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' HORIZ. 0 5' VERT.
INDEX MAP ..... NOT TO SCALE

MINNESOTA DEPARTMENT OF TRANSPORTATION

THE COUNTY OF OLMSTED

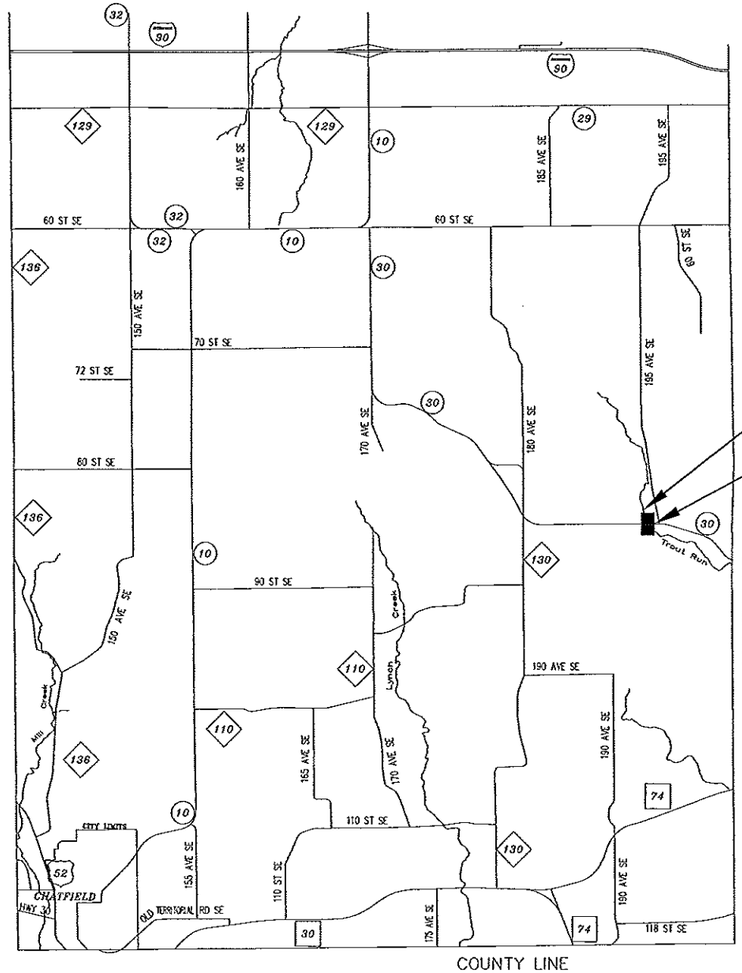
CONSTRUCTION PLAN FOR REPLACE BRIDGE NO. 89181 (NEW BR. NO. 55J61) AND APPROACH GRADING

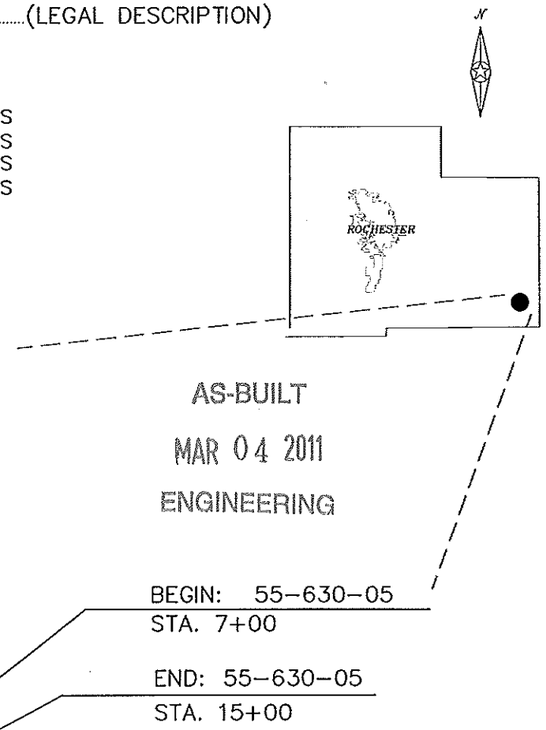
LOCATED ON C.S.A.H. 30 BETWEEN 180TH AVE. S.E. AND 195TH AVE. S.E. (GEOGRAPHIC DESCRIPTION)

FROM APPROX. 1421.8' WEST OF CENTER SEC 13 T105N–R11W TO APPROX. 621.8 FT. WEST OF CENTER SEC 13 T105N–R11W (LEGAL DESCRIPTION)

S.A.P. NO. 55–630–05

GROSS LENGTH	800.000	FEET	0.152	MILES
BRIDGE–LENGTH	42.00	FEET	0.008	MILES
EXCEPTIONS–LENGTH	0.00	FEET	0.000	MILES
NET LENGTH	800.000	FEET	0.152	MILES





AS-BUILT

MAR 04 2011

ENGINEERING

BEGIN: 55–630–05
STA. 7+00

END: 55–630–05
STA. 15+00

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

MINN. PROJ. NO. .....

GOVERNING SPECIFICATIONS

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

INDEX

SHEET NO. 1	TITLE SHEET
SHEET NO. 2	ESTIMATE OF QUANTITIES & TYPICAL SECTION
SHEET NO. 3	PLAN AND PROFILE
SHEET NO. 4 – 5	CROSS–SECTIONS
SHEET NO. 6	BRIDGE SURVEY SHEET
SHEET NO. 7	BARREL DETAIL
SHEET NO. 8 – 9	PRECAST CONC. END SECTION DETAILS
SHEET NO. 10 – 17	EROSION CONTROL
SHEET NO. 18	TRAFFIC CONTROL PLANS

THIS PLAN CONTAINS 18 SHEETS.

DESIGN DESIGNATION: S.A.P. 55–630–05

R ..... EN18(20)
ADT (Current Year) = 155(2006) Design Speed 55 MPH
ADT (Future Year) = 248(2026) 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 = K=150 STA. ..... TO STA. ..... MPH .....
SOIL FACTOR = 130% .....
SHOULDER WIDTH 4 FT.
9 TON DESIGN

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

DATE 6/20/06 REG. NO. 19917

PRINTED NAME: KAYE M. BIENIEK

SIGNED NAME: Kaye M Bieniek
COUNTY DESIGN ENGINEER

DATE 6/20/06 REG. NO. 10397

Michael D Sheehan
APPROVED: OLMSTED COUNTY ENGINEER

STATE AID APPROVALS:

Andy Schmidt DATE June 22, 2006
DISTRICT STATE AID ENGINEER: REVIEWED FOR COMPLIANCE WITH STATE–AID RULES/ POLICY

ASST

Andy Schmidt DATE June 22, 2006
for APPROVED FOR STATE AID FUNDING:
STATE AID ENGINEER

S.A.P. NO. 55–630–05 C.S.A.H. 30 SHEET NO. 1 OF 18 SHEETS

ESTIMATED QUANTITIES

	SPECIFICATION NO.	ITEM	UNIT	GRADING	BRIDGE	TOTAL ESTIMATED QUANTITIES
	2104.505	REMOVE BITUMINOUS PAVEMENT	SQ. YD.	2,134		2,134
①	2104.513	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	LIN. FT.	48		48
②	2105.511	COMMON CHANNEL EXCAVATION	CU. YD.		331	331(P)
	2105.515	UNCLASSIFIED EXCAVATION	CU. YD.	1,760		1,760(P)
③	2211.501	AGGREGATE BASE CL. 5 (MODIFIED)	TON	2,070		2,070
	2221.501	AGGREGATE SHOULDERING CL. 2	TON	300		300
	2360.501	TYPE SP 12.5 WEARING COURSE MIX (3C)	TON	704		704
	2412.511	10'x 8' PRECAST CONC. BOX CULV. CL. II	LIN. FT.		104	104
	2412.511	12'x 9' PRECAST CONC. BOX CULV. CL. II	LIN. FT.		52	52
	2412.512	10'x 8' PRECAST CONC. BOX CULVERT END SECTION	EACH		4	4
	2412.512	12'x 9' PRECAST CONC. BOX CULVERT END SECTION	EACH		2	2
	2442.501	REMOVE OLD BRIDGE	LUMP SUM	1		1
	2451.507	GRANULAR BEDDING (CV)	CU. YD.		235	~~235(P)~~ 92.5 (P)
④	2511.501	RANDOM RIPRAP CL. III	CU. YD.		153	153
⑤	2573.502	SILT FENCE TYPE MACHINE SLICED	LIN. FT.	80		80
⑥	2575.555	TURF ESTABLISHMENT	LUMP SUM	1		1
⑦	2580.603	INTERIM PAVEMENT MARKINGS	LIN. FT.	320		320
	(P) PLAN	Lean Mix Backfill	Cu. Yd.			20.2 (P)

QUANTITY NOTES:

① MAINLINE STA. 7+00 AND STA. 15+00

② CHANNEL EXC. TO BE PLACED ON SHOULDERS EMBANKMENT AS DIRECTED BY THE ENGINEER.

③ 2035 TON FOR MAINLINE AND 35 TON FOR ENTRANCE.

④ PLACE RIPRAP ON 9" GRANULAR FILTER OR GEOTEXTILE MATERIAL WHICH SHALL BE CONSIDERED INCIDENTAL AND NO DIRECT COMPENSATION WILL BE MADE THEREFOR.

⑤ SEE SHEET NO. 11 FOR APPROX SILT FENCE LOCATION. SPEC. NO. 1903 DOES NOT APPLY TO ITEM NO. 2573.502

⑥ APPROX. 1.4 ACRES.

⑦ SPEC. NO. 1903 DOES NOT APPLY TO ITEM NO. 2580.603

BASIS OF PLANNED QUANTITIES

AGGREGATE BASE CLASS 5 (MODIFIED)–	140 LBS / CU. FT. COMPACTED
AGGREGATE SHOULDER CLASS 2 –	140 LBS / CU. FT. COMPACTED
BITUMINOUS WEARING COURSE –	110 LBS / INCH / SQ. YD.

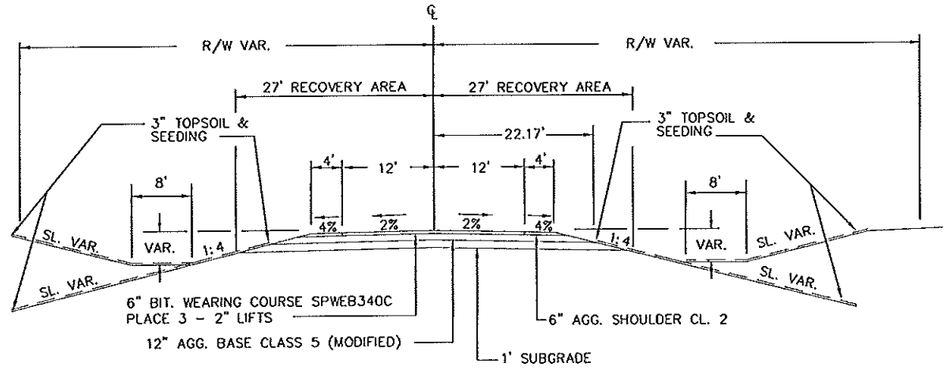
STANDARD PLATES

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

PLATE NO.	DESCRIPTION
	NUMERICAL INDEX OF STANDARD PLATES
3145F	CONCRETE PIPE TIES
8000I	STANDARD BARRICADES
9000D	APPROACHES AND ENTRANCES

TYPICAL SECTION

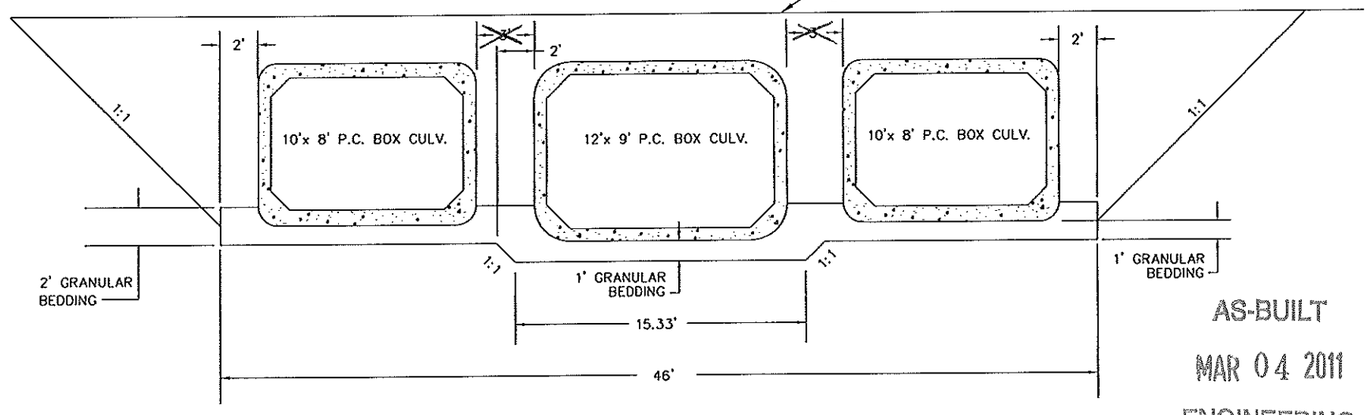
STA. 7+00 TO STA. 15+00



NOTES: ALL UTILITY POLES AND UNYIELDING OBJECTS WILL BE LOCATED OUTSIDE THE 27 FT. RECOVERY AREA BY OTHERS.

Move to 4" Spacing Fill with Grout

BEDDING DETAIL



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.

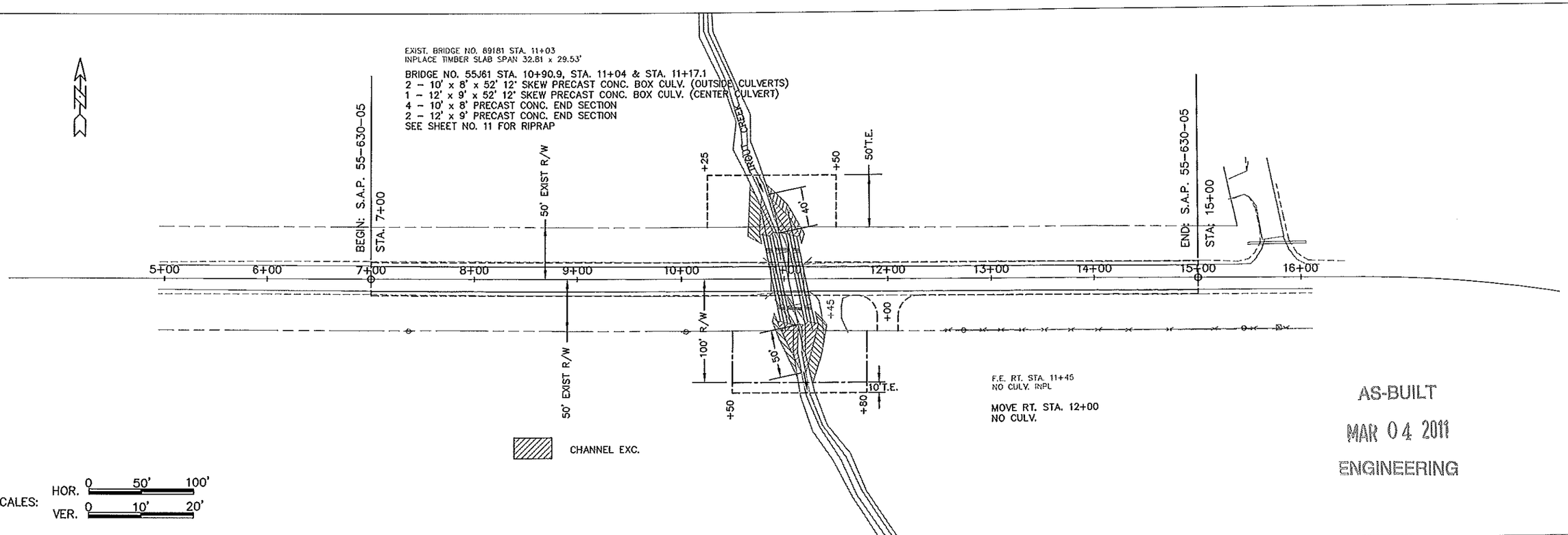
AS-BUILT
MAR 04 2011
ENGINEERING

CERTIFIED BY Kurt M Bruner LICENSED PROFESSIONAL ENGINEER REG. NO. 19917 6/22 2006

S.A.P. 55-630-05

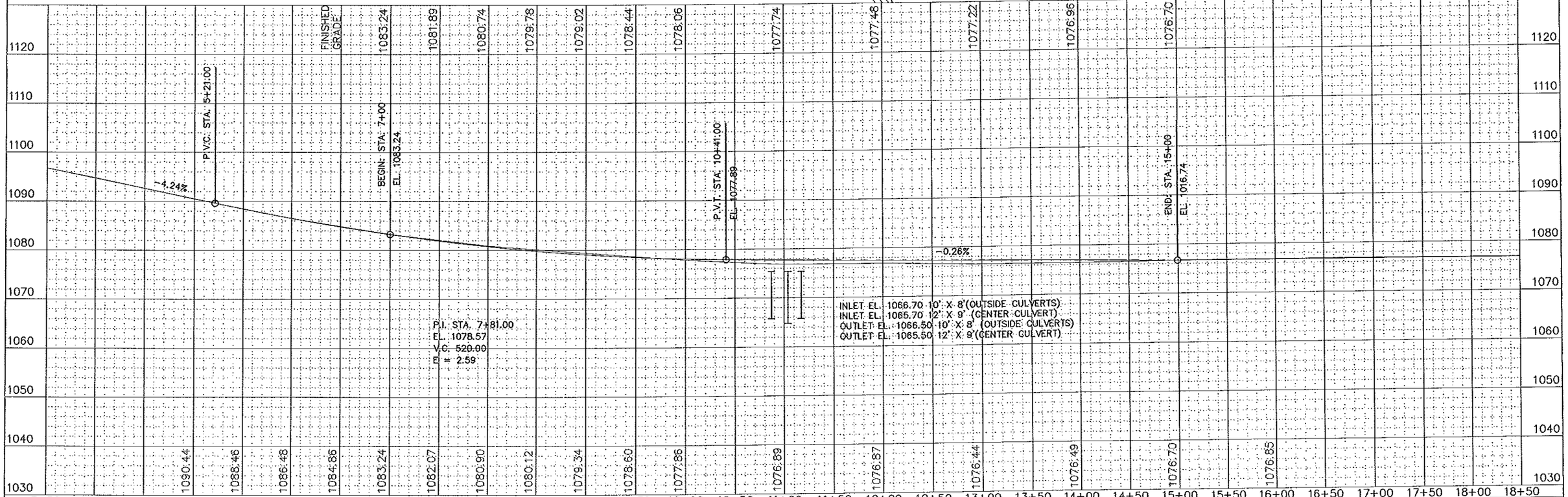
EXIST. BRIDGE NO. 89181 STA. 11+03
INPLACE TIMBER SLAB SPAN 32.81 x 29.53'

BRIDGE NO. 55J61 STA. 10+90.9, STA. 11+04 & STA. 11+17.1
2 – 10' x 8' x 52' 12' SKEW PRECAST CONC. BOX CULV. (OUTSIDE CULVERTS)
1 – 12' x 9' x 52' 12' SKEW PRECAST CONC. BOX CULV. (CENTER CULVERT)
4 – 10' x 8' PRECAST CONC. END SECTION
2 – 12' x 9' PRECAST CONC. END SECTION
SEE SHEET NO. 11 FOR RIPRAP



AS-BUILT
MAR 04 2011
ENGINEERING

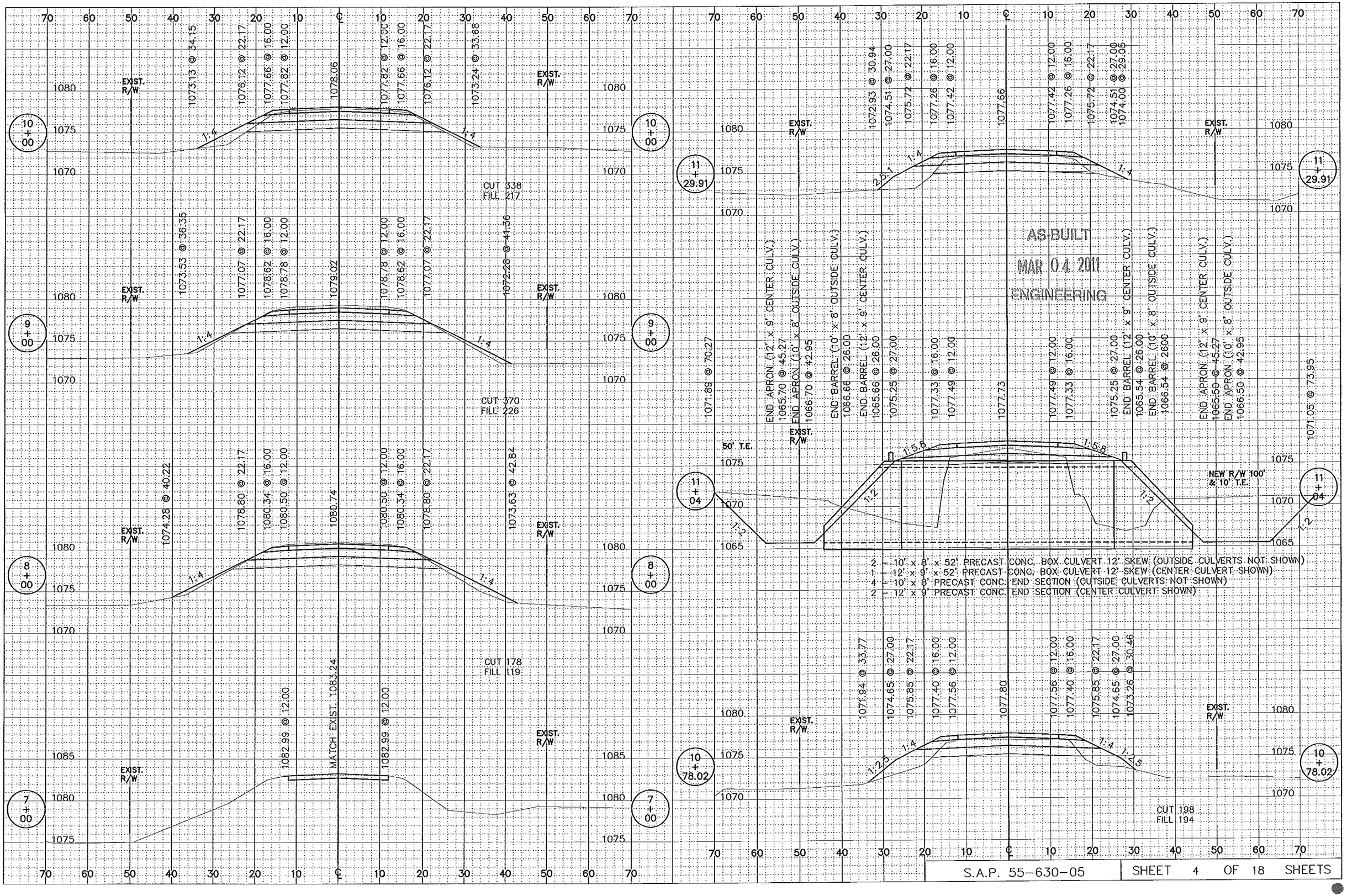
SCALES: HOR. 0 50' 100'
VER. 0 10' 20'



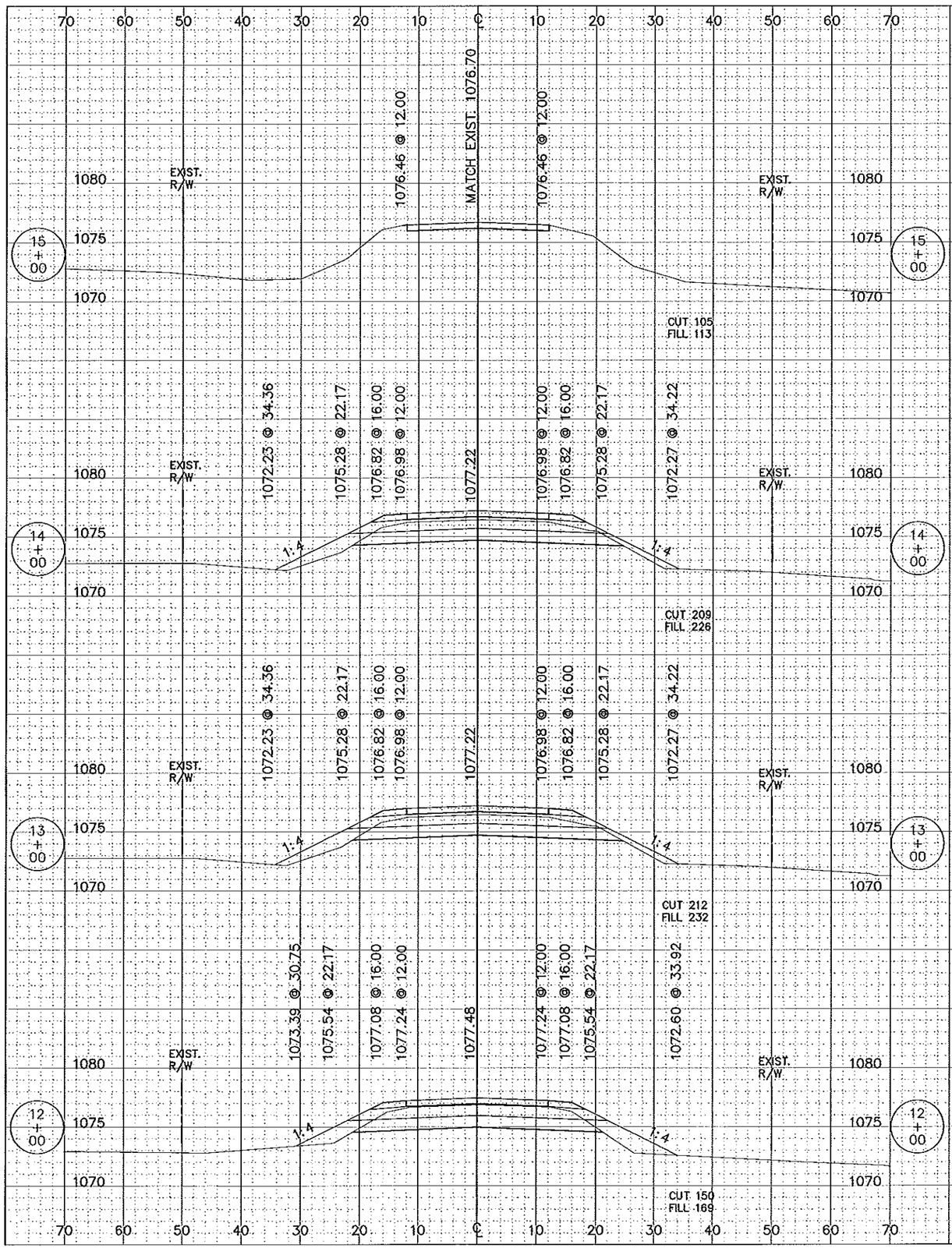
CERTIFIED BY Kaye M Baumek LICENSED PROFESSIONAL ENGINEER REG. NO. 19917 6/7 2006

S.A.P. 55-630-05

SHEET 3 OF 18 SHEETS



S.A.P. 55-630-05 | SHEET 4 OF 18 SHEETS

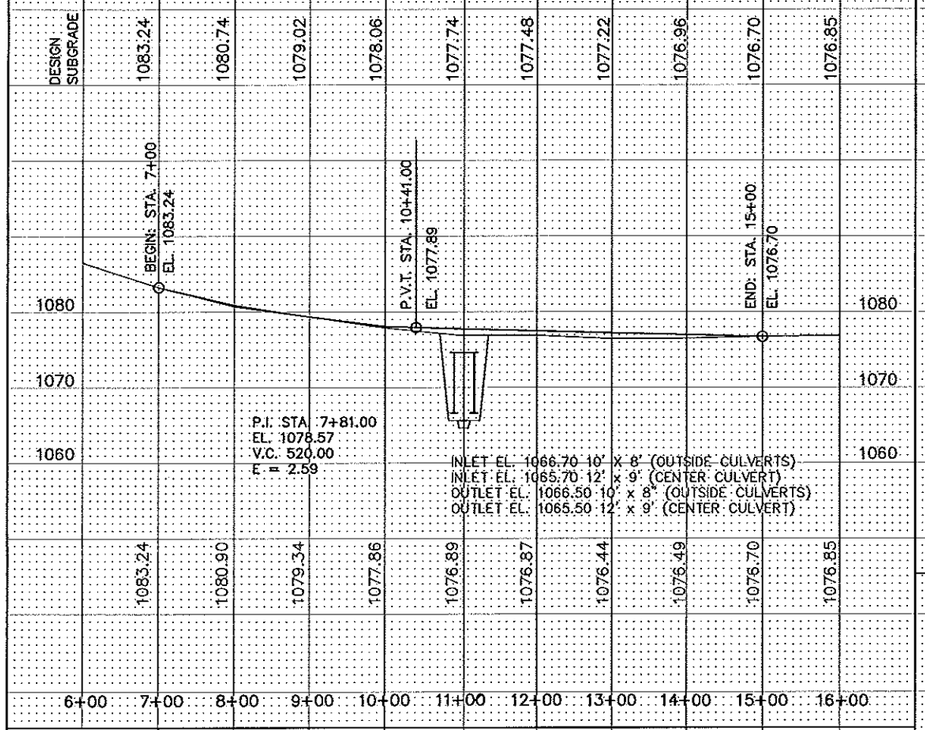


UNCLASSIFIED EXC. 1760 CU. YDS.
EMBANKMENT 1496 CU. YDS.

AS-BUILT
MAR 04 2011
ENGINEERING

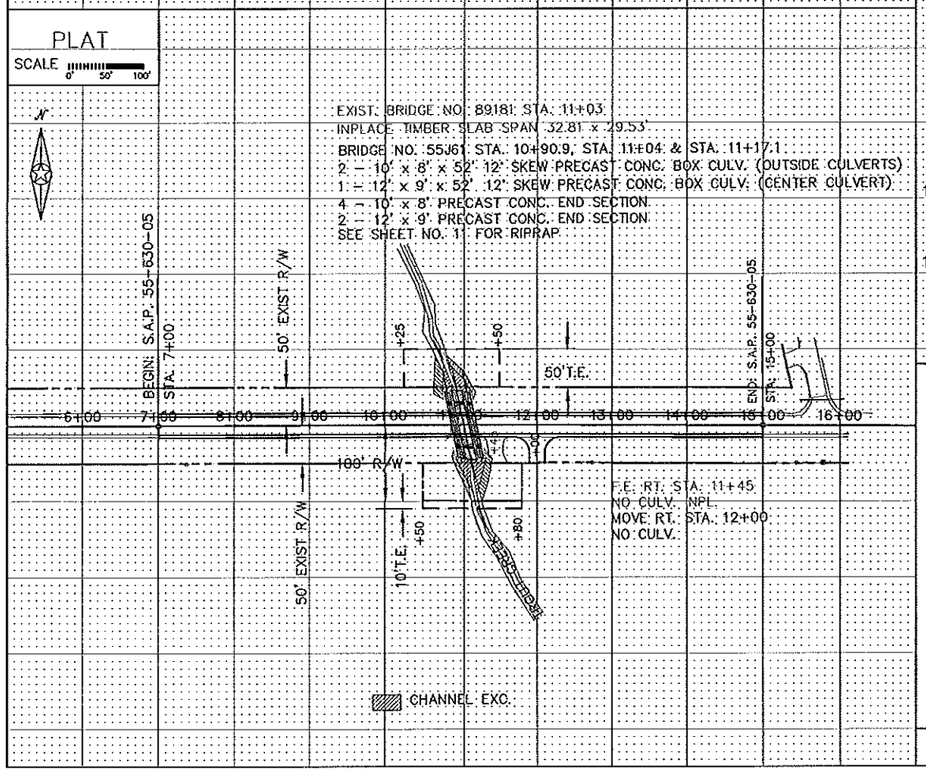
CONTRACTED PROFILE

SCALE HOR. 0' 50' 100' VER. 0' 50' 100'



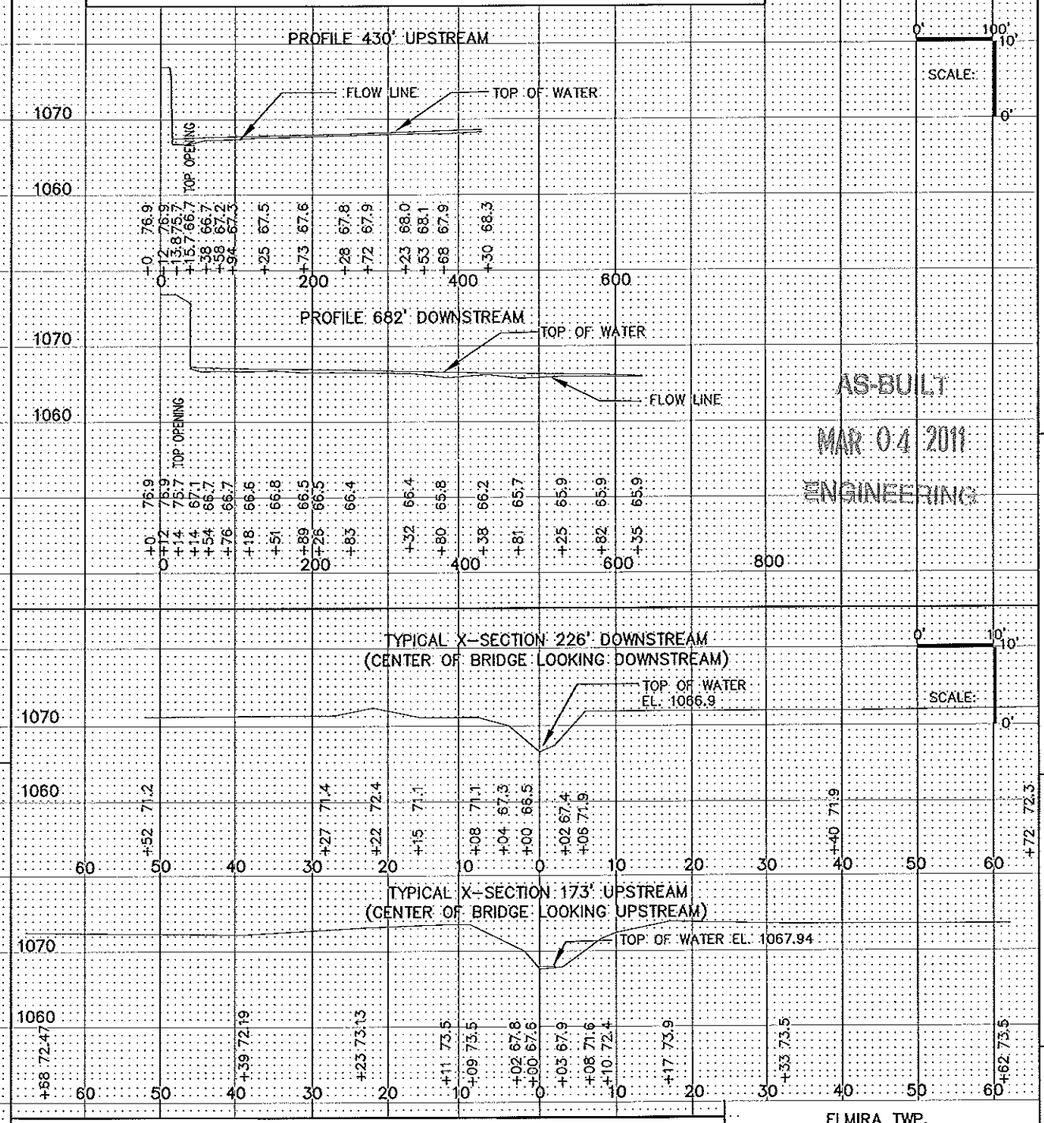
PLAT

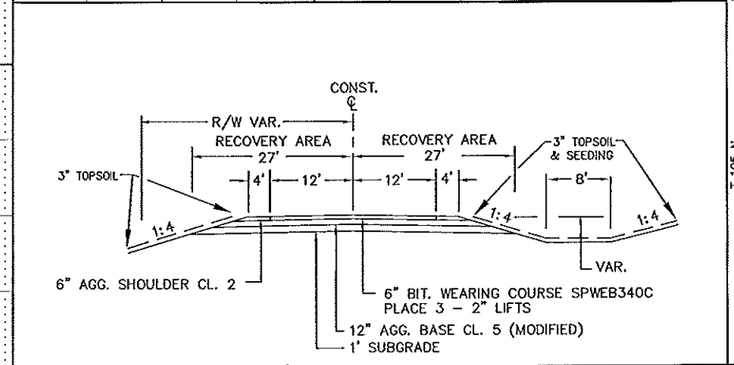
SCALE 0' 50' 100'

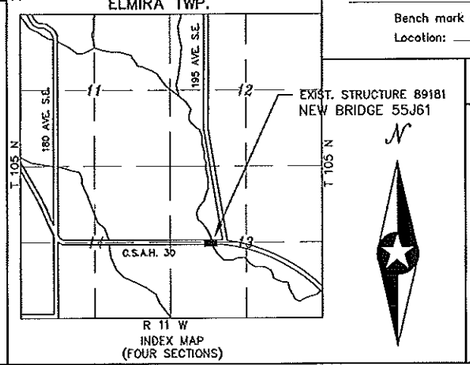


TYPICAL SECTIONS & PERTINENT DATA

SCALE AS SHOWN







AS-BUILT
MAR 04 2011
ENGINEERING

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. Apporent highwater elevation _____ Obtained from _____

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

HYDRAULIC ENGINEERS RECOMMENDATION
DATE 12/30/05

Stream or ditch designation Trout Creek
Drainage area 4.77 sq. mi.
Max. flood on record Unknown Design flood (55 yr. freq.) 1900 C.F.S.
Max. observed highwater elevation Unknown Design highwater elevation 1076.6
Design mean velocity through structure 7.4 F.P.S. Outlet
Low superstructure at or above elevation NA
Flowline 1065.6 Skew angle 12°
Waterway area req'd. below elevation NA = NA Sq. Ft. at Rt. angles to channel

In the interest of flood plain zoning the regional flood (100 yr. freq.) is 2320 C.F.S. at stage 1075.7 and mean velocity of 8.0 F.P.S. with 1.4 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

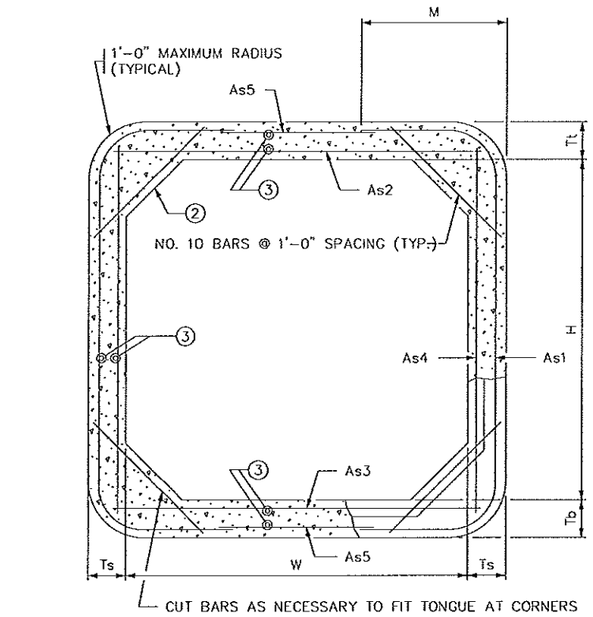
BRIDGE SURVEY

AT MILE POINT 1.0 MI. E. JCT. C.R. 130 (T.H., C.S.A.H., C.R. etc.)
PROPOSED BRIDGE LOCATED 1.0 MILES E. OF JCT. C.R. 130
SEC. 13 TWP. 105 N R 11 W
TOWNSHIP ELMIRA COUNTY OLMSTED
BRIDGE NO. 55J61

CERTIFIED BY Kaye M Priemer LICENSED PROFESSIONAL ENGINEER REG. NO. 19917 6/7 2006

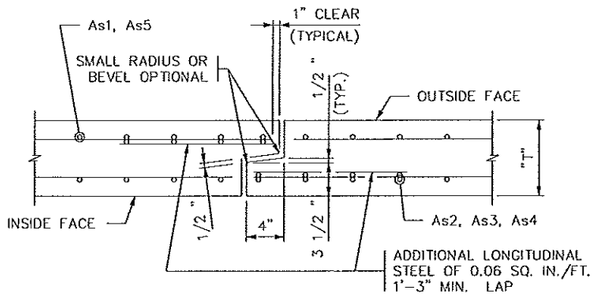
S.A.P. 55-630-05

Sheet No. 6 of 18 Sheets

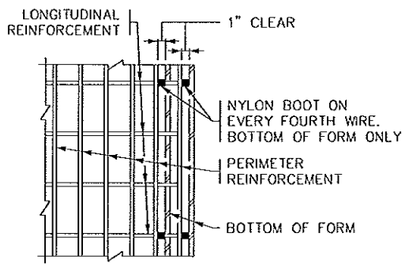


TRANSVERSE BARREL SECTION

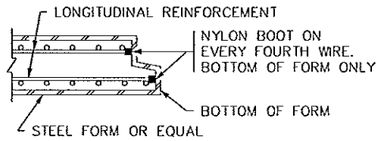
BAR REINFORCEMENT OPTION SHOWN



TONGUE AND GROOVE JOINT DETAIL

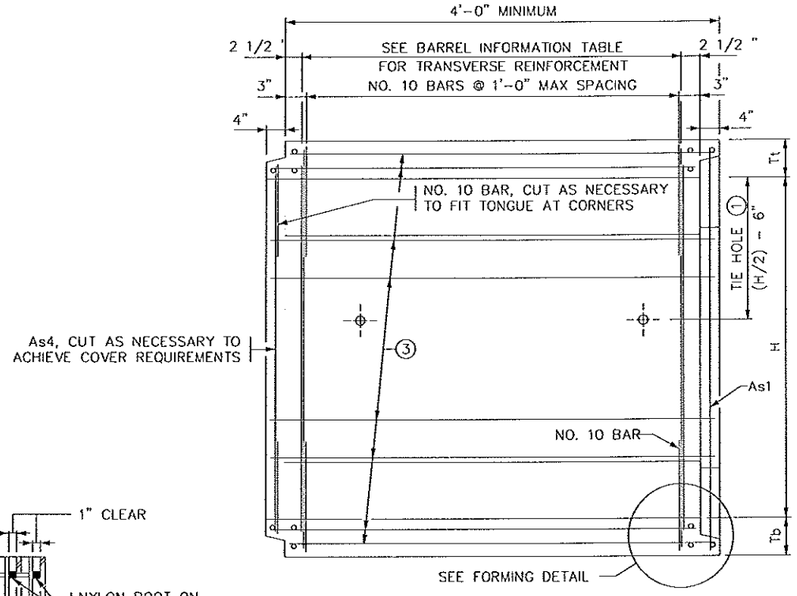


PLAN



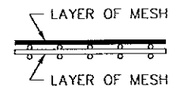
SECTION

FORMING DETAIL



LONGITUDINAL BARREL SECTION

BAR REINFORCEMENT OPTION SHOWN



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 MnDOT 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(MnDOT 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 MnDOT 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.

AS-BUILT
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BARREL INFORMATION

LOCATION	SIZE	CLASS	f'c (P.S.I.)	FILL HEIGHT RANGE (FT.)	DIMENSIONS W (FT.)	H (FT.)	Tt (IN.)	Tb (IN.)	Ts (IN.)	WEIGHT (LBS./FT.)	STEEL FABRIC REINFORCEMENT As1 AREA (IN.²/FT.)	As1 LENGTH (FT.)	As1 M (FT.)	As2 AREA (IN.²/FT.)	As2 LENGTH (FT.)	As3 AREA (IN.²/FT.)	As3 LENGTH (FT.)	As4 AREA (IN.²/FT.)	As4 LENGTH (FT.)	As5 AREA (IN.²/FT.)	As5 LENGTH (FT.)
10+90.9	10' x 8'	2	5000	2-8	10	8	9	10	8	4510	0.48	13'-9"	2'-9"	0.90	10'-6"	0.74	10'-6"	0.20	8'-6"	0.06	7'-9"
11+04	12' x 9'	2	5000	2-8	12	9	9	10	8	5185	0.74	15'-11"	3'-4"	1.11	12'-6"	1.60	12'-6"	0.20	9'-6"	0.06	8'-7
11+17.1	10' x 8'	2	5000	2-8	10	8	9	10	8	4510	0.48	13'-9"	2'-9"	0.90	10'-6"	0.74	10'-6"	0.20	8'-6"	0.06	7'-9"

REVISION:

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

S.A.P. 55-630-05 STA. 10+90.9, STA. 11+04 AND STA. 11+17.1

FIG. 5-395.101(A)

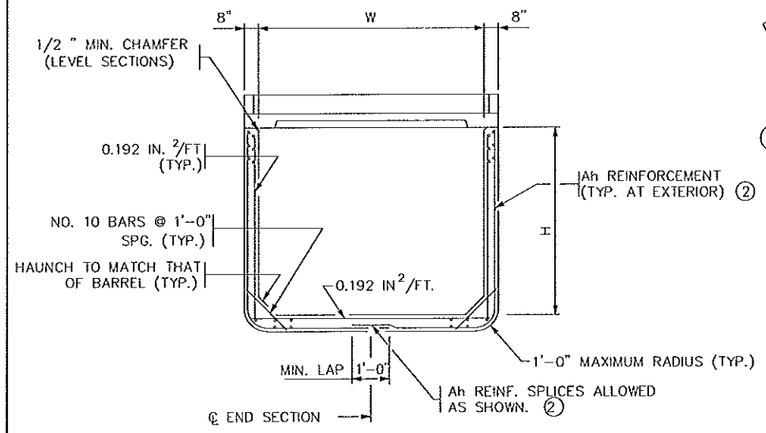
CERTIFIED BY Kaye M Bzieniek
LICENSED PROFESSIONAL ENGINEER
REG. NO. 19917 6/7 2006

TITLE: BARREL DETAILS

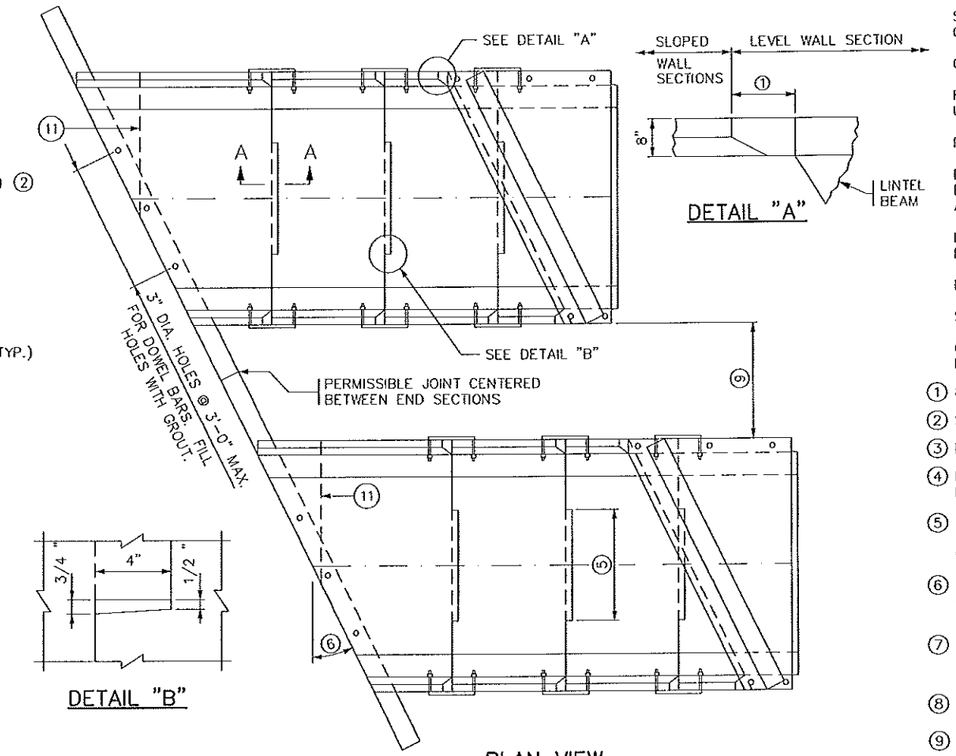
DES: | DR: | APPROVED:
CHK: | CHK:

SHEET NO. 7 OF 18 SHEETS

BRIDGE NO. 55J61



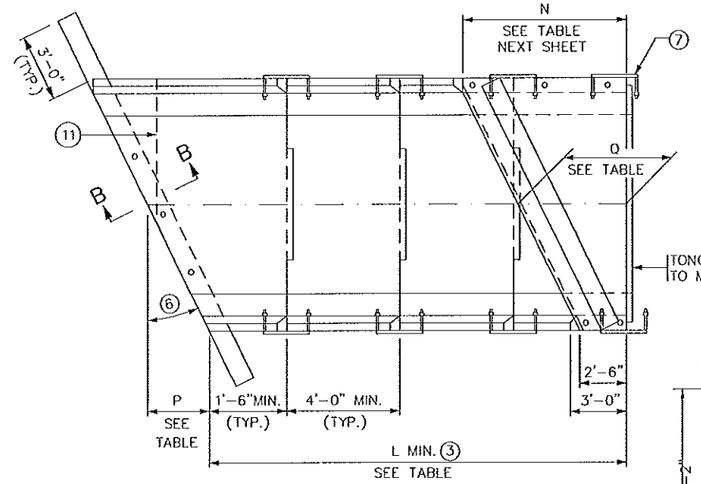
END VIEW



PLAN VIEW

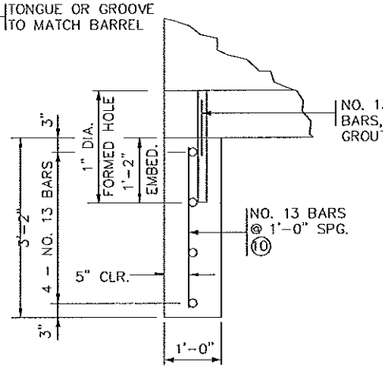
DOUBLE-BARREL OPTION

DETAIL "B"



PLAN VIEW

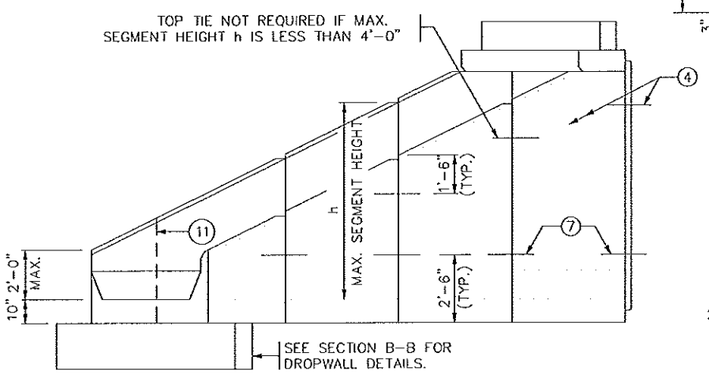
SINGLE BARREL OPTION



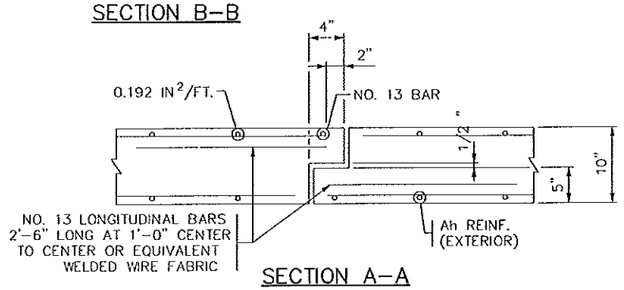
SECTION B-B

TONGUE AND GROOVE JOINT

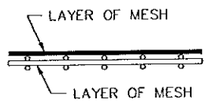
MAKE DIMENSION OF TONGUE OR GROOVE ON ADJACENT PRECAST BARREL SECTIONS SO INSIDE WALLS ARE FLUSH.



ELEVATION



SECTION A-A



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.

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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"

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Donald J. Flemming
STATE BRIDGE ENGINEER

S.A.P. 55-630-05 STA. 10+90.9, STA. 11+04 AND STA. 11+17.1

FIG. 5-395.110(A) (MODIFIED)

CERTIFIED BY Kaye M Brienick
LICENSED PROFESSIONAL ENGINEER
REG. NO. 19917 6/7 2006

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. 8 OF 18 SHEETS

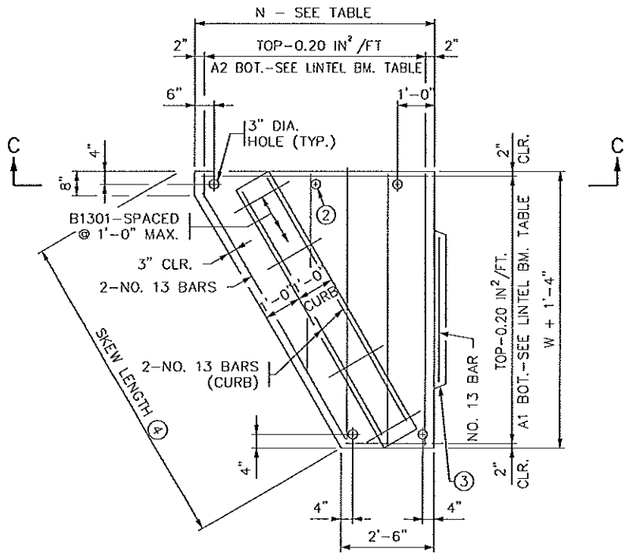
BRIDGE NO. 55J61

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.

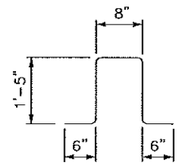
LINTEL BEAM REINFORCEMENT		
WIDTH W (FT.)	BOTTOM REINFORCEMENT	
	A1	A2
6	NO. 13 @ 1'-6"	NO. 13 @ 1'-4"
8	NO. 13 @ 1'-1"	NO. 13 @ 9"
10	NO. 13 @ 9"	NO. 13 @ 6"
12	NO. 16 @ 9"	NO. 16 @ 6"
14	NO. 19 @ 9"	NO. 22 @ 6"

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"	0'-11 5/8"	17'-2"

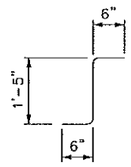


PLAN VIEW

LINTEL BEAM WITH INTEGRAL CURB

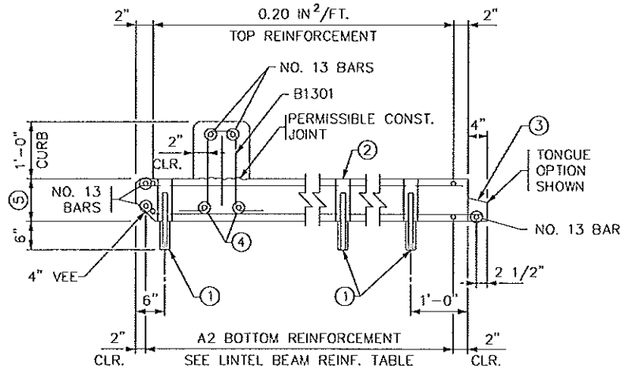


B1301



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.

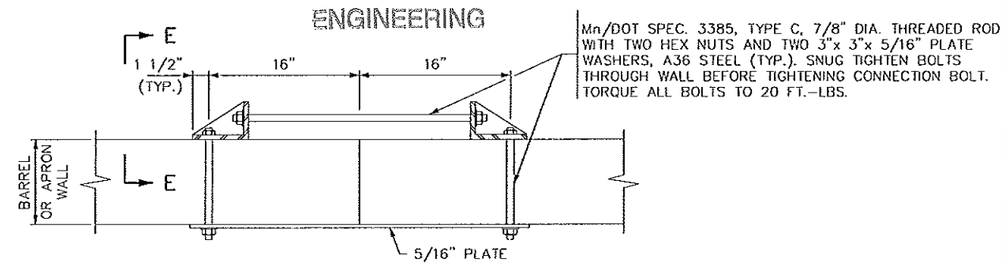
③ CHECK THE LOCATION TO DETERMINE WHETHER A TONGUE OR A GROOVE IS USED. TONGUE AND GROOVE TO TERMINATE AT CULVERT RADIUS.

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.

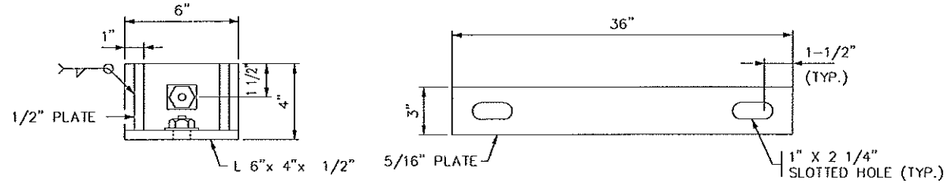
⑤ FOR CULVERTS LESS THAN 14' WIDE, USE 9" LINTEL BEAM THICKNESS WITH 5000 P.S.I. CONCRETE. FOR 14' WIDE CULVERTS, WITH A 15° SKEW, USE 9" LINTEL BEAM THICKNESS WITH 5000 P.S.I. CONCRETE. FOR 14' WIDE CULVERTS, WITH A 30° OR 45° SKEW, USE 10" LINTEL BEAM THICKNESS WITH 5000 P.S.I. CONCRETE (OR USE 9"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

⑥ ALTERNATE BAR BEND MAY BE USED FOR B1301.

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PLAN VIEW

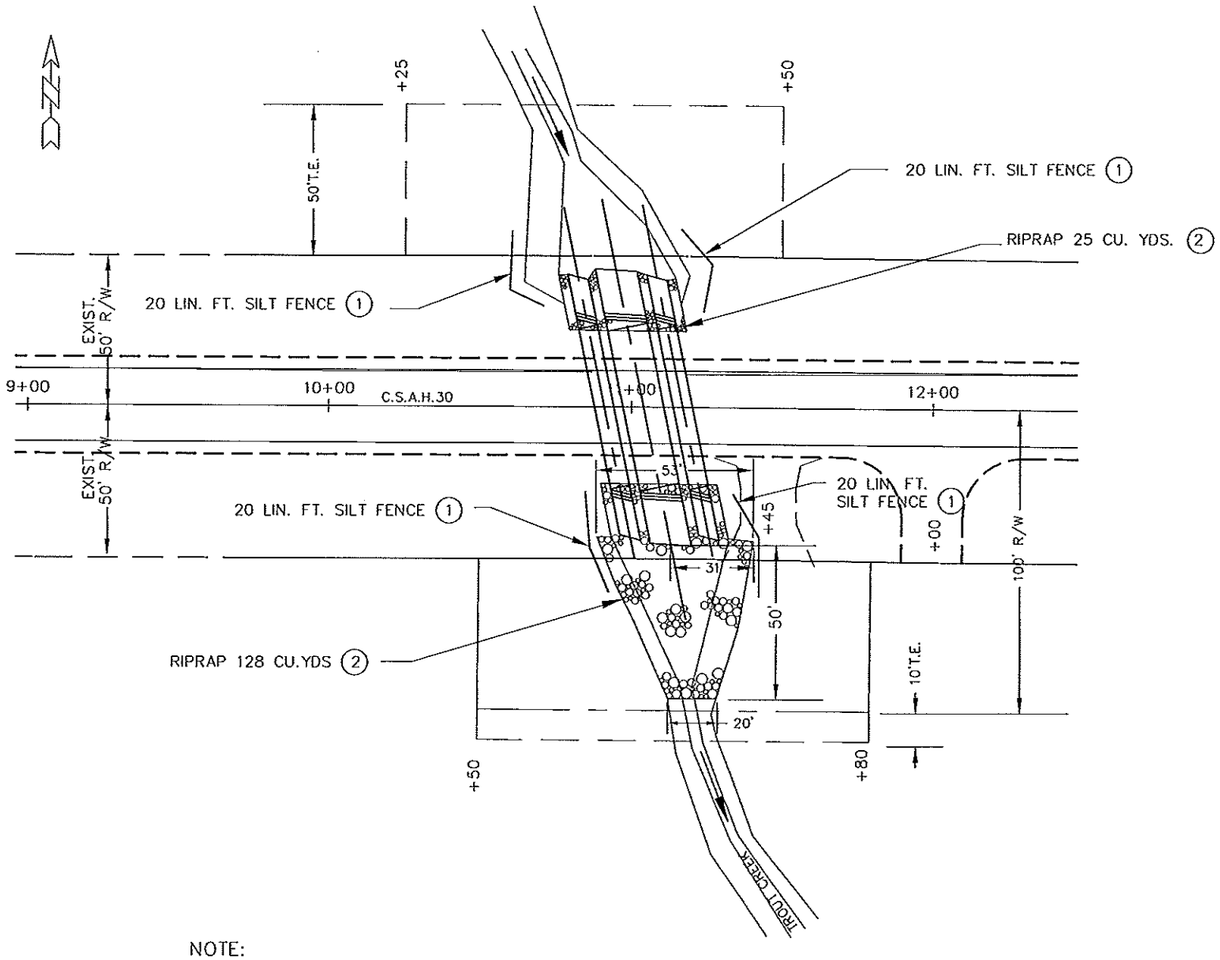


SECTION E–E PLATE DETAIL

EXTRA STRONG CONNECTION DETAILS

REVISION: 09–17–2004
APPROVED: DECEMBER 11, 2000
Donald J. Flemming STATE BRIDGE ENGINEER

S.A.P. 55–630–05 STA. 10+90.9, STA. 11+04.0 AND STA. 11+17.1				FIG. 5–395.110(B)
CERTIFIED BY Kaye M Briesnick LICENSED PROFESSIONAL ENGINEER	TITLE: PRECAST CONCRETE END SECTION TYPE III – SINGLE OR DOUBLE BARREL FOR SKEWS 7 1/2° TO 45°	DES: DR: APPROVED:		BRIDGE NO. 55J61
REG. NO. 19917 6/7 2006		CHK: CHK:		
		SHEET NO. 9 OF 18 SHEETS		



NOTE:

(1) SILT FENCE LOCATION IS APPROXIMATE, TO BE PLACED IN THE FIELD AS DIRECTED BY THE ENGINEER.

(2) RIPRAP LOCATION IS APPROXIMATE, TO BE PLACED IN THE FIELD AS DIRECTED BY THE ENGINEER.

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NOTE: MNDOT SPEC. 1717 WILL BE ENFORCED.

EROSION CONTROL

CERTIFIED BY Kayle M Bimek LICENSED PROFESSIONAL ENGINEER REG. NO. 19917 6/7 2006

S.A.P. 55-630-05

SHEET 11 OF 18 SHEETS