MINNESOTA DEPARTMENT OF TRANSPORTATION

THE COUNTY OF OLMSTED

CONSTRUCTION PLAN FOR GRADING, AGGREGATE BASE, AND BRIDGE 55546

LOCATED ON C.R. 120 BETWEEN T.H. 63, AT NORTH AND C.R. 120 NORTH LIMITS OF STEWARTVILLE. (GEOGRAPHIC DESCRIPTION)

FROM 34.586 m EAST OF CENTER SEC. 27, T.105N., R.14W. TO 3.232 m WEST OF CENTER SEC. 26, T.105N., R.14W. (LEGAL DESCRIPTION)

STATE PROJ. NO. 55-598-24

GROSS LENGTH	1576.278	meter	1.576	kilometer
BRIDGE-LENGTH	89.322	meter	.089	kilometer
EXCEPTIONS-LENGTH		meter		kilometer
NET LENGTH	1576.278	meter	1.576	kilometer

MINN. PROJ. NO. BROS 5597(143)

ATTENTION: THIS IS A METRIC PLAN.

GOVERNING SPECIFICATIONS

THE 1995 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.

INDEX FOR GRADING ON C.R. 120

SHEET NO. 1	TITLE SHEET
SHEET NO. 2	ESTIMATE OF QUANTITIES
SHEET NO. 3	TYPICAL SECTIONS
SHEET NO. 4	STORM SEWER TABULATION SHEET
SHEET NO. 5	SEEDING, UTILITIES ADJUST, &MISC. DETAILS
SHEET NO. 6 - 10	EROSION CONTROL
SHEET NO. 11	GUARDRAIL TRANSITION
SHEET NO. 12 - 13	GUARDRAIL INSTALLATION & END TREATMENTS
SHEET NO. 14- 18	GRADING PLAN AND PROFILE
SHEET NO. 19 - 26	CROSS SECTIONS
SHEET NO. 27	TRAFFIC CONTROL

INDEX FOR BRIDGE CONSTRUCTION (#55546)

SHEET NO. B1	BRIDGE GENERAL PLAN & ELEVATION
SHEET NO. B2	BRIDGE LAYOUT
SHEET NO. B3 - B5	WEST ABUTMENT LAYOUT, DETAILS & REINF.
SHEET NO. B6 - B8	EAST ABUTMENT LAYOUT, DETAILS & REINF.
SHEET NO. B9	WEST & EAST ABUT. BILL OF REINF.
SHEET NO. B10	PIER 1 & 2 LAYOUT
SHEET NO. B11 - B12	PIER 1 & 2 REINFORCEMENT
SHEET NO. B13	PIER 1 & 2 BILL OF REINFORCEMENT
SHEET NO. B14	FRAMING PLAN
SHEET NO. B15	1600 mm PRESTRESSED CONC. BEAM
SHEET NO. B16	SUPER STRUCTURE LAYOUT
SHEET NO. B17	SUPER STRUCTURE DETAILS
SHEET NO. B18	SUPER STRUCTURE BILL OF REINF.
SHEET NO. B19	CONCRETE RAILING (TYPE F)
SHEET NO. B20	METAL RAILING FOR BIKEWAYS
SHEET NO. B21 - B22	WATERPROOF EXPANSION DEVICE
SHEET NO. B23 - B27	BRIDGE DETAILS
SHEET NO. B28	SITE PLAN & BRIDGE SURVEY
SHEET NO. B29	BRIDGE SURVEY - PLAN & PROFILE
SHEET NO. B30	BRIDGE SITE GRADING PLAN

THIS PLAN CONTAINS 57 SHEETS.

PLAN SYMBOLS

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

UTILITIES SYMBOLS

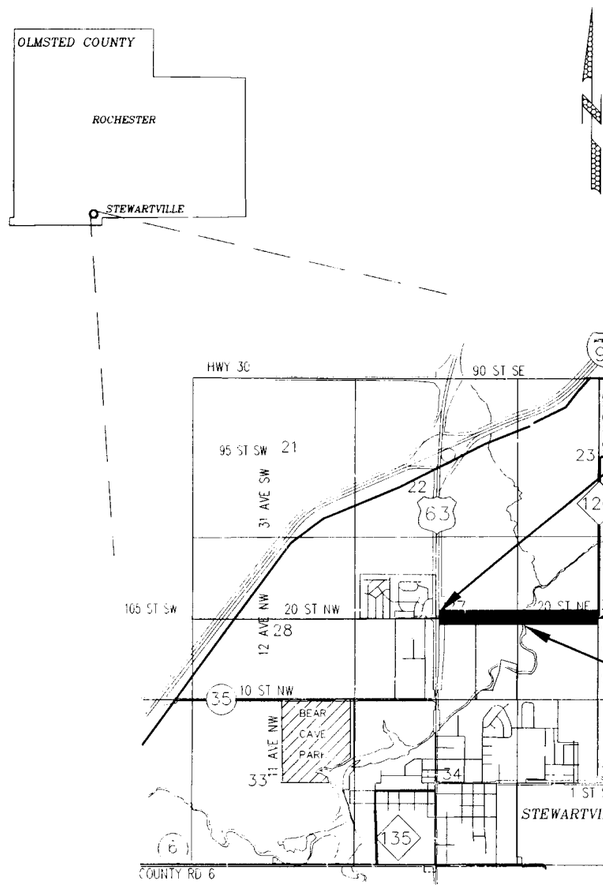
POWER POLE LINE
TELEPHONE OR TELEGRAPH POLE LINE
JOINT TELEPHONE AND POWER ON POWER POLE
ON TELEPHONE POLES
ANCHOR
STEEL TOWER
STREET LIGHT
PEDESTAL (TELEPHONE CABLE TERMINAL)
GAS MAIN
WATER MAIN
CONDUIT
TELEPHONE CABLE IN CONDUIT
ELECTRICAL CABLE IN CONDUIT
TELEPHONE MANHOLE
ELECTRICAL MANHOLE
BURIED TELEPHONE CABLE
BURIED ELECTRICAL CABLE
AERIAL TELEPHONE CABLE
SEWER (SANITARY OR SEWER)
SEWER MANHOLE

EROSION CONTROL SYMBOLS

TEMPORARY SILT FENCE
RIP RAP DITCH CHECKS

SCALES

PLAN 0 30 m
PROFILE 0 5 m HORIZ. 0 5 m VERT.
INDEX MAP
CROSS SECTIONS 0 2 m



BEGIN: S.P. 55-598-24
STA. 0+034.586

END: S.P. 55-598-24
STA. 1+610.864

BRIDGE NO. 55546
STA. 0+816.133 TO
STA. 0+905.455

DESIGN DESIGNATION: S.P. 55-598-24 (C.R. 120)

Design Speed not achieved at:

STA. 0+042 TO STA. 0+111 KPH 70*
STA. 0+167 TO STA. 0+259 KPH 70
STA. 0+298 TO STA. 0+493 KPH 70
STA. 0+533 TO STA. 0+661 KPH 70
STA. 0+914 TO STA. 1+012 KPH 70
STA. 1+028 TO STA. 1+080 KPH 70
STA. 1+253 TO STA. 1+376 KPH 70
STA. 1+403 TO STA. 1+540 KPH 70

*STOP CONDITION

ADT (Current Year) = 321(1998) Design Speed 90 kPH
ADT (Future Year) = 482(2018) Based on STOPPING Sight Distance
DHV (Design Hr. Vol.) = Height of eye 1070 mm Height of object 150 mm
D (Directional Distr.) =
T (Heavy Commercial) =
SUBGRADE = K=150
SHOULDER WIDTH URBAN = 1.2 m RURAL = 1.8 m
SOIL FACTOR = 130%
8.2t DESIGN
URBAN STA. 0+060 TO STA. 0+220 TRAFFIC LANES 2 PARKING NONE
TURN LANES 2
URBAN STA. 0+220 TO STA. 0+935 TRAFFIC LANES 2 PARKING NONE
RURAL STA. 0+935 TO STA. 1+614 TRAFFIC LANES 2 PARKING NONE

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

Kay M Biernick DATE 6/9/98 REGISTRATION NUMBER 19917
APPROVED: DESIGN ENGINEER

Michael J Skuban DATE 6/9/98 REGISTRATION NUMBER 10397
APPROVED: COUNTY ENGINEER

Ronald W. Yaggy 6-9-98
RECOMMENDED FOR APPROVAL - CITY OF STEWARTVILLE DATE

Donald J. Flemming 12-31-98
RECOMMENDED FOR APPROVAL - STATE BRIDGE ENGINEER DATE

RECOMMENDED FOR APPROVAL DATE

RECOMMENDED FOR APPROVAL DATE

STATE AID & FEDERAL AID APPROVALS:

Cindy Schmidt DATE: October 1, 1998
DISTRICT STATE AID ENGINEER: REVIEWED FOR COMPLIANCE WITH STATE-AID RULES POLICY

Julie Stallman DATE: 1/5/99
APPROVED FOR STATE AID & FEDERAL AID FUNDING STATE AID ENGINEER

minnesota metric

STATE PROJ. NO. 55-598-24 SHEET NO. 1 OF 27 SHEETS

ESTIMATED QUANTITIES

	SPECIFICATION NO.	ITEM	UNIT	NON PARTICIPATING (COUNTY)	NON PARTICIPATING (CITY)	TOTAL ESTIMATED QUANTITIES
	2031.501	FIELD OFFICE, TYPE D	EACH	1		1
1	2101.511	CLEARING & GRUBBING	LUMP SUM	1		1
2	2103.501	BUILDING REMOVAL	LUMP SUM	1		1
	2104.501	REMOVE PIPE CULVERTS	m	188.4		188.4
	2104.501	REMOVE FENCE	m	707		707
	2104.501	REMOVE CURB & GUTTER	m	16.3		16.3
	2104.501	REMOVE GUARD RAIL – PLATE BEAM	m	63		63
	2104.503	REMOVE BITUMINOUS PAVEMENT	m2	462		462
	2104.509	REMOVE CONCRETE APRON	EACH	1		1
	2104.513	SAW BITUMINOUS PAVEMENT (FULL DEPTH)	m	31.7		31.7
3	2104.521	SALVAGE CHAIN LINK FENCE	m	25.3		25.3
4	2104.525	ABANDON & SEAL WELL SHAFT	EACH	1		1
5	2105.515	UNCLASSIFIED EXCAVATION	m3	16 488		(P) 16 488
	2105.523	COMMON BORROW (LV)	m3	6 000	5 000	11 000
	2130.501	WATER	m3	180		180
6	2211.501	AGGREGATE BASE CL. 5A	t	9 010	2 418	11 428
7	2411.507	CONCRETE FLUME	EACH	3		3
	2501.511	200 mm CS PIPE CULVERT	m		14	14
	2501.511	450 mm CS PIPE CULVERT	m	44.0		44.0
	2501.511	600 mm RC PIPE CULVERT CLASS III	m	45.1		45.1
	2501.515	300 mm RC PIPE APRON	EACH	1		1
8	2501.515	375 mm RC PIPE APRON	EACH		4	4
8	2501.515	450 mm RC PIPE APRON	EACH		1	1
	2501.515	600 mm RC PIPE APRON	EACH	1		1
8	2501.515	750 mm RC PIPE APRON	EACH		1	1
8	2501.515	1050 mm RC PIPE APRON	EACH		1	1
	2501.521	530 mm SPAN CS PIPE-ARCH CULVERT	m	44.0		44.0
	2501.567	450 mm GS SAFETY APRON AND GRATE DES.3148	EACH	6		6
	2501.567	530 mm SPAN GS SAFETY APRON AND GRATE DES.3148	EACH	6		6
9	2501.567	600 mm RC SAFETY APRON & GRATE 3128	EACH	3		3
8	2501.602	LIGHT DUTY SAFETY GRATE FOR 375 mm R.C. PIPE APRON	EACH		1	1
8	2501.602	LIGHT DUTY SAFETY GRATE FOR 450 mm R.C. PIPE APRON	EACH		1	1
8	2501.602	LIGHT DUTY SAFETY GRATE FOR 750 mm R.C. PIPE APRON	EACH		1	1
8	2501.602	LIGHT DUTY SAFETY GRATE FOR 1050 mm R.C. PIPE APRON	EACH		1	1
	2503.511	375 mm RC PIPE SEWER CLASS III	m		14.9	14.9
	2503.511	1050 mm RC PIPE SEWER CLASS III	m		2.3	2.3
	2503.541	375 mm RC PIPE SEWER DESIGN 3006 CL. III	m		125.20	125.20
	2503.541	450 mm RC PIPE SEWER DESIGN 3006 CL. III	m		11.90	11.90
	2503.541	525 mm RC PIPE SEWER DESIGN 3006 CL. III	m		4.30	4.30
	2503.541	750 mm RC PIPE SEWER DESIGN 3006 CL. III	m	15.20		15.20
	2503.541	900 mm RC PIPE SEWER DESIGN 3006 CL. III	m		37.30	37.30
	2503.541	1050 mm RC PIPE SEWER DESIGN 3006 CL. III	m		141.20	141.20
10	2504.602	300 mm x 300 mm CROSS	EACH		1	1
10	2504.602	300 mm SLEEVE	EACH		1	1
10	2504.602	300 mm x 200 mm REDUCER	EACH		1	1
10	2504.602	300 mm PIPE PLUG	EACH		1	1
10	2504.602	200 mm PIPE PLUG	EACH		1	1
10	2504.602	300 mm GATE VALVE & BOX	EACH		1	1
10	2504.602	200 mm GATE VALVE & BOX	EACH		1	1
11	2504.602	ADJUST VALVE BOX	EACH	7		7
10	2504.603	300 mm WATERMAIN DUCT IRON CL. 52	m		26.3	26.3
10	2504.603	200 mm WATERMAIN DUCT IRON CL. 52	m		10.3	10.3
12	2504.604	100 mm POLYSTYRENE INSULATION	m2	144.00		144.00
13	2504.607	SAND COVER (LV)	m3	54		54
	2506.501	CONST. DRAINAGE STRUCTURE DESIGN PC – 300	m	0.8		0.8
	2506.501	CONST. DRAINAGE STRUCTURE DESIGN PC – 375	m		4.0	4.0
	2506.501	CONST. DRAINAGE STRUCTURE DESIGN PC – 450	m		6.5	6.5
	2506.501	CONST. DRAINAGE STRUCTURE DESIGN PC – 750	m	3.2		3.2
14	2506.502	CONST. DRAINAGE STRUCTURE DESIGN SPECIAL	EACH		1	1
	2506.502	CONST. DRAINAGE STRUCTURE DESIGN F	EACH		1	1
	2506.502	CONST. DRAINAGE STRUCTURE DESIGN G	EACH		8	8
	2506.502	CONST. DRAINAGE STRUCTURE DESIGN N	EACH		1	1
	2506.502	CONST. DRAINAGE STRUCTURE DESIGN 1650 mm – 4020	EACH		1	1
	2506.502	CONST. DRAINAGE STRUCTURE DESIGN 1800 mm – 4020	EACH		2	2
15	2506.522	ADJUST FRAME & RING CASTING	EACH		2	2
16	2506.602	CONNECT INTO EXISTING STORM SEWER	EACH		1	1
17	2554.501	TRAFFIC BARRIER DESIGN SPECIAL	m	30.48		30.48
17	2554.523	END TREATMENT – ENERGY ABSORBING TERMINAL	EACH	4		4
17	2554.602	T – BARRIER BRIDGE CONN DES 5318	EACH	4		4
18	2557.603	INSTALL CHAIN LINK FENCE	m	25.3		25.3
	2563.601	TRAFFIC CONTROL	LUMP SUM	1		1
19	2573.501	BALE CHECK	EACH	400		400
20	2573.502	SILT FENCE TYPE HEAVY DUTY	m	775		775
	2575.501	SEEDING	ha	3.3		(P) 3.3
	2575.502	SEED MIXTURE 50A	kg	165		165
	2575.502	SEED MIXTURE 110A	kg	330		330
21	2575.505	SODDING TYPE LAWN	m2	3 145		3 145
	2575.511	MULCH MATERIAL TYPE 1	t	14.8		14.8
	2575.519	DISC ANCHORING	ha	2.6		(P) 2.6
22	2575.523	EROSION CONTROL BLANKETS CATEGORY 2	m2	2 700		2 700
	2575.531	COMMERCIAL FERTILIZER ANALYSIS 12-12-12	t	0.7		0.7

QUANTITY NOTES

1. TREES FOR REMOVAL WILL BE DESIGNATED BY THE ENGINEER. (APPROXIMATELY .03 ha + 30 TREES).
2. BUILDINGS AND LOCATIONS FOR REMOVAL ARE BARN RT. OF STA.0+420, WELL HOUSE RT. OF STA.0+430 AND SHED LT. OF STA.0+435.
3. INCLUDES ALL FENCE, POSTS. BRACES, AND GATES TO THE WATER RECLAMATION PLANT LT. OF STA.0+740.
4. WELL SHAFT IS LOCATED IN WELL HOUSE RT. OF STA.0+430.
5. UNCLASSIFIED EXCAVATION INCLUDES SUBGRADE TREATMENT AS SHOWN ON CROSS SECTIONS AND TYPICALS. 2 440 m3 UNCLASSIFIED EXCAVATION TO BE USED AS SALVAGED TOPSOIL AND PLACED AS SHOWN IN PLANS. 9 350 m3 OF EXCAVATION FROM THE GENERAL BRIDGE PLAN AND SPECIAL PROVISIONS FOR SLOPE PREPARATION ITEM NO. 2401.601, SHALL BE USED IN EMBANKMENT AS DIRCTED BY THE ENGINEER.
6. INCLUDES 10 892 t FOR MAINLINE, 536 t FOR DRIVEWAYS AND STREETS .
7. CONSTRUCT 3 FLUMES, 1 LT. OF WATER RECLAMATION PLANT ENT. STA.0+742 FROM END OF INPLACE CURB & GUTTER TO INLET OF C.B.16, 1 RT. OF SAME ENT. FROM END OF INPL. CURB & GUTTER TO OUTLET OF ENT. CULVERT, AND 1 LT. OF STA.0+800 FROM OUTLET APRON TO BOTTOM OF SLOPE. USE CONCRETE DESIGN MIX 3A33. EACH FLUME IS APPROXIMATELY 1.0 m WIDE x 4.8 m LONG x 100 mm DEPTH.
8. APRONS AT THESE LOCATIONS SHALL HAVE PRE FORMED HOLES TO ATTACH SAFETY GRATES. DETAIL ON SHEET 5. 375 mm RT. 14.4 m STA.0+178, 750 mm LT. 12.6 m STA.0+205.7, 450 mm LT.13.6 m STA.0+242.944, AND 1050 mm RT. 15.24 m STA.0+385.577. CONTRACTOR SHALL FURNISH ALL EQUIPMENT, LABOR, AND MATERIALS REQUIRED TO INSTALL GRATES.
9. INCLUDES ALL MATERIALS, LABOR, & EQUIPMENT TO FURNISH AND INSTALL APRON &SAFETY GRATE. REFER TO STD. PLATE M3022 & M3128.
10. INCLUDES ALL MATERIALS, LABOR, & EQUIPMENT TO FURNISH AND INSTALL AS PER SPECIAL PROVISIONS.
11. ADJUSTMENT NOTE & LOCATIONS ARE ON PLAN SHEETS.
12. INSULATION AREAS ON PLAN SHEETS ARE APPROXIMATE AND FINAL LOCATION WILL BE DETERMINED BY THE ENGINEER IN THE FIELD. INSULATION DETAIL IS LOCATED ON SHEET NO.4.
13. SAND TO BE USED AS SHOWN ON INSULATION TYPICAL SHEET 4 FOR INSULATION FROM STA.0+180 0+220 AND STA.0+390 TO STA.0+440 OVER INPLACE WATER MAIN.
14. REFER TO STD. PLATE M4024.
15. ADJUSTMENT NOTE & LOCATIONS ARE ON PLAN SHEETS.
16. CONNECTION OF INPLACE R.C. PIPE CULVERT TO M.H. 1 IS LOCATED RT. 10.1 m STA.0+111.2. ITEM NO. 2104.509 REMOVE CONCRETE APRON , MUST BE PREFORMED FIRST.
17. THIS IS THE DESIGN (LET) VERSION OF THE ET-2000 GUARDRAIL END TREATMENT SYSTEM FOR USE ON ROADWAYS WHERE THE POSTED SPEED IS 80 km/h (50mph) OR LESS. CONTRACTOR SHALL FURNISH ALL EQUIPMENT, LABOR, AND MATERIALS REQUIRED TO INSTALL GUARDRAIL SYSTEM.
18. INCLUDES ALL MATERIALS FROM ITEM 2104.521 SALVAGE CHAIN LINK FENCE, LABOR, AND EQUIPMENT REQUIRED TO REINSTALL FENCE AT STA.0+740 WATER RECLAMATION PLANT ENT.
19. LOCATIONS ON SHEET NO.5 & ESTIMATED QUANTITY ARE APPROXIMATE. FINAL LOCATION & QUANTITY WILL BE DETERMINED BY THE ENGINEER IN THE FIELD . SPECIFICATION 1903 SHALL NOT APPLY FOR THIS ITEM 2573.501 BALE CHECK.
20. LOCATIONS ON SHEET NO.5 & ESTIMATED QUANTITY ARE APPROXIMATE. FINAL LOCATION & QUANTITY WILL BE DETERMINED BY THE ENGINEER IN THE FIELD . SPECIFICATION 1903 SHALL NOT APPLY FOR THIS ITEM 2573.502 SILT FENCE HEAVY DUTY.
21. SEE SHEET 5 FOR LOCATIONS.
22. LOCATIONS ON SHEET NO.5 & ESTIMATED QUANTITY ARE APPROXIMATE FINAL LOCATION & QUANTITY WILL BE DETERMINED BY THE ENGINEER IN THE FIELD . SPECIFICATION 1903 SHALL NOT APPLY FOR THIS ITEM 2575.523 EROSION CONTROL BLANKETS CATEGORY 2

STANDARD PLATES

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

PLATE NO.	DESCRIPTION
	NUMERICAL INDEX OF STANDARD PLATES
M3000L	REINFORCED CONCRETE PIPE
M3006G	GASKET JOINT FOR R.C. PIPE
M3022B	PRECAST CONCRETE END SECTION
M3040F	CORRUGATED METAL PIPE CULVERT
M3100G	CONCRETE APRON FOR REINFORCED CONCRETE PIPE
M3128F	SAFETY APRON
M3145E	CONCRETE PIPE TIES "EYE BOLT TIE"
M3148A	SAFETY SLOPE METAL END SECTION FOR CIRCULAR & ARCHED PIPES
M3221C	CORRUGATED STEEL PIPE COUPLING BAND
M4003B	750 mm PRECAST CATCH BASIN
M4005L	MANHOLE OR CATCH BASIN
M4006L	MANHOLE OR CATCH BASIN
M4010H	CONCRETE SHORT CONE AND ADJUSTING RING
M4011E	PRECAST CONCRETE BASE
M4017C	CATCH BASIN (DESIGN PC)
M4020G	MANHOLE OR CATCH BASIN COVER
M4024A	1200 mm DIA. PRECAST SHALLOW DEPTH CATCH BASIN (DESIGN SD)
M4101D	RING CASTING FOR MANHOLE OR CATCH BASIN
M4110F	COVER CASTING FOR MANHOLE
M4125D	CATCH BASIN FRAME CASTING
M4154B	CATCH BASIN GRATE CASTING
M4180J	MANHOLE OR CATCH BASIN STEP
M8000I	STANDARD BARRICADES
M8307P	STEEL PLATE BEAM GUARDRAIL
M8318C	GUARDRAIL ANCHORAGE PLATE FOR BRIDGES AND BCT'S
M9000C	APPROACHES AND ENTRANCES

BASIS OF PLANNED QUANTITIES

AGGREGATE BASE CLASS 5A – 2160 kg/m3

SEED MIXTURE 110A – 100 kg/ha IN CONJUNCTION WITH SEED MIX 50A.

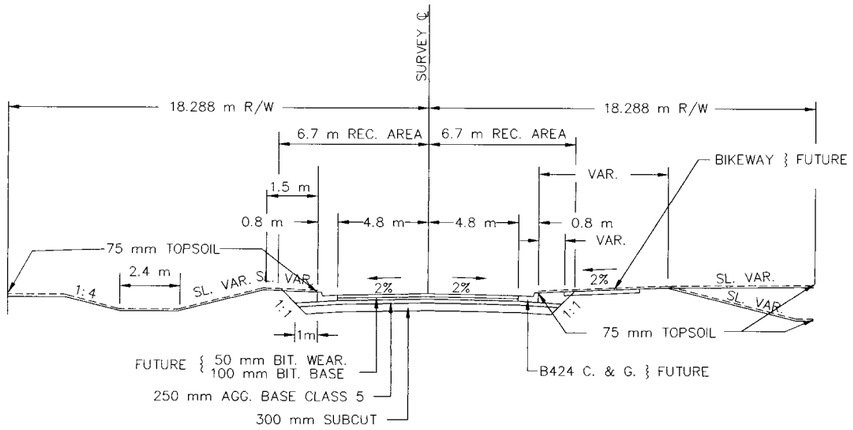
SEED MIXTURE 50A – 50 kg/ha APPLY TO ALL AREAS WHERE TOPSOIL HAS BEEN PLACED.

MULCH MATERIAL TYPE 1 – 4.5 metric ton/ha.

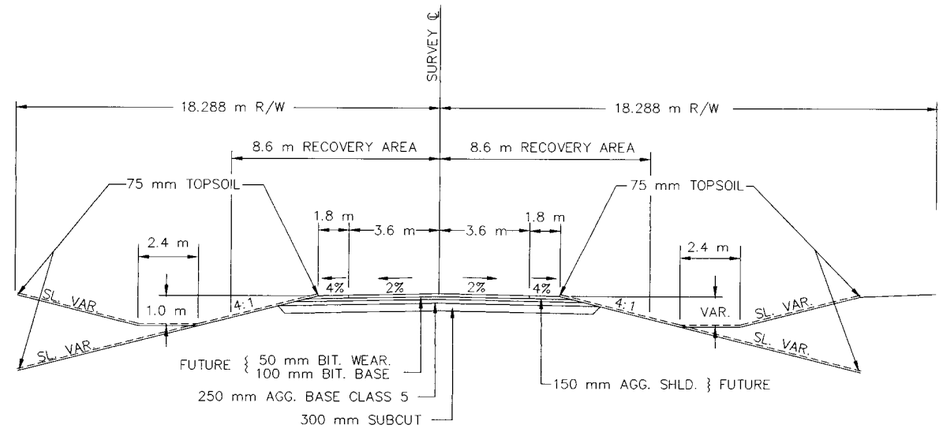
DISC ANCHORING – ALL SEEDED AREAS EXCEPT 2:1 SLOPES.

FERTILIZER – 225 kg/ha

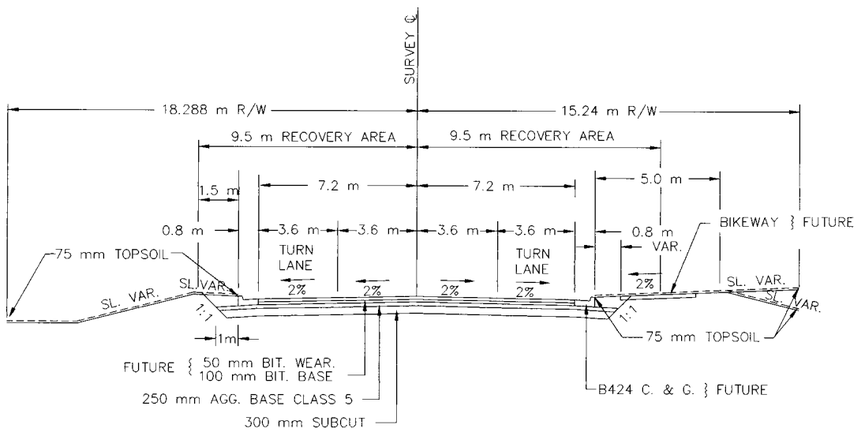
CERTIFIED BY Gary M Pieniak PROFESSIONAL ENGINEER REG. NO. 19917 11/19 19 98



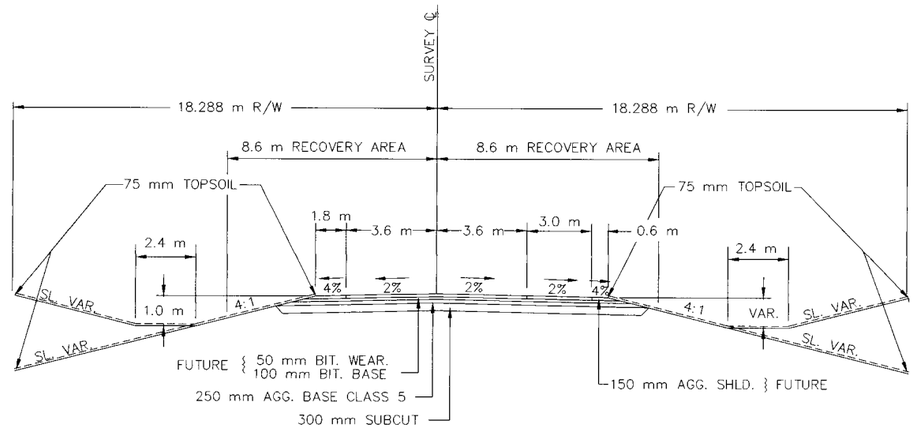
TAPER RIGHT LANE FROM STA. 0+220 TO STA. 0+275
STA. 0+275 TO STA. 0+815.981
STA. 0+905.608 TO STA. 0+935
STA. 0+935 CURB SECTION ENDS LT. & RT.



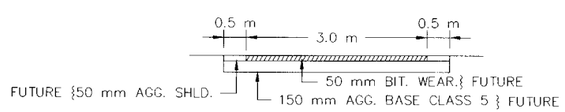
STA. 1+080 TO STA. 1+614



STA. 0+060 TO STA. 0+220



STA. 0+935 TO STA. 1+060
TAPERS STA. 1+060 TO STA. 1+080



BIKEWAY IN LOCATIONS AS SHOWN IN PLAN

TYPICAL SECTIONS

CERTIFIED BY Kaye M Bierneh REG NO. 19917 11/19 19 98
PROFESSIONAL ENGINEER

SAP 55 – 598 – 24

SHEET NO. 3 OF 27 SHEETS

STORM SEWER

NOTES	STRUCTURE NO.	STATION	LOCATION	CONSTRUCTION DESIGN M.H.	CONSTRUCTION DESIGN C.B.	QUANTITY E.S.T.	QUANTITY FINAL	Ⓐ TOP CASTING ELEV.	INLET ELEV.	INLET ELEV.	INLET ELEV.	OUTLET ELEV.	FRAME CASTING NO.	GRATE NO.	Ⓑ CURB BOX NO.	RING CASTING NO.	COVER CASTING NO.	375 mm R.C. PIPE m	450 mm R.C. PIPE m	525 mm R.C. PIPE m	300 mm R.C. PIPE m	750 mm R.C. PIPE m	900 mm R.C. PIPE m	1050mm R.C. PIPE m	APRON INLET	APRON OUTLET	FLOWS TO	% GRADE	CLASS
1	C.B.1	0+096	RT.14 m																								C.B.2		
1	C.B.2	0+106	RT.14 m																								M.H.1	2.87	
2	M.H.1	0+111.2	RT.10.1 m	N		1		374.320	373.533			373.530				700–4	716	66									M.H.2	3.68	III
3	C.B.3	0+178	RT.14.4 m	P.C.–M4017		1			371.650									**4.0							375 mm		M.H.2	10.3	III
	M.H.2	0+178	RT.9.1 m	S.D.		1		372.540	371.100	371.080		371.060				700–9	716	28				**3.2			750 mm		C.B.6	0.4	III
3	C.B.4	0+205.7	LT.12.6 m	P.C.–M4017		1			371.402																		C.B.5	12.1	III
	C.B.5	0+205.7	LT.7.6 m		G	1		371.876	370.857			370.817	806	816								15.2					C.B.6	1.5	III
	C.B.6	0+205.7	RT.7.6 m	1650–M4020		1		371.876	370.953	370.576		370.426	806	816									37.3				M.H.3	2.3	III
3	C.B.7	0+242.944	LT.13.6 m	P.C.–M4017		1			371.252										**6.5						450 mm		C.B.8	5.95	III
	C.B.8	0+242.944	LT.5.2 m		G	1		371.649	370.788			370.800	806	816					11.9								C.B.9	1.0	III
	C.B.9	0+242.944	RT.6.7 m		G	1		371.649	370.658			370.495	806	816						4.3							M.H.3	1.0	III
	M.H.3	0+242.944	RT.11 m	1800–M4020		1		371.700	370.452	370.077		370.927				700–9	716							141.2			M.H.4	.62	III
	M.H.4	0+384.144	RT.11 m	1800–M4020		1		371.250	369.052			369.060				700–9	716							*2.3			OUTLET	1.0	III
3	OUTLET	0+385.577	RT.15.24 m			1						369.000														1050 mm	DITCH		
	C.B.10	0+480	RT.5.2 m		G	1		368.557				367.700	806	816				10.4									C.B.11	0.6	III
	C.B.11	0+480	LT.5.2 m		G	1		368.557	367.643			367.635	806	816				*4.0									OUTLET	0.6	III
	OUTLET	0+480	LT.11.1			1						367.600														375 mm	DITCH		
	C.B.12	0+640	RT.5.2 m		G	1		363.016				362.196	806	816				10.4									C.B.13	0.6	III
	C.B.13	0+640	LT.5.2 m		G	1		363.016	362.141			362.133	806	816				*4.1									OUTLET	0.6	III
	OUTLET	0+640	LT.11.2			1						362.100														375 mm	DITCH		
	C.B.16	0+735.4	LT.18.2 m	P.C.–M4017		1			361.400												*.8				300 mm		CULV.		II
	C.B.14	0+800	RT.5.2 m		G	1		362.458				361.244	806	816				10.4									C.B.15	6.2	III
	C.B.15	0+800	LT.5.2 m		F	1		362.458	360.600			360.560	806	816				*6.8									OUTLET	6.2	III
	OUTLET	0+800	LT.13.9			1						360.064														375 mm	DITCH		

1. INPLACE STRUCTURE (NO CHANGE).
2. REMOVE 375 mm R.C.PIPE APRON.
   CONNECT INPLACE 375 mm R.C.PIPE CULV. TO M.H.1
3. R.C.P.–APRON WITH LIGHT DUTY SAFTY GRATE.

Ⓐ TOP OF CASTING ELEVATIONS ARE ADJUSTED TO AGGREGATE BASE. ELEVATIONS ON CROSS SECTIONS ARE TO FINISHED GRADE.

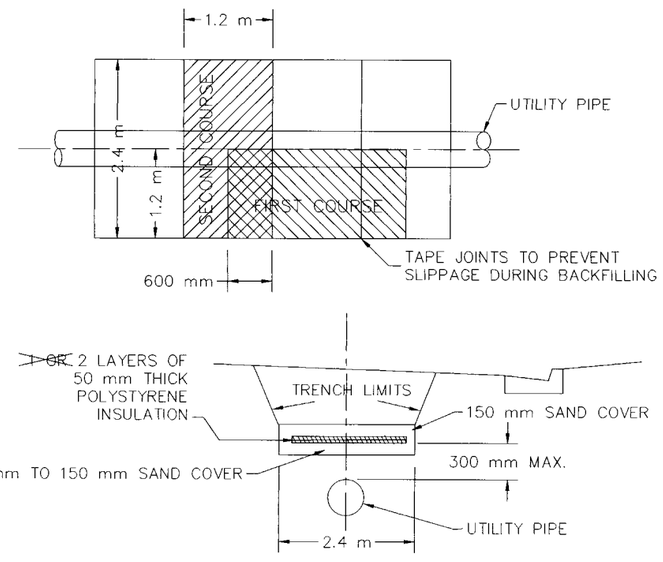
Ⓑ CURB BOX NO. 825 WILL BE PROVIDED FOR ON FUTURE PAVING PLAN.

CONTRACTOR SHALL FURNISH AND INSTALL 10 STEEL PLATES TO COVER CURB BOX HOLES. THE PLATES ARE APPROXIMATELY 620 mm L.x 200 mm W.x 6 mm THICK. THE PLATES, LABOR, AND INSTALLATION WILL BE CONSIDERED INCIDENTAL TO ITEM NO.2506.502 AND NO DIRECT COMPENSATION WILL BE MADE THIERFORE.

(*) R.C.P. CULVERT INCLUDED UNDER ITEM NO. 2503. STD. PIPE JOINT 3000.

(**) INCLUDED FOR PAYMENT UNDER ITEM NO. 2506.

TYPICAL LAYOUT FOR POLYSTYRENE INSULATION



INSULATION REQUIREMENTS			
DEPTH (e)	STORM SEWER MAIN LINES	SAN. SEWER	WATERMAIN (b)
900 mm–~~1.5 m~~	~~50 mm~~	100 mm	100 mm
~~1.5 m~~–2.1 m	0	~~50 mm~~	~~50 mm~~
>2.1 m	0	0	0

NOTES

a. INSULATION BOARD SHALL BE AS PER Mn/DOT. SPEC. 3760.

(b) ~~FOR WATERMAIN WITH NO SERVICE CONNECTIONS OR FOR WATERMAIN OUTSIDE OF PAVED AREAS WHERE SNOW IS NOT REMOVED, NO INSULATION IS REQUIRED IF COVER IS AT LEAST 1.8 m.~~

c. INSULATION BOARD SHALL BE PAID FOR AS 2504.604 100 mm INSULATION AT THE PRICE BID PER SQ. METER.

d. SAND COVER SHALL BE PAID AS 2504.607 SAND COVER (LV) AT THE PRICE BID PER CU. METER.

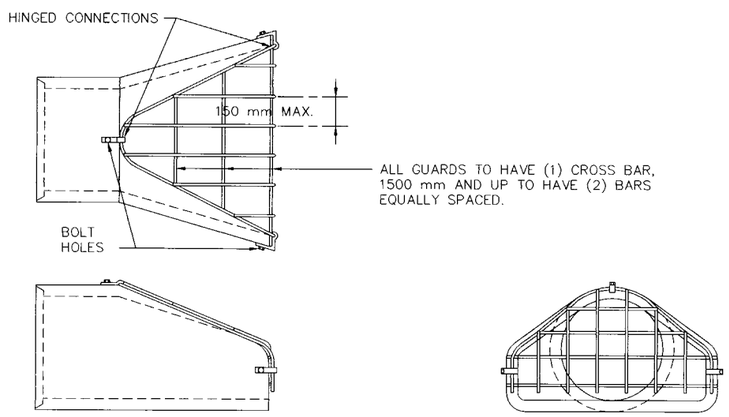
(e) DEPTH FOR SANITARY AND STORM SHALL BE TO INVERT. DEPTH FOR WATERMAIN SHALL BE TO TOP OF PIPE.

CERTIFIED BY Kaye M Bienick PROFESSIONAL ENGINEER REG. NO. 19917 11/19 1998

STATE PROJ. NO. 55–598–24

UTILITY LOCATIONS
GOPHER STATE ONE CALL 1-800-252-1166
NOTE: CONTRACTOR SHALL VARIFY ALL UNDERGROUND UTILITIES LOCATIONS AND ELEVATIONS PRIOR TO CONSTRUCTION. ALL INPLACE UTILITIES MAY NOT BE SHOWN ON THIS PLAN.

SILT FENCE (HEAVY DUTY)	BALE CHECKS
STA. 0+043 (LT) & (RT)	STA. 0+380 TO STA. 0+390 (RT)
STA. 0+230 TO STA. 0+280 (RT)	STA. 0+460 TO STA. 0+740 (LT)
STA. 0+295 TO STA. 0+380 (RT)	STA. 0+880 TO STA. 1+480 (LT)
STA. 0+480 TO STA. 0+620 (RT)	STA. 0+880 TO STA. 1+600 (RT)
STA. 0+620 TO STA. 0+800 (RT)	
STA. 0+800 TO STA. 0+850 (RT)	
STA. 0+760 TO STA. 0+850 (LT)	
STA. 0+850 (RT) TO (LT)	
STA. 0+880 (RT) TO (LT)	
STA. 1+210 TO STA. 1+290 (LT)	



HOT DIP GALVANIZED PER MN/DOT 3392 OR ASTM-A153

LIGHT DUTY SAFTEY GRATE FOR R. C. PIPE APRON

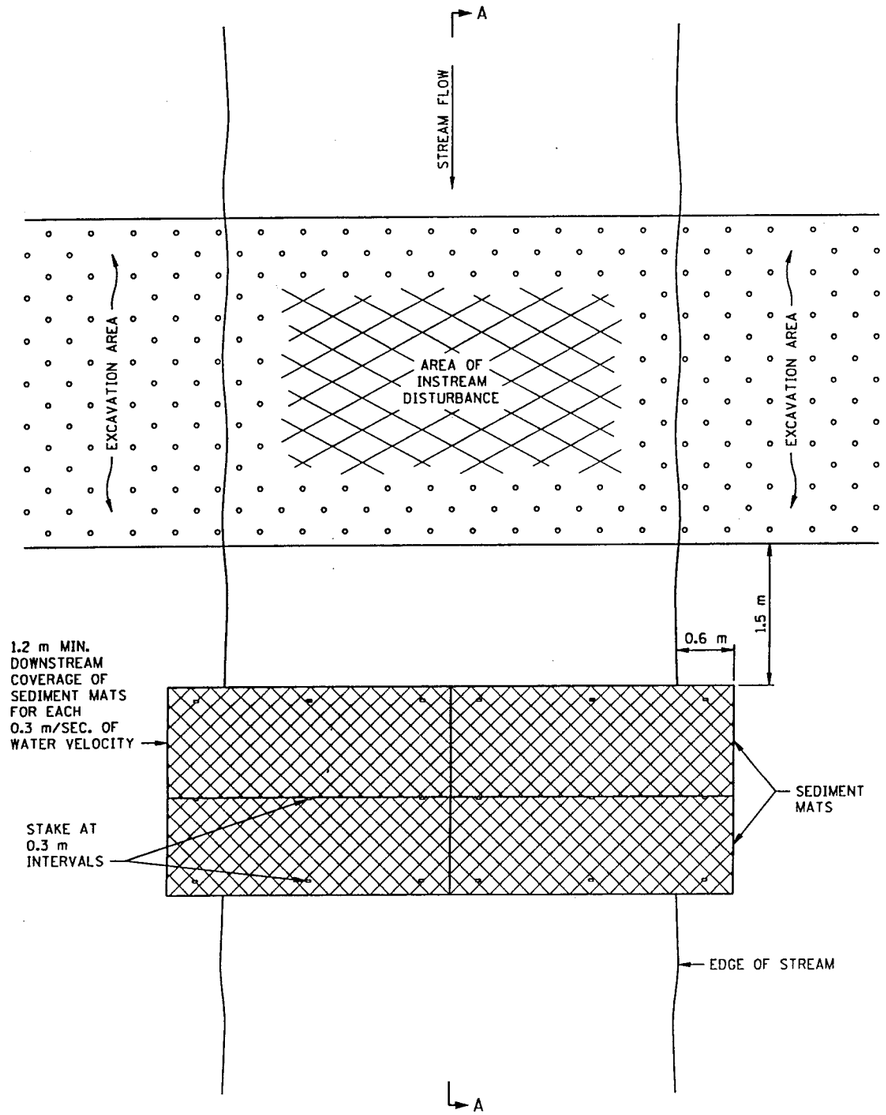
BAR SIZES									
	STANDARD DESIGN					HEAVY DESIGN			
	PIPE SIZE	HOLE DIA. REQ'D.	BOLT DIA.	BAR SIZE		PIPE SIZE	HOLE DIA. REQ'D.	BOLT DIA.	BAR SIZE
ROUND	300 mm-600 mm	19 mm	16 mm	16 mm	ROUND	300 mm-600 mm	19 mm	16 mm	19 mm
ROUND	675 mm-1200 mm	22 mm	19 mm	19 mm	ROUND	675 mm-1200 mm	22 mm	19 mm	25 mm
ROUND	1350 mm-2250 mm	29 mm	25 mm	25 mm	ROUND	1350 mm-2250 mm	29 mm	25 mm	32 mm
ARCH	560 mm-724 mm	19 mm	16 mm	16 mm	ARCH	560 mm-724 mm	19 mm	16 mm	19 mm
ARCH	920 mm-1485 mm	22 mm	19 mm	19 mm	ARCH	920 mm-1485 mm	22 mm	19 mm	25 mm
ARCH	1650 mm-2590 mm	29 mm	25 mm	25 mm	ARCH	1650 mm-2590 mm	29 mm	25 mm	32 mm
BOLT LG. = PIPE WALL THK. + 64 mm									

SEED MIXTURE 500 - SEED MIXTURE 1100 - MULCH - & FERTILIZER			
LOCATION			ha
SLOPES	LT.	STA. 0+040 TO STA. 0+370	0.5
SLOPES	RT.	STA. 0+370 TO STA. 0+440	0.2
SLOPES & DITCHES	LT. & RT.	STA. 0+440 TO STA. 0+850	1.0
SLOPES & DITCHES	LT. & RT.	STA. 0+880 TO STA. 1+480	1.3
SLOPES & DITCHES	RT.	STA. 1+480 TO STA. 1+600	0.2
		TOTAL ha	3.2

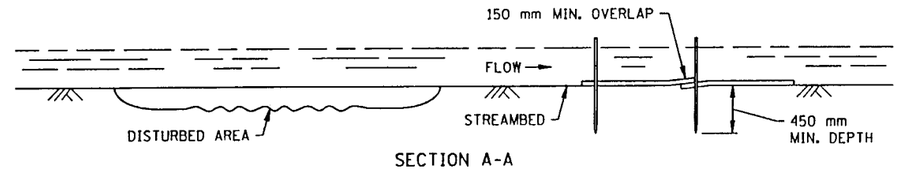
EROSION CONTROL BLANKET CATAGORY 2			
LOCATIONS			m2
2:1 SLOPES	RT.	STA. 0+740 TO STA. 0+815	600
2:1 SLOPES	LT.	STA. 0+780 TO STA. 0+815	420
2:1 SLOPES	RT.	STA. 0+905 TO STA. 1+020	920
2:1 SLOPES	LT.	STA. 0+905 TO STA. 1+000	760
		TOTAL m2	2 700

SODDING LOCATIONS		
LOCATIONS		m2
STA. 0+110 TO STA. 0+215	(RT)	252
STA. 0+230 TO STA. 0+285	(RT)	248
STA. 0+290 TO STA. 0+380	(RT)	675
STA. 0+370 TO STA. 0+440	(LT)	770
STA. 1+480 TO STA. 1+600	(LT)	1 200
	TOTAL m2	3 145

WATER MAIN						
ITEM	CENTERLINE STA.	* LOCATION	200 mm D.I.P.	300 mm D.I.P.	EACH	SIZE
PLUG	0+547.263	18.3 m LT.			1	300 mm
W/M	0+547.263	LT.		18.3 m		
W/M	0+547.263	RT.		8.0 m		
W.V.- A1	0+547.263	4.3 m RT.			1	300 mm
CROSS	0+547.263	8.0 m RT.			1	300 mm x 300 mm
SLEEVE	0+547.263	8.0 m RT.			1	300 mm
REDUCER	0+547.263	8.0 m RT.			1	300 mm x 200 mm
W.V.- A2	0+547.263	8.0 m RT.			1	200 mm
W/M	0+547.263	RT.	10.3 m			
PLUGE	0+547.263	18.3 m RT.			1	200 mm
* LOCATIONS ARE APPROXIMATE						



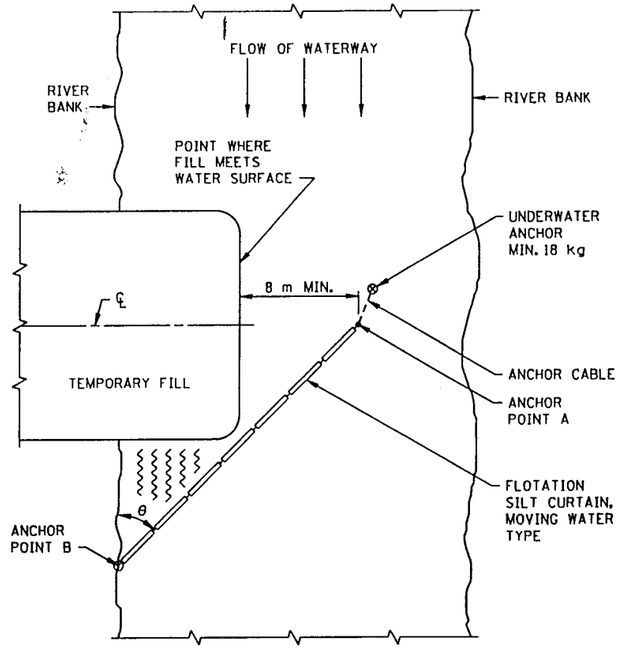
PLAN VIEW



SECTION A-A

SEDIMENT MAT
TYPICAL STREAMBED INSTALLATION

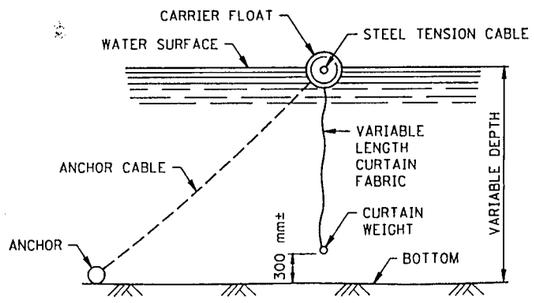
DESIGN CRITERIA:
MAXIMUM FLOW VELOCITY: 1.5 m/SEC.
MAXIMUM FLOW DEPTH: 0.6 m



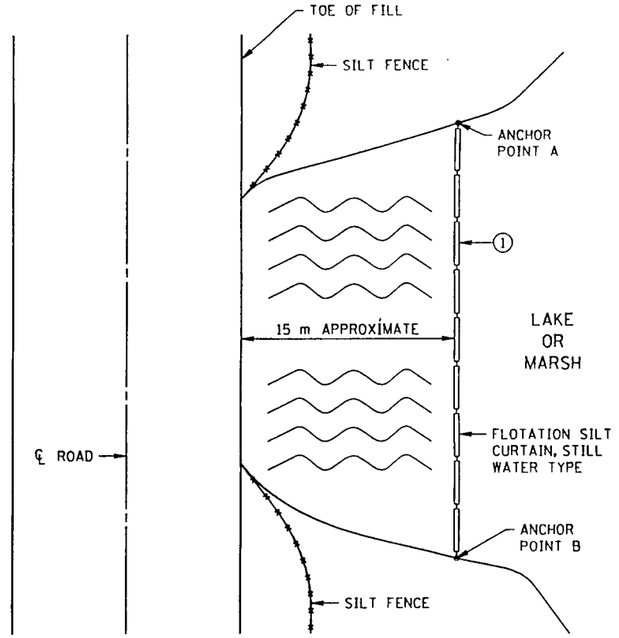
∠ θ	RIVER VELOCITY
45°	SLOW, LESS THAN 1.5 m/SEC.
35°	MODERATE, 1.5 m - 2 m/SEC.

PLAN VIEW OF SILT CURTAIN - MOVING WATER

DESIGN CRITERIA:
MAXIMUM WATER DEPTH: 3.6 m
MAXIMUM WATER VELOCITY: 2.1 m/SEC.

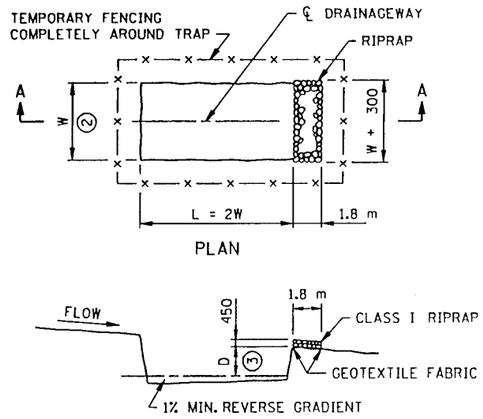


FLOTATION SILT CURTAIN DETAIL
(SEE SPEC. 3887)



PLAN VIEW OF SILT CURTAIN - STILL WATER

DESIGN CRITERIA:
MAXIMUM WATER DEPTH: 3.6 m



TEMPORARY SEDIMENT TRAP DETAIL

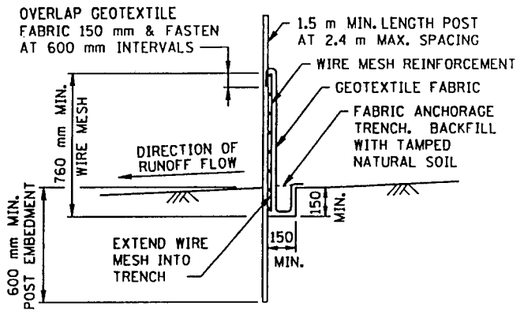
NOTES:
① CURTAIN 300 mm FROM BOTTOM
② W = 3 m MIN., 6 m MAX.
③ D = 1 m MIN., 1.8 m MAX.

NOTE: ALL DIMENSIONS ARE IN MILLIMETERS, EXCEPT AS NOTED.

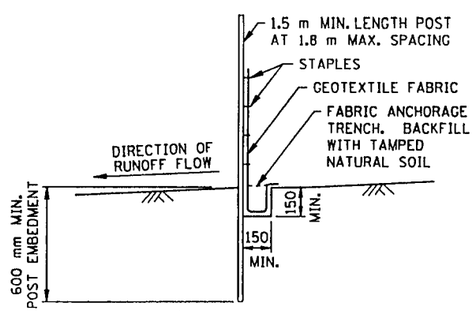
STANDARD SHEET NO.	TITLE:
5-297.405M (1 OF 3)	TEMPORARY EROSION CONTROL
STANDARD APPROVED: MAY 1, 1995	

STATE PROJ. NO. 55-598-24 SHEET NO. 6 OF 27 SHEETS

SERVER CA6451r/USR/STANDARDS FILE NAME SM4051E95.SPN



HEAVY DUTY

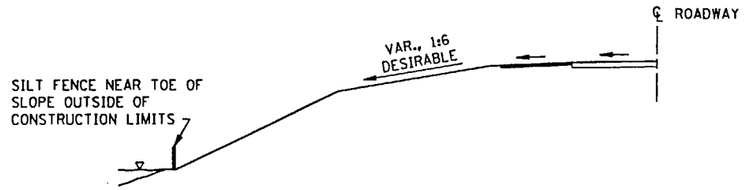


SELF SUPPORTING

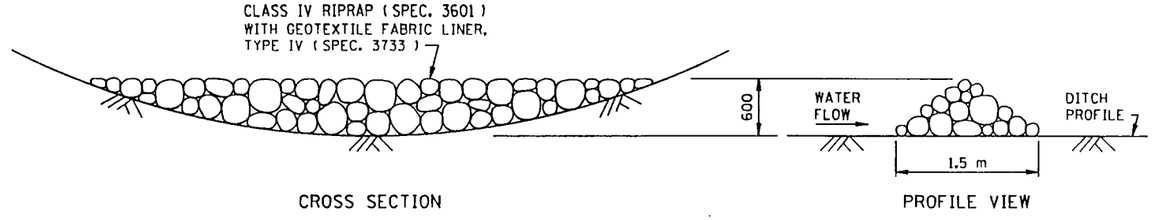
SILT FENCE DETAILS

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

DESIGN CRITERIA:
MAXIMUM CONTRIBUTING AREA: 1.2 ha



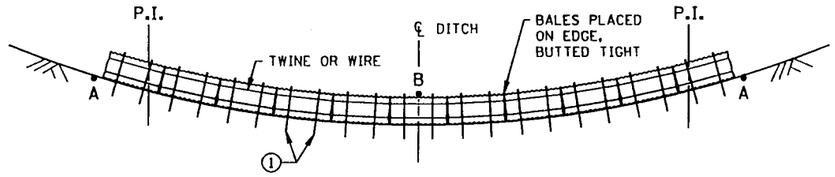
ROADWAY EMBANKMENT



CROSS SECTION

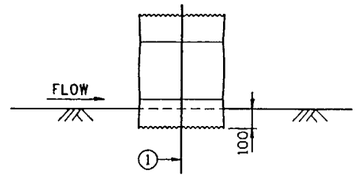
PROFILE VIEW

ROCK DITCH CHECK

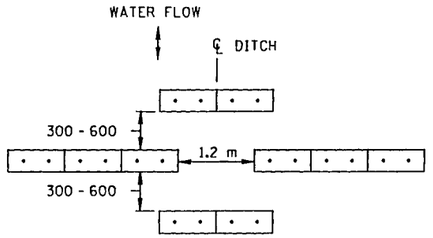


NOTE:
POINT A MUST BE HIGHER THAN POINT B

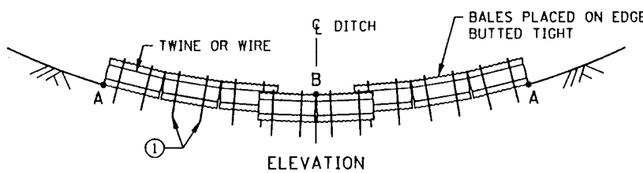
BALE DITCH SEDIMENT CHECK



BALE CHECK DETAIL



PLAN VIEW



ELEVATION

NOTE:
POINT A MUST BE HIGHER THAN POINT B

BALE DITCH VELOCITY CHECKS

(WILL REQUIRE A MINUMUM OF 10 BALES PER SITE)

RECOMMENDED SPACING BETWEEN DITCH CHECKS	
DITCH GRADE (%)	SPACING (m)
2	30
4	23
6	15
8	12
10	8

DESIGN CRITERIA:

	BALE	ROCK
STORM FREQUENCY:	2 YR. - 24 HR.	10 YR. - 24 HR.
MAX. FLOW VELOCITY:	1.5 m/SEC.	3.6 m/SEC.
MAX. DITCH GRADE:	5%	—
MAX. DRAINAGE AREA:	0.8 ha	2.0 ha

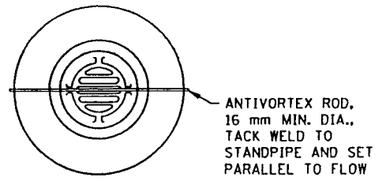
NOTE:
① TWO 50 mm X 50 mm WOOD STAKES OR REINFORCING BARS IN EACH BALE AND EMBEDDED IN THE GROUND 250 mm MINIMUM.

NOTE: ALL DIMENSIONS ARE IN MILLIMETERS, EXCEPT AS NOTED.

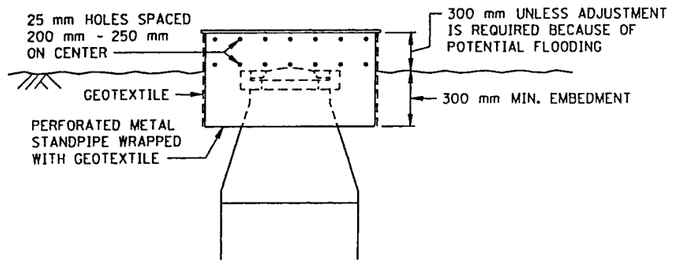
STANDARD SHEET NO. 5-297.405M (2 OF 3)	TITLE: TEMPORARY EROSION CONTROL
STANDARD APPROVED: MAY 1, 1995	

STATE PROJ. NO. 55-598-24 SHEET NO. 7 OF 27 SHEETS

SERVER CA64S1:/USR/STANDARDS FILE NAME SM4052E95.SPN



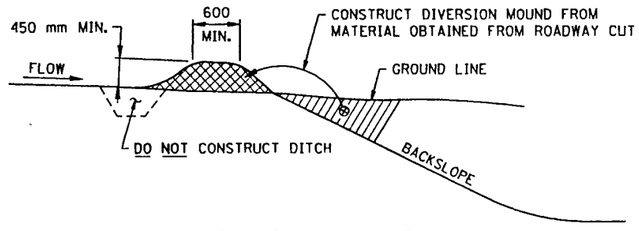
PLAN VIEW



ELEVATION

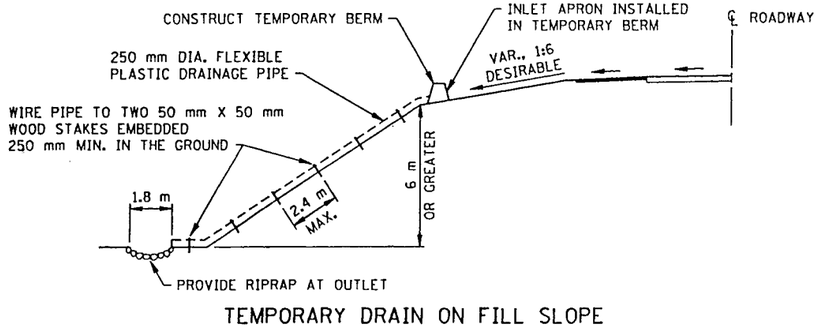
TEMPORARY STANDPIPE
TO PROTECT DROP INLET

DESIGN CRITERIA:
STORM FREQUENCY: 10 YEAR. - 24 HOUR.



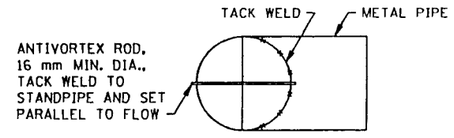
DIVERSION MOUND

DESIGN CRITERIA:
STORM FREQUENCY: 10 YEAR - 24 HOUR
MAXIMUM DRAINAGE AREA: 2 ha
MAXIMUM DIVERSION: GRADE 5%

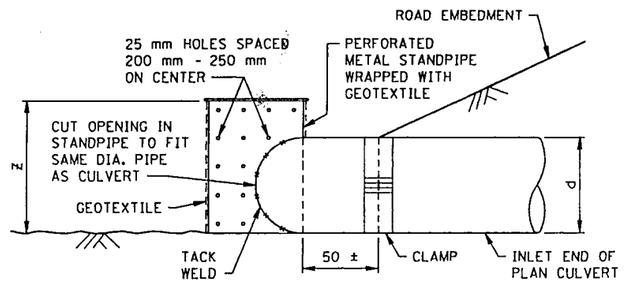


TEMPORARY DRAIN ON FILL SLOPE

DESIGN CRITERIA:
STORM FREQUENCY: 2 YEAR - 24 HOUR
MAXIMUM DRAINAGE AREA: 1.2 ha



PLAN VIEW

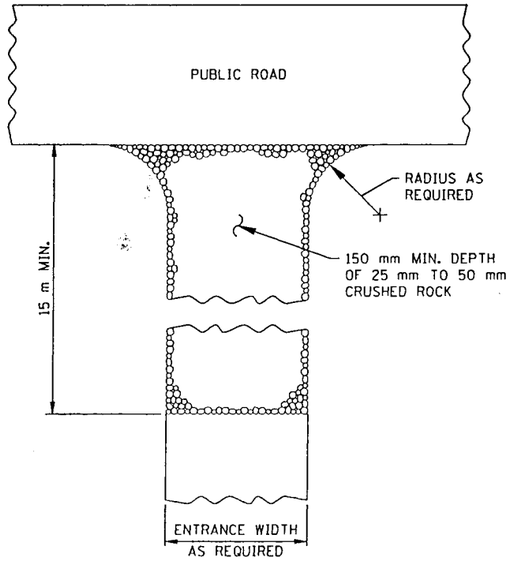


ELEVATION

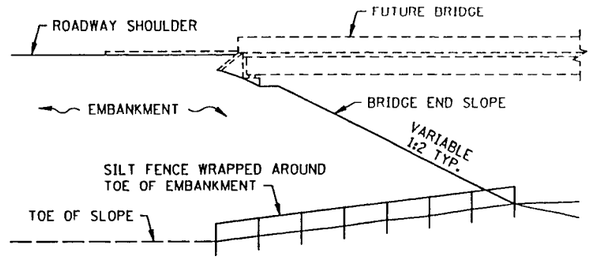
TEMPORARY STANDPIPE
FOR SEDIMENT CONTROL ON CULVERT INLET

d = DIA. OF STANDPIPE EQUAL TO DIA. OF PLAN CULVERT
Z = LENGTH OF PERFORATED STANDPIPE (d + 300 mm)

DESIGN CRITERIA:
CULVERT SIZE: 300 - 900 mm
STORM FREQUENCY: 10 YR. - 24 HR.

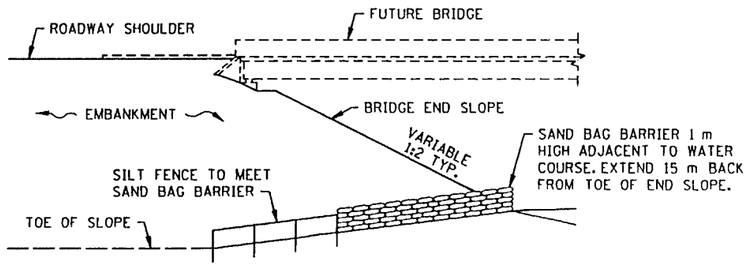


ROCK CONSTRUCTION ENTRANCE



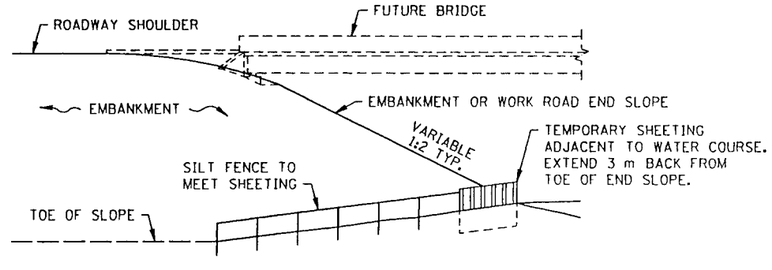
BRIDGE FILL

DESIGN CRITERIA:
WATER COURSE FLOW VELOCITY: STAGNANT
CONTRIBUTING SLOPE AREA: 0.2 ha



BRIDGE FILL

DESIGN CRITERIA:
MAX. WATER COURSE FLOW VELOCITY: 2 m/SEC.
CONTRIBUTING SLOPE AREA: 0.4 ha



EMBANKMENT OR WORK ROAD FILL

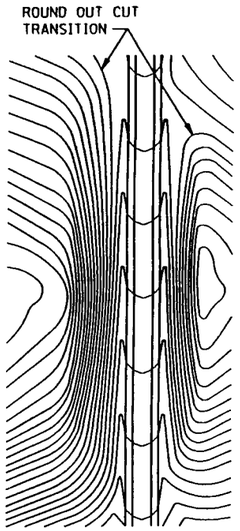
DESIGN CRITERIA:
MAX. WATER COURSE FLOW VELOCITY: 4.5 m/SEC.
CONTRIBUTING SLOPE AREA: 1.2 ha

NOTE: ALL DIMENSIONS ARE IN MILLIMETERS, EXCEPT AS NOTED.

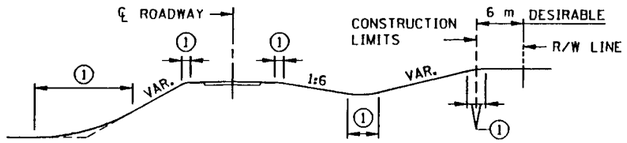
STANDARD SHEET NO.	TITLE:
5-297.405M (3 OF 3)	TEMPORARY EROSION CONTROL
STANDARD APPROVED: MAY 1, 1995	

STATE PROJ. NO. 55-598-24 SHEET NO. 8 OF 27 SHEETS

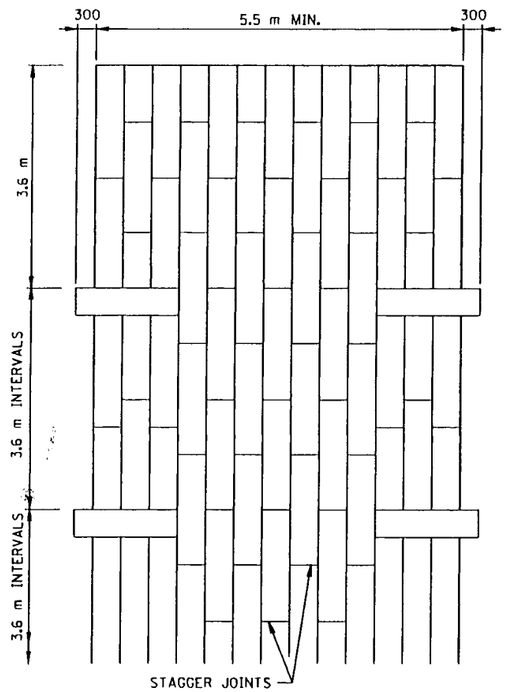
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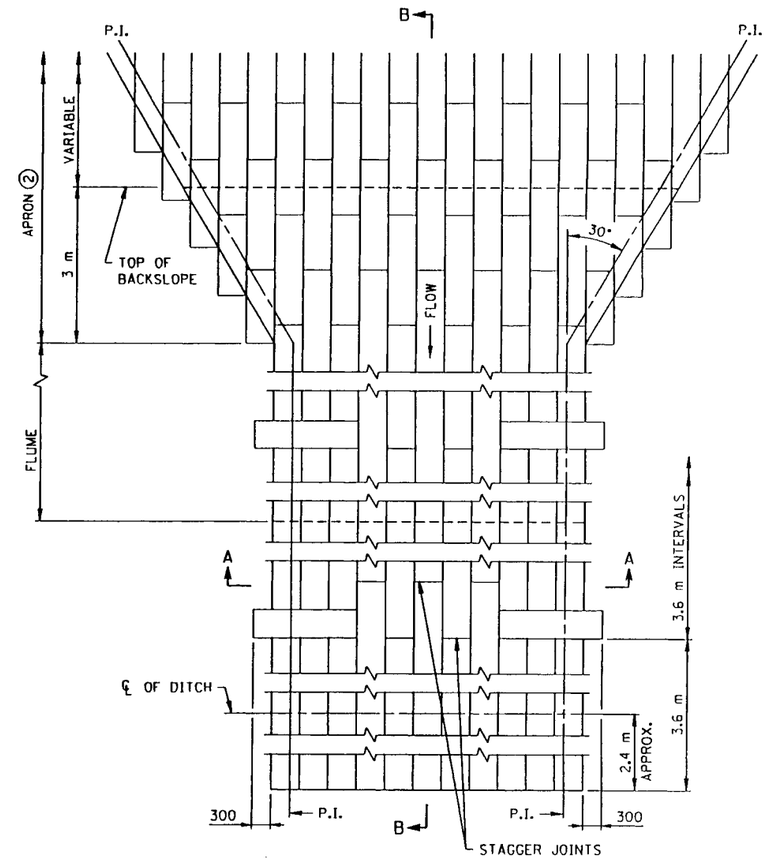
CONTOURING ROAD CUTS



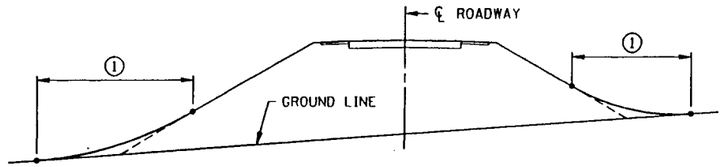
ROUNDING SHOULDERS AND BACKSLOPES



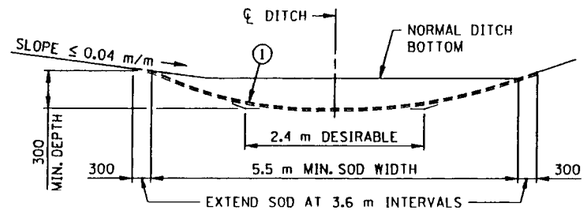
PLAN VIEW



PLAN VIEW

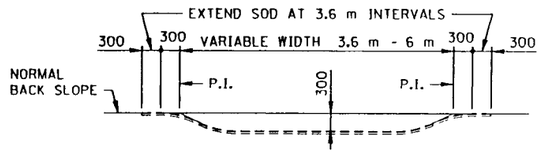


SHAPING FOR DRAINAGE ALONG THE TOE OF FILL SLOPES

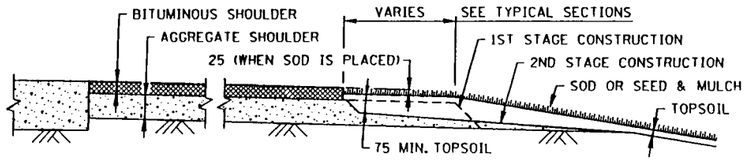


SODDED DITCH CROSS SECTION

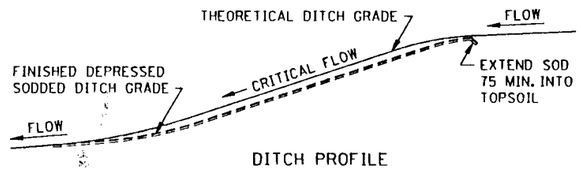
WHERE FRONT OR BACK SLOPE IS FLAT (LESS THAN 0.04 m/m), FIRST NOTCH DITCH AND THAN PROVIDE ROUNDING.



SECTION A-A

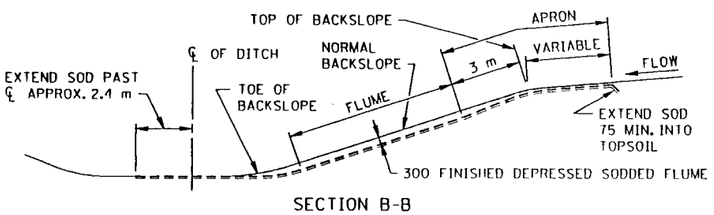


SHAPING AND TOPSOILING INSLOPES



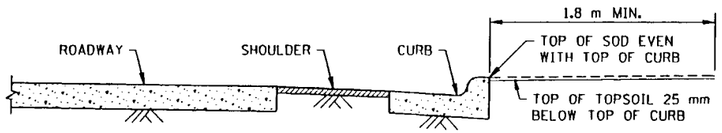
DITCH PROFILE

SODDED DITCH DETAILS



SECTION B-B

SODDED FLUME DETAILS



SHAPING ADJACENT TO CURBS WHEN SOD IS PLACED

NOTE: ALL DIMENSIONS ARE IN MILLIMETERS, EXCEPT AS NOTED.

NOTES:

SEE SPEC. 2575.3 FOR ADDITIONAL INFORMATION.

① FOR ROUNDING, SEE ROAD DESIGN MANUAL.

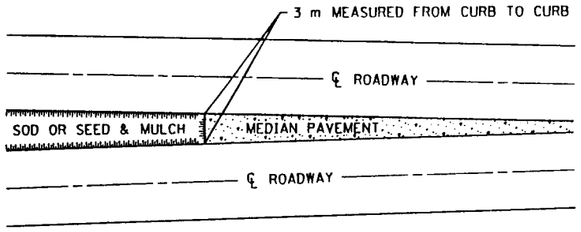
② CONSTRUCT TAPER AS DIRECTED BY THE ENGINEER.

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

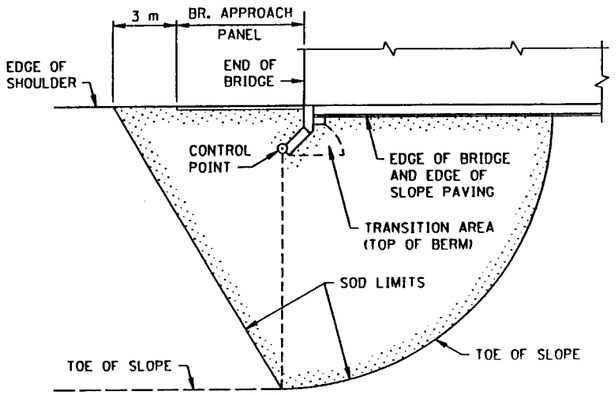
STATE PROJ. NO. 55-598-24 SHEET NO. 9 OF 27 SHEETS

3-6-95

SERVER CA6451/USR/STANDARDS FILE NAME SM404L90.SPN



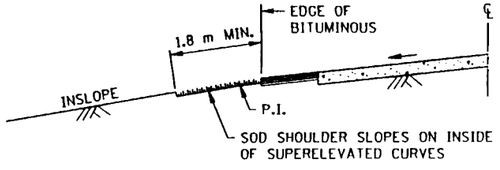
SODDING LIMITS AT GORE AREA



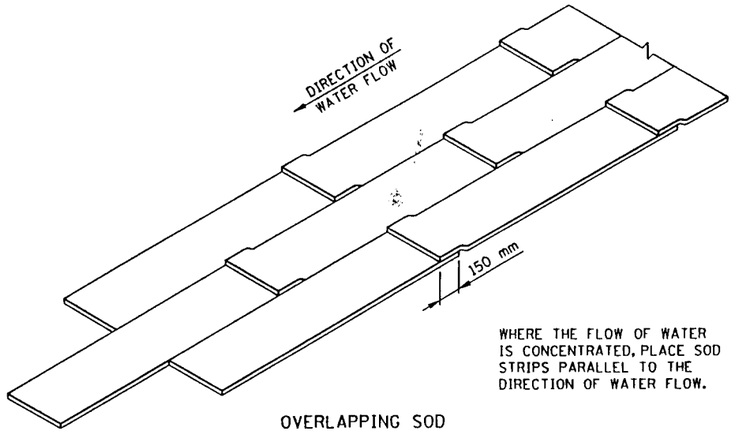
PLAN

ELEVATION

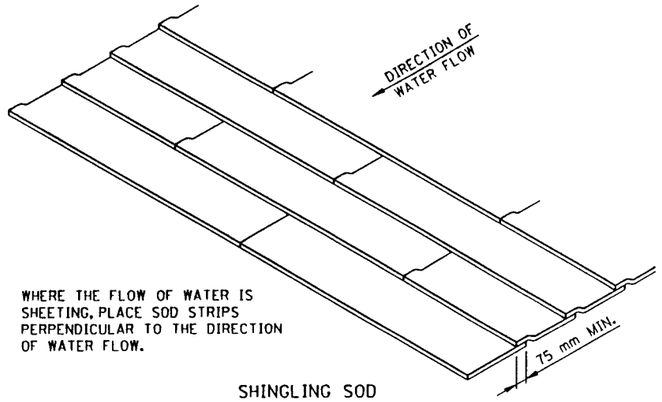
SODDING LIMITS AT BRIDGE APPROACH FILLS



SODDING INSLOPES OF SUPERELEVATED CURVES

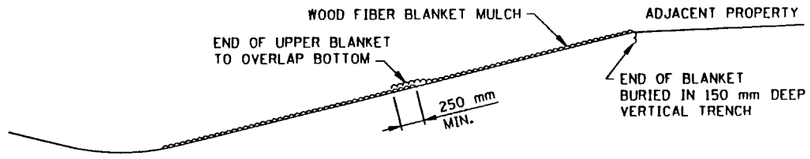


OVERLAPPING SOD

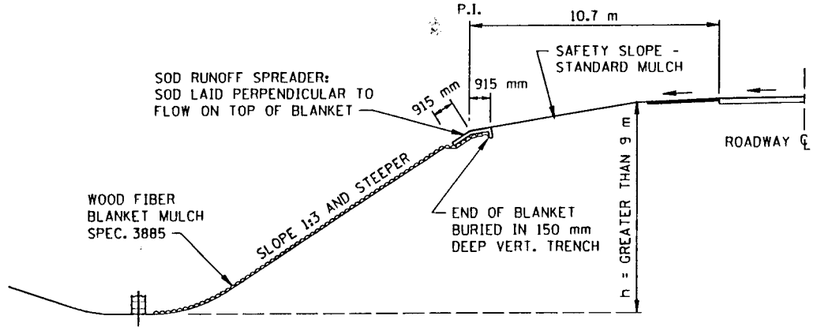


SHINGLING SOD

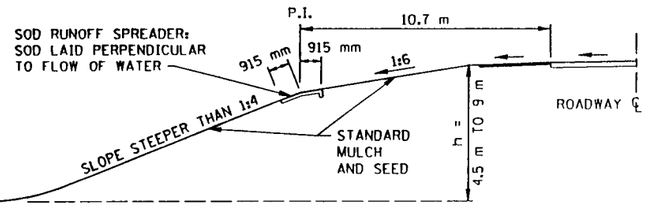
SPECIAL SOD PLACEMENT TECHNIQUES



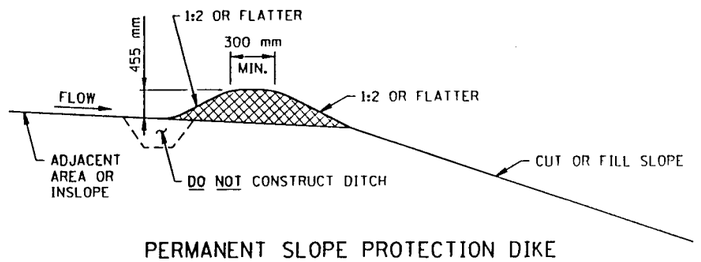
WOOD FIBER BLANKET INSTALLATION ON A CUT SLOPE



WOOD FIBER BLANKET INSTALLATION ON AN INSLOPE
(WHEN REQUIRED)



BROKEN-BACK SAFETY FILL SLOPE

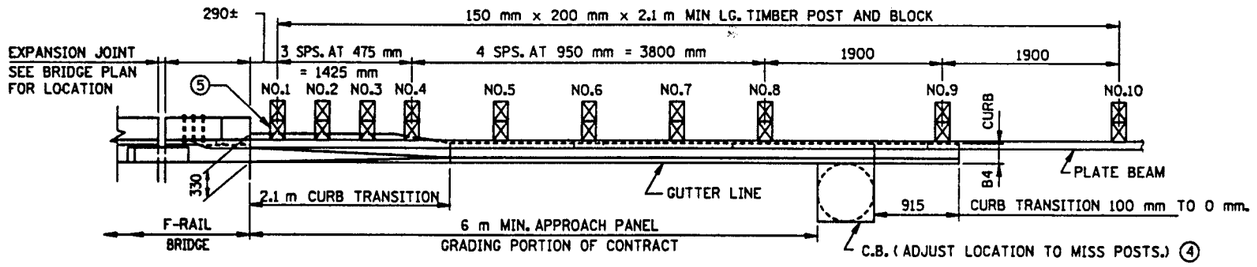


PERMANENT SLOPE PROTECTION DIKE

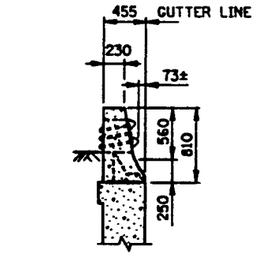
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4-27-95

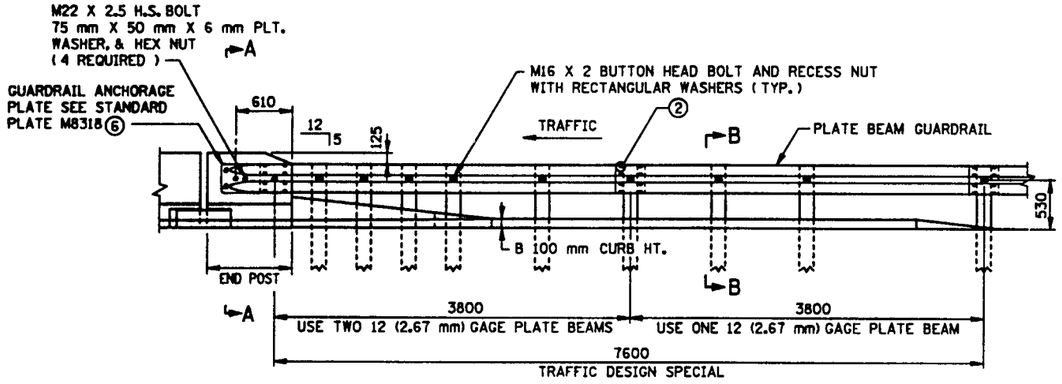
STANDARD SHEET NO. 5-297.406M	TITLE: PERMANENT EROSION CONTROL ALONG ROADWAYS AND AT GORE AREAS & BRIDGE APPROACH FILLS
STANDARD APPROVED: JANUARY 31, 1985	
STATE PROJ. NO. 55-598-24	SHEET NO. 10 OF 27 SHEETS



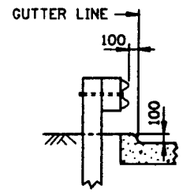
PLAN



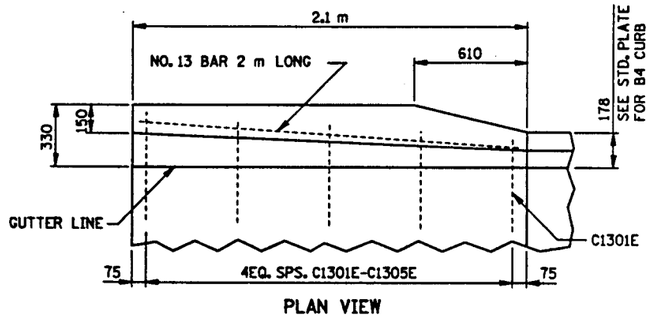
SECTION
A-A
(PARALLEL WINGWALL SHOWN)



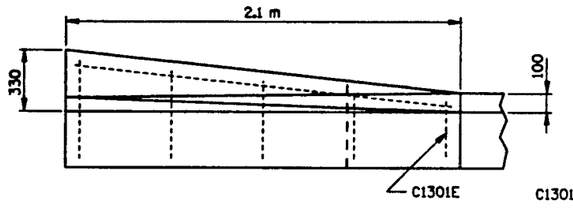
ELEVATION



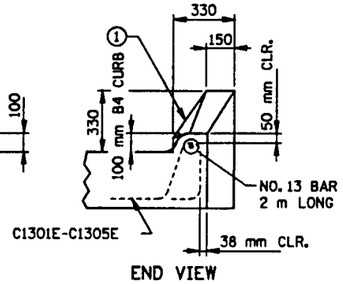
SECTION B-B



PLAN VIEW

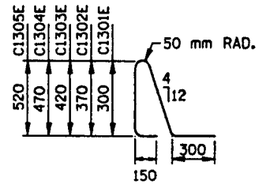


INSIDE ELEVATION



END VIEW

CURB TRANSITION DETAILS



C1301E-C1305E ③

NOTES:

① END OF TRANSITION TO MATCH BRIDGE RAIL SURFACE.
② M16 X 2 X 32 mm LG. BUTTON HEAD BOLTS AND NUTS TYPICAL AT SPLICES.
③ REINFORCEMENT TO BE EPOXY COATED AS PER SPEC. 3301.
④ SEE ROAD PLANS TO VERIFY ACTUAL DIMENSION AND LOCATION.
⑤ ADDITIONAL BLOCKING MAY BE REQUIRED TO CLEAR BRIDGE STRUCTURE. VERIFY IN FIELD.
⑥ SANDWICH ANCHOR PLATE BETWEEN RAIL BEAMS.

TRAFFIC BARRIER DESIGN SPECIAL

NOTE: ALL DIMENSIONS ARE IN MILLIMETERS, EXCEPT AS NOTED.

FILE NAME SM605A92.SPN

minnesota metric

REVISION DATE
1-30-98

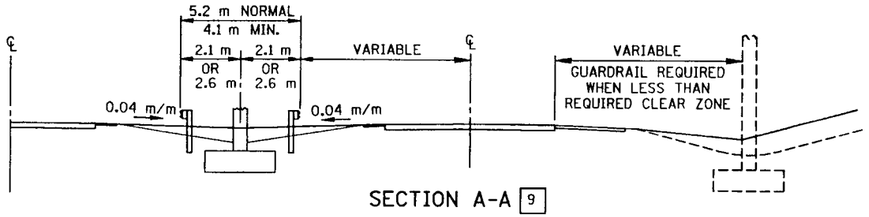
STANDARD SHEET NO.
5-297.605M

STANDARD APPROVED:
JANUARY 23, 1992

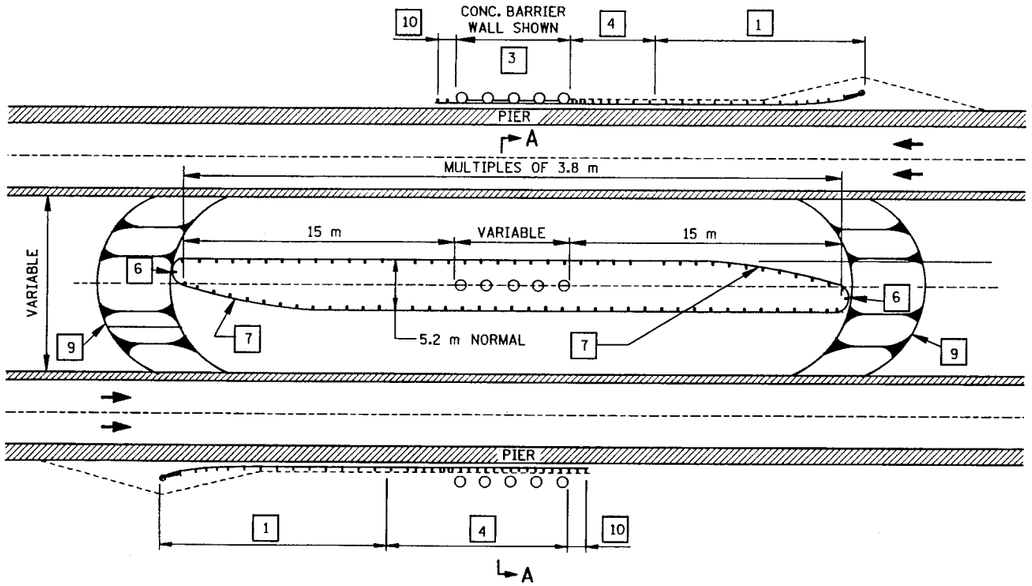
TITLE:
GUARDRAIL TRANSITION FOR TYPE F RAILING
WITH APPROACH CURB

STATE PROJ. NO. 55-598-24

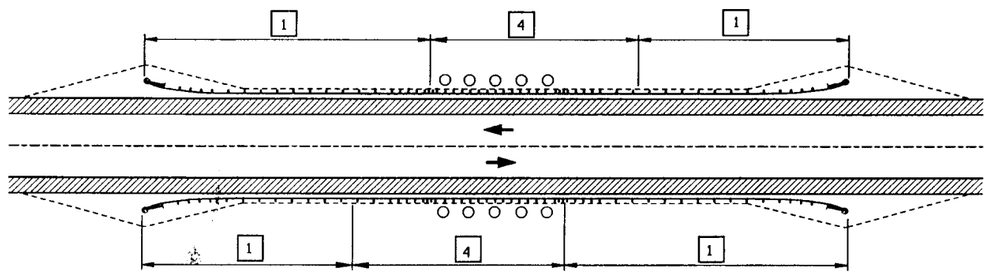
SHEET NO. 11 OF 27 SHEETS



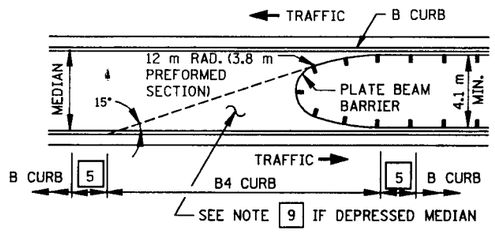
SECTION A-A [9]



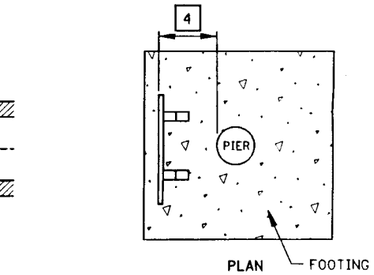
UNDERPASS-DEPRESSED MEDIAN
(DESIGN SPECIAL SHOWN)

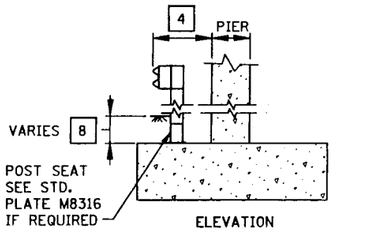


TWO-WAY UNDERPASS
(DESIGN SPECIAL SHOWN)

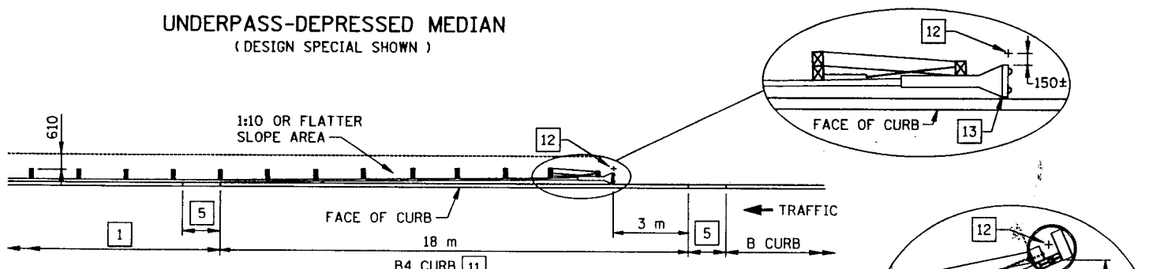


MODIFIED CURB AT MEDIAN
(OPTIONAL GUARDRAIL PLACEMENT SHOWN)

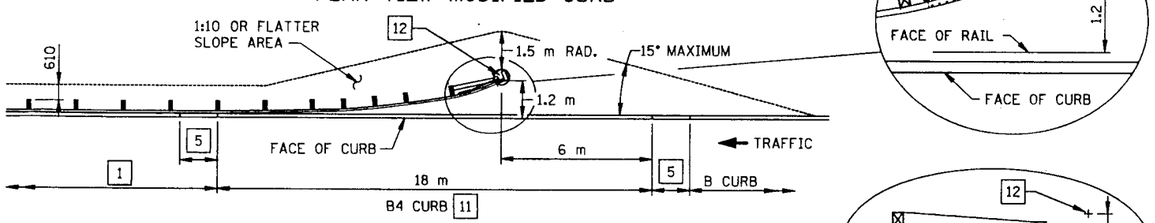




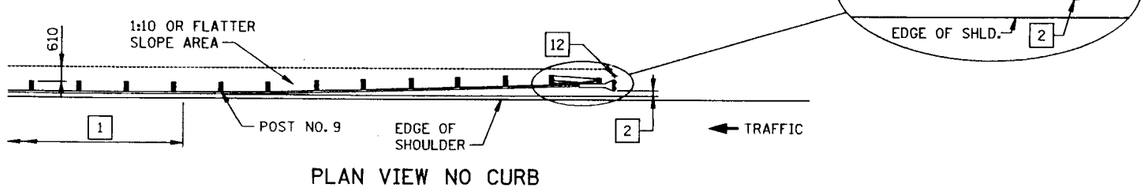
POST REQUIREMENTS



PLAN VIEW MODIFIED CURB



PLAN VIEW MODIFIED CURB AND SLOPE



PLAN VIEW NO CURB

NOTES:

ALL GUARDRAIL POSTS SHALL BE 1.9 m CTR. TO CTR., EXCEPT WHERE NOTED.

THE LATEST APPROVED VERSION OF STANDARD PLATES SHOWN OR AS INDICATED IN THE PLANS SHALL APPLY.

WHEN THE APPROACHING PLATE BEAM FLARE CAN BE BURIED IN THE BACKSLOPE ELIMINATE THE END TREATMENT AND ADD REQUIRED RAIL LENGTH TO REACH BACKSLOPE.

[1] FOR REQUIRED L LENGTH SEE DESIGN MANUAL 10-7.03 FOR DESIGN PARAMETERS SEE STD. PLATE M8329 FOR END TREATMENT SHOWN.

[2] SET EDGE OF EXTRUDER BOX 230 mm FROM FACE OF RAIL EXTENDED FROM POST NO. 9.

[3] CONCRETE BARRIER WALL BETWEEN PIER COLUMNS MAY BE USED . SEE SHEET NO. __ OF __ FOR WALL DETAILS. CONNECT GUARDRAIL TO BARRIER WALL ANCHORAGE PLATE SEE SHEET NO. __ OF __ FOR DETAILS.

[4]

DISTANCE FROM FACE OF RAIL TO HAZARD	GUARDRAIL POST SPACING
OVER 1.2 m	1.9 m
1.2 m TO 600 mm	950 mm
LESS THAN 600 mm	DESIGN SPECIAL & [3]

[5] 1.5 m CURB TRANSITION, USE IF ADJACENT CURB IS A DIFFERENT TYPE OR HEIGHT,

[6] 1.5 m RADIUS NOSE SECTION (3.8 m PREFORMED CURVED RAIL SECTION, SEE DETAIL, ON SHEET 1 OF 2).

[7] 7.6 m OF PREFORMED (12 m RADIUS) RAIL SECTIONS.

[8] IF EMBEDMENT IS GREATER THAN 915 mm OR IF EMBEDMENT IS 760 mm TO 915 mm AND ADJACENT POSTS ARE EMBEDDED 915 mm OR MORE, POST SEAT IS NOT REQUIRED.

[9] THE MEDIAN DITCH SHALL BE FILLED TO PROVIDE AN ELEVATION OF GUARDRAIL APPROXIMATELY (WITHIN 150 mm±) THE SAME AS IF INSTALLED ON THE SHOULDER. EXTEND FILL TO GUARDRAIL NOSE AND TAPER TO MEDIAN DITCH ON 1:10 SLOPE.

[10] 3800 mm MINIMUM, IF ONE WAY TRAFFIC.

[11] IF 150 mm+ HIGH CURB, MILL TO 75 mm HEIGHT. NEW: CONSTRUCT 100 mm HIGH CURB.

[12] SNOW PLOW MARKER (X4-5) WITH A 3 kg/m DELINEATOR POST 2.4 m LG. (SPEC. 3401) DRIVEN INTO GROUND. EXTEND 915 mm ABOVE TERMINAL.

[13] SET EDGE OF EXTRUDER BOX 230 mm FROM FACE OF CURB.

NOTE: ALL DIMENSIONS ARE IN MILLIMETERS, EXCEPT AS NOTED.

minnesota metric

REVISION DATE 6-18-96

STANDARD SHEET NO. 5-297.601M (1 OF 2)

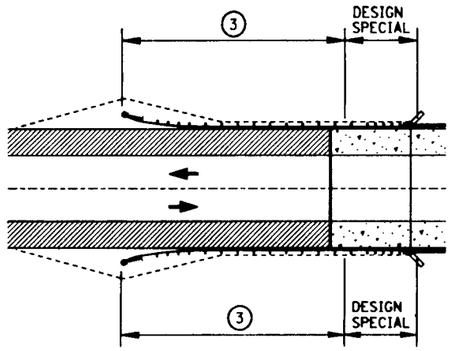
STANDARD APPROVED: MARCH 17, 1994

TITLE: GUARDRAIL INSTALLATIONS AT MEDIANS AND END TREATMENTS

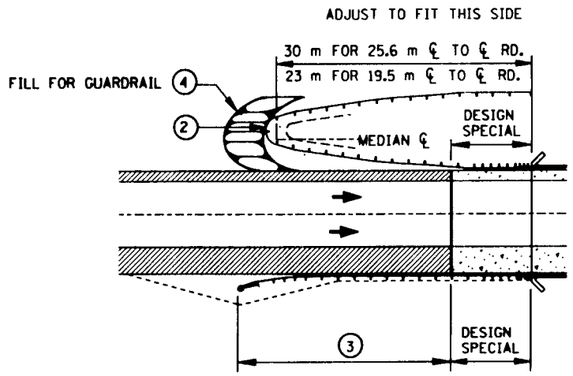
STATE PROJ. NO. 55-598-24

SHEET NO. 12 OF 27 SHEETS

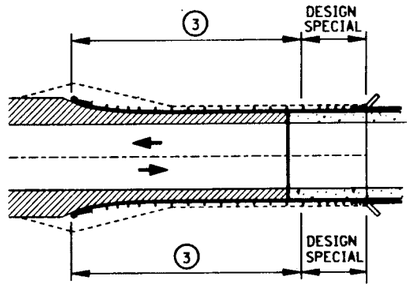
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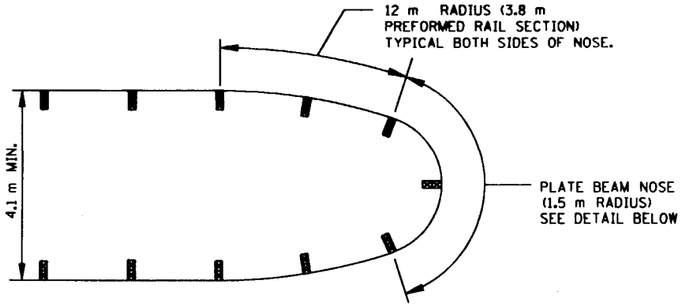
TWO - WAY BRIDGE
WITH FULL SHOULDERS



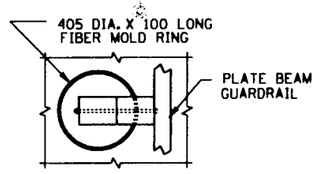
ONE - WAY BRIDGE
WITH FULL RIGHT SHOULDER



TWO - WAY BRIDGE
WITHOUT FULL SHOULDERS



OPTIONAL GUARDRAIL INSTALLATION (1)



PLAN VIEW

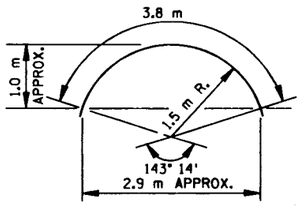
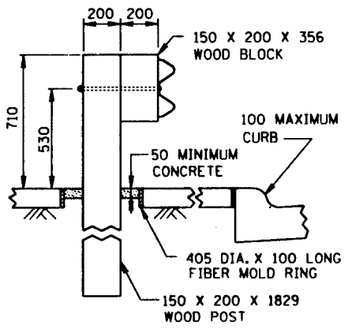


PLATE BEAM NOSE (5)
(1.5 m RADIUS)



ELEVATION

TYPICAL SECTION AT POST
SET IN CONCRETE

NOTES:

ALL GUARDRAIL POSTS SHALL BE 1.9 m CTR. TO CTR., EXCEPT WHERE NOTED.

WHEN THE APPROACHING PLATE BEAM FLARE CAN BE BURIED IN THE BACKSLOPE ELIMINATE THE END TREATMENT AND ADD REQUIRED RAIL LENGTH TO REACH BACKSLOPE.

THE LATEST APPROVED VERSION OF STANDARD PLATES SHOWN OR AS INDICATED IN THE PLANS SHALL APPLY.

(1) OPTIONAL GUARDRAIL AS DETERMINED BY THE DESIGNER AND SPECIFIED ON SHEET NO. ____ OF ____.

(2) 1.5 m RADIUS NOSE SECTION (3.8 m PREFORMED CURVED RAIL SECTION, SEE DETAIL).

(3) FOR THE REQUIRED L LENGTH SEE ROAD DESIGN MANUAL 10-7.03 FOR DESIGN PARAMETERS. SEE STANDARD PLATE M8329 FOR END TREATMENT SHOWN.

(4) THE MEDIAN DITCH SHALL BE FILLED TO PROVIDE AN ELEVATION OF GUARDRAIL APPROXIMATELY (WITHIN 150 mm±) THE SAME AS IF INSTALLED ON THE SHOULDER. EXTEND FILL TO GUARDRAIL NOSE AND TAPER TO MEDIAN DITCH ON 10:1 SLOPE.

(5) STANDARD PLATE BEAM GUARDRAIL SECTION HAVING STANDARD PUNCHING AT BOTH ENDS WITH INTERMEDIATE 19 mm X 62 mm SLOT. SEE STANDARD PLATE M8307.

NOTE: ALL DIMENSIONS ARE IN MILLIMETERS, EXCEPT AS NOTED.

STANDARD SHEET NO.	TITLE:
5-297.601M (2 OF 2)	GUARDRAIL INSTALLATIONS AT MEDIANS AND END TREATMENTS
STANDARD APPROVED: MARCH 17, 1994	

STATE PROJ. NO. 55-598-24 SHEET NO. 13 OF 27 SHEETS

SERVER CA64S1x/USR/STANDARDS FILE NAME SM6012C94.SPN

F.E. LT. STA.0+095
INPL.17"-SPAN-CMP NO APRONS
REMOVE 19.3 m PIPE CULV.
REMOVE ENT.

STORM SEWER,CATCH BASINS AND MANHOLES. SEE TABULATION SHEET NO.4 AND CROSS SECTION SHEETS 19 AND 20 FOR STATION, OFFSET AND ELEVATIONS.

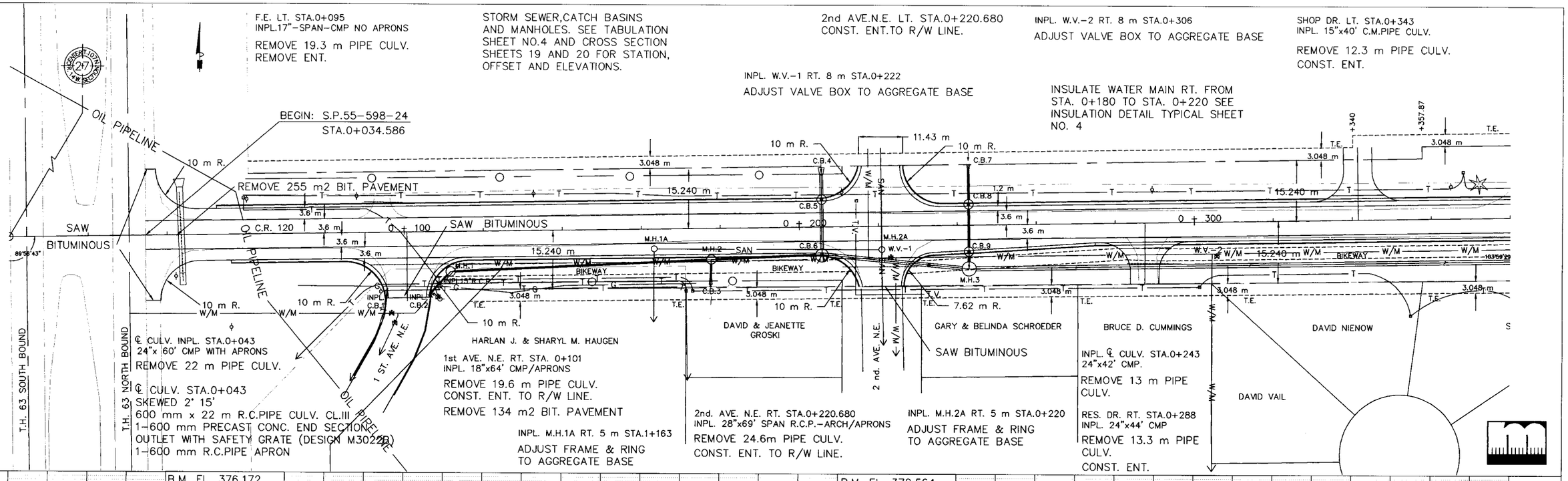
2nd AVE.N.E. LT. STA.0+220.680
CONST. ENT.TO R/W LINE.

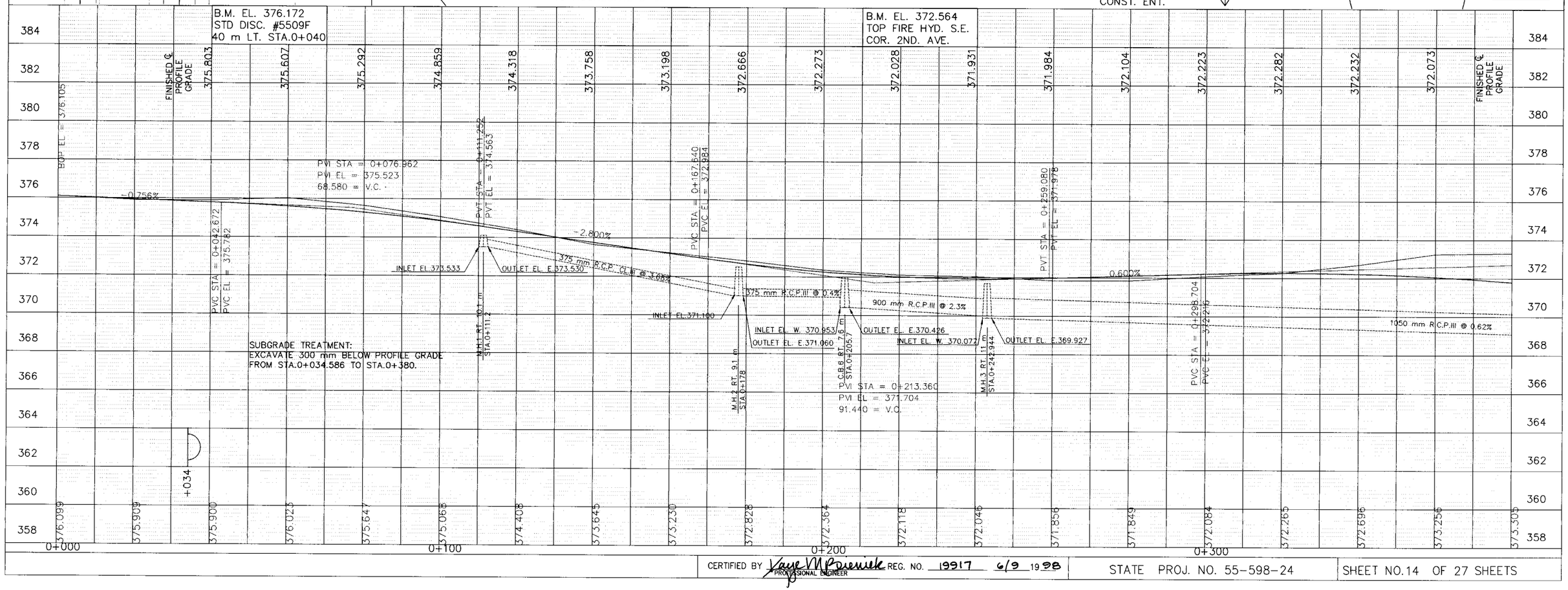
INPL. W.V.-2 RT. 8 m STA.0+306
ADJUST VALVE BOX TO AGGREGATE BASE

SHOP DR. LT. STA.0+343
INPL. 15"x40' C.M.PIPE CULV.
REMOVE 12.3 m PIPE CULV.
CONST. ENT.

INPL. W.V.-1 RT. 8 m STA.0+222
ADJUST VALVE BOX TO AGGREGATE BASE

INSULATE WATER MAIN RT. FROM STA. 0+180 TO STA. 0+220 SEE INSULATION DETAIL TYPICAL SHEET NO. 4





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STATE PROJ. NO. 55-598-24

SHEET NO.14 OF 27 SHEETS

RES. DR. LT. STA.0+380
NO CULV. INPL.

REMOVE ENT.

RES. DR. LT. STA.0+424.6
INPL. 15"x26' CMP

REMOVE 7.9 m PIPE CULV.
CONST. ENT.

STORM SEWER AND CATCH BASINS.
SEE TABULATION SHEET NO.4 AND CROSS SECTION SHEETS NO.20,21 AND 22 FOR STATIONING, OFFSETS AND ELEVATIONS.

℄ CULV. STA.0+709
INPL. 18"x 30' CMP.

REMOVE 9.0 m PIPE CULV.
NO CULV. REQ'D.

TREE DUMP ENT. LT. STA.0+726
INPL. 18"x 24' CMP.

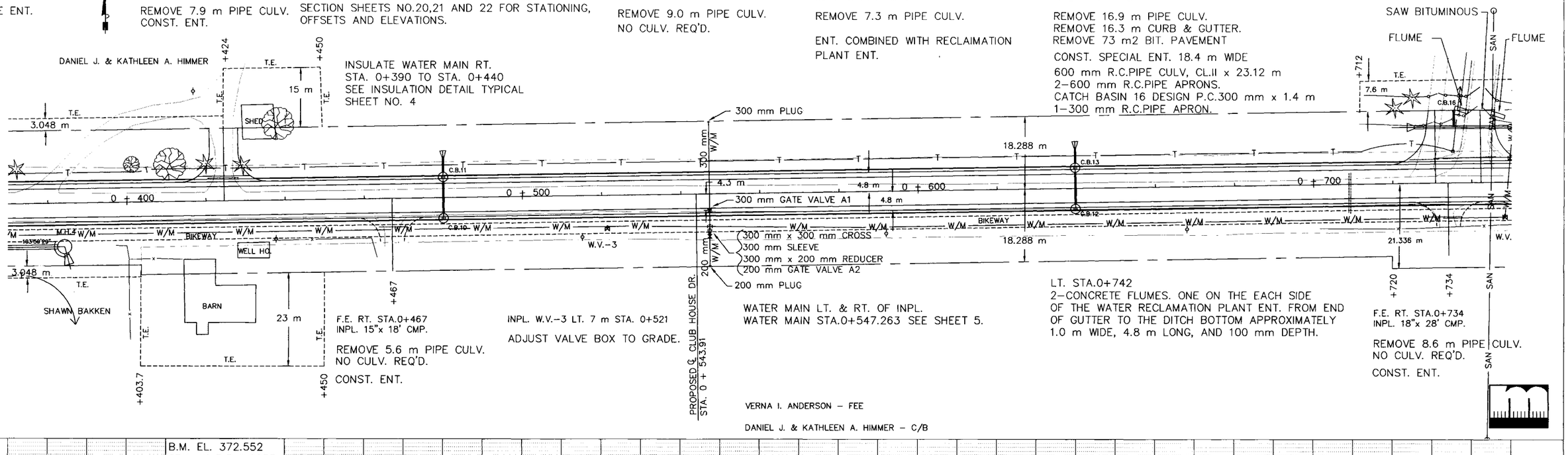
REMOVE 7.3 m PIPE CULV.

ENT. COMBINED WITH RECLAIMATION PLANT ENT.

WATER RECLAIMATION PLANT ENT. LT. STA.0+742
INPL. 24"x 44' CMP.

REMOVE 16.9 m PIPE CULV.
REMOVE 16.3 m CURB & GUTTER.
REMOVE 73 m2 BIT. PAVEMENT

CONST. SPECIAL ENT. 18.4 m WIDE
600 mm R.C.PIPE CULV, CL.II x 23.12 m
2–600 mm R.C.PIPE APRONS.
CATCH BASIN 16 DESIGN P.C.300 mm x 1.4 m
1–300 mm R.C.PIPE APRON.



B.M. EL. 372.552
SPK. IN P.P.#10955
N.120 IN HIMMER YD.

FINISHED ℄ PROFILE GRADE

371.806 371.430 370.945 370.351 369.649 368.838 367.924 366.984 366.052 365.226 364.537 363.987 363.573 363.297 363.159 363.099 363.039 362.979 362.919

PVI STA = 0+396.240
PVI EL = 372.801
195.072 = V.C.

0.600%

OUTLET EL. S. 369.060
INLET EL. W. 369.052
M.H.4
STA.0+384.144

PVT STA = 0+493.776
PVT EL = 368.217

4.200%

PVC STA = 0+533.400
PVC EL = 366.354

PVT STA = 0+661.416
PVT EL = 363.754

PVI STA = 0+597.408
PVI EL = 363.346
128.016 = V.C.

-0.300%

SUBGRADE TREATMENT:
EXCAVATE 300 mm BELOW PROFILE GRADE FROM STA.0+380 TO STA.0+700.

373.305 372.766 371.862 370.759 369.558 368.486 367.542 366.503 365.781 365.045 364.479 364.041 363.686 363.389 363.191 363.016 362.645 362.045 361.186

0+400 0+500 0+600 0+700

CERTIFIED BY Kenneth M. Brimmer PROFESSIONAL ENGINEER REG. NO. 19917 11/10 1998

STATE PROJ. NO. 55–598–24

SHEET NO.15 OF 27 SHEETS

CITY OF STEWARTVILLE PARCEL

1–CONCRETE FLUME LT. STA.0+800
FROM END OF PIPE CULV. APRON TO DITCH BOTTOM OF SLOPE. APPROXIMATELY 1.0 m WIDE, 4.8 m LONG, AND 100 mm IN DEPTH.

ENT. LT. STA.0+894
NO CULV. INPL.

MOVE TO LT. STA.1+430

STORM SEWER AND CATCH BASINS
SEE TABULATION SHEET NO.4 AND CROSS SECTION SHEET NO.22 FOR STATIONING, OFFSETS AND ELEVATIONS.

FLUME

P.I. STA.0+806.844
LT. 0° 00' 09"

53.72 m

RIVER

ROOT

BRANCH

NO.

7.6 m

W.V.–5

C.B.15

0 + 800

4.8 m

4.8 m

BIKWAY

W.V.–4

21.336 m

INPL. BR. L–6177

REPLACEMENT BR. 55546

0 + 900

72.008 m

18.288 m

3.048 m

1.8 m

3.6 m

3.6 m

3.6 m

1 + 000

1 + 100

21.336 m

18.288 m

INPL. W.V.– 4 RT. 8 m STA. 0+748
ADJUST VALVE BOX TO GRADE.

INPL. W.V.– 5 LT. 7 m STA. 0+749
ADJUST VALVE BOX TO GRADE.

INPLACE BR. L – 6177
REMOVE GUARDRAIL – PLATE BEAM 63 m

END CURB & GUTTER B424 LT. & RT.
STA. 0+935

CONST. GUARDRAIL:

4–GUARDRAIL ANCHORAGE PLATES STD. PLT. M8318
4–7 620 mm OF TRAFFIC BARRIER DESIGN SPECIAL
4–[redacted] ET–2000
GUARDRAIL END TREATMENT.
[redacted]

ENT. RT. STA.0+923
NO CULV. INPL.

MOVE TO RT. STA.1+128

BIKEWAY CULV. RT. STA.1+075
600 mm x 7.4 m C.S.PIPE CULV.
2–600 mm SAFETY SLOPE METAL END SECTIONS.

B.M. EL. 359.646
SQ. MRK. S.W. COR.
HDWL. OLD BR.

FINISHED ℄ PROFILE GRADE

362.859 362.799 362.739 362.679 362.619 362.559 362.499 362.439 362.376 362.246 362.025 361.714 361.313 360.829 360.361 360.068 359.968 359.968 359.968

FINISHED ℄ PROFILE GRADE

–0.300%

PVI STA = 0+963.168
PVI EL = 362.250
97.536 = V.C.

PVC STA = 0+914.400
PVC EL = 362.396

PVT STA = 1+011.936
PVT EL = 361.031

–2.500%

PVC STA = 1+028.544
PVC EL = 360.616

PVI STA = 1+054.452
PVI EL = 359.968
51.816 = V.C.

PVT STA = 1+080.360
PVT EL = 359.968

0.000%

361.186 360.786 359.546 359.285 359.145 359.427 359.659 359.524 359.011 359.075 359.031 359.107 359.309 359.452 359.591 359.729 359.764 359.768 359.765 359.715

0+800 0+900 1+000 1+100

SLOPE PREPARATION ITEM NO. 2401.601 = EXC. 9 350 m3
UNCLASSIFIED EXC ITEM NO. 2501.515 = EXC. 16 488 m3
EMB. 24 740 m3
COMMON BOR. (LV) ITEM NO. 2105.523 = BOR. 11 000 m3

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STATE PROJ. NO. 55–598–24

SHEET NO.16 OF 27 SHEETS

FRANCES W. BELL

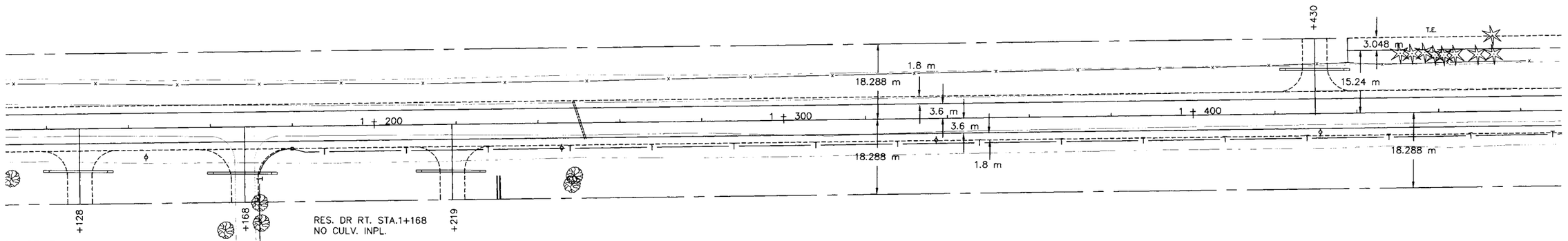
℄ CULV. STA.1+251
INPL. 18"x 30' CMP.

REMOVE 9.0 m PIPE CULV.
NO CULV. REQ'D.

CONST. F.E. LT. STA.1+430
450 mm x 16 m C.S.PIPE CULV.
2–450 mm C.S. SAFETY END SECTIONS

ELIZABETH McBRIBE

BILLY WILDEMAN



CONST. F.E. RT. STA.1+128
530 mm x 14 m SPAN C.S.PIPE–ARCH CULV.
2–530 mm SPAN C.S. SAFETY END SECTIONS
ARCH.

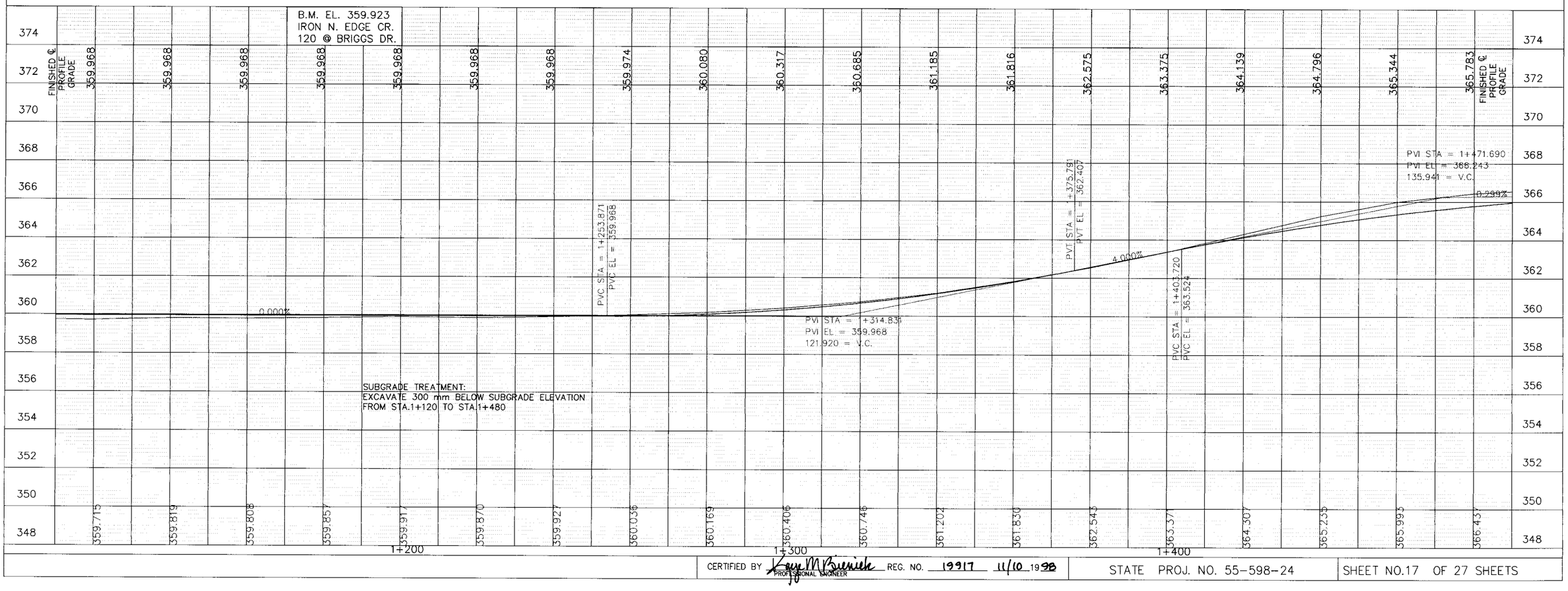
CECILEA KELLY ETAL

RES. DR RT. STA.1+168
NO CULV. INPL.

530 mm x 16 m SPAN C.S.PIPE–ARCH CULV.
2–530 mm SPAN C.S. SAFETY END SECTIONS
ARCH.

CONST. F.E. RT. STA.1+219
530 mm x 14 m SPAN C.S.PIPE–ARCH CULV.
2–530 mm SPAN C.S. SAFETY END SECTIONS
ARCH.

CONST. BIKEWAY CULV'S. RT. STA.1+230
2–200 mm x 7 m C.S.PIPE CULV'S 500 mm APART.
CUT ENDS TO MATCH INSLOPES OF BIKEWAY
AS DIRECTED BY THE ENGINEER IN THE FIELD.



SUBGRADE TREATMENT:
EXCAVATE 300 mm BELOW SUBGRADE ELEVATION
FROM STA.1+120 TO STA.1+480

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PROFESSIONAL ENGINEER

STATE PROJ. NO. 55–598–24

SHEET NO.17 OF 27 SHEETS

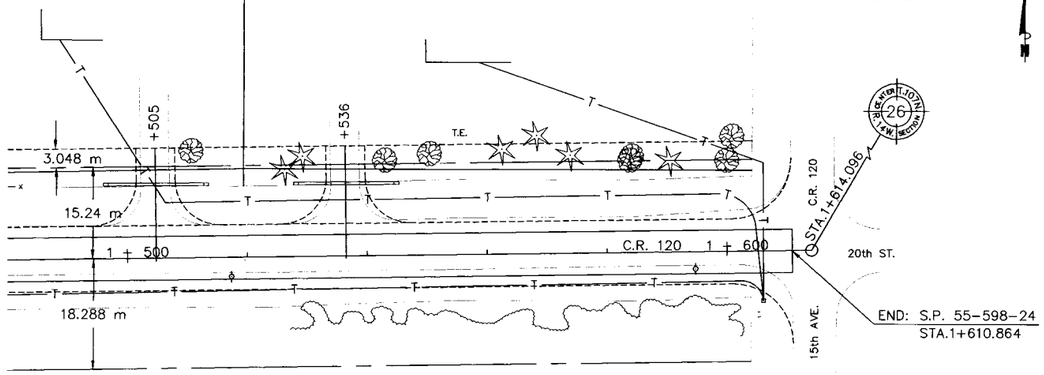
RES. DR. LT. STA.1+505
NO CULV. INPL.

450 mm x 16 m C.S.PIPE CULV.
2–450 mm G.S. SAFETY END SECTIONS.

ERNEST J. & ARDELL E. JOHNSON

RES. DR. LT. STA.1+536
NO CULV. INPL.

450 mm x 12 m C.S.PIPE CULV.
2–450 mm C.S. SAFETY END SECTIONS.



B.M. EL. 366.519
SPK. IN P.P.#47528
N.E. COR. 20TH.ST.

FINISHED ℄ PROFILE GRADE

366.114 366.335 366.448 366.507 366.567 366.627

EOP STA = 1+610.268
EOP EL = 366.658

0.299%

PVT STA = 1+539.661
PVT EL = 368.447

SUBGRADE TREATMENT:
EXCAVATE 300 mm BELOW SUBGRADE ELEVATION
FROM STA.1+480 TO STA.1+610

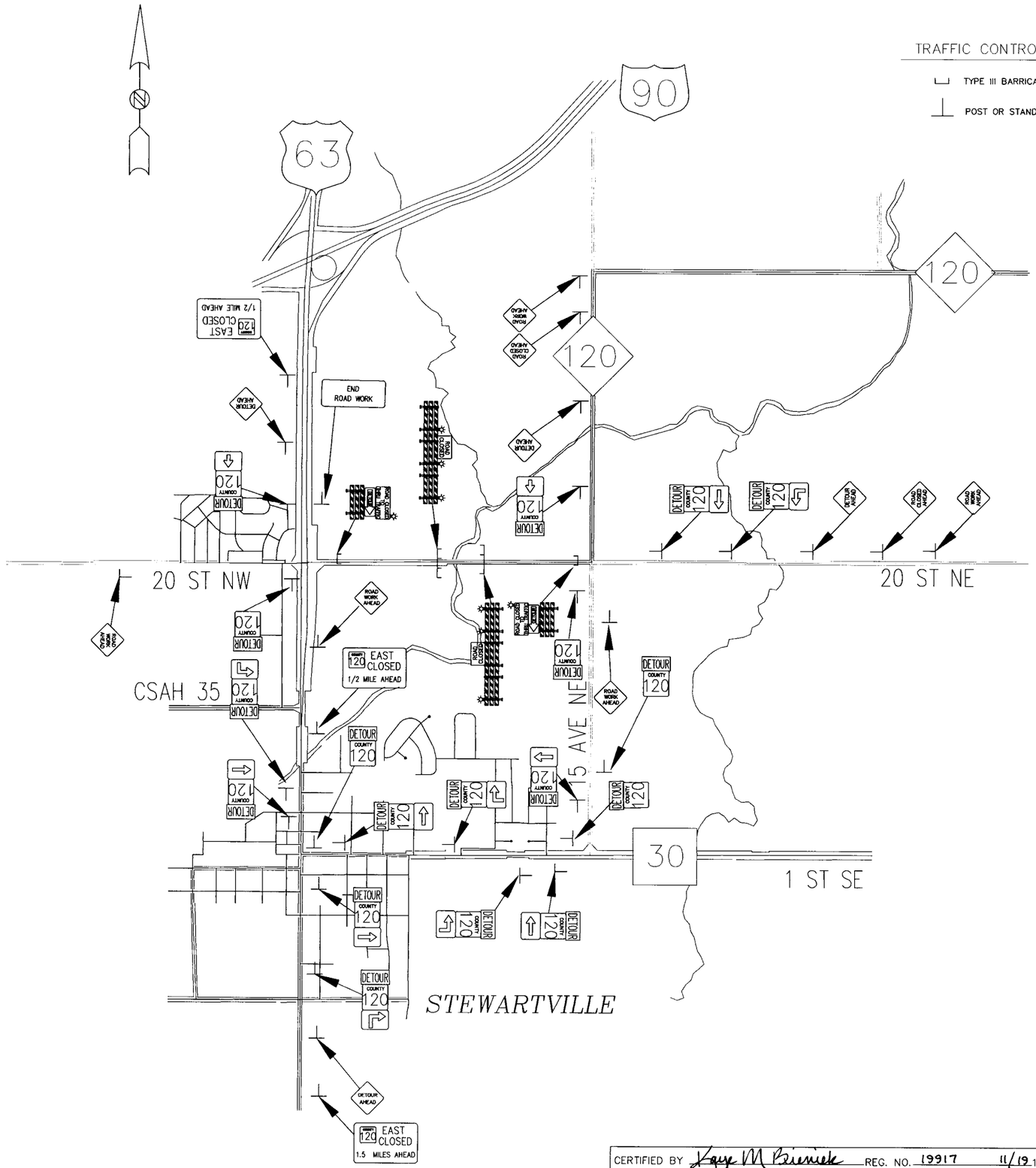
366.457 366.540 366.628 366.505 366.394 366.325 366.395 +610

1+500 1+600 1+700 1+800

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STATE PROJ. NO. 55–602–14

SHEET NO. 18 OF 27 SHEETS

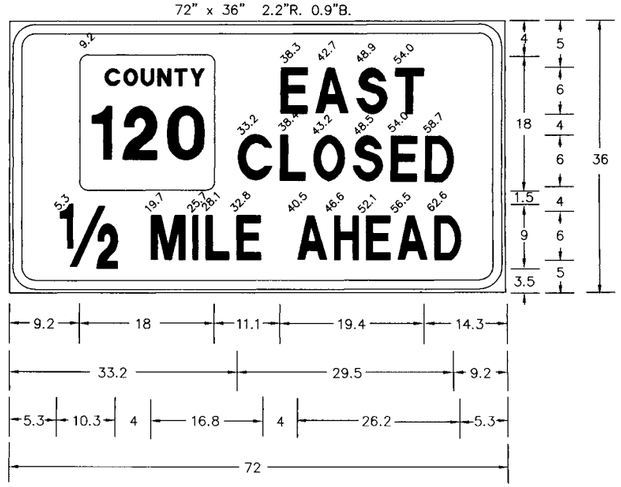


ESTIMATE OF TRAFFIC CONTROL DEVICES					ESTIMATE OF TRAFFIC CONTROL DEVICES				
DEVICE	NUMBER	SIZE (INCHES)	COLOR	QUANTITY	DEVICE	NUMBER	SIZE (INCHES)	COLOR	QUANTITY
ROAD CLOSED	R11-2	48"X30"	BLK/WHT	2	END ROAD WORK	G20-2	60"X24"	BLK/OR	1
ROAD CLOSED TO THRU TRAFFIC	R11-4	60"X30"	BLK/WHT	2	ROAD WORK AHEAD	W20-1	48"X48"	BLK/OR	5
DETOUR AHEAD	W20-2	48"X48"	BLK/OR	4	COUNTY 120	M1-X4A	24"X24"	BLK/WHT	18
ROAD CLOSED AHEAD	W20-3	48"X48"	BLK/OR	2		M5-1R	21"X15"	BLK/WHT	3
DETOUR	M4-10L	48"X18"	BLK/OR	1		M5-1L	21"X15"	BLK/WHT	2
DETOUR	M4-10R	48"X18"	BLK/OR	1	DETOUR	M4-8	24"X12"	BLK/OR	18
	TYPE III	MIN 6'	OR&WHT	8		M6-1R	21"X15"	BLK/WHT	3
	TYPE A	FLASHING LAMPS	AMBER	8		M6-1L	21"X15"	BLK/WHT	3
120 EAST CLOSED 1/2 MILE AHEAD	SPECIAL	72"x36"	BLK/OR	2		M6-3	21"X15"	BLK/WHT	2

TRAFFIC CONTROL NOTES

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRAFFIC CONTROL FOR THIS PROJECT.
2. THE LOCATION OF SIGNS AND DEVICES WILL BE STAKED BY THE ENGINEER IN THE FIELD.
3. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES INCLUDING THE TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS FIELD MANUAL DATED JANUARY 1998.
4. CONSTRUCTION ZONE SIGNING SHALL ALSO BE THE RESPONSIBILITY OF THE CONTRACTOR AND WILL INCLUDE, BUT NOT BE LIMITED TO SIGNS FOR LANE CLOSURES, MACHINERY AHEAD, BUMP, DIP, LOOSE GRAVEL, ETC. THE NUMBER AND LOCATION WILL BE DETERMINED BY THE CONTRACTORS OPERATION.
5. ALL ROAD CLOSED AHEAD SIGNS REQUIRE A TYPE A FLASHING LAMP.

72" x 36" 2.2"R. 0.9"B.



TRAFFIC CONTROL

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STATE PROJ. NO. 55-598-24

SHEET 27 OF 27 SHEETS