MINNESOTA DEPARTMENT OF TRANSPORTATION

THE COUNTY OF OLMSTED

CONSTRUCTION PLAN FOR REPLACE BRIDGE NO. L-8801 (NEW BR. NO. 55J62) AND APPROACH GRADING

LOCATED ON 98th St. S.E. BETWEEN C.S.A.H. 20 AND C.S.A.H. 1 (GEOGRAPHIC DESCRIPTION)

FROM APPROX. 285' WEST OF SEC 19 & 20 T105N-R13W TO APPROX. 765 FT. EAST OF SEC 19 & 20 T105N-R13W (LEGAL DESCRIPTION)

S.A.P. NO. 55-599-86

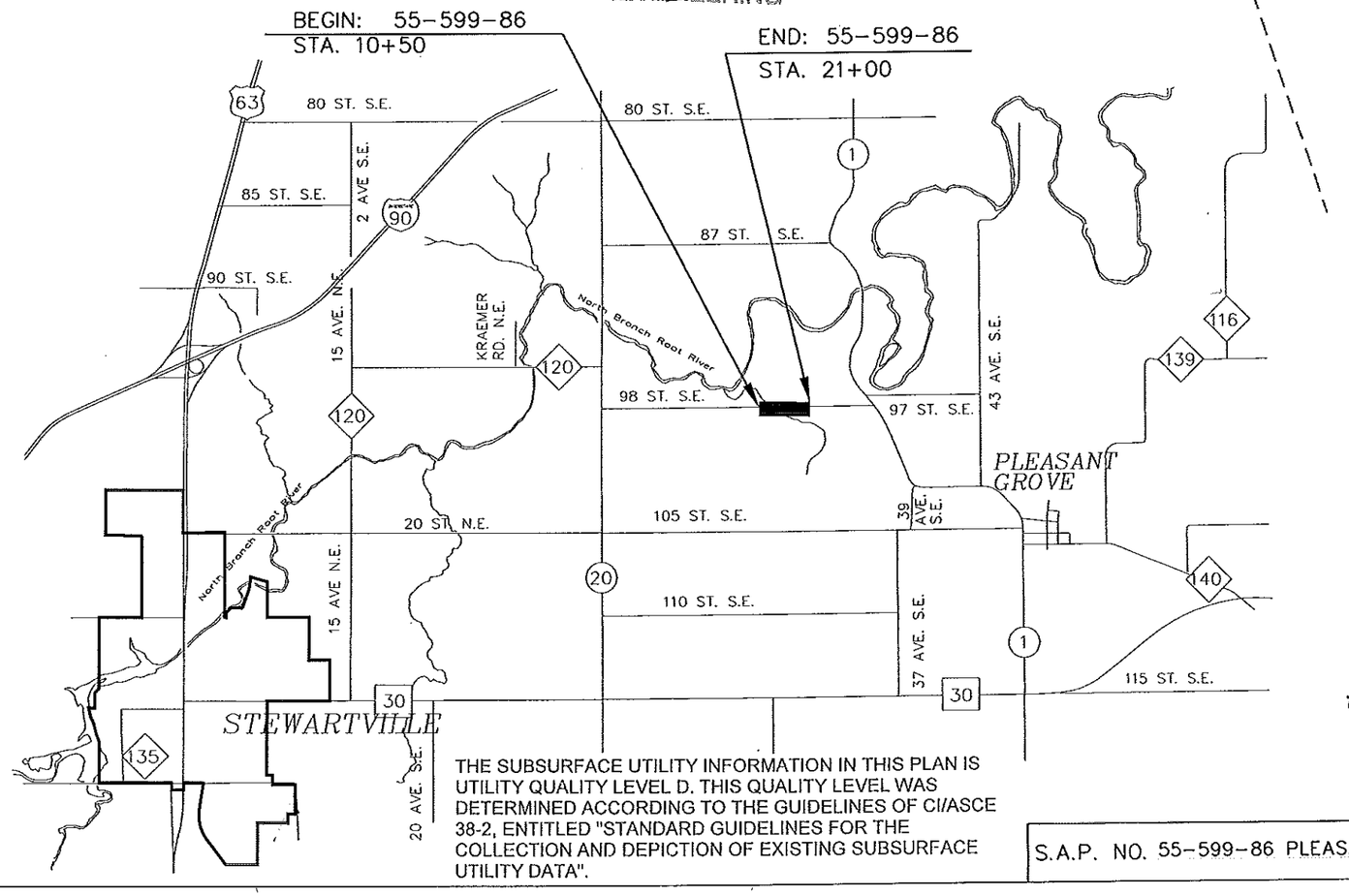
GROSS LENGTH	1050.00	FEET	0.199	MILES
BRIDGE-LENGTH	30.00	FEET	0.006	MILES
EXCEPTIONS-LENGTH	0.00	FEET	0.000	MILES
NET LENGTH	1050.00	FEET	0.199	MILES

AS-BUILT

MAR 17 2010

ENGINEERING

ENGINEERING MAR 17 2010 AS-BUILT



THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-2, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".

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 10' VERT.
INDEX MAP NOT TO SCALE

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 - 6	CROSS-SECTIONS
SHEET NO. 7 - 13	EROSION CONTROL
SHEET NO. 14	BRIDGE SURVEY SHEET
SHEET NO. 15 - 16	BARREL DETAILS
SHEET NO. 17 - 18	PRECAST CONC. END SECTION
SHEET NO. 19	TRAFFIC CONTROL PLANS

THIS PLAN CONTAINS 19 SHEETS.

DESIGN DESIGNATION: S.A.P. 55-599-86

R. FN18(20)
ADT (Current Year) = 50 (2006) Design Speed 40 MPH
ADT (Future Year) = 60 (2026) Based on STOPPING Sight Distance
DHV (Design Hr. Vol.) = Height of eye 3.5 FT. Height of object 0.5 FT
D (Directionol 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 3 FT.

TOWNSHIP APPROVALS:

Dan Berken 5/10/06

APPROVED: TWP. 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 LICENCED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

DATE 5/10/06 REG. NO. 19917

PRINTED NAME: KAYE M. BIENIEK

SIGNED NAME: Kaye M Bieniek
COUNTY DESIGN ENGINEER

DATE 5/10/06 REG. NO. 10397

Michael J. Sheehan

APPROVED: OLMSTED COUNTY ENGINEER

STATE AID APPROVALS:

Judy Schmidt DATE 6-14-06

Asst DISTRICT STATE AID ENGINEER: REVIEWED FOR COMPLIANCE WITH STATE-AID RULES & POLICY

Judy Schmidt DATE: 6-14-06

for APPROVED FOR STATE AID FUNDING:
STATE AID ENGINEER

S.A.P. NO. 55-599-86 PLEASANT GROVE TWP. SHEET NO. 1 OF 19 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 METAL CULVERT	LIN. FT.	28		28
(2)	2104.501	REMOVE FENCE	LIN. FT.	1,600		1,600
(3)	2105.511	COMMON CHANNEL EXCAVATION	CU. YD.	115		115(P)
	2105.515	UNCLASSIFIED EXCAVATION	CU. YD.	1,229		1,229(P)
	2105.523	COMMON BORROW (CV)	CU. YD.	6,263		6,263(P)
(4)	2211.501	AGGREGATE BASE CL.2	TON	1,053		1,053
	2412.511	12'x 10' PRECAST CONC. BOX CULV. CL. III	LIN. FT.		132	132
	2412.512	12'x 10' PRECAST CONC. BOX CULVERT END SECTION	EACH		4	4
	2442.501	REMOVE OLD BRIDGE	LUMP SUM	1		1
	2451.507	GRANULAR BEDDING (CV)	CU. YD.		~~200~~	~~200~~(P) 89 (P)
	2501.511	24" C.S. PIPE CULVERT	LIN. FT.	44		44
	2501.515	24" G.S. PIPE APRON	EACH	2		2
(5)	2511.501	RANDOM RIPRAP CL. III	CU. YD.		143	143
(6)	2573.502	SILT FENCE TYPE MACHINE SLICED	LIN. FT.	265		265
(7)	2573.512	TEMPORARY DITCH CHECK TYPE 2	LIN. FT	506		506
(8)	2575.523	EROSION CONTROL BLANKET CATEGORY 3 (INCLUDES MAINTENANCE)	SQ. YD	3,180		3,180
(8)	2575.523	EROSION CONTROL BLANKET CATEGORY 5 (INCLUDES MAINTENANCE)	SQ. YD	1,603		1,603
(9)	2575.555	TURF ESTABLISHMENT	LUMP SUM	1		1

(P) PLAN

Lean Mix Backfill — Cu. Yd. — 24 (P)

QUANTITY NOTES:

① APPROX. 124 TREE, INCLUDING STUMPS, AND 0.2 ACRES WOODS.

② SPEC. NO. 1903 DOES NOT APPLY TO ITEM NO. 2104.501 REMOVE FENCE.

③ CHANNEL EXC. TO BE PLACED ON SHOULDERS AS DIRECTED BY THE ENGINEER.

④ 1003 TON FOR MAINLINE AND 50 TON FOR ENTRANCE.

⑤ PLACE RIPRAP ON 9" GRANULAR FILTER OR GEOTEXTILE MATERIAL WHICH SHALL BE CONSIDERED INCIDENTAL AND NO DIRECT COMPENSATION WILL BE MADE THEREFOR. SEE SHEET NO. 7 EROSION CONTROL FOR APPROX. LOCATION.

⑥ SEE SHEET NO. 7 EROSION CONTROL FOR APPROX LOCATIONS. SPEC. NO. 1903 DOES NOT APPLY TO ITEM NO. 2573.502

⑦ SEE SHEET NO. 7 EROSION CONTROL BIOROLL PLACEMENT TABLE. SPEC. NO. 1903 DOES NOT APPLY TO ITEM NO. 2573.512

⑧ SEE SHEET NO. 7 EROSION CONTROL FOR APPROX. LOCATIONS. SPEC. NO. 1903 DOES NOT APPLY TO ITEM NO. 2575.523.

⑨ APPROX. 2.3 ACRES.

BASIS OF PLANNED QUANTITIES

AGGREGATE BASE CLASS 2 – 140 LBS / CU. FT. COMPACTED.

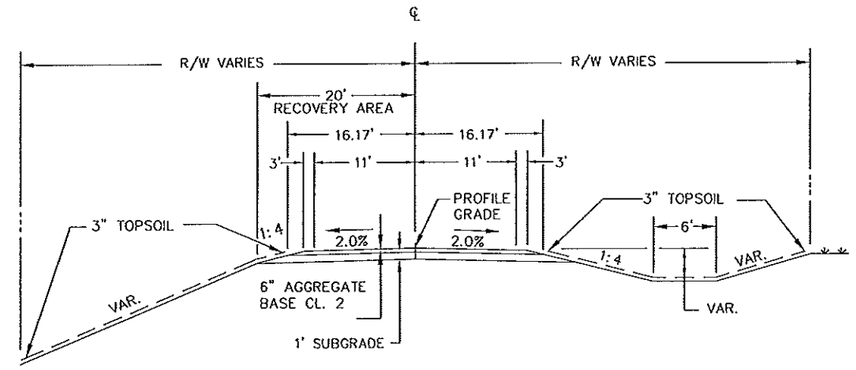
STANDARD PLATES

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

PLATE NO.	DESCRIPTION
	NUMERICAL INDEX OF STANDARD PLATES
3040F	CORRUGATED METAL PIPE CULVERT
3123J	METAL APRON FOR C.S. PIPE
3124B	METAL APRON CONNECTION
3145F	CONCRETE PIPE TIES
3221C	CORRUGATED STEEL PIPE COUPLING BAND
8000I	STANDARD BARRICADES
9000D	APPROACHES AND ENTRANCES

TYPICAL SECTION

STA. 11+50 TO STA. 20+00



NOTES: ALL UTILITY POLES AND UNYIELDING OBJECTS WILL BE LOCATED OUTSIDE THE 20 FT. RECOVERY AREA BY OTHERS.

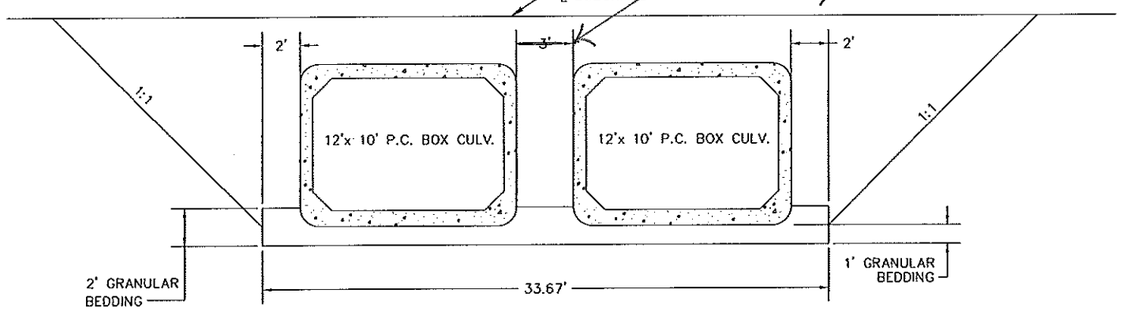
AS-BUILT

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BEDDING DETAIL

Move to 4" Spacing
Fill w/ Flowable fill



NOTES:

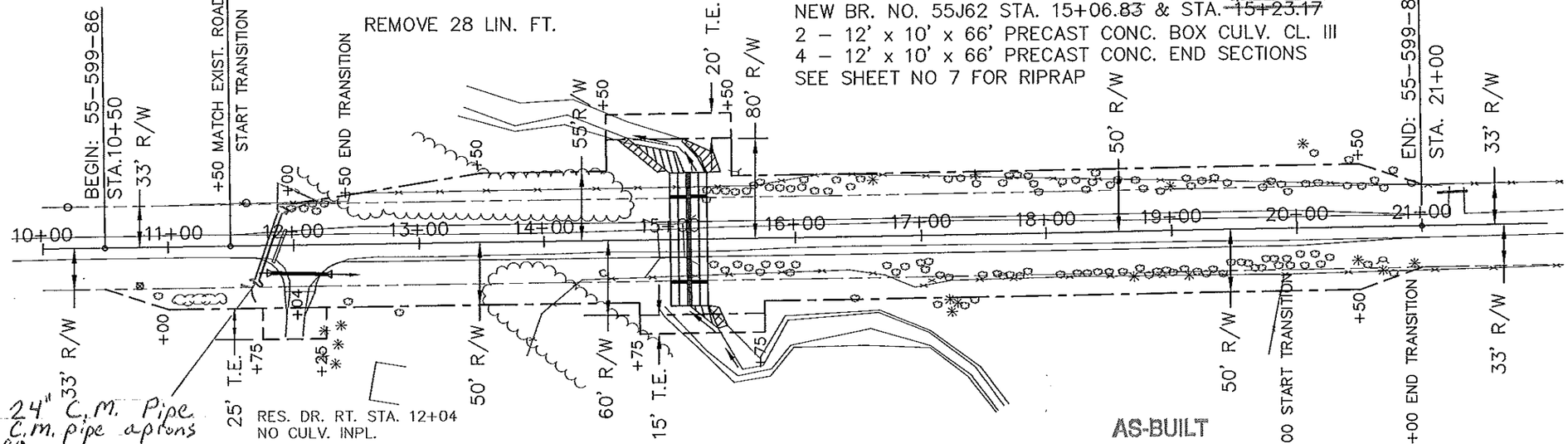
1. CULVERT EXCAVATION WILL BE CONSIDERED INCIDENTAL AND WILL BE INCLUDED FOR PAYMENT UNDER UNIT PRICE FOR ITEM NO. 2412.511 AND ITEM NO. 2412.512.
2. CULVERT TO BE BACKFILLED WITH EXCAVATION MATERIAL AND WILL BE CONSIDERED INCIDENTAL TO UNCLASSIFIED EXCAVATION AND NO DIRECT COMPENSATION WILL BE MADE.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

℄ CULV. STA. 11+89
INPL. 24" x 28' C.M.P.

REMOVE 28 LIN. FT.

BR. NO. L8801 STA. 15+00
22' X 24' STEEL BEAM SPAM WITH WINGWALLS

NEW BR. NO. 55J62 STA. 15+06.83 & STA. ~~15+23.17~~ 15+20.17
2 – 12' x 10' x 66' PRECAST CONC. BOX CULV. CL. III
4 – 12' x 10' x 66' PRECAST CONC. END SECTIONS
SEE SHEET NO 7 FOR RIPRAP



60 L.F. 24" C.M. Pipe
2-24" C.M. pipe aprons
Sta. 11+90
Place CL. III Rip Rap Outlet

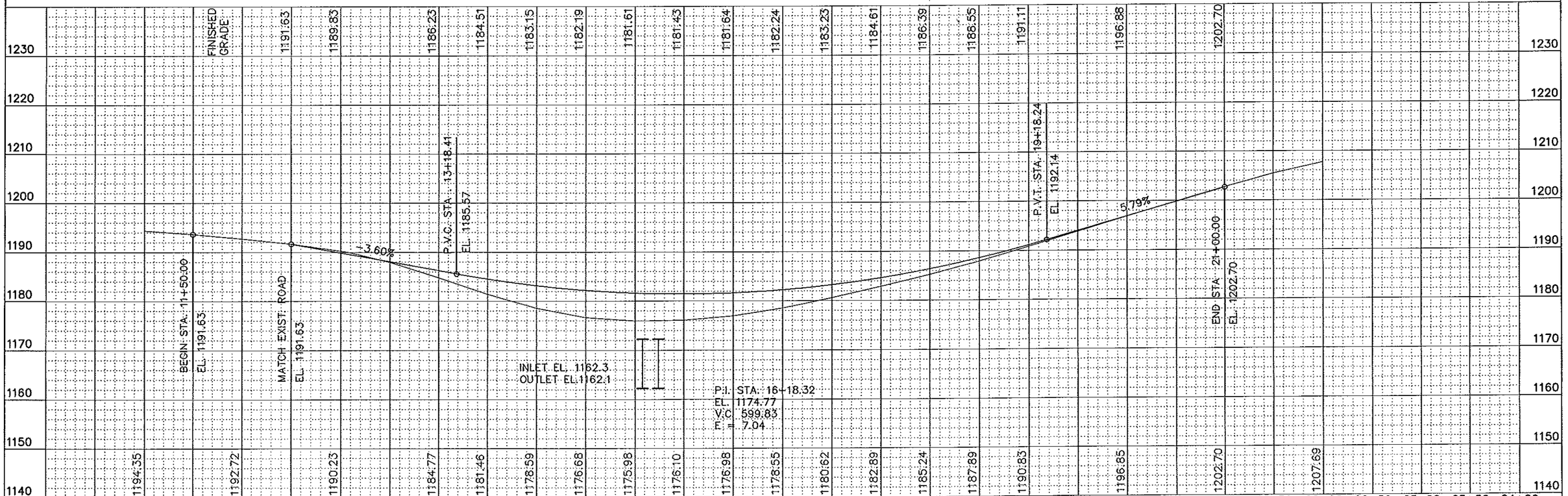
RES. DR. RT. STA. 12+04
NO CULV. INPL.

~~24" x 44' C.M. PIPE CULV.~~
~~2 – 24" G.S. PIPE APRONS~~
Ommit

▨ CHANNEL EXCAVATION

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ENGINEERING

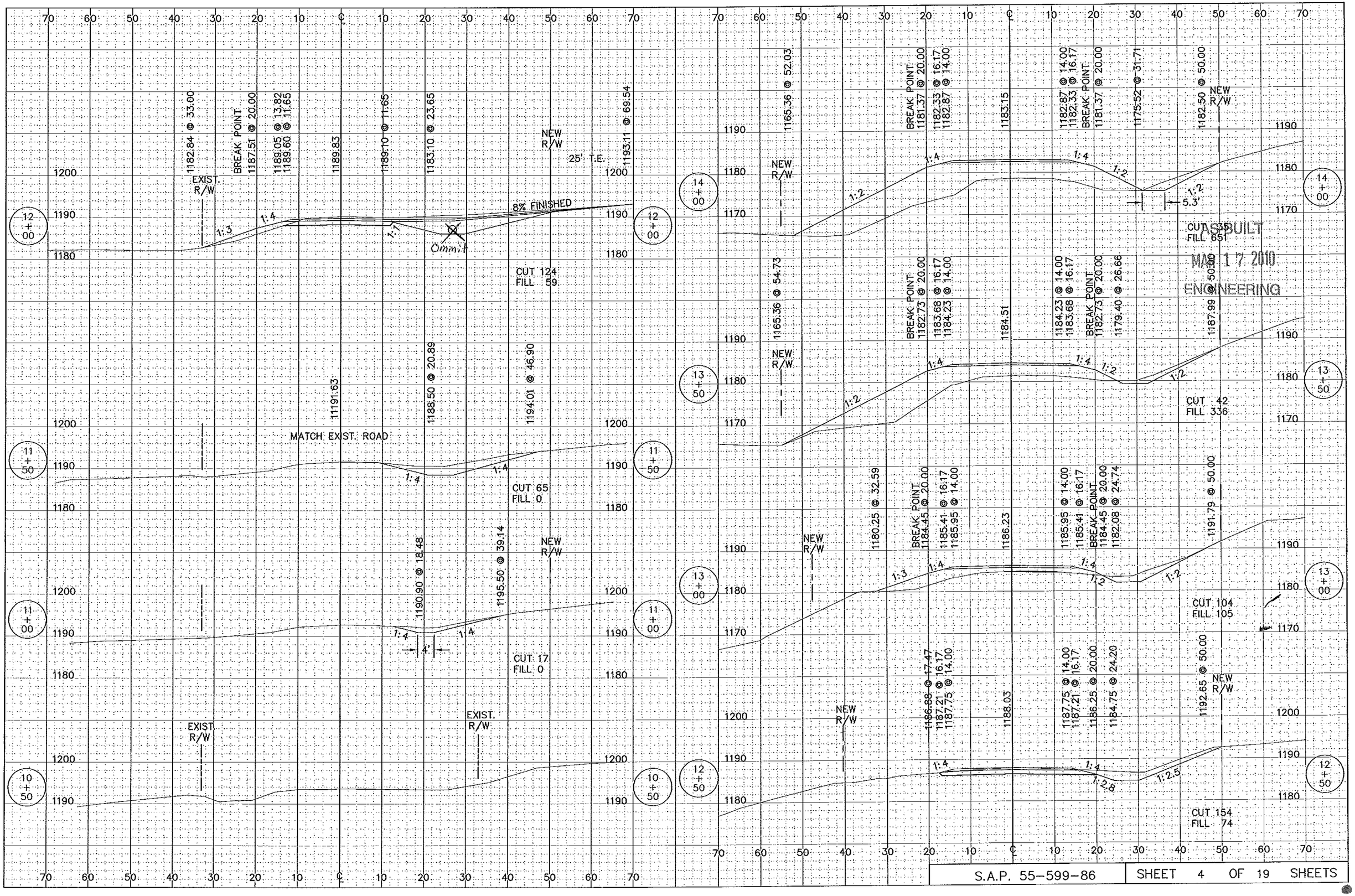
SCALES: HOR. 0 50' 100'
VER. 0 10' 20'



CERTIFIED BY Kaye M Przemek REG. NO. 19917 5/25 2006
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-599-86

SHEET 3 OF 19 SHEETS

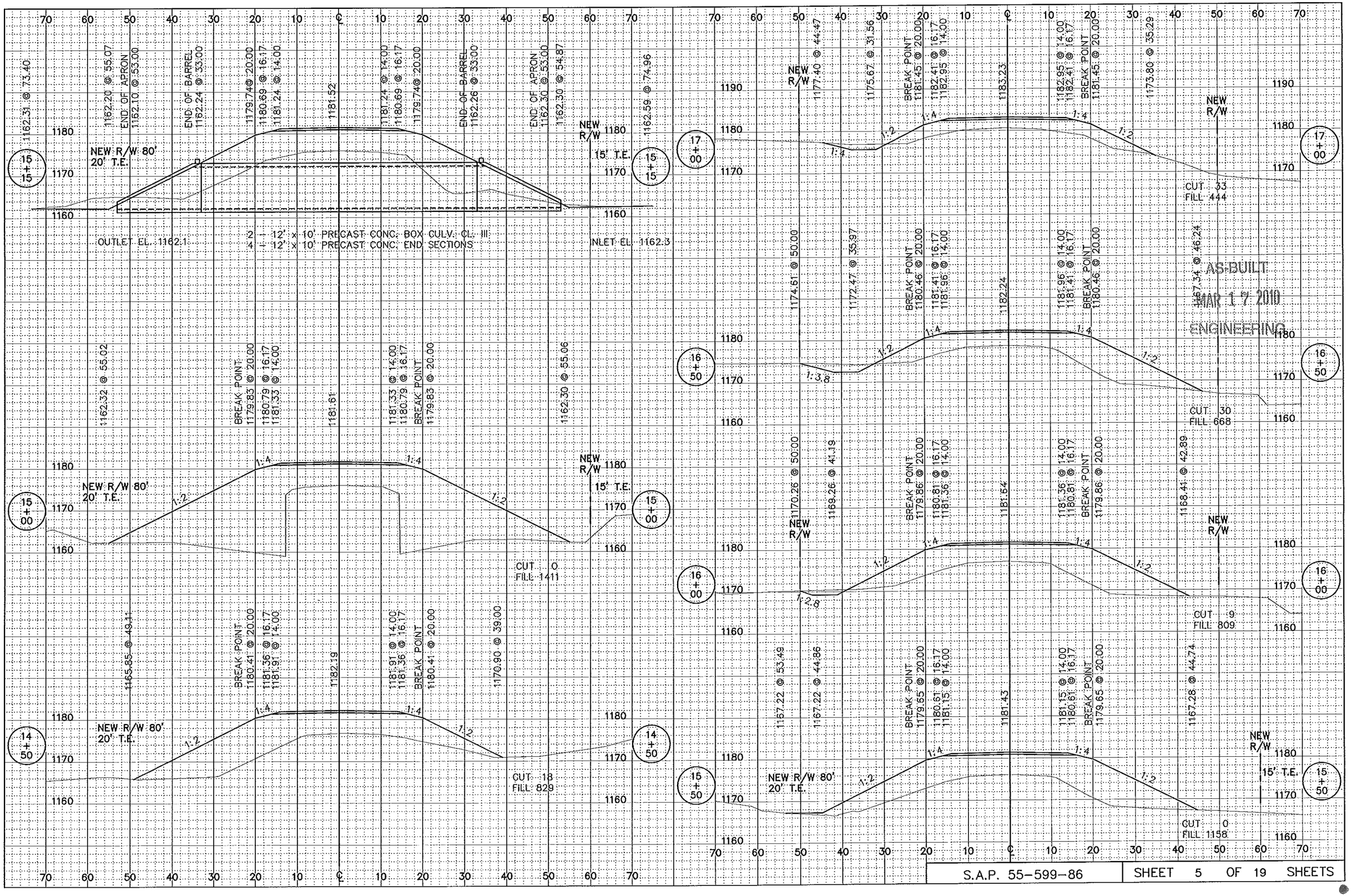


MAR 17 2010

ENGINEERING

AS BUILT

S.A.P. 55-599-86	SHEET 4 OF 19 SHEETS


NEW R/W 80'
20' T.E.
OUTLET EL. 1162.1
2 - 12' x 10' PRECAST CONC. BOX CULV. CL. III
4 - 12' x 10' PRECAST CONC. END SECTIONS
INLET EL. 1162.3
NEW R/W
15' T.E.
END OF BARREL
END OF APRON
BREAK POINT
CUT 33
FILL 444
CUT 0
FILL 1411
CUT 18
FILL 829
CUT 30
FILL 668
CUT 9
FILL 809
CUT 0
FILL 1158
15 + 15
15 + 00
16 + 50
16 + 00
14 + 50
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UNCLASSIFIED EXC. = 1,229 CU. YDS.
EMBANKMENT = 7,492 CU. YDS.

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NEW R/W
1187.55 @ 32.79
1187.55 @ 27.11
1189.20 @ 20.52
1190.29 @ 16.17
1190.83 @ 14.00
1191.11
1190.83 @ 14.00
1190.29 @ 16.17
BREAK POINT
1189.33 @ 20.00
1183.93 @ 36.20
1185.42 @ 48.17
NEW R/W
CUT 64
FILL 100

1184.66 @ 34.49
1184.66 @ 28.45
1186.64 @ 20.52
1187.73 @ 16.17
1188.27 @ 14.00
1188.55
1188.27 @ 14.00
1187.73 @ 16.17
BREAK POINT
1186.77 @ 20.00
1182.20 @ 33.72
1182.82 @ 42.49
CUT 46
FILL 117

1184.01 @ 46.29
1181.77 @ 31.35
1185.56 @ 16.17
1186.11 @ 14.00
1186.39
1186.11 @ 14.00
1185.56 @ 16.17
BREAK POINT
1184.61 @ 20.00
1179.30 @ 35.92
1180.92 @ 48.39
CUT 38
FILL 169

1178.88 @ 37.11
1178.88 @ 29.88
BREAK POINT
1182.83 @ 20.00
1183.79 @ 16.17
1184.33 @ 14.00
1184.61
1184.33 @ 14.00
1183.79 @ 16.17
BREAK POINT
1182.83 @ 20.00
1176.40 @ 39.30
1177.72 @ 50.00
NEW R/W
CUT 27
FILL 245

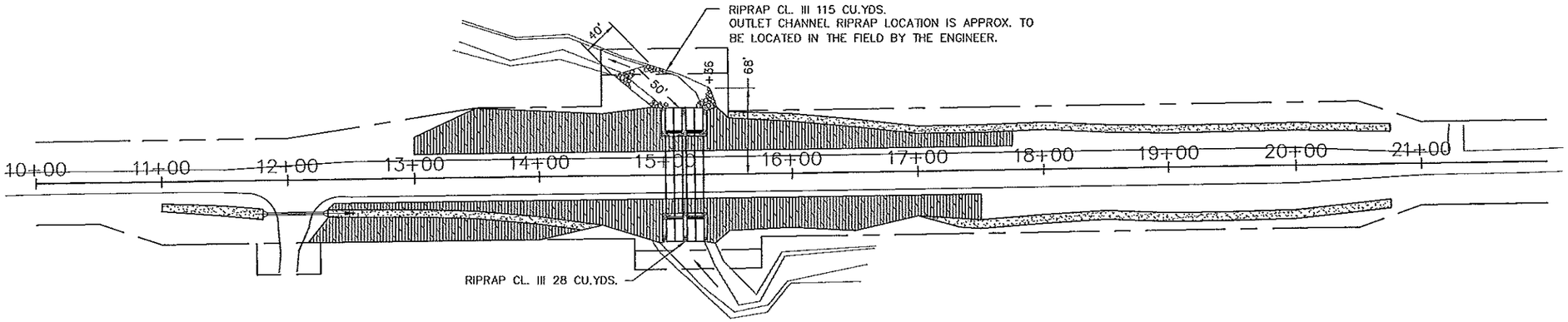
EXIST R/W
MATCH EXIST. ROAD
EXIST R/W
CUT 8
FILL 3

NEW R/W
1199.67 @ 27.29
1195.94 @ 26.37
1198.99 @ 14.17
1199.53 @ 12.00
1199.77
1199.53 @ 12.00
1198.99 @ 14.17
1194.93 @ 30.41
1198.11 @ 49.12
NEW R/W

1195.66 @ 43.81
1193.15 @ 27.78
1196.05 @ 16.17
1196.60 @ 14.00
1196.88
1196.60 @ 14.00
1196.05 @ 16.17
1191.27 @ 35.30
1193.30 @ 49.40
CUT 144
FILL 60

NEW R/W
1192.82 @ 43.35
1190.34 @ 27.44
1193.16 @ 16.17
1193.70 @ 14.00
1193.98
1193.70 @ 14.00
1193.16 @ 16.17
BREAK POINT
1192.20 @ 20.00
1187.60 @ 36.10
1189.27 @ 48.87
NEW R/W
CUT 110
FILL 103
CUT 88
FILL 103

S.A.P. 55-599-86	SHEET 6 OF 19 SHEETS



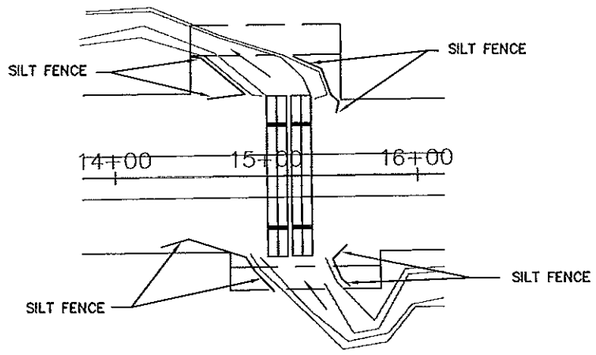
EROSION CONTROL BLANKET CATEGORY 5
PLACE BLANKET IN DITCH BOTTOM ONLY. LOCATION IS APPROX. TO BE PLACED IN THE FIELD AS DIRECTED BY THE ENGINEER.

EROSION CONTROL BLANKET CATEGORY 3
PLACE BLANKET ON 1:2 FORESLOPE AND BACKSLOPES ONLY. LOCATION IS APPROX. TO BE PLACED IN THE FIELD AS DIRECTED BY THE ENGINEER.

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SILT FENCE LOCATION

NOTE: LOCATION IS APPROXIMATE. SILT FENCE TO BE PLACED IN THE FIELD AS DIRECTED BY THE ENGINEER.

BIOROLL PLACEMENT ①		
LOCATION		LIN. FT.
RT. STA. 11+00 TO STA. 11+50	3 – SPACING 25'	21
RT. STA. 11+60 TO STA. 11+80	3 – SPACING 10'	24
RT. STA. 12+50 TO STA. 13+50	6 – SPACING 20'	48
RT. STA. 13+65 TO STA. 14+40	6 – SPACING 15'	48
LT. STA. 15+85 TO STA. 17+50	12 – SPACING 15'	96
LT. STA. 17+70 TO STA. 20+50	15 – SPACING 20'	120
RT. STA. 17+50 TO STA. 18+50	6 – SPACING 20'	48
RT. STA. 18+80 TO STA. 19+10	2 – SPACING 30'	16
RT. STA. 19+25 TO STA. 20+75	11 – SPACING 15'	85
	TOTAL	506

① BIOROLLS TO BE PLACED IN DITCH BOTTOM ON EROSION CONTROL BLANKET CATEGORY 5. LOCATIONS IS APPROX. TO BE PLACED IN THE FIELD AS DIRECTED BY THE ENGINEER.

NOTE: MNDOT SPEC. 1717 WILL BE ENFORCED.

EROSION CONTROL

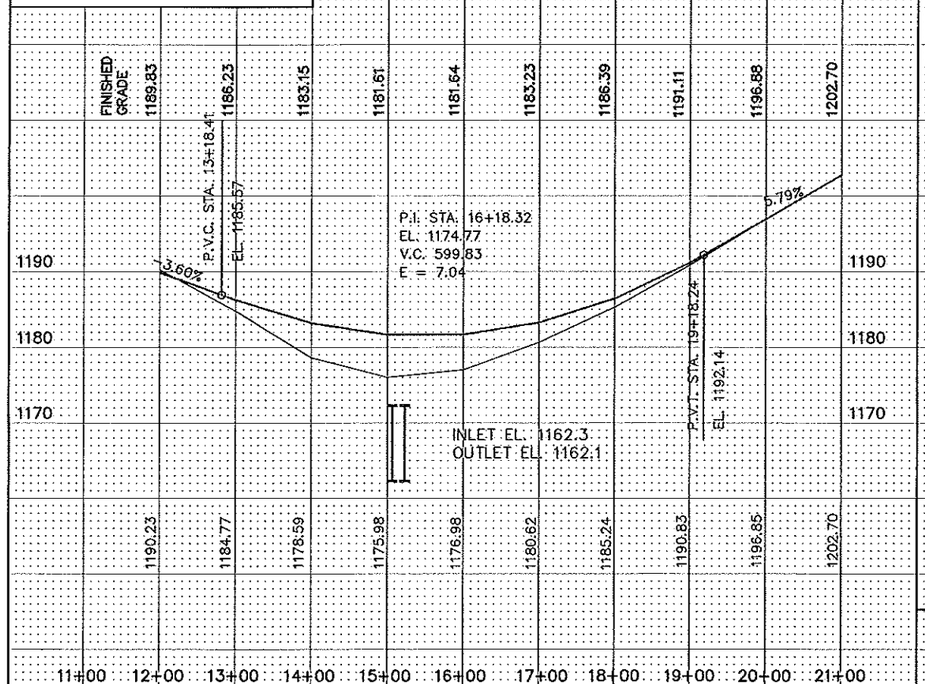
CERTIFIED BY Kaye M Reinwick REG. NO. 19917 5/25 2006
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-599-86

SHEET 7 OF 19 SHEETS

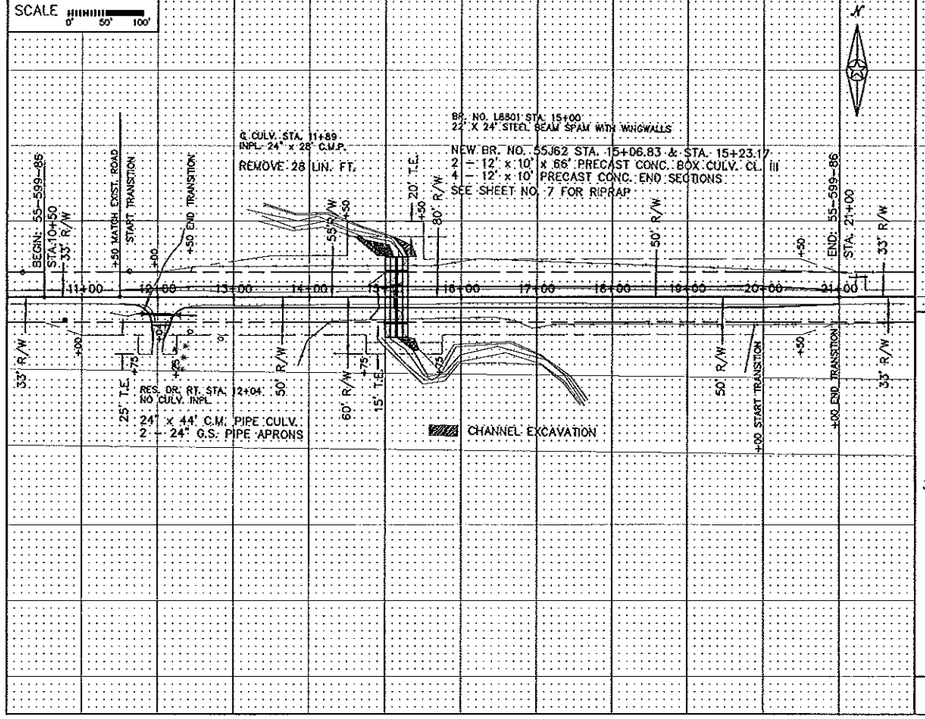
CONTRACTED PROFILE

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



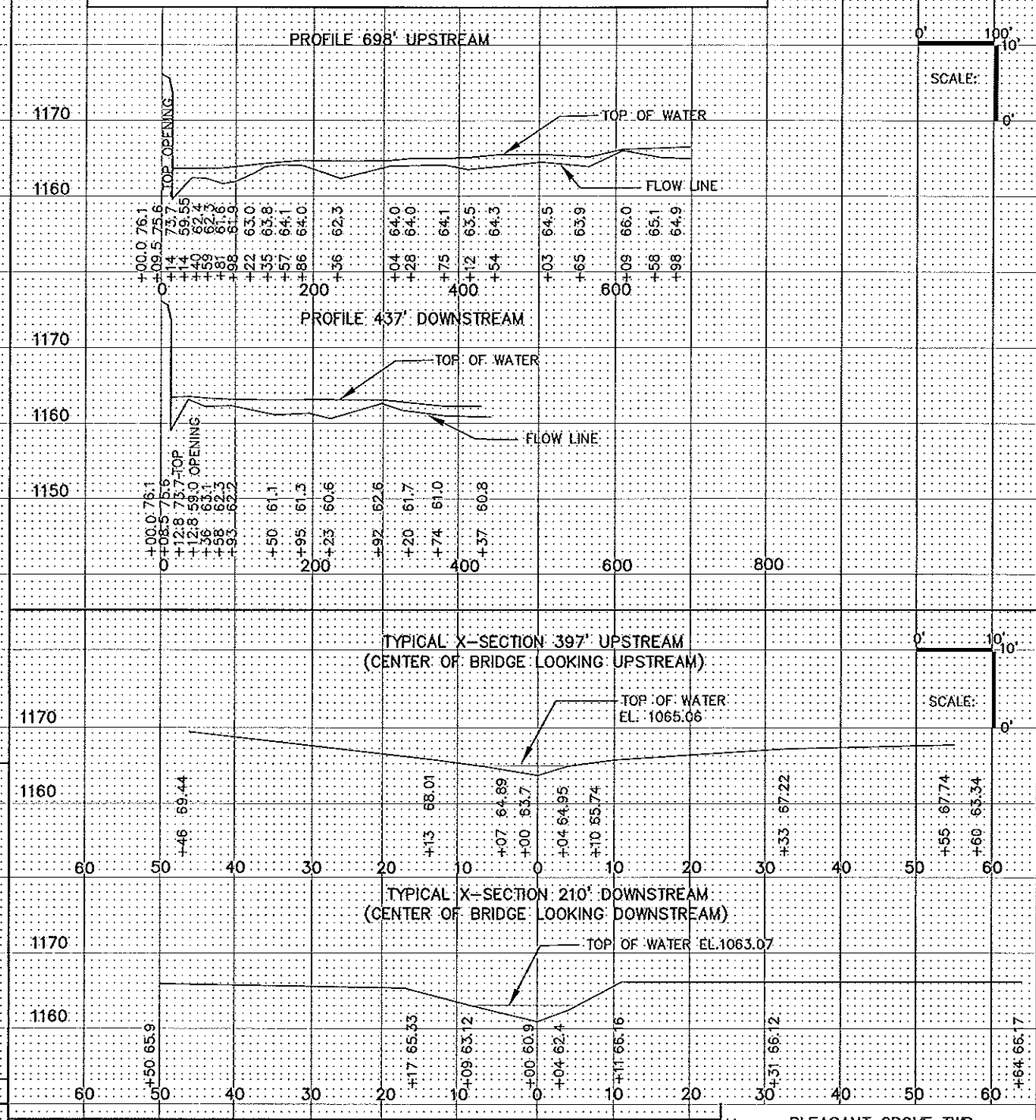
PLAT

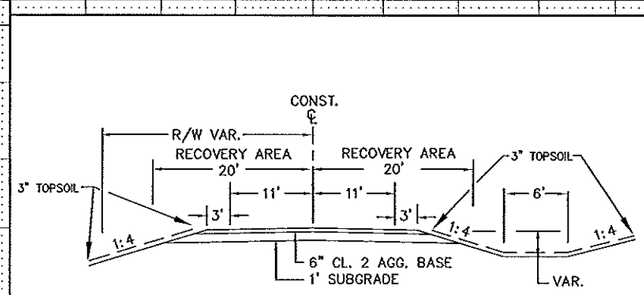
SCALE 0' 50' 100'

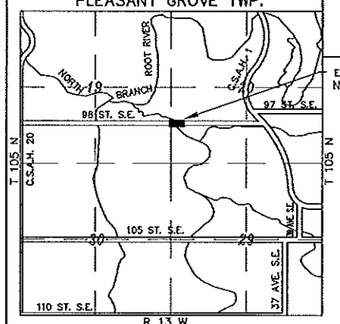


TYPICAL SECTIONS & PERTINENT DATA

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 2/06/06

Stream or ditch designation UNNAMED

Drainage area 5.7 sq. mi.

Max. flood on record Unknown Design flood (100 yr. freq.) 1860 C.F.S.

Max. observed highwater elevation Unknown Design highwater elevation 1172.5

Design mean velocity through structure 9.8 F.P.S. Outlet .....

Low superstructure at or above elevation NA .....

Flowline 1162.2 Skew angle .....

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 1860 C.F.S. at stage 1170.1 and mean velocity of 9.8 F.P.S. with 2.7 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 .....

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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 0.6 MI. W. OF C.S.A.H. 1 (T.H., C.S.A.H., C.R. etc.)

PROPOSED BRIDGE LOCATED 0.6 MILES W. OF C.S.A.H. 1

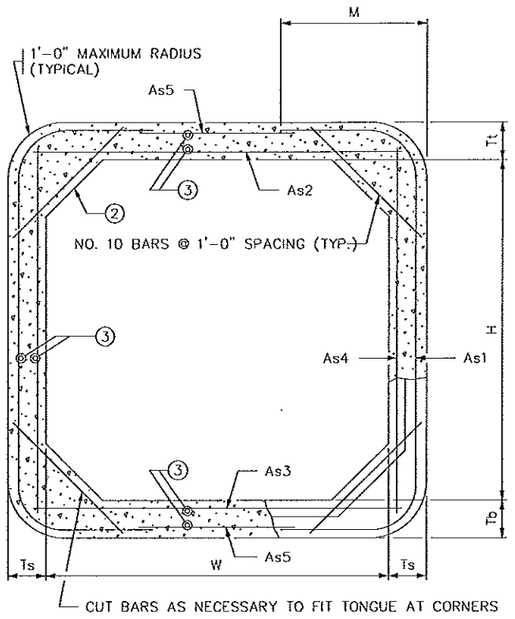
SEC. 20 TWP. 105 N R 13 W

TOWNSHIP PLEASANT GROVE COUNTY OLMSTED

BRIDGE NO. 55J62

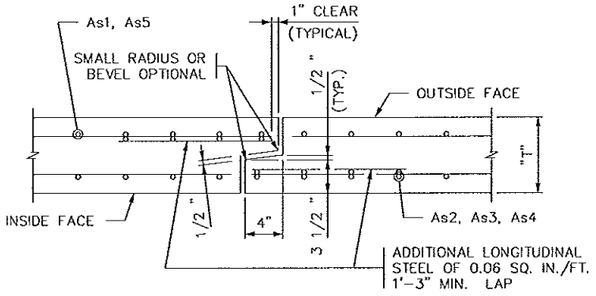
CERTIFIED BY Kaye M Poienick REG. NO. 19917 5/25 2006
LICENSED PROFESSIONAL ENGINEER

State Aid Proj. 55-599-86 PLEASANT TWP Sheet No 14 of 19 Sheets

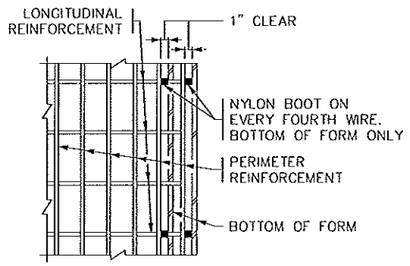


TRANSVERSE BARREL SECTION

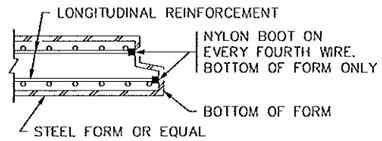
BAR REINFORCEMENT OPTION SHOWN



TONGUE AND GROOVE JOINT DETAIL

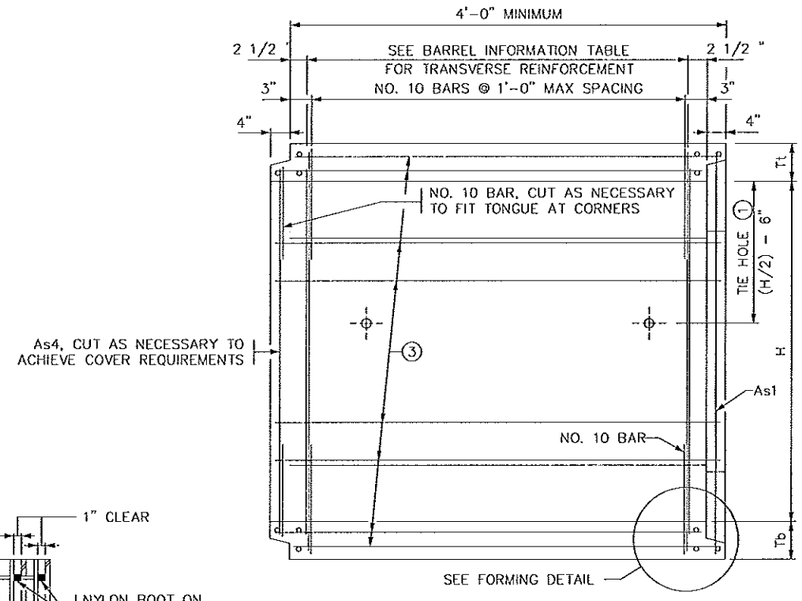


PLAN



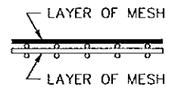
SECTION

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.

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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.)
15+06.83	12' x 10'	3	5000	8-15	12	10	10	10	8	5545	1.17	17'-8"	3'-8"	1.60	12'-6"	1.80	12'-6"	0.20	10'-6"	0.06	8'-0"
15+23.17	12' x 10'	3	5000	8-15	12	10	10	10	8	5545	1.17	17'-8"	3'-8"	1.60	12'-6"	1.80	12'-6"	0.20	10'-6"	0.06	8'-0"

REVISION:

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

S.A.P. 55-599-86 STA. 15+06.83 AND STA. 15+23.17

FIG. 5-395.101(A)

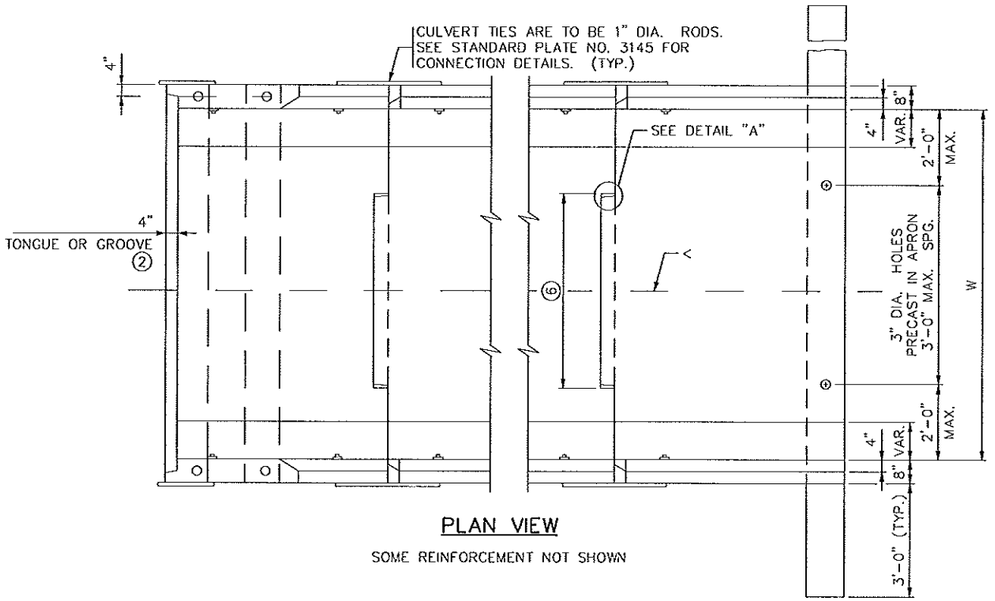
CERTIFIED BY Kaye M Briesnick
LICENSED PROFESSIONAL ENGINEER
REG. NO. 19917 5/25 2006

TITLE: BARREL DETAILS

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

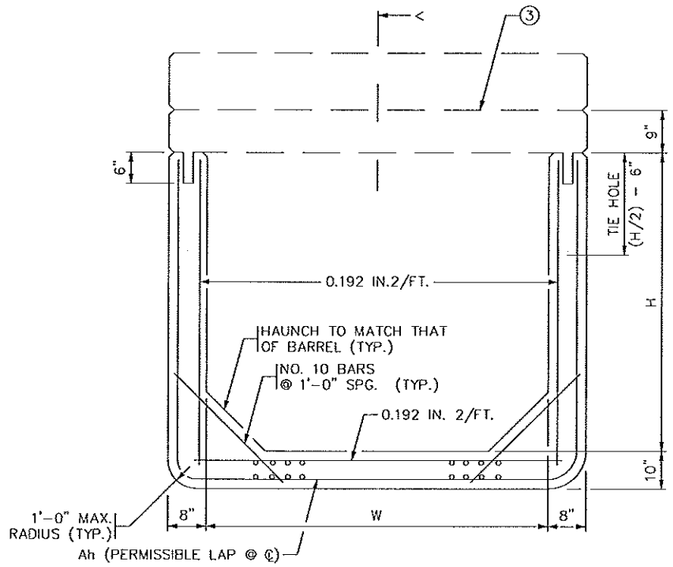
SHEET NO. 15 OF 19 SHEETS

BRIDGE NO. 55J62



PLAN VIEW

SOME REINFORCEMENT NOT SHOWN



SECTION A-A

CONSTRUCTION NOTES

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

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

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

① WITH DOUBLE 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.

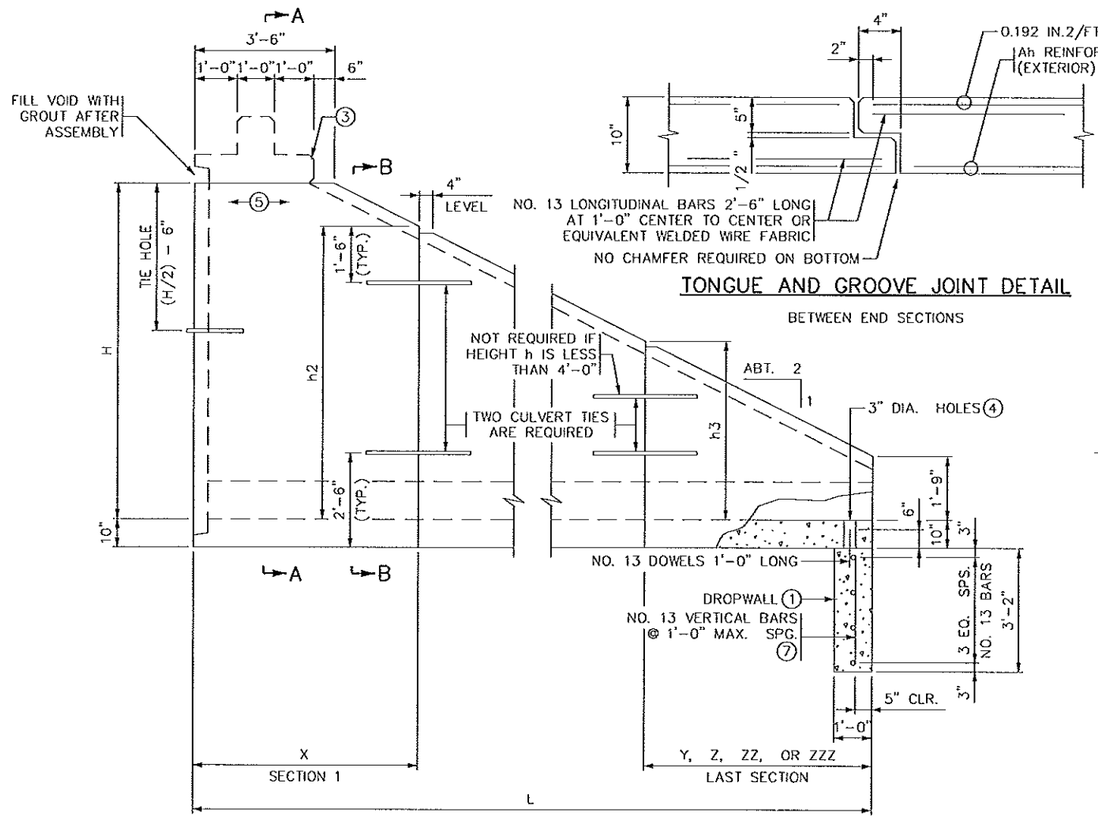
③ SEE FIG. 5-395.104(B) FOR LINTEL BEAM DETAILS.

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 ℄ OF EACH APRON JOINT.

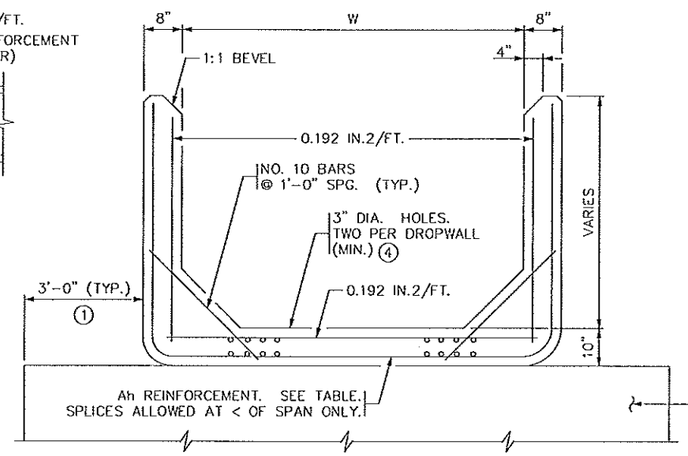
⑦ AS AN ALTERNATE TO THE ONE LAYER MESH, PROVIDE TWO LAYERS OF REBAR OR WIRE MESH WITH THE STEEL AREA EQUAL TO HALF OF THE TEMPERATURE STEEL PER CODE REQUIREMENTS IN EACH FACE OF THE DROPWALL.



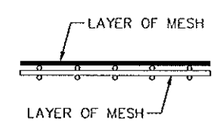
SIDE ELEVATION

TONGUE AND GROOVE JOINT DETAIL

BETWEEN END SECTIONS

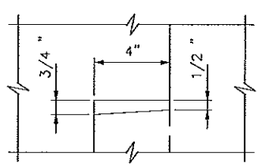


SECTION B-B



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.



DETAIL "A"

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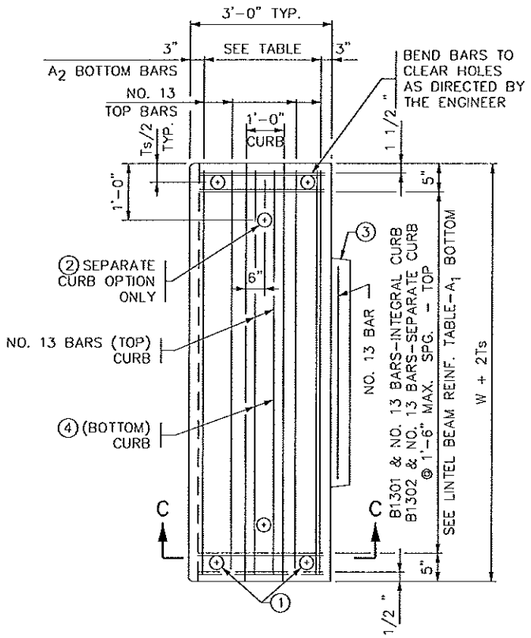
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APRON DIMENSIONS & Ah REINFORCEMENT

H	L	SECTION 1		h2	SECTION 2		h3	SECTION 3		h4	SECTION 4		h5	SECTION 5		h6
FT.	FT.	X	Ah		Y	Ah		Z	Ah		ZZ	Ah		ZZZ	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"			
13	26	6'	1.03	11'-9"	6'	0.78	8'-9"	6'	0.28	5'-9"	8'	0.192	1'-9"			
14	28	6'	1.38	12'-9"	6'	1.03	9'-9"	6'	0.40	6'-9"	6'	0.192	3'-9"	4'	0.192	1'-9"

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

REVISION: 06-30-2003	S.A.P. 55-599-86 STA. 15+06.83 & STA. 15+23.17		FIG. 5-395.104(A)
APPROVED: DECEMBER 11, 2000	CERTIFIED BY Kaye M Bieniek LICENSED PROFESSIONAL ENGINEER	TITLE: PRECAST CONCRETE END SECTION TYPE III - SINGLE OR DOUBLE BARREL FOR SKEWS UP TO 7 1/2 °	DES: / DR: / APPROVED:
Arnold J. Klemmy STATE BRIDGE ENGINEER	REG. NO. 19917 6/8 2006		CHK: / CHK: / SHEET NO. 16 OF 19 SHEETS
			BRIDGE NO. 55J62

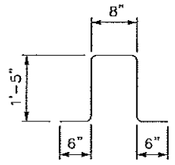


PLAN OF SQUARE LINTEL BEAM

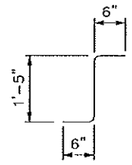
TONGUE OPTION SHOWN

LINTEL BEAM BOTTOM REINFORCEMENT		
WIDTH W (FT.)	A_1	A_2
6	NO. 13 @ 1'-2"	NO. 13 @ 9 1/2 "
8	NO. 13 @ 8"	NO. 16 @ 8"
10	NO. 16 @ 8"	NO. 19 @ 7 1/2 "
12	NO. 16 @ 6"	NO. 19 @ 6"
14	NO. 19 @ 6"	NO. 22 @ 6"

NOTE: MAXIMUM BAR SPACING GIVEN, REDUCE AS NECESSARY



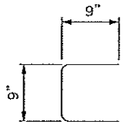
B1301



B1301 ALTERNATE

⑤

2 REQUIRED



B1302

CONSTRUCTION NOTES

SEE FIG. 5-395.101(A) AND FIG. 5-395.101(B) FOR ADDITIONAL DIMENSIONS AND 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".

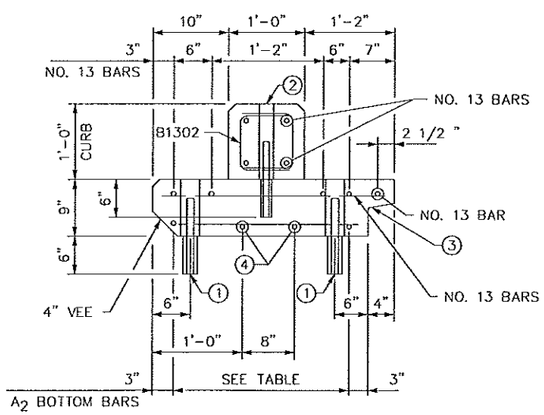
① 3" DIA. HOLE THROUGH LINTEL BEAM AND 2" DIA. HOLE IN TOP OF WALL SECTION. PLACE NO. 25 DOWEL, 1'-0" LONG, IN HOLE AND FILL HOLE WITH GROUT.

② 3" DIA. HOLE THROUGH CURB AND 2" DIA. HOLE IN LINTEL BEAM. PLACE NO. 25 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.

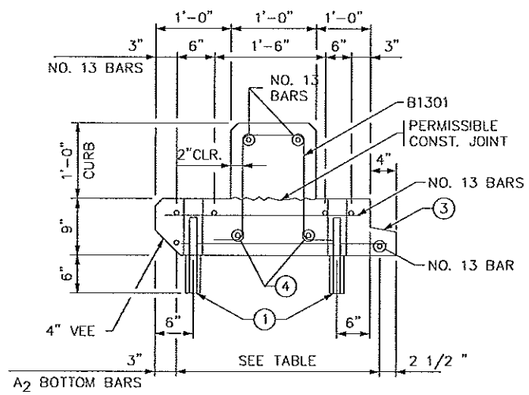
④ FOR SPANS UNDER 10'-0" USE NO. 25 BARS. FOR SPANS OF 10'-0" TO 12'-0" USE NO. 29 BARS. FOR 14'-0" SPAN, USE NO. 32 BARS.

⑤ ALTERNATE BAR BEND MAY BE USED FOR B1301.



SECTION C-C

SEPARATE CURB OPTION WITH GROOVE.
ADDITIONAL REINFORCEMENT IN GROOVE NOT SHOWN.



SECTION C-C

INTEGRAL CURB OPTION WITH TONGUE.
ADDITIONAL REINFORCEMENT IN TONGUE NOT SHOWN.

AS-BUILT

MAR 17 2010

ENGINEERING

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

S.A.P. 55-599-86 STA. 15+06.83 & STA. 15+23.17

FIG. 5-395.104(B)

CERTIFIED BY Kaye M Brienik PROFESSIONAL ENGINEER

REG. NO. 19917 5/25 2006

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

DES:	DR:	APPROVED:
CHK:	CHK:	

SHEET NO. 17 OF 19 SHEETS

BRIDGE NO. 55J62