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

MINNESOTA DEPARTMENT OF TRANSPORTATION

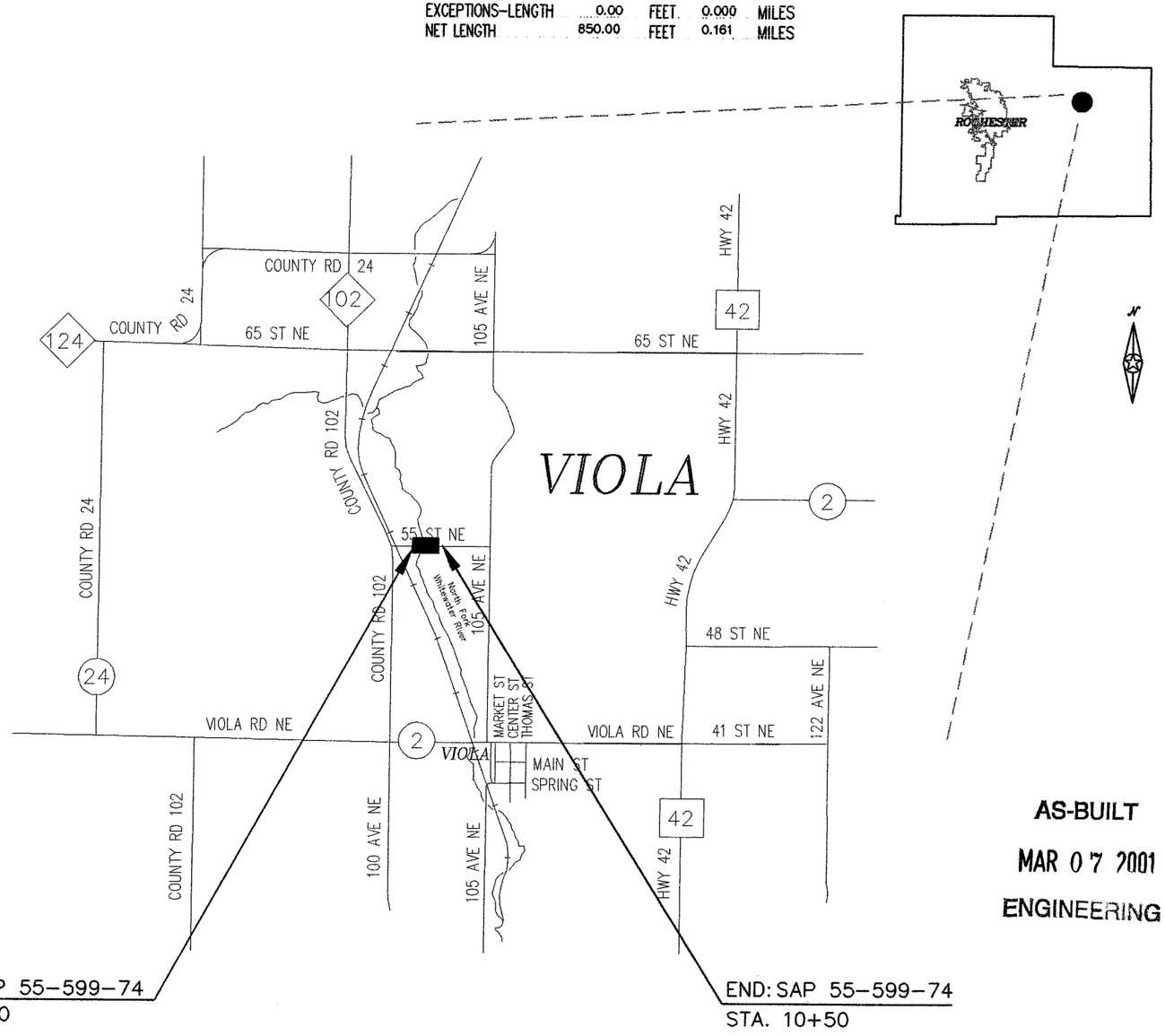
THE COUNTY OF OLMSTED

CONSTRUCTION PLAN FOR GRADING & PRECAST CONC. BOX (BRIDGE NO. 55J26)

LOCATED ON 55 ST. N.E. BETWEEN CR 102 AND 105 AVE. N.E. (GEOGRAPHIC DESCRIPTION)

FROM APPROX. 180' EAST of SEC. COR. 8, 9, 16, & 17 T 107 N – R 12 W TO APPROX. 1030' EAST of SEC. COR. 8, 9, 16, & 17 T 107 N – R 12 W (LEGAL DESCRIPTION)

S.A.P. NO.	55–599–74			
GROSS LENGTH	850.00	FEET	0.161	MILES
BRIDGE–LENGTH	0.00	FEET	0.000	MILES
EXCEPTIONS–LENGTH	0.00	FEET	0.000	MILES
NET LENGTH	850.00	FEET	0.161	MILES



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ENGINEERING

MINN. PROJ. NO. .....

GOVERNING SPECIFICATIONS

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

INDEX

SHEET NO. 1	TITLE SHEET
SHEET NO. 2	TYPICAL SECTION & ESTIMATE OF QUANTITIES
SHEET NO. 3 – 4	BRIDGE SHEETS
SHEET NO. 5 – 6	CROSS SECTIONS
SHEET NO. 7	TRAFFIC CONTROL
SHEET NO. 8 – 9	BARREL DETAILS
SHEET NO. 10 – 11	PRECAST CONC. END SECTION DETAILS

THIS PLAN CONTAINS 11 SHEETS.

DESIGN DESIGNATION: S.A.P. 55–599–74

R ΣN18(20)
ADT (Current Year) = <50 (1999) Design Speed 55 MPH
ADT (Future Year) = <50 (2019) Based on STOPPING Sight Distance
DHV (Design Hr. Vol.) = Height of eye 3.5 FT Height of object 0.5 FT
D (Directional Distr.) = Design Speed not achieved at: .....
T (Heavy Commercial) = STA. ..... TO STA. ..... mph
SUBGRADE = STA. ..... TO STA. ..... mph
LANE WIDTH 11 FT.
SHOULDER WIDTH 1 FT.
SOIL FACTOR = 130%

TOWNSHIP APPROVAL:
Thomas A. Dibble 11-12-99
APPROVED: TOWNSHIP CHAIRPERSON DATE

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.

DATE 11/9/99 REGISTRATION NUMBER 19917
Kaye M Brenek
APPROVED: COUNTY DESIGN ENGINEER

DESIGN SQUAD: Cummings/Holmes

DATE 11/15/99 REGISTRATION NUMBER 19397
Michael Sheehan
APPROVED: OLMSTED COUNTY ENGINEER

STATE AID APPROVALS:
Andy Schmidt DATE: 11-29-99
DISTRICT STATE AID ENGINEER: REVIEWED FOR COMPLIANCE WITH STATE AID RULES/POLICY
TB DATE: 2/9/00
APPROVED FOR STATE AID FUNDING:
STATE AID ENGINEER
for

ESTIMATED QUANTITIES

	SPECIFICATION NO.	ITEM	UNIT	NON PARTICIPATING	PARTICIPATING	TOTAL ESTIMATED QUANTITIES
(1)	2104.501	REMOVE FENCE	LIN. FT.	380		380
(3)	2105.511	COMMON CHANNEL EXCAVATION	CU. YDS.	118		(P) 118
(2)(3)	2105.515	UNCLASSIFIED EXCAVATION	CU. YDS.	330		(P) 330
	2105.523	COMMON BORROW (CV)	CU. YDS.	3000		(P) 3000
	2412.511	12' x 6' PRECAST CONCRETE BOX CULVERT	LIN. FT.		68	68
(4)	2412.512	12' x 6' PRECAST CONC. BOX CULVERT END SECTION	EACH		4	4
	2442.501	REMOVE OLD BRIDGE	LUMP SUM	1		1
	2451.507	GRANULAR BEDDING (CV)	CU. YDS.		53	(P) 53
	~~2501.521~~	~~28" SPAN CS PIPE ARCH CULVERT~~	~~LIN. FT.~~	~~34~~		~~34~~
	~~2501.525~~	~~28" SPAN CS PIPE ARCH APRON~~	~~EACH~~	~~2~~		~~2~~
(5)	2511.501	RANDOM RIPRAP CL. III	CU. YDS.		60	60
(1)	2557.603	BARBED WIRE FENCE	LIN. FT.	240		240
(1)	2557.603	WOODEN FENCE	LIN. FT.	140		140

QUANTITY NOTES:

(1) 240' OF BARBED WIRE & 140' OF WOODEN POST AND RAIL FENCE LT. STA. 5+00 TO STA. 9+00.

(2) UNCLASSIFIED EXCAVATION INCLUDES SUBGRADE TREATMENT AS SHOWN ON TYPICAL SECTION AND CROSS SECTIONS.

(3) 240 CU. YDS. OF EXCAVATION IS TO BE USED AS SALVAGED TOPSOIL.

(4) END SECTION WITH DROP WALLS.

(5) PLACE RIPRAP ON GRANULAR FILTER OR GEOTEXTILE MATERIAL WHICH SHALL BE CONSIDERED INCIDENTAL AND NO DIRECT COMPENSATION WILL BE MADE THEREFOR.

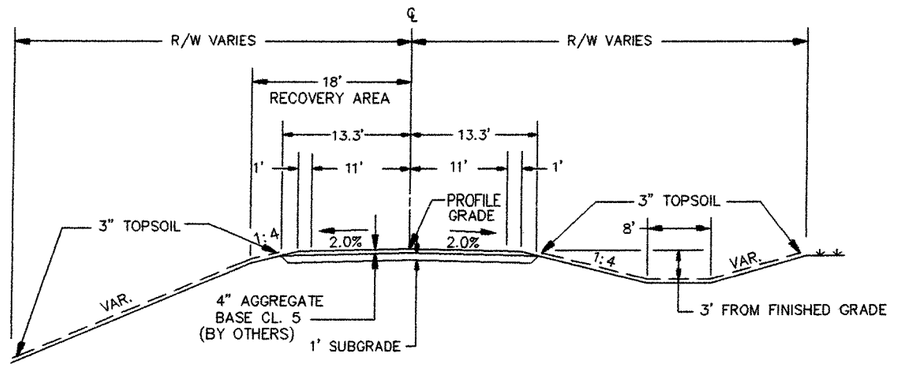
STANDARD PLATES

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

PLATE NO.	DESCRIPTION
	NUMERICAL INDEX OF STANDARD PLATES
3007 B	SHEAR REINFORCEMENT FOR PRECAST DRAINAGE STRUCTURES
3041 D	CORRUGATED METAL PIPE
3123 J	METAL APRON FOR C.S. PIPE
3124 B	METAL APRON CONNECTION
3145 E	CONCRETE PIPE TIES
3221 C	CORRUGATED STEEL PIPE COUPLING BAND
8000 I	STANDARD BARRICADES
9000 C	APPROACHES AND ENTRANCES

TYPICAL SECTION

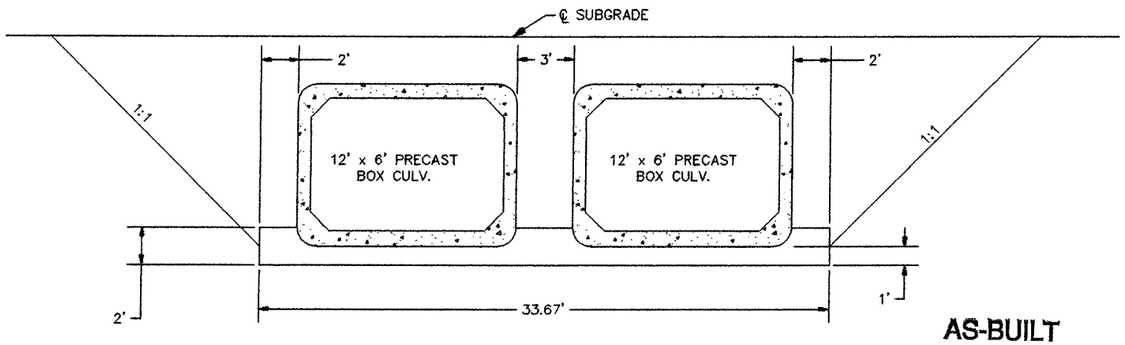
STA. 2+00 TO 10+50



NOTES: ALL UTILITY POLES AND UNYIELDING OBJECTS WILL BE LOCATED OUTSIDE THE 17.5' RECOVERY AREA BY OTHERS.
TURF ESTABLISHMENT BY OTHERS.

BEDDING DETAIL

STA. 6+98.83 & STA. 7+15.17



NOTES:
1. CULVERT EXCAVATION WILL BE CONSIDERED INCIDENTAL AND WILL BE INCLUDED FOR PAYMENT UNDER UNIT PRICE FOR ITEM NO. 2412.511 AND ITEM NO. 2412.512.
2. CULVERT TO BE BACKFILLED WITH EXCAVATION MATERIAL AND WILL BE CONSIDERED INCIDENTAL TO UNCLASSIFIED EXCAVATION AND NO DIRECT COMPENSATION WILL BE MADE.
3. ALL DIMENSIONS AND SLOPES SHOWN ON TYPICAL SECTION ARE APPROXIMATE.
4. GRANULAR BEDDING TO BE PLACED UNDER BARREL SECTIONS ONLY.

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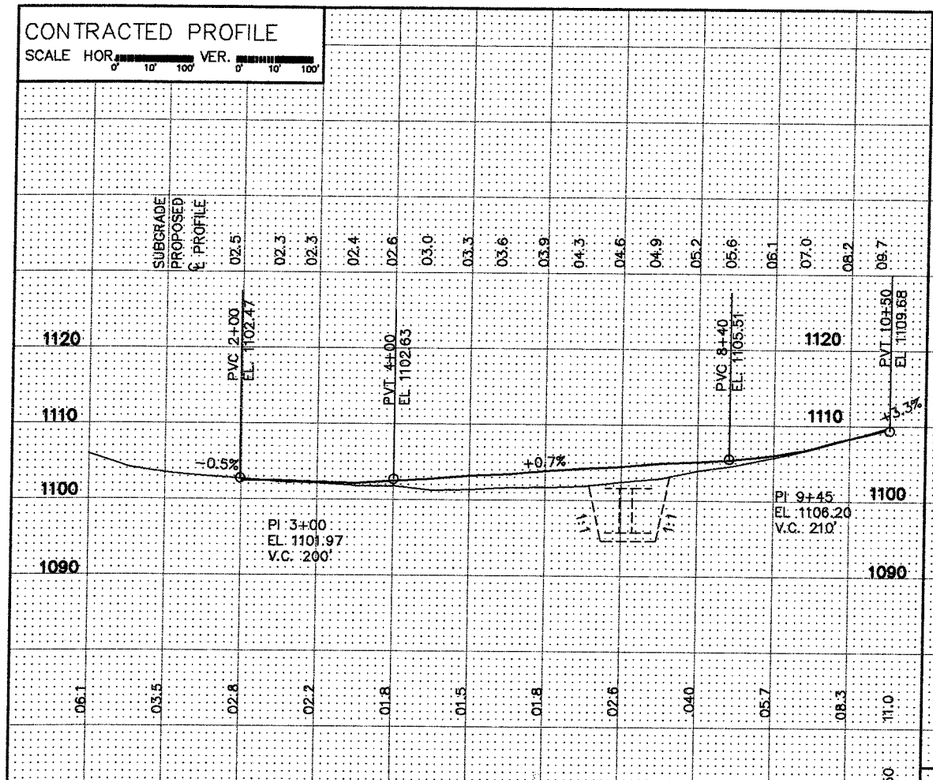
ENGINEERING

CERTIFIED BY Kayne M Bruner PROFESSIONAL ENGINEER REG. NO. 19917 11/24 1999

S.A.P. 55-599-74 VIOLA TWP.

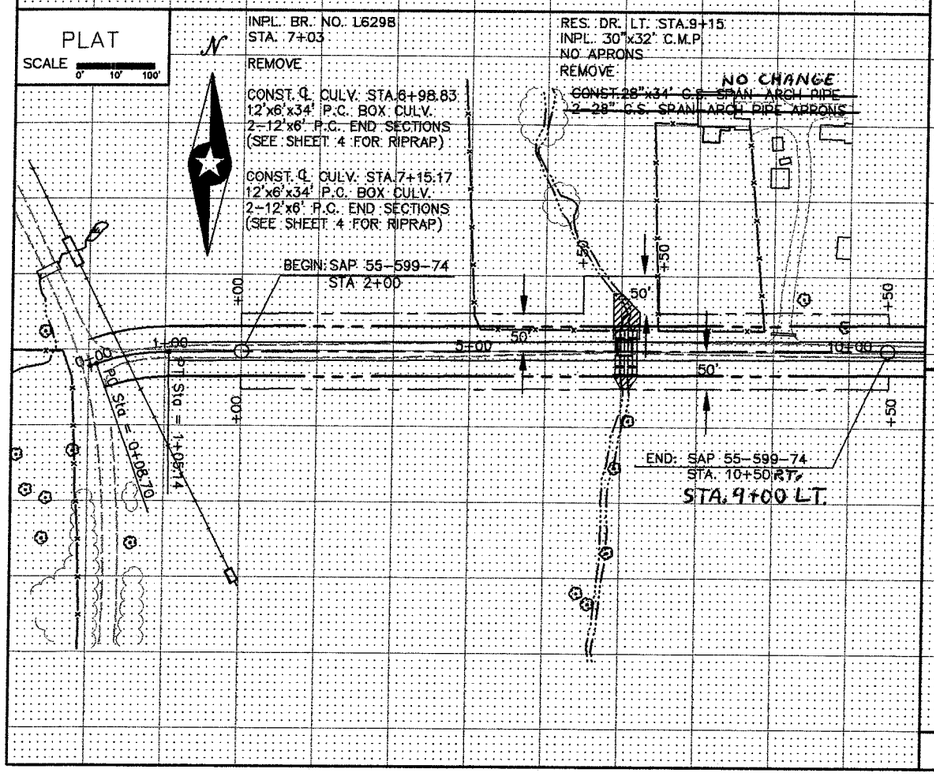
CONTRACTED PROFILE

SCALE HOR. 0' 10' 100' VER. 0' 10' 100'



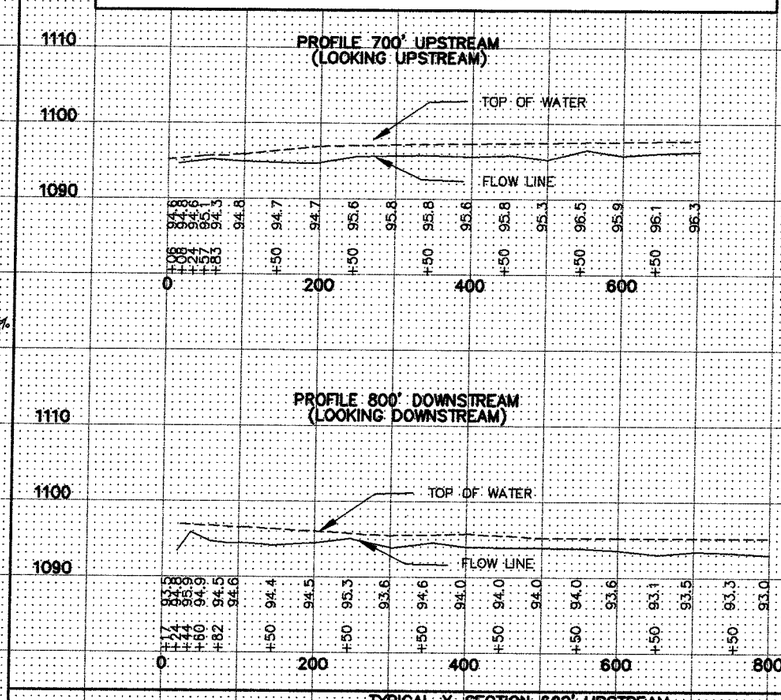
PLAT

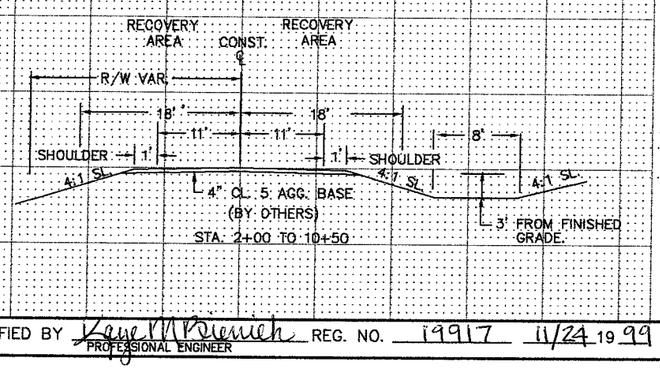
SCALE 0' 10' 100'

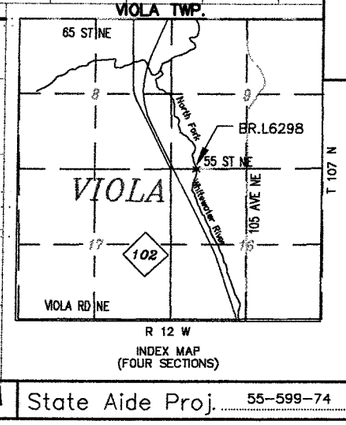


TYPICAL SECTIONS & PERTINENT DATA

SCALE AS SHOWN







Fed. Proj. No.

1. Special Features: Waterfalls, dams, floods, ice, debris, sliding banks, recreational boating.

2. Other bridges or culverts over the same stream (particularly structures which carry high water without overflow of roadway) :Given location, type, length, height above high water, cross-sectional area etc.

3. Apparent highwater elevation ..... Obtained from .....

4. Other data: Approx. velocity of water at time of survey .....

HYDRAULIC ENGINEERS RECOMMENDATION

DATE 9/29/99

Stream or ditch designation N. FK. WHITEWATER RIVER

Drainage area 6.7 SQ. MI.

Max. flood on record UNK. Design flood (7 yr. freq.) 795 C.F.S.

Max. observed highwater elevation UNK. Design highwater elevation 1101.80

Design mean velocity through structure 5.7 F.P.S.

Low superstructure at or above elevation .....

Flowline ..... Skew angle NO SKEW

Waterway area req'd. below elevation ..... = ... Sq. Ft. at Rt. angles to channel

In the interest of flood plain zoning the regional flood (100 yr. freq.) is 2200 C.F.S. at stage 1103.13 and mean velocity of 5.7 F.P.S. with 0.6 Ft. freeboard. The above recommendation will provide a structure of adequate waterway to pass the regional flood within criteria established by the Dept. of National Resources.

FOUNDATION ENGINEERS RECOMMENDATION

DATE .....

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Bridge survey sheets made from: SURVEY CONDUCTED BY OLMSTED COUNTY.

Bench mark elevation 1106.91 (M.S.L. 1929 Adj.)

Location: SPK. IN P.P. 47862 100' SSW BR.93915

MINNESOTA
DEPARTMENT OF TRANSPORTATION

BRIDGE SURVEY

AT MILE POINT 0.1 MI. E. OF JCT CR.102 ON TWP RD.281 (T.H., C.S.A.H., C.R. etc.)

PROPOSED BRIDGE LOCATED 0.1 MILES EAST OF JCT. CR.102

SEC. 09 TWP. 107 N R 12 W

TOWNSHIP VIOLA COUNTY OLMSTED

BRIDGE NO. 55126

CERTIFIED BY Kaye M Bruesch PROFESSIONAL ENGINEER REG. NO. 19917 11/24 1999

State Aide Proj. 55-599-74 VIOLA TWP. Sheet No. 3 of 11 Sheets

BOX CULV.'S AT
STA. 6+98.83 &
STA. 7+15.17

N

50'

48'

10'

22'

21'
~~22'~~

40'
~~36'~~

50'R/W

6+00

3'

3'

7+00

3'

3'

8+00

33'

33'

50'R/W

RIPRAP @ OUTLET
~~52~~ 47' CU. YDS.

CHANNEL EXC. @ OUTLET
88 CU. YDS.

RIPRAP @ INLET
~~13~~ 8 CU. YDS.

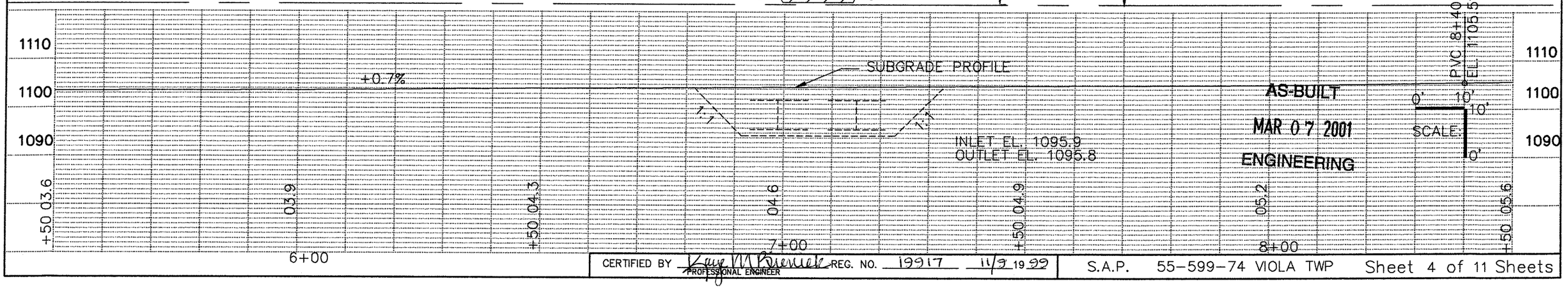
CHANNEL EXC. @ INLET
30 CU. YDS.

36'

21'

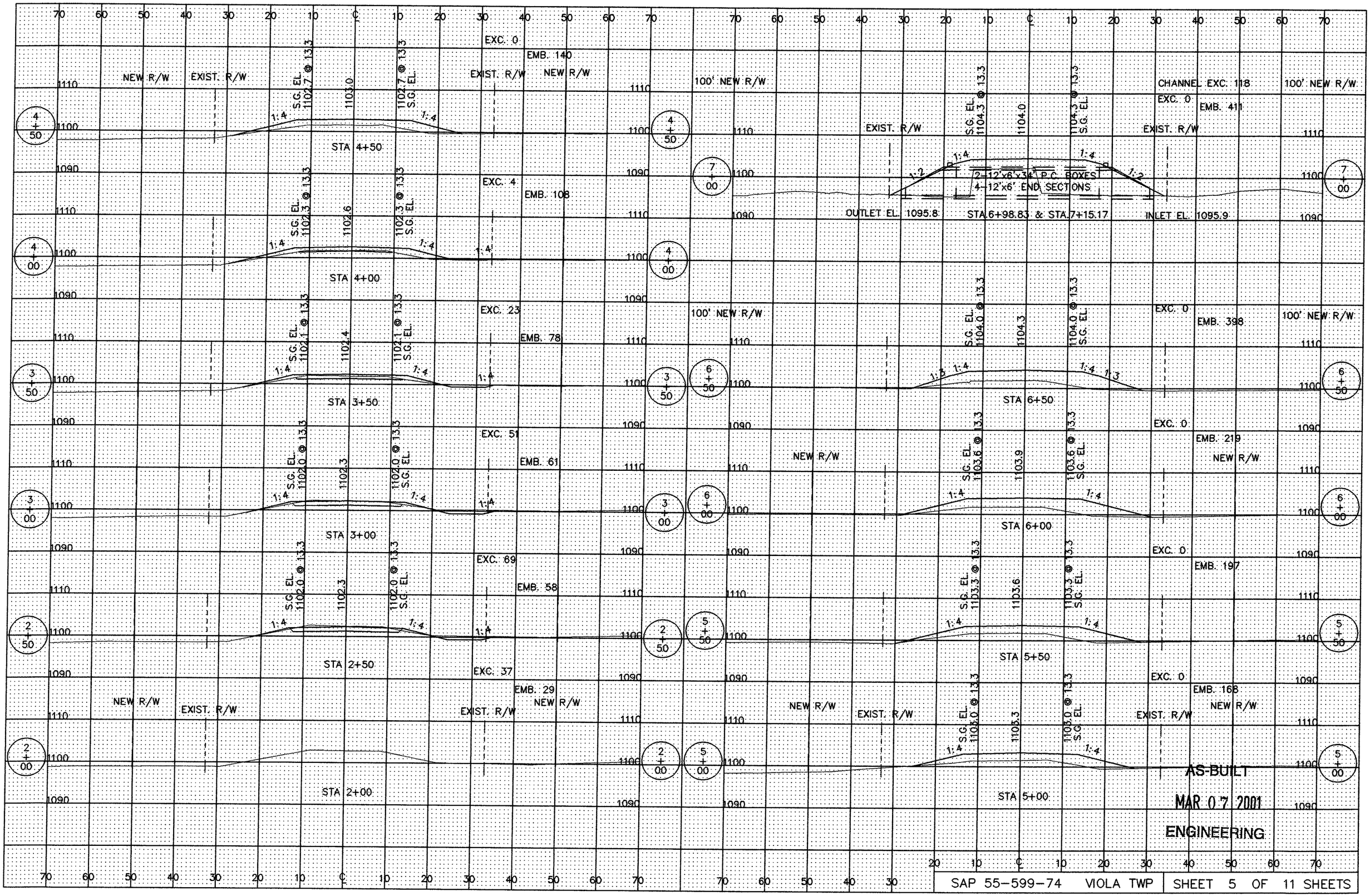
10'

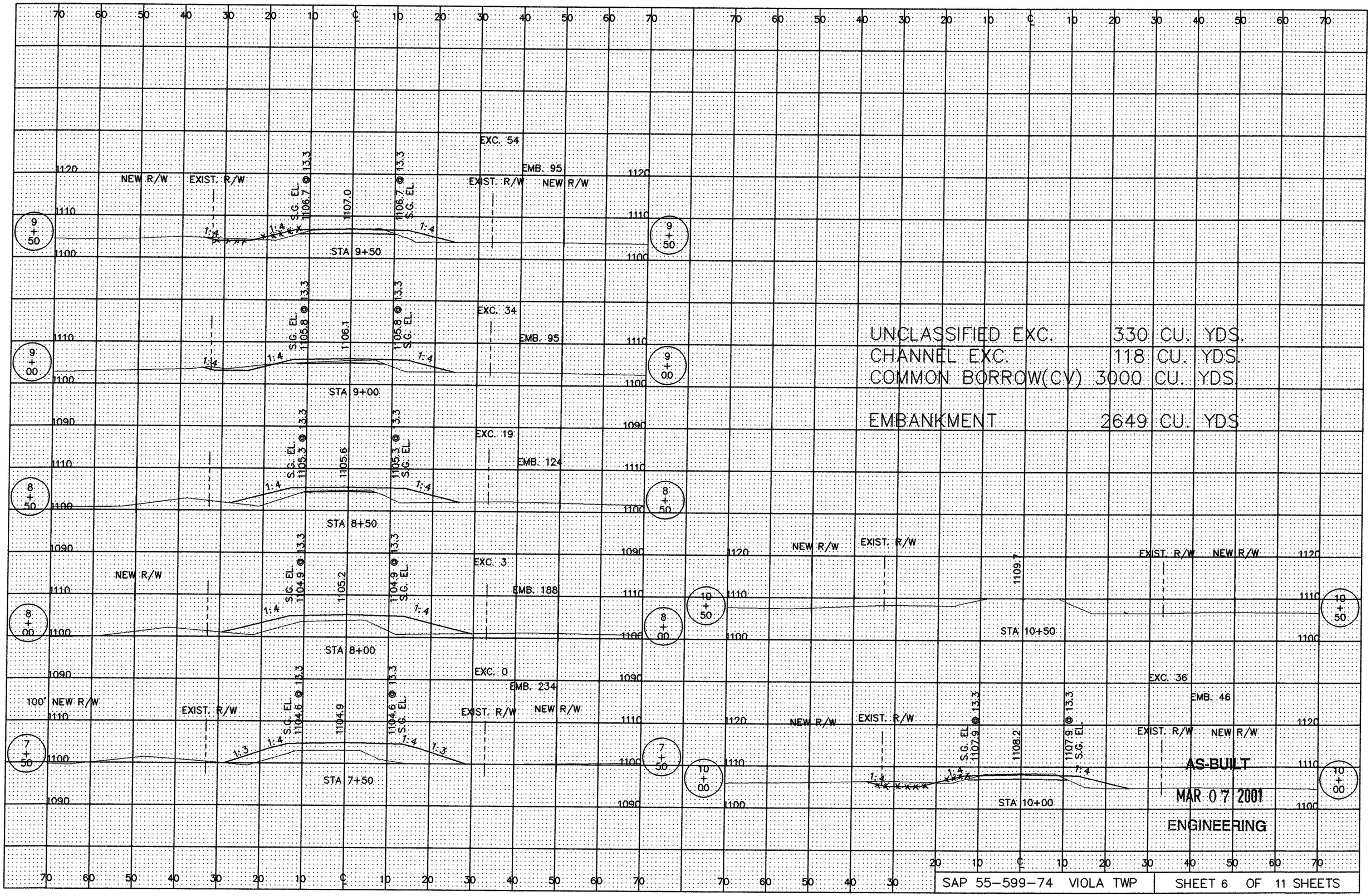
SCALE: 0' 10' 10' 0'



CERTIFIED BY Kaye M Brenneke PROFESSIONAL ENGINEER REG. NO. 19917 11/3 1999

S.A.P. 55-599-74 VIOLA TWP Sheet 4 of 11 Sheets


70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70
NEW R/W
EXIST. R/W
EXC. 0
EMB. 140
100' NEW R/W
CHANNEL EXC. 118
EXC. 0
EMB. 411
S.G. EL. 1102.7 @ 13.3
1103.0
1104.3 @ 13.3
1104.0
1:4
1:2
STA 4+50
EXC. 4
EMB. 108
2-12'x6'x34' P.C. BOXES
4-12'x6' END SECTIONS
OUTLET EL. 1095.8
STA.6+98.83 & STA.7+15.17
INLET EL. 1095.9
1102.3 @ 13.3
1102.6
STA 4+00
EXC. 23
EMB. 78
1102.1 @ 13.3
1102.4
1104.3
1104.0 @ 13.3
STA 3+50
EXC. 51
EMB. 61
1102.0 @ 13.3
1102.3
1103.6 @ 13.3
1103.9
STA 3+00
EXC. 69
EMB. 58
STA 6+00
EXC. 0
EMB. 197
1103.6
1103.3 @ 13.3
STA 2+50
EXC. 37
EMB. 29
STA 5+50
EXC. 0
EMB. 168
1103.3
STA 2+00
STA 5+00
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SAP 55-599-74 VIOLA TWP
SHEET 5 OF 11 SHEETS



UNCLASSIFIED EXC. 330 CU. YDS.
CHANNEL EXC. 118 CU. YDS.
COMMON BORROW(CV) 3000 CU. YDS

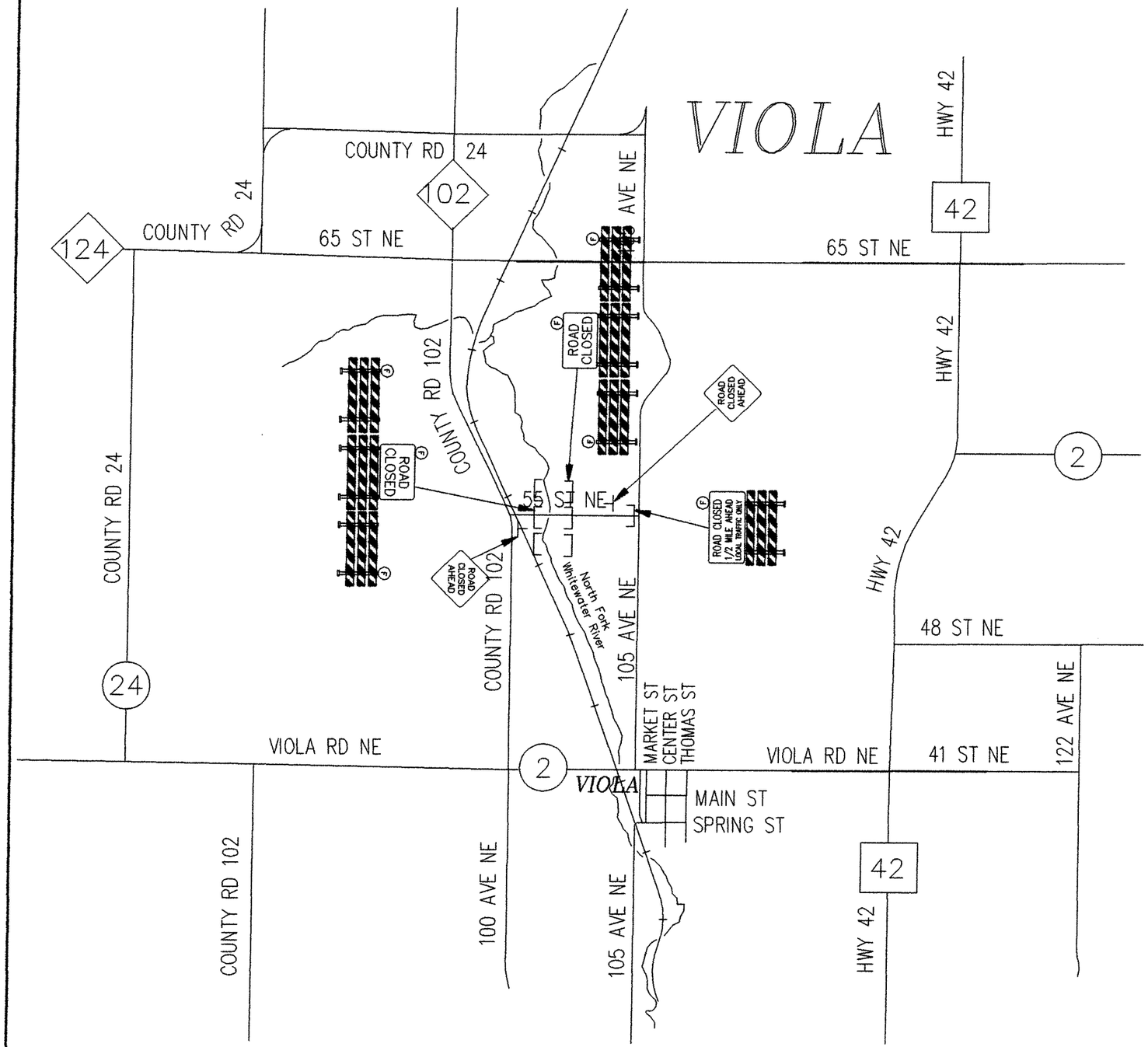
EMBANKMENT 2649 CU. YDS

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MAR 07 2001
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SAP 55-599-74 VIOLA TWP | SHEET 6 OF 11 SHEETS

ESTIMATE OF TRAFFIC CONTROL DEVICES

DEVICE	NUMBER	SIZE	COLOR	QUANTITY	DEVICE	NUMBER	SIZE	COLOR	QUANTITY
ROAD CLOSED	R11-2	48 x 30	BLK/WH	2		TYPE III	MIN. 6'	OR & WHT	7
ROAD CLOSED 1/2 MILE AHEAD LOCAL TRAFFIC ONLY	R11-3	60 x 30	BLK/WH	1	(F)	TYPE A	FLASHING LAMP	AMBER	7
ROAD CLOSED AHEAD	W20-3	48 x 48	BLK/OR	2					





TRAFFIC CONTROL LEGEND

- ⊥ POST OR STAND MOUNTED SIGN
- ⌊ TYPE III BARRICADE
- (F) TYPE "A" AMBER FLASHING LAMP

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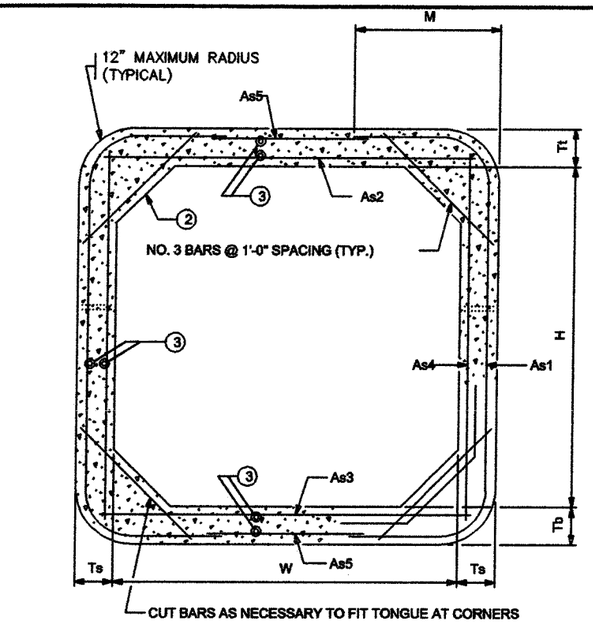
ENGINEERING

TRAFFIC CONTROL NOTES

1. THE LOCATION OF SIGNS AND DEVICES WILL BE STAKED BY THE ENGINEER IN THE FIELD.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TRAFFIC CONTROL ON THIS PROJECT.
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 BE THE RESPONSIBILITY OF THE CONTRACTOR AND WILL INCLUDE, BUT NOT BE LIMITED TO SIGNS FOR LANE CLOSURE, MACHINERY AHEAD, BUMP, DIP, LOOSE GRAVEL, ETC.. THE NUMBER AND LOCATION WILL BE DETERMINED BY THE CONTRACTORS OPERATION.
5. ALL BARRICADES ON THIS PROJECT SHALL BE REFLECTORIZED ON BOTH SIDES.

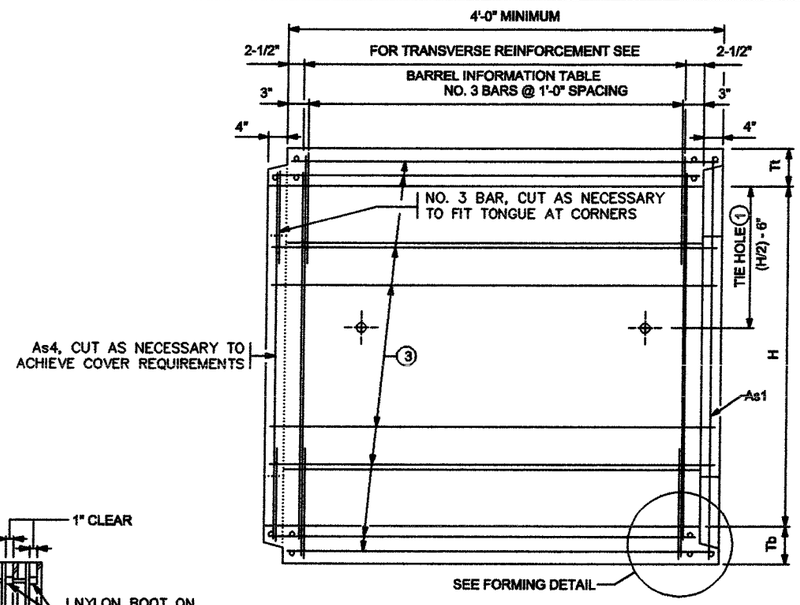
CERTIFIED BY Kurt M Bierwirth PROFESSIONAL ENGINEER REG. NO. 19917 11/9 1999

S.A.P. 55-599-74 VIOLA TWP.



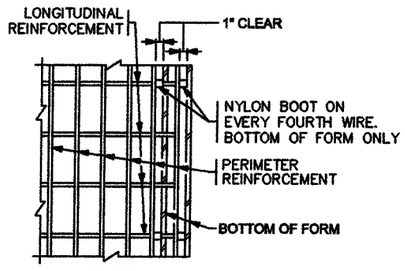
TRANSVERSE BARREL SECTION

(BAR REINFORCEMENT OPTION SHOWN)

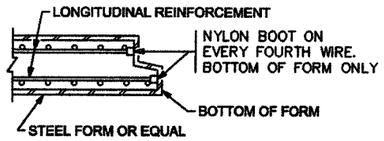


LONGITUDINAL BARREL SECTION

(BAR REINFORCEMENT OPTION SHOWN)

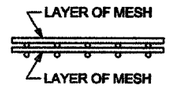


PLAN



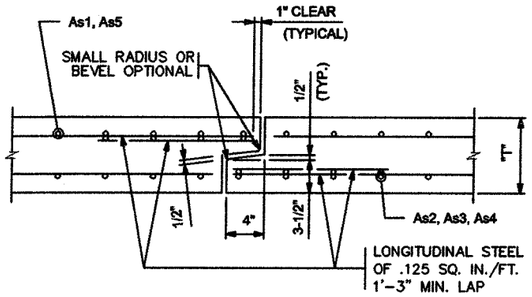
SECTION

FORMING DETAIL



FABRIC LAYER DETAIL

WHEN MORE THAN ONE LAYER OF STEEL FABRIC IS USED TO OBTAIN THE REQUIRED REINFORCEMENT AREAS, THE WIRES OF THE STEEL FABRIC SHALL BE PLACED AS SHOWN



TONGUE AND GROOVE JOINT DETAIL

CONSTRUCTION NOTES:

CULVERTS TO BE CONSTRUCTED AS PER SPEC. 2412 EXCEPT AS NOTED.

THE STEEL FABRIC, SHEAR REINFORCEMENT AND REINFORCEMENT BARS SHALL CONFORM TO APPLICABLE REQUIREMENTS OF AASHTO M259.

1-1/2" MIN. AND 2" MAX. CONCRETE COVER ON ALL REINFORCEMENT, INCLUDING SHEAR REINFORCEMENT, EXCEPT FOR TONGUE AND GROOVE DETAIL.

ANY OF THE FOLLOWING COMBINATIONS OF STEEL REINFORCEMENT MAY BE USED:
- (a) 1 OR 2 LAYERS OF MESH OR
- (b) 1 LAYER OF MESH AND 1 LAYER OF REINFORCEMENT BARS OR
- (c) 1 LAYER OF REINFORCEMENT BARS.

THE REINFORCEMENT SHALL BE DEVELOPED IN ACCORDANCE WITH AASHTO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES". IF BAR REINFORCEMENT IS SUBSTITUTED FOR WIRE MESH, THE AREAS OF REINFORCEMENT SHALL BE INCREASED BY 8%.

THE MAXIMUM SIZE OF REINFORCEMENT BARS SHALL BE NO. 6. THE MAXIMUM MESH SIZE SHALL BE 1/2" DIA. PER LAYER (MAXIMUM OF 2 LAYERS).

THE SPACING CENTER TO CENTER OF THE TRANSVERSE WIRES SHALL NOT BE LESS THAN 2 INCHES NOR MORE THAN 4 INCHES. THE SPACING CENTER TO CENTER OF THE LONGITUDINAL WIRES SHALL NOT BE MORE THAN 8 INCHES.

WELDING WILL NOT BE ALLOWED ON REINFORCEMENT BARS OR STEEL FABRIC, EXCEPT THAT THE ORIGINAL WELDING REQUIRED TO MANUFACTURE WIRE FABRIC IS ACCEPTABLE.

WHEN REINFORCEMENT IS CUT, ADDITIONAL REINFORCEMENT SHALL BE ADDED ON BOTH SIDES OF THE CUT MEMBER TO REPLACE OR EXCEED THE CUT STEEL.

BARREL SECTIONS WHICH ARE CAST WITH A DRAFT IN THE FORMS SHALL BE LAID WITH THE NARROWEST PART OF THE SECTION DOWNSTREAM.

CONCRETE SHALL BE MIX NO. 3W36 WITH NO CALCIUM CHLORIDE ALLOWED.

(1) CULVERT TIES ARE TO BE 1" DIAMETER RODS. SEE STANDARD PLATE NO. 3145 FOR CONNECTION DETAILS.

(2) HAUNCH SIZE AS FOLLOWS:
- 6 AND 8 FT. WIDTHS – 6 TO 12 INCHES
- 10 FT WIDTH – 10 TO 12 INCHES
- 12 FT WIDTH – 12 INCHES

(3) MINIMUM LONGITUDINAL STEEL SHALL BE 0.06 SQ. IN. /FT.

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BARREL INFORMATION

LOCATION	SIZE	CLASS	f'c (P.S.I.)	FILL HEIGHT RANGE (FT.)	DIMENSIONS					WEIGHT (LBS./FT.)	STEEL FABRIC REINFORCEMENT									
											As1			As2		As3		As4		As5	
					W (FT.)	H (FT.)	Tt (IN.)	Tb (IN.)	Ts (IN.)		AREA (IN^2/FT.)	LENGTH (FT.)	M (FT.)	AREA (IN^2/FT.)	LENGTH (FT.)	AREA (IN^2/FT.)	LENGTH (FT.)	AREA (IN^2/FT.)	LENGTH (FT.)	AREA (IN^2/FT.)	LENGTH (FT.)
6+98.83	12 x 6	2	5000	2 – 8	12	6	9	10	8	4530	0.68	12'–9"	3'–3"	0.96	12'–8"	0.93	12'–8"	0.20	6'–8"	0.06	8'–9"
7+15.17	12 x 6	2	5000	2 – 8	12	6	9	10	8	4530	0.68	12'–9"	3'–3"	0.96	12'–8"	0.93	12'–8"	0.20	6'–8"	0.06	8'–9"

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FIG. 5-395.101 (1 OF 2)

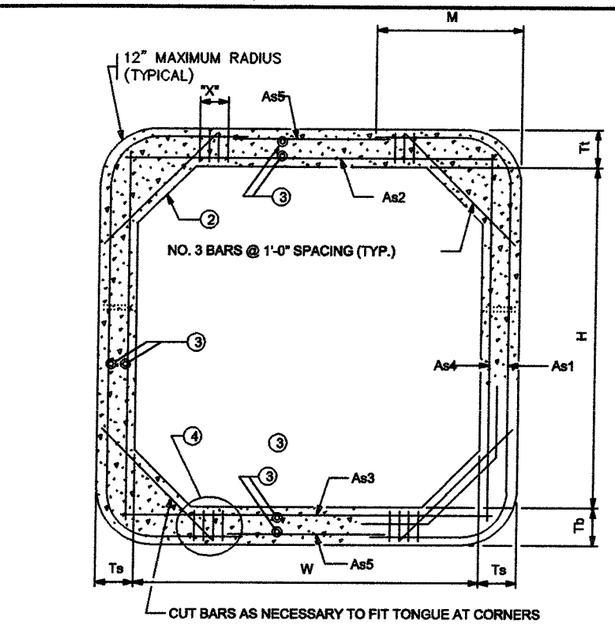
TITLE: BARREL DETAILS

DES: | DR: | APPROVED:

CHK: | CHK:

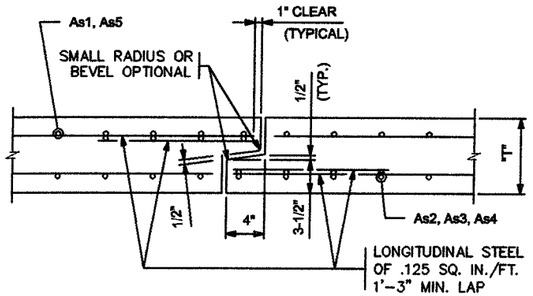
SHEET NO. 8 OF 11 SHEETS

BRIDGE NO. 55J26

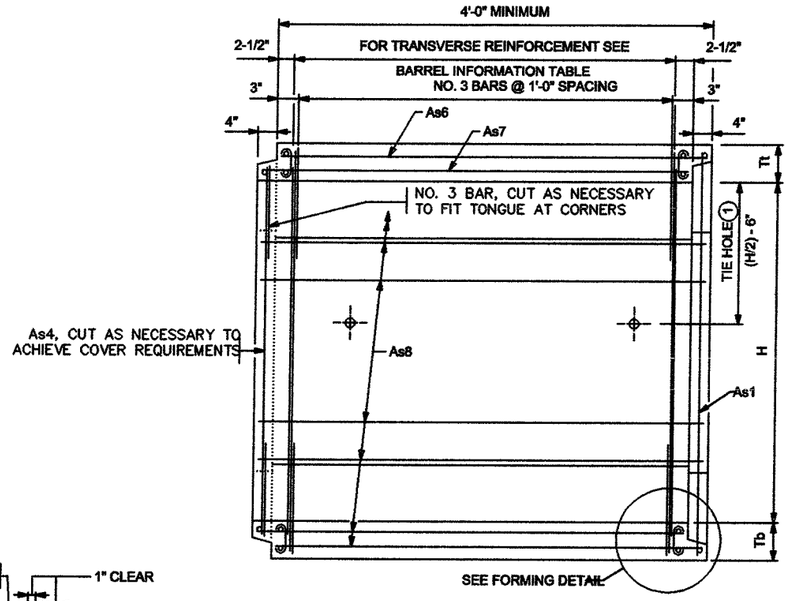


TRANSVERSE BARREL SECTION

(BAR REINFORCEMENT OPTION SHOWN)

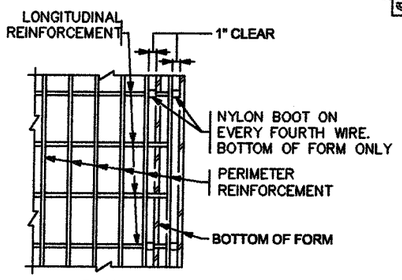


TONGUE AND GROOVE JOINT DETAIL

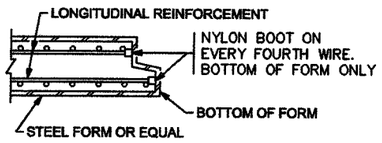


LONGITUDINAL BARREL SECTION

(BAR REINFORCEMENT OPTION SHOWN)

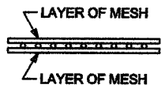


PLAN



SECTION

FORMING DETAIL



FABRIC LAYER DETAIL

WHEN MORE THAN ONE LAYER OF STEEL FABRIC IS USED TO OBTAIN THE REQUIRED REINFORCEMENT AREAS, THE WIRES OF THE STEEL FABRIC SHALL BE PLACED AS SHOWN

CONSTRUCTION NOTES:

CULVERTS TO BE CONSTRUCTED AS PER SPEC. 2412 EXCEPT AS NOTED.

THE STEEL FABRIC, SHEAR REINFORCEMENT AND REINFORCEMENT BARS SHALL CONFORM TO APPLICABLE REQUIREMENTS OF AASHTO M259.

1–1/2" MIN. AND 2" MAX. CONCRETE COVER ON ALL REINFORCEMENT, INCLUDING SHEAR REINFORCEMENT, EXCEPT FOR TONGUE AND GROOVE DETAIL.

ANY OF THE FOLLOWING COMBINATIONS OF STEEL REINFORCEMENT MAY BE USED:
- (a) 1 OR 2 LAYERS OF MESH OR
- (b) 1 LAYER OF MESH AND 1 LAYER OF REINFORCEMENT BARS OR
- (c) 1 LAYER OF REINFORCEMENT BARS.

THE REINFORCEMENT SHALL BE DEVELOPED IN ACCORDANCE WITH AASHTO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES". IF BAR REINFORCEMENT IS SUBSTITUTED FOR WIRE MESH, THE AREA OF REINFORCEMENT SHALL BE INCREASED BY 8%.

THE MAXIMUM SIZE OF REINFORCEMENT BARS SHALL BE NO. 6. THE MAXIMUM MESH SIZE SHALL BE 1/2" DIA. PER LAYER (MAXIMUM OF 2 LAYERS).

THE SPACING CENTER TO CENTER OF THE TRANSVERSE WIRES SHALL NOT BE LESS THAN 2 INCHES NOR MORE THAN 4 INCHES. THE SPACING CENTER TO CENTER OF THE LONGITUDINAL WIRES SHALL NOT BE MORE THAN 8 INCHES.

WELDING WILL NOT BE ALLOWED ON REINFORCEMENT BARS OR STEEL FABRIC, EXCEPT THAT THE ORIGINAL WELDING REQUIRED TO MANUFACTURE WIRE FABRIC IS ACCEPTABLE.

WHEN REINFORCEMENT IS CUT, ADDITIONAL REINFORCEMENT SHALL BE ADDED ON BOTH SIDES OF THE CUT MEMBER TO REPLACE OR EXCEED THE CUT STEEL.

BARREL SECTIONS WHICH ARE CAST WITH A DRAFT IN THE FORMS SHALL BE LAID WITH THE NARROWEST PART OF THE SECTION DOWNSTREAM.

CONCRETE SHALL BE MIX NO. 3W36 WITH NO CALCIUM CHLORIDE ALLOWED.

(1) CULVERT TIES ARE TO BE 1" DIAMETER RODS. SEE STANDARD PLATE NO. 3145 FOR CONNECTION DETAILS.

(2) HAUNCH SIZE AS FOLLOWS:
- 6 AND 8 FT. WIDTHS – 6 TO 12 INCHES
- 10 FT. WIDTH – 10 TO 12 INCHES
- 12 FT. WIDTH – 12 INCHES

(3) MINIMUM LONGITUDINAL STEEL SHALL BE 0.06 SQ. IN./FT.

(4) SEE STANDARD PLATE 3007 FOR SHEAR REINFORCEMENT OPTIONS. THE MAXIMUM SHEAR REINFORCEMENT SPACING IN THE LONGITUDINAL DIRECTION SHALL BE 6 INCHES.

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BARREL INFORMATION

LOCATION	SIZE	f'c (P.S.I.)	OVERFILL LIMITS (FT.)	DIMENSIONS					WEIGHT (LBS./FT.)	STEEL FABRIC REINFORCEMENT																(4) SHEAR REINFORCEMENT TOP AND BOTTOM OF BARREL		
				W (FT.)	H (FT.)	Tt (IN.)	Tb (IN.)	Ts (IN.)		As1			As2		As3		As4		As5		As6	As7	As8					
										AREA (IN.²/FT.)	LENGTH (FT.)	M (FT.)	AREA (IN.²/FT.)	LENGTH (FT.)	AREA (IN.²/FT.)	LENGTH (FT.)	AREA (IN.²/FT.)	LENGTH (FT.)	AREA (IN.²/FT.)	LENGTH (FT.)	AREA (IN.²/FT.)	AREA (IN.²/FT.)	AREA (IN.²/FT.)	AREA (IN.²/FT.)	MAX. SPG.(IN.)	X (IN.)

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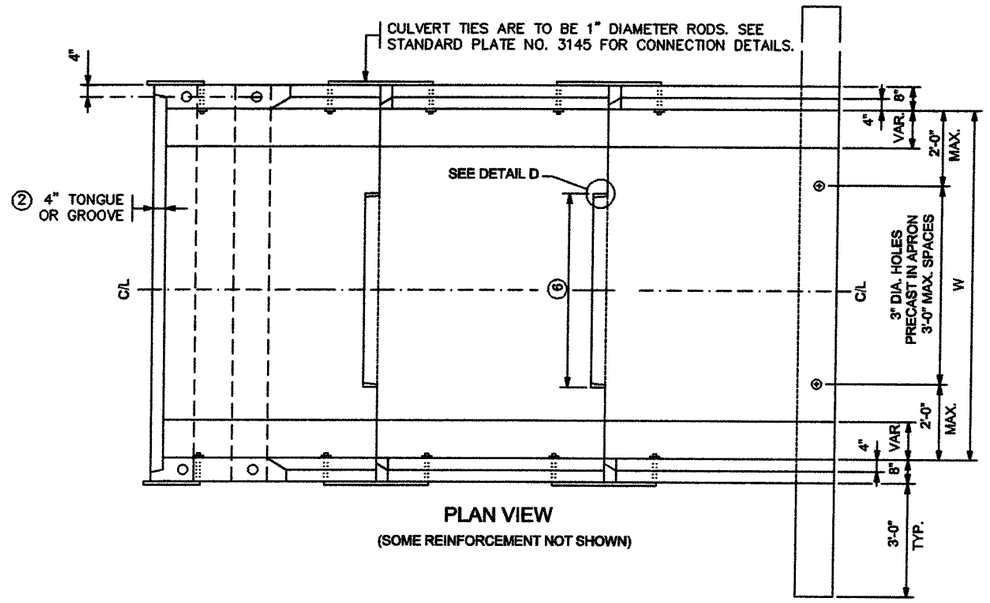
FIG. 5-395.101 (2 OF 2)

TITLE: BARREL DETAILS (SPECIAL DESIGNS)

DES: DR: CHK: CHK: APPROVED:

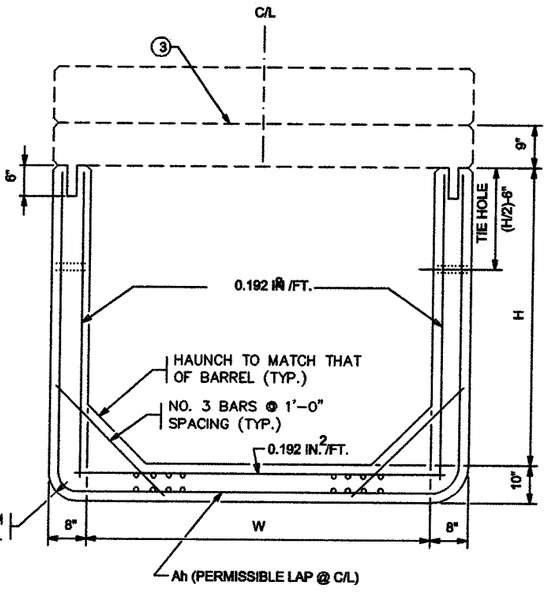
SHEET NO. 9 OF 11 SHEETS

BRIDGE NO. 55J26



PLAN VIEW

(SOME REINFORCEMENT NOT SHOWN)



SECTION Y-Y

NOTES:

SEE FIG. 5-395.101, FOR DIMENSIONS AND CONSTRUCTION NOTES, EXCEPT AS NOTED.

LONGITUDINAL REINFORCEMENT PARALLEL TO THE AXIS OF THE CULVERT SHALL HAVE A MINIMUM OF 0.06 SQUARE INCHES PER PERIPHERAL FOOT ON ALL FACES OF THE BARREL, EXCEPT IN THE TONGUE AND GROOVE AREA.

SEE FIG. 5-395.115 FOR EMBANKMENT PROTECTION.

FINISH ALL EDGES OF CONCRETE WITH 1/2" OR 3/4" CHAMFER UNLESS OTHERWISE NOTED.

(1) WITH MULTIPLE BOXES LOCATE DROPWALL JOINTS BETWEEN END SECTIONS. SEE FIG. 5-395.111 FOR ALTERNATE DROPWALLS. LIMITS OF EXCAVATION FOR DROPWALL TO BE APPROXIMATELY THE SAME AS DROPWALL DIMENSIONS. DROPWALL TO BE CONCRETE MIX NO. 1A43 OR 3Y43. FURNISHING AND INSTALLATION OF DROPWALL TO BE INCLUDED IN PRICE BID FOR END SECTIONS. DROPWALL NOT REQUIRED FOR NON-WATERWAY USE.

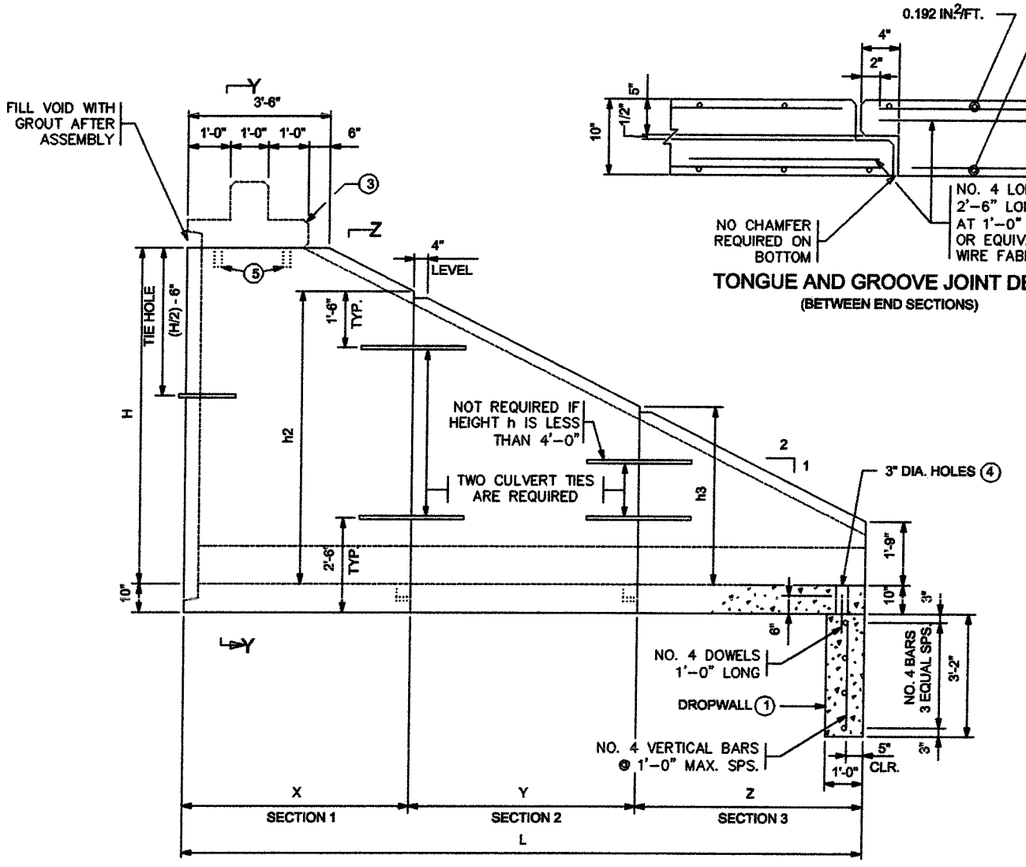
(2) CHECK LOCATION TO DETERMINE WHETHER A TONGUE OR A GROOVE IS USED.

(3) SEE FIG. 5-395.104 (SHEET 2 OF 2) FOR LINTEL BEAM DETAILS.

(4) FILL HOLE WITH GROUT. GROUT SHALL CONSIST OF 1 PART CEMENT AND 2 PARTS SAND. USE TYPE 1A AIR ENTRAINED PORTLAND CEMENT. GROUT MIX SHALL HAVE A MAXIMUM SLUMP OF 4".

(5) 2" DIAMETER HOLE, 6" DEEP IN TOP OF THE SECTION WALL.

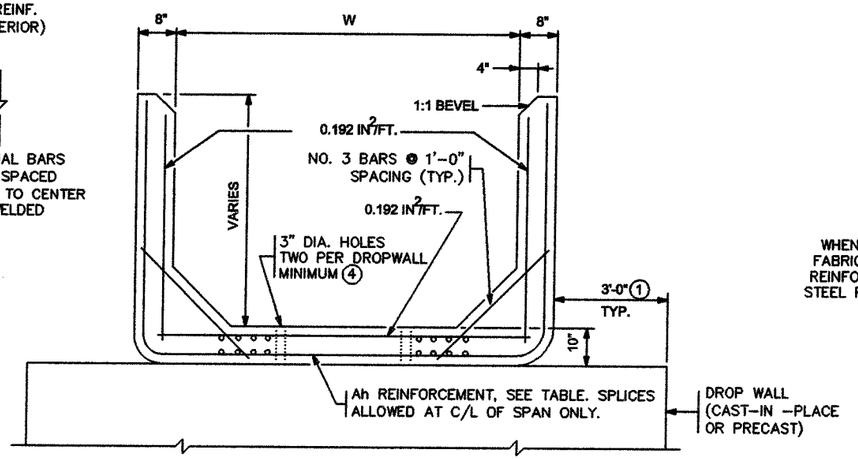
(6) 3'-6" TONGUE AND 3'-7" GROOVE FOR 6'-0" WIDE CULVERTS. 5'-0" TONGUE AND 5'-1" GROOVE FOR CULVERTS OVER 6'-0" WIDE. CENTER TONGUE AND GROOVE ON C/L OF EACH APRON JOINT.



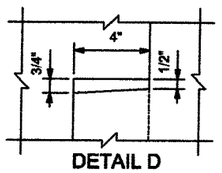
SIDE ELEVATION

TONGUE AND GROOVE JOINT DETAIL

(BETWEEN END SECTIONS)



SECTION Z-Z



DETAIL D



FABRIC LAYER DETAIL

WHEN MORE THAN ONE LAYER OF STEEL FABRIC IS USED TO OBTAIN THE REQUIRED REINFORCEMENT AREAS, THE WIRES OF THE STEEL FABRIC SHALL BE PLACED AS SHOWN.

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APRON DIMENSIONS & Ah REINFORCEMENT

H	L	SECTION 1		h2	SECTION 2		h3	SECTION 3		h4	SECTION 4		h5
FT.	FT.	X	Ah		Y	Ah		Z	Ah		ZZ	Ah	
4	8	8'	0.192	1'-9"									
5	10	6'	0.192	3'-9"	4'	0.192	1'-9"						
6	12	6'	0.192	4'-9"	6'	0.192	1'-9"						
7	14	6'	0.192	5'-9"	8'	0.192	1'-9"						
8	16	6'	0.20	6'-9"	6'	0.192	3'-9"	4'	0.192	1'-9"			
9	18	6'	0.29	7'-9"	6'	0.20	4'-9"	6'	0.192	1'-9"			
10	20	6'	0.42	8'-9"	6'	0.29	5'-9"	8'	0.192	1'-9"			
11	22	6'	0.60	9'-9"	6'	0.42	6'-9"	6'	0.192	3'-9"	4'	0.192	1'-9"
12	24	6'	0.78	10'-9"	6'	0.60	7'-9"	6'	0.20	4'-9"	6'	0.192	1'-9"

NOTE: Ah IS AREA OF REINFORCEMENT PER FOOT OF LENGTH (IN ²/FT.).

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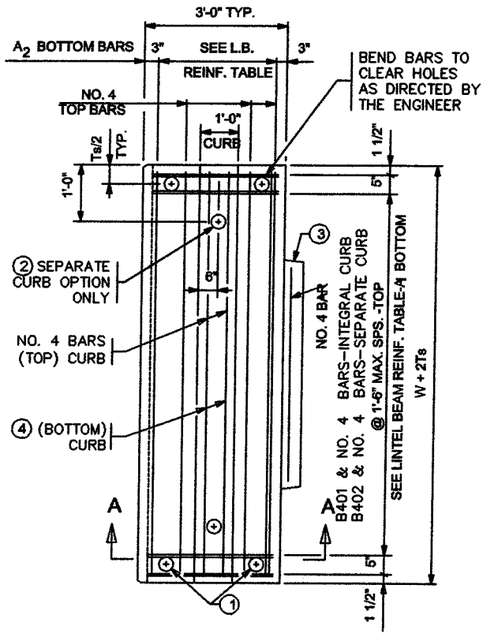
FIG. 5-395.104 (1 OF 2)

TITLE: PRECAST CONCRETE END SECTION TYPE III - SINGLE OR MULTI-BARREL FOR SKEWS UP TO 7 1/2°

DES:	DR:	APPROVED:
CHK:	CHK:	

SHEET NO. 10 OF 11 SHEETS

BRIDGE NO. 55J26

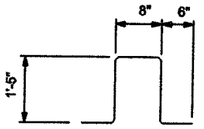


PLAN OF SQUARE LINTEL BEAM

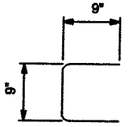
(TONGUE OPTION SHOWN)

LINTEL BEAM REINFORCEMENT TABLE				
WIDTH W (FT.)	4 FT. DESIGN FILL HEIGHT		2 FT. DESIGN FILL HEIGHT	
	BOTTOM REINFORCEMENT		BOTTOM REINFORCEMENT	
	A_1	A_2	A_1	A_2
6	NO. 4 @ 1'-2"	NO. 4 @ 9 1/2"	NO. 4 @ 1'-6"	NO. 4 @ 1'-4"
8	NO. 4 @ 8"	NO. 5 @ 8"	NO. 4 @ 1'-1"	NO. 4 @ 9"
10	NO. 5 @ 8"	NO. 6 @ 7 1/2"	NO. 4 @ 9"	NO. 4 @ 6"
12	NO. 5 @ 6"	NO. 6 @ 6"	NO. 5 @ 9"	NO. 5 @ 6"

NOTE: MAXIMUM BAR SPACING GIVEN, REDUCE AS NECESSARY



B401



B402

NOTES:

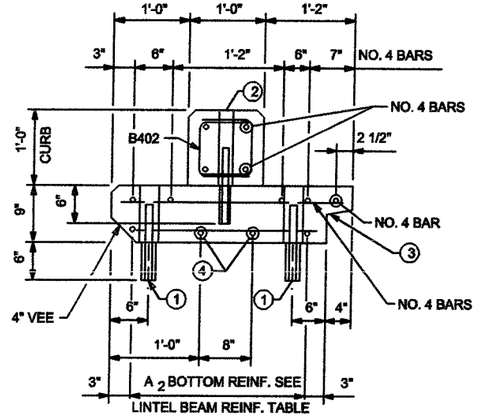
GROUT SHALL CONSIST OF 1 PART CEMENT AND 2 PARTS SAND. USE TYPE 1A AIR ENTRAINED PORTLAND CEMENT. GROUT MIX SHALL HAVE A MAXIMUM SLUMP OF 4".

(1) 3" DIA. HOLE THROUGH LINTEL BEAM AND 2" DIA. HOLE IN TOP OF WALL SECTION. PLACE NO.8 DOWEL, 1'-0" LONG, IN HOLE AND FILL HOLE WITH GROUT.

(2) 3" DIA. HOLE THROUGH CURB AND 2" DIA. HOLE IN LINTEL BEAM. PLACE NO. 8 DOWEL, 1'-0" LONG, IN HOLE AND FILL HOLE WITH GROUT.

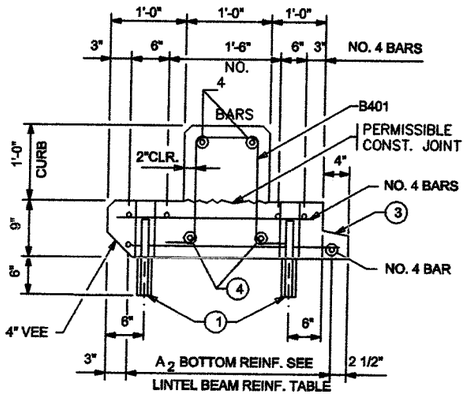
(3) CHECK THE LOCATION TO DETERMINE WHETHER A TONGUE OR A GROOVE IS USED. TONGUE AND GROOVE TO TERMINATE AT HAUNCH.

(4) FOR SPANS UNDER 10' USE NO. 8 BARS. FOR SPANS OF 10' TO 12' USE NO. 9 BARS.



SECTION A-A

(SEPARATE CURB OPTION WITH GROOVE)
(ADDITIONAL REINF. IN GROOVE, NOT SHOWN)



SECTION A-A

(INTERGRAL CURB OPTION WITH TONGUE)
(ADDITIONAL REINF. IN TONGUE, NOT SHOWN)

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APPROVED: AUGUST 10, 1995

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FIG. 5-395.104 (2 OF 2)

TITLE: PRECAST CONCRETE END SECTION TYPE III – SINGLE OR MULTI-BARREL FOR SKEWS UP TO 7 1/2°

DES:	DR:	APPROVED:
CHK:	CHK:	

SHEET NO. 11 OF 11 SHEETS

BRIDGE NO. 55J26