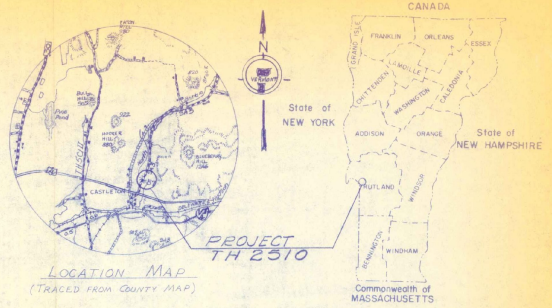
INDEX OF SHEETS

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

Date 13 August 1975
Bridges for
Carl Colson
President
Contractor
John T. Gray
Commissioner



LOCATION MAP
(TRACED FROM COUNTY MAP)

PROPOSED IMPROVEMENT

BRIDGE PROJECT
TOWN OF CASTLETON
COUNTY OF RUTLAND
ROUTE No: TH 3, C12 BRIDGE No: 7

PROJECT LOCATION: CASTLETON TH 2510 TH 3 BR#7 OVER NORTH BRITTAIN BROOK BEGINNING AT A POINT APPROXIMATELY 0.70 MILES NORTHERLY FROM THE INTERSECTION OF US 4A AND TH 3 AND EXTENDING SOUTHERLY 249 FT.

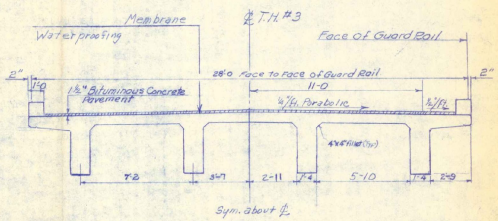
PROJECT DESCRIPTION: THE PROJECT SHALL CONSIST OF THE REMOVAL OF THE EXISTING SUPERSTRUCTURE, CONSTRUCTION OF A NEW T-BEAM SUPERSTRUCTURE, NECESSARY ABUTMENT, ROADWAY AND CHANNEL WORK AS SHOWN ON THE PLANS.

LENGTH OF STRUCTURE:	48.5	FEET
LENGTH OF PARTICIPATION ROADWAY:	200.0	FEET
LENGTH OF NON-PARTICIPATION ROADWAY:		FEET
LENGTH OF PROJECT:	248.5	FEET

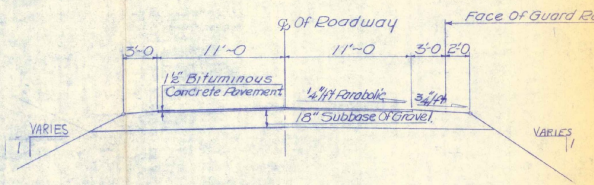
1974 A.D.T. 550

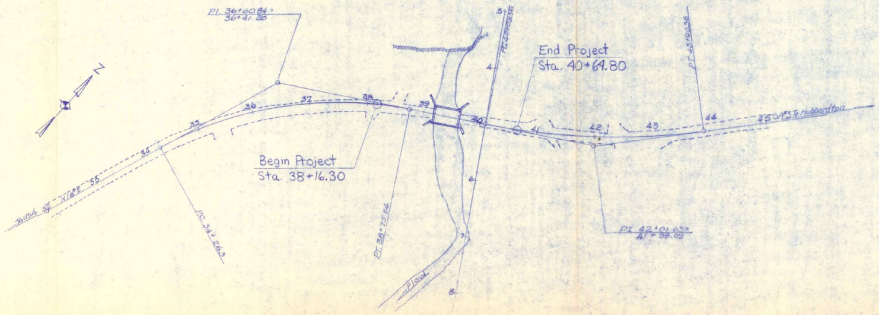
GENERAL NOTES:

1. For additional General Notes see SCB-DI-75.
2. Cost of Overhaul to be included in Unit Price Bid for applicable Items.
3. The Contractor will be allowed to close the road to traffic. The Selectmen shall be given seven (7) days notice of the Contractors intent to close the road. Detour routing shall be the responsibility of the Town. The Contractor shall make every effort to coordinate his work so that this inconvenience to the travelling public will be kept to a minimum.
4. Temporary Foot Bridge to be constructed prior to removal of existing Superstructure.



TYPICAL BRIDGE SECTION
N.T.S.





TYPICAL ROADWAY SECTION
SCALE: 1"=5'-0

CONVENTIONAL SIGNS

COUNTY LINE
TOWN LINE
LIMITS OF ACCESS
POINT OF ACCESS
FENCE LINE
STONE WALL
TRAVELED WAY
GUARD RAIL
RAILROAD
SURVEY LINE
CULVERT
POWER POLE
TELEPHONE POLE
TREES
F.A. CONST. IDENTIFICATION SIGNS
PROPERTY LINE
R.O.W. TAKING LINE
SLOPE RIGHTS
TOP OF CUT
TOE OF SLOPE

SUBMITTED BY ORDER OF THE STATE HIGHWAY BOARD
APPROVED E.W. Dickerson DATE 8/20/75
CHIEF ENGINEER

PROJECT No. CASTLETON TH 2510
SHEET 1 OF 26 SHEETS

1003

EARTHWORK

V.C.	% GRD	STATION	GRADES ELEVATION ON TAN.	GRADES ELEVATION ON V.C.	CORR. V.C.	DIST.	Earth Borrow AREA	Earth Borrow CU. YDS.	Subbase of Gravel AREA	Subbase of Gravel CU. YDS.	AREA	CU. YDS.	AREA	CU. YDS.
		Town Bridge Fund Participation												
	4.30%	37+75	465.73											
X		38+00	464.65											
		+16	463.96				0		0					
		+25	463.58	463.79	+.21	34		10		31				
X		+50	462.50	463.34	+.84		16		50					
		+75	463.11	463.32	+.21	50		70		93				
X		39+00	463.72				60		50					
		+16.30	464.12			163	60	36	50	30				
		Bridge												
	2.45%	+64.80	465.31				100		50					
X		+75.00	465.56			35.2		130		65				
		40+00	466.18	466.25	+.07		100		50					
X		+25	466.79	467.07	+.28	50		120		89				
		+50	468.96	468.03	+.07		30		46					
		+65	468.66	468.67	+.01	15	20	14	30	21				
X	4.48%	+75	469.13											
						Sub Total =		380	Subtotal =	329				
		41+00	470.3			Rounding =		20	Rounding Total =	330				
						Total =		400						

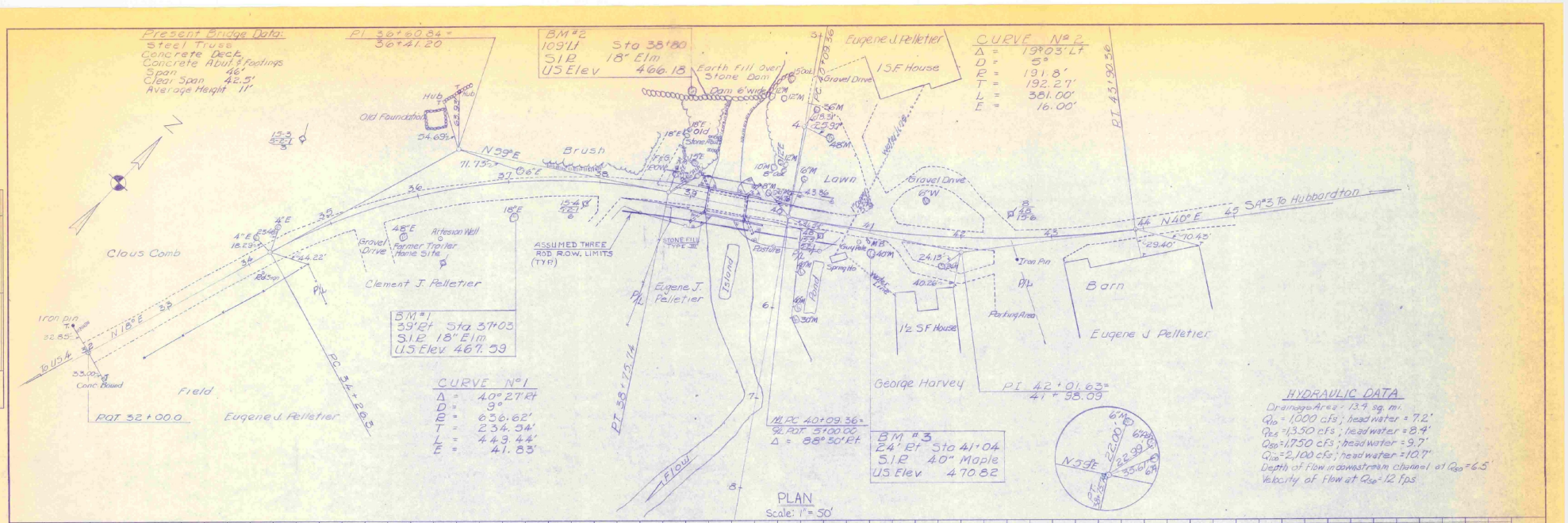
Town Bridge Fund Participation
Fill x 1.25 Roadway 500
Common Excavation - 40
Structure Excavation x.5 - 75
Rounding + 5
Earth Borrow Total = 390 C.Y.

BRIDGE QUANTITY SHEET

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS
BRIDGE DIVISION

NO.	ITEM	UNIT	QUANTITY BREAKDOWN Superstr.	Abut #1	Abut #2	Channel	Roadway	TOTAL	FINAL
202.20	Removal of Existing Superstructure	Ea.	1					1	
202.35	Removal of Existing Concrete or Masonry	C.Y.		3	3			6	
203.15	Common Excavation	C.Y.					40	40	
203.27	Unclassified Channel Excavation	C.Y.				80		80	
203.30	Earth Borrow	C.Y.					390	390	
204.25	Structure Excavation	C.Y.		65	85			150	
204.30	Granular Backfill for Structures	C.Y.		35	45			80	
301.15	Subbase of Gravel	C.Y.					330	330	
406.25	Bituminous Concrete Pavement	Ton	17				41	58	
501.20	Concrete, Class A	C.Y.	80					80	
501.25	Concrete, Class B	C.Y.		17	20			37	
506.99	Bearing Device Assembly	Ea.	8					8	
507.15	Reinforcing Steel (Grade 60)	LB.	23,170	1900	2270			27,340	
514.10	Water Repellent	Gal.	7	7	7			21	
617.41	Membrane Waterproofing	S.Y.	143					143	
613.12	Stone Fill, Type III	C.Y.		100	90			190	
614.10	Joint Sealer, Hot Poured	Gal.	2					2	
614.25	Joint Sealer, Polyurethane	Gal.	1					1	
617.34	Bridge Railing, Standard Steel Beam	L.F.	153					153	
621.26	Guard Rail, Standard Steel Beam w/ Steel Posts, Type II	L.F.					137	137	
621.72	Anchor for Steel Beam Guard Rail w/ Steel, Light Steel or Wood Posts	L.F.					4	4	
638.12	Tempory Foot Bridge	L.S.	1					1	

BRIDGE AT STATION 39+40
LOCATION Castleton (T.H.#3 over North Brittain Brook)
Prepared by: J. Guilmette Checked by: J. Pouture
SUPERVISOR: J. Wood
CASTLETON
BR ___ OF ___
PROJECT NO. TH 2510
SHEET NO. 2 OF 26

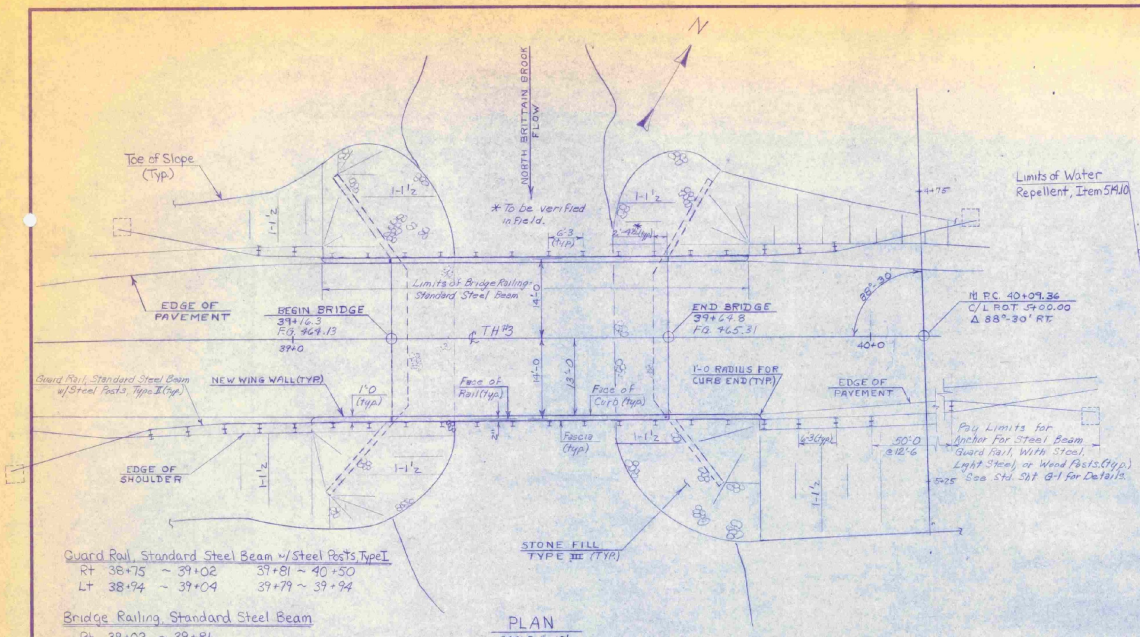


CASTLETON
TH 2510
Class 2 TH 3 B 7

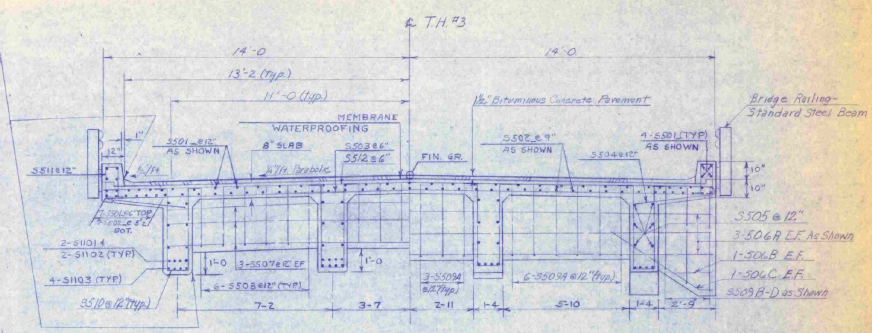
Scale: 1"= 10' Vertical
1" = 50' Horizontal

Sheet 3 of 26

PLATE 1, PLAN-PROFILE
KEUFFEL & ESSER CO.

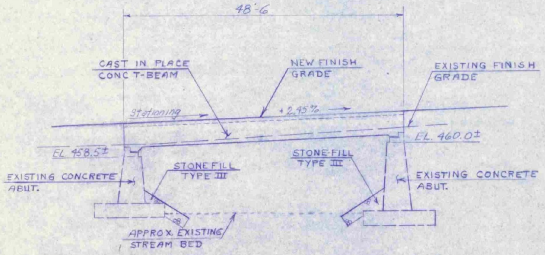


PLAN
SCALE 1" = 10'

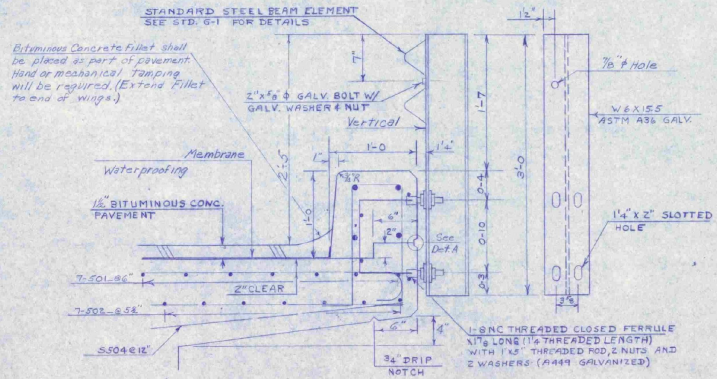


HALF SECTION NEAR MIDSPAN HALF SECTION NEAR BEARING

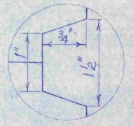
TYPICAL SECTION
SCALE ⅜" = 1'-0



ELEVATION
SCALE 1" = 10'



CURB AND RAILING DETAIL
SCALE 1½" = 1'-0



DETAIL A
Scale: 1" = 1"

Anchorage for Standard Steel Beam Rail to be Richmond Preset Anchor (Galvanized) with Plastic Plugs per Dwg 13-45C for Fascia Mounted Steel & Aluminum Posts. Alternate system may be submitted for approval.

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

TOWN OF CASTLETON	Bridge No. 7
	Log Sta.
HIGHWAY NO. C/2 TH 3	Surv. Sta. 39140
TH 3 OVER NORTH BRITTAIN BROOK	
PLAN, ELEVATION, TYPICAL SECTION AND CURB DETAILS	
Designed by D. PERKINS	Drawn by D. PERKINS
Checked by J. COUTURE date 6-75	Bridge Design Supervisor J. WOOD date 6-75
PROJECT CASTLETON	PROJECT NO. TH 2510
Bridge Sheet No.	Sheet 4 of 26

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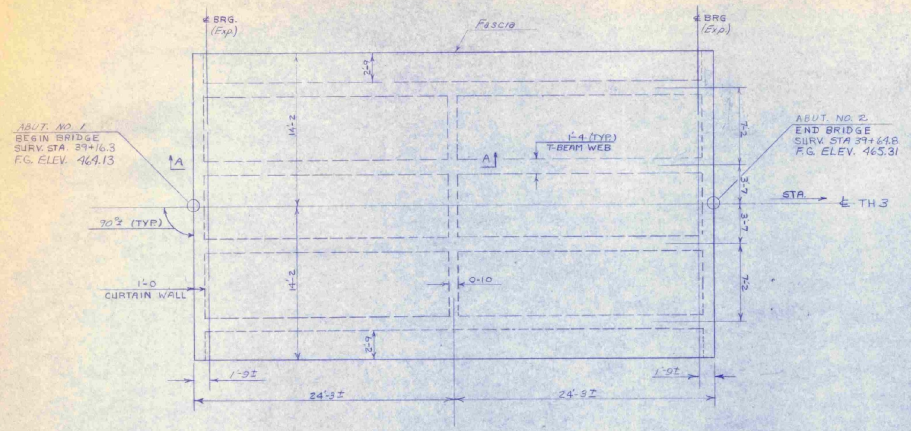
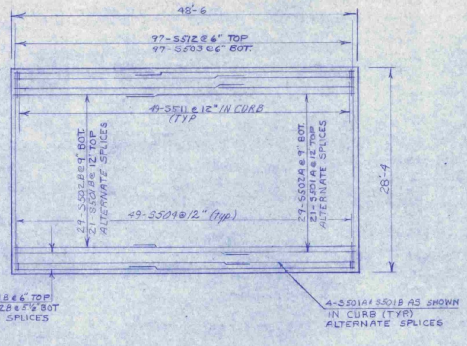
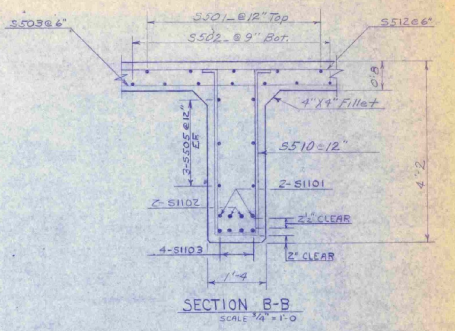


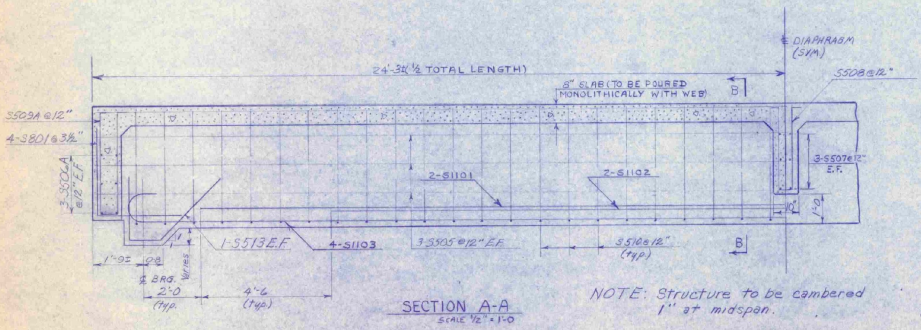
SLAB AND T-BEAM PLAN
SCALE 3/16" = 1'-0



SLAB REINFORCING LAYOUT
N.T.S.

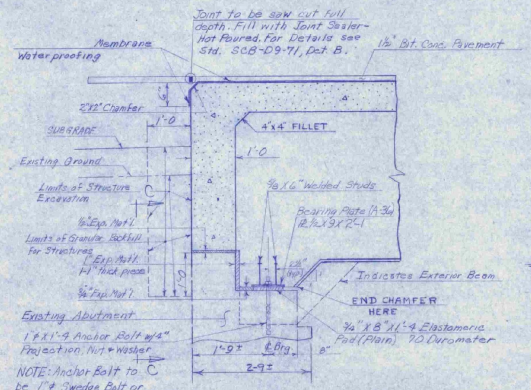


SECTION B-B
SCALE 3/4" = 1'-0

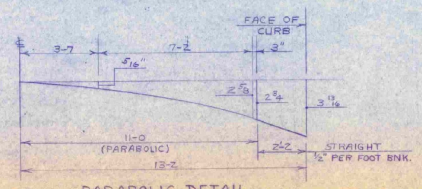


SECTION A-A
SCALE 1/2" = 1'-0

NOTE: Structure to be cambered 1" at midspan.



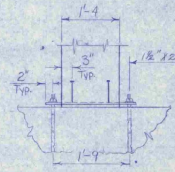
TYPICAL CURTAIN WALL DETAIL (INTERIOR BEAM)
SCALE 3/4" = 1'-0



PARABOLIC DETAIL
N.T.S.

NOTES

1. FOR ADDITIONAL GENERAL NOTES SEE STD SCB-DI-75.
2. ALL SUPERSTRUCTURE CONCRETE SHALL BE CONCRETE CLASS A ABUTMENT AND WINGWALL CONCRETE WILL BE CONCRETE CLASS B.
3. WATER REPELLENT SHALL BE APPLIED TO ALL EXPOSED SURFACES OF EXISTING ABUTMENTS AND WINGWALLS, NEW WINGWALLS, AND TO SUPERSTRUCTURE CURBS TO BOTTOM OF OUTSIDE BEAMS. SEE TYP SECT. SH. 4.
4. DESIGN LOAD IS HS-20-44
5. REINFORCING STEEL DESIGN STRESS f_s = 24,000 PSI
   CONCRETE DESIGN STRESS f_c = 3,500 PSI
6. UNLESS OTHERWISE NOTED, CLEAR DISTANCE FROM FACE OF CONCRETE TO REINFORCING STEEL SHALL BE 2".



SECTION C-C
Scale: 3/4"=1'-0

Note: Bearing Plates, Anchor Bolts, Nut and Washers to be Galvanized after Fabrication.

Bearing Plates, Anchor Bolts, Drilling and Grouting of Anchor Bolts, Elastomeric Pads, and other incidental items to be paid for under Bearing Device Assembly, Item 506.99.

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

TOWN OF CASTLETON	Bridge No. 7
	Log Sta.
HIGHWAY NO. C.I.2, TH.3	Surv. Sta. 394+40
TOWN HIGHWAY #3 OVER NORTH BRITTAIN BROOK	
T-BEAM AND DECK DETAILS	
Designed by D. PERKINS	Drawn by D PERKINS
Checked by J. COUTURE date 6-75	Bridge Design Supervisor J. WOOD date 6-75
PROJECT CASTLETON	PROJECT NO. TH2510
Bridge Sheet No.	Sheet 5 of 26

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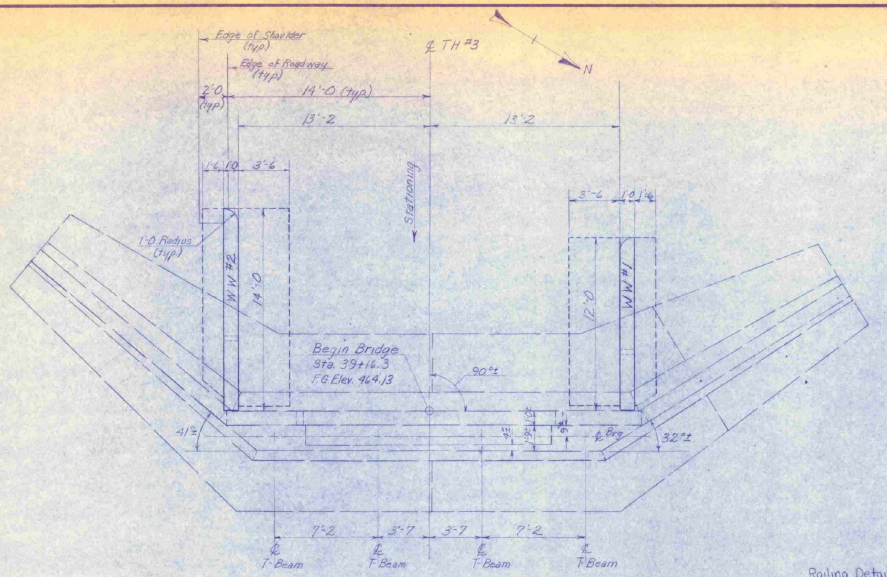
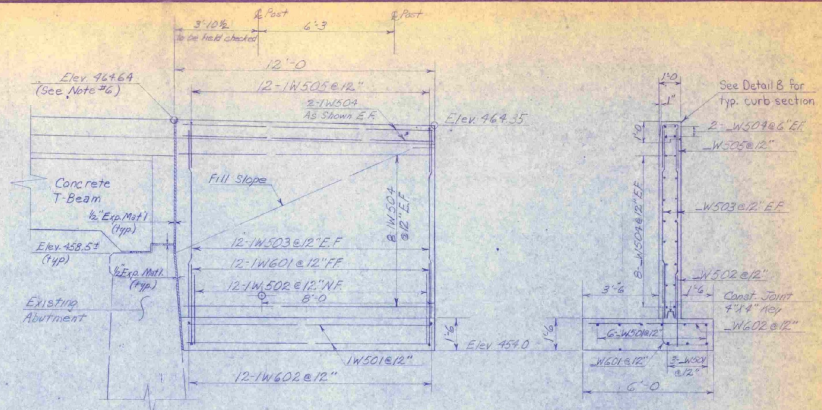
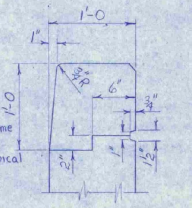


PLAN
SCALE: 1/4"=1'-0



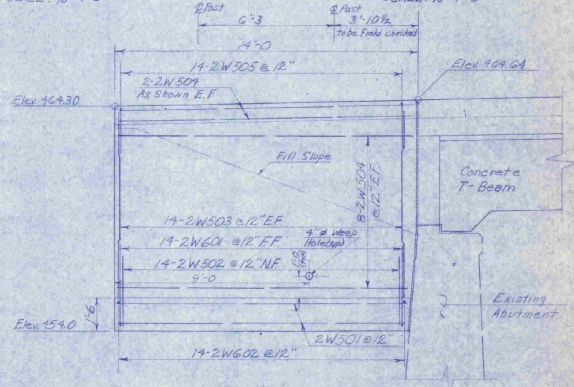
WINGWALL #1 ELEVATION
SCALE: 3/8"=1'-0

TYPICAL WINGWALL SECTION
SCALE: 3/8"=1'-0

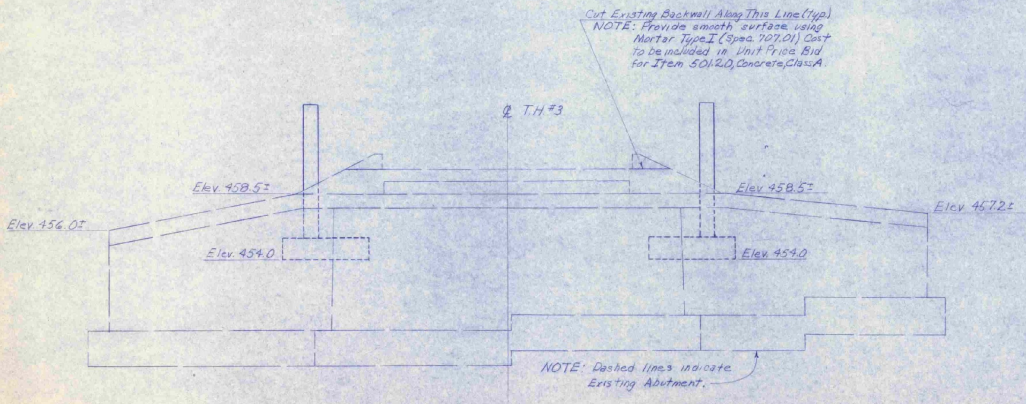


Railing Details same as in Superstructure Curb. Detail B typical for all wingwalls.

DETAIL B
Scale: 1½"=1'-0



WINGWALL #2 ELEVATION
SCALE: 3/8"=1'-0



ELEVATION
SCALE: 1/4"=1'-0

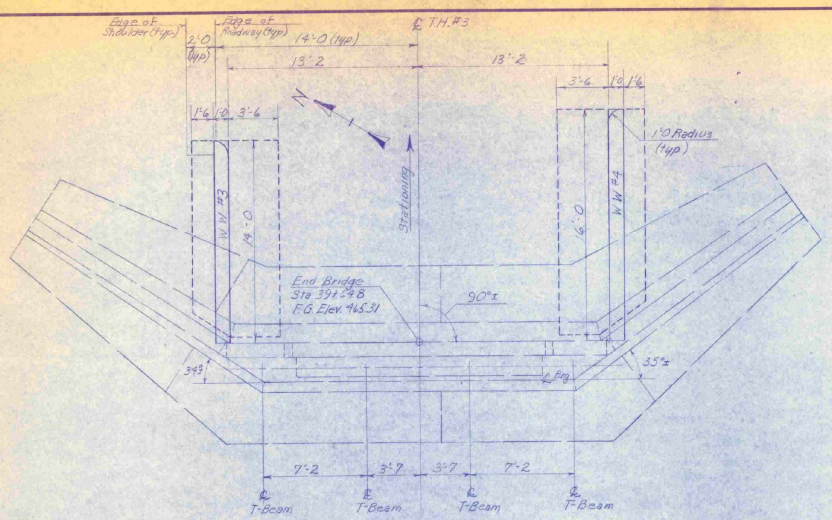
NOTES:

1. Wingwalls are designed for a maximum bearing of 4 KSF.
2. F.F. = Far Face, N.F. = Near Face, E.F. = Each Face.
3. Minimum cover for Abutment reinforcing steel shall be 2" clear except in footings where it shall be 3" clear.
4. Weep holes shall be placed as shown or as directed by the Engineer.
5. See Sheet #7 for details of Excavation and Backfill.
6. For Details of Curb Joint between Superstructure and Wingwalls see STD. SCB-09-71, Detail B.

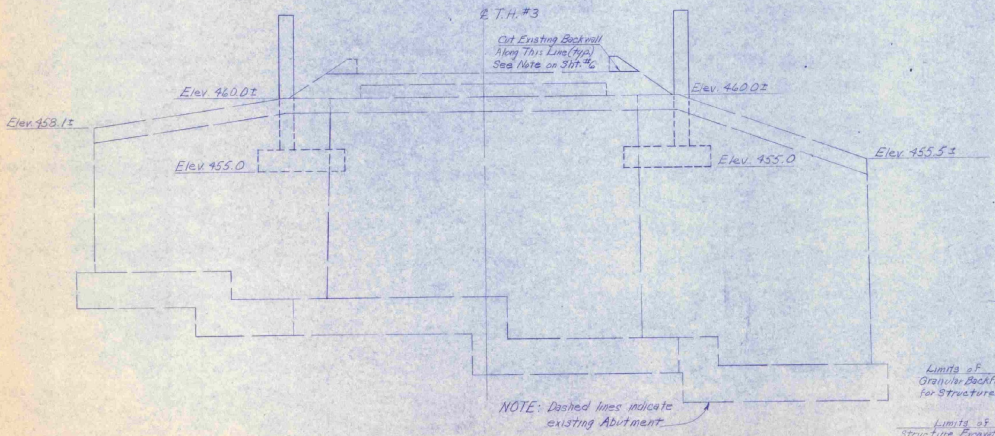
STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

TOWN OF CASTLETON	Bridge No. 7
	Log Sta.
HIGHWAY NO. C12 TH #3	Surv. Sta. 39+40
T.H. 3 OVER NORTH BRITTAIN BROOK	
ABUTMENT No. 1	
Designed by D. PERKINS	Drawn by J. COUTURE
Checked by J.R. Guilmette date 6/75	Bridge Design Supervisor J. Wood date 6-75
PROJECT CASTLETON	PROJECT NO. TH 2510
Bridge Sheet No.	Sheet 6 of 26

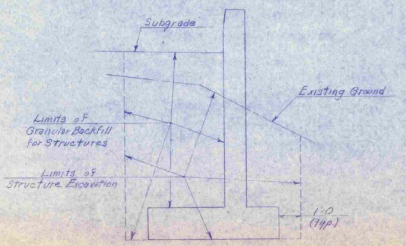
BR-9



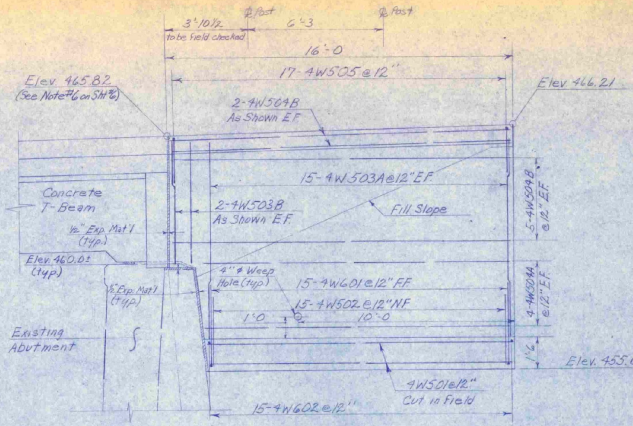
PLAN
SCALE: 1/4"=1'-0



ELEVATION
SCALE: 1/4"=1'-0

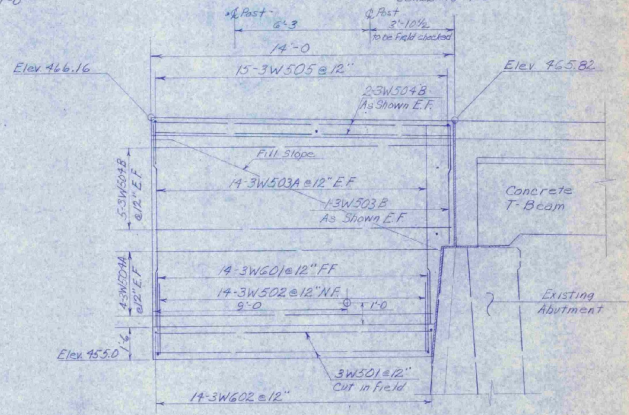


LIMITS OF STRUCTURE EXCAVATION AND GRANULAR BACKFILL FOR STRUCTURES



WINGWALL #4 ELEVATION
SCALE: 3/8"=1'-0

TYPICAL WINGWALL SECTION
SCALE: 3/8"=1'-0



WINGWALL #3 ELEVATION
SCALE: 3/8"=1'-0

For Abutment Notes, See Sheet #5

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

TOWN OF CASTLETON	Bridge No. 7
HIGHWAY NO. C12 T.H. #3	Log Sta.
	Surv. Sta. 397+0
T.H. 3 OVER NORTH BRITTAIN BROOK ABUTMENT No. 2	
Designed by D. PERKINS	Drawn by T. COUTURE
Checked by J.R. Guilmette date 6/75	Bridge Design Supervisor J. Wood date 6-75
PROJECT CASTLETON	PROJECT NO. TH 2510
Bridge Sheet No.	Sheet 7 of 26

ITEM	NO. PIECES	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
1																	
2	SUPERSTRUCTURE																
3																	
4																	
5	43	5	28'-0	S501A	Str												
6	43	5	22'-0	S501B													
7	43	5	28'-0	S502A													
8	43	5	22'-0	S502B													
9	97	5	28'-0	S503													
10	98	5	3'-8	S504													
11	48	5	25'-0	S505													
12	12	5	28'-0	S506A													
13	8	5	2'-0	S506B													
14	8	5	5'-6	S506C			Bend in Field										
15	6	5	22'-6	S507	Str												
16																	
17																	
18	18	5	6'-10	S508	S4	0'-6	2'-8	0'-6	2'-8			0'-6					
19	36	5	7'-5	S509A	S5	0'-6	2'-11	0'-7	2'-11			0'-6					
20	4	5	9'-1	S509B	S5	0'-6	3'-9	0'-7	3'-9			0'-6					
21	4	5	10'-3	S509C	S5	0'-6	4'-4	0'-7	4'-4			0'-6					
22	4	5	11'-1	S509D	S5	0'-6	4'-9	0'-7	4'-9			0'-6					
23	188	5	9'-5	S510	S4	0'-6	3'-9	0'-11	3'-9			0'-6					
24	98	5	4'-0	S511	S5	0'-6	1'-3	0'-6	1'-3			0'-6					
25	97	5	29'-1	S512	1	0'-7	27'-11					0'-7					
26	16	5	6'-3	S513	16		2'-3	1'-0	3'-0				2'-1		2'-1		
27																	
28																	
29*	33	8	6'-0	S801	17		3'-0	3'-0									
30																	
31																	
32*	9	11	32'-0	S1101	Str												
33	8	11	41'-0	S1102	Str												
34																	
35	16	11	49'-2	S1103	1	1'-7	46'-0					1'-7					
36																	
37																	
38																	
39																	
40	WINGWALL # 1																
41																	
42																	
43	9	5	11'-2	1W501	Str		Cut as required in field										
44	12	5	3'-3	1W502	Str												
45	24	5	8'-6	1W503	Str												
46	20	5	11'-7	1W504	Str		Cut as required in field										
47																	
48																	
49	12	5	5'-6	1W505	17		2'-6	0'-6	2'-6								
50																	
51*	13	6	5'-6	1W602	Str												
52																	
53	12	6	5'-9	1W601	17		3'-9	2'-0									
54																	
55																	
56																	
57	WINGWALL #2																
58																	
59																	
60	9	5	13'-2	2W501	Str		Cut as required in field										
61	14	5	3'-3	2W502	Str												
62	28	5	8'-6	2W503	Str												
63	20	5	13'-7	2W504	Str		Cut as required in field										
64																	
65																	
66	14	5	5'-6	2W505	17		2'-6	0'-6	2'-6								
67																	
68	14	6	5'-6	2W602	Str												
69																	
70	14	6	5'-9	1W601	17		3'-9	2'-0									
71																	
72																	
73																	
74																	
75																	
76																	
77																	
78																	
79																	
80																	

BR 6

ITEM	NO. PIECES	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
81																	
82	WINGWALL #3																
83																	
84																	
85	9	5	13'-2	3W501	Str		Cut as required in field										
86	14	5	3'-3	3W502	Str												
87	28	5	9'-0	3W503A	Str												
88	3	5	5'-0	3W503B	Str												
89	8	5	12'-6	3W504A	Str												
90	14	5	13'-7	3W504B	Str												
91																	
92																	
93	15	5	5'-6	3W505	17		2'-6	0'-6	2'-6								
94																	
95	14	6	5'-6	3W602	Str												
96																	
97	14	6	5'-9	3W601	17		3'-9	2'-0									
98																	
99																	
100																	
101																	
102	WINGWALL # 4																
103																	
104																	
105	9	5	15'-2	4W501	Str		Cut as required in field										
106	15	5	3'-3	4W502	Str												
107	30	5	9'-0	4W503A	Str												
108	4	5	5'-3	4W503B	Str												
109	8	5	14'-0	4W504A	Str												
110	14	5	15'-7	4W504B	Str												
111																	
112																	
113	17	5	5'-6	4W505	17		2'-6	0'-6	2'-6								
114																	
115	15	6	5'-6	4W602	Str												
116																	
117	15	6	5'-9	4W601	17		3'-9	2'-0									
118																	
119																	
120																	
121																	
122																	
123																	
124																	
125																	
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157																	
158																	
159																	
160																	

ITEM	NO. PIECES	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
161																	
162																	
163																	
164																	
165																	
166																	
167																	
168																	
169																	
170																	
171																	
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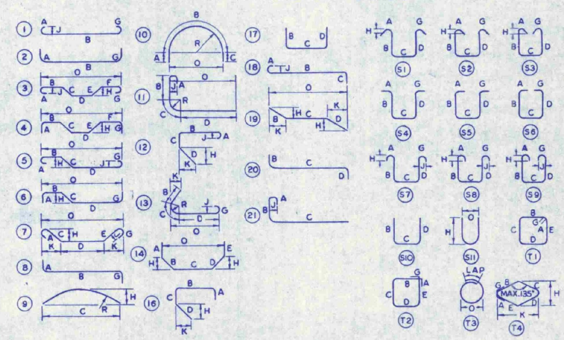
173																	
174																	
175																	
176																	
177																	
178																	
179																	
180																	

ASTM STANDARD REINFORCING BARS

BAR SIZE DESIGNATION	WEIGHT POUNDS PER FOOT	NOMINAL DIMENSIONS ROUND SECTION		
		DIAMETER INCHES	CROSS SECTIONAL AREA SQ. INCHES	PERIMETER INCHES
#3	.376	.375	.11	1.178
#4	.668	.500	.20	1.571
#5	1.043	.625	.31	1.963
#6	1.502	.750	.44	2.356
#7	2.044	.875	.60	2.749
#8	2.670	1.000	.79	3.142
#9	3.400	1.128	1.00	3.544
#10	4.303	1.270	1.27	3.990
#11	5.313	1.410	1.56	4.430
#14	7.65	1.693	2.25	5.32
#18	13.60	2.257	4.00	7.09

TYPICAL BAR BENDS



NOTES

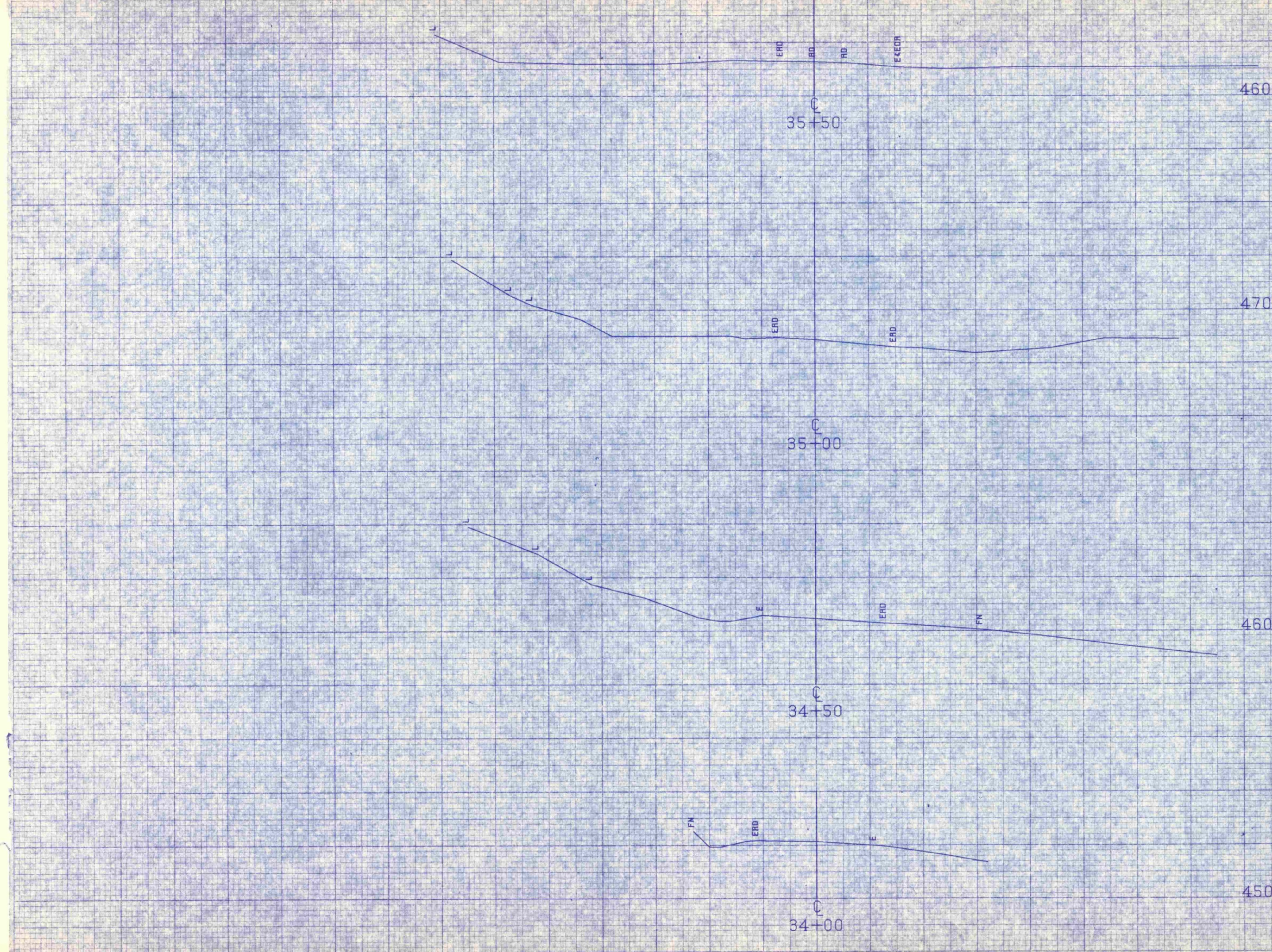
1. UNLESS OTHERWISE DESIGNATED, ALL BAR REINFORCEMENT FOR CONCRETE IN SIZES UP TO AND INCLUDING NO. 18 SHALL CONFORM TO THE REQUIREMENTS OF THE "SPECIFICATIONS FOR DEFORMED BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT," AASHO M 31 (ASTM A 615), GRADE 60.
2. FOR TYPICAL BENDING DETAILS, RECOMMENDED PIN DIAMETER "D" OF BENDS AND HOOKS AND OTHER STANDARD PRACTICE SEE CURRENT CONCRETE REINFORCING STEEL INSTITUTE "MANUAL OF STANDARD PRACTICE."
3. BARS WHICH REQUIRE MORE ACCURATE BENDING THAN STANDARD PRACTICES SHOULD HAVE LIMITS INDICATED.
4. ALL DIMENSIONS ARE OUT TO OUT OF BAR EXCEPT "A" AND "G". ON STANDARD 180° AND 135° HOOKS.
5. "J" DIMENSION ON 180° HOOKS TO BE SHOWN ONLY WHERE NECESSARY TO RESTRICT HOOK SIZE, OTHERWISE STANDARD HOOKS ARE TO BE USED.
6. "H" DIMENSION ON STIRRUPS TO BE SHOWN ONLY WHEN NECESSARY TO MAINTAIN CLEARANCES.
7. WHERE SLOPE DIFFERS FROM 45° DIMENSIONS "H" AND "K" MUST BE SHOWN.

* DENOTES ONE EXTRA BAR ADDED FOR TESTING PURPOSES.

REV. NO.	MADE BY	DATE	DESCRIPTION

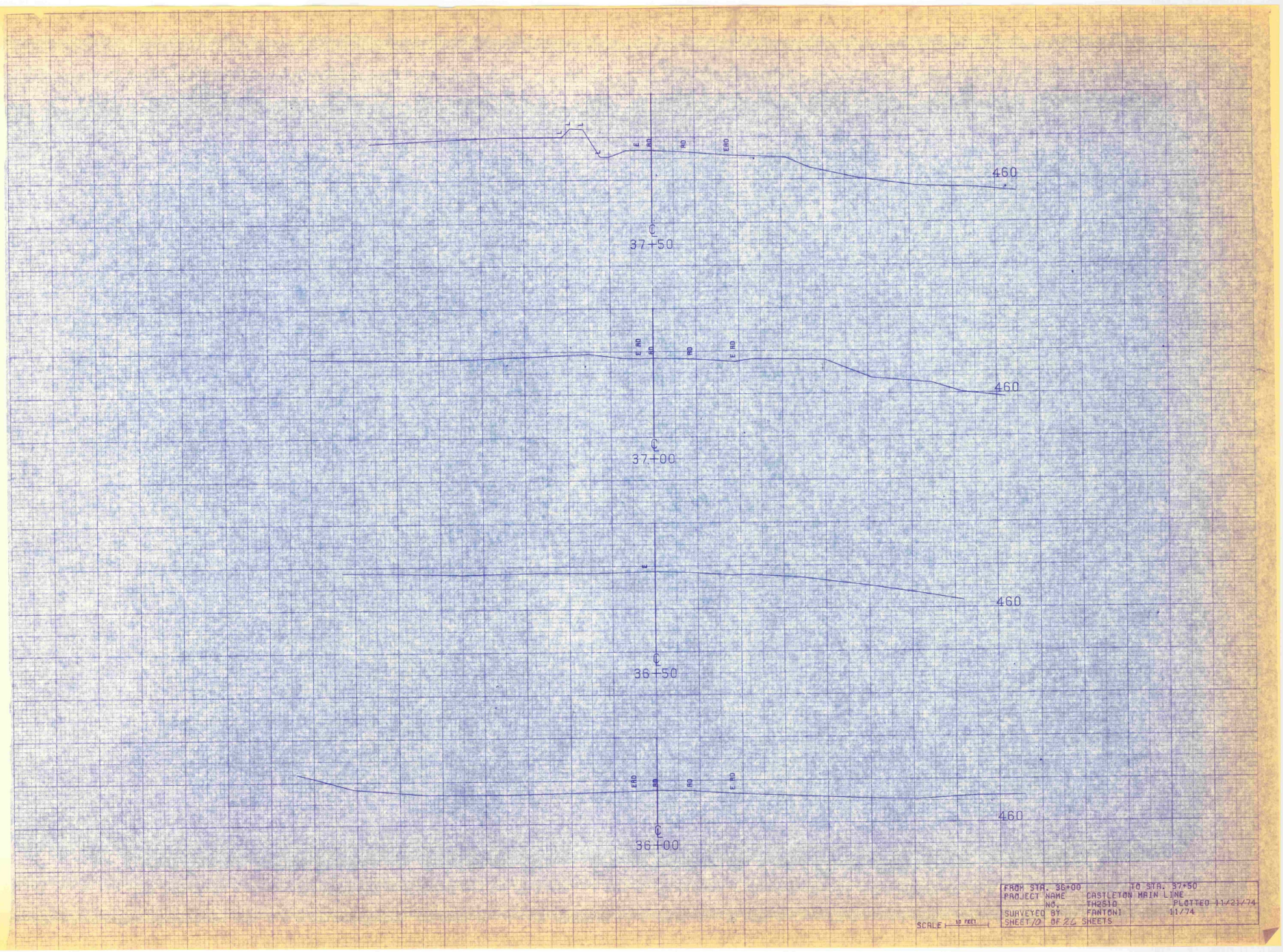
STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

TOWN OF CASTLETON	BRIDGE NO. 7
	LOG STA.
HIGHWAY NO. C1.2 T.H.#3	SURV. STA. 39+40
Town Highway #3 over North Brittain Brook	
REINFORCING STEEL SCHEDULE	
DESIGNED BY J.R. Guilmette	DRAWN BY J.R. Guilmette
CHECKED BY J. Couture DATE 6/75	BRIDGE DESIGN SUPERVISOR J. Wood DATE 6-75
PROJECT CASTLETON	PROJECT NO. TH 2510
BRIDGE SHEET NO.	SHEET 8 OF 26



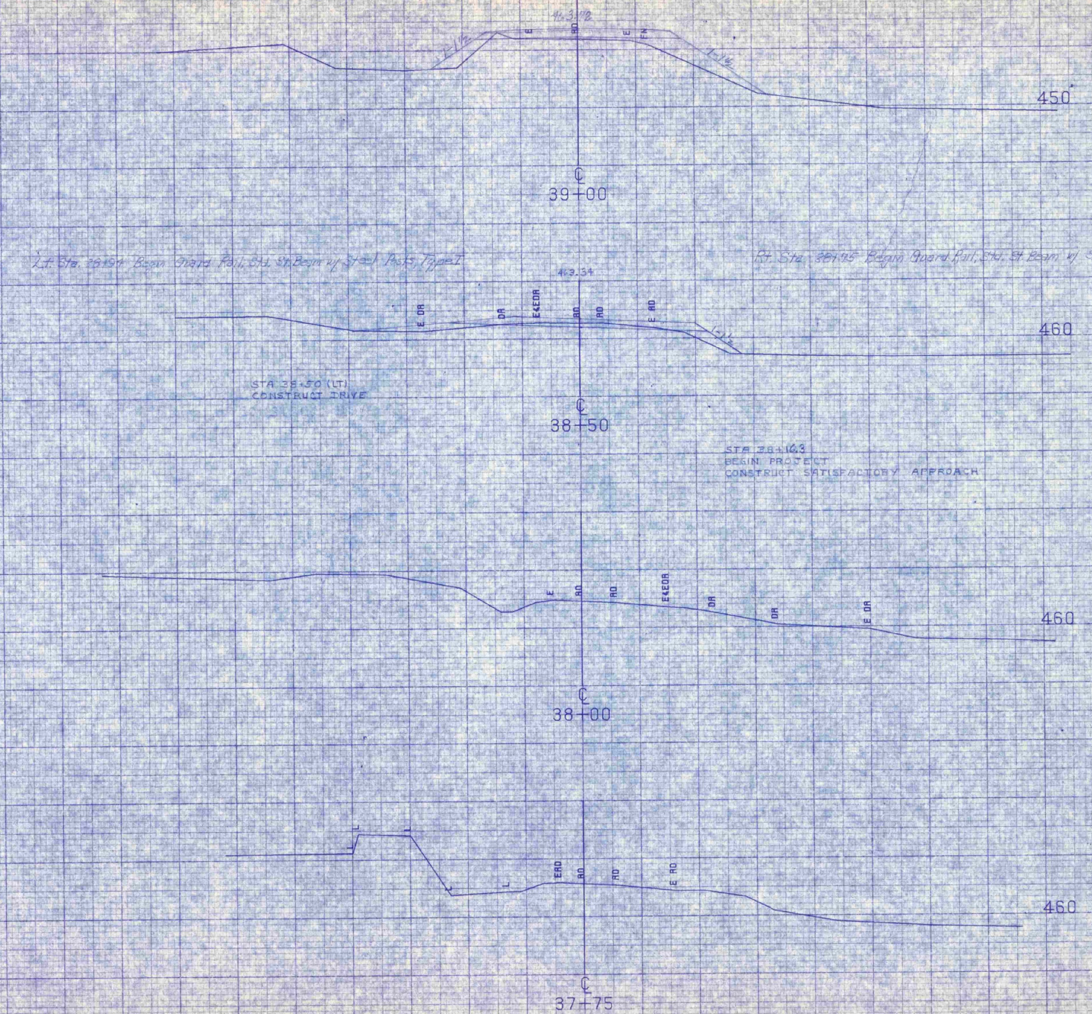
SCALE 10 FEET

FROM STA. 34+00		TO STA. 35+50	
PROJECT NAME	CASTLETON MAIN LINE		
NO.	TH2510		PLOTTED 11/21/74
SURVEYED BY	FANTONI	11/74	
SHEET 9 OF 26 SHEETS			



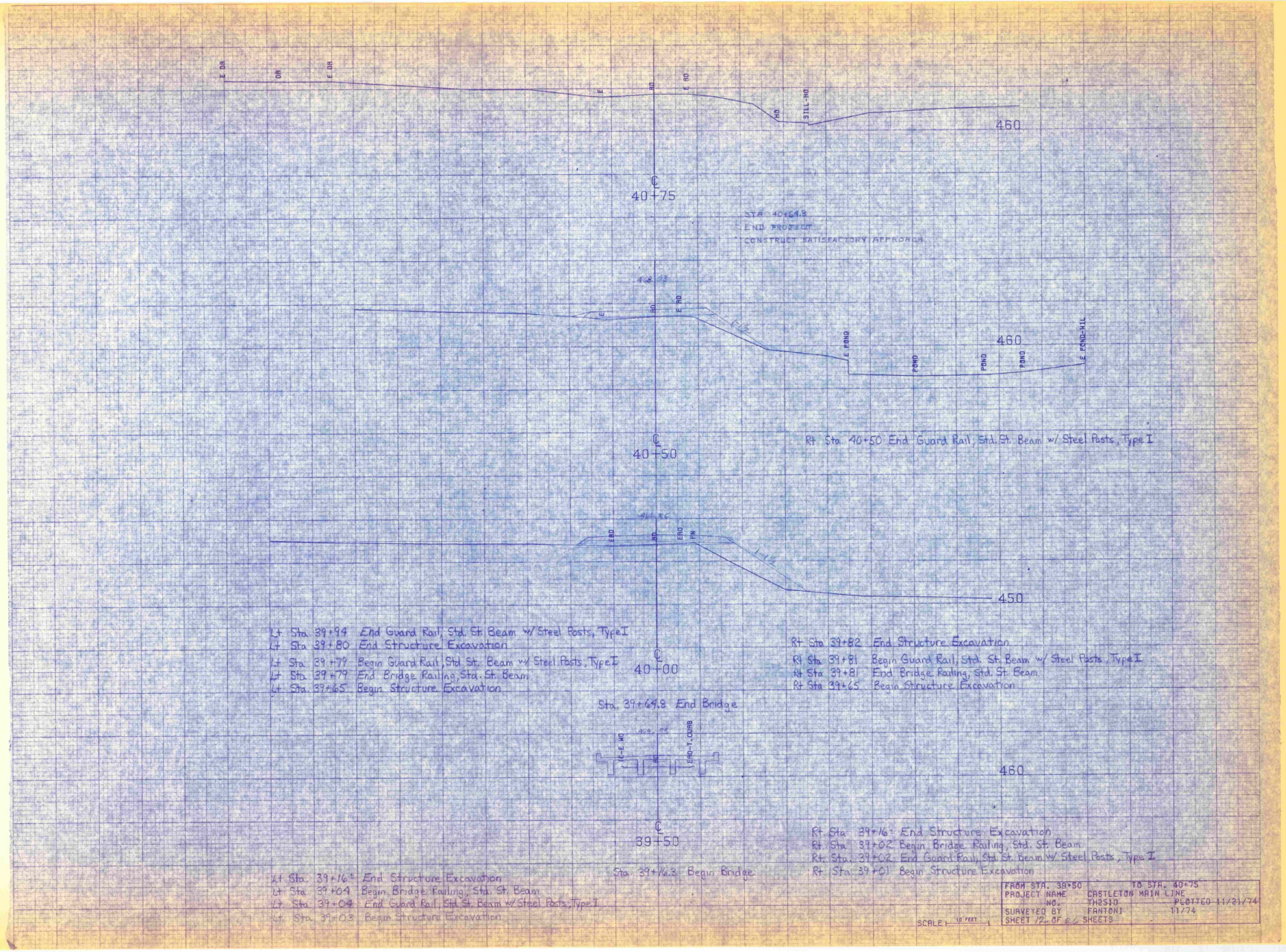
FROM STA. 36+00 TO STA. 37+50
PROJECT NAME CASTLETON MAIN LINE
NO. TH2510 PLOTTED 11/21/74
SURVEYED BY: FANTONI 11/74
SHEET 10 OF 26 SHEETS

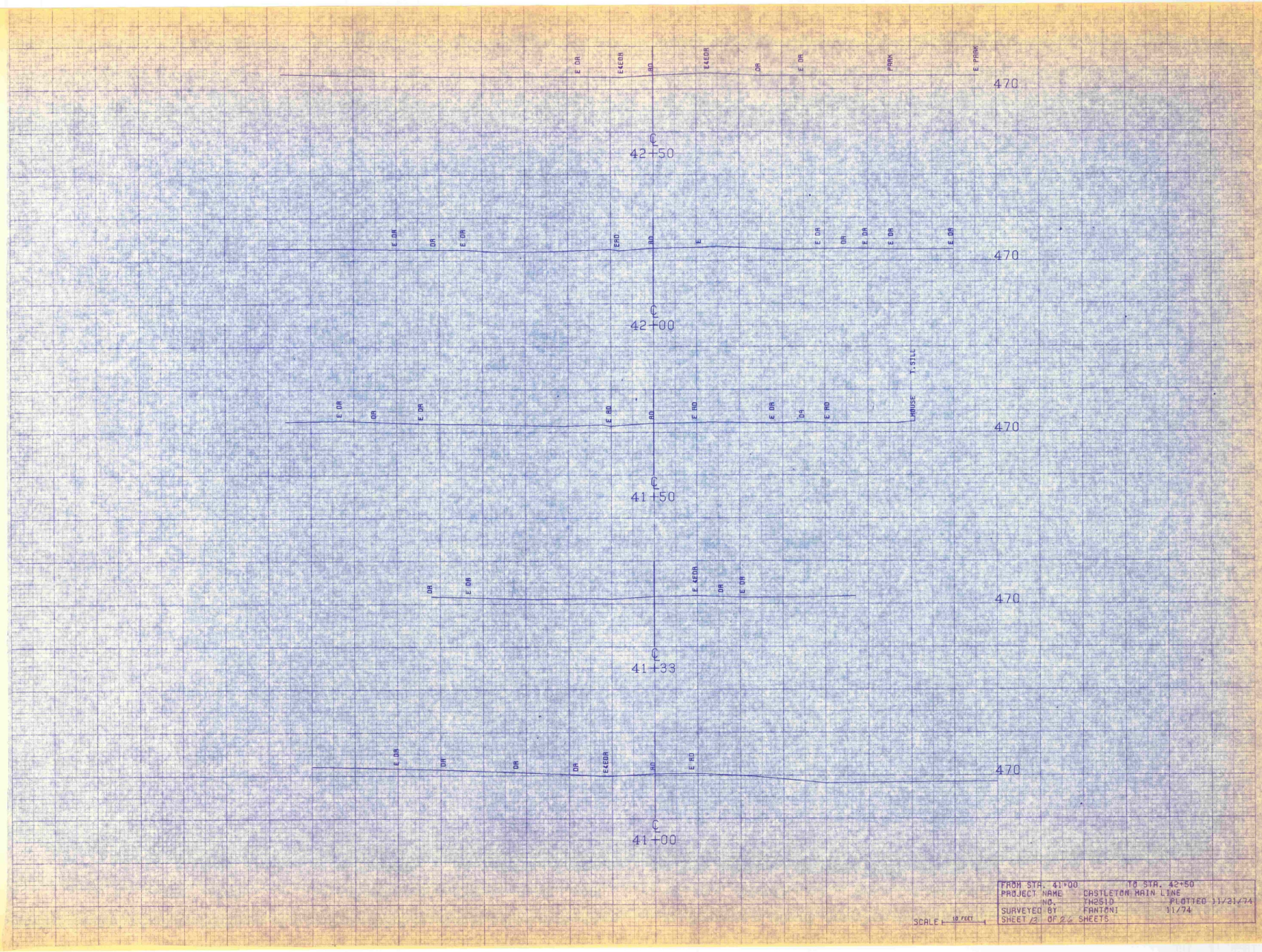
SCALE 1" = 10 FEET



SCALE: 10 FEET

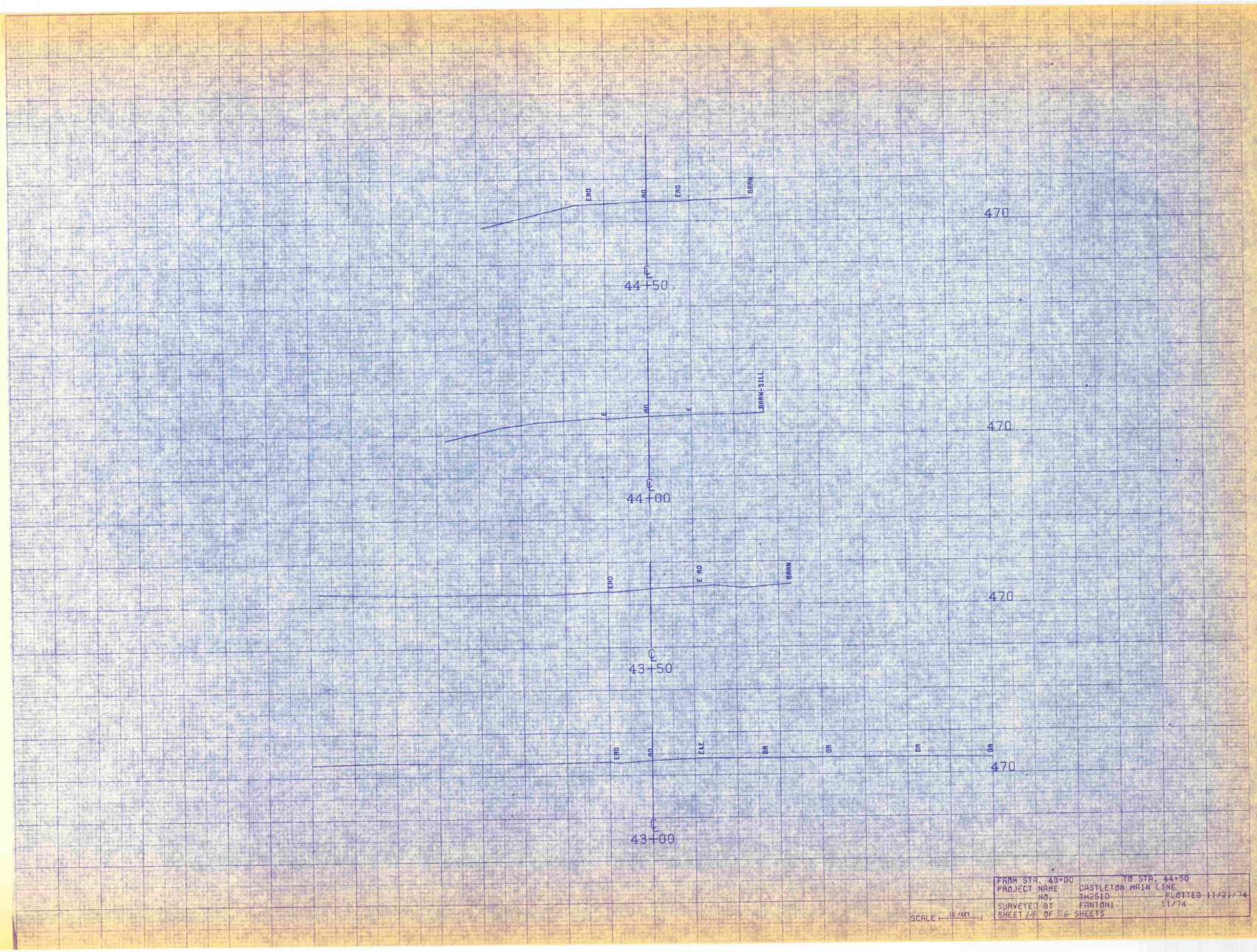
FROM STA. 37+75 TO STA. 39+00
PROJECT NAME CASTLETON MAIN LINE
NO. TH2510 PLOTTED 11/21/74
SURVEYED BY FANTONI 11/74
SHEET 11 OF 26 SHEETS

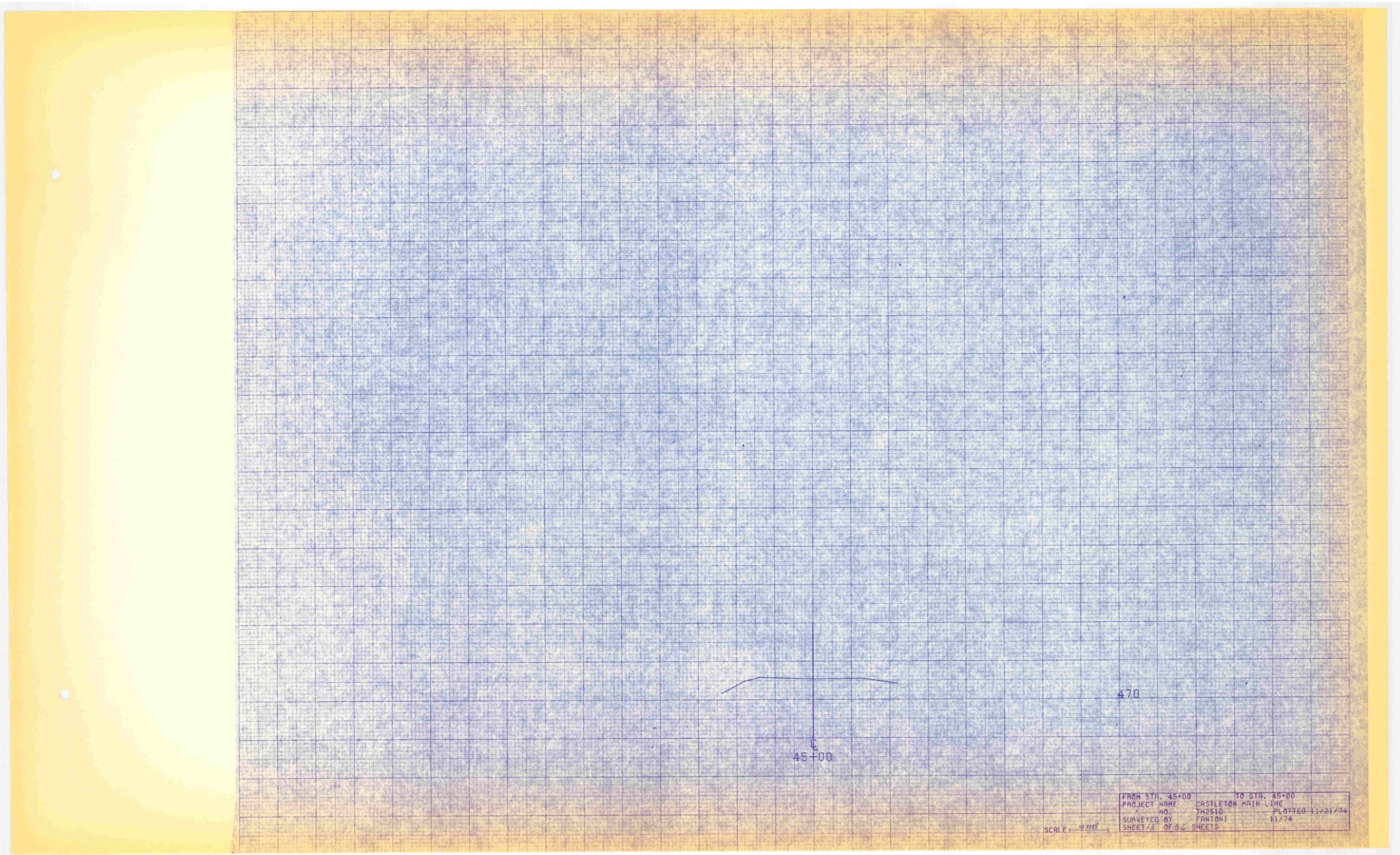

E DR
DR
E DR
E RD
E RD
STEEL RD
460
℄
40+75
STA. 40+69.2
END PROJECT
CONSTRUCT SATISFACTORY APPROACH
468.03
E RD
E RD
E RD
E RD
E RD
E RD-RTL
460
℄
40+50
Rt Sta. 40+50 End Guard Rail, Std. St. Beam w/ Steel Posts, Type I
464.26
END
RD
END
PAV
450
℄
40+00
Lt Sta. 39+94 End Guard Rail, Std. St. Beam w/ Steel Posts, TypeI
Lt Sta. 39+80 End Structure Excavation
Lt Sta. 39+79 Begin Guard Rail, Std. St. Beam w/ Steel Posts, TypeI
Lt Sta. 39+79 End Bridge Railing, Std. St. Beam
Lt Sta. 39+65 Begin Structure Excavation
Rt Sta. 39+82 End Structure Excavation
Rt Sta. 39+81 Begin Guard Rail, Std. St. Beam w/ Steel Posts, TypeI
Rt Sta. 39+81 End Bridge Railing, Std. St. Beam
Rt Sta. 39+65 Begin Structure Excavation
Sta. 39+69.8 End Bridge
463.12
RD-E RD
RD
END-CURB
460
℄
39+50
Rt Sta. 39+16 End Structure Excavation
Rt Sta. 39+02 Begin Bridge Railing, Std. St. Beam
Rt Sta. 39+02 End Guard Rail, Std St. Beam w/ Steel Posts, Type I
Rt Sta. 39+01 Begin Structure Excavation
Sta. 39+16.3 Begin Bridge
Lt Sta. 39+16 End Structure Excavation
Lt Sta. 39+04 Begin Bridge Railing, Sta. St. Beam
Lt Sta. 39+04 End Guard Rail, Std St. Beam w/ Steel Posts, Type I
Lt Sta. 39+03 Begin Structure Excavation
FROM STA. 38+50 TO STA. 40+75
PROJECT NAME CASTLETON MAIN LINE
NO. TH2510 PLOTTED 11/21/74
SURVEYED BY FANTONI 11/74
SHEET 12 OF 6 SHEETS
SCALE 1" = 10 FEET



FROM STA. 41+00 TO STA. 42+50
PROJECT NAME CASTLETON MAIN LINE
NO. TW2510 PLOTTED 11/21/74
SURVEYED BY FANTONI 11/74
SHEET 13 OF 26 SHEETS

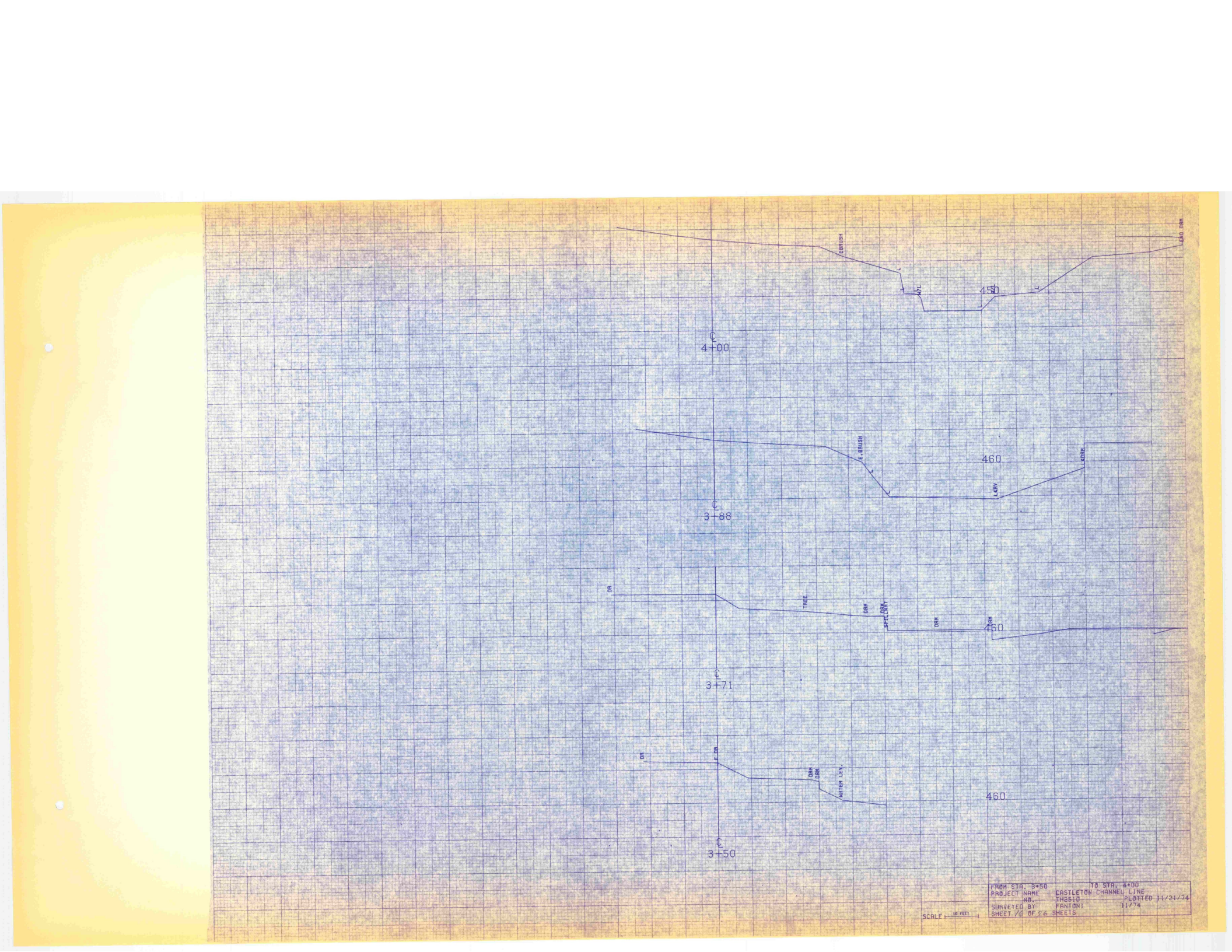
SCALE 1" = 10 FEET

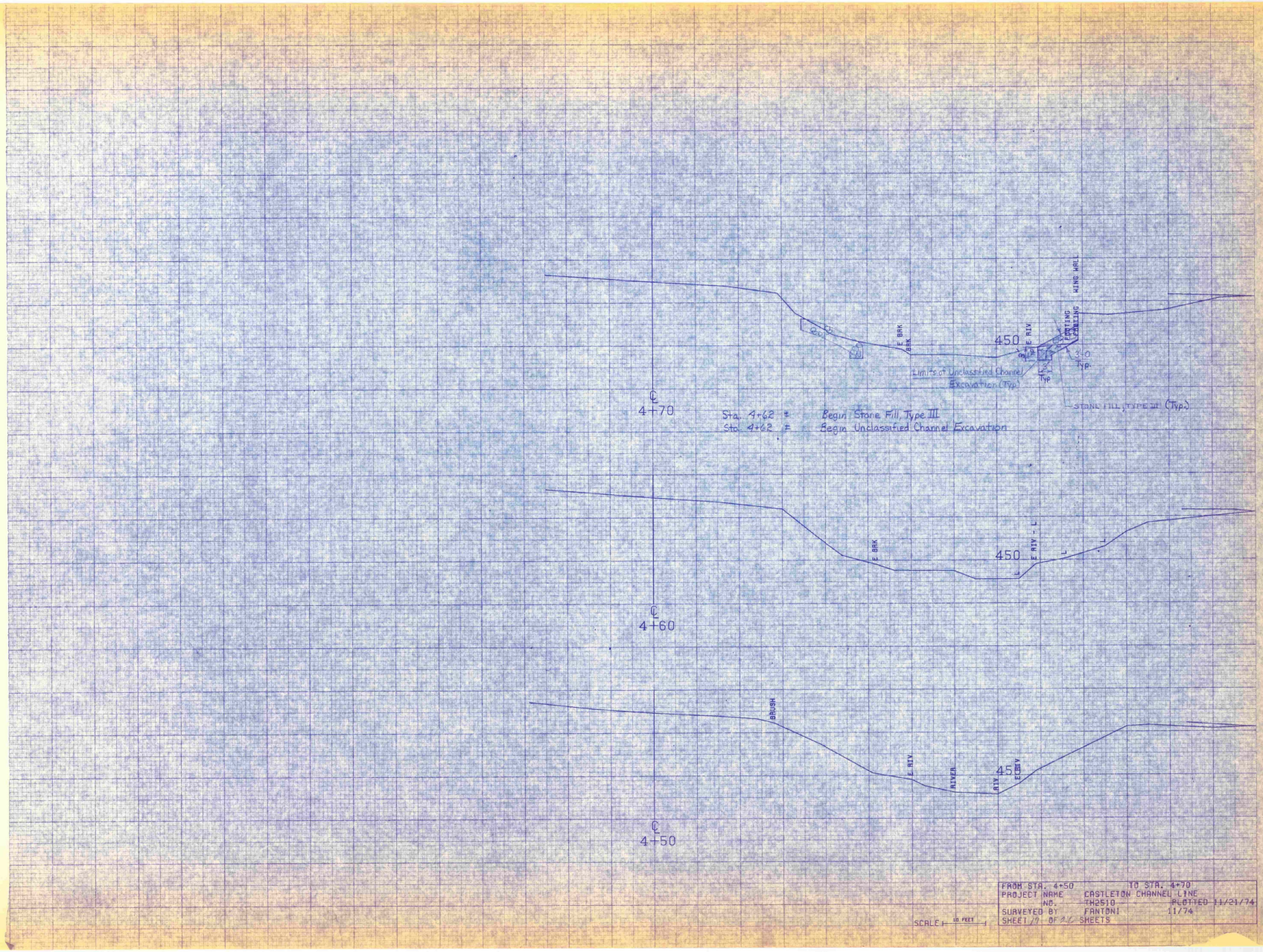

END
AD
END
BARN
470
44+50
E
AD
E
BARN-SILL
470
44+00
END
E AD
BARN
470
43+50
END
AD
EXE
DR
DR
DR
DR
470
43+00
FROM STA. 43+00
TO STA. 44+50
PROJECT NAME
CASTLETON MAIN LINE
NO.
TH2610
PLOTTED 11/21/74
SURVEYED BY
FANTONI
11/74
SHEET 14 OF 26 SHEETS
SCALE 1" = 10 FEET

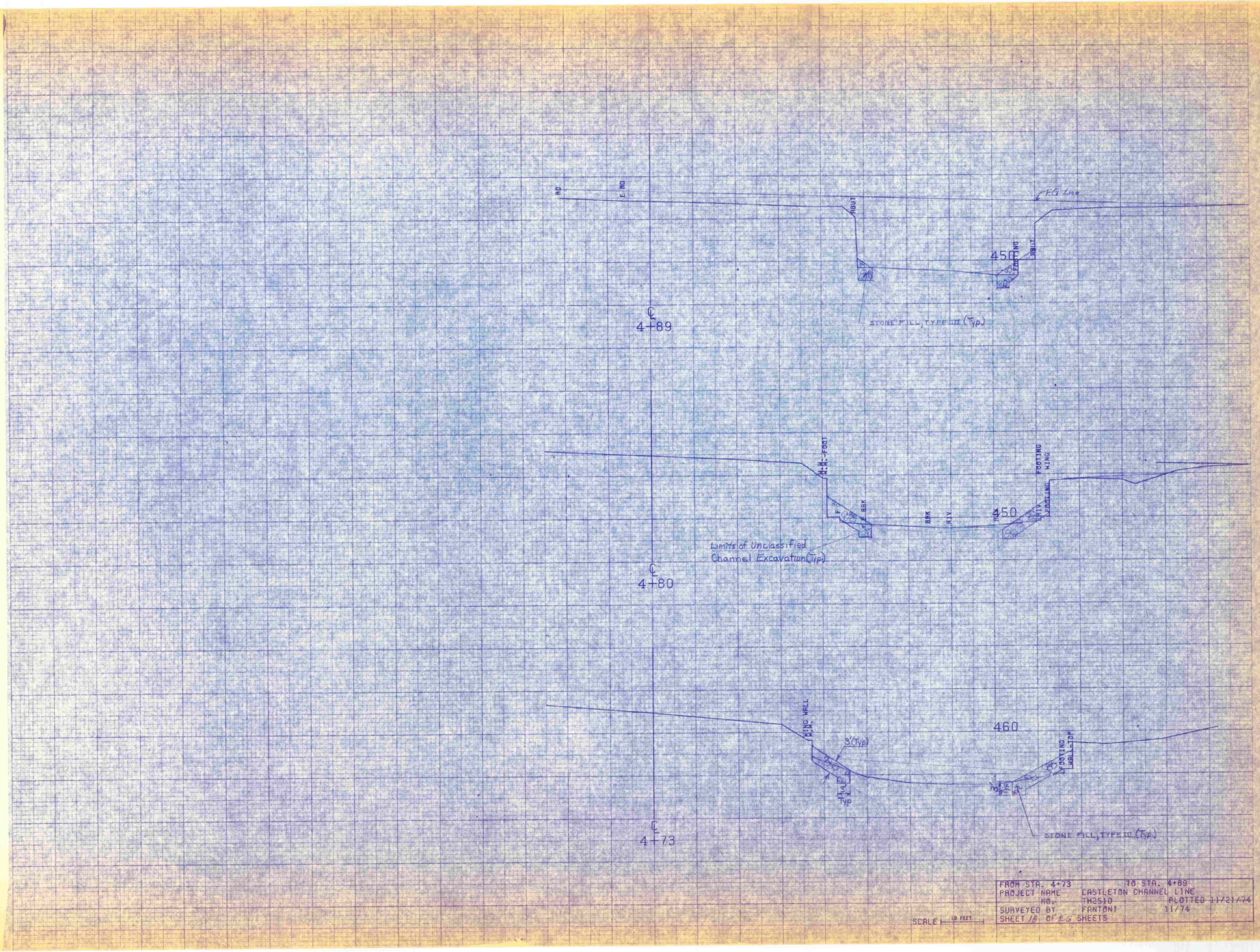


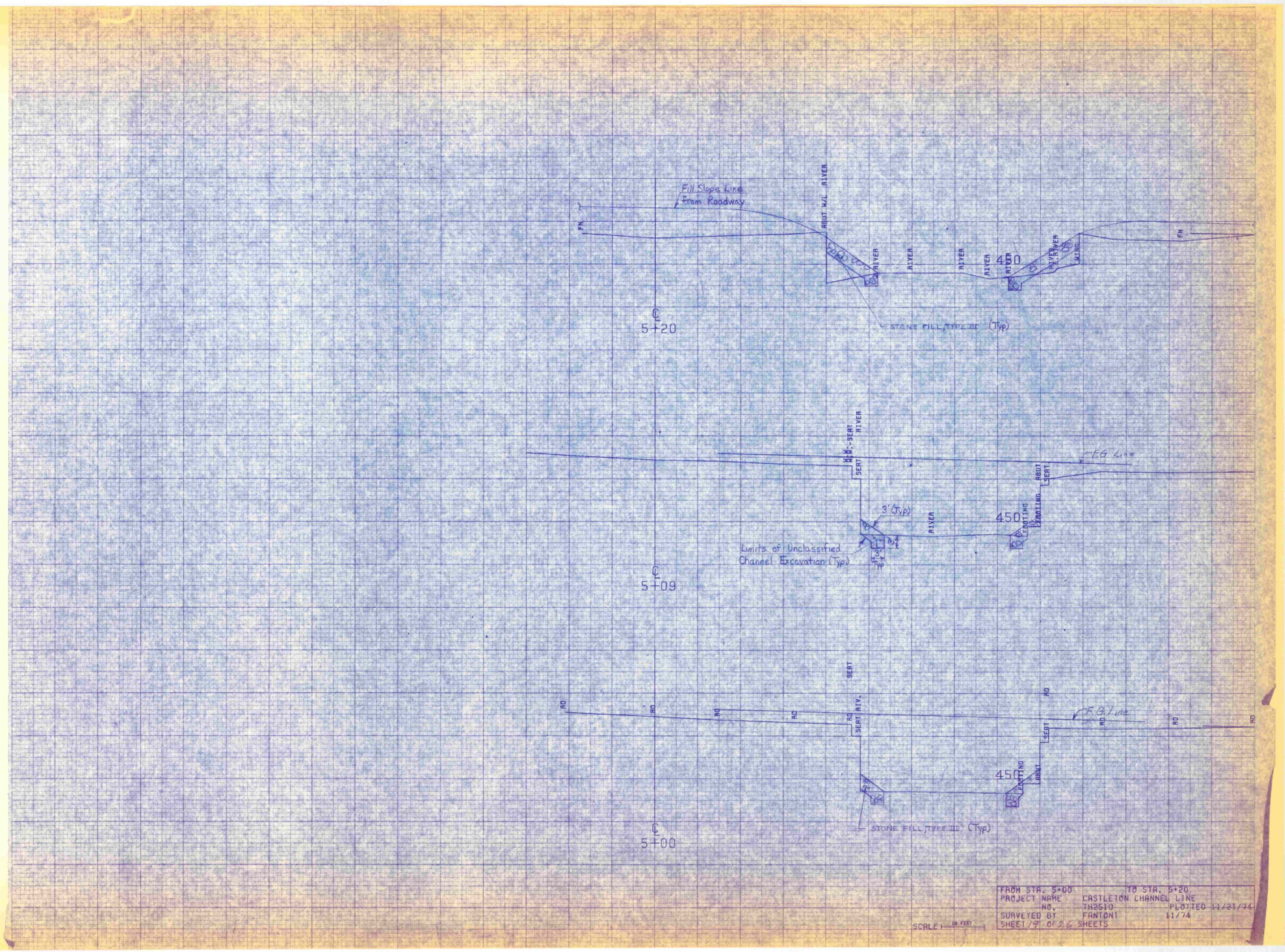
FROM STA. 45+00 TO STA. 45+00
PROJECT NAME. CASTLETON MAIN LINE
NO. TH2S1D PLOTTED 11/21/74
SURVEYED BY FANTONI 11/74
SHEET 1 OF 36 SHEETS.

SCALE: 10 FEET


4+00
EBRUSH
LAT
450
END DAM
3+88
E.BRUSH
460
LEDGE
LEDGE
3+71
DR
TREE
DAM
DAM
SPILLWAY
DAM
460
DAM
3+50
E DR
DR
DAM
DAM
WATER LEV.
460
FROM STA. 3+50
TO STA. 4+00
PROJECT NAME CASTLETON CHANNEL LINE
NO. TH2510
PLOTTED 11/21/74
SURVEYED BY FANTONI 11/74
SHEET 12 OF 26 SHEETS
SCALE 10 FEET

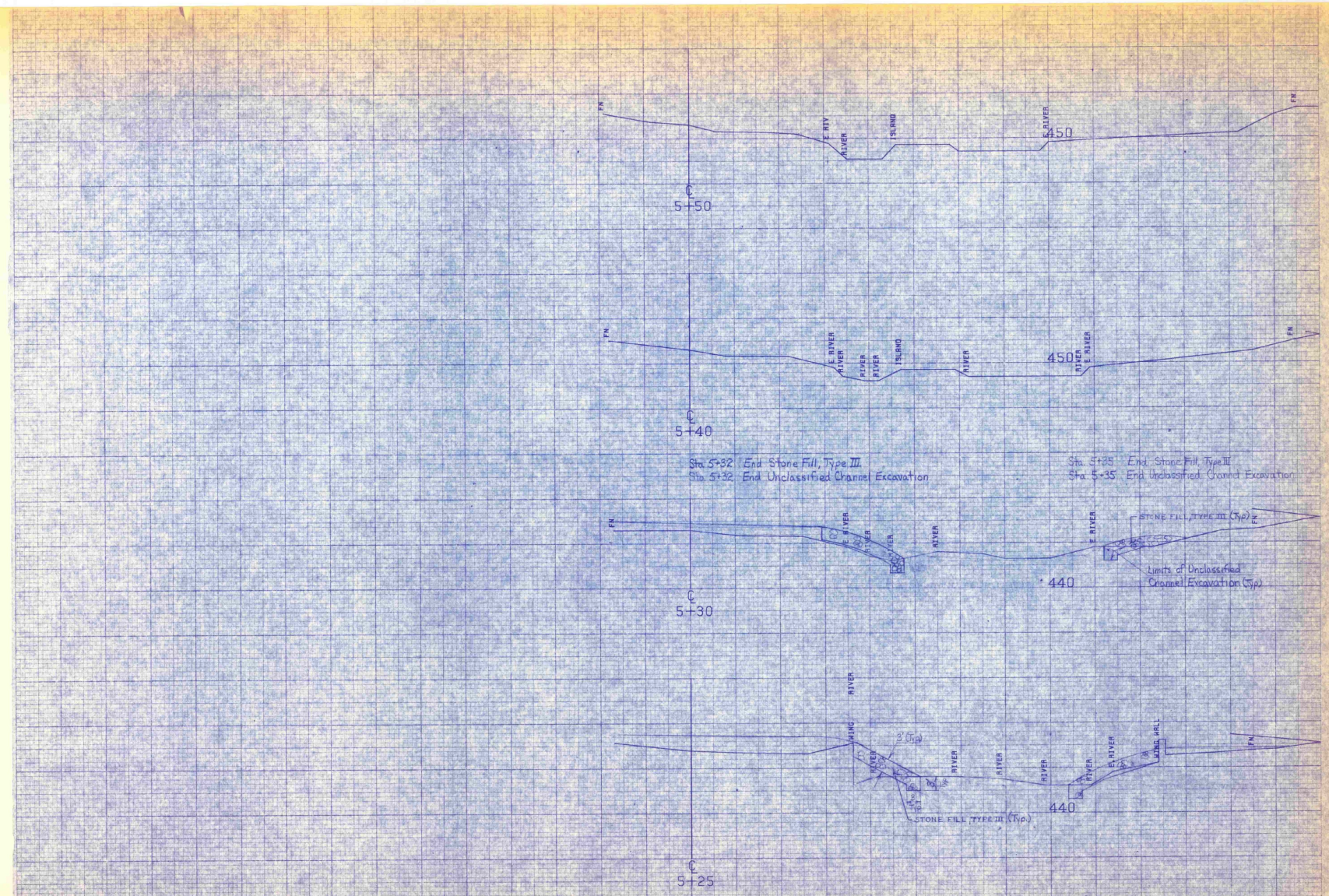

℄ 4+70
450
E BRK
E RIV
EXISTING CRIBBING
KING WALL
Limits of Unclassified Channel Excavation (Typ)
STONE FILL, TYPE III (Typ.)
Sta. 4+62 ± Begin Stone Fill, Type III
Sta. 4+62 ± Begin Unclassified Channel Excavation
℄ 4+60
450
E BRK
E RIV - L
℄ 4+50
BRUSH
E RIV
RIVER
450
RIV
E RIV
FROM STA. 4+50 TO STA. 4+70
PROJECT NAME CASTLETON CHANNEL LINE
NO. TH2510 PLOTTED 11/21/74
SURVEYED BY FANTONI 11/74
SHEET 7 OF 21 SHEETS
SCALE 1" = 10 FEET


E.Q. Line
STONE FILL, TYPE III (Typ.)
Limits of Unclassified Channel Excavation (Typ.)
STONE FILL, TYPE III (Typ.)
450
460
4+89
4+80
4+73
FROM STA. 4+73
TO STA. 4+89
PROJECT NAME CASTLETON CHANNEL LINE
NO. TM2510
PLOTTED 11/21/74
SURVEYED BY FANTONI 11/74
SHEET 18 OF 26 SHEETS
SCALE 1" = 10 FEET



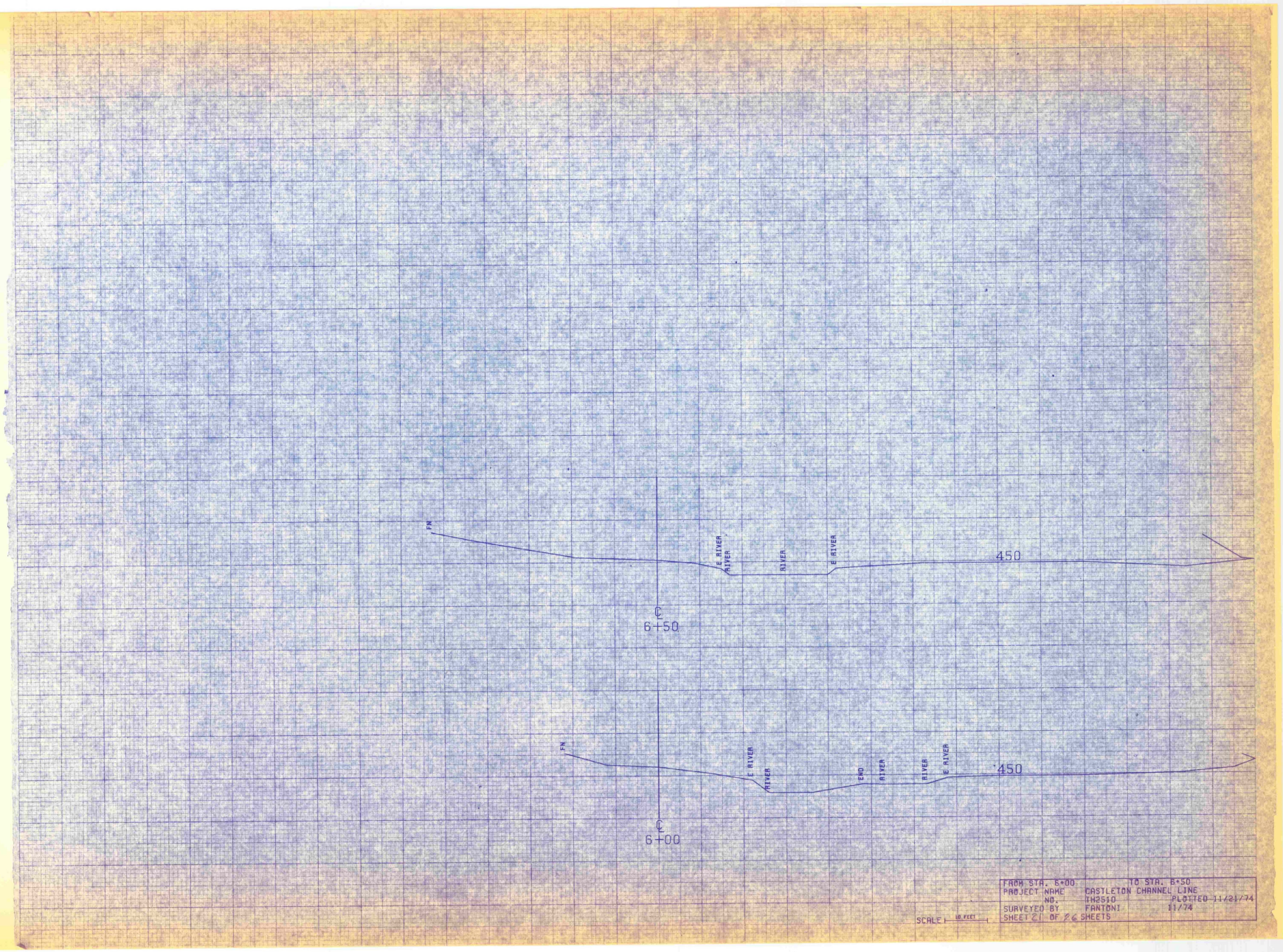
FROM STA. 5+00 TO STA. 5+20
PROJECT NAME CASTLETON CHANNEL LINE
NO. TH2510 PLOTTED 11/21/74
SURVEYED BY FANTONI 11/74
SHEET 19 OF 26 SHEETS

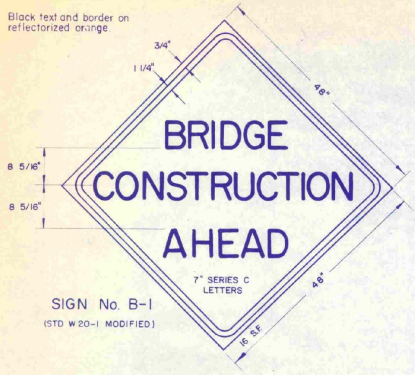
SCALE 1" = 10'



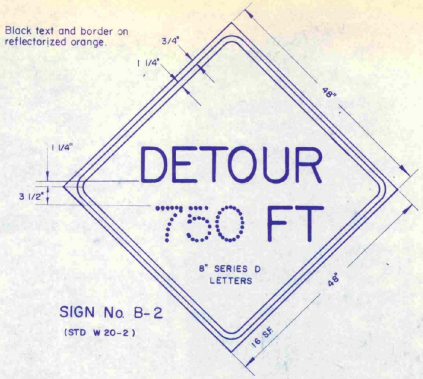
FROM STA. 5+25 TO STA. 5+50
PROJECT NAME CASTLETON CHANNEL LINE
NO. TH2510 PLOTTED 11/21/74
SURVEYED BY FANTONI 11/74
SHEET 20 OF 26 SHEETS

SCALE 1" = 10 FEET

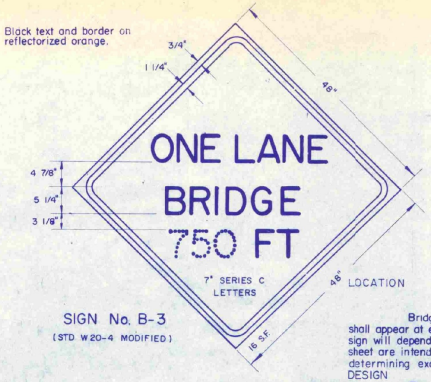

FM
E RIVER
RIVER
RIVER
E RIVER
450
℄
6+50
FM
E RIVER
RIVER
END
RIVER
RIVER
E RIVER
450
℄
6+00
FROM STA. 6+00
TO STA. 6+50
PROJECT NAME
CASTLETON CHANNEL LINE
NO.
TH2510
PLOTTED 11/21/74
SURVEYED BY
FANTONI
11/74
SHEET 21 OF 26 SHEETS
SCALE 1" = 10 FEET



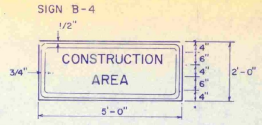
SIGN No. B-1
(STD W 20-1 MODIFIED)



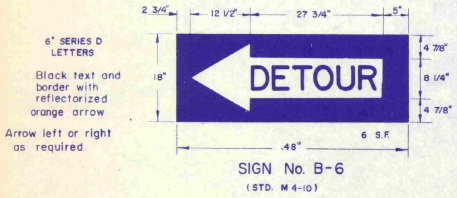
SIGN No. B-2
(STD W 20-2)



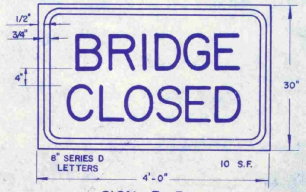
SIGN No. B-3
(STD W 20-4 MODIFIED)



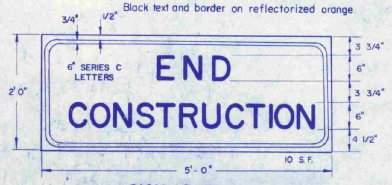
Black text and border on non-reflectorized white.



SIGN No. B-6
(STD. M 4-10)

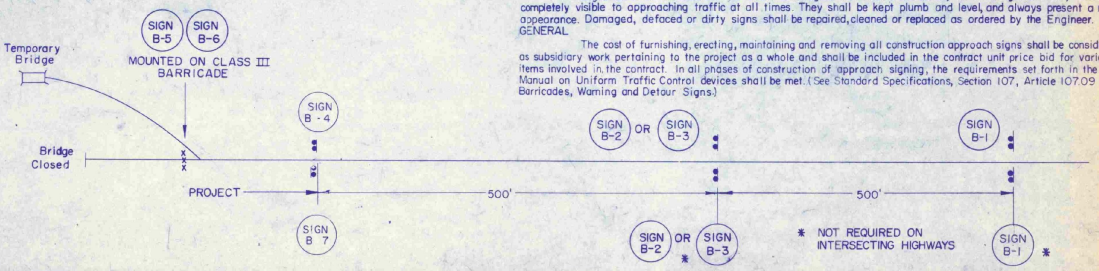


SIGN B-5
(STD. R 11-2 MODIFIED)



SIGN B-7
(STD. G 20-2)

The bridge construction approach signs shown on this sheet are intended for use in providing warning and information at isolated bridge projects, although they may be ordered by the Engineer at bridge work on a road construction project. When additional approach signs or other types of signing or control are necessary, the plans and/or the Special Provisions for that project will give the details of the signs and controls required.



LOCATION

Bridge construction approach signs shall be located as detailed on this sheet or otherwise shown on the plans. They shall appear at each end of the project under construction, and on intersecting public highways. The exact placement of any sign will depend upon the alignment of the highway and the character of the roadsides. The location measurements on this sheet are intended to indicate the sequence to be followed, and the minimum spacing to be observed by the Engineer in determining exact locations.

DESIGN

The designs of the signs shall conform with the details shown on this sheet and with the standards prescribed in the Manual on Uniform Traffic Control Devices prepared by National Joint Committee on Uniform Traffic Control Devices.

MATERIALS

The signs shall be of metal, wood, plywood, hardboard or any other material satisfactory to the Engineer. No material shall be approved that will deteriorate by exposure to the weather during the required life of the sign.

REFLECTORIZATION

All new signs requiring an orange background shall have encapsolated lens reflective sheeting material as of January ., 1975.

ILLUMINATION

If desired by the contractor, and approved by the Engineer, a sign may be illuminated instead of reflectorized. The illumination may be provided by incandescent or flourescent lamps, or by spotlights. Lamps shall be properly shielded to protect drivers from glare. Torches, lanterns, or existing street lighting are not acceptable for sign illumination. If the Engineer considers that a reflectorized sign is not adequate, he may order that it be illuminated.

INSTALLATION

The signs shall be in place at the time the project officially commences. Each sign shall be erected in a neat and workmanlike manner on wood or metal posts set securely in the ground. The bottom of a sign shall be at least 5 feet above road level, and the nearest edge of a sign shall be at least 6 feet outside the shoulder point or 2 feet outside the guard rail, curbing or sidewalk. Posts and signs shall be braced or reinforced in back as necessary. The installation of signs and barricades shall be subject to the approval of the Engineer.

When project is closed down for temporary periods the signs shall be covered in a workmanlike manner.

MAINTENANCE

Signs shall be maintained in a clean and legible condition satisfactory to the Engineer. They shall be completely visible to approaching traffic at all times. They shall be kept plumb and level, and always present a neat appearance. Damaged, defaced or dirty signs shall be repaired, cleaned or replaced as ordered by the Engineer.

GENERAL

The cost of furnishing, erecting, maintaining and removing all construction approach signs shall be considered as subsidiary work pertaining to the project as a whole and shall be included in the contract unit price bid for various items involved in the contract. In all phases of construction of approach signing, the requirements set forth in the Manual on Uniform Traffic Control devices shall be met. (See Standard Specifications, Section 107, Article 107.09 Barricades, Warning and Detour Signs.)

REVISIONS AND CORRECTIONS

SEPT. 11, 1973 — REVISED PER ORDER OF FHWA, SEPT. 11, 1973.
NOV. 7, 1973 — REVISED PER ORDER OF FHWA.
MAY 14, 1974 — REFLECTIVE MATERIAL CHANGE

APPROVED Dec 14, 1971
DATE

R. H. Connell
CHIEF ENGINEER

E. H. Stickney
ASST. CHIEF ENGINEER

G. M. Lane
HIGHWAY ENGINEER

TRAFFIC SIGNS

BRIDGE CONSTRUCTION APPROACH SIGNS

VERMONT
DEPARTMENT OF HIGHWAYS
STANDARD

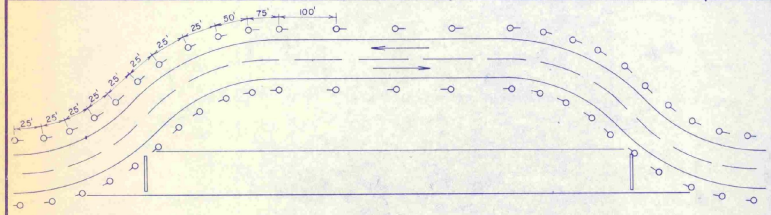
E-3

DELINEATOR AND HAZARD MARKER DETAILS
FOR CONSTRUCTION AREAS WHERE TRAFFIC IS MAINTAINED

HAZARD MARKER TYPICAL

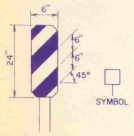
DELINEATOR TYPICAL

DELINEATOR AND HAZARD MARKER LOCATION DETAIL FOR TWO WAY TRAFFIC
(FOR INTERSTATE TYPE HIGHWAYS
200' SPACING ON RT.
AND 400' SPACING ON MEDIAN EDGE)



DELINEATOR LOCATION DETAIL FOR CONSTRUCTION DETOUR

HAZARD MARKER
TO BE USED AROUND EXCAVATION DURING NON-WORKING HOURS OR WHEN AN OPERATION IS NOT BEING CARRIED ON



HAZARD MARKER

HAZARD MARKERS SHALL HAVE ALTERNATING ORANGE AND WHITE REFLECTORIZED STRIPES (SLOPING DOWNWARD IN THE DIRECTION TRAFFIC IS TO PASS.)

POSTS

POSTS SHALL BE OF SUITABLE MATERIAL TO SUPPORT DELINEATORS OR HAZARD MARKERS, SHARPENED TO DRIVE

SYMBOL

DELINEATORS SHALL BE OF A REFLECTORIZED SILVER OR WHITE COLOR. THEY SHALL HAVE A MINIMUM OF 7 SQUARE INCHES. THEY MAY BE ROUND, SQUARE, OR OBLONG. THEY SHALL BE OF THE FOLLOWING:
1- REFLECTORIZED TAPE WITH METAL BACKING.
2- REFLECTIVE TAPE APPLIED DIRECTLY TO POSTS.
3- REFLECTORIZED PAINT APPLIED DIRECTLY TO POSTS. WHEN PAINT OR TAPE IS APPLIED DIRECTLY TO POST, A SURFACE OF 3' MINIMUM WIDTH FACING TRAFFIC IS REQUIRED.

MATERIALS

The barricades shown on this sheet normally will be of wood or wood and metal construction and Type II barricades may be of metal construction.

DESIGN

The design of the barricades shall conform with the details shown on this sheet and the markings on the barricades shall be alternate orange and white stripes (sloping downward at an angle of 45 degrees in the direction traffic is to pass).

COLORS

The barricades shown on this sheet shall have alternating reflectorized white and orange stripes. The orange shall conform with the standard color adopted by the American Association of State Highway Officials and approved by the U.S. Department of Transportation Federal Highway Administration.

REFLECTORIZATION

The barricades shall be reflectorized with reflective sheeting.

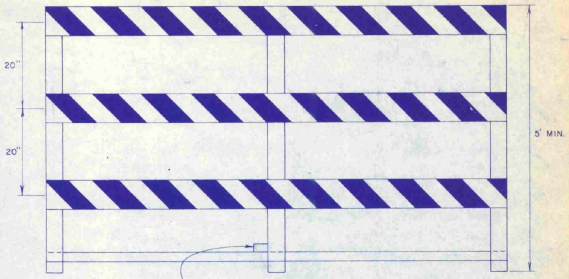
LOCATION

The barricades shown on this sheet will be located by the Engineer in the field or as shown on the plans. The locations of the barricades shall follow the procedures set forth in the Manual on Uniform Traffic Control Devices.

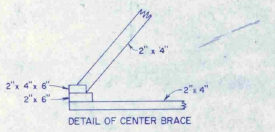
MAINTENANCE

Barricades shall be maintained in a clean and legible condition satisfactory to the Engineer. They shall be completely visible to approaching traffic at all times. Damaged, defaced, or dirty barricades shall be repaired, cleaned, or replaced as ordered by the Engineer.

TYPE III

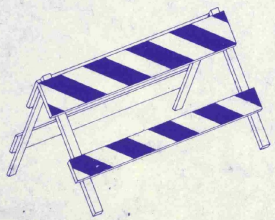


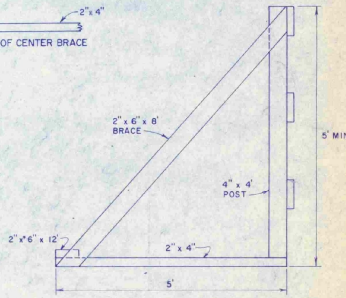
TYPE I



DETAIL OF CENTER BRACE

TYPE II





DETAIL OF END BRACE

	I	II	III
WIDTH OF RAIL	8" min. 12" max.	8" min. 12" max.	8" min. 12" max.
LENGTH OF RAIL	6' - 8'	3' min. 4' max.	12'
WIDTH OF STRIPES	6"	6"	6"
HEIGHT	3' min.	3' min.	5' min.
TYPE OF FRAME	Demountable or Heavy 'A' Frame	Light 'A' Frame	Skids or Posts
FLEXIBILITY	Essentially Moveable	Portable	Essentially Permanent
ANGLE OF STRIPE	45°	45°	45°
COLOR OF STRIPES	Orange and White	Orange and White	Orange and White

REVISIONS AND CORRECTIONS

MAR 12 1973 - DELINEATOR SPACING REVISED.
SEPT 19, 1973 - DELINEATOR SPACING REVISED

APPROVED

Feb. 15, 1973
DATE

R O Morse
for CHIEF ENGINEER

E H Stickney by E
ASST. CHIEF ENGINEER

L M Lane
HIGHWAY ENGINEER

TRAFFIC SIGNS

DELINEATION AND BARRICADES FOR CONSTRUCTION AREAS

VERMONT DEPARTMENT OF HIGHWAYS STANDARD

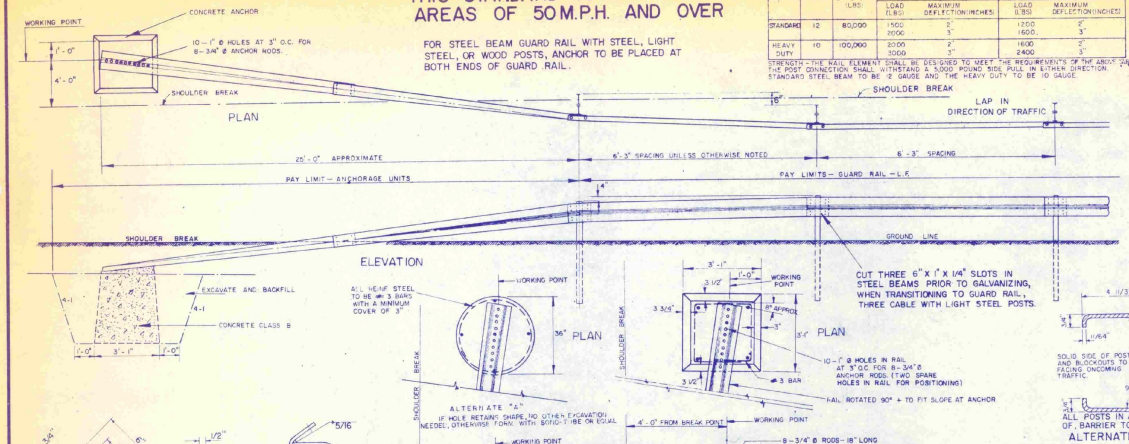
E-7

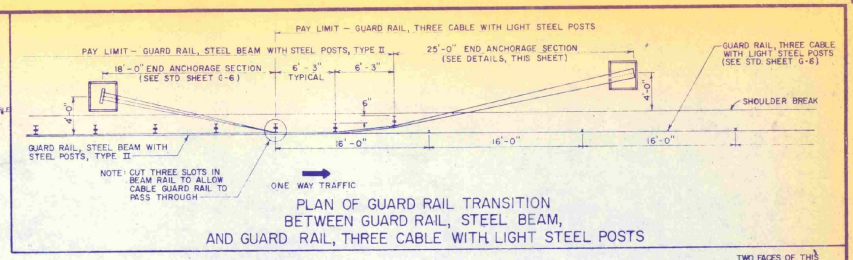
THIS STANDARD TO BE USED IN AREAS OF 50 M.P.H. AND OVER

FOR STEEL BEAM GUARD RAIL WITH STEEL, LIGHT STEEL, OR WOOD POSTS, ANCHOR TO BE PLACED AT BOTH ENDS OF GUARD RAIL.

BEAM	MIN. GAGE	TENSILE STRENGTH (LBS)	RAIL OR JOINT STRENGTH — TRAFFIC FACE UP: LOAD (LBS)	TRAFFIC FACE UP: MAXIMUM DEFLECTION (INCHES)	TRAFFIC FACE DOWN: LOAD (LBS)	TRAFFIC FACE DOWN: MAXIMUM DEFLECTION (INCHES)
STANDARD	12	80,000	1000 2000	2" 3"	1200 1600	2" 3"
HEAVY DUTY	10	100,000	2000 3000	2" 3"	1600 2400	2" 3"

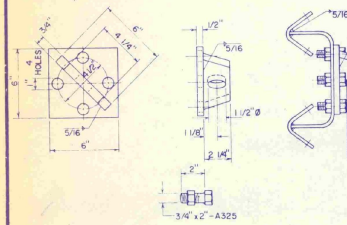
STRENGTH - THE RAIL ELEMENT SHALL BE DESIGNED TO MEET THE REQUIREMENTS OF THE ABOVE TABLE. THE POST CONNECTION SHALL WITHSTAND A 5,000 POUND SIDE PULL IN EITHER DIRECTION. STANDARD STEEL BEAM TO BE 12 GAUGE AND THE HEAVY DUTY TO BE 10 GAUGE.



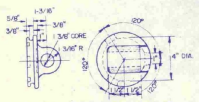


PLAN OF GUARD RAIL TRANSITION BETWEEN GUARD RAIL, STEEL BEAM, AND GUARD RAIL, THREE CABLE WITH LIGHT STEEL POSTS

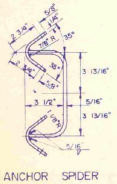
CUT THREE 6" X 1" X 1/4" SLOTS IN STEEL BEAMS PRIOR TO GALVANIZING, WHEN TRANSITIONING TO GUARD RAIL, THREE CABLE WITH LIGHT STEEL POSTS.



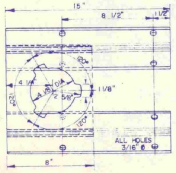
ALTERNATE ANCHOR ROD CONNECTOR



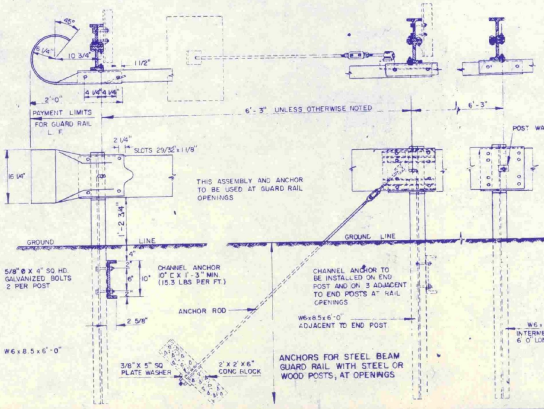
ANCHOR ROD CONNECTOR (MALLEABLE IRON CASTING OR EQUAL)

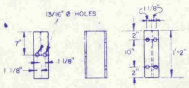


ANCHOR SPIDER (WELDMET)

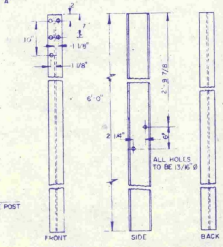


ELEVATIONS OF CONCRETE ANCHORS

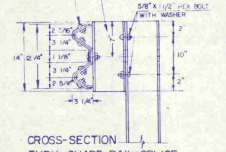




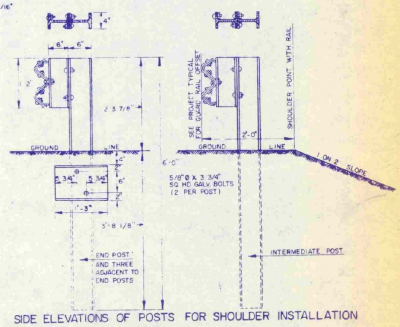
OFFSET BLOCK



END POST AND 3 ADJACENT TO END POSTS. INTERMEDIATE POSTS, SAME AS ABOVE MINUS CHANNEL ANCHOR HOLES

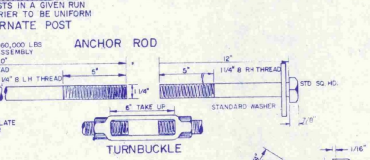


CROSS-SECTION THRU GUARD RAIL SPLICE

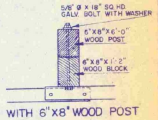


ELEVATION OF GUARD RAIL AT POST

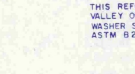
SIDE ELEVATIONS OF POSTS FOR SHOULDER INSTALLATION

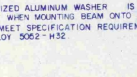


ANCHOR ROD



WITH 6"X8" WOOD POST





THIS REFLECTORIZED ALUMINUM WASHER IS TO BE PLACED IN VALLEY OF BEAM WHEN MOUNTING BEAM ONTO EACH FIFTH POST. WASHER SHALL MEET SPECIFICATION REQUIREMENTS FOR ASTM B209 ALLOY 5052-H32

ALTERNATE POST

REVISIONS AND CORRECTIONS

APR. 10, 1972 POST HEIGHT INCREASED
JULY 9, 1973 NEW TRANSITION DETAIL ADDED
JUNE 4, 1974 TRANSITION REVISED, ALTERNATE ANCHOR ROD CONNECTOR AND ALTERNATE POST ADDED

APPROVED: DATE: Dec 3, 1971

P. N. Arnold
CHIEF ENGINEER

E. R. Stickney
ASST. CHIEF ENGINEER

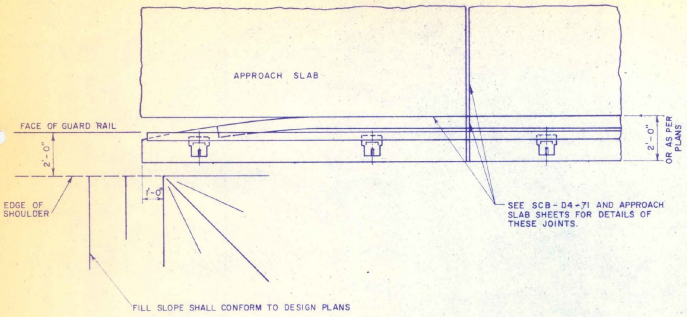
G. M. Lane
HIGHWAY ENGINEER

GUARD RAIL, STANDARD STEEL BEAM, WITH STEEL POSTS, TYPE II
GUARD RAIL, STANDARD STEEL BEAM, WITH WOOD POSTS, TYPE II
GUARD RAIL, HEAVY DUTY STEEL BEAM, WITH STEEL POSTS, TYPE II
GUARD RAIL, HEAVY DUTY STEEL BEAM, WITH WOOD POSTS, TYPE II
ANCHOR FOR STEEL BEAM GUARD RAIL, WITH STEEL OR WOOD POSTS AT OPENINGS
ANCHOR FOR STEEL BEAM GUARD RAIL, WITH STEEL, LIGHT STEEL, OR WOOD POSTS

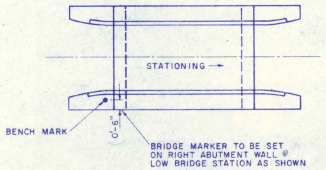
VERMONT DEPARTMENT OF HIGHWAYS STANDARD

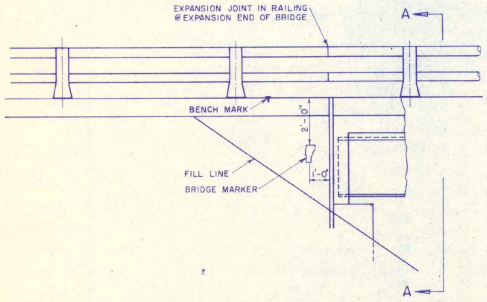
G-1

D-9

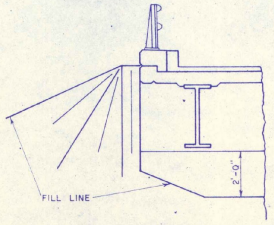


PLAN AT ABUTMENT





ELEVATION AT ABUTMENT



SECTION A-A

GENERAL NOTES

ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO STATE OF VERMONT, DEPARTMENT OF HIGHWAYS, STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, DATED JANUARY 1972 AND ITS LATEST REVISIONS AND THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, DATED 1973 AND ITS LATEST REVISIONS. DESIGN IS FOR HS-20-44 LOADING MODIFIED FOR THE NATIONAL SYSTEM OF INTERSTATE HIGHWAYS, APPLIED IN ACCORDANCE WITH THE PROVISIONS OF AASHTO STANDARD SPECIFICATIONS.

THE FOLLOWING NOTES SHALL APPLY UNLESS OTHERWISE NOTED ON PROJECT PLANS.

1. ALL STRUCTURAL STEEL SHALL CONFORM TO ASTM DESIGNATION A-588 (UNPAINTED). ALL FIELD CONNECTIONS SHALL BE MADE WITH 7/8" Ø ASTM A-325, TYPE III BOLTS IN 15/16" Ø HOLES. WHERE CONNECTIONS ARE NOT DETAILED ON THE PLANS THEY SHALL BE DETAILED BY THE FABRICATOR AND SUBMITTED TO THE STATE FOR APPROVAL.

2. WHEN NOT DETAILED ON THE PLANS, SIMPLE SPAN BEAMS SHALL BE CAMBERED FOR THE DEAD LOAD DEFLECTION PLUS ONE-EIGHTH (1/8) INCH FOR EACH TEN FEET OF SPAN OR FRACTION THEREOF. THE CAMBER SHALL APPROXIMATE A SIMPLE CIRCULAR CURVE FROM END TO END OF BEAM. TOLERANCES IN CAMBER SHALL BE AS INDICATED IN THE A.I.S.C. HANDBOOK FOR ROLLED BEAMS AND AS INDICATED IN THE AWS SPECIFICATION FOR WELDED GIRDERS.

3. ALL WELDING AND DIMENSIONAL TOLERANCES OF WELDED MEMBERS SHALL CONFORM TO AWS D1-1-72 "STRUCTURAL WELDING CODE" AND ITS LATEST REVISIONS EXCEPT AS MODIFIED BY THE AASHTO STANDARD SPECIFICATIONS FOR WELDING OF STRUCTURAL STEEL HIGHWAY BRIDGES, DATED 1974 AND ITS LATEST REVISIONS.

4. ALLOWABLE DESIGN STRESSES: *

CONCRETE:	CLASS A	f'c	3,500 psi	fc	1400 psi
	CLASS B	f'c	3,500 psi	fc	1400 psi
STRUCTURAL STEEL:					
	A-588 MAX. DESIGN STRESS		27,000 psi (or as per AASHTO Specs)		
REINFORCING STEEL:					
		GRADE 40		GRADE 60	
	DESIGN STRESS (TENSION)	20,000 psi		24,000 psi	
	DESIGN STRESS (COMPRESSION)	16,000 psi		20,000 psi	

5. AFTER SUPERSTRUCTURE STEEL HAS BEEN ERECTED, ELEVATIONS ALONG THE TOP OF ERECTED BEAMS SHALL BE TAKEN UNDER THE DIRECTION OF THE ENGINEER FOR USE IN DETERMINING THE FINAL GRADE.

6. MINIMUM COVER FOR REINFORCEMENT STEEL SHALL BE 2" MEASURED FROM THE CONCRETE SURFACE TO THE FACE OF THE REINFORCEMENT (3" IN ALL FOOTINGS).

7. ALL EXPOSED EDGES OF CONCRETE IN THE SUBSTRUCTURE AND SUPERSTRUCTURE SHALL BE CHAMFERED 1" x 1".

8. DECK CONCRETE SHALL BE CONCRETE CLASS A. ALL OTHER CONCRETE SHALL BE CONCRETE CLASS B.

9. BRIDGE SEATS OF ALL PIERS AND ABUTMENTS SHALL BE SLOPED 1/2" PER FOOT EXCEPT UNDER BEARING PLATES WHERE THE SURFACES SHALL BE LEVEL. ABUTMENTS SHALL BE SLOPED FULL WIDTH, PIERS SHALL BE SLOPED EACH WAY FROM CENTER. THE ENTIRE BRIDGE SEAT SURFACE SHALL BE SMOOTH STEEL TROWEL FINISHED.

10. ABUTMENT CONCRETE ABOVE THE ADJACENT BRIDGE SEAT ELEVATIONS SHALL PREFERABLY NOT BE PLACED UNTIL FINAL FINISHED GRADE OF DECK IS ESTABLISHED BY THE ENGINEER.

11. BRIDGE DECKS AND APPROACH SLABS CALLING FOR BITUMINOUS CONCRETE PAVEMENT SHALL BE PAVED WITH A TYPE IIX MIX APPLIED IN TWO COURSES.

12. GRANULAR BORROW USED IN AREAS THROUGH WHICH PILES ARE TO BE DRIVEN SHALL HAVE A MAXIMUM STONE SIZE OF NINE INCHES.

13. BORINGS INDICATED ON THE DRAWINGS HAVE BEEN MADE FOR DESIGN PURPOSES ONLY AND DO NOT WARRANT ACTUAL SUB-SURFACE CONDITIONS.

14. ALL DIMENSIONS ARE HORIZONTAL OR VERTICAL.

* NOTE: SPECIFICATIONS CALL FOR A CLASS A CONCRETE WHICH WILL PRODUCE 4000 PSI AT 28 DAYS. HOWEVER, SUPERSTRUCTURE CONCRETE IS DESIGNED ON THE BASIS OF f'c = 3500 THUS PROVIDING AN ADDITIONAL FACTOR OF SAFETY IN BRIDGE SLABS.

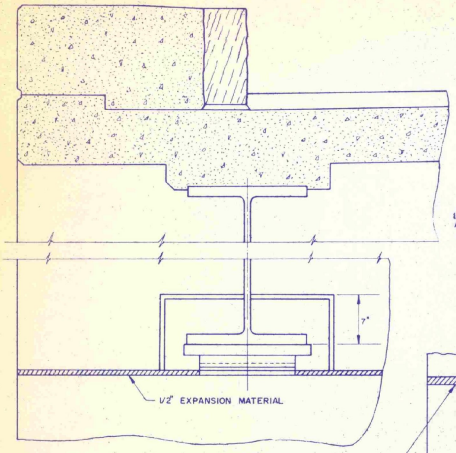
REVISIONS AND CORRECTIONS
1- Added word seat in line 3 of Note #9 J. WOOD 4-23-75

APPROVED DATE JAN. 30 1975
E. H. Ziesing
CHIEF ENGINEER
R. O. Munn
ASST. CHIEF ENGINEER
K. M. Smith
BRIDGE ENGINEER

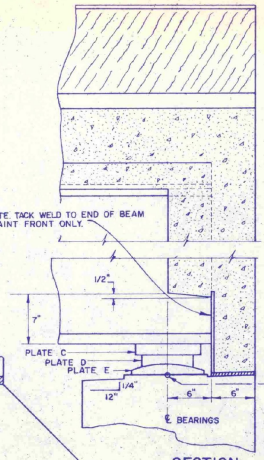
DETAILS OF W BEAM BRIDGES GENERAL INFORMATION AND GENERAL NOTES

VERMONT DEPARTMENT OF HIGHWAYS STANDARD

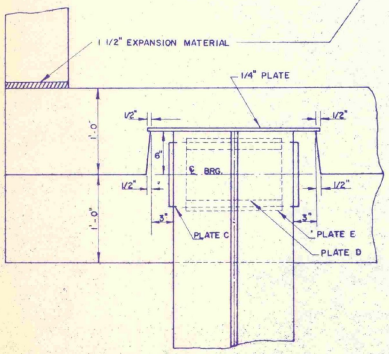
SCB-D1-75



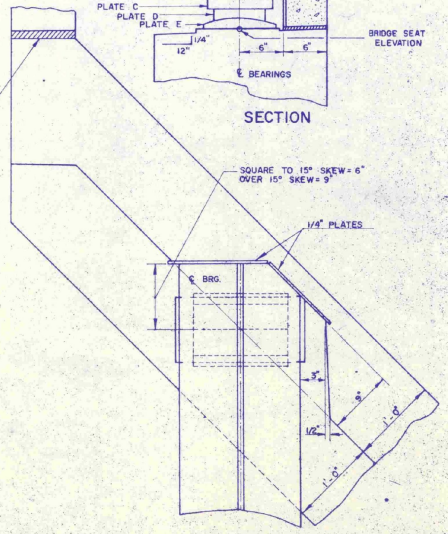
ELEVATION



SECTION

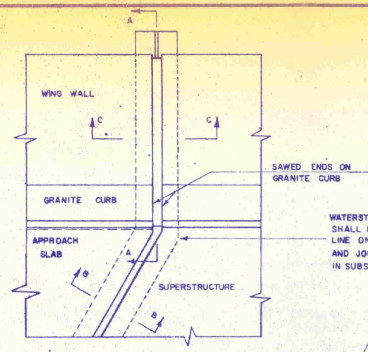


PLAN FOR SQUARE BRIDGES

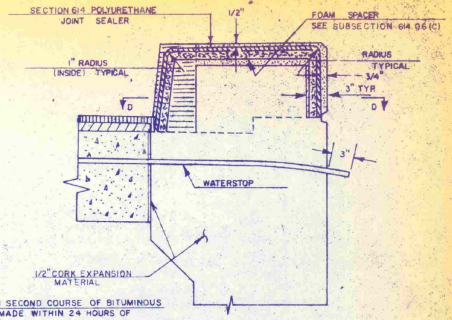


PLAN FOR SKEWED BRIDGES

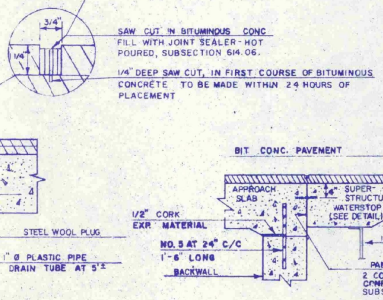
(DETAILS SHOWN FOR EXP END; FIXED END SIMILAR EXCEPT ℄s A AND B IN LIEU OF ℄s C, D AND E; SEE SCB-D8-71) Ⓐ



PLAN

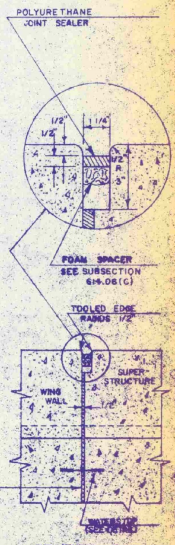


SECTION A-A

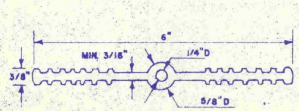


SECTION B-B

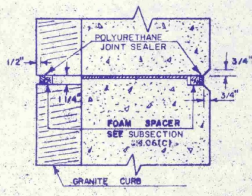
SECTION B-B WITH BACKWALL



SECTION C-C Ⓑ



WATERSTOP DETAIL



SECTION D-D

MATERIAL TO BE POLYVINYLCHLORIDE, AS SPECIFIED IN SUBSECTION 707.30, OTHER CONFIGURATIONS, WITH MINOR DIMENSION VARIATIONS, MAY BE USED WITH THE APPROVAL OF THE BRIDGE ENGINEER.

COST OF THE WATERSTOP SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 501.20 CONCRETE.

THE CONTRACTOR SHALL PROVIDE ADEQUATE SUPPORT TO MAINTAIN PROPER ALIGNMENT OF WATERSTOP DURING CONSTRUCTION.

REVISIONS AND CORRECTIONS

Added notes to saw cut 1st. & 2nd. courses of Bit. Conc. - J. WOOD 1-27-75

APPROVED DATE: 12/14/71

CHIEF ENGINEER

ASST. CHIEF ENGINEER

BRIDGE ENGINEER

DETAILS OF W BEAM BRIDGES

Ⓐ CURTAIN WALL AT BEARING DEVICES

Ⓑ FIXED END JOINT DETAILS

VERMONT
DEPARTMENT OF HIGHWAYS
STRUCTURE STANDARDS

SCB-D9-71