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 50'
PROFILE 0 50' HORIZ. 0 10' VERT
CROSS SECTIONS 0 10'
INDEX MAP 0 2640'

MINNESOTA DEPARTMENT OF TRANSPORTATION

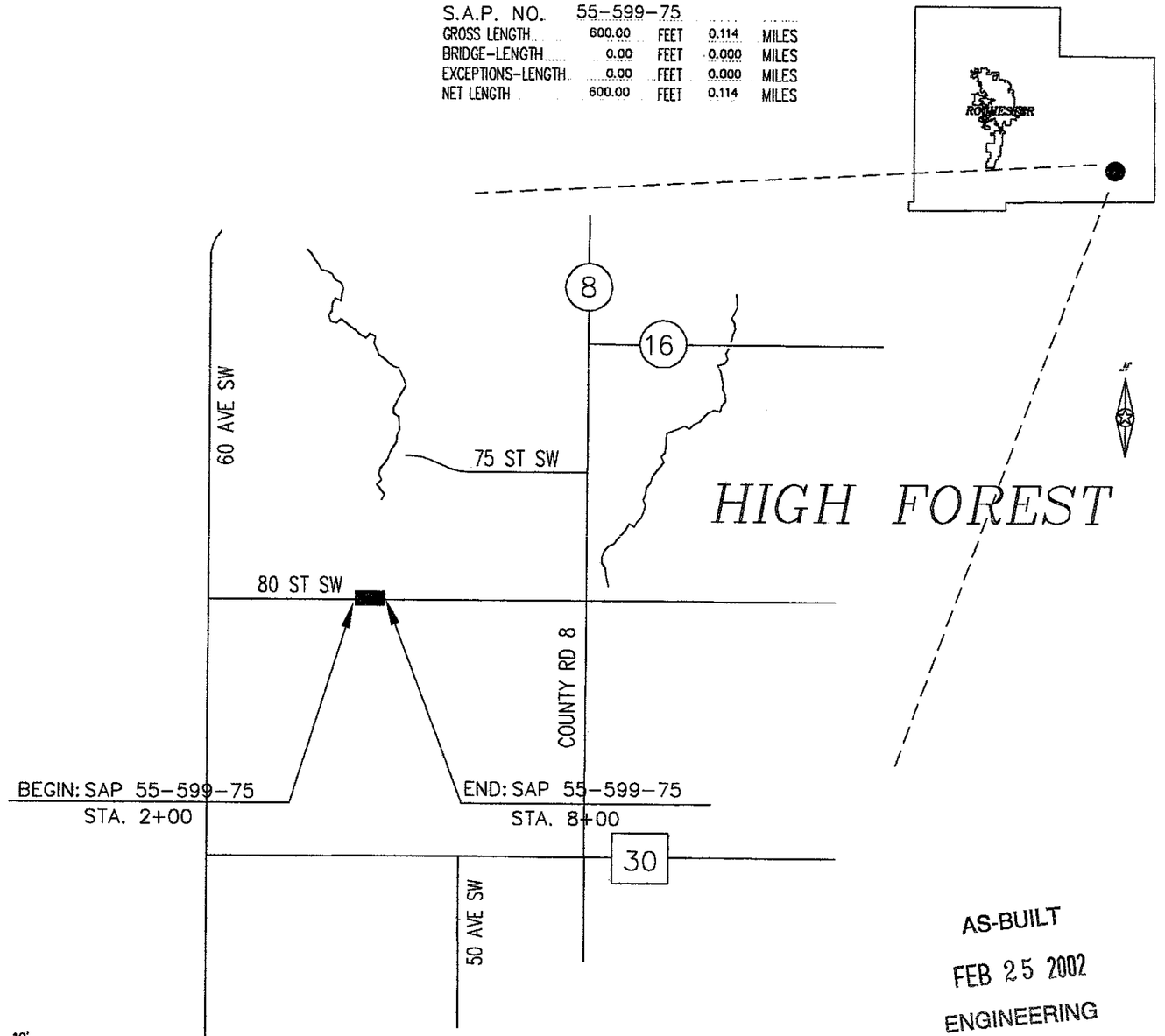
THE COUNTY OF OLMSTED

CONSTRUCTION PLAN FOR GRADING & PRECAST CONC. BOX (BRIDGE NO. 55J36)

LOCATED ON 80 STREET SW BETWEEN CR 115 & CSAH 8 4350' WEST OF JCT AND CR 115 & CSAH 8 3750' WEST OF JCT * NO OLD BRIDGE NO.
(HIGH FOREST TWP. RD #81) (GEOGRAPHIC DESCRIPTION)

FROM COR. 7,8,17 & 18 T 105 N - R 14 W APPROX. 0.30 MILES WEST of SEC. TO COR. 7,8,17 & 18 T 105 N - R 14 W APPROX. 0.20 MILES WEST of SEC. (LEGAL DESCRIPTION)

S.A.P. NO.	55-599-75			
GROSS LENGTH	600.00	FEET	0.114	MILES
BRIDGE-LENGTH	0.00	FEET	0.000	MILES
EXCEPTIONS-LENGTH	0.00	FEET	0.000	MILES
NET LENGTH	600.00	FEET	0.114	MILES



AS-BUILT
FEB 25 2002
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	CROSS SECTIONS
SHEET NO. 6 - 11	EROSION CONTROL
SHEET NO. 12	TRAFFIC CONTROL
SHEET NO. 13	BARREL DETAILS
SHEET NO. 14 - 15	PRECAST CONC. END SECTION DETAILS

THIS PLAN CONTAINS 15 SHEETS.

DESIGN DESIGNATION: S.A.P. 55-599-75

R ΣN18 (20)
ADT (Current Year) = ≤50 (2001) Design Speed 45 MPH
ADT (Future Year) = ≤50 (2021) 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:
James A Elton DATE: 3/1/01
APPROVED: TOWNSHIP CHAIRPERSON

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 3/1/01 LICENSE NUMBER 19917
PRINTED NAME: KAYE M. BIENIEK
SIGNED NAME: Kaye M Bieniek
APPROVED: COUNTY DESIGN ENGINEER

DESIGN SQUAD: Holmes

DATE 3/1/01 LICENSE NUMBER 10397
Michael S Sheehan
APPROVED: OLMSTED COUNTY ENGINEER

STATE AID APPROVALS:
DATE: 3-29-01
DISTRICT STATE AID ENGINEER: REVIEWED FOR COMPLIANCE WITH STATE- AID RULES/POLICY
DATE: 5-8-01
APPROVED FOR STATE AID FUNDING:
STATE AID ENGINEER

S.A.P. NO. 55-599-75 HIGH FOREST TWP. SHEET NO. 1 OF 15 SHEETS

ESTIMATED QUANTITIES

	SPECIFICATION NO.	ITEM	UNIT	NON PARTICIPATING	PARTICIPATING	TOTAL ESTIMATED QUANTITIES
①	2101.511	CLEARING AND GRUBBING	LUMP SUM	1		1
	2104.501	REMOVE PIPE CULVERTS	LIN. FT.	144		144
②	2105.515	UNCLASSIFIED EXCAVATION	CU. YDS.	962		(P) 962
	2105.523	COMMON BORROW (CV)	CU. YDS.	1116		(P) 1116
③	2211.501	AGGREGATE BASE CLASS 5	TON	606		606
	2412.511	12' x 7' PRECAST CONCRETE BOX CULVERT	LIN. FT.		64	64
④	2412.512	12' x 7' PRECAST CONC. BOX CULVERT END SECTIONS	EACH		2	2
	2451.507	GRANULAR BEDDING (CV)	CU. YDS.		51	(P) 51
	2501.511	18" C.S. PIPE CULVERT	LIN. FT.	36		36
	2501.515	18" G.S. PIPE APRON	EACH	2		2
⑤	2511.501	RANDOM RIPRAP CL. III	CU. YDS.		56	56
⑥	2573.502	SILT FENCE, TYPE HEAVY DUTY	LIN FT	400		400
	2575.501	SEEDING	ACRE	1		(P) 1
	2575.502	SEED MIXTURE 50A	POUND	50		50
	2575.502	SEED MIXTURE 110A	POUND	80		80
	2575.511	MULCH MATERIAL TYPE 1	TON	2		2
	2575.519	DISC ANCHORING	ACRE	1		(P) 1
	2575.532	COMMERCIAL FERTILIZER ANALYSIS 12-12-12	POUND	200		200

QUANTITY NOTES:

① APPROX. 0.1 ARCES OF TREES IN R/W. TREES FOR REMOVAL SHALL BE DESIGNATED BY THE ENGINEER.

② UNCLASSIFIED EXCAVATION INCLUDES SUBGRADE TREATMENT AS SHOWN IN TYPICAL SECTION AND CROSS SECTIONS. 174 CU. YDS. OF EXCAVATION TO BE USED AS SALVAGED TOPSOIL.

③ 546 TONS ON MAINLINE AND 60 TONS ON ENTRANCES.

④ END SECTIONS WITH DROP WALLS. WEIR ON INLET END.

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

⑥ SPECIFICATION 1903 SHALL NOT APPLY FOR THIS ITEM.

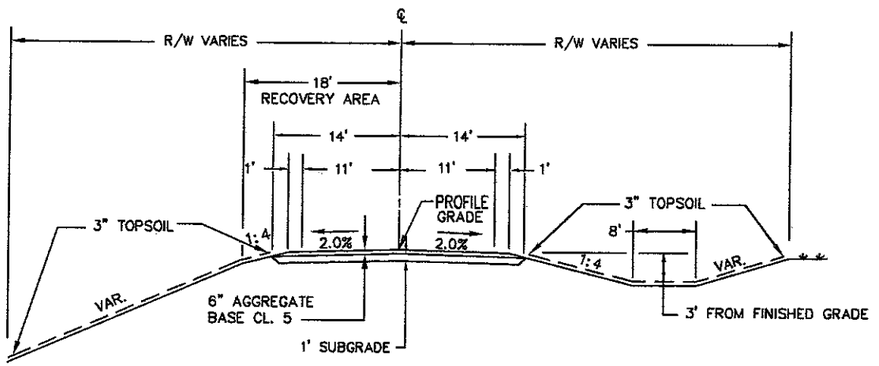
STANDARD PLATES

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

PLATE NO.	DESCRIPTION
	NUMERICAL INDEX OF STANDARD PLATES
3007 E	SHEAR REINFORCEMENT FOR PRECAST DRAINAGE STRUCTURES
3040 F	CORRUGATED METAL PIPE CULVERT
3123 K	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 D	APPROACHES AND ENTRANCES

TYPICAL SECTION

STA. 2+00 TO 8+00



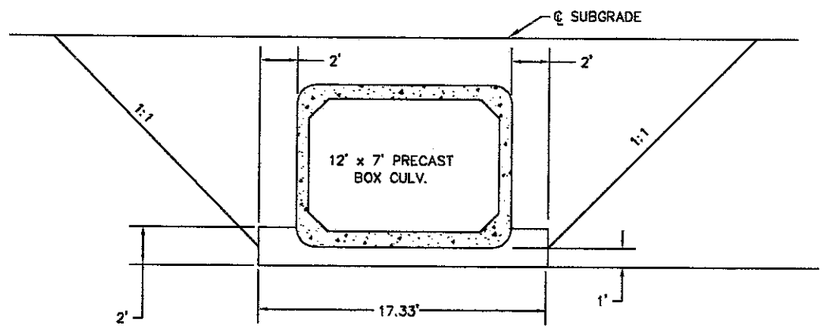
NOTES: ALL UTILITY POLES AND UNYIELDING OBJECTS WILL BE LOCATED OUTSIDE THE 18' RECOVERY AREA BY OTHERS.

QUANTITY NOTES:

AGGREGATE BASE CLASS 5 – 140LBS./CU.FT. COMPACTED
SEED MIXTURE 50A – 50 LBS/ACRE
SEED MIXTURE 110A – 80 LBS/ACRE
MULCH MATERIAL – 2 TONS/ACRE
DISK ANCHORING – ALL SEEDING AREAS EXCEPT 1:2 SLOPES
COMMERCIAL FERTILIZER – 200 LBS/ACRE

BEDDING DETAIL

5+10



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 OR COMMON BORROW 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.

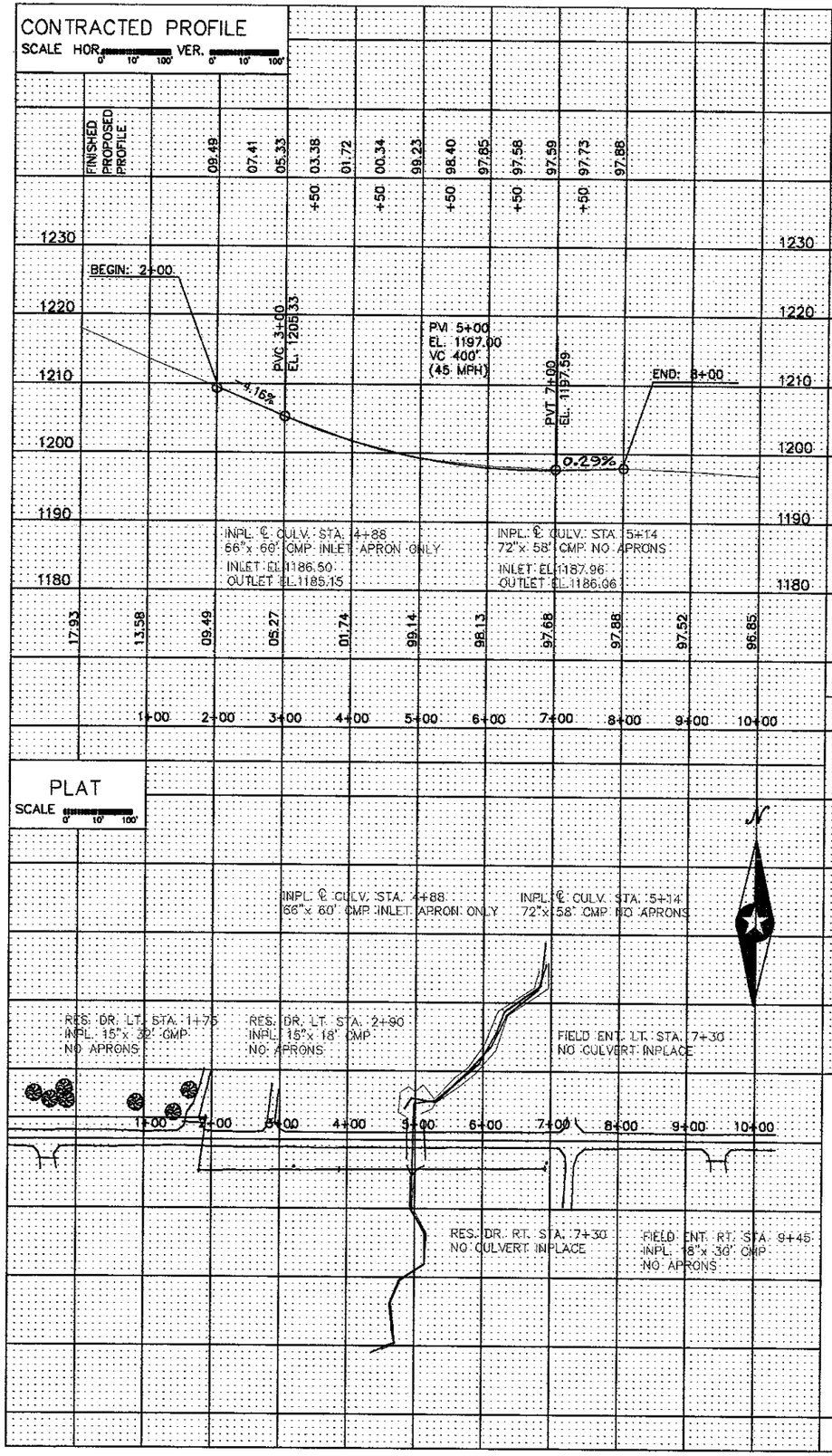
AS-BUILT
FEB 25 2002
ENGINEERING

CERTIFIED BY Kaye M Bienek LICENSED PROFESSIONAL ENGINEER LIC. NO. 19917 3/1 2001

S.A.P. 55-599-75 HIGH FOREST TWP.

CONTRACTED PROFILE

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

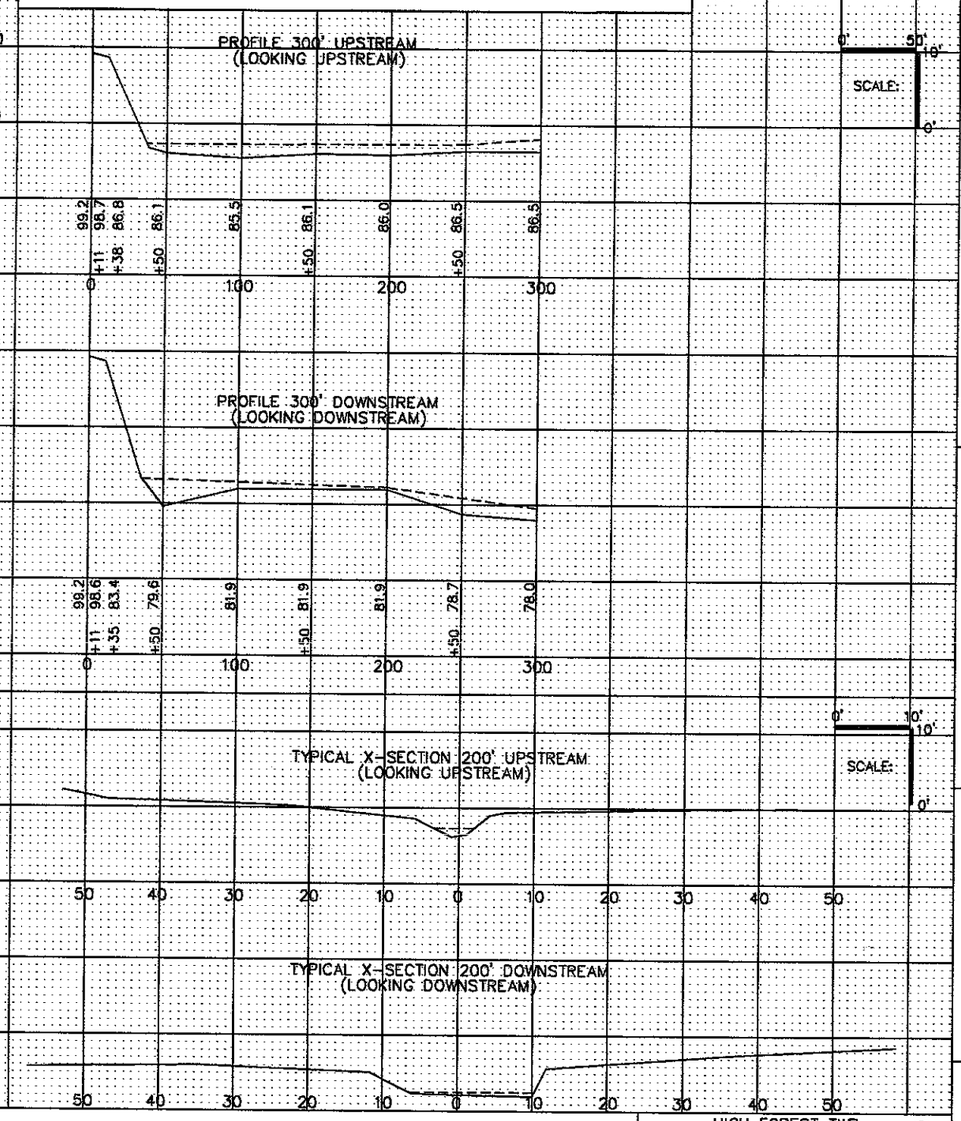


PLAT

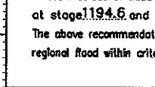
SCALE 0' 10' 100'

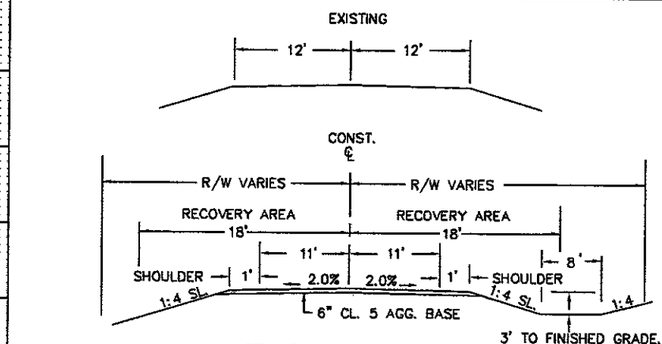
TYPICAL SECTIONS & PERTINENT DATA

SCALE AS SHOWN

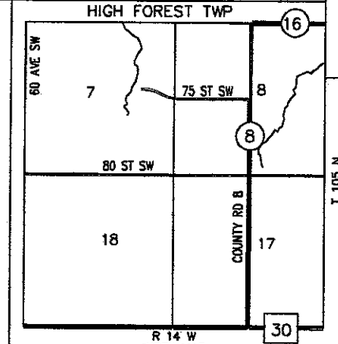








STA. 2+00 TO STA. 8+00





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 10/24/00

Stream or ditch designation UNNAMED

Drainage area 1.8 SQ MILES

Max. flood on record UNK Design flood (25 yr. freq.) 680 C.F.S.

Max. observed highwater elevation UNK Design highwater elevation 1190.2

Design mean velocity through structure 9.9 F.P.S.

Low superstructure at or above elevation .....

Flowline 1181.7 Skew angle 15°

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 1120 C.F.S. at stage 1194.6 and mean velocity of 14.7 F.P.S. with 5.4 Ft. swellhead. 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 .....

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

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

Location: .....

MINNESOTA
DEPARTMENT OF TRANSPORTATION

BRIDGE SURVEY

AT MILE POINT 0.77MI. W. OF C.S.A.H. 3 ON TWP.RD. 81 (T.H., C.S.A.H., C.R. etc.)

PROPOSED BRIDGE LOCATED 0.77 MILES WEST OF C.S.A.H. 8

SEC. 18 TWP. 105 N R 14 W

TOWNSHIP HIGH FOREST COUNTY OLMSTED

BRIDGE NO. 55J36

CERTIFIED BY Kaye M. Bierniak LIC. NO. 19917 3/1 2001
LICENSED PROFESSIONAL ENGINEER

State Aid Proj. No. 59-599-75 Sheet No. 3 of 15 Sheets

RES. DRIVE LT STA 1+75
INPL. 15" x 32' CMP
NO APRONS

RES. DRIVE LT STA 2+90
INPL. 15" x 18' CMP
NO APRONS

REMOVE 18 LIN. FT.

18" x 36' C.S. PIPE CULVERT
2 – 18" G.S. PIPE APRONS

50 CU YDS RIPRAP @ OUTLET

INPL. ℄ CULV. STA 4+88
66" x 60' CMP
INLET APRON ONLY

REMOVE 68 LIN. FT.

INPL. ℄ CULV. STA 5+14
72" x 58' CMP
NO APRONS

REMOVE 58 LIN. FT.

CONST. ℄ CULVERT STA. 5+10
12' x 7' x 64' P.C. BOX CULV. SKEW 15°
2–12' x 7' END SECTIONS

FIELD ENT. LT STA 7+30
NO CULVERT INPLACE

NO CULVERT REQUIRED

END PROJECT:
STA 8+00

BEGIN PROJECT:
STA 2+00

6 CU YDS RIPRAP @ INLET

RES. DRIVE RT STA 7+30
NO CULVERT INPLACE

NO CULVERT REQUIRED

FIELD ENT RT STA 9+45
INPL. 18" x 30' CMP
NO APRONS

DESIGN FINISH PROFILE

ORIGINAL GROUND

1209.49 1205.33 1203.38 1201.72 1200.33 1199.23 1198.40 1197.85 1197.58 1197.59 1197.88

1209.49 1205.27 1201.74 1199.14 1198.13 1197.68 1197.88

PVC = 3+00.00
ELEV = 1205.33

-4.16%

PVI = 5+00.00
ELEV = 1197.00
400' V.C.

PVT = 7+00.00
ELEV = 1197.59

0.29%

END INLET APRON
STA 4+97.80 @ 45.53' RT
EL. 82.00 WEIR EL. 85.00

END OUTLET APRON
STA 5+22.20 @ 45.53' RT
EL. 81.70

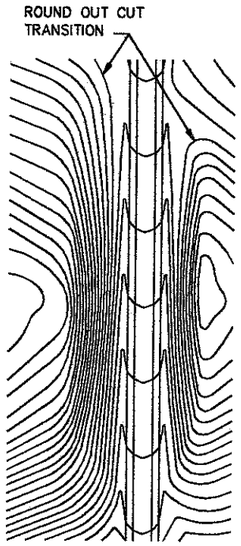
1240 1230 1220 1210 1200 1190 1180 1170 1160 1150

1+00 2+00 3+00 4+00 5+00 6+00 7+00 8+00 9+00 10+00

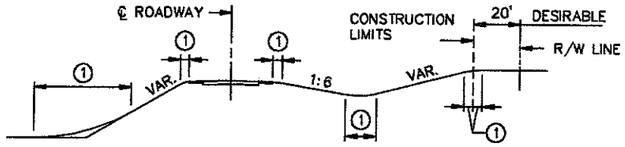
CERTIFIED BY Kaye M Brenick LICENSED PROFESSIONAL ENGINEER LIC. NO. 19917 3/1 2001

S.A.P. 55–599–75

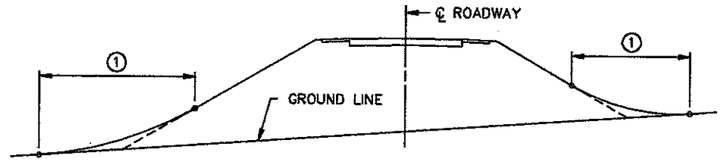
SHEET 4 OF 15 SHEETS



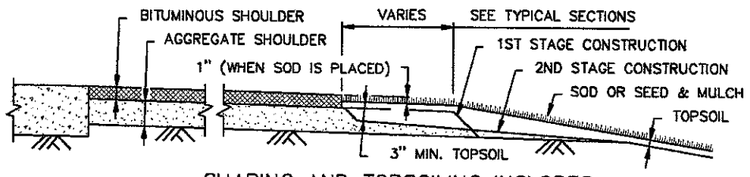
CONTOURING ROAD CUTS



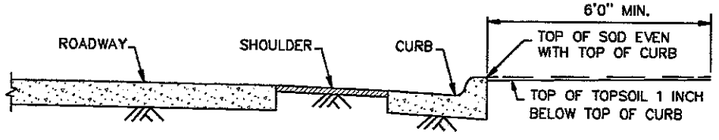
ROUNDING SHOULDERS AND BACKSLOPES



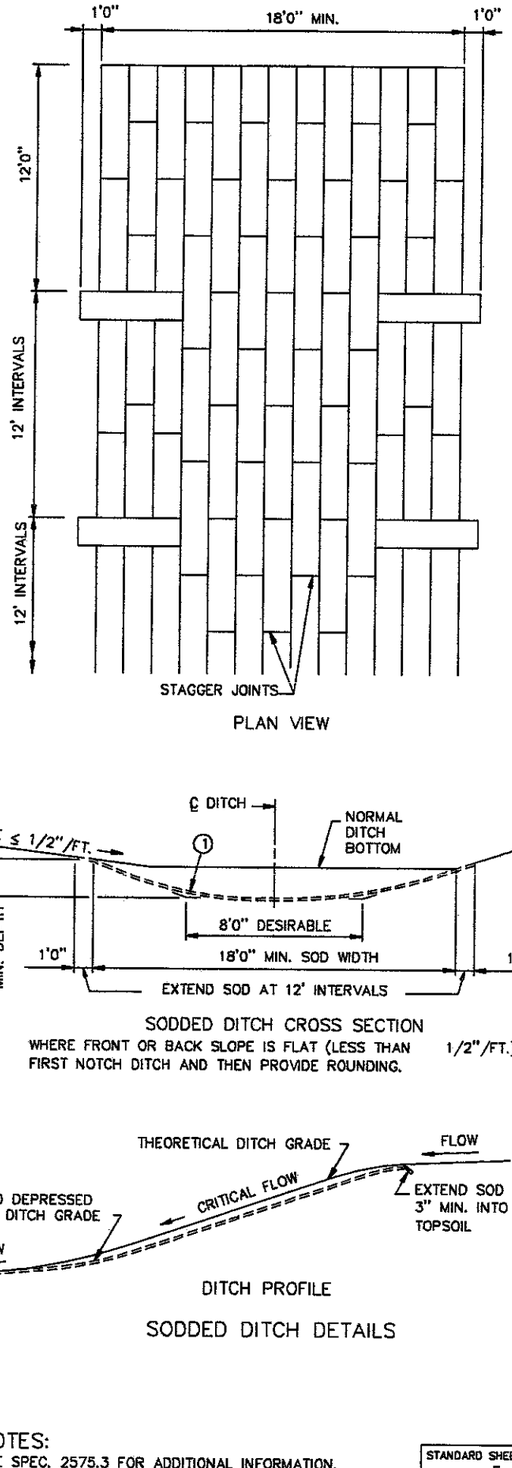
SHAPING FOR DRAINAGE ALONG THE TOE OF FILL SLOPES



SHAPING AND TOPSOILING INSLOPES



SHAPING ADJACENT TO CURBS WHEN SOD IS PLACED



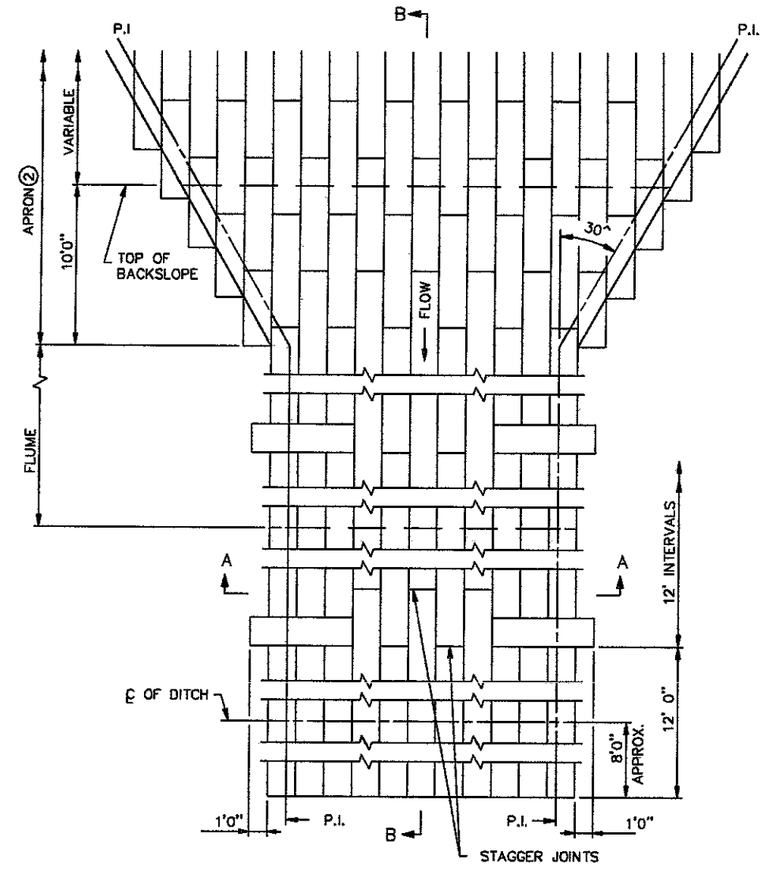
PLAN VIEW

SODDED DITCH CROSS SECTION

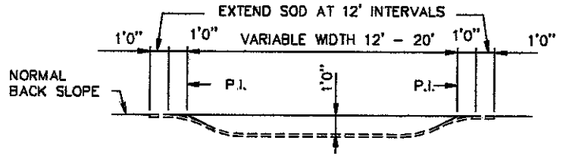
WHERE FRONT OR BACK SLOPE IS FLAT (LESS THAN 1/2"/FT.), FIRST NOTCH DITCH AND THEN PROVIDE ROUNDING.

DITCH PROFILE

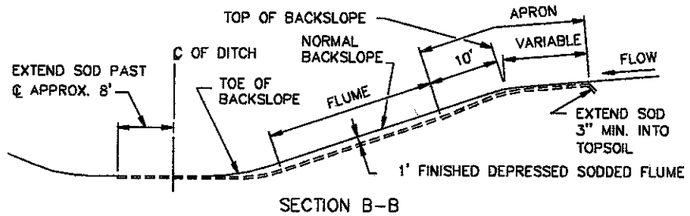
SODDED DITCH DETAILS



PLAN VIEW



SECTION A–A



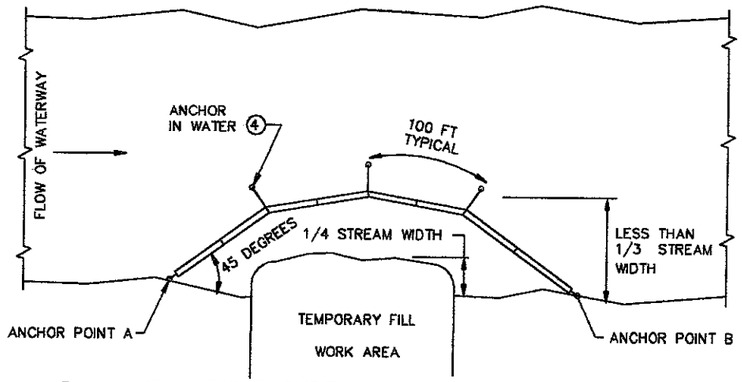
SECTION B–B

SODDED FLUME DETAILS

NOTES:
SEE SPEC. 2575.3 FOR ADDITIONAL INFORMATION.
① FOR ROUNDING, SEE ROAD DESIGN MANUAL.
② CONSTRUCT TAPER AS DIRECTED BY THE ENGINEER.

REVISION DATE
10-26-2000

STANDARD SHEET NO. 5-297.404	TITLE: PERMANENT EROSION CONTROL ALONG ROADWAYS, DITCHES AND FLUMES
STANDARD APPROVED: DECEMBER 19, 1990	
~~STATE PROJ. NO.~~ SAP 55-599-75	SHEET NO. 6 OF 15 SHEETS

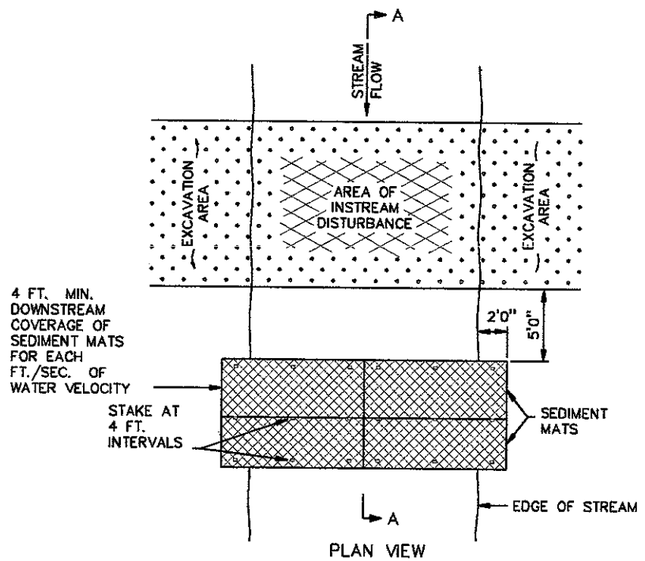


PLAN VIEW OF SILT CURTAIN ENCLOSING A WORK AREA

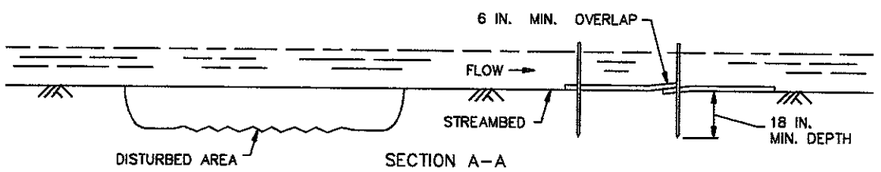
FOR CONTAINING OVERFLOWS FROM WEIRS, STANDPIPES, SETTLING PONDS

DESIGN GUIDELINES:

WHEN TEMPORARY FILL ENCROACHES LESS THAN 1/4 OF THE WIDTH OF STREAM.
MAXIMUM FLOW VELOCITY: 5 FT./SEC.
MAXIMUM FLOW DEPTH: 4 FT.



PLAN VIEW



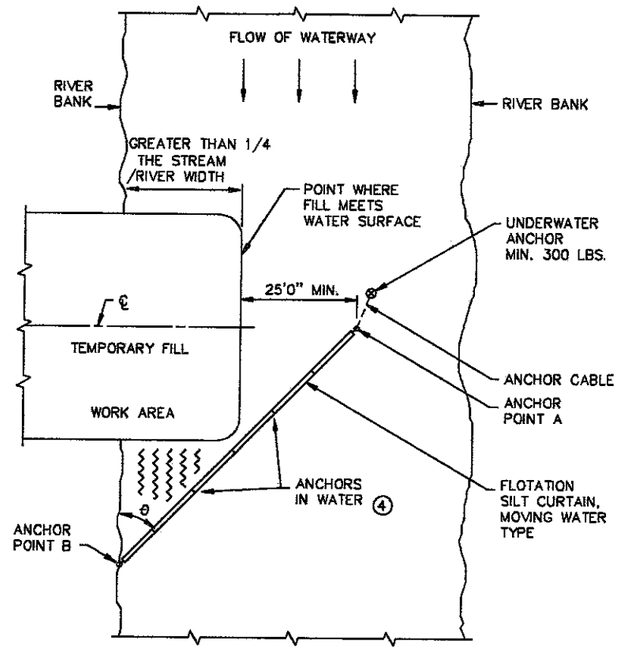
SECTION A–A

SEDIMENT MAT

TYPICAL STREAMBED INSTALLATION

DESIGN GUIDELINES:

MAXIMUM FLOW VELOCITY: 5 FT./SEC.
MAXIMUM FLOW DEPTH: 2 FT.

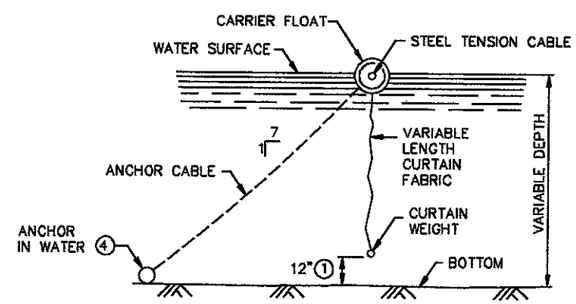


∠ θ	RIVER VELOCITY
45°	SLOW, LESS THAN 5 FT./SEC.
35°	MODERATE, 5 – 7 FT./SEC.

PLAN VIEW OF SILT CURTAIN – MOVING WATER

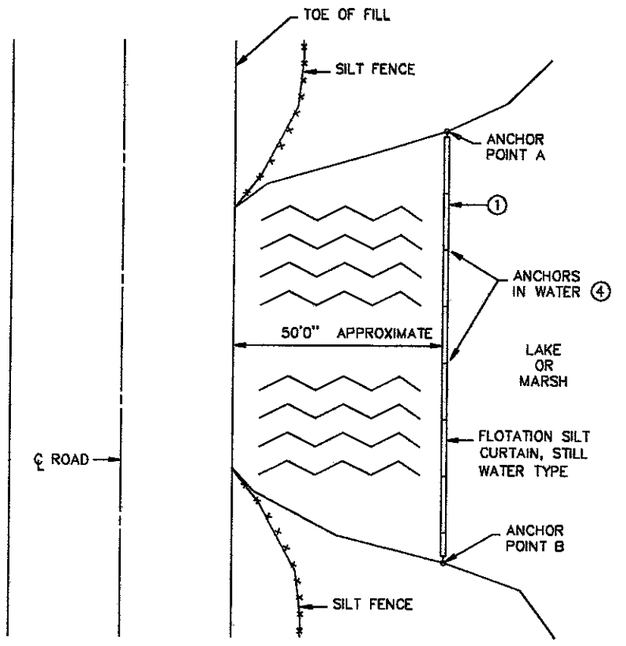
DESIGN GUIDELINES:

WHEN TEMPORARY FILL ENCROACHES MORE THAN 1/4 BUT LESS THAN 1/3 WIDTH OF THE STREAM.
MAXIMUM WATER DEPTH: 12 FT.
MINIMUM WATER DEPTH: 3 FT.
MAXIMUM WATER VELOCITY: 7 FT./SEC.



FLOTATION SILT CURTAIN DETAIL

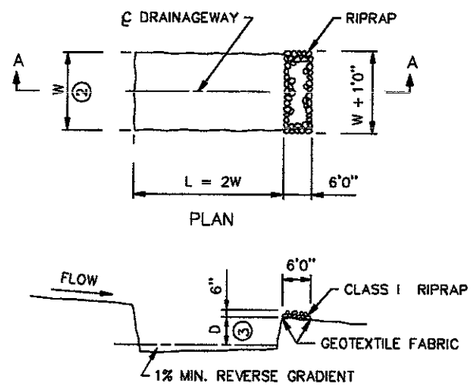
(SEE SPEC. 3887)



PLAN VIEW OF SILT CURTAIN – STILL WATER

DESIGN GUIDELINES:

MAXIMUM WATER DEPTH: 12 FT.
MINIMUM WATER DEPTH: 3 FT.



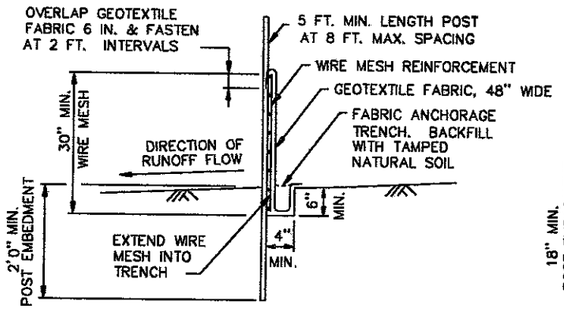
TEMPORARY SEDIMENT TRAP DETAIL

NOTES:

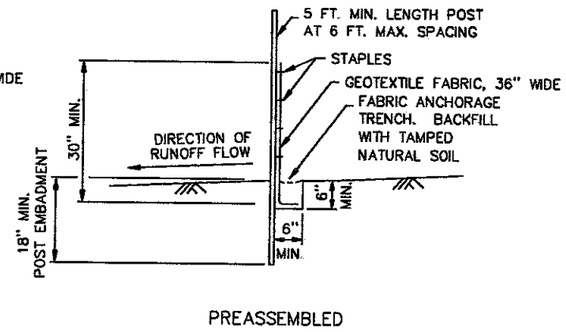
SEE SPECS. 2573, 3887 & 3894.

(1) CURTAIN 1 FT. FROM BOTTOM
(2) W = 10 FT. MIN., 20 FT. MAX.
(3) D = 2 FT.
(4) 100 FT MAXIMUM SPACING BETWEEN ANCHORS, MINIMUM 40 LBS.

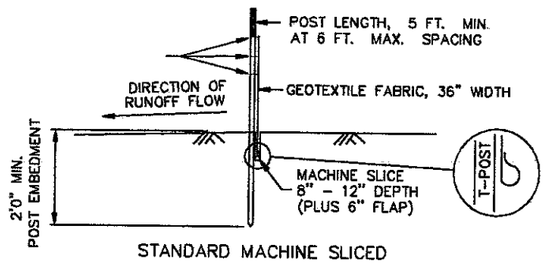
STANDARD SHEET NO. 5-297.405 (1 OF 4)	TITLE: TEMPORARY EROSION CONTROL
STANDARD APPROVED: SEPTEMBER 19, 2000	
~~STATE PROJ. NO.~~ SAP 55-599-75	SHEET NO. 7 OF 15 SHEETS



HEAVY DUTY



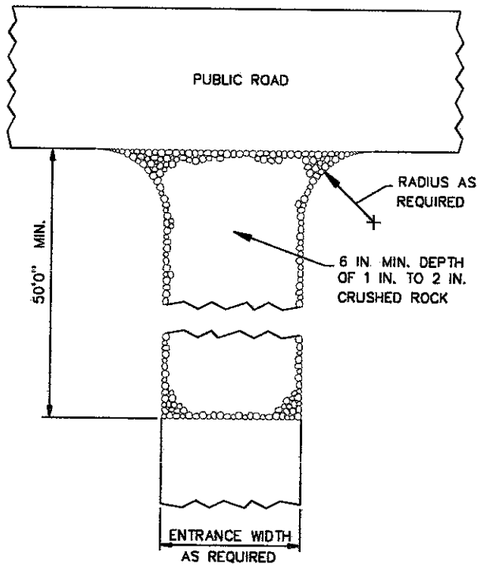
PREASSEMBLED



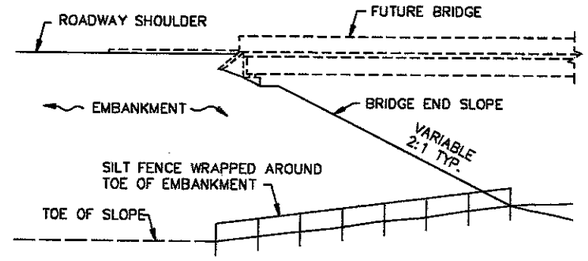
STANDARD MACHINE SLICED

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

DESIGN GUIDELINES:
MAXIMUM CONTRIBUTING AREA: 3 ACRES

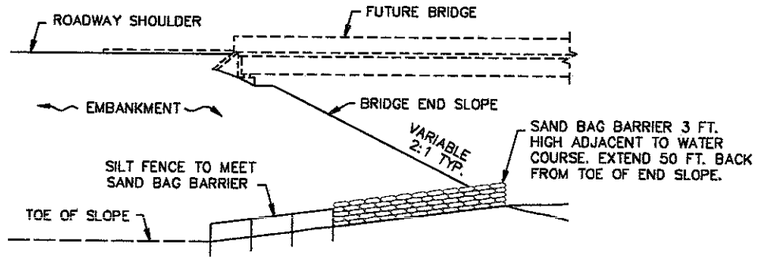


ROCK CONSTRUCTION ENTRANCE ①



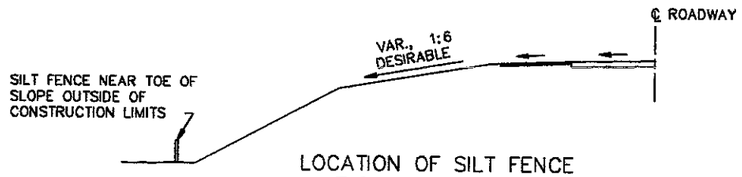
BRIDGE FILL

DESIGN GUIDELINES:
WATER COURSE FLOW VELOCITY: STAGNANT
CONTRIBUTING SLOPE AREA: 1/2 ACRE

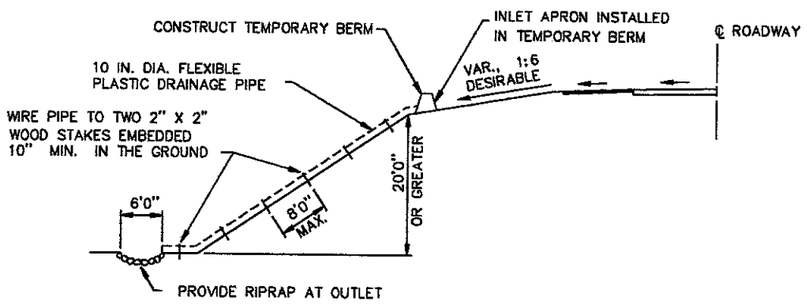


BRIDGE FILL

DESIGN GUIDELINES:
MAX. WATER COURSE FLOW VELOCITY: 7 FT./SEC.
CONTRIBUTING SLOPE AREA: 1 ACRE

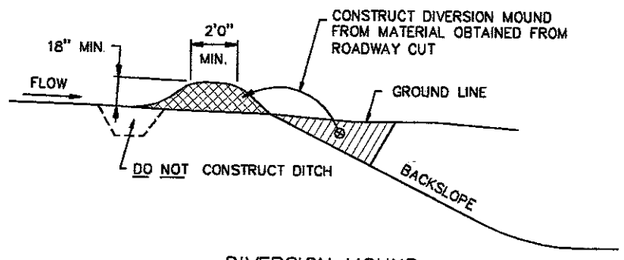


LOCATION OF SILT FENCE AT TOE OF ROADWAY EMBANKMENT



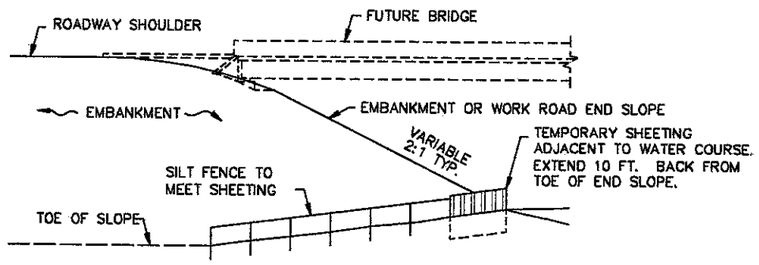
TEMPORARY DRAIN ON FILL SLOPE

DESIGN GUIDELINES:
STORM FREQUENCY: 2 YEAR – 24 HOUR
MAXIMUM DRAINAGE AREA: 3 ACRES



DIVERSION MOUND

DESIGN GUIDELINES:
STORM FREQUENCY: 10 YEAR – 24 HOUR
MAXIMUM DRAINAGE AREA: 5 ACRES
MAXIMUM DIVERSION: GRADE 5%



EMBANKMENT OR WORK ROAD FILL

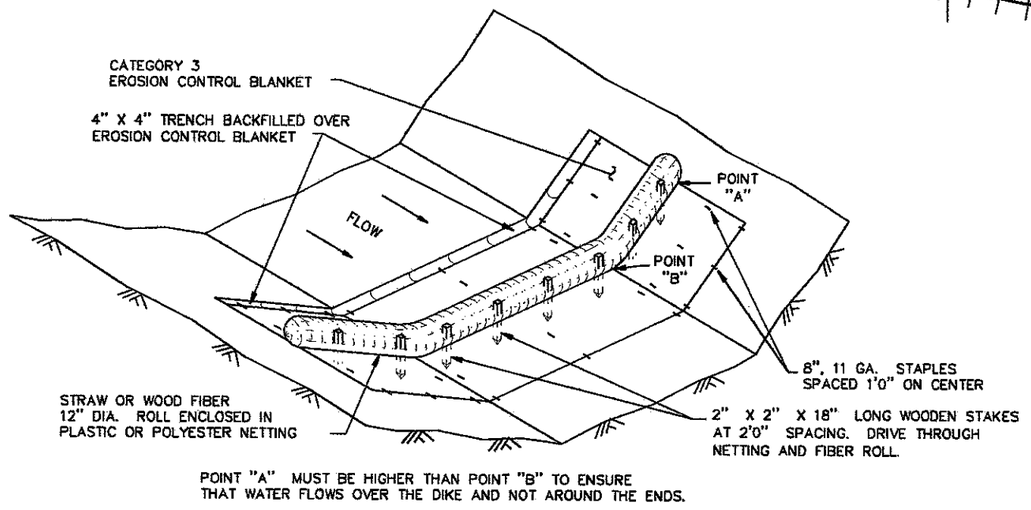
DESIGN GUIDELINES:
MAX. WATER COURSE FLOW VELOCITY: 15 FT./SEC.
CONTRIBUTING SLOPE AREA: 3 ACRES

SILT FENCE AT BRIDGE EMBANKMENT

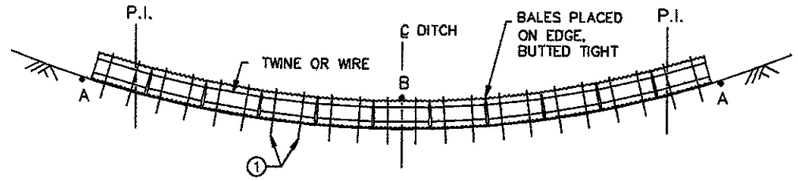
NOTES:
SEE SPECS. 2573 & 3886.

① ROCKS AT ENTRANCE CLEAN WORKSITE MUD OFF OF TRUCK TIRES BEFORE DRIVING ON MAIN ROAD. THIS WILL PREVENT AUTO DAMAGE. WE NEED TO KEEP CONSTRUCTION SEDIMENT OUT OF DRAINAGE SYSTEMS AND WETLANDS.

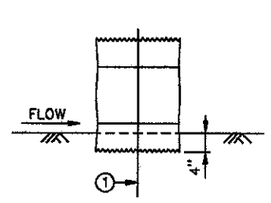
STANDARD SHEET NO. 5-297.405 (2 OF4)	TITLE: TEMPORARY EROSION CONTROL
STANDARD APPROVED: SEPTEMBER 19, 2000	
~~STATE PROJ. NO.~~ SAP 55-599-75	SHEET NO. 8 OF 15 SHEETS



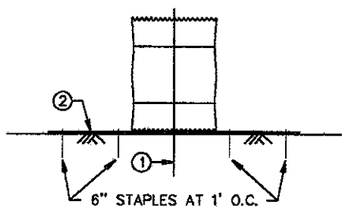
BIOROLL BLANKET SYSTEM DITCH CHECK



BALE DITCH SEDIMENT CHECK



EMBEDMENT METHOD

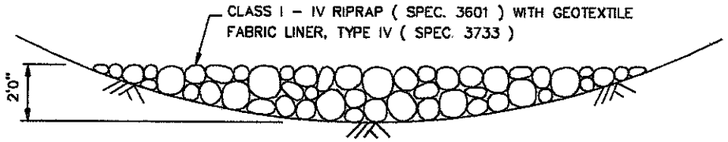


BLANKET METHOD

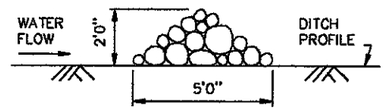
BALE CHECK DETAIL

DESIGN GUIDELINES:

	BALE	ROCK
STORM FREQUENCY:	2 YR. – 24 HR.	10 YR. – 24 HR.
MAX. FLOW VELOCITY:	5 FT./SEC.	12 FT./SEC.
MAX. DITCH GRADE:	5%	—
MAX. DRAINAGE AREA:	2 ACRES	5 ACRES

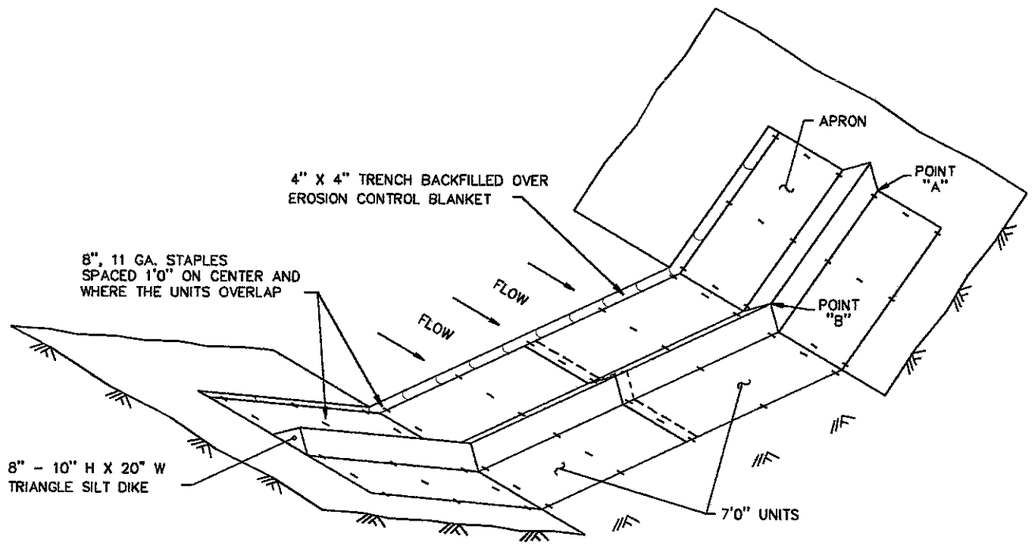


CROSS SECTION

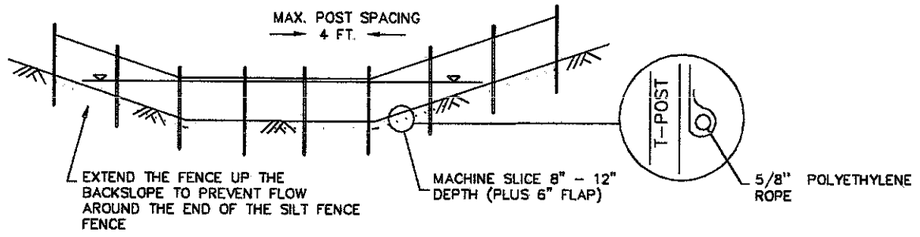


PROFILE VIEW

ROCK DITCH CHECK



GEOTEXTILE TRIANGULAR DIKE DITCH CHECK



SPACING DISTANCE = SILT FENCE HEIGHT / % CHANNEL SLOPE

DESIGN GUIDELINES	
STORM FREQUENCY	2 YR.– 24 HR.
MAX. DITCH GRADE	5%
MAX. DRAINAGE AREA	1 ACRE

NOTE:
WHEN SEDIMENT BUILD UP REACHES 1.5 FT., THE SILT SHOULD BE REMOVED OR A SECOND SILT FENCE BUILT UPSTREAM FROM THE EXISTING ONE AT A SUITABLE DISTANCE.

SILT FENCE DITCH CHECK, TYPE MACHINE SLICED

NOTES:

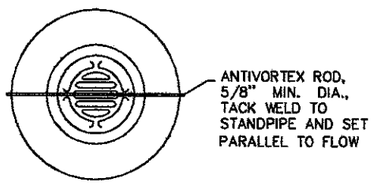
SEE SPECS. 2573, 3885, 3886 & 3889.

SPACING OF DITCH CHECKS IS DEPENDENT ON DRAINAGE AREA AND GRADES. SEE DISTRICT HYDRAULICS ENGINEER FOR RECOMMENDATIONS.

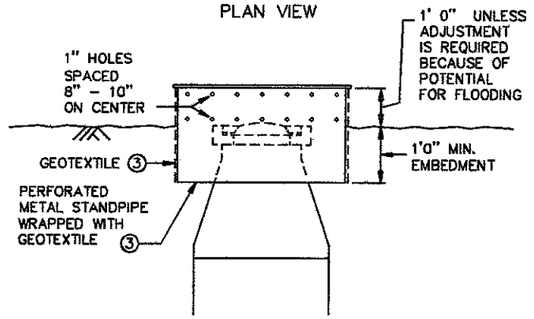
① TWO 2 IN. X 2 IN. WOOD STAKES OR REINFORCING BARS IN EACH BALE. AND EMBEDDED IN THE GROUND 10 IN. MINIMUM.

② PLACE A CATEGORY 3 EROSION CONTROL BLANKET, 6 FT. WIDE MINIMUM, UNDER THE BALE DITCH CHECK INSTEAD OF TRENCHING.

STANDARD SHEET NO. 5-297.405 (3 OF4)	TITLE: TEMPORARY EROSION CONTROL DITCH CHECKS
STANDARD APPROVED: SEPTEMBER 19, 2000	
~~STATE PROJ. NO.~~ SAP 55-599-75	SHEET NO. 9 OF 15 SHEETS



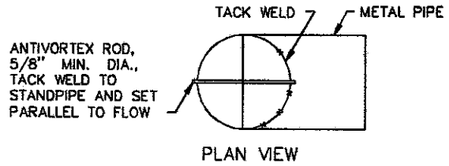
PLAN VIEW



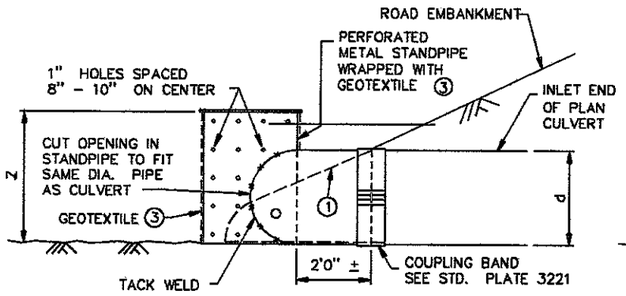
ELEVATION

TEMPORARY STANDPIPE
TO PROTECT DROP INLET
TYPE A SPEC. 3891

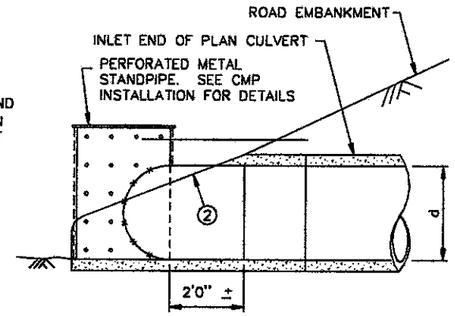
DESIGN GUIDELINES:
STORM FREQUENCY: 10 YEAR. – 24 HOUR.



PLAN VIEW



ELEVATION OF CMP INSTALLATION

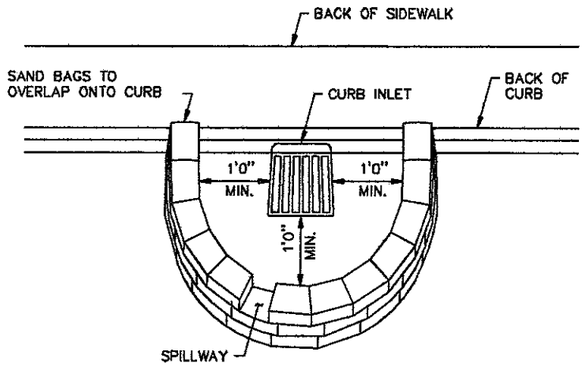


ELEVATION OF RCP INSTALLATION

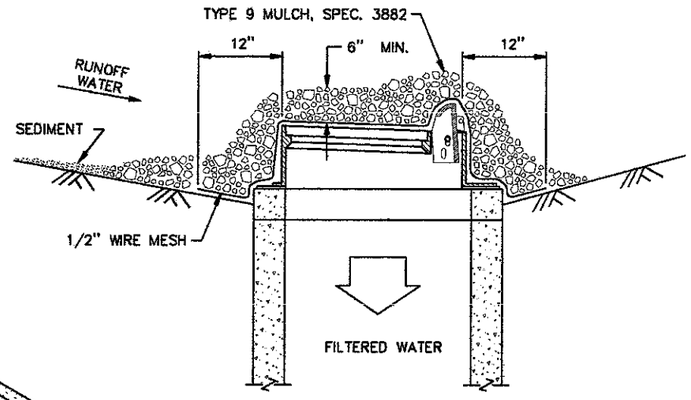
TEMPORARY STANDPIPE
FOR SEDIMENT CONTROL ON CULVERT INLET
TYPE D SPEC. 3891

d = DIA. OF STANDPIPE EQUAL TO DIA. OF PLAN CULVERT
Z = LENGTH OF PERFORATED STANDPIPE (d + 12")

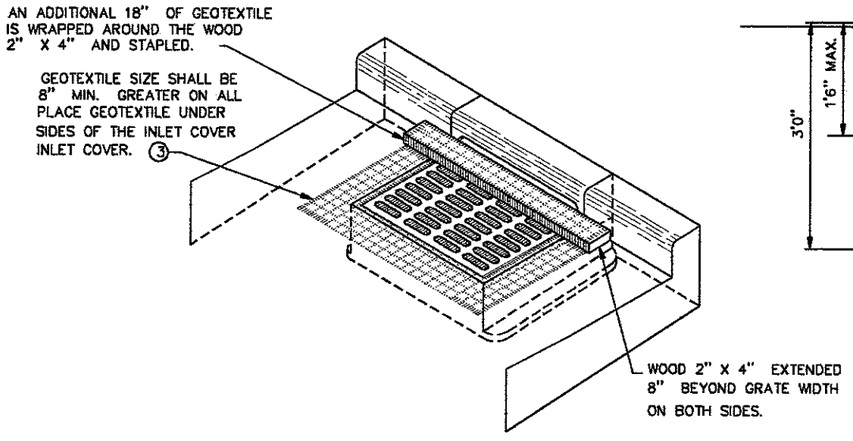
DESIGN GUIDELINES:
CULVERT SIZE: 12" – 36"
STORM FREQUENCY: 10 YR. – 24 HR.



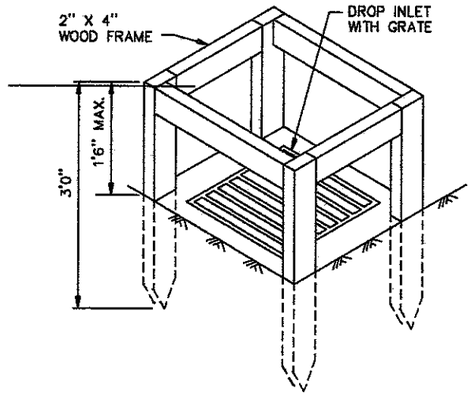
CURB INLET SAND BAG BARRIER
THIS INLET PROTECTION IS USED BEFORE THE ROAD IS PAVED
TYPE B OR C SPEC. 3891

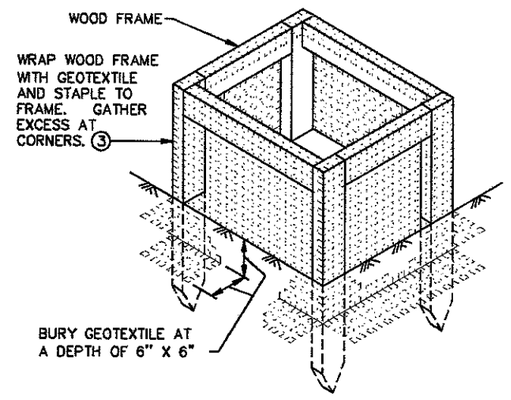


AGGREGATE FILTER AT CURB INLET
TYPE B OR C SPEC. 3891



SILT FENCE BOX TO PROTECT DROP INLETS
TYPE A SPEC. 3891





SILT FENCE BOX TO PROTECT DROP INLETS
USE WHERE INLET DRAINS AN AREA WITH SLOPES AT 1:3 or LESS
TYPE A SPEC. 3891

NOTES:
SEE SPECS. 2573, 3891 & 3893.

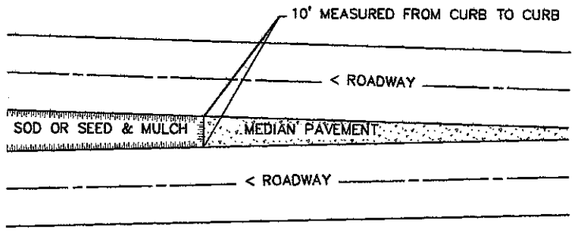
MANUFACTURED ALTERNATIVES LISTED ON Mn/DOT'S APPROVED PRODUCTS LIST MAY BE SUBSTITUTED.

(1) FOR CMP, REMOVE TEMPORARY STANDPIPE AND INSTALL CULVERT APRON AFTER VEGETATION IS ESTABLISHED

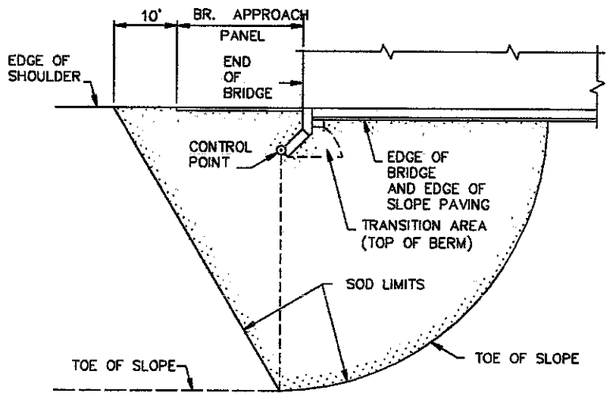
(2) FOR RCP, INSTALL CULVERT APRON AND SLIDE ESTABLISHED, TEMPORARY STANDPIPE INTO RCP. AFTER VEGETATION IS ESTABLISHED REMOVE TEMPORARY STANDPIPE.

(3) ALL GEOTEXTILE USED FOR INLET PROTECTION SHALL BE MONO/MONO, MEETING SPEC. 3886 FOR MACHINE SLICED.

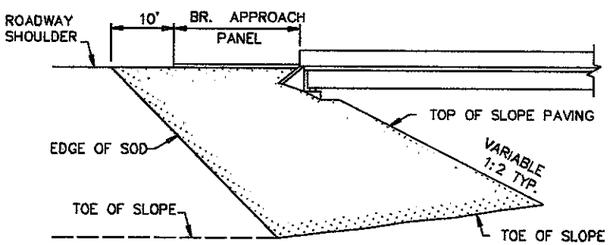
STANDARD SHEET NO. 5-297.405 (4 OF 4)	TITLE: TEMPORARY EROSION CONTROL TEMPORARY INLET PROTECTION
STANDARD APPROVED: SEPTEMBER 19, 2000	
~~STATE PROJ. NO.~~ SAP 55-599-75	SHEET NO. 10 OF 15 SHEETS



SODDING LIMITS AT GORE AREA

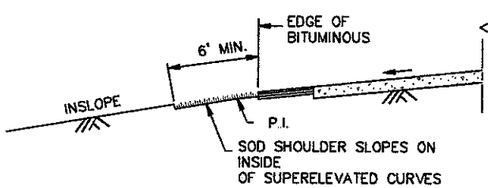


PLAN

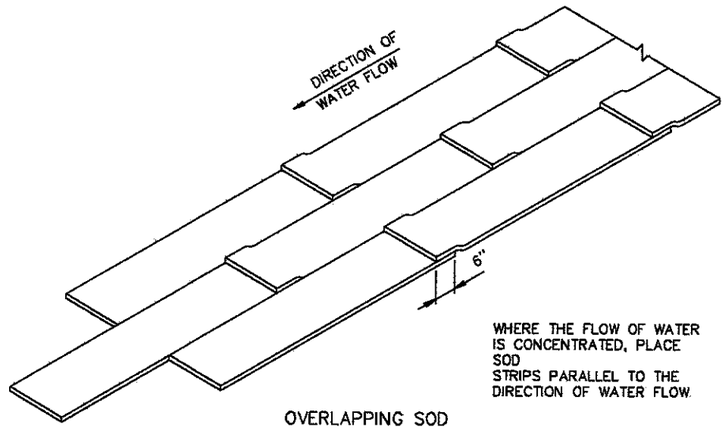


ELEVATION

SODDING LIMITS AT BRIDGE APPROACH FILLS

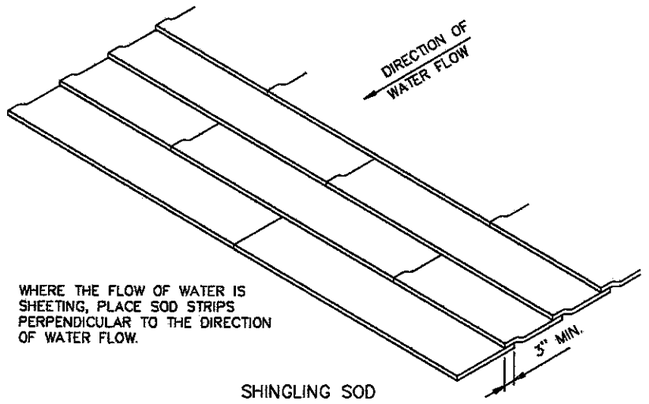


SODDING INSLOPES OF SUPERELEVATED CURVES



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

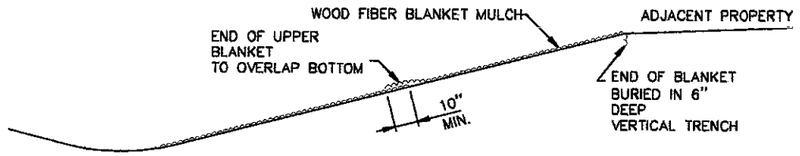
OVERLAPPING SOD



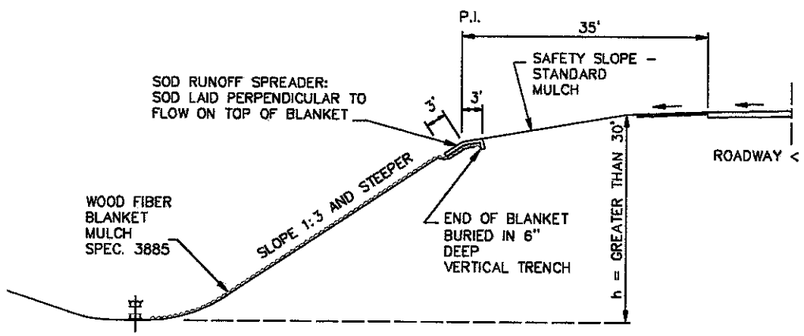
WHERE THE FLOW OF WATER IS SHEETING, PLACE SOD STRIPS PERPENDICULAR TO THE DIRECTION OF WATER FLOW.

SHINGLING SOD

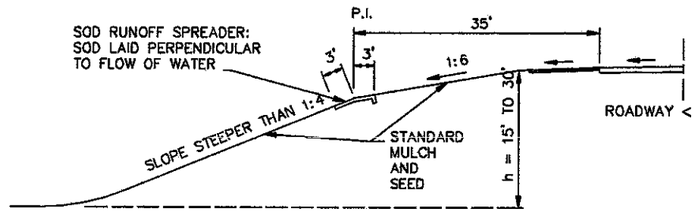
SPECIAL SOD PLACEMENT TECHNIQUES



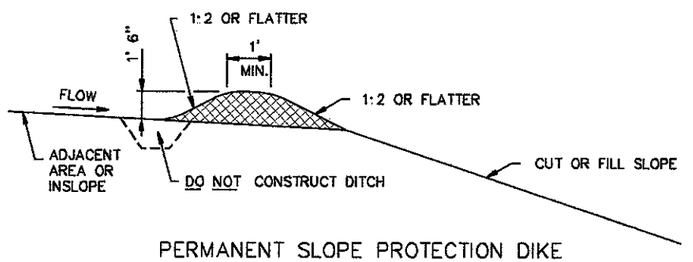
WOOD FIBER BLANKET INSTALLATION ON A CUT SLOPE



WOOD FIBER BLANKET INSTALLATION ON AN INSLOPE
(WHEN REQUIRED)



BROKEN-BACK SAFETY FILL SLOPE

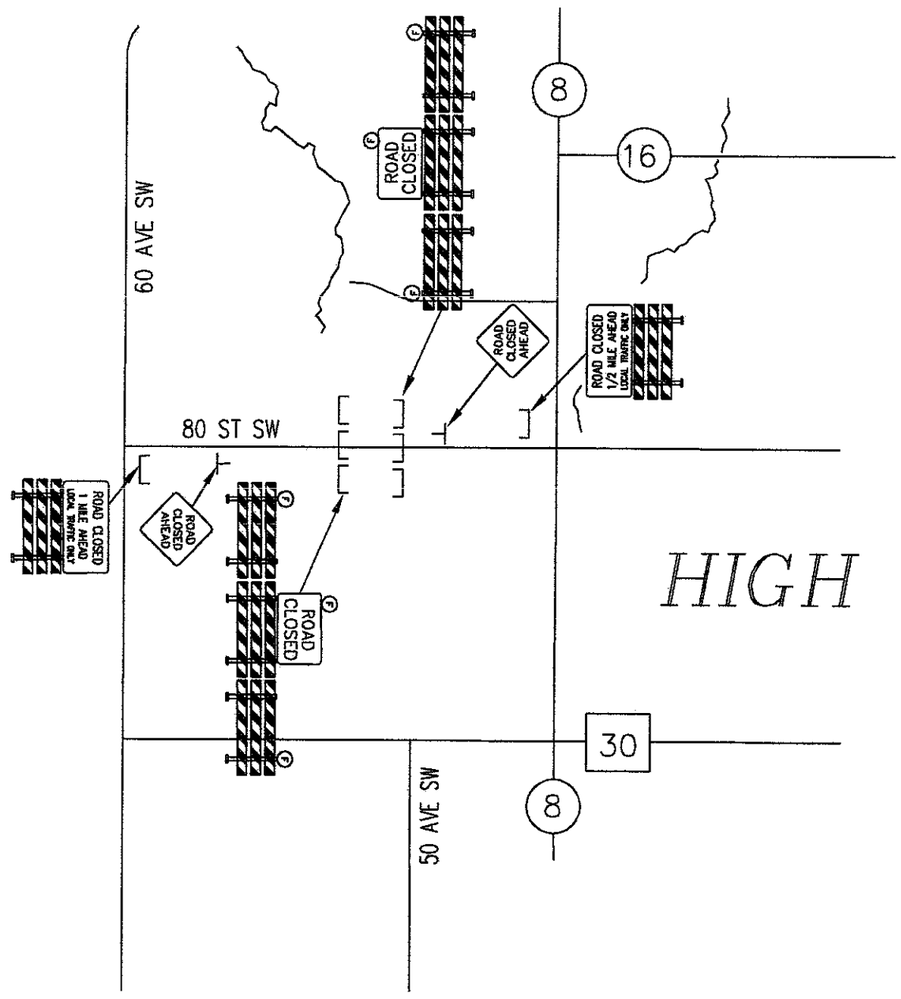


PERMANENT SLOPE PROTECTION DIKE

STANDARD SHEET NO. 5-297.406	TITLE: PERMANENT EROSION CONTROL ALONG ROADWAYS AND AT GORE AREAS & BRIDGE APPROACH FILLS
STANDARD APPROVED: JANUARY 31, 1985	
REVISION DATE 10-26-2000	~~STATE PROJ. NO.~~ SAP 55-599-75 SHEET NO. 11 OF 15 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	8
ROAD CLOSED 1/2 MILE AHEAD LOCAL TRAFFIC ONLY	R11-3	60 x 30	BLK/WH	2	(F)	TYPE A	FLASHING LAMP	AMBER	6
ROAD CLOSED AHEAD	W20-3	48 x 48	BLK/OR	2					

ALL COSTS INCURRED FOR MATERIALS, INSTALLATION, AND MAINTENANCE OF TRAFFIC CONTROL AS SHOWN ON THIS SHEET, AND RELATED WORK DURING CONSTRUCTION SHALL BE CONSIDERED AN INCIDENTIAL EXPENSE.

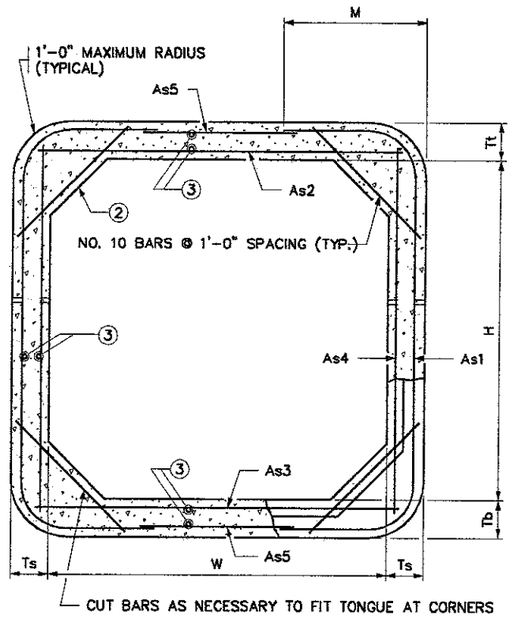


TRAFFIC CONTROL LEGEND

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

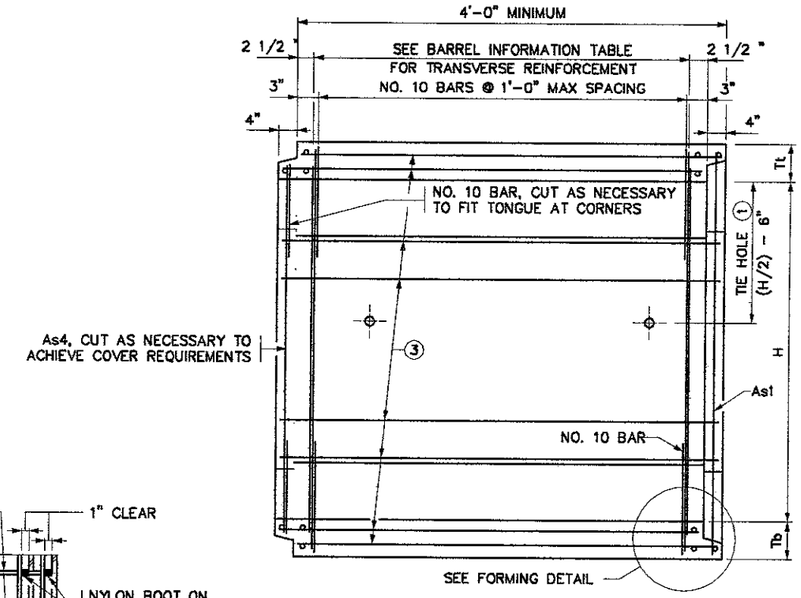
TRAFFIC CONTROL NOTES

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 2001.
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.



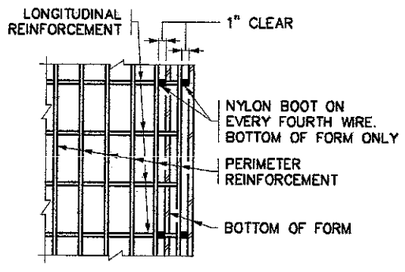
TRANSVERSE BARREL SECTION

BAR REINFORCEMENT OPTION SHOWN

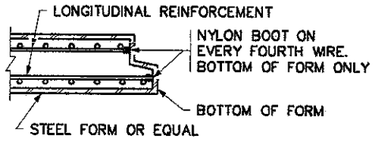


LONGITUDINAL BARREL SECTION

BAR REINFORCEMENT OPTION SHOWN

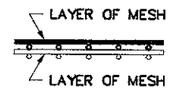


PLAN



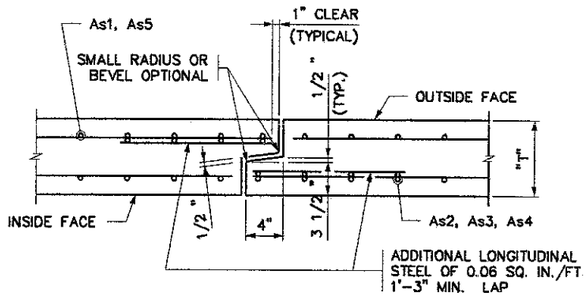
SECTION

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 Mn/DOT SPEC. 2412 EXCEPT AS NOTED.

FILL HEIGHTS OF LESS THAN 2'-0" REQUIRE A DISTRIBUTION SLAB. SEE FIG. 5-395.100(A) AND FIG. 5-395.100(B) FOR ADDITIONAL INFORMATION.

IF THE DISTANCE BETWEEN DOUBLE BARRELS IS LESS THAN 2'-0" USE EITHER PEA ROCK OR LEAN MIX BACKFILL(Mn/DOT SPEC. 2520) BETWEEN THE CULVERTS AS APPROVED BY THE ENGINEER. (ALSO, PROVIDE APPROVED GROUT SEEPAGE CORE, MINIMUM 12" THICK, BETWEEN THE CULVERT'S TWO ENDS.) MINIMUM DISTANCE REQUIRED IS 6".

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. 19. 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" NOR MORE THAN 4". THE SPACING CENTER TO CENTER OF THE LONGITUDINAL WIRES SHALL NOT BE MORE THAN 8".

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.

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

SHOP DRAWING APPROVAL PER Mn/DOT SPEC. 3238.2A IS NOT REQUIRED UNLESS OPENINGS OR ATTACHMENTS ARE PLACED ON A BARREL SEGMENT.

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

(2) HAUNCH SIZE AS FOLLOWS:
6'-0" AND 8'-0" WIDTHS - 6" TO 12"
10'-0" WIDTH - 10" TO 12"
12'-0" AND 14'-0" WIDTHS - 12"

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

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.)
5+10	12' x 7'	2	5000	2-8	10	7	9	10	8	4785	0.74	13'-9"	3'-3"	1.03	12'-6"	1.06	12'-6"	0.20	7'-6"	0.06	8'-9"

REVISION:

APPROVED: DECEMBER 11, 2000

STATE BRIDGE ENGINEER

~~STATE PROJ. NO.~~ S.A.P. 55-599-75 HIGH FOREST TWP

FIG. 5-395.101(A)

CERTIFIED BY Kaye M Briesch LICENSED PROFESSIONAL ENGINEER

LIC. NO. 19917 3/23 2001

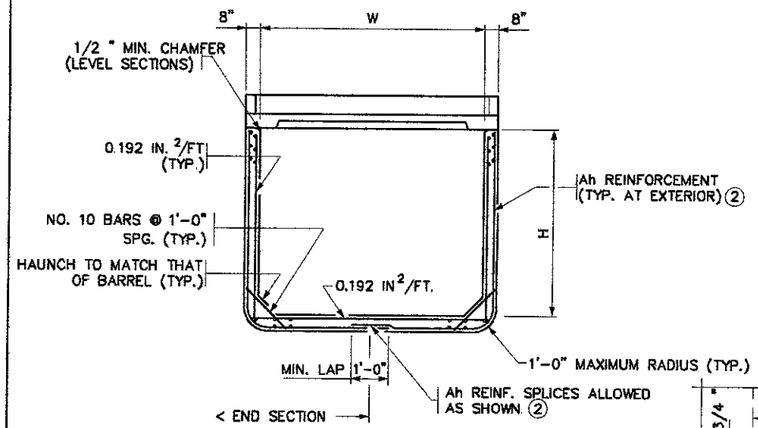
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DES: DR: APPROVED:

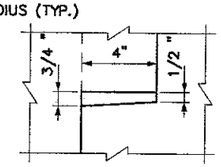
CHK: CHK:

SHEET NO. 13 OF 15 SHEETS

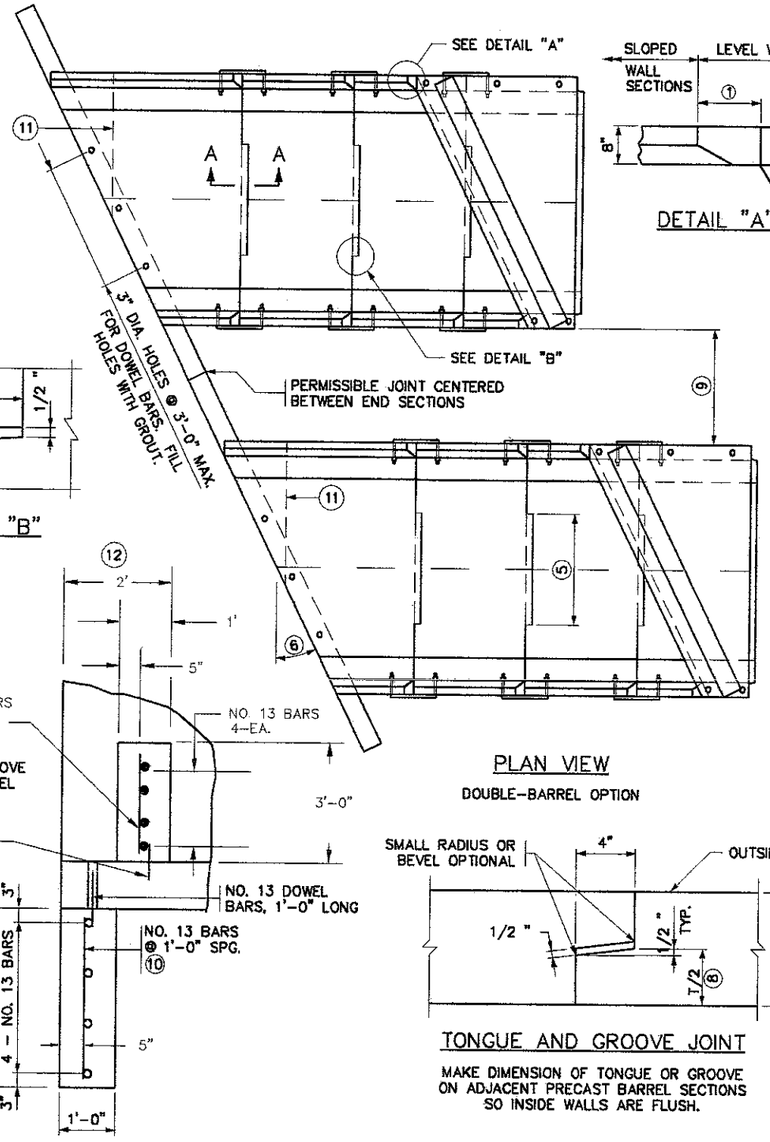
BRIDGE NO. 55J36



END VIEW



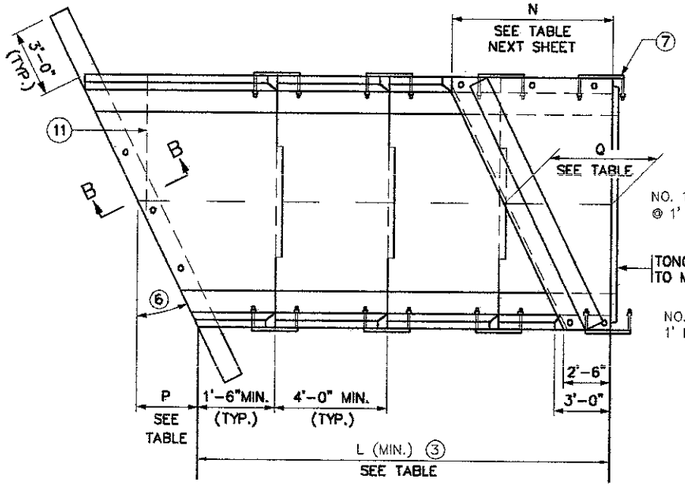
DETAIL "B"



PLAN VIEW

DOUBLE-BARREL OPTION

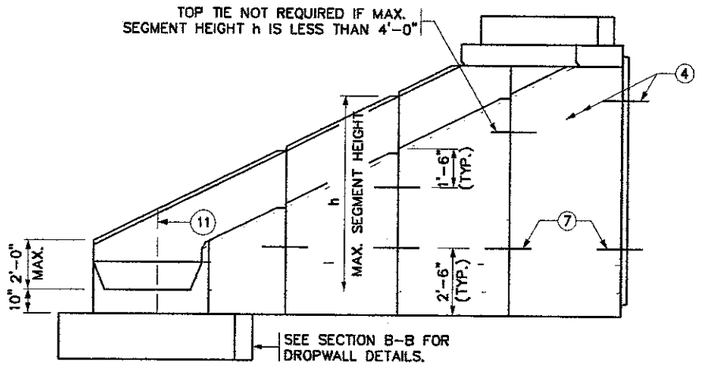
DETAIL "A"



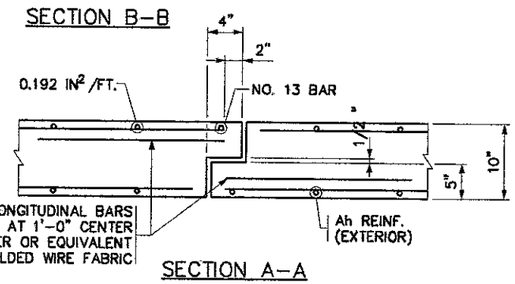
PLAN VIEW

SINGLE BARREL OPTION

SECTION B-B



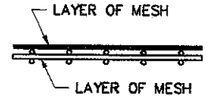
ELEVATION



SECTION A-A

TONGUE AND GROOVE JOINT

MAKE DIMENSION OF TONGUE OR GROOVE ON ADJACENT PRECAST BARREL SECTIONS SO INSIDE WALLS ARE FLUSH.



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

SEE FIG. 5-395.101(A) AND FIG. 5-393.101(B) FOR ADDITIONAL DIMENSIONS AND CONSTRUCTION NOTES.

ON ALL END SECTIONS FOR WATERWAYS, USE DROPWALLS ON INLET AND OUTLET ENDS.

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

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

DROPWALL CONCRETE SHALL BE MIX NO. 1A43 OR 3Y43. LIMITS FOR DROPWALL EXCAVATION TO BE APPROXIMATELY THE SAME AS DROPWALL DIMENSIONS. FURNISHING AND INSTALLATION OF DROPWALL TO BE INCLUDED IN PRICE BID FOR END SECTIONS.

LONGITUDINAL REINFORCEMENT SHALL BE A MINIMUM OF 0.06 SQ. IN. PER FT. ON BOTH FACES.

NO TONGUE OR GROOVE REQUIRED IN WALLS BETWEEN END SECTIONS.

SEE FIG. 5-395.115 FOR EMBANKMENT PROTECTION.

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) 8 1/8 " @ 15°; 10 5/8 " @ 30°; 1'-2" @ 45°

(2) SEE FIG. 5-395.110(B) FOR REINFORCEMENT TABLES.

(3) NUMBER OF SECTIONS VARIES WITH "H" DIMENSION.

(4) EXCEPT AS NOTED, CULVERT TIES ARE TO BE 1" DIA RODS. SEE STANDARD PLATE NO. 3145 FOR DETAILS.

(5) 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 < OF EACH APRON JOINT.

(6) FOR SKEW ANGLES OVER 7 1/2° UP TO 22 1/2°, USE A 15° SKEW END SECTION. FOR SKEW ANGLES OVER 22 1/2° UP TO 37 1/2°, USE A 30° SKEW END SECTION. FOR SKEW ANGLES OVER 37 1/2 ° UP TO 45°, USE A 45° SKEW END SECTION.

(7) PROVIDE EXTRA STRONG CONNECTION AT LOCATION SHOWN; REQUIRED ONLY ON HIGH FILL SIDE FOR 45° SKEW END SECTIONS OVER 6'-0" HIGH. SEE FIG. 5-395.110(B) FOR DETAILS.

(8) DIMENSION "T" IS EQUAL TO Tt, Tb OR Ts.

(9) IF THE DISTANCE BETWEEN DOUBLE BARRELS IS LESS THAN 2'-0" USE EITHER PEA ROCK OR LEAN MIX BACKFILL (Mn/DOT SPEC. 2520) BETWEEN THE CULVERTS AS APPROVED BY THE ENGINEER. (ALSO, PROVIDE APPROVED GROUT SEEPAGE CORE, MINIMUM 12" THICK, BETWEEN THE CULVERT'S TWO ENDS.) MINIMUM DISTANCE REQUIRED BETWEEN DOUBLE BARRELS IS 6".

(10) AS AN ALTERNATE TO THE ONE LAYER MESH CONTRACTOR MAY PROVIDE TWO LAYERS OF REBAR OR WIRE MESH WITH THE STEEL AREA EQUAL TO HALF OF THE TEMPERATURE STEEL PER CODE REQUIREMENTS IN EACH FACE OF THE DROPWALL.

(11) ON THE LAST SEGMENT OF THE 45° SKEWED APRONS, A TRANSVERSE JOINT IN THE BOTTOM IS PERMITTED. A SPECIAL TIE, SIMILAR TO THE SIDE TIE, MUST BE PROVIDED. THE TIE SHALL BE INSET AND THE SPACE FILLED WITH AN APPROVED GROUT.

(12) WEIR TO BE CONSIDERED INCIDENTAL TO ITEM NO. 2412.512

MIN. LENGTH L			
HEIGHT H (FT.)	15° SKEW	30° SKEW	45° SKEW
4	7'-1 3/4 "	7'-7 3/8 "	8'-7 7/8 "
5	9'-2 1/2 "	9'-11 1/8 "	11'-5 7/8 "
6	11'-3 3/8 "	12'-2 7/8 "	14'-3 3/4 "
7	13'-4 1/4 "	14'-6 5/8 "	17'-1 3/4 "
8	15'-5 1/8 "	16'-10 1/4 "	19'-11 5/8 "
9	17'-5 7/8 "	19'-2"	22'-9 5/8 "
10	19'-6 3/4 "	21'-5 3/4 "	25'-7 1/2 "
11	21'-7 5/8 "	23'-9 3/8 "	28'-5 1/2 "
12	23'-8 1/2 "	26'-1 1/8 "	31'-3 3/8 "
13	25'-9 3/8 "	28'-4 7/8 "	34'-1 3/8 "
14	27'-10 1/8 "	30'-8 1/2 "	36'-11 1/4 "

LENGTH P			
WIDTH W (FT.)	15° SKEW	30° SKEW	45° SKEW
6	0'-11 3/4 "	2'-1 3/8 "	3'-8"
8	1'-3"	2'-8 3/8 "	4'-8"
10	1'-6 1/4 "	3'-3 1/4 "	5'-8"
12	1'-9 3/8 "	3'-10 1/4 "	6'-8"
14	2'-0 5/8 "	4'-5 1/8 "	7'-8"

LENGTH Q			
WIDTH W (FT.)	15° SKEW	30° SKEW	45° SKEW
6	3'-5 3/4 "	4'-7 3/8 "	6'-2"
8	3'-9"	5'-2 3/8 "	7'-2"
10	4'-0"	5'-9 1/4 "	8'-2"
12	4'-3 3/8 "	6'-4 1/8 "	9'-2"
14	4'-6 5/8 "	6'-11 1/8 "	10'-2"

REVISION:

APPROVED: DECEMBER 11, 2000

Donald J. Flemming
STATE BRIDGE ENGINEER

* MODIFIED

CERTIFIED BY Kaye M Bierneck
LICENSED PROFESSIONAL ENGINEER
LIC. NO. 19917 3/23 2001

~~STATE PROJ. NO.~~ S.A.P. 55-599-75

FIG. 5-395.110(A)

TITLE: PRECAST CONCRETE END SECTION TYPE III - SINGLE OR DOUBLE BARREL FOR SKEWS 7 1/2 ° TO 45°

DES: DR: APPROVED:
CHK: CHK:

SHEET NO. 14 OF 15 SHEETS

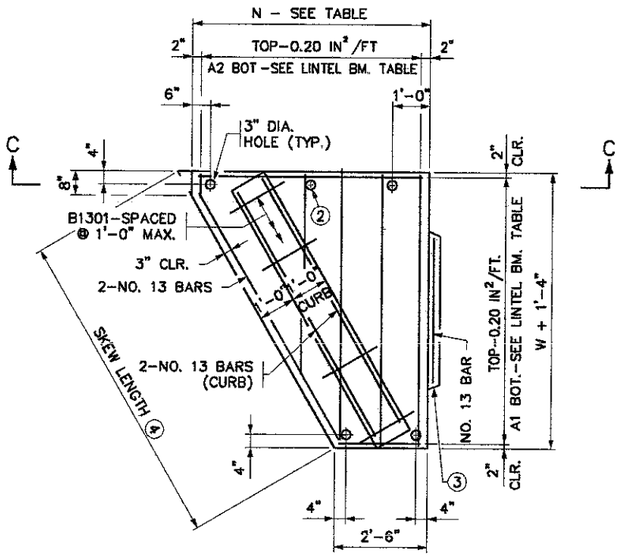
BRIDGE NO. 55J36

Ah REINFORCEMENT		
HEIGHT h (FT.)	Ah (IN^2/FT.)	
	15° & 30° SKEW	45° SKEW
7 OR LESS	0.192	0.192
8	0.20	0.24
9	0.29	0.36
10	0.42	0.53
11	0.60	0.75
12	0.78	0.98
13	1.03	1.36
14	1.38	1.85

NOTE: h IS THE LARGEST VERTICAL DIMENSION OF THE SEGMENT

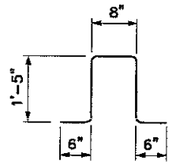
LINTEL BEAM REINFORCEMENT		
WIDTH W (FT.)	BOTTOM REINFORCEMENT	
	A1	A2
6	NO. 13 @ 1'-6"	NO. 13 @ 1'-4"
8	NO. 13 @ 1'-1"	NO. 13 @ 9"
10	NO. 13 @ 9"	NO. 13 @ 6"
12	NO. 16 @ 9"	NO. 16 @ 6"
14	NO. 19 @ 9"	NO. 22 @ 6"

LENGTH N			
WIDTH W (FT.)	15° SKEW	30° SKEW	45° SKEW
6	4'-3 3/8 "	6'-4 1/4 "	9'-2"
8	4'-9 7/8 "	7'-6"	11'-2"
10	5'-4 1/4 "	8'-7 7/8 "	13'-2"
12	5'-10 3/4 "	9'-9 3/4 "	15'-2"
14	6'-5 1/8 "	10'-11 5/8 "	17'-2"

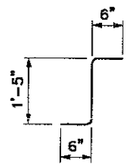


PLAN VIEW

LINTEL BEAM WITH INTEGRAL CURB



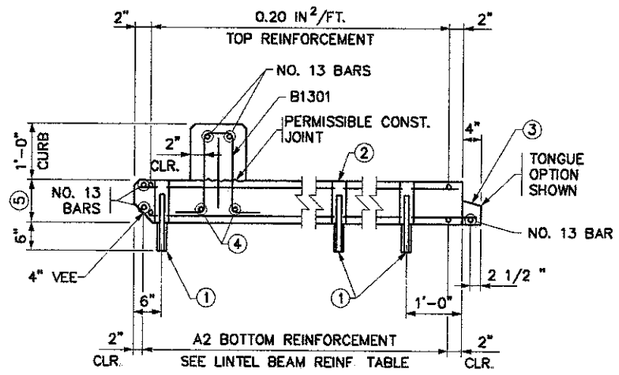
B1301



B1301 ALTERNATE

⑥

2 REQUIRED



SECTION C–C

CONSTRUCTION NOTES

ALL END SECTIONS REQUIRE CURB ON LINTEL BEAM.

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".

STRUCTURAL STEEL PER Mn/DOT SPEC. 3306.

WELDING PER Mn/DOT SPEC. 2471

GALVANIZE STRUCTURAL STEEL PER Mn/DOT SPEC. 3394.

GALVANIZE BOLTS, NUTS AND WASHERS PER Mn/DOT SPEC. 3392.

① NO. 25 DOWEL, 1'–0" LONG, 2" DIA. HOLE IN THE TOP OF THE WALL SECTION AND 3" DIA. HOLE IN THE LINTEL. FILL HOLE WITH GROUT.

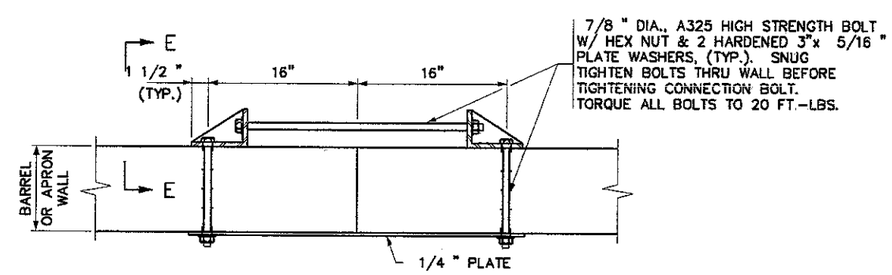
② PROVIDE ADDITIONAL 3" HOLES AT 4'–0" MAXIMUM SPACING WHEN SIDE OF LINTEL BEAM IS OVER 6 FT.

③ CHECK THE LOCATION TO DETERMINE WHETHER A TONGUE OR A GROOVE IS USED. TONGUE AND GROOVE TO TERMINATE AT CULVERT RADIUS.

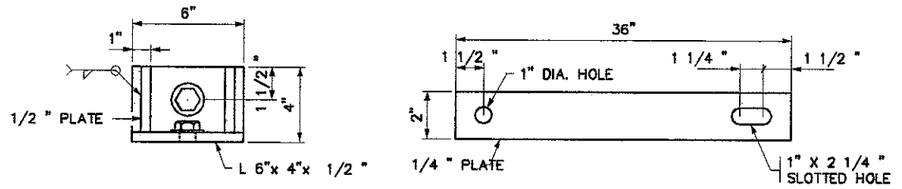
④ FOR SKEW LENGTH UNDER 10' USE NO. 25 BARS. FOR SKEW LENGTH OF 10' TO 14' USE NO. 29 BARS. FOR SKEW LENGTH OVER 14' TO 18' USE NO. 32 BARS. FOR SKEW LENGTH OVER 18' TO 22' USE NO. 36 BARS OR EQUAL. SKEW LENGTH IS DISTANCE BETWEEN OUTSIDE FACES OF END SECTION ALONG LINTEL BEAM.

⑤ FOR CULVERTS LESS THAN 14' WIDE, USE 9" LINTEL BEAM THICKNESS WITH 5000 P.S.I. CONCRETE. FOR 14' WIDE CULVERTS, WITH A 15° SKEW, USE 9" LINTEL BEAM THICKNESS WITH 5000 P.S.I. CONCRETE. FOR 14' WIDE CULVERTS, WITH A 30° OR 45° SKEW, USE 10" LINTEL BEAM THICKNESS WITH 5000 P.S.I. CONCRETE (OR USE 9" LINTEL BEAM THICKNESS WITH 6500 P.S.I. CONCRETE).

⑥ ALTERNATE BAR BEND MAY BE USED FOR B1301.



PLAN VIEW



SECTION E–E

PLATE DETAIL

EXTRA STRONG CONNECTION DETAILS

REVISION:
APPROVED: DECEMBER 11, 2000
Donald J. Flemming
STATE BRIDGE ENGINEER

~~STATE PROJ. NO.~~ S.A.P. 55–599–75			FIG. 5–395.110(B)
PRECAST CONCRETE END SECTION TYPE III – SINGLE OR DOUBLE BARREL FOR SKEWS 7 1/2 ° TO 45°	DES:	DR:	APPROVED:
	CHK:	CHK:	
	SHEET NO. 15 OF 15 SHEETS		BRIDGE NO. 55J36