696
3792

MINNESOTA DEPARTMENT OF TRANSPORTATION

THE COUNTY OF OLMSTED

CONSTRUCTION PLAN FOR REPLACE BRIDGE NO. L-6180 (NEW BR. NO. 55J63) AND APPROACH GRADING

LOCATED ON 80th St. S.W. BETWEEN C.S.A.H. 3 AND 90TH Ave. S.W. (GEOGRAPHIC DESCRIPTION)

FROM APROX. 12' EAST OF SECTION 8 & 9 T105-R15W TO APROX. 762' WEST OF SECTION 8 & 9 T105N-R15W (LEGAL DESCRIPTION)

S.A.P. NO. 55-599-87

GROSS LENGTH	750.00	FEET	0.142 MILES
BRIDGE--LENGTH	13.33	FEET	0.003 MILES
EXCEPTIONS--LENGTH	0.00	FEET	0.000 MILES
NET LENGTH	750.00	FEET	0.142 MILES

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

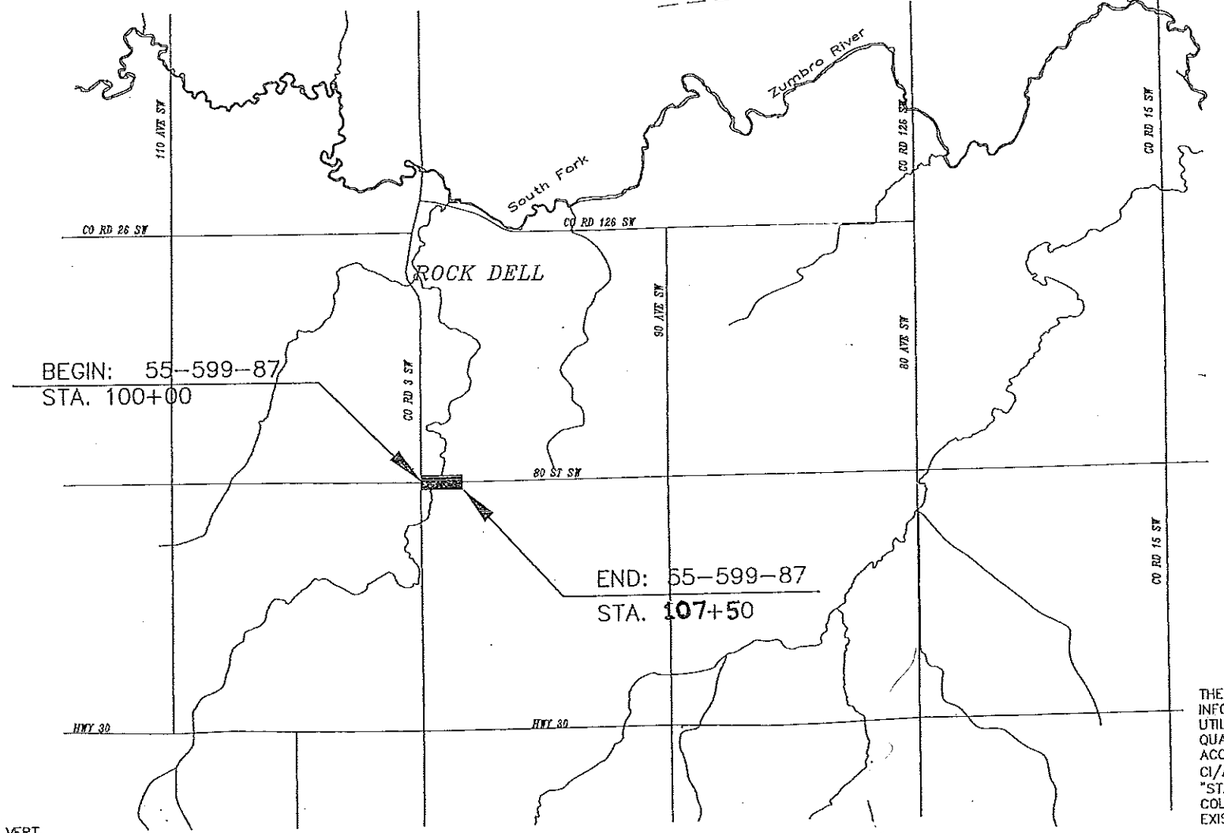
POWER POLE LINE
TELEPHONE OR TELEGRAPH POLE LINE
JOINT TELEPHONE AND POWER ON POWER POLE
ON TELEPHONE POLES
ANCHOR
STEEL TOWER
STREET LIGHT
PEDESTAL (TELEPHONE CABLE TERMINAL)
GAS MAIN
WATER MAIN
CONDUIT
TELEPHONE CABLE IN CONDUIT
ELECTRICAL CABLE IN CONDUIT
TELEPHONE MANHOLE
ELECTRICAL MANHOLE
BURIED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

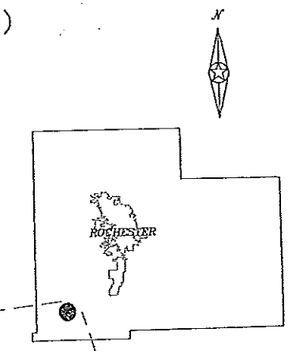
EROSION CONTROL SYMBOLS

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





AS-BUILT
MAR 10 2011
ENGINEERING

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 - 8	CROSS-SECTIONS
SHEET NO. 9	BRIDGE SURVEY SHEET
SHEET NO. 10	BARREL DETAILS
SHEET NO. 11 - 12	PRECAST CONC. END SECTION
SHEET NO. 13 - 20	EROSION CONTROL
SHEET NO. 21	TRAFFIC CONTROL PLANS

THIS PLAN CONTAINS 21 SHEETS.

DESIGN DESIGNATION: S.A.P. 55-599-87

R ΣN18(20) 45 MPH
ADT (Current Year) = 50(2006) Design Speed
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 (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 3 FT.

TOWNSHIP APPROVALS:

Dennis H. Lindquist 6/15/06
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 6/12/06 REG. NO. 19917

PRINTED NAME: KAYE M. BIENIEK

SIGNED NAME: Kaye M Bieniek
COUNTY DESIGN ENGINEER

DATE 6/19/06 REG. NO. 10397

Michael J Sheehan
APPROVED: OLMSTED COUNTY ENGINEER

STATE AID APPROVALS:

Judy Schmidt DATE: 9-27-07
~~ASST~~ DISTRICT STATE AID ENGINEER: REVIEWED FOR COMPLIANCE WITH STATE-AID RULES/ POLICY

for Judy Schmidt DATE: 9-27-07
APPROVED FOR STATE AID FUNDING:
STATE AID ENGINEER

S.A.P. NO. 55-599-87 ROCK DELL TWP. SHEET 1 OF 21 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.	104		104
②	2104.501	REMOVE FENCE	LIN. FT.	450		450
	2105.515	UNCLASSIFIED EXCAVATION	CU. YD.	995		995(P)
	2105.523	COMMON BORROW (CV)	CU. YD.	6,477		6,477(P)
③	2211.501	AGGREGATE BASE CL.2	TON	921		921
	2412.511	12'x 9' PRECAST CONC. BOX CULV. CL. III	LIN. FT.		78	78
	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.		62	62(P)
	2501.511	18" C.S. PIPE CULVERT	LIN. FT.	44		44
	2501.511	24" C.S. PIPE CULVERT	LIN. FT.	142		142
	2501.515	18" G.S. PIPE APRON	EACH	2		2
	2501.515	24" G.S. PIPE APRON	EACH	6		6
④	2511.501	RANDOM RIPRAP CL. III	CU. YD.		51	51
⑤	2573.502	SILT FENCE TYPE MACHINE SLICED	LIN. FT.	110		110
⑥	2573.512	TEMPORARY DITCH CHECK TYPE 2	LIN. FT	284		284
⑦	2575.523	EROSION CONTROL BLANKET CATEGORY 3 (INCLUDES MAINTENANCE)	SQ. YD	1,441		1,441
⑦	2575.523	EROSION CONTROL BLANKET CATEGORY 7 (INCLUDES MAINTENANCE)	SQ. YD	900		900
⑧	2575.555	TURF ESTABLISHMENT	LUMP SUM	1		1

(P) PLAN

QUANTITY NOTES:

① APPROX. 6 TREE AND 0.3 ACRES WOODS.

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

③ 735 TON FOR MAINLINE AND 186 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. 14 EROSION CONTROL FOR APPROX LOCATIONS. SPEC. NO. 1903 DOES NOT APPLY TO ITEM NO. 2573.502

⑥ SEE SHEET NO. 14 EROSION CONTROL BIOROLL PLACEMENT TABLE. SPEC. NO. 1903 DOES NOT APPLY TO ITEM NO. 2573.512

⑦ SEE SHEET NO. 14 EROSION CONTROL FOR APPROX. LOCATIONS. SPEC. NO. 1903 DOES NOT APPLY TO ITEM NO. 2575.523.

⑧ APPROX. 1.1 ACRES.

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BASIS OF PLANNED QUANTITIES

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

STANDARD PLATES

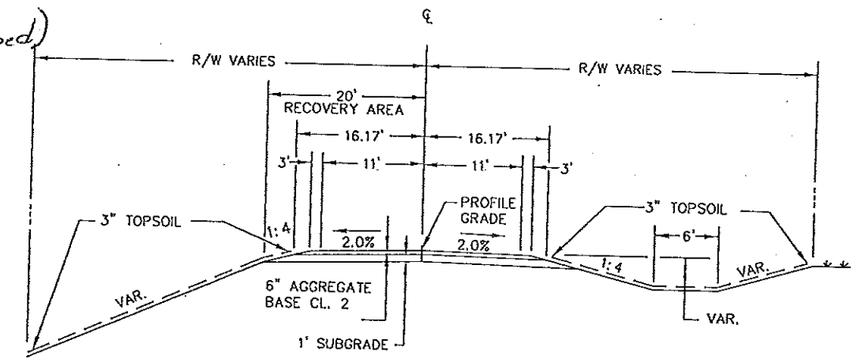
THE FOLLOWING STANDARD PLATES, APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION SHALL APPLY ON THIS PROJECT.

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

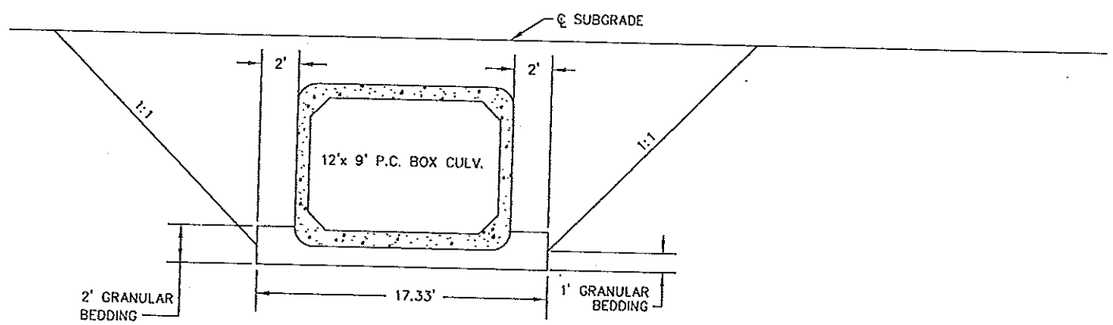
STA. 100+00 TO STA. 107+50

4861 (Revised)



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

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.

CERTIFIED BY Kaye M Brenneke LICENSED PROFESSIONAL ENGINEER REG. NO. 19917 6/9 2010

S.A.P. NO. 55-599-87

SHEET 2 OF 21 SHEETS

F.E. LT. STA. 100+70
INPL. 18" x 36' C.M.P.
WITH APRONS
REMOVE 42 LIN. FT.
18" x 44' C.S. CULV.
2-18" G.S. PIPE APRONS

Gary Nordine

BR. NO. L-6180 STA. 103+25
10' x 19' CAST INPL. CONC. BOX CULV.
WITH CONC WINGWALLS
NEW BRIDGE NO. 55J63 STA. 103+46.5
12' x 9' x 78' PRECAST CONC. BOX CULVERT CL III SKEW 30°
2 - 12' x 9' PRECAST CONC. END SECTIONS
SEE SHEET NO. 14 FOR RIPRAP

F.E. LT. STA. 104+94
NO CULV. INPL.
WITH APRONS
MOVE STA. 105+25
24" x 64' C.S. CULV.
2-24" G.S. PIPE APRONS

℄ C.S.A.H. 3
BEGIN: STA. 100+00
S.A.P. 55-599-87
EXIST. 50' R/W
30' T.E.
30'R
50' R/W
60' R/W
END: STA. 107+50
S.A.P. 55-599-87
EXIST. 33' R/W
REMOVE BITUMINOUS AND REPLACE BITUMINOUS
SAW BITUMINOUS
EXIST. 60' R/W
55' R/W
40' R/W
42' T.E.

RES. RT. STA. 105+65
INPL. 24" x 24' C.M.P.
NO APRONS
REMOVE 42 LIN. FT.
~~24" x 44' G.S. CULV.~~
2-24" G.S. PIPE APRONS

Trail

Cut off @ inlet end 38' left inplace

F.E. RT. STA. 107+00
INPL. 24" x 20' C.M.P.
NO APRONS
REMOVE 20 LIN. FT.
24" x 34' C.S. CULV.
2-24" G.S. PIPE APRONS

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Dean Bjerregaard
Annie Mayer
SEE REVISED

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

FINISHED GRADE

P.I. STA. 100+70.00
EL. 1229.11
V.C. 90.00
E = 0.25
BEGIN: STA. 100+00
EL. 1229.39
P.V.C. STA. 100+25
EL. 1229.29
P.V.T. STA. 101+15
EL. 1227.94
P.V.C. STA. 101+20.5
EL. 1227.80
0.40%
2.60%
4.90%
INLET EL. 1205.30
OUTLET EL. 1204.60
P.I. STA. 104+13.50
EL. 1220.18
V.C. 586.00
E = 5.49
P.V.T. STA. 107+06.5
EL. 1234.54
END: STA. 107+50
EL. 1236.66

1260 1250 1240 1230 1220 1210 1200 1190 1180 1170

1229.39 1229.11 1228.30 1227.09 1226.13 1225.50 1225.19 1226.20 1225.55 1226.18 1227.15 1228.42 1230.64 1231.97 1234.22 1236.66

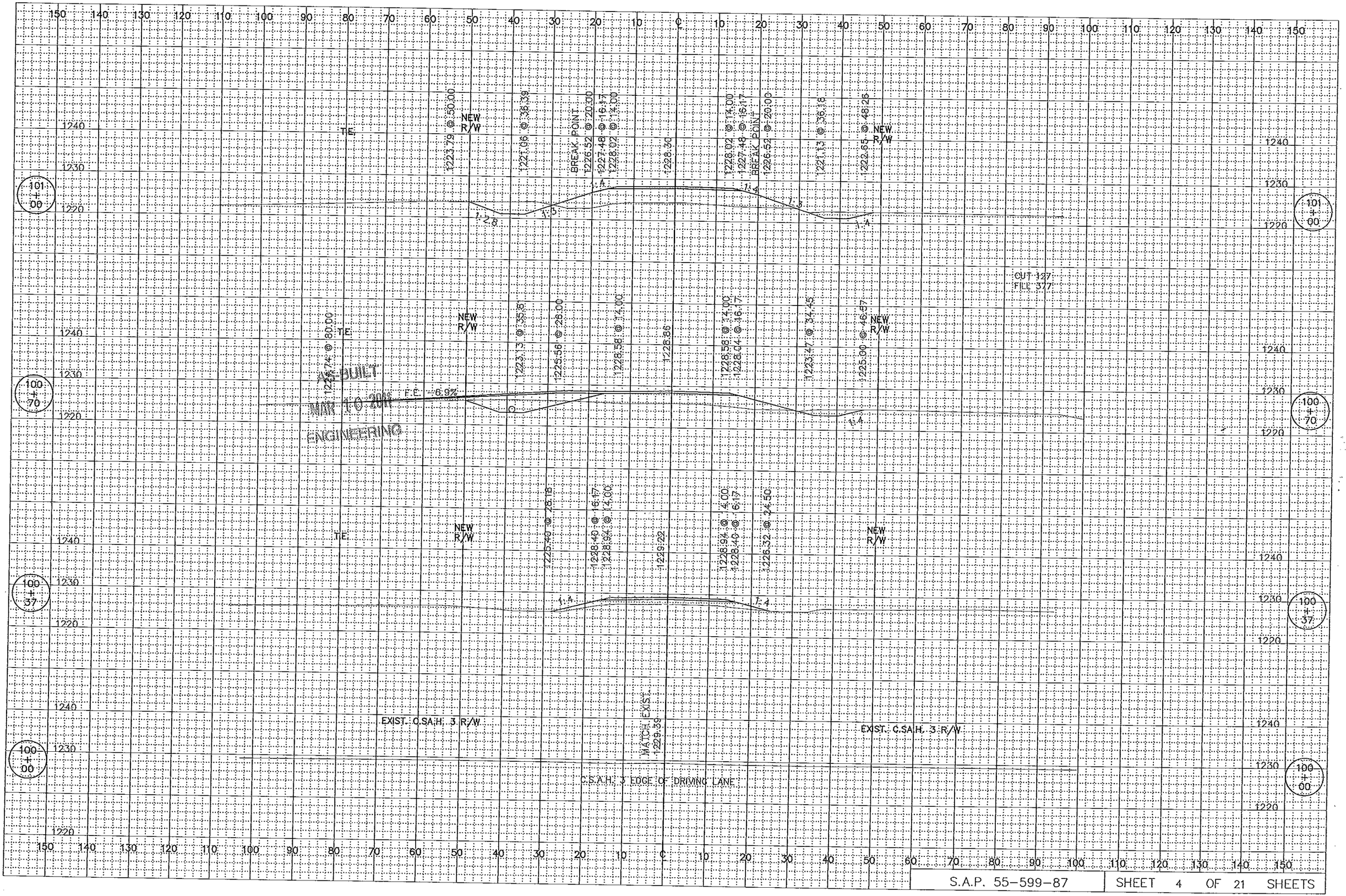
1229.39 1226.87 1224.36 1221.89 1219.59 1218.13 1217.77 1218.32 1219.86 1221.81 1224.14 1226.56 1229.12 1231.68 1234.22 1236.66

100+00 100+50 101+00 101+50 102+00 102+50 103+00 103+50 104+00 104+50 105+00 105+50 106+00 106+50 107+00 107+50 108+00

CERTIFIED BY Kaye M Bierneck REG. NO. 19917 6/9 2010
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-599-87

SHEET 3 OF 21 SHEETS



S.A.P. 55-599-87 | SHEET 4 OF 21 SHEETS

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

1230
1220
1210

103 + 00

TIE

NEW R/W

1209.72 @ 60.00
1208.07 @ 50.69
1211.85 @ 54.25
1210.73 @ 46.00
BREAK POINT
1223.41 @ 20.00
1224.37 @ 16.17
1224.91 @ 14.00
1225.19
1225.50
1225.22 @ 14.00
1224.68 @ 16.17
1225.22 @ 14.00
BREAK POINT
1223.41 @ 20.00
1208.20 @ 50.42
1209.12 @ 58.27
1210.95 @ 55.51
1209.96 @ 47.53

1:4
1:2
1:3

CUT 66
FILL 2,158

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MAR 10 2011
ENGINEERING

102 + 50

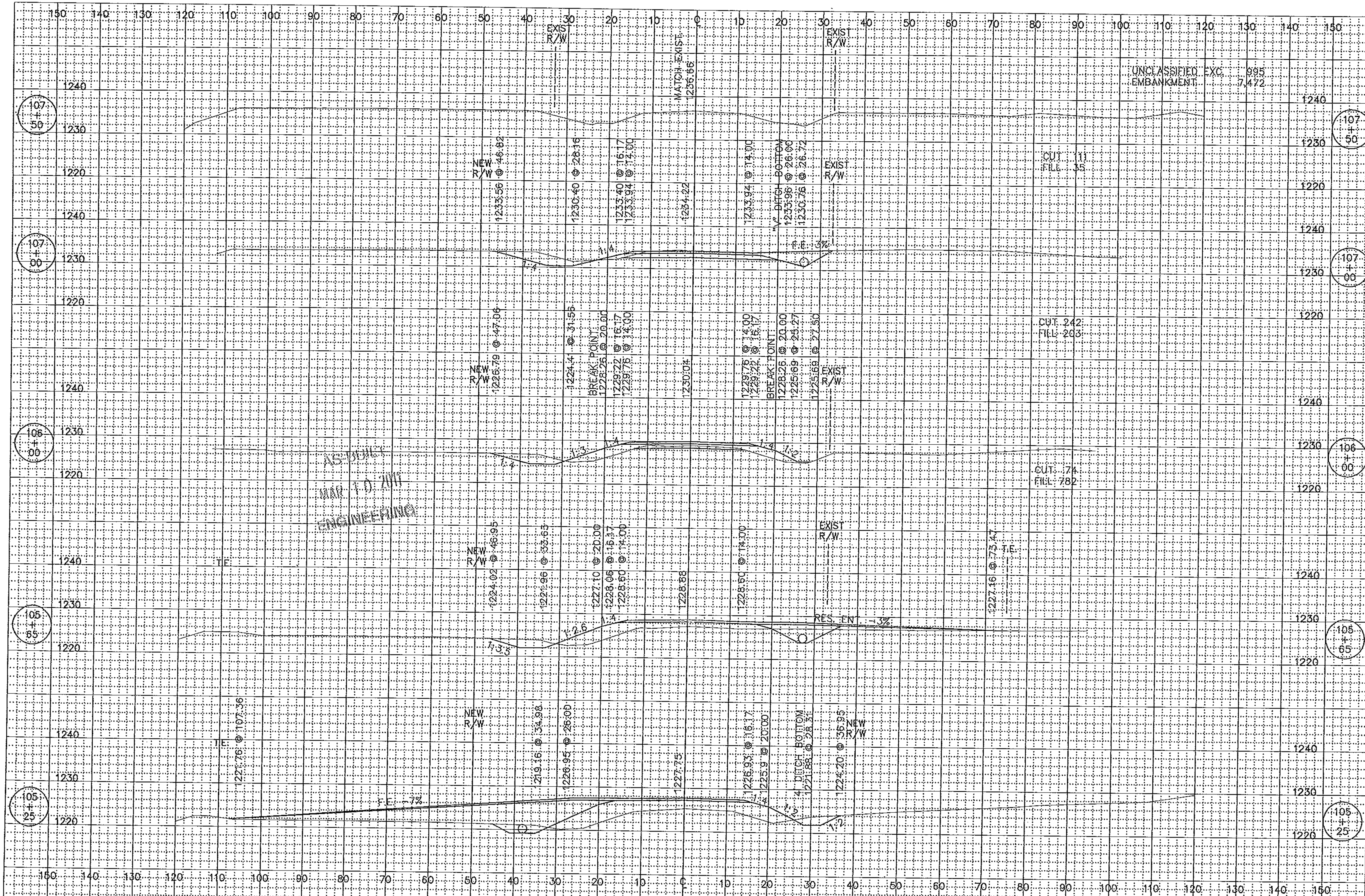
1215.42 @ 48.55
1214.25 @ 40.21
1224.35 @ 20.00
1225.31 @ 16.17
1225.85 @ 14.00
1226.13
1225.85 @ 14.00
1225.31 @ 16.17
1224.35 @ 20.00
1213.32 @ 42.07
1214.30 @ 50.04

102 + 00

CUT 144
FILL 1,104

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

S.A.P. 55--599--87 | SHEET 5 OF 21 SHEETS

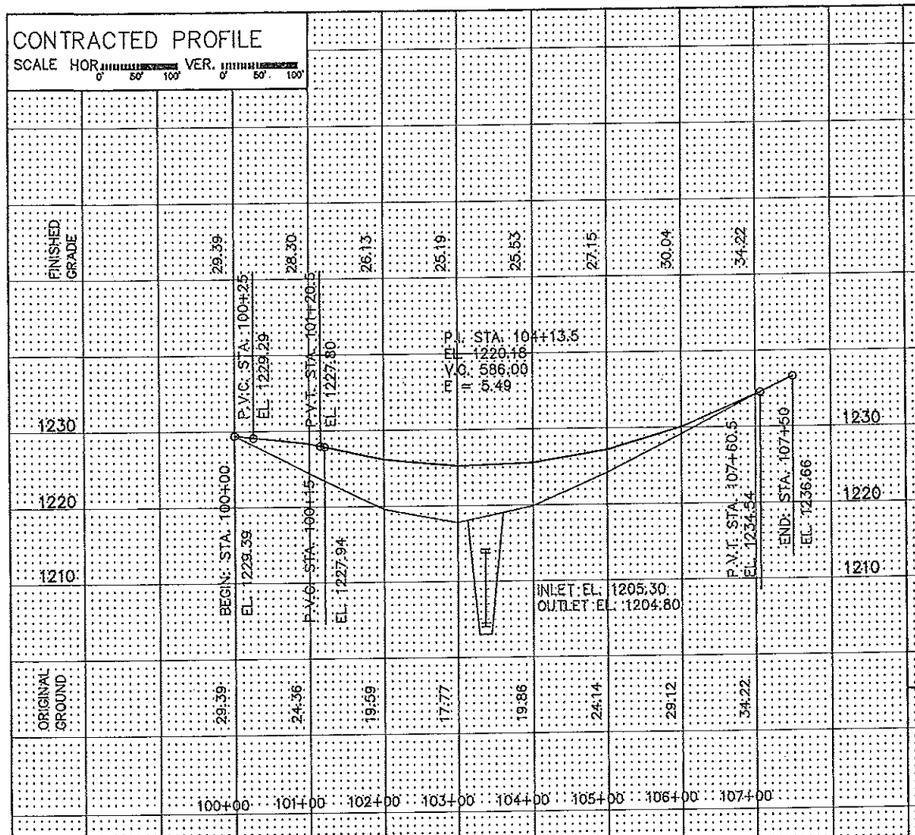


S.A.P. 55-599-87 | SHEET 8 OF 21 SHEETS

Fed. Proj. No.

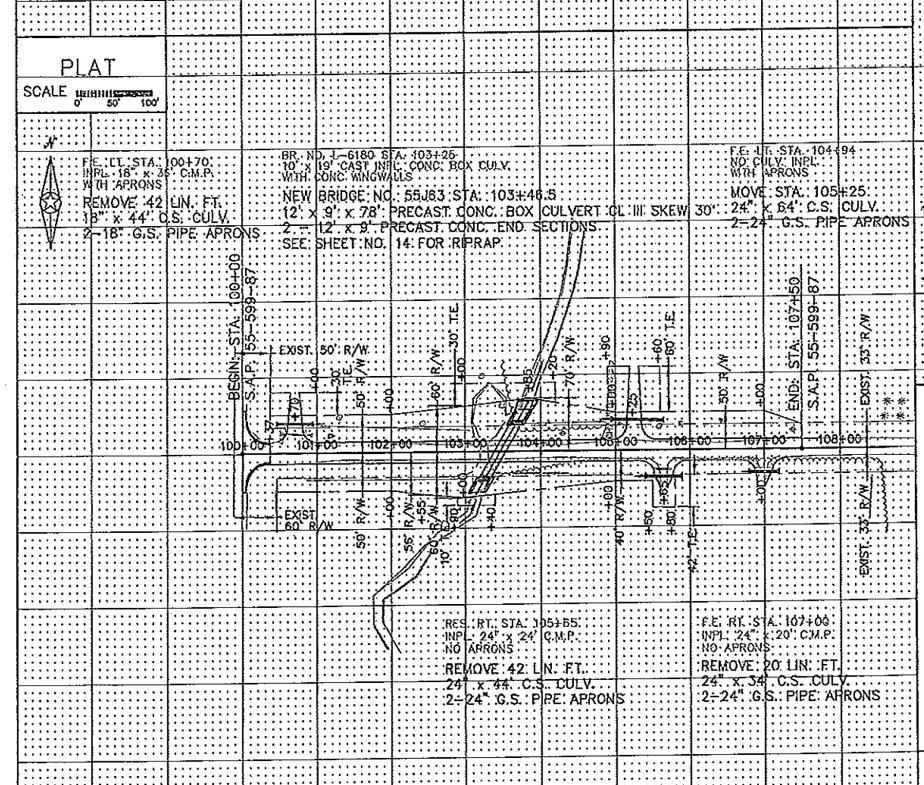
CONTRACTED PROFILE

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



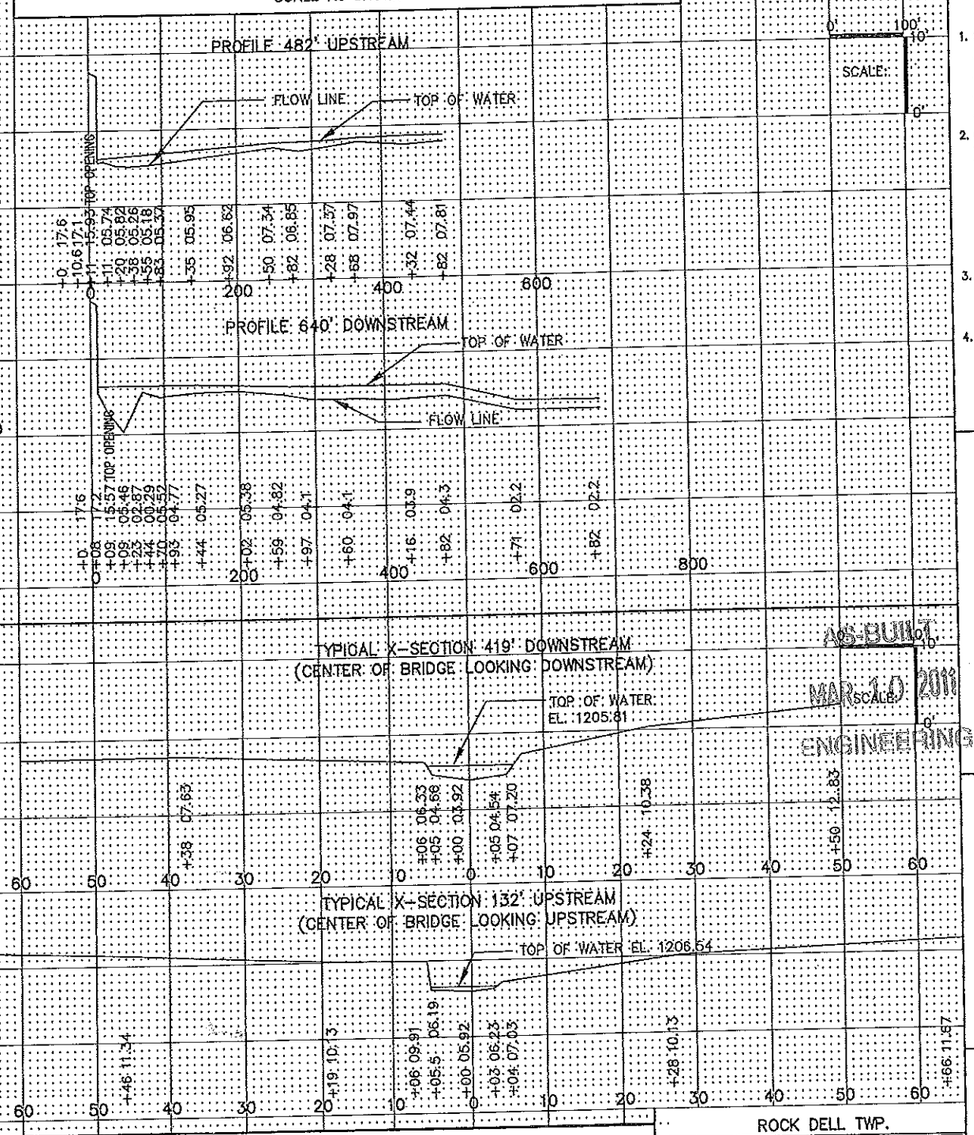
PLAT

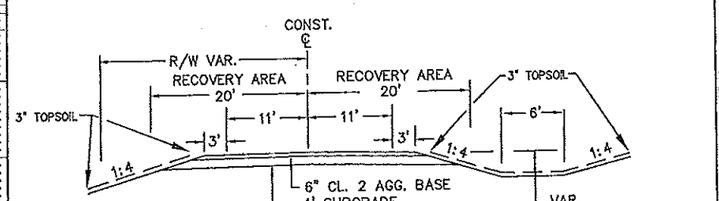
SCALE 0' 50' 100'

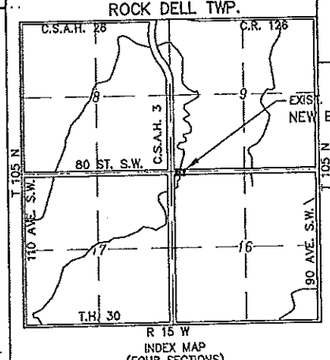


TYPICAL SECTIONS & PERTINENT DATA

SCALE AS SHOWN







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 12/22/05

Stream or ditch designation UNNAMED

Drainage area 3.4 sq. mi.

Max. flood on record Unknown Design flood (100 yr. freq.) 1310 C.F.S.

Max. observed highwater elevation Unknown Design highwater elevation 1213.3

Design mean velocity through structure 14.3 F.P.S. Outlet

Low superstructure at or above elevation NA

Flowline 1205.05 Skew angle 30°

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 1310 C.F.S. at stage 1213.3 and mean velocity of 14.3 F.P.S. with 5.3 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.

AS-BUILT

MAR 10 2010

SCALE: 0' 10' 100'

ENGINEERING

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 0.1 MI. E. OF C.S.A.H. 3 (C.H., C.S.A.H., C.R. etc.)

PROPOSED BRIDGE LOCATED 0.1 MILES E. OF C.S.A.H. 3

SEC. 16 TWP. 105 N R. 15 W

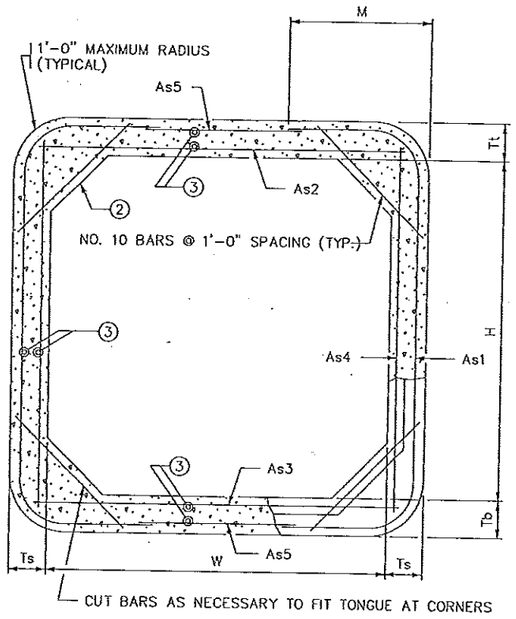
TOWNSHIP ROCK DELL COUNTY OLMSTED

BRIDGE NO. 55J63

CERTIFIED BY Kaye M Bienick REG. NO. 19917 6/9 2010
LICENSED PROFESSIONAL ENGINEER

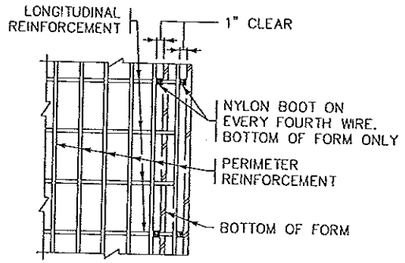
S.A.P. 55-599-87

SHEET 9 OF 21 SHEETS

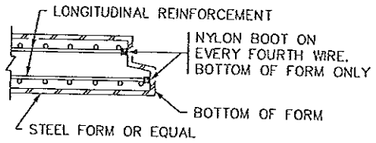


TRANSVERSE BARREL SECTION

BAR REINFORCEMENT OPTION SHOWN

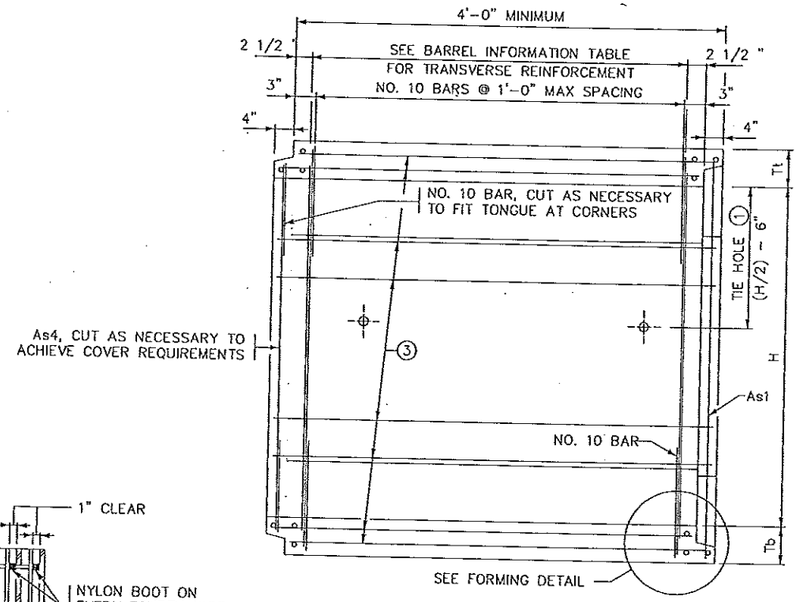


PLAN



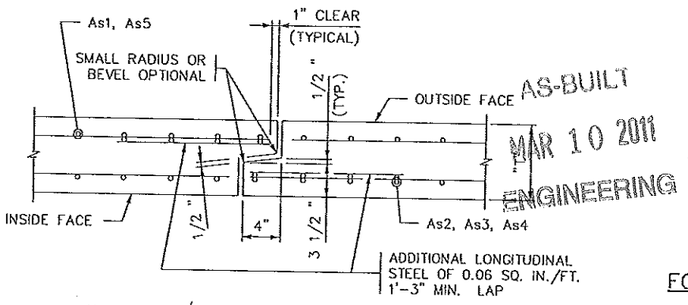
SECTION

FORMING DETAIL

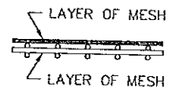


LONGITUDINAL BARREL SECTION

BAR REINFORCEMENT OPTION SHOWN



TONGUE AND GROOVE JOINT DETAIL



FABRIC LAYER DETAIL

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

CONSTRUCTION NOTES

CULVERTS TO BE CONSTRUCTED AS PER 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.

BARREL INFORMATION

LOCATION	SIZE	CLASS	f'c (P.S.I.)	FILL HEIGHT RANGE (FT.)	DIMENSIONS					WEIGHT (LBS./FT.)	STEEL FABRIC REINFORCEMENT											
					W (FT.)	H (FT.)	Tt (IN.)	Tb (IN.)	Ts (IN.)		As1			As2		As3		As4		As5		
											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.)
103+46.5	12' x 9'	3	5000	8-15	12	9	9	10	8	5185	1.17	16'-7"	3'-8"	1.60	12'-6"	1.80	12'-6"	0.20	9'-6"	0.06	8'-0"

REVISION:

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

STATE AID NO 55-599-87 STA. 103+46.5

CERTIFIED BY Kaye M Baerwick
LICENSED PROFESSIONAL ENGINEER
REG. NO. 19917 6/12 2006

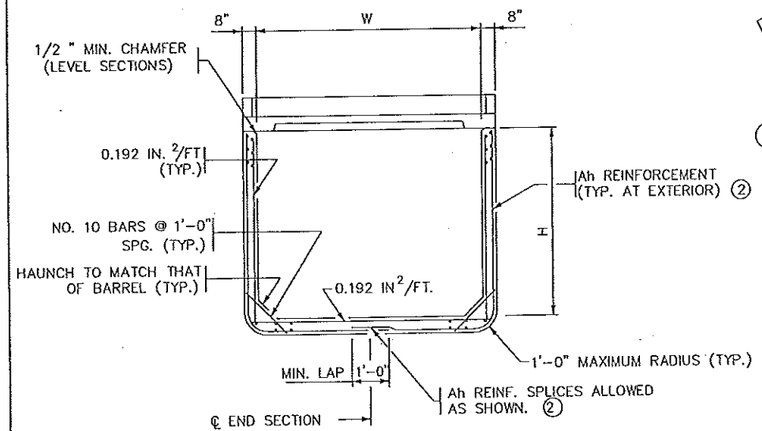
DRG: BARREL DETAILS

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

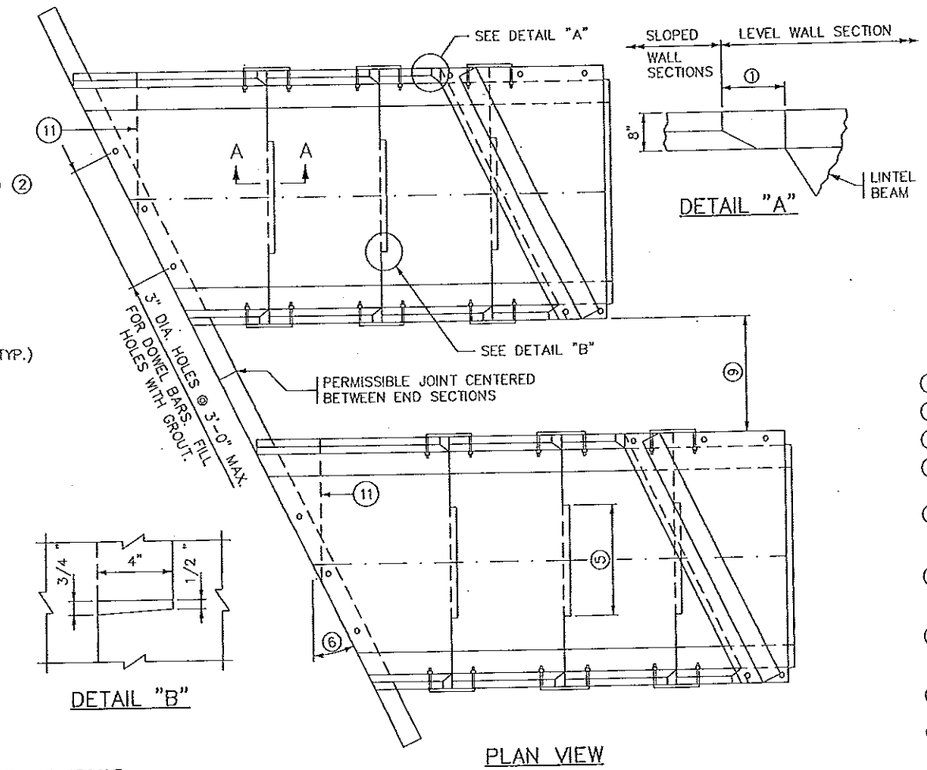
SHEET NO. 10 OF 21 SHEETS

FIG. 5-395.101(A)

BRIDGE NO. 55J63



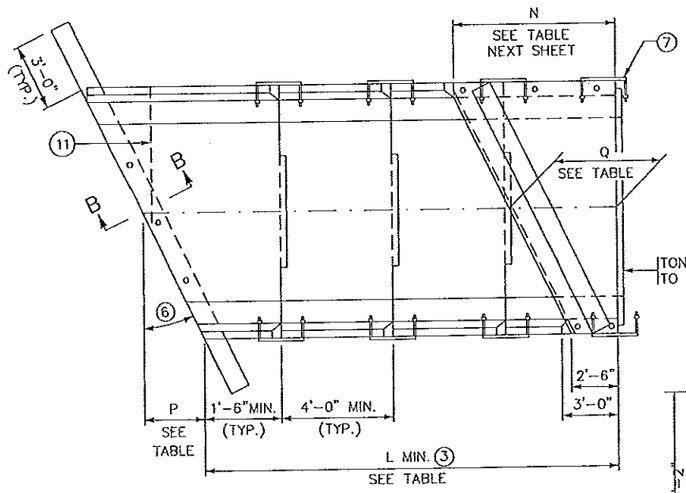
END VIEW



PLAN VIEW

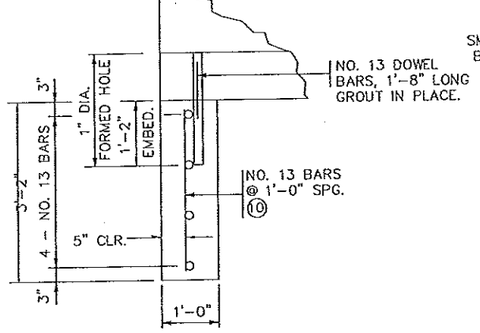
DOUBLE-BARREL OPTION

DETAIL "B"

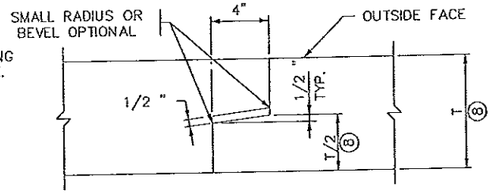


PLAN VIEW

SINGLE BARREL OPTION

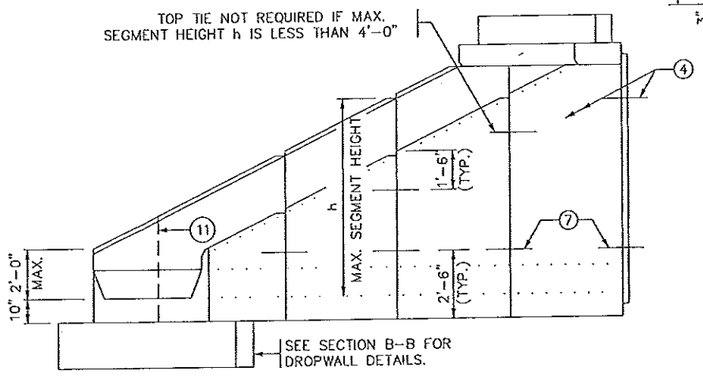


SECTION B-B

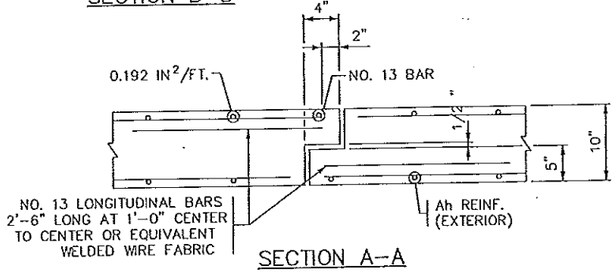


TONGUE AND GROOVE JOINT

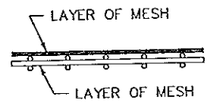
MAKE DIMENSION OF TONGUE OR GROOVE ON ADJACENT PRECAST BARREL SECTIONS SO INSIDE WALLS ARE FLUSH.



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.

AS BUILT
MAR 10 2011
ENGINEERING

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: 09-17-2004

APPROVED: DECEMBER 11, 2000

Donald J. Flemming
STATE BRIDGE ENGINEER

STATE AID NO 55-599-87 STA. 103+46.5

CERTIFIED BY Kaye M Bruneck
LICENSED PROFESSIONAL ENGINEER
REG. NO. 19917 6/12 2006

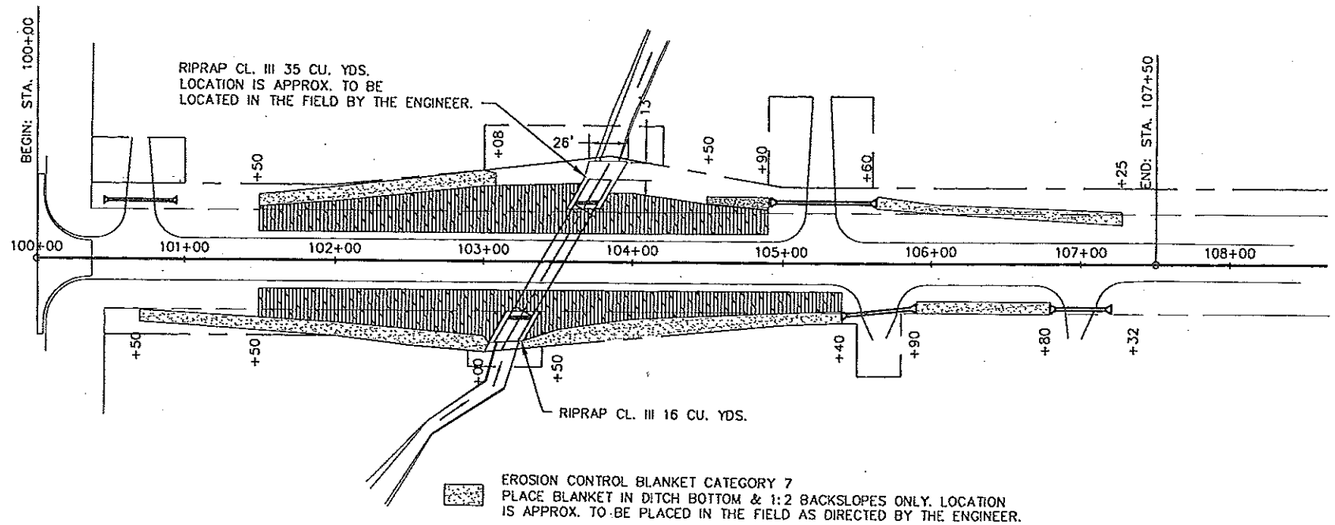
TITLE: PRECAST CONCRETE END SECTION TYPE III - SINGLE OR DOUBLE BARREL FOR SKEWS 7 1/2 ° TO 45°

DES: DR: APPROVED:
CHK: CHK:

FIG. 5-395.110(A) (MODIFIED)

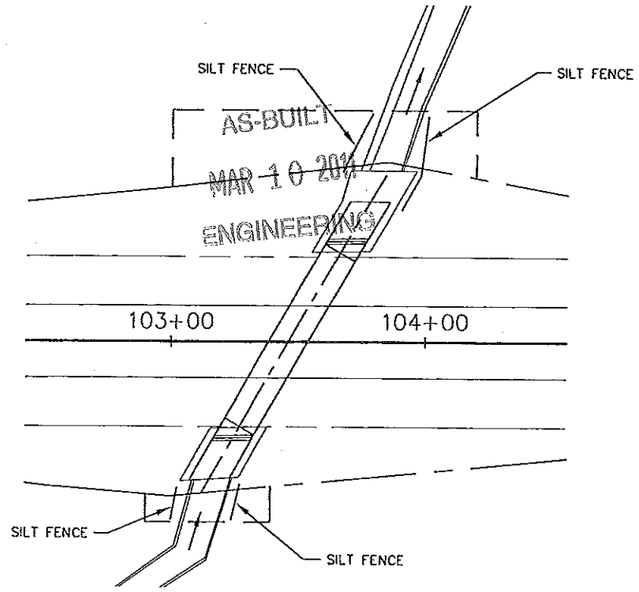
SHEET NO. 11 OF 21 SHEETS

BRIDGE NO. 55J63



EROSION CONTROL BLANKET CATEGORY 7
PLACE BLANKET IN DITCH BOTTOM & 1:2 BACKSLOPES 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 ONLY. LOCATION IS APPROX. TO BE PLACED IN THE FIELD AS DIRECTED BY THE ENGINEER.



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. 101+65 TO STA. 103+00	10 – SPACING 15'	80
LT. STA. 101+65 TO STA. 103+00	10 – SPACING 15'	80
RT. STA. 104+70 TO STA. 105+00	3 – SPACING 15'	24
RT. STA. 106+05 TO STA. 106+65	5 – SPACING 15'	40
LT. STA. 106+75 TO STA. 107+20	4 – SPACING 15'	60
	TOTAL	284

① BIOROLLS TO BE PLACED IN DITCH BOTTOM ON EROSION CONTROL BLANKET CATEGORY 7. LOCATIONS IS APPROX. TO BE PLACED IN THE FIELD AS DIRECTED BY THE ENGINEER.

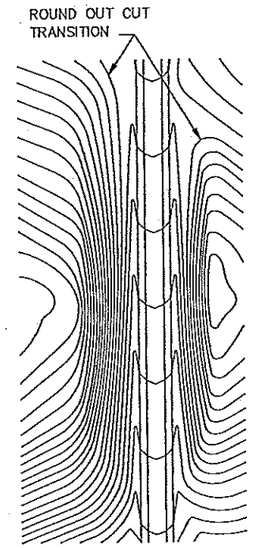
NOTE: MNDOT SPEC. 1717 WILL BE ENFORCED.

EROSION CONTROL

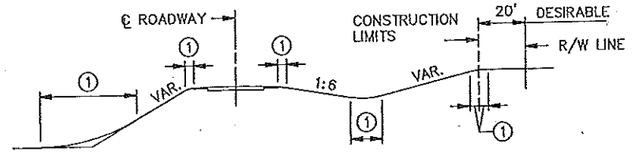
CERTIFIED BY Kurt M Bruner REG. NO. 19917 6/9 2010
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-599-87

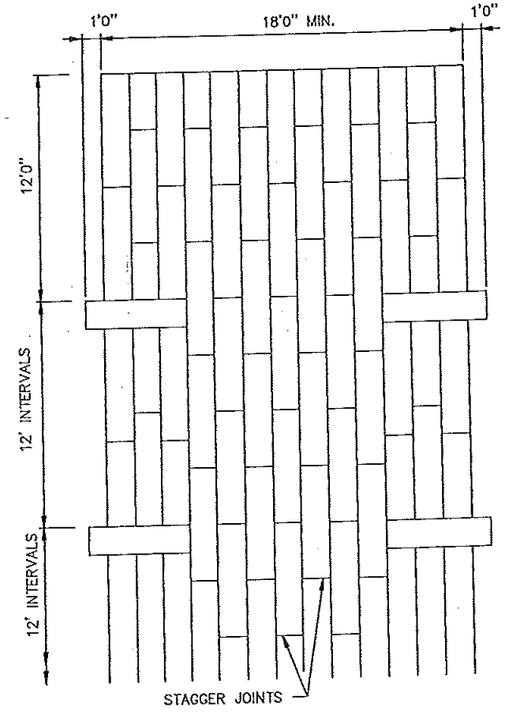
SHEET 14 OF 21 SHEETS



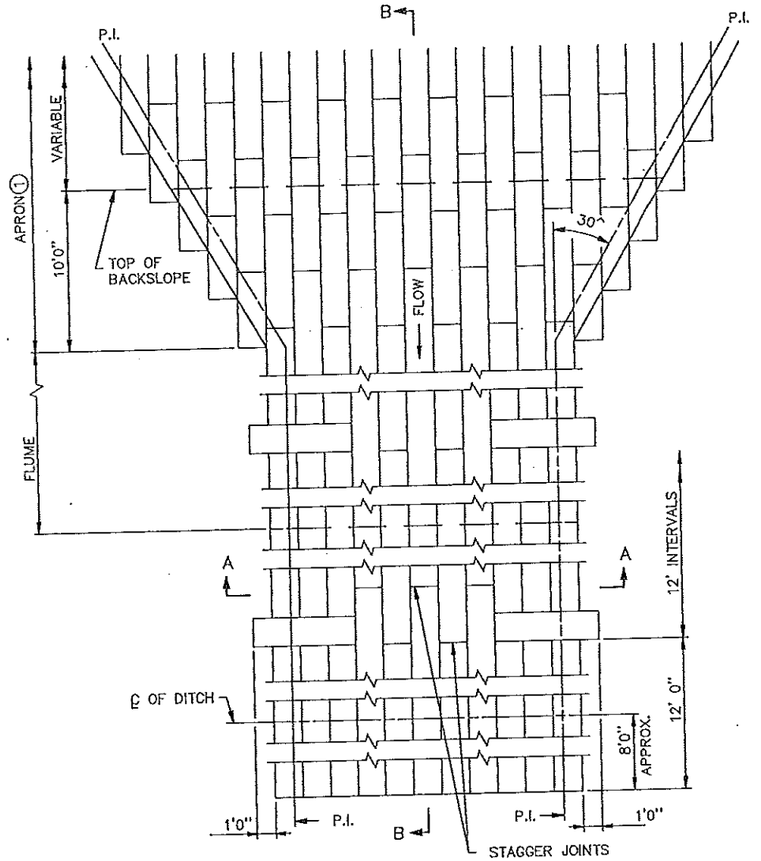
CONTOURING ROAD CUTS



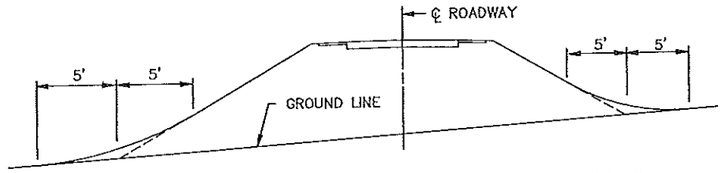
ROUNDING SHOULDERS AND BACKSLOPES



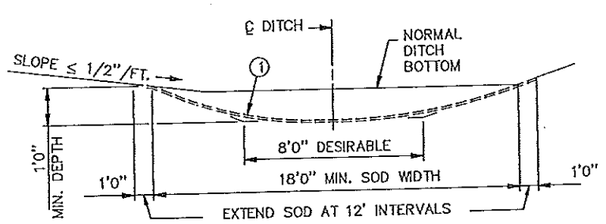
PLAN VIEW



PLAN VIEW

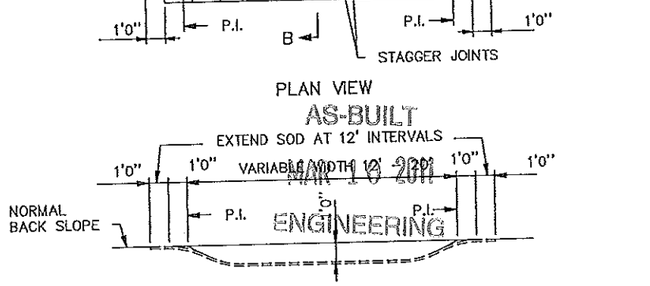


SHAPING FOR DRAINAGE ALONG THE TOE OF FILL SLOPES

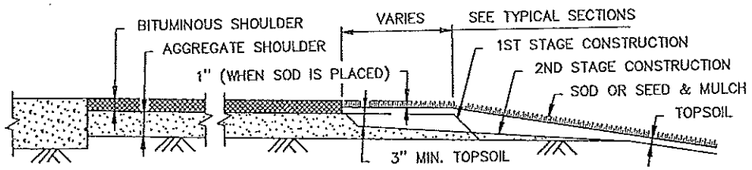


SODDED DITCH CROSS SECTION

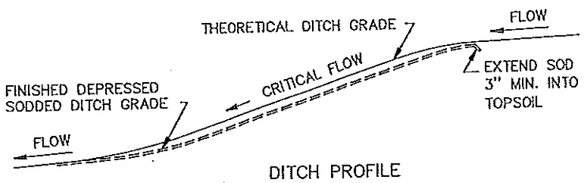
WHERE FRONT OR BACK SLOPE IS FLAT (LESS THAN 1/2"/FT.), FIRST NOTCH DITCH AND THEN PROVIDE ROUNDING.



SECTION A–A

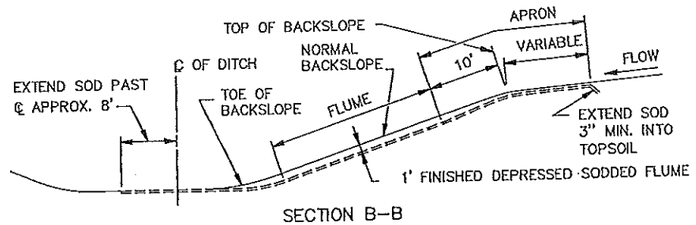


SHAPING AND TOPSOILING INSLOPES



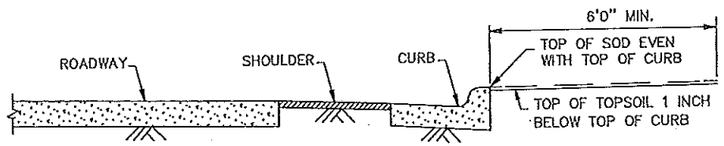
DITCH PROFILE

SODDED DITCH DETAILS



SECTION B–B

SODDED FLUME DETAILS



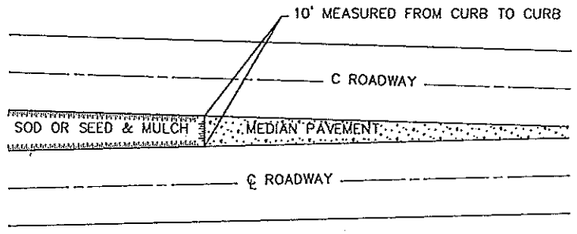
SHAPING ADJACENT TO CURBS WHEN SOD IS PLACED

NOTES:

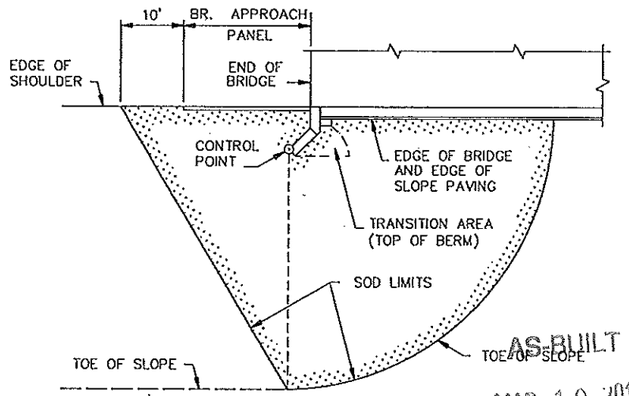
SEE SPEC. 2575.3 FOR ADDITIONAL INFORMATION.

① CONSTRUCT TAPER AS DIRECTED BY THE ENGINEER.

STANDARD SHEET NO. 5-297.404	TITLE: PERMANENT EROSION CONTROL ALONG ROADWAYS, DITCHES AND FLUMES
STANDARD APPROVED: NOVEMBER 20, 2002	
S.A.P. 55-599-87	SHEET NO 15 OF 21 SHEETS

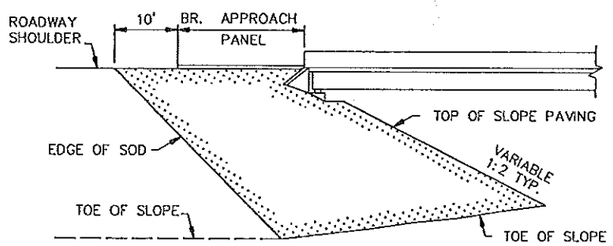


SODDING LIMITS AT GORE AREA



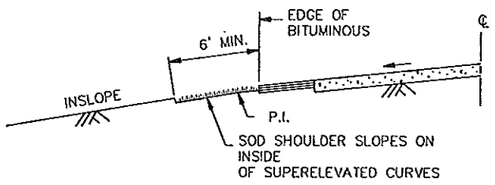
PLAN

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MAR 10 2011
ENGINEERING

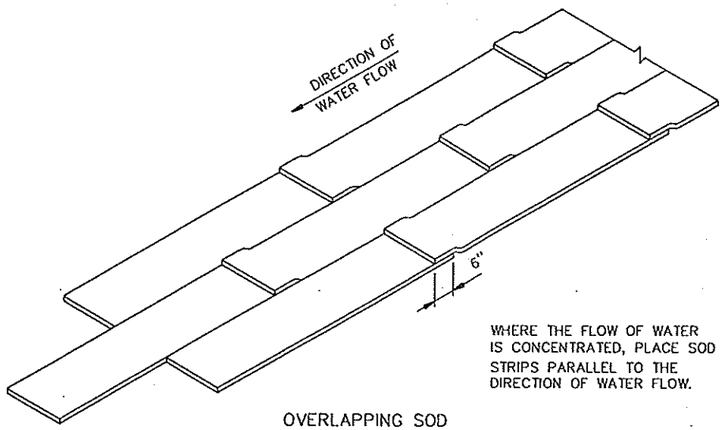


ELEVATION

SODDING LIMITS AT BRIDGE APPROACH FILLS

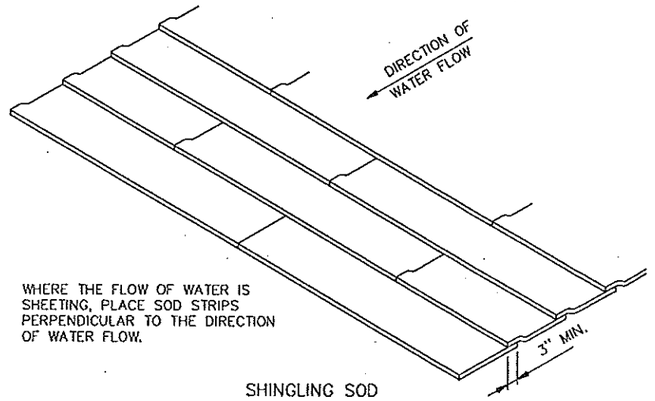


SODDING INSLOPES OF SUPERELEVATED CURVES



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

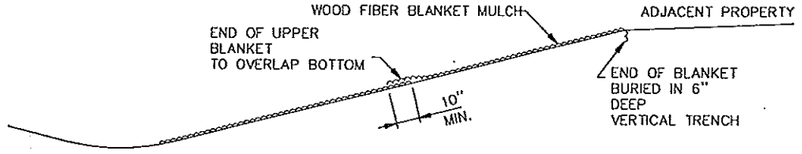
OVERLAPPING SOD



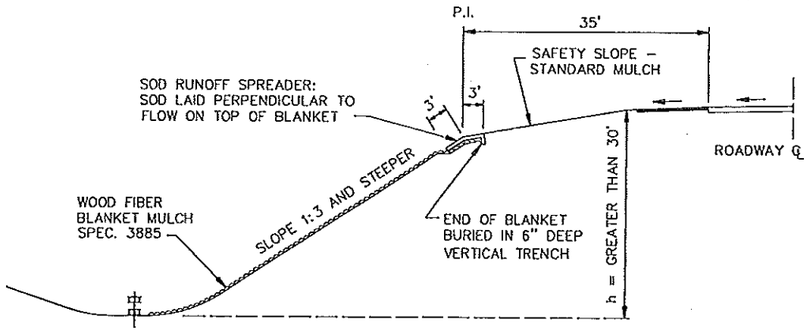
WHERE THE FLOW OF WATER IS SHEETING, PLACE SOD STRIPS PERPENDICULAR TO THE DIRECTION OF WATER FLOW.

SHINGLING SOD

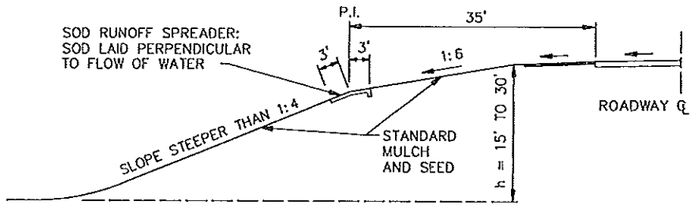
SPECIAL SOD PLACEMENT TECHNIQUES



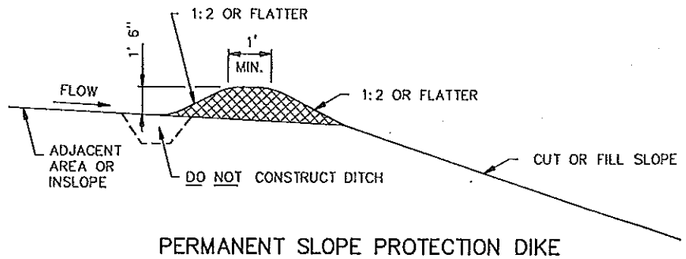
WOOD FIBER BLANKET INSTALLATION ON A CUT SLOPE



WOOD FIBER BLANKET INSTALLATION ON AN INSLOPE
(WHEN REQUIRED)

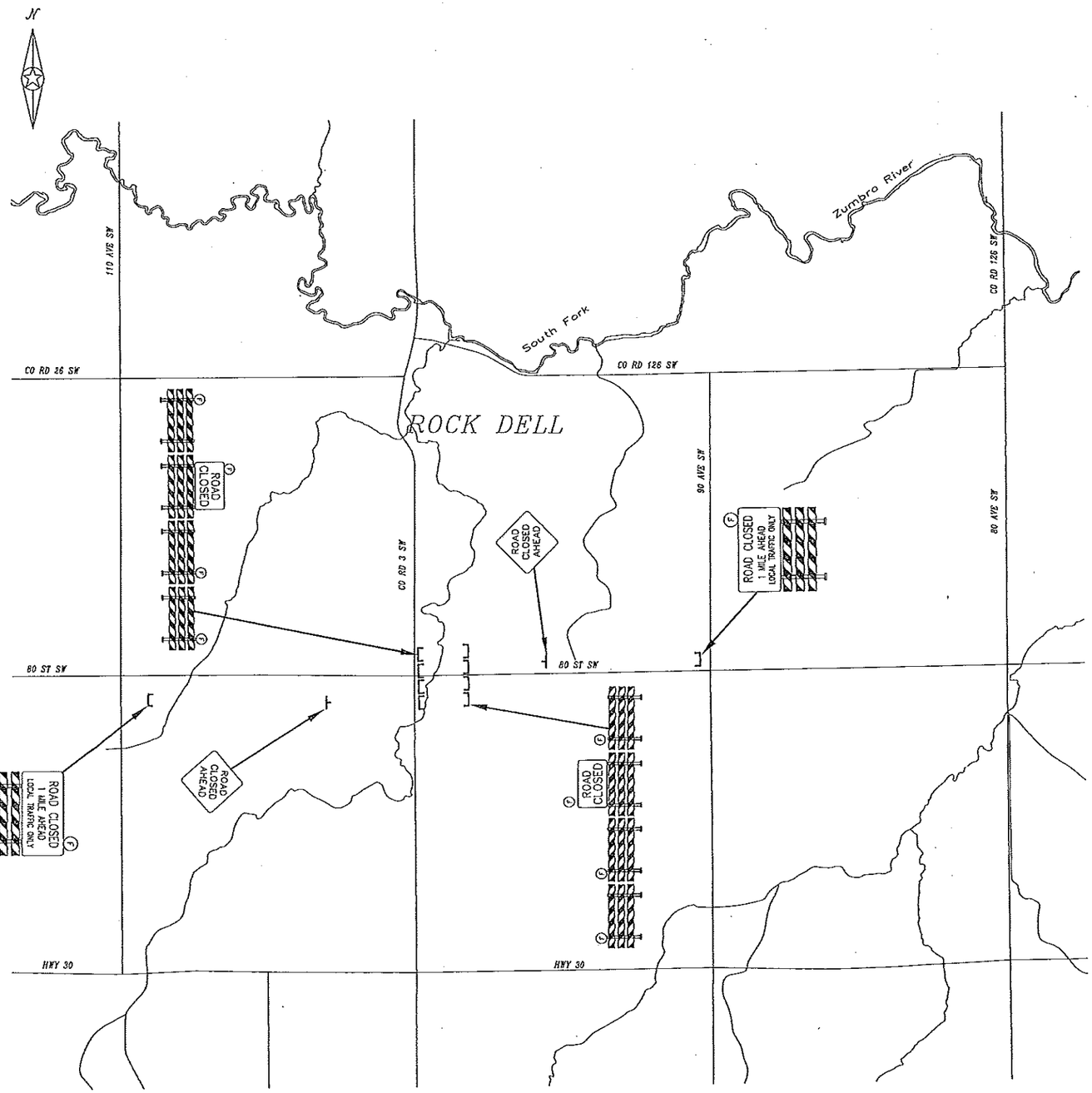


BROKEN–BACK SAFETY FILL SLOPE



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	S.A.P. 55–599–87 SHEET NO 20 OF 21 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 & BLK	10
ROAD CLOSED 1 MILE AHEAD LOCAL TRAFFIC ONLY	R11-3	60 x 30	BLK/WH	2	(F)	TYPE A	FLASHING LAMP	AMBER	10
ROAD CLOSED AHEAD	W20-3	48 x 48	BLK/OR	2					

TRAFFIC CONTROL LEGEND

⊥ POST OR STAND MOUNTED SIGN

TYPE III BARRICADE

(F) TYPE "A" AMBER FLASHING LAMP

AS-BUILT

MAR 10 2011

ENGINEERING

TRAFFIC CONTROL NOTES

1. THE LOCATION OF SIGNS AND DEVICES WILL BE STAKED BY THE ENGINEER IN THE FIELD.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TRAFFIC CONTROL ON THIS PROJECT.
3. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES INCLUDING THE TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS FIELD MANUAL.
4. CONSTRUCTION ZONE SIGNING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND WILL INCLUDE, BUT NOT BE LIMITED TO SIGNS FOR LANE CLOSURE, 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.

TRAFFIC CONTROL

CERTIFIED BY Kaye M Peterson REG. NO. 19917 6/12 2006
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-599-87

SHEET 21 OF 21 SHEETS

F.E. LT. STA. 100+70
INPL. 18" x 36" C.M.P.
WITH APRONS
REMOVE 42 LIN. FT.
18" x 44" C.S. CULV.
2-18" G.S. PIPE APRONS

BR. NO. L-6180 STA. 103+25
10' x 19' CAST INPL. CONC. BOX CULV.
WITH CONC WINGWALLS

NEW BRIDGE NO. 55J63 STA. 103+46.5
12' x 9' x 78' PRECAST CONC. BOX CULVERT CL III SKEW 30°
2 - 12' x 9' PRECAST CONC. END SECTIONS
SEE SHEET NO. 14 FOR RIPRAP

F.E. LT. STA. 104+94
NO CULV. INPL.
WITH APRONS
MOVE STA. 105+25
24" x 64' C.S. CULV.
2-24" G.S. PIPE APRONS

℄ C.S.A.H. 3
BEGIN: STA. 100+00
S.A.P. 55-599-87
EXIST. 50' R/W
EXIST. 60' R/W
30'R
30' T.E.
50' R/W
60' R/W
56' R/W
40' R/W
42' T.E.
END: STA. 107+50
S.A.P. 55-599-87
EXIST. 33' R/W
REMOVE BITUMINOUS
AND REPLACE BITUMINOUS
SAW BITUMINOUS
100+00 101+00 102+00 103+00 104+00 105+00 106+00 107+00 108+00

RES. RT. STA. 105+65
INPL. 24" x 24' C.M.P.
NO APRONS
REMOVE 42 LIN. FT.
24" x 44' C.S. CULV.
2-24" G.S. PIPE APRONS

F.E. RT. STA. 107+00
INPL. 24" x 20' C.M.P.
NO APRONS
REMOVE 20 LIN. FT.
24" x 34' C.S. CULV.
2-24" G.S. PIPE APRONS

AS-BUILT
MAR 10 2011
ENGINEERING

REVISED

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

1224.90 1225.36 1224.50 1223.87 1223.77 1224.09 1224.69 1225.57 1226.74 1228.18 1229.92 1231.92

4861

FINISHED GRADE 1229.39 1229.11 1228.30 1227.09 1226.13 1225.66 1225.19 1225.20 1225.53 1226.18 1227.15 1228.43 1230.04 1231.97 1234.22 1236.66

+37

P.I. STA. 100+70.00
EL. 1229.11
V.C. 96.00
E = 0.25
0.40%
-2.60%
P.V.C. STA. 101+20.5
EL. 1227.80
P.V.T. STA. 101+15.
EL. 1227.94
BEGIN: STA. 100+00
EL. 1229.39
P.V.C. STA. 100+25
EL. 1229.29

INLET EL. 1205.30
OUTLET EL. 1204.80

P.I. STA. 104+13.50
EL. 1220.18
V.C. 586.00
E = 5.49

P.V.T. STA. 107+06.5
EL. 1234.54
4.90%
END: STA. 107+50
EL. 1236.66

1260 1250 1240 1230 1220 1210 1200 1190 1180 1170

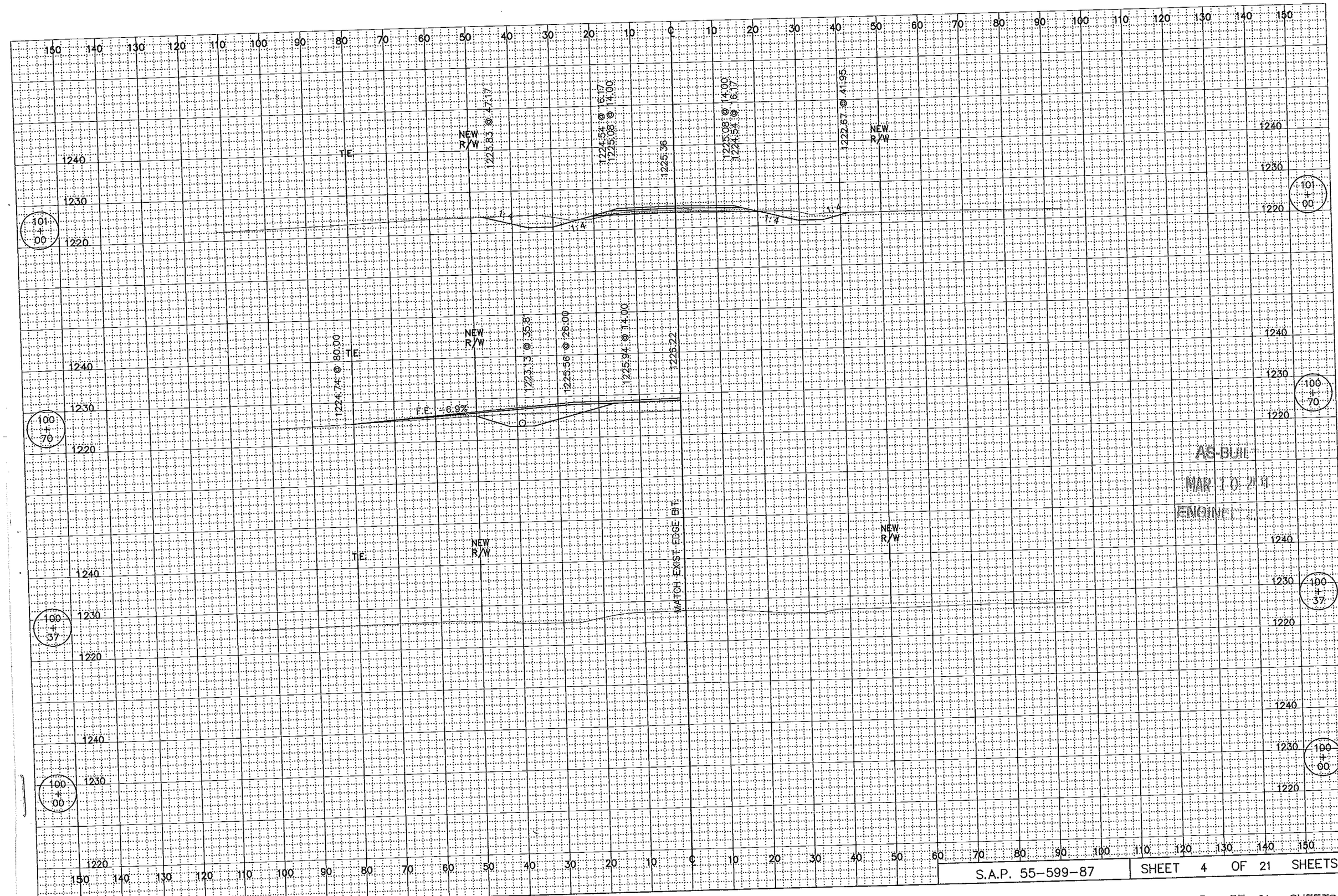
1229.39 1226.87 1224.36 1221.89 1219.59 1218.13 1217.77 1218.32 1219.86 1221.81 1224.14 1226.56 1229.12 1231.68 1234.22 1236.66

100+00 100+50 101+00 101+50 102+00 102+50 103+00 103+50 104+00 104+50 105+00 105+50 106+00 106+50 107+00 107+50 108+00

CERTIFIED BY Kaye M Bierneck REG. NO. 19917 6/9 2010
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-599-87

SHEET 3 OF 21 SHEETS



AS-BUILT

MAR 10 2011

ENGINEER

S.A.P. 55-599-87 | SHEET 4 OF 21 SHEETS