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STATE OF VERMONT DEPARTMENT OF HIGHWAYS



PROPOSED IMPROVEMENT BRIDGE PROJECT

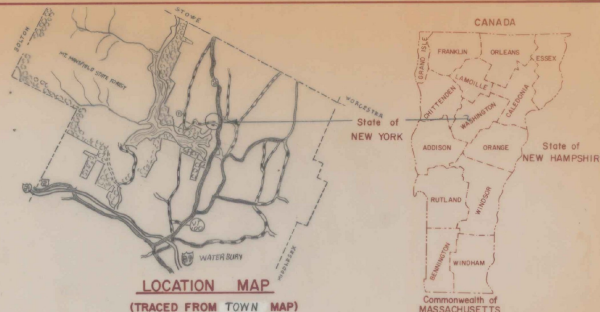
TOWN OF WATERBURY
COUNTY OF WASHINGTON

ROUTE NO: TH 11 - CL 3 BRIDGE NO: 9

PROJECT LOCATION: Beginning at a point on TH 11 approx 0.25 mi. west of the TH 11-VT Rte 100 intersection and extending easterly along TH 11 for 0.076 miles.

PROJECT DESCRIPTION: Replace existing concrete structure with a New 76"x55" CGMPP w/ cradle headwalls @ ea. end. Place existing grade @ structure 2 ft. Wider roadway to 24' full to full with limited approach and channel work.

LENGTH OF STRUCTURE:	8 FEET
LENGTH OF PARTICIPATION ROADWAY:	200 FEET
LENGTH OF NON-PARTICIPATION ROADWAY:	192 FEET
LENGTH OF PROJECT	400 FEET



GENERAL NOTES:

NOTE TO TOWN OFFICES: DUE TO THE SENSITIVE NATURE OF LARGE DIAMETER PLATE PIPES, AND TO PROTECT THE INVESTMENT OF THE TOWN AND STATE BOTH, THE FOLLOWING BRCAFUL PROCEDURE WILL BE REFERRED TO:

THE STRUCTURE SHALL BE BORED IN AN EARTH FOUNDATION OF UNIFORM DENSITY, CAREFULLY SHORED TO FIT THE LOWER FLUTE OR FLUTES OF THE STRUCTURE.

FILL MATERIAL SHALL BE DEPOSITED EVENLY ON BOTH SIDES OF THE PIPE. THE LAYERS SHALL NOT EXCEED 6 INCHES IN DEPTH UNTIL AT LEAST THE 3/4" HEIGHT POINT HAS BEEN REACHED. SPECIAL CARE SHALL BE TAKEN TO THOROUGHLY TAMP EACH LAYER BY MEANS OF TECHNIQUE DRIVERS UNDER THE HANDS OF THE WIDEN OF THE TRENCH AND ABOVE THE TRENCH FOR A DISTANCE EACH SIDE OF THE PIPE EQUAL TO THE DIAMETER OF THE PIPE TO THE DENSITY REQUIRED WHICH IS 90% PERCENT OF THE MAXIMUM DENSITY AS DETERMINED BY THE STANDARD METHOD OF TEST FOR THE RELATIVE DENSITY RELATIONSHIP FOR SOILS, ASTM D 1557.

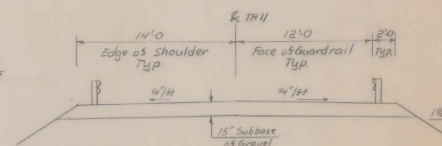
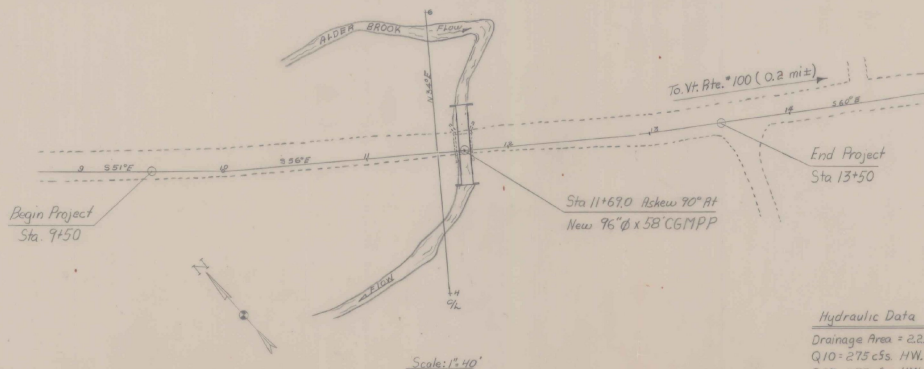
THE FILL SHALL CONTINUE UNIFORMITY ON BOTH SIDES UNTIL AT LEAST 4 FEET OF COMPACTED MATERIAL IS OBTAINED ABOVE THE TOP OF THE STRUCTURE OR UNTIL SUBGRADE IS REACHED.

ANY QUESTIONS WHICH ARISE CONCERNING SOIL TENDENCY, RELIABILITY, BACKFILL MATERIAL, CONSTRUCTION, OR ANY PHASE OF THE PROJECT SHALL BE REFERRED TO THE DISTRICT ENGINEER OR HIS REPRESENTATIVE.



CONVENTIONAL SIGNS

COUNTY LINE	—
TOWN LINE	—
LIMITS OF ACCESS	—
POINT OF ACCESS	X
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	—



Hydraulic Data

Drainage Area = 2.25 Sq. Mi.
Q10 = 2.75 cfs. HWL = 6.6 ft
Q25 = 3.75 cfs. HWL = 8.0 ft
Q50 = 4.50 cfs. HWL = 9.2 ft
Q100 = 5.25 cfs. HWL = 10.6 ft
Tailwater @ Q25 = 3.0 ft.
Outlet velocity = 11.7 fps.

SUBMITTED BY ORDER OF THE STATE HIGHWAY BOARD
APPROVED: *C. R. Stahney* DATE: 4/21/76
CHIEF ENGINEER

PROJECT: WATERBURY
SHEET 1 OF 15
TH 3633

EARTHWORK

		GRADES		COMMON EXCAVATION		EMBANKMENT		SUB-BASE OF GRAVEL									
V.C.	% GRD	STATION	ELEVATION ON TAN.	ELEVATION ON V.C.	CORR. V.C.	DIST.	AREA	CU. YDS.	AREA	CU. YDS.	AREA	CU. YDS.	AREA	CU. YDS.			
			APPROACH QUANTITIES														
		8+50	482.54				0		0		0						
		9+0	479.69			50	0	0	0	0	0	0					
		1+50	476.84			50	0	0	0	0	0	0					
		+89.5	474.71	474.71		50	0	0	0	0	0	0					
		10+0		474.03		50	0	0	0	0	0	9					
		1+50		471.90		50	0	0	0	0	10	8					
		1+65				15	0	0	0	0	18	8					
			TOWN FUND PARTICIPATION														
		10+65				35	0	0	0	5	18	35					
		11+0		470.74		50	0	0	8	35	65						
		1+50		470.54		7	0	0	110	17	35	9					
		1+57				24	0	0	20	18	35	31					
		1+62.5		464.73		19	0	0	20	49	35	25					
		12+0		471.31		50	0	0	119	154	35	65					
		1+50		473.04		23	2	14	46	31	35	25					
		1+73				31			25	31	23						
			APPROACH QUANTITIES														
		18+73				27	31	48	25	13	23	16					
		13+0		475.73		50	65	61	0	0	8	7					
		1+37.5		478.38		50	0	0	0	0	0	0					
		1+50		479.4		50	0	0	0	0	0	0					
		14+0		481.5													
			TOTALS														
			NON-TOWN FUND APPROACHES					109		13		40					
			TOWN FUND PARTICIPATION					14		384		255					
			EARTH BORROW REQUIRED TOWN FUND PARTICIPATION														
			EMBANKMENT - COMMON EX. - CHANNEL ETC.					384 - 14 - (109 - 13) - 121 = 153 CY									

BRIDGE QUANTITY SHEET

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS
BRIDGE DIVISION

NO.	ITEM	UNIT	QUANTITY BREAKDOWN										Poundings	NON-TOWN FUND TOTAL	TOWN FUND PARTICIPATION TOTAL	TOTAL	FINAL
			TOWN FUND STRUCTURE	TOWN FUND ROADWAY	TOWN FUND CHANNEL	NON-TOWN FUND PARTICIPATION											
202.20	Removal of Existing Superstructure	LS	1												1	1	
203.15	Common Excavation	CY		14		109							7	110	20	130	
203.30	Earth Borrow	CY		153									7		160	160	
203.32	Granular Borrow	CY	384										6	330	330		
203.27	Unclassified Channel Excavation	CY			121								9		130	130	
204.25	Structure Excavation	CY	94										6	100	100		
204.30	Granular Backfill for Structures	CY	24										6		30	30	
304.15	Subbase of Gravel	CY		255		40							5	40	260	300	
501.25	Concrete Class B	CY	20												20	20	
507.15	Reinforcing Steel (Grade 40)	LB	173										7		180	180	
511.10	96# CORRUGATED 48" X 58" (957016)	LS	1												1	1	
511.25	96# CORRUGATED 48" X 58" (2715-16)	LS	0												0	0	
613.11	Stone Fill Type II	CY			126								4		130	130	
621.25	Guard Rail, Standard Steel Beam with Steel Posts, Type I	LF		300											300	300	

BRIDGE (S) AT STATION (S) 11+69.0
LOCATION (S) TH#11 BR#9 over Alder Brook

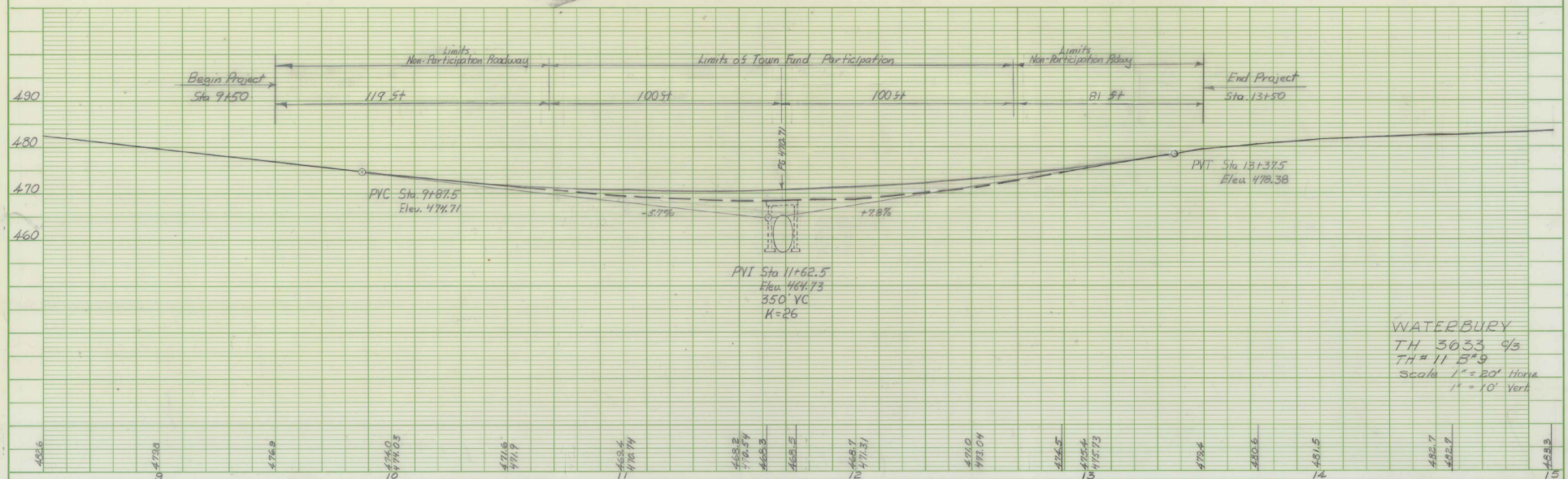
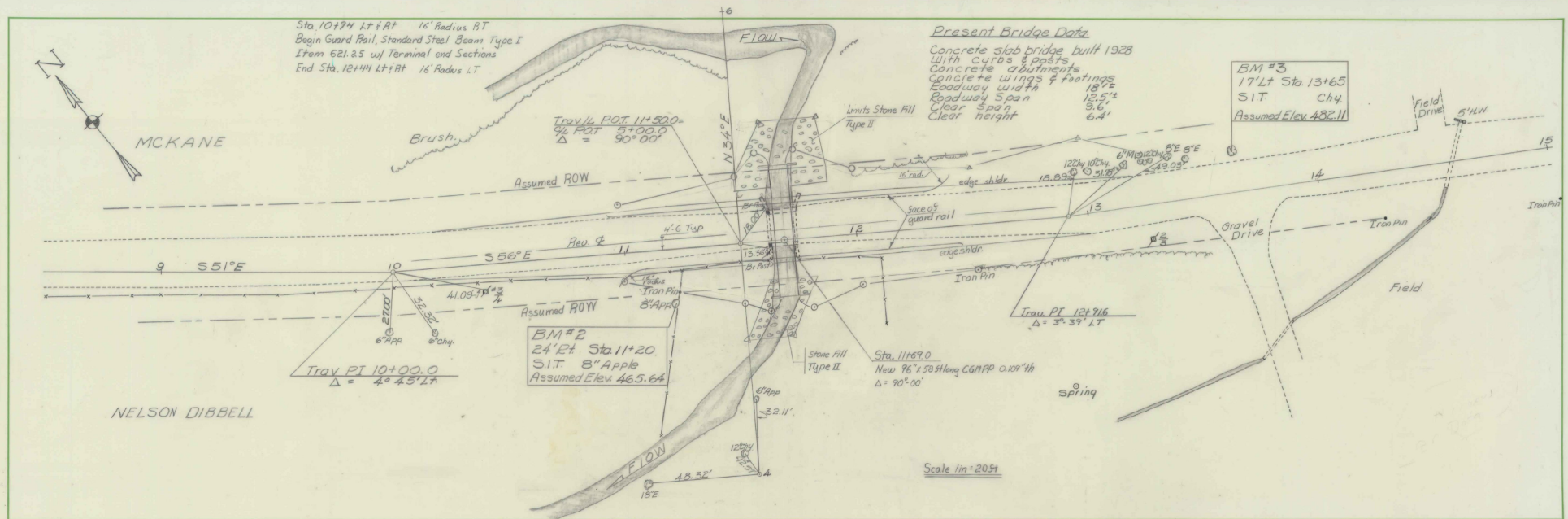
Prepared by J. Hall
Checked by E. Betz
SUPERVISOR: E. Betz

WATERBURY
BR OF

PROJECT NO. TH 3633
SHEET NO. 8 OF 15

PLAN	DATE	BY
PROJECT		
DESIGN		
CHECKED		
APPROVED		
SCALE	1" = 20'	

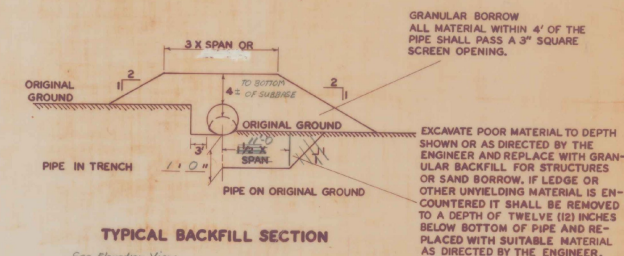
PROFILE	DATE	BY
PROJECT		
DESIGN		
CHECKED		
APPROVED		
SCALE	1" = 20' Horiz 1" = 10' Vert	



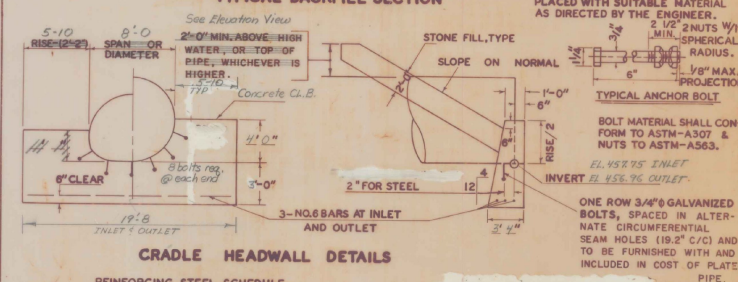
WATERBURY
TH 3033 93
TH # 11 B29
Scale 1" = 20' Horiz
1" = 10' Vert

NOTES

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE STATE OF VERMONT DEPARTMENT OF HIGHWAYS STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION DATED JAN. 1972 AND THE A.A.S.H.O. STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES DATED 1973 AND ITS LATEST REVISIONS. DESIGN IS FOR HS-20 LIVE LOADING.
2. UNLESS OTHERWISE INDICATED FOUR (4) BOLTS PER LINEAR FOOT FOR STEEL PLATES AND FIVE AND ONE THIRD (5 1/3) BOLTS FOR ALUMINUM PLATES ARE REQUIRED ALONG THE LONGITUDINAL SEAMS. ALL CONNECTIONS FOR STRUCTURAL PLATE SECTIONS SHALL BE MADE WITH GALVANIZED ASTM A-325 BOLTS (AASHTO M184).
3. WHEN NORMAL CONSTRUCTION OR REGULAR ROADWAY TRAFFIC IS MAINTAINED OVER THE PIPE THE CONTRACTOR SHALL MAINTAIN A MINIMUM COVER OF 4 FEET OF COMPACTED MATERIAL.
4. ALUMINUM PIPE THAT IS TO BE IN CONTACT WITH CONCRETE SHALL HAVE CONTACT SURFACES THOROUGHLY COATED WITH ZINC CHROMATE, OR BITUMINOUS, OR ASPHALTIC PAINT.
5. PIPES SHALL BE FACTORY ELONGATED 5% (PIPE ARCHES SHALL NOT BE ELONGATED).



TYPICAL BACKFILL SECTION



CRADLE HEADWALL DETAILS

REINFORCING STEEL SCHEDULE

NO. OF PIECES	SIZE	LENGTH	MARK	TYPE
6	G	19'-2"	601	STR

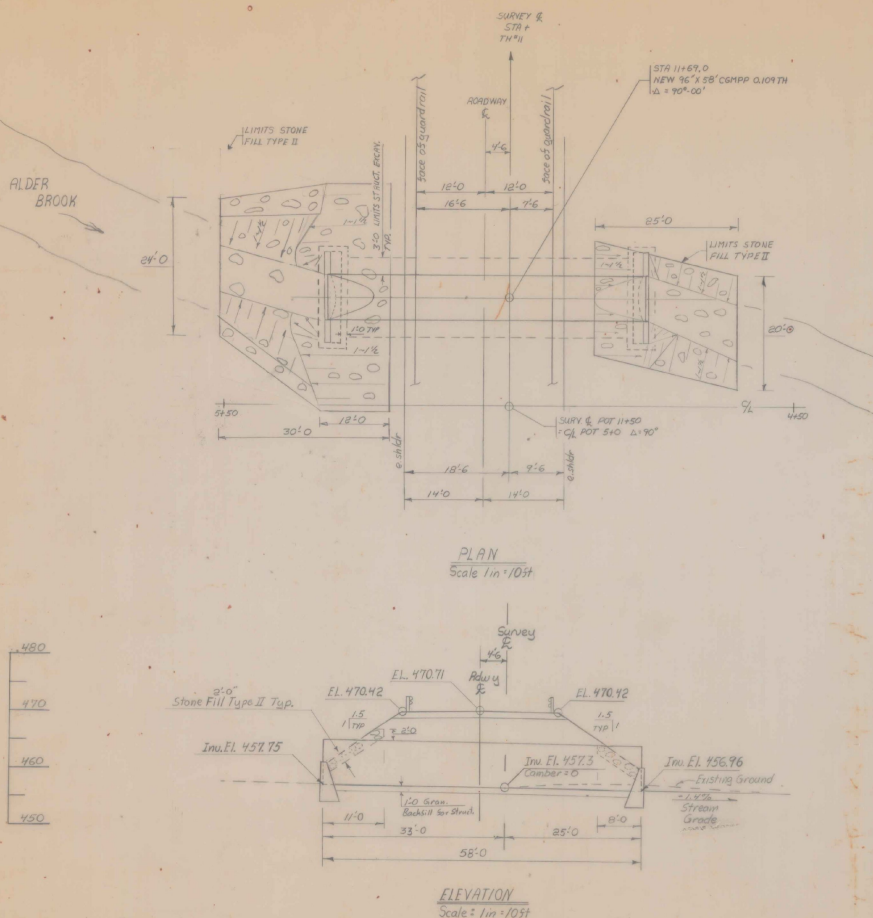
ESTIMATED QUANTITIES

NO.	ITEM	UNIT	TOTAL	FINAL
	See Sheet #2			

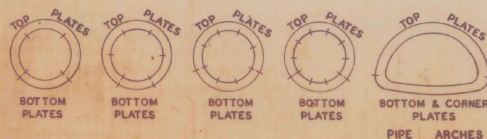
TYPICAL CHANNEL SECTION

STATE OF VERMONT DEPARTMENT OF HIGHWAYS

TOWN OF WATERBURY	Bridge No. 9
HIGHWAY NO. TH 11 S9	Log. Sta.
PLATE PIPE DETAILS TH11 over ALDER BROOK	Stn. Sta.
Designed by E. Betts	Drawn by R. Hall
Checked by E. Betts	Bridge Design Supervisor
PROJECT NO. TH 3633	PROJECT NO. TH 3633
Bridge Sheet No.	Sheet 4 of 15



STEEL PIPE PLATE ARRANGEMENTS



DETAILS OF STRUCTURAL PLATE PIPE CULVERTS

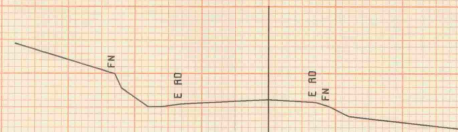
PIPE DATA:

CORRUGATIONS
DIAMETER OF PIPE
PIPE ARCH
PLATE THICKNESS
BOLT SIZE
WT. LIN. FT.
TOTAL WEIGHT

STEEL	ALUMINUM
76"	76"
0.109" (COATED) THICKNESS	0.100"
3/4"	3/4"
165"	47"
7,520	2,715

HYDRAULIC DATA

DRAINAGE AREA SQ. MI.
DESIGN FREQUENCY Q
DESIGN FLOW & HEADW. DEPTH CFS. FT.
CHECK DISCHARGE & HEADW. DEPTH CFS. FT.
TAILWATER DEPTH AT DESIGN FLOW FT.
OUTLET VELOCITY AT DESIGN FLOW FT./SEC.
WATERWAY AREA SQ. FT.



8+00

480

7+50

480

7+00

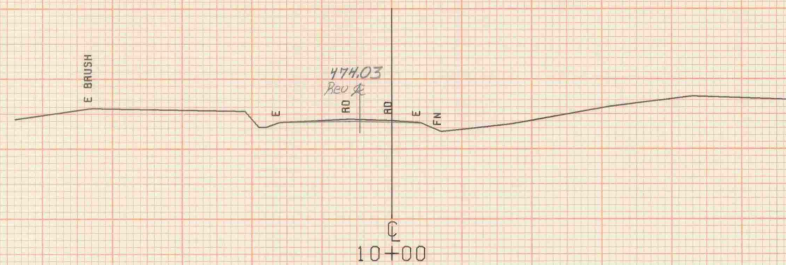
490

6+50

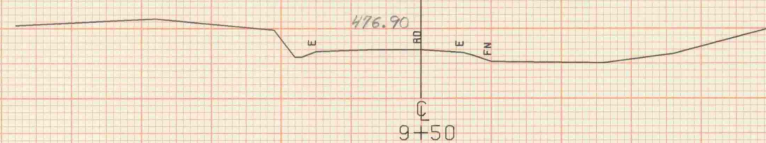
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SCALE 1" = 10 FEET

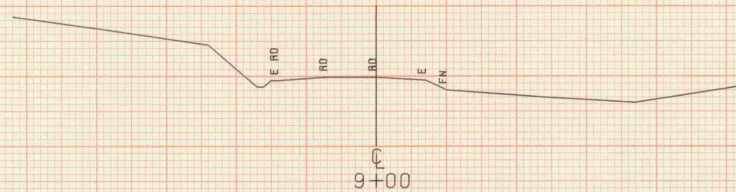
FROM STA. 8+50	TO STA. 8+00
PROJECT NAME	WATERBURY MAIN LINE
NO.	TH3633
SURVEYED BY	FANTONI
SHEET 5 OF 15	PLOTTED 12/17/75
	10/75
	SHEETS



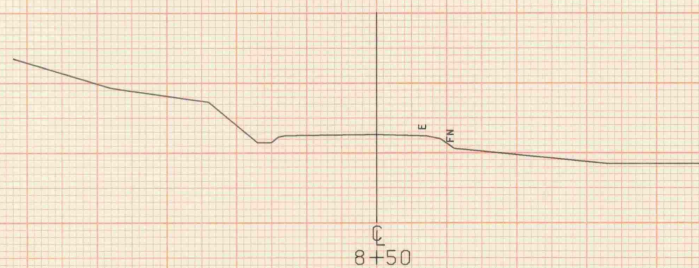
470



470



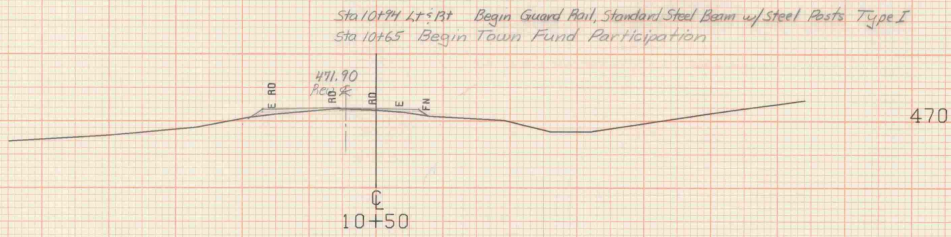
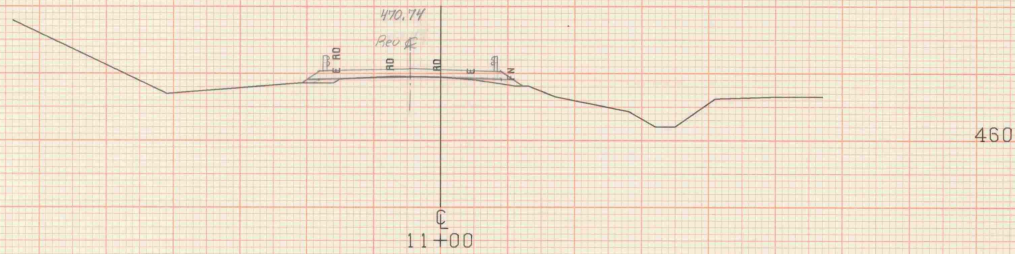
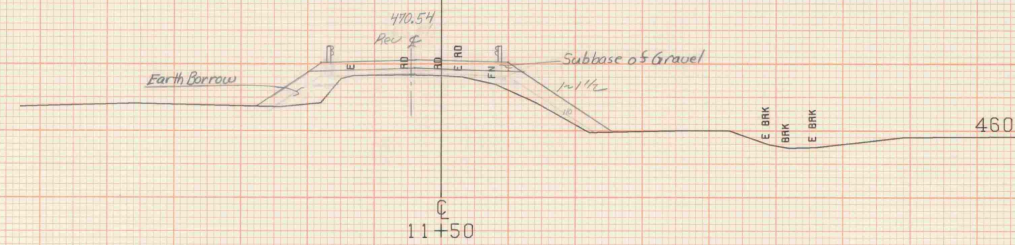
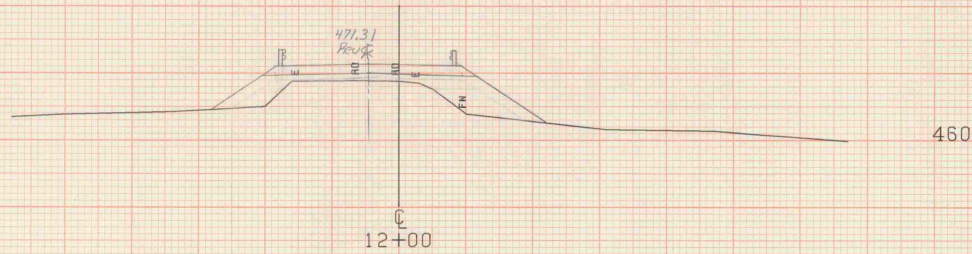
480



480

FROM STA. 8+50	TO STA. 10+00
PROJECT NAME	WATERBURY MAIN LINE
NO.	TH3633
SURVEYED BY	FANTONI
SHEET 6 OF 15 SHEETS	10/75

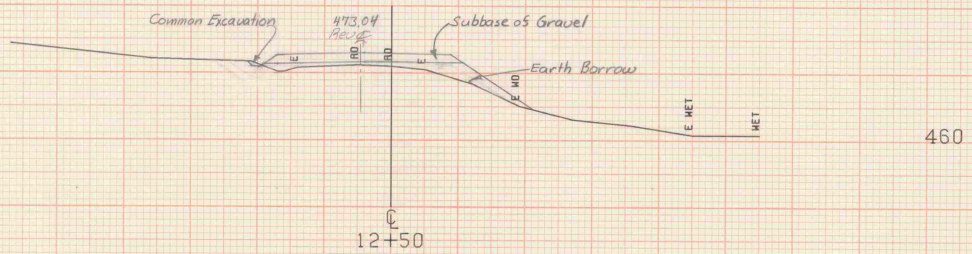
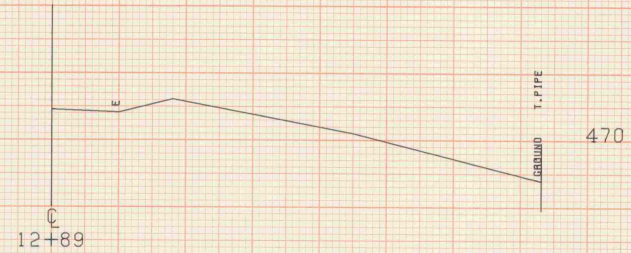
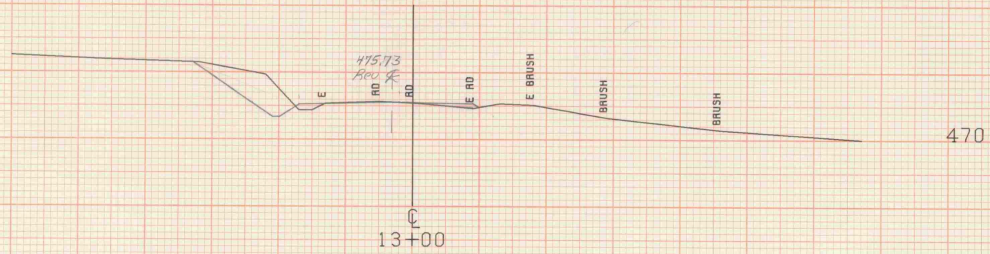
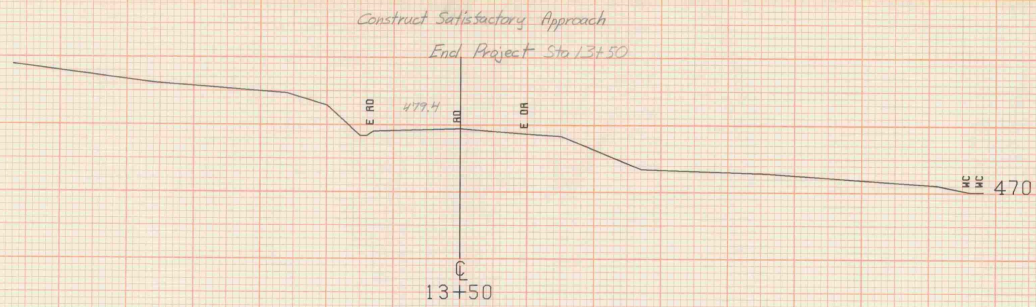
SCALE 10 FEET



Sta 10+94 Lt & Rt Begin Guard Rail, Standard Steel Beam w/ Steel Posts Type I
Sta 10+65 Begin Town Fund Participation

SCALE 1" = 10 FEET

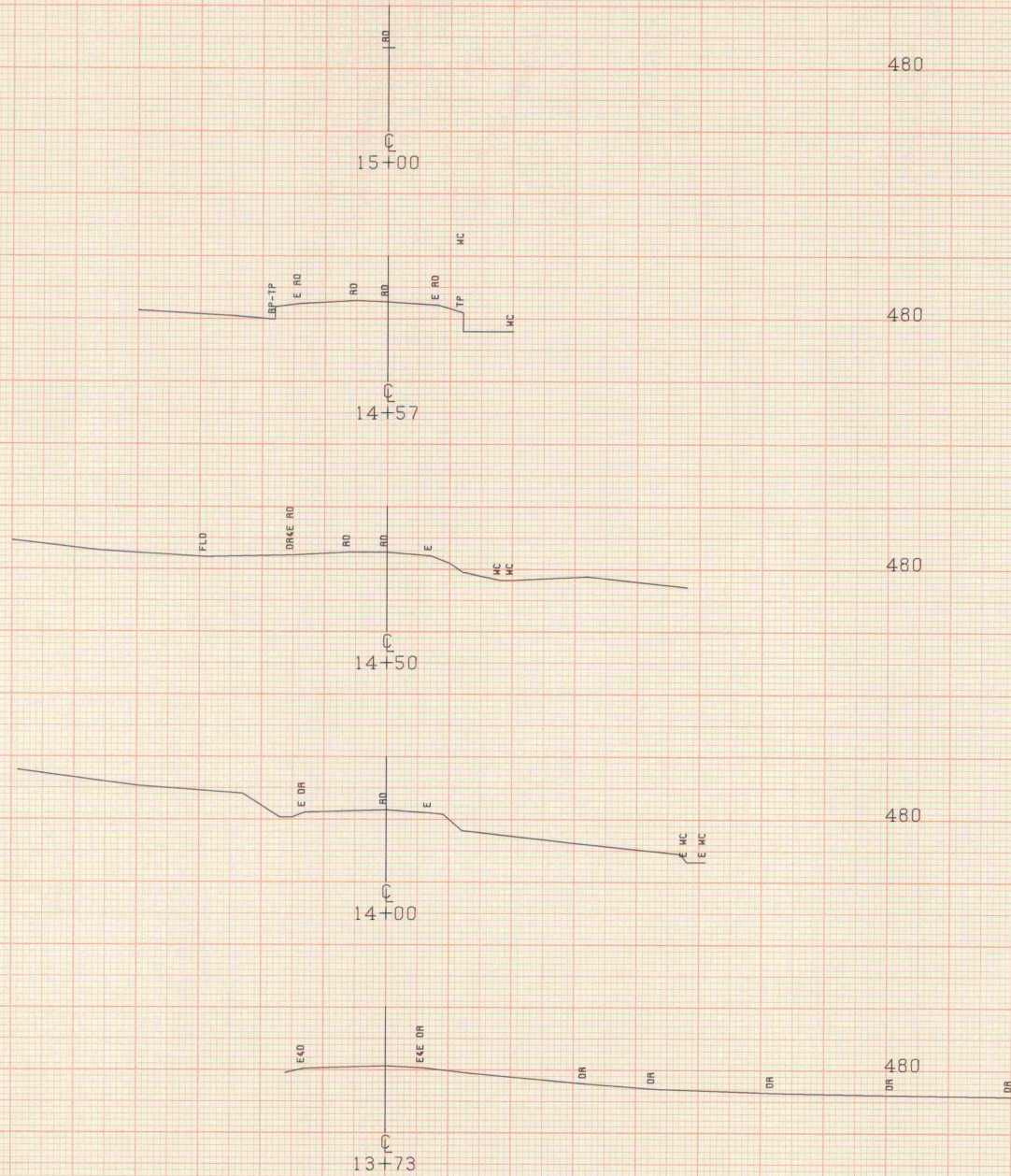
FROM STA. 10+50	TO STA. 12+00
PROJECT NAME	WATERBURY MAIN LINE
NO.	TH3633
SURVEYED BY	FANTONI
SHEET 7 OF 15	PLOTTED 12/17/75
	10/75
	SHEETS



Sta. 12+44 to 12+50 End Guard Rail, Standard Steel Beam Type I

SCALE 1" = 10 FEET

FROM STA. 12+50	TO STA. 13+50
PROJECT NAME	WATERBURY MAIN LINE
NO.	TH3633
SURVEYED BY	FANTONI
SHEET 3 OF 15	PLOTTED 12/17/75
	10/75



480

480

480

480

480

FROM STA. 13+73	TO STA. 15+00
PROJECT NAME	WATERBURY MAIN LINE
NO.	TH3633
SURVEYED BY	FANTONI
SHEET 9 OF 15	PLOTTED 12/17/75
	10/75

SCALE 1" = 10 FEET

16+50

490

16+00

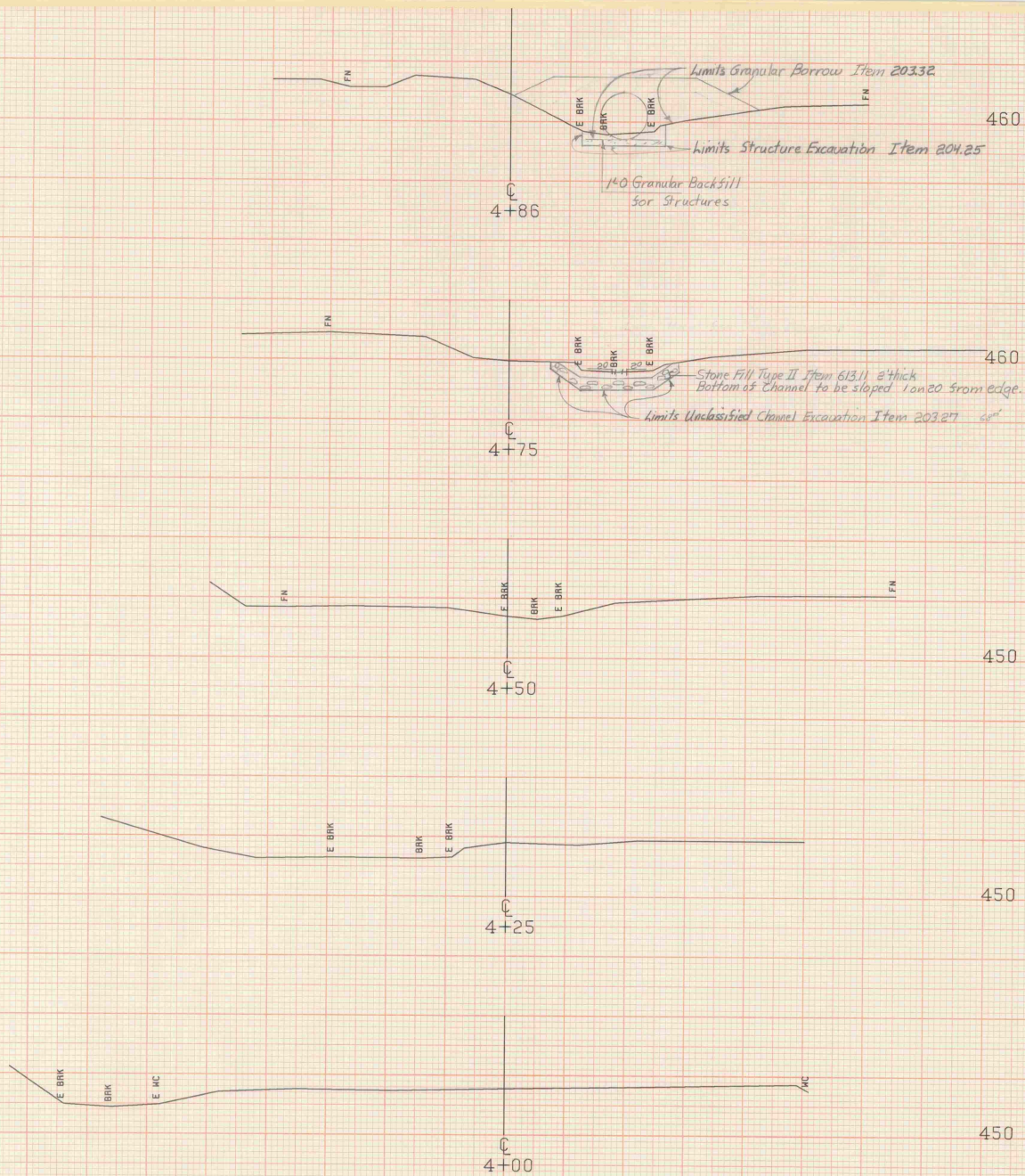
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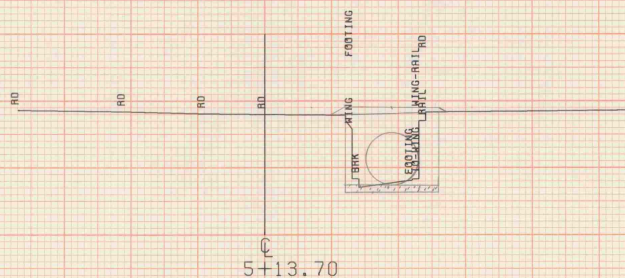
15+50

480

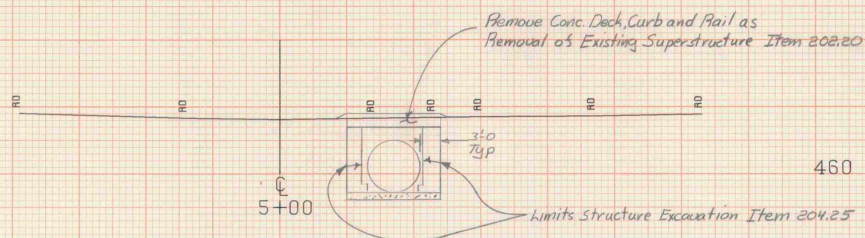
SCALE 10 FEET

FROM STA. 15+50	TO STA. 16+50
PROJECT NAME	WATERBURY MAIN LINE
NO.	TH3633
SURVEYED BY	FANTONI
SHEET 10 OF 15	PLOTTED 12/17/75

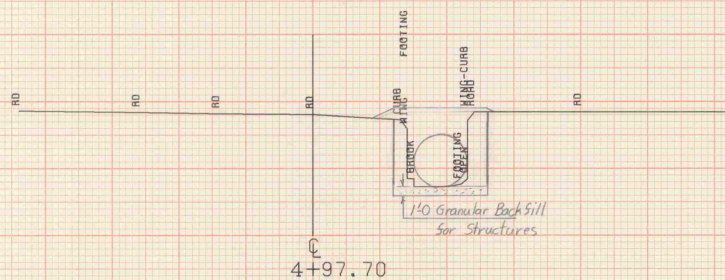




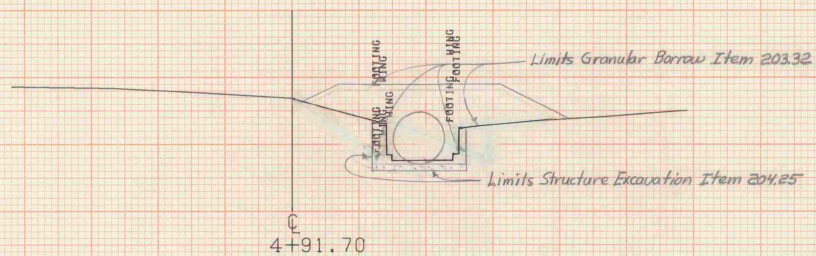
460



460



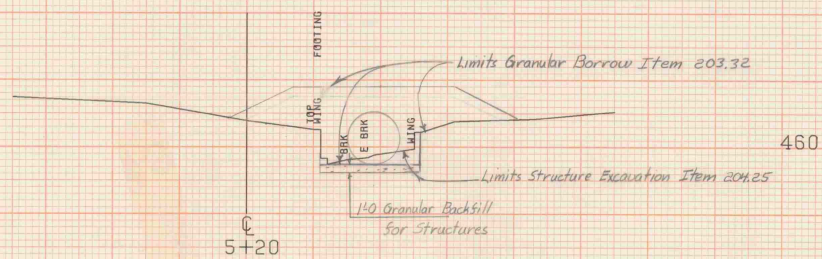
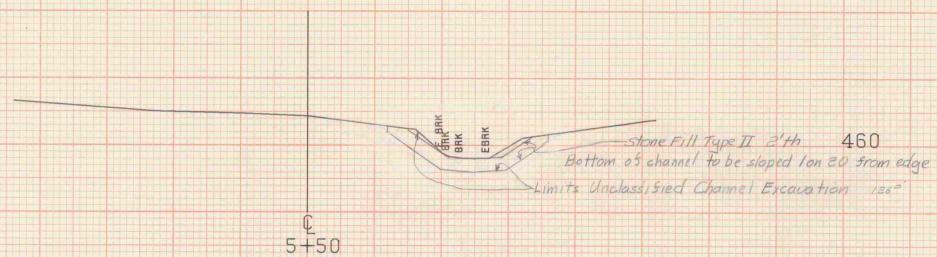
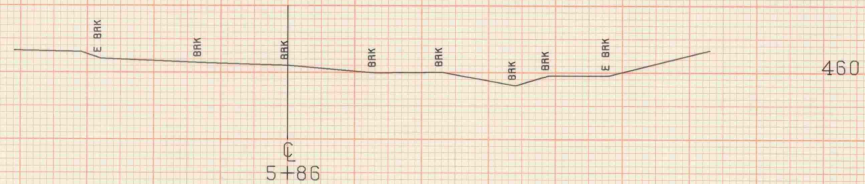
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460

SCALE 1" = 10 FEET

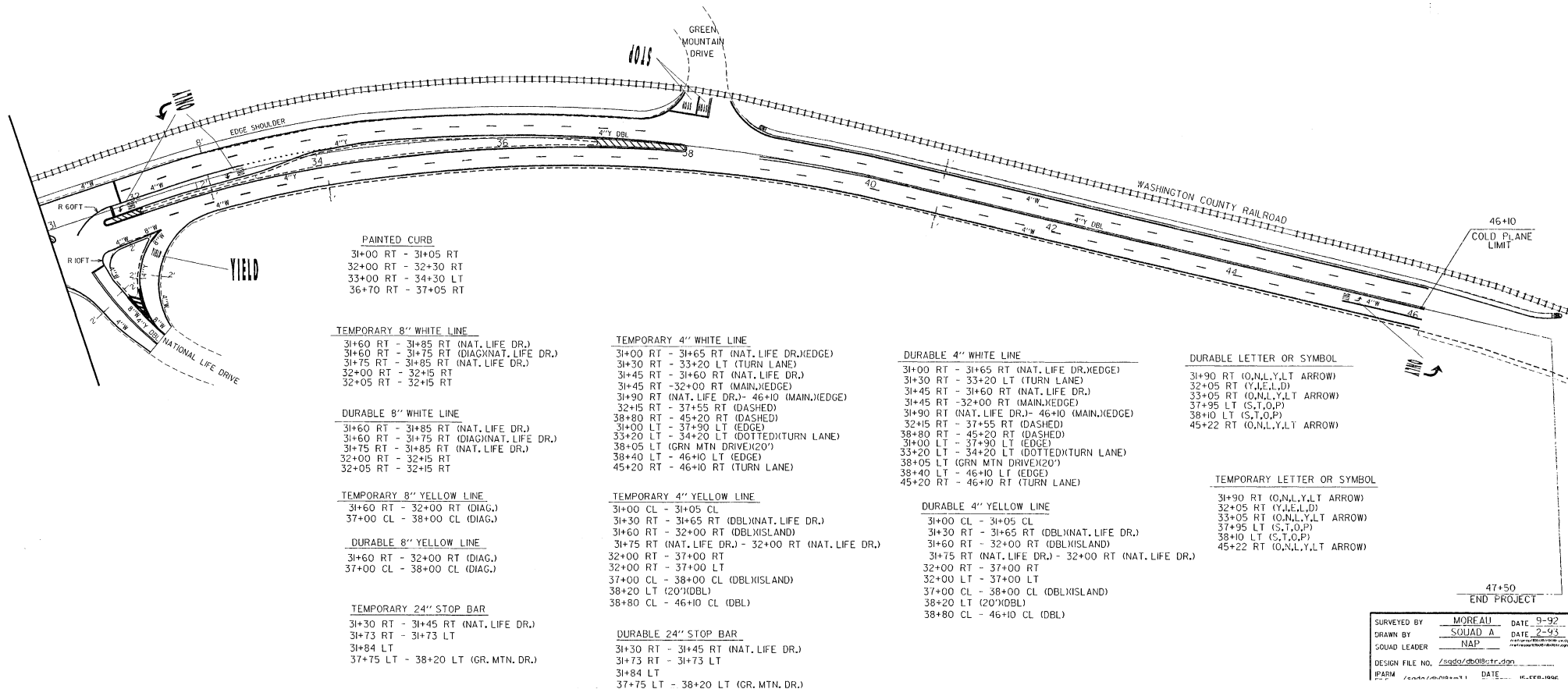
FROM STA. 4+91.70	TO STA. 5+13.70
PROJECT NAME	WATERBURY CHANNEL LINE
NO.	TH3633
SURVEYED BY	FANTONI
SHEET 12 OF 15 SHEETS	10/75



FROM STA. 5+20	TO STA. 5+86
PROJECT NAME	WATERBURY CHANNEL LINE
NO.	TH3633
SURVEYED BY	FANTONI
SHEET 13 OF 15	PLOTTED 12/17/75
	10/75
	SHEETS

SCALE 10 FEET

PAVEMENT MARKINGS



Bridge
1976

WATERBURY TH 3633

1976