1
TO						
493 + 00	RT	Grade Break	4'			
TO					1270	
494 + 00	RT	High Point	3'			
DRW						
495 + 50	RT	High Point	3'			
TO					650	
502 + 00	RT		3'			
TO					550	
507 + 50	RT	Low Point	4'	24		1
Culv						
508 + 00	RT	Low Point	4'	24		1
TO					500	
513 + 00	RT	High Point	4'			
DRW						
514 + 50	RT	High Point	3'			
TO					1650	
531 + 00	RT	Low Point	4'	24		1
TO					200	
533 + 00	RT	High Point	3.5'			
INT						
534 + 50	RT	Low Point	4'	24		1
TO					1000	
544 + 50	RT	High Point	4'			
DRW						
546 + 50	RT	High Point	4'			
TO					1180	
558 + 30	RT	Low Point	4'	24		1
Regrade	Area					
560 + 00	RT	Low Point	3'	24		1
TO					800	
568 + 00	RT	Headwall	3'	22		1
TO					800	
576 + 00	RT	High Point	3'			
TO						
580 + 00	16' RT		3'			
TO	581+0 Shoulder Dist - 2'					
584 + 00	SH-2'		3'			
TO					940	
585 + 40	SH-2'	Low Point	2.5'	16		1
Grade Break						
585 + 50	23' RT	High Point	2'			
TO					940	
594 + 90	23' RT	Low Point	2'	16		1
Culv						
595 + 10	23' RT	Low Point	2'	16		1
TO						
597 + 00	16' RT		2'			
TO					800	
605+ 00	RT	Headwall	2'	20		1
TO					1400	
619 + 00	RT	High Point	2'			
TO					300	
622 + 00	RT	Low Point	2'	20		1
Grade Break						
623 + 00	RT	High Point	3'			
TO					600	
629 + 00	RT	Low Point	3'	20		1
TO					120	
630 + 20	RT	High Point	3			
Culv						
630 + 40	RT	Low Point	3'	20		1
TO					310	
633 + 50	RT	High Point	3'			
DRW						
TOTAL RT SIDE				390	17510	18

4" ROAD TILE LT SIDE

STATION	LOC.	REMARKS	DEPTH	4" T.P. LIN FT	4" P.E. PERF. LIN FT	CONCRETE HEADWALL EACH
629 + 00	LT	Low Point	3'	20		1
TO					120	
630 + 20	LT	High Point	3'			
Culv						
630 + 40	LT	Low Point	3'	20		1
TO					260	
633 + 00	LT	High Point	3'			
TO						
642 + 00	LT		3'			
TO		Grade Break				
643 + 00	LT		3'			
TO					1150	
644 + 50	LT	Low Point	3'	24		1
DRW						
645 + 50	LT	High Point	4'			
TO					950	
655 + 00	LT	Low Point	4'	20		1
TO					1200	
667 + 00	LT	High Point	4'			
TO					600	
673 + 00	LT	Low Point	4'	20		1
TO					300	
676 + 00	LT	High Point	4'			
DRW						
677 + 50	LT	Low Point	4'	20		1
TO					650	
684 + 00	LT		4'	20		1
TO					1100	
695 + 00	LT	High Point	4'			
TO					450	
699 + 50	LT	Low Point	4'	20		1
DRW						
701 + 00	LT	High Point	4'			
TO					350	
704 + 50	LT	Low Point	4'	20		1
BR						
708 + 20	LT	Low Point	4'	24		1
TO					1080	
719 + 00	LT		4'	20		1
TO					900	
728 + 00	LT	High Point	4'			
TOTAL LT SIDE				228	9110	11

4" ROAD TILE RT SIDE

STATION	LOC.	REMARKS	DEPTH	4" T.P. LIN FT	4" P.E. PERF. LIN FT	CONCRETE HEADWALL EACH
634 + 50	RT	High Point	3'			
TO						
642 + 00	RT		3'			
TO		Grade Break				
643 + 00	RT		3'			
TO					1000	
644 + 50	RT	Low Point	3'	24		1
Grade Break						
645 + 00	RT	High Point	4'			
TO					1000	
655 + 00	RT	Low Point	4'	20		1
DRW						
657 + 00	RT	Low Point	4'	20		1
TO					800	
665 + 00	RT	High Point	4'			
DRW						
667 + 00	RT	High Point	4'			
TO					600	
673 + 00	RT	Low Point	4'	20		1
TO					1100	
684 + 00	RT	DI	4'	20		1
TO					1100	
695 + 00	RT	High Point	4'			
DRW						
697 + 20	RT	High Point	4'			
TO					730	
704 + 50	RT	Low Point	4'	20		1
BR						
708 + 20	RT	Low Point	4'	24		1
TO					730	
715 + 50			4'			
DRW						
717 + 00	RT		4'	20		1
TO					1100	
728 + 00	RT	High Point	4'			
TOTAL RT SIDE				168	8160	8

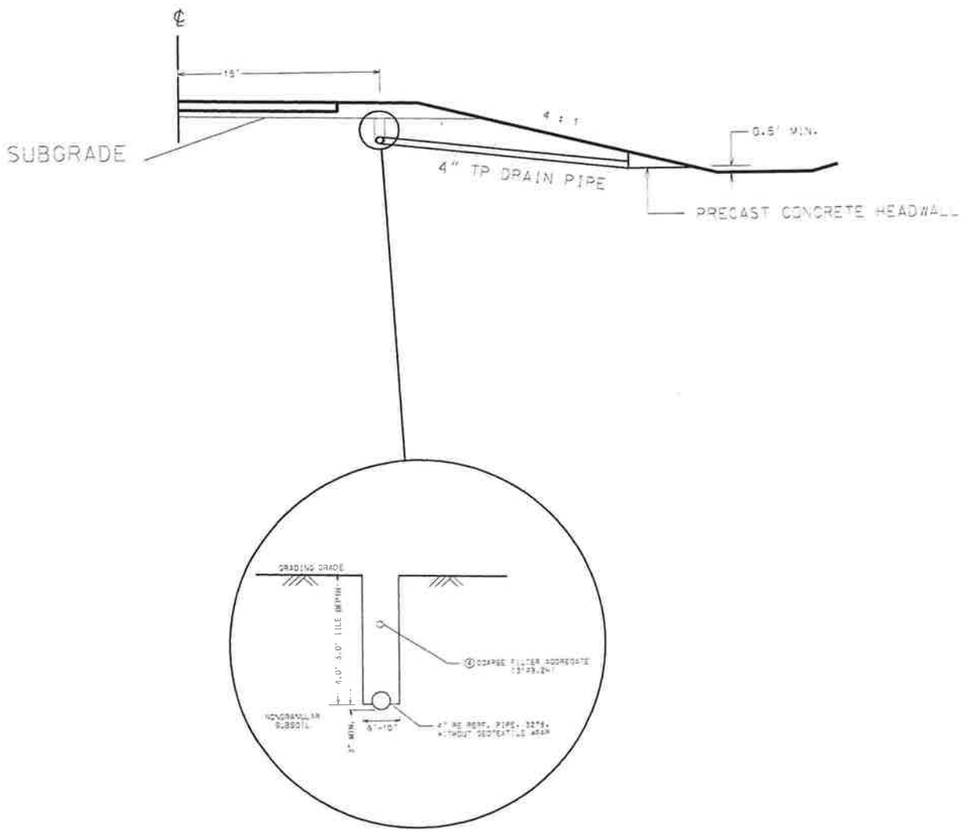
	4" T.P. LIN FT	4" P.E. PERF. LIN FT	CONCRETE HEADWALL EACH
RT SIDE TOTALS	558	25,670	26
LT SIDE TOTALS	634	26,530	29
TOTAL =	1,192	52,200	55

4" ROAD TILE

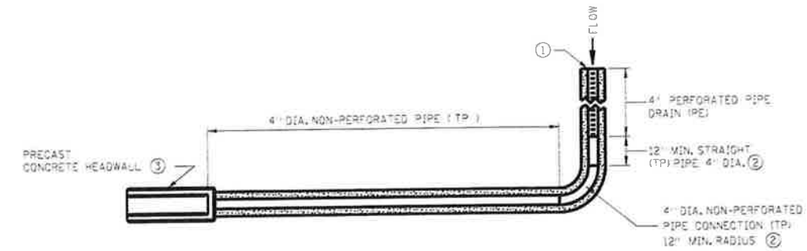
CERTIFIED BY Alan Forsberg REG. NO. 14720 MARCH 18, 2011

P:\CSAH\10\GT-22\Excel\[ROADTILE.xls]Sheet1

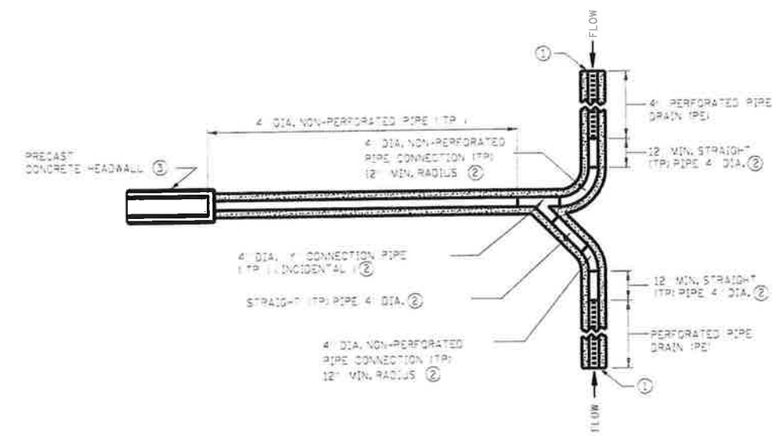
ROAD DRAIN SYSTEM



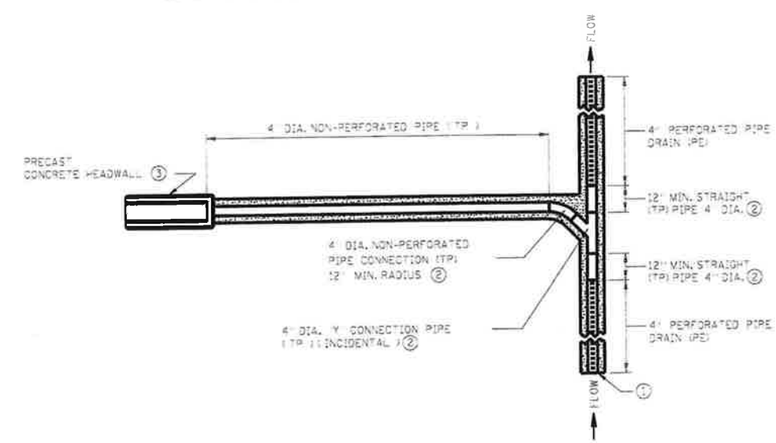
TYPICAL PLAN VIEW (SINGLE DISCHARGE)



TYPICAL PLAN VIEW (LOW POINT "Y" DISCHARGE)



TYPICAL PLAN VIEW (NON-LOW POINT "Y" DISCHARGE)



NOTES:

① THE UPSTREAM ENDS OF THE PERFORATED TUBING SHALL BE CAPPED AS APPROVED BY THE PROJECT ENGINEER, AND CAPS SHALL BE INCLUDED IN THE PRICE BID FOR OTHER ITEMS.

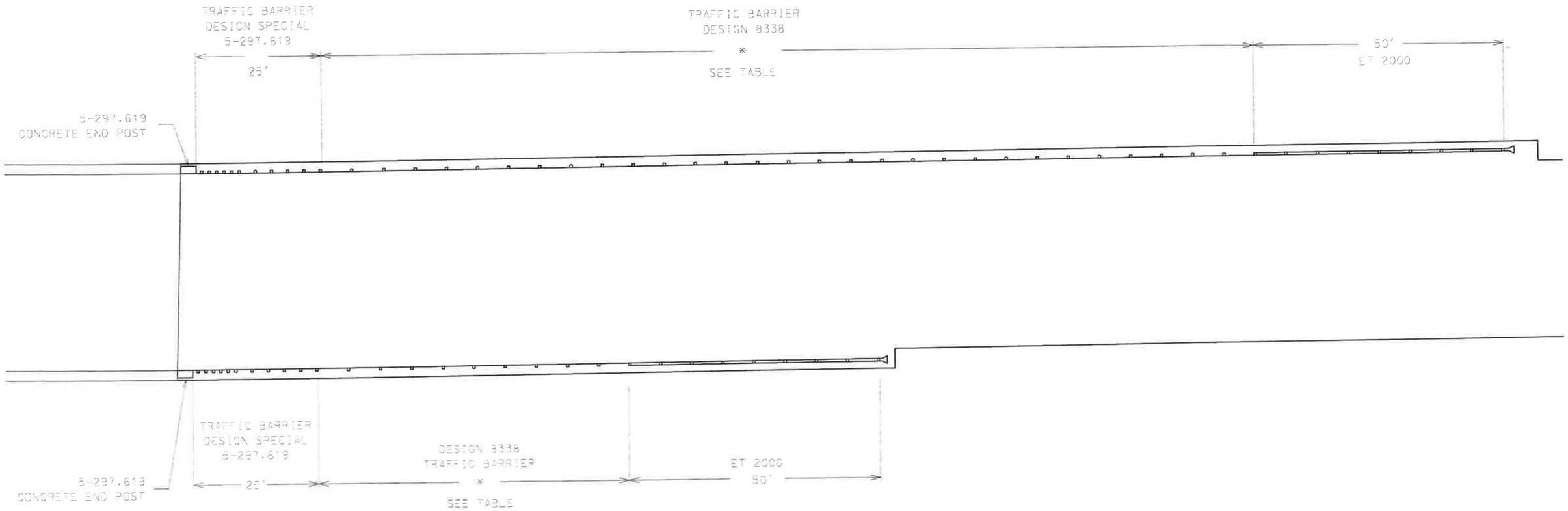
② DETAILS OF CONNECTION AND COUPLING TO PE PIPE TO BE APPROVED BY THE ENGINEER. PAYMENT FOR "Y" AND EXTRA CONNECTION, 12" OF 4" TP PIPE AND COUPLING TO BE INCIDENTAL TO ITEM 2502.521, 4" (TP) NON-PERFORATED PIPE DRAIN. TILE LINES WILL BE PLACED CONTINUOUSLY. WYES TO BE SET 2' BELOW MAINLINE TILE

③ PRECAST CONCRETE HEADWALL STD. PLATE 3131 PAID FOR AS ITEM 2502.501, PRECAST CONCRETE HEADWALL.

④ PAYMENT FOR COARSE FILTER AGGR. 3149 H WILL BE INCIDENTAL TO 2502.541, 4" PERFORATED P.E. PIPE DRAIN

ROAD TILE DETAILS

CERTIFIED BY Alan Forsberg PROFESSIONAL ENGINEER LIC. NO. 14720 MAR. 18, 2011



GUARD RAIL TABULATION

STATION	LOCATION	REMOVE GUARDRAIL	REMOVE TWISTED END TREATMENT	CONCRETE END POST	TRAFFIC BARRIER DESIGN SPECIAL	TRAFFIC BARRIER DESIGN 8338	END TREATMENT ET-2000	T-BARRIER BRIDGE CONNECTION DESIGN 8318
		LIN. FT.	EACH	EACH	LIN. FT.	LIN. FT.	EACH	EACH
STA 452 + 10 To 454 + 50	22' Rt	75	1	1	25	175	1	1
STA 453 + 70 To 454 + 70	22' Lt	75	1	1	25	37	1	1
STA 455 + 85 To 456 + 85	22' Rt	75	1	1	25	37	1	1
STA 456 + 0 To 458 + 40	22' Lt	75	1	1	25	175	1	1
STA 703 + 5 To 705 + 55	20' Rt	75	1	1	25	187	1	1
STA 704 + 25 To 705 + 55	20' Lt	75	1	1	25	62	1	1
STA 707 + 0 To 708 + 25	20' Rt	75	1	1	25	62	1	1
STA 707 + 0 To 709 + 50	20' Lt	75	1	1	25	187	1	1
	TOTALS	600	8	8	200	922	8	8

GUARDRAIL

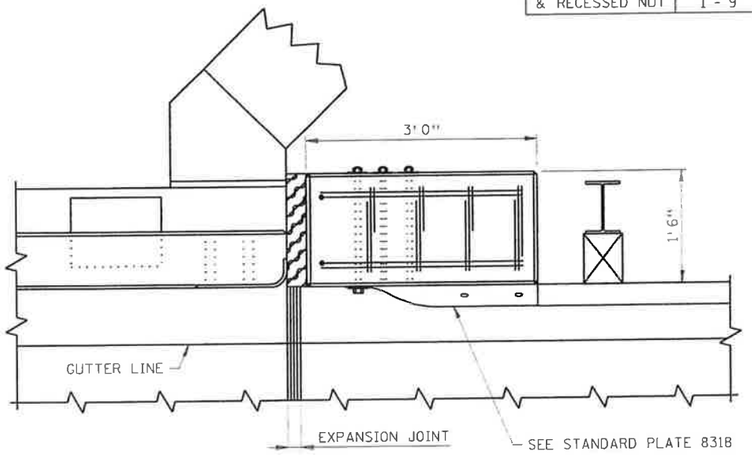
CERTIFIED BY Alan Forsberg REG. NO. 14720 MAR. 18, 2011
ALAN FORSBERG PROFESSIONAL ENGINEER

CSAH 10 SAP 07-610-20 SHEET 25 OF 78 SHEETS

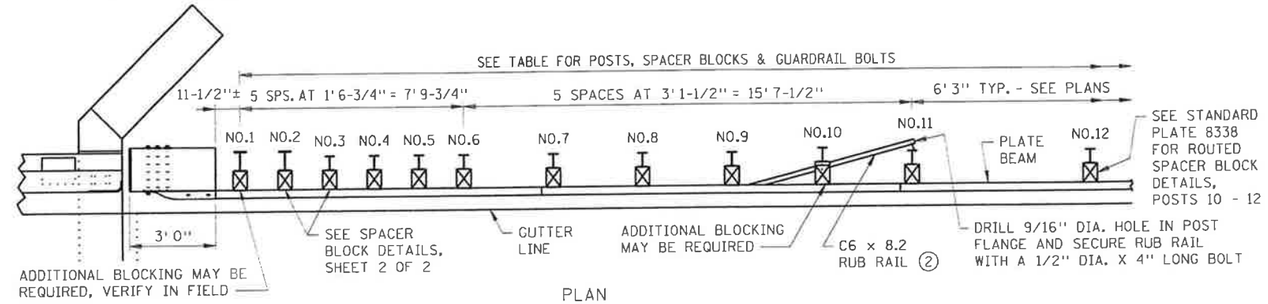
P:/CSAH/10/GT-22/Guardrail.dgn 4/22/2011 10:11:31 AM

POST, SPACER BLOCK & BOLT TABLE

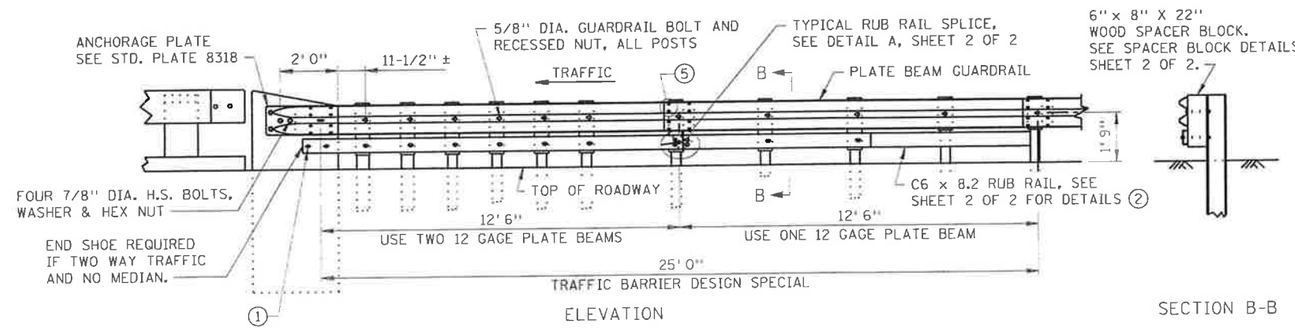
DESCRIPTION	POST NO.	SIZE
POST	1 & 2	W8 X 21 X 8' 0" MIN. LONG
	3 - 12	W6 X 9 X 6' 0" MIN. LONG
SPACER BLOCK	1 - 9	6" X 8" X 22"
	10 - 12	6" X 8" X 14"
GUARDRAIL BOLT & RECESSED NUT	1 - 12	5/8" DIA. X 10" - GUARDRAIL
	1 - 9	5/8" DIA. X 12" - RUB RAIL



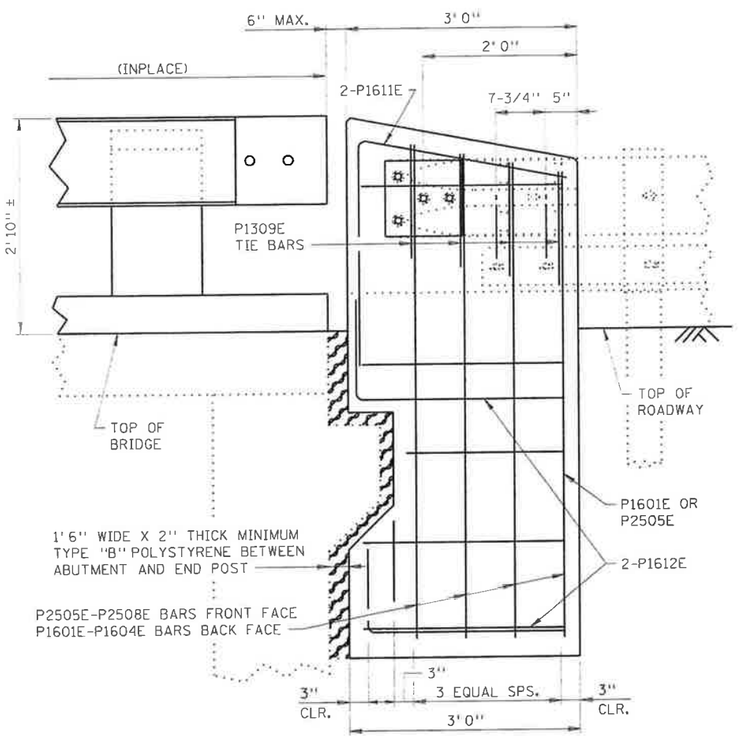
PLAN VIEW
(45° WINGWALL SHOWN)



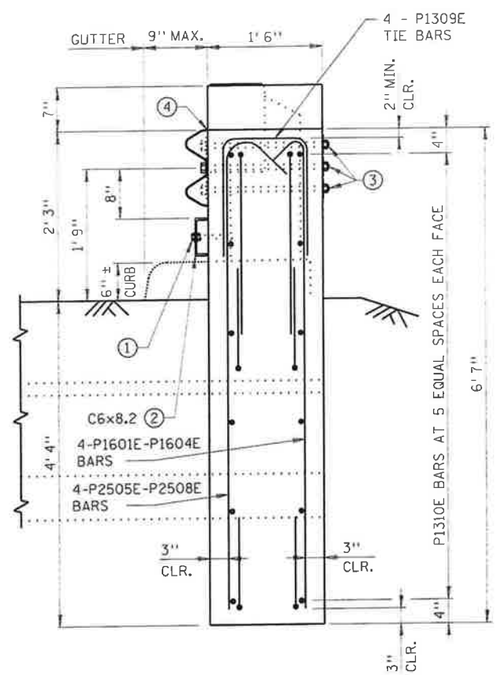
PLAN



GENERAL ASSEMBLY DETAILS



INSIDE ELEVATION

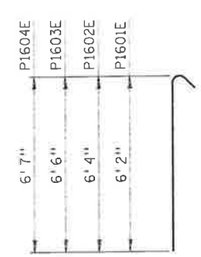


END VIEW

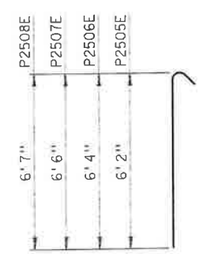
END POST DETAILS

END POST REINFORCEMENT

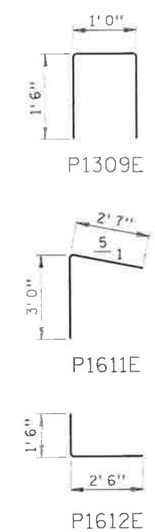
BAR	NO.	LENGTH	SHAPE	LOCATION
P1601E	1	6' 8"	BENT	VERTICAL - OUTSIDE FACE
P1602E	1	6' 9"	BENT	VERTICAL - OUTSIDE FACE
P1603E	1	6' 11"	BENT	VERTICAL - OUTSIDE FACE
P1604E	1	7' 0"	BENT	VERTICAL - OUTSIDE FACE
P2505E	1	7' 1"	BENT	VERTICAL - INSIDE FACE
P2506E	1	7' 2"	BENT	VERTICAL - INSIDE FACE
P2507E	1	7' 4"	BENT	VERTICAL - INSIDE FACE
P2508E	1	7' 5"	BENT	VERTICAL - INSIDE FACE
P1309E	4	4' 0"	BENT	TOP - TIE BAR
(6) P1310E	12	2' 8"	STRAIGHT	HORIZONTAL
P1611E	2	5' 7"	BENT	TOP
P1612E	4	4' 0"	BENT	BOTTOM & MIDDLE



P1601E - P1604E



P2505E - P2508E



NOTES:

ALL REBARS ARE IN METRIC DESIGNATIONS

CONSTRUCT AS PER SPEC. 2401.

REINFORCEMENT TO BE SPEC. 3301, GRADE 60 AND SHALL BE EPOXY COATED.

C.I.P. CONCRETE SHALL BE 3X46.

SOIL COMPACTION AT END POST AS PER SPEC. 2451.

GUARDRAIL CONNECTION SHALL BE THE SAME AS REQUIRED ON BRIDGE RAILINGS. SEE BRIDGE DETAILS MANUAL FOR ADDITIONAL INFORMATION.

(1) 5/8" DIA. BOLTS WITH APPROVED CONCRETE ANCHORS EMBEDDED 5" IN END POST. LOCATE CONCRETE ANCHORS TO MISS BRIDGE REINFORCEMENT

(2) RUB RAIL SHALL BE USED WHEN THERE IS NO CURBING ON APPROACH PANEL.

(3) 7/8" DIA. H.S. BOLT OR EQUAL THREADED ROD, 3" X 2" X 1/4" PLATE WASHER AND HEX NUT (4 REQUIRED).

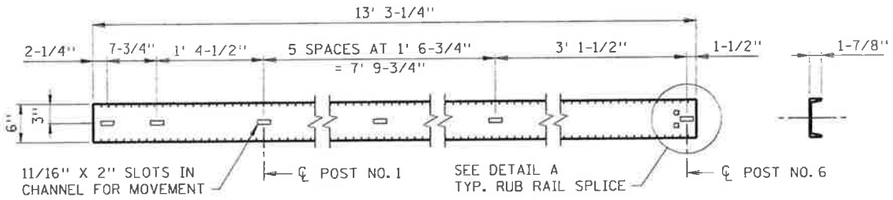
(4) TIMBER BLOCKING MAY BE REQUIRED BEHIND GUARDRAIL CONNECTION AND RUB RAIL DEPENDING ON CURB WIDTH.

(5) 5/8" DIA. X 1-1/4" LONG GUARDRAIL BOLTS AND NUTS TYPICAL AT SPLICES.

(6) CUT IN FIELD AS NECESSARY.

TRAFFIC BARRIER DESIGN SPECIAL

STANDARD SHEET NO. 5-297.619 (1 OF 2)	NEW W-BEAM TRANSITION TO ONE LINE RAIL BRIDGES WITH NEW END POST & WITH OR WITHOUT APPROACH CURB (STEEL POST)
STANDARD APPROVED: MAY 8, 2002	

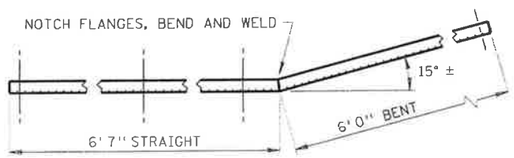


ELEVATION

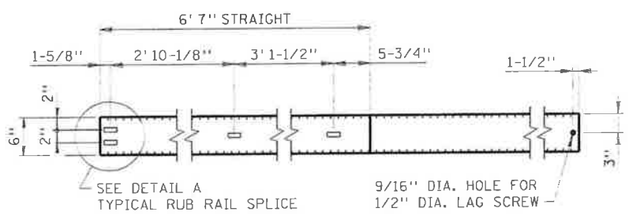
END VIEW

RUB RAIL STRAIGHT SECTION

NON-STANDARD RUB RAIL LENGTH



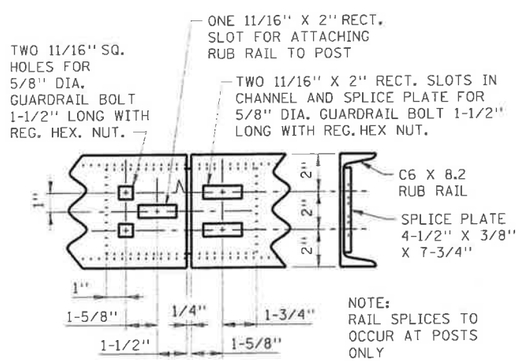
PLAN VIEW



ELEVATION

RUB RAIL BENT SECTION

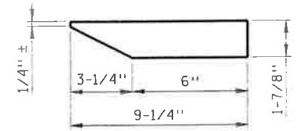
NON-STANDARD RUB RAIL LENGTH



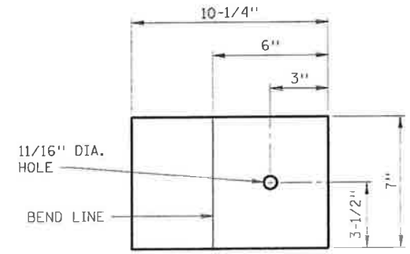
NOTE:
RAIL SPLICES TO OCCUR AT POSTS ONLY

DETAIL A

TYPICAL RUB RAIL SPLICE



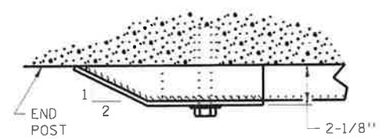
TOP & BOTTOM PLATES



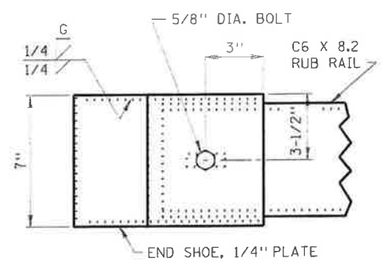
FRONT PLATE

END SHOE PLATE DETAILS

(1/4" PLATE)



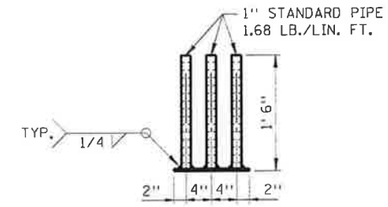
PLAN VIEW



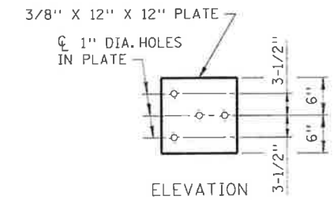
ELEVATION

RUB RAIL END SHOE ASSEMBLY

(USE IF TWO WAY TRAFFIC WITH NO MEDIAN)

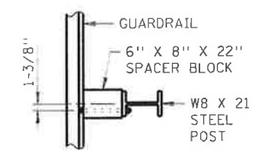


PLAN



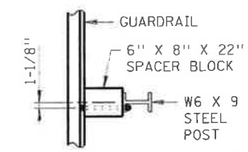
ELEVATION

GUARDRAIL CONNECTION DETAIL



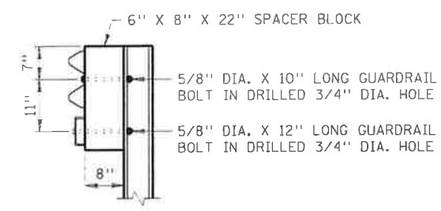
TOP VIEW

POSTS 1 & 2



TOP VIEW

POSTS 3 - 9



END VIEW

SPACER BLOCK DETAILS

POSTS 1 - 9

NOTES:

GALVANIZE ALL HARDWARE PER SPEC. 3392.

USE END SHOE ON RUB RAIL IF TWO WAY TRAFFIC WITH NO MEDIAN.

RUB RAIL IS C6 x 8.2

STRUCTURAL STEEL PER SPEC. 3306 UNLESS OTHERWISE NOTED.

ALL SLOTTED HOLES ARE 11/16" x 2".

ALL SQUARE HOLES ARE 11/16".

GALVANIZE STRUCTURAL SHAPES PER SPEC. 3394 AFTER FABRICATION UNLESS OTHERWISE NOTED.

(1) VERIFY DIMENSION IN FIELD.

TRAFFIC BARRIER DESIGN SPECIAL

STANDARD SHEET NO. 5-297.619 (2 OF 2)	NEW W-BEAM TRANSITION TO ONE LINE RAIL BRIDGES WITH NEW END POST & WITH OR WITHOUT APPROACH CURB (STEEL POST)
STANDARD APPROVED: MAY 8, 2002	
CSAH 10 SAP 07-610-20	SHEET NO. 27 OF 78 SHEETS

EROSION CONTROL

STATION TO STATION (1)	LOCATION (1)	REMARKS	WIDTH LIN. FT.	SILT FENCE HVY DUTY LIN. FT	SILT FENCE MACH. SLICED LIN. FT	DITCH CHECK TYPE 2 LIN. FT.	DITCH CHECK TYPE 7 CU. YD.	INLET PROTECTION EACH	BIOLOG LIN. FT	CAT. 4 BLANKET SQ. YD.
CSAH 10										
565 + 0 TO 570 + 50	DITCH RT		15			120				
570 + 0 TO 572 + 25	DITCH LT		15			60				
583 + 0 TO 585 + 25	DITCH RT		15			60				
583 + 0 TO 589 + 0	DITCH LT		15			135				
595 + 35	DROP INLETS RT & LT							2		
606 + 10	DROP INLET RT							1		
607 + 25	DROP INLET LT							1		
609 + 0 TO 615 + 0	DITCH RT		15			135				
609 + 0 TO 613 + 0	DITCH LT		15			90				
643 + 0 TO 645 + 0	DITCH RT		15			60	10			
643 + 0 TO 645 + 0	DITCH LT		15			75	10			
643 + 0 TO 645 + 0	SLOPE & DITCH RT			50	100				100	1050
643 + 0 TO 645 + 0	SLOPE & DITCH LT			50	100				100	1,650
(2) TOTALS				(3) 100	(3) 200	735	(4) 20	4	(3) 200	2,700

(1) STATION AND LOCATIONS ARE TO BE USED AS A GUIDE
VERIFY QUANTITIES & LOCATIONS IN THE FIELD.

(2) BASIS OF PAYMENT SPECIFIED IN SPEC. 1903 SHALL BE MODIFIED FOR EROSION CONTROL ITEMS TO PRECLUDE ANY PRICE ADJUSTMENT FOR INCREASED OR DECREASED QUANTITIES.

(3) SILT BARRIERS TYPE CHOSEN TO BEST FIT FIELD CONDITIONS.

(4) ROCK DITCH CHECK WERE ESTIMATED AT APPROX. 2.5 CY PER DITCH CHECK

SUMMARY OF IMPERVIOUS & PERVIOUS
NPDES PERMIT

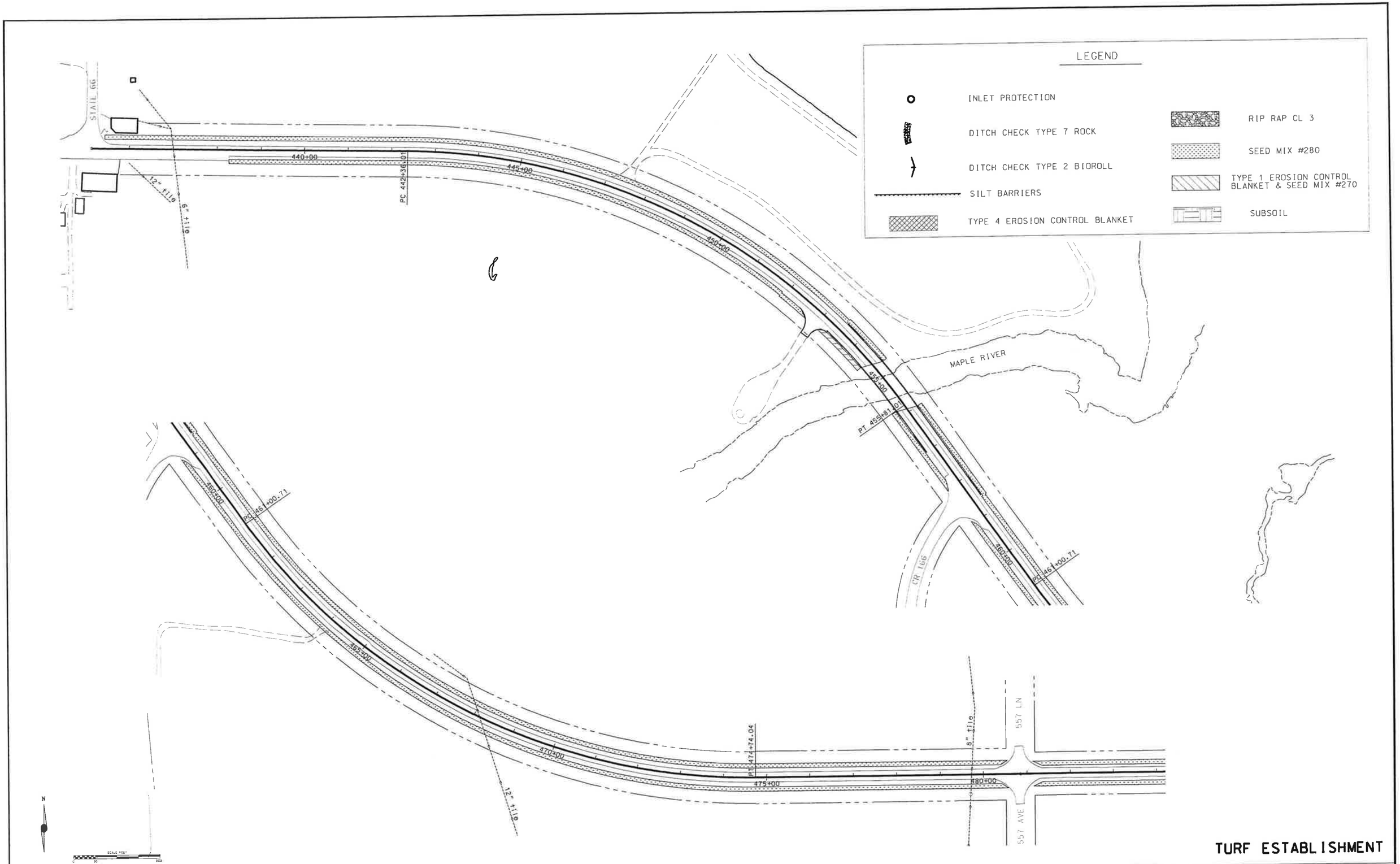
STATION TO STATION	Disturbed Area		Before Construction		After Construction	
			Impervious	Pervious	Impervious	Pervious
	SQ FT	ACRES	SQ FT	SQ FT	SQ FT	SQ FT
CSAH 10						
435 + 25 TO 454 + 50	110,280	2.5	74,750	35,530	74,750	35,530
455 + 80 TO 481 + 25	161,710	3.7	111,180	50,530	111,180	50,530
481 + 25 TO 560 + 0	457,500	10.5	283,955	173,545	299,730	157,770
560 + 0 TO 596 + 25	1,064,745	24.4	161,375	903,370	202,580	862,165
596 + 25 TO 622 + 0	318,145	7.3	34,855	283,290	103,722	214,423
622 + 0 TO 693 + 60	437,600	10.0	257,820	179,780	272,145	165,455
693 + 60 TO 705 + 50	70,815	1.6	47,695	23,120	47,695	23,120
707 + 35 TO 721 + 0	82,805	1.9	54,572	28,233	54,572	28,233
721 + 0 TO 728 + 75	45,240	1.0	28,080	17,160	31,514	13,726
30 + 20 TO 45 + 75	156,820	3.6	56,490	100,330	0	156,820
Total Sq. Ft.	2,905,660		1,110,772	1,794,888	1,197,888	1,707,772
Acres	**66.7**		**25.5**	**41.2**	**27.5**	**39.2**

TURF ESTABLISHMENT

LOCATION	LIMITS FROM SHOULDER	LENGTH	WIDTH	AREA SQ. F.T	SEEDING ACRE	SEEDING MIX # 150 40 LBS / ACRE LBS	SEEDING MIX # 270 120 LBS / ACRE LBS	SEEDING MIX # 280 50 LBS / ACRE LBS	MULCH TYPE1 2 TON / ACRE TON	DISK ANCHOR ACRES	CAT. 1 EROISION CONTROL BLANKET SQ.YD.	FERTILIZER 20-10-20 350# / ACRE LBS	HYDRAULIC SOIL STABILIZER TYPE 5 EST @ 2100# / ACRE LBS
CSAH 10													
438 + 25 TO 452 + 60 RT	CONST LIMITS	1435	10	14,150	0.32			16.2	0.65	0.32		113.7	
453 + 20 TO 454 + 50 RT	CONST LIMITS	130	10	1,270	0.03		3.5				141.1	10.2	
455 + 80 TO 457 + 90 RT	CONST LIMITS	210	10	2,120	0.05			2.4	0.10	0.05		17.0	
459 + 0 TO 480 + 50 RT	CONST LIMITS	2150	10	21,735	0.50			24.9	1.00	0.50		174.6	
481 + 25 TO 491 + 0 RT	CONST LIMITS	975	10	9,770	0.22			11.2	0.45	0.22		78.5	
491 + 0 TO 492 + 5 RT	CONST LIMITS	105	10	1,050	0.02		2.9				116.7	8.4	
492 + 40 TO 494 + 50 RT	CONST LIMITS	210	10	2,085	0.05		5.7				231.7	16.8	
494 + 75 TO 495 + 50 RT	CONST LIMITS	75	10	725	0.02		2.0				80.6	5.8	
495 + 50 TO 509 + 60 RT	CONST LIMITS	1410	10	14,080	0.32			16.2	0.65	0.32		113.1	
509 + 60 TO 512 + 0 RT	CONST LIMITS	240	10	2,450	0.06		6.7				272.2	19.7	
512 + 30 TO 513 + 50 RT	CONST LIMITS	120	10	1,160	0.03		3.2				128.9	9.3	
513 + 75 TO 516 + 40 RT	CONST LIMITS	265	10	2,640	0.06		7.3				293.3	21.2	
516 + 40 TO 533 + 25 RT	CONST LIMITS	1685	10	16,865	0.39			19.4	0.77	0.39		135.5	
534 + 10 TO 543 + 40 RT	CONST LIMITS	930	10	9,270	0.21			10.6	0.43	0.21		74.5	
543 + 40 TO 544 + 90 RT	CONST LIMITS	150	10	1,544	0.04		4.3				171.6	12.4	
545 + 20 TO 547 + 70 RT	CONST LIMITS	250	10	2,500	0.06		6.9				277.8	20.1	
547 + 70 TO 560 + 0 RT	CONST LIMITS	1230	10	12,375	0.28			14.2	0.57	0.28		99.4	
560 + 0 TO 570 + 60 RT	RW	1060	40	42,605	0.98			48.9	1.96	0.98		342.3	
570 + 60 TO 571 + 90 RT	CONST LIMITS	130	43	5,590	0.13		15.4				621.1	44.9	
572 + 5 TO 574 + 90 RT	CONST LIMITS	285	51	14,500	0.33		39.9				1611.1	116.5	
575 + 5 TO 576 + 65 RT	CONST LIMITS	160	64	10,206	0.23		28.1				1134.0	82.0	
576 + 65 TO 585 + 85 RT	RW INCLUDING CSAH 39 RT	920	246	226,710	5.20			260.2	10.41	5.20		1821.6	
586 + 25 TO 588 + 50 RT	RW INCLUDING CSAH 39 LT	225	195	43,790	1.01			50.3	2.01	1.01		351.8	
588 + 50 TO 622 + 0 RT	RW	3350	38	128,280	2.94			147.2	5.89	2.94		1030.7	
622 + 0 TO 632 + 70 RT	CONST LIMITS	1070	10	10,725	0.25			12.3	0.49	0.25		86.2	
632 + 70 TO 633 + 95 RT	CONST LIMITS	125	10	1,220	0.03		3.4				135.6	9.8	
634 + 25 TO 634 + 40 RT	CONST LIMITS	15	10	150	0.00		0.4				16.7	1.2	
634 + 40 TO 637 + 0 RT	CONST LIMITS	260	10	2,650	0.06			3.0	0.12	0.06		21.3	
637 + 0 TO 640 + 65 RT	CONST LIMITS	365	10	3,610	0.08		9.9				401.1	29.0	
640 + 95 TO 641 + 65 RT	CONST LIMITS	70	10	720	0.02		2.0				80.0	5.8	
641 + 65 TO 643 + 0 RT	CONST LIMITS	135	10	1,330	0.03			1.5	0.06	0.03		10.7	
643 + 0 TO 644 + 75 RT	CONST LIMITS	175	55	9,570	0.22			11.0	0.44	0.22		76.9	
644 + 75 TO 656 + 10 RT	CONST LIMITS	1135	10	11,380	0.26			13.1	0.52	0.26		91.4	
656 + 55 TO 663 + 45 RT	CONST LIMITS	690	10	6,855	0.16			7.9	0.31	0.16		55.1	
663 + 45 TO 665 + 25 RT	CONST LIMITS	180	10	1,805	0.04		5.0				200.6	14.5	
665 + 50 TO 667 + 60 RT	CONST LIMITS	210	10	2,105	0.05		5.8				233.9	16.9	
667 + 60 TO 695 + 55 RT	CONST LIMITS	2795	10	27,950	0.64			32.1	1.28	0.64		224.6	
695 + 55 TO 696 + 40 RT	CONST LIMITS	85	10	830	0.02		2.3				92.2	6.7	
696 + 85 TO 697 + 0 RT	CONST LIMITS	15	12	180	0.00		0.5				20.0	1.4	
697 + 0 TO 705 + 55 RT	CONST LIMITS	855	10	8,545	0.20			9.8	0.39	0.20		68.7	
707 + 0 TO 714 + 5 RT	CONST LIMITS	705	10	6,830	0.16			7.8	0.31	0.16		54.9	
714 + 20 TO 715 + 80 RT	CONST LIMITS	160	10	1,635	0.04		4.5				181.7	13.1	
716 + 35 TO 716 + 55 RT	CONST LIMITS	20	11	225	0.01		0.6				25.0	1.8	
716 + 55 TO 727 + 0 RT	CONST LIMITS	1045	10	10,390	0.24			11.9	0.48	0.24		83.5	
727 + 0 TO 728 + 65 RT	CONST LIMITS	165	10	1,655	0.04		4.6				183.9	13.3	
435 + 40 TO 454 + 70 LT	CONST LIMITS	1930	10	19,520	0.45			22.4	0.90	0.45		156.8	
456 + 0 TO 480 + 50 LT	CONST LIMITS	2450	10	24,215	0.56			27.8	1.11	0.56		194.6	
481 + 25 TO 486 + 35 LT	CONST LIMITS	510	10	5,130	0.12			5.9	0.24	0.12		41.2	
486 + 60 TO 494 + 55 LT	CONST LIMITS	795	10	7,950	0.18			9.1	0.37	0.18		63.9	
494 + 55 TO 497 + 5 LT	CONST LIMITS	250	10	2,495	0.06		6.9				277.2	20.0	
497 + 35 TO 498 + 15 LT	CONST LIMITS	80	10	795	0.02		2.2				88.3	6.4	
498 + 15 TO 506 + 80 LT	CONST LIMITS	865	10	8,645	0.20			9.9	0.40	0.20		69.5	
507 + 65 TO 533 + 25 LT	CONST LIMITS	2560	10	25,615	0.59			29.4	1.18	0.59		205.8	
534 + 10 TO 560 + 0 LT	CONST LIMITS	2590	10	25,975	0.60			29.8	1.19	0.60		208.7	
560 + 0 TO 589 + 35 LT	RW	2935	38	111,720	2.56			128.2	5.13	2.56		897.7	
589 + 35 TO 592 + 10 LT	RW	275	213	58,495	1.34			67.1	2.69	1.34		470.0	
592 + 45 TO 596 + 25 LT	RW INCLUDING 568 AVE LT	380	220	83,475	1.92			95.8	3.83	1.92		670.7	
596 + 25 TO 613 + 50 LT	RW	1725	40	68,885	1.58			79.1	3.16	1.58		553.5	
613 + 65 TO 616 + 25 LT	RW	260	90	23,445	0.54		64.6				2605.0	186.4	
616 + 40 TO 617 + 90 LT	RW	150	44	6,535	0.15		18.0				726.1	52.5	
617 + 90 TO 622 + 0 LT	RW	410	31	12,535	0.29			14.4	0.58	0.29		100.7	
622 + 0 TO 640 + 80 LT	CONST LIMITS	1880	10	18,790	0.43			21.6	0.86	0.43		151.0	
641 + 10 TO 643 + 0 LT	CONST LIMITS	190	10	1,920	0.04			2.2	0.09	0.04		15.4	
643 + 0 TO 644 + 95 LT	CONST LIMITS	195	77	14,920	0.34			17.1	0.69	0.34		119.9	
645 + 0 TO 645 + 5 LT	CONST LIMITS	5	12	60	0.00		0.2				6.7	0.5	
645 + 35 TO 647 + 45 LT	CONST LIMITS	210	10	2,125	0.05		5.9				236.1	17.1	
647 + 45 TO 676 + 40 LT	CONST LIMITS	2895	10	28,960	0.66			33.2	1.33	0.66		232.7	
676 + 70 TO 699 + 50 LT	CONST LIMITS	2280	10	22,805	0.52			26.2	1.05	0.52		183.2	
699 + 50 TO 699 + 95 LT	CONST LIMITS	45	9	395	0.01		1.1				43.9	3.2	
700 + 40 TO 701 + 10 LT	CONST LIMITS	70	10	700	0.02		1.9				77.8	5.6	
701 + 10 TO 705 + 55 LT	CONST LIMITS	445	10	4,405	0.10			5.1	0.20	0.10		35.4	
707 + 0 TO 711 + 15 LT	CONST LIMITS	415	9	3,805	0.09			4.4	0.17	0.09		30.6	
711 + 55 TO 728 + 60 LT	CONST LIMITS	1705	10	17,055	0.39			19.6	0.78	0.39		137.0	
568 AVE													
11 + 25 TO 11 + 50 LT	CONST LIMITS	25	118	2,955	0.07		8.1	3.4	0.14	0.07	328.3	23.7	
11 + 65 TO 15 + 55 LT	CONST LIMITS	390	67	25,945	0.60		71.5	29.8	1.19	0.60	2882.8	208.5	
OBLIT 2													
30 + 50 TO 35 + 60 RT	CONST LIMITS	510	50	25,500	0.59		70.2				2833.3	204.9	
TEMPORARY EROSION CONTROL	EST 25% OF 30 ACRE PROJECT				7.5	300.0			15.0	7.5			6,300
TEMPORARY EROSION CONTROL	EST 10% OF 30 ACRE PROJECT												
				TOTALS	39	300	415	1,414	72	36	16,756	10,876	6,300

CERTIFIED BY Alan Forsberg LIC. NO. 14720 JUNE 8, 2011

P:\CSAH 10\GT-22 Excel [10-SEED.xls]A

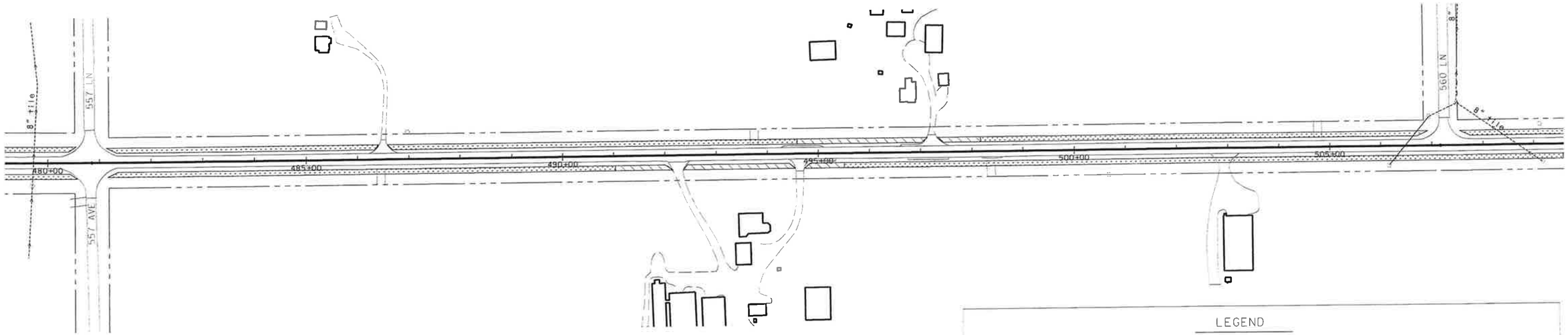


TURF ESTABLISHMENT

CERTIFIED BY Alan Forsberg LIC. NO. 14720 PROFESSIONAL ENGINEER MARCH 8, 2011

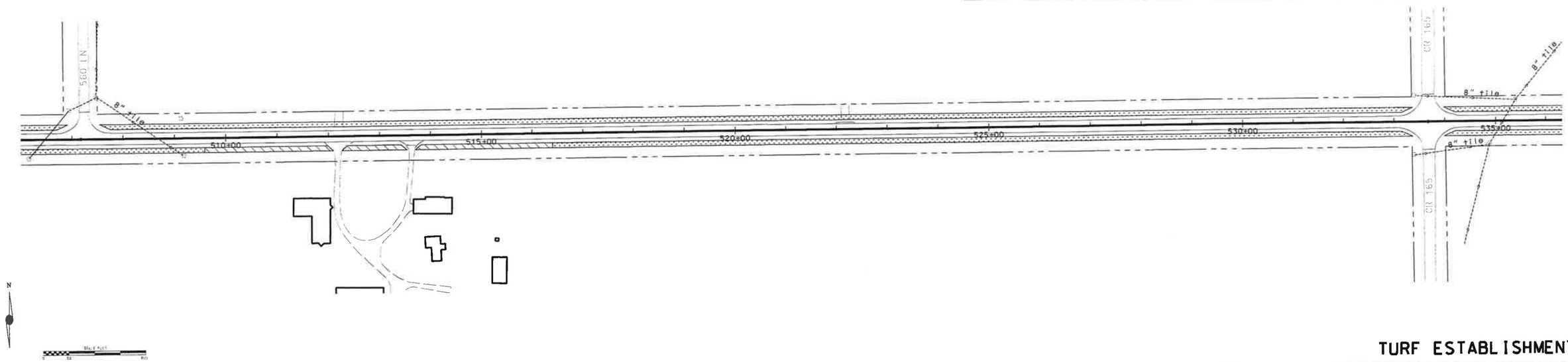
CSAH 10 SAP 07-610-20 SHEET 30 OF 78 SHEETS

P:/CSAH/10/GT-22/Turf Est 1.dgn 4/22/2011 10:14:49 AM



LEGEND

- INLET PROTECTION
- DITCH CHECK TYPE 7 ROCK
- DITCH CHECK TYPE 2 BIOROLL
- SILT BARRIERS
- TYPE 4 EROSION CONTROL BLANKET
- RIP RAP CL 3
- SEED MIX #280
- TYPE 1 EROSION CONTROL BLANKET & SEED MIX #270
- SUBSOIL



N

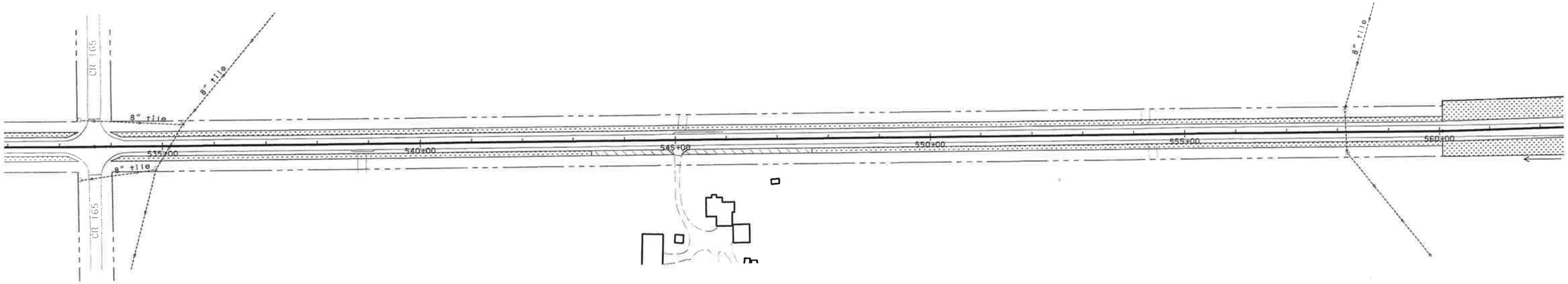
Map Plane

TURF ESTABLISHMENT

CERTIFIED BY Alan Forsberg LIC. NO. 14720 PROFESSIONAL ENGINEER MARCH 18, 2011

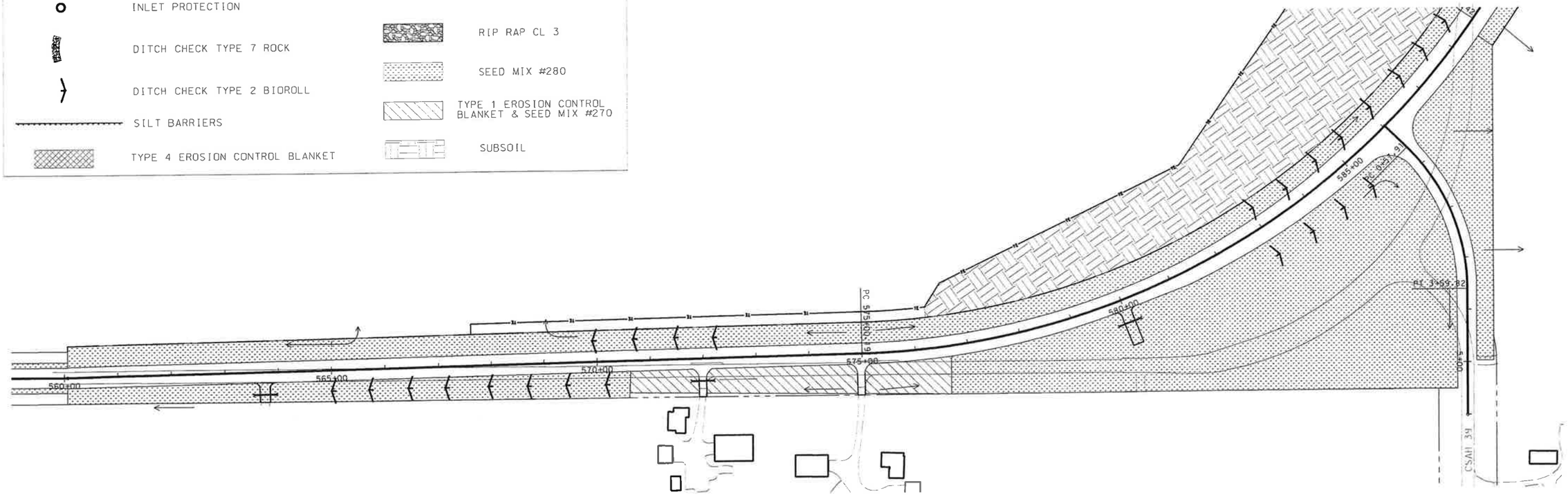
CSAH 10 SAP 07-610-20 SHEET 31 OF 78 SHEETS

P:/CSAH/10/GT-22/Turf Est 2.dgn 4/22/2011 10:15:26 AM



LEGEND

- INLET PROTECTION
- DITCH CHECK TYPE 7 ROCK
- DITCH CHECK TYPE 2 BIOROLL
- SILT BARRIERS
- TYPE 4 EROSION CONTROL BLANKET
- RIP RAP CL 3
- SEED MIX #280
- TYPE 1 EROSION CONTROL BLANKET & SEED MIX #270
- SUBSOIL



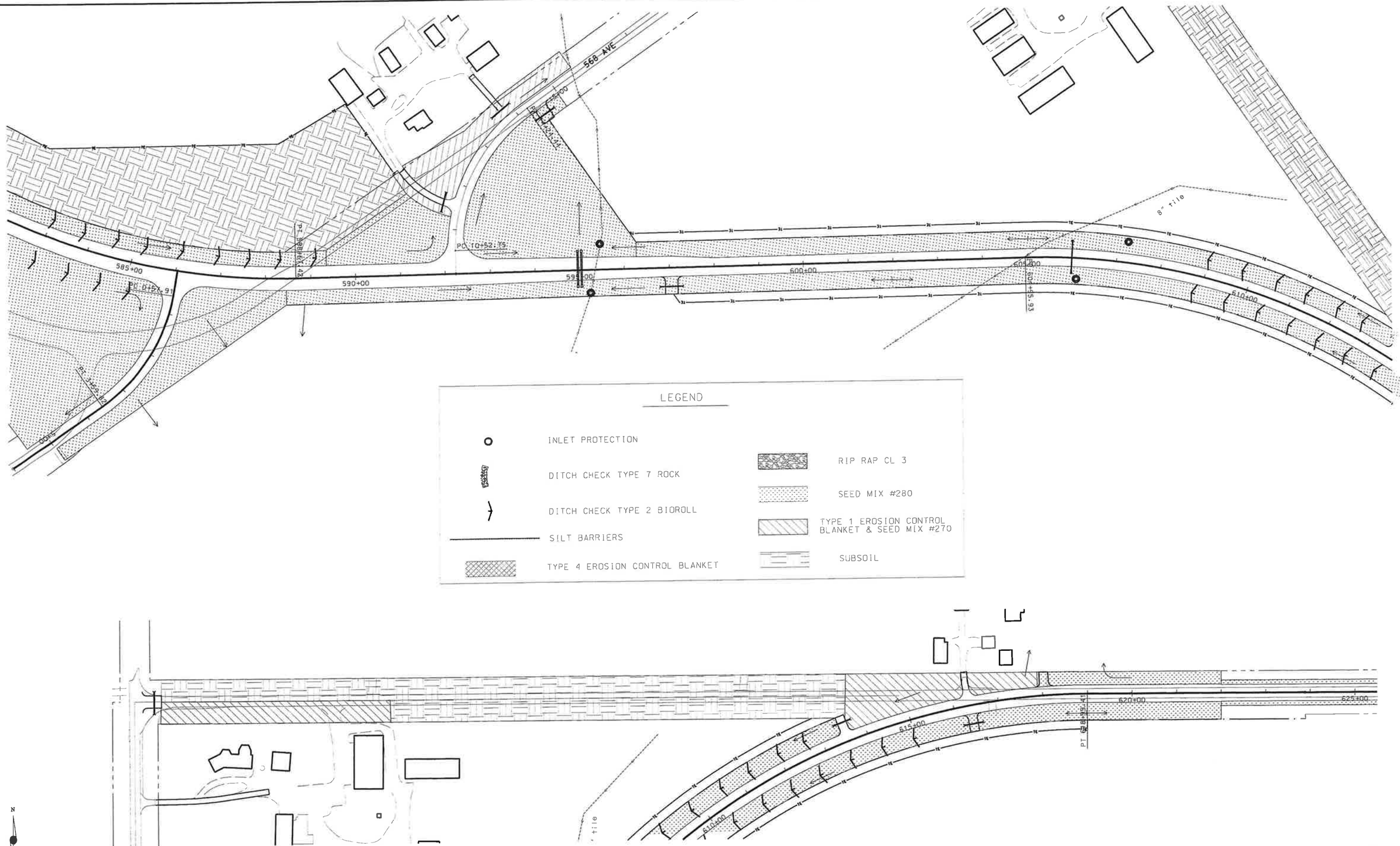
N

TURF ESTABLISHMENT

CERTIFIED BY Alan Forsberg LIC. NO. 14720 PROFESSIONAL ENGINEER MARCH 18, 2011

CSAH 10 SAP 07-610-20 SHEET 32 OF 78 SHEETS

P:/CSAH/10/GT-22/Turf Est 3.dgn 4/22/2011 10:16:57 AM

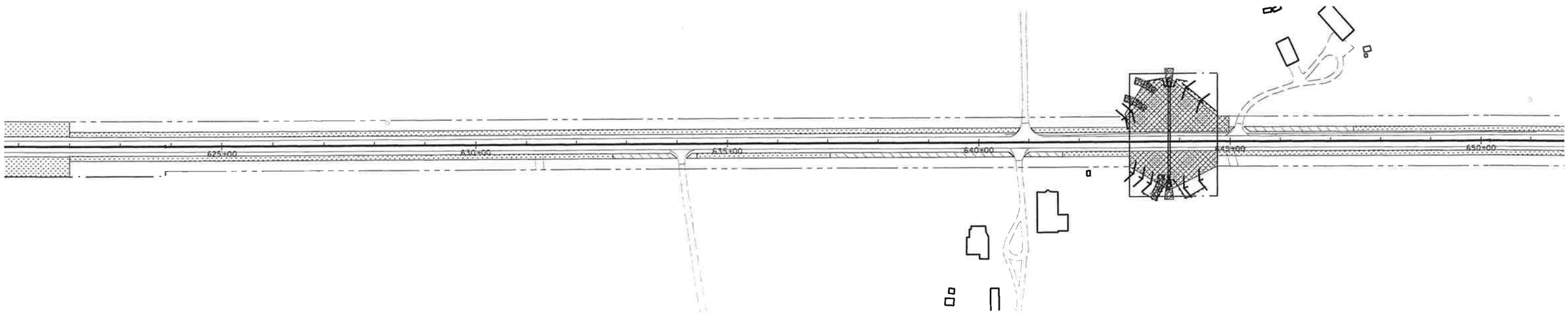


TURF ESTABLISHMENT

CERTIFIED BY Alan Forsberg LIC. NO. 14720 PROFESSIONAL ENGINEER MARCH 18, 2011

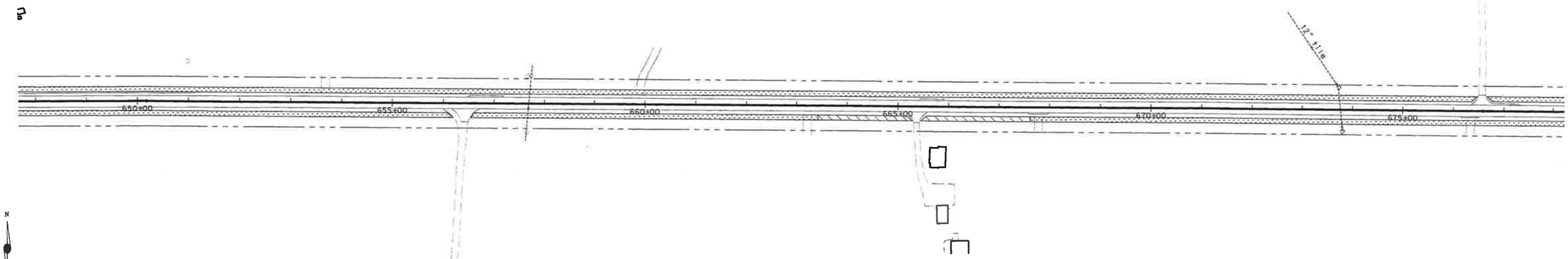
CSAH 10 SAP 07-610-20 SHEET 33 OF 78 SHEETS

Turf Est 4.dgn 6/8/2011 11:31:36 AM



LEGEND

- INLET PROTECTION
- DITCH CHECK TYPE 7 ROCK
- DITCH CHECK TYPE 2 BIOROLL
- SILT BARRIERS
- TYPE 4 EROSION CONTROL BLANKET
- RIP RAP CL 3
- SEED MIX #280
- TYPE 1 EROSION CONTROL BLANKET & SEED MIX #270
- SUBSOIL

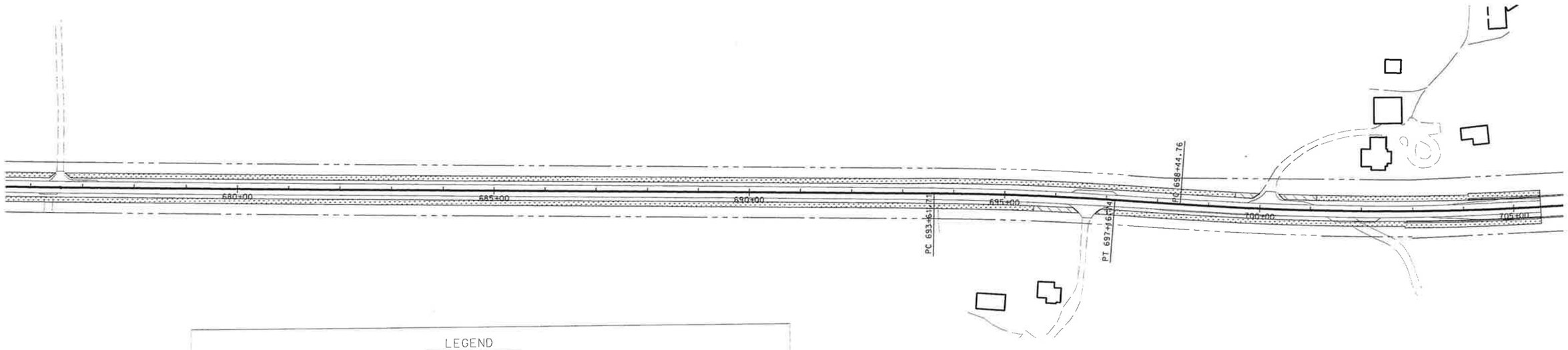


TURF ESTABLISHMENT

CERTIFIED BY Alan Forsberg LIC. NO. 14720 PROFESSIONAL ENGINEER MARCH 18, 2011

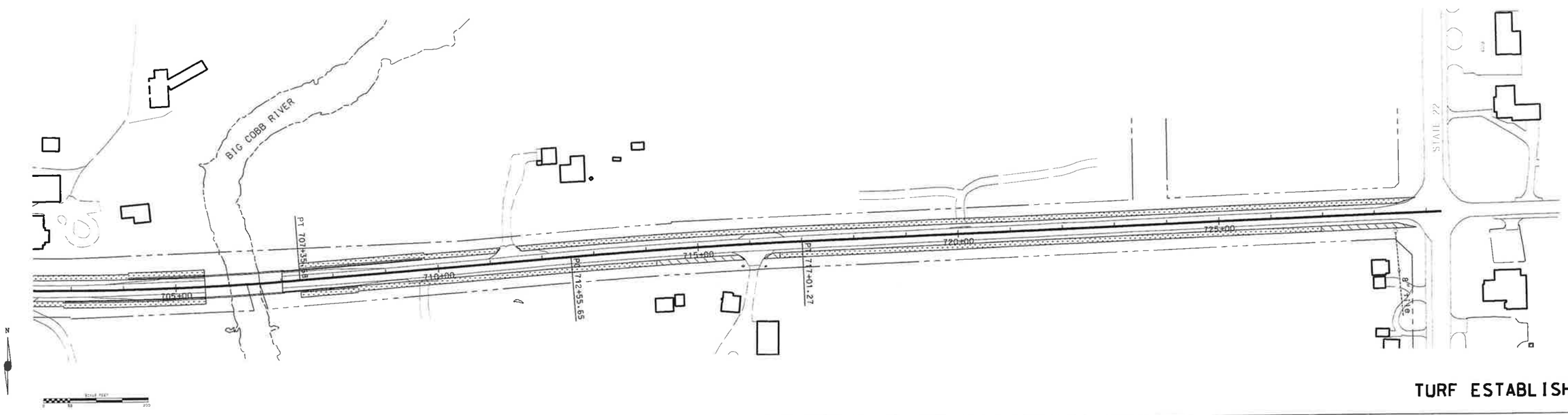
CSAH 10 SAP 07-610-20 SHEET 34 OF 78 SHEETS

P:/CSAH/10/GT-22/Turf Est 5.dgn 4/22/2011 10:18:18 AM



LEGEND

- INLET PROTECTION
- DITCH CHECK TYPE 7 ROCK
- DITCH CHECK TYPE 2 BIOROLL
- SILT BARRIERS
- TYPE 4 EROSION CONTROL BLANKET
- RIP RAP CL 3
- SEED MIX #280
- TYPE 1 EROSION CONTROL BLANKET & SEED MIX #270
- SUBSOIL

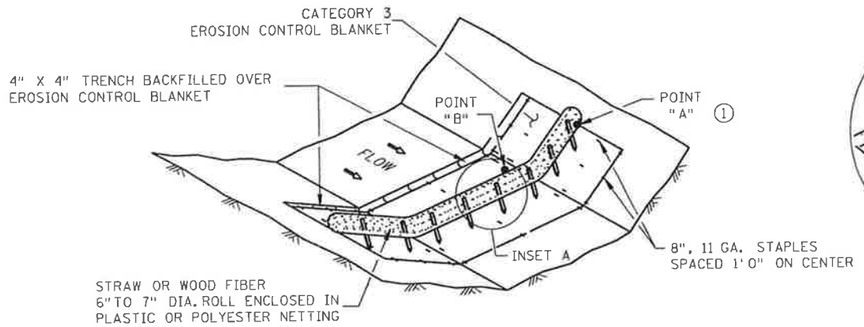


TURF ESTABLISHMENT

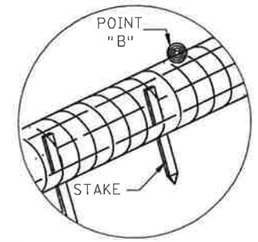
CERTIFIED BY Alan Forsberg LIC. NO. 14720 PROFESSIONAL ENGINEER MARCH 18, 2011

CSAH 10 SAP 07-610-20 SHEET 35 OF 78 SHEETS

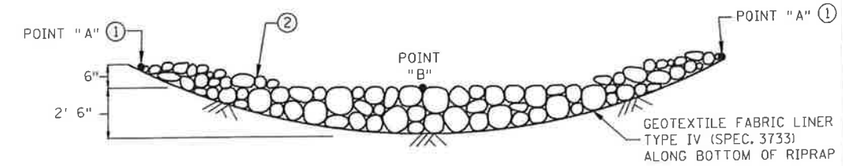
P:/CSAH/10/GT-22/Turf Est 6.dgn 4/22/2011 10:18:35 AM



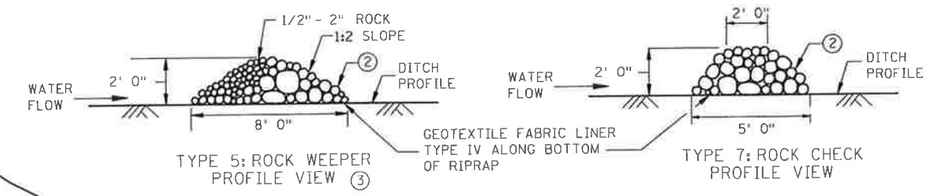
TYPE 3: BIOROLL BLANKET SYSTEM DITCH CHECK



INSET A



CROSS SECTION (ROCK WEEPER AND ROCK CHECK)

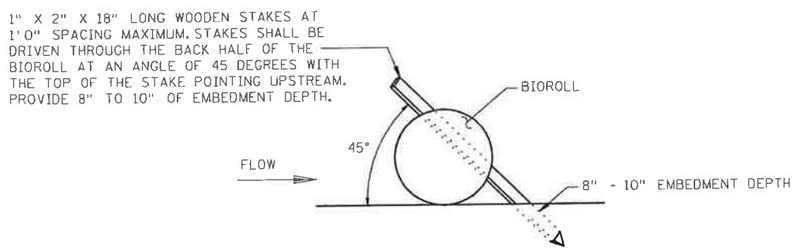


TYPE 5: ROCK WEEPER
PROFILE VIEW ③

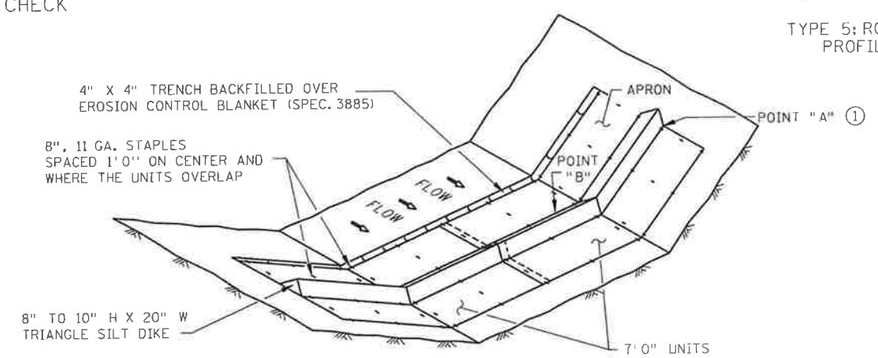
TYPE 7: ROCK CHECK
PROFILE VIEW

TYPE 5: ROCK WEEPER AND
TYPE 7: ROCK CHECK DITCH CHECKS ④

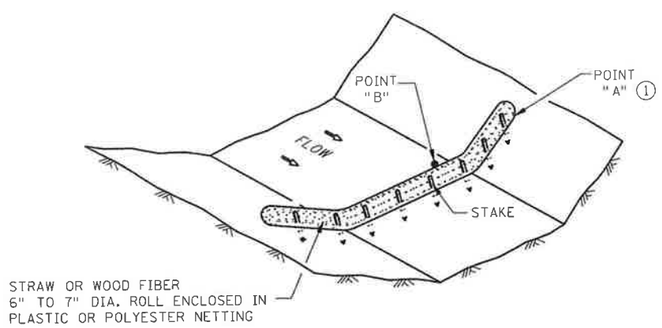
USE ON ROUGH GRADED AREAS



BIOROLL STAKING DETAIL

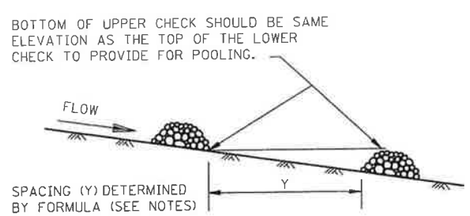


TYPE 6: GEOTEXTILE TRIANGULAR DIKE DITCH CHECK

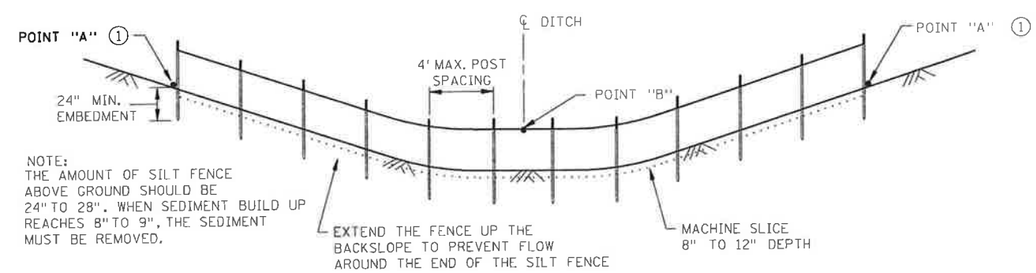


TYPE 2: BIOROLL DITCH CHECK

USE ON ROUGH GRADED AREAS



DITCH CHECK SPACING ④



TYPE 1: SLICED IN SILT FENCE DITCH CHECK

GENERAL DESIGN GUIDELINES						
DITCH CHECK TYPE	SILT FENCE	BIOROLL	BIOROLL BLANKET	TRIANGULAR DIKE	ROCK WEEPER	ROCK CHECK
STORM FREQUENCY: MAX. FLOW VELOCITY: MAX. DITCH GRADE: MAX. DRAINAGE AREA:	2 YR. - 24 HR. < 1 FT./SECOND 0% - 0.5% 1 ACRE	2 YR. - 24 HR. 1.5 FT./SECOND 1.5% - 3% 2 ACRE	2 YR. - 24 HR. 4.5 FT./SECOND 1.5% - 3% 2 ACRE	2 YR. - 24 HR. 1.5 FT./SECOND 1.5% - 2.0% 4 ACRE	5 YR. - 24 HR. 12 FT./SECOND 3% - 5% 4+ ACRE	5 YR. - 24 HR. 12 FT./SECOND 3% - 5% 4+ ACRE

NOTES:

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

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 CLASS I - IV RIPRAP (SPEC. 3601) WITH GEOTEXTILE FABRIC LINER, TYPE IV (SPEC. 3733).

③ THE ROCK WEEPER FILTERS SEDIMENT OUT OF THE WATER BETTER THAN THE OTHER DITCH CHECKS. THE ROCK WEEPER COULD BE USED AS A PERMANENT WATER FILTERING FEATURE.

④ PERMANENT ROCK DITCH CHECKS PLACED WITHIN THE CLEAR ZONE WILL NEED TO BE 18" OR LESS IN HEIGHT. A 1:6 APPROACH AND DEPARTURE SLOPE SHALL BE PROVIDED.

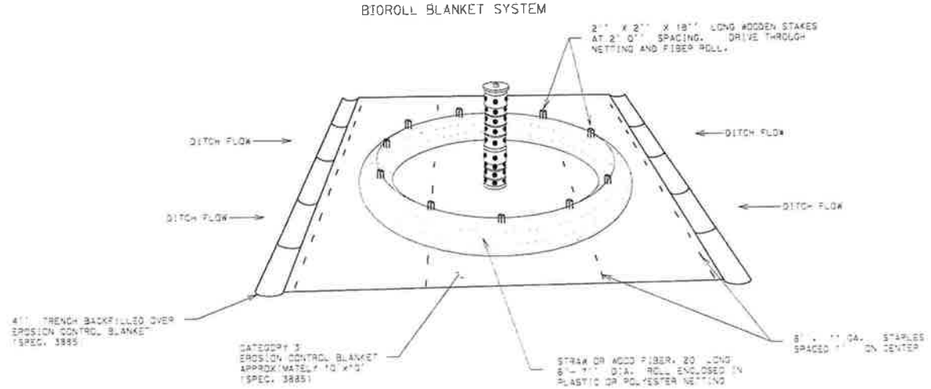
STANDARD SHEET NO.
5-297.405 (3 OF 4)
STANDARD APPROVED:
SEPTEMBER 27, 2006

TEMPORARY SEDIMENT CONTROL
DITCH CHECK/BARRIER

CSAH 10 SAP 07-610-20 SHEET NO. 36 OF 78 SHEETS

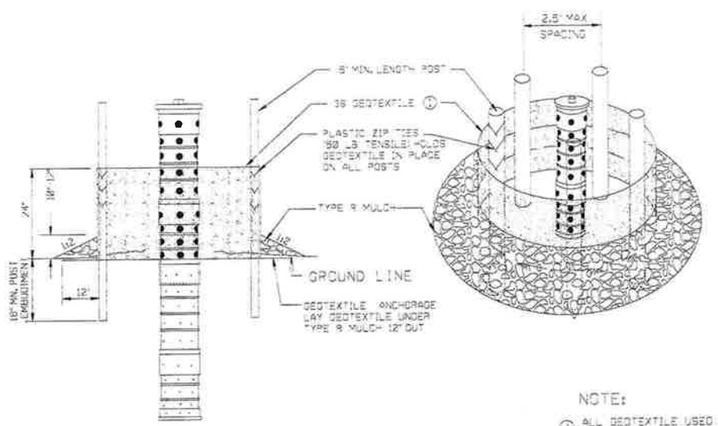
INLET PROTECTION TYPE DI.

BIOROLL BLANKET SYSTEM



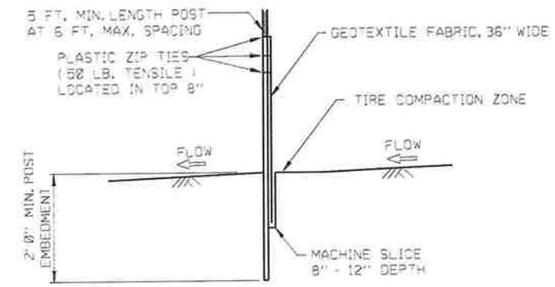
SILT FENCE RING AND ROCK FILTER BERM

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



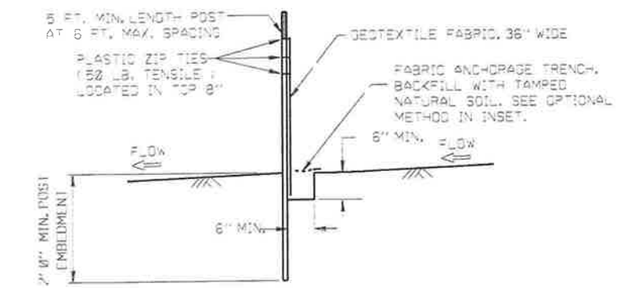
NOTE:

① ALL GEOTEXTILE USED FOR INLET PROTECTION SHALL BE MONOFILAMENT IN BOTH DIRECTIONS, MEETING SPEC. 3886.



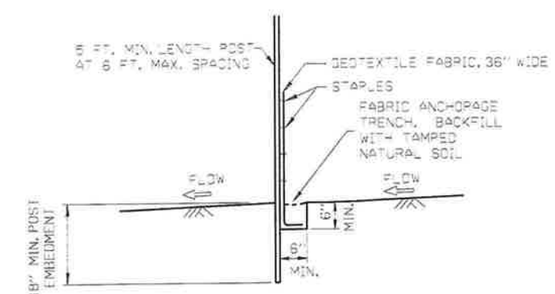
SILT FENCE, MACHINE SLICED

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



SILT FENCE, HEAVY DUTY (HAND INSTALLED)

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



SILT FENCE, PREASSEMBLED

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

TEMPORARY EROSION CONTROL

CERTIFIED BY Alan Forsberg ALAN FORSBERG REG. NO. 14720 PROFESSIONAL ENGINEER MARCH 18, 2011

STRIPING 2582
STATION TO STATION

	LEFT ARROW EACH	RIGHT ARROW EACH	4" SOLID LINE WHITE LIN FT
CSAH 10 EBL			
435 + 10 TO 458 + 0 EDGE LINE			2,290
459 + 0 TO 480 + 30 EDGE LINE			2,130
481 + 30 TO 533 + 20 EDGE LINE			5,190
534 + 20 TO 585 + 50 EDGE LINE			5,130
583 + 5 TO 585 + 50 RT TURN			245
590 + 0 TO 591 + 80 LT TURN			180
586 + 50 TO 728 + 70 EDGE LINE			14,220
584 + 0		1	
590 + 75	1		
CSAH 10 WBL			
435 + 50 TO 480 + 30 EDGE LINE			4,480
481 + 30 TO 506 + 80 EDGE LINE			2,550
507 + 80 TO 533 + 20 EDGE LINE			2,540
534 + 20 TO 591 + 80 EDGE LINE			5,760
586 + 45 TO 588 + 40 LT TURN			195
592 + 70 TO 595 + 0 RT TURN			230
592 + 70 TO 728 + 70 EDGE LINE			13,600
587 + 50	1		
594 + 0		1	
CSAH 39			
0 + 50 TO 5 + 0 EDGE LINE RT			450
0 + 50 TO 5 + 0 EDGE LINE LT			450
568 AVE			
10 + 50 TO 15 + 50 EDGE LINE RT			500
10 + 50 TO 15 + 50 EDGE LINE LT			500
CSAH 10 TOTALS	2	2	60,640
CR 166			
1 + 0 TO 13 + 50 EDGE LINE RT			1,250
1 + 0 TO 13 + 50 EDGE LINE LT			1,250
CR 166 TOTALS	0	0	2,500
TOTALS	2	2	63,140

1) SKIP DASH RATIO IS 40' GAP 10' STRIPE.

2) ALL NO PASSING ZONES WILL BE CHECKED & MARKED IN THE FIELD BY BLUE EARTH COUNTY.

3) YELLOW CROSSHATCHING 24" SOLID LINE YELLOW @ 30' SPACING 45^ TO CENTERLINE.

TEMPORARY LANE MARKING
PLACE 4' PER 50'
PLACED ON EVERY LIFT. REMOVED BEFORE NEXT LIFT AND PRIOR TO STRIPING.

STATION TO STATION	RD STA	LIFTS	LIN FT
CSAH 10			
435 + 10 TO 729 + 0 CL	294	2	4,704
CSAH 10 TOTAL			4,704
CR 166			
1 + 0 TO 13 + 50 CL	12	1	96
CR 166 TOTAL			96
TOTALS			**4,800**

STRIPING 2582
STATION TO STATION

	4" SOLID LINE YELLOW LIN FT	4" BROKEN LINE YELLOW LIN FT	4" DBL SOLID LINE YELLOW LIN FT	24" SOLID LINE YELLOW LIN FT
CSAH 10 EBL				
435 + 10 TO 443 + 0	790			
443 + 0 TO 448 + 0			500	
448 + 0 TO 457 + 0		180		
457 + 0 TO 458 + 0			100	
458 + 0 TO 466 + 0	800			
466 + 0 TO 473 + 0			700	
473 + 0 TO 480 + 0		140		
480 + 0 TO 482 + 0			200	
482 + 0 TO 488 + 0	600			
488 + 0 TO 492 + 0			400	
492 + 0 TO 539 + 0		940		
539 + 0 TO 549 + 0	1,000			
549 + 0 TO 566 + 0		340		
566 + 0 TO 575 + 0	900			
575 + 0 TO 585 + 60			1,060	
586 + 45 TO 591 + 80			535	
592 + 70 TO 597 + 0			430	
597 + 0 TO 611 + 0		280		
611 + 0 TO 619 + 0	800			
619 + 0 TO 637 + 0		360		
637 + 0 TO 645 + 0	800			
645 + 0 TO 646 + 0			100	
646 + 0 TO 655 + 0		180		
655 + 0 TO 665 + 0	1,000			
665 + 0 TO 689 + 0		480		
689 + 0 TO 693 + 60	460			
693 + 60 TO 698 + 45			485	
698 + 45 TO 709 + 0		211		
709 + 0 TO 717 + 0	800			
717 + 0 TO 729 + 0			1,200	
CSAH 10 WBL				
435 + 0 TO 443 + 0		160		
448 + 0 TO 457 + 0	900			
458 + 0 TO 466 + 0		160		
473 + 0 TO 480 + 0	700			
482 + 0 TO 488 + 0		120		
492 + 0 TO 501 + 0	900			
539 + 0 TO 549 + 0		200		
549 + 0 TO 557 + 0	800			
566 + 0 TO 575 + 0		180		
581 + 60 TO 585 + 60			400	80
592 + 70 TO 597 + 0			430	80
611 + 0 TO 619 + 0		160		
619 + 0 TO 627 + 0	800			
637 + 0 TO 645 + 0		160		
646 + 0 TO 655 + 0	900			
655 + 0 TO 665 + 0		200		
665 + 0 TO 675 + 0	1,000			
689 + 0 TO 693 + 60		92		
698 + 45 TO 709 + 0	1,055			
709 + 0 TO 717 + 0		160		
CSAH 39				
0 + 50 TO 5 + 0 NBL	450			
0 + 50 TO 5 + 0 SBL		90		
568 AVE				
10 + 50 TO 15 + 50 CL			500	
CSAH 10 TOTAL	15,455	4,793	7,040	160
CR 166				
1 + 0 TO 13 + 50 CL			1,250	
CR 166 TOTAL	0	0	1,250	0
TOTALS	15,455	4,793	8,290	160

CERTIFIED BY Alan Forsberg LIC. NO. 14720 MARCH 18, 2011

P:\CSAH\10\GT-22\Excel\[STRIPING.xls]A

BENCO POWER POLES

BY UTILITY

STATION	LOCATION	INPLACE	REMARKS
CSAH 10			
572 + 33	70 RT	PP	Leave In Place
572 + 38	71 RT	PP	Leave In Place
574 + 79	76 RT	PP	Leave In Place
576 + 83	91 RT	PP	Leave In Place
578 + 74	135 RT	PP	Leave In Place
580 + 49	204 RT	PP	Leave In Place
582 + 59	328 RT	PP	Leave In Place
587 + 38	15 RT	PP	RELOCATE
589 + 48	126 LT	PP	RELOCATE
611 + 66	155 LT	PP	Leave In Place
614 + 50	18 LT	PP	RELOCATE
617 + 8	67 LT	PP	Leave In Place
617 + 47	38 RT	PP	RELOCATE
617 + 50	47 RT	PP	RELOCATE
620 + 93	45 RT	PP	RELOCATE
623 + 92	45 RT	PP	Leave In Place
CSAH 39			
2 + 49	36 RT	PP	RELOCATE
4 + 63	52 RT	PP	Leave In Place
568th AVE			
12 + 93	75 LT	PP	Leave In Place
15 + 74	46 LT	PP	Leave In Place
OBLIT 2			
30 + 40	53 LT	PP	Leave In Place
33 + 24	48 RT	PP	Leave In Place
36 + 45	48 RT	PP	Leave In Place
40 + 10	48 RT	PP	Leave In Place

HICKORY TECH TEL. PEDS. & CABLE

BY UTILITY

STATION	LOCATION	INPLACE	REMARKS VERIFY IN FIELD
CSAH 10			
452 + 0 to 453 + 92	LT	T-BUR	
453 + 92	CL XING	T-BUR	CHECK IN FIELD
453 + 92 to 481 + 15	RT	T-BUR	
481 + 10	59' RT	TEL - PED	
481 + 15	CL XING	T-BUR	CHECK IN FIELD
481 + 5	92' LT	TEL - PED	
481 + 15 to 495 + 10	LT	T-BUR	
484 + 65	52' LT	TEL - PED	
493 + 52	47' LT	TEL - PED	
495 + 10	36' LT	TEL - PED	
495 + 10	CL XING	T-BUR	CHECK IN FIELD
495 + 10 to 507 + 56	LT	T-BUR	
497 + 50	47' LT	TEL - PED	
499 + 30	47' LT	TEL - PED	
507 + 56	58' LT	TEL - PED	
507 + 56	CL XING	T-BUR	
507 + 56 to 512 + 0	LT	T-BUR	
512 + 0	47' LT	TEL - PED	
511 + 93	CL XING	T-BUR	CHECK IN FIELD
511 + 86	42' RT	TEL - PED	
512 + 0 to 534 + 0	LT	T-BUR	
534 + 0	62' LT	TEL - PED	
534 + 0	CL XING	T-BUR	CHECK IN FIELD
534 + 0 to 544 + 96	LT	T-BUR	
544 + 96	46' LT	TEL - PED	
544 + 96	CL XING	T-BUR	CHECK IN FIELD
544 + 96 to 560 + 0	LT	T-BUR	
556 + 26	48' LT	TEL - PED	
560 + 0 to 571 + 77	LT	T-BUR	RELOCATE
571 + 77	23' LT	TEL - PED	RELOCATE
571 + 77	CL XING	T-BUR	RELOCATE
571 + 77 to 575 + 3	LT	T-BUR	RELOCATE
575 + 3	17' LT	TEL - PED	RELOCATE
575 + 5	CL XING	T-BUR	RELOCATE
575 + 3 to 576 + 86	LT	T-BUR	RELOCATE
576 + 86	CL XING	T-BUR	RELOCATE
576 + 86 to 584 + 50	RT	T-BUR	RELOCATE
CSAH 39			
0 + 58	82' LT	TEL - PED	RELOCATE
1 + 20	155' LT	TEL - PED	CHECK IN FIELD
1 + 47	CL XING	T-BUR	RELOCATE
0 + 58 to 1 + 47	LT	T-BUR	RELOCATE
1 + 47 to 4 + 56	RT	T-BUR	RELOCATE
0 + 58 to 1 + 20	LT	T-BUR	RELOCATE
1 + 20 to 4 + 80	LT	T-BUR	CHECK IN FIELD
CSAH 10			
586 + 85	64' RT	TEL - PED	RELOCATE
586 + 85 to 587 + 62	RT	T-BUR	RELOCATE
587 + 62	CL XING	T-BUR	RELOCATE
587 + 62 to 591 + 0	LT	T-BUR	RELOCATE
568th AVE			
11 + 80 to 16 + 0	LT	T-BUR	CHECK IN FIELD
13 + 0	70' LT	TEL - PED	LEAVE IN PLACE
OBLIT 2			
30 + 33	64' LT	TEL - PED	LEAVE IN PLACE
30 + 33 to 47 + 22	LT	T-BUR	CHECK IN FIELD
31 + 43	47' LT	TEL - PED	CHECK IN FIELD
31 + 43	CL XING	T-BUR	RELOCATE

HICKORY TECH TEL. PEDS. & CABLE

BY UTILITY

STATION	LOCATION	INPLACE	REMARKS VERIFY IN FIELD
CSAH 10			
615 + 26	95' LT	TEL - PED	CHECK IN FIELD
615 + 26 to 633 + 83	LT	T-BUR	CHECK IN FIELD
622 + 0	Ditch LT	T-BUR	CHECK IN FIELD
633 + 83	49' LT	TEL - PED	
633 + 83	CL XING	T-BUR	CHECK IN FIELD
633 + 83 to 641 + 10	LT	T-BUR	
635 + 91	47' LT	TEL - PED	
641 + 10	79' LT	TEL - PED	
641 + 10	CL XING	T-BUR	CHECK IN FIELD
641 + 10 to 642 + 0	LT	T-BUR	
641 + 10 to 642 + 0	RT	T-BUR	
642 + 0 to 645 + 0	LT	T-BUR	RELOCATE
642 + 0 to 645 + 0	RT	T-BUR	RELOCATE
645 + 0 to 656 + 46	LT	T-BUR	
656 + 8	47' LT	TEL - PED	
656 + 46	48' LT	TEL - PED	
645 + 0 to 656 + 66	RT	T-BUR	
656 + 66	49' RT	TEL - PED	
656 + 56	CL XING	T-BUR	CHECK IN FIELD
656 + 46 to 666 + 8	LT	T-BUR	
666 + 8	47' LT	TEL - PED	
666 + 8 to 676 + 77	LT	T-BUR	
656 + 66 to 666 + 92	RT	T-BUR	
666 + 92	48' RT	TEL - PED	
666 + 92 to 696 + 78	RT	T-BUR	
696 + 78	86' RT	TEL - PED	
696 + 75	CL XING	T-BUR	CHECK IN FIELD
696 + 71	54' LT	TEL - PED	
696 + 71 to 701 + 60	LT	T-BUR	
701 + 60	42' LT	TEL - PED	
701 + 62	CL XING	T-BUR	CHECK IN FIELD
701 + 64	55' RT	TEL - PED	
701 + 64 to 716 + 59	RT	T-BUR	
716 + 59	43' RT	TEL - PED	
716 + 38	CL XING	T-BUR	CHECK IN FIELD
716 + 18	45' LT	TEL - PED	
716 + 18 to 713 + 20	LT	T-BUR	
713 + 20	54' LT	TEL - PED	
716 + 59 to 728 + 76	RT	T-BUR	
728 + 76	27' RT	TEL - PED	
728 + 76	CL XING	T-BUR	
728 + 76	91' LT	TEL - PED	
696 + 0 to 729 + 0	LT	FIBER	

UTILITIES

CERTIFIED BY Alan Forsberg LIC. NO. 14720 March 18, 2011

P:\CSAH\10\GT-22\Excel\[PP.xls]A

CENTER OF R/W ALIGNMENT DATA

HARN Geodetic position NAD 83 (1996)

PI #		PI STA	A	Curve	Tan	Radius	LC	SUPER	NORTHING	EASTING	AZ	DISTANCE
CSAH 26												
BOP		435+11.91							157193.201	553449.821	SE88^51'30"	1450.795
	PC	442+36.01							157178.773	554173.778		
1	PI	449+62.71	53^48' R	4^	726.70	1432.39	1345.00	6%	157164.294	554900.329	SE35^03'30"	1990.994
	PT	455+81.01							156569.445	555317.750		
	PC	461+00.71							156144.035	555616.271		
2	PI	468+45.31	54^56' L	4^	744.60	1432.39	1373.33	6%	155534.531	556043.975	SE89^59'30"	1355.851
	PT	474+74.04							155534.422	556788.574		
3		480+85.30	0^10'34" L						155534.334	557399.827	NE89^49'56"	2631.807
4		507+17.10	0^						155542.036	560031.622	NE89^49'56"	2650.689
5		533+67.79	0^05'15" R						155549.793	562682.299	NE89^55'11"	2638.227
6		560+06.02	1^07'21" L						155553.485	565320.524	NE88^47'51"	2234.901
	PC	575+00.19							155584.845	566814.371		
7	PI	582+40.92	54^41'21" L	4^	740.725	1432.394	1367.23	6%	155600.392	567554.932	NE34^06'30"	3133.09
	PT	588+67.42							156213.697	567970.3		
	PC	604+95.93							157562.07	568883.501		
8	PI	612+59.78	56^08'21" R	4^	763.851	1432.394	1403.48	6%	158194.522	569311.837	SE89^45'09"	1252.91
	PT	618+99.41							158191.223	570075.681		
9		623+88.47	0^02'36" R						158189.111	570564.733	SE89^42'33"	2629.22
10		650+17.69	0^43'59" R						158175.763	573193.921	SE88^58'33"	2640.04
11		676+57.73	0^02'44" L						158128.579	575833.536	SE89^01'18"	1881.56
	PC	693+61.71							158099.484	577537.274		
12	PI	695+39.28	3^33'01" R	1^	177.571	5729.58	355.03	2.7%	158096.452	577714.819	SE85^28'17"	751.95
	PT	697+16.74							158082.431	577891.835		
	PC	698+44.76							158072.323	578019.457		
13	PI	702+91.12	8^54'33" L	1^	446.357	5729.58	890.92	2.7%	158037.08	578464.42	NE85^37'10"	1189.17
	PT	707+35.68							158071.173	578909.473		
	PC	712+55.65							158110.888	579427.93		
14	PI	714+78.49	2^13'41" R	0^30'	222.839	11459.16	445.62	NC	158127.909	579650.118	NE87^50'51"	1450.90
	PT	717+01.27							158136.278	579872.8		
EOP		729+29.34							158182.401	581099.996		

ALIGNMENT FOR COLD INPLACE RECYCLING USE
CENTER OF EXISTING ROAD

ALIGNMENT DATA

PI #		PI STA	A	Curve	Tan	Radius	LC	SUPER	NORTHING	EASTING	AZ	DISTANCE
CSAH 39												
BOP		0+00.00							156010.102	567803.162	SE45^20'26	217.25
	PC	0+57.91							155969.400	567844.350		
1	PI	2+17.25	45^17'14" R	15^	159.34	381.97	301.92	4.5% (1)	155857.400	567957.689	SE 0^03'11	400.22
	PT	3+59.82							155698.059	567957.837		
EOP		6+00.71							155457.176	567958.060		
568 AVE NO.												
BOP		10+00.00							156508.476	568169.942	NW55^53'30	254.79
	PC	10+52.75							156538.054	568126.270		
1	PI	12+54.79	55^45'13" R	15^	202.05	381.97	371.69	4.5% (1)	156651.353	567958.980	NW 0^08'17	680.00
	PT	14+24.44							156853.398	567958.493		
EOP		19+02.39							157331.351	567957.341		
OBLIT 1												
BOP		20+00.00							155555.975	567254.999	NE89^55'49	417.08
	PC	21+31.07							155556.135	567386.069		
1	PI	24+17.08	53^03'19" L	10^	286.01	572.96	530.55		155556.483	567672.080	NE36^52'30	297.46
	PT	26+61.62							155785.276	567843.707		
EOP		26+73.07							155794.431	567850.574		
OBLIT 2												
BOP		30+00.00							158200.583	567955.248	SE89^44'14	1700.68
EOP		47+00.68							158192.786	569655.914		

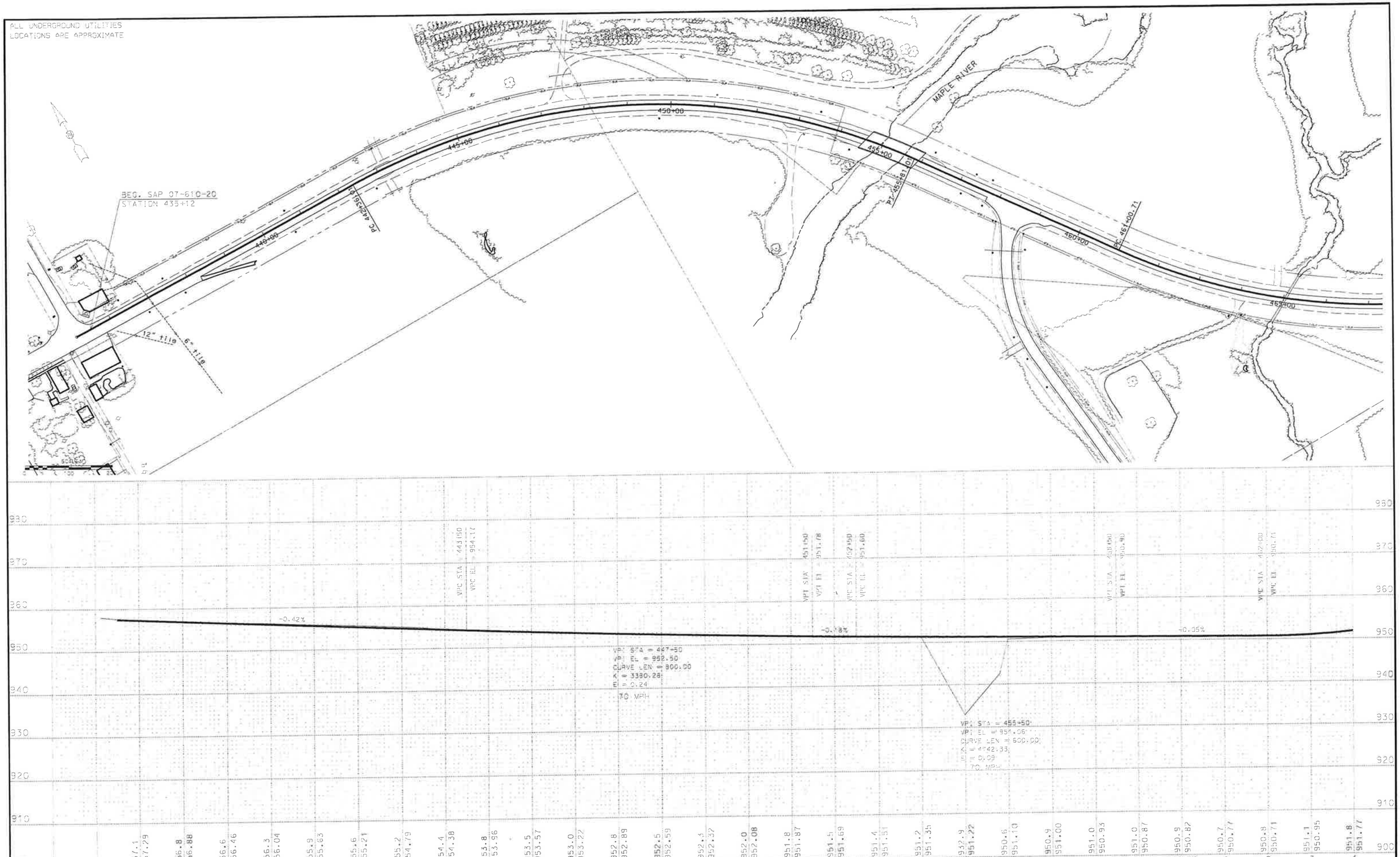
(1) STOP CONDITION

P:\CSAH\10\GT-22\Excel\[10_Align.xls]Sheet1

CERTIFIED BY Alan Forsberg LIC. NO. 14720 MAR. 18, 2011

ALIGNMENT DATA

ALL UNDERGROUND UTILITIES
LOCATIONS ARE APPROXIMATE

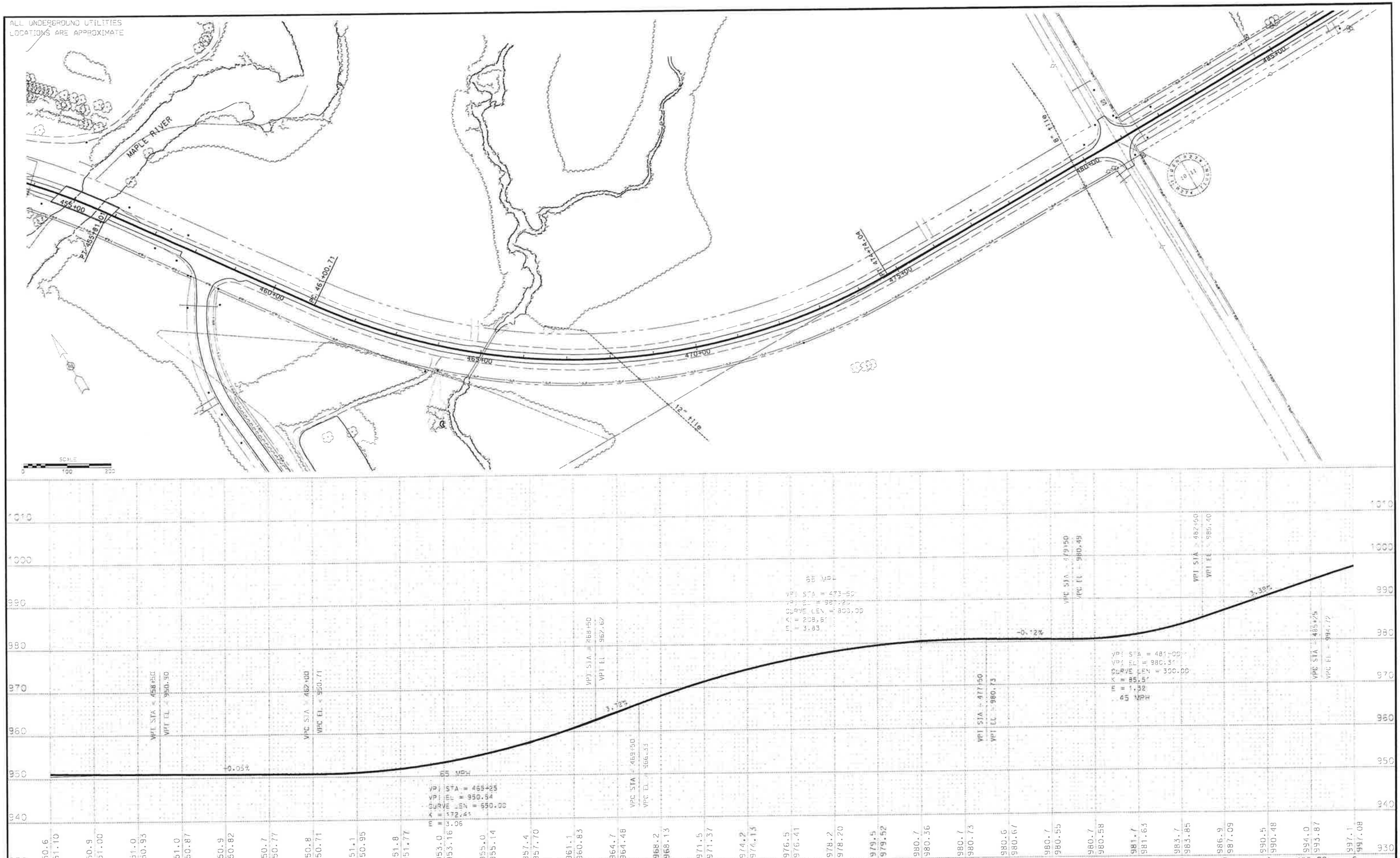


CERTIFIED BY Alan Ronsberg PROFESSIONAL ENGINEER LIC. NO. 14720 MAR. 18 2011

CSAH 10 SAP 07-610-20 SHEET 41 OF 78 SHEETS

.../CSAH/10/GT-22/DGN/RCp01001.dgn 4/22/2011 10:02:22 AM

ALL UNDERGROUND UTILITIES
LOCATIONS ARE APPROXIMATE

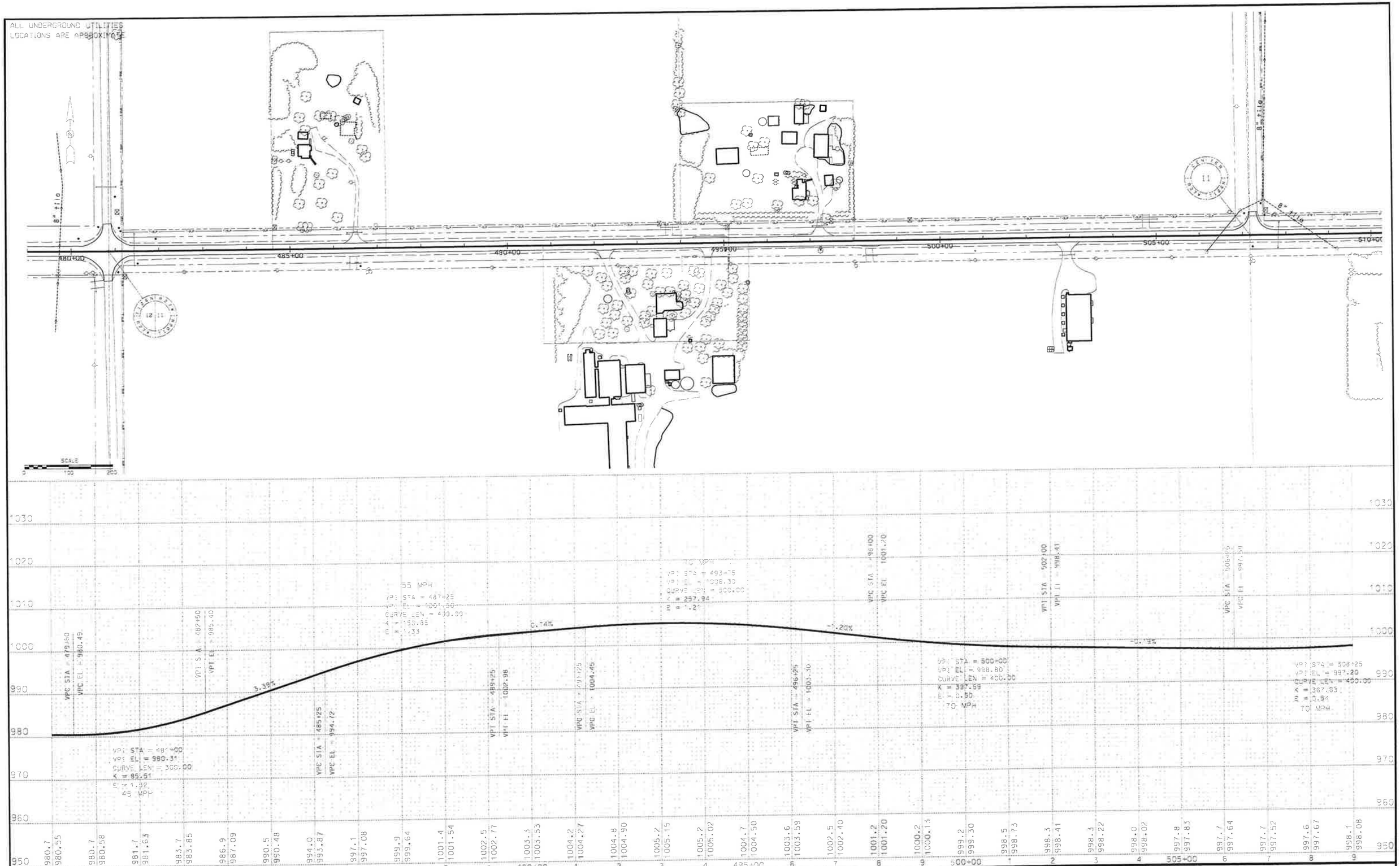


CERTIFIED BY Alan Forsberg PROFESSIONAL ENGINEER LIC. NO. 14720 MAR. 18 2011

CSAH 10 SAP 07-610-20 SHEET 42 OF 78 SHEETS

.../CSAH/10/GT-22/DGN/RCp02001.dgn 4/22/2011 10:21:02 AM

ALL UNDERGROUND UTILITIES
LOCATIONS ARE APPROXIMATE

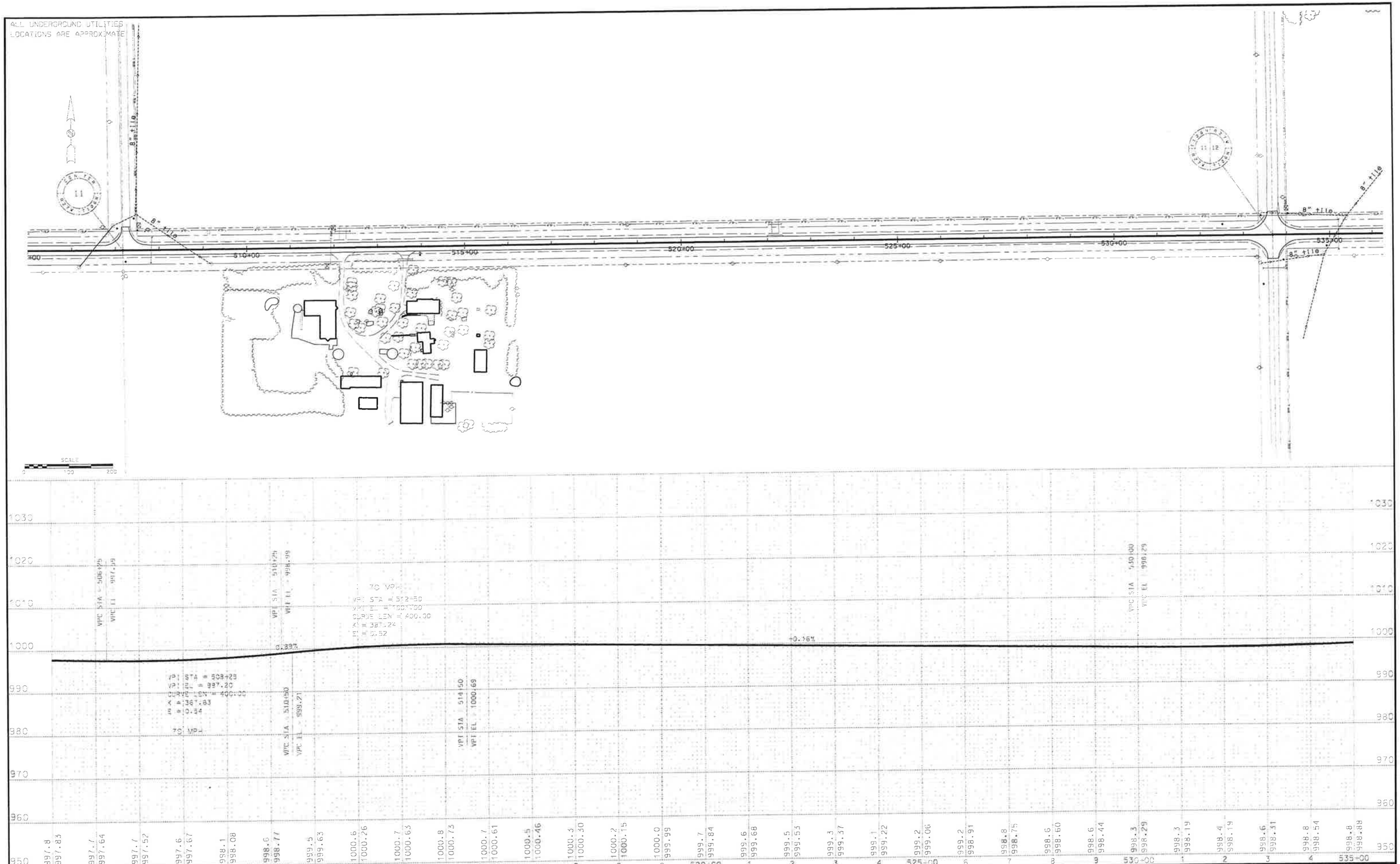


CERTIFIED BY Alan Forsberg PROFESSIONAL ENGINEER LIC. NO. 14720 MAR. 18 2011

CSAH 10 SAP 07-610-20 SHEET 43 OF 78 SHEETS

.../CSAH/10/GT-22/DGN/RCp03001.dgn 4/22/2011 10:21:34 AM

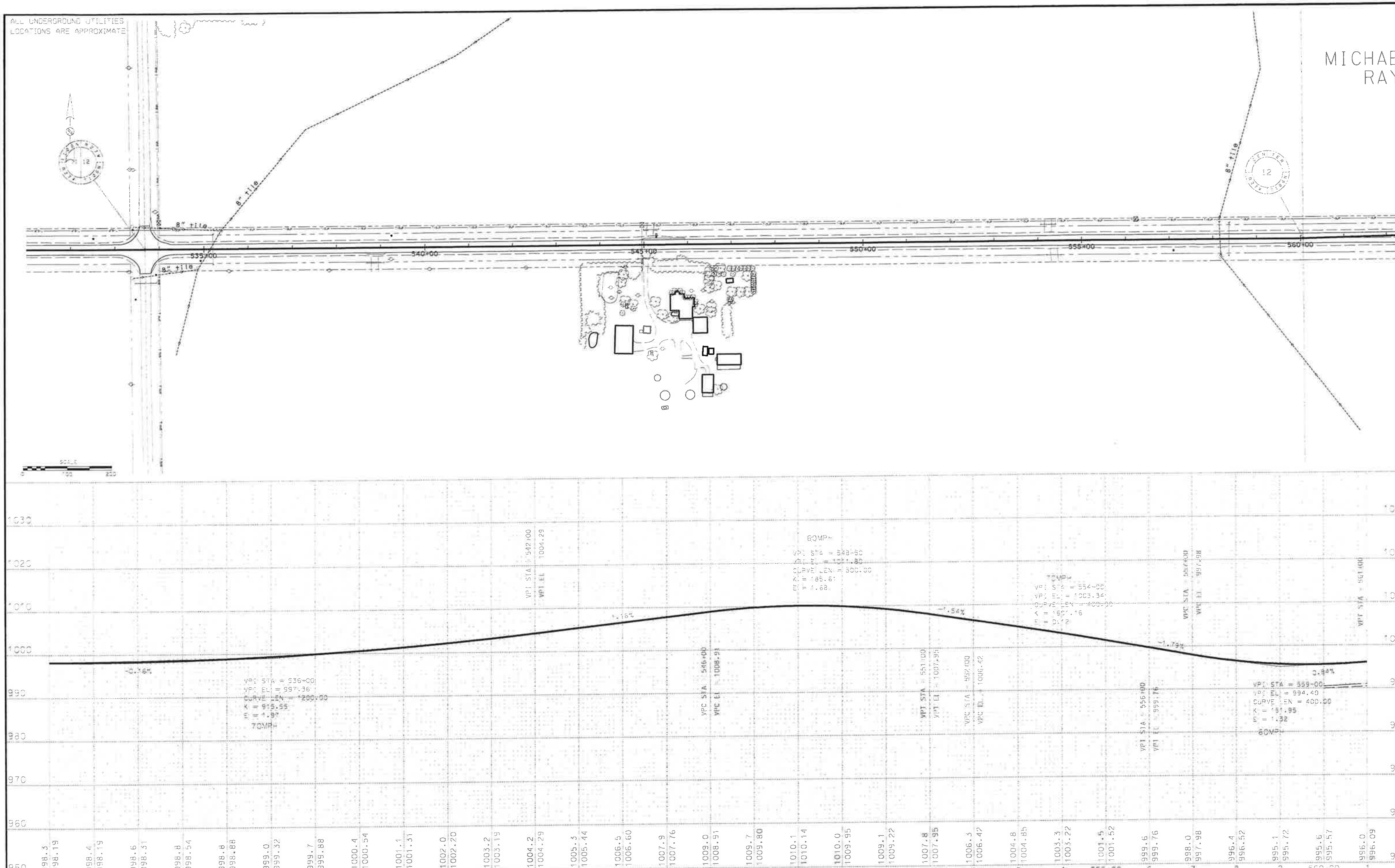
ALL UNDERGROUND UTILITIES
LOCATIONS ARE APPROXIMATE



CERTIFIED BY Alan Forsberg PROFESSIONAL ENGINEER LIC. NO. 14720 MAR. 18 2011

CSAH 10 SAP 07-610-20 SHEET 44 OF 78 SHEETS

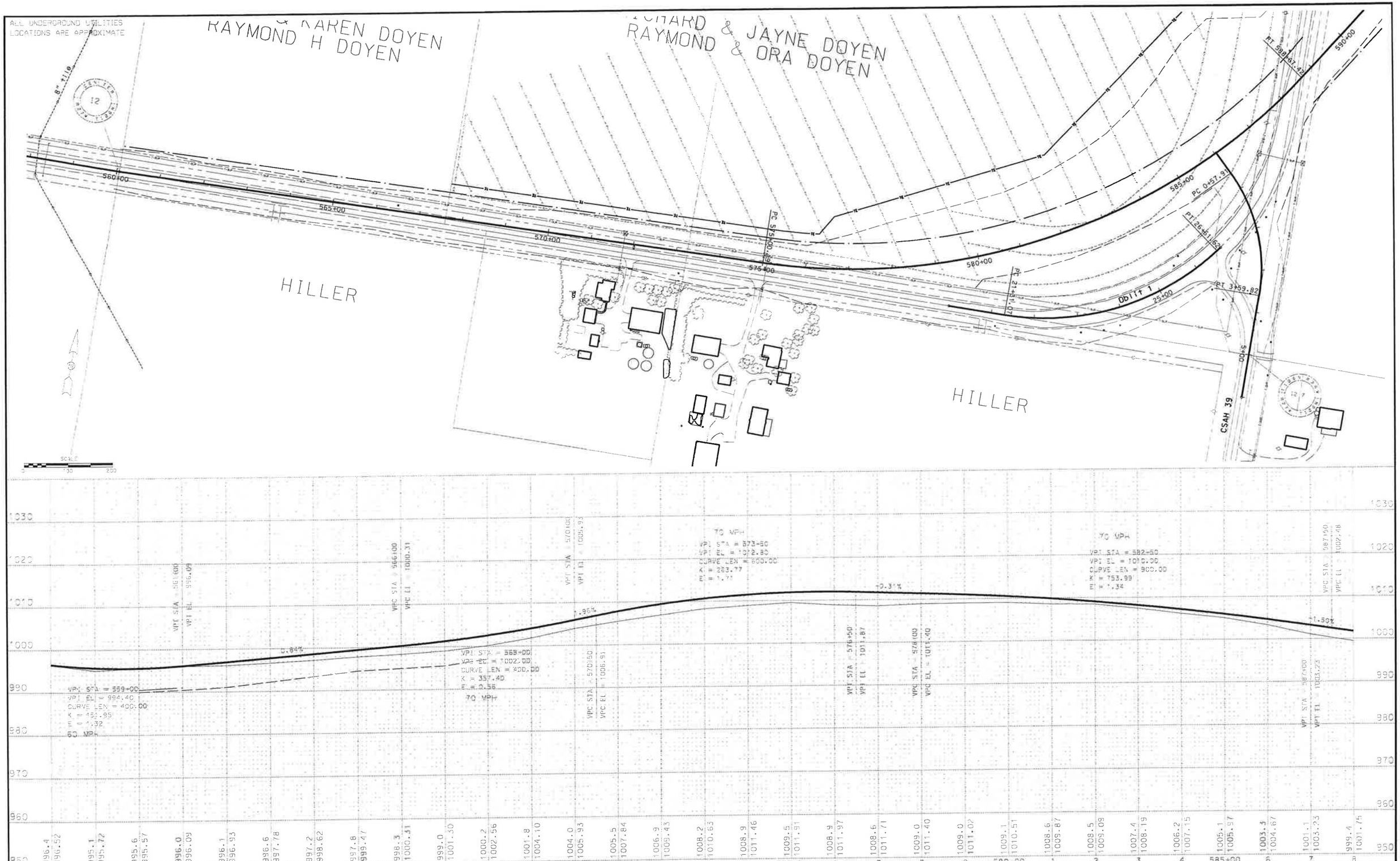
.../CSAH/10/GT-22/DGN/RCp04001.dgn 4/22/2011 10:22:18 AM



CERTIFIED BY Alan Forsberg PROFESSIONAL ENGINEER LIC. NO. 14720 MAR. 18 2011

CSAH 10 SAP 07-610-20 SHEET 45 OF 78 SHEETS

.../CSAH/10/GT-22/DGN/RCp05001.dgn 4/22/2011 10:22:54 AM



CERTIFIED BY Alan Forsberg PROFESSIONAL ENGINEER LIC. NO. 14720 MAR. 18 2011

CSAH 10 SAP 07-610-20 SHEET 46 OF 78 SHEETS

.../CSAH/10/GT-22/DGN/RCp06001.dgn 4/22/2011 10:23:27 AM

ALL UNDERGROUND UTILITIES LOCATIONS ARE APPROXIMATE

568 AVE

PC 10+52.75

RT 598+67.42

0+57.91

14+24.44

OBLIT 2

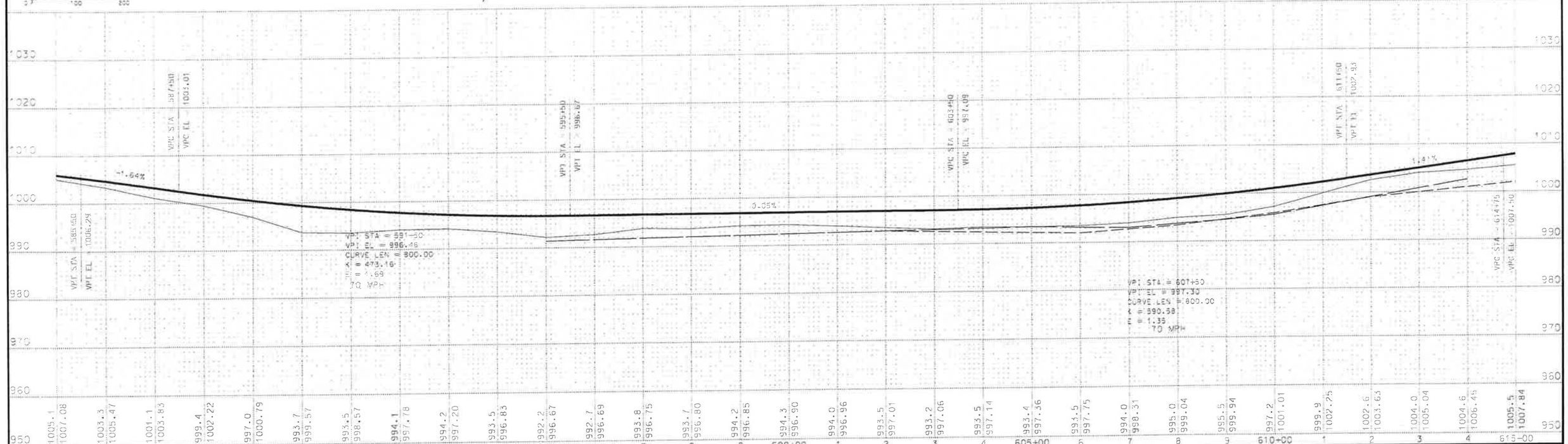
8" tile

DEAN & LAI

BR. NO. 3

22"
16"
20"
10"
12"

SCALE

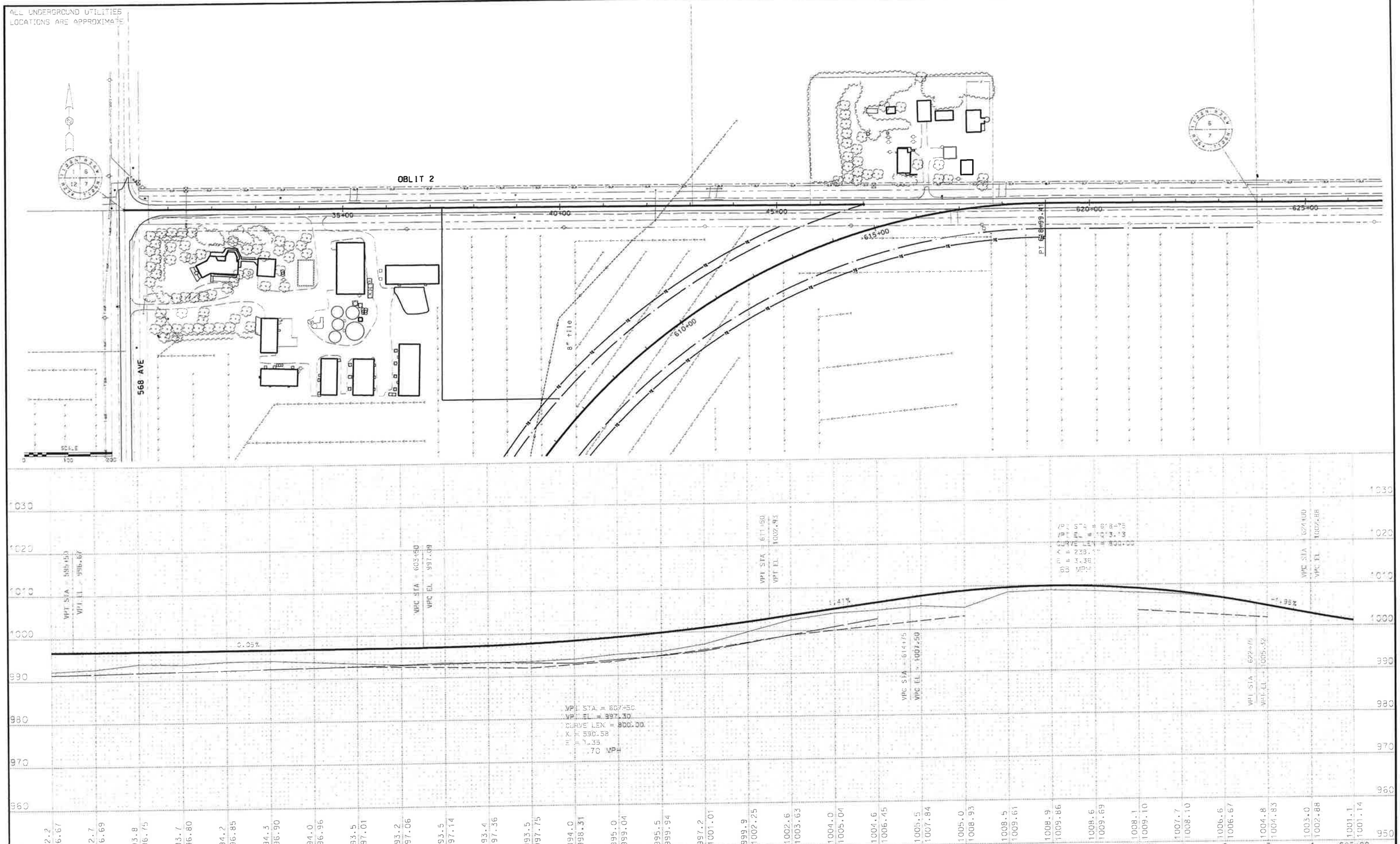


CERTIFIED BY Alan Rosling PROFESSIONAL ENGINEER LIC. NO. 14720 MAR. 18 2011

CSAH 10 SAP 07-610-20 SHEET 47 OF 78 SHEETS

.../CSAH/10/GT-22/DGN/RCp07001.dgn 4/22/2011 10:24:05 AM

ALL UNDERGROUND UTILITIES
LOCATIONS ARE APPROXIMATE

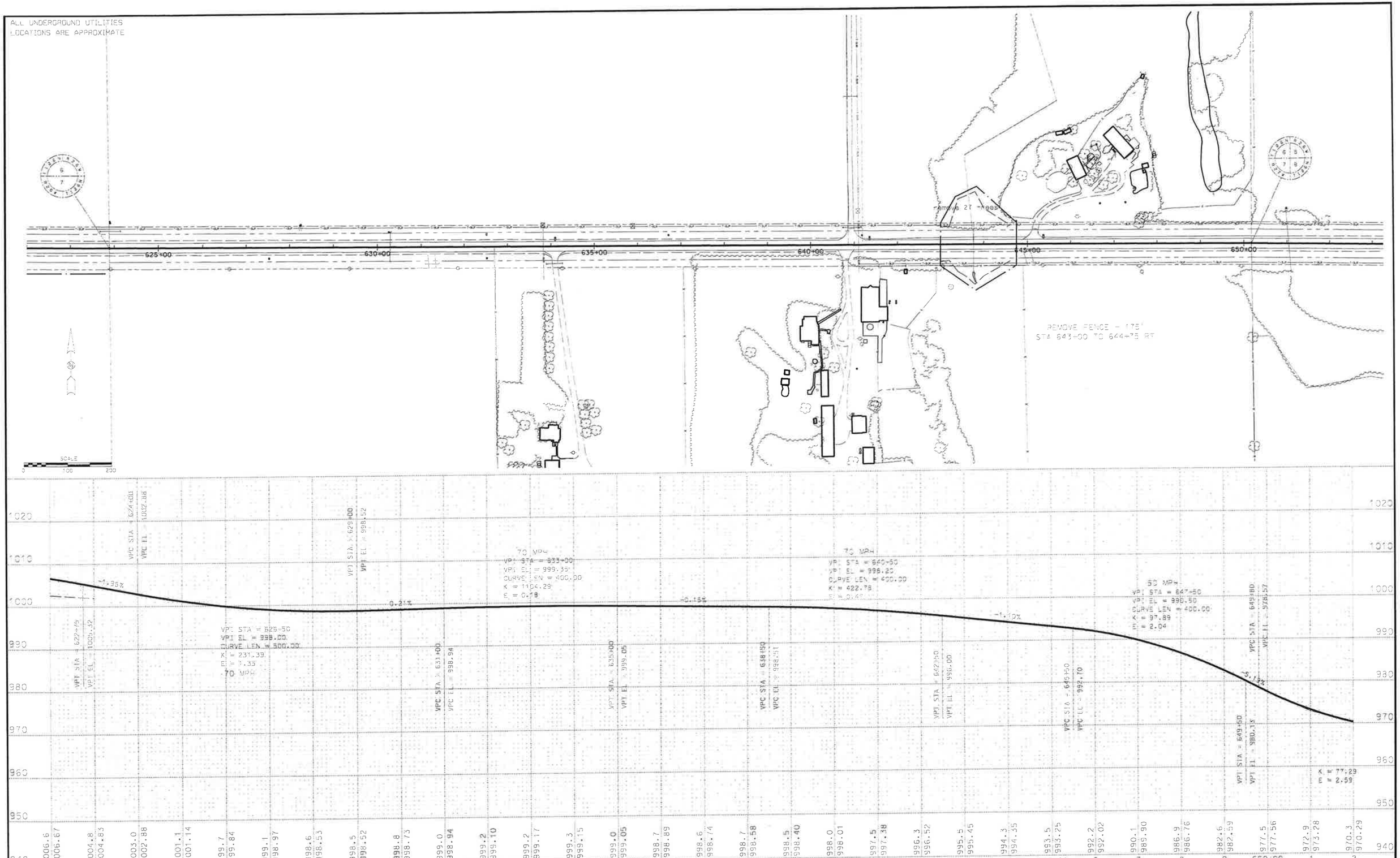


CERTIFIED BY Alan Forsberg
PROFESSIONAL ENGINEER

CSAH 10 SAP 07-610-20 SHEET 48 OF 78 SHEETS

.../CSAH/10/GT-22/DGN/RCp08001.dgn 4/22/2011 10:24:40 AM

ALL UNDERGROUND UTILITIES
LOCATIONS ARE APPROXIMATE



CERTIFIED BY Alan Ronsberg PROFESSIONAL ENGINEER LIC. NO. 14720 MAR. 18 2011

CSAH 10 SAP 07-610-20 SHEET 49 OF 78 SHEETS

.../CSAH/10/GT-22/DGN/RCp09001.dgn 4/22/2011 10:25:10 AM

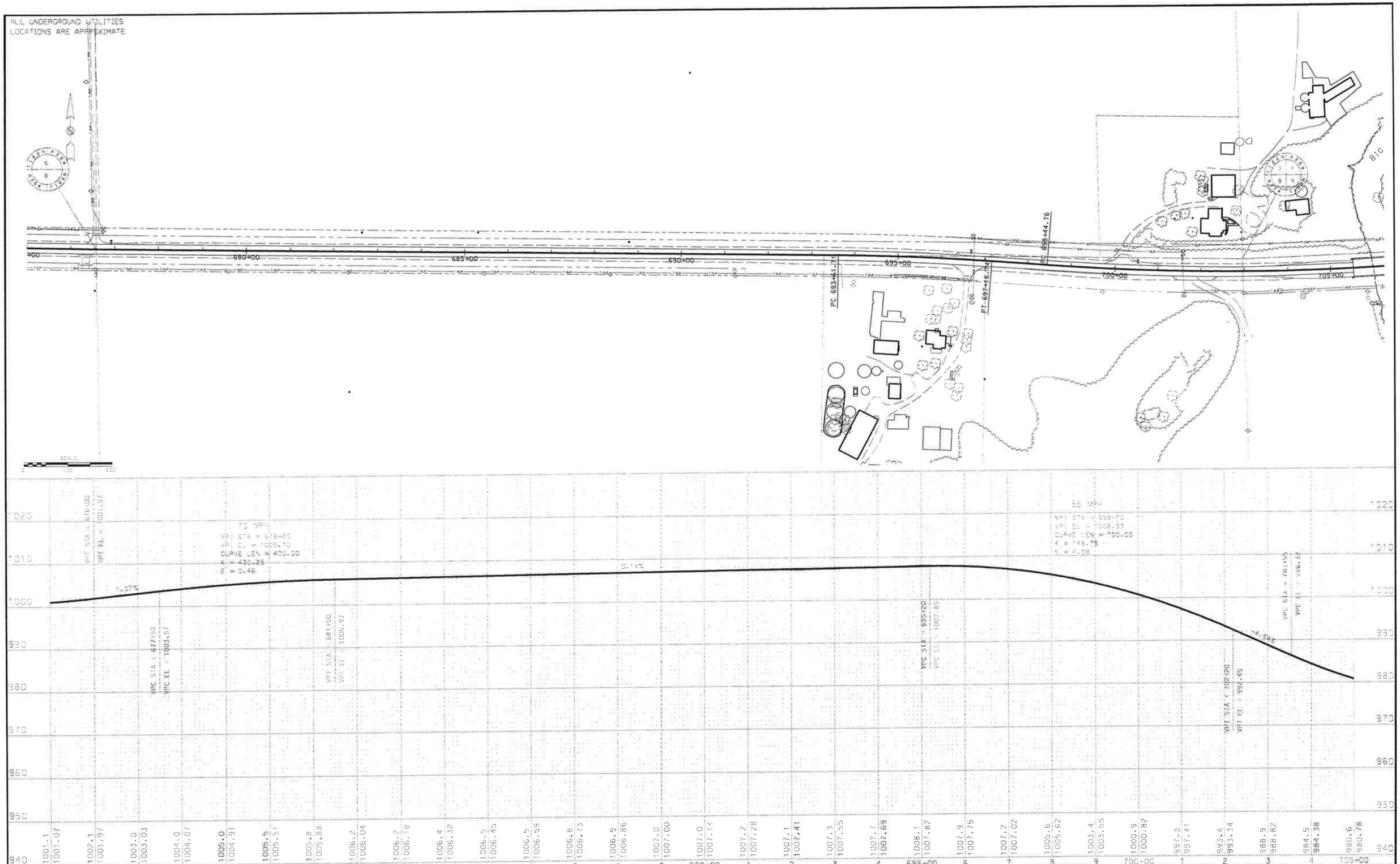
ALL UNDERGROUND UTILITIES
LOCATIONS ARE APPROXIMATE

CERTIFIED BY Alan Forsberg PROFESSIONAL ENGINEER LIC. NO. 14720 MAR. 18 2011

CSAH 10 SAP 07-610-20 SHEET 50 OF 78 SHEETS

.../CSAH/10/GT-22/DGN/RCp10001.dgn 4/22/2011 10:25:39 AM

ALL UNDERGROUND UTILITIES
LOCATIONS ARE APPROXIMATE

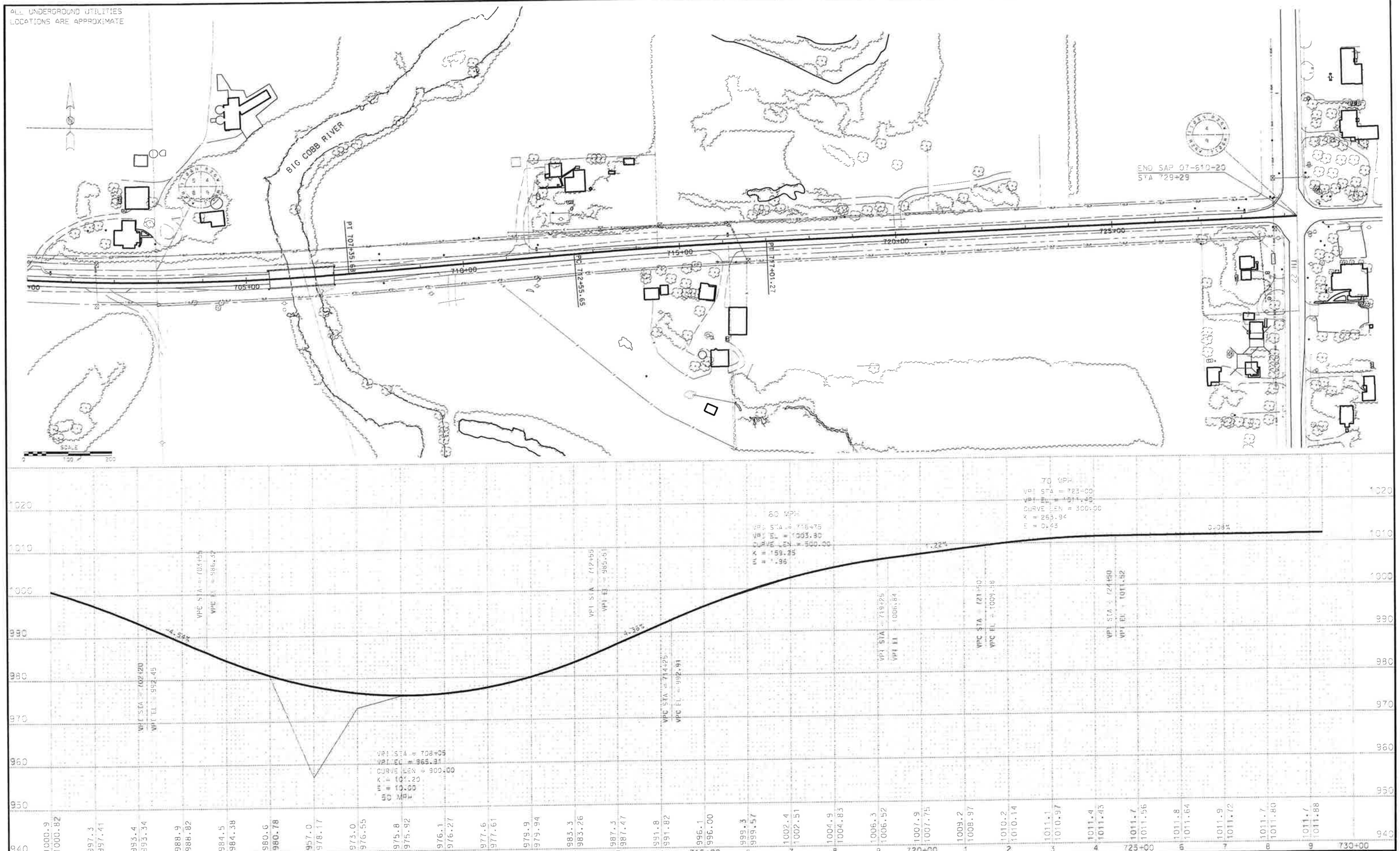


CERTIFIED BY Alan Forsberg PROFESSIONAL ENGINEER LIC. NO. 14720 MAR. 18 2011

CSAH 10 SAP 07-610-20 SHEET 51 OF 78 SHEETS

.../CSAH/10/GT-22/DGN/RCp11001.dgn 4/22/2011 10:26:12 AM

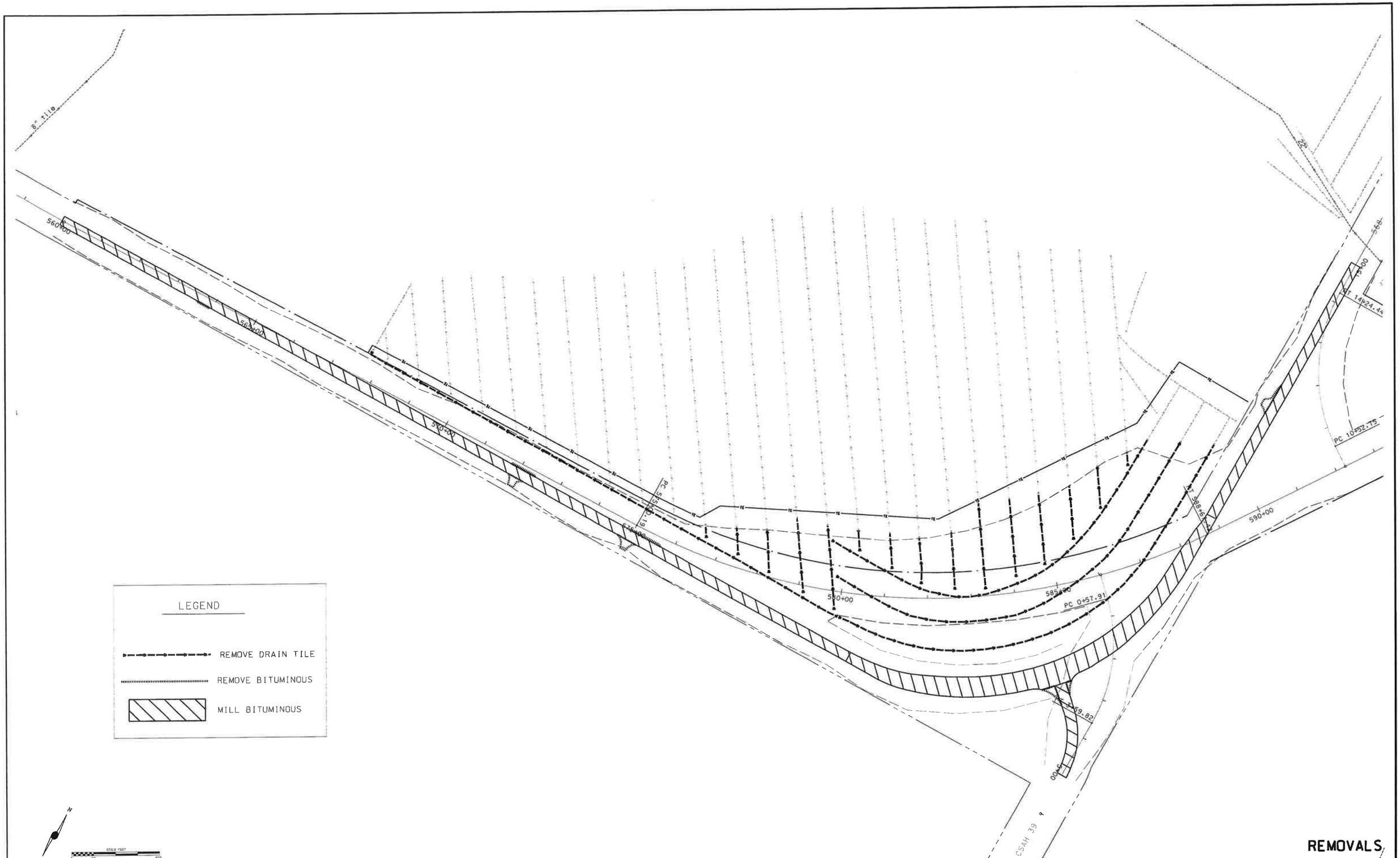
ALL UNDERGROUND UTILITIES
LOCATIONS ARE APPROXIMATE



CERTIFIED BY Alan Forsberg PROFESSIONAL ENGINEER LIC. NO. 14720 MAR. 18 2011

CSAH 10 SAP 07-610-20 SHEET 52 OF 78 SHEETS

.../CSAH/10/GT-22/DGN/RCpl2001.dgn 4/22/2011 10:26:42 AM

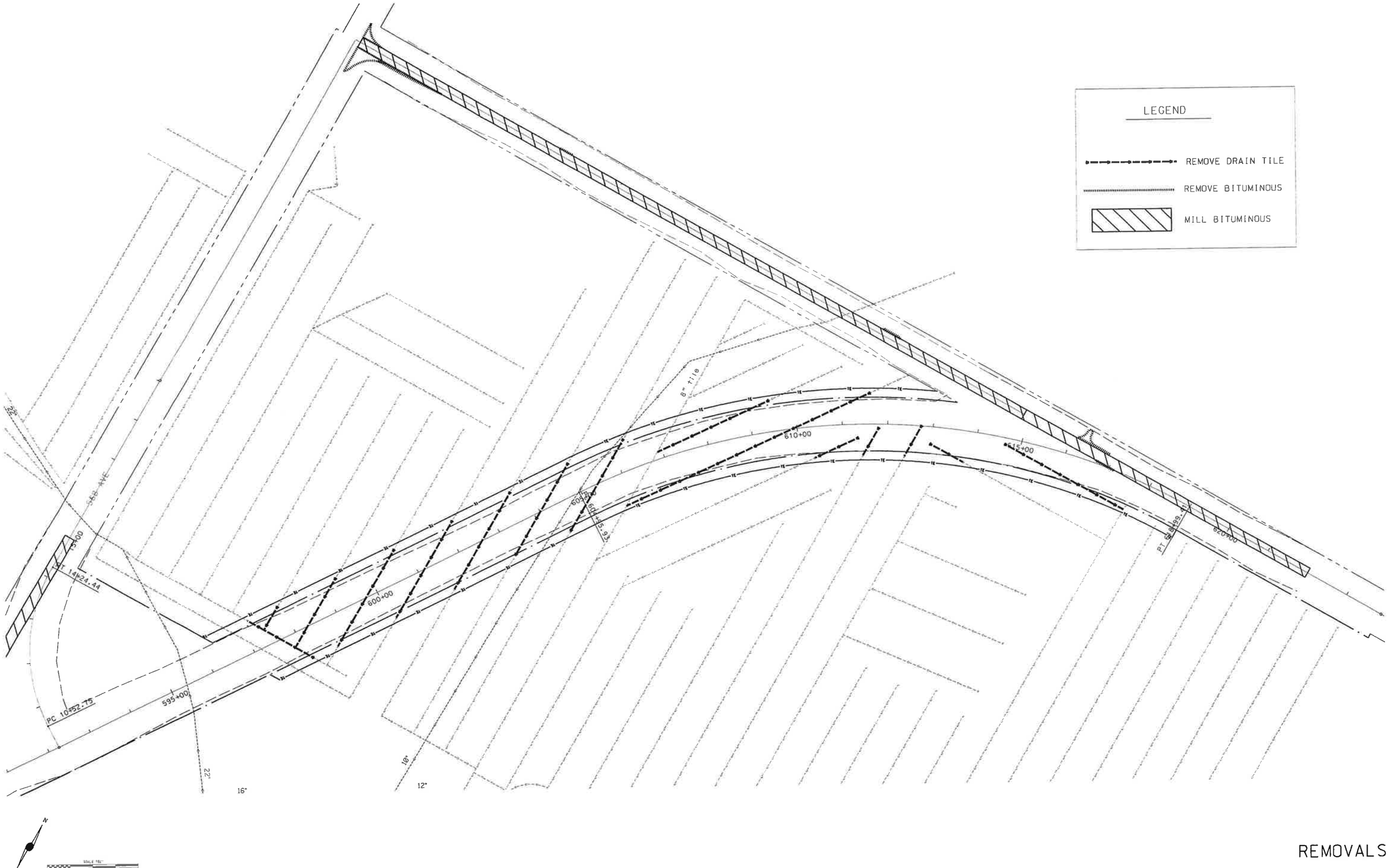


REMOVALS

CERTIFIED BY Alan Forsberg LIC. NO. 14720 PROFESSIONAL ENGINEER MAR 18, 2011

CSAH 10 SAP 07-610-20 SHEET 53 OF 78 SHEETS

P:/CSAH/10/GT-22/Removals 1.dgn 4/22/2011 10:27:27 AM

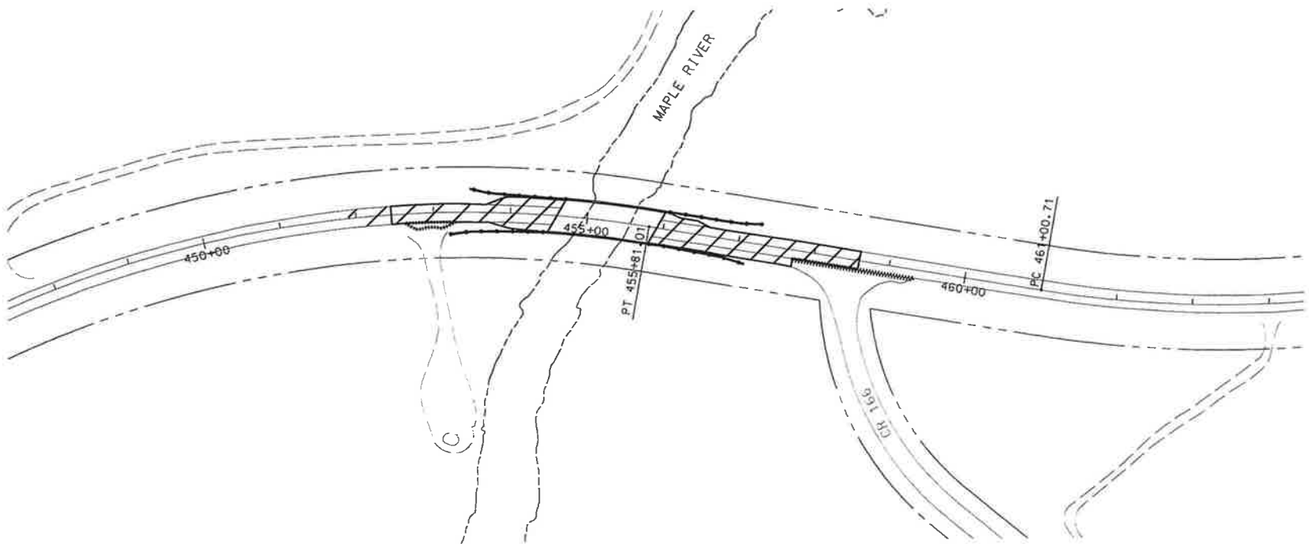


REMOVALS

CERTIFIED BY Alan Forsberg LIC. NO. 14720 PROFESSIONAL ENGINEER MAR. 18 2011

CSAH 10 SAP 07-610-20 SHEET 54 OF 78 SHEETS

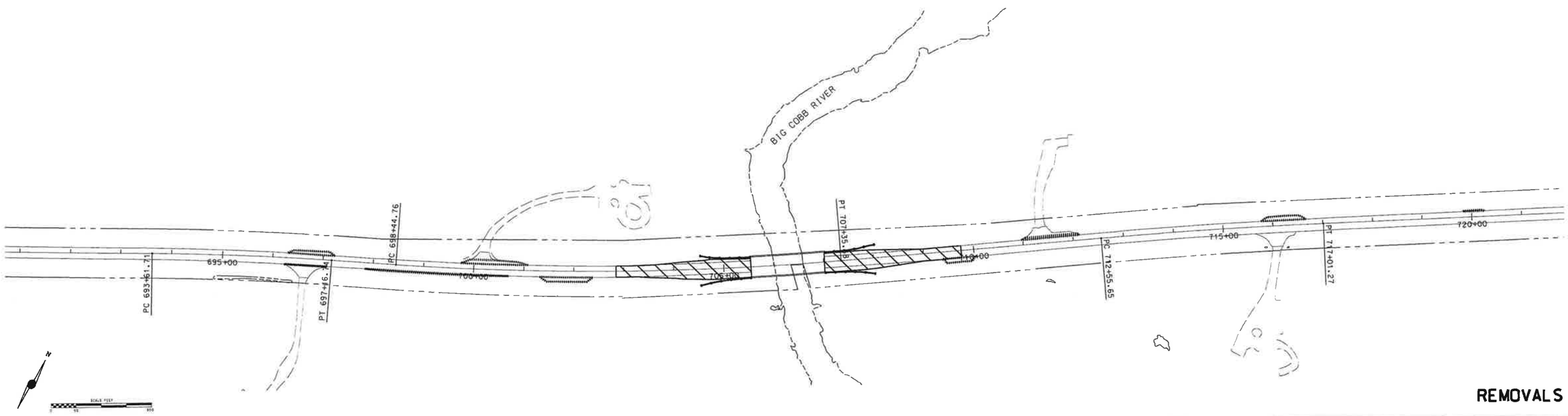
P:/CSAH/10/GT-22/Removals 2.dgn 6/8/2011 8:21:53 AM



LEGEND

- REMOVE DRAIN TILE
- REMOVE BITUMINOUS
- MILL BITUMINOUS
- REMOVE GUARDRAIL

REMOVE GUARDRAIL INCLUDES REMOVING TWISTED END TREATMENT



REMOVALS

CERTIFIED BY Alan Forsberg LIC. NO. 14720 MAR. 18 2011
Alan Forsberg PROFESSIONAL ENGINEER

CSAH 10 SAP 07-610-20 SHEET 55 OF 78 SHEETS

P:/CSAH/10/GT-22/Removals 3.dgn 4/22/2011 10:28:36 AM

8" tile

560+00

565+00

570+00

575+00

PC 575+00 91

580+00

585+00

PC 0+57.91

590+00

PT 588+57.43

PT 3+59.12

CAP ALL TILE LINE THAT ARE DISTURBED GPS LOCATIONS

CSAH 39

PT 10+52.75

24.44

LEGEND

PROPOSED DRAIN TILE

PROPOSED CULVERT

BITUMINOUS PAVEMENT

N

SCALE 1"=50'

0 50 100

PROPOSED CONSTRUCTION

CERTIFIED BY Alan Forsberg LIC. NO. 14720 PROFESSIONAL ENGINEER MAR. 18 2011

CSAH 10 SAP 07-610-20 SHEET 56 OF 78 SHEETS

P:/CSAH/10/GT-22/Proposed 1.dgn 6/8/2011 8:29:30 AM

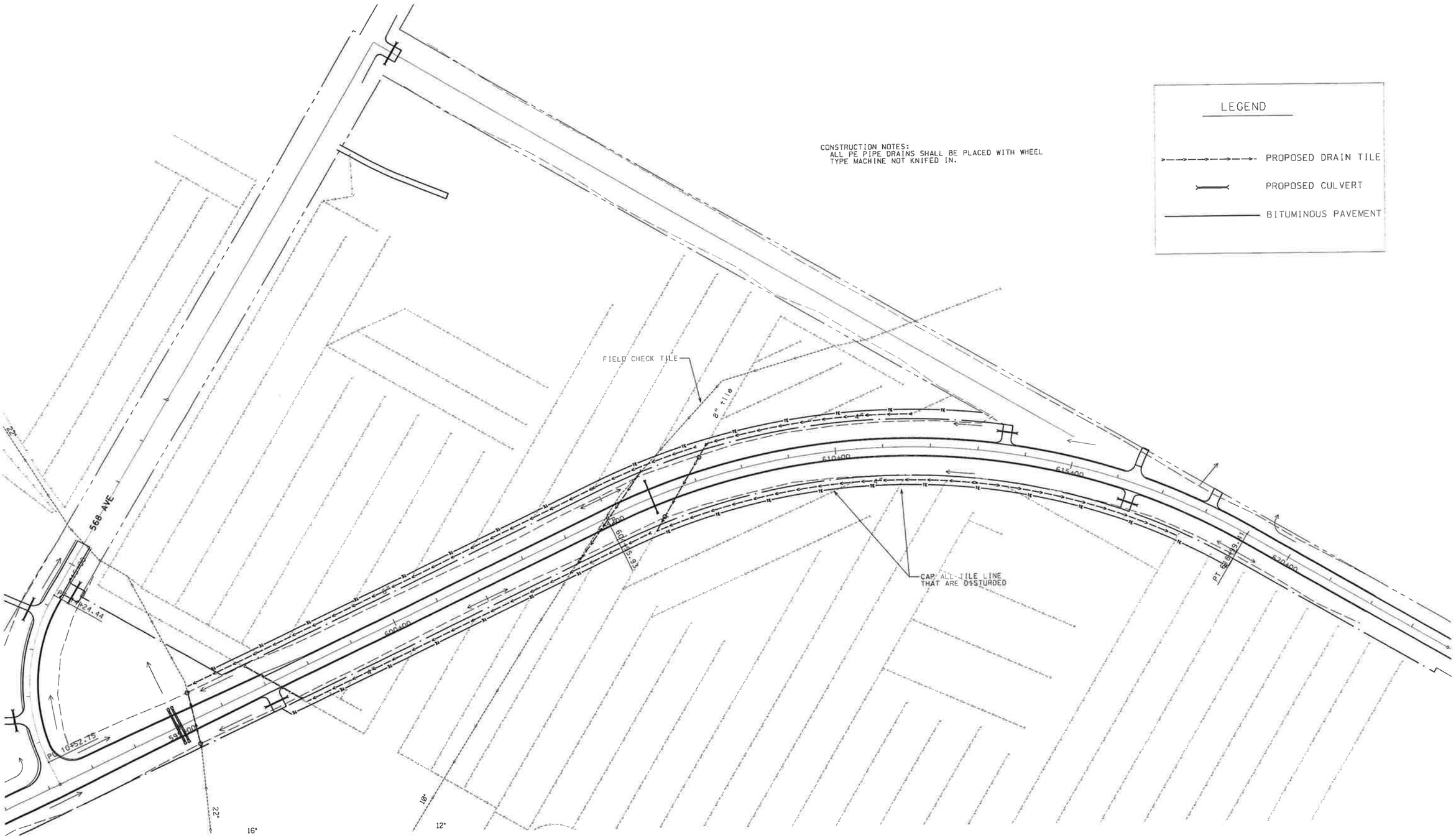
CONSTRUCTION NOTES:
ALL PE PIPE DRAINS SHALL BE PLACED WITH WHEEL TYPE MACHINE NOT KNIFED IN.

LEGEND

PROPOSED DRAIN TILE

PROPOSED CULVERT

BITUMINOUS PAVEMENT

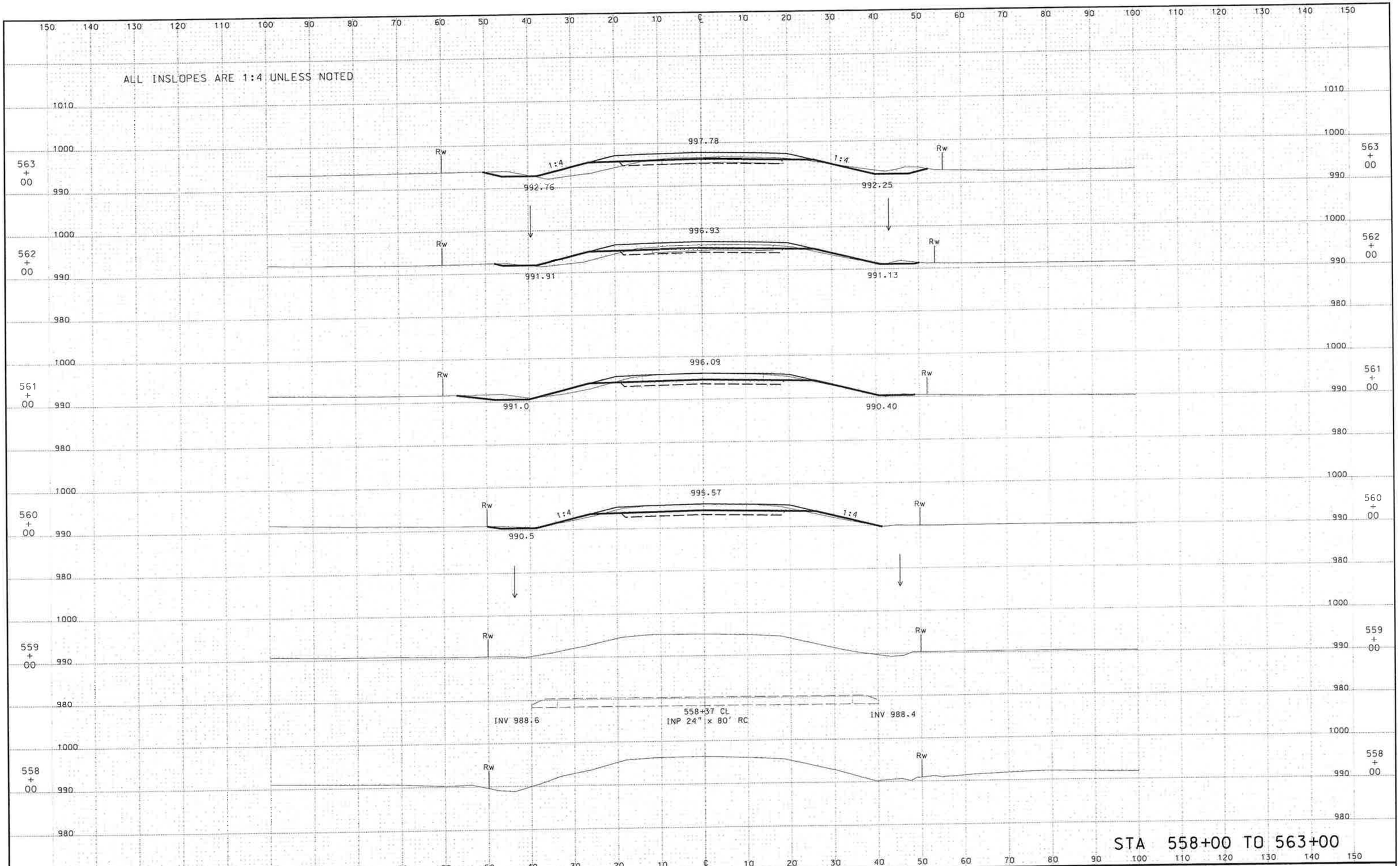


PROPOSED CONSTRUCTION

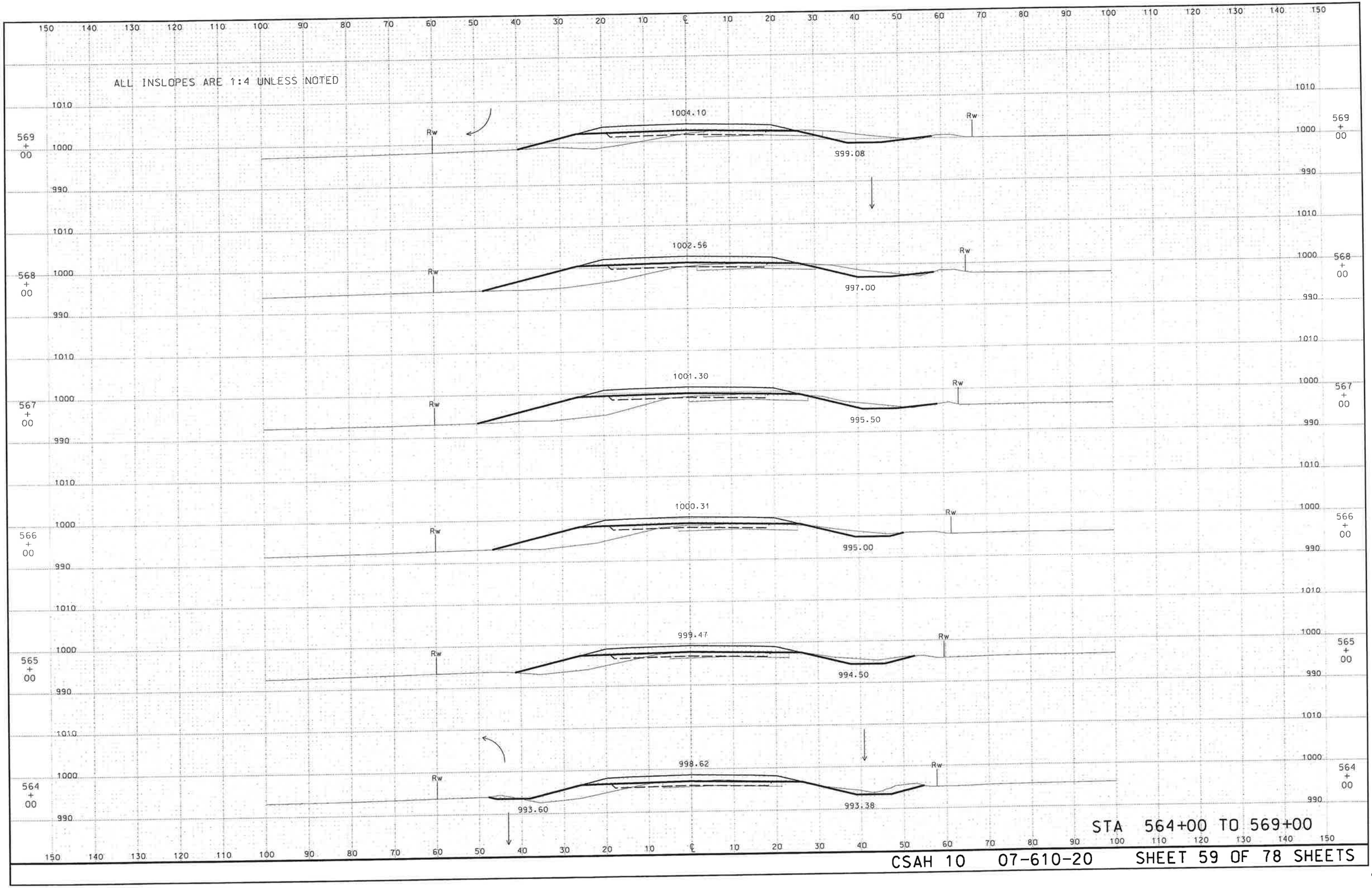
CERTIFIED BY Alan Forsberg LIC. NO. 14720 MAR. 18 2011
Alan Forsberg PROFESSIONAL ENGINEER

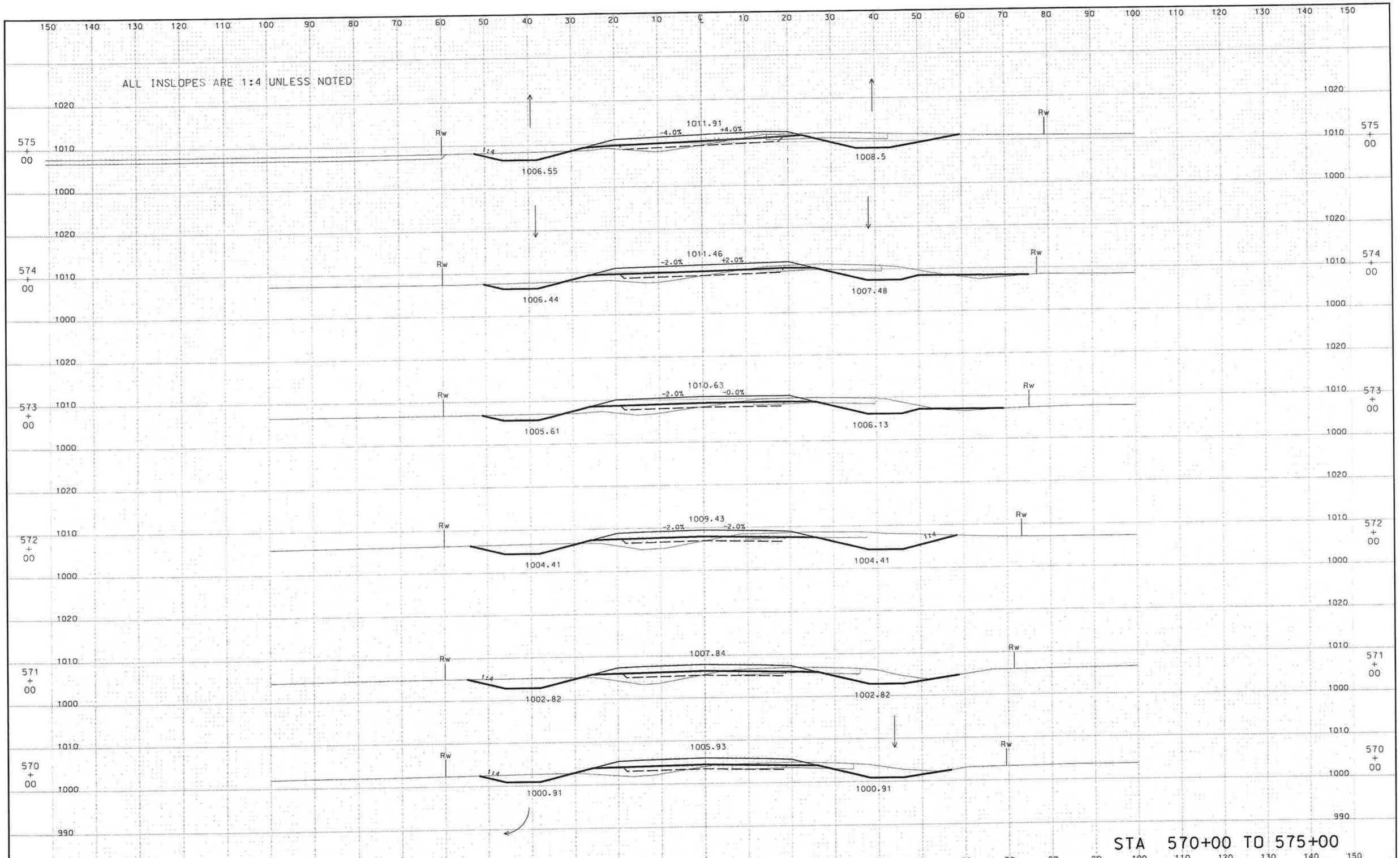
CSAH 10 SAP 07-610-20 SHEET 57 OF 78 SHEETS

Proposed 2.dgn 6/8/2011 11:29:56 AM



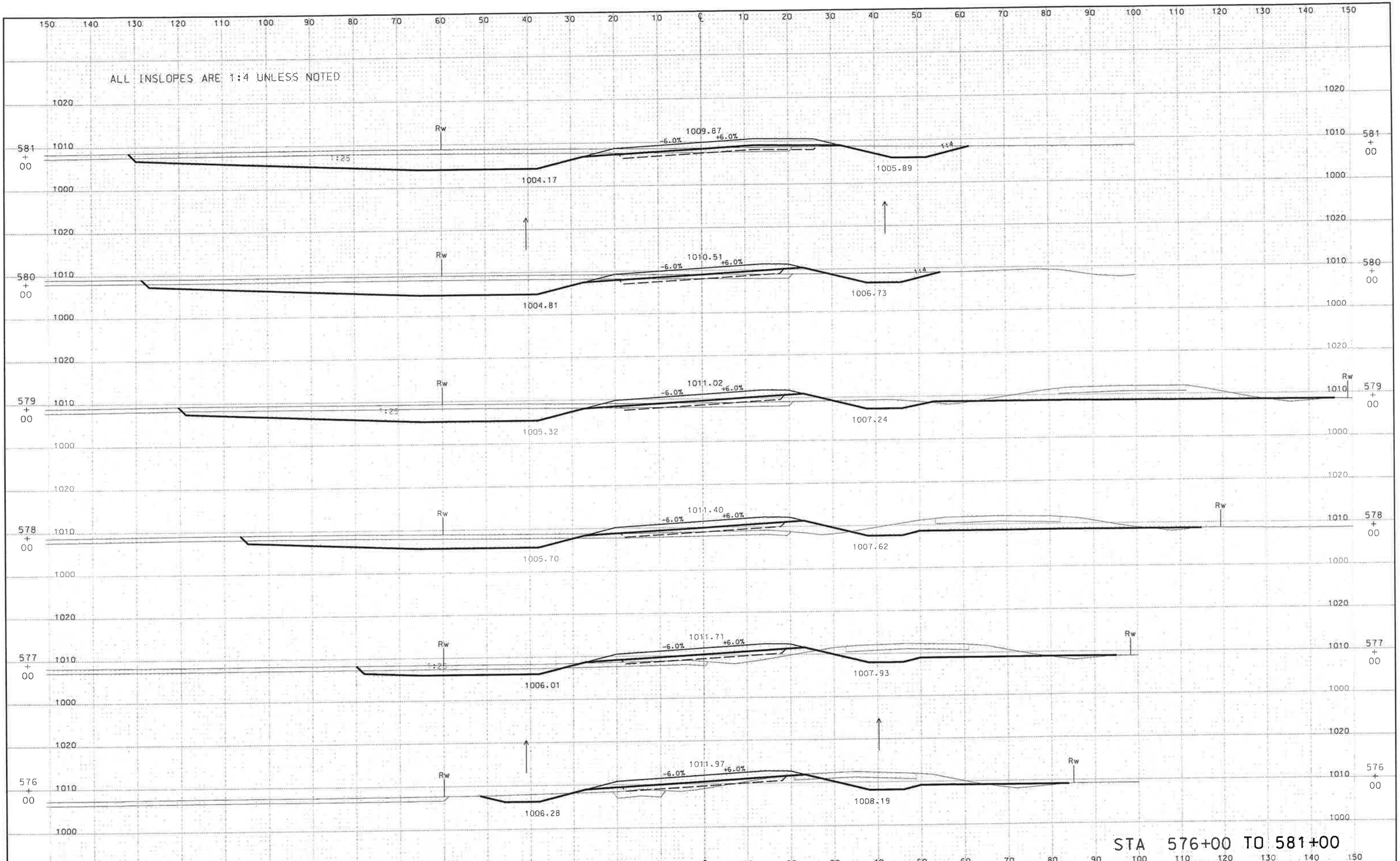
RC001001.DGN 6/7/2011 2:40:46 PM

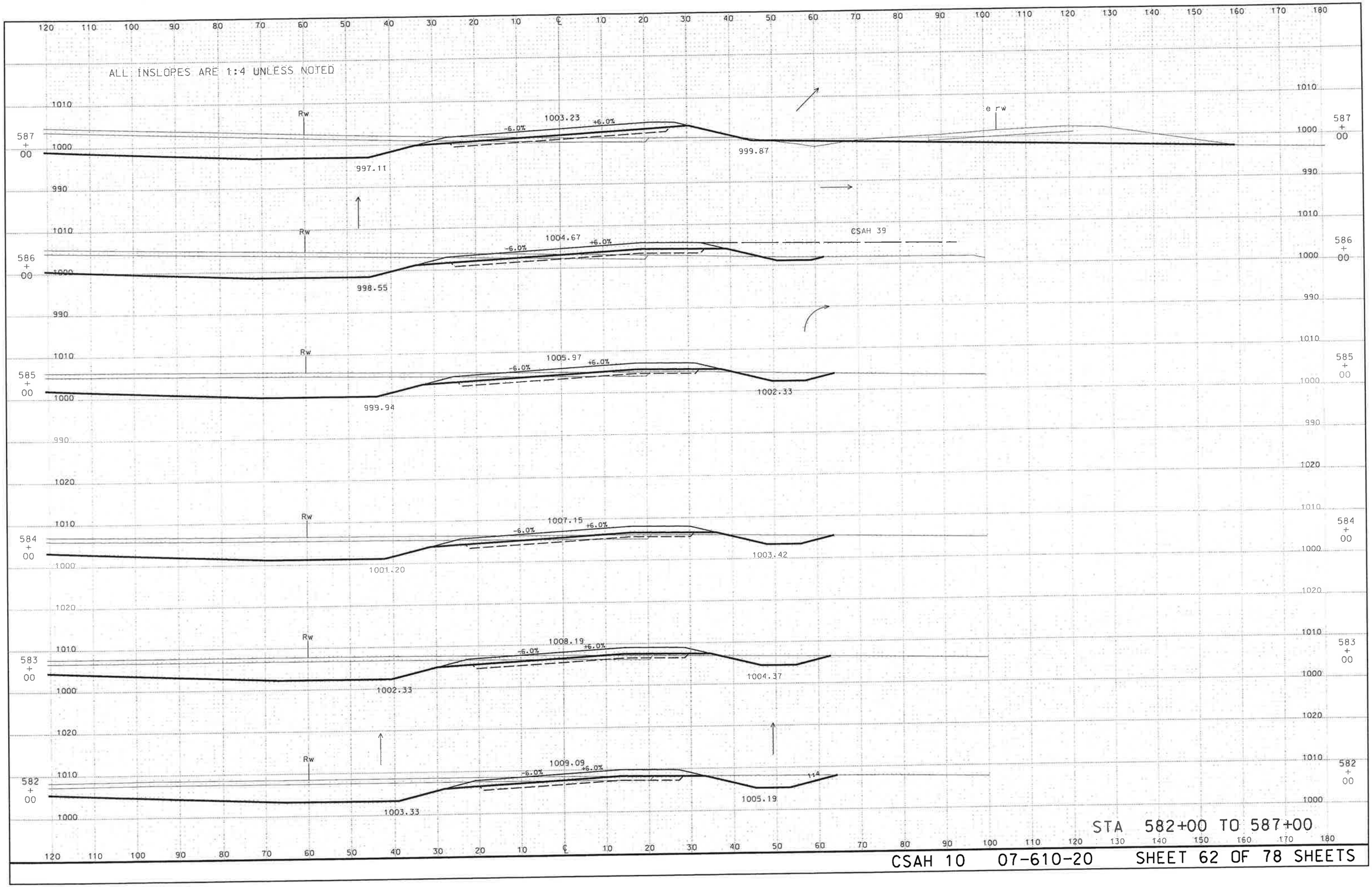

ALL INSLOPES ARE 1:4 UNLESS NOTED
569 + 00
1004.10
999.08
Rw
568 + 00
1002.56
997.00
567 + 00
1001.30
995.50
566 + 00
1000.31
995.00
565 + 00
999.47
994.50
564 + 00
998.62
993.60
993.38
STA 564+00 TO 569+00



CSAH 10 07-610-20 SHEET 60 OF 78 SHEETS

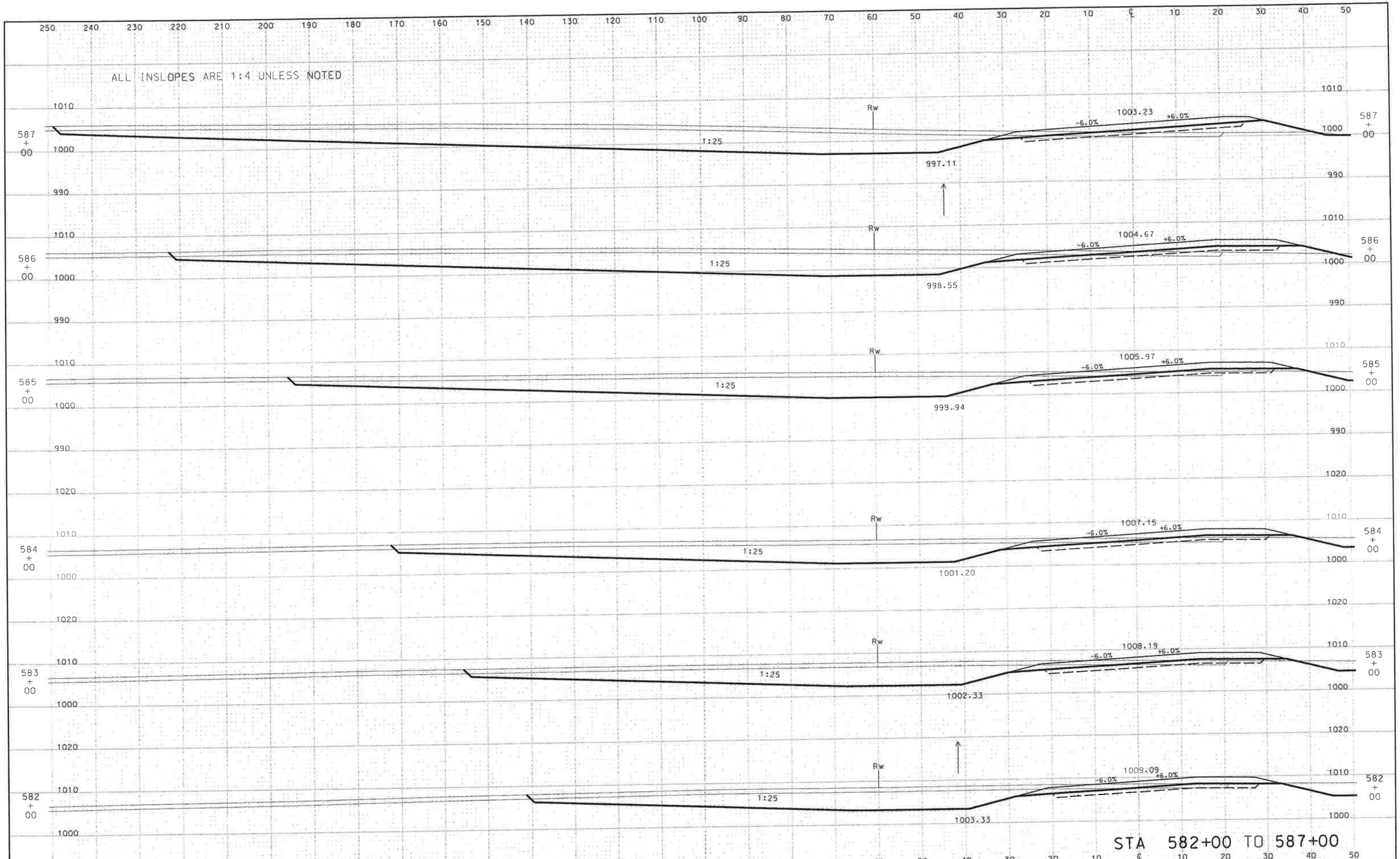
RC003001.DGN 6/7/2011 2:42:24 PM


ALL INSLOPES ARE 1:4 UNLESS NOTED
581 + 00
1009.87
-6.0%
+6.0%
1:25
1:4
1004.17
1005.89
580 + 00
1010.51
1:25
1:4
1004.81
1006.73
579 + 00
1011.02
1:22
1:4
1005.32
1007.24
578 + 00
1011.40
1005.70
1007.62
577 + 00
1011.71
1:25
1006.01
1007.93
576 + 00
1011.97
1006.28
1008.19
Rw
STA 576+00 TO 581+00

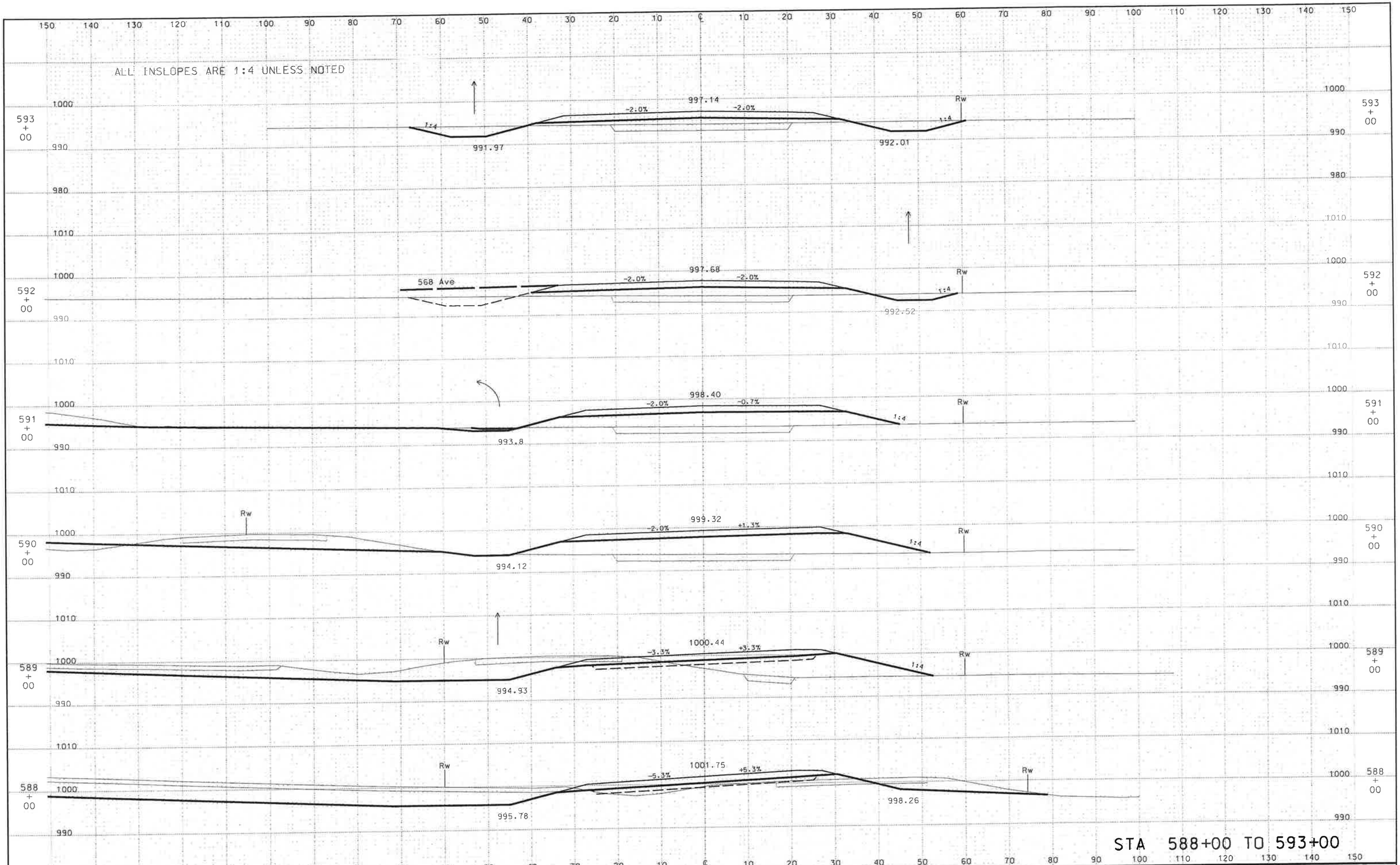


CSAH 10 07-610-20 SHEET 62 OF 78 SHEETS

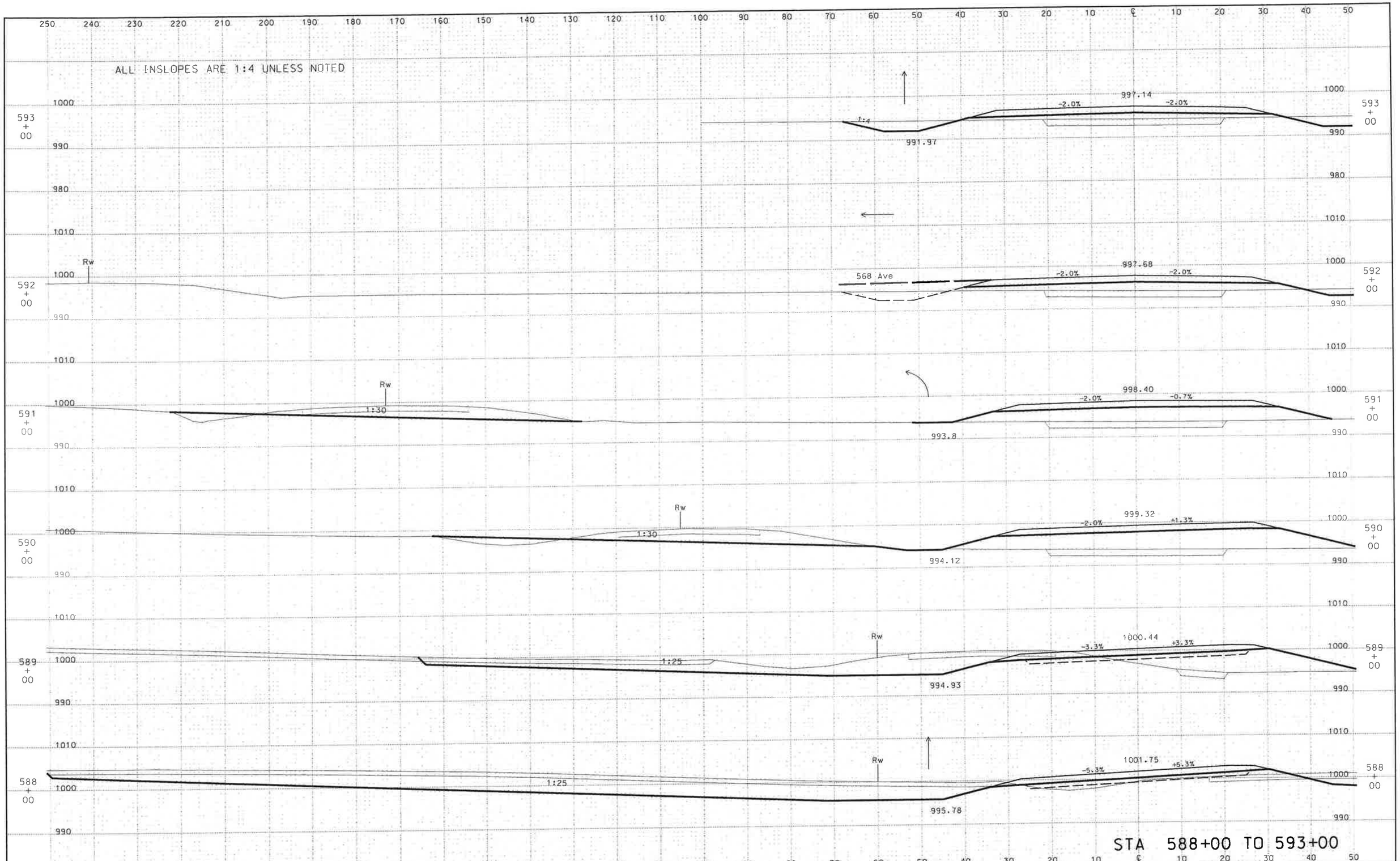
RC005001.DGN 6/7/2011 2:58:37 PM

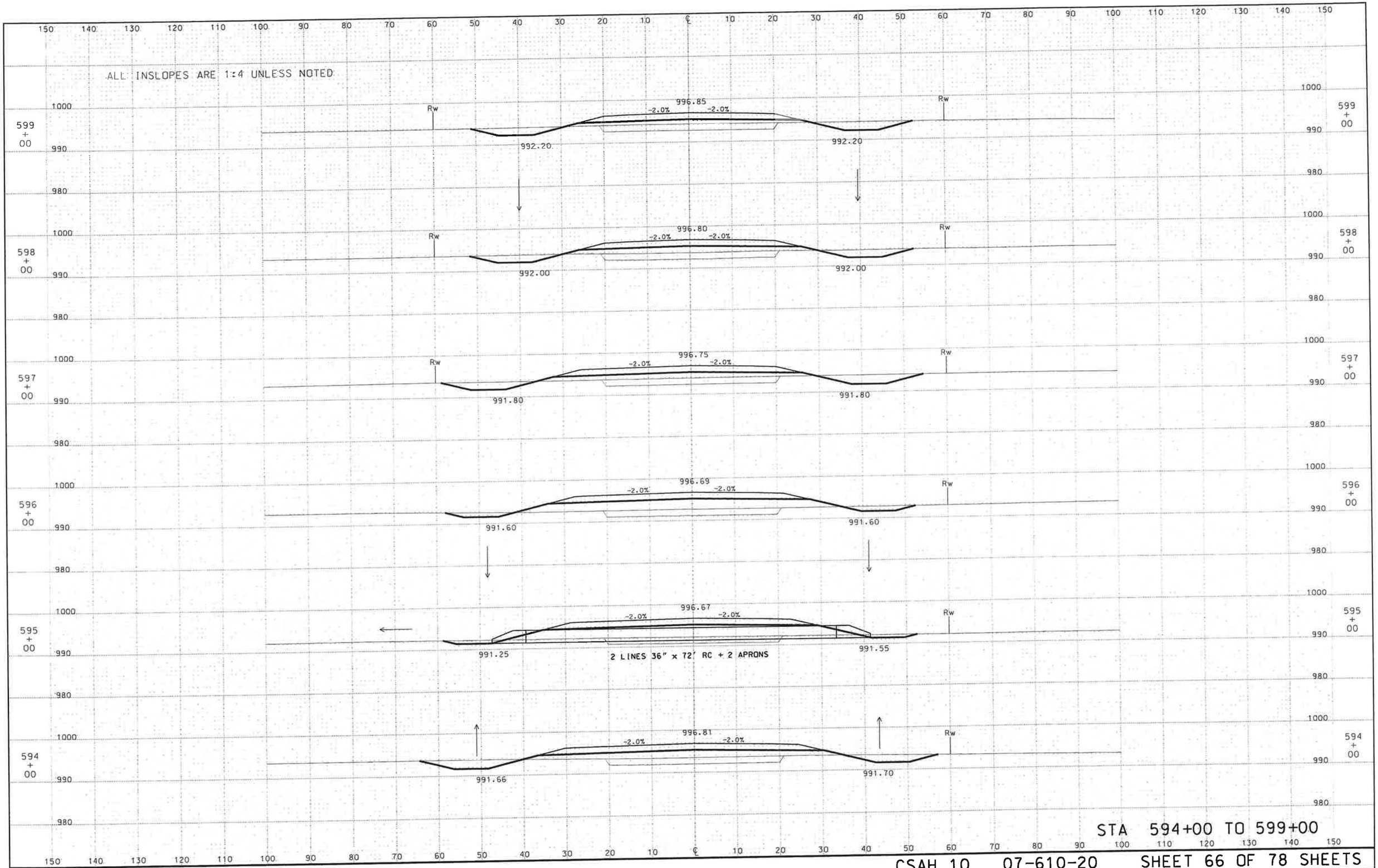


RC006001.DGN 6/7/2011 3:01:33 PM



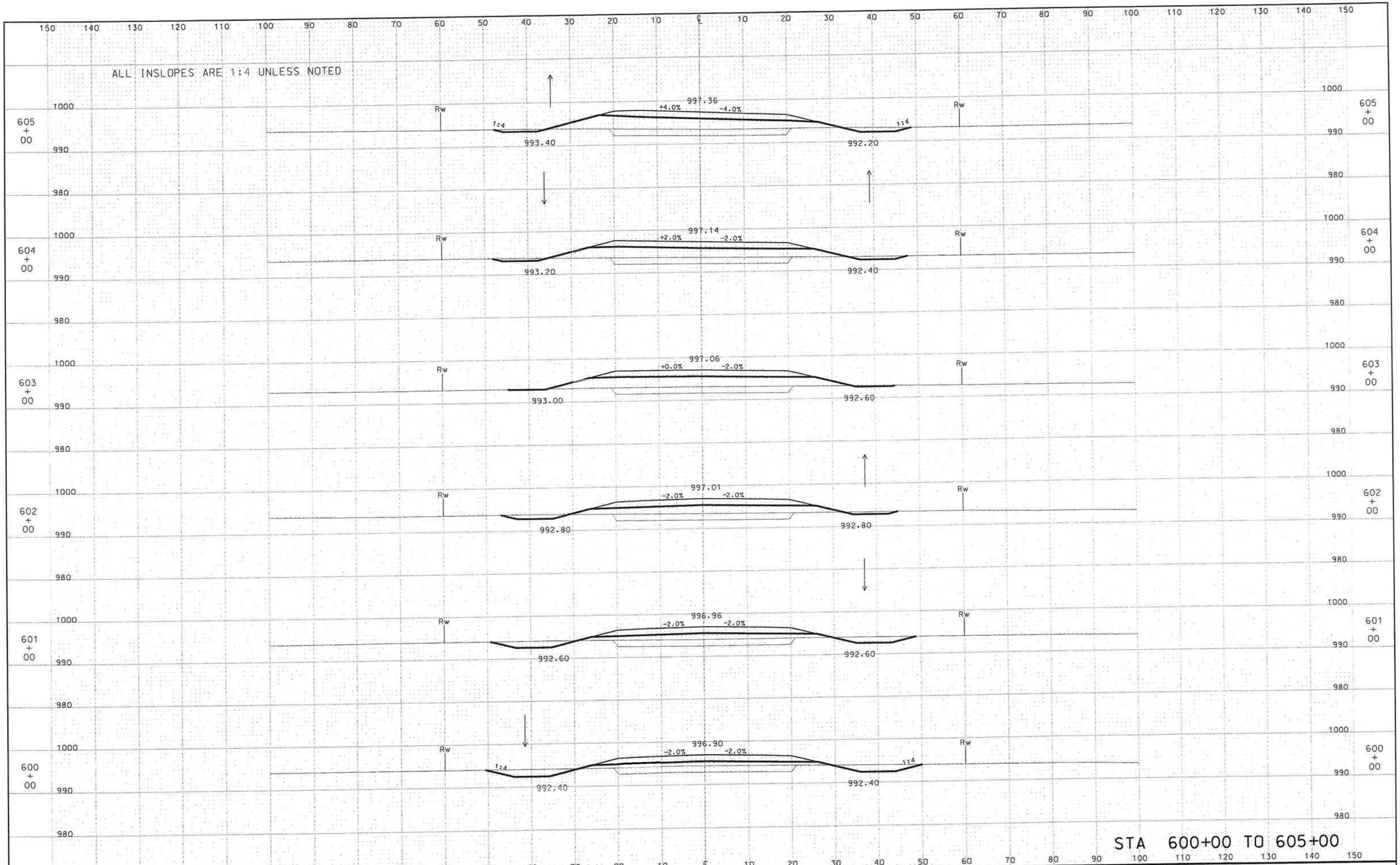
RC007001.DGN 6/7/2011 3:06:52 PM


ALL INSLOPES ARE 1:4 UNLESS NOTED
593 + 00
1:4
991.97
997.14
-2.0%
-2.0%
592 + 00
568 Ave
997.68
-2.0%
-2.0%
Rw
591 + 00
1:30
993.8
998.40
-2.0%
-0.7%
590 + 00
1:30
994.12
999.32
-2.0%
+1.3%
589 + 00
1:25
994.93
1000.44
-3.3%
+3.3%
588 + 00
1:25
995.78
1001.75
-5.3%
+5.3%
STA 588+00 TO 593+00

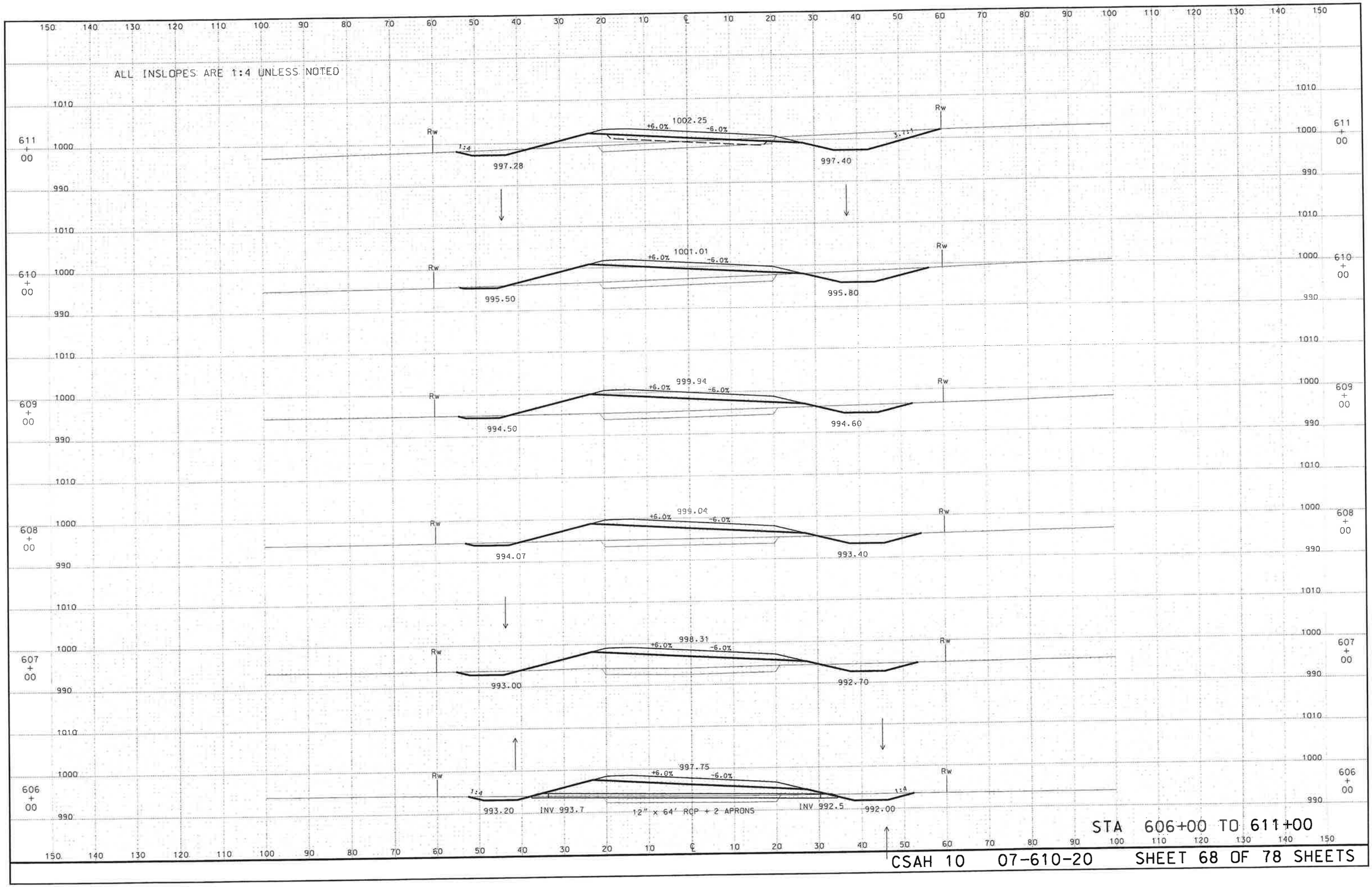


CSAH 10 07-610-20 SHEET 66 OF 78 SHEETS

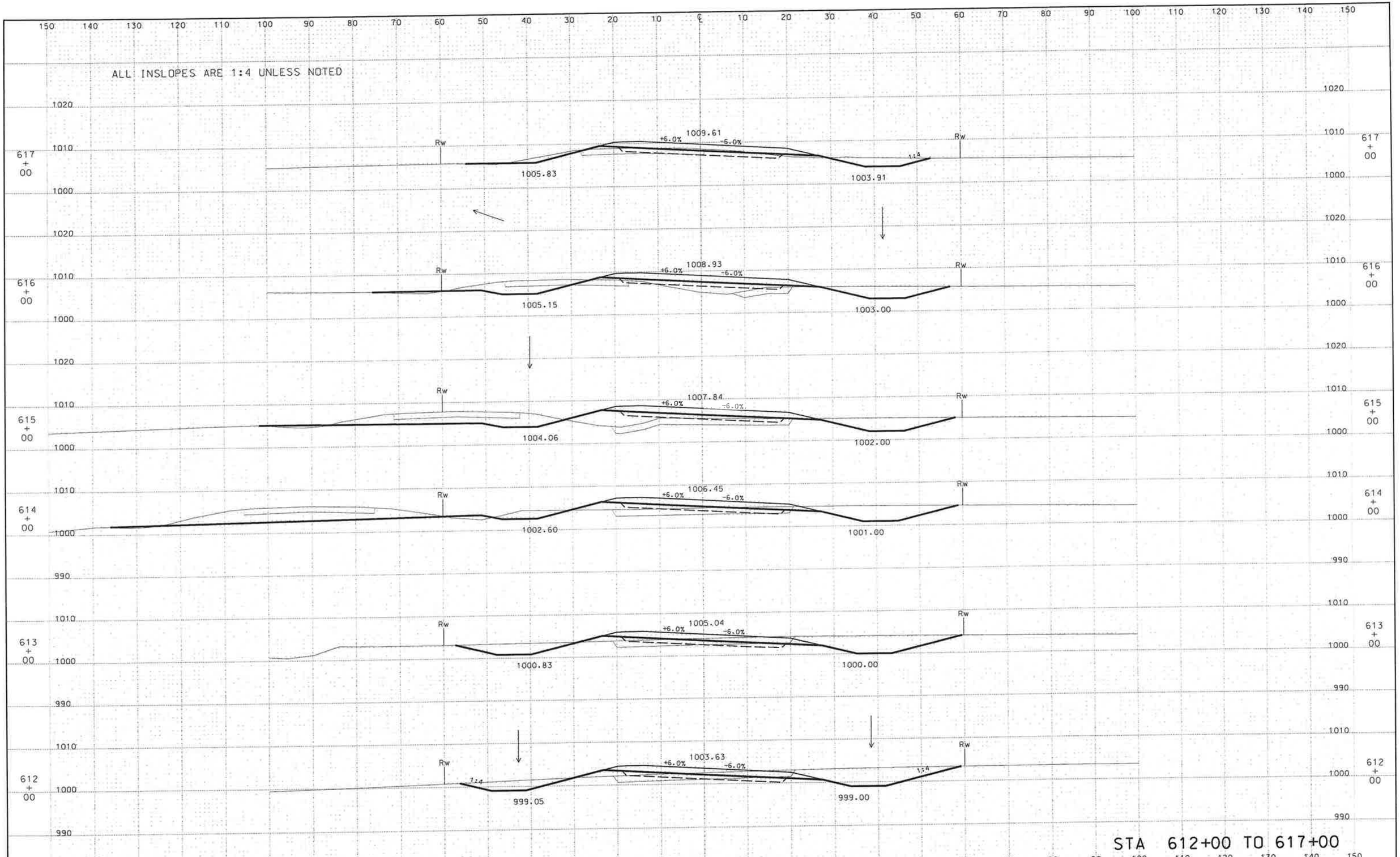
RC009001.DGN 6/7/2011 2:11:34 PM



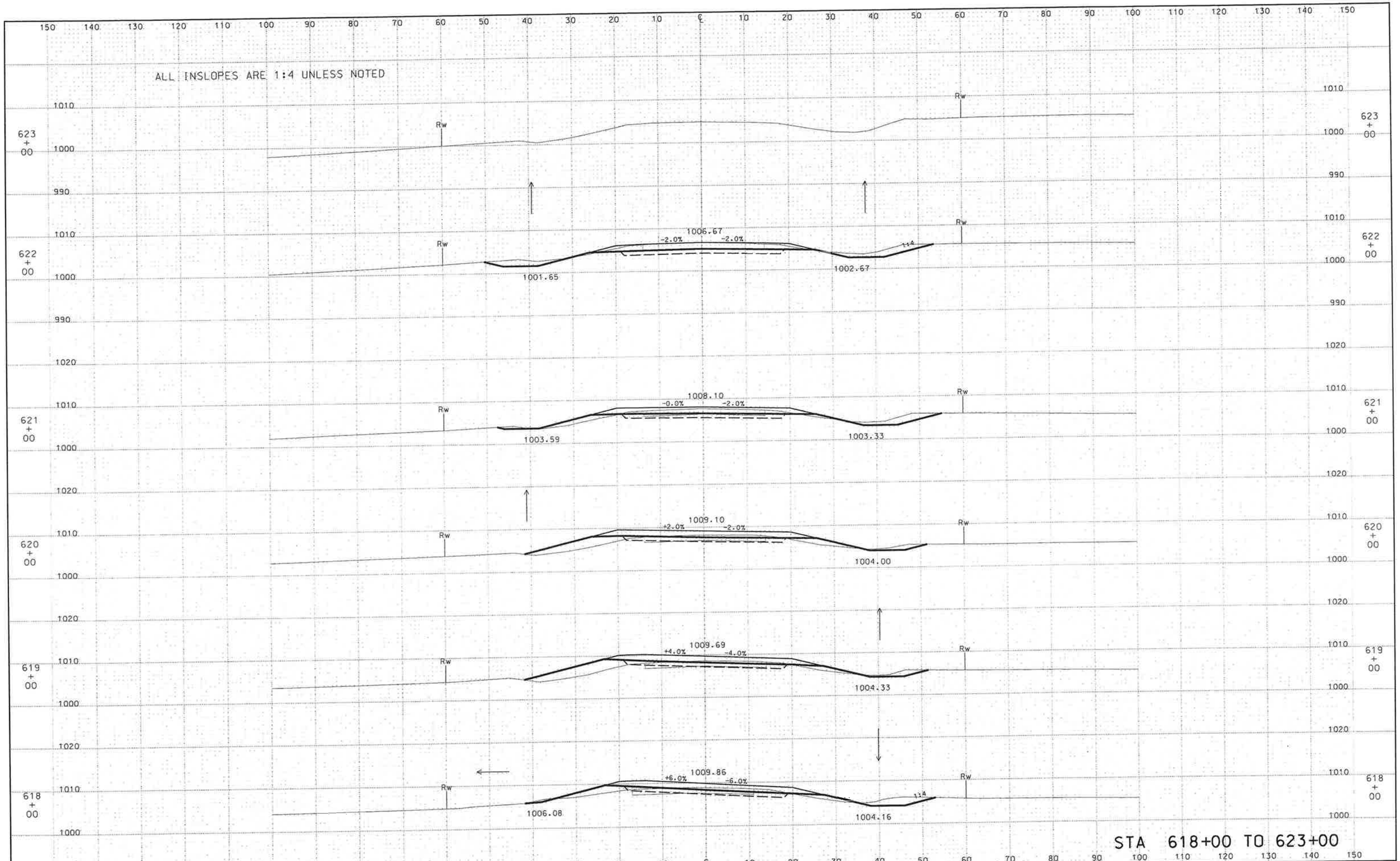
RC010001.DGN 6/7/2011 3:17:34 PM



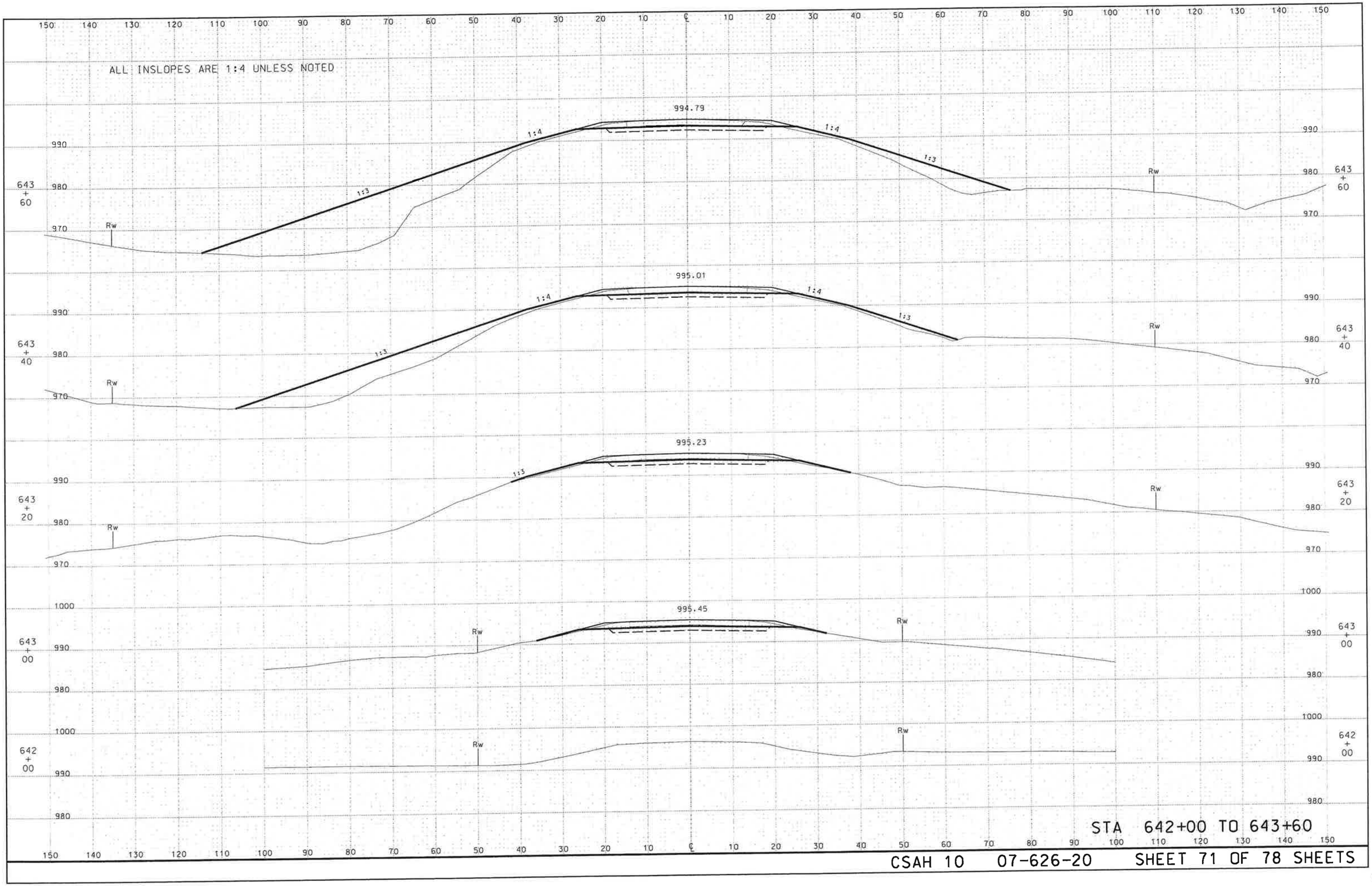
rc011001.dgn 6/8/2011 11:16:00 AM

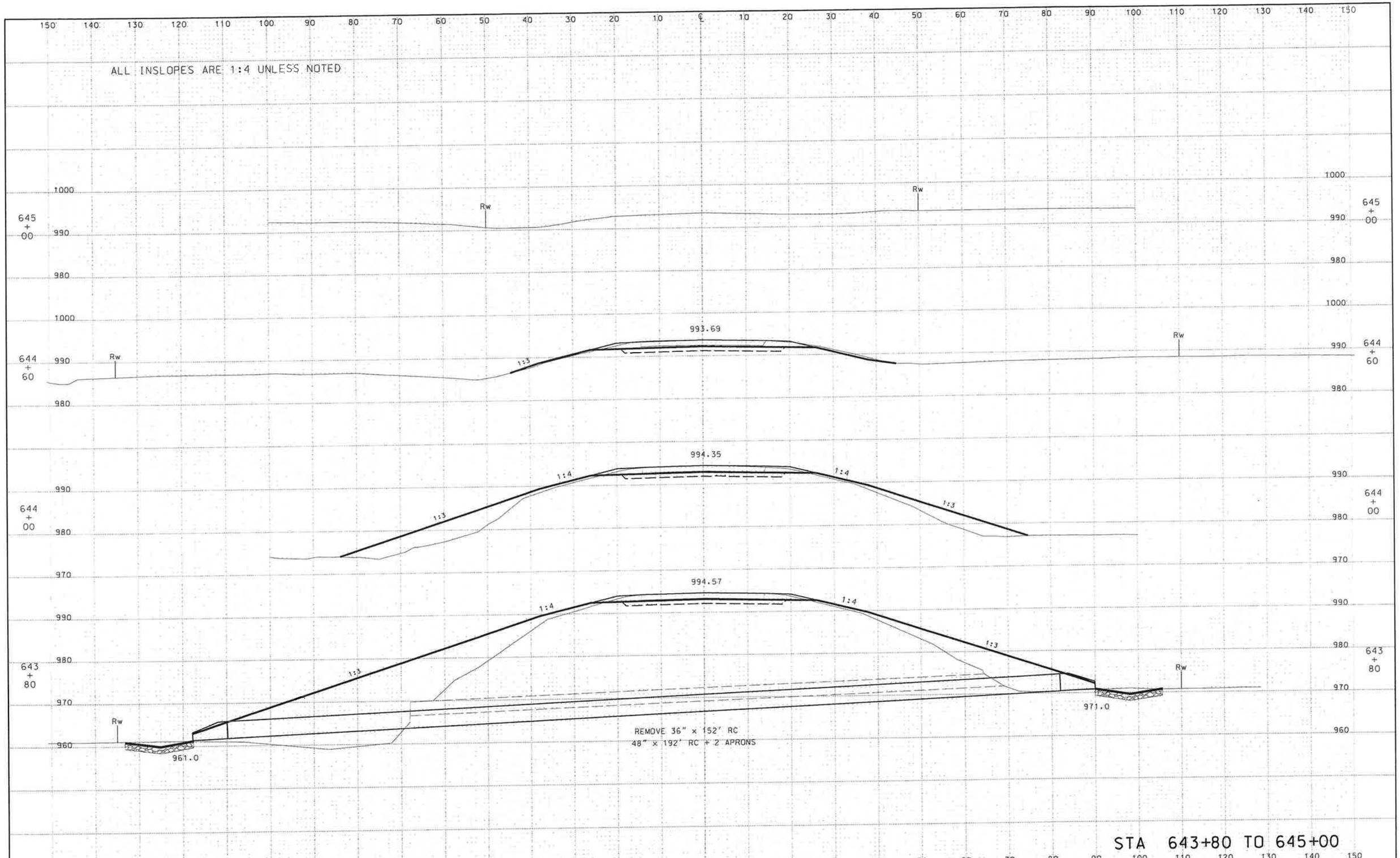


RC012001.DGN 6/7/2011 3:22:45 PM

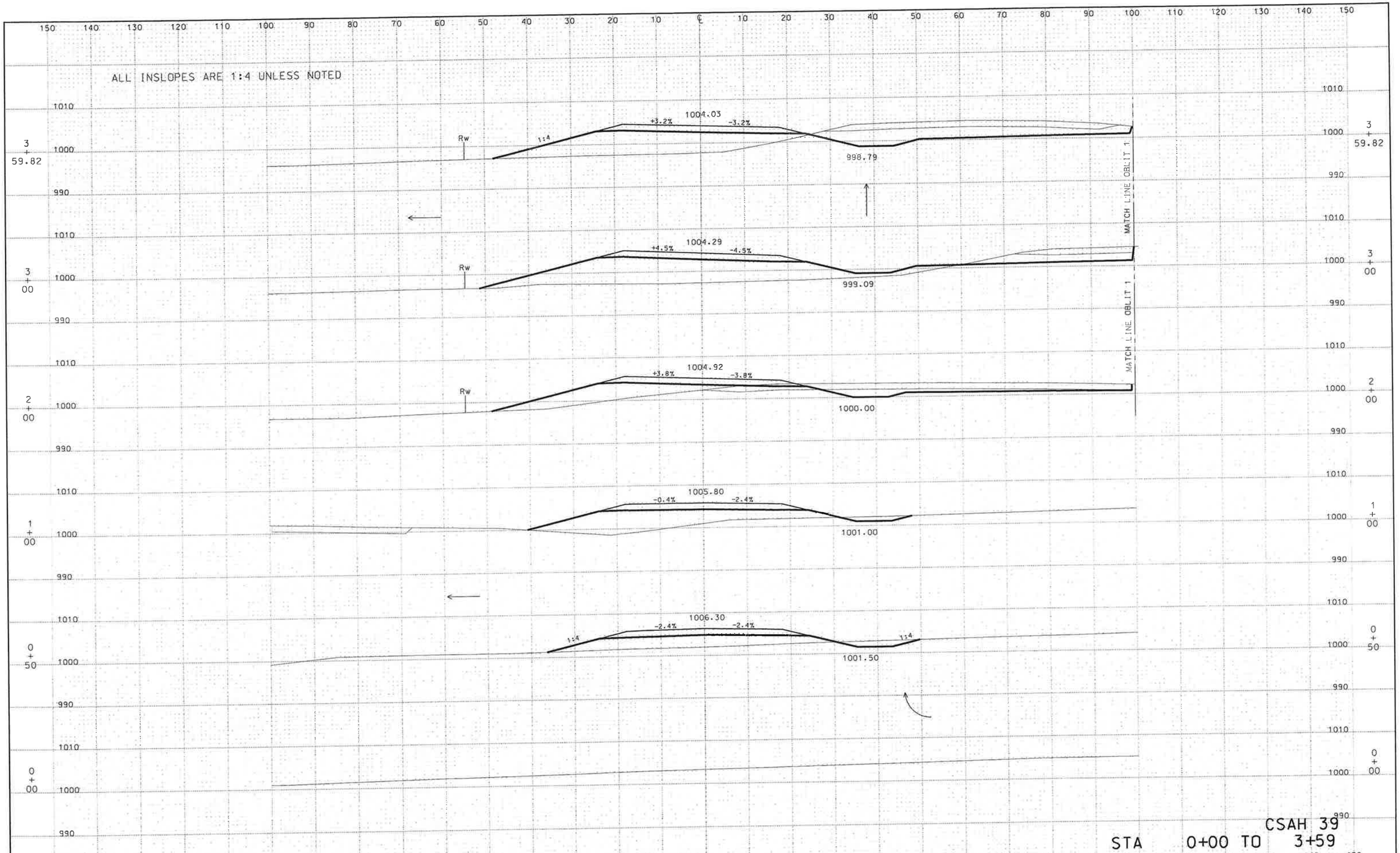


RC013001.DGN 6/7/2011 3:24:54 PM

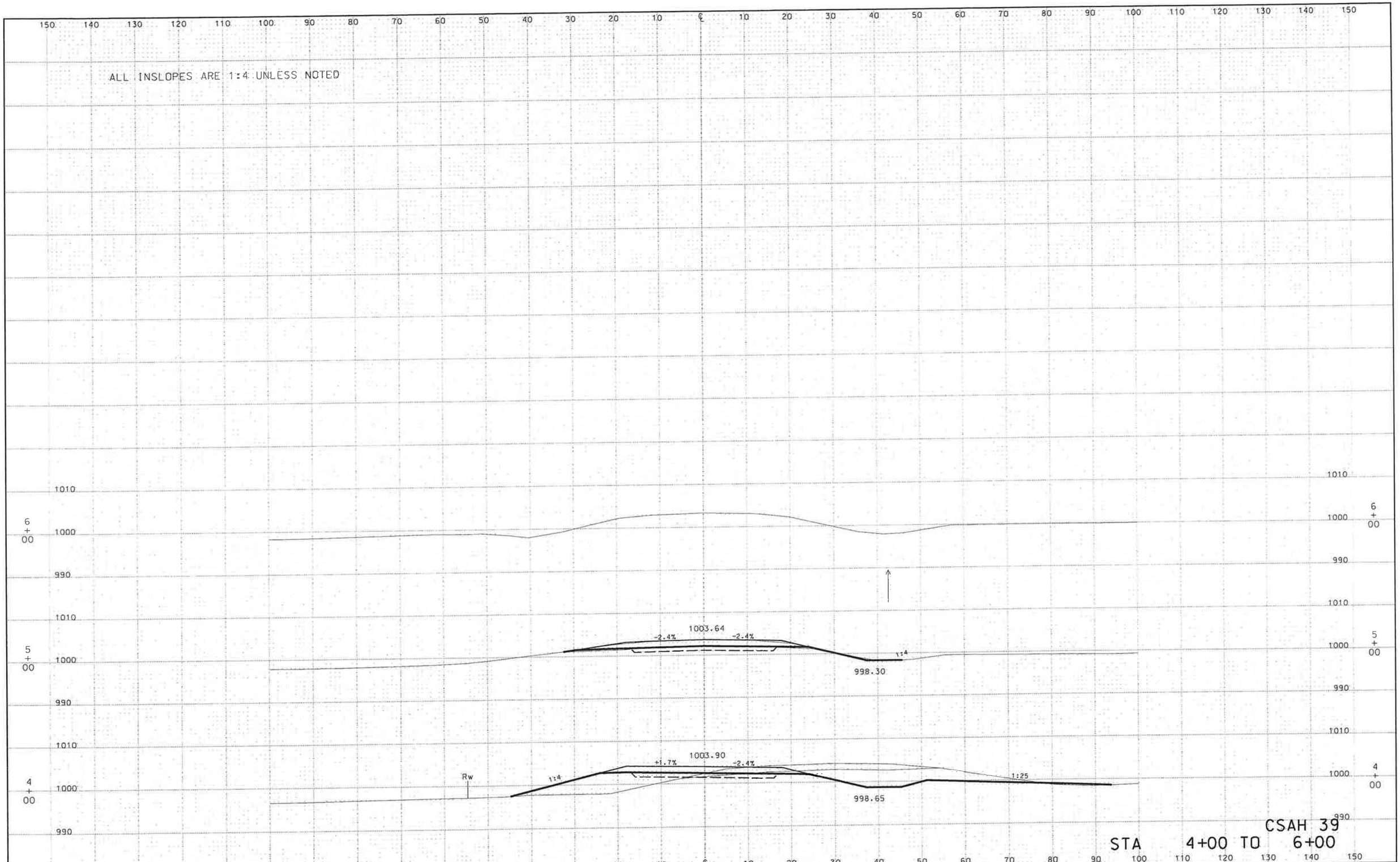

ALL INSLOPES ARE 1:4 UNLESS NOTED
994.79
995.01
995.23
995.45
1:4
1:3
Rw
643 + 60
643 + 40
643 + 20
643 + 00
642 + 00
STA 642+00 TO 643+60



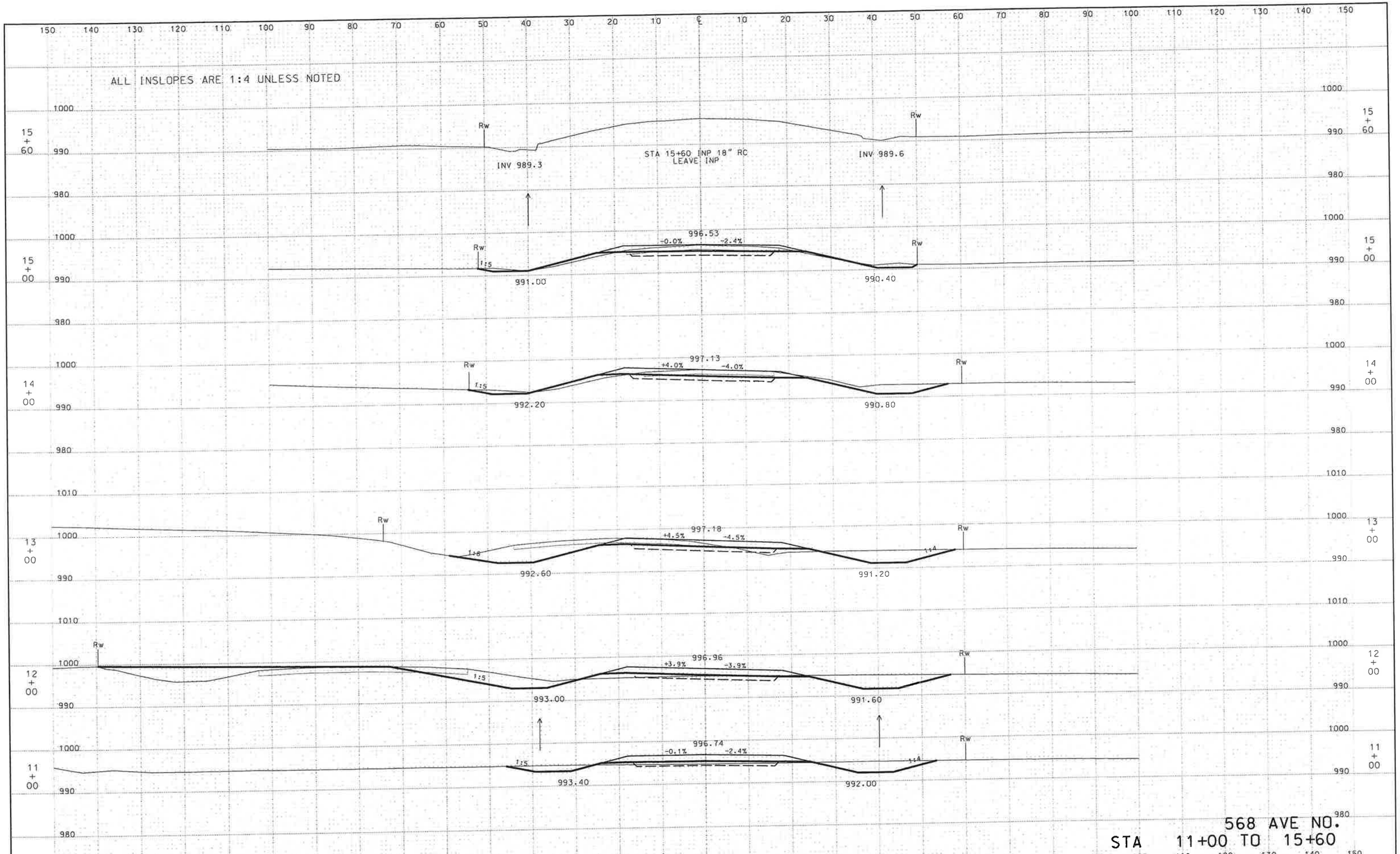
RC015001.DGN 6/7/2011 3:28:24 PM



rc001002.dgn 6/7/2011 3:35:52 PM



rc002002.dgn 6/7/2011 3:37:37 PM

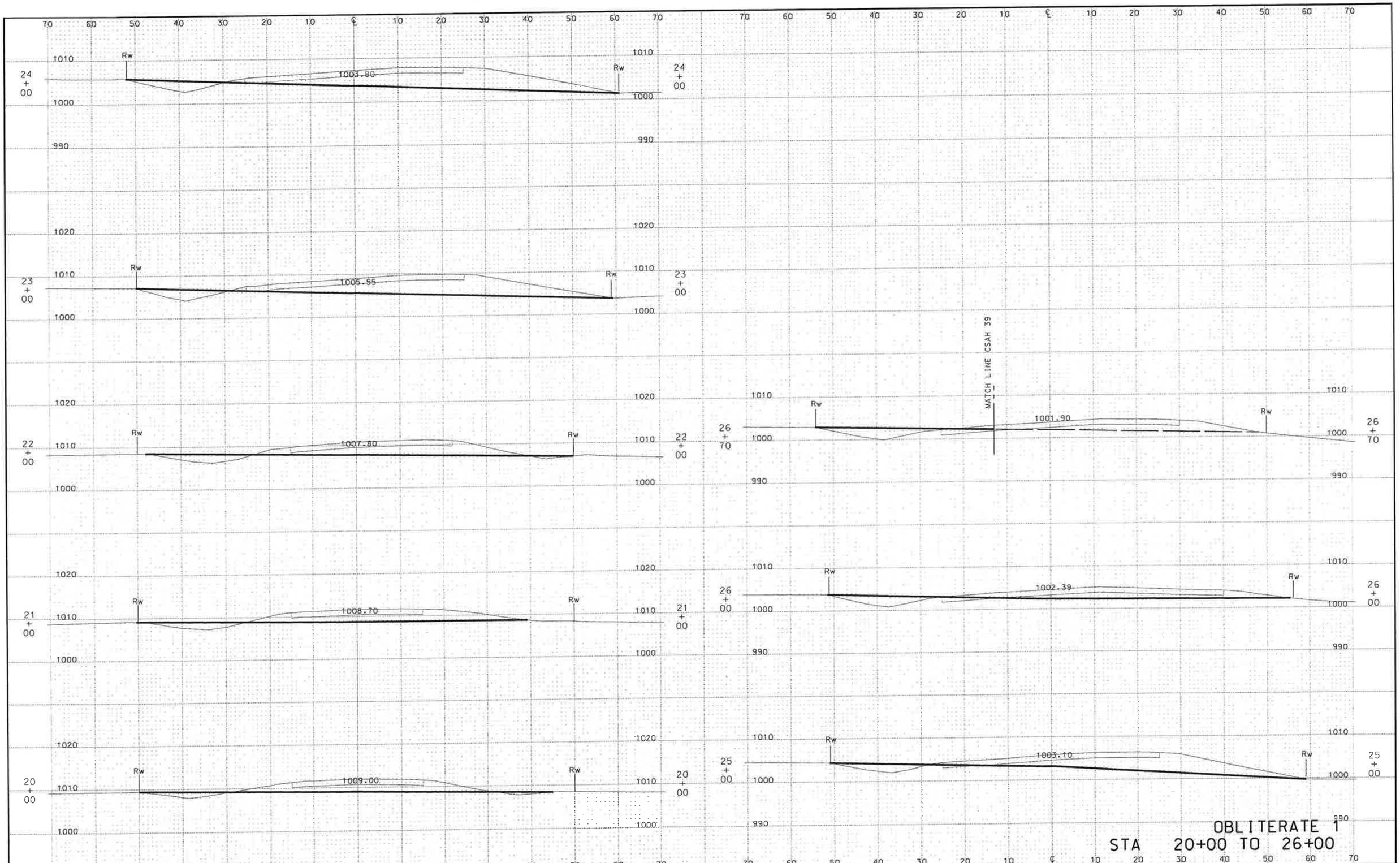


568 AVE NO.

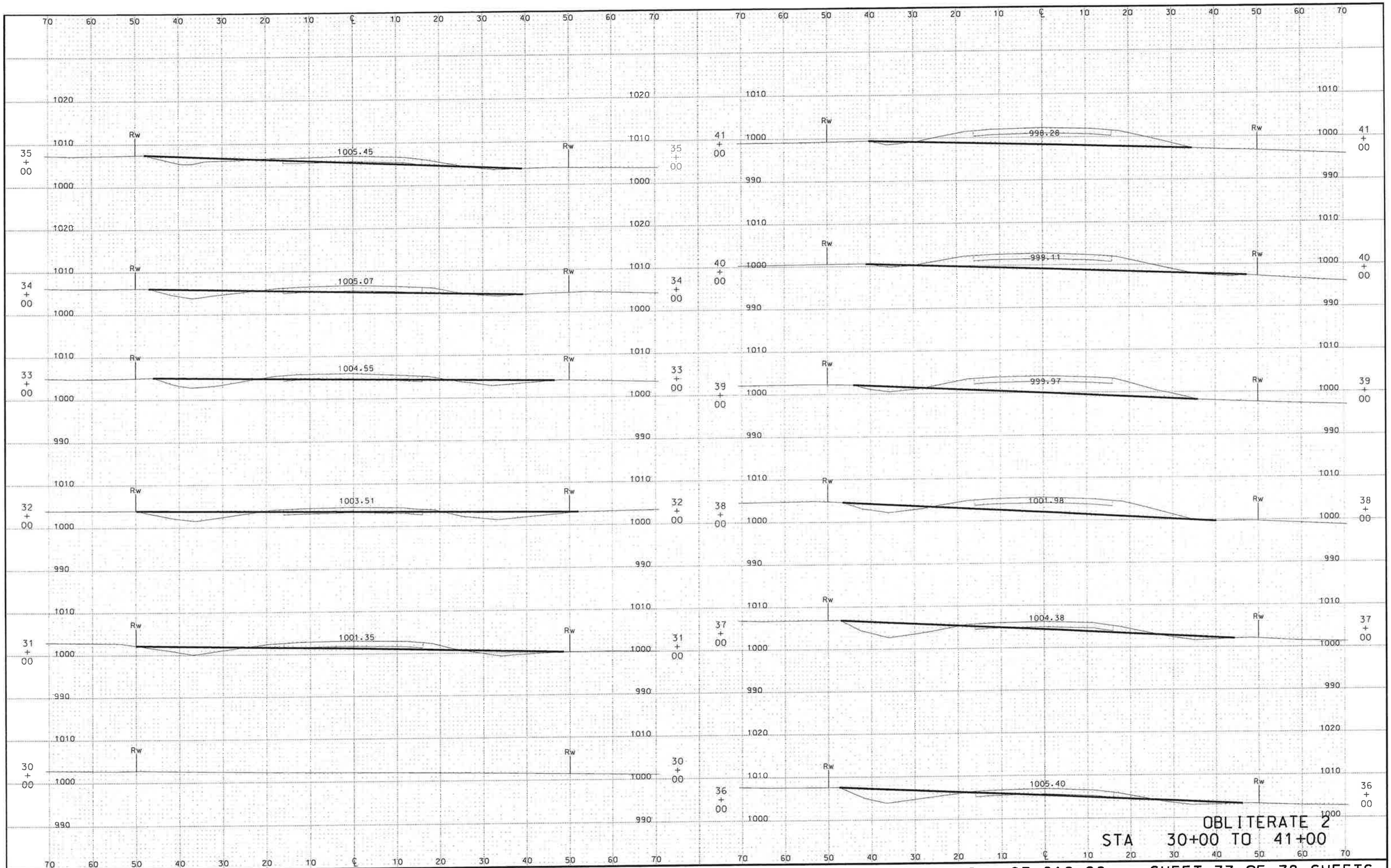
STA 11+00 TO 15+60

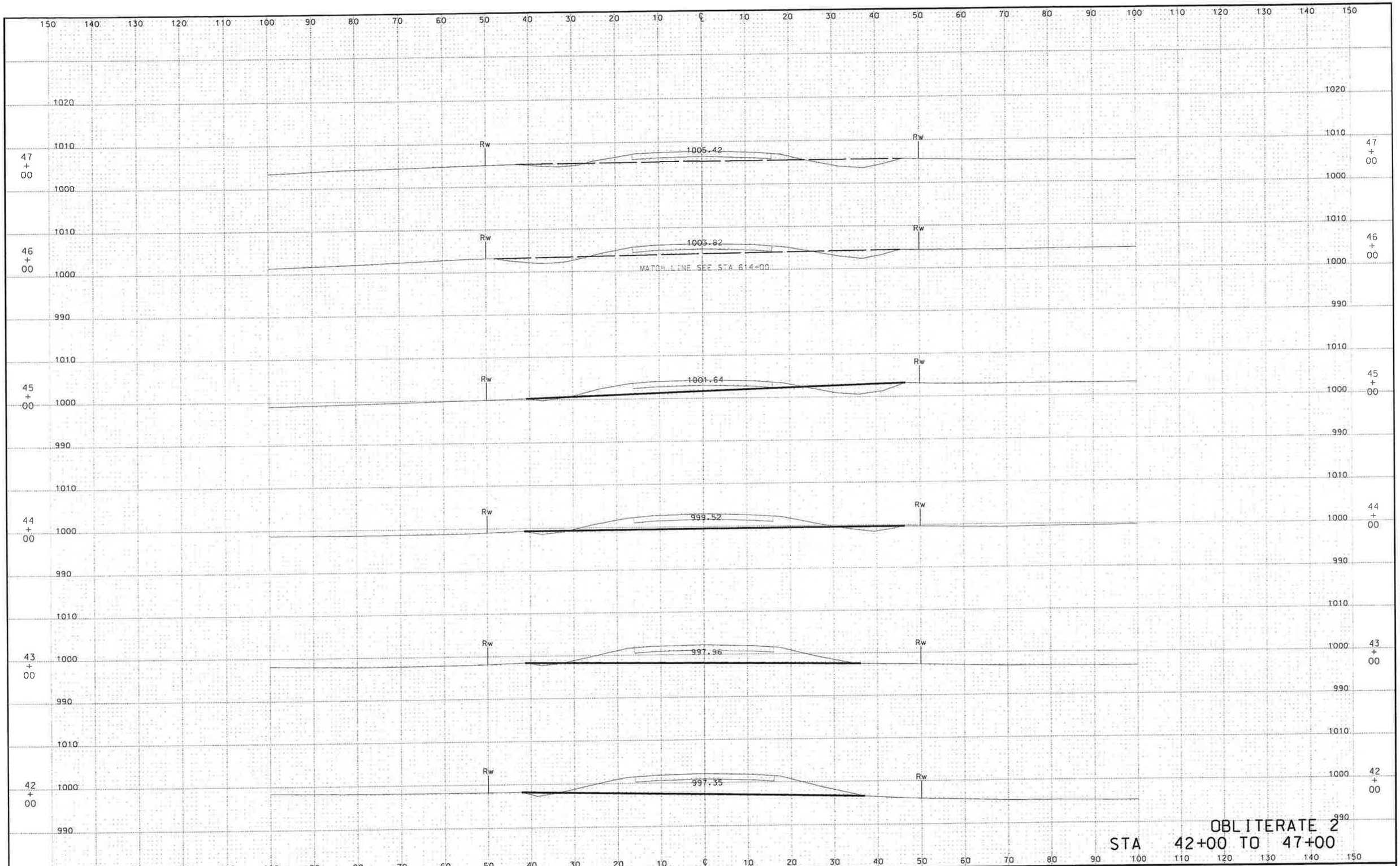
CSAH 10 07-610-20 SHEET 75 OF 78 SHEETS

rc001003.dgn 6/7/2011 3:41:23 PM



OBLITERATE 1
STA 20+00 TO 26+00


35 + 00
1005.45
34 + 00
1005.07
33 + 00
1004.55
32 + 00
1003.51
31 + 00
1001.35
30 + 00
41 + 00
998.28
40 + 00
999.11
39 + 00
999.97
38 + 00
1001.98
37 + 00
1004.38
36 + 00
1005.40
Rw
OBLITERATE 2
STA 30+00 TO 41+00



OBLITERATE 2
STA 42+00 TO 47+00

CSAH 10 07-610-20 SHEET 78 OF 78 SHEETS

.../CSAH/10/GT-22/DGN/rc002005.dgn 4/22/2011 9:41:30 AM