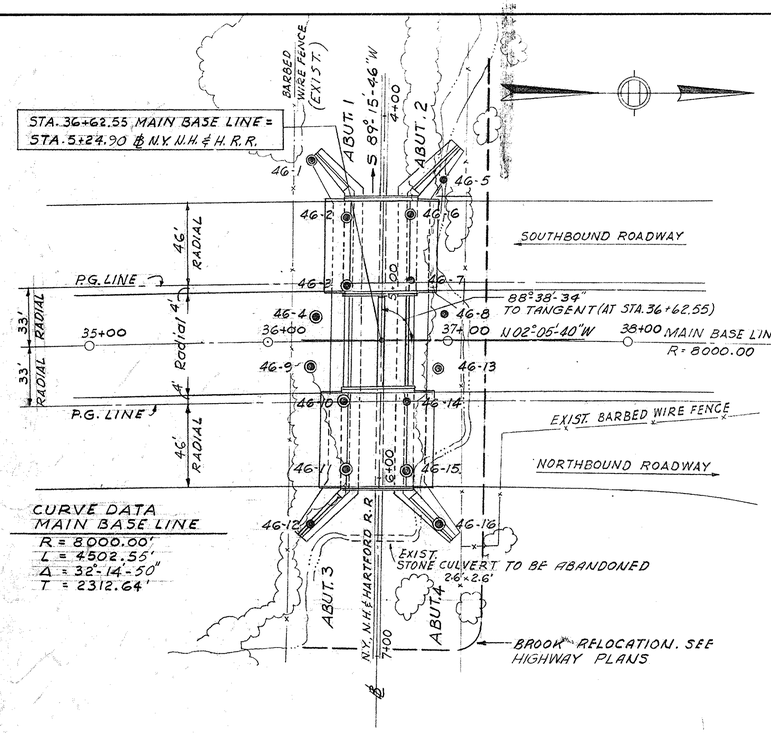
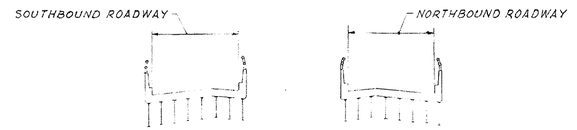
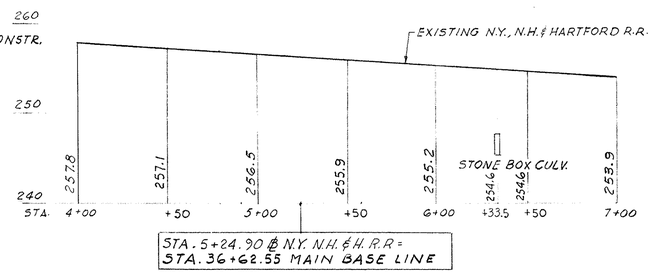


KEY PLAN

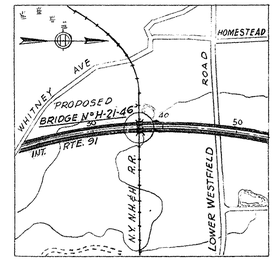
SCALE: 1" = 40'





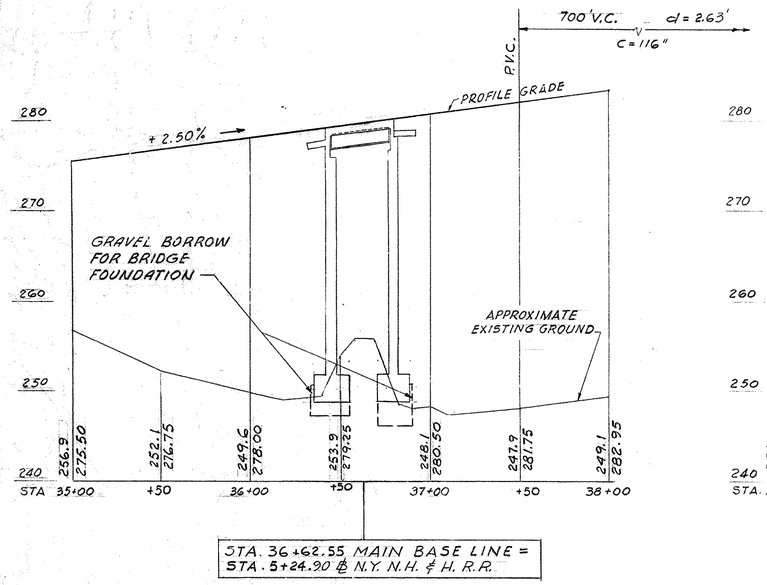
PROFILE ALONG N.Y. N.H. AND HARTFORD R.R.

SCALE: HOR. 1" = 40'
VERT. 1" = 8'



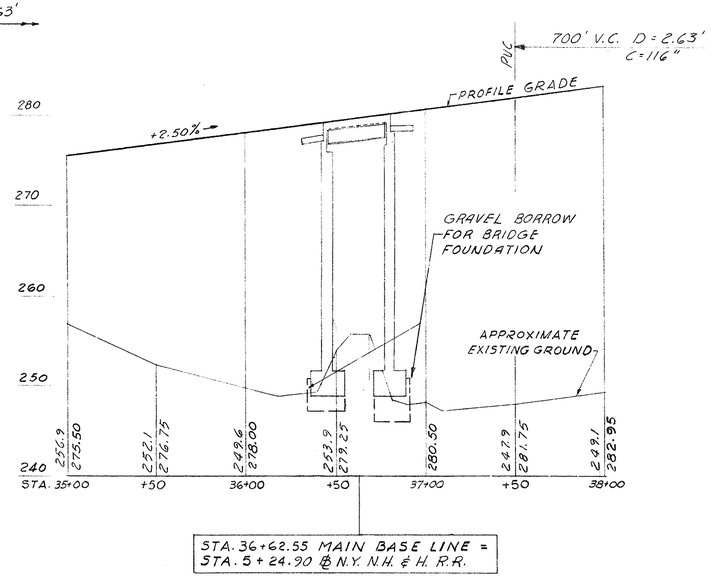
LOCUS PLAN

1000 0 1000 2000



PROFILE ALONG SOUTHBOUND ROADWAY

SCALE: HOR. 1" = 40'
VERT. 1" = 8'



PROFILE ALONG NORTHBOUND ROADWAY

SCALE: HOR. 1" = 40'
VERT. 1" = 8'

PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	I-91-1(41)12	1964	147	1246

KEY PLAN & PROFILES

GENERAL NOTES

FOUNDATIONS:
FOUNDATIONS MAY BE ALTERED, IF NECESSARY, TO SUIT CONDITIONS ENCOUNTERED IN CONSTRUCTION.

DATE AND SEAL:
TO BE LOCATED AS SHOWN ON SHEET No. 9, A SHEET SHOWING SIZE AND CHARACTER OF NUMERALS WILL BE FURNISHED. SEAL WILL BE FURNISHED BY THE COMMONWEALTH AND WILL BE SET BY THE CONTRACTOR.

DESIGN:
IN ACCORDANCE WITH THE CURRENT SPECIFICATIONS OF THE AMERICAN ASSOCIATION OF HIGHWAY OFFICIALS (1961 EDITION) FOR H S 20-44 LOADING (MODIFIED FOR MILITARY LOADING)
DESIGN STRESSES: STRUCTURAL STEEL (ASTM A36) 20,000 P.S.I.
INTERMEDIATE GRADE REINFORCING STEEL 20,000 P.S.I.
CONCRETE CLASS A℄D 1,200 P.S.I.

REINFORCEMENT:
ALL BARS SHALL HAVE DEFORMATIONS CONFORMING TO A.S.T.M. DESIGNATION A 305, UNLESS OTHERWISE SHOWN ON PLANS, REINFORCING BARS SHALL BE LAPPED 20 DIAMETERS TO MAKE A SPLICE, EXCEPT THAT MAIN REINFORCING BARS NEAR THE TOP OF SLABS AND BEAMS HAVING MORE THAN 12 INCHES OF CONCRETE UNDER THE BARS SHALL BE LAPPED 35 DIAMETERS TO MAKE A SPLICE.

BENCH MARK:
BENCH MARK #2 EL. 253.204 R.R. SPIKE - ROOT 20" OAK 105' WEST ℄ STA. 37+20

PEAT EXCAVATION:
ALL PEAT OR OTHER UNSUITABLE MATERIAL SHALL BE REMOVED WITHIN THE LIMITS OF THE FOUNDATIONS OF THE STRUCTURE.

ESTIMATED QUANTITIES
(NOT GUARANTEED)

BRIDGE EXCAVATION	2000	C.Y.
CLASS B ROCK EXCAVATION	10	C.Y.
GRAVEL BORROW	4400	C.Y.
GRAVEL BORROW FOR BRIDGE FOUNDATION	1540	C.Y.
CLASS I BITUMINOUS CONC. PAVEMENT TYPE I-1	69	TONS
STEEL SHEETING	92,000	LBS.
BRIDGE STRUCTURE (H-21-46)	1	L.S.
METAL BRIDGE RAILING TYPE K OR ALUMINUM BRIDGE RAILING	203	L.F.

THE FOLLOWING QUANTITIES ARE PART OF THE LUMP SUM ITEM (615-1) OF BRIDGE STRUCTURE AND ARE NOT GUARANTEED.

STRUCTURAL STEEL	68,200	LBS.
STEEL REINFORCEMENT FOR STRUCTURES	193,300	LBS.

EDWIN M. HOWARD REGISTERED PROFESSIONAL ENGINEER COMMONWEALTH OF MASSACHUSETTS

WHITMAN & HOWARD, INC.
CONSULTING ENGINEERS
BOSTON, MASS.

NOV. 5 1964	⚠ REVISION - SHEETS NO. 5 AND 7
DEC. 19. 1964	ISSUED FOR CONSTRUCTION

THE COMMONWEALTH OF MASSACHUSETTS
PROPOSED BRIDGE

HOLYOKE

INTERSTATE ROUTE 91 STA. 36+62.55
OVER
N.Y. N.H. & HARTFORD R.R.
SCALES AS NOTED
OFFICE OF
DEPARTMENT OF PUBLIC WORKS
100 NASHUA ST. BOSTON, MASS.
DEC. 1964

BRIDGE ENG. J.M. McGovern CHIEF ENG. Dana Mayo

SHEET 1 OF 11 SHEETS BRIDGE No. H-21-46

PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	I-91-1(41)12	1964	148	1246

BORING DATA

46-1

GROUND EL. 244.3

W.L. 244.0

242.8	DRY #1	PEAT	1-1-1	1	V. LOOSE MOIST
				9	
				11	
240				14	
240.3	DRY #2	GRAY & BROWN, FINE SAND, LITTLE SILT, TRACE FINE GRAVEL	3-4-4	31	LOOSE MOIST
238.8				47	
236.8				68	
236.3				97	
234.8	DRY #3		21-47-93	104	
				127	
		RED-BROWN, F-C SAND AND GRAVEL, TRACE SILT & BOULDERS			
230					
229.3					VERY DENSE MOIST
227.8	DRY #4		47-68-82		
224.3					
222.8	DRY #5		71-66-51		
222.5		RED-BROWN, F-C SAND, LITTLE SILT, TR. F-M GRAVEL & BOULDERS (TILL)			
220 219.3	DRY #6	NOTE: USED 300 LB. HAMMER ON O.E. ROD FOR SAMPLES #6 - #7	89-142	161	
215.8					
214.3	DRY #7		104-117	134	

BOTTOM HOLE AT 30'

46-2

GROUND EL. 251.4

249.9	DRY #1	DARK BROWN, SANDY LOAM	1-1-1	1	VERY LOOSE MOIST
249.8				7	
W.L. 248.8				14	
248.0		GRAY, FINE SAND, LITTLE SILT		34	VERY LOOSE MOIST
245.9				89	
	DRY #2		59-53-75	28	
244.4		RED-BROWN, F-C SAND AND GRAVEL, TRACE SILT AND BOULDERS		37	
241.4				43	
	DRY #3		54-39-28	61	
239.9				52	
236.4					VERY DENSE MOIST
	DRY #4		57-92-64		
234.9					
229.4					
227.9	DRY #5	NOTE: USED 300 LB. HAMMER ON O.E. ROD FOR SAMPLES #5-#6	89-76	102	
222.9					
221.4	DRY #6		97-114	152	

BOTTOM OF HOLE AT 30.0'

46-3

GROUND EL. 252.0

250.5	DRY #1	DARK BROWN, SANDY LOAM	1-1-1	1	V. LOOSE MOIST
250.1				7	
W.L. 249.9				7	
247.0		GRAY-BROWN, FINE SAND AND SILT		2	
246.5				9	
245.5	DRY #2		1-7-23	11	LOOSE MOIST
				27	
		RED-BROWN, F-C SAND AND GRAVEL TRACE SILT AND BOULDERS		58	
242.0				82	
				76	
240.5	DRY #3		13-27-42	67	
				74	
				59	
237.0				66	
				72	
235.5	DRY #4		18-41-62		VERY DENSE MOIST
230.0					
228.5	DRY #5	NOTE: WASHED AND CHOPPED AND SAMPLED FROM 16.5' TO BOTTOM OF HOLE	18-31-46		
221.5					
220.0	DRY #6		87-76-79		

BOTTOM OF HOLE AT 32'

46-4

BOTTOM OF FOOTING ABUTMENT NO.1 EL. 249.0

GROUND EL. 248.6

W.L. 247.4

247.1	DRY #1	PEAT	1-1-1	1	V. LOOSE MOIST
				3	
246.8				7	
244.9		GRAY-BROWN, FINE SAND AND SILT, SOME CLAY		21	
243.6				27	
	DRY #2		2-7-13	22	MED. DENSE MOIST
242.1		BROWN, F-C SAND, TRACE SILT AND FINE GRAVEL		16	
				32	
238.6				41	
	DRY #3		9-9-8	33	
237.1				11	
235.6				18	
	DRY #4		17-21-22	19	
234.1		RED-BROWN, F-C SAND AND GRAVEL, TRACE SILT AND BOULDER FRAG.		27	DENSE MOIST
229.6				21	
228.1	DRY #5		47-62	131	VERY DENSE MOIST
		RED-BROWN, F-C SAND, LITTLE SILT, TR. FINE GRAVEL & BOULDERS (TILL)			
		NOTE: USED 300 LB. HAMMER ON O.E. ROD FOR SAMPLES #5 & #6			
220.1					
218.6	DRY #6		62-104	104	

BOTTOM OF HOLE AT 30'

46-5

GROUND EL. 249.3

W.L. 248.3

247.8	DRY #1	RED-BROWN, F-C SAND AND GRAVEL, TRACE RED SHALE BOULDERS AND SILT	1-4-8	13	MED. DENCE MOIST
				27	
244.3				41	
				68	
242.8	DRY #2		17-28-41	97	
				65	VERY DENSE MOIST
				64	
239.3				58	
	DRY #3		31-32-37	71	
237.8				74	
				37	
234.3				41	
	DRY #4		17-18-11	67	
232.8				59	
		NOTE: FROM 25' TO BOTTOM OF HOLE USED O.E. ROD WITH 300 LB. HAMMER TO PENETRATE SOIL		61	
				38	MED. DENSE MOIST
				41	
229.3				52	
	DRY #5		11-19-27	61	
227.8				60	
224.7				67	
224.3	DRY #6		71-97	312	VERY DENSE
222.8		RED BROWN F-C SAND LITTLE SILT TRACE F-C GRAVEL (TILL)		421	
				612	
	DRY #7			724	
219.3		CORED & SAMPLED FROM 30.5' TO THE BOTTOM OF HOLE (BOULDER REC.) NO PENETRATION WITH O.E. ROD	276	567	
218.8					
214.3	DRY #8		176-104		
212.8			212		
		CORED FROM 40' TO 45' TO GET DOWN BOULDER REC. NO PENETRATION WITH O.E. ROD (TILL)			
204.3					

BOTTOM OF HOLE AT 45.0'

46-6

GROUND EL. 253.5

W.L. 251.0

252.0	DRY #1	DARK BROWN, SANDY LOAM	1-2-3	7	LOOSE MOIST
				14	
250				27	
				31	
248.5				44	
	DRY #2		17-11-14	37	
247.0				31	
		RED-BROWN, F-C SAND AND GRAVEL TR. RED SHALE BOULDERS AND SILT		42	
243.5				56	
	DRY #3		9-14-16	64	
242.0				66	DENSE MOIST
240				72	
				54	
238.5				67	
	DRY #4		17-21-31	83	
237.0				54	
				78	
233.5				97	
233.0	DRY #5		12-37-58	114	
232.0				172	
				241	
		RED-BROWN, F-C, SAND, LITTLE SILT, TR. FINE GRAVEL (TILL)		237	
230				465	
228.5				612	
				718	VERY DENSE
	DRY #6		41-68-92		
227.0					
225.0					
	DRY #7		104-116	201	
223.5					

BOTTOM OF HOLE AT 30'

NOTE: USED 300 LB. HAMMER ON O.E. ROD FOR SAMPLES #6 & #7 BECAUSE SPOON WOULD NOT PENETRATE

220

46-7

GROUND EL. 251.2

W.L. 249.2

249.7	DRY #1	DARK BROWN, SANDY LOAM	1-1-2	7	LOOSE MOIST
249.6				14	
				34	
246.2				36	
				39	
	DRY #2		9-11-12	43	DENSE MOIST
244.7		RED-BROWN, F-C SAND AND GRAVEL, T.R. RED SHALE BOULDERS AND SILT		37	
				56	
241.2				61	
	DRY #3		14-14-15	58	
239.7				54	
				76	
236.2				90	
	DRY #4		31-30-29	87	
234.7				89	
				76	VERY DENSE MOIST
232.2				97	
231.2		RED-BROWN, F-C SAND, LITTLE SILT TR. BOULDERS & FINE GRAVEL (TILL) (CORED FROM 21.5' TO 25'-0.7' REC. (BOULDERS) CORED FROM 26' TO 30'-0.3 REC (BOULDERS) (TILL) NOTE: FROM 19' TO 30' TOOK SAMPLES WITH 300 LB. HAMMER & O.E. ROD		97	
	DRY #5		61-89-92	241	
229.7	NO REC.			407	
	CORE #5				
226.2					
225.2			125-157		VERY DENSE MOIST
	DRY #6				
	CORE #7				
221.2					

BOTTOM OF HOLE AT 30'

46-8

BOTTOM OF FOOTING ABUTMENT NO.2 EL. 249.0

GROUND EL. 248.3

W.L. 248.1

246.8	DRY #1	PEAT	1-1-1	1	V. LOOSE MOIST
				1	
246.3				4	
				9	
243.3				12	
	DRY #2		9-14-9	15	DENSE MOIST
241.8		RED-BROWN, F-C SAND AND GRAVEL, T.R. RED SHALE BOULDER & SILT		34	
				58	
238.3				82	
	DRY #3		17-17-15	97	
236.8				101	VERY DENSE MOIST
				127	
233.3				186	
	DRY #4		21-31-41	231	
231.8				467	
				512	
228.3				327	
228.1	DRY #5		46-53-64	281	
226.8		RED-BROWN, F-C SAND, LITTLE SILT T.R. BOULDERS & FINE GRAVEL (TILL) SAMPLES #5, #6, #7 WERE TAKEN WITH 300 LB. HAMMER ON O.E. ROD		567	
				712	
223.3				426	
	DRY #6		88-97	618	
221.1			101	521	
				562	
219.8		CORED FROM 26.5' TO 28.5' AND SAMPLED		961	VERY DENSE MOIST
	DRY #7		171-121		
218.3			252		

BOTTOM OF HOLE AT 30'

46-9

GROUND EL. 248.6

W.L. 247.6

247.6	DRY #1	PEAT	1-1-3	1	V. LOOSE MOIST
247.1		BROWN, FINE SAND, SOME SILT, TRACE CLAY (SUB SOIL)		2	LOOSE MOIST
				7	
243.6		BROWN & GRAY, FINE SAND AND SILT, TR. GRAY CLAY		9	
	DRY #2		3-4-7	11	
242.1				7	MED. DENSE MOIST
241.6	DRY #3	RED-BROWN, F-C SAND AND GRAVEL, TRACE SILT AND BOULDERS	17-27-31	19	
240.1				29	
238.6				31	DENSE MOIST
	DRY #4	BROWN, C-F SAND, TRACE SILT	7-7-11	33	
237.1				17	MED. DENSE MOIST
234.6				19	
234.1	DRY #5	NOTE: SAMPLES #5 & #6 WERE TAKEN WITH 300 LB. HAMMER ON O.E. ROD, CORED FROM 21.5 TO 28.5' NO REC.	31-27-26	22	
233.1				26	
				47	
227.6			(172 NO PENETRATION		
227.1	DRY	RED-BROWN, F-C SAND AND GRAVEL, T.R. SILT AND BOULDERS (TILL)			
220.1					
218.6	DRY #6		76-82-97		

BOTTOM OF HOLE AT 30'

NOTE:

1. FOR BORING NOTES SEE SHEET NO. 3.

2. WATER LEVELS SHOWN ON THE BORING LOGS WERE OBSERVED DURING THE TAKING OF BORING AND DO NOT NECESSARILY SHOW THE TRUE GROUND WATER LEVEL.

BORING LOGS

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

DATE	DESCRIPTION
DEC. 19, 1964	ISSUED FOR CONSTRUCTION

USE ONLY PRINTS OF LATEST DATE

PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	I-91-1(41)12	1964	143	1246

BORING DATA

46-10

GROUND EL. 249.6

248.1	DRY #1	PEAT	1-1-1	1	VERY DENSE
247.9				1	
W.L. 247.8?		BROWN, F-C SAND & GRAVEL, TRACE SHALE BOULDERS AND SILT		3	
				7	
244.6				10	
	DRY #2		20-19-27	8	
243.1				17	
		NOTE: SAMPLES #3 & #7 WERE TAKEN WITH 300 LB. HAMMER ON O.E. ROD		30	
240.6				35	
	DRY #3		176-121	62	
239.1			132	57	
	CORE #4				
234.6		BOULDERS			
	CORE #5				
230 229.6					
	CORE #6				
		BROWN, F-C SAND & GRAVEL, TRACE SHALE BOULDERS AND SILT			
221.1					
220 219.6	DRY #7		71-82-96		

BOTTOM OF HOLE AT 30'

46-11

GROUND EL. 249.2

247.7	DRY #1	SANDY PEAT	1-1-2	1	LOOSE MOIST
W.L. 247.5				4	
				12	
244.2		BROWN, F-C SAND AND GRAVEL, TRACE SILT AND BOULDERS		34	
	DRY #2		11-11-14	41	
242.7				27	MED. LOOSE MOIST
				58	
				64	
239.2				72	
	DRY #3		12-18-17	81	
237.7				97	
				62	
236.2				81	
235.9	DRY #4	BROWN, F-C SAND, SOME FINE GRAVEL, TRACE SILT	7-7-6	32	MED. DENSE MOIST
234.7				20	
232.2					
	DRY #5		6-27-37		
230.7		RED-BROWN, F-C SAND, LITTLE F-C GRAVEL, TRACE SILT AND BOULDERS			
224.2					
	DRY #6		47-68-92		VERY DENSE MOIST
220.7					
	DRY #7		88-97		
219.2			102		

BOTTOM OF HOLE AT 30'

46-12

GROUND EL. 250.3

250.1	DRY #1	ROOT MAT	1-1-11	2	LOOSE
249.2		BROWN, F-C SAND, LITTLE SILT (SUB SOIL)		19	
W.L. 248.6				27	
248.8				33	
				40	
245.3		BROWN, F-C SAND AND GRAVEL, TR. SHALE BOULDERS AND SILT		31	DENSE MOIST
	DRY #2		18-19-81	27	
243.8				31	
				22	
241.2				84	
240.8				31	
239.7		DRY #3A-#3B	14-2-4	27	
		BROWN, F-C SAND, TRACE SILT AND FINE GRAVEL		41	
235.3				32	
	DRY #4		7-8-9	56	MED. DENSE MOIST
233.8				58	
				82	
230.3				71	
230.2	DRY #5			91	
228.8		RED-BROWN, F-C SAND AND GRAVEL, TR. SILT & SHALE BOULDERS	32-42-83		
225.3					
224.7					VERY DENSE MOIST
223.8			37-76-97		
DRY #6A-#6B		RED-BROWN, F-C SAND, LITTLE SILT, TRACE FINE GRAVEL			
		NOTE: CORED FROM 26.5' TO 43.5' BOULDERS AND TILL			
206.8	DRY #8	RED-BROWN, F-C SAND & F-C GRAVEL, TRACE SILT	96-137	142	VERY DENSE MOIST

BOULDER CORE #7A-#7B

BOTTOM OF HOLE 45.0'

46-13

BOTTOM OF FOOTING ABUTMENT NO. 3 EL. 249.0

GROUND EL. 248.3

W.L. 247.9					
246.8	DRY #1	PEAT	1-1-1	1	VERY SOFT
246.0				1	
				3	
243.3				9	
	DRY #2		9-13-18	21	
241.8				31	
		RED-BROWN, F-C SAND AND GRAVEL, TR. RED SHALE BOULDERS AND SILT		44	
				58	
238.3				78	
	DRY #3		12-14-13	137	
236.8				142	DENSE MOIST
				166	
				172	
233.3				271	
	DRY #4		13-14-18	168	
231.8				176	
				327	
228.3				281	
227.3	DRY #5		17-41-68	318	
				465	
226.8		RED-BROWN, F-C SAND, LITTLE SILT, TRACE BOULDERS & FINE GRAVEL		712	
				588	
223.3				619	
	DRY #6	NOTE: WASHED & CHOPPED FROM 26.5' TO 28.5' AND TOOK LAST SAMPLE	31-68-97	721	
221.8				812	VERY DENSE MOIST
219.8	DRY #7		64-89		
218.3			112		

BOTTOM OF HOLE AT 30'

46-14

GROUND EL. 252.1

W.L. 250.9?	DRY #1	PEAT	1-1-1	1	V. LOOSE MOIST
250.6				1	
250.1				3	
				7	
247.1				12	
	DRY #2		7-9-12	14	MED. DENSE MOIST
245.6				16	
		RED-BROWN, F-C SAND AND GRAVEL TRACE RED SHALE BOULDERS & SILT		22	
242.1				34	
	DRY #3		27-34-41	47	
240.6				28	VERY DENSE MOIST
				31	
237.1				41	
	DRY		12-14-22	42	
235.6				57	
	DRY		14-12-22	58	DENSE MOIST
234.1				82	
232.1				91	
	DRY #4		14-22-31	74	
231.1				92	
227.1					
226.4	DRY #5		61-82-97		
225.6		RED-BROWN, F-C SAND, LITTLE SILT, TR. BOULDERS AND FINE GRAVEL NOTE: CORED FROM 26.5' TO 30.5' 0.2' BOULDER REC.			VERY DENSE MOIST
CORE OVERBURDEN # 6					
221.6	DRY		176-182		
220.1	#7		152		

BOTTOM OF HOLE AT 32'

46-15

GROUND EL. 251.0

249.6	DRY #1	PEAT	1-1-1	1	SOFT WET
249.5				1	
W.L. 249.0?				3	
				11	
246.0				21	
244.5	DRY WO REC	RED-BROWN, F-C SAND AND GRAVEL, TR. RED SHALE BOULDERS AND SILT	18-13-10	27	MED. DENSE MOIST
	DRY #2			31	
243.0			10-12-13	47	
				68	
241.0				92	
	DRY #3		25-31-30	27	VERY DENSE MOIST
239.5				28	
				44	
236.0				33	
235.2	DRY #4		21-31-47	46	
234.5		RED-BROWN, F-C SAND, LITTLE SILT, TR. F-M GRAVEL AND BOULDERS (TILL)		29	VERY DENSE MOIST
				31	
231.0				22	
	DRY #5		37-57-27	64	
229.5				50	
		NOTE: USED 300 LB. HAMMER TO GET SAMPLES FROM 20' TO THE BOTTOM OF THE HOLE			
226.0					
	DRY #6		31-41-54		
224.5					
222.5					
	DRY #7		41-62-71		
221.0					

BOTTOM OF HOLE AT 30'

46-16

BOTTOM OF FOOTING ABUTMENT NO. 4 EL. 249.0

GROUND EL. 247.7

W.L. 247.2?					
246.2	DRY #1	PEAT	1-1-1	1	V. SOFT
				3	
				14	
242.7				22	
				47	
	DRY		12-14-19	13	DENSE MOIST
241.2	#2			22	
		RED-BROWN, F-C SAND AND GRAVEL, TR. SILT & RED SHALE BOULDERS		21	
237.7				34	
	DRY		21-31-28	42	
236.2	#3			31	
				41	
232.7				42	
	DRY		18-17-22	31	
231.2	#4			41	
				56	
228.7				48	
				62	
	DRY		41-62-55	47	
227.2	#5			62	VERY DENCE MOIST
		RED-BROWN F-C SAND, LITTLE SILT, TR. FINE GRAVEL & BOULDERS "CEMENTED TILL"		61	
				83	
222.7				104	
	DRY		276-137		
221.2	#6		160		
219.2					
	DRY		104-127		
217.7	#7		188		

BOTTOM OF HOLE AT 30'

BORING LOGS

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

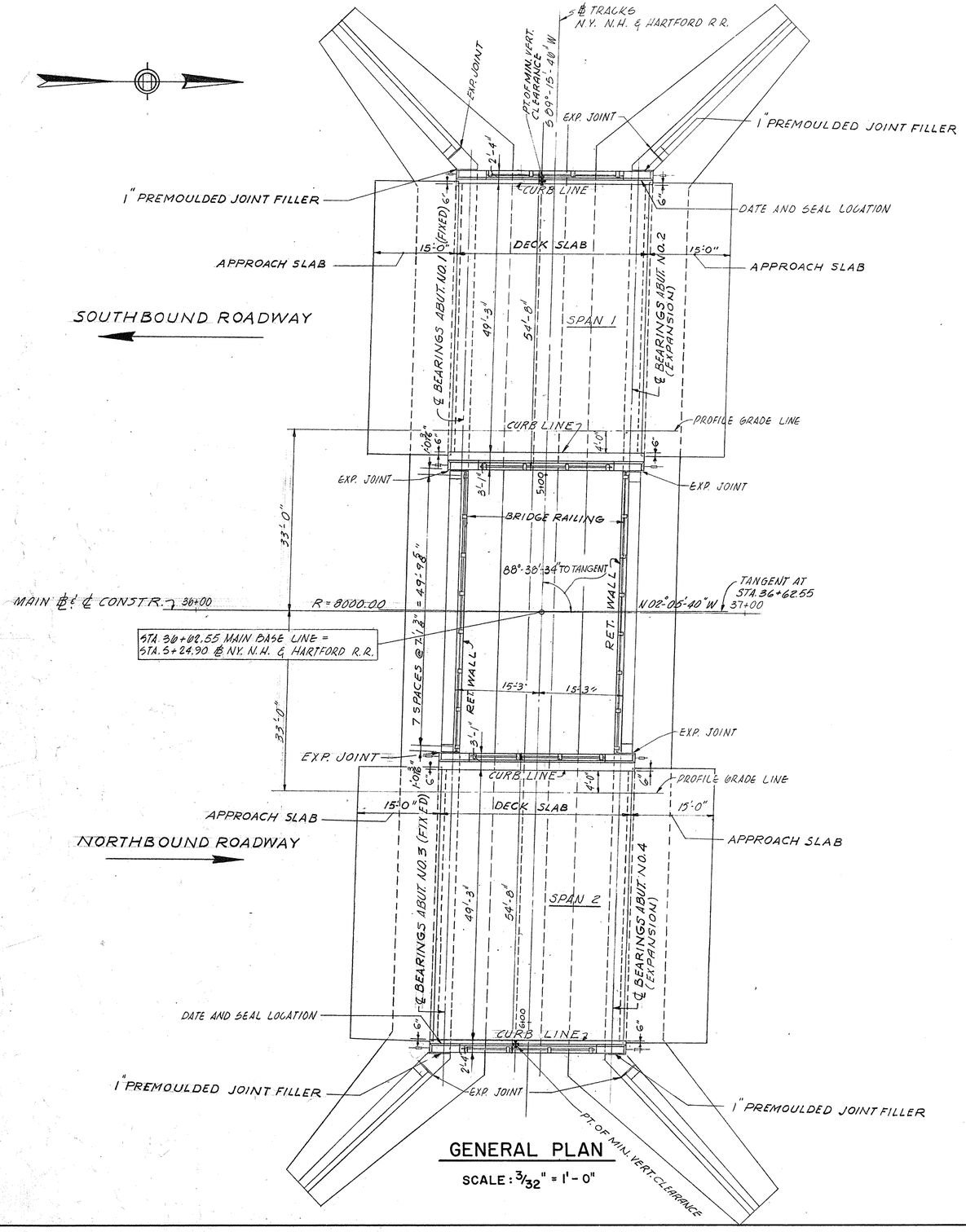
BORING NOTES:

1. LOCATION OF BORINGS ON SHEET NO. 1 SHOWN THUS ◉ NO. 46-1 .
2. LOCATION OF CORE BORINGS ON SHEET NO. 1 SHOWN THUS ● NO. 46-5 .
3. BORINGS TAKEN FOR THE PURPOSE OF DESIGN AND SHOW CONDITIONS AT THE BORING POINTS ONLY, BUT DO NOT NECESSARILY SHOW MATERIALS TO BE ENCOUNTERED DURING CONSTRUCTION.
4. FIGURES SHOWN IN COLUMN ONE INDICATE SAMPLE NUMBER AND TYPE .
5. FIGURES SHOWN IN COLUMN THREE INDICATE BLOWS PER 6 INCH INCREMENT ON A 1 3/8" I.D. SAMPLER PRODUCED BY 30" FALL OF 140 LB. HAMMER.
6. FIGURES SHOWN IN COLUMN FOUR INDICATE BLOWS PER FOOT ON A 2 1/2" I.D. CASING PRODUCED BY 24" FALL OF 300 LB. HAMMER.
7. BORINGS WERE TAKEN IN JUNE & JULY, 1963 BY ALLSTATE DRILLING CO., 227 WAMPANOAG TRAIL, RIVERSIDE, R.I. .
8. BORING SAMPLES MAY BE SEEN AT THE RESEARCH AND MATERIALS DIVISION, 99 WORCESTER STREET, WELLESLEY HILLS, AT THE INTERSECTION OF ROUTES 9 AND 128 .
9. WATER LEVELS SHOWN ON THE BORING LOGS WERE OBSERVED DURING THE TAKING OF BORINGS AND DO NOT NECESSARILY SHOW THE TRUE GROUND WATER LEVEL.

DATE	DESCRIPTION
DEC. 19, 1964	ISSUED FOR CONSTRUCTION
USE ONLY PRINTS OF LATEST DATE	

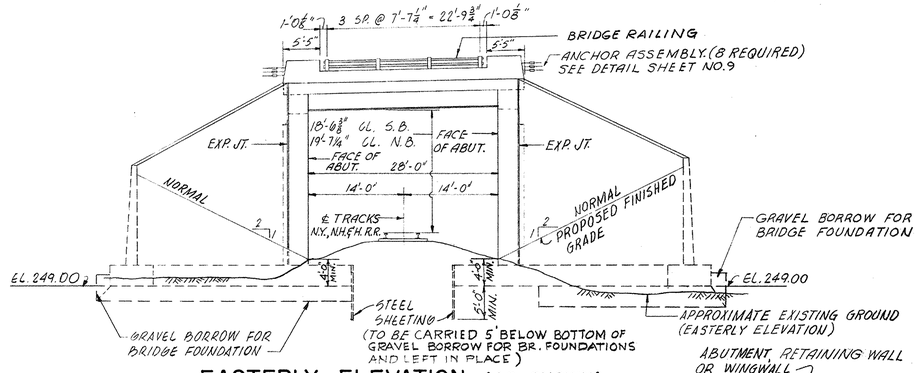
PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	I-91-1(41)12	1964	150	1246

GENERAL PLAN & ELEVATION



GENERAL PLAN

SCALE: 3/32" = 1'-0"

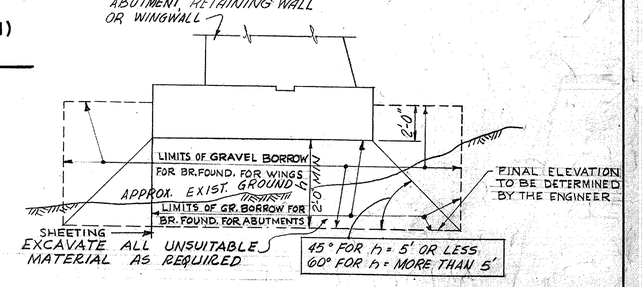


EASTERLY ELEVATION (AS SHOWN)
WESTERLY ELEVATION (SIMILAR)

SCALE: 3/32" = 1'-0"

FOOTING LOCATION PLAN

NO SCALE



GRAVEL BORROW FOR BRIDGE FOUNDATION

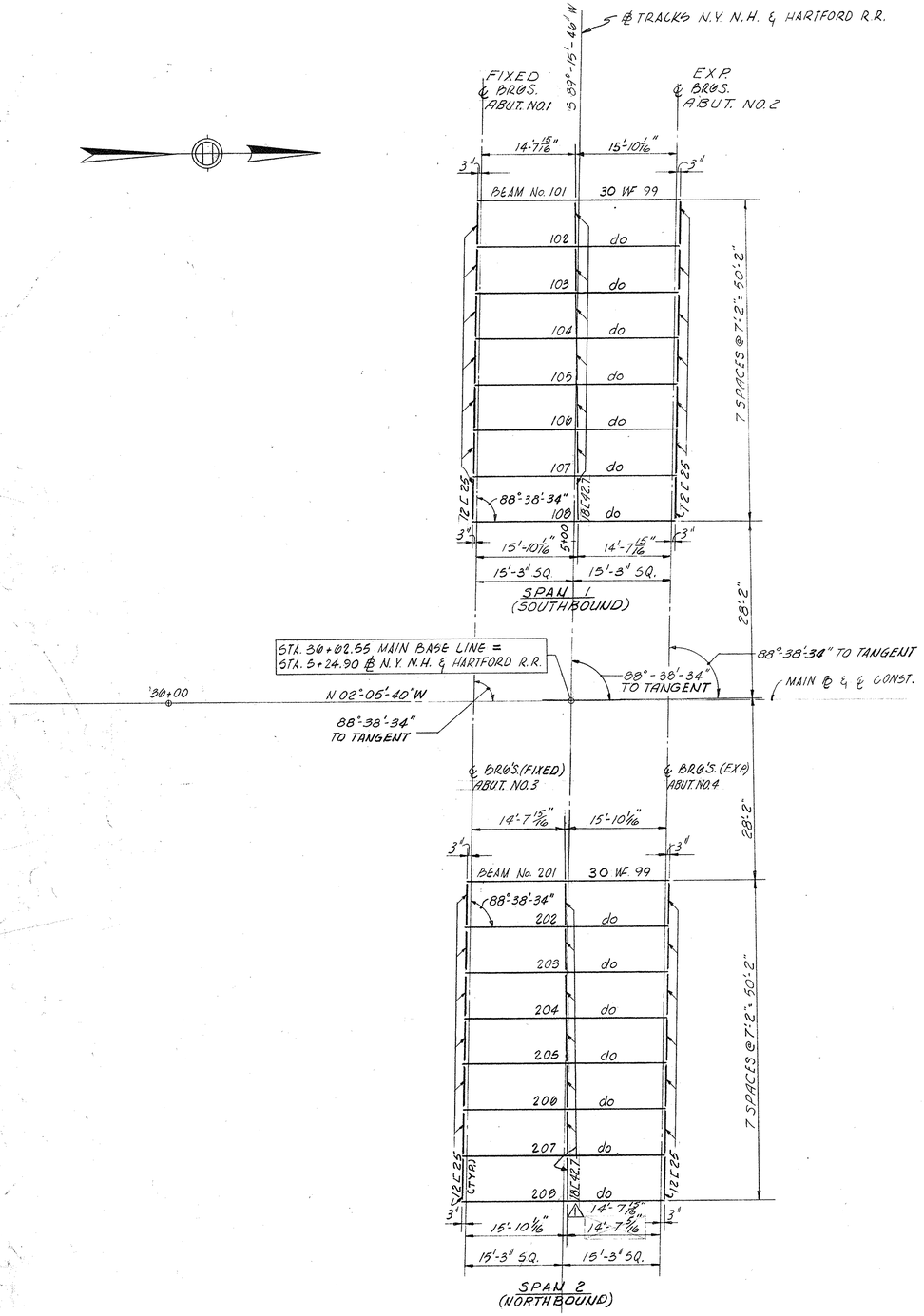
NO SCALE

NOTE:
1. FOR ABUTMENTS, RETAINING WALLS & WINGWALL DETAILS SEE SHEET NO. 6, 7 & 8.
2. FOR RAILING DETAILS SEE SHEET NO. 10.

DEC. 19, 1964	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

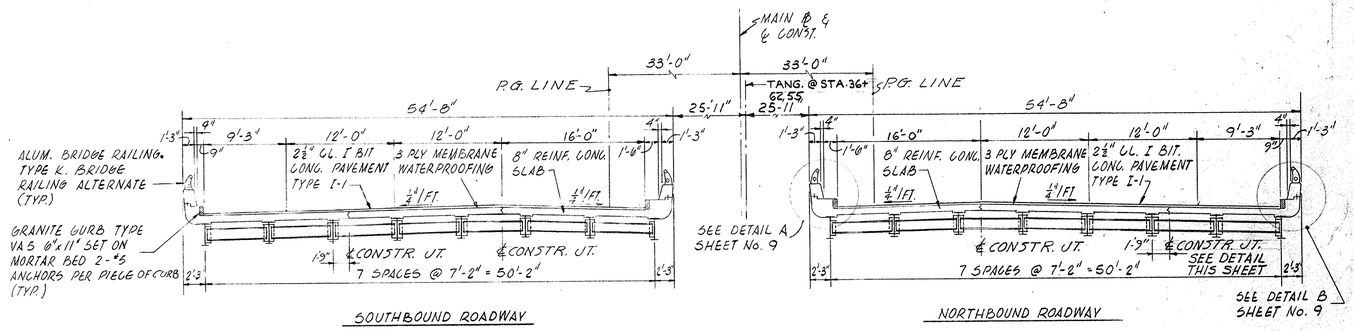
PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	I-91-1(41)12	1964	151	1246

RAMING PLAN & CROSS SECTIONS



FRAMING PLAN

SCALE : 3/32" = 1'-0"

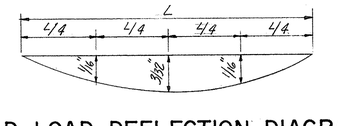


SOUTHBOUND ROADWAY

NORTHBOUND ROADWAY

TYPICAL CROSS SECTION

SCALE : 1/8" = 1'-0"



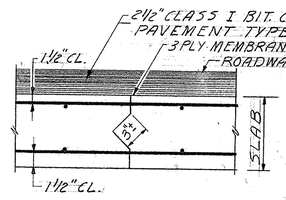
DEAD LOAD DEFLECTION DIAGRAM

NO SCALE

NOTE:
DEFLECTIONS COMPUTED FOR SLAB DEAD LOAD ONLY. FOR USE OF RESIDENT ENGINEER.

DESIGN ELEV. ALONG TOP FLG. OF BEAM					
BEAM NO.	℄ BEARING	¼ POINT	½ POINT	¼ POINT	℄ BEARING
101	277.81	278.03	278.24	278.42	278.57
102	277.95	278.18	278.38	278.56	278.71
103	278.09	278.31	278.52	278.70	278.85
104	278.23	278.45	278.66	278.83	278.99
105	278.37	278.59	278.80	278.97	279.13
106	278.42	278.64	278.84	279.02	279.18
107	278.26	278.49	278.69	278.86	279.02
108	278.11	278.33	278.54	278.71	278.87
201	278.08	278.30	278.50	278.68	278.84
202	278.22	278.44	278.65	278.82	278.99
203	278.36	278.59	278.79	278.97	279.13
204	278.31	278.53	278.74	278.92	279.07
205	278.16	278.39	278.59	278.77	278.93
206	278.02	278.24	278.44	278.62	278.78
207	277.87	278.09	278.30	278.47	278.63
208	277.72	277.94	278.15	278.33	278.48

NOTE : ELEVATIONS COMPUTED FOR USE OF RESIDENT ENGINEER ONLY.
THE DESIGN ELEVATIONS ABOVE ARE FOR BEAMS IN PLACE AND INCLUDE THE DEFLECTION DUE TO THE DEAD LOAD OF THE STRUCTURAL STEEL ONLY.



CONSTRUCTION JOINT IN ROADWAY SLAB

NO SCALE

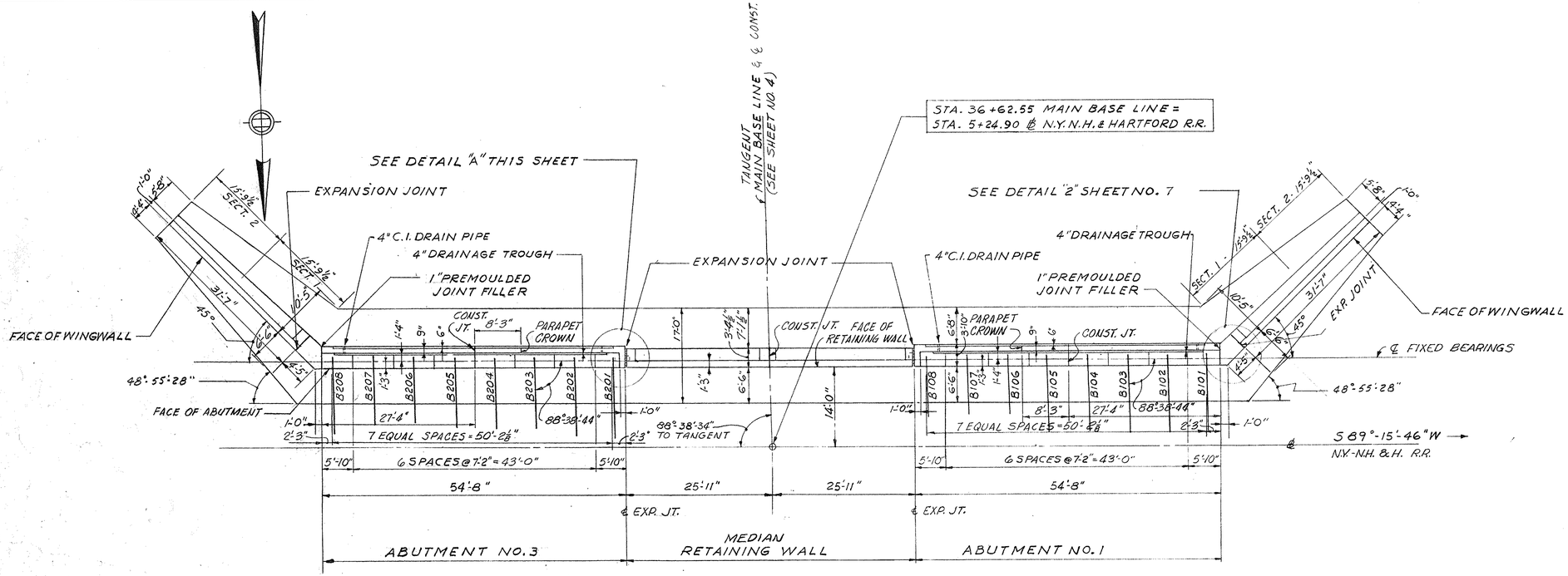
NOTES:
1. ENDS OF BEAMS SHALL BE FABRICATED SO THAT UNDER FULL DEAD LOAD, THE ENDS WILL BE PLUMB.
2. BEAMS SHALL BE CAMBERED TO NOT LESS THAN 5/8" AT CENTERLINE AND NOT MORE THAN 7/8".
3. FOR END & INTERMEDIATE DIAPHRAGM CONNECTIONS & BEARING DETAILS, SEE SHEET NO. 10.
4. PREPARATION OF MATERIALS FOR WELDING SHALL CONFORM TO ART. 402 AWS 1963.
5. ASSEMBLY OF MATERIALS FOR WELDING SHALL CONFORM TO ARTICLE 403 AWS 1963.

DATE	DESCRIPTION
NOV. 3, 1965	⚠ REVISION-DIM. ON FRAMING PLAN REV.
DEC. 19, 1964	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

⚠

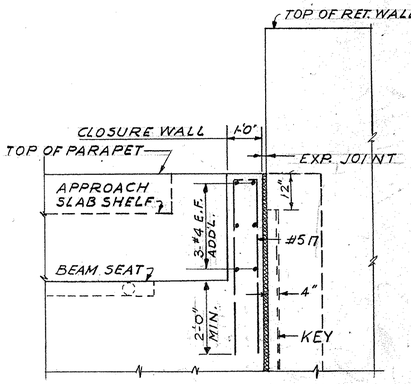
POST RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	I-91-1(41)12	1964	152	1246

ABUTMENTS 1 & 3



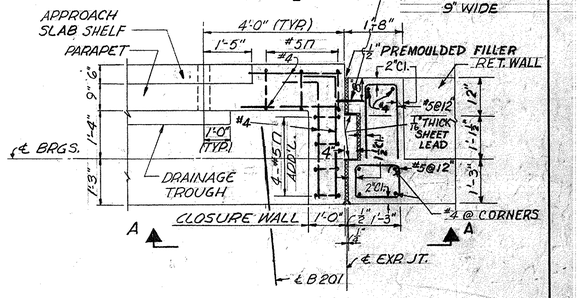
PLAN - ABUTMENT NO. 1 & 3

SCALE: 3/32" = 1'-0"



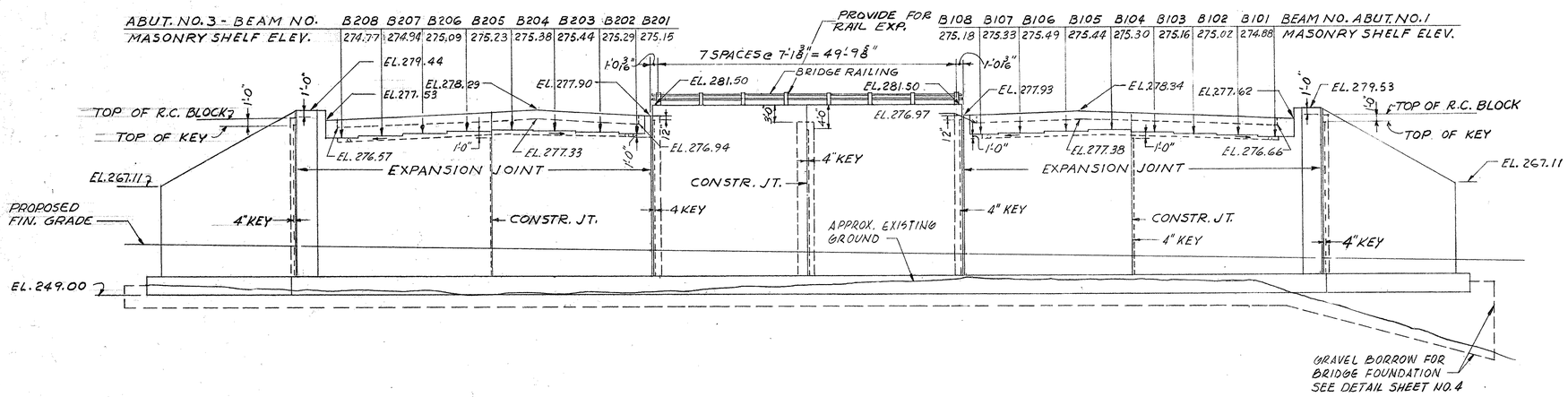
SECTION A-A

SCALE: ½" = 1'-0"



DETAIL A

SCALE: ½" = 1'-0"



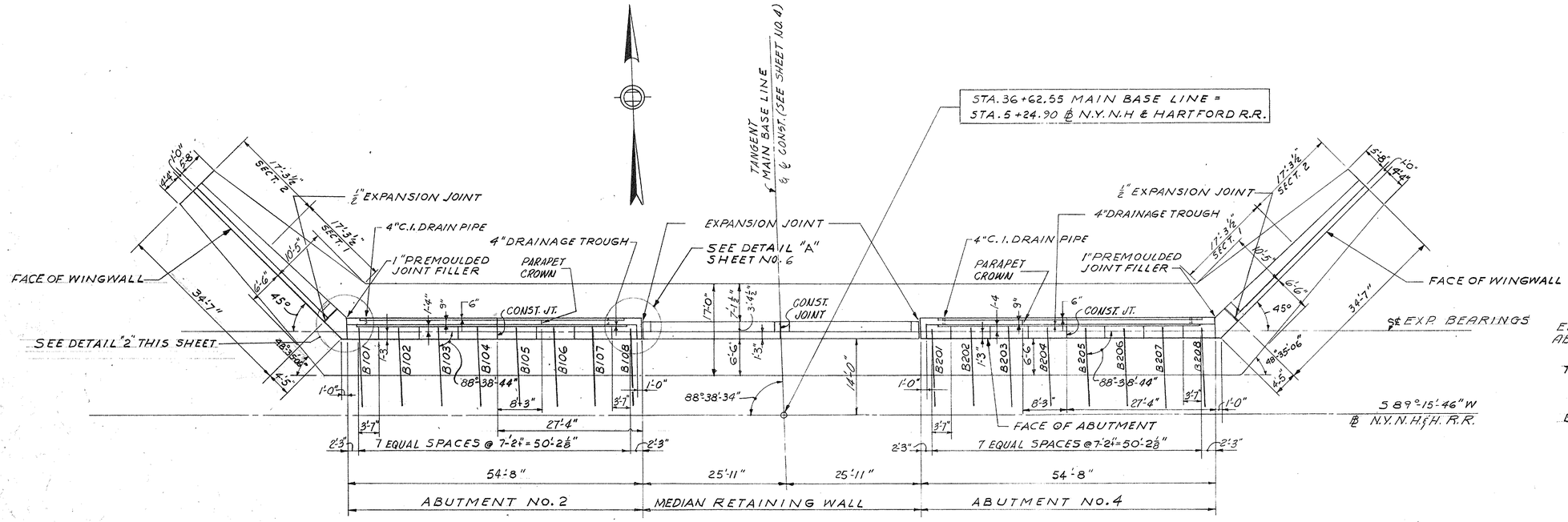
ELEVATION - ABUTMENT NO. 1 & 3

SCALE: 3/32" = 1'-0"

NOTES:
1. FOR EXPANSION & CONSTRUCTION JOINT DETAIL SEE SHEET NO. 8.
2. FOR RAILING DETAILS SEE SHEET NO. 10.
3. ALL MASONRY SHELF ELEVATIONS ARE TO THE UNDERSIDE OF MASONRY BEARING PLATES.
4. PARAPET ELEVATIONS ARE GIVEN AT FACE OF PARAPET.
5. FOR FOOTING LOCATION PLAN, SEE SHEET NO. 4.

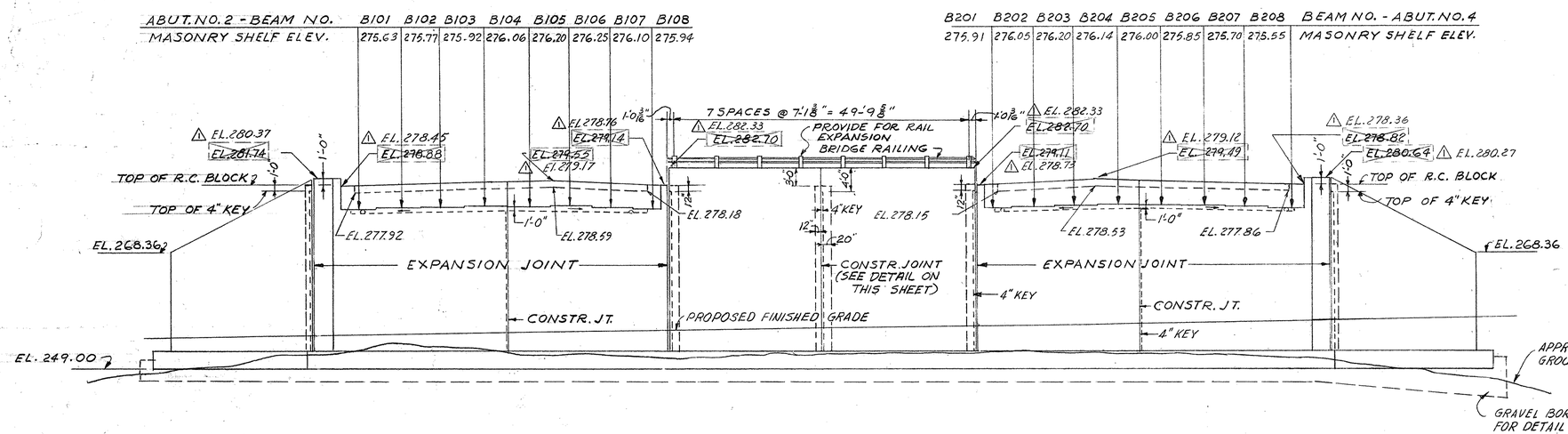
DATE	DESCRIPTION
DEC. 19, 1964	ISSUED FOR CONSTRUCTION
	USE ONLY PRINTS OF LATEST DATE

PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	I-91-1(41)12	1964	153	1246



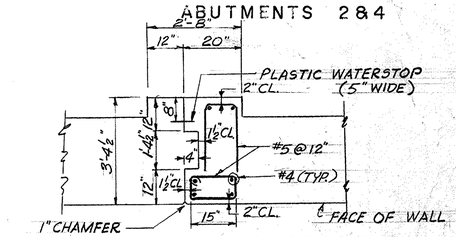
PLAN-ABUTMENT NO. 2 & 4

SCALE : $\frac{3}{32}$" = 1'-0"



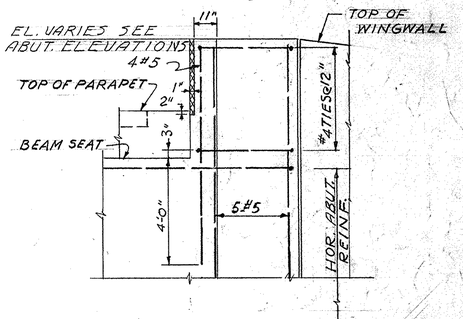
ELEVATION-ABUTMENT NO. 2 & 4

SCALE : $\frac{3}{32}$" = 1'-0"



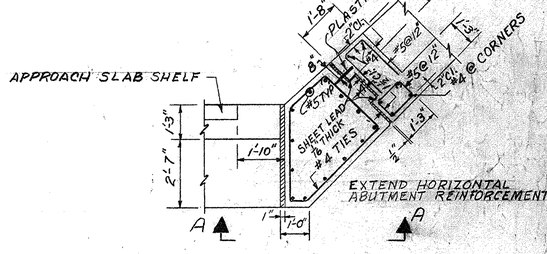
CONSTRUCTION JOINT DETAIL
MEDIAN RETAINING WALL

SCALE: ½" = 1'-0"



ELEVATION A-A

SCALE: $\frac{3}{8}$" = 1'-0"



DETAIL 2

SCALE : $\frac{3}{8}$" = 1'-0"

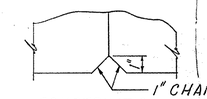
NOTE:- FOR NOTES, SEE SHEET NO. 6

DATE	DESCRIPTION
NOV. 5, 1965	⚠ REVISION-ELEV. ABUT. ELEV. REVISED
DEC. 19, 1964	ISSUED FOR CONSTRUCTION

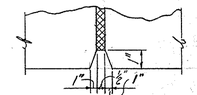
USE ONLY PRINTS OF LATEST DATE

PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	I-91-1(41)12	1964	154	1246

ABUTMENT & WINGWALL SECTIONS



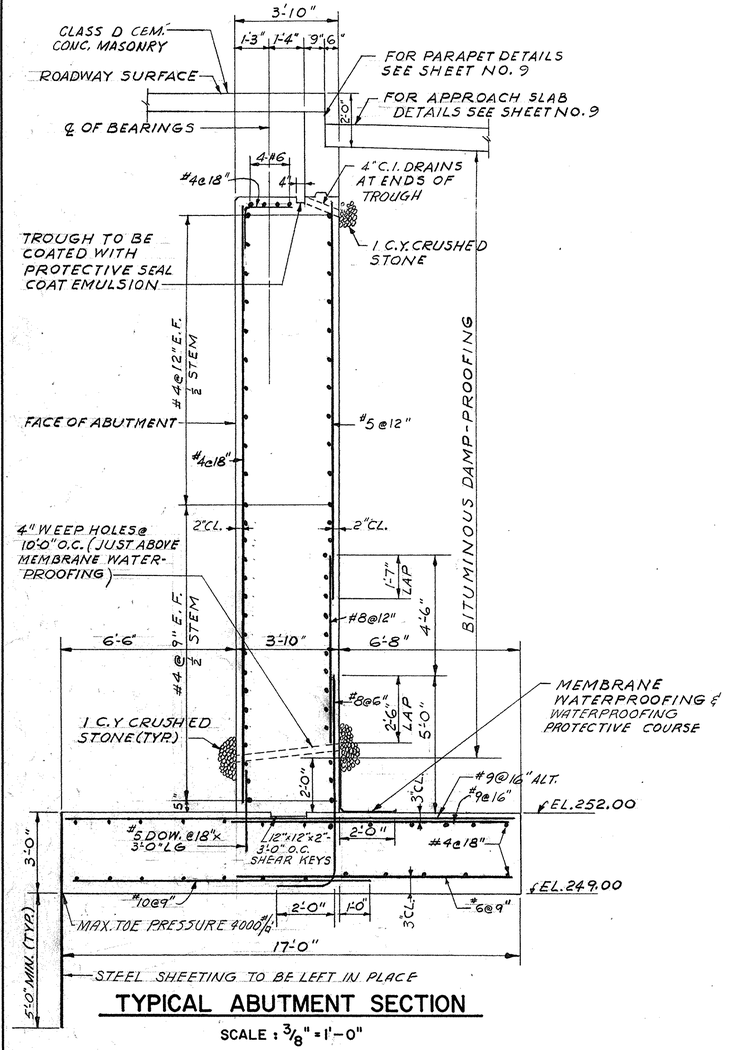
CONSTRUCTION JOINT AT ABUTMENT



EXPANSION JOINT AT WINGWALL & ABUTMENT

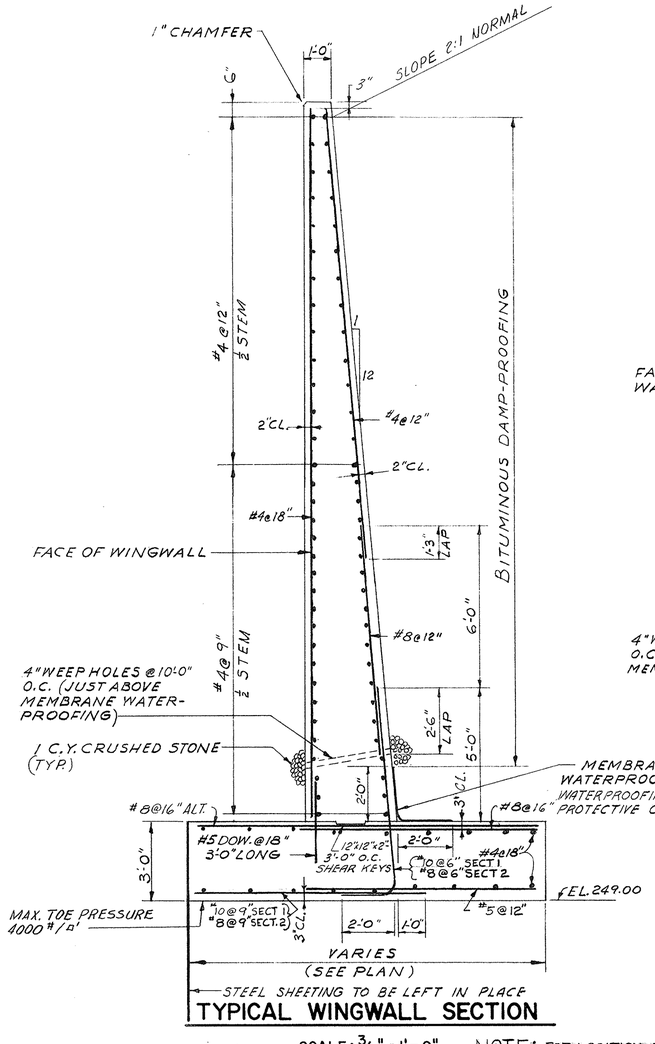
DETAIL A

SCALE: 3"=1'-0"



TYPICAL ABUTMENT SECTION

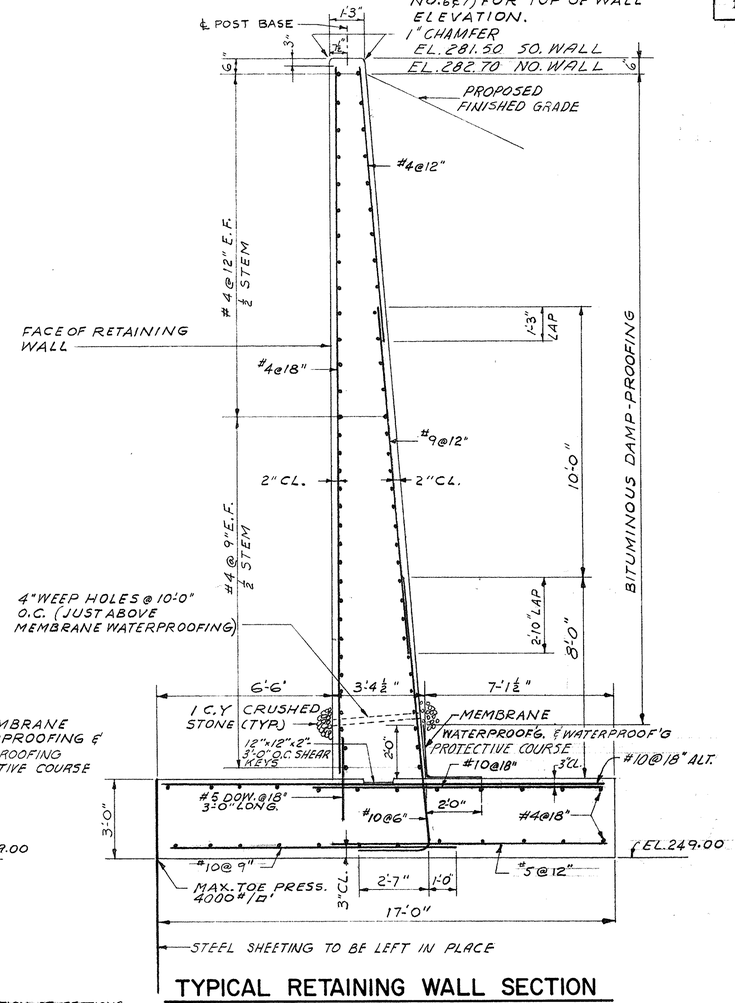
SCALE: 3/8" = 1'-0"



TYPICAL WINGWALL SECTION

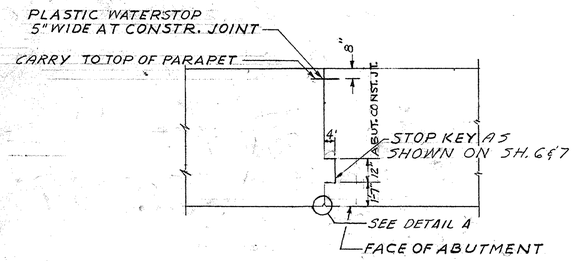
SCALE: 3/8" = 1'-0"

NOTE: FOR LOCATION OF SECTIONS #1 & #2 SEE SHEETS #6 & #7



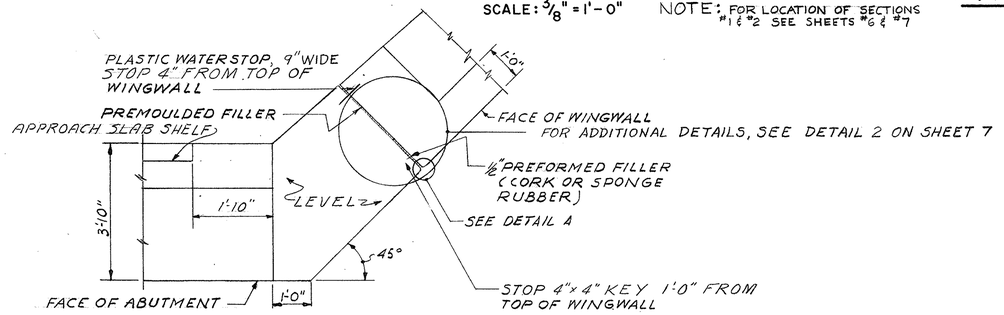
TYPICAL RETAINING WALL SECTION

SCALE: 3/8" = 1'-0"



CONSTRUCTION JOINT DETAIL (ABUTMENT WALL)

SCALE: ½" = 1'-0"



EXPANSION JOINT (WINGWALLS)

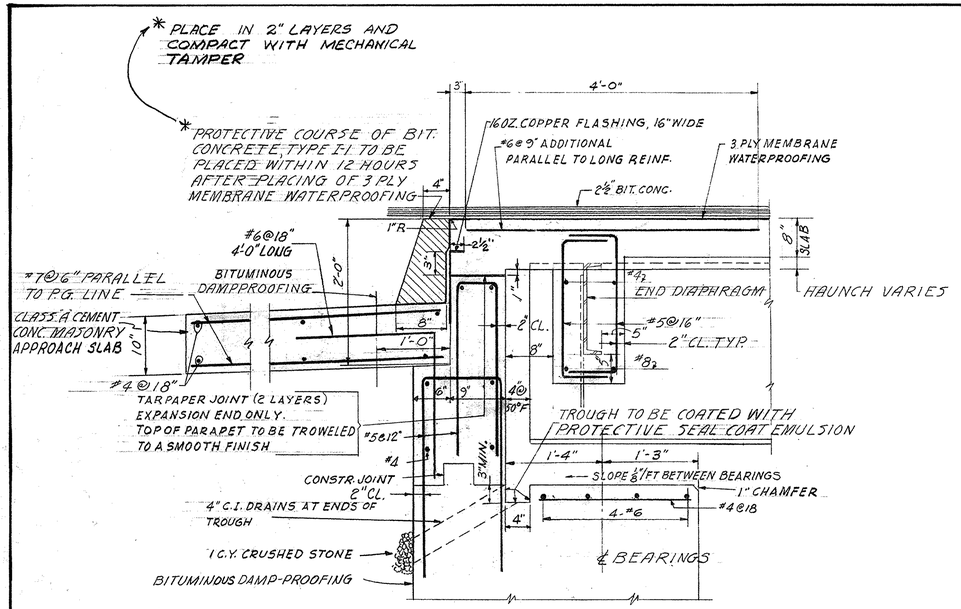
SCALE: ½" = 1'-0"

NOTES:
1. FOR FOOTING LAYOUT & DIMENSIONS SEE SH. 4.
2. ALL CONCRETE ON THIS SHEET TO BE CLASS A UNLESS OTHERWISE NOTED.

DATE	DESCRIPTION
DEC. 19, 1969	ISSUED FOR CONSTRUCTION
USE ONLY PRINTS OF LATEST DATE	

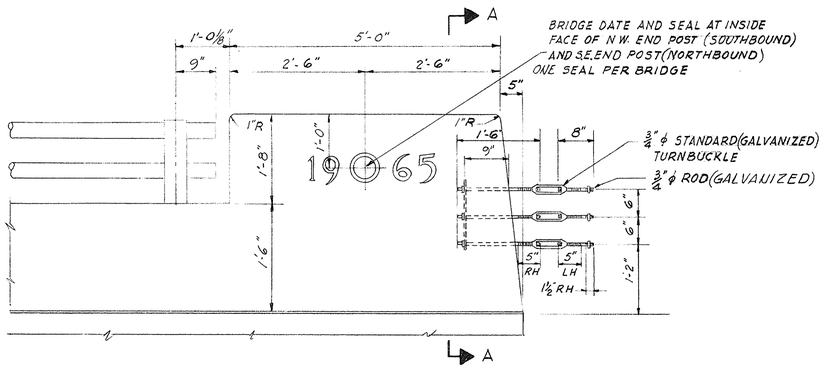
FED. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	I-91-1(41)12	1964	155	1246

CONCRETE DETAILS



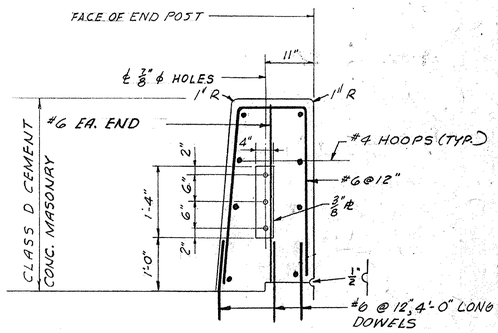
DECK DETAILS AT ABUTMENTS

SCALE : 1" = 1'-0"



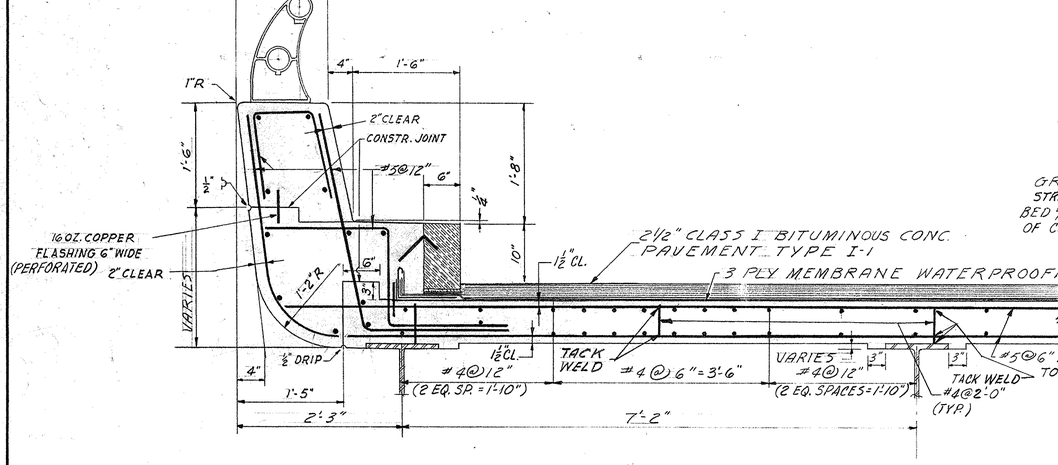
TYPICAL END POST DETAIL

SCALE : ¾" = 1'-0"



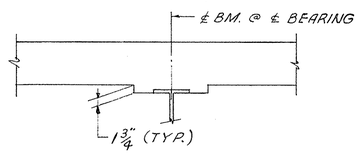
SECTION A-A

SCALE : ¾" = 1'-0"



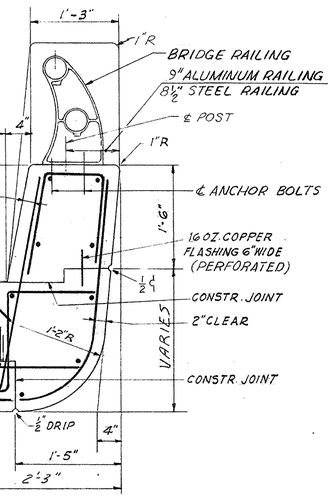
DETAIL A

SCALE : 1" = 1'-0"



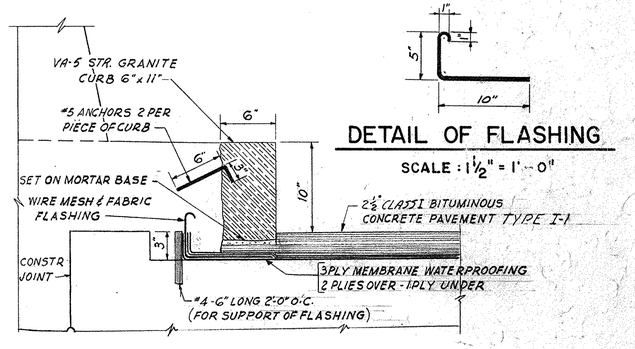
TYPICAL HAUNCH DETAIL AT SUPPORTS

NO SCALE



DETAIL B

SCALE : 1" = 1'-0"



DETAIL UNDER CURB

SCALE : 1½" = 1'-0"

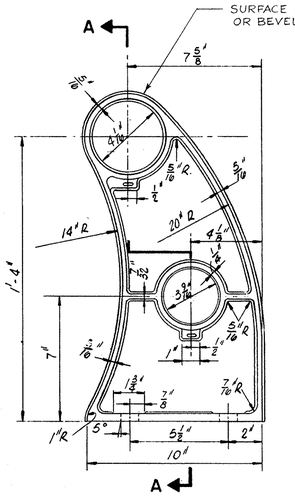
DETAIL OF FLASHING

SCALE : 1½" = 1'-0"

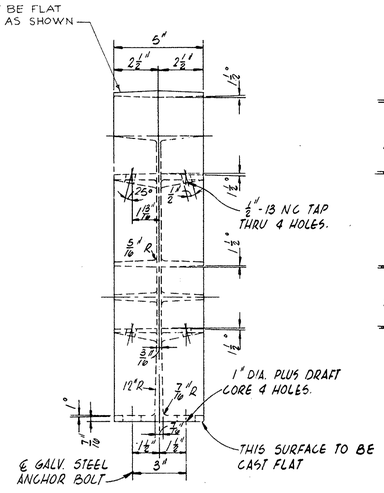
NOTE:-
1. FOR DETAIL OF LONGITUDINAL CONSTRUCTION JOINT, SEE SH. 6.
2. DECK SLAB, ENCASEMENT, WALKS, COPINGS & END POSTS SHALL BE CLASS D CEMENT CONC. MASONRY.

DEC. 19, 1964	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

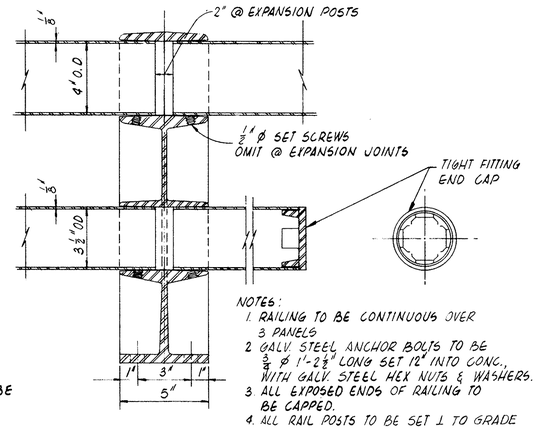
PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
I	MASS.	I-91-1(41)12	1964	156	1246



SIDE ELEVATION



END ELEVATION

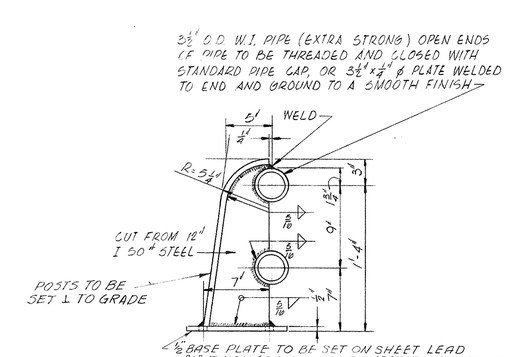


SECTION A-A

BRIDGE RAILING (ALUMINUM)

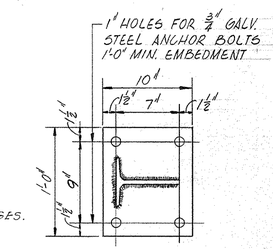
SCALE: 3" = 1'-0"

NOTE:
ALL BOLTS, NUTS AND WASHERS TO BE GALVANIZED STEEL
ANCHOR BOLTS ARE TO BE SET BY TEMPLATE AND PLACED BEFORE CONCRETE IS POURED.



SIDE ELEVATION

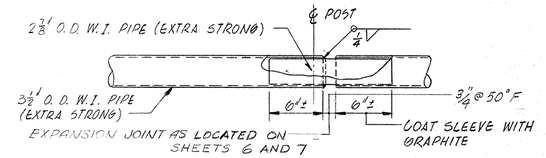
STANDARD STEEL DETAILS



BASE PLATE

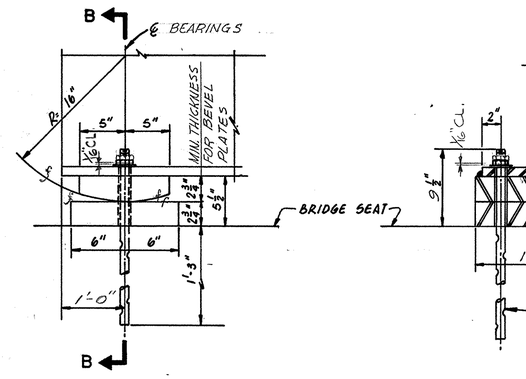
METAL BRIDGE RAILING (TYPE K)

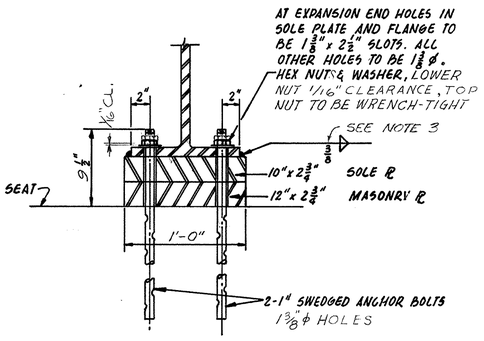
SCALE: 1 1/2" = 1'-0"



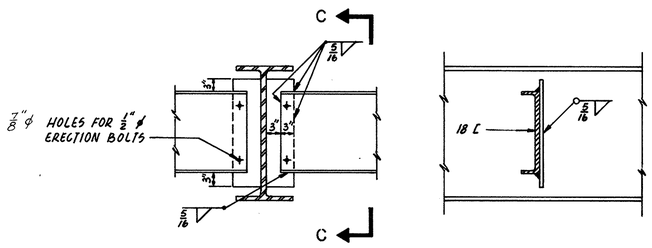
EXPANSION JOINT DETAIL TOP AND BOTTOM RAILS

NO SCALE

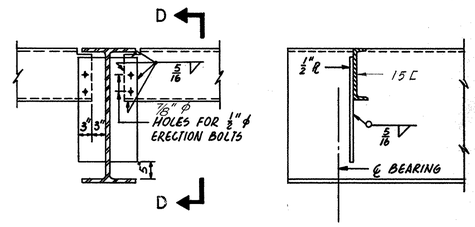




SECTION B-B



SECTION C-C



SECTION D-D

FIXED AND EXPANSION BEARINGS

NO SCALE

NOTES:
1. THE FINISHED SURFACES SHALL MEET THE AMERICAN STANDARDS ASSOCIATION SURFACE ROUGHNESS REQUIREMENTS AS DEFINED IN ASA B46-1, SURFACE ROUGHNESS, WAVINESS AND LAY, PART I.
2. 125-ASA FINISH 125 MICROINCHES, OR FINER
3. FIELD WELD EXPANSION END, SHOP WELD FIXED END.
4. BEVEL WASHERS AND SOLE PLATES AS REQUIRED BY PROFILE.
5. ALL BOLTS, NUTS AND WASHERS TO BE GALVANIZED STEEL.
6. ANCHOR BOLTS ARE TO BE SET BY TEMPLATE AND PLACED BEFORE POURING CONCRETE.

INTERMEDIATE DIAPHRAGM CONNECTION

NO SCALE

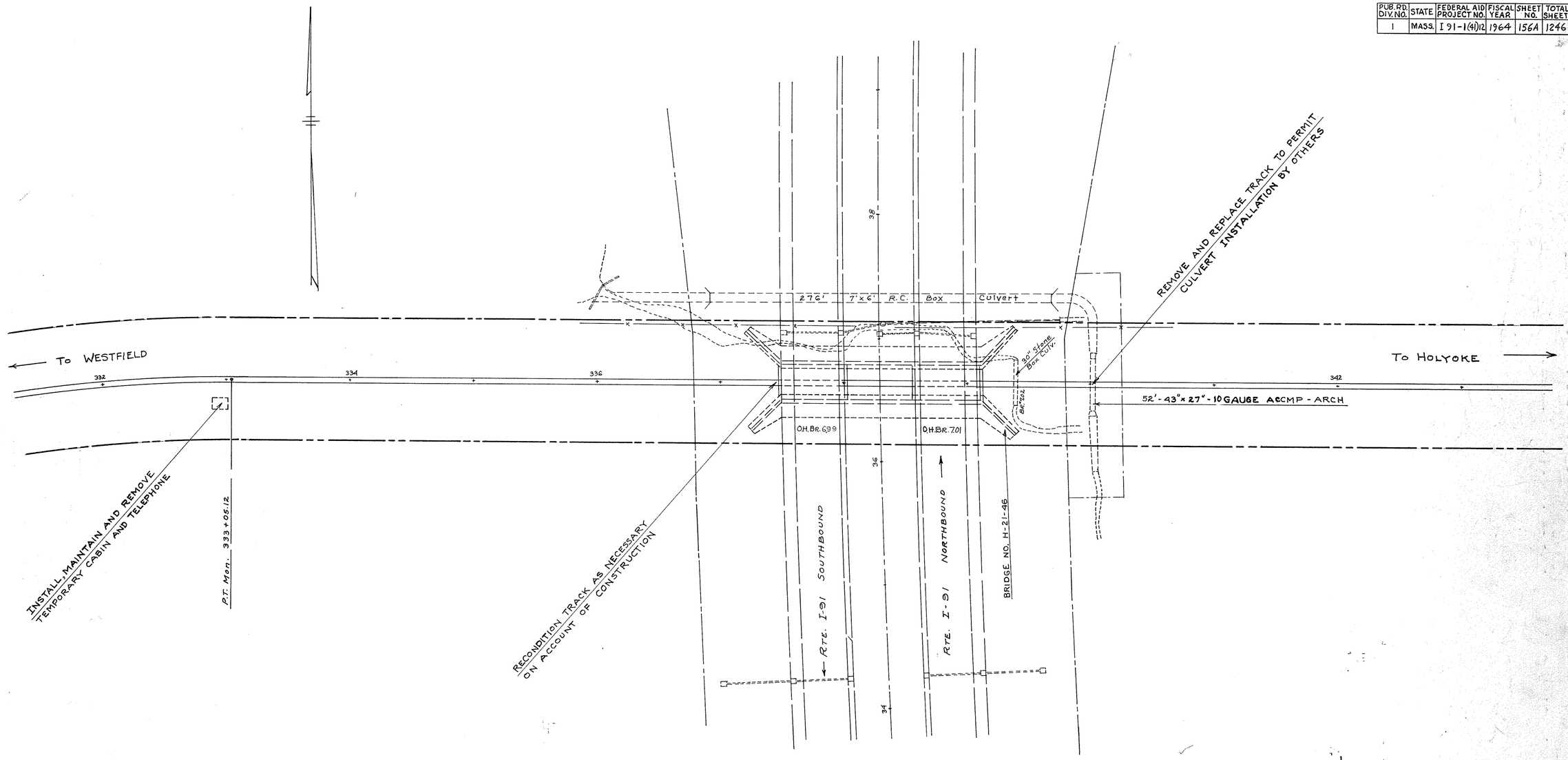
NOTES FOR TYPE K RAILING
1. POSTS AND BASE PLATES SHALL BE STRUCTURAL STEEL ASTM A-36.
2. ANCHOR BOLTS, NUTS AND WASHERS TO BE IN ACCORDANCE WITH THE PROVISIONS OF ASTM A36.
3. POSTS SHALL BE SET PERPENDICULAR TO GRADE
4. RAILINGS SHALL BE CONTINUOUS OVER THREE PANELS WHERE POSSIBLE.
5. EXPANSION JOINTS IN RAILS TO BE LOCATED AS CLOSE AS POSSIBLE TO THE ℄ OF POST.

END DIAPHRAGM CONNECTION

NO SCALE

DEC. 19. 1964	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

PUB. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	I 91-1(41)12	1964	156A	1246



RAILROAD WORK

1. ENGINEERING INSPECTION AND ACCOUNTING.
2. INSTALL, MAINTAIN AND REMOVE TEMPORARY CABIN.
3. INSTALL, MAINTAIN AND REMOVE TEMPORARY TELEPHONE.
4. RECONDITION TRACK AS NECESSARY ON ACCOUNT OF CONSTRUCTION.
5. REMOVE AND REPLACE TRACK TO PERMIT CULVERT INSTALLATION BY OTHERS.

REVISIONS		

DATE	DESCRIPTION
DEC. 13, 1964	ISSUED FOR CONSTRUCTION
	USE ONLY PRINTS OF LATEST DATE

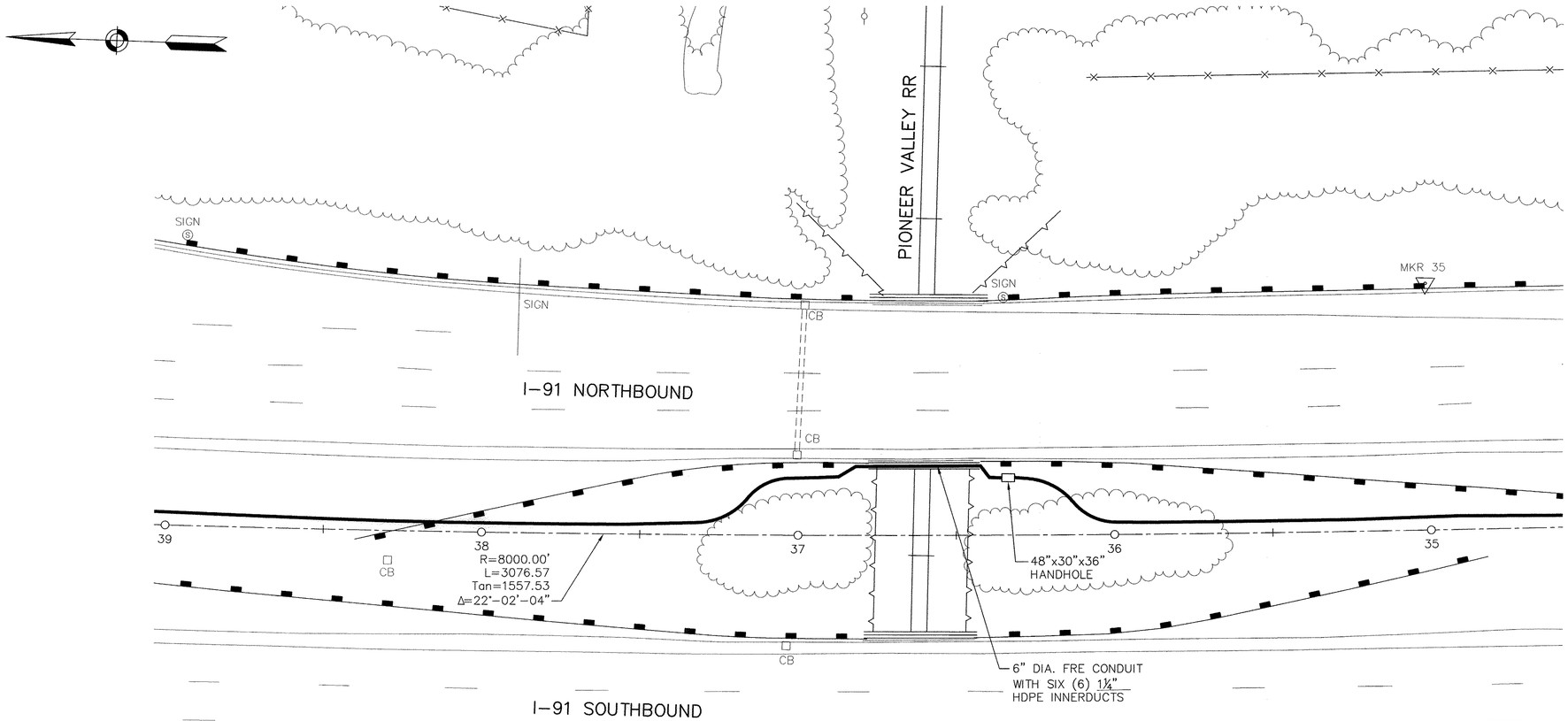
N.Y.N.H. & H.R.R.CO.
HOLYOKE WESTFIELD
NEW HAVEN DIVISION.
RAILROAD WORK
IN CONNECTION WITH
CONSTRUCTION OF O.H. BRIDGE NO'S. 6.99 & 7.01
ROUTE I-91
3.31 MILES SOUTH OF
HOLYOKE, MASS.
OFFICE OF CHIEF ENGR. NEW HAVEN, CONN.
SCALE 1"=40' DATE: NOV. 10, 1964

DRAWN BY Paul E. Anderson	DATE 11-10-64	PROJ. NO.
CHECKED BY Paul E. Anderson	DATE 11-10-64	
APPROVED C.S. Cawood	DATE 11-16-64	

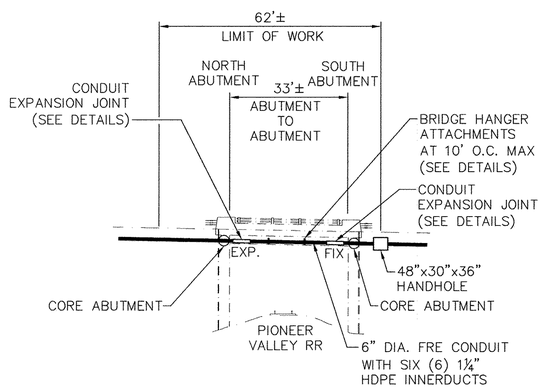
HOLYOKE
I-91 & I-291

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	ITS-001A (818)	260	311
PROJECT FILE NO. 603903			

BRIDGE PLAN AND ELEVATION



BRIDGE PLAN
SCALE: 1" = 20'-0"



BRIDGE ELEVATION
SCALE: 1" = 20'-0"

NOTES:
1. 6" DIA. FIBERGLASS REINFORCED EPOXY SHALL EXTEND FOR A MINIMUM OF 10' UNDERGROUND OR UNTIL A BURIED DEPTH OF 36" IS ACHIEVED. THE 6" FRE SHALL BE PROPERLY SEALED (POLYURETHANE FOAM OR DUCT PLUG) AT TRANSITION TO SIX (6) 1¼" HDPE INNERDUCTS.
2. HANDHOLES SUBJECT TO CHANGE BASED ON FIELD CONDTIONS.
3. SPAN LENGTHS AND BEARING ARRANGEMENTS ARE REFERENCED FROM AS-BUILTS, AND ARE FOR INFORMATION ONLY.

COMMONWEALTH OF MASSACHUSETTS
OWEN A. TRICKEY
CIVIL
No. 48467
REGISTERED PROFESSIONAL ENGINEER

Gannett Fleming
199 WELLS AVENUE
NEWTON, MA 02459
(617) 527-7822

Moving Massachusetts Forward
massDOT Highway

PROPOSED BRIDGE ATTACHMENTS
HOLYOKE
INTERSTATE 91
OVER PIONEER VALLEY RAILROAD

THE COMMONWEALTH OF MASSACHUSETTS
MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
10 PARK PLAZA BOSTON, MA.

ENGINEER OF RECORD
7/31/08
DATE

SHEET 1 OF 2 SHEETS BRIDGE NO. H-21-046 (0Y7)

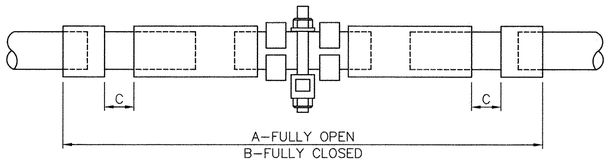
S:\49792-Adesta MHD I-91\As-Built Package Jan 2011\Bridges\260-261 - H-21-046\260 - BRIDGE PLAN-ELEVATION.dwg, Sht.260, 6/20/2011 3:35:22 PM

HOLYOKE
I-91 & I-291

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	ITS-001A (818)	261	311
PROJECT FILE NO. 603903			

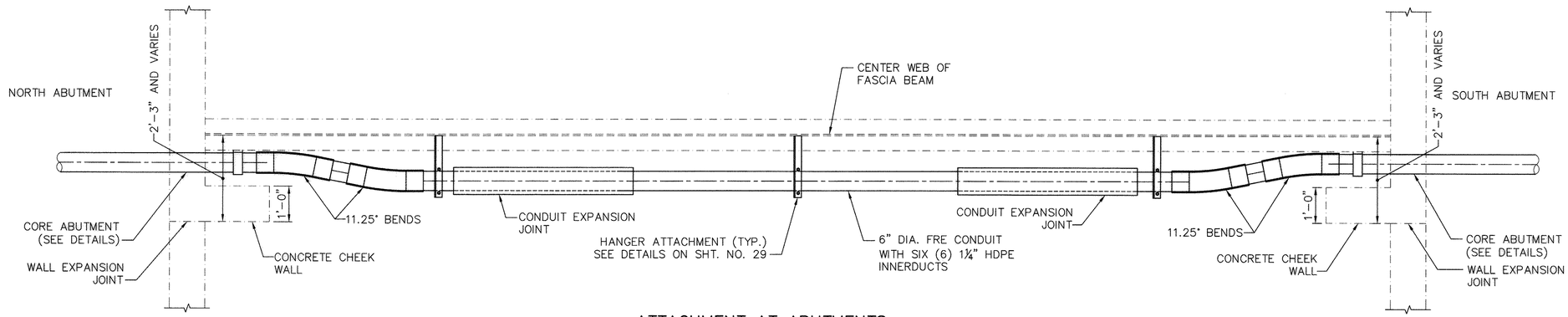
ATTACHMENT DETAILS

NOTE:
DISTANCE BETWEEN EXPANSION JOINTS SHALL NOT BE GREATER THAN 150'.



A	B	C (STROKE EACH SIDE)
60½"	48½"	6"

EXPANSION JOINT DETAIL
NOT TO SCALE



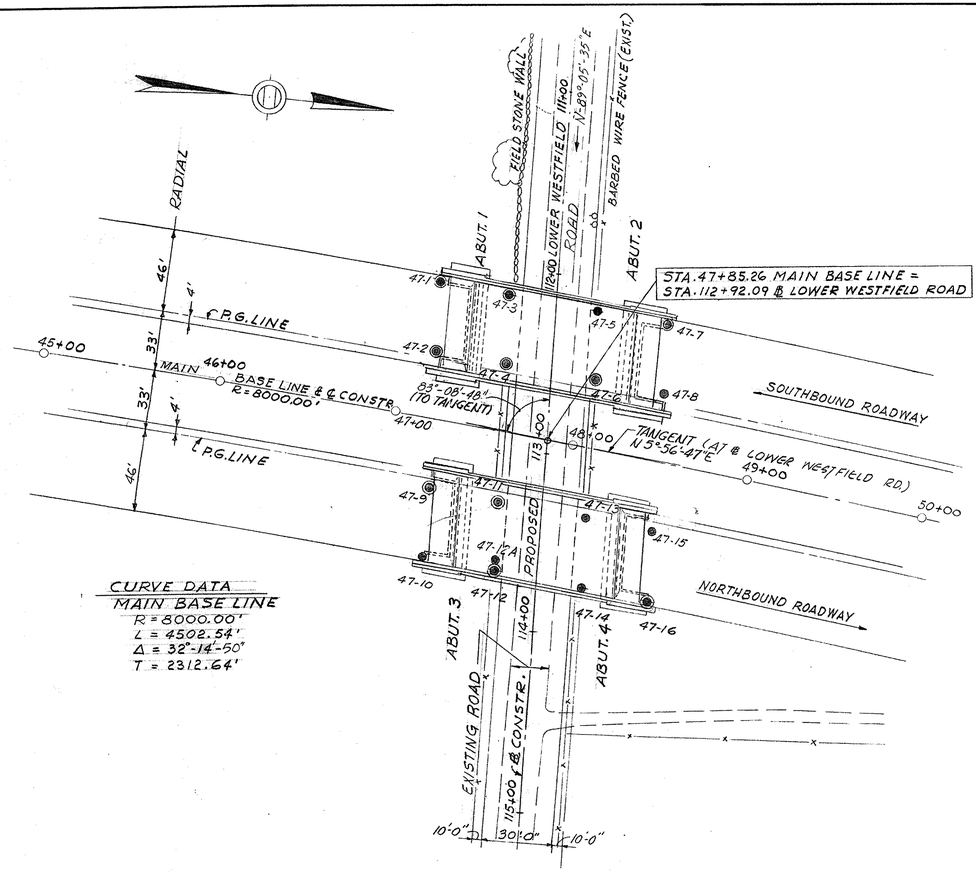
ATTACHMENT AT ABUTMENTS
NOT TO SCALE

NOTES:
1. HANGERS SHALL BE SPACED NO MORE THAN 10' ON CENTER TO OFFSET POTENTIAL INTERFERENCES DUE TO ANY SPLICE PLATES, INTERMEDIATE STIFFENERS AND DIAPHRAGM CONNECTION PLATES THAT MAY BE LOCATED ON EITHER SIDE OF FASCIA GIRDER WEB.

2. CONCRETE CHEEK WALL DIMENSIONS ARE REFERENCED FROM AS–BUILTS. CONTRACTOR SHALL VERIFY NECESSARY DIMENSIONS PRIOR TO START OF WORK.

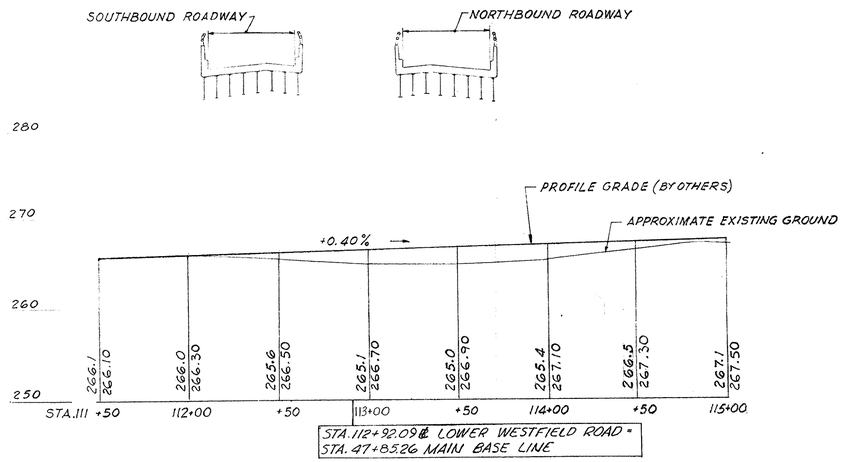
DATE	DESCRIPTION
7/31/08	
USE ONLY PRINTS OF LATEST DATE	

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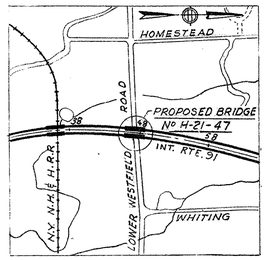


CURVE DATA
MAIN BASE LINE
R = 8000.00'
L = 4502.54'
Δ = 32°-14'-50"
T = 2312.64'

KEY PLAN
SCALE : 1" = 40'



PROFILE ALONG LOWER WESTFIELD ROAD
SCALE : HOR. 1" = 40'
VERT. 1" = 8'



LOCUS PLAN
1000 0 1000 2000

PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	I-91-1(41)12	1964	157	1246

KEY PLAN & PROFILES

GENERAL NOTES

FOUNDATIONS:
FOUNDATIONS MAY BE ALTERED, IF NECESSARY, TO SUIT CONDITIONS ENCOUNTERED IN CONSTRUCTION.

DATE AND SEAL:
TO BE LOCATED AS SHOWN ON SHEET NO. 11. A SHEET SHOWING SIZE AND CHARACTER OF NUMERALS WILL BE FURNISHED BY THE COMMONWEALTH AND WILL BE SET BY THE CONTRACTOR.

DESIGN:
IN ACCORDANCE WITH THE SPECIFICATIONS OF THE AMERICAN ASSOCIATION OF STATE HIGHWAY OFFICIALS FOR H520-44 LOADING 1961 EDITION (MODIFIED FOR MILITARY LOADING.)

DESIGN STRESSES :

STRUCTURAL STEEL (ASTM A36)	20,000 P.S.I.
INTERMEDIATE GRADE REINFORCING STEEL	20,000 P.S.I.
CONCRETE CLASS A AND D	1,200 P.S.I.
CONCRETE CLASS B	1,000 P.S.I.

REINFORCEMENT:
ALL BARS SHALL HAVE DEFORMATIONS CONFORMING TO A.S.T.M. DESIGNATION A-305. UNLESS OTHERWISE SHOWN ON PLANS, REINFORCING BARS SHALL BE LAPPED 20 DIAMETERS TO MAKE A SPLICE, EXCEPT THAT MAIN REINFORCING BARS NEAR THE TOP OF SLABS AND BEAMS HAVING MORE THAN 12 INCHES OF CONCRETE UNDER THE BARS, SHALL BE LAPPED 35 DIAMETERS TO MAKE A SPLICE.

BENCH MARK:
BENCH MARK #3 EL. 267.100 R.R. SPIKE - ROOT 14" HICKORY 230' WEST ℄ STA. 48+00.

PEAT EXCAVATION: (see below)

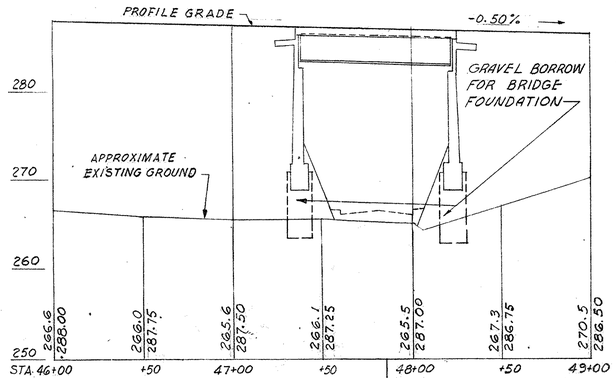
ESTIMATED QUANTITIES
(NOT GUARANTEED)

BRIDGE EXCAVATION	360 C.Y.
CLASS B ROCK EXCAVATION	10 C.Y.
GRAVEL BORROW	900 C.Y.
GRAVEL BORROW FOR BRIDGE FOUNDATION	1780 C.Y.
CLASS I BITUMINOUS CONC. PAVEMENT TYPE I-1	150 TONS
BRIDGE STRUCTURE (H-21-47)	1 L.S.
METAL BRIDGE RAILING TYPE K OR ALUMINUM BRIDGE RAILING	500 L.F.

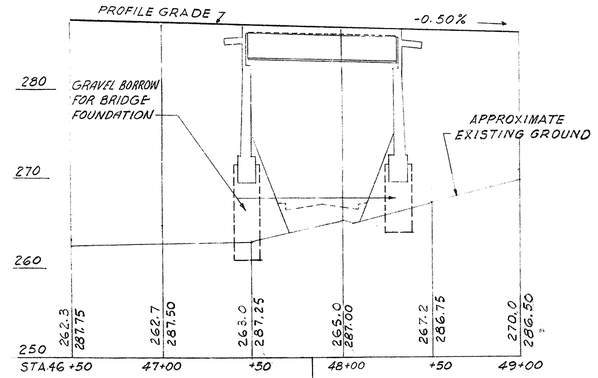
THE FOLLOWING QUANTITIES ARE PART OF THE LUMP SUM ITEM (G15-2) OF BRIDGE STRUCTURE AND ARE NOT GUARANTEED.

STRUCTURAL STEEL	392,700 LBS.
STEEL REINFORCEMENT FOR STRUCTURES	110,000 LBS.

PEAT EXCAVATION:
ALL PEAT OR OTHER UNSUITABLE MATERIAL SHALL BE REMOVED WITHIN THE LIMITS OF THE FOUNDATIONS OF THE STRUCTURE.



PROFILE ALONG SOUTHBOUND ROADWAY
SCALE : HOR. 1" = 40'
VERT. 1" = 8'



PROFILE ALONG NORTHBOUND ROADWAY
SCALE : HOR. 1" = 40'
VERT. 1" = 8'

COMMONWEALTH OF MASSACHUSETTS
EDWIN M. HOWARD
REGISTERED PROFESSIONAL ENGINEER

WHITMAN & HOWARD, INC.
CONSULTING ENGINEERS
BOSTON, MASS

JUNE 29, 1965	⚠ REVISION - SHEET NO. 6 AND NO. 10
MAY 14, 1965	⚠ REVISION - SHEET 10.
DEC. 13, 1964	ISSUED FOR CONSTRUCTION

THE COMMONWEALTH OF MASSACHUSETTS
PROPOSED BRIDGE

HOLYOKE

INTERSTATE ROUTE 91 STA. 47+85.26
OVER
LOWER WESTFIELD ROAD

SCALES AS NOTED
OFFICE OF
DEPARTMENT OF PUBLIC WORKS
100 NASHUA ST. BOSTON, MASS.

DEC. 1964
BRIDGE ENG. J. M. McGovern CHIEF ENG. Daniel Hynes P.E.

SHEET 1 OF 12 SHEETS BRIDGE No. H-21-47

PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	I-91-1(41)12	1964	158	1246

BORING DATA

47-1

GROUND EL. 267.6

266.1	DRY #1	1.0' TOPSOIL	4-4-3	31	MED. DENSE
		BROWN, F-C SAND & GRAVEL		35	
263.6				26	
	DRY #2		14-31-22	58	
262.1		BROWN, FINE SAND		51	
260				56	VERY DENSE
				57	
258.6				81	
	DRY #3			97	
W.L. 257.1		RED, F-C SAND AND GRAVEL	12-18-21	103	VERY DENSE
256.1				106	
				131	
252.6				105	
	DRY #4			97	
251.1			37-41-23	86	
250				81	VERY DENSE
				87	
				91	
247.6				98	
	DRY #5	RED, F-C SAND AND GRAVEL "CEMENTED TILL"		87	
246.1			51-63-49	91	
		BOULDER FRAGMENTS		118	
				101	
242.6				109	
	DRY #6			111	
241.1			53-37-63	121	
240				140	
237.6					
	DRY #7				
236.1			51-58-54		

BOTTOM OF HOLE 31.5

47-2

PROPOSED BOTTOM OF ABUTMENT NO.1 FOOTING ELEV. 269.00

GROUND EL. 265.6

264.6	DRY #1	TOPSOIL	4-6-3	37	M. DENSE
264.1		TOPSOIL BOULDER FRAGMENT		38	
				41	DENSE
261.6				43	
	DRY #2		10-16-9	32	
260.1		RED, F-C SAND AND GRAVEL BOULDER FRAG.		36	
				71	
255.6				73	
	DRY #3			81	
254.1			31-32-35	91	VERY DENSE
				106	
W.L. 251.1				131	
				158	
				179	
250.6				171	
249.1	DRY #4		47-58-61	141	VERY DENSE
				106	
245.6				157	
	DRY #5			163	
244.1		RED, F-C SAND AND GRAVEL "CEMENTED TILL" BOULDER FRAGMENTS	53-41-58	181	
				120	
				151	
240.6				153	
	DRY			151	
239.1			53-31-43 (NO REC.)	166	
236.6					
	DRY #6	BROWN, MED. FINE SAND & COARSE GRAVEL	47-51-70		VERY DENSE
235.1					

BOTTOM OF HOLE 30.5'

47-3

GROUND EL. 267.7

267.5	DRY #1	TOPSOIL	1-4-6	12	MED. DENSE
266.2				27	
		RED-BROWN, F-C SAND AND GRAVEL, TRACE RED SHALE BOULDERS AND SILT		68	
				97	
262.7				113	
261.2	DRY #2		37-68-82	187	
				163	
				97	
				102	
257.7	DRY #3	NOTE: FROM 10' USED 300 LB. HAMMER BECAUSE NO PENETRATION WITH THE 140 LB. HAMMER ON SAMPLER	28-47-82	111	
256.2				127	
W.L. 254.7				116	
				142	VERY DENSE MOIST
252.7				102	
	DRY #4		17-24-43	117	
251.2				101	
				111	
				102	
247.7				127	
	DRY #5			182	
246.2			67-92-142	172	
				281	
				314	
242.7				461	
	DRY #6	NOTE: WASHED AHEAD WITH CHOPPING BIT TO GET LAST SAMPLE		482	
241.2			88-92-116		
237.2					
	DRY #7		114-176 193		
235.7					

BOTTOM OF HOLE AT 32'

47-4

GROUND EL. 266.1

265.6	DRY #1	TOPSOIL	1-9-23	49	LOOSE MOIST
264.6				56	
		RED BROWN, F-C SAND AND GRAVEL TR. RED SHALE BOULDERS & SILT		72	
				81	
261.1				95	
	DRY #2		27-54-52	137	
259.6				169	
				221	
		NOTE: FROM 10' ON NO PENETRATION WITH 140 LB. HAMMER, USED 300 LB. THE REST OF THE HOLE ON SAMPLER		312	
256.1				467	
	DRY #3		87-92 114	79	
254.6				101	
W.L. 254.1				103	
				192	
251.1				249	VERY DENSE MOIST
	DRY #4		56-28-14	165	
249.6				206	
				224	
		RED BROWN F-C SAND AND GRAVEL TR. RED SHALE BOULDERS AND SILT (TILL)		351	
246.1				402	
	DRY #5		40-51-53	174	
244.6				267	
				301	
				372	
241.1				412	
	DRY #6		49-68-93	327	
239.6				514	
237.6				427	
	DRY #7		97-142 168	612	
236.1					

BOTTOM OF HOLE 30'

47-5

PROPOSED BOTTOM OF ABUTMENT NO. 2 FOOTING ELEV. 269.00

GROUND EL. 266.7

266.2	DRY #1	TOPSOIL	4-67	18	MED. DENSE
265.2		BROWN, F-M SAND & GRAVEL TRACE FINE GRAVEL		37	
263.2				144	
				172	
261.7				177	
	DRY #2	RED BROWN, F-C SAND & GRAVEL, TRACE BOULDERS	19-24-36	92	
260.2				117	
258.7				107	
				123	
256.7		RED BROWN, F-C SAND, LITTLE SILT, TR. FINE GRAVEL		120	
	DRY #3		26-34-48	72	
255.2				83	
253.0				83	
W.L. 252.5				87	
251.7				91	VERY DENSE
	DRY #4		26-34-62	56	
250.2				107	
				171	
246.7				310	
	DRY #5	RED BROWN, F-C SAND AND SILT, TRACE F-M GRAVEL AND BOULDERS	32-47-68	401	
245.2				97	
				102	
241.7				179	
	DRY #6			203	
240.2			43-48-67	267	
				102	
236.7		CORED BOULDER		167	
	#7	RUN #1 30'-35' REC. 4"		218	CORED
		RUN #2 35'-37.5' REC. 5"		296	
231.7				371	
	#8				CORED
229.2					
	DRY #9	RED BROWN F-C SAND & SILT, TRACE F-M GRAVEL, BOULDERS	64-68-69		
226.7					
223.2					VERY DENCE
	DRY #10		41-62-73		
221.7					

BOTTOM OF HOLE 45.0'

47-6

GROUND EL. 265.5

265.0	DRY #1	TOPSOIL	2-4-6	3	LOOSE
264.0		BROWN, FINE SAND, TRACE SILT		7	
262.5				9	LOOSE
				51	
260.5		BROWN, M-F SAND, SOME F-C GRAVEL		108	
	DRY #2		7-25-37	155	VERY DENSE
259.0				153	
258.5				222	
				253	
255.5				247	
W.L. 254.2	DRY #3		30-26-18	37	
254.0				161	VERY DENSE
				183	
250.5				189	
	DRY	RED BROWN, F-C SAND AND GRAVEL, TRACE SILT & BOULDERS	30-47-71	389	
249.0				101	
			NO REC.	170	
245.5				183	
	DRY #4			187	
244.0			28-34-67	198	
				174	
				196	
240.5				203	
	DRY #5			301	
239.0			31-48-66	251	
				81	
237.0				102	
	DRY #6			215	
235.5			33-41-79	304	

BOTTOM OF HOLE AT 30'

47-7

GROUND EL. 267.4

266.9	DRY #1	TOPSOIL	3-4-6	5	LOOSE
265.9		BROWN, F-M SAND, TRACE FINE GRAVEL		62	
				240	
262.4				274	
				202	
260.9	DRY #2	RED BROWN, F-C SAND & GRAVEL, TRACE SILT & BOULDERS	4-6-13	130	MED. DENSE
260				147	
259.4				145	
				166	
257.4				122	
	DRY #3		26-31-33	69	
255.9				78	
				89	
W.L. 253.37				92	
252.4		RED BROWN, F-C SAND, LITTLE SILT, TRACE F-M GRAVEL AND BOULDERS		238	
	DRY #4		23-31-47	103	
250.9				167	
250				179	
				198	
247.4				241	
	DRY #5		28-36-69	122	
245.9				153	
				267	
242.4				271	
				310	
	DRY #6				
240.9			33-42-65		
240					
238.9					
	DRY #7				VERY DENSE
237.4			36-49-68		

BOTTOM OF HOLE AT 30'

47-8

GROUND EL. 267.3

266.8	DRY #1	TOPSOIL	3-5-4	8	LOOSE
265.8		RED-BROWN, M-F SAND AND GRAVEL, TR. SILT		18	
262.8				32	
				56	
262.3				85	
260.8	DRY #2	RED-BROWN, F-M SAND AND GRAVEL, TR. COARSE GRAVEL AND SILT	18-28-20	64	LOOSE
258.3				87	
257.3				108	
				132	
255.8	DRY #3			201	DENSE
			27-28-33	72	
		RED-BROWN, F-C SAND AND GRAVEL, TRACE SILT AND BOULDERS		96	VERY DENSE
252.3				142	
				247	
250.8	DRY #4			263	
			47-63-72	172	VERY DENSE
247.3				196	
	CORED #5	CORED BOULDER 28.5'		203	
				262	
				281	
238.8					
237.3	DRY #6	*	93-45-61		VERY DENSE

DEPTH OF HOLE 30.0'

* RED-BROWN, F-C SAND AND GRAVEL, TRACE SILT AND BOULDERS

47-9

PROPOSED BOTTOM OF ABUTMENT NO.3 FOOTING ELEV. 269.50

GROUND EL. 262.6

261.1	DRY #1	TOPSOIL	2-4-7	12	MED. DENSE
259.1		FINE, BROWN SAND		14	
				21	
257.6	DRY #2		6-3-4	33	
				41	MED. DENSE
W.L. 255.17				61	
		BROWN, F-M SAND		75	
252.6				71	
251.1	DRY #3		39-41-38	56	
				63	
247.6				73	DENSE
	DRY #4			61	
246.1			53-54-41	39	
				63	
242.6				71	
	DRY			81	
241.1		RED-BROWN F-C SAND AND M-F GRAVEL "TILL"	48-43-41	103	
			NO REC.	105	
237.6		25.0'-31.5' USED O.E.		61	
	DRY O.E.			93	
236.1	#5			81	
			43-41-38	73	
232.6				61	DENSE
	DRY				
231.1	#6		50-41-41		

HOLE COMPLETED AT 31.5'

47-10

GROUND EL. 264.5

264.2	DRY #1	TOPSOIL	3-4-4	17	MOIST MED. DENSE
263.0		FINE - MEDIUM, RED AND BROWN, SAND, FINE COARSE GRAVEL		37	
				37	
				68	
259.5				47	
	DRY #2		11-13-17	58	DENSE MOIST
258.0				51	
254.8				60	
				45	
254.5	DRY O.E.			36	
253.0	#3		36-41-43	74	VERY DENSE MOIST
		RED, F-C SAND AND GRAVEL "CEMENTED TILL"		56	
249.5				170	
	DRY O.E.			93	
248.0	#4			63	
			33-42-39	43	
W.L. 244.67				38	
244.5				57	
243.5	DRY O.E.			75	
243.0				195	
			271-300	300	
		CORED BOULDERS FROM 21.0' TO 26.0' REC. 0.9'			
239.5					
		RED, F-C SAND AND GRAVEL "CEMENTED TILL"			
236.0					VERY DENSE MOIST
	DRY O.E.				
234.5	#5		39-37-39		

BOTTOM OF HOLE AT 30.0'

BORING NOTES:

1. LOCATION OF BORINGS ON SHEET NO. 1 SHOWN THUS ◉ NO. 47-1.
2. LOCATION OF CORE BORINGS ON SHEET NO. 1 SHOWN THUS ● NO. 47-5.
3. BORINGS TAKEN FOR THE PURPOSE OF DESIGN AND SHOW CONDITION AT BORING POINTS ONLY, BUT DO NOT NECESSARILY SHOW MATERIALS TO BE ENCOUNTERED DURING CONSTRUCTION.
4. FIGURES SHOWN IN COLUMN ONE INDICATE SAMPLE NUMBER AND TYPE.
5. FIGURES SHOWN IN COLUMN THREE INDICATE BLOWS PER 6 INCH INCREMENT ON A 1 3/8" I.D. SAMPLER PRODUCED BY A 30" FALL OF 140 LB. HAMMER.
6. FIGURES SHOWN IN COLUMN FOUR INDICATE BLOWS PER FOOT ON A 2 1/2" I.D CASING PRODUCED BY A 24" FALL OF 300 LB. HAMMER.
7. BORINGS WERE TAKEN IN JUNE, 1963 BY ALLSTATE DRILLING CO., 227 WAMPANOAG TRAIL, RIVERSIDE, R.I. .
8. BORING SAMPLES MAY BE SEEN AT THE RESEARCH AND MATERIALS DIVISION, 99 WORCESTER STREET, WELLESLEY HILLS, AT THE INTERSECTION OF ROUTES 9 AND 128.
9. WATER LEVELS SHOWN ON THE BORING LOGS WERE OBSERVED DURING THE TAKING OF BORINGS AND DO NOT NECESSARILY SHOW THE TRUE GROUND WATER LEVEL.

BORING LOGS

VERT. SCALE: 1/4" = 1'-0"

DEC. 19, 1964	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	I-91-1(41)12	1964	159	1246

BORING DATA

47-11

PROPOSED BOTTOM OF ABUTMENT NO. 3 FOOTING ELEV. 269.50

GROUND EL. 263.2

262.7	DRY	TOPSOIL	2-3-4	8	LOOSE
261.7	# 1	FINE-MEDIUM, BROWN, SAND, TRACE SILT		5	MOIST
260 260.0			15-19-21	11	
	DRY			39	
258.5	# 2			87	
		FINE - MEDIUM, RED & BROWN, SAND & FINE - COARSE GRAVEL		78	DENSE
				57	MOIST
				58	
253.2				51	
253.0	DRY		85-76-52	110	VERY
251.7	# 3			76	DENSE
250				154	MOIST
				130	
248.2				93	
	DRY		57-65-69	96	
246.7	# 4			111	
		RED, F-C SAND AND GRAVEL "CEMENTED TILL"		103	
W.L. 244.1				98	
243.2				125	
	DRY		66-51-57	111	
241.7	# 5			124	
240				212	
				203	
238.2				135	
	DRY		39-61-80	185	
236.7	# 6			203	
				197	
234.7				150	VERY
	DRY		47-53-65		DENSE
233.2	# 7				MOIST

BOTTOM OF HOLE AT 30.0'

47-12

GROUND EL. 266.3

266.0	DRY	TOPSOIL	7-12-12	14	MED.
264.8	# 1	FINE- MEDIUM, BROWN, SAND AND FINE - COARSE GRAVEL		48	DENSE
				51	MOIST
262.1				103	
261.3				158	
	DRY	RED - BROWN, F -M SAND	40-31-32	88	VERY
259.8	# 2			87	DENSE
258.7				600	MOIST

REFUSAL AT 7.6'

PROPOSED BOTTOM OF ABUTMENT NO. 4 FOOTING ELEV. 269.50

47-12A

GROUND EL. 266.3

266.0	DRY	TOPSOIL	5-9-13	21	MED.
264.8	# 1	FINE TO MEDIUM, RED-BROWN, SAND AND MEDIUM TO COARSE GRAVEL		39	DENSE
				43	MOIST
262.0				47	
261.3				53	
	DRY	FINE TO MEDIUM, RED-BROWN, SAND	27-29-35	52	
259.8	# 2			62	VERY
258.2				67	DENSE
256.3				45	MOIST
	DRY			47	
254.8	# 3	FINE TO MEDIUM, RED-BROWN, SAND AND FINE GRAVEL	24-24-31	69	
				48	
W.L. 251.7				59	
251.3	DRY			53	
249.8	NO REC.		27-29-35	48	
248.1				57	
	DRY	FINE TO COARSE, RED-BROWN, SAND AND GRAVEL		34	
246.3	# 4		100	68	
245.8				77	
245.3	DRY	FINE TO COARSE, RED-BROWN, SAND, AND GRAVEL	200	156	
	O.E. # 5			271	
		RED, F-C SAND & GRAVEL, LITTLE BOULDERS "CEMENTED TILL"			
240.3					
	DRY O.E.		177-222		VERY
238.8	# 6	RUN #1 21'-25.5' NO REC. RUN #2 27.5'-32.5' REC. 0.6'	161		DENSE
233.8					MOIST
	DRY O.E.		196-153		
232.3	# 7		201		
231.4		TOP OF ROCK 34.9' RUN #1 34.9'-39.9' REC. 1.2' RUN #2 39.9'-45.0' REC. 0.8'			
		ROCK (SOFT)			
221.3					

DEPTH OF HOLE 45.0'
DROVE O.E. SAMPLER AT 45.0 FT.
200 BLS. NO PENETRATION

47-13

PROPOSED BOTTOM OF ABUTMENT NO.4 FOOTING ELEV. 269.50

GROUND EL. 265.1

264.6	DRY	TOPSOIL	3-4-7	9	LOOSE
263.6	# 1	RED - BROWN, FINE SAND		11	
261.2				13	LOOSE
261.1	DRY			25	
259.6	# 2		11-13-29	53	MED.
				38	DENSE
				42	
				49	
255.1				56	
	DRY	RED - BROWN, F-C SAND, SOME F-C GRAVEL		63	
253.6	# 3		23-27-31	32	VERY
W.L. 252.9				44	DENSE
				53	
250.1				48	
	DRY			68	
248.6	# 4		24-36-69	60	
				164	
				190	
				550	VERY
244.5		TOP OF ROCK 20.6		975	DENSE
		RUN #1 20.6' TO 25.6' REC. 6" RUN #2 25.6' TO 29.6' REC. 9"		468	
		CORING TIME 5 MIN. PER FT.			
235.1					

DEPTH OF HOLE 30.0'

260 250 240

NOTE:

1. FOR BORING NOTES SEE SHEET NO. 2.

47-14

GROUND EL. 265.2

264.6	DRY	TOPSOIL	4-6-6	2	LOOSE
263.7	# 1	BROWN, FINE SAND		7	
262.2				9	LOOSE
				27	
				68	
260 260.2					
	DRY		14-34-39	34	VERY
258.7	# 2			47	DENSE
				33	
W.L. 255.9				28	
255.2				22	
	DRY		10-15-9	5	MED.
253.7	# 3	RED-BROWN, F-C SAND AND GRAVEL, SOME SILT		18	DENSE
				22	
				32	
250 250.2				25	
	DRY		37-20-49	65	VERY
248.7	# 4			122	DENSE
				191	
				224	
245.2				602	
	DRY		36-41-57	102	
243.7	# 5			217	
				324	
				361	
240 240.2				396	
	DRY		37-41-57	117	
238.7	# 6			169	
				200	
				367	
234.7				414	
	DRY		42-46 58		VERY
233.2	# 7				DENSE

BOTTOM OF HOLE 32.0'

47-15

GROUND EL. 267.1

266.6	DRY	TOPSOIL	3-14-26	38	DENSE
265.6	# 1	RED-BROWN, M-F SAND AND GRAVEL, TR. COARSE GRAVEL AND SILT		47	
W.L. 262.3				71	
262.1	DRY			89	
260.6	# 2		16-16-28	103	
				54	
				31	
258.1				47	
257.1				56	DENSE
	DRY			67	
255.6	# 3	RED-BROWN, F-C SAND AND GRAVEL, SOME SILT, TRACE CLAY	22-31-31	32	VERY
				47	DENSE
				69	
252.1				109	
	DRY			179	
250.6	# 4		37-51-73	73	
248.6				182	
		CORED BOULDER 18.5' TO 28.5		296	BOULDER
238.6		RED-BROWN, F-C SAND AND GRAVEL, TR. SILT AND CLAY			
	DRY		44-67-73		VERY
237.1	# 5				DENSE

DEPTH OF HOLE 30.0'

47-16

PROPOSED BOTTOM OF ABUTMENT NO.4 FOOTING ELEV. 269.50

GROUND EL. 266.3

266.1	DRY	TOPSOIL	3-3-5	18	LOOSE
264.8	# 1	RED-BROWN, F-C SAND AND GRAVEL TRACE SILT		28	
				64	
261.3				69	
				72	
	DRY			31	
259.8	# 2		21-23-25	57	DENSE
258.3				59	
				88	
W.L. 257.1				184	VERY
256.3	DRY			47	DENSE
254.8	# 3		53-64-76	83	CORE
				99	PREP.
				142	
251.3				273	
	DRY	RED-BROWN, F-C SAND AND GRAVEL, LITTLE SILT, TRACE ROCK FRAGMENTS	42-53-63		
249.8	# 4				
247.8					BOULDER
	DRY				17.0'
246.3	# 5		43-52-68		
242.3					
	DRY				VERY
240.8	# 6		44-64-76		DENSE
237.8					
	DRY		49-68-71		
236.3	# 7				

DEPTH OF HOLE 30.0'

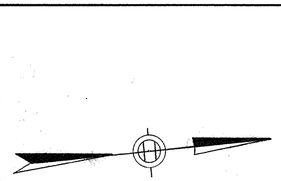
260 250 240

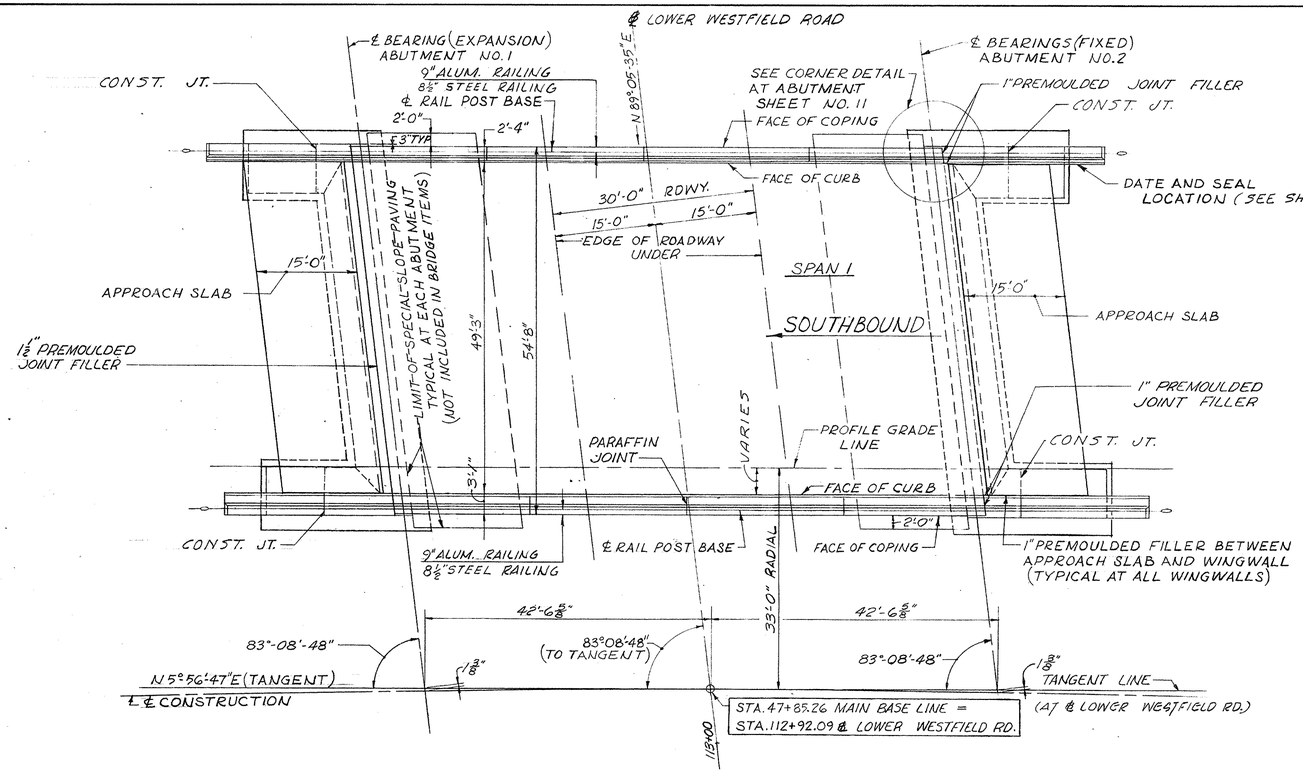
BORING LOGS

VERT. SCALE: 1/4" = 1'-0"

DEC. 19, 1964	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

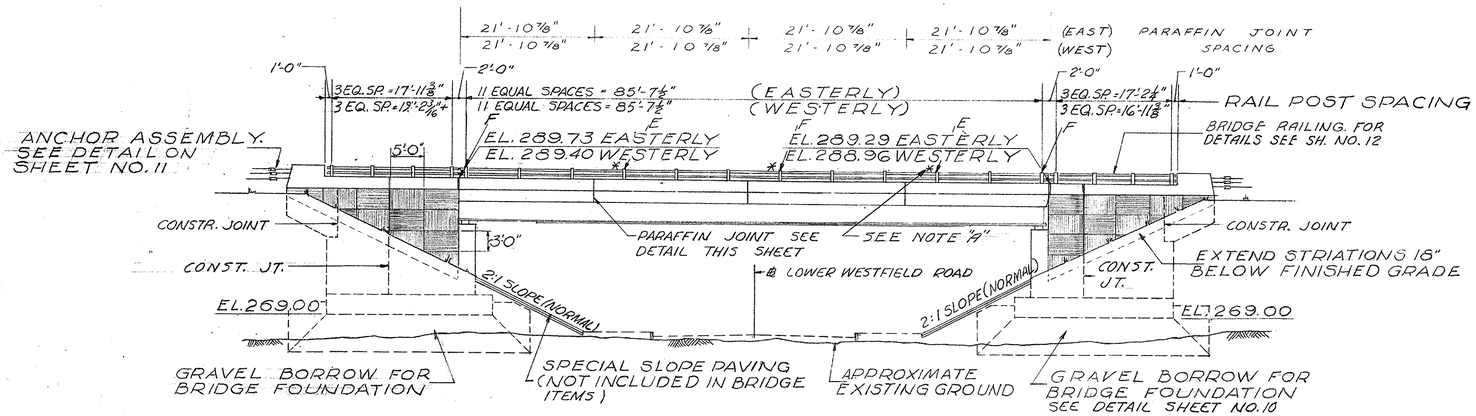
PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	I-91-1(41)12	1964	160	1246





GENERAL PLAN
(SOUTHBOUND ROADWAY)

SCALE: 3/32" = 1'-0"

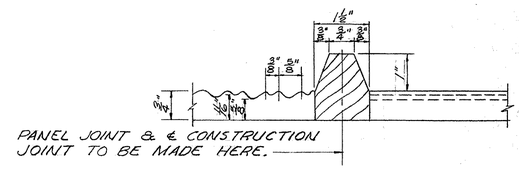


ELEVATION
(SOUTHBOUND ROADWAY)

SCALE: 3/32" = 1'-0"

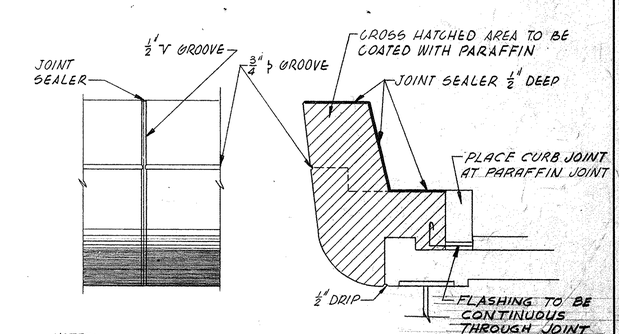
NOTE "A": EXPANSION JOINTS SHOWN THUS * ON ELEVATION VIEW ARE FOR METAL BRIDGE RAILING TYPE K ONLY. POSTS MARKED E OR F DENOTE THE LOCATION OF THE EXPANSION AND FIXED POSTS RESPECTIVELY FOR THE ALUMINUM BRIDGE RAILING ONLY.

GENERAL PLAN & ELEVATION (SOUTHBOUND ROADWAY)



PANEL JOINT & ℄ CONSTRUCTION JOINT TO BE MADE HERE.

TYPICAL STRIATED PANEL JOINT
NO SCALE



NOTES:
SAFETY WALK AND COPING SHALL BE POURED IN ALTERNATE SECTIONS AND SHALL HAVE A CURING PERIOD OF 5 DAYS BETWEEN POURS.
JOINTS TO BE PLACED IN EVERY THIRD RAILING PANEL AND NOT NEARER THAN 12" TO ANY BOLT OF RAILING POST. DO NOT CARRY HORIZ. #4 BARS IN SAFETY WALK AND COPING THROUGH THE JOINTS.
JOINT SEALER TO BE SAME COLOR AS CONCRETE.
FLASHING TO BE CONTINUOUS THROUGH PARAFFIN JOINT.

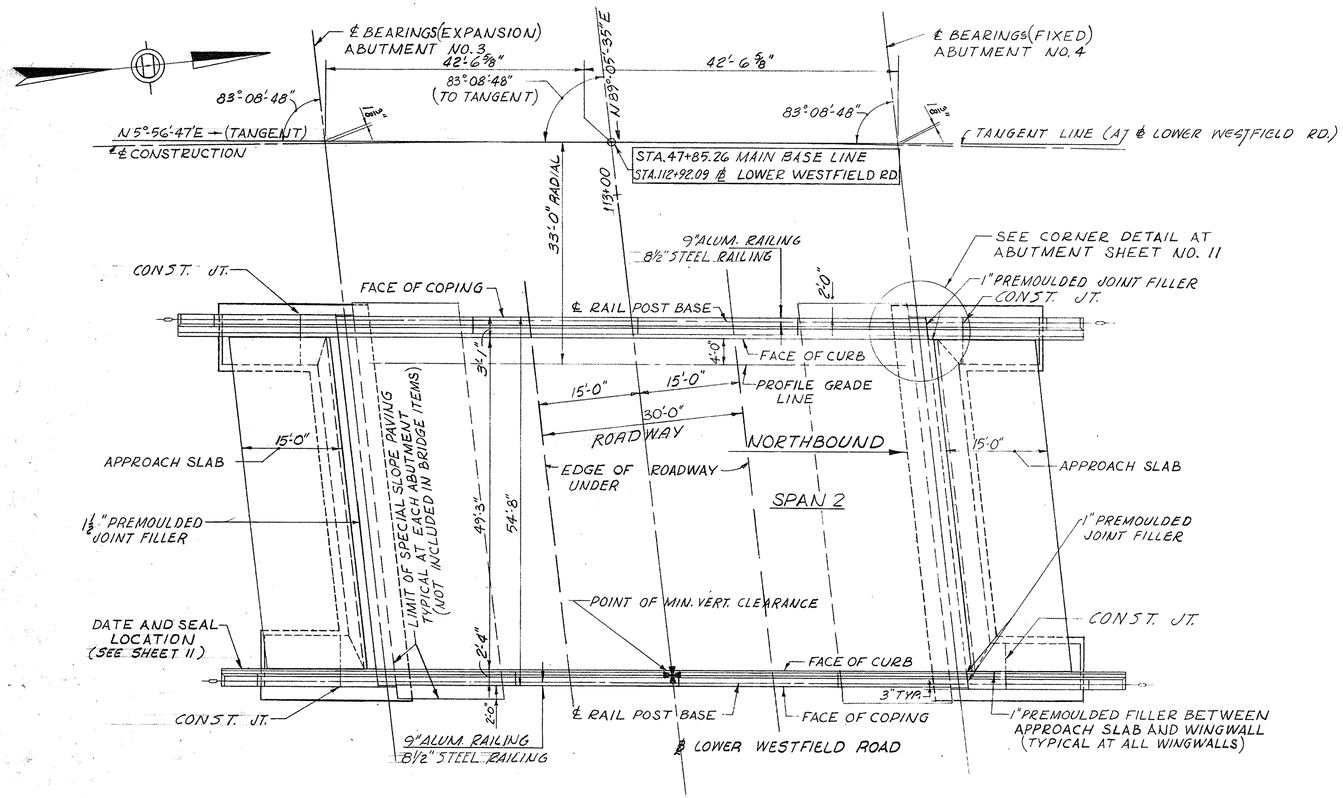
PARAFFIN JOINT THROUGH COPING AND SAFETY WALK
NO SCALE

NOTES:
1. RAILING DIMENSIONS ARE GIVEN ALONG ℄ RAILING POST BASE.
2. FOR TYPICAL SQUARE ROADWAY SECTION UNDER BRIDGE SEE SHEET NO. 5

DEC. 19, 1964	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

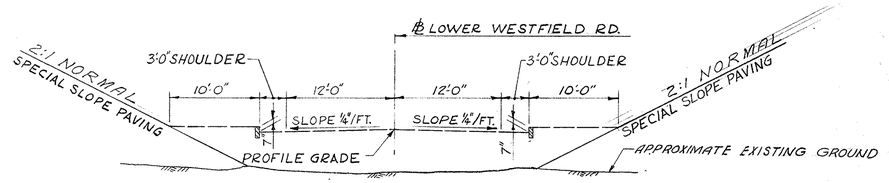
PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	I-91-1(41)12	1964	161	1246

GENERAL PLAN & ELEVATION (NORTHBOUND ROADWAY)



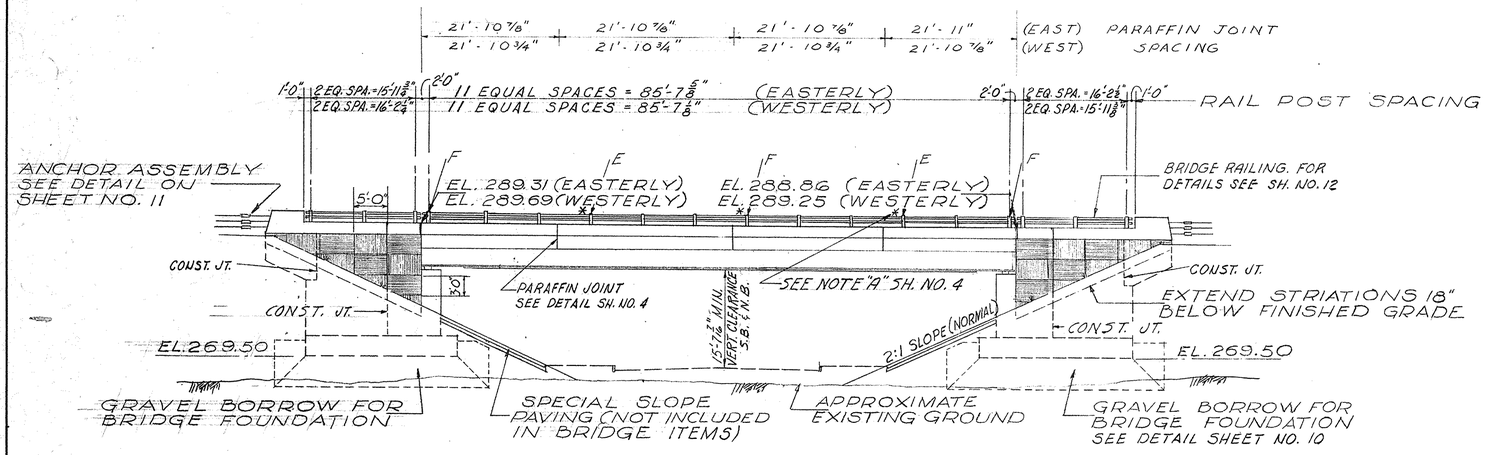
GENERAL PLAN
(NORTHBOUND ROADWAY)

SCALE : 3/32" = 1'-0"



TYPICAL SQUARE ROADWAY SECTION UNDER BRIDGE

SCALE : 1/8" = 1'-0"



ELEVATION
(NORTHBOUND ROADWAY)

SCALE : 3/32" = 1'-0"

NOTES:

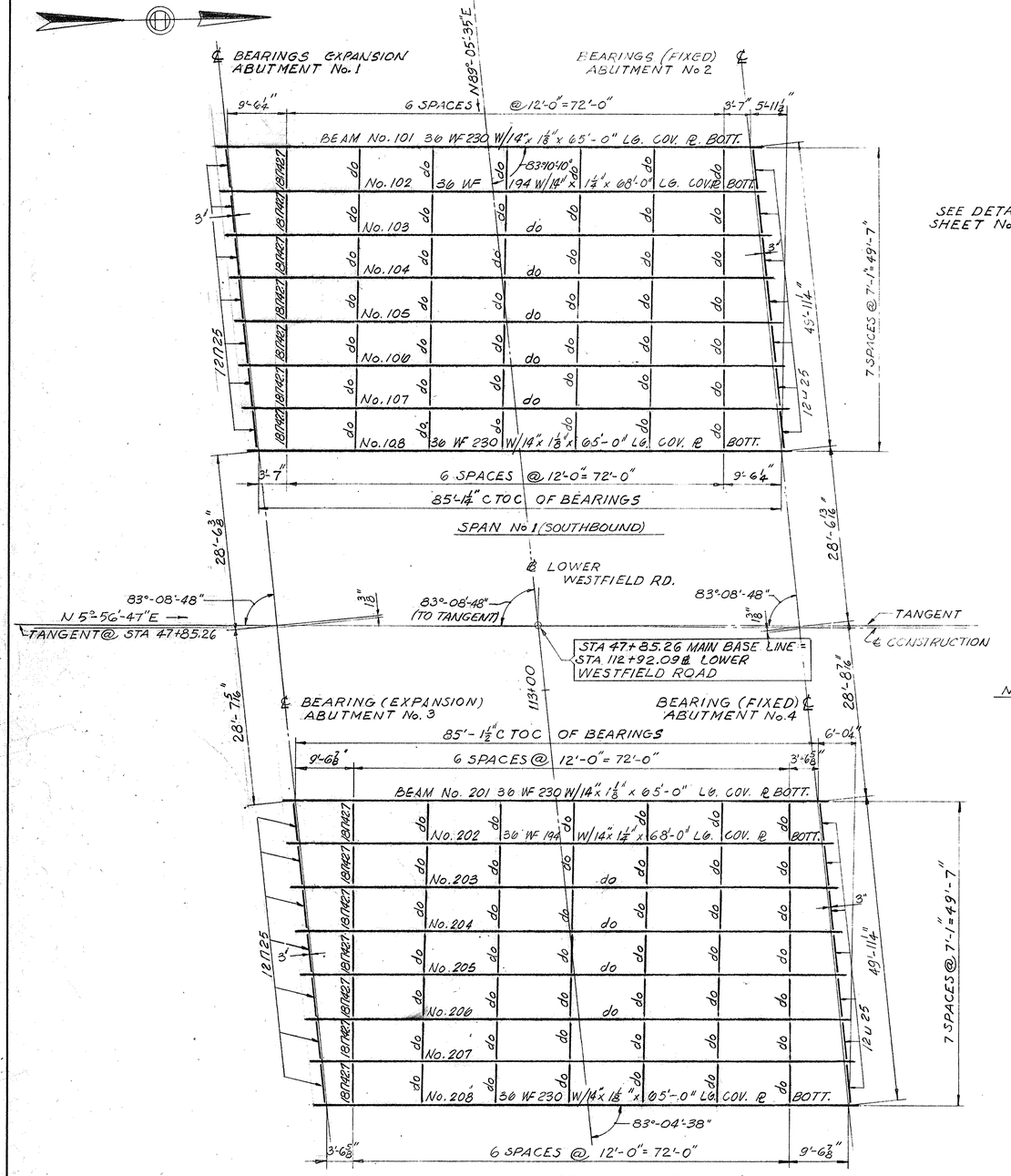
1. RAILING DIMENSIONS ARE GIVEN ALONG ℄ RAILING POST BASE.

2. FOR DETAIL OF STRIATED PANEL JOINT SEE SHEET NO. 4.

DEC. 19, 1964	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	I-91-1(41)12	1964	162	1246

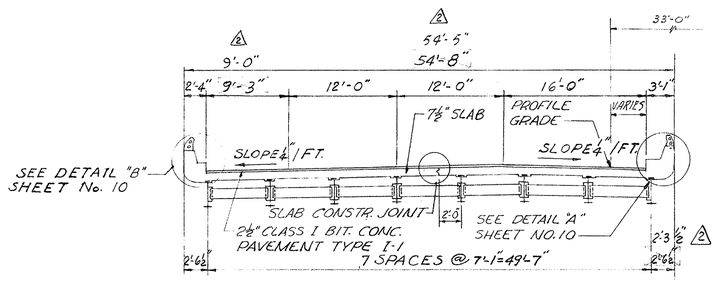
FRAMING PLAN & CROSS SECTIONS



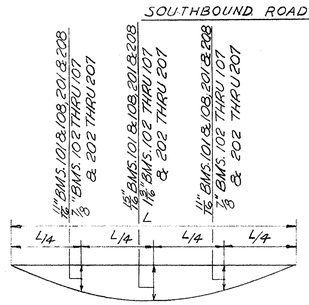
NOTE: COVER PLATES TO BE FABRICATED IN ONE PIECE SYMMETRICAL ABOUT THE CENTERLINE OF BEAM.

FRAMING PLAN

SCALE: 3/32" = 1'-0"



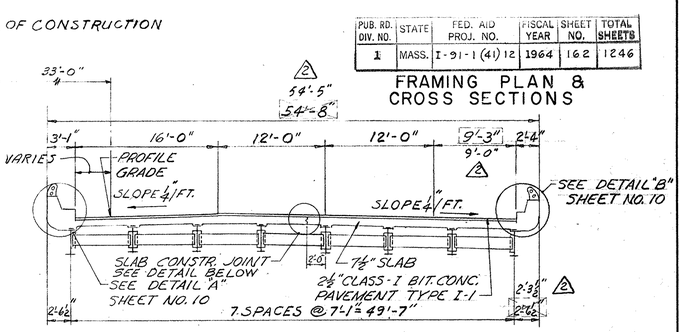
SOUTHBOUND ROADWAY



DEAD LOAD DEFLECTION DIAGRAM

NO SCALE

NOTE: DEFLECTIONS COMPUTED FOR SLAB DEAD LOAD ONLY. FOR USE OF RESIDENT ENGINEER ONLY



NORTHBOUND ROADWAY

TYPICAL CROSS SECTION

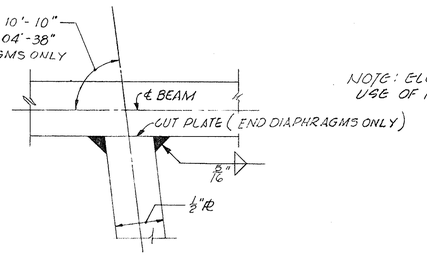
SCALE: 1/8" = 1'-0"

THE DESIGN ELEVATIONS BELOW ARE FOR BEAMS IN PLACE AND INCLUDE THE DEFLECTION DUE TO THE DEAD LOAD OF THE STRUCTURAL STEEL ONLY.

DESIGN ELEVATION ALONG TOP FLANGE OF BEAM

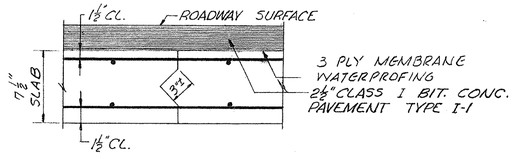
BEAM No.	EXP. BRG.	¼ POINT	½ POINT	¾ POINT	FIXED BRG.
B-101	285.86	285.94	285.92	285.74	285.44
B-102	286.00	286.09	286.05	285.88	285.59
B-103	286.14	286.23	286.20	286.02	285.73
B-104	286.29	286.38	286.34	286.17	285.87
B-105	286.43	286.52	286.48	286.31	286.02
B-106	286.48	286.57	286.53	286.36	286.06
B-107	286.33	286.42	286.38	286.21	285.91
B-108	286.18	286.27	286.24	286.06	285.76
B-201	286.15	286.24	286.21	286.02	285.72
B-202	286.30	286.38	286.34	286.17	285.87
B-203	286.44	286.52	286.49	286.31	286.01
B-204	286.39	286.47	286.43	286.25	285.96
B-205	286.24	286.32	286.29	286.12	285.82
B-206	286.08	286.17	286.13	285.95	285.65
B-207	285.93	286.02	285.98	285.80	285.50
B-208	285.78	285.87	285.84	285.65	285.35

NOTE: ELEVATIONS COMPUTED FOR USE OF RESIDENT ENGINEER ONLY.



WELDING DIAPHRAGM CONNECTION

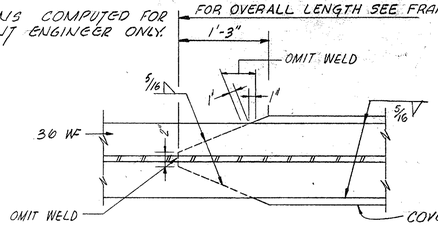
NO SCALE



CONSTRUCTION JOINT IN ROADWAY SLAB

NO SCALE

FOR OVERALL LENGTH SEE FRAMING PLAN



COVER PLATE DETAIL

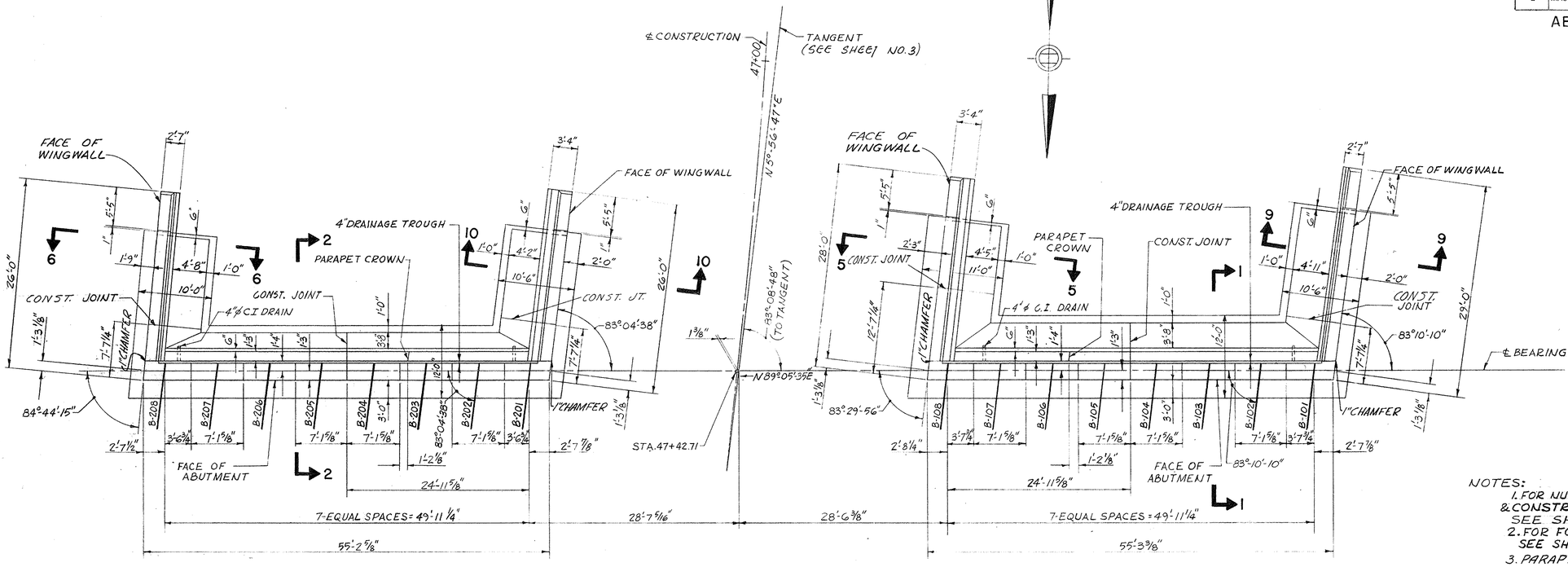
NO SCALE

NOTES:
1. THE PREPARATION & ASSEMBLY OF MATERIAL FOR WELDING SHALL CONFORM TO ART. 402 & 403 AWS 1963, RESPECTIVELY.
2. FOR END & INTERMEDIATE DIAPHRAM CONNECTIONS, BEARING DETAILS & SHEAR CONNECTORS SEE SHEET NO.12
3. ENDS OF BEAMS SHALL BE FABRICATED SO THAT UNDER FULL DEAD LOAD THE ENDS WILL BE PLUMB.
4. ALL BEAMS SHALL BE CAMBERED NOT LESS THAN 3¾" AND NOT MORE THAN 4¼".

DATE	DESCRIPTION
JUNE 29, 1965	2 REVISION-DIMENSIONS ON CROSS SECT. REVISED
DEC. 19, 1964	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	I-91-1(41)12	1964	163	1246

ABUTMENTS 1 & 3

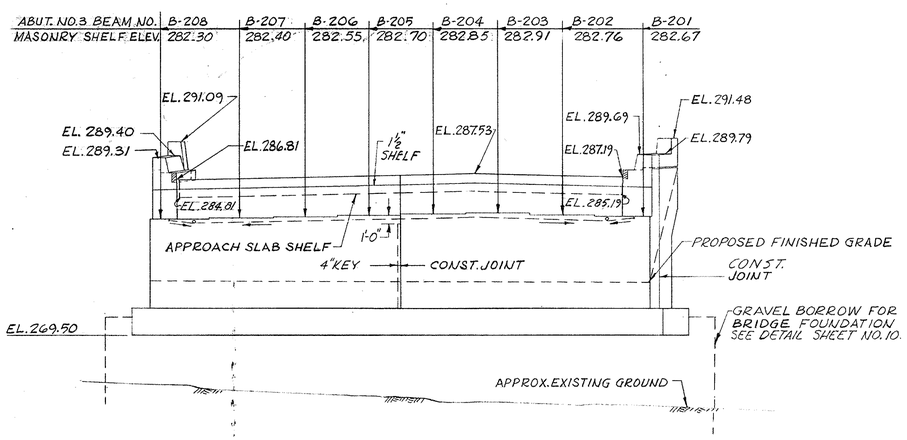


PLAN-ABUTMENT NO. 3

SCALE: 1/8" = 1'-0"

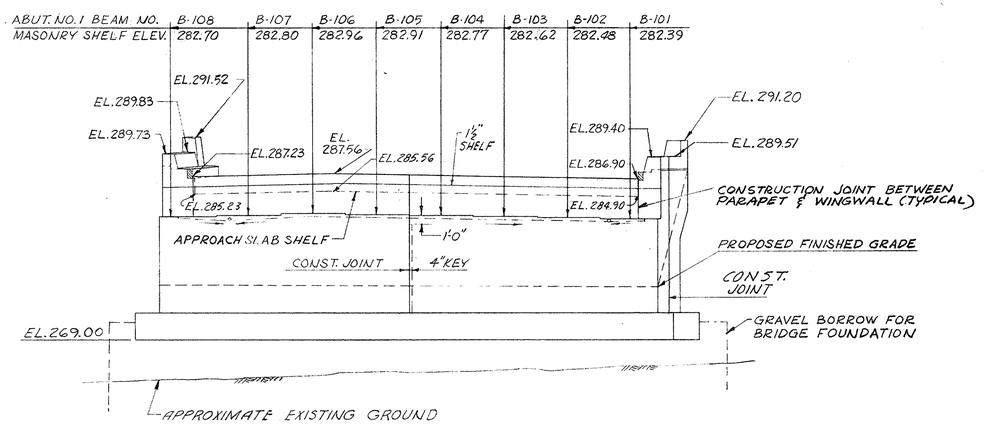
PLAN-ABUTMENT NO. 1

SCALE: 1/8" = 1'-0"



ELEVATION-ABUTMENT NO. 3

SCALE: 1/8" = 1'-0"



ELEVATION-ABUTMENT NO. 1

SCALE: 1/8" = 1'-0"

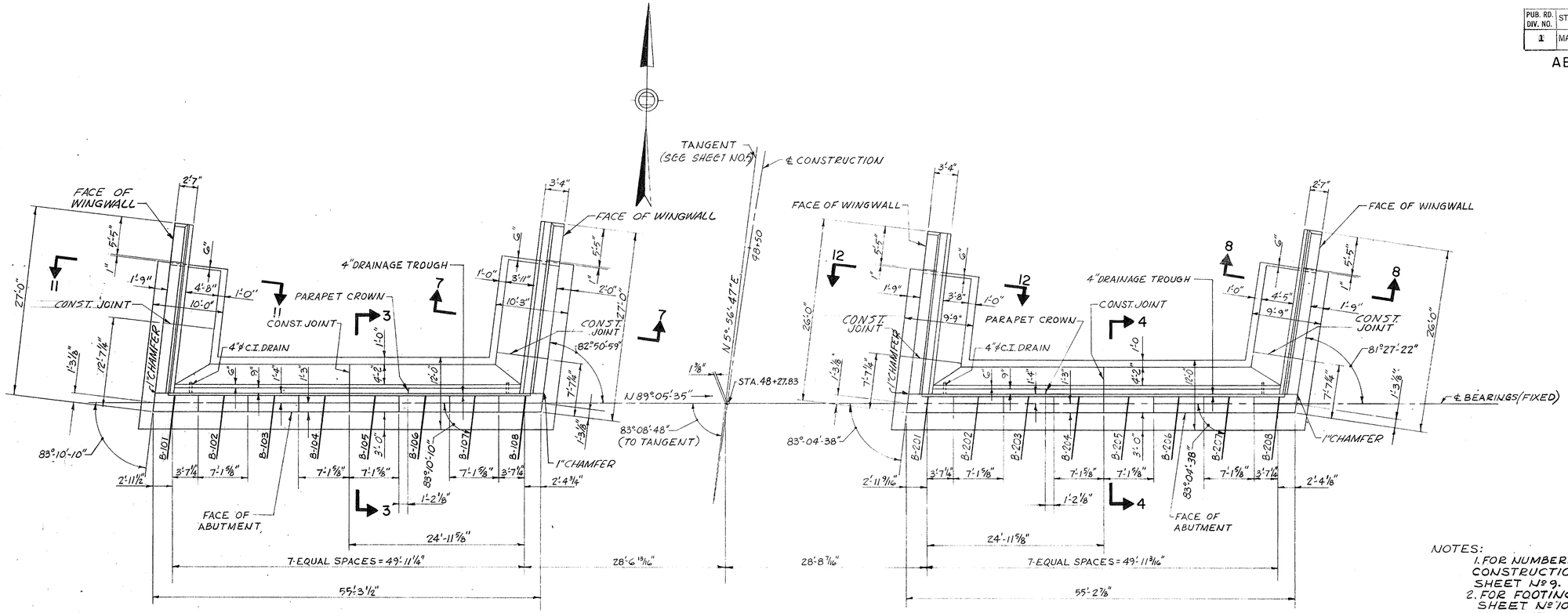
NOTES:

1. FOR NUMBERED SECTIONS, & CONSTRUCTION JOINT DETAIL SEE SHEET No 9.
2. FOR FOOTING LOCATION PLAN SEE SHEET No 10.
3. PARAPET ELEVATIONS ARE GIVEN TO TOP OF ROADWAY AT FACE OF PARAPET.

DEC. 19, 1964	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	I-91-1(41)12	1964	164	1246

ABUTMENTS 2 & 4

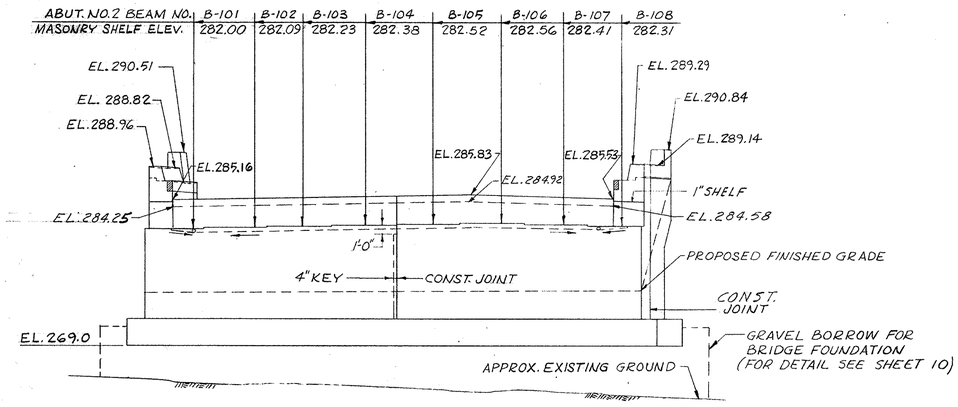


PLAN-ABUTMENT NO. 2

SCALE : 1/8" = 1'-0"

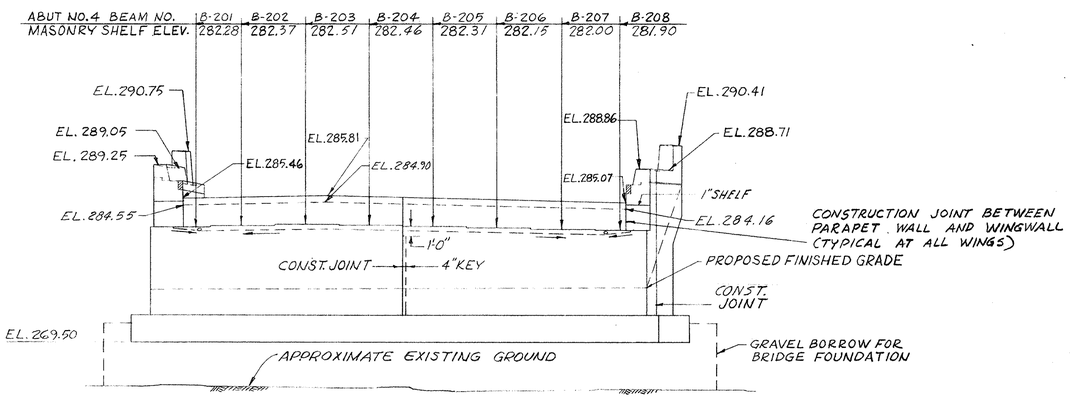
PLAN-ABUTMENT NO. 4

SCALE : 1/8" = 1'-0"



ELEVATION-ABUTMENT NO. 2

SCALE : 1/8" = 1'-0"



ELEVATION-ABUTMENT NO. 4

SCALE : 1/8" = 1'-0"

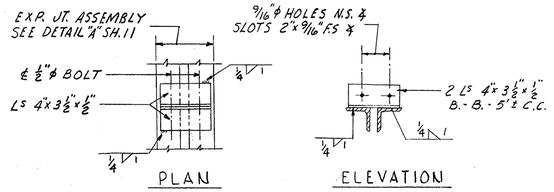
NOTES:

1. FOR NUMBERED SECTIONS AND CONSTRUCTION JOINT DETAILS SEE SHEET No 9.
2. FOR FOOTING LOCATION PLAN SEE SHEET No 10.
3. PARAPET ELEVATIONS ARE GIVEN AT FACE OF PARAPET.

DEC. 19, 1964	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	I-91-1(41)12	1964	165	1246

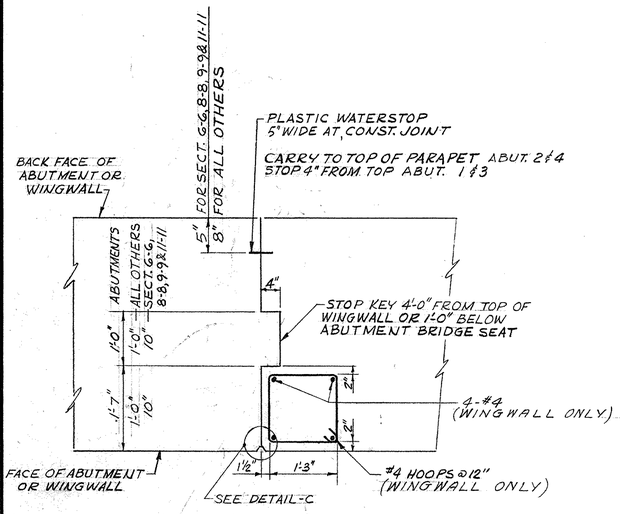
ABUTMENT & WINGWALL SECTIONS



SHIPPING DEVICE FOR EXP. JT. ASSEMBLY

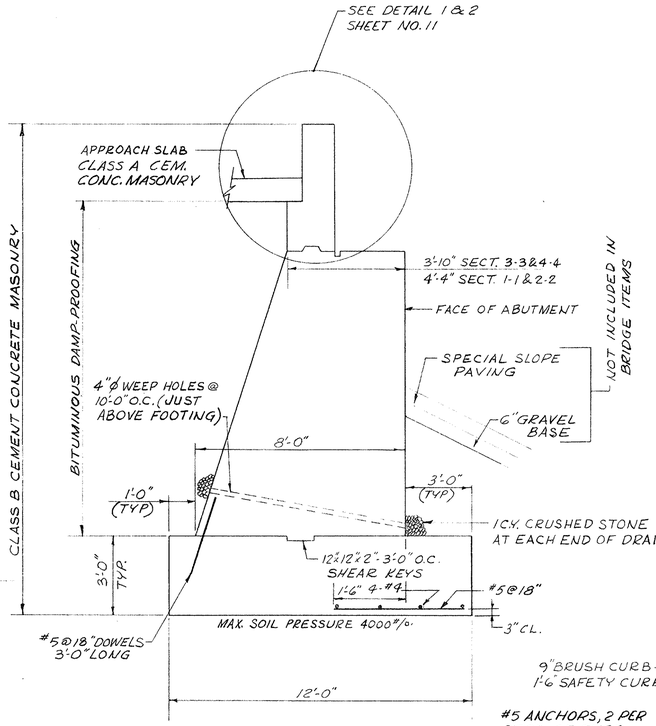
SCALE: 1"=1'-0"

NOTES: ALL EXPANSION JOINT ASSEMBLIES MUST BE PROPERLY FITTED IN SHOP & SHIPPED WITH DEVICE FOR MAINTAINING PROPER SPACING & FIT. BOLTS ON SHIPPING DEVICE MUST BE LOOSENED WITHIN ONE HOUR AFTER CONCRETE IS PLACED SO THAT MOVEMENT MAY TAKE PLACE. DEVICE SHALL BE REMOVED AFTER CONCRETE HAS SET ON BOTH SIDES OF ASSEMBLY.



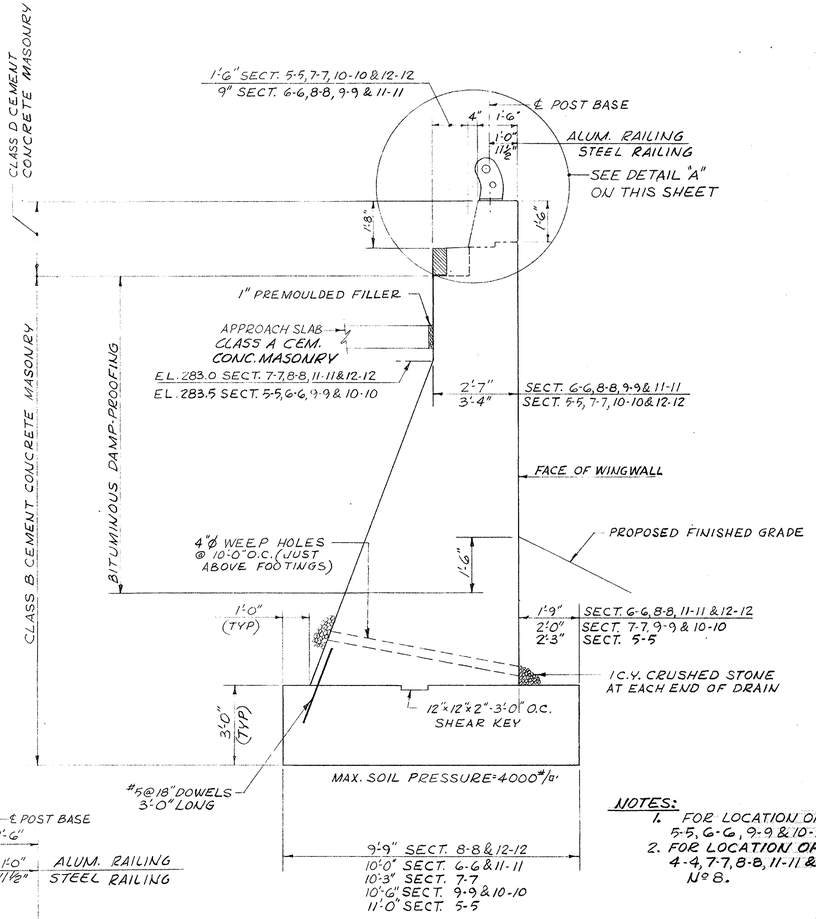
CONSTRUCTION JOINT DETAIL
(ABUTMENT AND WINGWALL)

SCALE: ¾"=1'-0"



TYPICAL ABUTMENT SECTION
(SECTIONS 1-1 THRU 4-4)

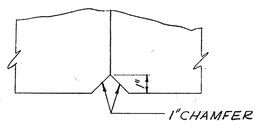
NO SCALE



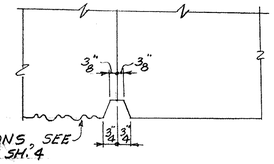
TYPICAL WINGWALL SECTION
(SECTIONS 5-5 THRU 12-12)

NO SCALE

NOTES:
1. FOR LOCATION OF SECTIONS 1-1, 2-2, 5-5, 6-6, 9-9 & 10-10 SEE SHEET Nº 7.
2. FOR LOCATION OF SECTIONS 3-3, 4-4, 7-7, 8-8, 11-11 & 12-12 SEE SHEET Nº 8.



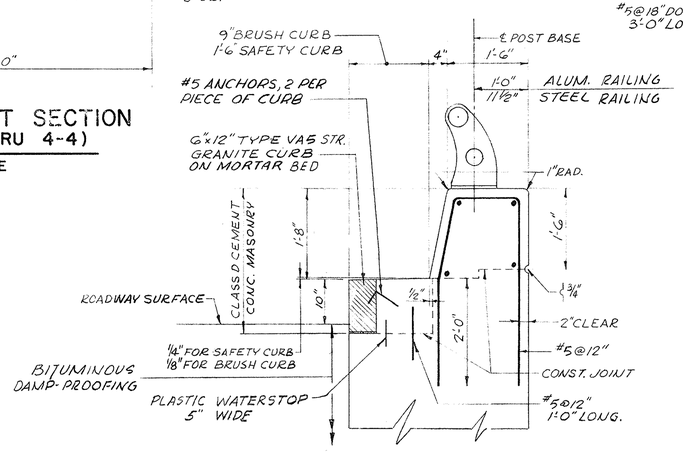
CONSTRUCTION JOINT AT ABUTMENT



CONSTRUCTION JOINT AT WINGWALL

DETAIL C

SCALE: 3"=1'-0"



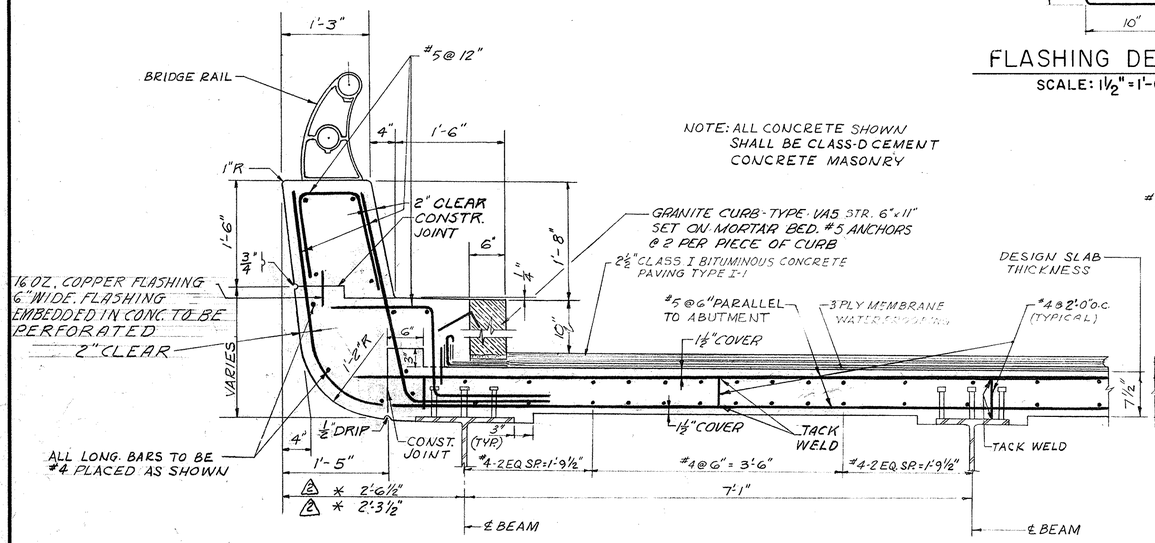
DETAIL A

SCALE ¾"=1'-0"

DEC. 19, 1964	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	I-91-1(41)12	1964	166	1246

MISCELLANEOUS DETAILS

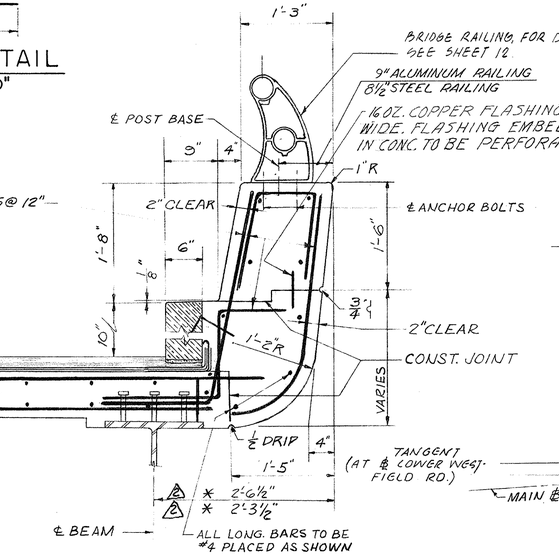


NOTE: ALL CONCRETE SHOWN SHALL BE CLASS-D CEMENT CONCRETE MASONRY

DETAIL "A"

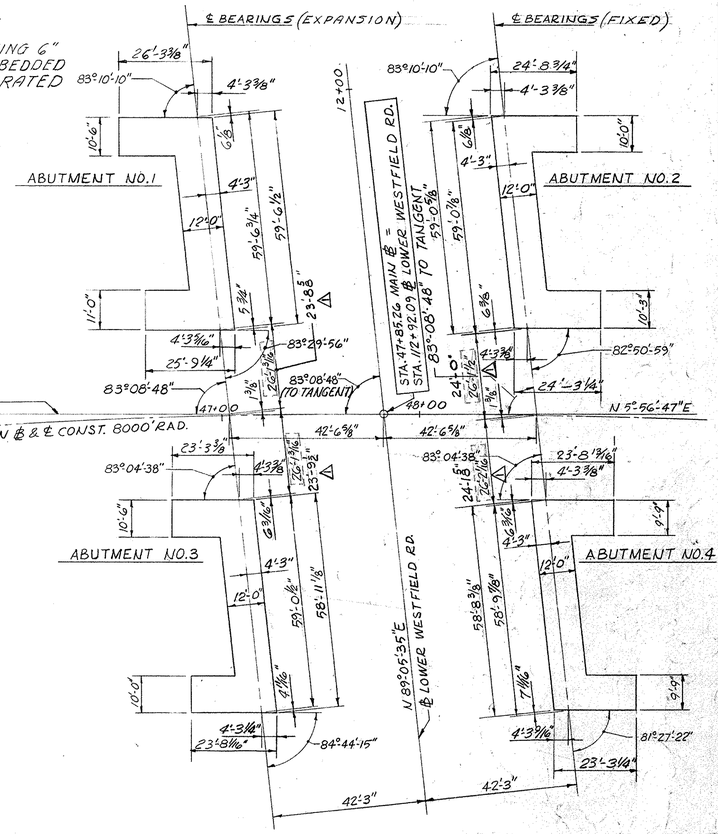
SCALE : 1" = 1'-0"

△2 Note: * See Sheet No. 6 for location of overhangs.



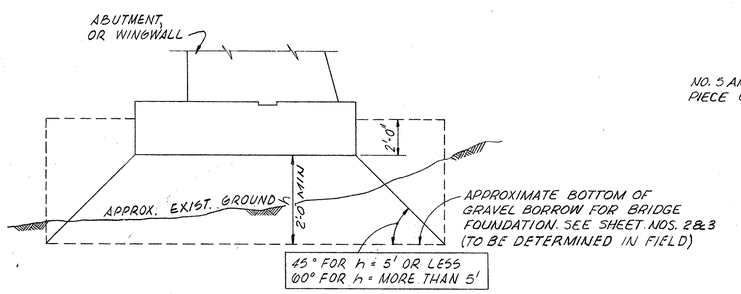
DETAIL "B"

SCALE : 1" = 1'-0"



FOOTING LOCATION PLAN

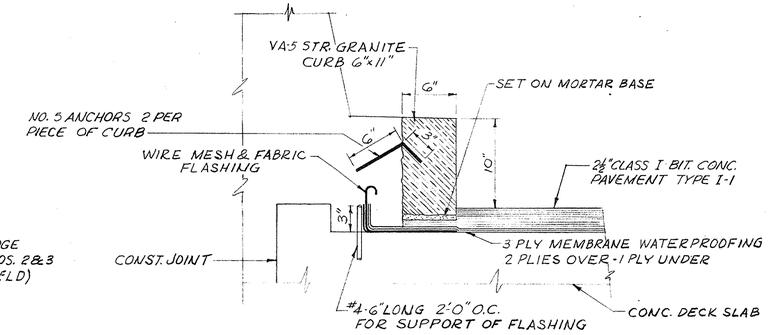
SCALE : 1"=20'



GRAVEL BORROW FOR BRIDGE FOUNDATION

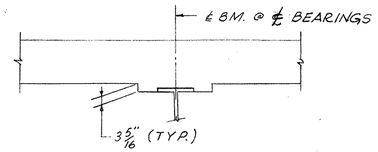
NO SCALE

NOTE: ENDS OF FOOTINGS TO RECEIVE SAME TREATMENT. ALL UNSUITABLE MATERIAL TO BE EXCAVATED AND REPLACED WITH GOOD COMPACTED GRAVEL.



DETAIL UNDER CURB

SCALE : 1½" = 1'-0"



TYPICAL HAUNCH DETAIL AT SUPPORTS

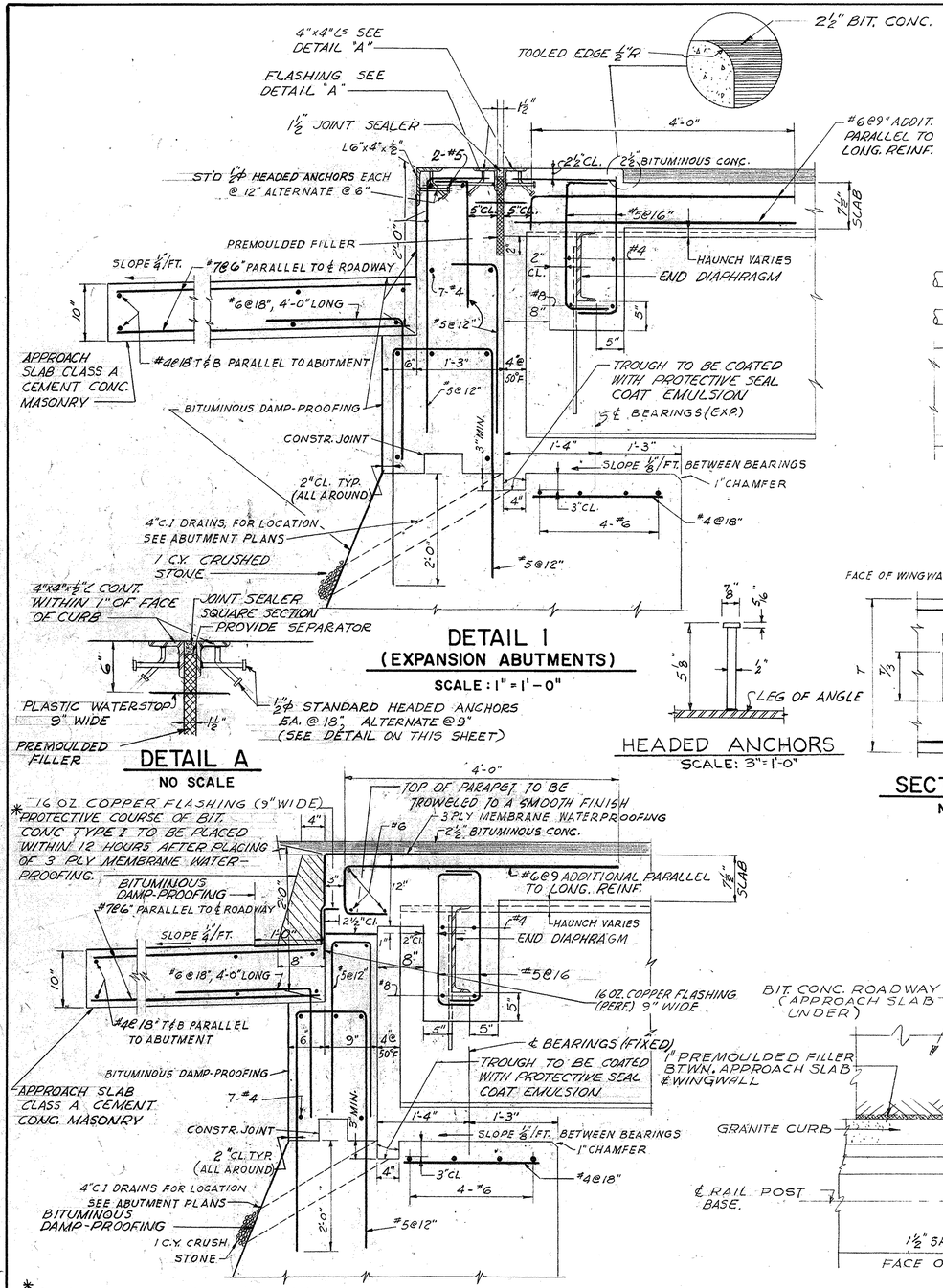
NO SCALE

DATE	DESCRIPTION
JUNE 29, 1965	△2 REVISION-DIMENSIONS REVISED & NOTE ADDED
MAY 14, 1965	△1 REVISION-DIMENSIONS REVISED
DEC. 19, 1964	ISSUED FOR CONSTRUCTION

USE ONLY PRINTS OF LATEST DATE

PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	I-91-1(41)12	1964	167	1246

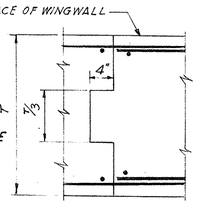
CONCRETE DETAILS



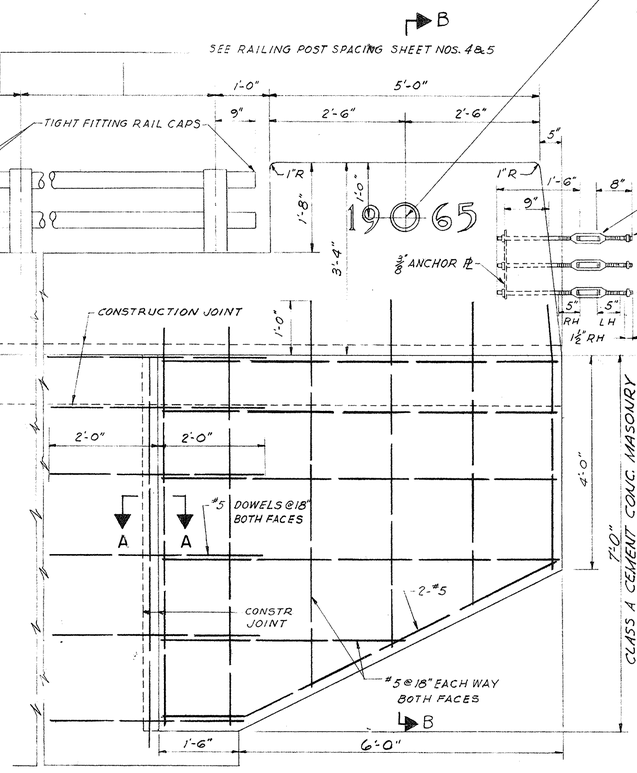
DETAIL 1
(EXPANSION ABUTMENTS)
SCALE : 1" = 1'-0"

DETAIL A
NO SCALE

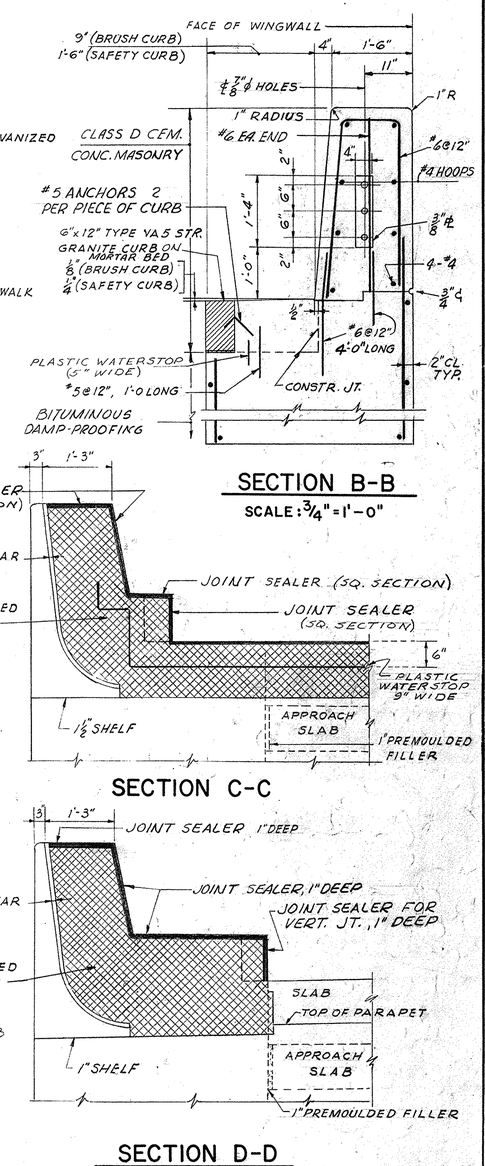
HEADED ANCHORS
SCALE: 3"=1'-0"



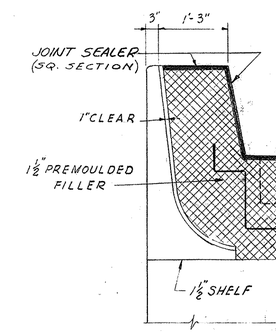
SECTION A-A
NO SCALE



TYPICAL END POST & FLYING WING DETAIL
SCALE: ¾" = 1'-0"



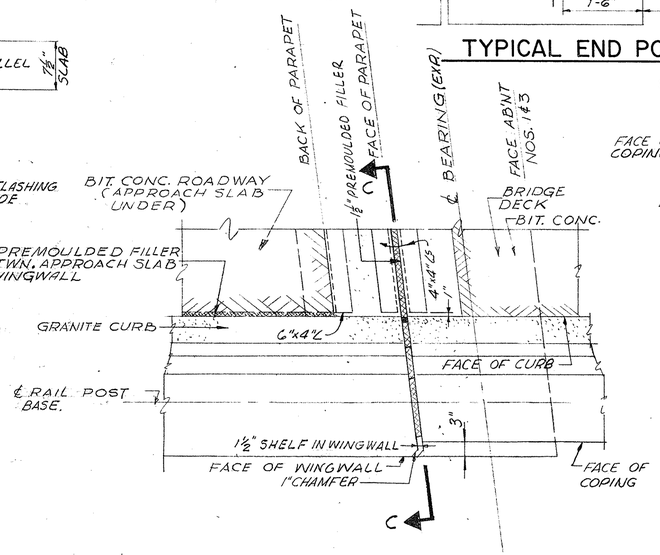
SECTION B-B
SCALE: ¾" = 1'-0"



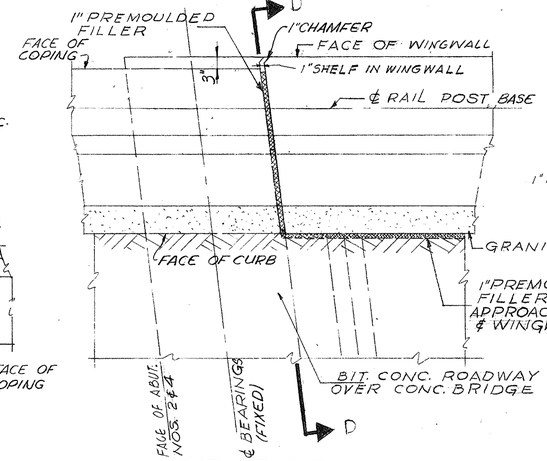
SECTION C-C

SECTION D-D
SCALE: ¾" = 1'-0"

DETAIL 2
(FIXED ABUTMENTS)
SCALE: 1" = 1'-0"



CORNER DETAIL AT ABUTMENT NO.1 & 3
SCALE: ¾" = 1'-0"



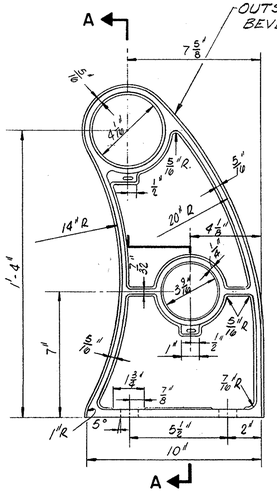
CORNER DETAIL AT ABUTMENT NO. 2 & 4
SCALE: ¾" = 1'-0"

NOTE: JOINT SEALER IN SECTIONS A-A & B-B TO BE COLORED TO MATCH CONCRETE.

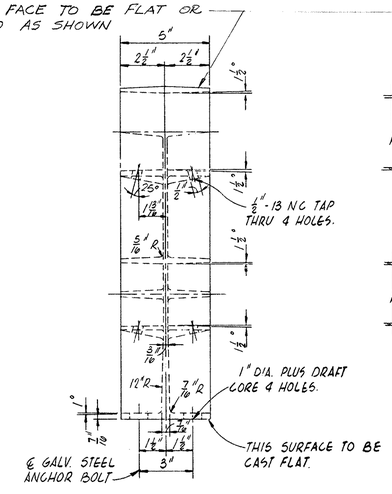
DATE	DESCRIPTION
DEC. 19, 1964	ISSUED FOR CONSTRUCTION
	USE ONLY PRINTS OF LATEST DATE

PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	I-91-1(41)12	1964	168	1246

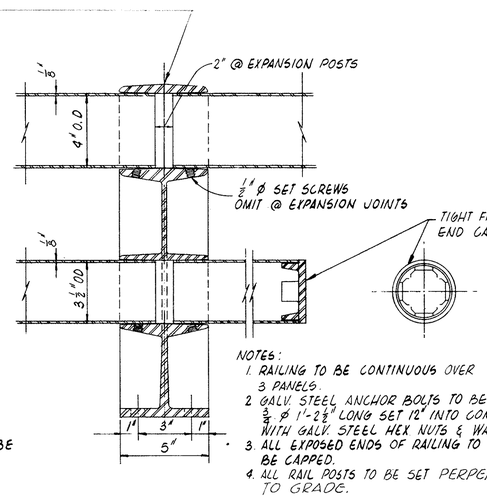
STANDARD STEEL DETAILS



SIDE ELEVATION



END ELEVATION



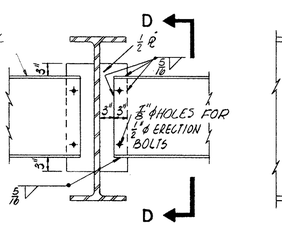
SECTION A-A

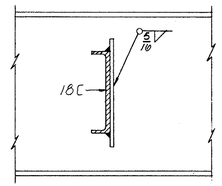
NOTES:
1. RAILING TO BE CONTINUOUS OVER 3 PANELS.
2. GALV. STEEL ANCHOR BOLTS TO BE ¾" ℄ 1'-2½" LONG SET 12" INTO CONC., WITH GALV. STEEL HEX NUTS & WASHERS.
3. ALL EXPOSED ENDS OF RAILING TO BE CAPPED.
4. ALL RAIL POSTS TO BE SET PERPENDICULAR TO GRADE.

BRIDGE RAILING (ALUMINUM)

SCALE: 3" = 1'-0"

NOTE: ALL BOLTS, NUTS AND WASHERS TO BE GALVANIZED STEEL



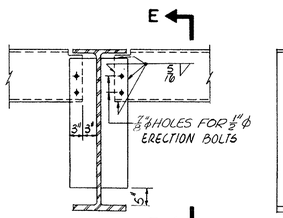


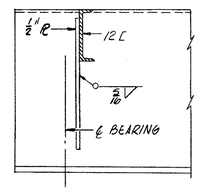
SECTION D-D

INTERMEDIATE DIAPHRAGM CONNECTION

NO SCALE

POSTS TO BE SET PERPENDICULAR TO GRADE



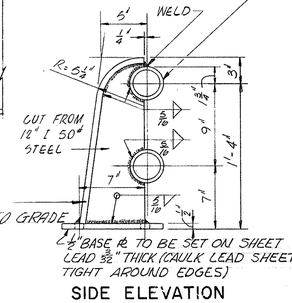


SECTION E-E

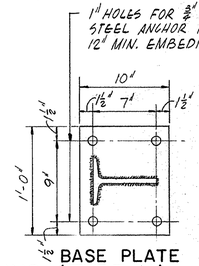
END DIAPHRAGM CONNECTION

NO SCALE

3½" O.D. W.I. PIPE (EXTRA STRONG) OPEN ENDS OF PIPE TO BE THREADED AND CLOSED WITH STANDARD PIPE CAP, OR ¾" x 2" ℄ PLATE WELDED TO END & GROUND TO A SMOOTH FINISH



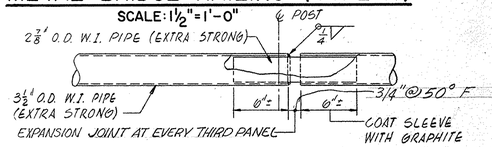
SIDE ELEVATION

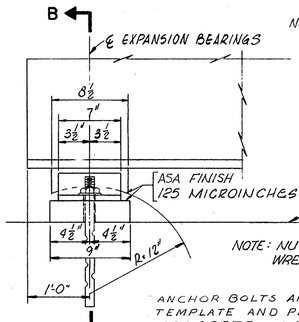


BASE PLATE

METAL BRIDGE RAILING (TYPE K)

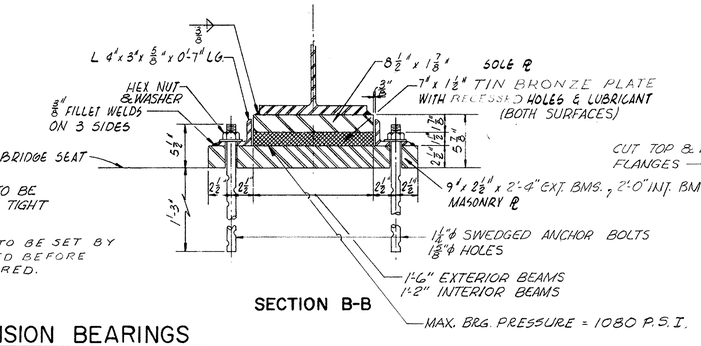
SCALE: 1½" = 1'-0"





SIDE ELEVATION

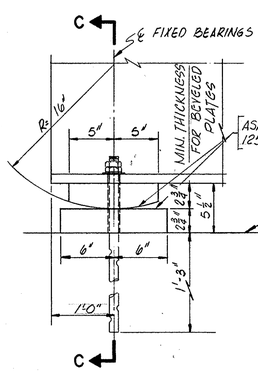
NOTE: ALL BOLTS, NUTS AND WASHERS TO BE GALVANIZED STEEL



SECTION B-B

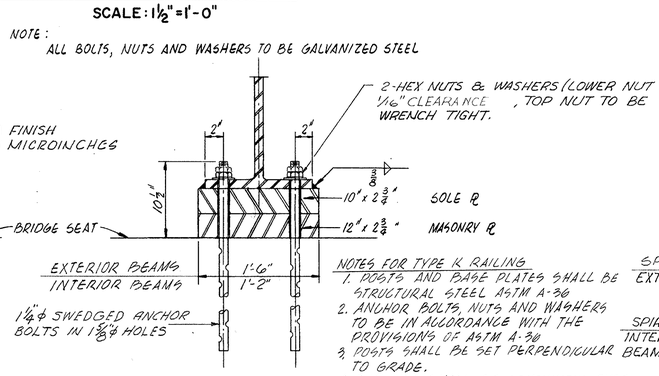
EXPANSION BEARINGS

SCALE: 1½" = 1'-0"



SIDE ELEVATION

NOTE: ALL BOLTS, NUTS AND WASHERS TO BE GALVANIZED STEEL



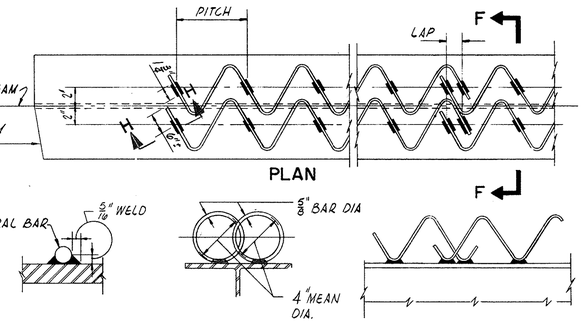
SECTION C-C

NOTES FOR TYPE K RAILING
1. POSTS AND BASE PLATES SHALL BE STRUCTURAL STEEL ASTM A-36
2. ANCHOR BOLTS, NUTS AND WASHERS TO BE IN ACCORDANCE WITH THE PROVISIONS OF ASTM A-36
3. POSTS SHALL BE SET PERPENDICULAR TO GRADE.
4. RAILINGS SHALL BE CONTINUOUS OVER THREE PANELS WHERE POSSIBLE.
5. EXPANSION JOINTS IN RAILS TO BE LOCATED AS CLOSE AS POSSIBLE.

FIXED BEARINGS

SCALE: 1½" = 1'-0"

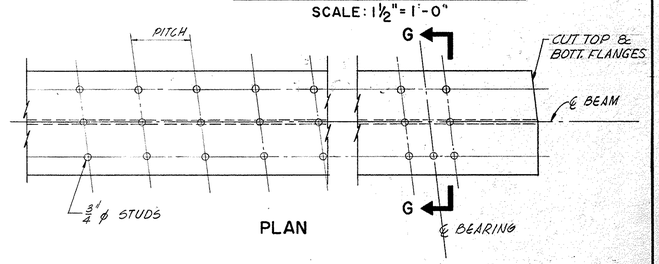
NOTE: ALL BOLTS, NUTS AND WASHERS TO BE GALVANIZED STEEL

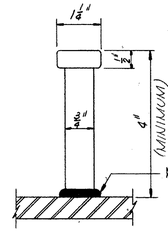


SECTION H-H SECTION F-F ELEVATION

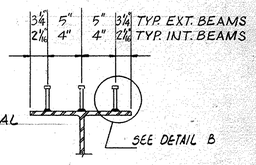
TYPICAL DETAILS SPIRAL SHEAR CONNECTORS

NO SCALE

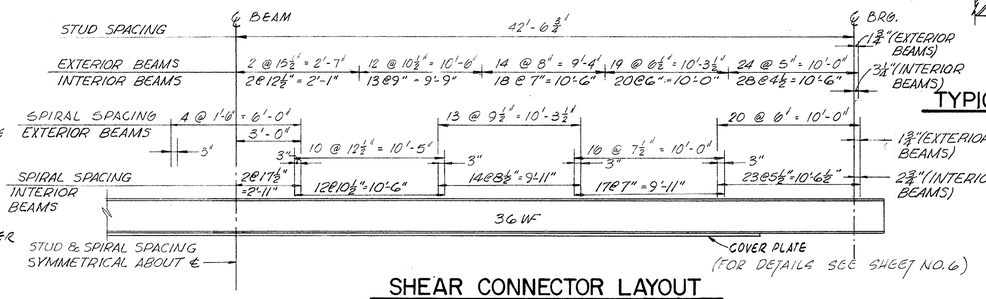




DETAIL B



SECTION G-G



SHEAR CONNECTOR LAYOUT

NO SCALE

TYPICAL DETAILS STUD SHEAR CONNECTORS

NO SCALE

NOTES:
1. THE CONTRACTOR WILL HAVE THE OPTION OF USING EITHER STUDS OR SPIRALS.
2. ⅞" ℄ STUDS MAY BE SUBSTITUTED FOR ¾" ℄ STUDS BY PROVIDING AN EQUIVALENT GROSS-SECTIONAL AREA AND ADJUSTING THE PITCH ACCORDINGLY.

DEC. 19, 1964	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

HOLYOKE
I-91 NB&SB over Lower Westfield Road

STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
MASS		1996	1	4
PROJECT FILE NO. 601001				

TITLE & INDEX

THE COMMONWEALTH OF MASSACHUSETTS
MASSACHUSETTS HIGHWAY DEPARTMENT

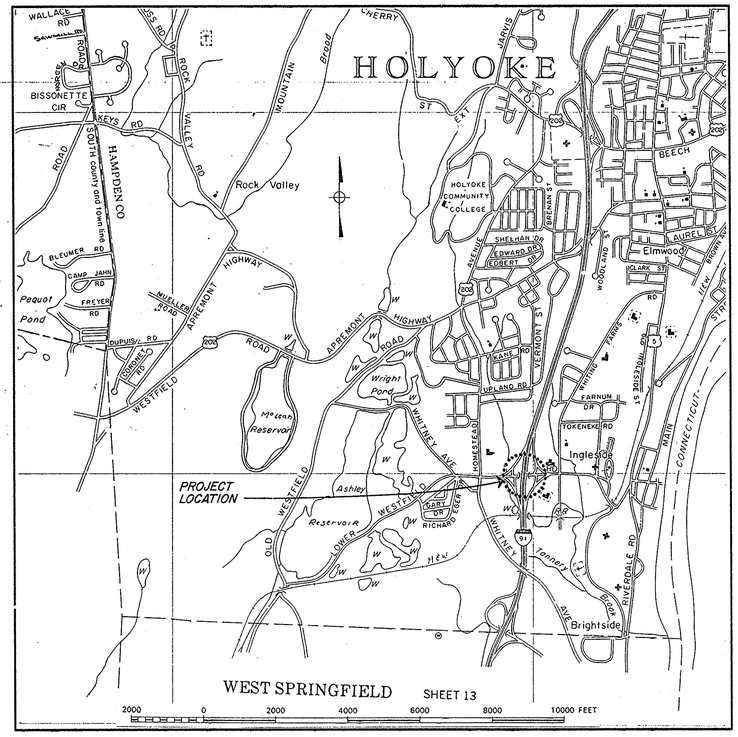
BRIDGE BETTERMENT
Interstate 91 NB&SB over Lower Westfield Road

IN THE CITY OF

HOLYOKE
HAMPDEN COUNTY

INDEX

SHEET NO.	DESCRIPTION
1	TITLE & INDEX
2 & 3	JOINT DETAILS
4	TRAFFIC CONTROL PLAN



SCALES – AS NOTED

NOTE
LENGTH OF PROJECT = 85 FT

THE 1988 SPECIFICATIONS, THE SUPPLEMENTAL SPECIFICATIONS DATED NOVEMBER 30, 1994, THE 1977 CONSTRUCTION STANDARDS, THE 1988 EDITION OF "THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD), WHICH INCLUDES PART VI REVISIONS, DATED SEPTEMBER 3, 1993 AND ITS ADDENDUM DATED NOVEMBER 1994, THE 1990 "STANDARD DRAWING FOR SIGNS AND SUPPORTS", AND THE LATEST EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK (ANSI Z-60.1) WILL GOVERN.

CONVENTIONAL SIGNS

COUNTY, CITY, OR TOWN BOUNDARY
COUNTY, CITY, OR TOWN SIDE LINE
FENCE LINE
BASE LINE OR SURVEY LINE — 74 — N 57° 18' 41" E 59.57
RIGHT OF WAY LINE
CULVERT
ELEVATIONS — PROPOSED SURFACE / PRESENT SURFACE — PRES. 98.22 / 102.67 PROP. — 74
POLE

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED
DIVISION ADMINISTRATOR Date

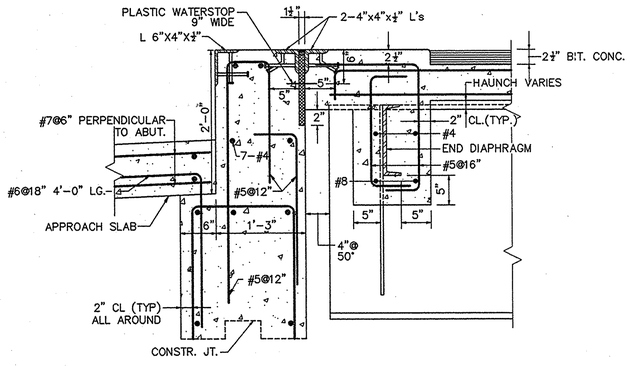
MASSHIGHWAY
MASSACHUSETTS
HIGHWAY DEPARTMENT
RECOMMENDED FOR APPROVAL
Russ B. Hinkley, P.E. 12/13/95
CHIEF ENGINEER Date

APPROVED
MHD COMMISSIONER Date

ASSOCIATE COMMISSIONERS Date

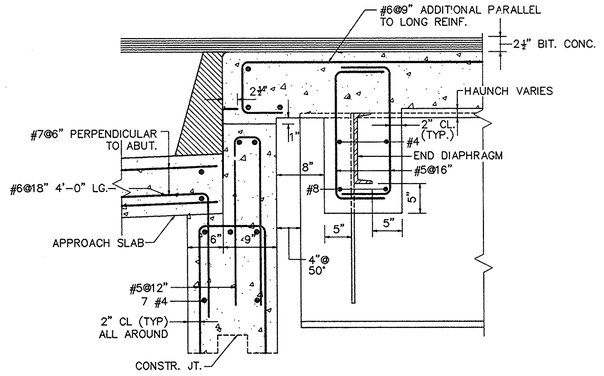
H-21-47

STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
MA		1996	2	4
PROJECT FILE NO. 601001				



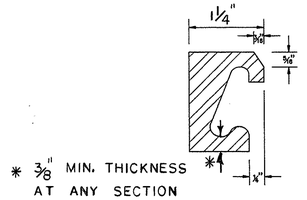
EXISTING DECK DETAIL
AT EXPANSION ABUTMENTS

SCALE – 1"=1'–0"
(SQUARE SECTION)

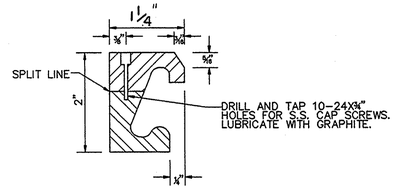


EXISTING DECK DETAILS
AT FIXED ABUTMENT

SCALE – 1"=1'–0"
(SQUARE SECTION)



SOLID EXTRUSION



SPLIT EXTRUSION

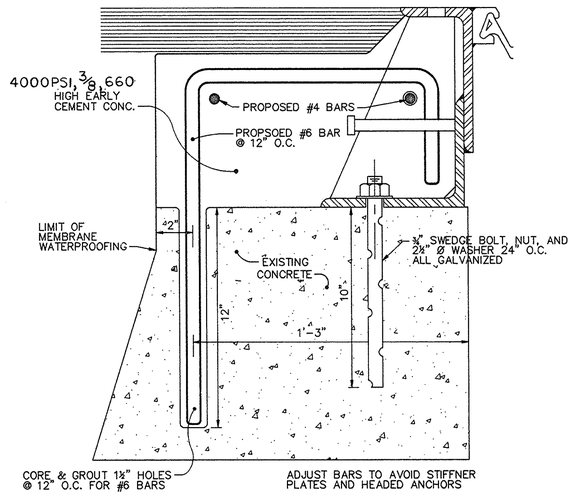
PROPOSED
STEEL EXTRUSION DETAILS
–NOT TO SCALE–

NOTE:
ALL ROADWAY JOINT ANGLES ARE CONTINUOUS. ALL WELDS ARE 3/8" CONTINUOUS FILLETS EXCEPT AS NOTED.

CONCRETE ENCASEMENT NOT SHOWN FOR CLARITY

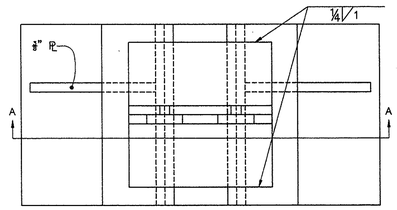
PROPOSED
ARMORED JOINT DETAIL
AT EXPANSION ABUTMENTS

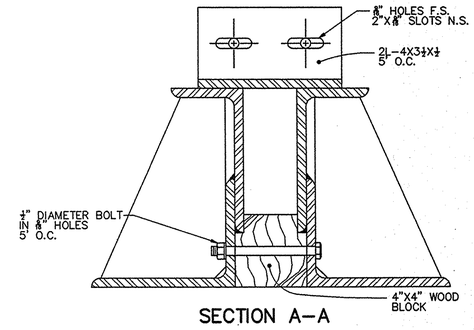
SCALE – 3"=1'–0"



PROPOSED
REINFORCING BAR DETAIL
AT EXPANSION ABUTMENTS

SCALE – 3"=1'–0"





SECTION A–A

ARMORED JOINT
SHIPPING DEVICE
–NOT TO SCALE–

NOTES:

(1) A LENGTH OF STEEL PIPE MAY BE SUBSTITUTED FOR WOOD BLOCK

(2) SHIPPING DEVICE SHALL BE SET PARALLEL TO STRINGERS

(3) SHOP DRAWINGS SHALL BE SUBMITTED FOR THIS DEVICE

(4) ALL ARMORED JOINT DEVICES MUST BE FITTED IN THE SHOP AND SHIPPED WITH THE DEVICE IN PLACE.

(5) AFTER ARMORED JOINT IS IN PLACE REMOVE 1/2" BOLT AND SPACER BEFORE ANCHORING TO BRIDGE

(6) ARMORED JOINT SHALL BE SECURED TO BEAMS WHEN THE AMBIENT TEMPERATURE IS BETWEEN 40° AND 80°. NO FIELD ADJUSTMENT OF OPENING IS PERMITTED

(7) GRIND ARMORED JOINT SURFACE TO SMOOTH FINISH AFTER REMOVING BACK TO BACK ANGLES.

(8) ALL EXPOSED SURFACES SHALL BE FIELD PAINTED.

DESIGNED BY	ISSUED FOR CONSTRUCTION
J. CARRINGTON	
DRAWN BY	
J. CARRINGTON	
CHECKED BY	
GLP	
SPECS BY	
APPROVED FOR DESIGN	

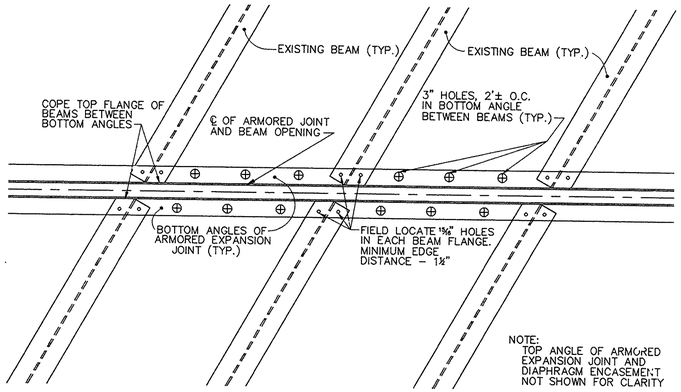
MASSHIGHWAY

PROPOSED BRIDGE REPAIRS
HOLYOKE

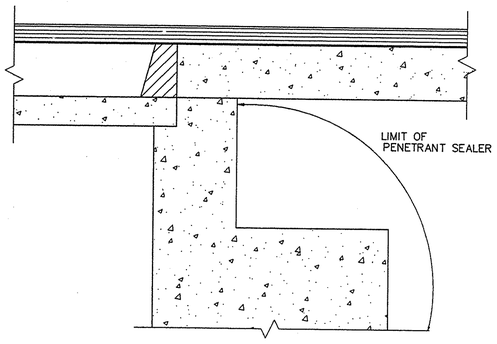
INTERSTATE 91 over
LOWER WESTFIELD ROAD

THE COMMONWEALTH OF MASSACHUSETTS
MASSACHUSETTS HIGHWAY DEPARTMENT
10 PARK PLAZA BOSTON, MASS

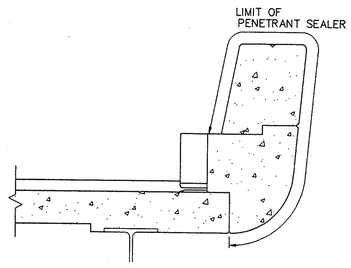
STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
MA		1996	3	4
PROJECT FILE NO. 601001				



PROPOSED
EXPANSION JOINT MOUNTING
–NOT TO SCALE–

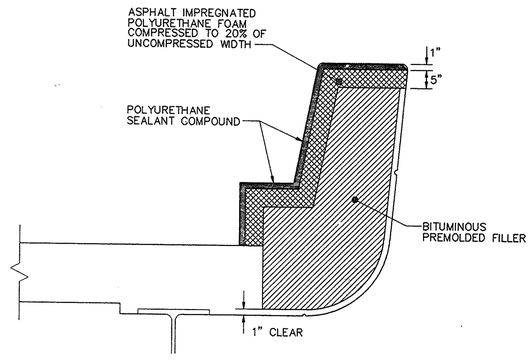


ABUTMENT



COPING

CONCRETE PENETRANT
LOCATIONS
–NOT TO SCALE–

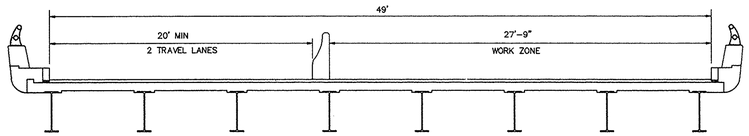


TYPICAL
JOINT FILLER COMPOUND
–NOT TO SCALE–

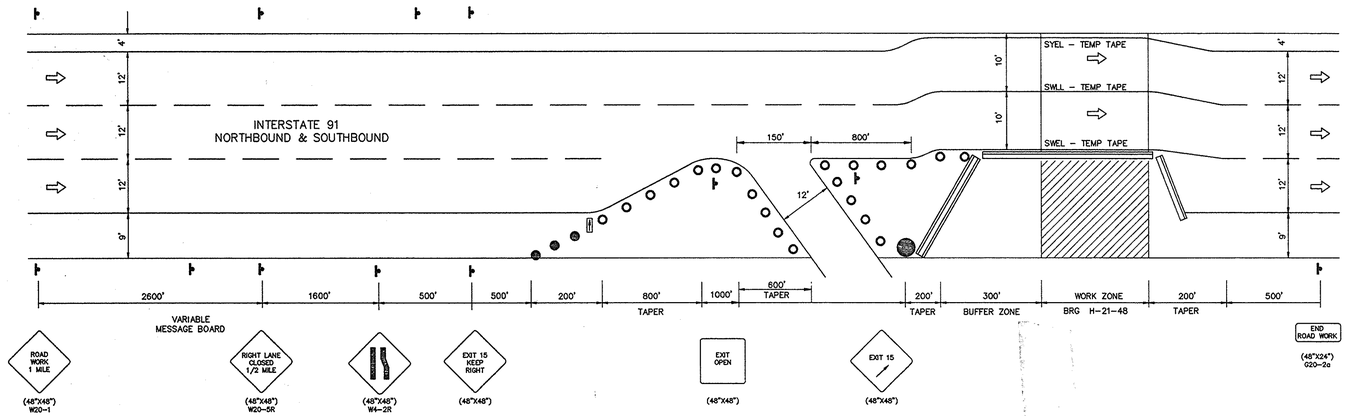
	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

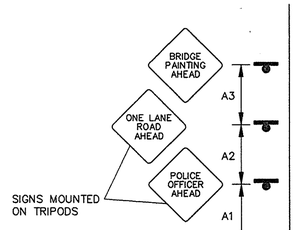
STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
MA		1996	4	4
PROJECT FILE NO. 601001				

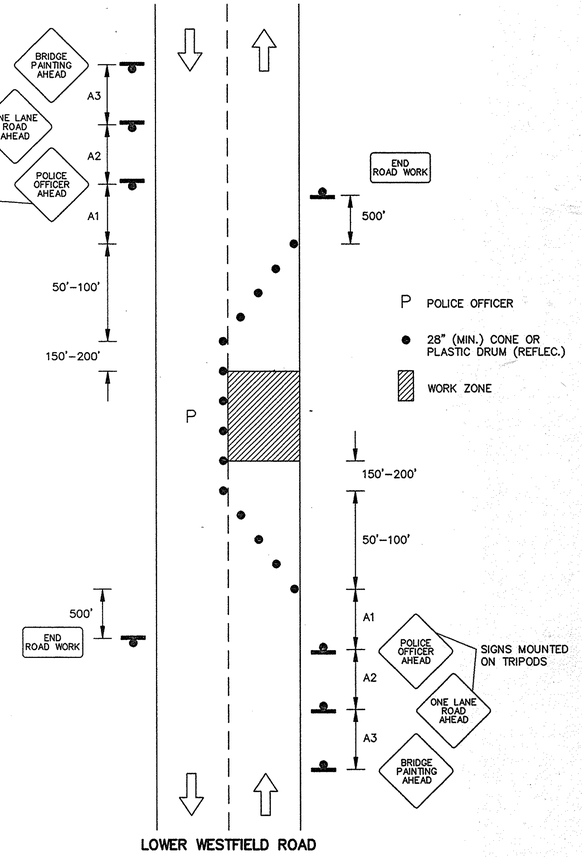
NO SCALE



PHASE I

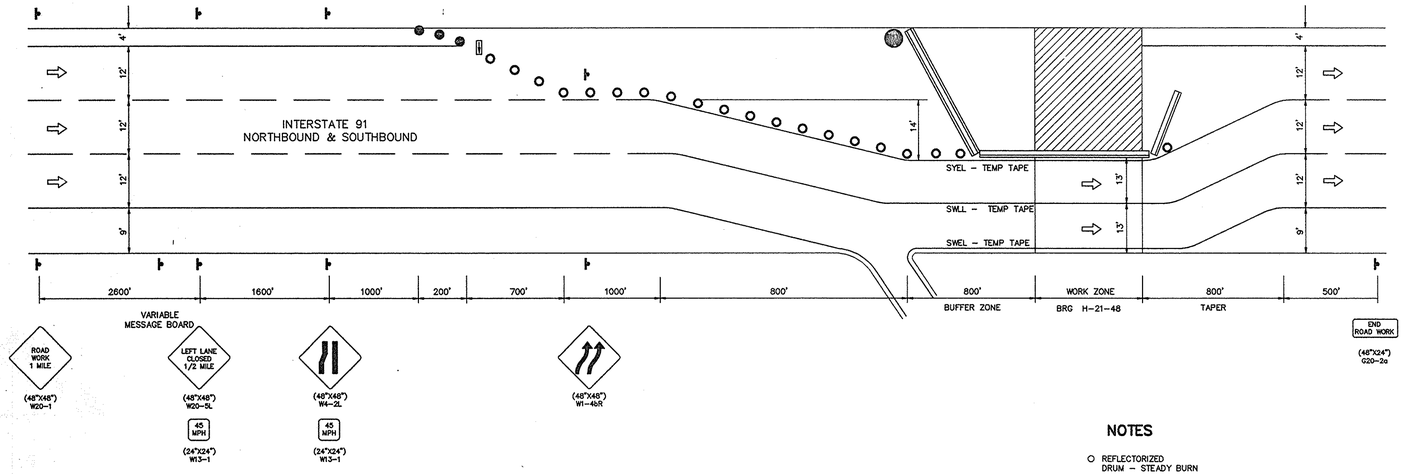






NOTE: ALL SIGNS MOUNTED ON TRIPODS SHALL BE REMOVED OR COVERED AT THE END OF EACH DAY.

PHASE II

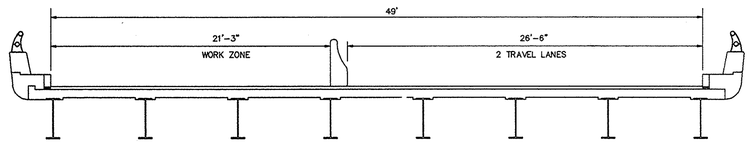


SPEED LIMIT (MPH)	SPACING FOR ADVANCED WARNING SIGNS (A1/A2/A3)	CHANNELIZING DEVICES	
		SPACING	MIN. NO.
25-40	500/500/500	20	20
45-55	500/1000/1000	40	20

TRAFFIC CONTROL PLAN FOR BRIDGE PAINTING OPERATIONS

NOTES

- REFLECTORIZED DRUM - STEADY BURN
- REFLECTORIZED DRUM - TYPE A
- ARRAY OF 36" YELLOW MODULAR CONTAINERS (SAND FILLED) -EXACT NUMBER TO BE DETERMINED BY THE ENGINEER
- FLASHING ARROW BOARD
- SINGLE FACE JERSY BARRIER
- DOUBLE FACE JERSY BARRIER



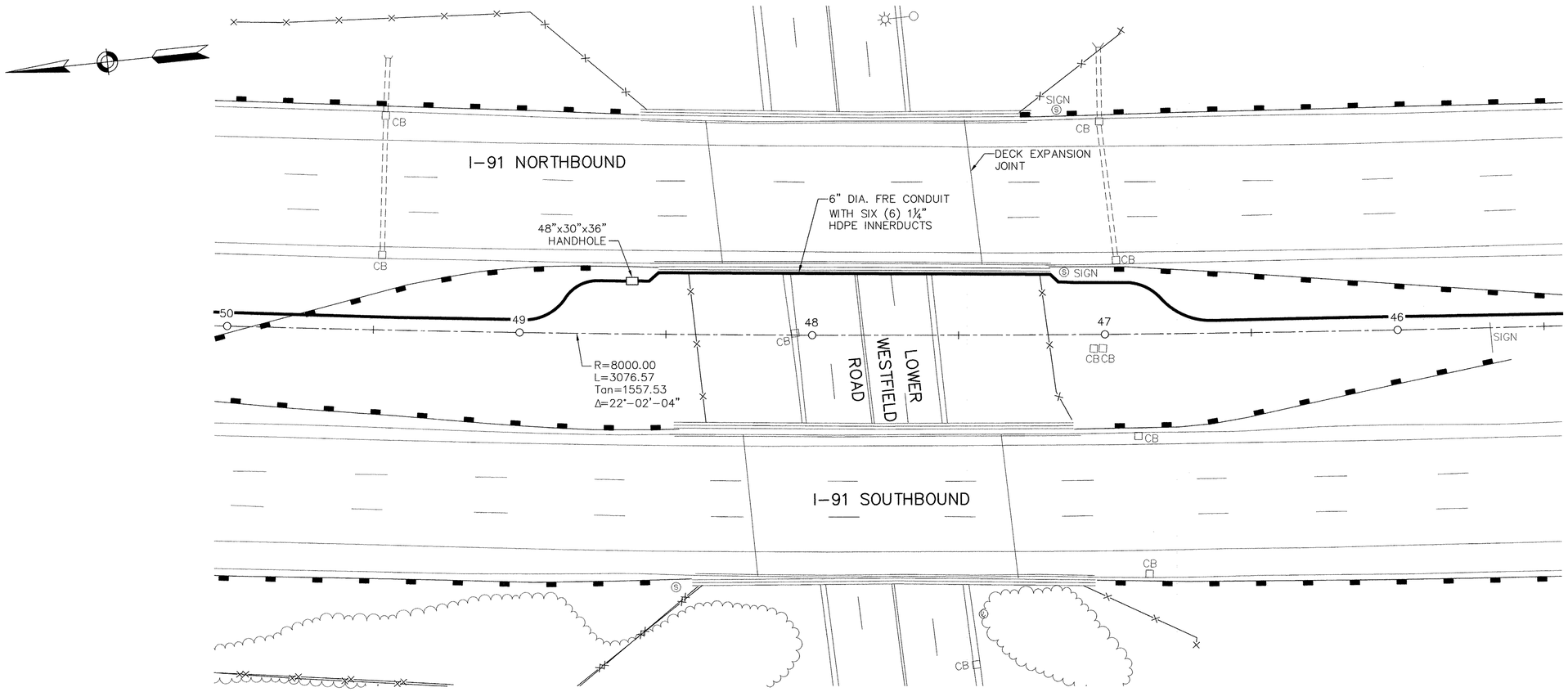
DATE	DESCRIPTION
	ISSUED FOR CONSTRUCTION
USE ONLY PRINTS OF LATEST DATE	

 BRIDGE NO. H-21-47

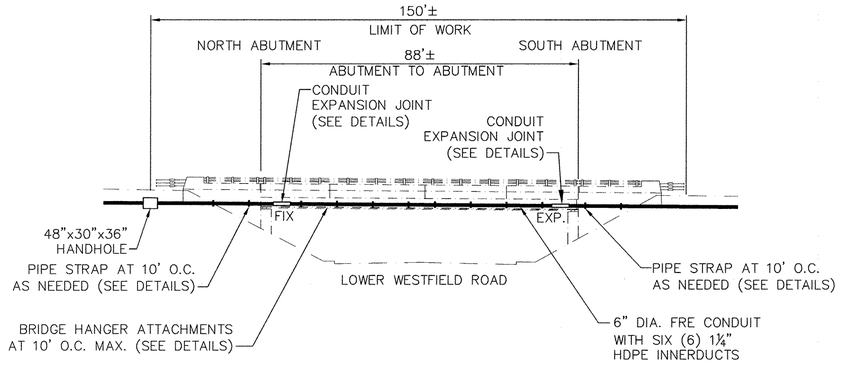
HOLYOKE
I-91 & I-291

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	ITS-001A (818)	262	311
PROJECT FILE NO. 603903			

BRIDGE PLAN AND ELEVATION



BRIDGE PLAN
SCALE: 1" = 20'-0"



BRIDGE ELEVATION
SCALE: 1" = 20'-0"

NOTES:
1. 6" DIA. FIBERGLASS REINFORCED EPOXY SHALL EXTEND FOR A MINIMUM OF 10' UNDERGROUND OR UNTIL A BURIED DEPTH OF 36" IS ACHIEVED. THE 6" FRE SHALL BE PROPERLY SEALED (POLYURETHANE FOAM OR DUCT PLUG) AT TRANSITION TO SIX (6) 1¼" HDPE INNERDUCTS.
2. HANDHOLES SUBJECT TO CHANGE PER FIELD CONDITIONS.
3. SPAN LENGTHS AND BEARING ARRANGEMENTS ARE REFERENCED FROM AS-BUILTS, AND ARE FOR INFORMATION ONLY.

COMMONWEALTH OF MASSACHUSETTS
OWEN A. TRICKEY
CIVIL
No. 48467
REGISTERED PROFESSIONAL ENGINEER

Gannett Fleming
199 WELLS AVENUE
NEWTON, MA 02459
(617) 527-7822

Moving Massachusetts Forward
massDOT Highway

PROPOSED BRIDGE ATTACHMENTS
HOLYOKE
INTERSTATE 91
OVER LOWER WESTFIELD ROAD

THE COMMONWEALTH OF MASSACHUSETTS
MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
10 PARK PLAZA BOSTON, MA.

ENGINEER OF RECORD — DATE 7/31/08

SHEET 1 OF 2 SHEETS BRIDGE NO. H-21-047 (0Y9)

S:\49792-Adesta MHD I-91\As-Built Package Jan 2011\Bridges\262-263 - H-21-047\262 - BRIDGE PLAN-ELEVATION.dwg, Sht-262, 6/20/2011 3:36:38 PM

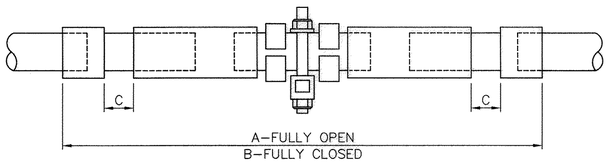
DETAIL NO.	QTY.	DESCRIPTION	
A	2	½"x 4¼" HILTI HVU ADHESIVE CAPSULE	ASTM E 1512 NSF/ANSI 61
B	2	½" HDG FLAT WASHER	ASTM F844 A153 GALV.
C	2	½" HDG LOCK WASHER	ASME 569 A153 GALV.
D	2	½" HDG FINISHED HEX NUT	ASTM A563 A153 GALV.
E	2	½"x 6½" LONG ALL THREAD (CHISEL CUT 45° ONE END)	ASTM A36 A153 GALV.
F	1	¼"x 1½" TWO-HOLE PIPE STRAP	ASTM A36 A153 GALV.
G	TBD	¼" x 1½" SPACER PLATE	ASTM A36 A153 GALV.

HOLYOKE
I-91 & I-291

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	ITS-001A (818)	263	311
PROJECT FILE NO. 603903			

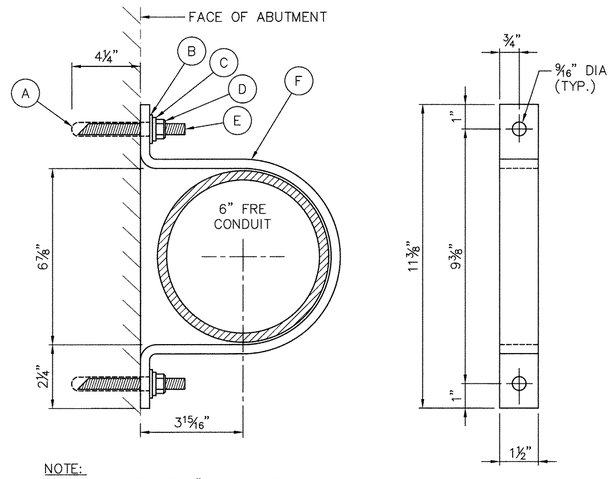
ATTACHMENT DETAILS

NOTE:
DISTANCE BETWEEN EXPANSION JOINTS SHALL NOT BE GREATER THAN 150'.



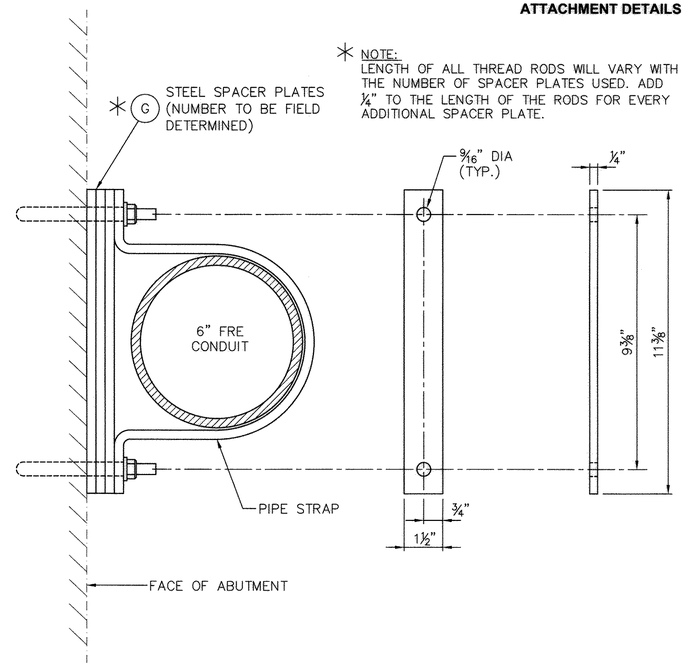
A	B	C (STROKE EACH SIDE)
60½"	48½"	6"

EXPANSION JOINT DETAIL
NOT TO SCALE

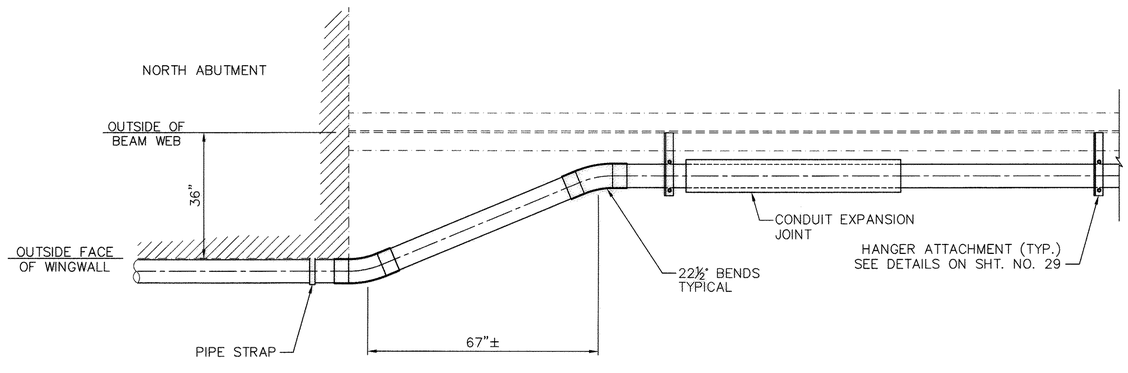


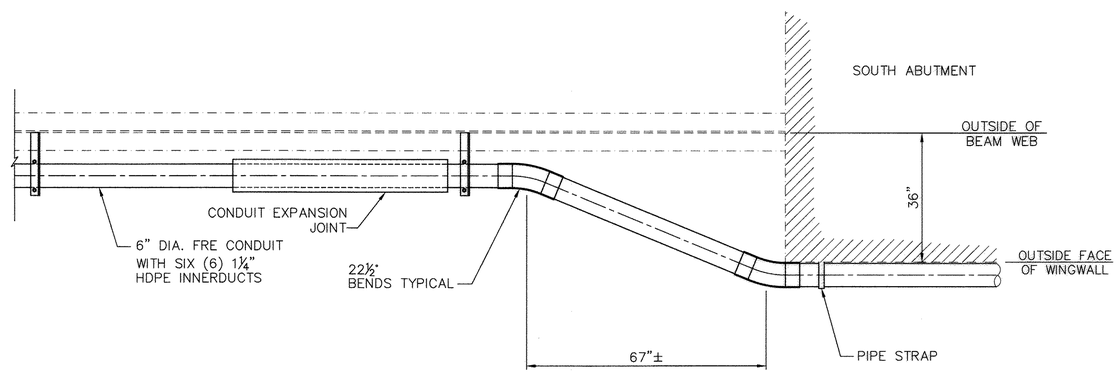
NOTE:
UNITED FIBERGLASS 6" STRAP COMES COMPLETE WITH TWO-EAR STRAP, CHISEL POINT STUDS, NUTS, WASHERS AND EPOXY CAPSULES.

PIPE STRAP DETAIL
NOT TO SCALE



SPACER PLACEMENT DETAIL
NOT TO SCALE



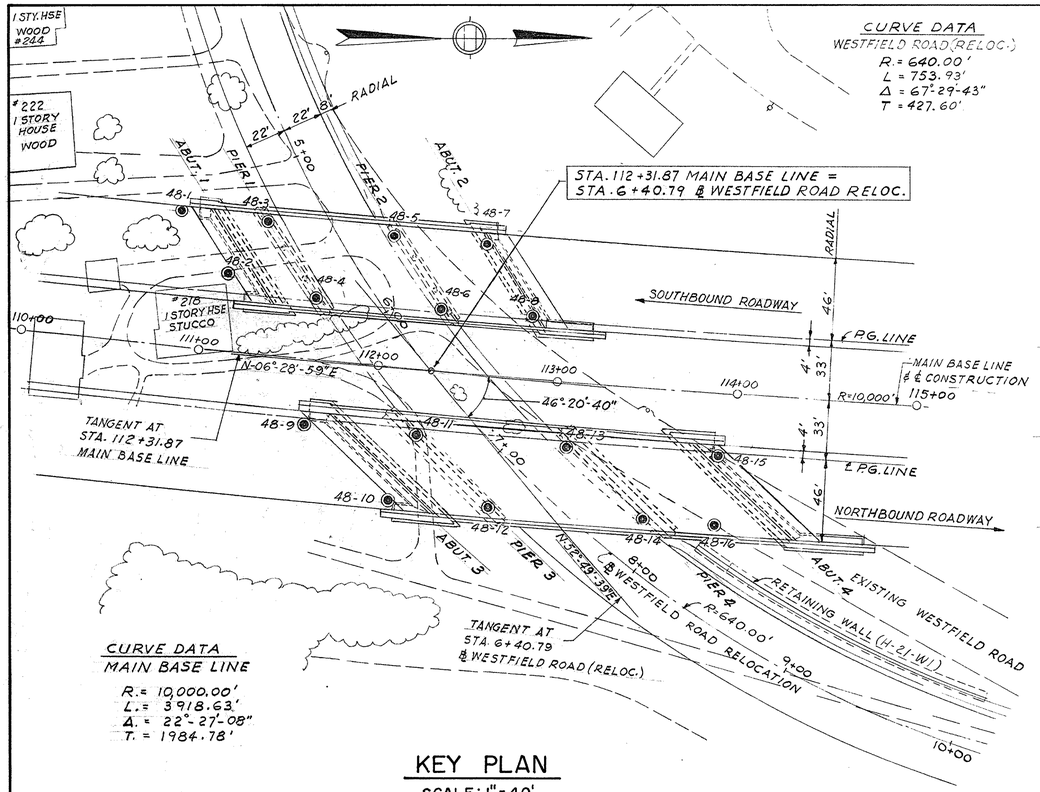


ATTACHMENT AT ABUTMENTS – PLAN VIEW
NOT TO SCALE

NOTE:
HANGERS SHALL BE SPACED NO MORE THAN 10' ON CENTER TO OFFSET POTENTIAL INTERFERENCES DUE TO ANY SPLICE PLATES, INTERMEDIATE STIFFENERS AND DIAPHRAGM CONNECTION PLATES THAT MAY BE LOCATED ON EITHER SIDE OF FASCIA GIRDER WEB.

DATE	DESCRIPTION
7/31/08	
USE ONLY PRINTS OF LATEST DATE	

S:\49792-Adesta MHD I-91\As-Built Package Jan 2011\Bridges\262-263 - H-21-047\263 - HANGER DETAILS.dwg, Sht.263, 7/8/2011 5:04:19 PM



KEY PLAN

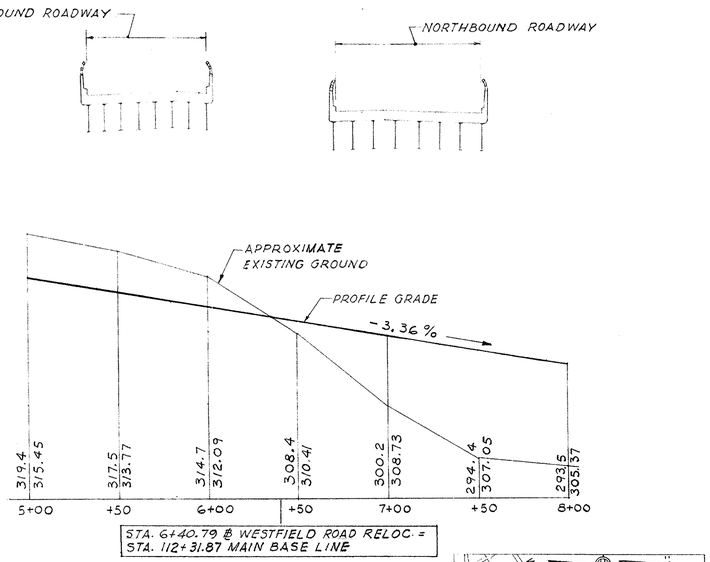
SCALE: 1" = 40'

CURVE DATA
MAIN BASE LINE

R. = 10,000.00'
L. = 3918.63'
Δ. = 22°-27'-08"
T. = 1984.78'

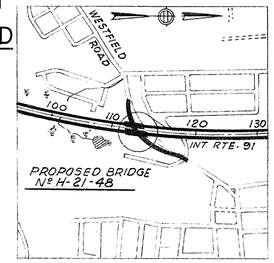
CURVE DATA
WESTFIELD ROAD (RELOC.)

R. = 640.00'
L = 753.93'
Δ = 67°-29'-43"
T = 427.60'

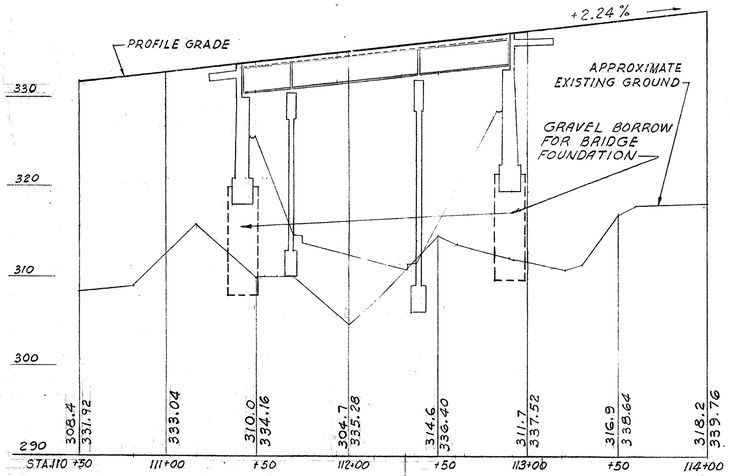


PROFILE ALONG WESTFIELD ROAD RELOCATION

SCALE: HOR. 1" = 40'
VERT. 1" = 8'

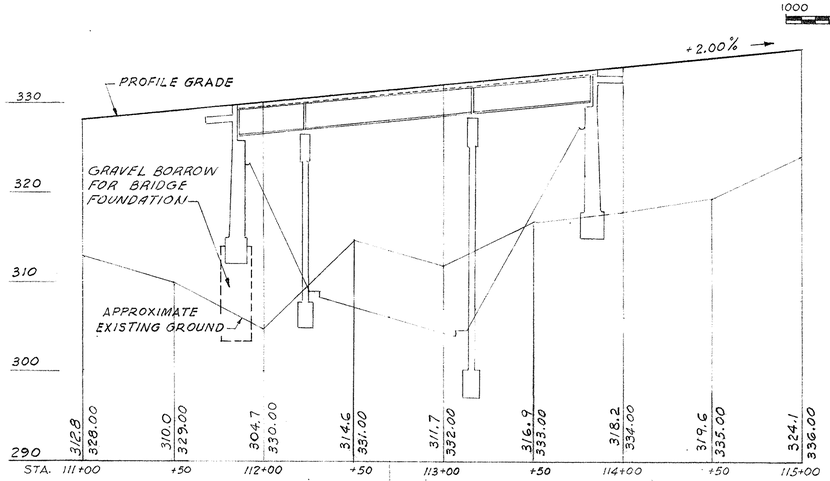


LOCUS PLAN



PROFILE ALONG SOUTHBOUND ROADWAY

SCALE: HOR. 1" = 40'
VERT. 1" = 8'



PROFILE ALONG NORTHBOUND ROADWAY

SCALE: HOR. 1" = 40'
VERT. 1" = 8'

PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	I-91-1(41)12	1964	169	1246

KEY PLAN & PROFILES

GENERAL NOTES

FOUNDATIONS:
FOUNDATIONS MAY BE ALTERED, IF NECESSARY, TO SUIT CONDITIONS ENCOUNTERED IN CONSTRUCTION.

DATE AND SEAL:
TO BE LOCATED AS SHOWN ON SHEET No.14. A SHEET SHOWING SIZE AND CHARACTER OF NUMERALS WILL BE FURNISHED BY THE COMMONWEALTH AND WILL BE SET BY THE CONTRACTOR.

DESIGN:
IN ACCORDANCE WITH THE SPECIFICATIONS OF THE AMERICAN ASSOCIATION OF STATE HIGHWAY OFFICIALS FOR H S20-44 LOADING 1961 EDITION (MODIFIED FOR MILITARY LOADING)

DESIGN STRESSES:

STRUCTURAL STEEL (ASTM A36)	20,000 P.S.I.
INTERMEDIATE GRADE REINFORCING STEEL	20,000 P.S.I.
CONCRETE CLASS A AND D	1,200 P.S.I.
CONCRETE CLASS B	1,000 P.S.I.

REINFORCEMENT:
ALL BARS SHALL HAVE DEFORMATIONS CONFORMING TO A.S.T.M. DESIGNATION A305. UNLESS OTHERWISE SHOWN ON PLANS, REINFORCING BARS SHALL BE LAPPED 20 DIAMETERS TO MAKE A SPLICE, EXCEPT THAT MAIN REINFORCING BARS NEAR THE TOP OF SLABS AND BEAMS HAVING MORE THAN 12 INCHES OF CONCRETE UNDER THE BARS SHALL BE LAPPED 35 DIAMETERS TO MAKE A SPLICE.

BENCH MARK:
BENCH MARK #9 EL. 305.761 R.R. SPIKE - BASE 18" MAPLE 100' EAST ℄ STA. 116+75

PEAT EXCAVATION: (see below)

ESTIMATED QUANTITIES
(NOT GUARANTEED)

BRIDGE EXCAVATION	1145 C.Y.
CLASS B ROCK EXCAVATION	10 C.Y.
GRAVEL BORROW	1320 C.Y.
GRAVEL BORROW FOR BRIDGE FOUNDATION	4900 C.Y.
CLASS I BITUMINOUS CONC. PAVEMENT TYPE I-1	236 TONS
BRIDGE STRUCTURE (H-21-48)	1 L.S.
METAL BRIDGE RAILING TYPE K OR ALUMINUM BRIDGE RAILING.	858 L.F.

THE FOLLOWING QUANTITIES ARE PART OF THE LUMP SUM ITEM (G-15-3) OF BRIDGE STRUCTURE AND ARE NOT GUARANTEED.

STRUCTURAL STEEL	628,800 LBS.
STEEL REINFORCEMENT FOR STRUCTURES	280,000 LBS.

PEAT EXCAVATION:
ALL PEAT OR OTHER UNSUITABLE MATERIAL SHALL BE REMOVED WITHIN THE LIMITS OF THE FOUNDATIONS OF THE STRUCTURE.

JAN. 3, 1966	⚠3 REVISION - SHEET No. 12 - ADDED SHEET NO. 12A
JUNE 29, 1965	⚠2 REVISION - SHEET NO. 6 & NO. 7
MAY 14, 1965	⚠1 REVISION - SHEET NO. 7
DEC. 19, 1964	ISSUED FOR CONSTRUCTION

THE COMMONWEALTH OF MASSACHUSETTS
PROPOSED BRIDGE

HOLYOKE

INTERSTATE ROUTE 91 STA. 112+31.87
OVER
WESTFIELD ROAD RELOCATION

SCALES AS NOTED
OFFICE OF
DEPARTMENT OF PUBLIC WORKS
100 NASHUA ST. BOSTON, MASS.
DEC. 1964

BRIDGE ENG. John Gover CHIEF ENG. Daniel Bridges P.E.

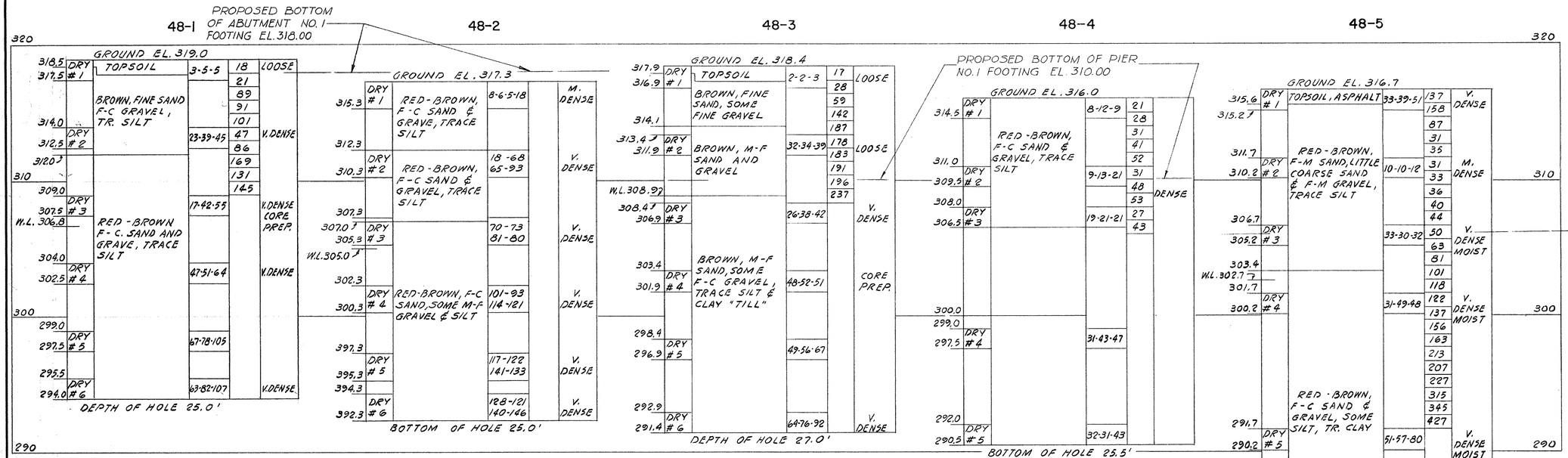
COMMONWEALTH OF MASSACHUSETTS
EDWIN M. HOWARD
REGISTERED PROFESSIONAL ENGINEER

WHITMAN & HOWARD, INC.
CONSULTING ENGINEERS
BOSTON, MASS.

SHEET 1 OF 15 SHEETS BRIDGE NO. H-21-48

PUB RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	I-91-1(41)12	1964	170	1246

BORING DATA



BORING NOTES:

1. LOCATION OF BORINGS ON SHEET NO. 1 SHOWN THUS ◉ NO. 48-1 .
2. BORINGS TAKEN FOR PURPOSE OF DESIGN AND SHOW CONDITIONS AT BORING POINTS ONLY, BUT DO NOT NECESSARILY SHOW MATERIALS TO BE ENCOUNTERED DURING CONSTRUCTION.
3. FIGURES SHOWN IN COLUMN ONE INDICATE SAMPLE NUMBER AND TYPE.
4. FIGURES SHOWN IN COLUMN THREE INDICATE BLOWS PER 6 INCH INCREMENT ON A 1 3/8" I.D. SAMPLER PRODUCED BY A 30" FALL OF 140 LB. HAMMER.
5. FIGURES SHOWN IN COLUMN FOUR INDICATE BLOWS PER FOOT ON A 2 1/2" I.D. CASING PRODUCED BY A 24" FALL OF A 300 LB. HAMMER.
6. BORINGS WERE TAKEN IN JULY, 1963 BY ALLSTATE DRILLING CO., 227 WAMPANOAG TRAIL, RIVERSIDE, R.I.
7. BORING SAMPLES MAY BE SEEN AT THE RESEARCH AND MATERIALS DIVISION, 99 WORCESTER STREET, WELLESLEY HILLS, AT THE INTERSECTION OF ROUTES 9 AND 128.
8. WATER LEVELS SHOWN ON THE BORING LOGS WERE OBSERVED DURING THE TAKING OF BORING AND DO NOT NECESSARILY SHOW THE TRUE GROUND WATER LEVEL.

BORING LOGS

VERT. SCALE: 1/4" = 1'-0"

DEC. 19, 1964	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	I-91-1(41)12	1964	171	1246

BORING DATA

48-9

GROUND EL. 302.1

301.8	DRY	TOPSOIL	4-4-7	18	LOOSE
300.6	# 1			22	
300		RED-BROWN, M-F SAND, SOME GRAVEL, TR. SILT		28	
297.8				33	
297.1				56	
W.L. 296.0	DRY	RED-BROWN, M-F SAND, SOME GRAVEL, LITTLE SILT	8-12-17	32	LOOSE
295.6 J	# 2			54	
293.6				63	M. DENSE
292.1		BROWN, F-M SAND & GRAVEL, TRACE SILT AND CLAY		77	
290.6	DRY # 3		18-22-28	108	V. DENSE
290	289.6				
287.1	DRY		28-31-31		V. DENSE
285.6	# 4				
282.1		RED-BROWN, F-C SAND & GRAVEL, SOME SILT			V. DENSE CORE PREP.
280	DRY # 5		31-41-52		
280.6					
273.6	DRY				
272.1	# 6		38-42-31		V. DENSE

DEPTH OF HOLE 30.0'

48-10

PROPOSED BOTTOM OF ABUTMENT NO.3 FOOTING EL 312.00

GROUND EL. 295.8

295.5	DRY	TOPSOIL	2-4-7	18	LOOSE
294.3	# 1			23	
		RED-BROWN M-F SAND, SOME FINE GRAVEL, TRACE SILT		28	
290.8				31	
289.3	DRY # 2		8-10-17	54	
				22	M. DENSE
286.8				43	
W.L. 286.6				51	
285.8 J	DRY			58	
284.3	# 3			63	
		RED-BROWN M-F SAND, SOME GRAVEL AND SILT, TR. CLAY	10-18-32	65	V. DENSE
280.8				76	
279.3	DRY # 4			87	
			12-19-34	89	
275.8				117	V. DENSE
274.3	DRY # 5		19-31-42		
271.3					
270.8 J	DRY				V. DENSE CORE PREP.
269.3	# 6	RED-BROWN F-C SAND AND GRAVEL, SOME SILT, TRACE CLAY	54-48-51		
263.8					
262.3	DRY				
260.8	# 7	RED-BROWN, FINE SAND, SOME GRAVEL AND SILT, TRACE CLAY	21-27-31		
257.3					
255.8	DRY # 8		49-22-36		V. DENSE

DEPTH OF HOLE 40.0'

48-11

PROPOSED BOTTOM OF PIER NO.3 FOOTING EL 305.00

GROUND EL. 300.6

300.1	DRY	TOPSOIL	3-3-4	17	LOOSE
299.1	# 1			27	
296.3		BROWN, F-M SAND AND GRAVEL		29	
295.6				76	
				98	
294.1	DRY # 2	BROWN, FINE SAND AND GRAVEL, TRACE SILT	32-36-38	169	LOOSE
291.6				177	
290.6				148	
289.1	DRY # 3		18-28-32	176	V DENSE
285.6				197	
284.1	DRY # 4	BROWN, F-M SAND, SOME GRAVEL AND SILT, TRACE CLAY	38-46-48		V. DENSE CORE PREP.
W.L. 283.4					
280.6					
279.1	DRY # 5		47-53-67		
277.1					
275.6	DRY # 6		48-61-72		V. DENSE

DEPTH OF HOLE 25.0'

48-12

GROUND EL. 293.8

293.3	DRY	TOPSOIL	2-3-5	17	LOOSE
292.3	# 1			24	
		BROWN, FINE SAND AND GRAVEL, TRACE SILT		36	
W.L. 289.6				45	LOOSE
289.5				81	
288.8	DRY			26	DENSE
287.3	# 2	BROWN M-F SAND AND GRAVEL, SOME SILT, TRACE CLAY	17-28-25	48	
				53	
283.8				59	
282.3	DRY # 3		22-28-21	77	V. DENSE
278.8		BROWN, FINE SAND AND F-C GRAVEL, TRACE CLAY			
277.3	DRY # 4		27-33-42		
273.8					
272.3	DRY # 5		42-51-67		
			NO REC.		
270.3					
268.8	DRY # 6		47-51-63		V. DENSE

DEPTH OF HOLE 25.0'

48-13

GROUND EL. 311.1

310					
309.6	DRY #1	RED-BROWN, F-M SAND AND F-C GRAVEL, TRACE SILT	4-4-3	21	LOOSE
				17	
306.6				7	
305.1	DRY # 2		11-11-19	9	
				14	DENSE
301.1					
300	DRY # 3	RED-BROWN, F-C SAND AND GRAVEL, LITTLE SILT, TRACE CLAY	39-43-48		V. DENSE
296.1					
294.6	DRY # 4		28-23-31		V. DENSE
291.1					
290	DRY # 5		27-37-44		V. DENSE
289.6					
287.1	DRY				
285.6	# 6		31-21-34		V. DENSE

HOLE COMPLETED AT 25.5'

48-14

PROPOSED BOTTOM OF PIER NO. 4 FOOTING EL. 297.00

GROUND EL. 298.8

298.5	DRY	TOPSOIL	2-2-3	17	LOOSE
297.3	# 1			23	
		BROWN, FINE SAND, TRACE SILT		28	
294.8				64	
293.8				72	
W.L. 293.0	DRY			26	LOOSE
292.3	# 2	RED-BROWN, F-C SAND AND GRAVEL, LITTLE SILT	7-17-21	31	DENSE
				49	
288.8				48	
287.3	DRY # 3		8-16-24	89	DENSE
284.3					
283.8 J	DRY				
282.3	# 4		18-28-64		V. DENSE
			NO REC.		
278.8		RED-BROWN F-M SAND AND GRAVEL LITTLE SILT			
277.3	DRY # 5		18-48-52		
273.3					
271.8	DRY # 6		41-63-70		V. DENSE

DEPTH OF HOLE 27.0'

48-15

PROPOSED BOTTOM OF ABUTMENT NO. 4 FOOTING EL. 315.50

48-16

GROUND EL. 307.3

307.0	DRY	TOPSOIL	3-4-6	17	LOOSE
305.8	# 1			22	
		RED-BROWN FINE SAND AND GRAVEL		38	
303.0				47	LOOSE
302.3				69	
300.8	DRY # 2	RED-BROWN F-M SAND AND GRAVEL, LITTLE SILT	21-26-33	63	
				56	
298.3				71	
297.3				93	V. DENSE
295.8	DRY # 3		18-27-62	102	V. DENSE
292.3		RED-BROWN F-M SAND AND GRAVEL, SOME SILT, TRACE CLAY			
W.L. 291.5	DRY				
290.8	# 4		31-21-41		
287.3					
285.8	DRY # 5		20-26-33		
283.8					
282.3	DRY # 6		22-36-39		V. DENSE

DEPTH OF HOLE 25.0'

GROUND EL. 307.3

305.8	DRY	RED-BROWN, F-M SAND AND GRAVEL	3-3-5	37	LOOSE
302.3	#1			56	
				63	
300.8	DRY # 2	RED-BROWN, F-M SAND AND GRAVEL, TRACE SILT AND BOULDERS	12-28-53	71	
				87	
298.3				28	V. DENSE
297.3				37	
295.8	DRY # 3	RED-BROWN, F-C SAND AND GRAVEL AND SILT	18-68-48	51	
293.1				67	
292.3				89	V. DENSE CORE PREP.
290.8	DRY # 4		39-46-61		V. DENSE
287.3		RED-BROWN, F-M SAND AND GRAVEL, LITTLE SILT, TRACE CLAY			
285.8	DRY # 5		28-23-21		
283.8					
282.3	DRY # 6		18-23-31		V. DENSE

DEPTH OF HOLE 25.0'

BORING LOGS

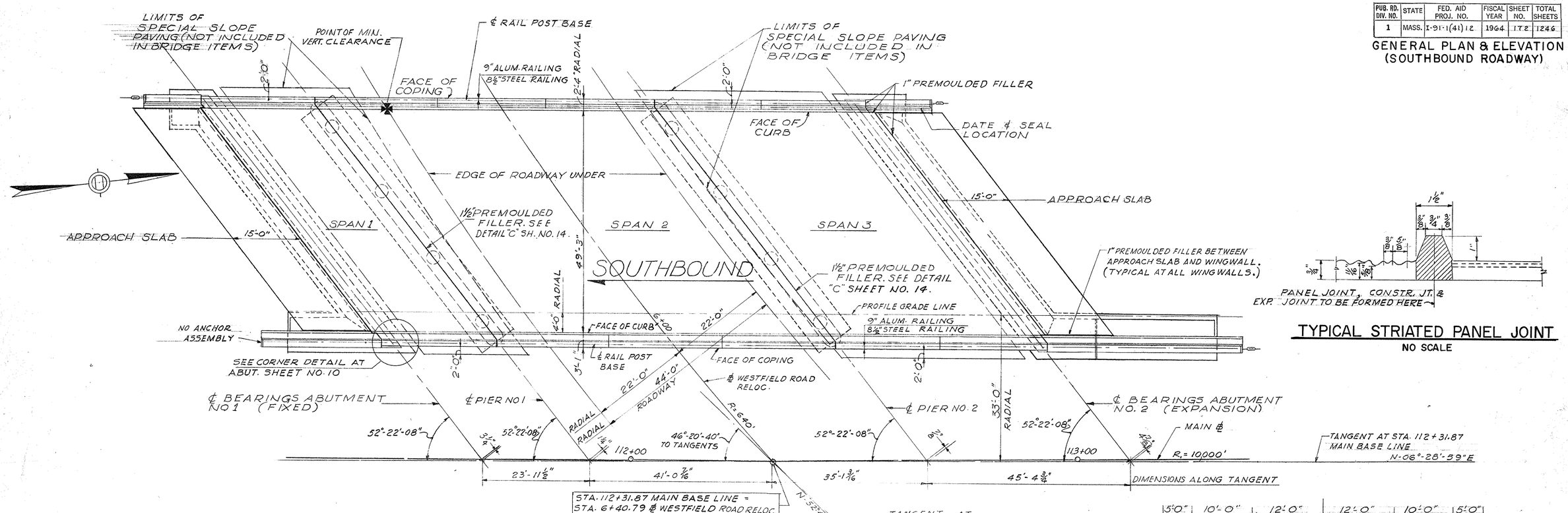
VERT. SCALE: 1/4" = 1'-0"

NOTE:
FOR BORING NOTES SEE SHEET NO. 2 .

DATE	DESCRIPTION
DEC. 19, 1964	ISSUED FOR CONSTRUCTION
USE ONLY PRINTS OF LATEST DATE	

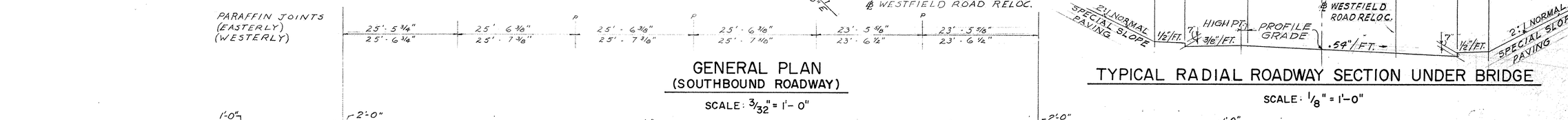
PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	I-91-1(41)12	1964	172	1246

GENERAL PLAN & ELEVATION (SOUTHBOUND ROADWAY)



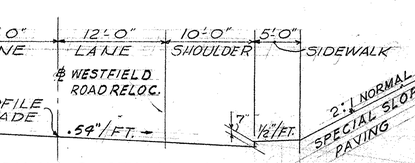
TYPICAL STRIATED PANEL JOINT

NO SCALE



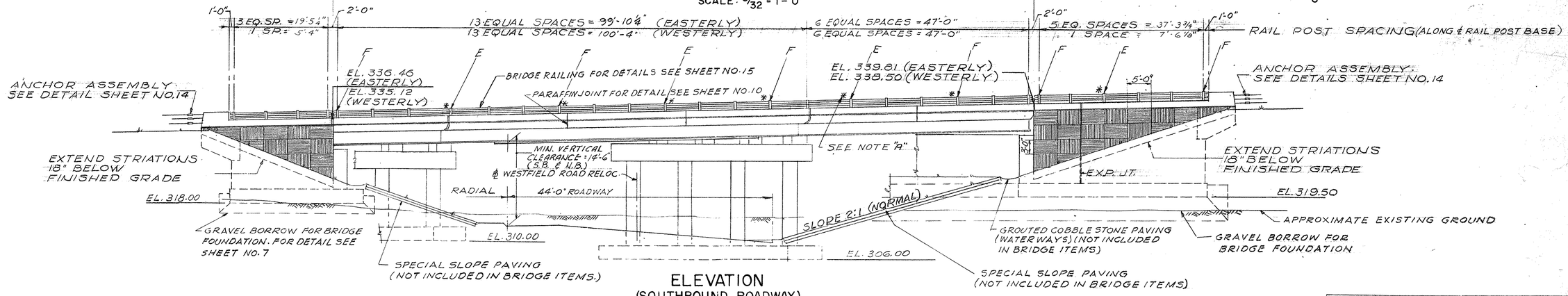
GENERAL PLAN (SOUTHBOUND ROADWAY)

SCALE: 3/32" = 1'-0"



TYPICAL RADIAL ROADWAY SECTION UNDER BRIDGE

SCALE: 1/8" = 1'-0"



ELEVATION (SOUTHBOUND ROADWAY)

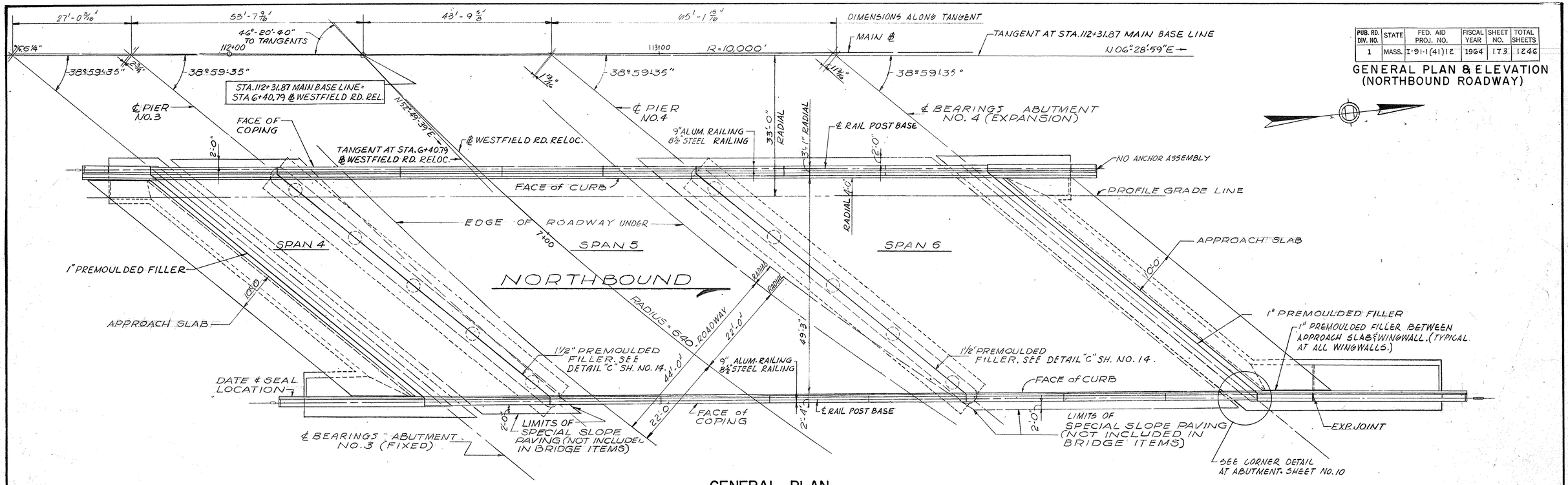
SCALE: 3/32" = 1'-0

NOTE "A": EXPANSION JOINTS SHOWN THUS * ON ELEVATION VIEW ARE FOR METAL BRIDGE RAILING TYPE K ONLY. POSTS MARKED E OR F DENOTE THE LOCATION OF THE EXPANSION AND FIXED POSTS RESPECTIVELY FOR THE ALUMINUM BRIDGE RAILING ONLY.

DATE	DESCRIPTION
DEC. 19, 1964	ISSUED FOR CONSTRUCTION
USE ONLY PRINTS OF LATEST DATE	

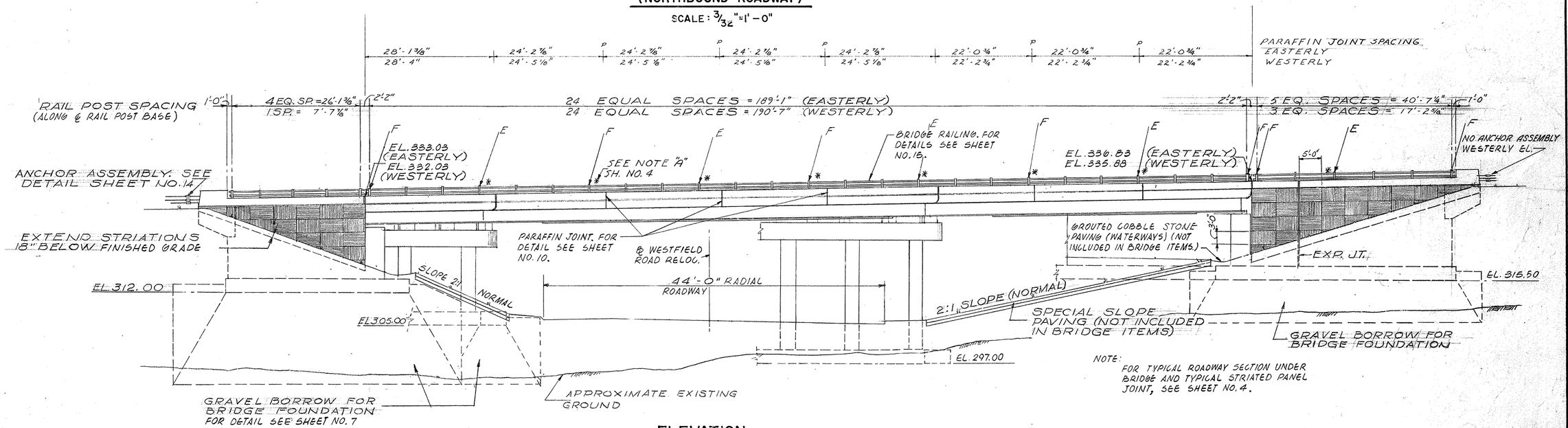
PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	I-91-1(41)12	1964	173	1246

GENERAL PLAN & ELEVATION (NORTHBOUND ROADWAY)



GENERAL PLAN (NORTHBOUND ROADWAY)

SCALE: 3/32" = 1'-0"



NOTE:
FOR TYPICAL ROADWAY SECTION UNDER BRIDGE AND TYPICAL STRIATED PANEL JOINT, SEE SHEET NO. 4.

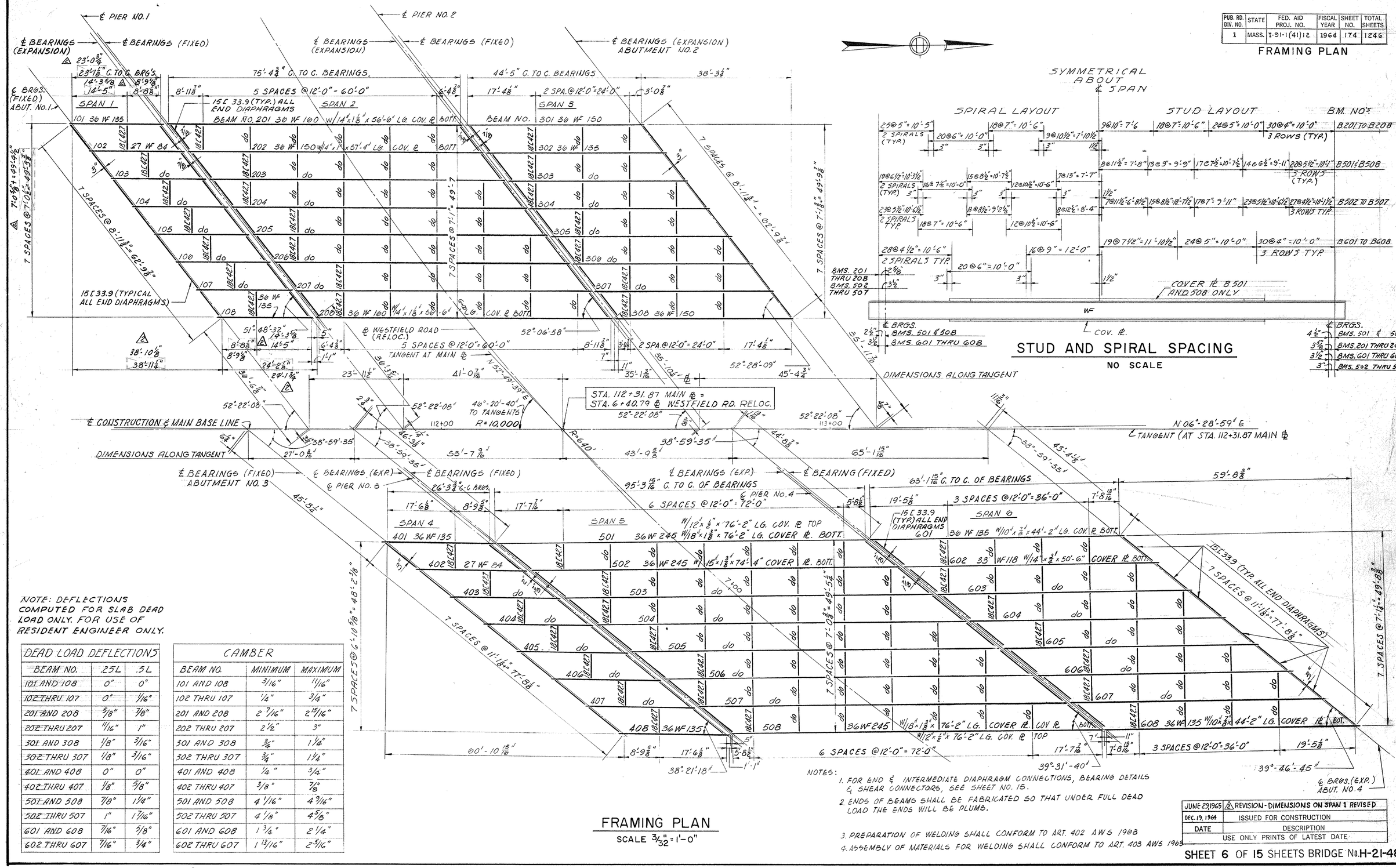
ELEVATION (NORTHBOUND ROADWAY)

SCALE: 3/32" = 1'-0"

DATE	DESCRIPTION
DEC. 19, 1964	ISSUED FOR CONSTRUCTION
USE ONLY PRINTS OF LATEST DATE	

PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	I-91-1(41)12	1964	174	1246

FRAMING PLAN



STUD AND SPIRAL SPACING

NO SCALE

FRAMING PLAN

SCALE 3/32" = 1'-0"

NOTE: DEFLECTIONS COMPUTED FOR SLAB DEAD LOAD ONLY. FOR USE OF RESIDENT ENGINEER ONLY.

DEAD LOAD DEFLECTIONS		
BEAM NO.	.25L	.5L
101 AND 108	0"	0"
102 THRU 107	0"	1/16"
201 AND 208	5/8"	7/8"
202 THRU 207	11/16"	1"
301 AND 308	1/8"	3/16"
302 THRU 307	1/8"	3/16"
401 AND 408	0"	0"
402 THRU 407	1/8"	5/8"
501 AND 508	7/8"	1¼"
502 THRU 507	1"	1 7/16"
601 AND 608	7/16"	5/8"
602 THRU 607	7/16"	¾"

CAMBER		
BEAM NO.	MINIMUM	MAXIMUM
101 AND 108	3/16"	1 1/16"
102 THRU 107	¼"	¾"
201 AND 208	2 7/16"	2 15/16"
202 THRU 207	2½"	3"
301 AND 308	¾"	1¼"
302 THRU 307	¾"	1¼"
401 AND 408	¼"	½"
402 THRU 407	⅜"	⅞"
501 AND 508	4 1/16"	4 3/16"
502 THRU 507	4 ⅛"	4 5/8"
601 AND 608	1 ¾"	2¼"
602 THRU 607	1 13/16"	2 5/16"

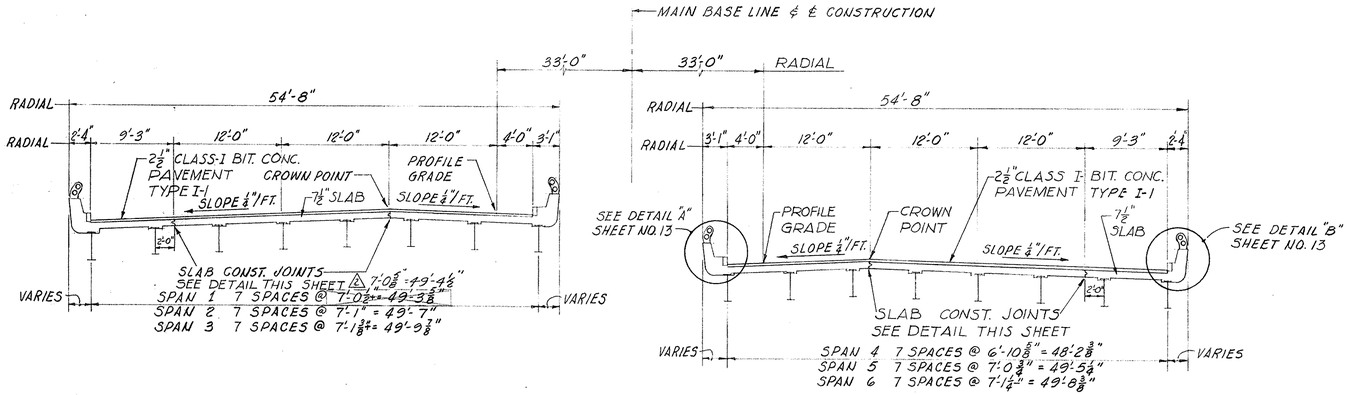
NOTES:

1. FOR END & INTERMEDIATE DIAPHRAGM CONNECTIONS, BEARING DETAILS & SHEAR CONNECTORS, SEE SHEET NO. 15.
2. ENDS OF BEAMS SHALL BE FABRICATED SO THAT UNDER FULL DEAD LOAD THE ENDS WILL BE PLUMB.
3. PREPARATION OF WELDING SHALL CONFORM TO ART. 402 AWS 1963
4. ASSEMBLY OF MATERIALS FOR WELDING SHALL CONFORM TO ART. 403 AWS 1963

DATE	DESCRIPTION
JUNE 29, 1965	⚠ REVISION - DIMENSIONS ON SPAN 1 REVISED
DEC. 19, 1964	ISSUED FOR CONSTRUCTION

USE ONLY PRINTS OF LATEST DATE

PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	I-91-1(41)12	1964	175	1246

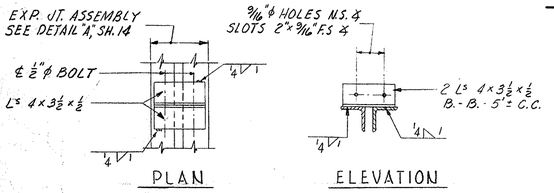


SOUTHBOUND ROADWAY

NORTHBOUND ROADWAY

TYPICAL CROSS SECTION

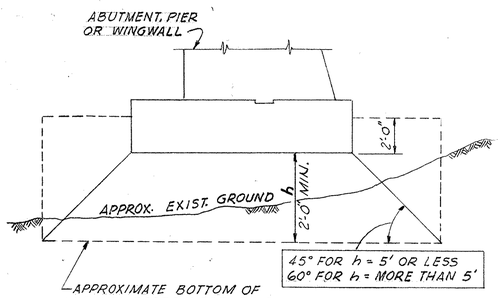
SCALE: 1/8" = 1'-0"



SHIPPING DEVICE FOR EXP. JT. ASSEMBLY

SCALE: 1" = 1'-0"

NOTES: ALL EXPANSION JOINT ASSEMBLIES MUST BE PROPERLY FITTED IN SHOP & SHIPPED WITH DEVICE FOR MAINTAINING PROPER SPACING & FIT. BOLTS ON SHIPPING DEVICE MUST BE LOOSENED WITHIN ONE HOUR AFTER CONCRETE IS PLACED SO THAT MOVEMENT MAY TAKE PLACE. DEVICE SHALL BE REMOVED AFTER CONCRETE HAS SET ON BOTH SIDES OF ASSEMBLY.



GRAVEL BORROW FOR BRIDGE FOUNDATION

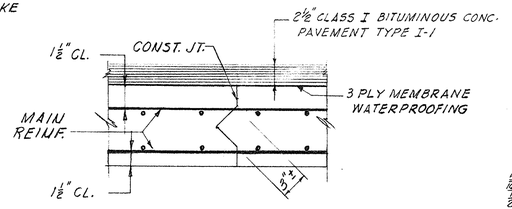
NO SCALE

NOTE:
ALL UNSUITABLE MATERIAL TO BE EXCAVATED AND REPLACED WITH GOOD COMPACTED GRAVEL



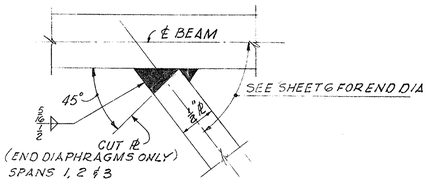
WELDING DIAPHRAGM CONNECTION

NO SCALE



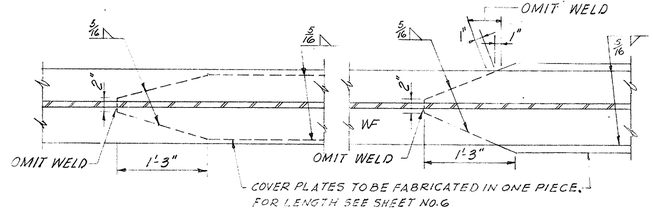
CONSTRUCTION JOINT IN ROADWAY SLAB

NO SCALE



WELDING DIAPHRAGM CONNECTION

NO SCALE



COVER PLATE DETAILS

NO SCALE

DESIGN ELEVATIONS ALONG TOP FLANGE OF BEAM

BEAM NO.	BEARING AT ABUT. NO. 1	¼ POINT	½ POINT	¾ POINT	BEARING AT PIER NO. 1
101	331.79	331.90	332.02	332.16	332.31
102	332.06	332.17	332.29	332.43	332.58
103	332.34	332.44	332.53	332.70	332.86
104	332.61	332.71	332.84	332.97	333.13
105	332.88	332.99	333.11	333.25	333.40
106	333.06	333.16	333.28	333.42	333.58
107	333.04	333.14	333.26	333.40	333.55
108	333.01	333.12	333.24	333.38	333.53
BEAM NO.	BEARING AT PIER NO.1	¼ POINT	½ POINT	¾ POINT	BEARING AT PIER NO.2
201	332.30	332.87	333.02	333.72	334.00
202	332.57	333.15	333.29	333.00	334.27
203	332.84	333.42	333.53	334.27	334.54
204	333.11	333.69	334.84	334.54	334.81
205	333.39	333.96	334.11	334.81	335.08
206	333.56	334.14	334.28	334.99	335.26
207	333.54	334.11	334.26	334.96	335.23
208	333.51	334.09	334.24	334.94	335.21
BEAM NO.	BEARING AT PIER NO. 2	¼ POINT	½ POINT	¾ POINT	BEARING AT ABUT. NO. 2
301	334.07	334.26	334.49	334.76	335.07
302	334.34	334.54	334.77	335.04	335.34
303	334.61	334.81	335.04	335.31	335.61
304	334.88	335.08	335.31	335.58	335.88
305	335.15	335.35	335.58	335.85	336.15
306	335.33	335.52	335.75	336.02	336.33
307	335.30	335.50	335.73	335.00	336.30
308	335.28	335.47	335.69	335.96	336.27
BEAM NO.	BEARING AT ABUT. NO. 3	¼ POINT	½ POINT	¾ POINT	BEARING AT PIER NO. 3
401	328.72	328.87	329.00	329.14	329.25
402	329.04	329.19	329.34	329.46	329.57
403	329.35	329.52	329.65	329.78	329.88
404	329.47	329.63	329.77	329.89	329.99
405	329.50	329.65	329.79	329.91	329.02
406	329.53	329.68	329.82	329.94	329.04
407	329.55	329.71	329.85	329.96	330.07
408	329.58	329.73	329.87	329.98	330.09
BEAM NO.	BEARING AT PIER NO.3	¼ POINT	½ POINT	¾ POINT	BEARING AT PIER NO.4
501	329.22	329.96	330.48	330.91	331.11
502	329.54	330.24	330.80	331.18	331.43
503	329.86	330.56	331.12	331.50	331.75
504	329.97	330.67	331.24	331.62	331.87
505	329.99	330.69	331.26	331.64	331.89
506	330.02	330.72	331.28	331.67	331.91
507	330.05	330.74	331.30	331.68	331.92
508	330.07	330.76	331.32	331.70	331.94
BEAM NO.	BEARING AT PIER NO.4	¼ POINT	½ POINT	¾ POINT	BEARING AT ABUT. NO.4
601	331.16	331.58	331.94	332.21	332.41
602	331.48	331.90	332.26	332.53	332.73
603	331.79	332.21	332.57	332.83	333.03
604	331.92	332.34	332.70	332.97	333.17
605	331.93	332.36	332.72	332.99	333.19
606	331.95	332.38	332.74	333.01	333.21
607	331.97	332.40	332.76	333.03	333.23
608	331.98	332.41	332.78	333.05	333.25

NOTE:
ELEVATIONS COMPUTED FOR USE OF RESIDENT ENGINEER ONLY.
THE DESIGN ELEVATIONS ABOVE ARE FOR BEAMS IN PLACE AND INCLUDE THE DEFLECTION DUE TO THE DEAD LOAD OF THE STRUCTURAL STEEL ONLY.

MISCELLANEOUS DETAILS (2)

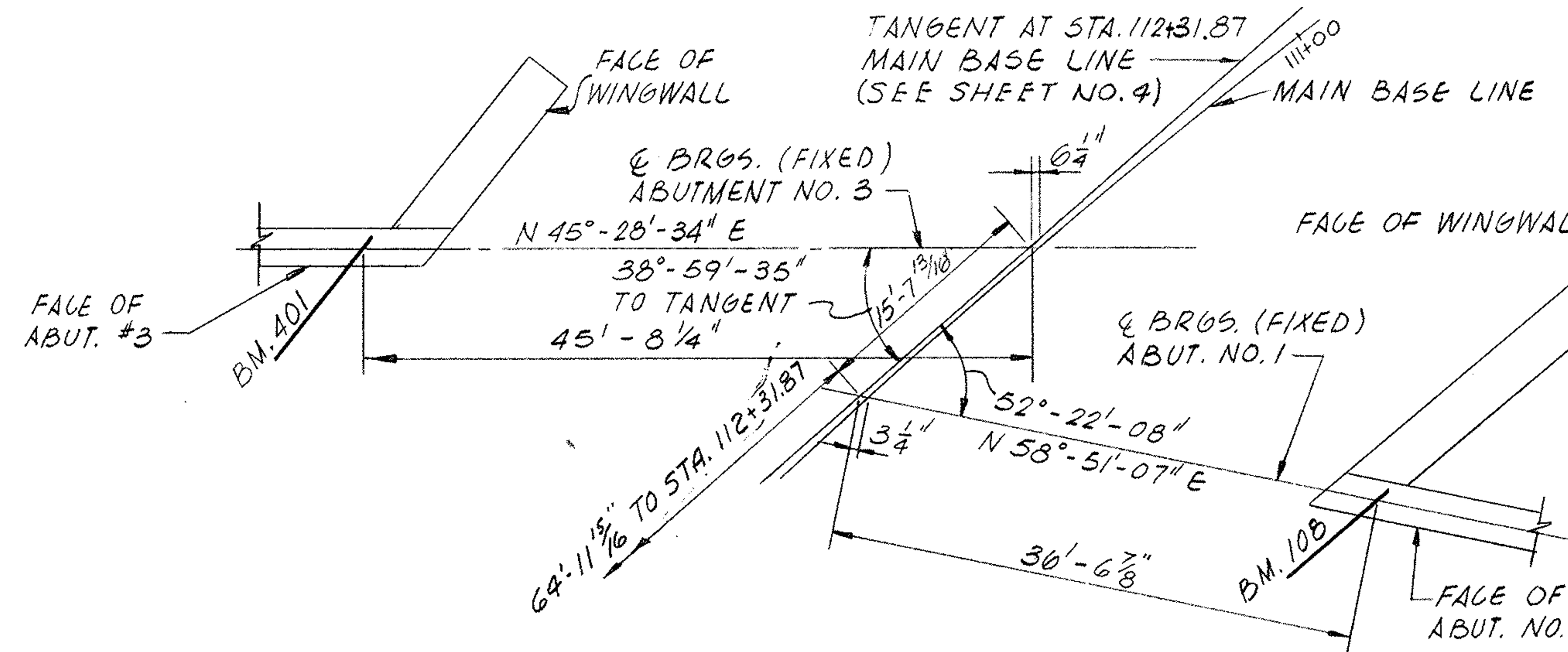
BEAM NO	¼ POINT	½ POINT	¾ POINT
101	331.93	332.07	332.19
102	332.21	332.34	332.47
103	332.48	332.61	332.74
104	332.75	332.89	333.01
105	333.02	333.16	333.28
106	333.20	333.34	333.46
107	333.18	333.31	333.44
108	333.15	333.28	333.41
201	332.85	333.32	333.70
202	333.12	333.60	333.97
203	333.39	333.87	334.24
204	333.66	334.13	334.51
205	333.94	334.41	334.78
206	334.11	334.58	334.96
207	334.09	334.56	334.93
208	334.06	334.53	334.91
301	334.36	334.62	334.86
302	334.63	334.90	335.13
303	334.90	335.17	335.40
304	335.17	335.44	335.67
305	335.44	335.71	335.94
306	335.62	335.88	336.12
307	335.59	335.86	336.09
308	335.56	335.83	336.06
401	—	—	—
402	—	—	—
403	—	—	329.76
404	—	—	—
405	—	—	—
406	—	—	—
407	—	329.83	—
408	—	329.85	—
501	329.88	330.43	330.83
502	330.20	330.75	331.15
503	330.52	331.07	331.47
504	330.64	331.19	331.59
505	330.66	331.21	331.61
506	330.68	331.23	331.63
507	330.71	331.25	331.64
508	330.73	331.27	331.66
601	331.56	331.91	332.19
602	331.88	332.23	332.51
603	332.19	332.53	332.81
604	332.32	332.67	332.95
605	332.34	332.68	332.97
606	332.36	332.70	332.99
607	332.38	332.72	333.00
608	332.39	332.74	333.03

330.02
330.04 △1

DATE	DESCRIPTION
JUNE 29 1965	△2 REVISION - DIM. ON TYPICAL CROSS SECT.
MAY 14, 1965	△1 REVISION - ELEVATION REVISED
DEC. 19, 1964	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

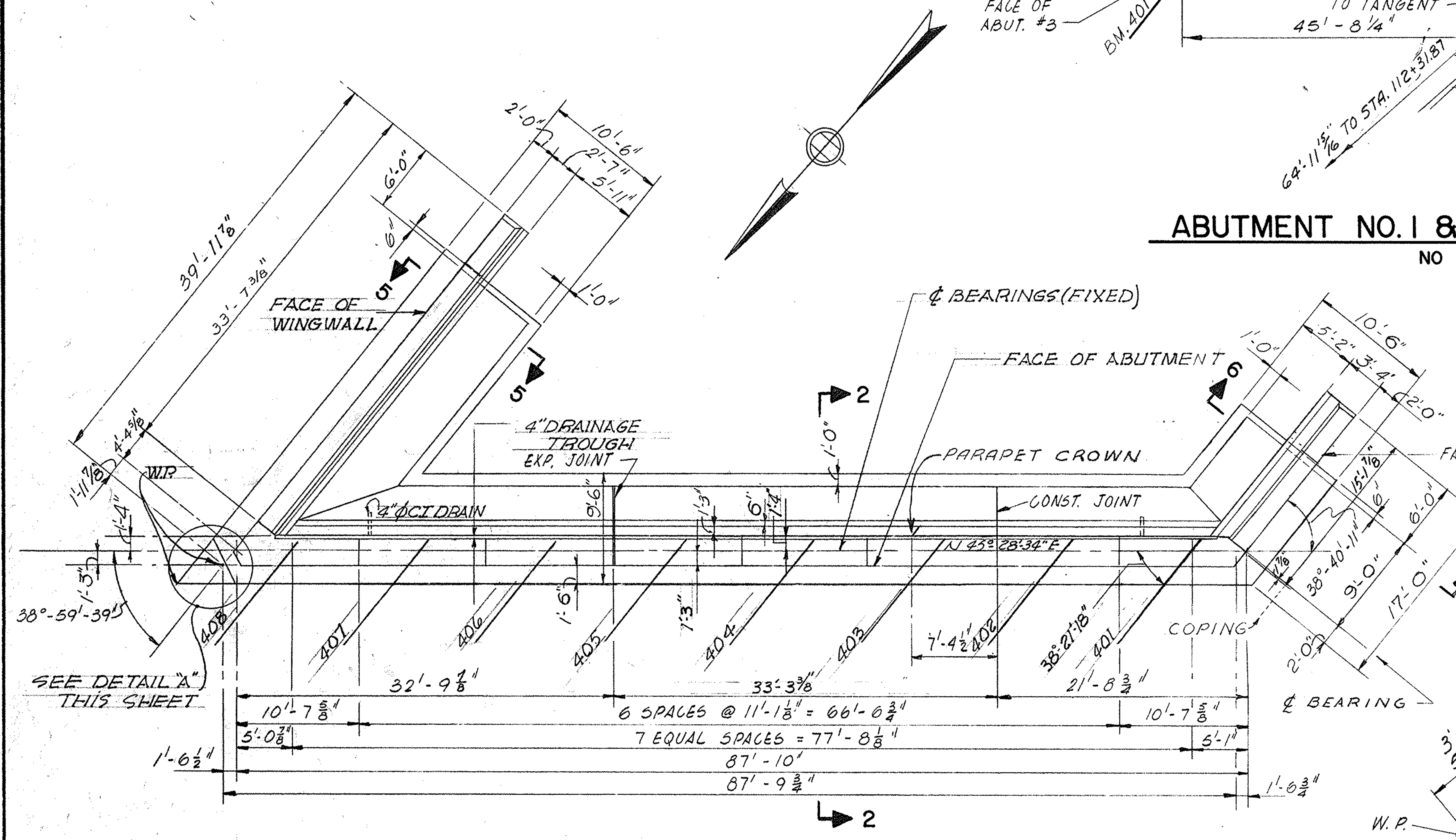
PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	I-91-1(41)12	1964	176	1246

ABUTMENTS 1&3



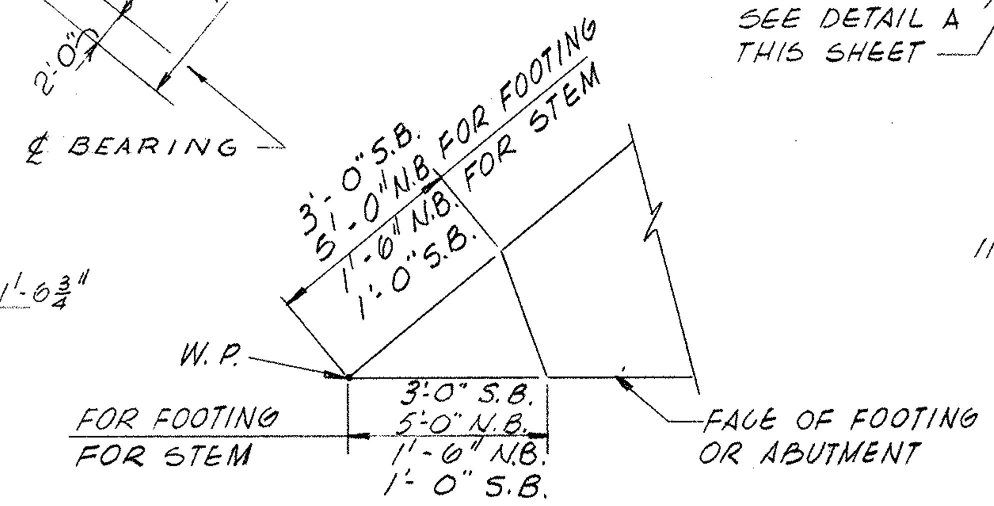
ABUTMENT NO. 1 & 3 LOCATION PLAN

NO SCALE



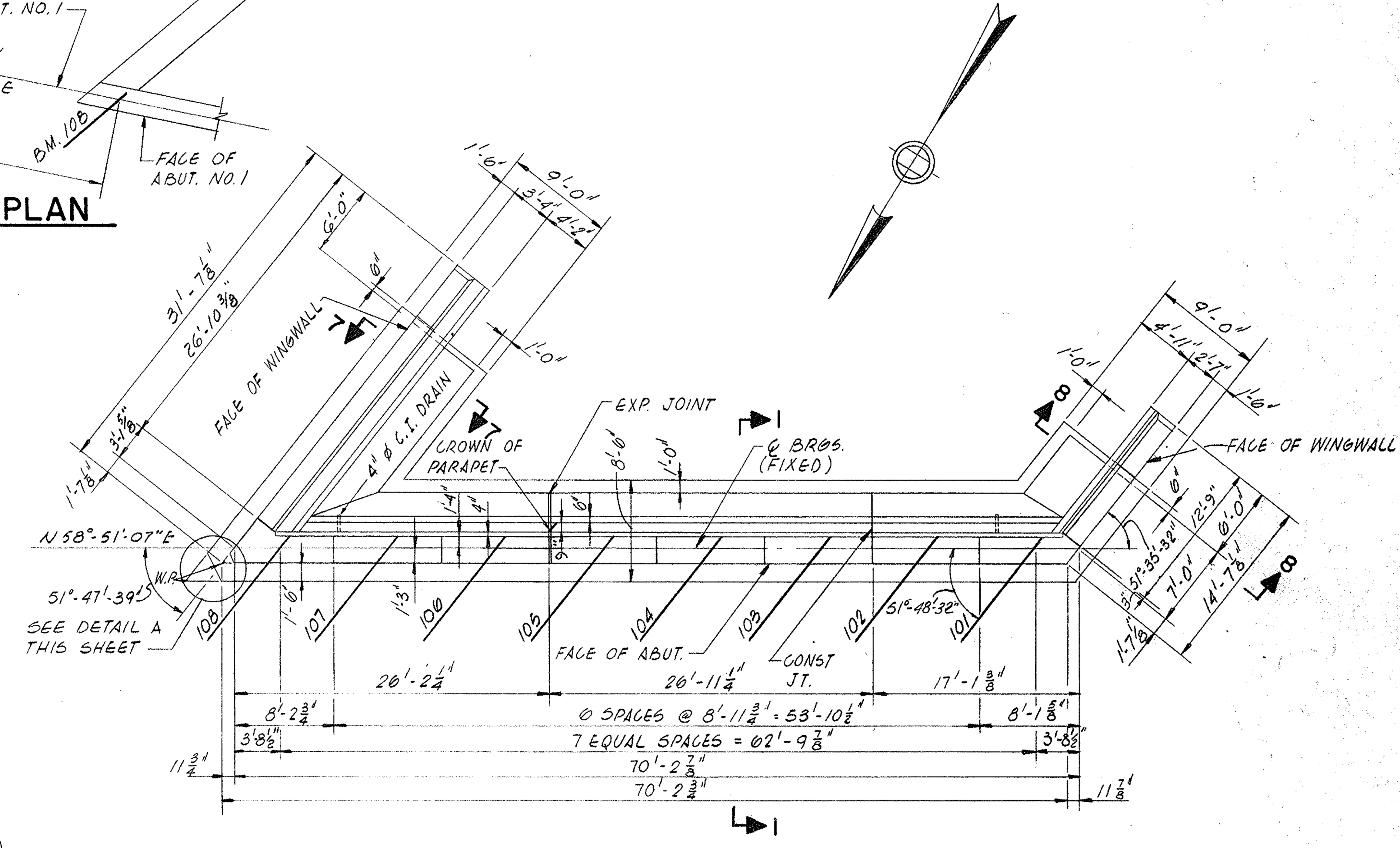
PLAN-ABUTMENT NO. 3

SCALE: 1/8" = 1'-0"



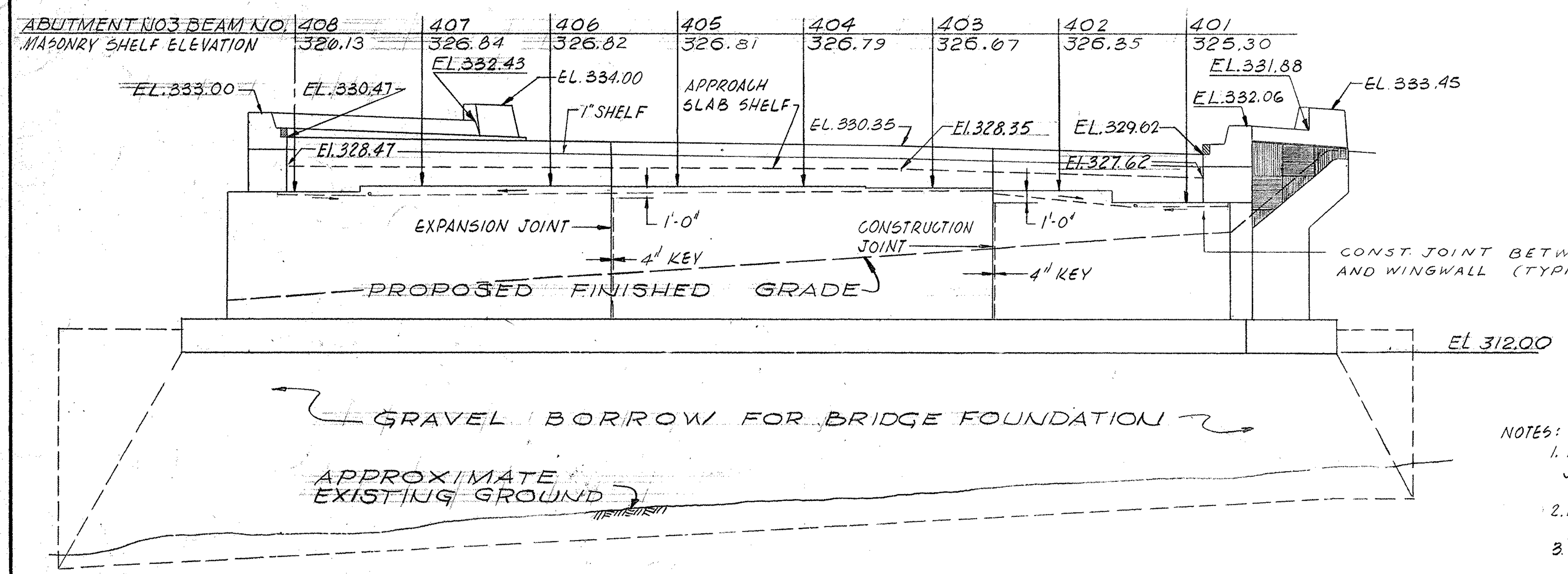
DETAIL A

NO SCALE



PLAN-ABUTMENT NO. 1

SCALE: 1/8" = 1'-0"

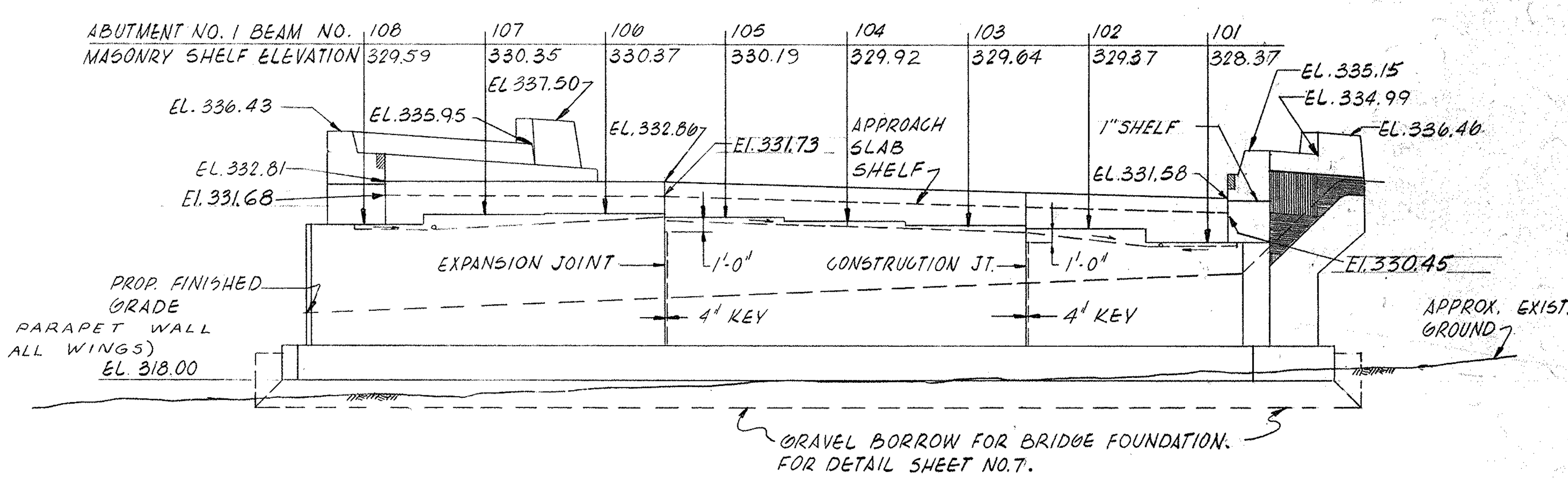


ELEVATION-ABUTMENT NO. 3

SCALE: 1/8" = 1'-0"

NOTES:

1. FOR NUMBERED SECTIONS, EXPANSION AND CONSTRUCTION JOINT DETAILS SEE SHEET NO. 10.
2. FOR FOOTING LOCATION PLAN, SEE SHEET NO. 13.
3. PARAPET ELEVATIONS FOR ABUTMENT NO. 1 ARE GIVEN AT FACE OF PARAPET. PARAPET ELEVATIONS FOR ABUTMENT NO. 3 ARE TO TOP OF ROADWAY AT FACE OF PARAPET.
4. MASONRY SHELF ELEVATIONS ARE GIVEN TO UNDERSIDE OF MASONRY PLATES.



ELEVATION-ABUTMENT NO. 1

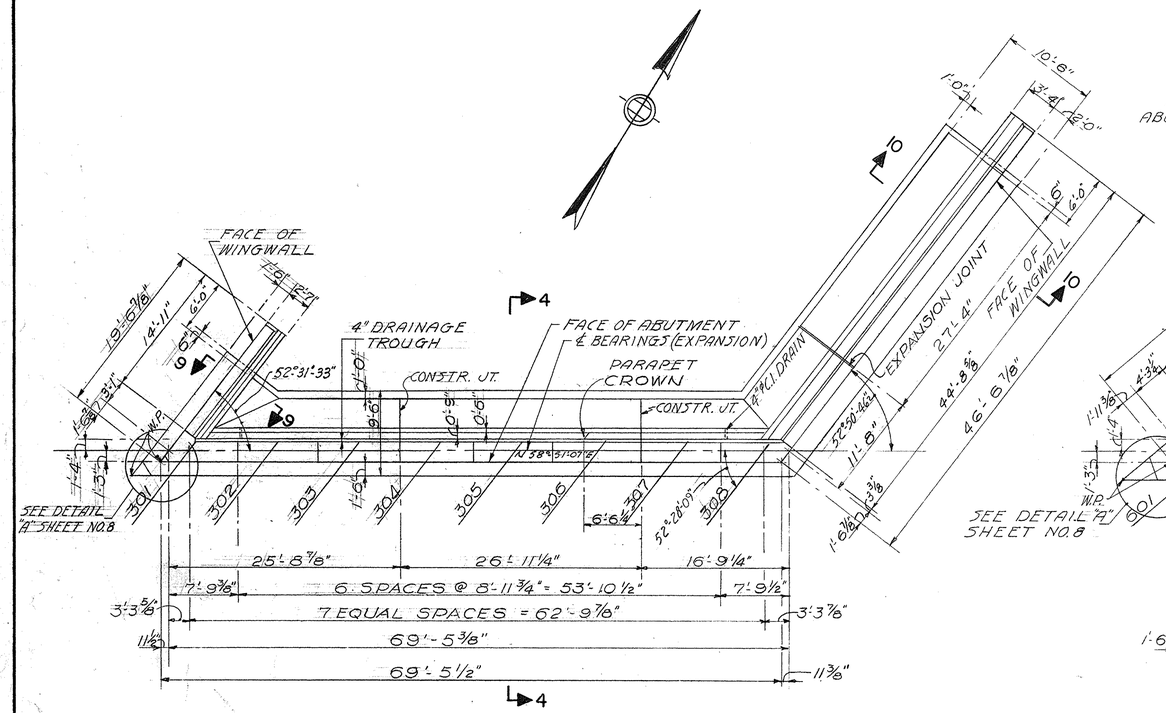
SCALE: 1/8" = 1'-0"

DEC. 19, 1964	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

SHEET 8 OF 15 SHEETS BRIDGE No. H-21-48

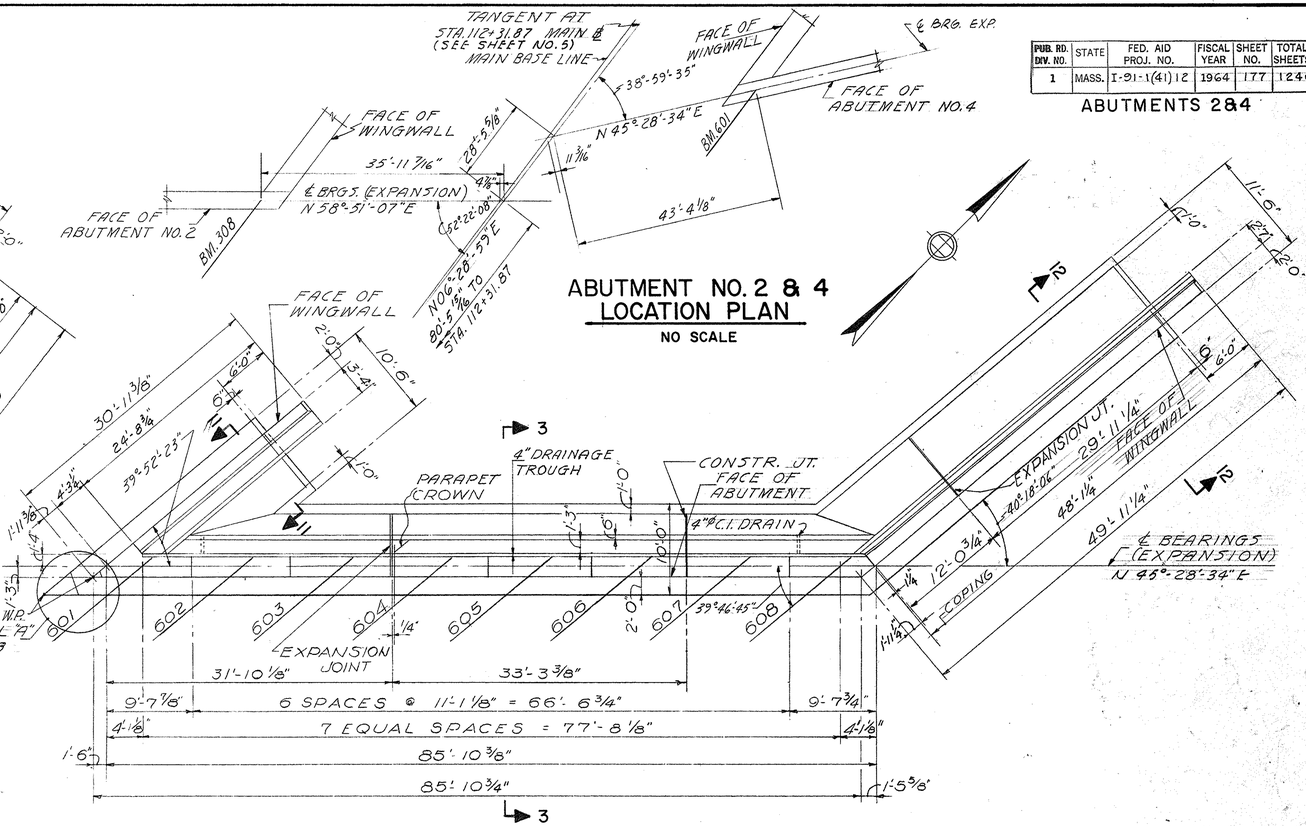
PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	I-91-1(41)12	1964	177	1246

ABUTMENTS 2&4



PLAN-ABUTMENT NO. 2

SCALE : 1/8" = 1'-0"

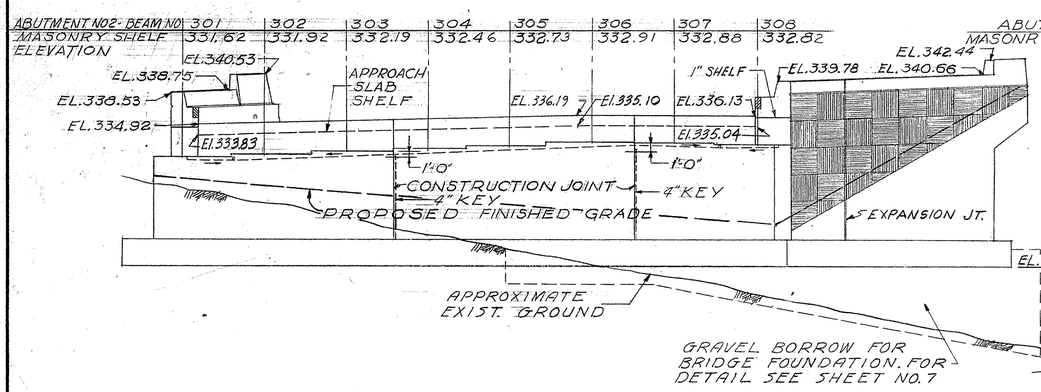


ABUTMENT NO. 2 & 4 LOCATION PLAN

NO SCALE

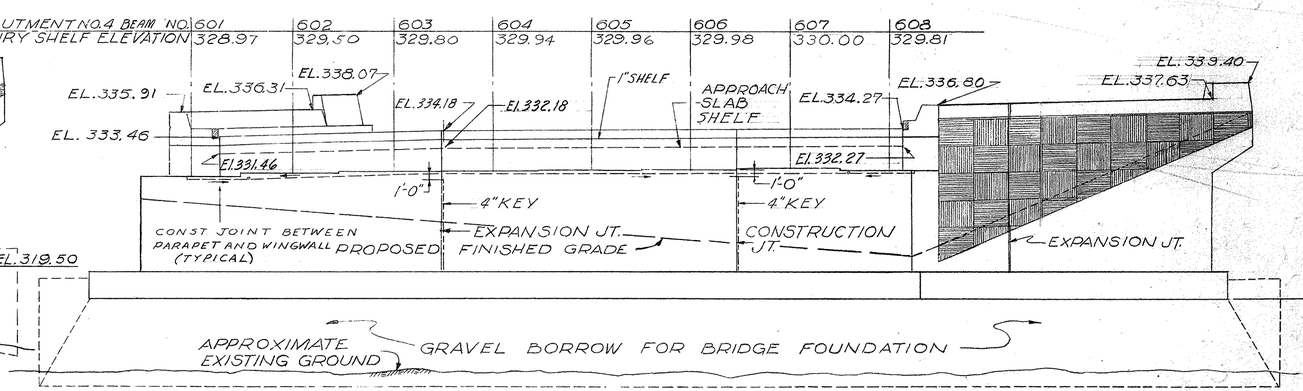
PLAN-ABUTMENT NO. 4

SCALE : 1/8" = 1'-0"



ELEVATION-ABUTMENT NO. 2

SCALE : 1/8" = 1'-0"



ELEVATION-ABUTMENT NO. 4

SCALE : 1/8" = 1'-0"

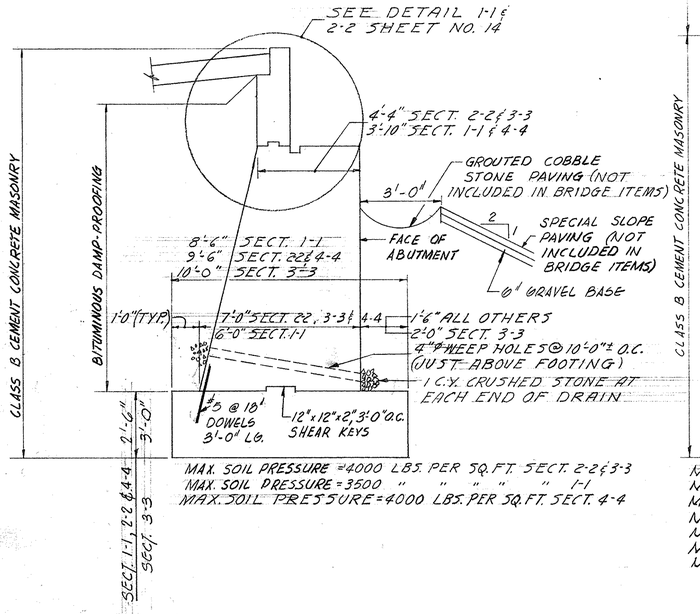
NOTES:

1. FOR NUMBERED SECTIONS, EXPANSION & CONSTRUCTION JOINT DETAILS, SEE SHEET NO. 10.
2. FOR FOOTING LOCATION PLAN, SEE SHEET NO. 13.
3. PARAPET ELEVATIONS FOR ABUTMENT NO. 2 ARE GIVEN AT FACE OF PARAPET. PARAPET ELEVATIONS FOR ABUTMENT NO. 4 ARE TO TOP OF ROADWAY AT FACE OF PARAPET.
4. MASONRY SHELF ELEVATIONS ARE GIVEN TO UNDERSIDE OF MASONRY PLATES.

DATE	DESCRIPTION
DEC. 19, 1964	ISSUED FOR CONSTRUCTION
	USE ONLY PRINTS OF LATEST DATE

PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	I-91-1(41)12	1964	178	1246

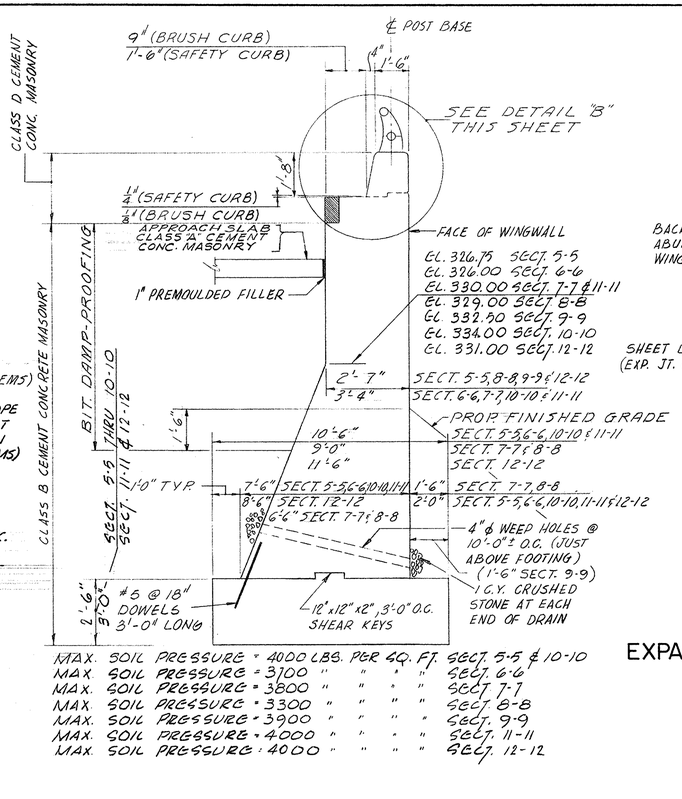
ABUTMENT & WINGWALL SECTIONS



MAX. SOIL PRESSURE =4000 LBS. PER SQ. FT. SECT. 2-2 & 3-3
MAX. SOIL PRESSURE =3500 " " " " " 1-1
MAX. SOIL PRESSURE =4000 LBS. PER SQ. FT. SECT. 4-4

TYPICAL ABUTMENT SECTION
(SECTIONS 1-1 THRU 4-4)

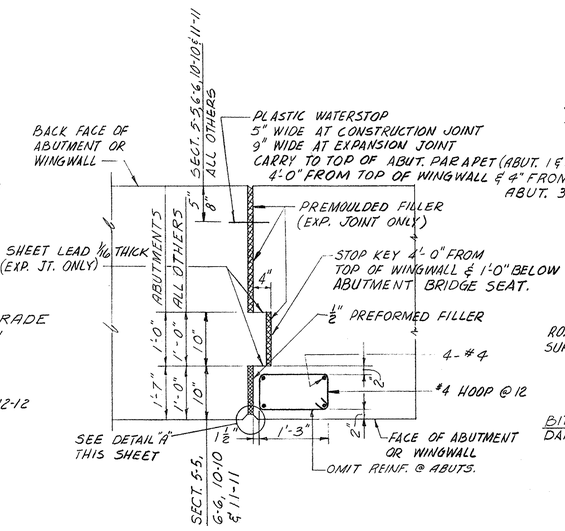
NO SCALE



MAX. SOIL PRESSURE = 4000 LBS. PER SQ. FT. SECT. 5-5 & 10-10
MAX. SOIL PRESSURE = 3700 " " " " SECT. 6-6
MAX. SOIL PRESSURE = 3800 " " " " SECT. 7-7
MAX. SOIL PRESSURE = 3300 " " " " SECT. 8-8
MAX. SOIL PRESSURE = 3900 " " " " SECT. 9-9
MAX. SOIL PRESSURE = 4000 " " " " SECT. 11-11
MAX. SOIL PRESSURE = 4000 " " " " SECT. 12-12

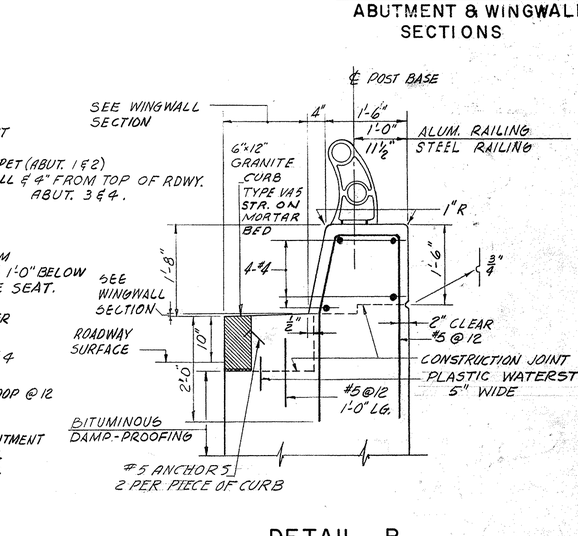
TYPICAL WINGWALL SECTION
(SECTIONS 5-5 THRU 12-12)

NO SCALE

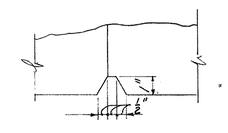


EXPANSION AND CONSTRUCTION JOINT DETAIL
(ABUTMENT AND WINGWALL)

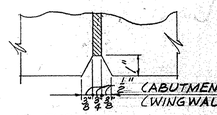
SCALE: 3/4" = 1'-0"



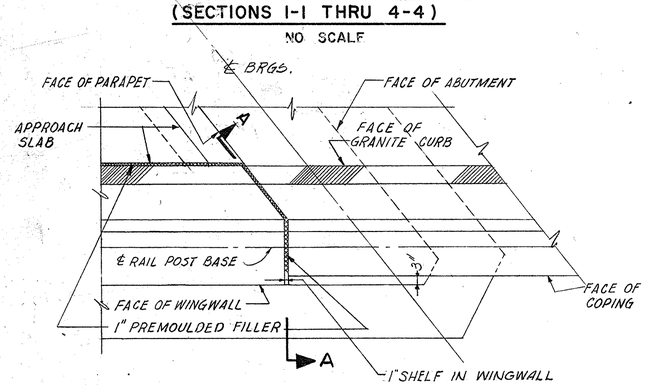
DETAIL B
SCALE: 3/4" = 1'-0"



AT CONSTRUCTION JOINT

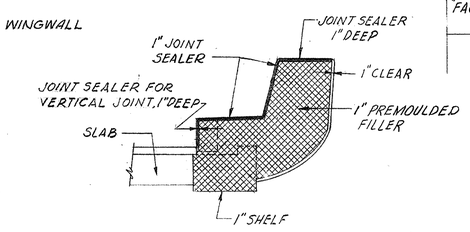


AT EXPANSION JOINT



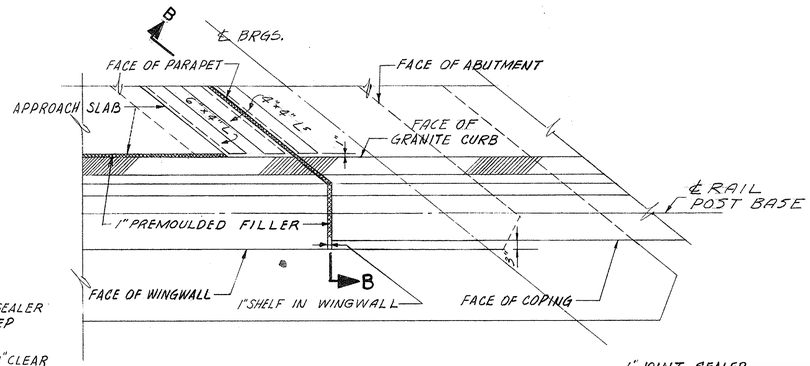
CORNER DETAIL AT ABUTMENT NO. 1 & 2

SCALE: ½" = 1'-0"



SECTION A-A

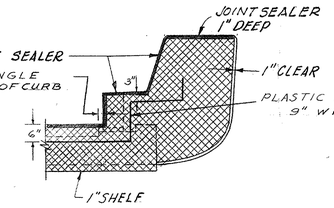
SCALE: ½" = 1'-0"



CORNER DETAIL AT ABUTMENT NO. 3 & 4

SCALE: ½" = 1'-0"

NOTE:
JOINT SEALER IN SECTIONS A-A & B-B SHALL BE COLORED TO MATCH CONCRETE

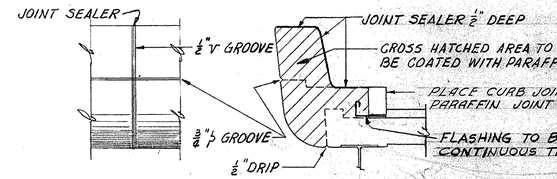


SECTION B-B

SCALE: ½" = 1'-0"

DETAIL A

NO SCALE



NOTES: FLASHING TO BE CONTINUOUS THROUGH PARAFFIN JOINT.
SAFETY WALK AND COPING SHALL BE POURED IN ALTERNATE SECTIONS AND SHALL HAVE A CURING PERIOD OF 5 DAYS BETWEEN POURS.
JOINTS TO BE PLACED AS SHOWN IN ELEVATIONS ON SHEETS 4 AND 5.
DO NOT CARRY HORIZ. #4 BARS IN SAFETY & COPING THROUGH THE JOINTS.
JOINT SEALER TO BE SAME COLOR AS CONCRETE
FLASHING TO BE CONTINUOUS THROUGH PARRAFIN JT.

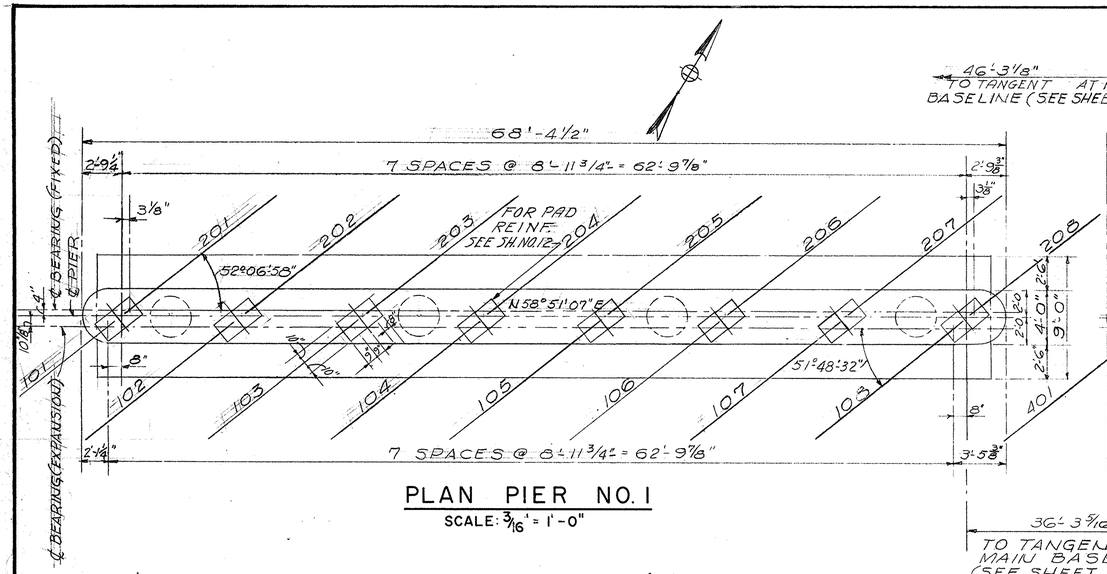
PARAFFIN JOINT THROUGH COPING AND SAFETY WALK

NO SCALE

DATE	DESCRIPTION
DEC. 19, 1964	ISSUED FOR CONSTRUCTION
	USE ONLY PRINTS OF LATEST DATE

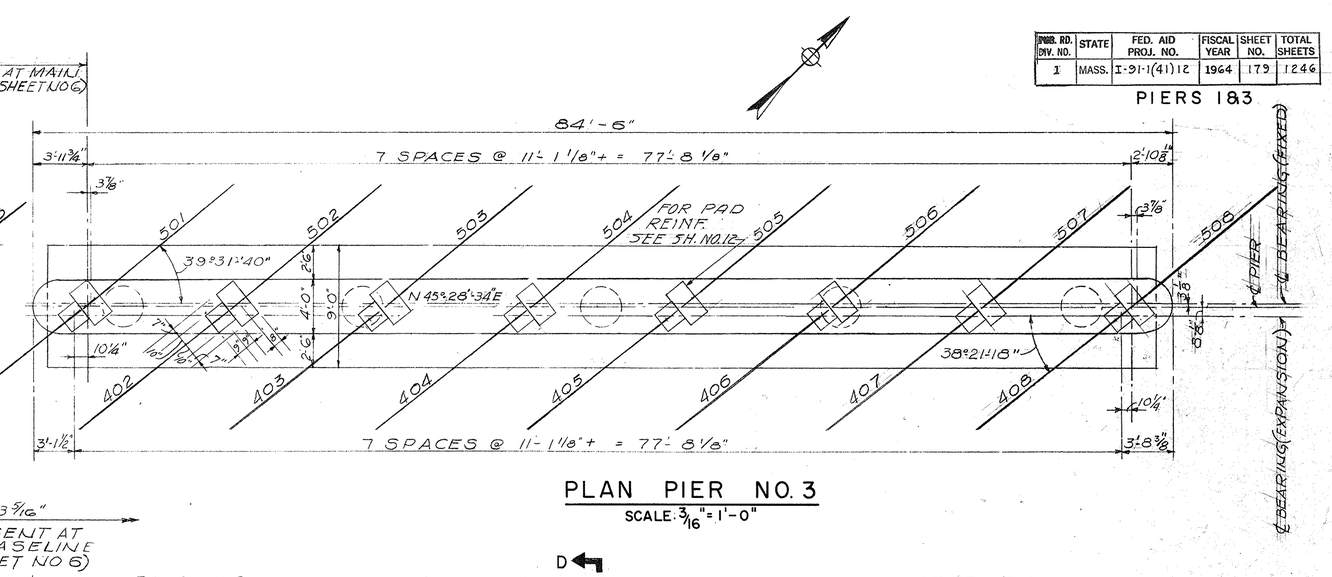
PUBL. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	I-91-1(41)12	1964	179	1246

PIERS 183



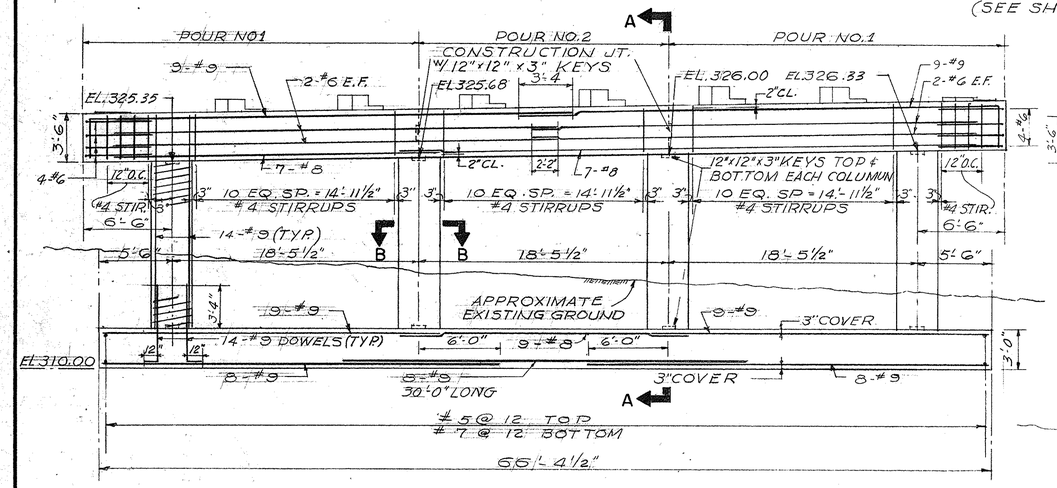
PLAN PIER NO. 1

SCALE: 3/16" = 1'-0"



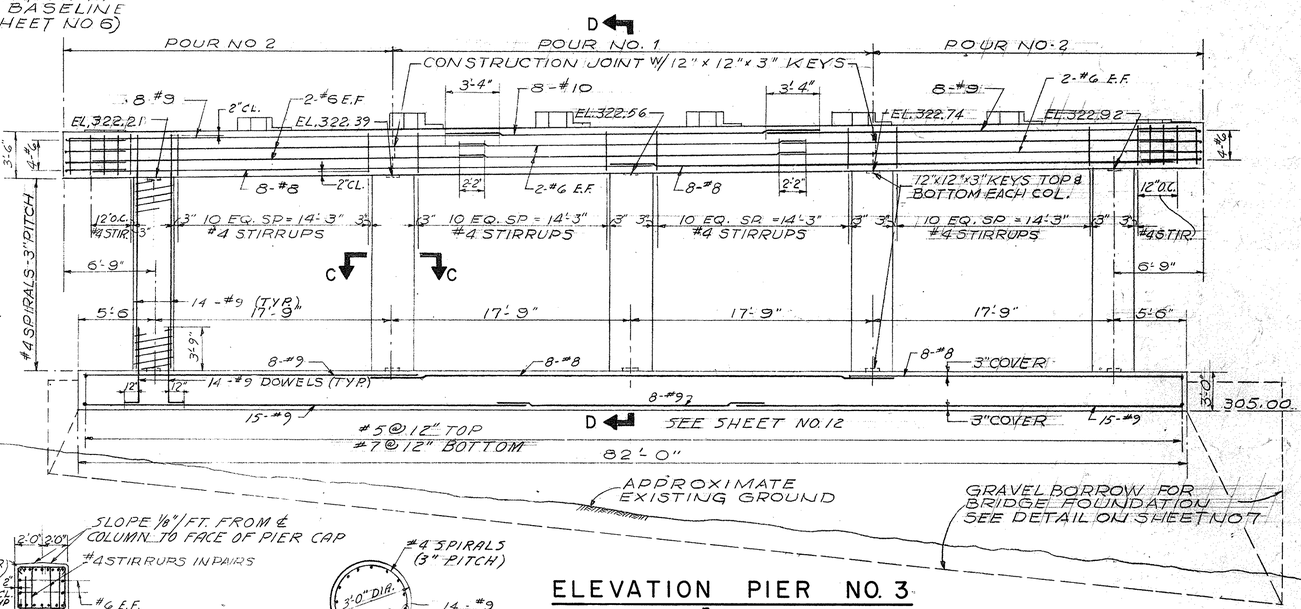
PLAN PIER NO. 3

SCALE: 3/16" = 1'-0"



ELEVATION PIER NO. 1

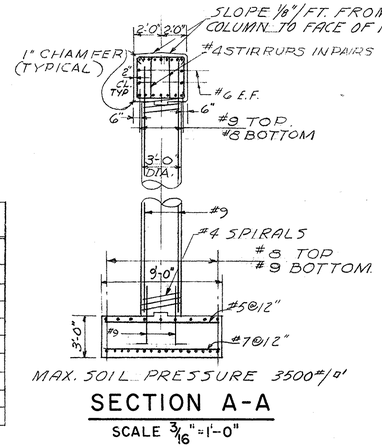
SCALE: 3/16" = 1'-0"



ELEVATION PIER NO. 3

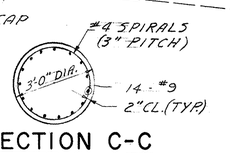
SCALE: 3/16" = 1'-0"

SCHEDULE OF BEAM SEAT ELEVATIONS							
PIER NO. 1				PIER NO. 3			
BEAM NO.	ELEV.	BEAM NO.	ELEV.	BEAM NO.	ELEV.	BEAM NO.	ELEV.
101	328.89	201	328.84	401	325.83	501	325.76
102	329.89	202	329.12	402	326.88	502	326.08
103	330.17	203	329.39	403	327.20	503	326.40
104	330.44	204	329.67	404	327.31	504	326.51
105	330.71	205	329.94	405	327.33	505	326.53
106	330.89	206	330.11	406	327.36	506	326.56
107	330.86	207	330.09	407	327.38	507	326.58
108	330.11	208	330.06	408	326.68	508	326.61



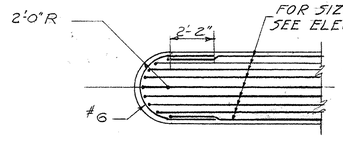
SECTION A-A

SCALE 3/16" = 1'-0"



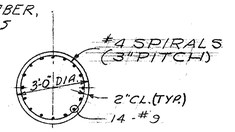
SECTION C-C

NO SCALE



SECTION AT END OF PIER CAP

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



SECTION B-B

NO SCALE

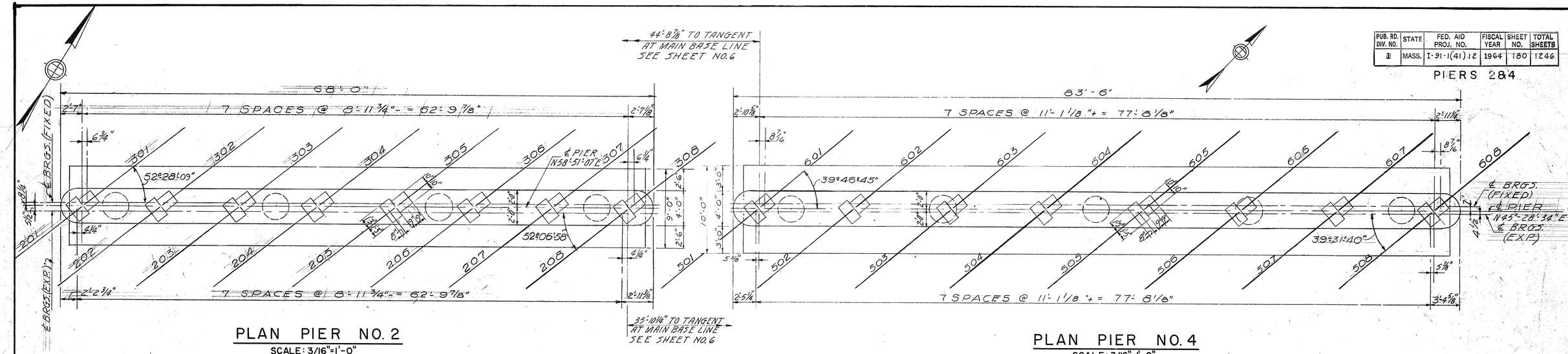
NOTES:

1. PIER CAP TO BE PLACED IN TWO POURS WITH SECOND POUR TO TAKE PLACE NO EARLIER THAN TWO(2) FULL DAYS AFTER THE FIRST POUR.
2. SPIRAL REINF TO EXTEND FROM TOP OF FOOTING TO BOTTOM OF LOWER STEEL IN PIER CAP.
3. ALL CONCRETE PADS 4" OR OVER SHALL BE REINFORCED.
4. ALL MASONRY SHELF ELEVATIONS ARE TAKEN TO BOTTOM OF MASONRY PLATES.
5. ALL CONCRETE IN PIERS TO BE CLASS A CEMENT CONCRETE MASONRY.

DEC. 19, 1964	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

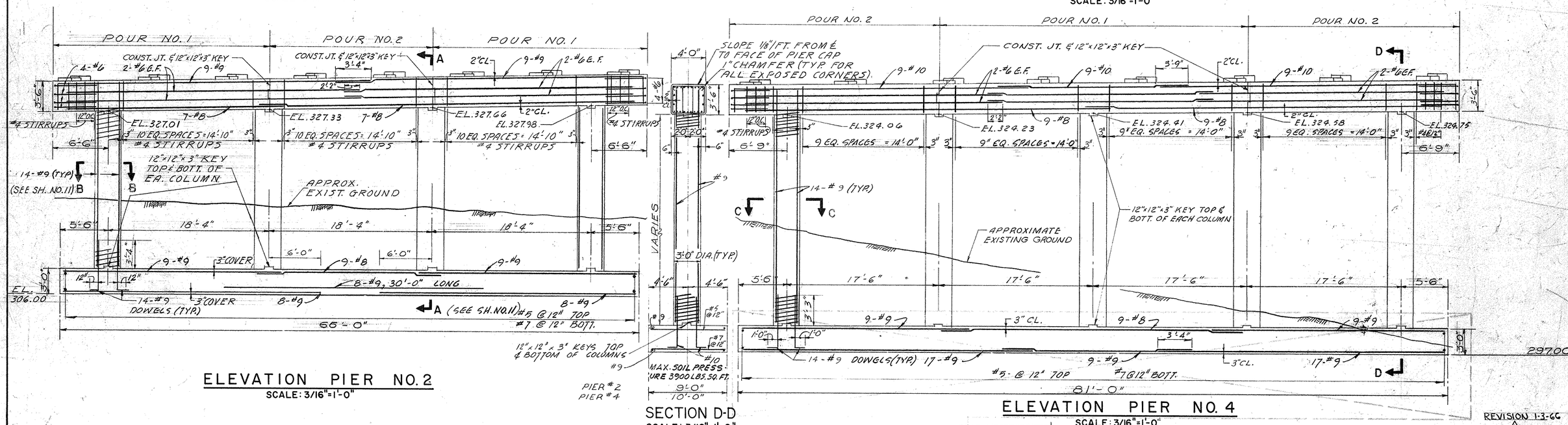
PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	I-91-1(41)12	1964	180	1246

PIERS 2&4



PLAN PIER NO. 2
SCALE: 3/16"=1'-0"

PLAN PIER NO. 4
SCALE: 3/16"=1'-0"



ELEVATION PIER NO. 2
SCALE: 3/16"=1'-0"

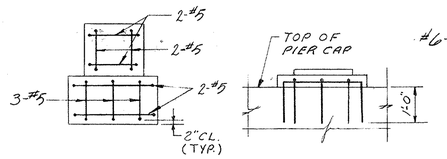
SECTION D-D
SCALE: 3/16"=1'-0"

ELEVATION PIER NO. 4
SCALE: 3/16"=1'-0"

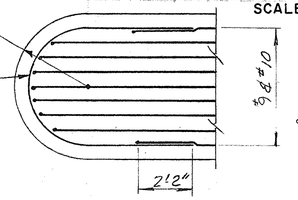
REVISION 1-3-66 (5)

SCHEDULE OF BEAM SEAT ELEVATIONS

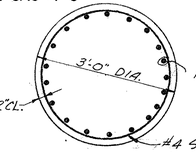
PIER NO. 2				PIER NO. 4			
BEAM NO.	ELEV.	BEAM NO.	ELEV.	BEAM NO.	ELEV.	BEAM NO.	ELEV.
201	330.51	301	330.62	501	327.62	601	327.74
202	330.79	302	330.92	502	327.94	602	328.28
203	331.06	303	331.19	503	328.26	603	328.60
204	331.33	304	331.46	504	328.38	604	328.72
205	331.60	305	331.73	505	328.40	605	328.74
206	331.78	306	331.91	506	328.41	606	328.75
207	331.75	307	331.88	507	328.43	607	328.77
208	331.72	308	331.82	508	328.45	608	328.57



PLAN & SECTION OF TYP. REINF. IN BEARING PAD
NO SCALE



SECTION AT END OF PIER CAP
NO SCALE



SECTION C-C
NO SCALE

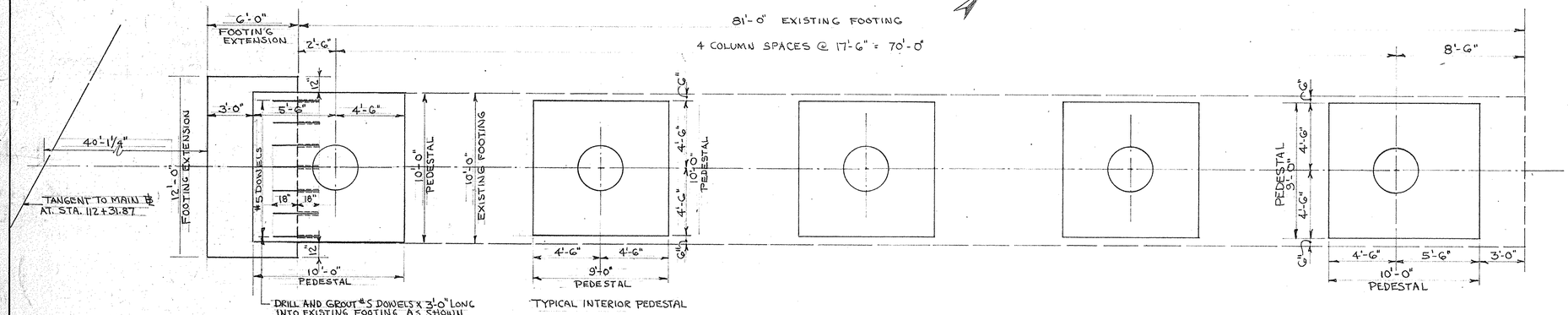
NOTES:
1. PIER CAP TO BE PLACED IN TWO POURS WITH SECOND POUR TO TAKE PLACE NO EARLIER THAN TWO(2) FULL DAYS AFTER THE FIRST POUR.
2. SPIRAL REINF. TO EXTEND FROM TOP OF FOOTING TO BOTTOM OF LOWER STEEL IN PIER CAP.
3. ALL CONCRETE PADS 4" OR OVER SHALL BE REINFORCED.
4. ALL MASONRY SHELF ELEVATIONS ARE TAKEN TO BOTTOM OF MASONRY PLATES.
5. ALL CEMENT IN PIERS TO BE CLASS A CEMENT CONCRETE MASONRY.

DATE	DESCRIPTION
DEC. 19, 1964	ISSUED FOR CONSTRUCTION
SEE ADDITIONAL SHEET 12A	
JAN 3, 1966	(5) REVISION - FOOTING PIER #4 REVISED

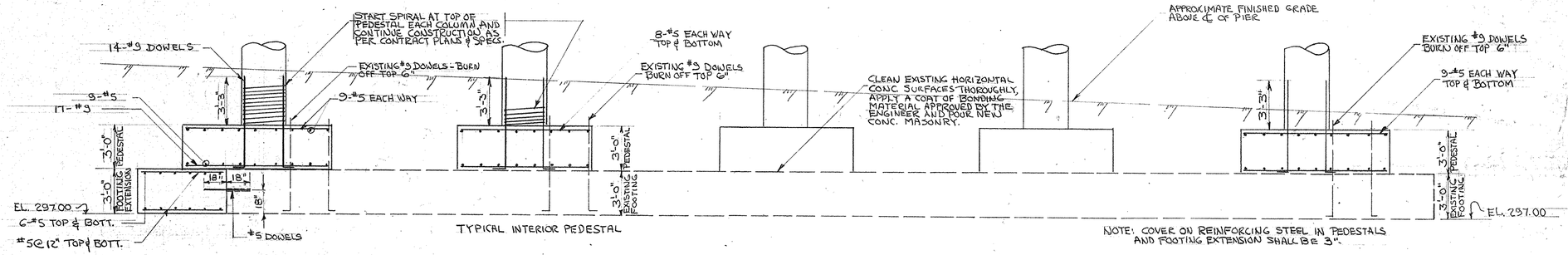
USE ONLY PRINTS OF LATEST DATE

SHEET 12 OF 15 SHEETS BRIDGE No. H-21-48

(5)



PLAN VIEW



ELEVATION

REVISIONS - FOOTING - PIER NO. 4

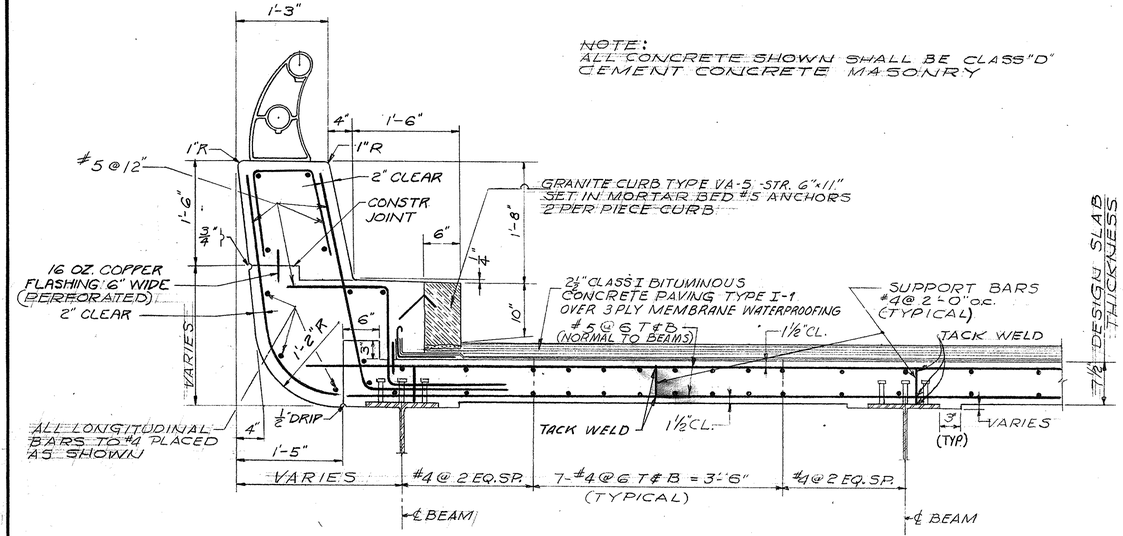
SCALE: 1/4" = 1'-0"

	SEE SHEET NO. 12
JAN. 3, 1966	3 REVISION - PIER NO. 4 FOOTING
DATE	DESCRIPTION

PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	I-91-1(41)12	1964	181	1246

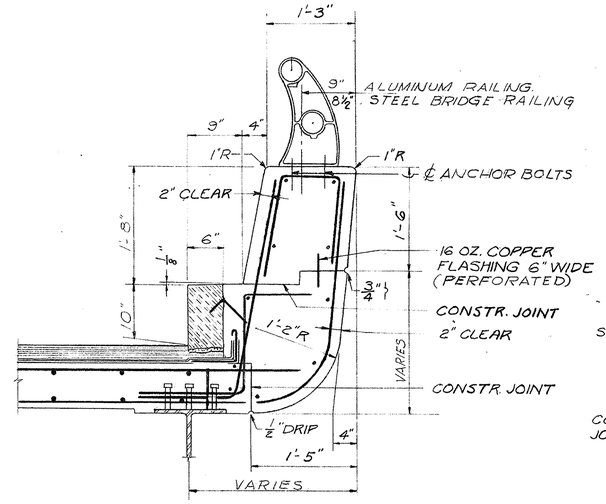
MISCELLANEOUS DETAILS (1)

NOTE:
ALL CONCRETE SHOWN SHALL BE CLASS "D" CEMENT CONCRETE MASONRY



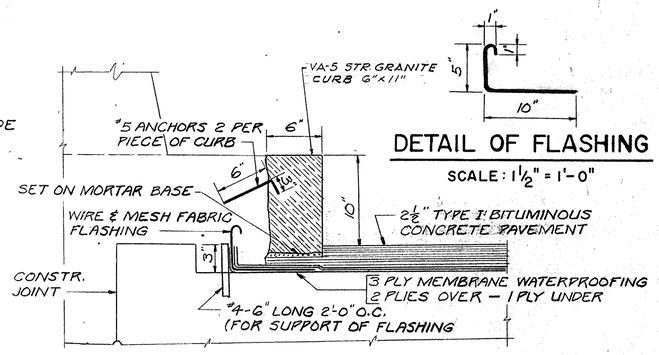
DETAIL "A"

SCALE: 1" = 1'-0"



DETAIL "B"

SCALE: 1" = 1'-0"



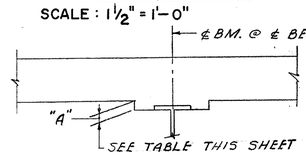
DETAIL OF FLASHING

SCALE: 1½" = 1'-0"

DETAIL UNDER CURB

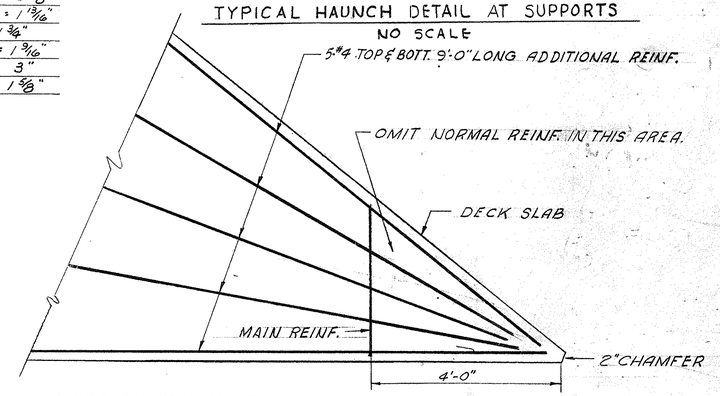
SCALE: 1½" = 1'-0"

HAUNCH DIMENSION "A"
SPAN NO. 1 BM. 101 ℄ 108 = 1 11/16"
SPAN NO. 1 BMS. 102 THRU 107 = 1½"
SPAN NO. 2 BMS. 201 THRU 208 = 2 3/8"
SPAN NO. 3 BMS. 301 THRU 308 = 1 13/16"
SPAN NO. 4 BM. 401 ℄ 408 = 1 3/4"
SPAN NO. 4 BMS. 402 THRU 407 = 1 3/16"
SPAN NO. 5 BMS. 501 THRU 508 = 3"
SPAN NO. 6 BMS. 601 THRU 608 = 1 5/8"



TYPICAL HAUNCH DETAIL AT SUPPORTS

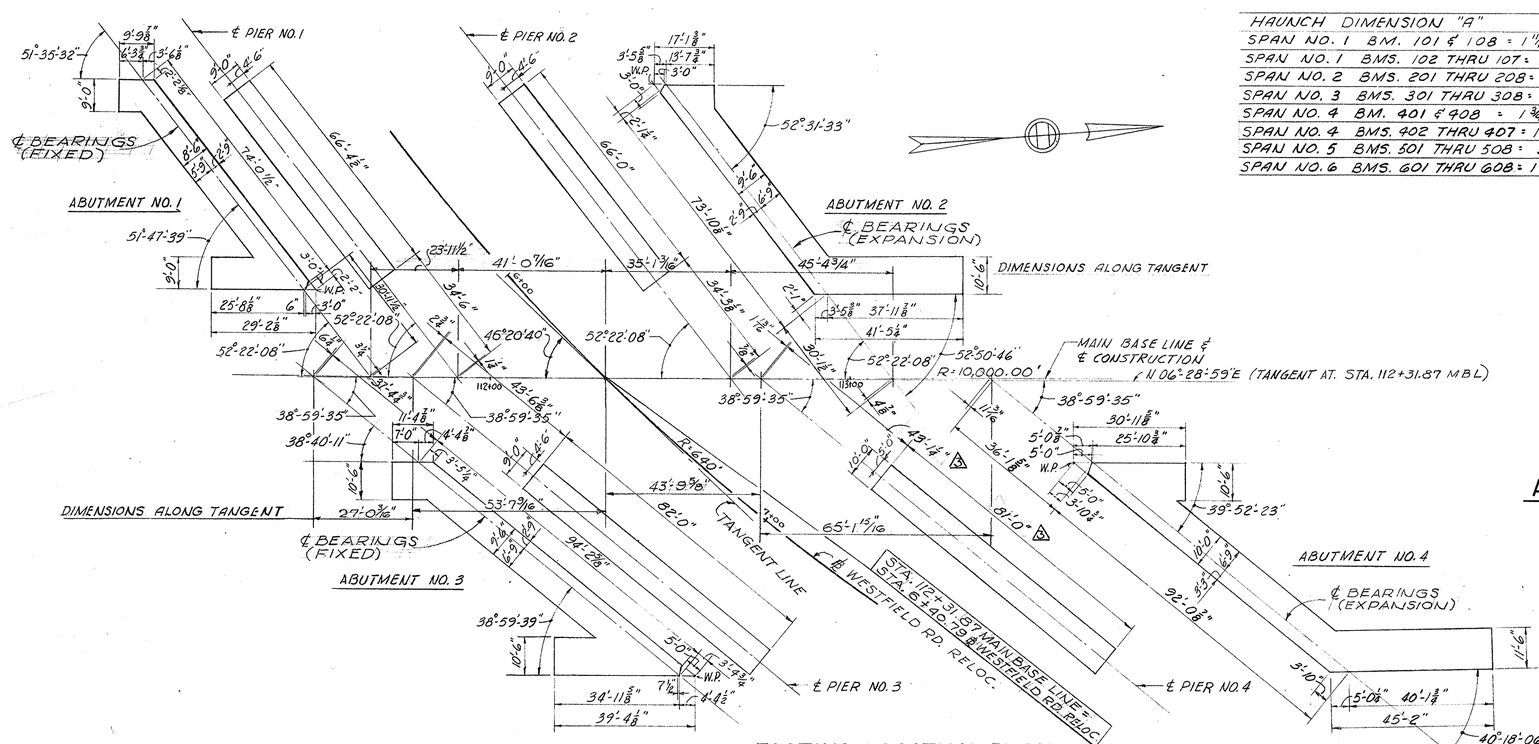
NO SCALE



ADDITIONAL REINFORCING IN ACUTE CORNERS

NO SCALE

(NORTHBOUND ROADWAY ONLY)



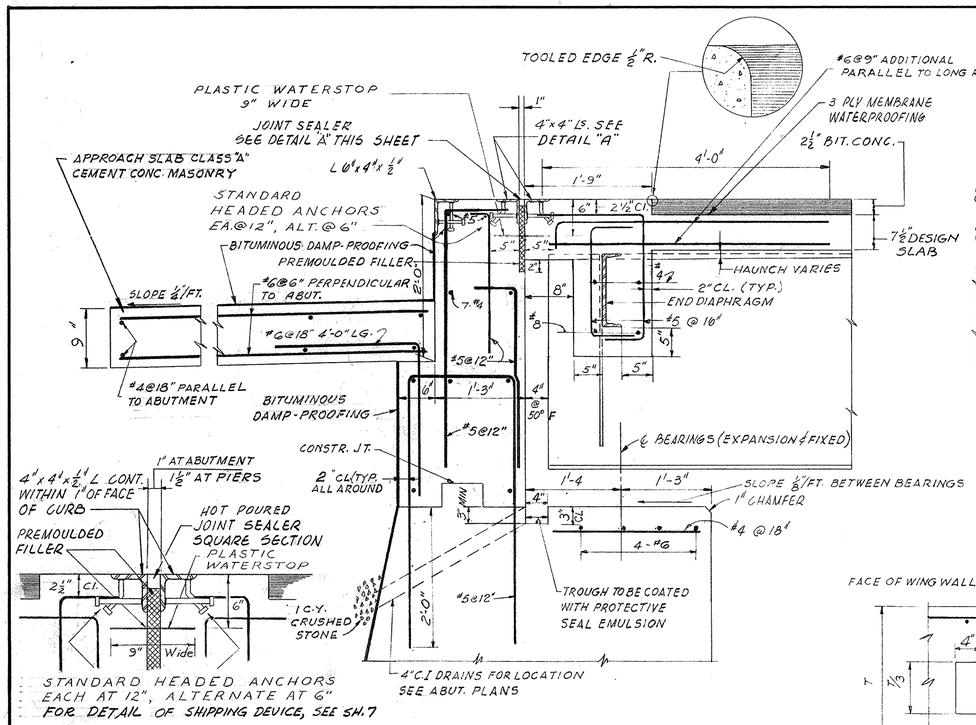
FOOTING LOCATION PLAN

SCALE 1"=20'

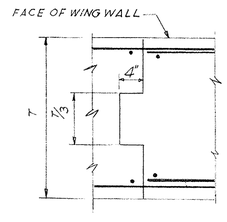
DATE	DESCRIPTION
JAN 3, 1966	⚠ REVISION - SEE SHEETS NO. 12 & 12A
DEC. 19, 1964	ISSUED FOR CONSTRUCTION
	USE ONLY PRINTS OF LATEST DATE

PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	I-91-1(41)12	1964	182	1246

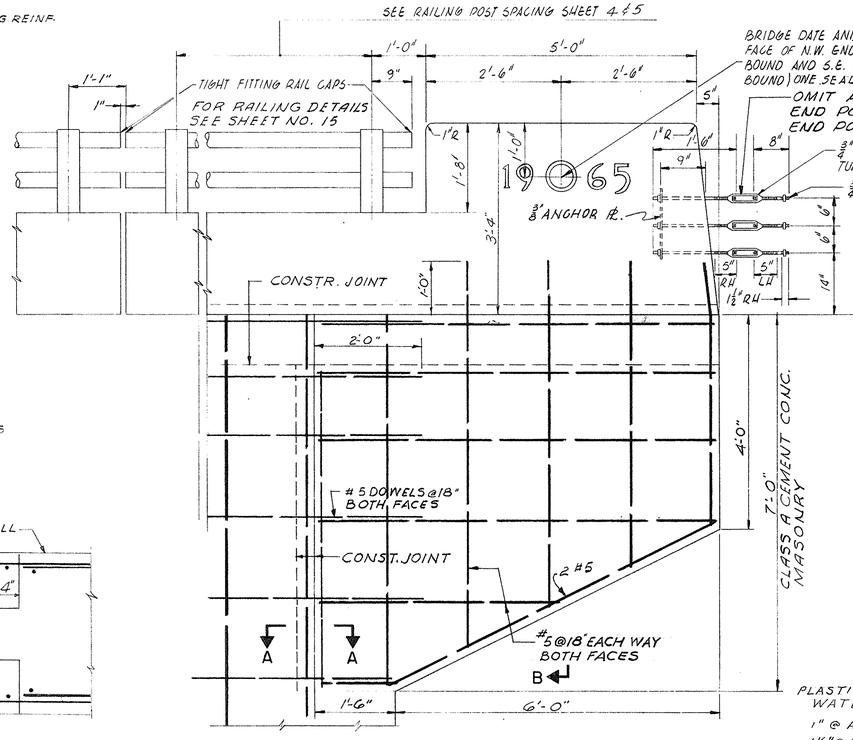
CONCRETE DETAILS



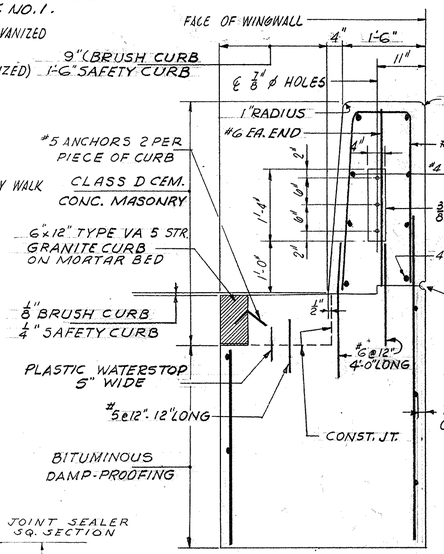
DETAIL A
NO SCALE



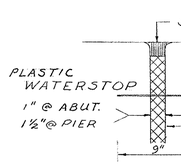
SECTION A-A
NO SCALE



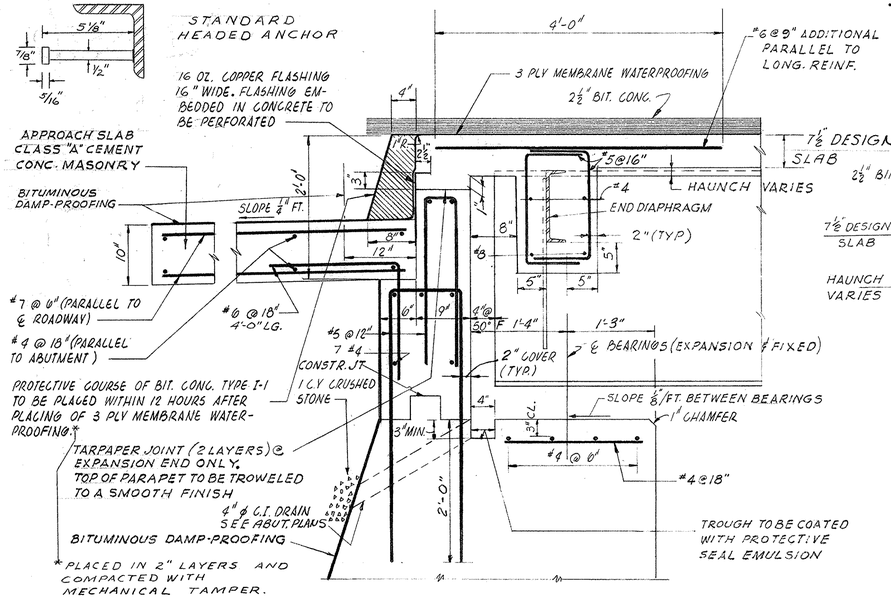
TYPICAL END POST & FLYING WING DETAIL
SCALE: ¾"=1'-0"



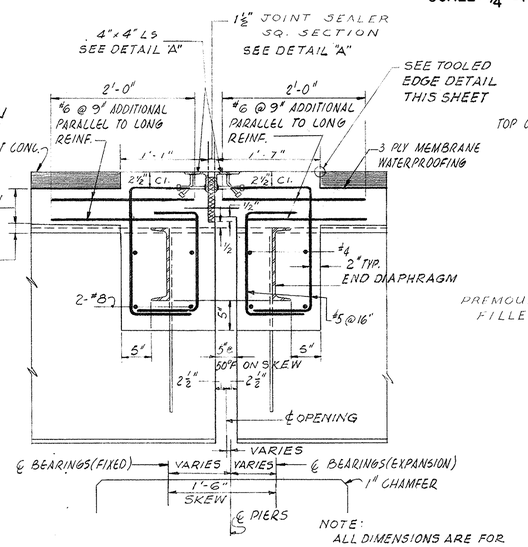
SECTION B-B
SCALE: ¾"=1'-0"



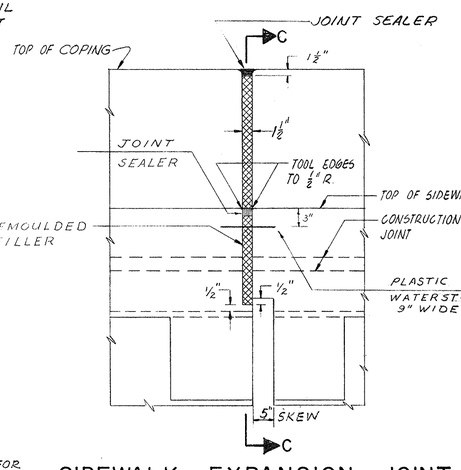
DETAIL B
NO SCALE



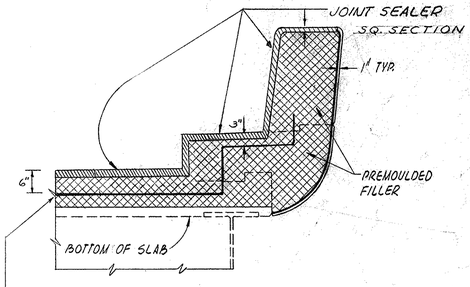
DETAIL 2 (ABUTMENTS NO. 1 & 2)
SCALE: 1"=1'-0"



DETAIL C
SCALE: 1"=1'-0"



SIDEWALK EXPANSION JOINT OVER PIERS
SCALE: 1"=1'-0"

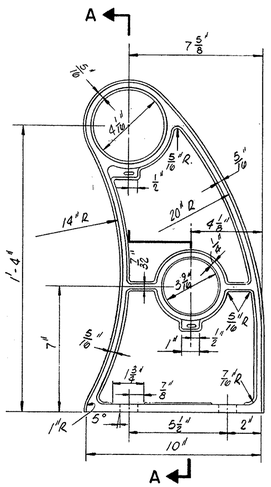


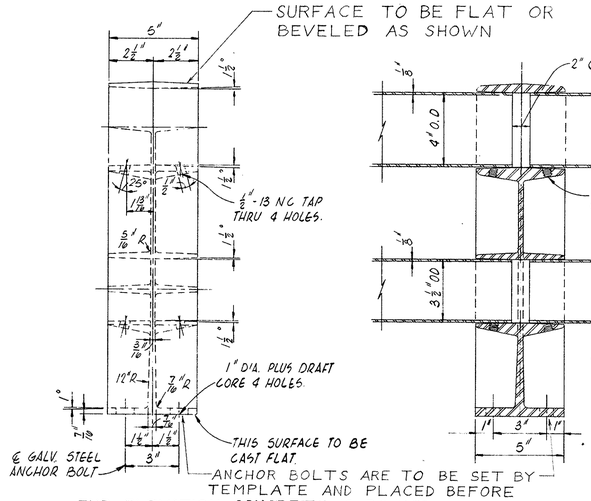
SECTION C-C
SCALE: ¾"=1'-0"

DEC. 13, 1964	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

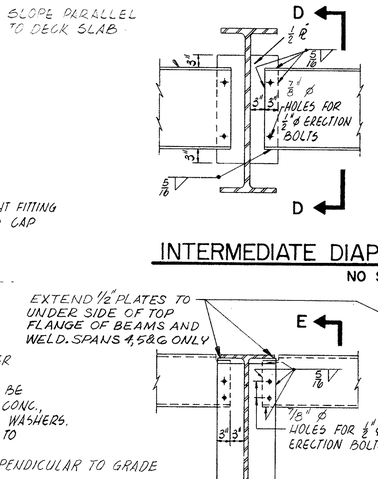
PUB. RD. SW. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	I-91-1(41)12	1964	183	1246

STANDARD STEEL DETAILS





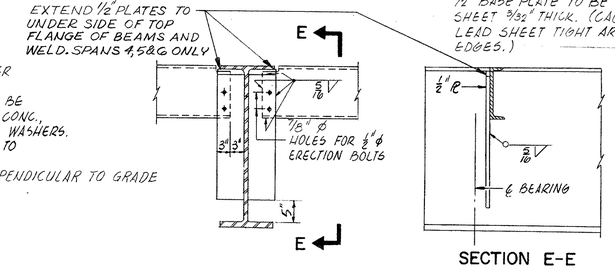
SLOPE PARALLEL TO DECK SLAB



NOTES:
1. RAILING TO BE CONTINUOUS OVER 3 PANELS.
2. GALV. STEEL ANCHOR BOLTS TO BE 3/4" ℄ 1'-2 1/2" LONG SET 12" INTO CONC., WITH GALV. STEEL HEX NUTS & WASHERS.
3. ALL EXPOSED ENDS OF RAILING TO BE CAPPED.
4. ALL RAIL POSTS TO BE SET PERPENDICULAR TO GRADE

INTERMEDIATE DIAPHRAGM CONNECTION

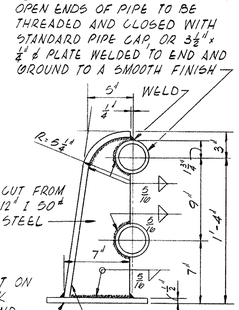
NO SCALE

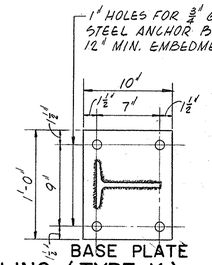


END DIAPHRAGM CONNECTION

SPAN NO. 1,2 & 3 AS SHOWN, NO 4,5 & 6 AS NOTED

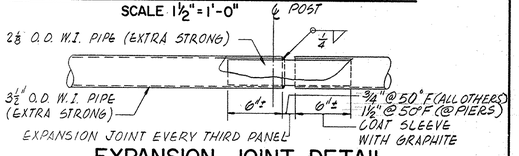
NO SCALE





METAL BRIDGE RAILING (TYPE K)

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



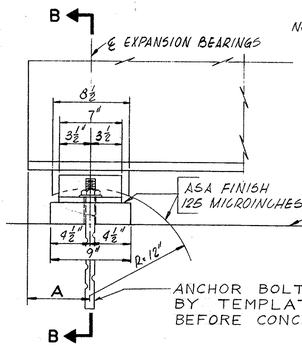
EXPANSION JOINT DETAIL TOP AND BOTTOM RAILS

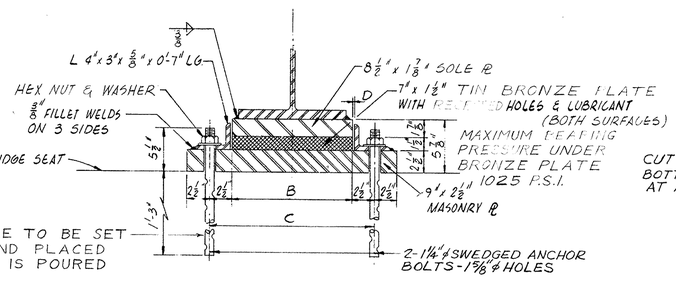
SCALE: 1 1/2" = 1'-0"

BRIDGE RAILING (ALUMINUM)

SCALE: 3" = 1'-0"

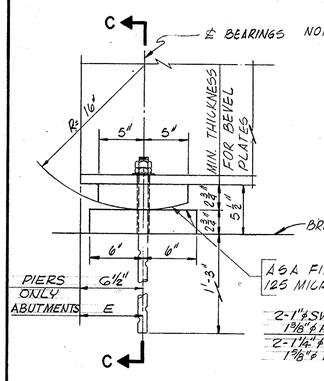
NOTE: ALL BOLTS, NUTS AND WASHERS TO BE GALVANIZED STEEL



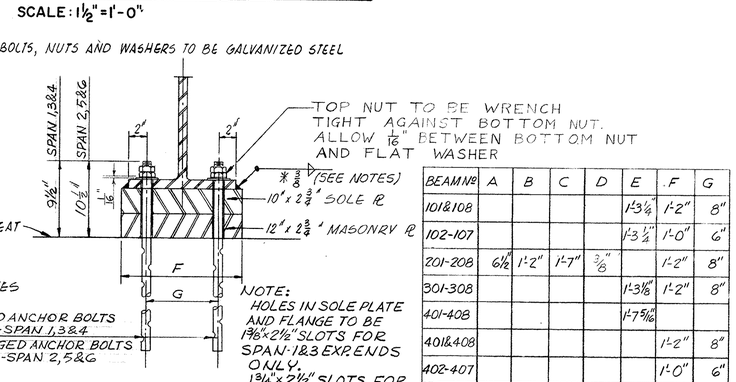


EXPANSION BEARINGS SPAN 2,5&6

SCALE: 1 1/2" = 1'-0"



NOTE: ALL BOLTS, NUTS AND WASHERS TO BE GALVANIZED STEEL

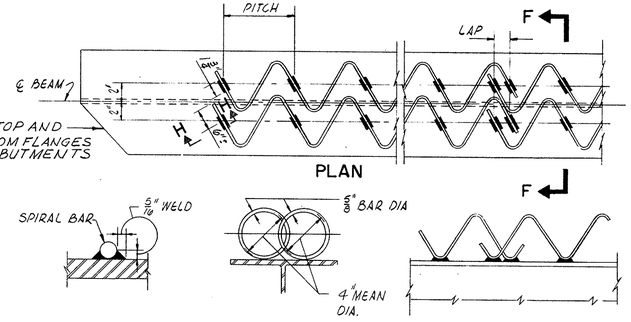


BEAM №	A	B	C	D	E	F	G
101&108					1'-3 1/4"	1'-2"	8"
102-107					1'-3 1/2"	1'-0"	6"
201-208	6 1/2"	1'-2"	1'-7"	3/8"		1'-2"	8"
301-308					1'-3 1/8"	1'-2"	8"
401-408					1'-7 5/16"		
401&408						1'-2"	8"
402-407						1'-0"	6"
501-508	6 1/2"	1'-6"	1'-11"	1/2"		1'-6"	1'-0 1/2"
601&608		1'-2"	1'-7"			1'-2"	8"
601-608	1'-6 3/4"			1/2"			
602-607		1'-1"	1'-6"			1'-1"	7 1/2"

FIXED BEARING & EXPANSION BEARINGS
FIXED END ALL SPANS - EXPANSION ENDS SPAN 1,3&4

SCALE: 1 1/2" = 1'-0"

NOTE: ALL BOLTS, NUTS AND WASHERS TO BE GALVANIZED STEEL



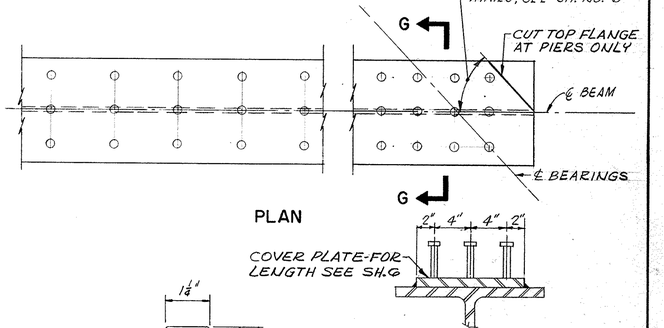
TYPICAL DETAILS SPIRAL SHEAR CONNECTORS

NO SCALE

BEAM №	A'	B'
201-208	2"	4"
502-507	3 1/4"	5"
601&608	2"	4"
602-607	1 3/4"	4"

NOTES:
1. HOLES IN SOLE PLATE AND FLANGE OF EXTERIOR BEAMS AT FIXED ENDS IN SPAN 4 TO BE 1 3/8" x 2 1/2" SLOTS. HOLES IN SOLE PLATE AND FLANGE OF EXTERIOR BEAMS AT FIXED ENDS IN SPAN 5&6 TO BE 2" x 2 1/2" SLOTS.
2. * FIELD WELD EXPANSION END, SHOP WELD FIXED END.

NOTES FOR TYPE K RAILING
1. POSTS AND BASE PLATES SHALL BE STRUCTURAL STEEL ASTM A-36.
2. ANCHOR BOLTS, NUTS AND WASHERS TO BE IN ACCORDANCE WITH THE PROVISIONS OF ASTM A-36.
3. POSTS SHALL BE SET PERPENDICULAR TO GRADE.
4. RAILINGS SHALL BE CONTINUOUS OVER THREE PANELS WHERE POSSIBLE.
5. EXPANSION JOINTS IN RAILS TO BE LOCATED AS CLOSE AS POSSIBLE TO THE ℄ OF POST.



TYPICAL DETAILS STUD SHEAR CONNECTORS

NO SCALE

FOR STUD AND SPIRAL SPACING, SEE SHEET NO.6.

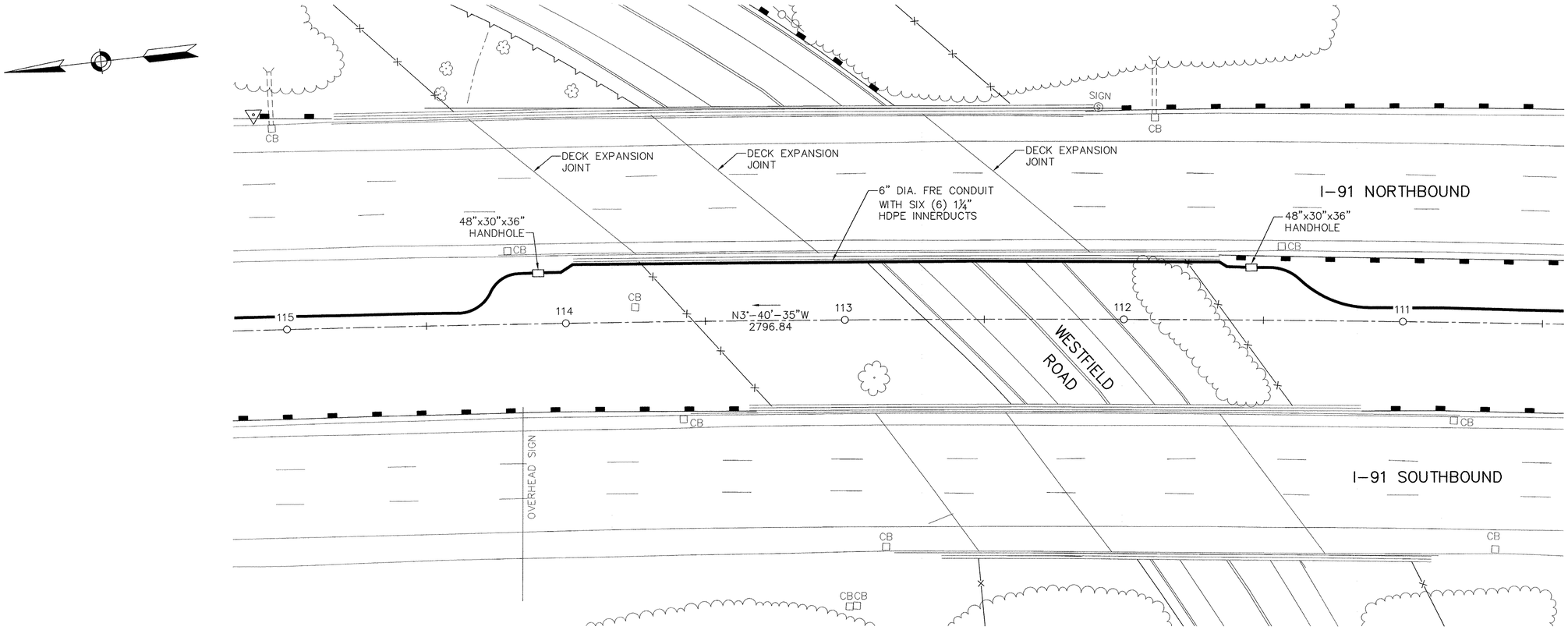
THE CONTRACTOR WILL HAVE THE OPTION OF USING EITHER STUDS OR SPIRALS. 7/8" ϕ STUDS MAY BE SUBSTITUTED FOR 3/4" ϕ STUDS BY PROVIDING AN EQUIVALENT CROSS-SECTIONAL AREA AND ADJUSTING THE PITCH ACCORDINGLY.

DEC. 19 1964	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

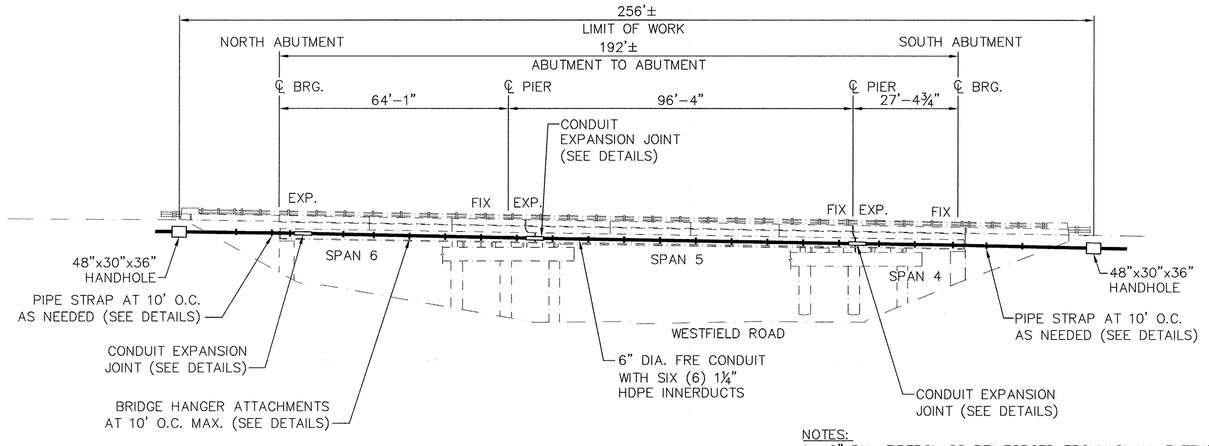
HOLYOKE
I-91 & I-291

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	ITS-001A (818)	264	311
PROJECT FILE NO. 603903			

BRIDGE PLAN AND ELEVATION



BRIDGE PLAN
SCALE: 1" = 20'-0"



BRIDGE ELEVATION
SCALE: 1" = 20'-0"

NOTES:
1. 6" DIA. FIBERGLASS REINFORCED EPOXY SHALL EXTEND FOR A MINIMUM OF 10' UNDERGROUND OR UNTIL A BURIED DEPTH OF 36" IS ACHIEVED. THE 6" FRE SHALL BE PROPERLY SEALED (POLYURETHANE FOAM OR DUCT PLUG) AT TRANSITION TO SIX (6) 1¼" HDPE INNERDUCTS.
2. SPAN LENGTHS AND BEARING ARRANGEMENTS ARE REFERENCED FROM AS-BUILTS AND ARE FOR INFORMATION ONLY.
3. HANDHOLES SUBJECT TO CHANGE PER FIELD CONDITIONS.

COMMONWEALTH OF MASSACHUSETTS
OWEN A. TRICKEY
CIVIL
No. 48467
REGISTERED PROFESSIONAL ENGINEER

Gannett Fleming
199 WELLS AVENUE
NEWTON, MA 02459
(617) 527-7822

Moving Massachusetts Forward
massDOT Highway

PROPOSED BRIDGE ATTACHMENTS
HOLYOKE
INTERSTATE 91
OVER WESTFIELD ROAD

THE COMMONWEALTH OF MASSACHUSETTS
MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
10 PARK PLAZA BOSTON, MA.

ENGINEER OF RECORD
7/31/08
DATE

SHEET 1 OF 2 SHEETS BRIDGE NO. H-21-048 (OYB)

S:\95792-Adasta MHD I-91\As-Built Package Jan 2011\Bridges\264-265 - H-21-048\264 - BRIDGE PLAN-ELEVATION.dwg, Sht.264, 6/20/2011 3:37:19 PM

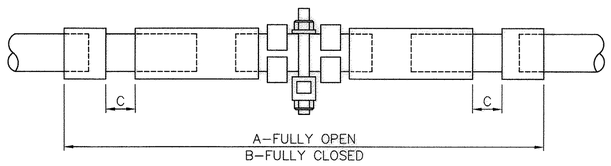
HOLYOKE
I-91 & I-291

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	ITS-001A (818)	265	311
PROJECT FILE NO. 603903			

ATTACHMENT DETAILS

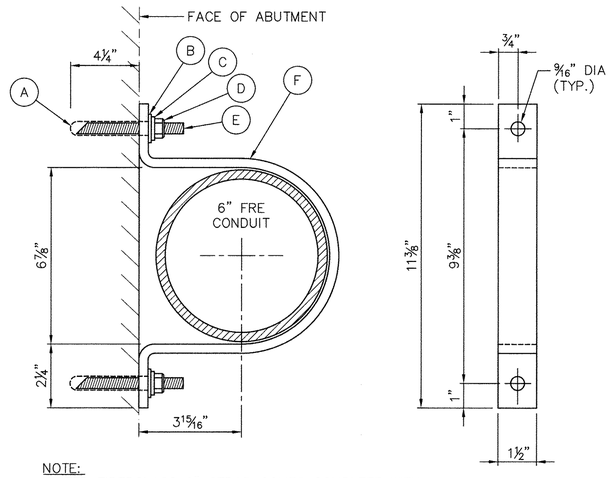
DETAIL NO.	QTY.	DESCRIPTION	
A	2	½"x 4¼" HILTI HVU ADHESIVE CAPSULE	ASTM E 1512 NSF/ANSI 61
B	2	½" HDG FLAT WASHER	ASTM F844 A153 GALV.
C	2	½" HDG LOCK WASHER	ASME 569 A153 GALV.
D	2	½" HDG FINISHED HEX NUT	ASTM A563 A153 GALV.
E	2	½"x 6½" LONG ALL THREAD (CHISEL CUT 45° ONE END)	ASTM A36 A153 GALV.
F	1	¼"x 1½" TWO-HOLE PIPE STRAP	ASTM A36 A153 GALV.
G	TBD	¼" x 1½" SPACER PLATE	ASTM A36 A153 GALV.

NOTE:
DISTANCE BETWEEN EXPANSION JOINTS SHALL NOT BE GREATER THAN 150'.



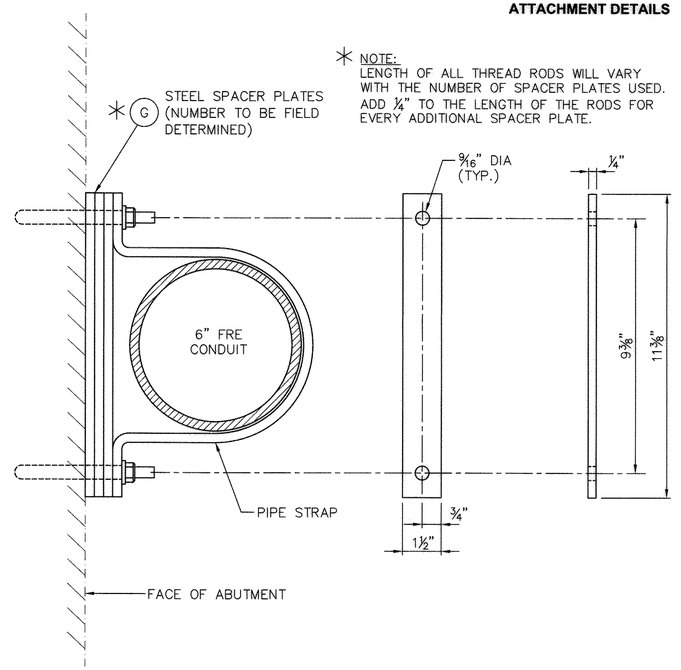
A	B	C (STROKE EACH SIDE)
60½"	48½"	6"

EXPANSION JOINT DETAIL
NOT TO SCALE

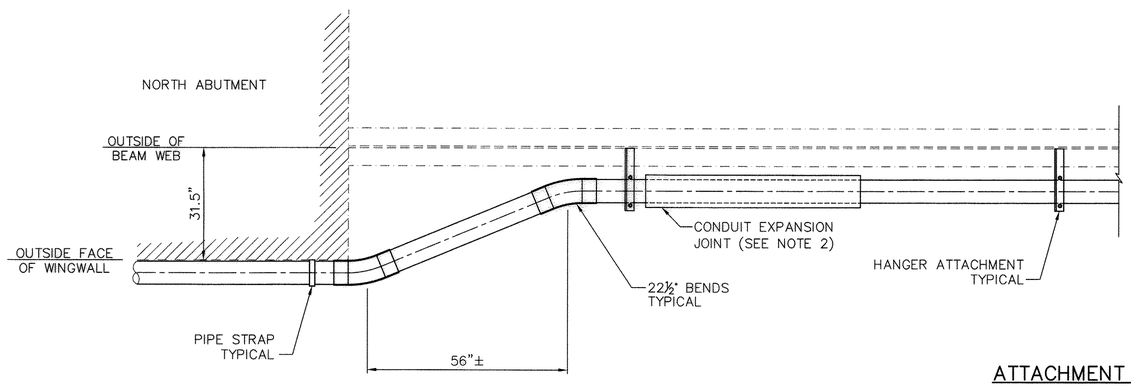


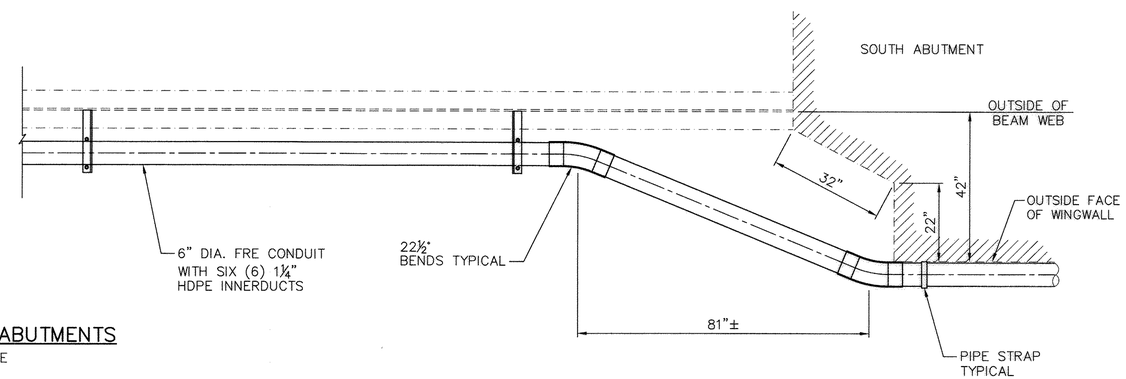
NOTE:
UNITED FIBERGLASS 6" STRAP COMES COMPLETE WITH TWO-EAR STRAP, CHISEL POINT STUDS, NUTS, WASHERS AND EPOXY CAPSULES.

PIPE STRAP DETAIL
NOT TO SCALE



SPACER PLACEMENT DETAIL
NOT TO SCALE





ATTACHMENT AT ABUTMENTS
NOT TO SCALE

NOTES:
1. HANGERS SHALL BE SPACED NO MORE THAN 10' ON CENTER TO OFFSET POTENTIAL INTERFERENCES DUE TO ANY SPLICE PLATES, INTERMEDIATE STIFFENERS AND DIAPHRAGM CONNECTION PLATES THAT MAY BE LOCATED ON EITHER SIDE OF FASCIA GIRDER WEB.
2. SEE SHEET 1 OF 2 FOR CONDUIT EXPANSION JOINTS LOCATED OVER PIERS.

DATE	DESCRIPTION
7/31/08	
USE ONLY PRINTS OF LATEST DATE	

S:\49792-Adesta MHD I-91\As-Built Package Jan 2011\Bridges\264-265 - H-21-048\265 - HANGER DETAILS.dwg, Sht.265, 7/8/2011 5:04:50 PM

HOLYOKE
I-91 NB&SB over Westfield Rd. and Cherry St.

STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
MASS		1996	1	10
PROJECT FILE NO. 600962				

TITLE & INDEX

THE COMMONWEALTH OF MASSACHUSETTS
MASSACHUSETTS HIGHWAY DEPARTMENT

BRIDGE BETTERMENT
Interstate 91 NB&SB over Westfield Road
Interstate 91 NB&SB over Cherry Street

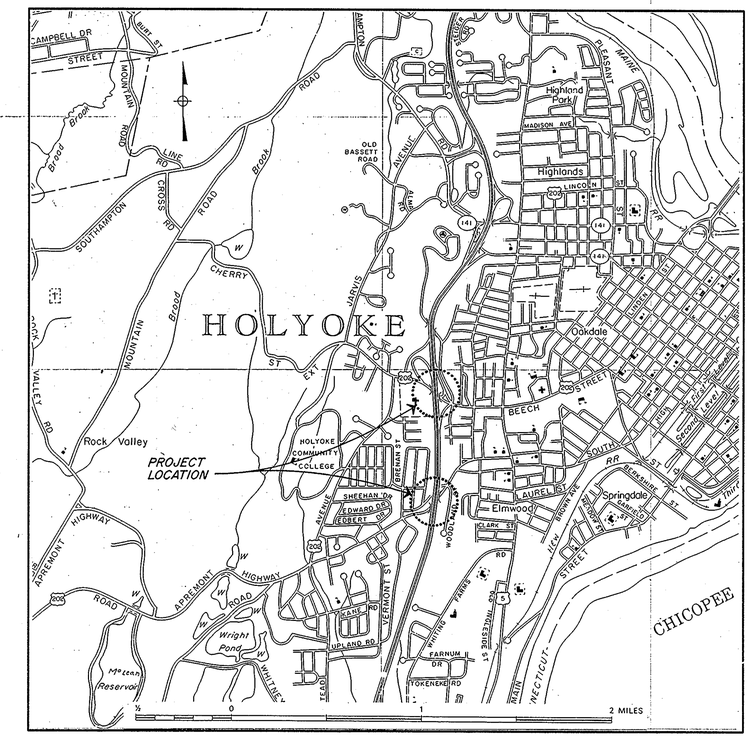
IN THE CITY OF

HOLYOKE
HAMPDEN COUNTY

THE 1988 SPECIFICATIONS, THE 1991 SUPPLEMENTAL SPECIFICATIONS DATED NOVEMBER 30, 1994, THE 1977 CONSTRUCTION STANDARDS, THE 1988 EDITION OF THE "THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD), WHICH INCLUDES PART VI, REVISION 3 DATED SEPTEMBER 3, 1993, THE 1990 "STANDARD DRAWING FOR SIGNS AND SUPPORTS".

INDEX

SHEET NO.	DESCRIPTION
1	TITLE & INDEX
2-3	JOINT DETAILS
4-10	TRAFFIC CONTROL PLANS



CONVENTIONAL SIGNS

COUNTY, CITY, OR TOWN BOUNDARY

COUNTY, CITY, OR TOWN SIDE LINE

FENCE LINE

BASE LINE OR SURVEY LINE — 74 — N 57° 18' 41" E 59.57

RIGHT OF WAY LINE

CULVERT

ELEVATIONS — PROPOSED SURFACE / PRESENT SURFACE; PRES. 98.22, 102.67 PROP.; 74

POLE

SCALES – AS NOTED

NOTE
LENGTH OF PROJECT = 726 FT

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED

DIVISION ADMINISTRATOR — Date

MASSACHUSETTS HIGHWAY DEPARTMENT

RECOMMENDED FOR APPROVAL

Brian B. Lindsey, P.E. 12/12/95
CHIEF ENGINEER — Date

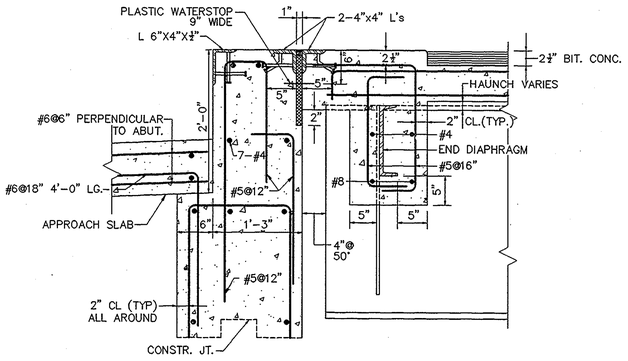
APPROVED

MHD COMMISSIONER — Date

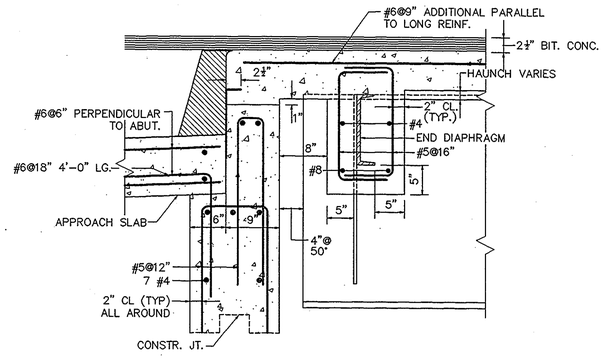
ASSOCIATE COMMISSIONERS — Date

H21-48/49

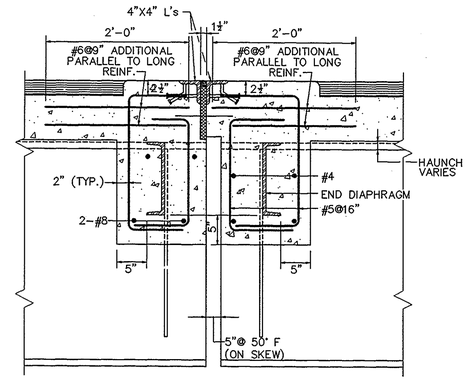
STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
MA		1996	2	10
PROJECT FILE NO. 600962				



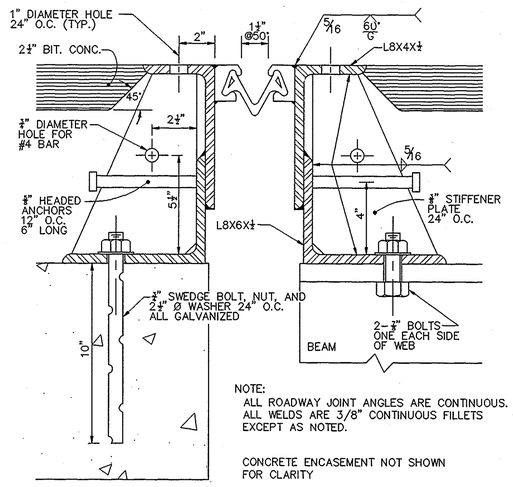
EXISTING
DECK DETAILS AT ABUTMENTS
NORTHBOUND BRG H-21-48
NORTHBOUND & SOUTHBOUND BRG H-21-49
SCALE - 1"=1'-0"
(SQUARE SECTION)



EXISTING
DECK DETAILS AT ABUTMENT
SOUTHBOUND BRG H-21-48
SCALE - 1"=1'-0"
(SQUARE SECTION)



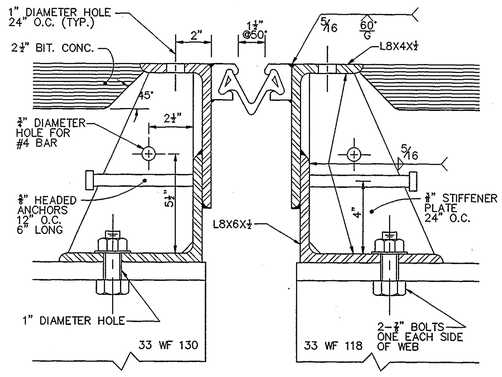
EXISTING
DECK DETAILS OVER PIERS
SCALE - 1"=1'-0"
(SQUARE SECTION)



NOTE:
ALL ROADWAY JOINT ANGLES ARE CONTINUOUS.
ALL WELDS ARE 3/8" CONTINUOUS FILLETS EXCEPT AS NOTED.

CONCRETE ENCASEMENT NOT SHOWN FOR CLARITY

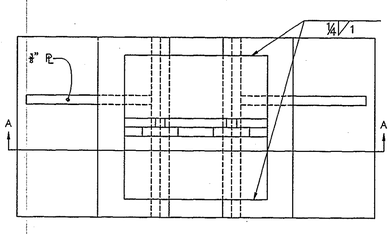
PROPOSED
ARMORED JOINT DETAIL
ABUTMENTS
SCALE - 3"=1'-0"

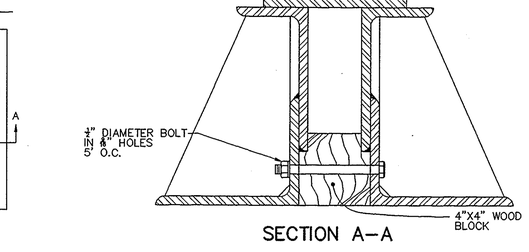


NOTE: ALL ROADWAY JOINT ANGLES ARE CONTINUOUS.
ALL WELDS ARE 3/8" CONTINUOUS FILLETS EXCEPT AS NOTED.

CONCRETE ENCASEMENT NOT SHOWN FOR CLARITY

PROPOSED
ARMORED JOINT DETAIL
OVER PIERS
SCALE - 3"=1'-0"





SECTION A-A

ARMORED JOINT
SHIPPING DEVICE
-NOT TO SCALE-

NOTES:

(1) A LENGTH OF STEEL PIPE MAY BE SUBSTITUTED FOR WOOD BLOCK

(2) SHIPPING DEVICE SHALL BE SET PARALLEL TO STRINGERS

(3) SHOP DRAWINGS SHALL BE SUBMITTED FOR THIS DEVICE

(4) ALL ARMORED JOINT DEVICES MUST BE FITTED IN THE SHOP AND SHIPPED WITH THE DEVICE IN PLACE.

(5) AFTER ARMORED JOINT IS IN PLACE REMOVE 1/2" BOLT AND SPACER BEFORE ANCHORING TO BRIDGE

(6) ARMORED JOINT SHALL BE SECURED TO BEAMS WHEN THE AMBIENT TEMPERATURE IS BETWEEN 40° AND 80°. NO FIELD ADJUSTMENT OF OPENING IS PERMITTED

(7) GRIND ARMORED JOINT SURFACE TO SMOOTH FINISH AFTER REMOVING BACK TO BACK ANGLES.

(8) ALL EXPOSED SURFACES SHALL BE FIELD PAINTED.

DESIGNED BY	ISSUED FOR CONSTRUCTION
J. CARRINGTON	
DRAWN BY	
J. CARRINGTON	
CHECKED BY	
GLP	
SPECS BY	
APPROVED FOR DESIGN	

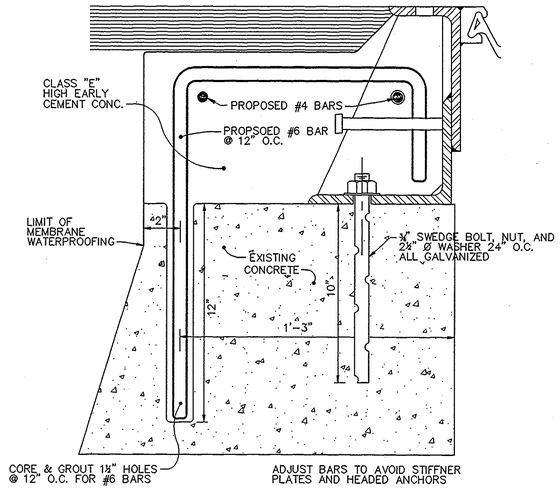
MASSACHUSETTS HIGHWAY

PROPOSED BRIDGE REPAIRS
HOLYOKE

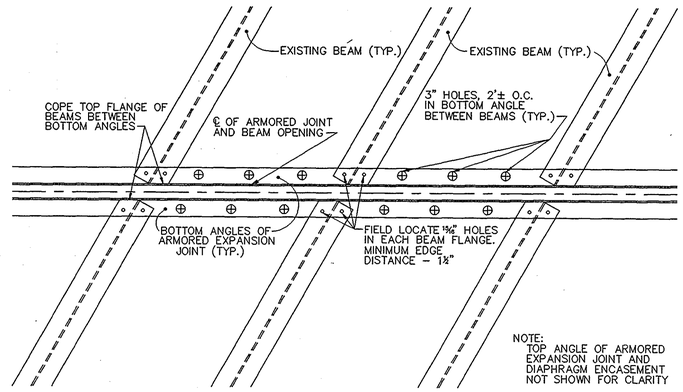
INTERSTATE 91 over
WESTFIELD ROAD and CHERRY STREET

THE COMMONWEALTH OF MASSACHUSETTS
MASSACHUSETTS HIGHWAY DEPARTMENT
10 PARK PLAZA BOSTON, MASS

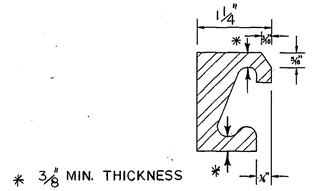
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MA		1996	3	10
PROJECT FILE NO. 600962				

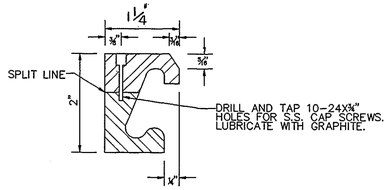


PROPOSED
REINFORCING BAR DETAIL AT ABUTMENTS
SCALE – 3"=1'-0"

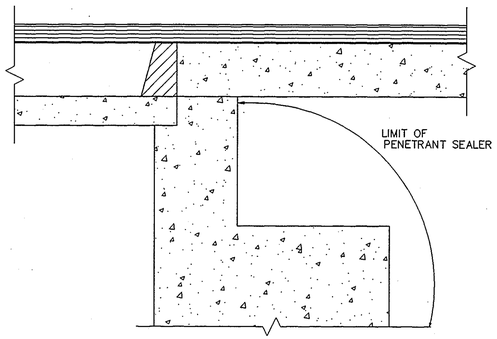


PROPOSED
EXPANSION JOINT MOUNTING
–NOT TO SCALE–

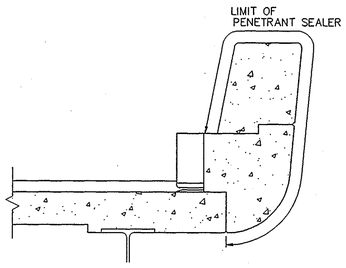




PROPOSED
STEEL EXTRUSION DETAILS
–NOT TO SCALE–

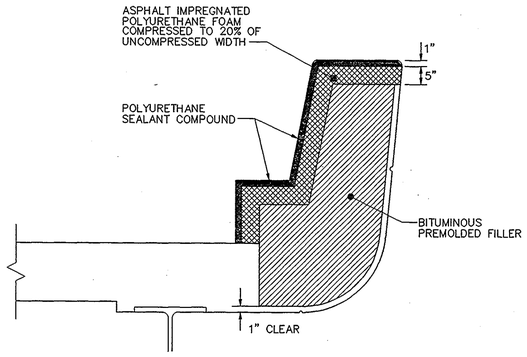


ABUTMENT



COPING

CONCRETE PENETRANT LOCATIONS
–NOT TO SCALE–

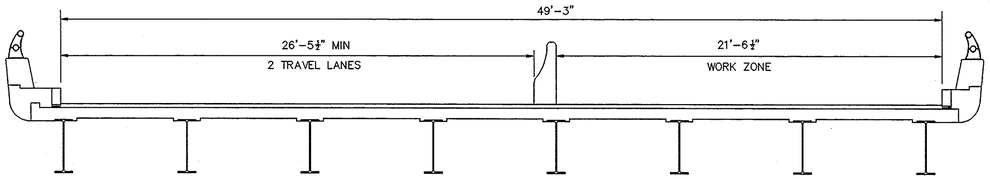


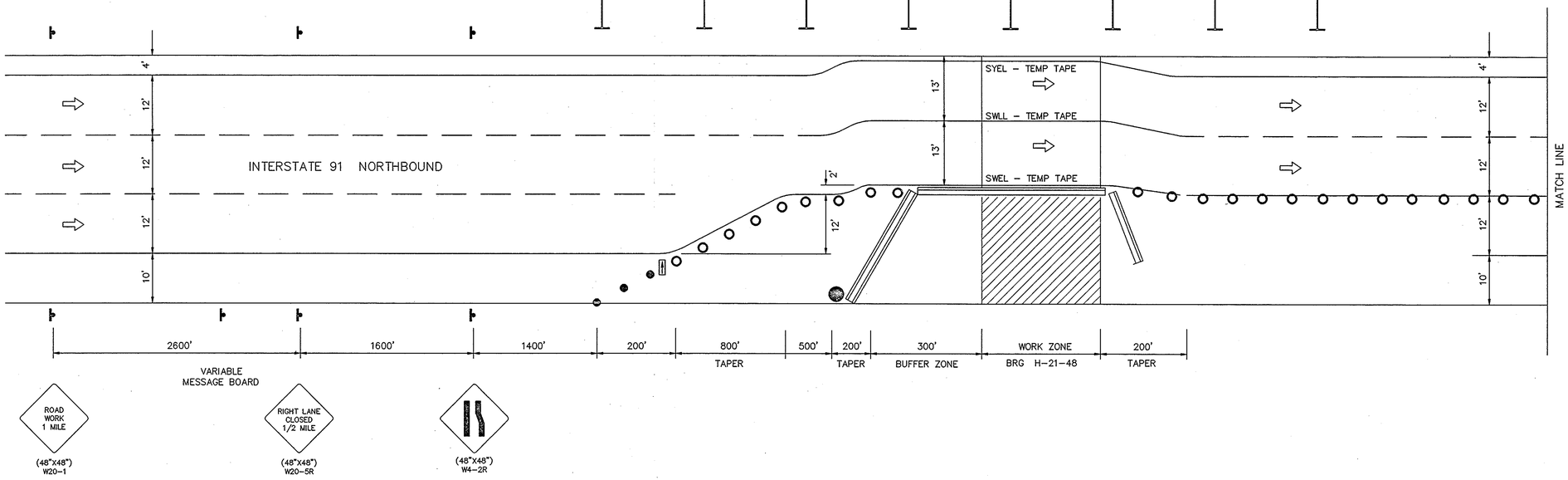
TYPICAL
JOINT FILLER COMPOUND
–NOT TO SCALE–

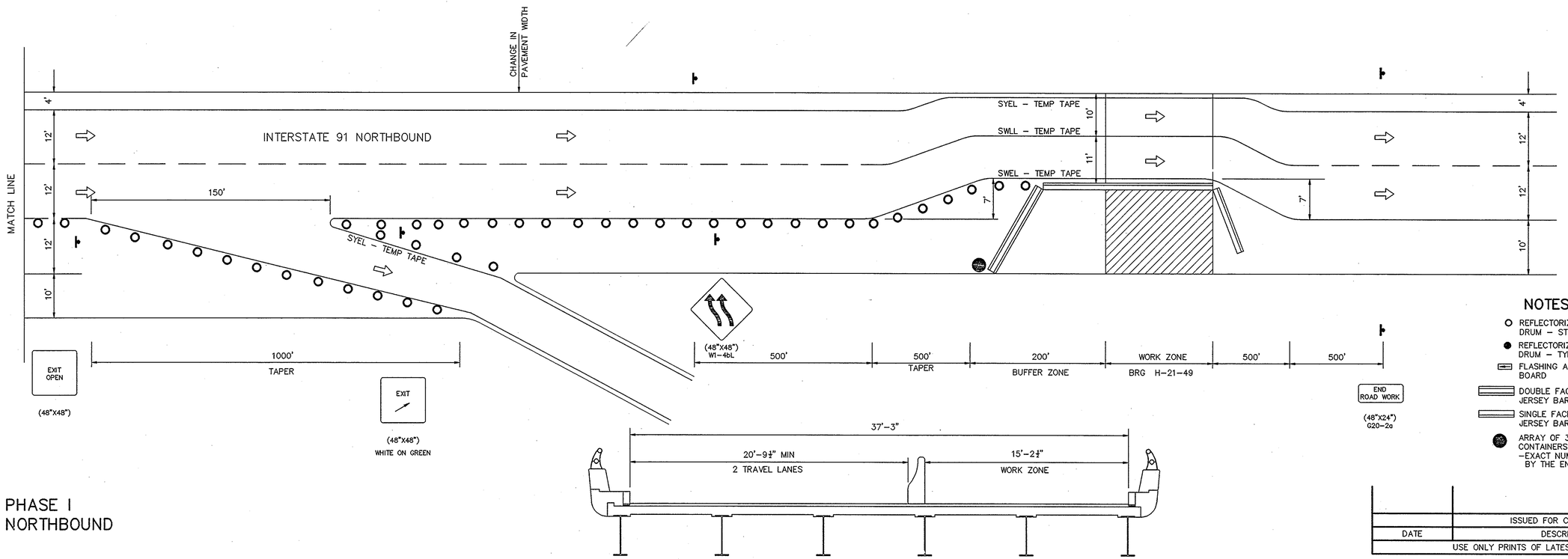
	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
MA		1996	4	10
PROJECT FILE NO. 600962				

NO SCALE







NOTES

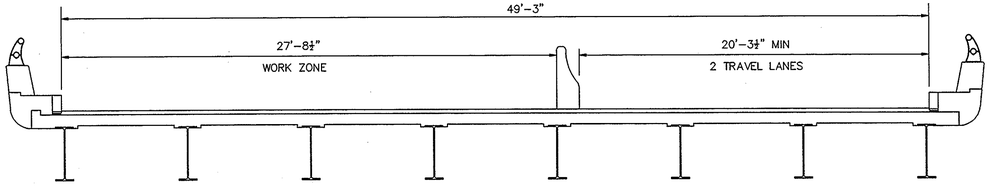
- REFLECTORIZED DRUM – STEADY BURN
- REFLECTORIZED DRUM – TYPE A
- FLASHING ARROW BOARD
- DOUBLE FACED JERSEY BARRIER
- SINGLE FACED JERSEY BARRIER
- ARRAY OF 36" YELLOW MODULAR CONTAINERS (SAND FILLED) –EXACT NUMBER TO BE DETERMINED BY THE ENGINEER

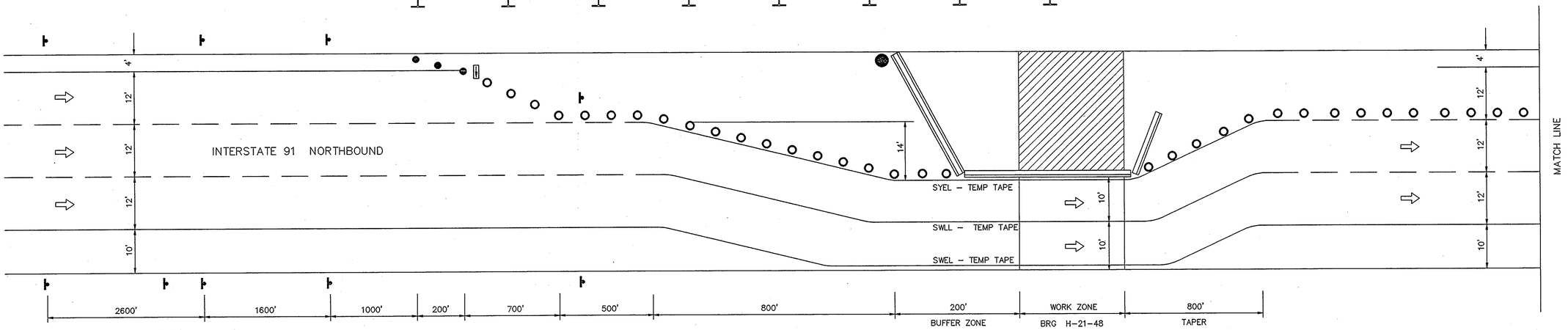
PHASE I
NORTHBOUND

DATE	DESCRIPTION
	ISSUED FOR CONSTRUCTION
USE ONLY PRINTS OF LATEST DATE	

STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
MA		1996	5	10
PROJECT FILE NO. 600962				

NO SCALE







(48"X48")
W20-1

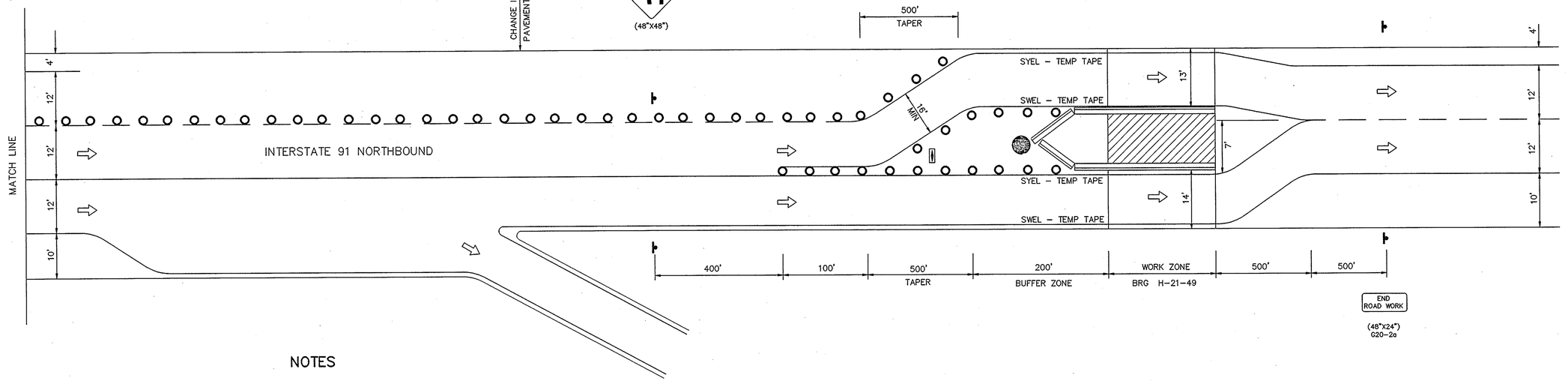


(48"X48")
W20-5L


(48"X48")
W4-2L


(48"X48")
W1-4bR

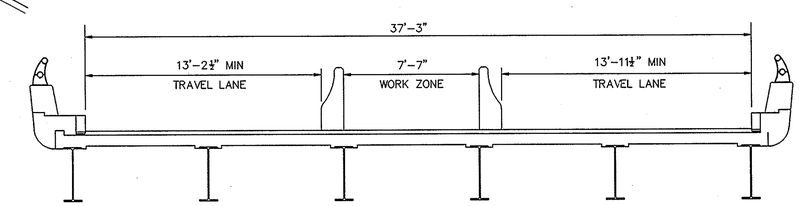

(48"X48")



(48"X24")
G20-2a

NOTES

- REFLECTORIZED DRUM – STEADY BURN
- REFLECTORIZED DRUM – TYPE A
- SINGLE – FLASHING ARROW BOARD
- DOUBLE – FLASHING ARROW BOARD
- DOUBLE FACED JERSEY BARRIER
- SINGLE FACED JERSEY BARRIER
- ARRAY OF 36" YELLOW MODULAR CONTAINERS (SAND FILLED) –EXACT NUMBER TO BE DETERMINED BY THE ENGINEER

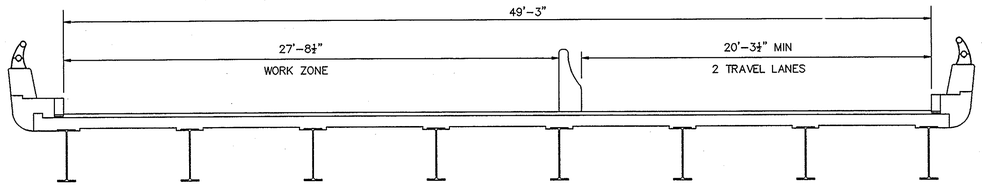


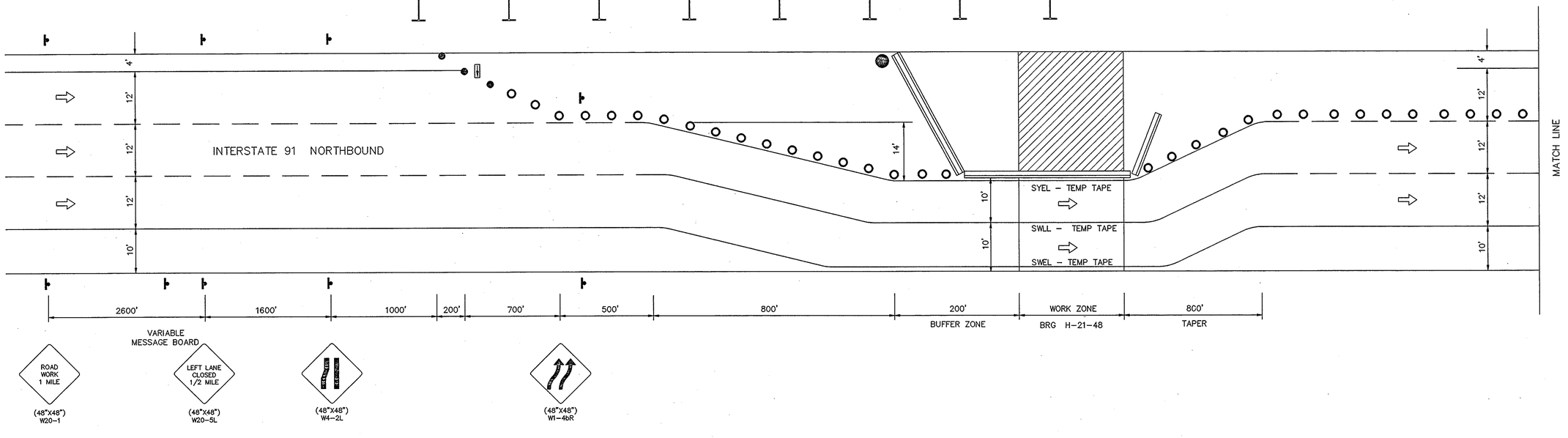
PHASE II
NORTHBOUND

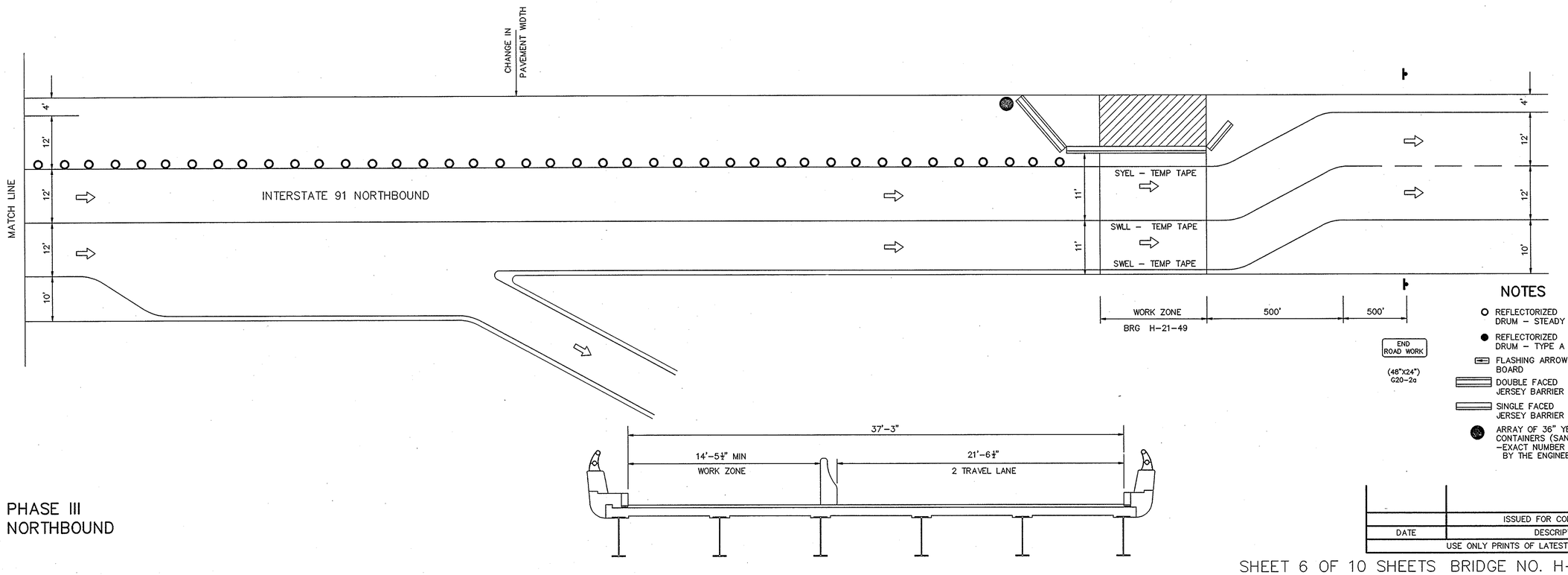
	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
MA		1996	6	10
PROJECT FILE NO. 600962				

NO SCALE







NOTES

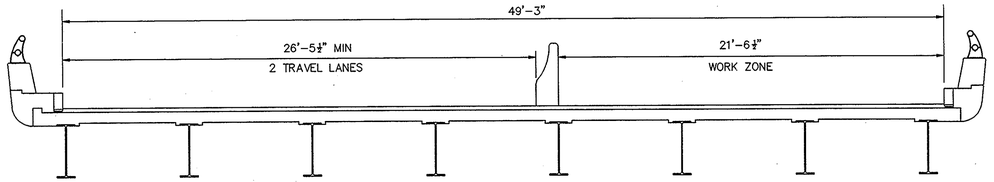
- REFLECTORIZED DRUM – STEADY BURN
- REFLECTORIZED DRUM – TYPE A
- FLASHING ARROW BOARD
- DOUBLE FACED JERSEY BARRIER
- SINGLE FACED JERSEY BARRIER
- ARRAY OF 36" YELLOW MODULAR CONTAINERS (SAND FILLED) –EXACT NUMBER TO BE DETERMINED BY THE ENGINEER

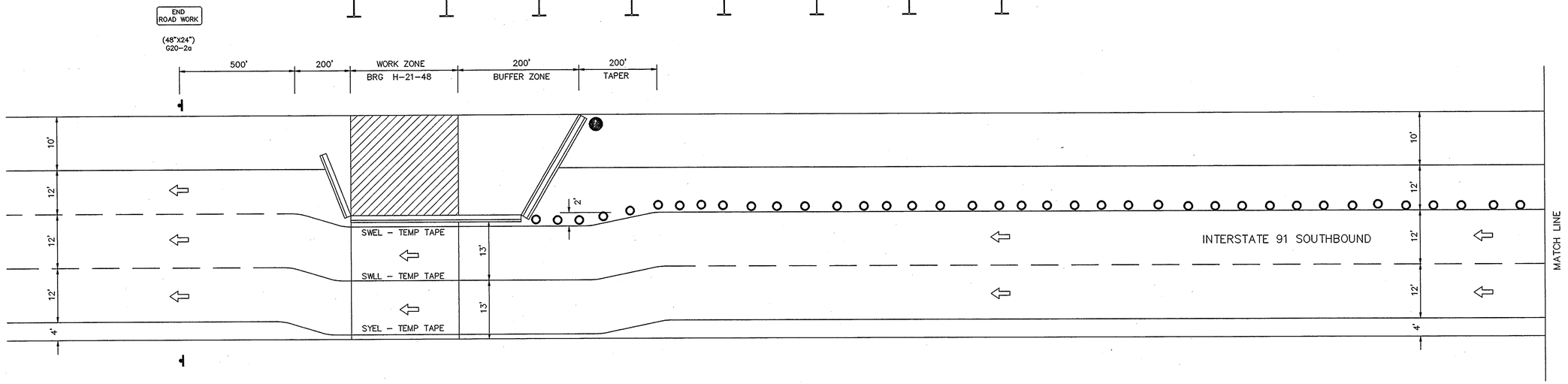
PHASE III
NORTHBOUND

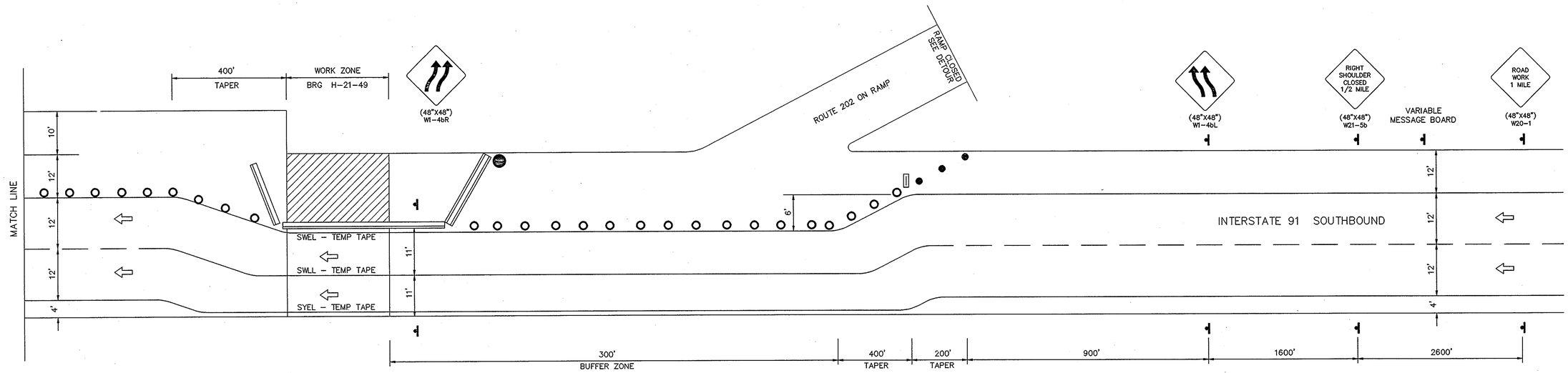
	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

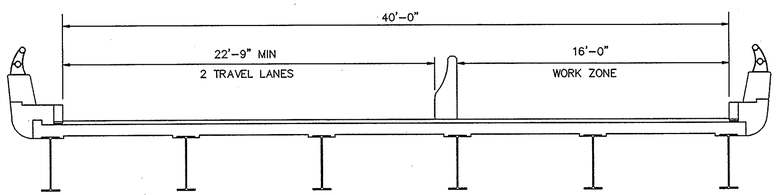
STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
MA		1996	7	10
PROJECT FILE NO. 600962				

NO SCALE









PHASE I
SOUTHBOUND

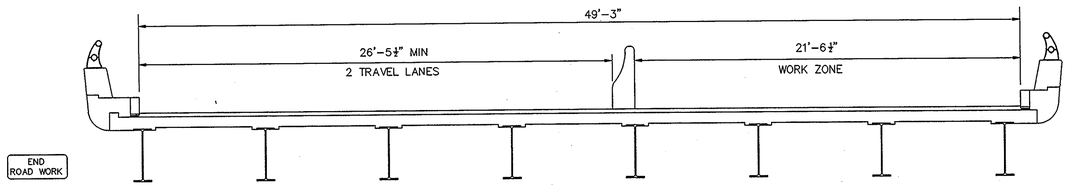
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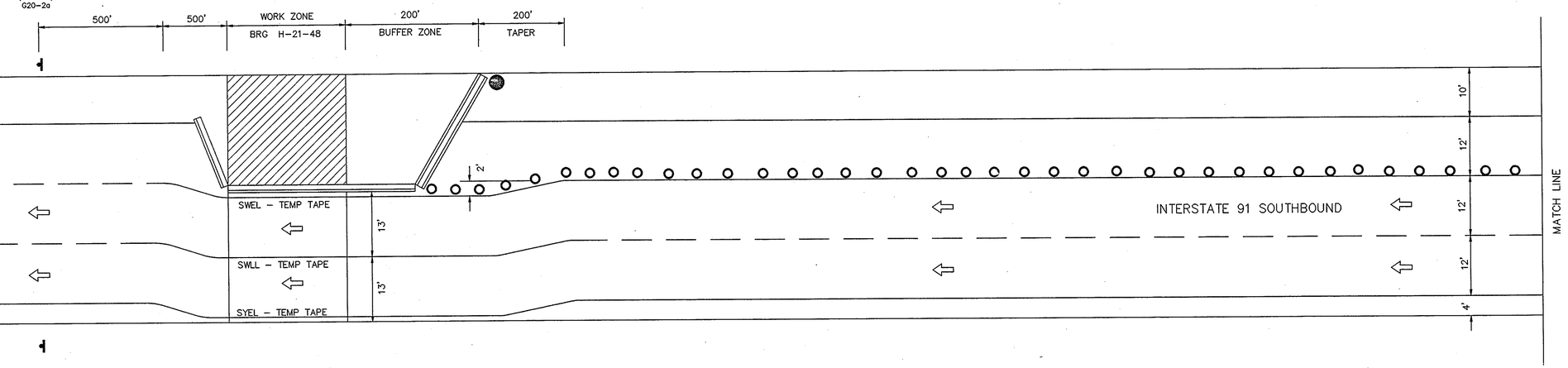
- REFLECTORIZED DRUM - STEADY BURN
- REFLECTORIZED DRUM - TYPE A
- FLASHING ARROW BOARD
- DOUBLE FACED JERSEY BARRIER
- SINGLE FACED JERSEY BARRIER
- ARRAY OF 36" YELLOW MODULAR CONTAINERS (SAND FILLED) -EXACT NUMBER TO BE DETERMINED BY THE ENGINEER

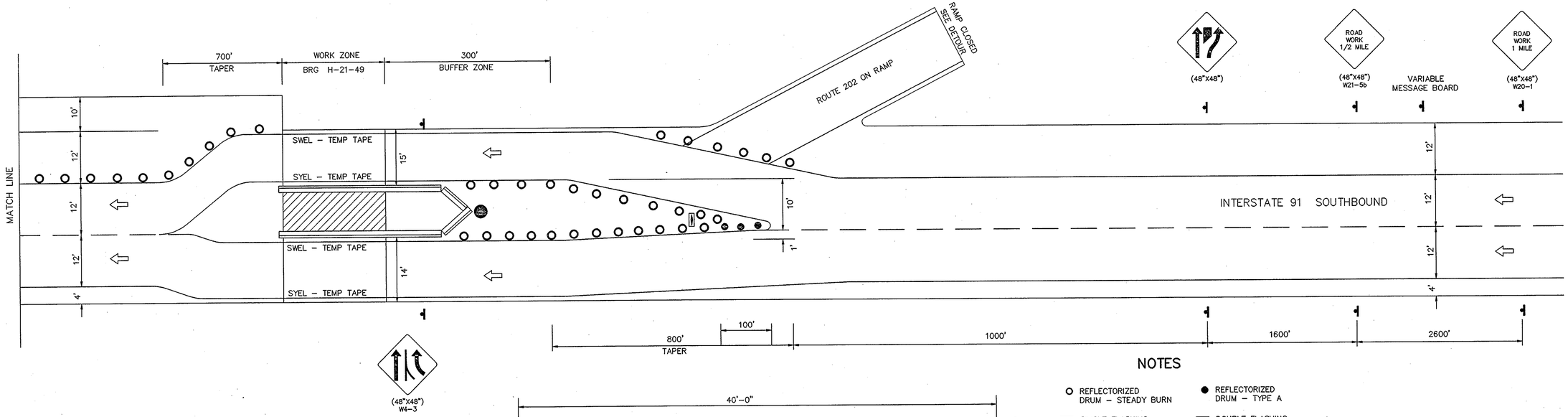
DATE	DESCRIPTION
	ISSUED FOR CONSTRUCTION
	USE ONLY PRINTS OF LATEST DATE

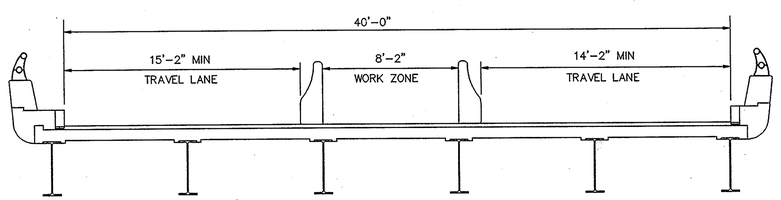
STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
MA		1996	8	10
PROJECT FILE NO. 600962				

NO SCALE









PHASE II
SOUTHBOUND

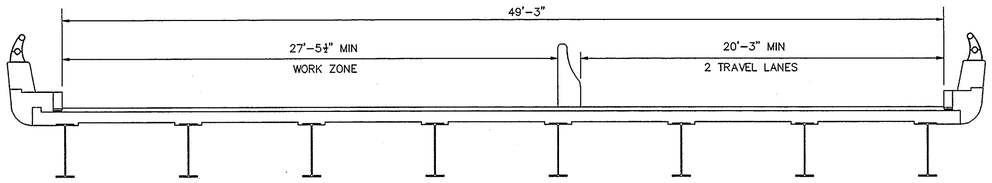
NOTES

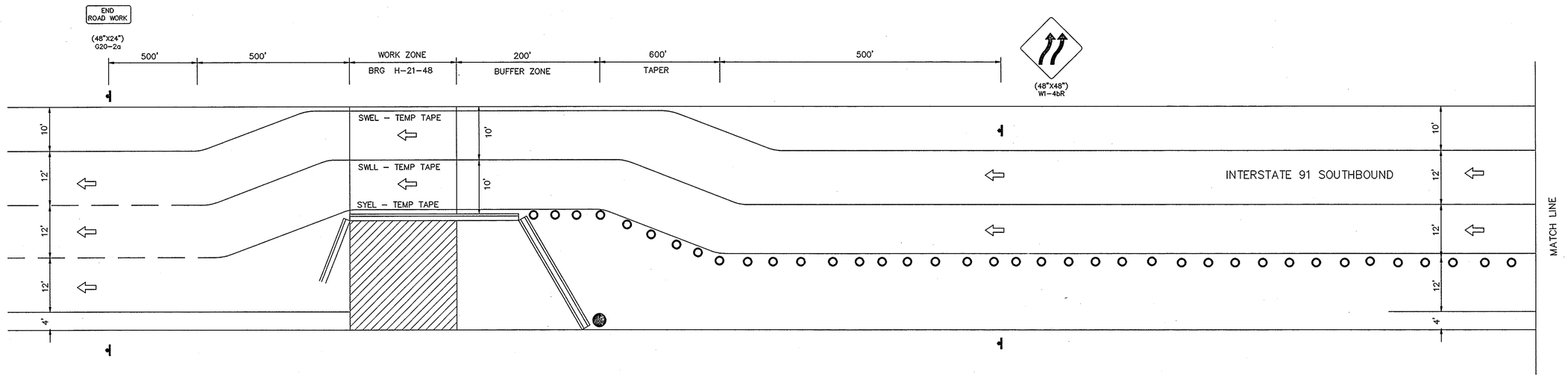
- ○ REFLECTORIZED DRUM – STEADY BURN
- ● REFLECTORIZED DRUM – TYPE A
- ▭ SINGLE FLASHING ARROW BOARD
- ▭ DOUBLE FLASHING ARROW BOARD
- ▭ DOUBLE FACED JERSEY BARRIER
- ▭ SINGLE FACED JERSEY BARRIER
- ◉ ARRAY OF 36" YELLOW MODULAR CONTAINERS (SAND FILLED) –EXACT NUMBER TO BE DETERMINED BY THE ENGINEER

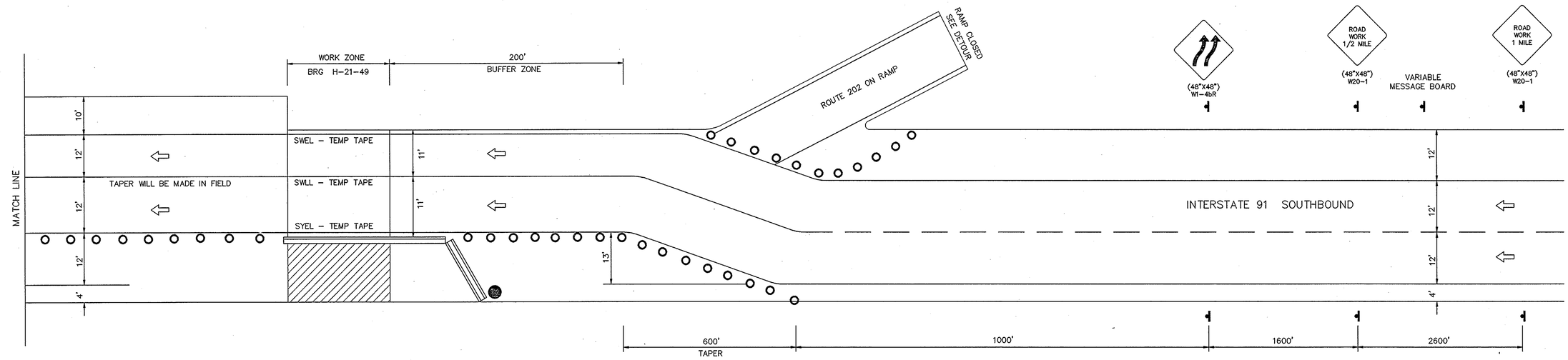
DATE	DESCRIPTION
	ISSUED FOR CONSTRUCTION
	USE ONLY PRINTS OF LATEST DATE

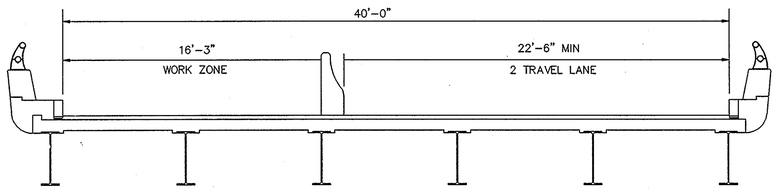
STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
MA		1996	9	10
PROJECT FILE NO. 600962				

NO SCALE









PHASE III
SOUTHBOUND

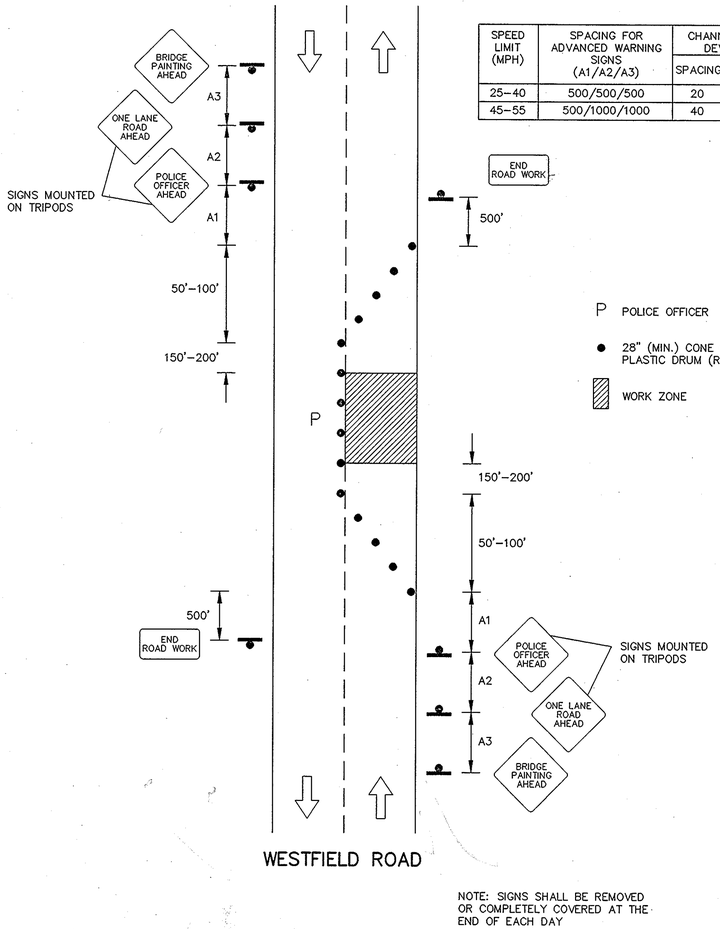
NOTES

- REFLECTORIZED DRUM - STEADY BURN
- REFLECTORIZED DRUM - TYPE A
- FLASHING ARROW BOARD
- DOUBLE FACED JERSEY BARRIER
- ARRAY OF 36" YELLOW MODULAR CONTAINERS (SAND FILLED) -EXACT NUMBER TO BE DETERMINED BY THE ENGINEER
- SINGLE FACED JERSEY BARRIER

DATE	DESCRIPTION
	ISSUED FOR CONSTRUCTION
USE ONLY PRINTS OF LATEST DATE	

STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
MA		1996	10	10
PROJECT FILE NO. 600962				

NO SCALE



SPEED LIMIT (MPH)	SPACING FOR ADVANCED WARNING SIGNS (A1/A2/A3)	CHANNELIZING DEVICES	
		SPACING	MIN. NO.
25–40	500/500/500	20	20
45–55	500/1000/1000	40	20

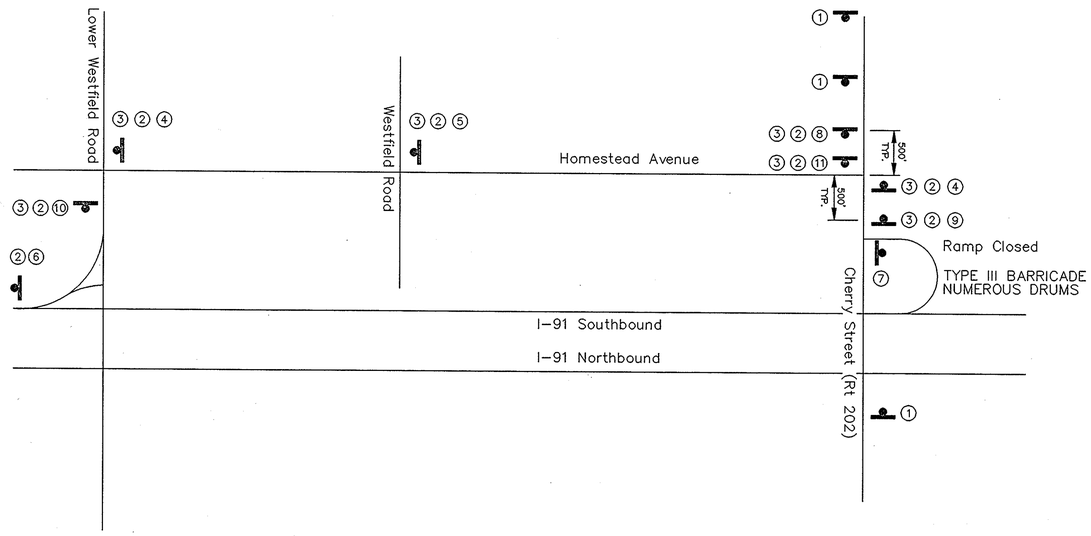
P POLICE OFFICER

● 28" (MIN.) CONE OR PLASTIC DRUM (REFLEC.)

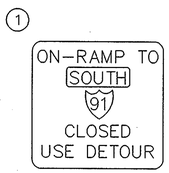
WORK ZONE

NOTE: SIGNS SHALL BE REMOVED OR COMPLETELY COVERED AT THE END OF EACH DAY

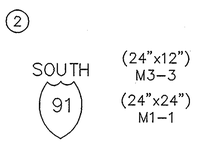
TRAFFIC CONTROL PLAN
BRIDGE PAINTING – BRG H–21–48



CLOSURE OF ON–RAMP FROM
CHERRY STREET TO I–91 SOUTHBOUND



① (24"x18") M4–8a



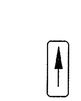
② (24"x12") M3–3 (24"x24") M1–1



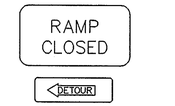
③ (24"x12") M4–8



④ (21"x15") M6–1L



⑤ (30"x24") M4–9V



⑥ (24"x18") M4–8a

⑦ (48"x30") R11–2a M4–10L



⑧ M5–1R



⑨ M5–1L



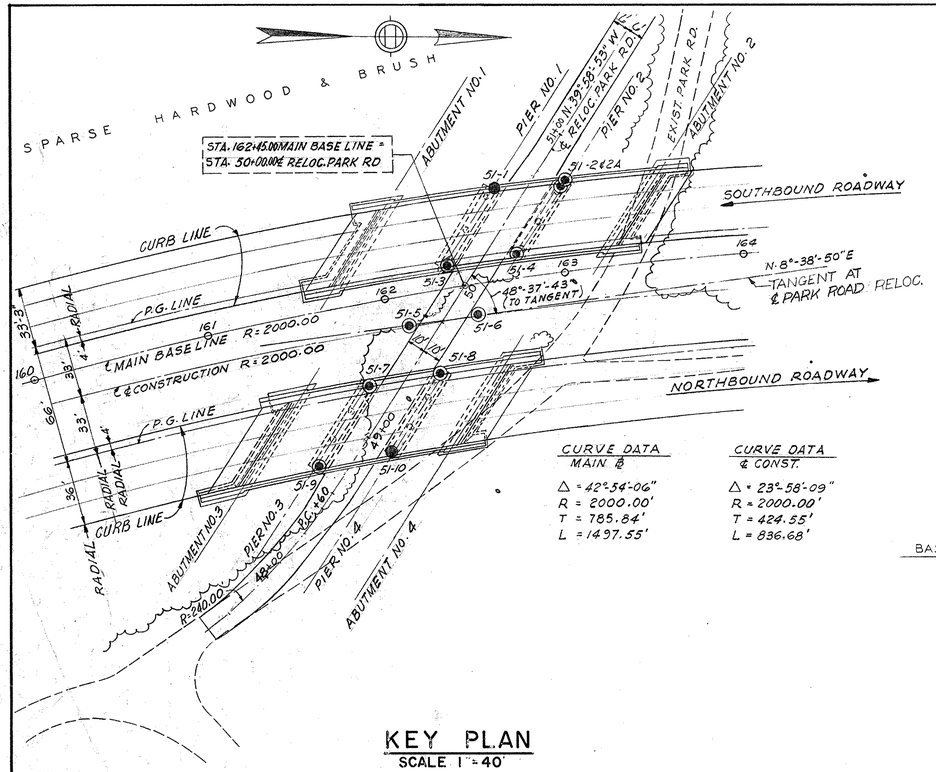
⑩ M6–2R



④ (21"x15") M6–1R

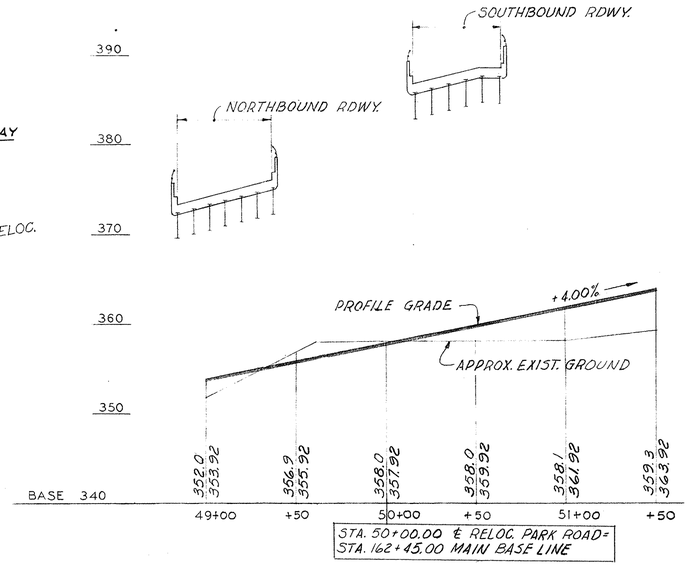
	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	I-91-1(41)12	1964	199	1246

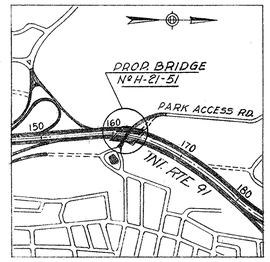


CURVE DATA ℄ MAIN	CURVE DATA ℄ CONST.
Δ = 42° 54' 06"	Δ = 23° 58' 09"
R = 2000.00'	R = 2000.00'
T = 785.84'	T = 424.55'
L = 1497.55'	L = 836.68'

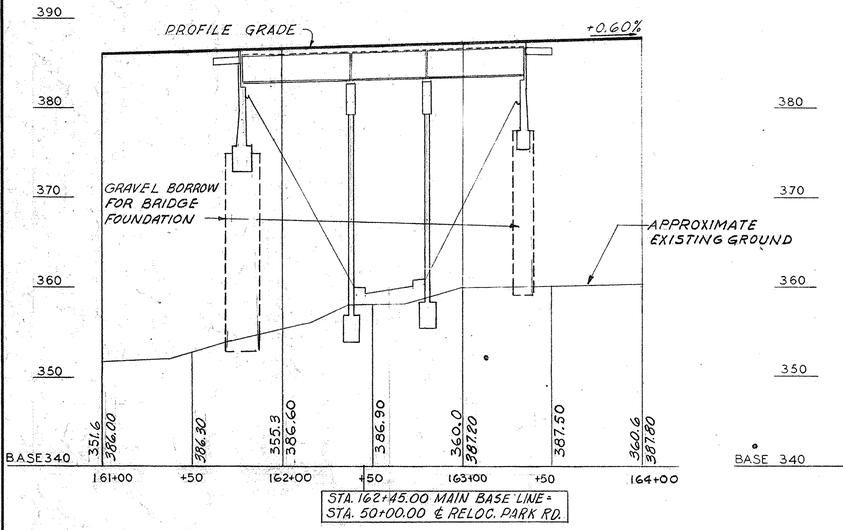
KEY PLAN
SCALE 1" = 40'



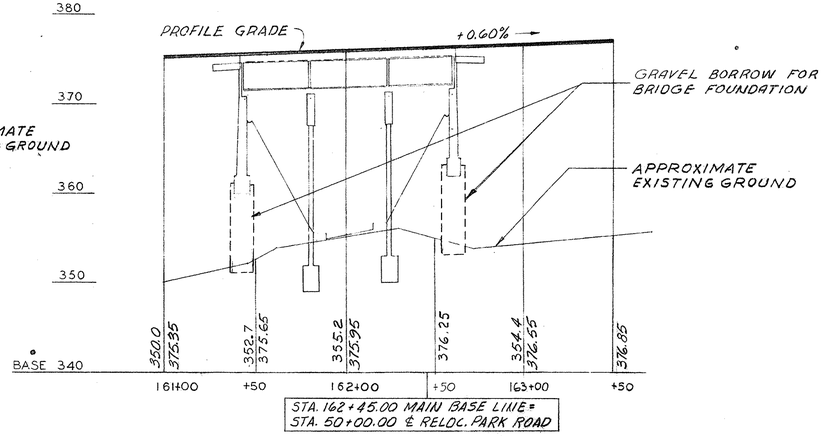
PROFILE ALONG PARK RD. RELOC.
SCALE HOR 1" = 40'
VERT 1" = 8'



LOCUS PLAN
1000 0 1000 2000



PROFILE ALONG SOUTHBOUND ROADWAY
SCALE HOR 1" = 40'
VERT 1" = 8'



PROFILE ALONG NORTHBOUND ROADWAY
SCALE HOR 1" = 40'
VERT 1" = 8'

KEY PLAN & PROFILES
GENERAL NOTES

PEAT EXCAVATION:
ALL PEAT OR OTHER UNSUITABLE SHALL BE REMOVED WITHIN THE LIMITS OF THE FOUNDATIONS OF THE STRUCTURE.

FOUNDATIONS:
FOUNDATIONS MAY BE ALTERED, IF NECESSARY, TO SUIT CONDITIONS ENCOUNTERED IN CONSTRUCTION

DATE AND SEAL:
TO BE LOCATED AS SHOWN ON SHEET No. 13. A SHEET SHOWING SIZE AND CHARACTER OF NUMERALS WILL BE FURNISHED. SEAL WILL BE FURNISHED BY THE COMMONWEALTH AND WILL BE SET BY THE CONTRACTOR.

DESIGN:
IN ACCORDANCE WITH THE SPECIFICATIONS OF THE AMERICAN ASSOCIATION OF STATE HIGHWAY OFFICIALS (1961 EDITION) FOR H S20-44 LOADING (MODIFIED FOR MILITARY LOADING).

DESIGN STRESSES:

STRUCTURAL STEEL (ASTM A36)	20,000 P.S.I.
INTERMEDIATE GRADE REINFORCING STEEL	20,000 P.S.I.
CONCRETE CLASS A AND D	1,200 P.S.I.
CONCRETE CLASS B	1,000 P.S.I.

REINFORCEMENT:
ALL BARS SHALL HAVE DEFORMATIONS CONFORMING TO A.S.T.M. DESIGNATION A-305. UNLESS OTHERWISE SHOWN ON PLANS, REINFORCING BARS SHALL BE LAPPED 20 DIAMETERS TO MAKE A SPLICE, EXCEPT THAT MAIN REINFORCING BARS NEAR THE TOP OF SLABS AND BEAMS HAVING MORE THAN 12 INCHES OF CONCRETE UNDER THE BARS SHALL BE LAPPED 35 DIAMETERS TO MAKE A SPLICE.

BENCH MARK:
BENCH MARK #18 EL. 353.575 R.R. SPIKE - BASE 30" OAK 110' EAST ℄ STA. 160 +70

ESTIMATED QUANTITIES
(NOT GUARANTEED)

BRIDGE EXCAVATION	630 C.Y.
CLASS B ROCK EXCAVATION	10 C.Y.
GRAVEL BORROW	390 C.Y.
GRAVEL BORROW FOR BRIDGE FOUNDATIONS	7000 C.Y.
BRIDGE STRUCTURE (H-21-51)	1 L.S.
METAL BRIDGE RAILING TYPE K OR ALUMINUM BRIDGE RAILING	663 L.F.

THE FOLLOWING QUANTITIES ARE PART OF THE LUMP SUM ITEM (G15-5) OF BRIDGE STRUCTURE AND ARE NOT GUARANTEED.

STRUCTURAL STEEL	304,100 LBS.
STEEL REINFORCEMENT FOR STRUCTURES	222,300 LBS.

EDWIN M. HOWARD REGISTERED PROFESSIONAL ENGINEER COMMONWEALTH OF MASSACHUSETTS

WHITMAN & HOWARD, INC.
CONSULTING ENGINEERS
BOSTON, MASS.

NOV. 5, 1965	5 REVISION - SHEET 10
AUG. 25, 1965	4 REVISION - SHEETS 8, 9.
MAY 27, 1965	3 REVISION - SHEET 11
July 13, 1965	2 REVISION - SHEETS 3, 4, 5, 7 & 12
MAY 14, 1965	1 REVISION - SHEETS 10, 11.
DEC 18, 1964	ISSUED FOR CONSTRUCTION

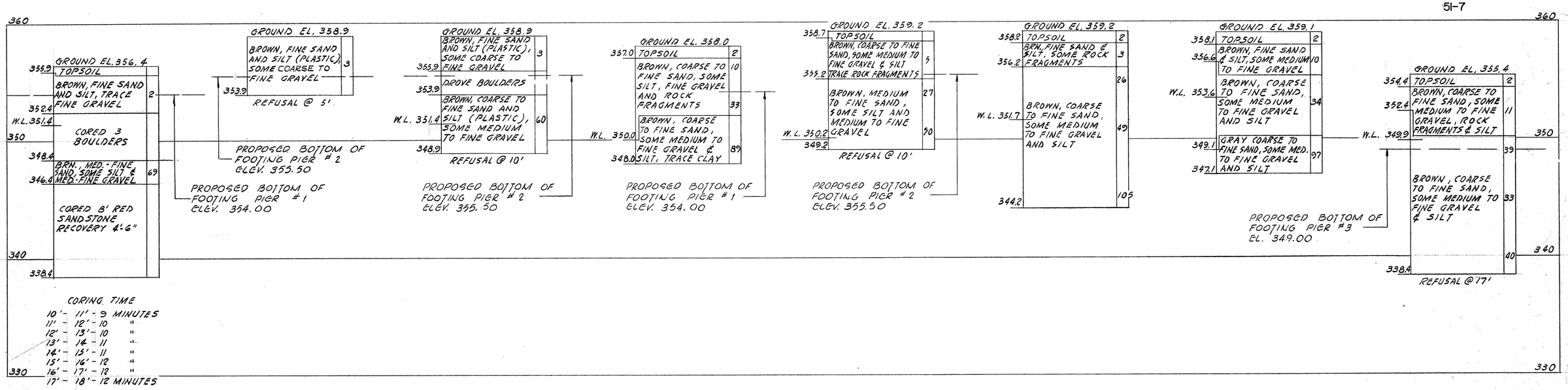
THE COMMONWEALTH OF MASSACHUSETTS
PROPOSED BRIDGE
HOLYOKE
INTERSTATE ROUTE 91 STA. 162+45.00
OVER
PARK ROAD RELOCATION
SCALES AS NOTED
OFFICE OF
DEPARTMENT OF PUBLIC WORKS
100 NASHUA ST. BOSTON, MASS.
DEC. 1964

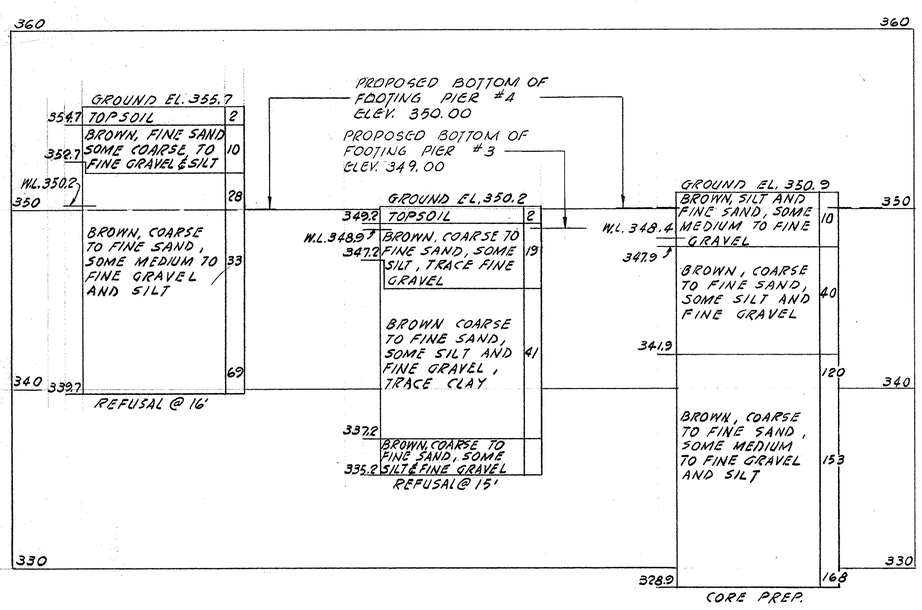
BRIDGE ENG. J. M. Gomes CHIEF ENG. Dominic J. Augello P.E.

SHEET 1 OF 14 SHEETS BRIDGE No H-21-51

PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	I-91-1(41)12	1964	200	1246

BORING DATA





BORING LOGS

VERT. SCALE: 1/4" = 1'-0"

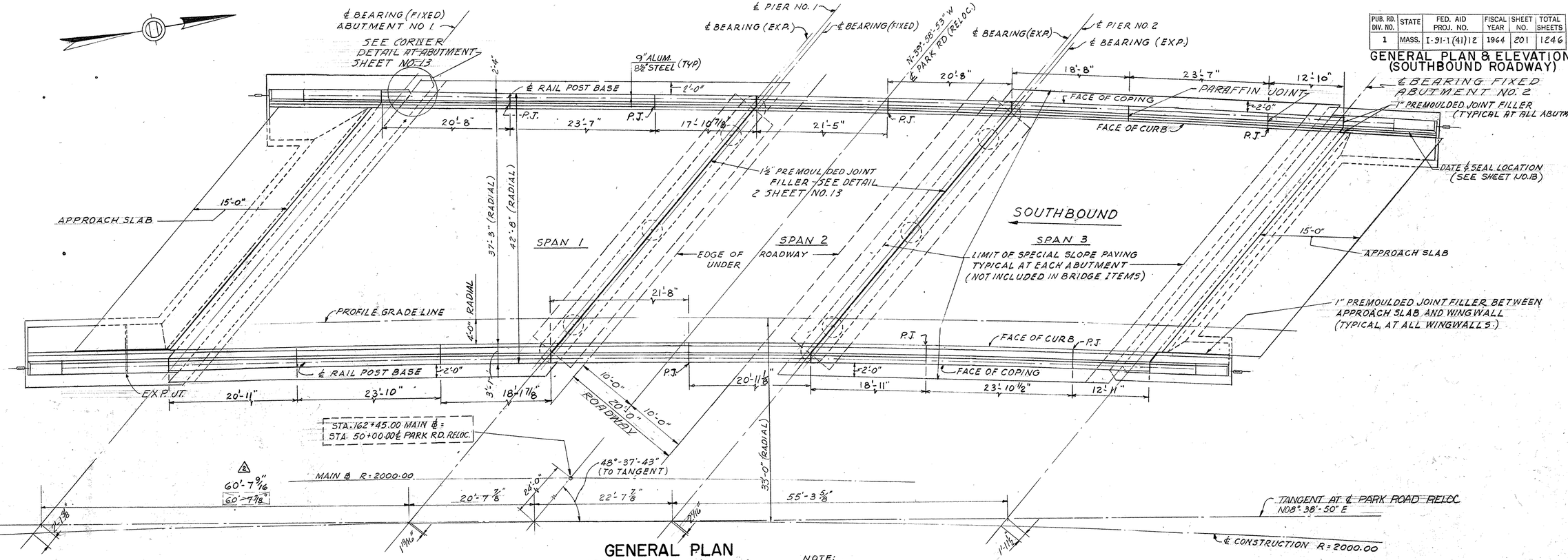
BORING NOTES:

1. LOCATION OF BORINGS ON SHEET NO. 1 SHOWN THUS ◉ 51-9 .
2. LOCATION OF CORE BORINGS ON SHEET NO. 1 SHOWN THUS ● 51-10 .
3. BORINGS TAKEN FOR THE PURPOSE OF DESIGN AND SHOW CONDITION AT BORING POINTS ONLY, BUT DO NOT NECESSARILY SHOW MATERIALS TO BE ENCOUNTERED DURING CONSTRUCTION.
4. FIGURES IN COLUMNS INDICATE NUMBER OF BLOWS PER FOOT ON A 2" O.D. SPOON PRODUCED BY A 30" FALL OF A 140 # HAMMER.
5. BORINGS WERE TAKEN IN MAY, 1963 BY JOHN J. BOYLE, 56 MARTIN ROAD, MILTON, MASS.
6. BORING SAMPLES MAY BE SEEN AT THE RESEARCH AND MATERIALS DIVISION, 99 WORCESTER STREET, WELLESLEY HILLS, AT THE INTERSECTION OF ROUTES 9 AND 128.
7. WATER LEVELS SHOWN ON THE LOGS WERE OBSERVED AT THE TIME OF TAKING BORINGS AND DO NOT NECESSARILY SHOW THE TRUE GROUND WATER LEVEL.
8. WATER LEVELS SHOWN ON THE BORING LOGS WERE OBSERVED DURING THE TAKING OF BORINGS AND DO NOT NECESSARILY SHOW THE TRUE GROUND WATER LEVEL.

DEC. 19 1964	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	I-91-1(41)12	1964	201	1246

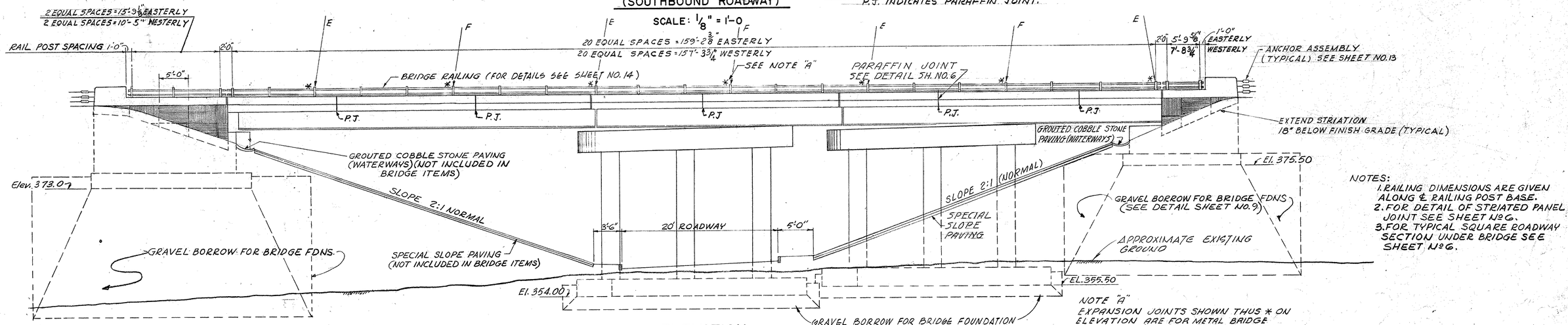
GENERAL PLAN & ELEVATION (SOUTHBOUND ROADWAY)



GENERAL PLAN (SOUTHBOUND ROADWAY)

SCALE: 1/8" = 1'-0

NOTE: P.J. INDICATES PARAFFIN JOINT.



ELEVATION (SOUTHBOUND ROADWAY)

SCALE: 1/8" = 1'-0"

NOTES:
1. RAILING DIMENSIONS ARE GIVEN ALONG ℄ RAILING POST BASE.
2. FOR DETAIL OF STRIATED PANEL JOINT SEE SHEET No. 6.
3. FOR TYPICAL SQUARE ROADWAY SECTION UNDER BRIDGE SEE SHEET No. 6.

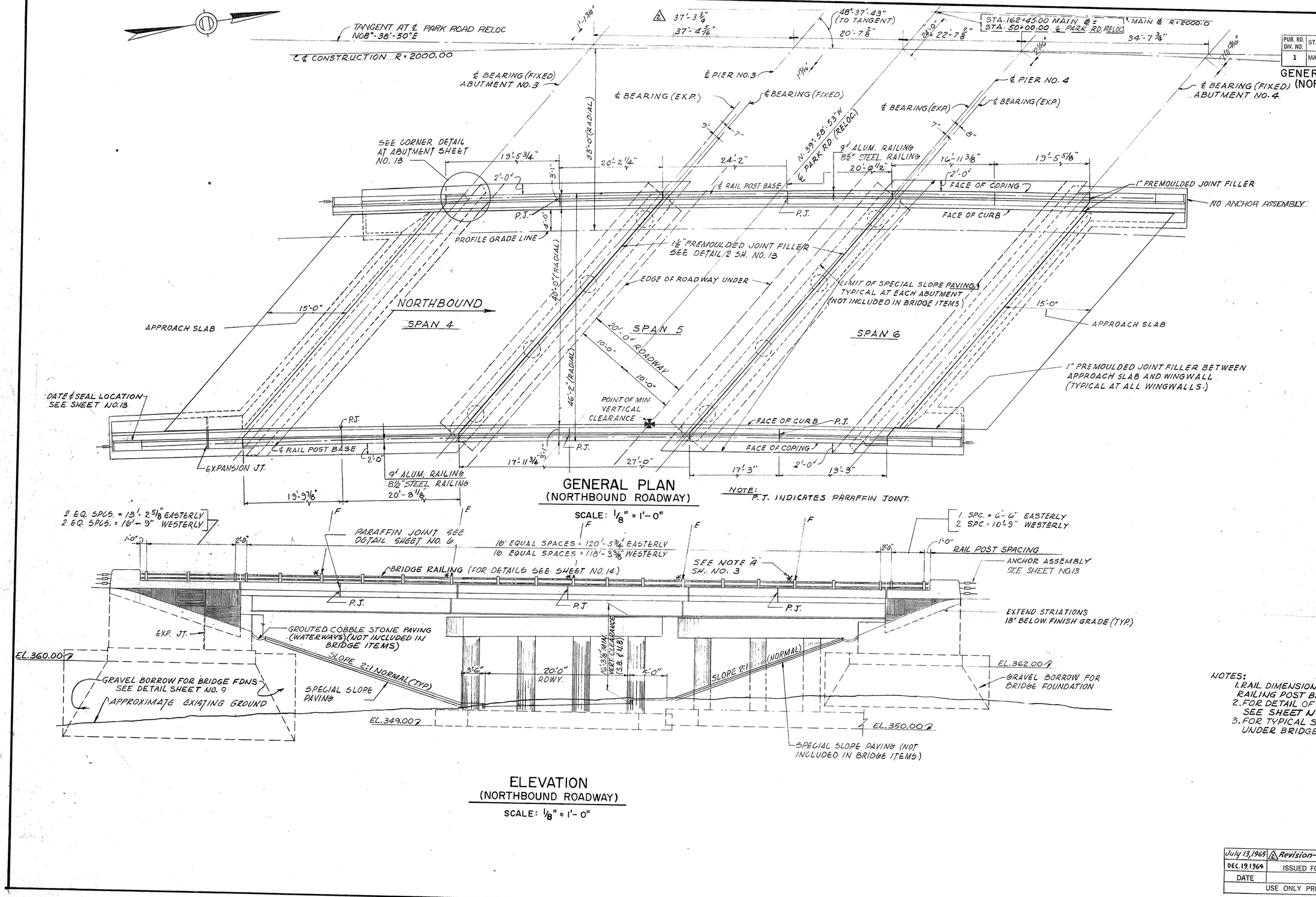
NOTE "A"
EXPANSION JOINTS SHOWN THUS * ON ELEVATION ARE FOR METAL BRIDGE RAILING TYPE K ONLY. POSTS MARKED E OR F DENOTE THE LOCATION OF THE EXPANSION AND FIXED POSTS FOR THE ALUMINUM BRIDGE RAILING ONLY.

July 13, 1965	⚠2 Revision - Dimension on Plan Revised
DEC. 19, 1964	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

⚠2

PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	I-91-1(41)12	1964	202	1246

GENERAL PLAN & ELEVATION (NORTHBOUND ROADWAY)



NOTES:
1. RAIL DIMENSIONS ARE GIVEN ALONG ℄ RAILING POST BASE.
2. FOR DETAIL OF STRIATED PANEL JOINT SEE SHEET NO. 6.
3. FOR TYPICAL SQUARE ROADWAY SECTION UNDER BRIDGE SEE SHEET NO. 6.

DATE	DESCRIPTION
July 13, 1965	⚠2 Revision-Dimension on Plan Revised
DEC. 19, 1964	ISSUED FOR CONSTRUCTION

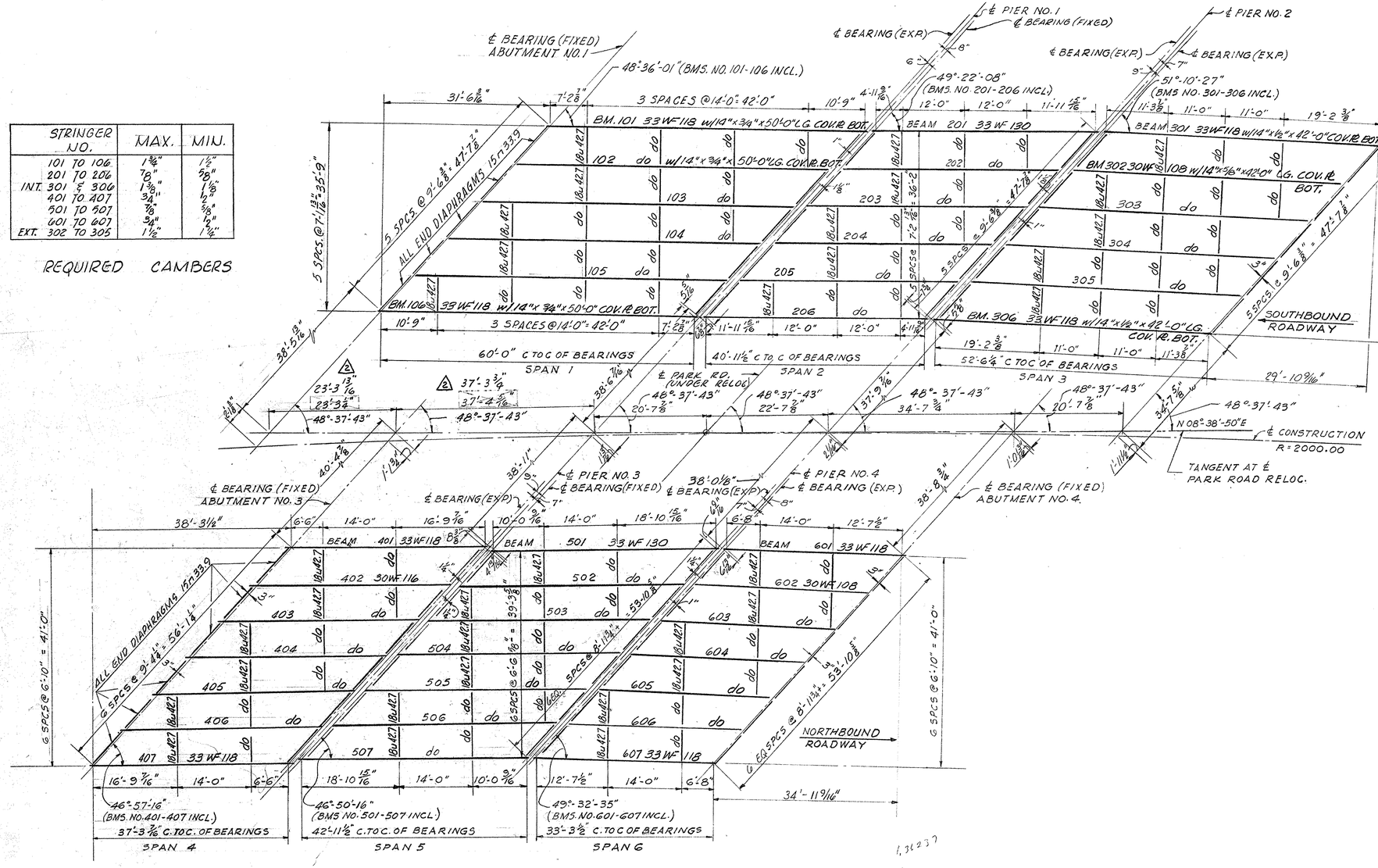
USE ONLY PRINTS OF LATEST DATE

PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	I-91-1(41)12	1964	203	1246

FRAMING PLAN

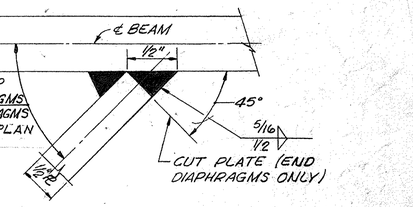
STRINGER NO.	MAX.	MIN.
101 TO 106	1 3/8"	1 1/2"
201 TO 206	7/8"	5/8"
INT. 301 & 306	1 3/8"	1 1/8"
401 TO 407	3/4"	1/2"
501 TO 507	7/8"	5/8"
601 TO 607	3/4"	1/2"
EXT. 302 TO 305	1 1/2"	1 1/4"

REQUIRED CAMBERS



FRAMING PLAN

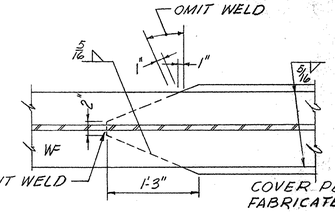
SCALE 3/32" = 1'-0"



WELDING DIAPHRAGM CONNECTION

NO SCALE

NOTES:
1. FOR DIAPHRAGM CONNECTIONS & BEARING DETAILS SEE SHEET NO. 14
2. ENDS OF BEAMS SHALL BE FABRICATED SO THAT UNDER FULL DEAD LOAD THE ENDS WILL BE PLUMB
3. PREPARATION OF MATERIALS FOR WELDING SHALL CONFORM TO ART. 402 AWS 1963.
4. ASSEMBLY OF MATERIALS FOR WELDING SHALL CONFORM TO ART. 403 AWS 1963.



COVER PLATE DETAIL

NO SCALE

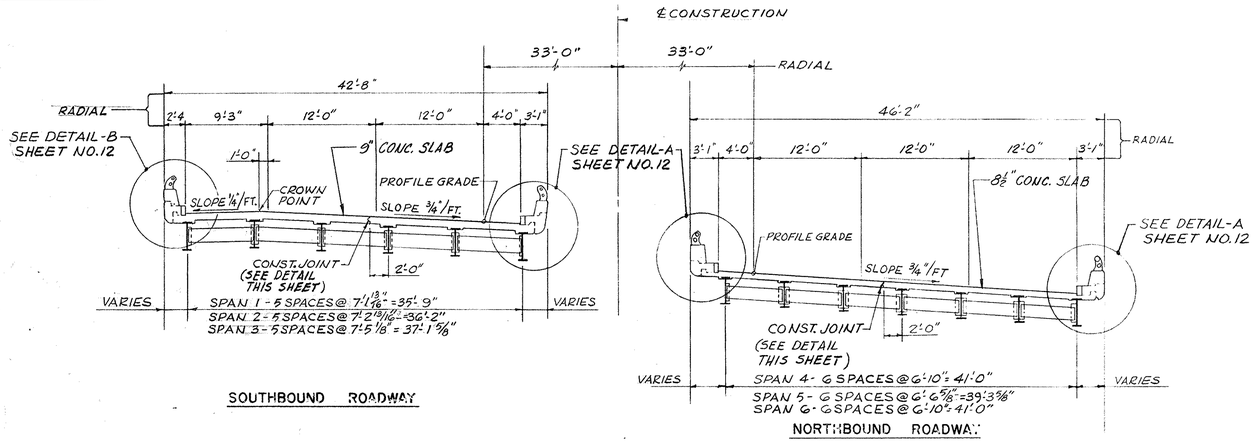
DATE	DESCRIPTION
July 13, 1965	2 Revision - Dimensions on Plan Revised
DEC. 19 1964	ISSUED FOR CONSTRUCTION

USE ONLY PRINTS OF LATEST DATE

SHEET 5 OF 14 SHEETS BRIDGE No. H-21-51

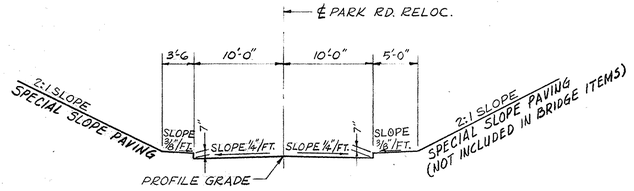
PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	I-91-1(41)12	1964	204	1246

MISCELLANEOUS DETAILS (2)



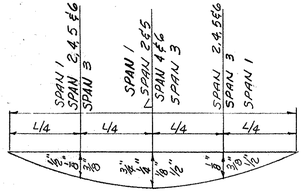
TYPICAL CROSS SECTION

SCALE: 1/8" = 1'-0"



TYPICAL SQUARE ROADWAY SECTION UNDER BRIDGE

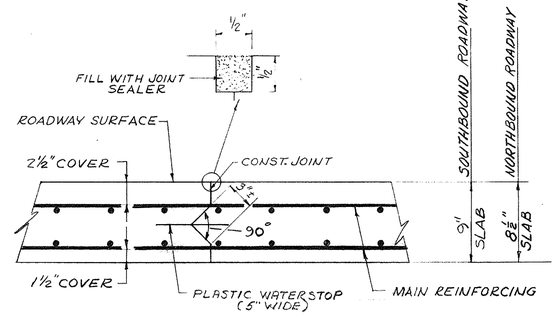
SCALE: 1/8" = 1'-0"



DEAD LOAD DEFLECTION DIAGRAM

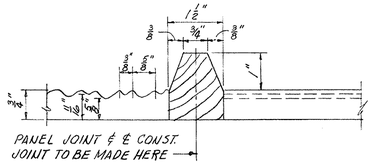
NO SCALE

NOTE:
DEFLECTIONS COMPUTED FOR SLAB DEAD LOAD ONLY. FOR USE OF RESIDENT ENGINEER ONLY.



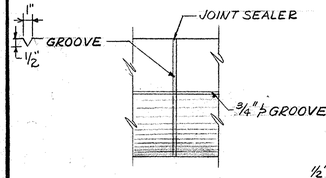
CONSTRUCTION JOINT IN ROADWAY SLAB

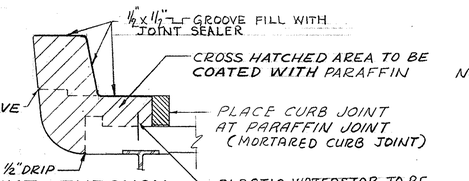
SCALE: 1 1/2" = 1'-0"



TYPICAL STRIATED PANEL JOINT

NO SCALE





PARAFFIN JOINT THROUGH COPING AND SAFETY WALK

NO SCALE

NOTES:
SAFETY WALK AND COPING SHALL BE POURED IN ALTERNATE SECTIONS AND SHALL HAVE A CURING PERIOD OF 5 DAYS BETWEEN POURS.
JOINTS TO BE PLACED IN EVERY THIRD RAILING PANEL AND NOT NEARER THAN 12" TO ANY BOLT OF RAILING POST.
DO NOT CARRY HORIZ. #4 BARS IN SAFETY WALK AND COPING THROUGH THE JOINTS.
JOINT SEALER TO BE SAME COLOR AS CONCRETE.

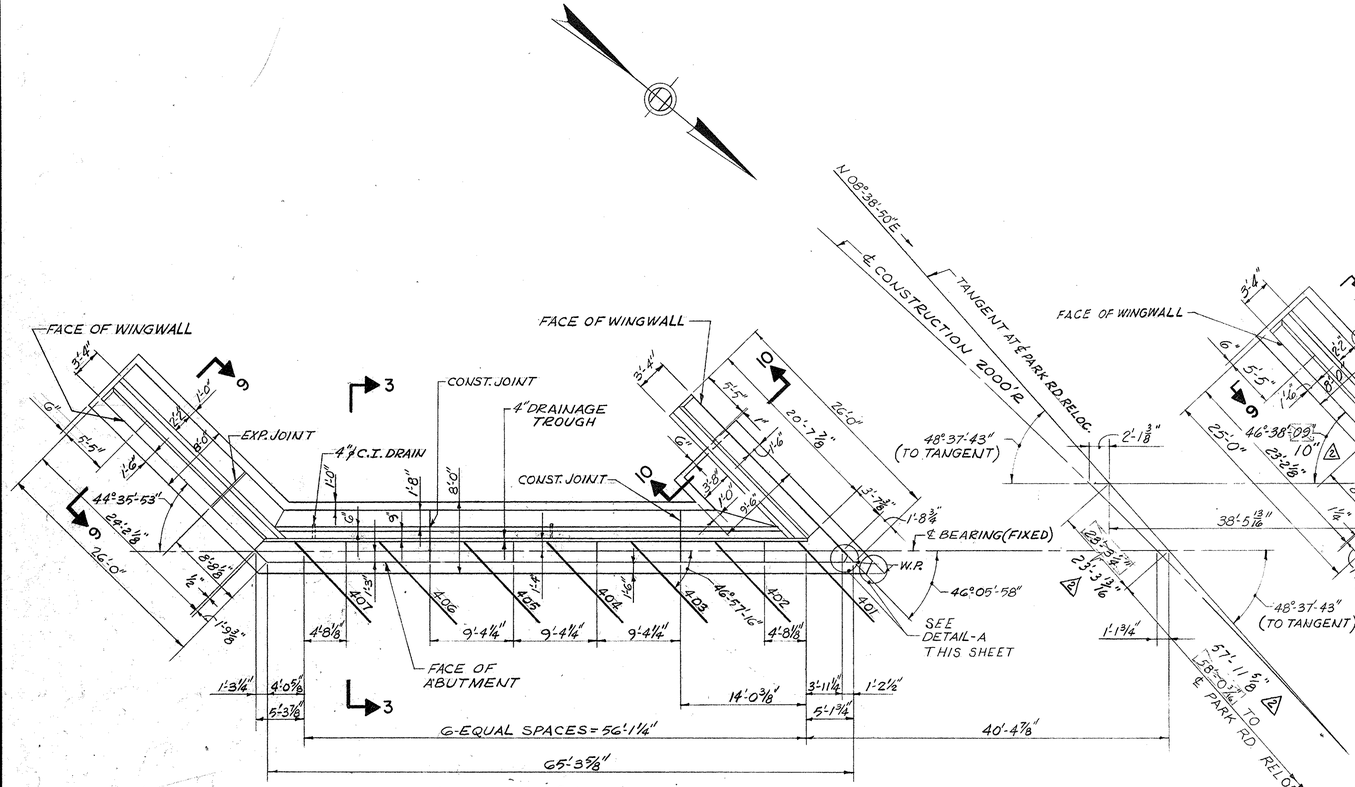
DESIGN ELEV. ALONG TOP FLANGE OF BEAMS					
BEAM NO.	BEARING AT ABUT-1	1/4 POINT	1/2 POINT	3/4 POINT	BEARING AT PIER-1
101	387.21	387.37	387.48	387.54	387.56
102	387.30	387.48	387.60	387.65	387.65
103	386.82	387.00	387.11	387.17	387.16
104	386.34	386.51	386.63	386.68	386.67
105	385.87	386.04	386.15	386.20	386.19
106	385.39	385.54	385.65	385.69	385.70
BEAM NO.	BEARING AT PIER-1	1/4 POINT	1/2 POINT	3/4 POINT	BEARING AT PIER-2
201	387.63	387.72	387.79	387.81	387.80
202	387.67	387.78	387.87	387.91	387.92
203	387.18	387.30	387.38	387.43	387.44
204	386.69	386.80	386.88	386.91	386.92
205	386.20	386.31	386.40	386.44	386.45
206	385.72	385.83	385.91	385.95	385.96
BEAM NO.	BEARING AT PIER-2	1/4 POINT	1/2 POINT	3/4 POINT	BEARING AT ABUT-2
301	387.80	387.95	388.04	388.10	388.10
302	387.92	388.07	388.17	388.22	388.22
303	387.45	387.60	387.71	387.75	387.76
304	386.95	387.10	387.20	387.25	387.25
305	386.46	386.60	386.71	386.75	386.75
306	385.97	386.11	386.20	386.25	386.25
BEAM NO.	BEARING AT ABUT-3	1/4 POINT	1/2 POINT	3/4 POINT	BEARING AT PIER-3
401	375.10	375.18	375.25	375.29	375.32
402	374.64	374.72	374.79	374.83	374.85
403	374.18	374.26	374.32	374.36	374.38
404	373.72	373.80	373.86	373.90	373.92
405	373.26	373.34	373.40	373.44	373.45
406	372.81	372.88	372.94	372.98	372.99
407	372.35	372.43	372.48	372.51	372.53
BEAM NO.	BEARING AT PIER-3	1/4 POINT	1/2 POINT	3/4 POINT	BEARING AT PIER-4
501	375.28	375.39	375.49	375.55	375.59
502	374.83	374.94	375.03	375.09	375.13
503	374.38	374.49	374.58	374.64	374.68
504	373.93	374.04	374.13	374.19	374.22
505	373.49	373.60	373.68	373.74	373.77
506	373.04	373.15	373.23	373.29	373.32
507	372.60	372.70	372.78	372.84	372.87
BEAM NO.	BEARING AT PIER-4	1/4 POINT	1/2 POINT	3/4 POINT	BEARING AT ABUT-4
601	375.61	375.68	375.74	375.77	375.79
602	375.15	375.22	375.28	375.31	375.33
603	374.69	374.77	374.82	374.85	374.87
604	374.24	374.31	374.36	374.39	373.41
605	373.78	373.85	373.91	373.94	373.95
606	373.33	373.40	373.45	373.48	373.49
607	372.88	372.95	373.00	373.02	373.03

NOTE: ELEVATIONS COMPUTED FOR USE OF RESIDENT ENGINEER ONLY.
THE DESIGN ELEVATIONS ABOVE ARE FOR BEAMS IN PLACE AND INCLUDE THE DEFLECTION DUE TO THE DEAD LOAD OF THE STRUCTURAL STEEL ONLY.

DATE	DESCRIPTION
DEC. 19, 1964	ISSUED FOR CONSTRUCTION
USE ONLY PRINTS OF LATEST DATE	

PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	I-91-1(41)12	1964	205	1246

ABUTMENTS 1&3



PLAN-ABUTMENT NO. 3

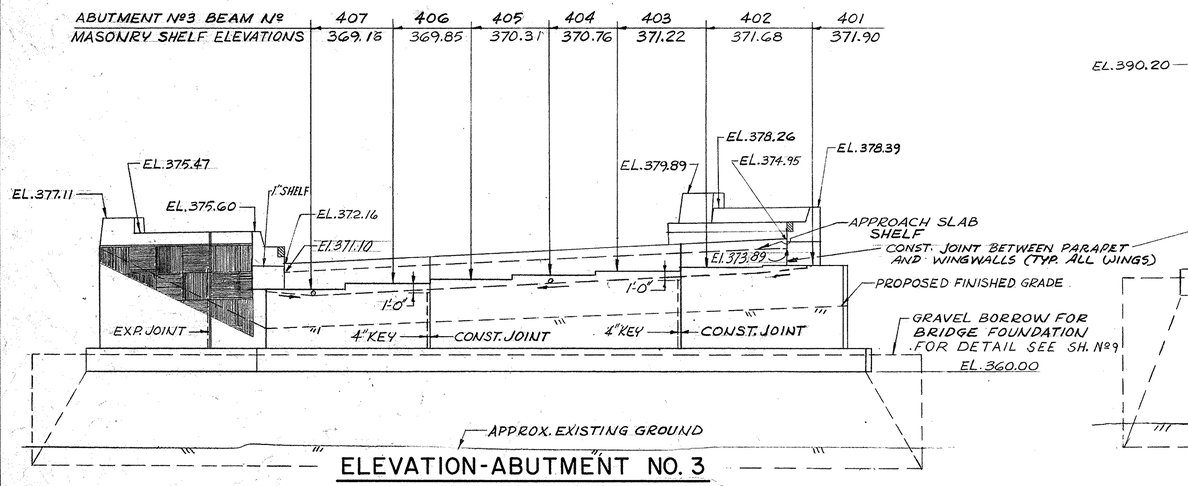
SCALE: 1/8" = 1'-0"

PLAN-ABUTMENT NO. 1

SCALE: 1/8" = 1'-0"

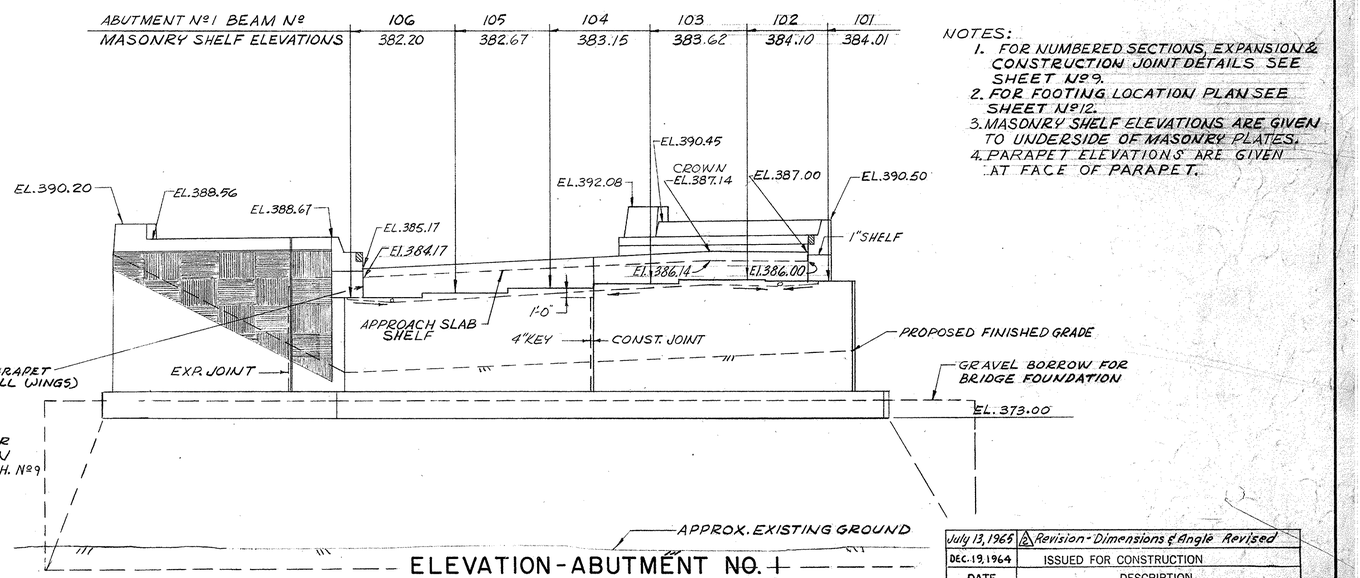
DETAIL A

SCALE: 3/4" = 1'-0"



ELEVATION-ABUTMENT NO. 3

SCALE: 1/8" = 1'-0"



ELEVATION-ABUTMENT NO. 1

NOT TO SCALE

NOTES:
1. FOR NUMBERED SECTIONS, EXPANSION & CONSTRUCTION JOINT DETAILS SEE SHEET Nº9.
2. FOR FOOTING LOCATION PLAN SEE SHEET Nº12.
3. MASONRY SHELF ELEVATIONS ARE GIVEN TO UNDERSIDE OF MASONRY PLATES.
4. PARAPET ELEVATIONS ARE GIVEN AT FACE OF PARAPET.

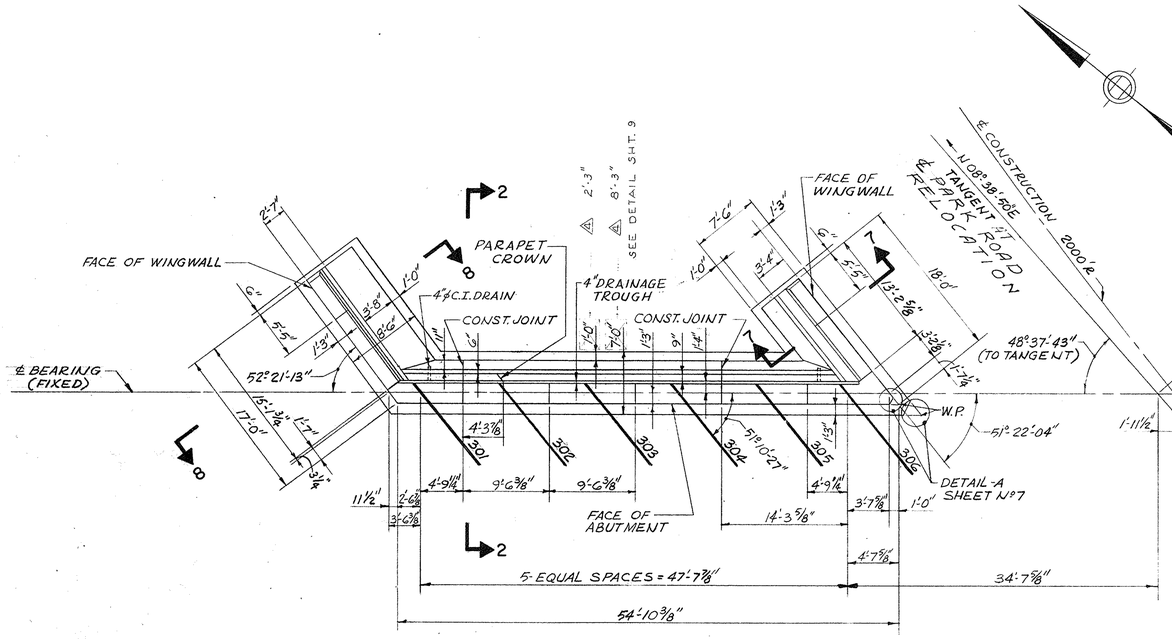
DATE	DESCRIPTION
July 13, 1965	2 Revision - Dimensions & Angle Revised
DEC. 19, 1964	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

2 2 2

PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	I-91-1(41)12	1964	206	1246

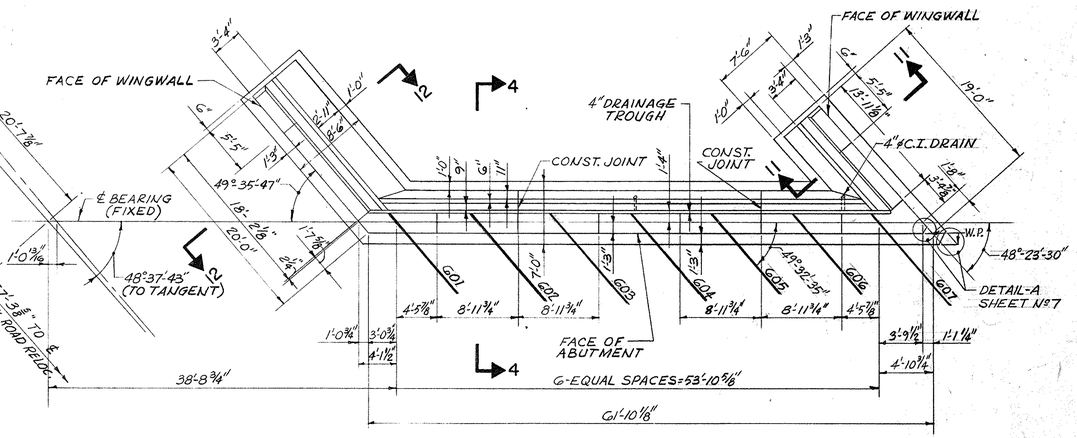
ABUTMENTS 2&4

NOTES:
1. FOR NUMBERED SECTIONS, EXPANSION & CONSTRUCTION JOINT DETAILS SEE SHEET Nº9.
2. FOR FOOTING LOCATION PLAN SEE SHEET Nº12.
3. MASONRY SHELF ELEVATIONS ARE GIVEN TO THE UNDERSIDE OF MASONRY PLATES.
4. PARAPET ELEVATIONS ARE GIVEN AT FACE OF PARAPET.



PLAN-ABUTMENT NO. 2

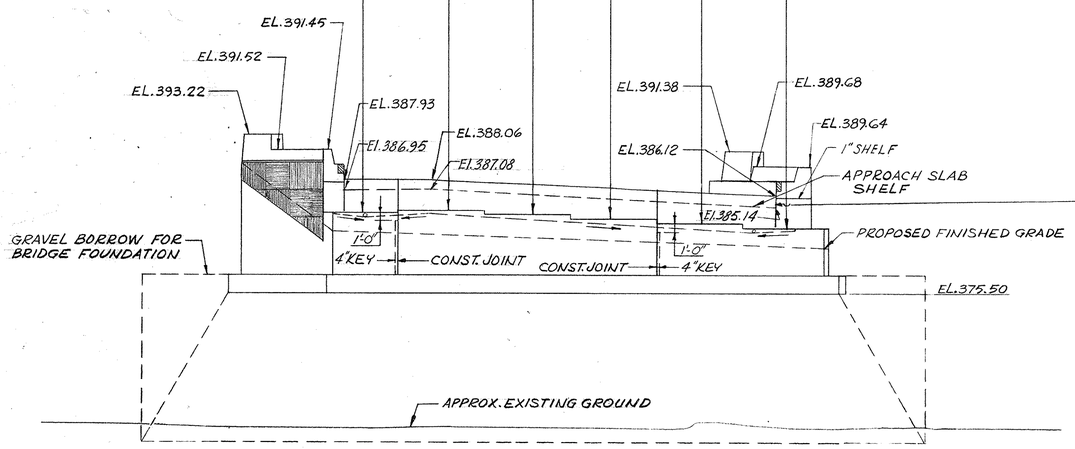
SCALE : 1/8" = 1'-0"



PLAN-ABUTMENT NO. 4

SCALE: 1/8" = 1'-0"

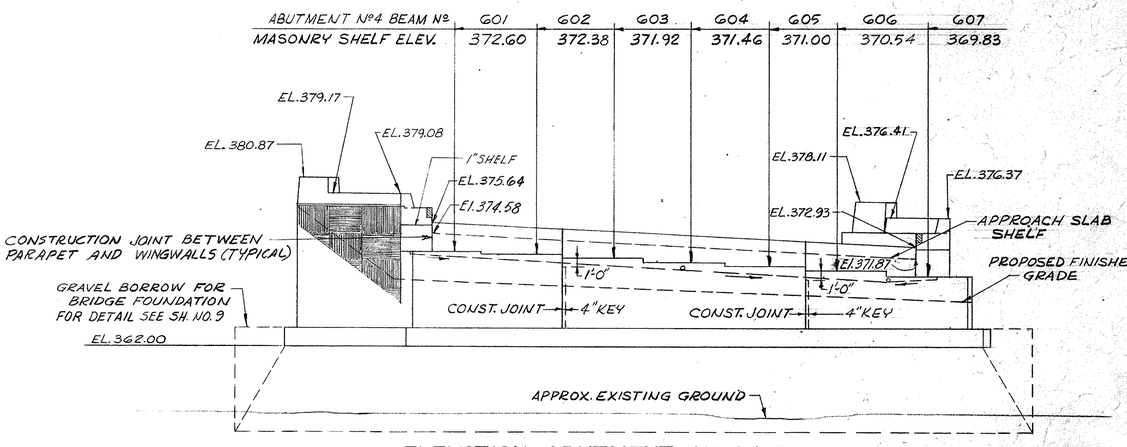
ABUTMENT Nº2 BEAM Nº	301	302	303	304	305	306
MASONRY SHELF ELEVATIONS	384.88	385.28	384.82	384.31	383.81	383.03



ELEVATION-ABUTMENT NO. 2

SCALE 1/8" = 1'-0"

ABUTMENT Nº4 BEAM Nº	601	602	603	604	605	606	607
MASONRY SHELF ELEV.	372.60	372.38	371.92	371.46	371.00	370.54	369.83



ELEVATION-ABUTMENT NO.4

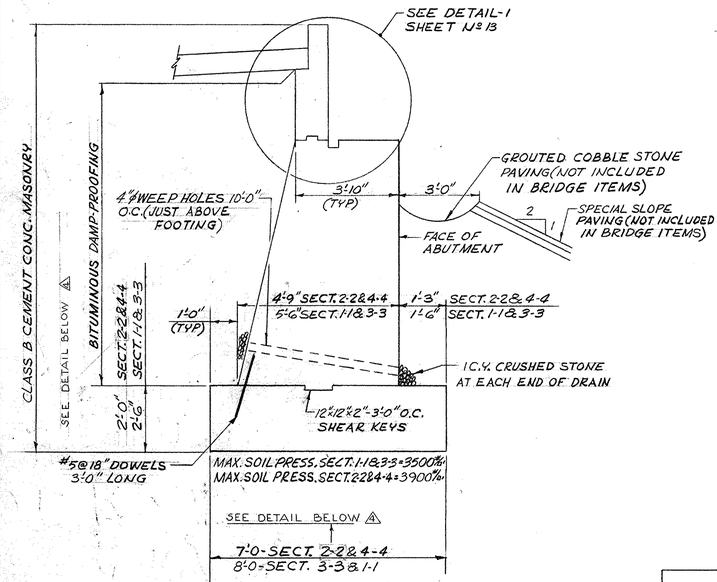
SCALE : 1/8" = 1'-0"

DATE	DESCRIPTION
8-25-65	⚠4 FOOTING REVISED-ABUTMENT # 2
DEC. 19, 1964	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
	USE ONLY PRINTS OF LATEST DATE

⚠4 ⚠4

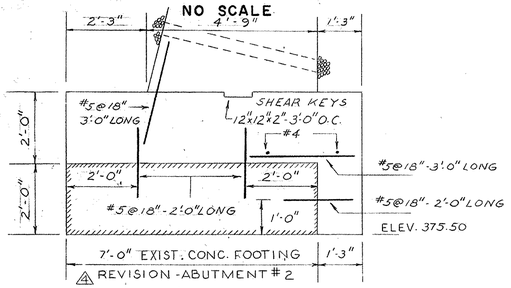
PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	I-91-1(41)12	1964	207	1246

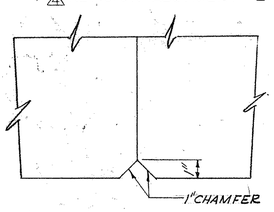
ABUTMENT & WINGWALL SECTIONS



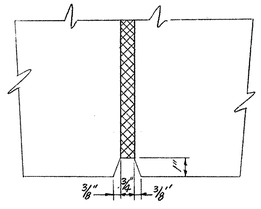
TYPICAL ABUTMENT SECTION

NO SCALE

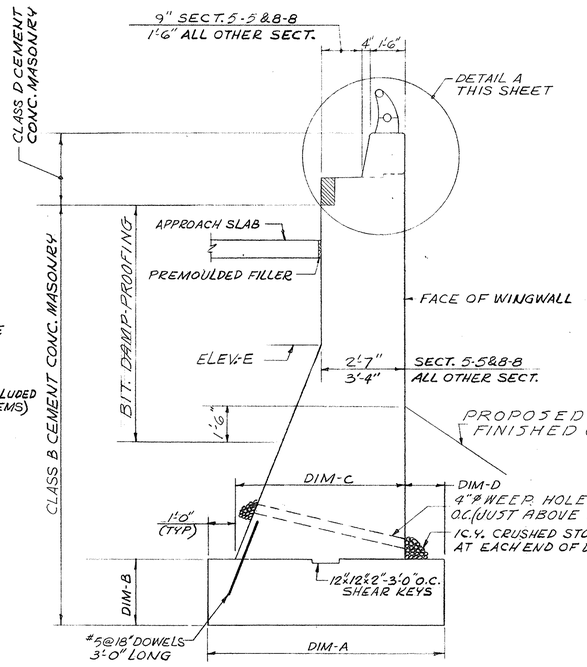




CONSTRUCTION JOINT
ABUTMENT



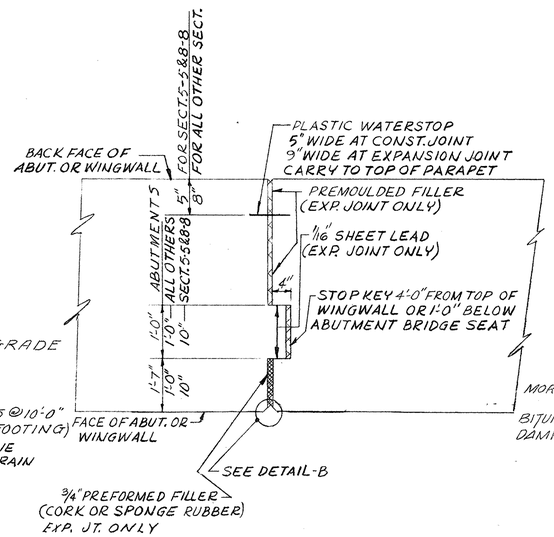
EXPANSION JOINT
WINGWALL



TYPICAL WINGWALL SECTION

NO SCALE

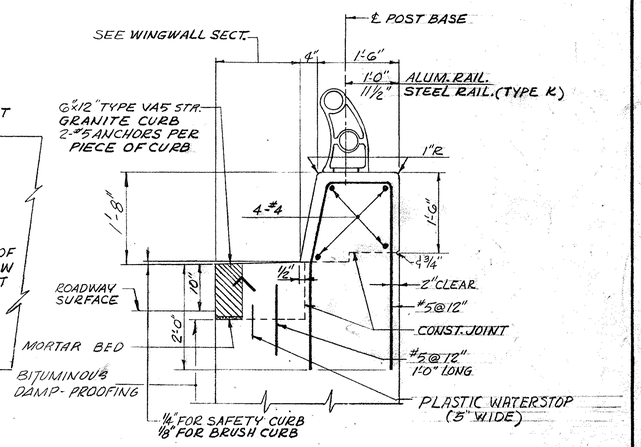
WINGWALL SECTIONS						
SECT.	DIM. A	DIM-B	DIM-C	DIM-D	ELEV-E	MAX. SOIL PRESSURE
5-5	9'-6"	2'-6"	7'-0"	1'-6"	384.00	3700#/sq.
7-7	7'-6"	2'-0"	5'-3"	1'-3"	384.00	2900#/sq.
8-8	8'-6"	2'-0"	6'-3"	1'-3"	385.50	3200#/sq.
9-9	8'-0"	2'-6"	5'-6"	1'-6"	383.00	3000#/sq.
10-10	9'-6"	2'-6"	7'-0"	1'-6"	372.50	3700#/sq.
11-11	7'-6"	2'-0"	5'-3"	1'-3"	370.50	2900#/sq.
12-12	8'-6"	2'-0"	6'-3"	1'-3"	373.50	3200#/sq.



EXPANSION AND CONSTRUCTION JOINT DETAIL

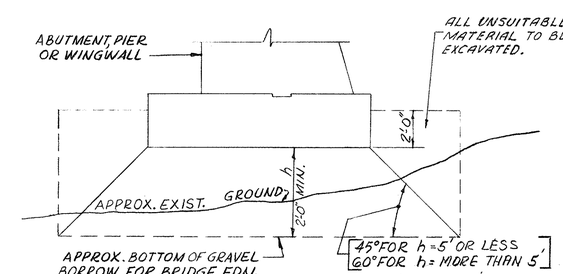
(ABUTMENT AND WINGWALL)

SCALE: 3/4" = 1'-0"



DETAIL A

SCALE: 3/4" = 1'-0"



NOTE:
GRAVEL BORROW FOR BRIDGE FOUNDATIONS TO BE USED AT ALL ABTS. & AT PIERS 1 & 2 (AS REQUIRED).

NOTES:
1. FOR LOCATION OF SECTIONS 1-1, 3-3, 5-5, 9-9 & 10-10 SEE SHEET Nº 7.
2. FOR LOCATION OF SECTIONS 2-2, 4-4, 7-7, 8-8, 11-11 & 12-12 SEE SHEET Nº 8.

GRAVEL BORROW FOR BRIDGE FOUNDATION

NO SCALE

DETAIL B

SCALE: 3" = 1'-0"

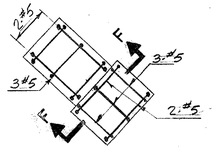
DATE	DESCRIPTION
8-25-65	A FOOTING REVISED - ABUTMENT # 2
DEC. 19, 1964	ISSUED FOR CONSTRUCTION

USE ONLY PRINTS OF LATEST DATE

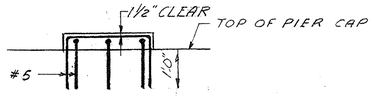
A 4 A

PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	I-91-1(41)12	1964	208	1246

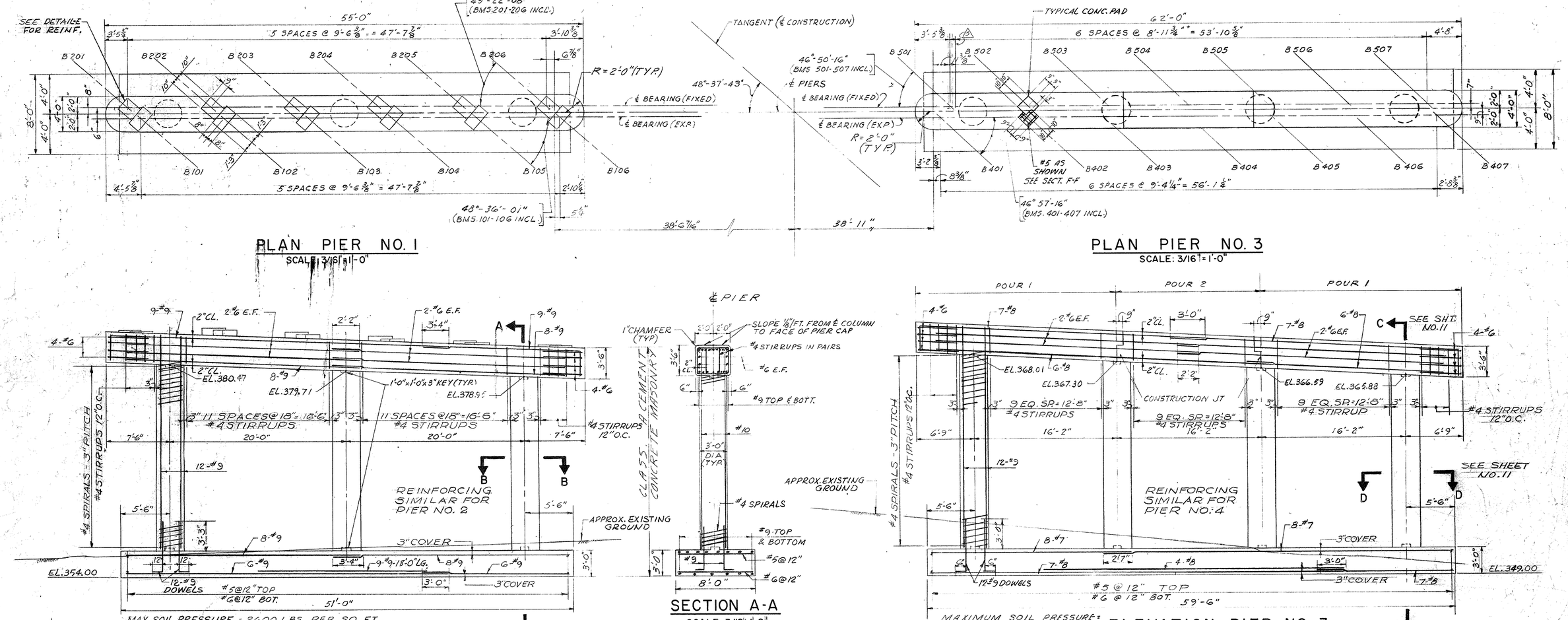
PIERS 183



DETAIL E
NO SCALE



SECTION F-F
NO SCALE



PLAN PIER NO. 1
SCALE: 3/16" = 1'-0"

PLAN PIER NO. 3
SCALE: 3/16" = 1'-0"

MAX. SOIL PRESSURE = 2600 LBS. PER SQ. FT.

ELEVATION PIER NO. 1
SCALE: 3/16" = 1'-0"

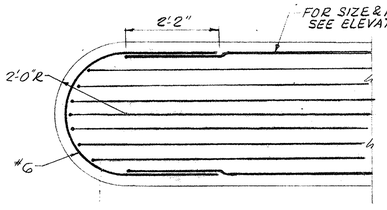
SECTION A-A
SCALE 3/16" = 1'-0"

MAXIMUM SOIL PRESSURE = 2200 LBS. PER SQ. FT.

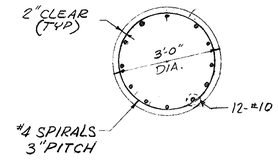
ELEVATION PIER NO. 3
SCALE: 3/16" = 1'-0"

SCHEDULE OF BEAM SEAT ELEVATIONS							
PIER 1				PIER 3			
BEAM NO.	ELEV.	BEAM NO.	ELEV.	BEAM NO.	ELEV.	BEAM NO.	ELEV.
B 101	384.33	B 201	384.36	B 401	372.12	B 501	372.06
B 102	384.42	B 202	384.45	B 402	371.90	B 502	371.61
B 103	383.93	B 203	383.96	B 403	371.43	B 503	371.16
B 104	383.45	B 204	383.48	B 404	370.96	B 504	370.72
B 105	382.96	B 205	382.99	B 405	370.50	B 505	370.27
B 106	382.47	B 206	382.50	B 406	370.03	B 506	370.83
				B 407	369.33	B 507	369.38

369.83 ⚠



SECTION AT END OF PIER CAP
SCALE 1/2" = 1'-0"



SECTION B-B
NO SCALE

NOTES:
1. PIER CAP TO BE PLACED IN TWO POURS WITH SECOND POUR TO TAKE PLACE NO EARLIER THAN TWO (2) FULL DAYS AFTER THE FIRST POUR PIER NO.3 ONLY.
2. SPIRAL REINF. TO EXTEND FROM TOP OF FOOTING TO BOTTOM OF LOWER STEEL IN PIER CAP.
3. ALL CONCRETE PADS 4" OR OVER SHALL BE REINFORCED. (SEE DETAIL E ABOVE)
4. ALL MASONRY SHELF ELEVATIONS ARE TAKEN TO UNDERSIDE OF MASONRY ⅀'s.
5. ALL PADS TO BE POURED MONOLITHICALLY WITH PIER CAP.

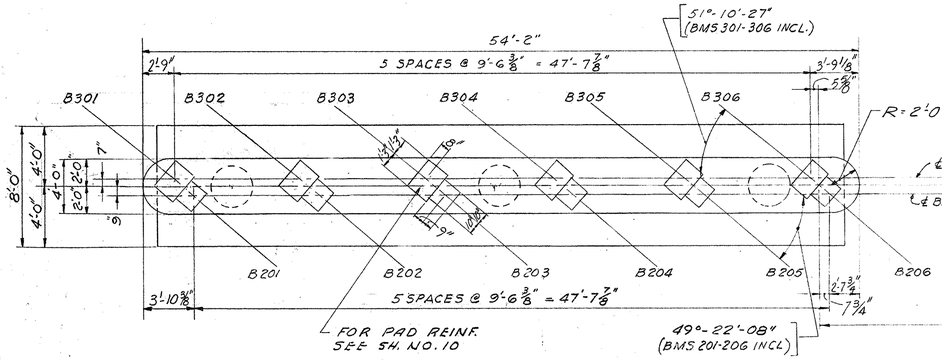
DATE	DESCRIPTION
NOV 3, 1965	⚠ REVISION - DIM. LINE - ELEV PIER NO.3
MAY 14, 1965	⚠ REVISION - ELEVATION REVISED
DEC. 19, 1964	ISSUED FOR CONSTRUCTION

USE ONLY PRINTS OF LATEST DATE

⚠

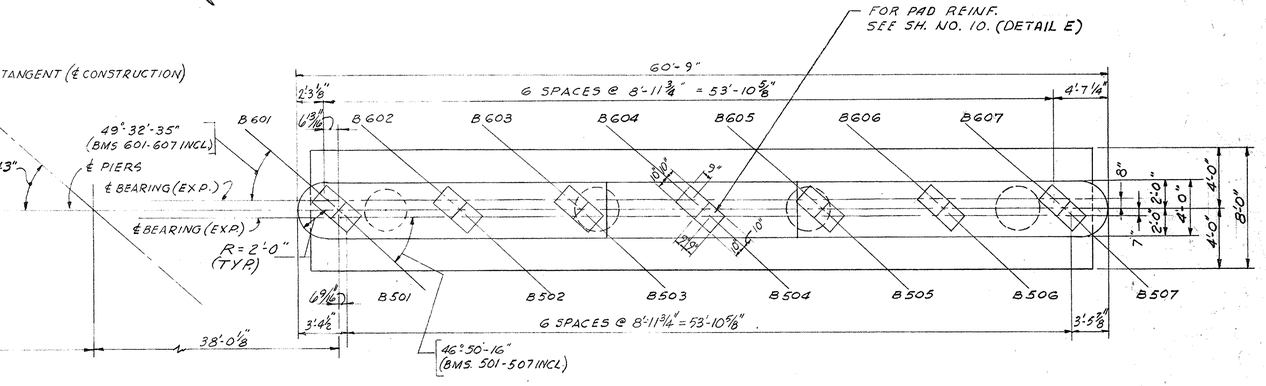
PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	I-91-1(41)12	1964	209	1246

PIERS 2&4



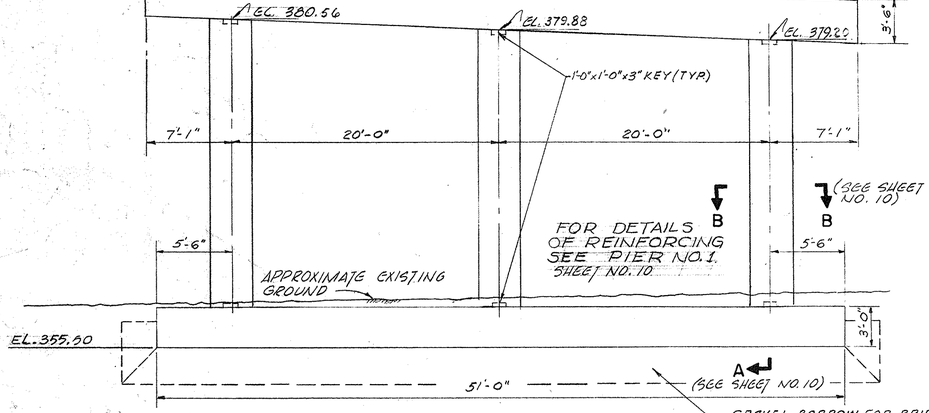
PLAN PIER NO. 2

SCALE 3/16"=1'-0"



PLAN PIER NO. 4

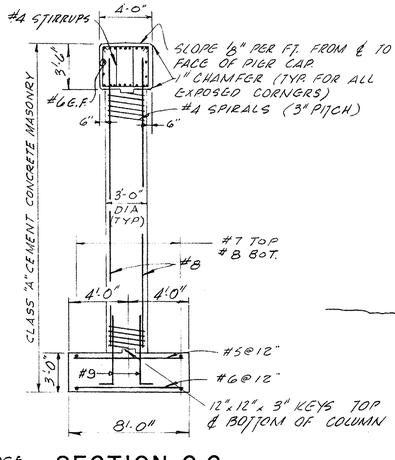
SCALE 3/16"=1'-0"



MAXIMUM SOIL PRESSURE 2600 LBS. PER SQ. FT.

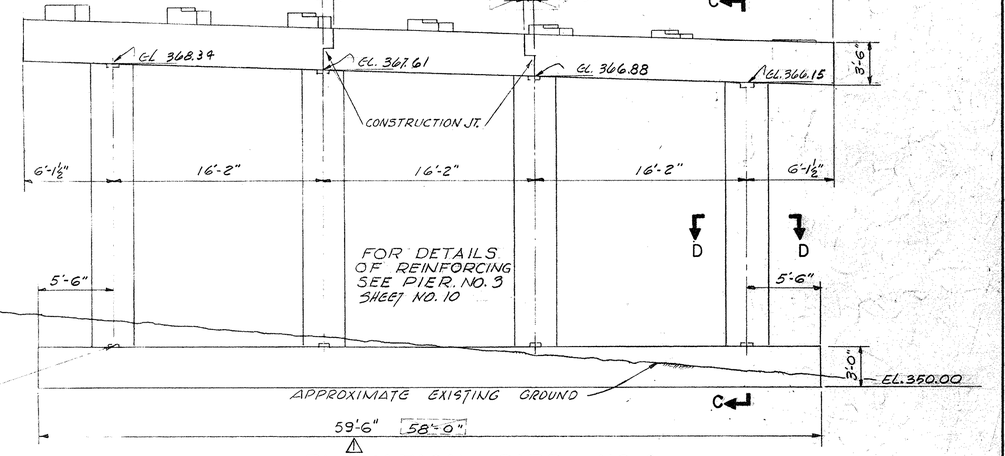
ELEVATION PIER NO. 2

SCALE 3/16"=1'-0"



SECTION C-C

SCALE 3/16"=1'-0"



MAXIMUM SOIL PRESSURE 2200 LBS. PER SQ. FT.

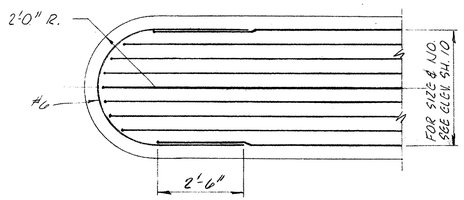
ELEVATION PIER NO. 4

SCALE 3/16"=1'-0"

SCHEDULE OF BEAM SEAT ELEVATIONS

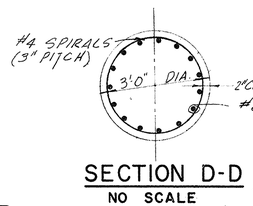
PIER 2				PIER 4			
BEAM NO.	ELEV.	BEAM NO	ELEV.	BEAM NO	ELEV.	BEAM NO	ELEV.
B 201	384.59	B 301	384.55	B 501	372.37	B 601	372.41
B 202	384.70	B 302	384.94	B 502	371.92	B 602	372.21
B 203	384.22	B 303	383.47	B 503	371.46	B 603	371.75
B 204	383.73	B 304	383.97	B 504	371.01	B 604	371.30
B 205	383.24	B 305	388.48	B 505	370.55	B 605	370.84
B 206	382.75	B 306	382.71	B 506	370.10	B 606	370.39
				B 507	369.65	B 607	369.68

384.47 ⚠



SECTION AT END OF PIER CAP

NO SCALE



SECTION D-D

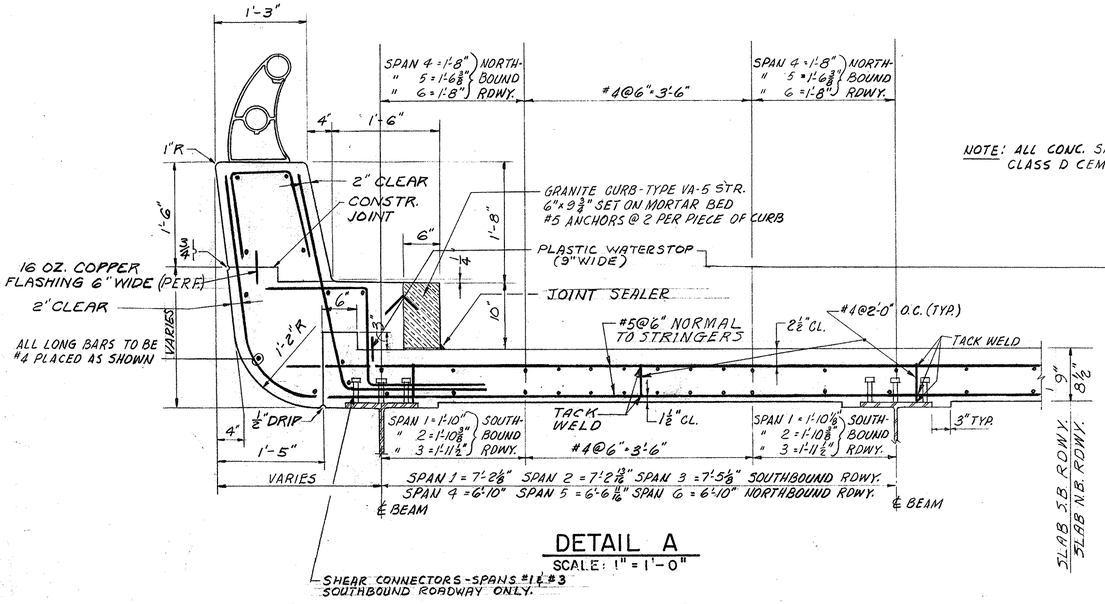
NO SCALE

NOTES:
1. PIER CAP TO BE PLACED IN TWO POURS WITH SECOND POUR TO TAKE PLACE NO EARLIER THAN TWO (2) FULL DAYS AFTER THE FIRST POUR. (NOTE PIER #4 ONLY)
2. SPIRAL REINF. TO EXTEND FROM TOP OF FOOTING TO BOTTOM OF LOWER STEEL IN PIER CAP
3. ALL CONCRETE PADS 4" OR OVER SHALL BE REINFORCED (SEE DETAIL E ON SHT #10.)
4. ALL MASONRY SHELF ELEVATIONS ARE TAKEN TO UNDERSIDE OF MASONRY PLS.

DATE	DESCRIPTION
JULY 22 1965	⚠ REVISION - DIM. REVISED, PIER 4
MAY 14, 1965	⚠ REVISION - ELEV. & DIMS. REVISED
DEC. 19, 1964	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	I-91-1(41)12	1964	210	1246

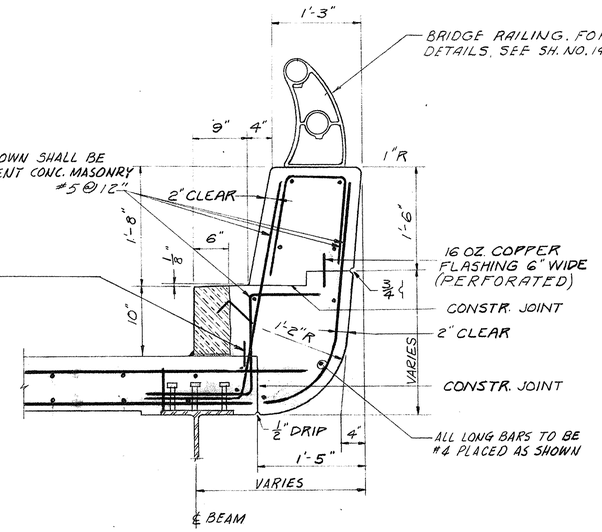
MISCELLANEOUS DETAILS (I)



DETAIL A

SCALE: 1" = 1'-0"

NOTE: ALL CONC. SHOWN SHALL BE CLASS D CEMENT CONC. MASONRY

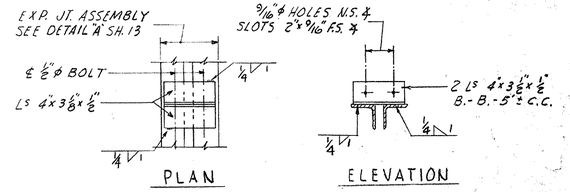


DETAIL B

SCALE: 1" = 1'-0"

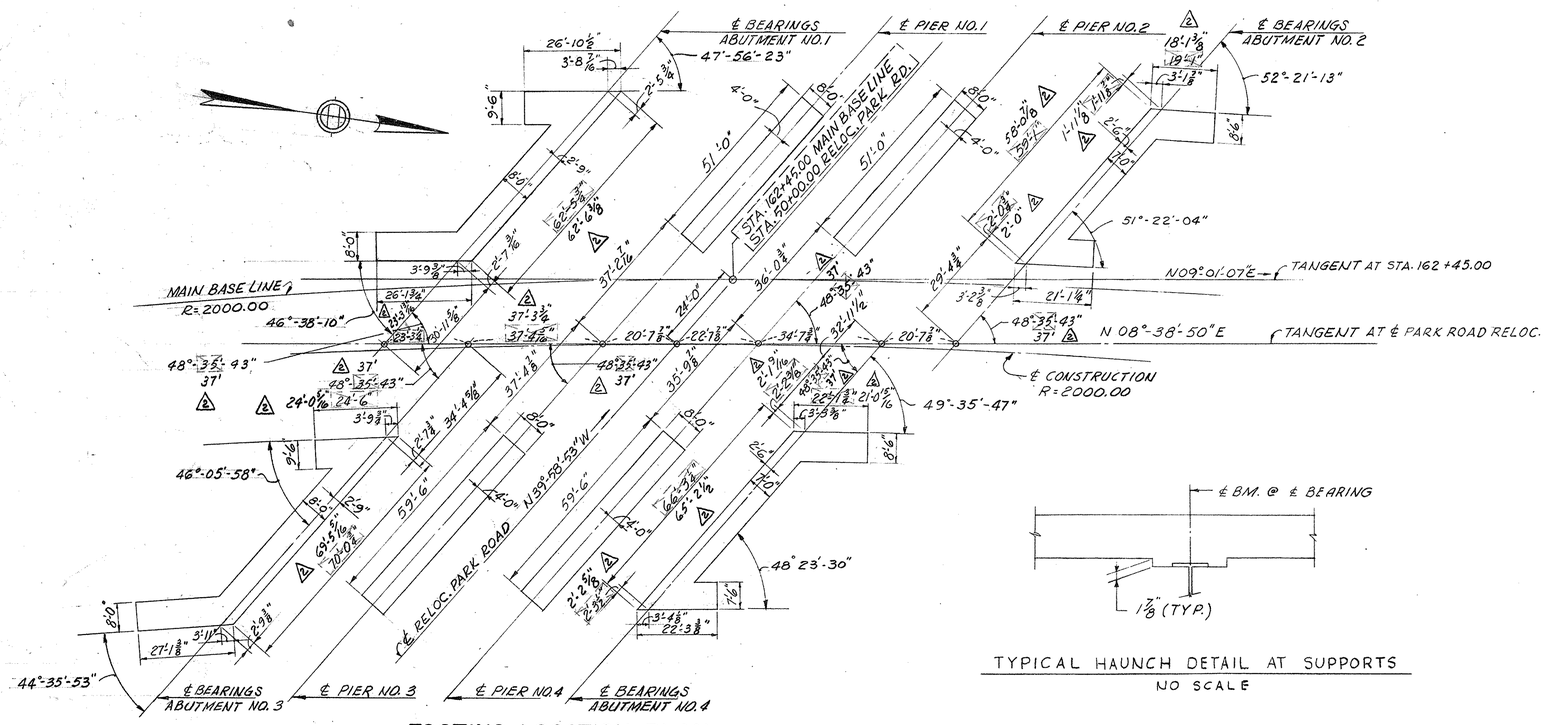
NOTES FOR TYPE K RAILING

1. POSTS AND BASE PLATES SHALL BE STRUCTURAL STEEL ASTM A-36.
2. ANCHOR BOLTS, NUTS AND WASHERS TO BE IN ACCORDANCE WITH THE PROVISIONS OF ASTM A-36.
3. POSTS SHALL BE SET PERPENDICULAR TO GRADE.
4. RAILINGS SHALL BE CONTINUOUS OVER THREE PANELS WHERE POSSIBLE.
5. EXPANSION JOINTS IN RAILS TO BE LOCATED AS CLOSE AS POSSIBLE TO THE ℄ OF POST.
6. ANCHOR BOLTS FOR RAILINGS TO BE SET BY TEMPLATE AND PLACED BEFORE THE CONCRETE IS POURED.
7. ANCHOR BOLTS, NUTS & WASHER TO BE GALVANIZED STEEL.



SHIPPING DEVICE FOR EXP. JT. ASSEMBLY

NOTES: ALL EXPANSION JOINT ASSEMBLIES MUST BE PROPERLY FITTED IN SHOP & SHIPPED WITH DEVICE FOR MAINTAINING PROPER SPACING & FIT. BOLTS ON SHIPPING DEVICE MUST BE LOOSENED WITHIN ONE HOUR AFTER CONCRETE IS PLACED SO THAT MOVEMENT MAY TAKE PLACE. DEVICE SHALL BE REMOVED AFTER CONCRETE HAS SET ON BOTH SIDES OF ASSEMBLY.



FOOTING LOCATION PLAN

SCALE: 1" = 20'

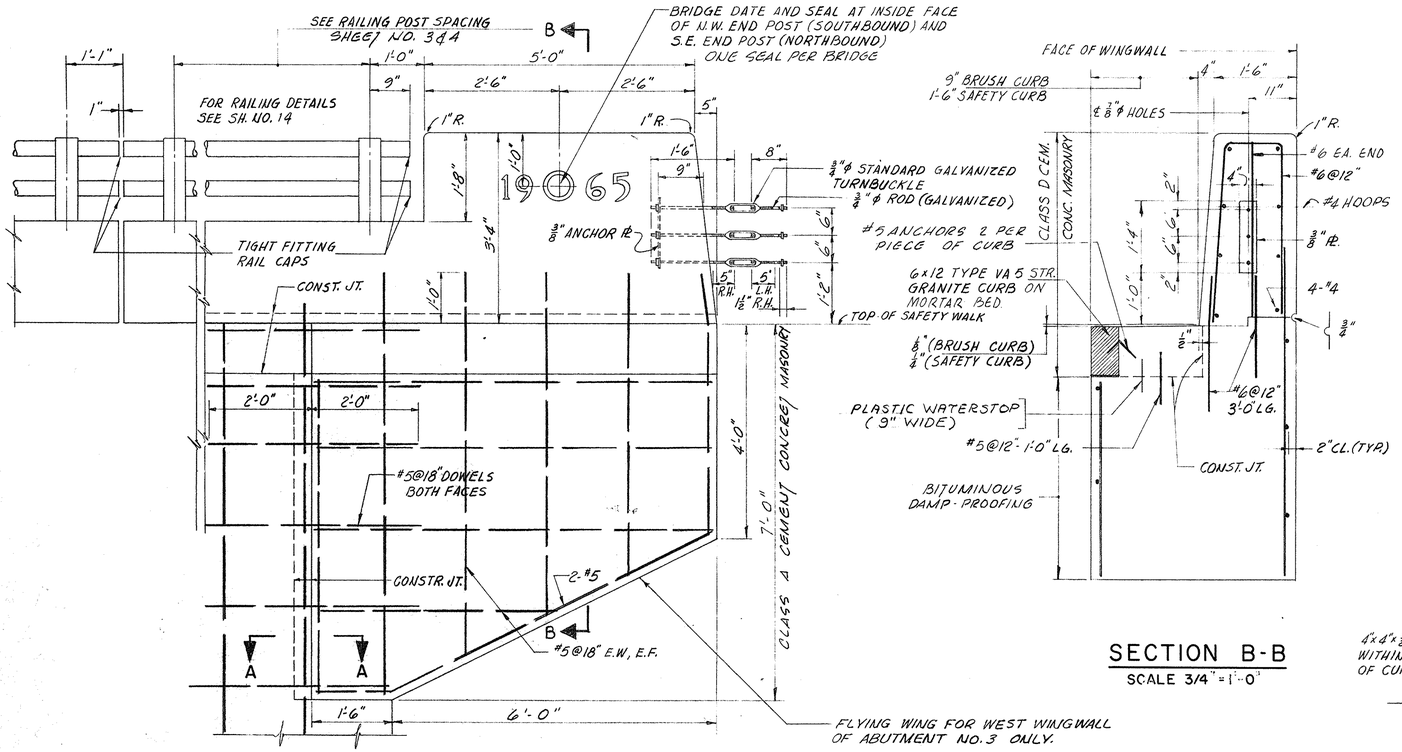
TYPICAL HAUNCH DETAIL AT SUPPORTS

NO SCALE

DATE	DESCRIPTION
July 13, 1965	2 Revision - Dimensions & Angles on Plan Revised
DEC. 19, 1964	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	I-91-1(41)12	1964	211	1246

CONCRETE DETAILS

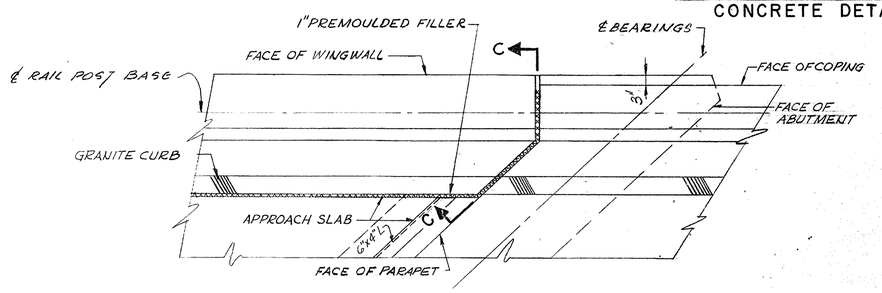


END POST & FLYING WING DETAIL

SCALE: 3/4" = 1'-0"

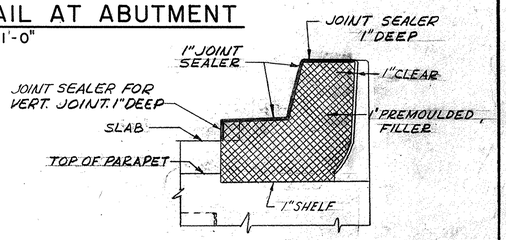
SECTION B-B

SCALE 3/4" = 1'-0"



TYPICAL CORNER DETAIL AT ABUTMENT

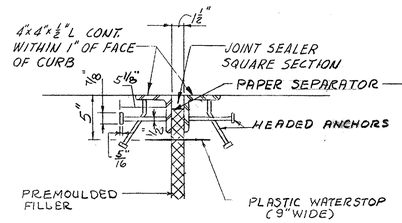
SCALE: 1/2" = 1'-0"



SECTION C-C

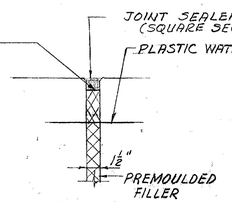
NO SCALE

FOR DETAIL OF SHIPPING DEVICE, SEE SH. 12



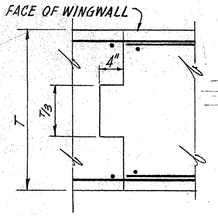
DETAIL A

NO SCALE



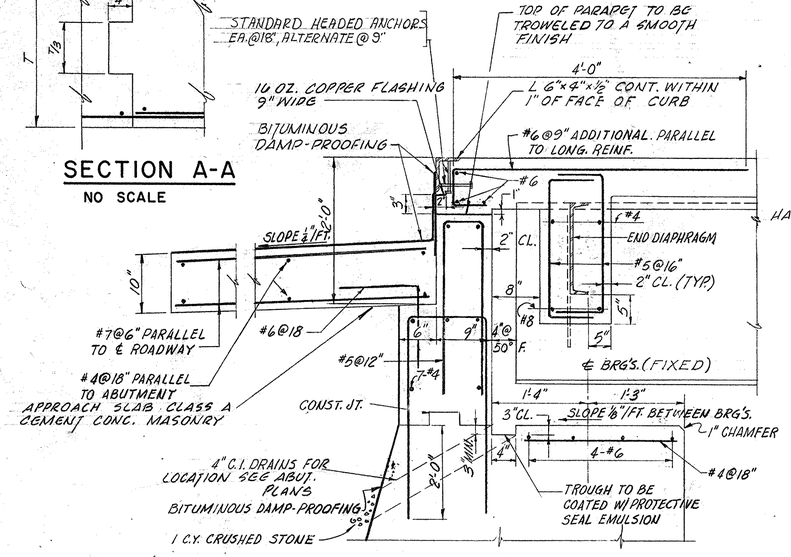
DETAIL B

NO SCALE



SECTION A-A

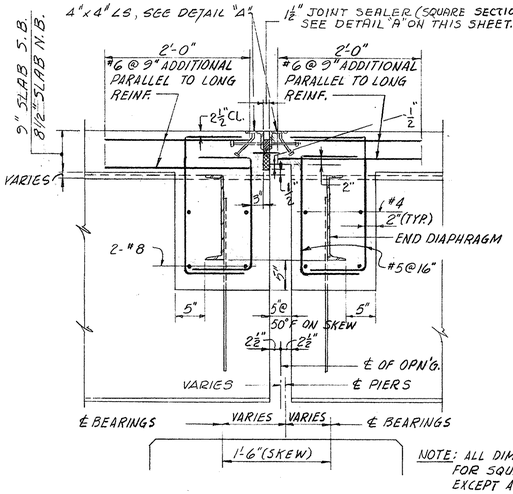
NO SCALE



DETAIL 1

SCALE: 1" = 1'-0"

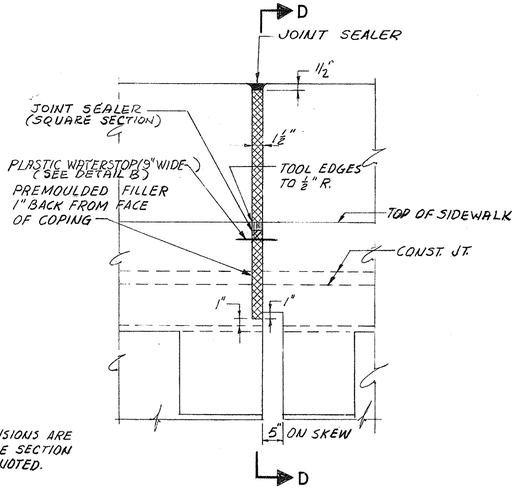
NOTE: FLASHING EMBEDDED IN CONCRETE TO BE PERFORATED.



DETAIL 2

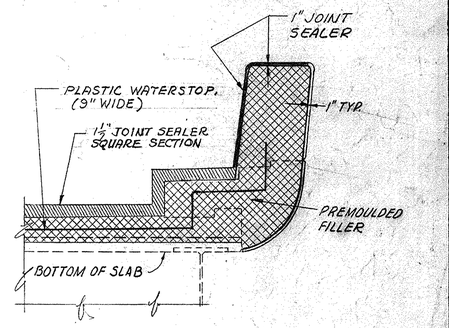
SCALE: 1" = 1'-0"

NOTE: ALL DIMENSIONS ARE FOR SQUARE SECTION EXCEPT AS NOTED.



SIDEWALK EXPANSION JOINT OVER PIERS

SCALE: 1" = 1'-0"



SECTION D-D

SCALE: 3/4" = 1'-0"

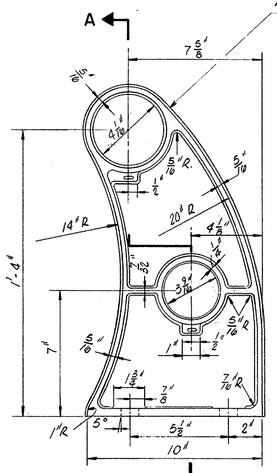
SEALER IN SECTIONS C-C AND D-D SHALL BE COLORED TO MATCH CONCRETE.

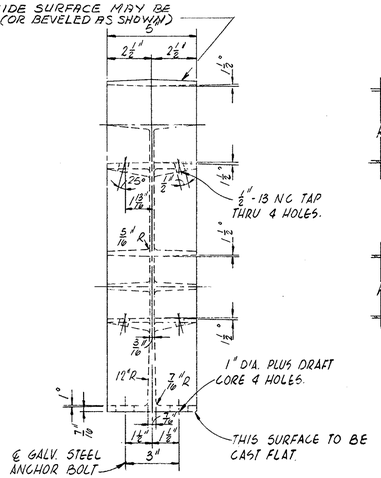
DEC 19, 1964	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

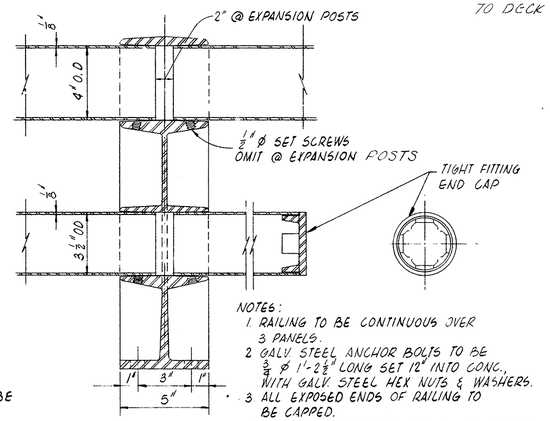
PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	I-91-1(41)12	1964	212	1246

STANDARD STEEL DETAILS

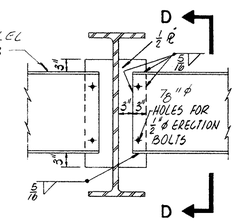
NOTE: ANCHOR BOLTS ARE TO BE SET BY TEMPLATE & PLACED BEFORE THE CONCRETE IS POURED.



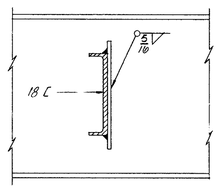


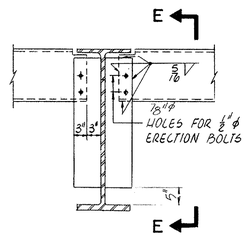


NOTES:
1. RAILING TO BE CONTINUOUS OVER 3 PANELS.
2. GALV. STEEL ANCHOR BOLTS TO BE ¾" ø 1'-2½" LONG SET 12" INTO CONC. WITH GALV. STEEL HEX NUTS & WASHERS.
3. ALL EXPOSED ENDS OF RAILING TO BE CAPPED.
4. ALL RAIL POSTS TO BE SET ⊥ TO GRADE
5. ANCHOR BOLTS TO BE SET BY TEMPLATE & PLACED BEFORE THE CONCRETE IS POURED.

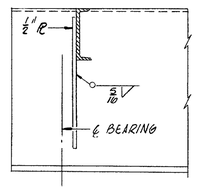


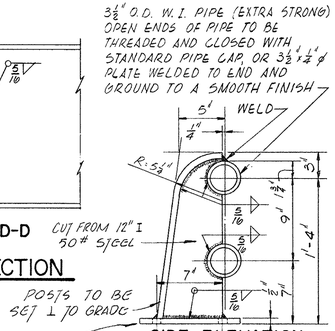
INTERMEDIATE DIAPHRAGM CONNECTION
NO SCALE

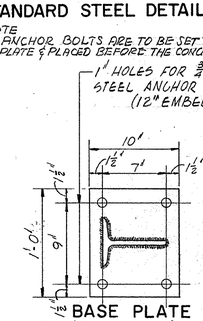




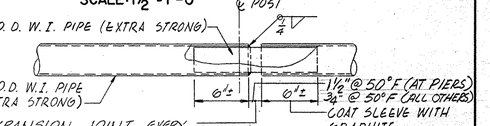
END DIAPHRAGM CONNECTION
NO SCALE







METAL BRIDGE RAILING (TYPE K)
SCALE: 1½" = 1'-0"

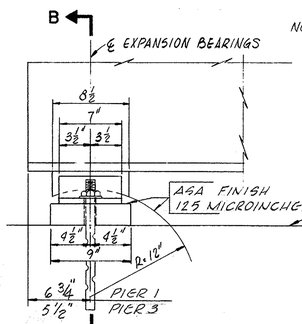


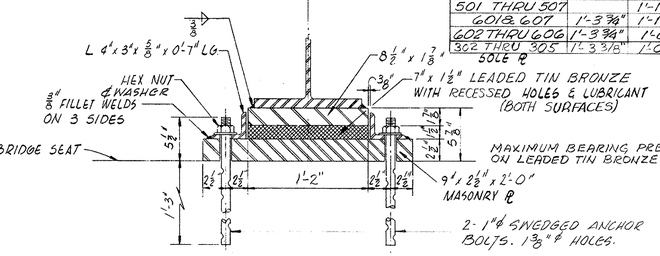
EXPANSION JOINT DETAIL TOP AND BOTTOM RAILS
SCALE: 1½" = 1'-0"

BRIDGE RAILING (ALUMINUM)
SCALE: 3" = 1'-0"

NOTE: ALL BOLTS, NUTS AND WASHERS TO BE GALVANIZED STEEL

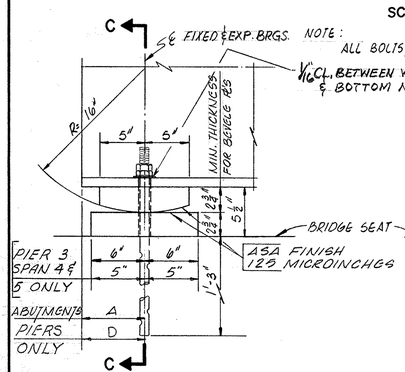
BEAM NO.	A	B	C	D (AT PIERS)
101 THRU 106	1'-3 15/16"	1'-1"	0'-7½"	0'-6¾" @ PIER 1
201 & 206		1'-1"	0'-7½"	0'-6¾" @ PIER 1
202 THRU 205		1'-1"	0'-7½"	0'-6¾" @ PIER 1
301 ⁊ 306	1'-3 3/16"	1'-1"	0'-7½"	0'-7 9/16" @ PIER 2
401 & 407	1'-4 9/16"	1'-1"	0'-7½"	0'-5½" @ PIER 3
402 THRU 406	1'-4 9/16"	1'-0"	0'-6½"	0'-5½" @ PIER 3
501 THRU 507		1'-1"	0'-7½"	0'-5½" @ PIER 3
601 & 607	1'-3 3/16"	1'-1"	0'-7½"	0'-7 9/16" @ PIER 4
602 THRU 606	1'-3 9/16"	1'-0"	0'-6½"	0'-7 9/16" @ PIER 4
302 THRU 305 SOLE ℄	1'-3 3/16"	1'-0"	0'-6½"	0'-7 9/16" @ PIER 2

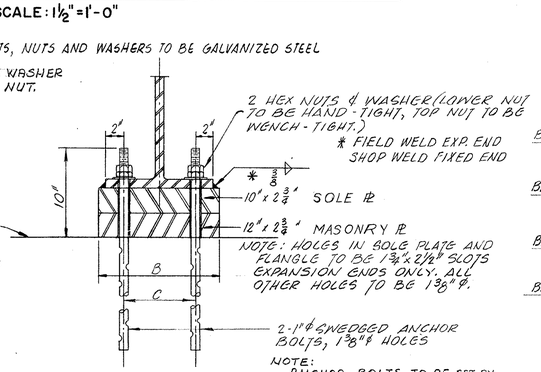




NOTE: ANCHOR BOLTS TO BE SET BY TEMPLATE & PLACED BEFORE THE CONCRETE IS POURED

EXPANSION BEARINGS (SPAN 1 & 3 ONLY)
SCALE: 1½" = 1'-0"

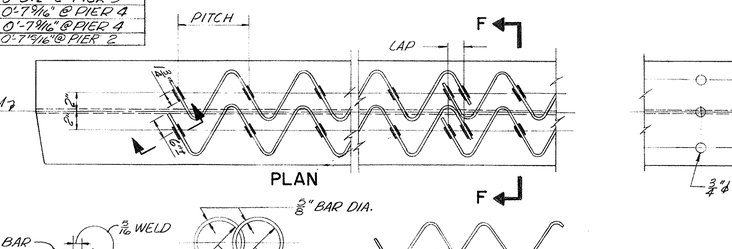


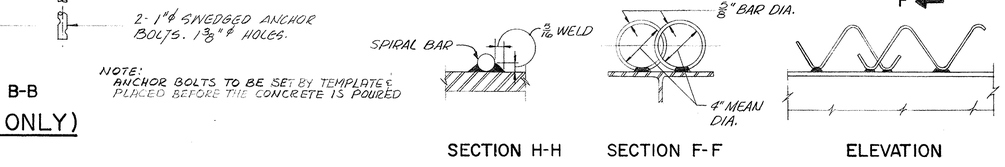


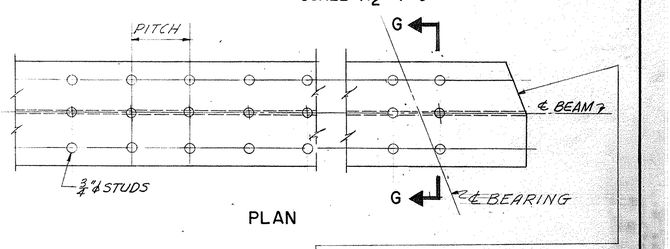
NOTE: ANCHOR BOLTS TO BE SET BY TEMPLATE & PLACED BEFORE THE CONCRETE IS POURED.

FIXED AND EXPANSION BEARINGS
FIXED END ALL SPANS - EXPANSION ENDS SPAN 2,4,5 & 6
SCALE: 1½" = 1'-0"

NOTE: ALL BOLTS, NUTS AND WASHERS TO BE GALVANIZED STEEL

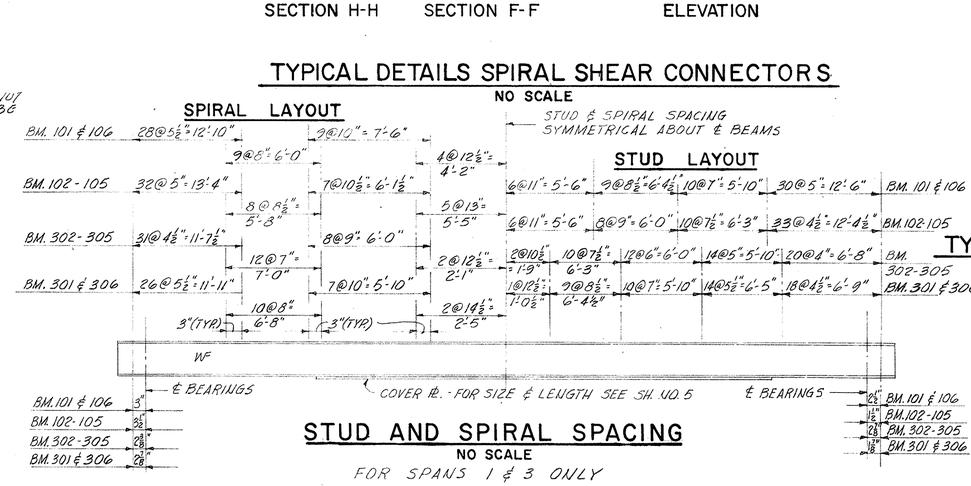






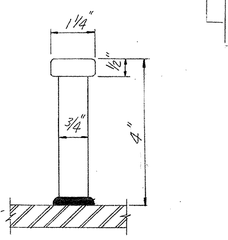
AT ABUTMENTS CUT TOP & BOTTOM FLANGE PARALLEL TO ℄ BEARINGS. AT PIER CUT TOP FLANGE ONLY PARALLEL TO ℄ PIER.

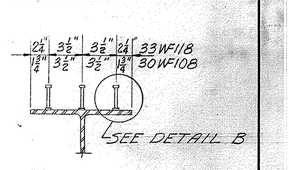
TYPICAL DETAILS SPIRAL SHEAR CONNECTORS
NO SCALE



STUD AND SPIRAL SPACING
NO SCALE

FOR SPANS 1 & 3 ONLY

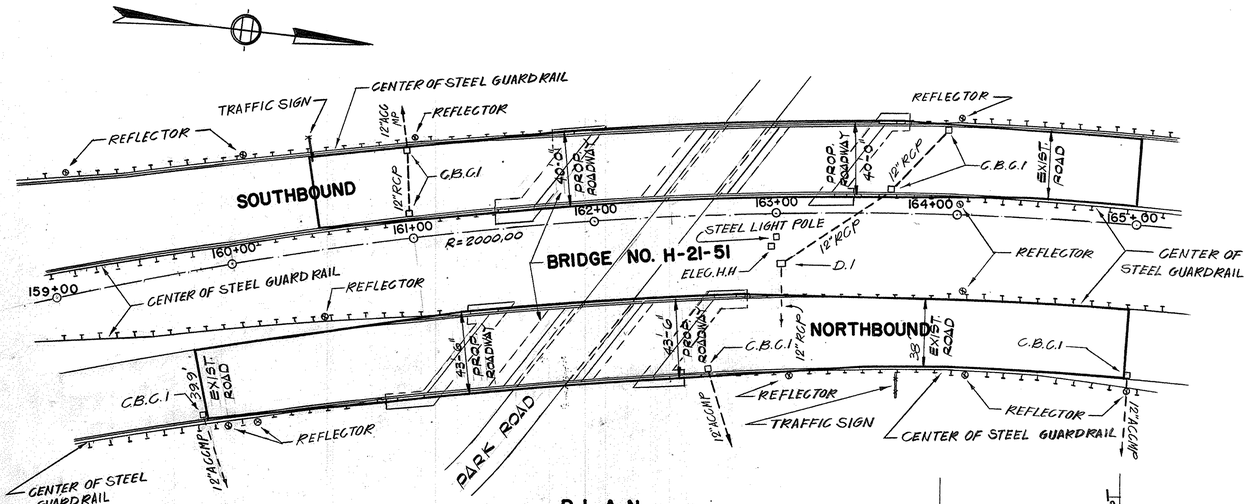




TYPICAL DETAILS STUD SHEAR CONNECTORS
NO SCALE

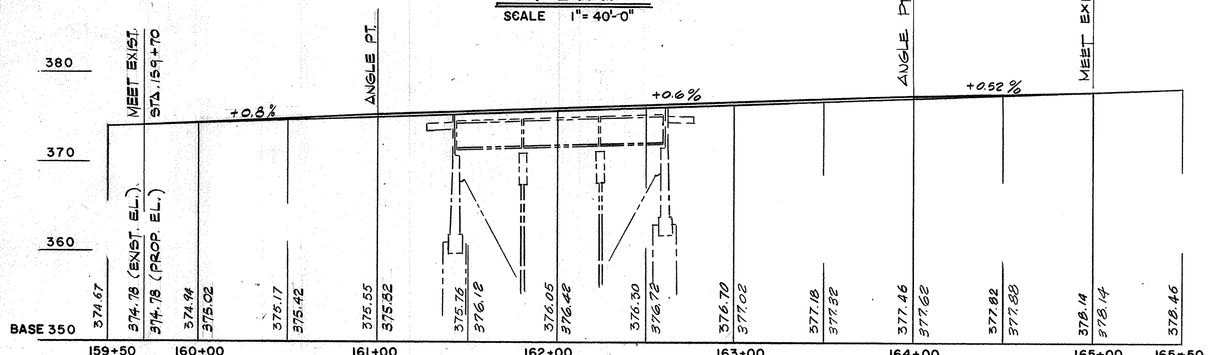
NOTES
1. THE CONTRACTOR WILL HAVE THE OPTION OF USING EITHER STUDS OR SPIRALS.
2. ⅞" ø STUDS MAY BE SUBSTITUTED FOR ¾" ø STUDS BY PROVIDING AN EQUIVALENT CROSS-SECTIONAL AREA AND ADJUSTING THE PITCH ACCORDINGLY.

DEC. 19, 1964	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	



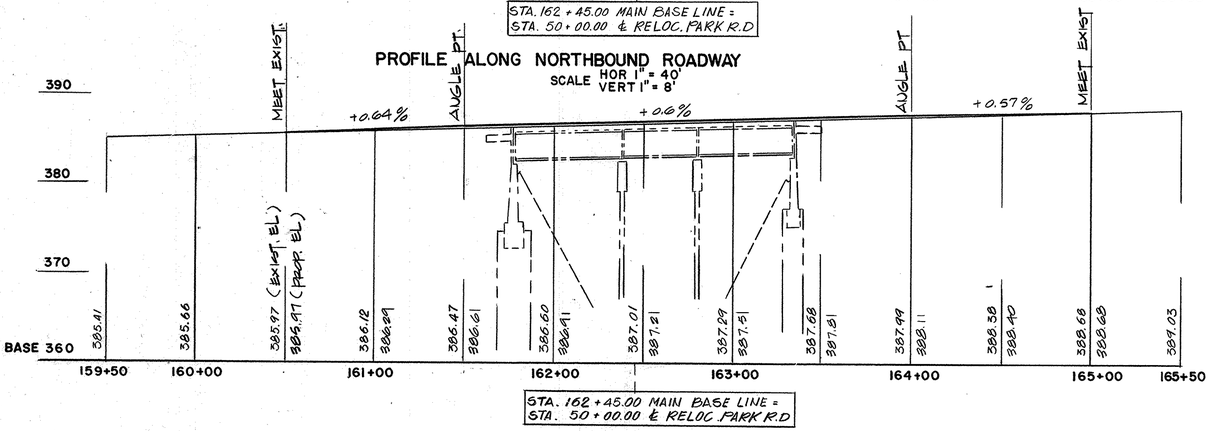
PLAN

SCALE 1"= 40'-0"



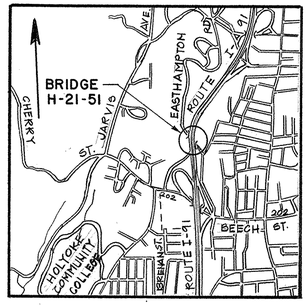
PROFILE ALONG NORTHBOUND ROADWAY

SCALE HOR 1"= 40' VERT 1"= 8'



PROFILE ALONG SOUTHBOUND ROADWAY

SCALE HOR 1"= 40' VERT 1"= 8'



LOCUS PLAN

SCALE: 1"= 2000'

HOLYOKE
INTERSTATE ROUTE 91

PUB. RD. DIV NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	IR-91-1(118)	19	12	43

GENERAL NOTES:

DESIGN:

IN ACCORDANCE WITH THE 1983 SPECIFICATIONS OF THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND SUBSEQUENT INTERIM SPECIFICATIONS FOR HS 20-44 LOADING, MODIFIED FOR MILITARY LOADING.

BENCH MARK:

PAINTED □ ON CORN CURB S.E. SIDE OF NORTHBOUND BRIDGE.

CONCRETE MIXES:

	(1)	(2)	(3)
CLASS A DENOTES:	4000 -	1 1/2 -	565
CLASS B DENOTES:	3500 -	1 1/2 -	520
CLASS D DENOTES:	4000 -	3/4 -	610

(1) 28-DAY COMPRESSIVE STRENGTH (P.S.I.)
(2) MAXIMUM AGGREGATE SIZE (INCHES)
(3) CEMENT CONTENT (L.B/C.Y.)

DATE & SEAL:

TO BE PLACED ON THE INSIDE FACE OF END POSTS. (N.W. CORNER FOR S.B. / S.E. CORNER FOR N.B.). A SHEET SHOWING THE SIZE AND CHARACTER OF THE NUMERALS WILL BE FURNISHED BY THE STATE AND SHALL BE SET BY THE CONTRACTOR.

SURVEY NOTEBOOKS:

BASELINE-31683, DETAIL-21076, CROSS SECTIONS-29335

SCALES:

SCALES NOTED ON PLANS ARE NOT APPLICABLE TO REDUCED SIZE PRINTS DIVIDE SCALES BY 2 FOR 1/4 SIZE PRINTS (11"X 18").

REINFORCEMENT:

REINFORCING STEEL SHALL CONFORM TO THE REQUIREMENTS OF ASTM DESIGNATION A615 GRADE 60. ALL #4 BARS SHALL BE LAPPED 20" AND ALL #5 BARS SHALL BE LAPPED 26" FOR HORIZONTAL BARS WITH 12" OR MORE OF CONCRETE BELOW THE BAR, THE LAP LENGTHS SHALL BE 29" FOR #4 BARS AND 36" FOR #5 BARS. IF THE ABOVE BARS ARE SPACED 6" OR MORE ON CENTER, THE LAP LENGTH SHALL BE 80% OF LAP LENGTH GIVEN ABOVE. ALL OTHER BARS SHALL BE LAPPED AS SHOWN ON THE PLANS.

ALL REINFORCING STEEL SHALL BE EPOXY COATED.

TRAFFIC:

TWO LANES IN BOTH DIRECTIONS MUST BE KEPT OPEN TO TRAFFIC AT ALL TIMES DURING THE DEMOLITION AND RECONSTRUCTION PHASES.

STRUCTURAL STEEL:

ALL STRUCTURAL STEEL SHALL CONFORM TO THE REQUIREMENTS OF ASTM DESIGNATION A36, EXCEPT AS NOTED. PREPARATION AND ASSEMBLY OF MATERIALS FOR WELDING SHALL CONFORM TO THE AWS STRUCTURAL WELDING CODE, AWS D1-1-80, AS AMENDED BY THE 1981 AASHTO STANDARD SPECIFICATIONS FOR WELDING OF STRUCTURAL STEEL HIGHWAY BRIDGES AND CURRENT AASHTO INTERIM SPECIFICATION THROUGH 1984.

EXISTING BRIDGE:

PLANS OF THE EXISTING BRIDGE H-21-51 MAY BE SEEN AT THE OFFICES OF THE BRIDGE SECTION, DEPARTMENT OF PUBLIC WORKS, 10 PARK PLAZA, BOSTON, MASS.

EXISTING CONDITIONS:

DIMENSIONS SHOWN ON EXISTING DETAILS ARE TAKEN FROM ORIGINAL DESIGN DRAWINGS AND ARE NOT GUARANTEED. THE CONTRACTOR SHALL DETERMINE AND ESTABLISH ALL DIMENSIONS AND ALL EXISTING DETAILS NECESSARY FOR THE COMPLETION OF ALL WORKS BY FIELD MEASUREMENTS AND SURVEY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ACCURACY THEREOF AND SHALL NOT ORDER ANY MATERIAL OR COMMENCE ANY FABRICATION UNTIL HE HAS MADE THE REQUIRED MEASUREMENTS ON THE ACTUAL STRUCTURE AND THE EXTENT OF THE PROPOSED WORK HAS BEEN APPROVED BY THE ENGINEER. EXISTING STRUCTURE WILL BE SHOWN THUS ——— -- ——— -- ———.

ESTIMATED QUANTITIES (NOT GUARANTEED)

DEMOLITION OF SUPERSTRUCTURE BRIDGE NO. H-21-51	1 L.S.
CLASS I BIT. CONC. PAV., TYPE I-1	90 TON.
CLASS I DENSE PROT. (BOTT.) COURSE FOR BRIDGES	90 TON.
CORING AND GROUTING DOWELS	400 L.F.
EPOXY BONDING COMPOUND	410 S.F.
BRIDGE STRUCTURE BRIDGE NO. H-21-51	1 L.S.
PRESSURE INJECTION FOR CRACKS	50 L.F.
REINFORCED CONC. EXCAVATION	5 C.Y.
CLASS "E" CEMENT CONCRETE MASONRY	5 C.Y.
CEMENTITIOUS MORTAR FOR PATCHING	50 S.F.
TEMPORARY PROTECTIVE SHIELDING BRIDGE NO. H-21-51	1 L.S.
MAGNESIUM PHOSPHATE CONCRETE	200 BAG
CLEAN AND PAINT STRUCTURAL STEEL BRIDGE NO. H-21-51	1 L.S.

JULY 13, 1987	⚠ REVISION, SHT. 3
JUNE 19, 1987	⚠ REVISION, SHT. 3
SEPT. 20, 1986	ISSUED FOR CONSTRUCTION

THE COMMONWEALTH OF MASSACHUSETTS
PROPOSED BRIDGE DECK REPLACEMENT

HOLYOKE
INTERSTATE ROUTE 91 OVER PARK ROAD

SCALES AS NOTED
OFFICE OF
DEPARTMENT OF PUBLIC WORKS
10 PARK PLAZA, BOSTON, MASS.

Robert Y. Costello P.E. — BRIDGE ENGINEER
Robert J. McDonough P.E. — CHIEF ENGINEER

LIN ASSOCIATES INC.
DESIGN ENGINEER
2001 BEACON ST. BOSTON, MASS.

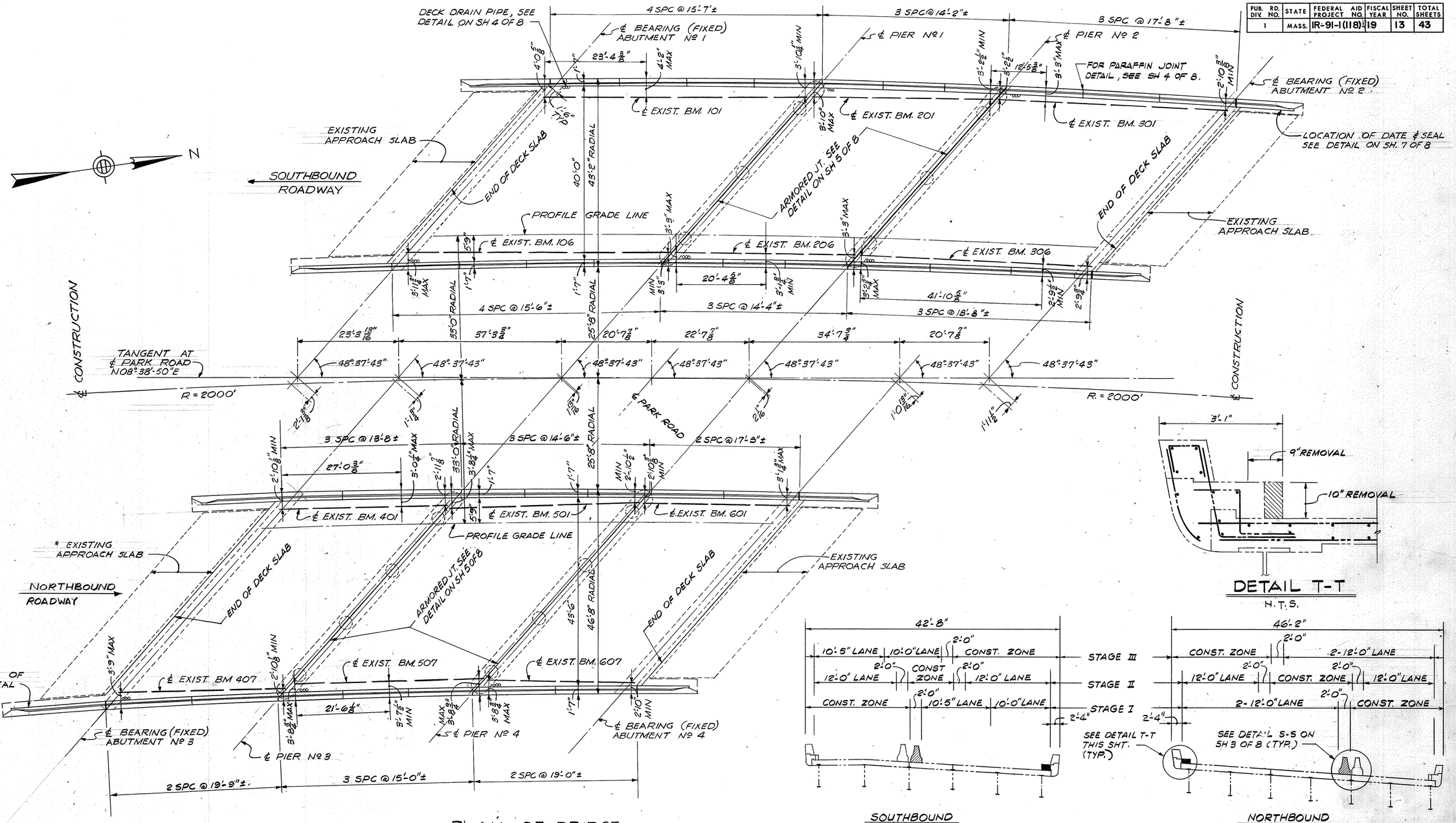
CHAN K. LIN 21059 REGISTERED PROFESSIONAL ENGINEER COMMONWEALTH OF MASSACHUSETTS

Chan K. Lin

SHEET 1 OF 8 SHEETS BRIDGE NO. H-21-51

HOLYOKE
INTERSTATE ROUTE 91

PUB. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	IR-91-1(118)	19	13	43



PLAN OF BRIDGE
SCALE $\frac{3}{32}$" = 1'-0"

DETAIL T-T
N.T.S.

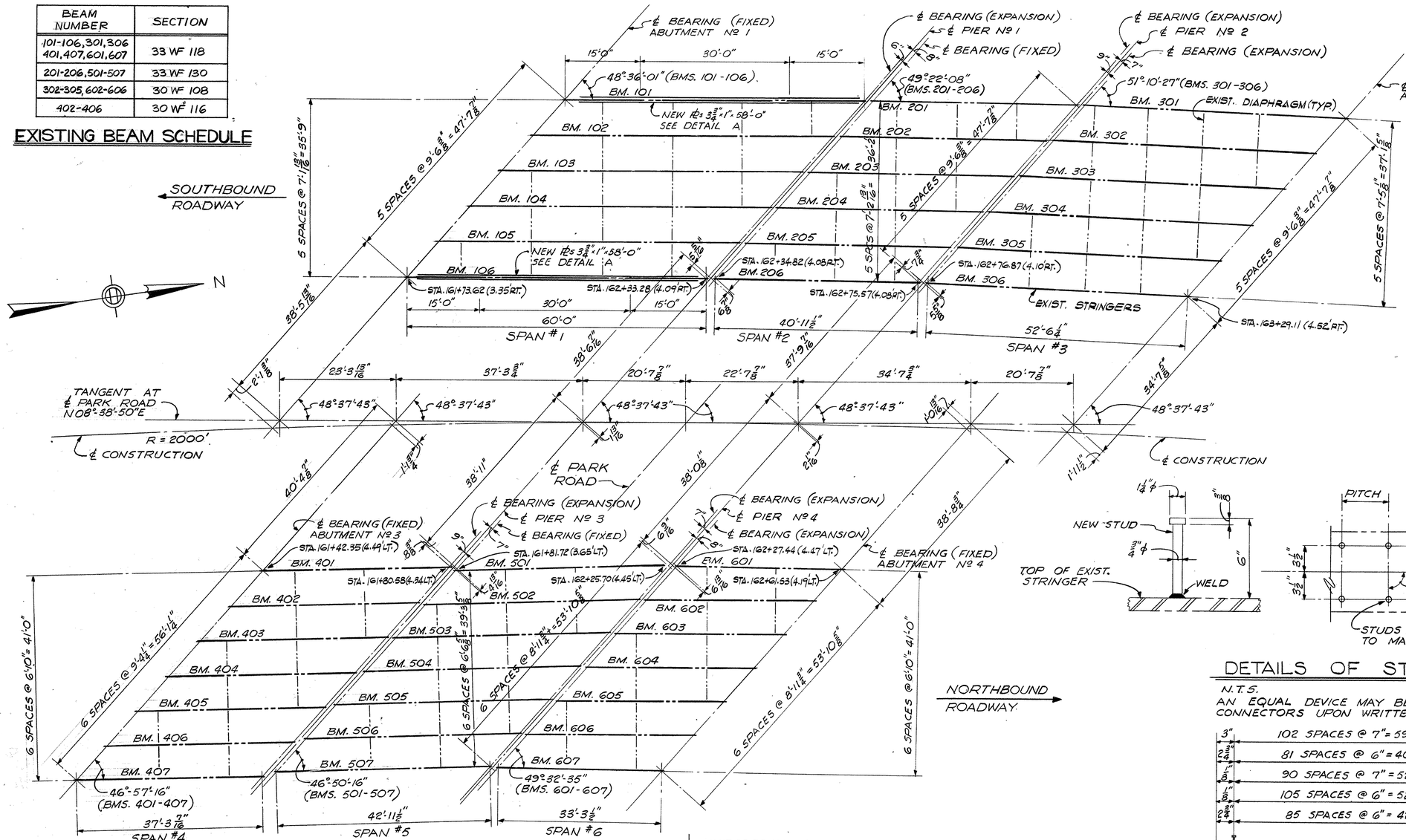
SOUTHBOUND NORTHBOUND

STAGE CONSTRUCTION
N.T.S.

DATE	DESCRIPTION
SEPT. 29, 1986	ISSUED FOR CONSTRUCTION
USE ONLY PRINTS OF LATEST DATE	

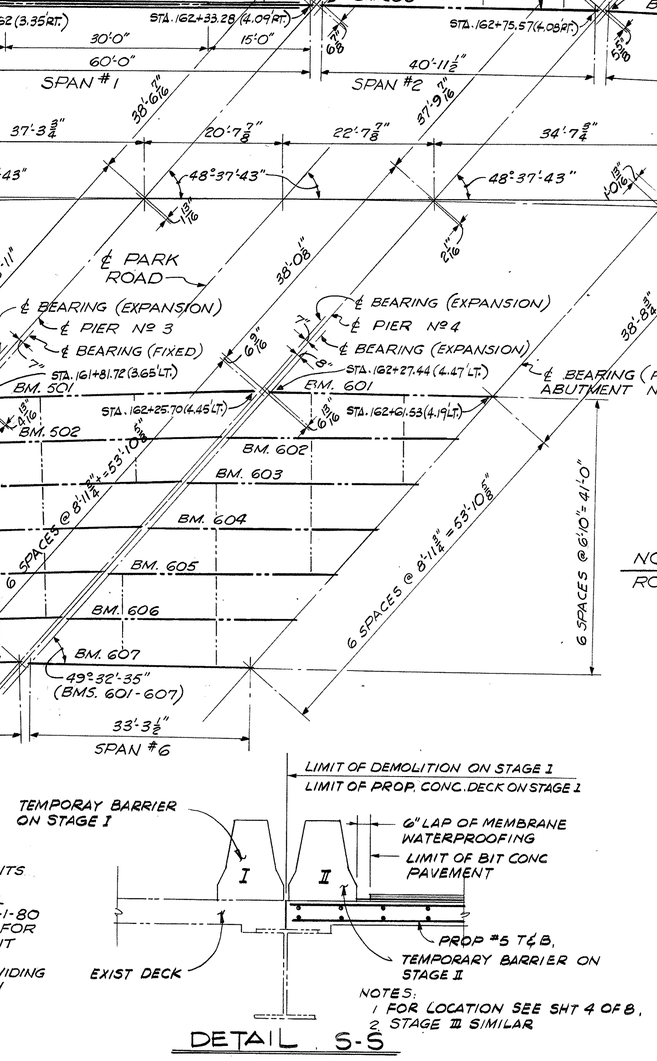
BEAM NUMBER	SECTION
101-106, 301, 306 401, 407, 601, 607	33 WF 118
201-206, 501-507	33 WF 130
302-305, 602-606	30 WF 108
402-406	30 WF 116

EXISTING BEAM SCHEDULE



FRAMING PLAN

SCALE 3/32" = 1'-0"

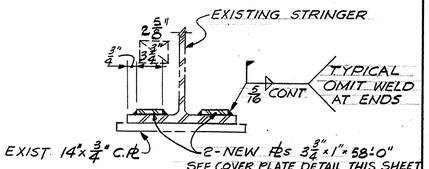


DETAIL S-S

N. T. S

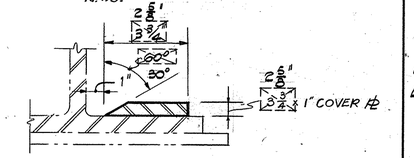
STEEL NOTES:

1. ALL STRUCTURAL STEEL SHALL CONFORM TO THE REQUIREMENTS OF A.S.T.M. DESIGNATION A-36, UNLESS OTHERWISE NOTED.
2. PREPARATION AND ASSEMBLY OF MATERIALS FOR WELDING SHALL CONFORM TO THE A.W.S. STRUCTURAL WELDING CODE, A.W.S. D1-1-80 AS AMENDED BY THE 1981 A.A.S.H.T.O. STANDARD SPECIFICATIONS FOR WELDING OF STRUCTURAL STEEL HIGHWAY BRIDGES AND CURRENT A.A.S.H.T.O. INTERIM SPECIFICATIONS THROUGH 1983.
3. 7/8" DIAMETER STUDS MAY BE SUBSTITUTED FOR 3/4" DIAMETER BY PROVIDING AN EQUIVALENT CROSS SECTIONAL AREA AND ADJUSTING THE PITCH ACCORDINGLY.



DETAIL A

N.T.S.



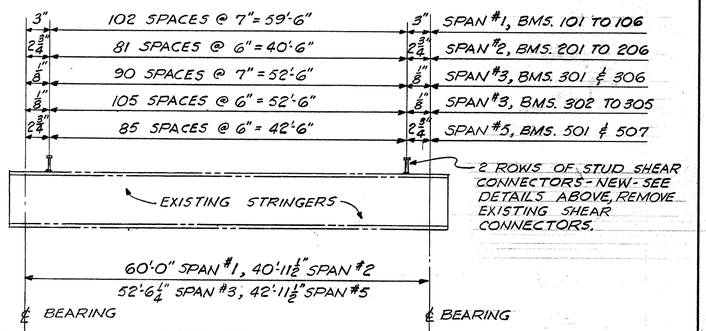
COVER PLATE DETAIL

N. T. S

DETAILS OF STUD SHEAR CONNECTOR

N.T.S.

AN EQUAL DEVICE MAY BE SUBSTITUTED FOR 3/4" ϕ STUD SHEAR CONNECTORS UPON WRITTEN APPROVAL OF THE ENGINEER.



SHEAR CONNECTOR SPACING

N.T.S.

NOTE:
EXISTING SHEAR CONNECTORS TO BE REMOVED.

DATE	DESCRIPTION
JULY 13, 1987	⚠2 COVER PLATE DETAIL, REVISED
JUNE 19, 1987	⚠1 COVER PLATE DETAIL, REVISED
SEPT. 20, 1986	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION

USE ONLY PRINTS OF LATEST DATE

HOLYOKE
INTERSTATE ROUTE 91

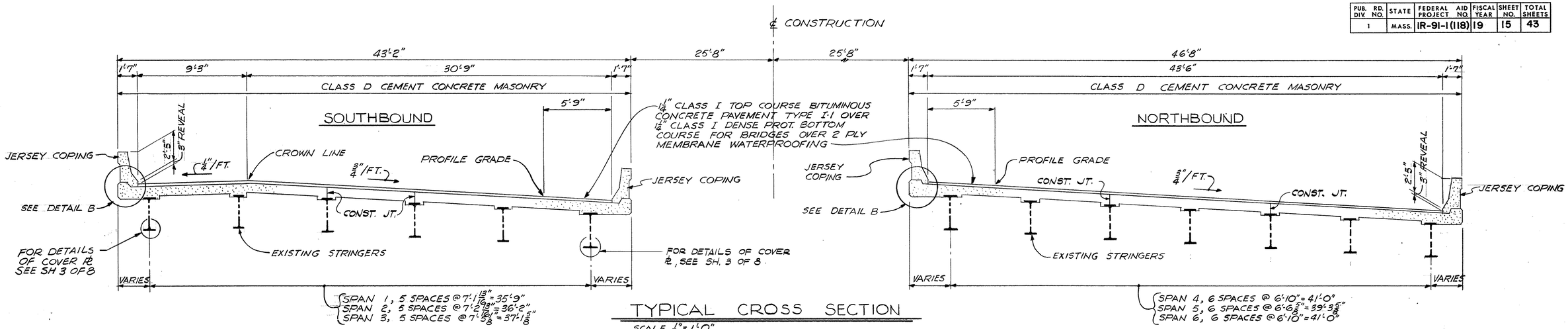
PUB. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	IR-91-1(118)	19	14	43

SHEET 3 OF 8 SHEETS BRIDGE NO. H-21-51

⚠2 ⚠1

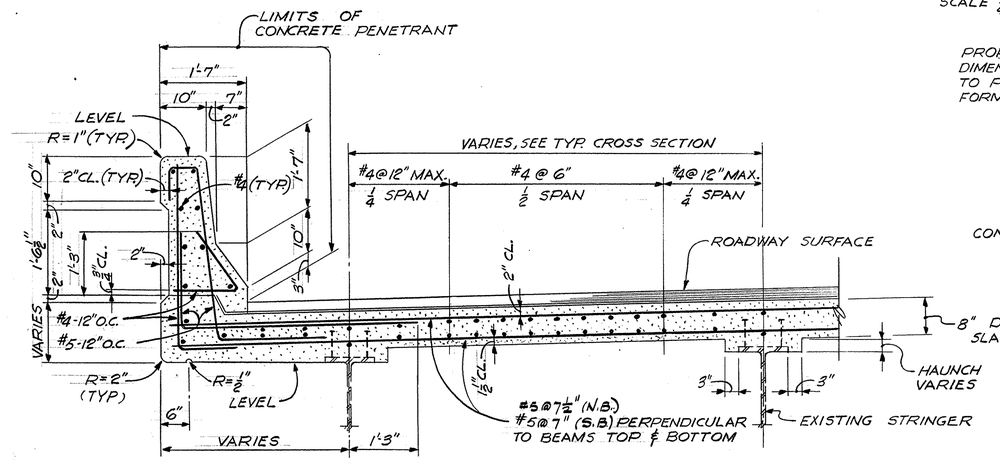
HOLYOKE
INTERSTATE ROUTE 91

PUB. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	IR-91-1(118)	19	15	43



TYPICAL CROSS SECTION

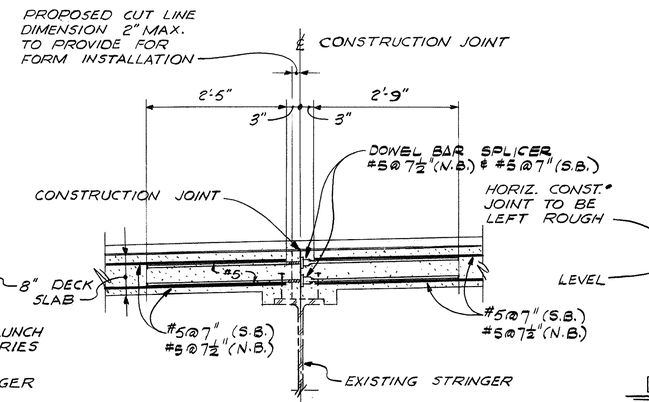
SCALE 1/4" = 1'-0"



JERSEY COPING DECK REINFORCING DETAILS

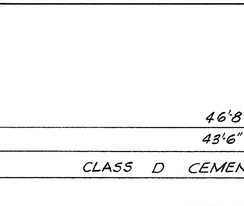
SCALE 3/4" = 1'-0"

NOTE:
ALL REINFORCING AND SUPPORT DEVICES (CHAIRS) SHALL BE EPOXY COATED.



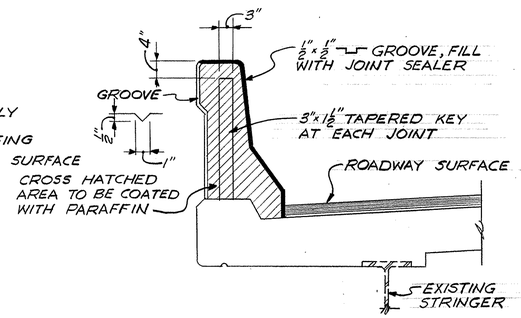
LONGITUDINAL CONSTRUCTION JOINT DETAIL

SCALE 3/4" = 1'-0"



DETAIL B

SCALE 3/4" = 1'-0"

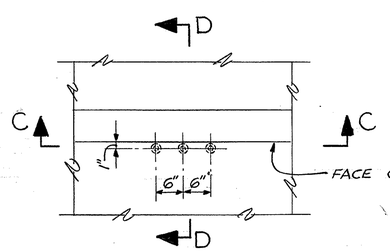


NOTES:
1. ALL CONCRETE CONSTRUCTION ABOVE SLAB SHALL BE POURED IN ALTERNATE SECTIONS AND SHALL HAVE A CURING PERIOD OF NOT LESS THAN 3 DAYS BETWEEN POURS.
2. END OF BARS TO BE 2" CLEAR OF JOINT.
3. DO NOT CARRY LONGITUDINAL BARS THROUGH THE PARAFFIN JOINTS.
4. JOINT SEALER TO BE SAME COLOR AS CONCRETE.
5. JOINT TO BE SQUARE TO FACE OF COPING.
6. FOR LOCATION OF JOINTS SEE "PLAN OF BRIDGE" ON SH. 2 OF 8.

PARAFFIN JOINT DETAIL

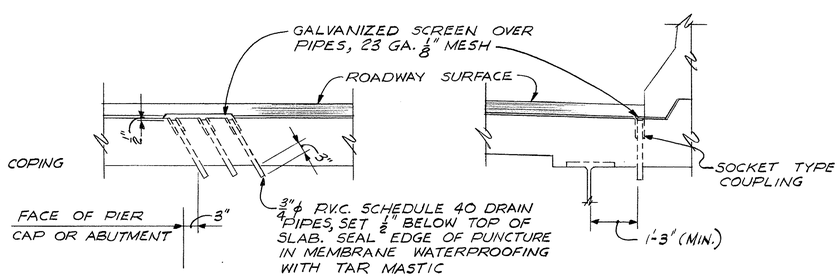
N.T.S.

NOTE:
DRAINS SHALL BE LOCATED AT DOWNHILL END OF EACH SPAN AT FACE OF JERSEY COPING. FOR LOCATION SEE SHT. 2 OF 8.



PLAN OF DRAIN PIPES THRU DECK SLAB

N.T.S.



SECTION C-C

N.T.S.

SECTION D-D

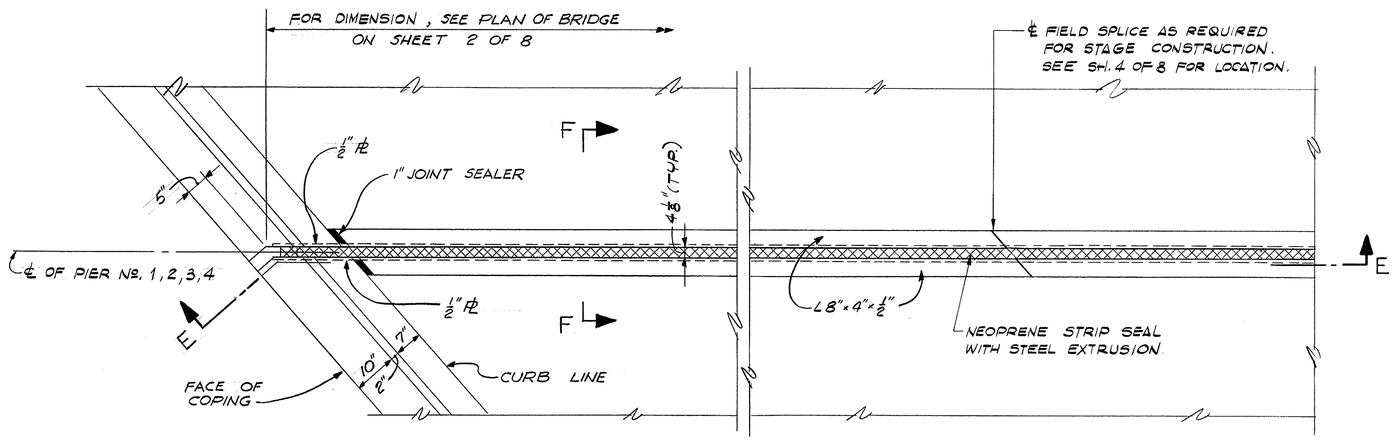
N.T.S.

DATE	DESCRIPTION
SEPT. 20, 1986	ISSUED FOR CONSTRUCTION
USE ONLY PRINTS OF LATEST DATE	

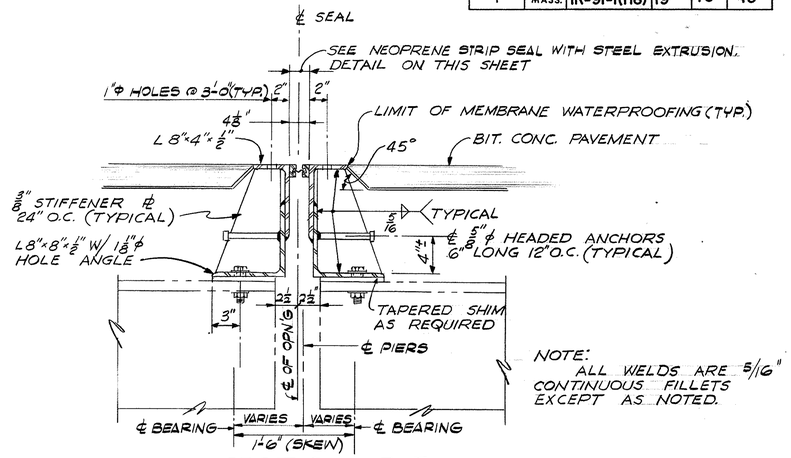
SHEET 4 OF 8 SHEETS BRIDGE NO. H-21-51

HOLYOKE
INTERSTATE ROUTE 91

PUB. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	IR-91-1(118)	19	16	43

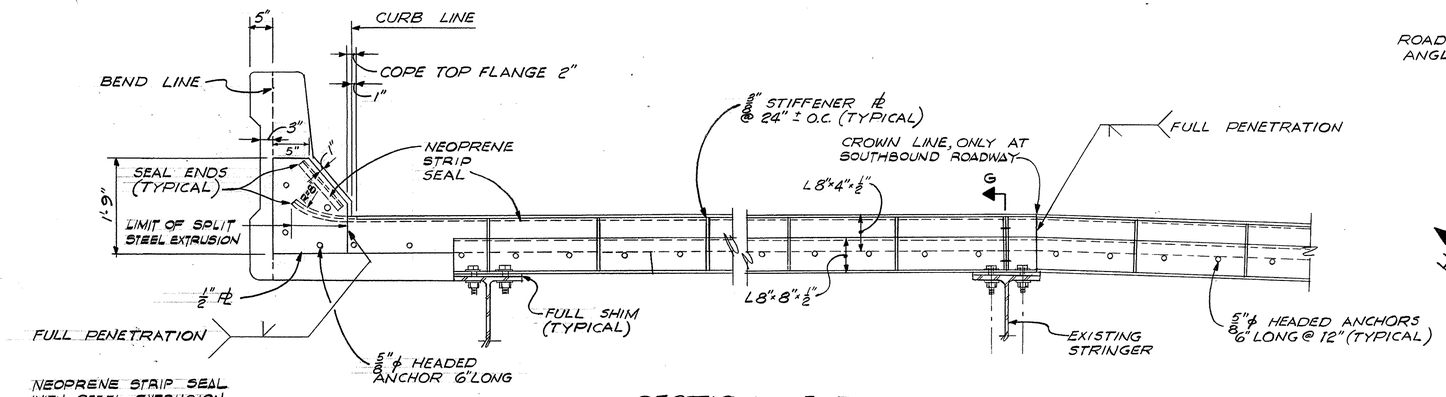


PLAN OF ARMORED JOINT AT PIERS
SCALE ¾" = 1'-0"

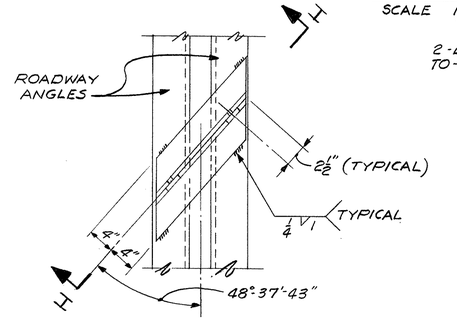


NOTE:
ALL WELDS ARE 5/16" CONTINUOUS FILLETS EXCEPT AS NOTED.

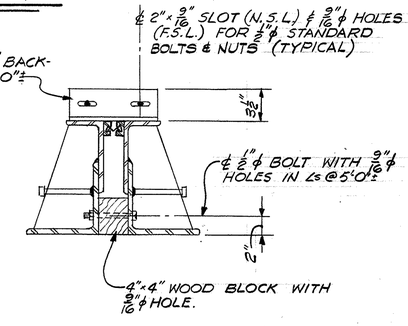
SECTION F-F
SCALE 1½" = 1'-0"



SECTION E-E
SCALE ¾" = 1'-0"



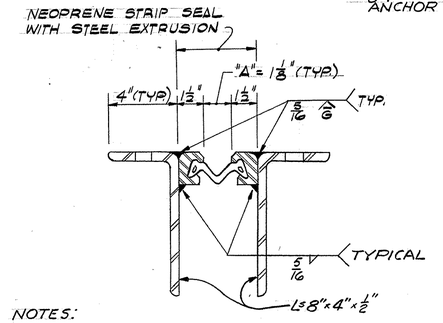
PLAN



SECTION H-H

NOTES:
1. THE STRIP SEAL SYSTEM SHALL BE ASSEMBLED IN TEMPORARY LENGTHS EQUAL TO THE STAGES OF CONSTRUCTION. A FULL LENGTH STRIP SEAL SYSTEM WILL BE INSTALLED TO REPLACE THE TEMPORARY LENGTH UPON COMPLETION OF THE DECK CONSTRUCTION.
2. WITH ARMORED JOINT IN PLACE, REMOVE 1"Φ BOLT AND WOOD BLOCK BEFORE ANCHORING TO THE BRIDGE.
3. ARMORED JOINT DEVICE SHALL BE SECURED TO THE BEAMS WHEN THE AMBIENT TEMPERATURE IS BETWEEN 40°F AND 80°F. NO FIELD ADJUSTMENT OF OPENING 'A' IS PERMITTED. SHIPPING DEVICE MUST BE REMOVED AFTER ARMORED JOINT IS SECURELY BOLTED IN PLACE.
4. GRIND ARMORED JOINT SURFACE TO A SMOOTH FINISH AFTER REMOVAL OF BACK-TO-BACK ANGLES.
5. ALL EXPOSED SURFACES OF ANGLES SHALL BE FIELD PAINTED.
6. SHOP DRAWINGS OF THE STRIP SEAL ASSEMBLY AND SHIPPING DEVICE SHALL BE SUBMITTED FOR APPROVAL OF THE ENGINEER.

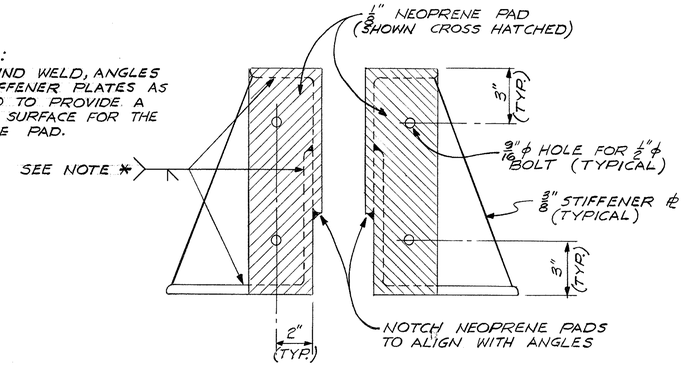
SHIPPING DEVICE FOR ARMORED JOINT
SCALE 1½" = 1'-0"



NOTES:
1. DIMENSION 'A' IS SET IN THE SHOP BY THE FABRICATOR.
2. APPROVED EQUALS TO THE ABOVE, AS DETERMINED BY THE ENGINEER, WILL BE ACCEPTABLE.

NEOPRENE STRIP SEAL DETAIL
N.T.S.

NOTE *:
GRIND WELD, ANGLES AND STIFFENER PLATES AS REQUIRED TO PROVIDE A SMOOTH SURFACE FOR THE NEOPRENE PAD.



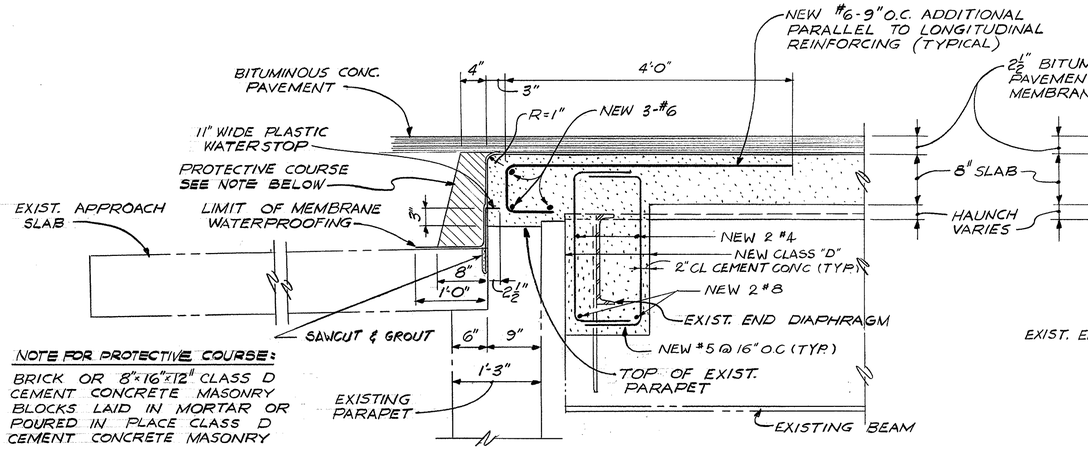
SECTION G-G
N.T.S.

DATE	DESCRIPTION
SEPT. 20, 1986	ISSUED FOR CONSTRUCTION
USE ONLY PRINTS OF LATEST DATE	

SHEET 5 OF 8 SHEETS BRIDGE NO. H-21-51

HOLYOKE
INTERSTATE ROUTE 91

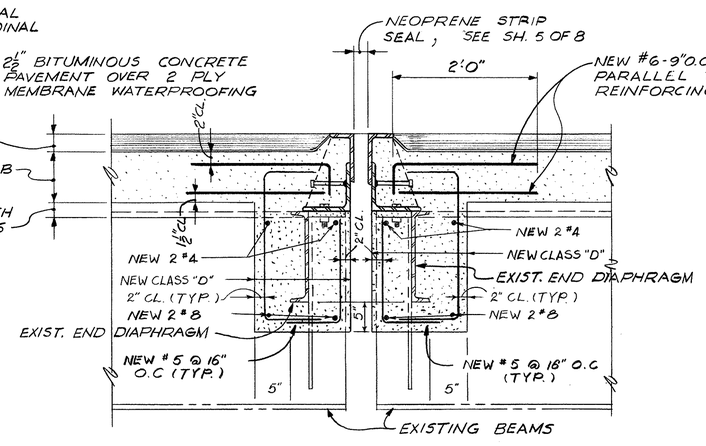
PUB. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	IR-91-1(118)	19	17	43



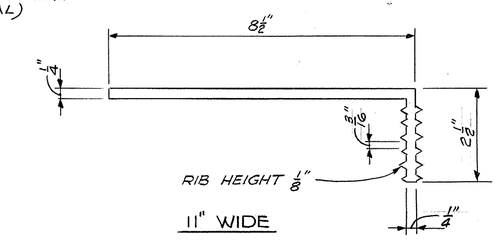
NOTE FOR PROTECTIVE COURSE:
BRICK OR 8"x16"x12" CLASS D CEMENT CONCRETE MASONRY BLOCKS LAID IN MORTAR OR POURED IN PLACE CLASS D CEMENT CONCRETE MASONRY

NOTE:
ALL NEW DECK REINFORCEMENT TO BE EPOXY COATED

DECK DETAIL AT ABUTMENTS
SCALE 1"=1'-0"

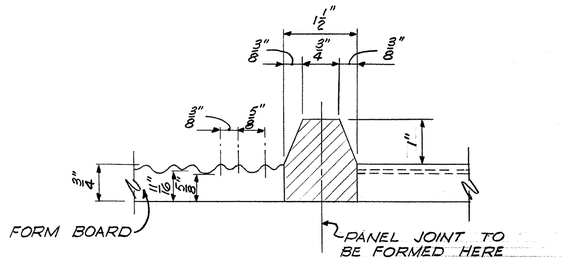


DECK DETAIL AT PIERS
SCALE 1"=1'-0"

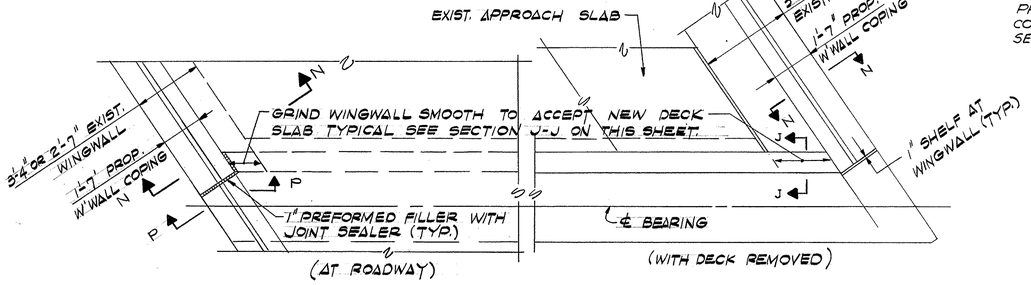


11" WIDE

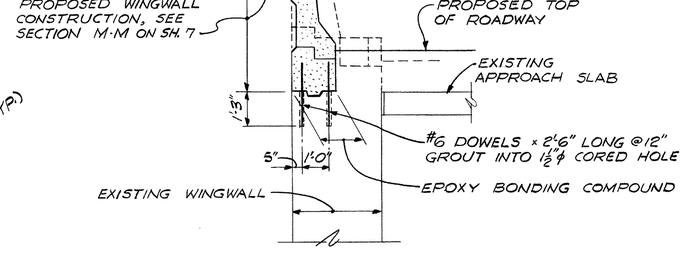
WATERSTOP DETAIL
N.T.S.



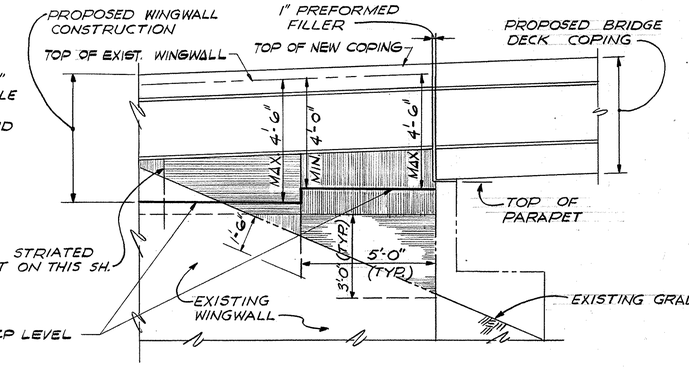
TYPICAL STRIATED PANEL JOINT
N.T.S.



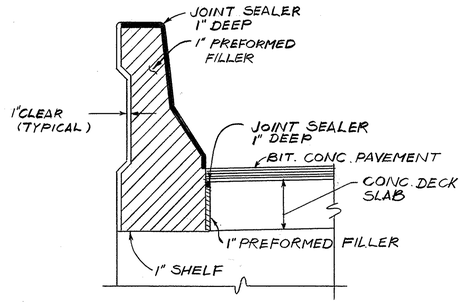
PLAN AT TOP OF PARAPETS
N.T.S.



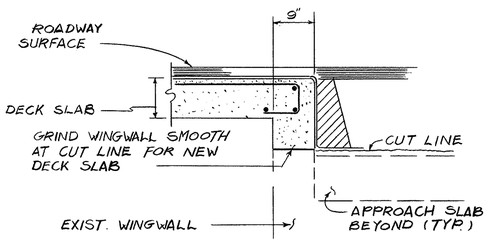
SECTION N-N
SCALE ⅜"=1'-0"



PARTIAL ELEVATION OF WINGWALL
N.T.S.



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



NOTE:
FOR DETAIL NOT SHOWN - PROTECTIVE COURSE MEMBRANE WATERPROOFING ETC. SEE DECK DETAILS ABOVE

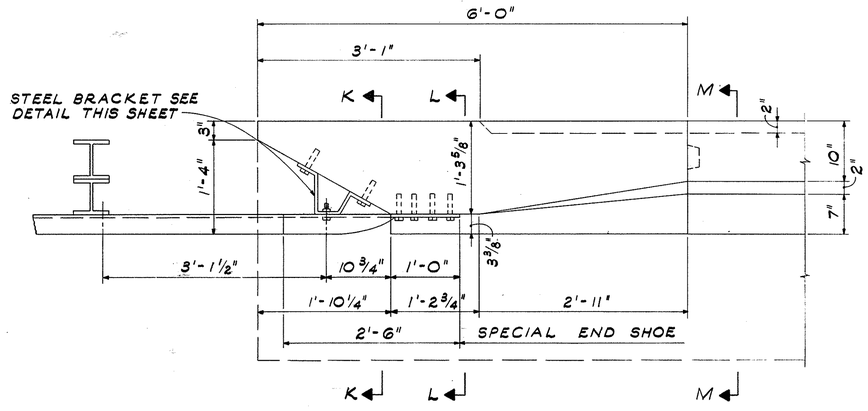
SECTION J-J
SCALE 3/4" = 1'-0"

DATE	DESCRIPTION
SEPT. 20 1986	ISSUED FOR CONSTRUCTION
USE ONLY PRINTS OF LATEST DATE	

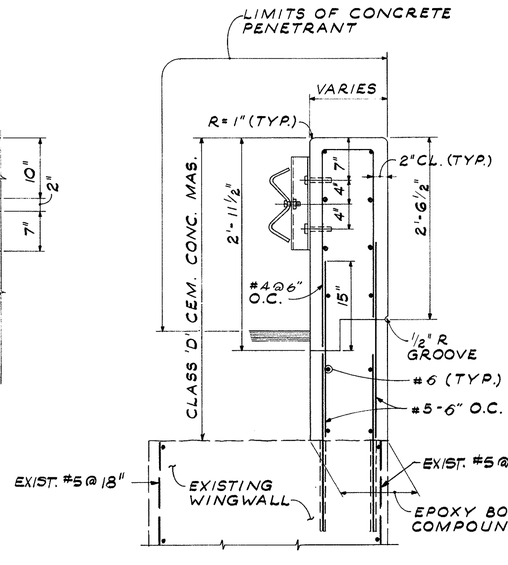
SHEET 6 OF 8 SHEETS BRIDGE NO. H-21-51

HOLYOKE
INTERSTATE ROUTE 91

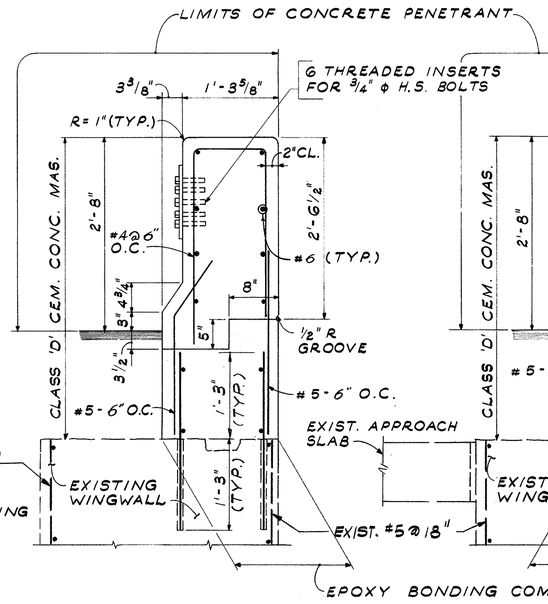
PUB. RD. DIV NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS	IR-91-1(118)	19	18	43



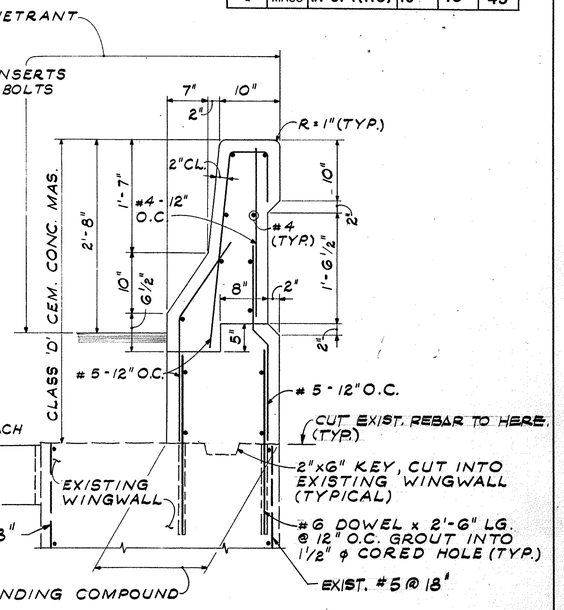
PLAN



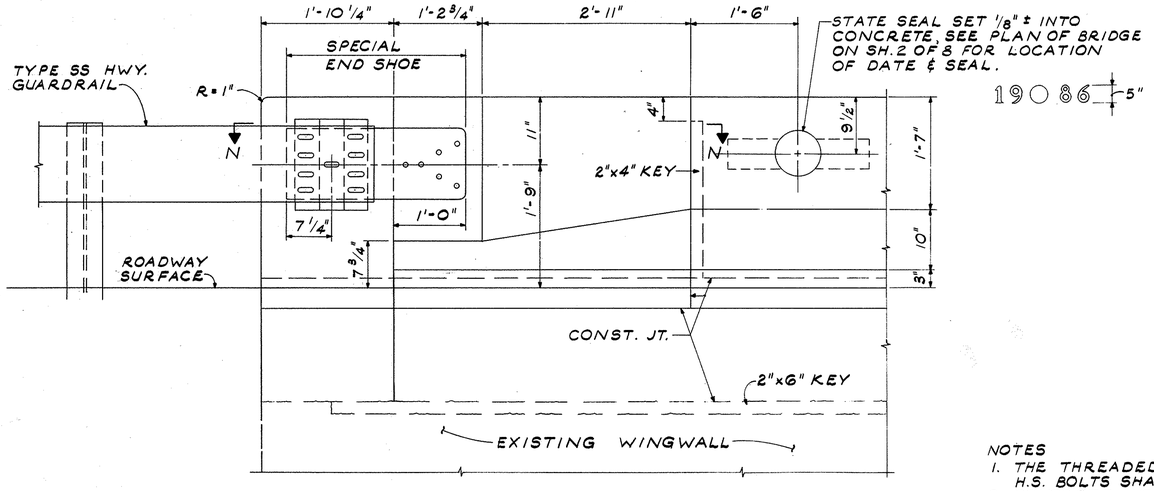
SECTION K-K



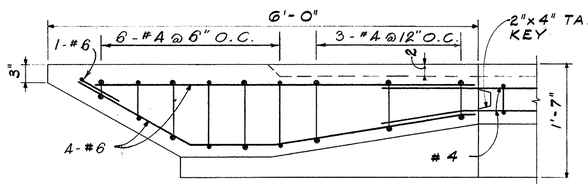
SECTION L-L



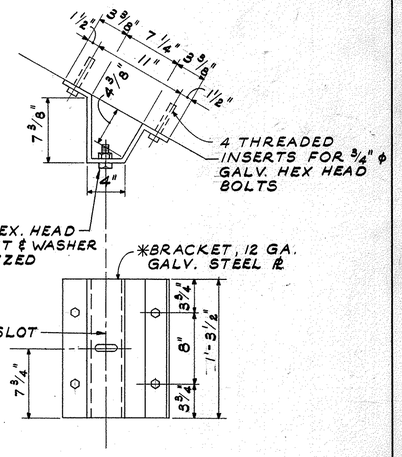
SECTION M-M



ELEVATION

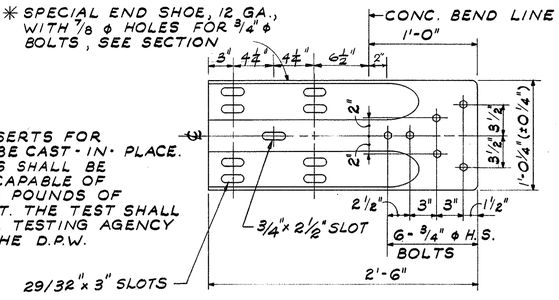


SECTION N-N



*NOT A BRIDGE ITEM

STEEL BRACKET DETAIL
SCALE: 1 1/2" = 1'-0"



NOTES
1. THE THREADED INSERTS FOR H.S. BOLTS SHALL BE CAST-IN-PLACE.
2. CONCRETE INSERTS SHALL BE PREQUALIFIED AS CAPABLE OF DEVELOPING 11,000 POUNDS OF SHEAR IN THE BOLT. THE TEST SHALL BE CERTIFIED BY A TESTING AGENCY ACCEPTABLE TO THE D.P.W.

SPECIAL END SHOE
SCALE: 1 1/2" = 1'-0"

TRANSITION FROM JERSEY BARRIER TO HIGHWAY GUARDRAIL

SCALE: 1" = 1'-0" (UNLESS NOTED)

SEPT. 20, 1986	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

SHEET 7 OF 8 SHEETS BRIDGE NO. H-21-51

MAKEPEACE P-6255

HOLYOKE
INTERSTATE ROUTE 91

PUB. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	IR-91-1(118)	19	19	43

TOP OF FORM ELEVATIONS FOR DECK SLAB PRIOR TO PLACEMENT OF CONCRETE

SOUTHBOUND ROADWAY

SPAN Nº 1

STRINGER Nº	℄ BRG. ABUT. #1	1/8 PT.	1/4 PT.	3/8 PT.	1/2 PT.	5/8 PT.	3/4 PT.	7/8 PT.	℄ BRG. PIER #1
101	387.47	387.56	387.64	387.70	387.76	387.79	387.81	387.82	387.81
102	387.56	387.64	387.70	387.77	387.82	387.86	387.88	387.90	387.91
103	387.08	387.16	387.23	387.29	387.33	387.38	387.40	387.42	387.42
104	386.60	386.68	386.75	386.81	386.86	386.89	386.91	386.93	386.93
105	386.12	386.21	386.27	386.32	386.38	386.41	386.43	386.44	386.45
106	385.65	385.73	385.80	385.86	385.91	385.94	385.96	385.95	385.96

SPAN Nº 2

STRINGER Nº	℄ BRG. PIER #1	1/4 PT.	1/2 PT.	3/4 PT.	℄ BRG. PIER #2
201	387.82	387.90	387.96	388.01	388.05
202	387.92	388.00	388.08	388.13	388.17
203	387.43	387.51	387.58	387.64	387.70
204	386.94	387.02	387.09	387.15	387.21
205	386.46	386.54	386.60	386.66	386.71
206	385.97	386.04	386.11	386.17	386.21

SPAN Nº 3

STRINGER Nº	℄ BRG. PIER #2	1/8 PT.	1/4 PT.	3/8 PT.	1/2 PT.	5/8 PT.	3/4 PT.	7/8 PT.	℄ BRG. ABUT. #2
301	388.06	388.12	388.18	388.23	388.27	388.30	388.33	388.35	388.36
302	388.17	388.24	388.31	388.36	388.41	388.44	388.46	388.48	388.48
303	387.71	387.77	387.84	387.89	387.93	387.96	387.99	388.01	388.02
304	387.21	387.27	387.34	387.39	387.44	387.47	387.49	387.51	387.51
305	386.72	386.78	386.85	386.89	386.93	386.96	386.98	387.00	387.01
306	386.22	386.28	386.33	386.38	386.42	386.45	386.48	386.50	386.50

NORTHBOUND ROADWAY

SPAN Nº 4

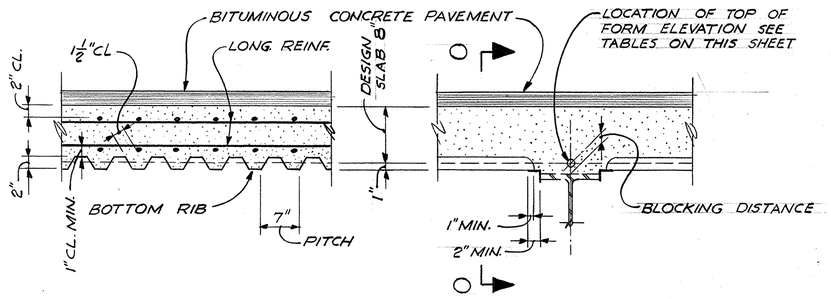
STRINGER Nº	℄ BRG. ABUT. #3	1/4 PT.	1/2 PT.	3/4 PT.	℄ BRG. PIER #3
401	375.44	375.53	375.60	375.64	375.67
402	374.95	375.05	375.13	375.18	375.21
403	374.47	374.58	374.66	374.72	374.75
404	373.98	374.09	374.18	374.25	374.28
405	373.51	373.60	373.69	373.77	373.81
406	372.96	373.12	373.21	373.28	373.34
407	372.54	372.64	372.73	372.80	372.85

SPAN Nº 5

STRINGER Nº	℄ BRG. PIER #3	1/4 PT.	1/2 PT.	3/4 PT.	℄ BRG. PIER #4
501	375.64	375.73	375.81	375.89	375.95
502	375.19	375.28	375.36	375.44	375.51
503	374.75	374.83	374.92	374.99	375.05
504	374.30	374.39	374.47	374.54	374.59
505	373.85	373.94	374.02	374.08	374.13
506	373.41	373.49	373.57	373.63	373.69
507	372.94	373.05	373.12	373.18	373.23

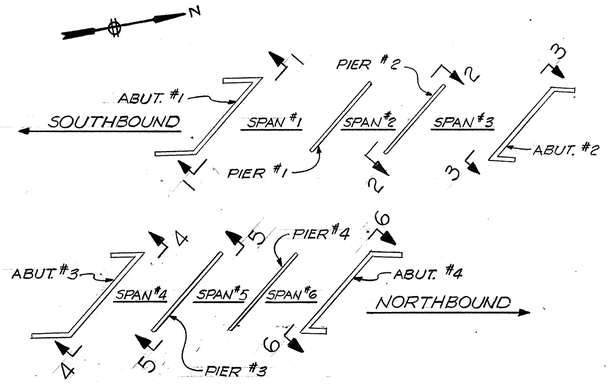
SPAN Nº 6

STRINGER Nº	℄ BRG. PIER #4	1/4 PT.	1/2 PT.	3/4 PT.	℄ BRG. ABUT. #4
601	375.96	376.03	376.08	376.12	376.16
602	375.52	375.57	375.62	375.66	375.67
603	375.06	375.11	375.16	375.20	375.24
604	374.60	374.65	374.71	374.75	374.77
605	374.15	374.21	374.25	374.28	374.31
606	373.70	373.75	373.79	373.82	373.86
607	373.24	373.28	373.34	373.37	373.39

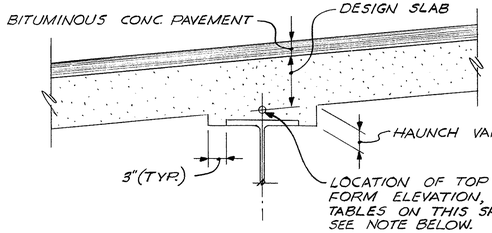


SECTION O-O
N.T.S.

HAUNCH DETAIL
N.T.S.



KEY PLAN
N.T.S.

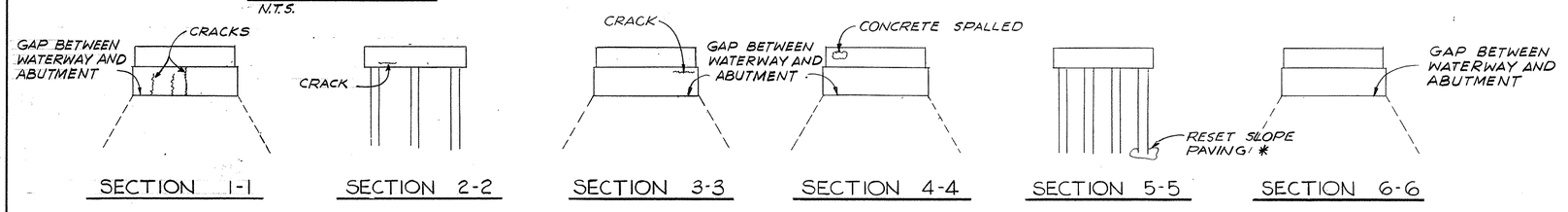


HAUNCH DETAIL
N.T.S.

NOTE:
BEFORE THE FORMS ARE BUILT, ELEVATIONS ON THE TOP OF THE FLANGE OF THE BEAMS ARE TO BE OBTAINED AT THE POINTS INDICATED IN THE TABLES. THE DIFFERENCE BETWEEN THE ELEVATION OBTAINED AND THOSE SHOWN IN THE TABLES GIVES THE ACTUAL BLOCKING DISTANCE FROM THE TOP OF THE BEAM TO THE BOTTOM OF THE SLAB AT THE CENTERLINE OF THE BEAM.

NOTES:
1. FOR TWO (2") INCH SIP FORM SET BOTTOM OF FORM ONE (1") INCH BELOW ELEVATIONS GIVEN IN THE TABLES. FOR TWO AND ONE HALF ($2\frac{1}{2}$") INCH SIP FORM SET BOTTOM OF FORM ONE AND ONE HALF ($1\frac{1}{2}$") INCHES BELOW TABLE ELEVATIONS.
2. FORM ENDS SHALL BE CRIMPED CLOSED IN A TAPERED MANNER. SEPERATE END CLOSER PIECES WILL NOT BE ALLOWED.
3. SUPPORT ANGLES SHALL BE PLACED IN THE "LEG DOWN" POSITION WHERE POSSIBLE. WHERE "LEG UP" POSITION IS NECESSARY THE UPPER MOST PORTION OF THE ANGLE SHALL NOT PROJECT MORE THAN ONE (1") INCH ABOVE THE TOP FLANGE OR COVER PLATE. THE CONTRACTOR SHALL HAVE AN ASSORTMENT OF ANGLES OF VARIOUS SIZES AVAILABLE ON THE SITE TO CONFORM TO THIS REQUIREMENT.
4. ALL MAIN STEEL REINFORCEMENT IN THE LOWER MAT SHALL BE CENTERED OVER THE VALLEY OF THE SIP FORM.

STAY IN PLACE FORMS



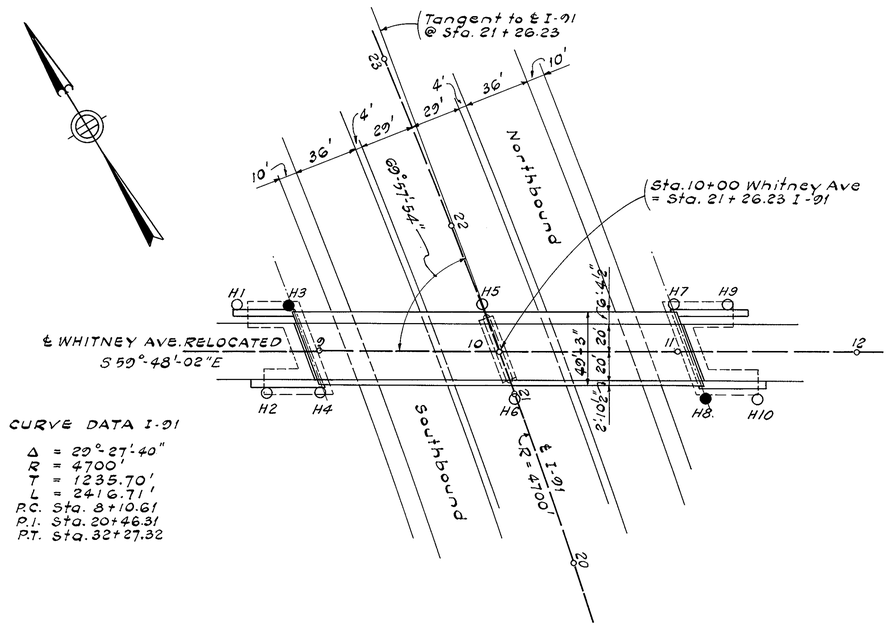
SECTION 1-1 | SECTION 2-2 | SECTION 3-3 | SECTION 4-4 | SECTION 5-5 | SECTION 6-6

APPROXIMATE LOCATION OF DEFECT AREA
N.T.S.
NOTE: * DENOTES HIGHWAY ITEM.

NOTE:
REFER TO SPECIFICATIONS FOR THE DETAILS ON REPAIRING CRACK, SPALLED CONCRETE, BRUSH AND PAINT STRINGERS AS WELL AS BEARING ASSEMBLIES.

DATE	DESCRIPTION
SEPT. 29, 1986	ISSUED FOR CONSTRUCTION
USE	ONLY PRINTS OF LATEST DATE

SHEET 8 OF 8 SHEETS BRIDGE NO. H-21-51

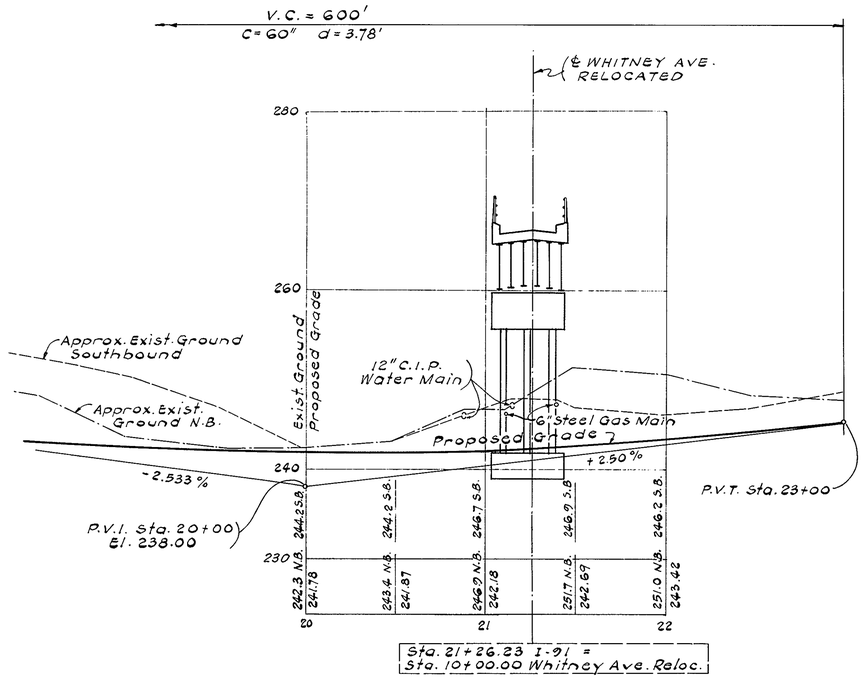


KEY PLAN

Scale: 1" = 40'

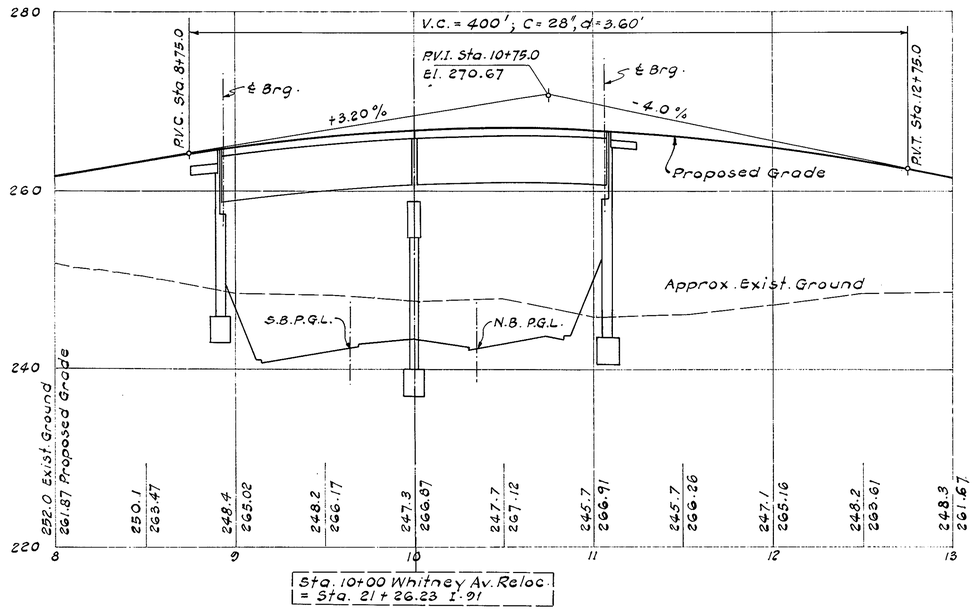
CURVE DATA I-91

Δ = 29°-27'-40"
R = 4700'
T = 1235.70'
L = 2416.71'
P.C. Sta. 8+10.61
P.I. Sta. 20+46.31
P.T. Sta. 32+27.32



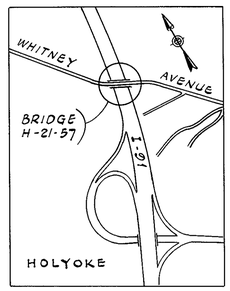
PROFILE OF I-91

Scales: 1" = 8' Vertical
1" = 40' Horizontal



PROFILE OF WHITNEY AVE. RELOCATED

Scales: 1" = 8' Vert.; 1" = 40' Horiz.



LOCUS

Scale: 1" = 800'

BARSTOW & MULLIGAN
CONSULTING ENGINEERS
566 ATLANTIC AVE
BOSTON, MASS.

PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS	I-91-1(64)9	1967	127	393

GENERAL NOTES

DESIGN
In accordance with the current specifications of the American Association of Highway Officials (1961 Edition) H20-44 Loading.

DATE AND SEAL
To be placed on the inside face of the Northeast and Southwest End Posts. A Sheet showing Size and Character of the numerals will be furnished. The Seal will be furnished by the State and shall be set by the Contractor.

FOUNDATIONS
May be altered, if necessary, to suit conditions encountered during construction.

UNSUITABLE MATERIAL
Shall be removed within the limits of the foundations of the structure.

BRIDGE RAILINGS
See Department Standard Metal Railing Plans, dated Oct. 1966 for Details of Bridge Railings.

REINFORCEMENT
All bars shall have deformations conforming to A.S.T.M. designation A-305. Unless otherwise noted on the Plans, Reinforcing Bars shall be lapped 20 diameters to make a splice except that Main Reinforcing Bars near the top of the slabs and beams having more than 12 inches of concrete under the bars shall be lapped 35 diameters to make a splice.

ANCHOR BOLTS
Shall be set by template and placed before concrete is poured, except at the Abutments where drilling and grouting may be used at the Contractor's option.

SCALE
Scales noted on Plans are not applicable to reduced size prints. Divide scales by 2 for 1/4 size prints.

FIELD BOOK

BENCH MARK MEAN SEA LEVEL DATUM OF 1929 (U.S.C. & G.S.).
Mass Traverse Disc 9FA, 35± North of Whitney Ave. in Holyoke El. 256.77

ESTIMATED QUANTITIES
(Not Guaranteed)

Class B Rock Excavation	10	C.Y.
Bridge Excavation	1,300	C.Y.
Gravel Borrow	1,120	C.Y.
Class I Bituminous Concrete Pavement, Type I-1	75	Tons
Class I Dense Protective Bottom Course for Bridges	75	Tons
Metal Bridge Railing (3-Rail) Option	541	L.F.
Bridge Structure (No. H-21-57)	1	L.S.
Estimated Weight of Reinforcing Steel	158,000	Lbs.
Estimated Weight of Structural Steel (A.S.T.M. A36)	368,000	Lbs.

These Quantities are part of Lump Sum Item 995.05 Bridge Structure (Bridge No. H-21-57) and are not guaranteed.

	JULY 13, 1967	⚠ Revision Sheet 7
DESIGNED BY	MARCH 23, 1967	ISSUED FOR CONSTRUCTION
DRAWN BY		
CHECKED BY		
APPROVED FOR DESIGN		
SPECS		

THE COMMONWEALTH OF MASSACHUSETTS
PROPOSED BRIDGE

HOLYOKE

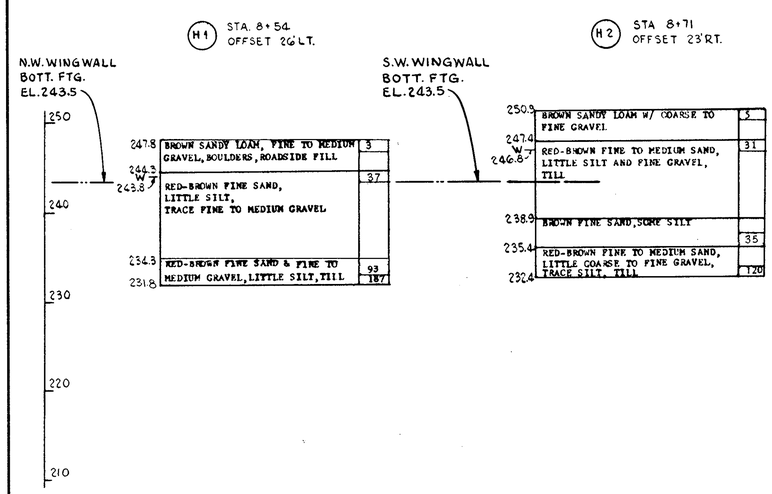
WHITNEY AVE. RELOCATED OVER INTERSTATE ROUTE 91

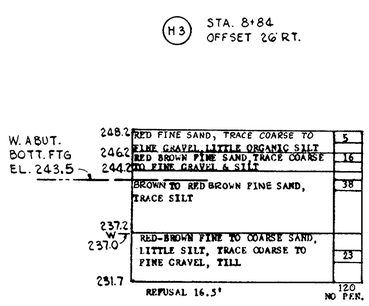
SCALES AS NOTED
OFFICE OF
DEPARTMENT OF PUBLIC WORKS
100 NASHUA ST. BOSTON, MASS.
MARCH 1967

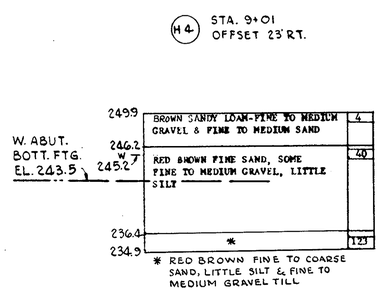
R.J. McDonough — BRIDGE ENGINEER
Daniel Hoar P.E. — CHIEF ENGINEER

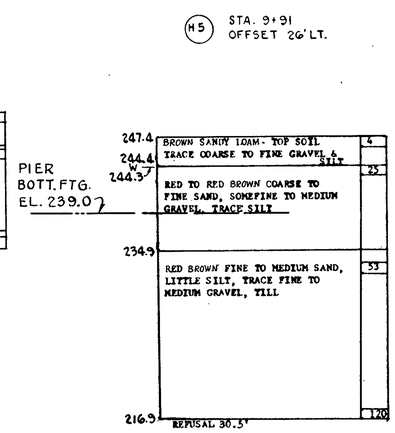
SHEET 1 OF 10 SHEETS BRIDGE NO. H-21-57

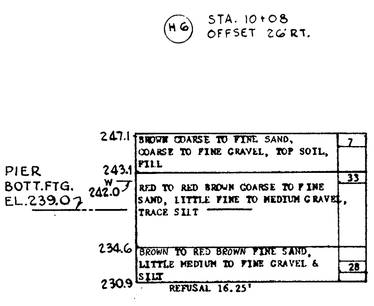
PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS	I-91-1(64)9	1967	128	393

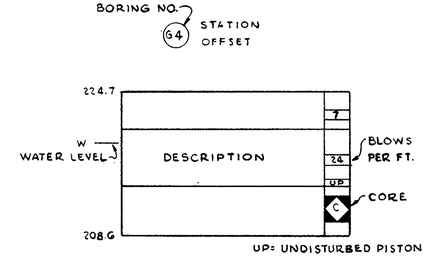


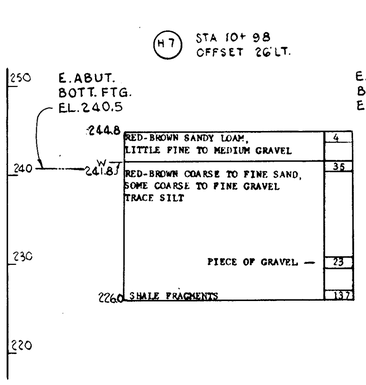


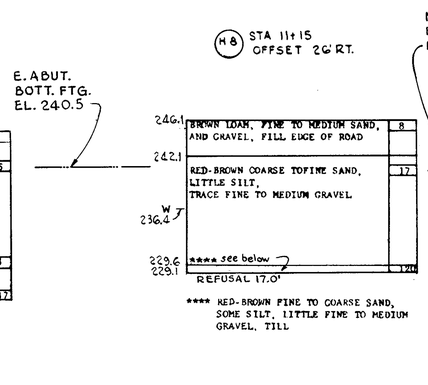


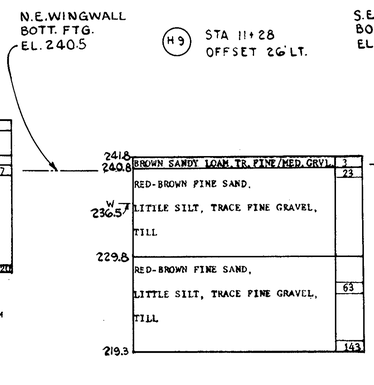


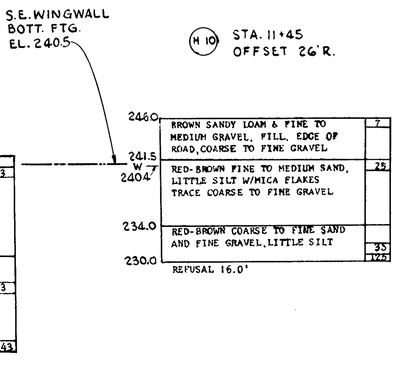












BORING DATA

Scale: 1"=8'

BORING NOTES

LOCATION OF BORINGS SHOWN ON BORING LOCATION PLAN THUS: ● H3 - CONTROL BORINGS
○ H5 - DESIGN BORINGS

BORINGS TAKEN FOR PURPOSE OF DESIGN AND SHOW CONDITIONS AT BORING POINTS ONLY AND DO NOT NECESSARILY SHOW NATURE OF MATERIALS TO BE ENCOUNTERED DURING CONSTRUCTION.

FIGURES IN RIGHT HAND COLUMN INDICATE BLOWS PER FOOT ON 1-3/8 INCH I.D. SAMPLER PRODUCED BY 30 INCH FALL OF 140 POUND HAMMER.

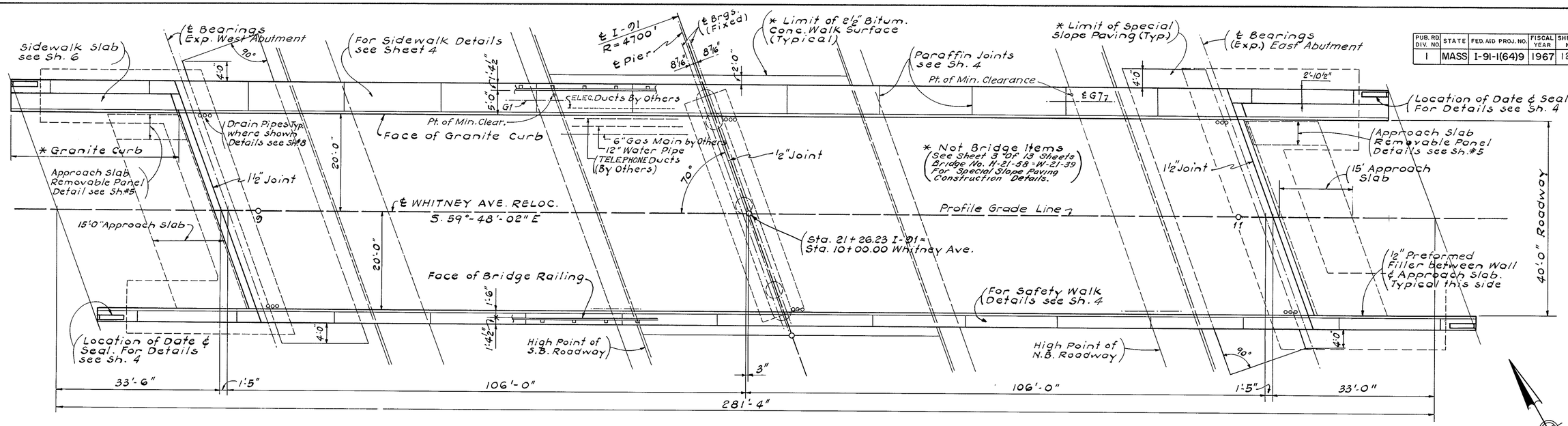
WATER LEVELS SHOWN ON THE BORING LOGS WERE OBSERVED AT THE TIME OF TAKING BORINGS AND DO NOT NECESSARILY SHOW THE TRUE GROUND WATER LEVEL.

BORING SAMPLES MAY BE SEEN AT THE RESEARCH AND MATERIALS DIVISION, 99 WORCESTER STREET, WELLESLEY HILLS (INTERSECTION OF ROUTES 9 AND 128).

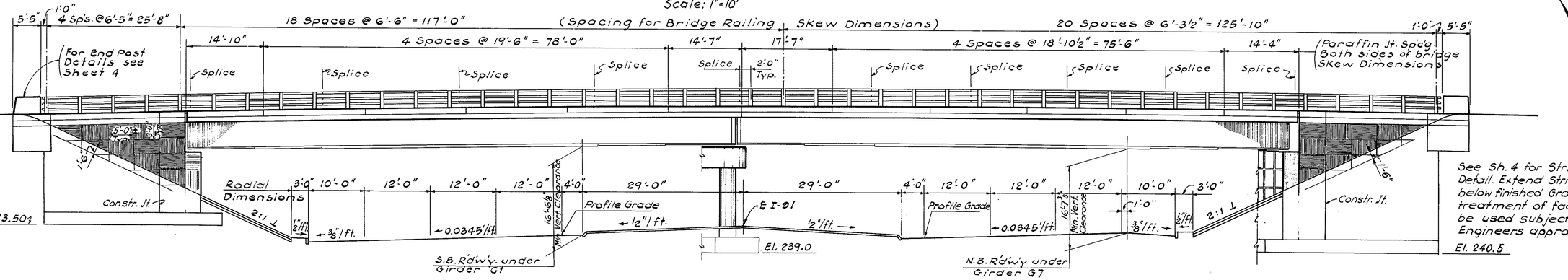
ALL BORINGS WERE MADE BY AMERICAN DRILLING & BORING CO., INC. 54 WATER STREET, EAST PROVIDENCE, R. I. DURING JUNE 1966.

DATE	DESCRIPTION
MARCH 23, 1967	ISSUED FOR CONSTRUCTION
USE ONLY PRINTS OF LATEST DATE	

PUB. RD DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
I	MASS	I-91-1(64)9	1967	129	393

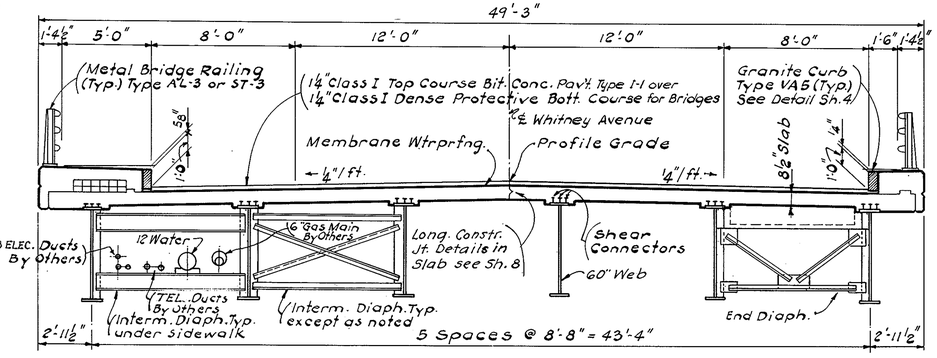


PLAN
Scale: 1"=10'

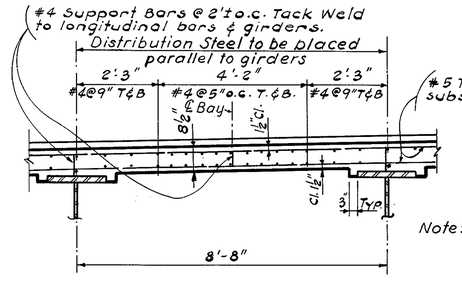


ELEVATION
Scale: 1"=10'

See Sh. 4 for Striation Detail. Extend Striation 1'-6" below finished Grade. Other treatment of face may be used subject to Bridge Engineers approval.



TYPICAL CROSS SECTION
Scale: 1/4" = 1'-0"

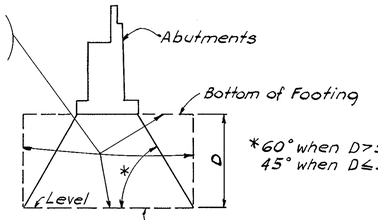


TYPICAL SLAB REINFORCEMENT
Scale: 1/2" = 1'-0"

Note: An equal device may be substituted for the #4 Support Bars upon written approval of the Engineer.

Limits of Gravel Borrow for Bridge Foundation

NOTES:
Same Treatment is to be used at Ends. Unsuitable Material to be removed before Gravel Borrow for Bridge Foundation is placed.

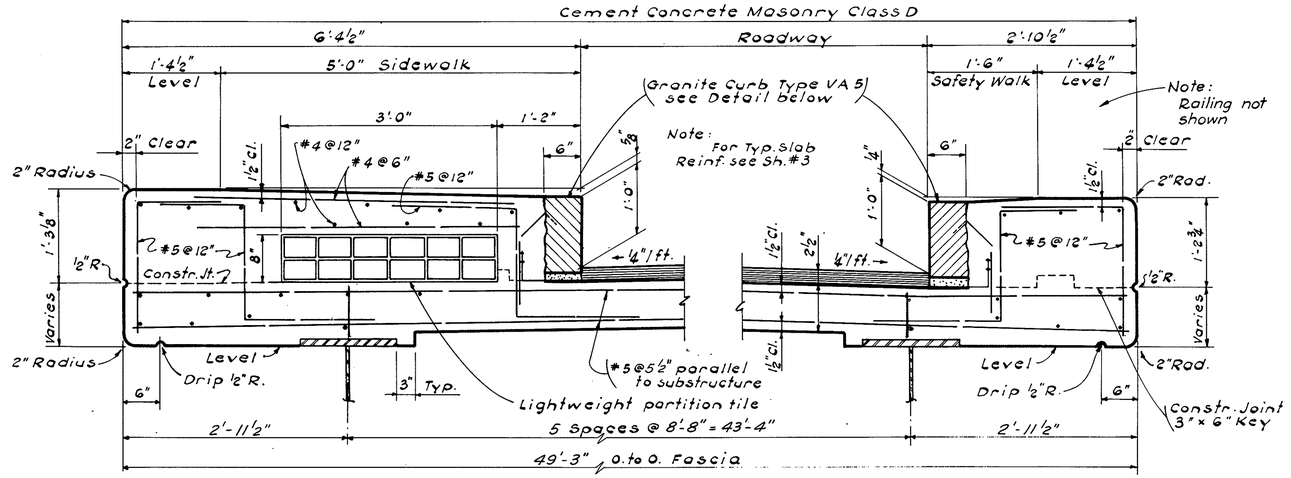


GRAVEL BORROW FOR BRIDGE FOUNDATION
Not to Scale

DATE	DESCRIPTION
MARCH 25, 1967	ISSUED FOR CONSTRUCTION
USE ONLY PRINTS OF LATEST DATE	

SHEET 3 OF 10 SHEETS BRIDGE NO. H-21-57

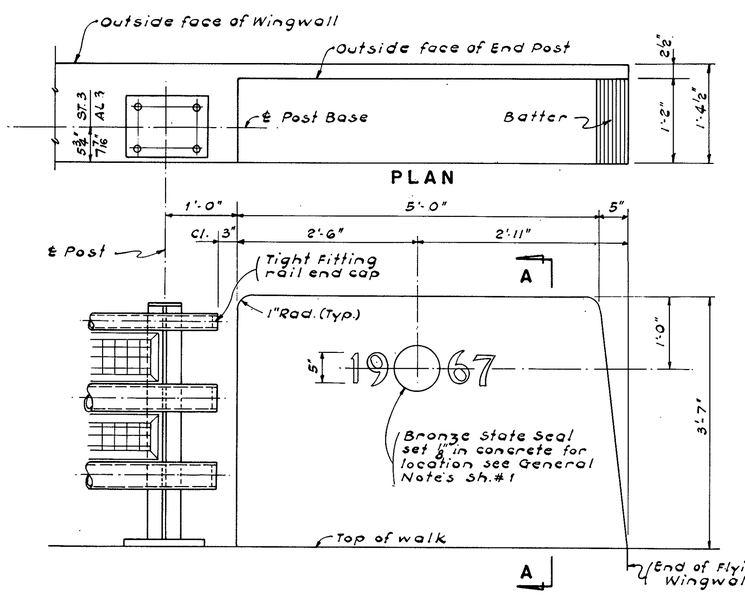
PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS	I-91-1(64)9	1967	130	393



Note: All Longitudinal reinforcement to be #4 except as noted

TYPICAL DECK SECTION

Scale: 1"=1'-0"



ELEVATION

END POST DETAIL

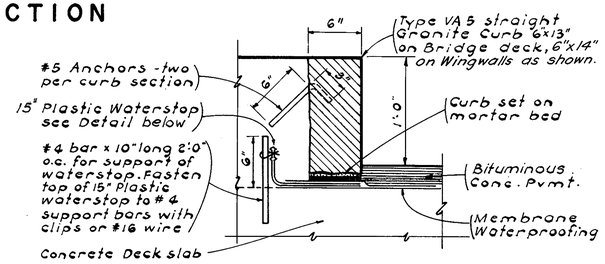
Scale: 1" = 1'-0"

Note:

Bridge Railing Type ST-3 shown; Alternate Type AL-3 may be used.

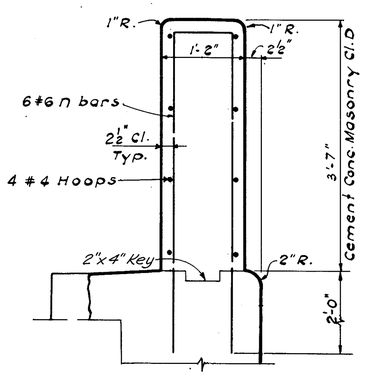
Railing anchor bolts to be set by template and placed before concrete is poured.

For location of Date & Seal see General Notes Sheet #1.



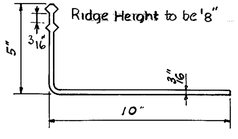
DETAIL AT CURB

Scale: 1½"=1'-0"



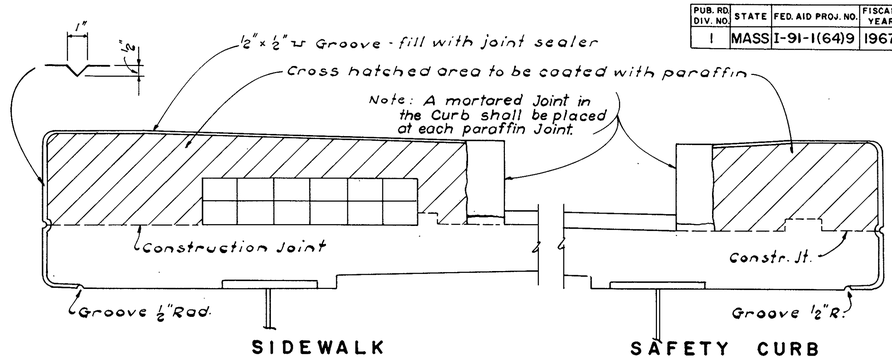
SECTION A-A

Scale: 1"=1'-0"



PLASTIC WATERSTOP

Scale: 3"=1'-0"



PARAFFIN JOINT DETAIL

Scale: 1"=1'-0"

Notes

Sidewalk and Safety Curb shall be poured in alternate sections and shall have a curing period of not less than 5 days between pours.

For location of joints see Sheet 3

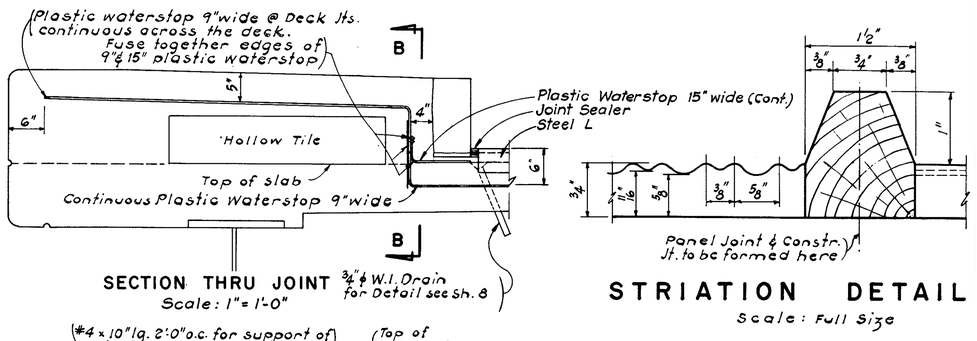
End of bars to be 2" clear of joint.

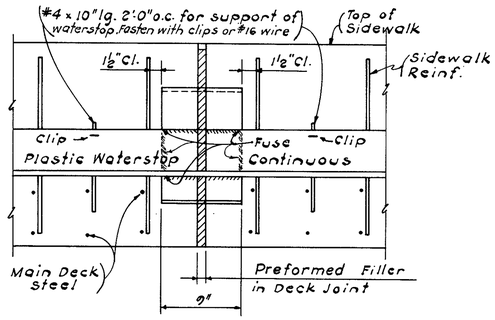
Do not carry longitudinal bars in sidewalk and safety curb through the paraffin Joints

Joint sealer to be same color as concrete.

Joints shall be square to face of curb.

Joint in curb shall be mortared no sooner than 5 days after concrete in sidewalk has been poured.

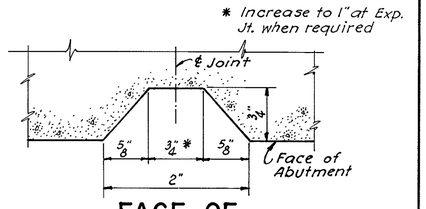




SECTION B-B

CURB DETAIL AT DECK JOINT

Scale: 1½"=1'-0"



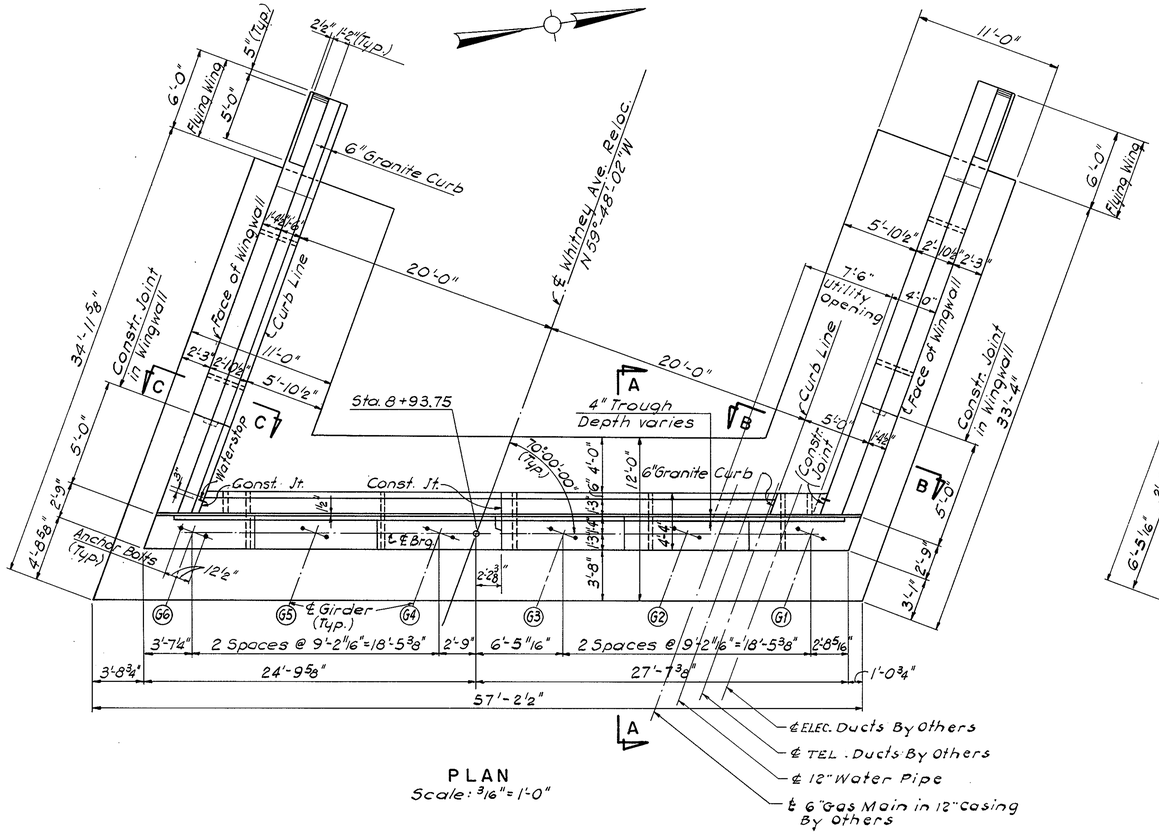
FACE OF ABUTMENT RUSTICATION

HORIZONTAL AND VERTICAL GROOVE DETAIL

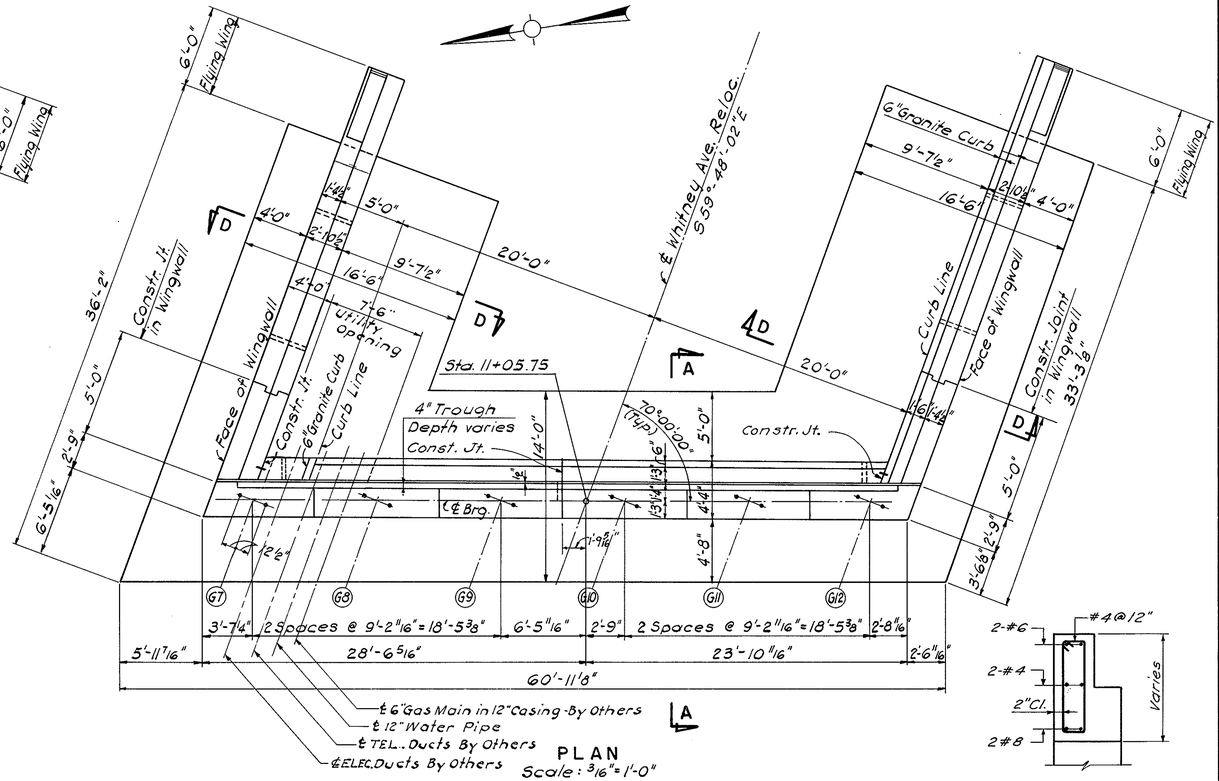
DATE	DESCRIPTION
MARCH 25, 1967	ISSUED FOR CONSTRUCTION

USE ONLY PRINTS OF LATEST DATE

PUB. RD DIV. NO.	STATE	FED. AID. PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS	I-91-1(64)9	1967	131	393

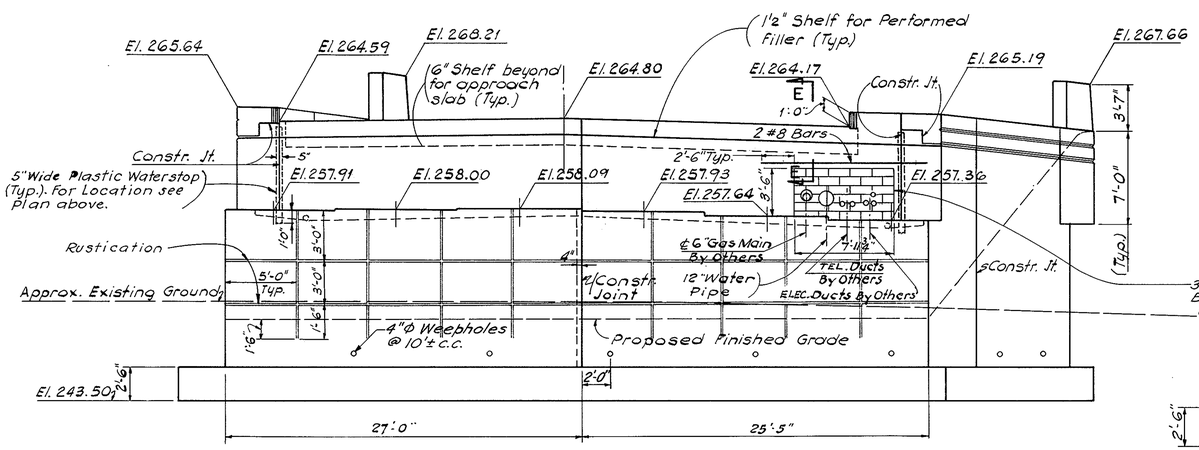


PLAN
Scale: 3/16" = 1'-0"



PLAN
Scale: 3/16" = 1'-0"

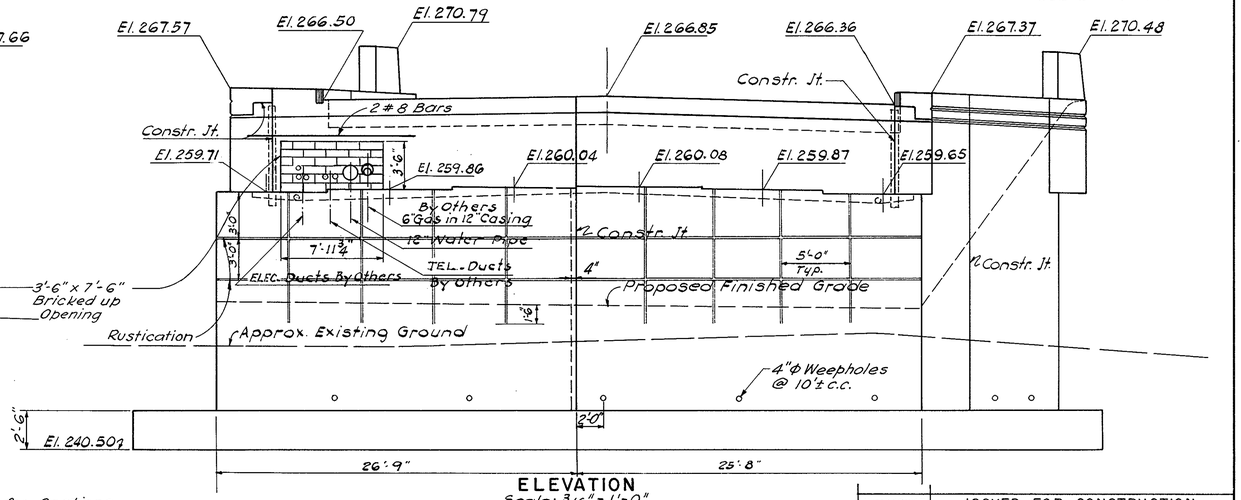
SECTION E-E
Scale: 3/4" = 1'-0"



ELEVATION
Scale: 3/16" = 1'-0"

WEST ABUTMENT

NOTE: See Sheet 6 for Sections.



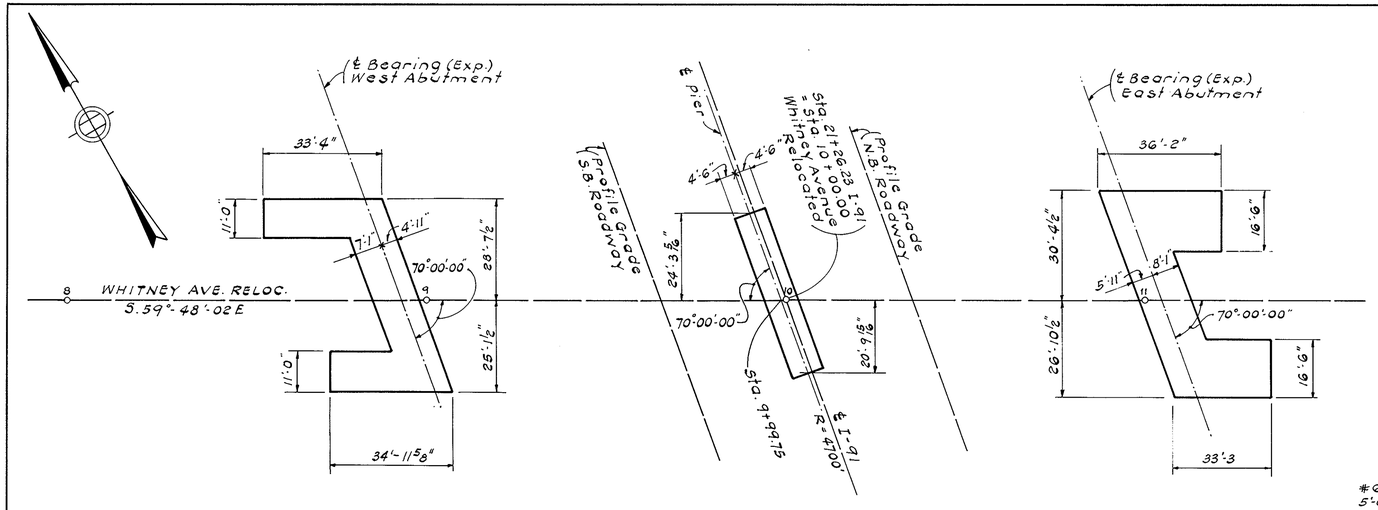
ELEVATION
Scale: 3/16" = 1'-0"

EAST ABUTMENT

DATE	DESCRIPTION
MARCH 25, 1967	ISSUED FOR CONSTRUCTION
USE ONLY PRINTS OF LATEST DATE	

SHEET 5 OF 10 SHEETS BRIDGE NO. H-21-57

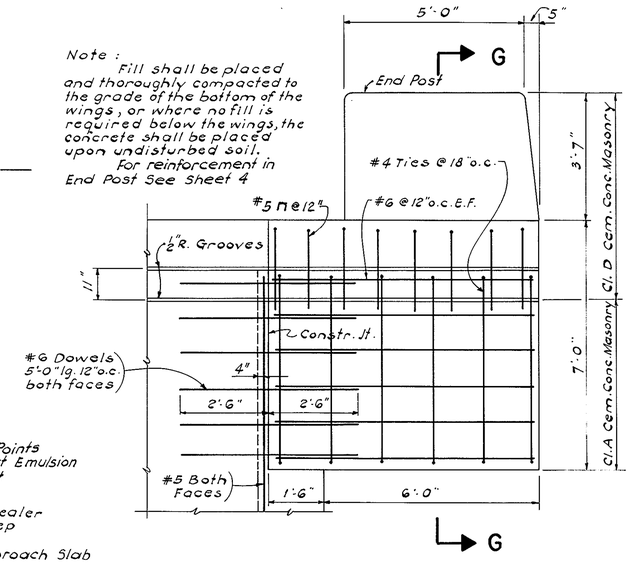
PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	I-91-1(64)9	1967	132	393



FOOTING LAYOUT PLAN

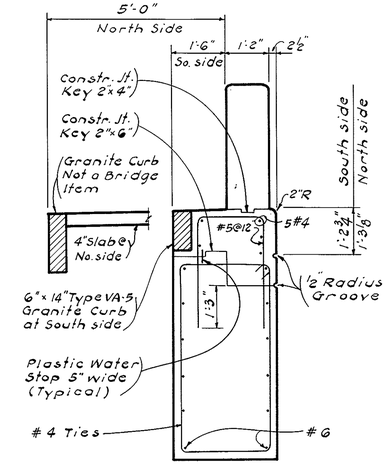
Scale : 1" = 20'

Note :
Fill shall be placed and thoroughly compacted to the grade of the bottom of the wings, or where no fill is required below the wings, the concrete shall be placed upon undisturbed soil.
For reinforcement in End Post See Sheet 4



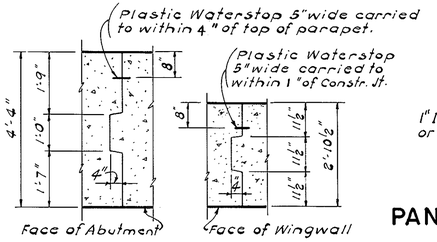
FLYING WING FOR WINGWALLS

Scale : ½" = 1'-0"



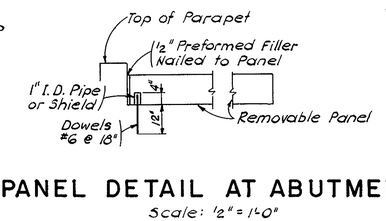
SECTION G-G

Scale : ½" = 1'-0"



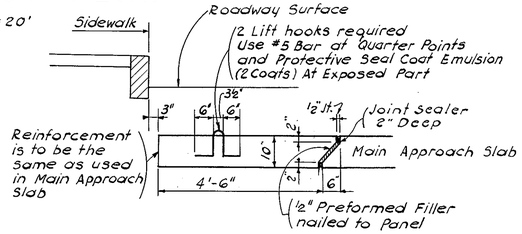
CONSTRUCTION JT'S.

Scale : ½" = 1'-0"



PANEL DETAIL AT ABUTMENT

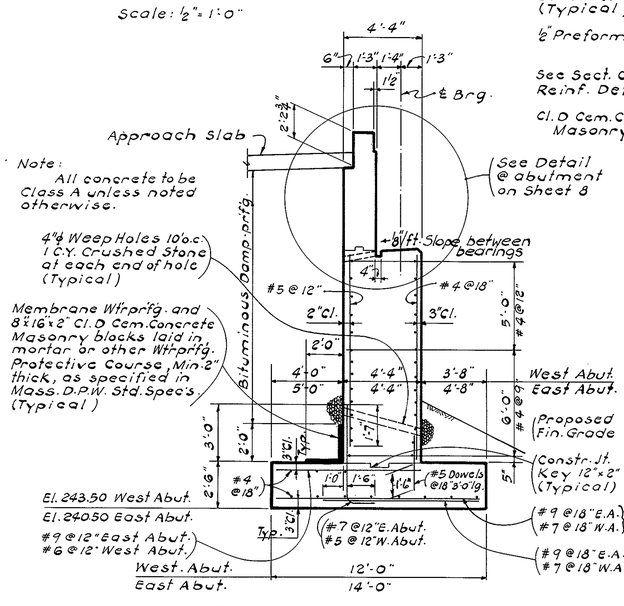
Scale: ½" = 1'-0"



REMOVABLE PANEL OF APPROACH SLAB

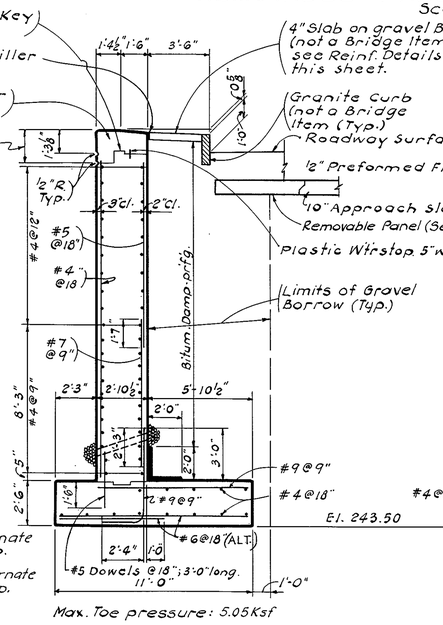
Scale : ½" = 1'-0"

Note :
All concrete to be Class A unless noted otherwise.



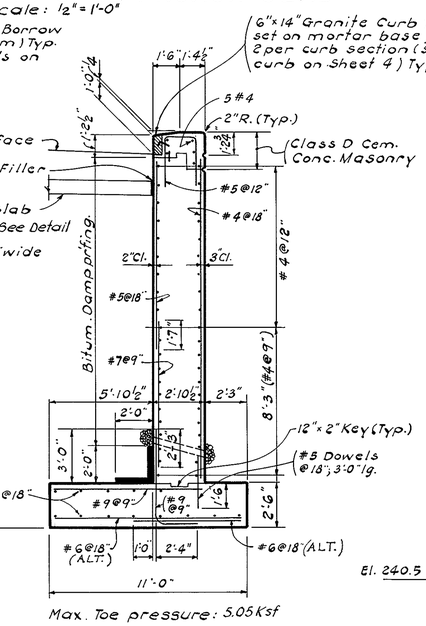
SECTION A-A

Scale : ¼" = 1'-0"



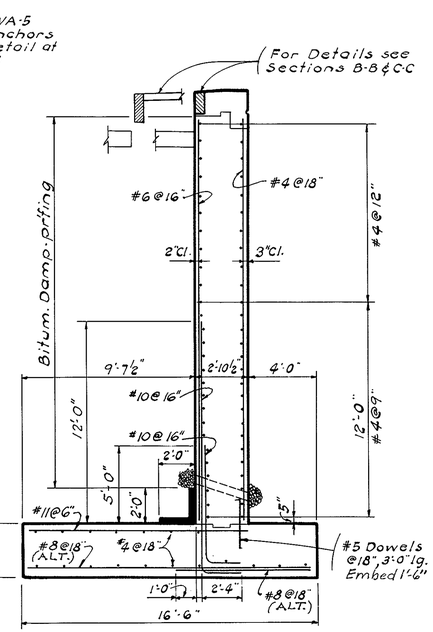
SECTION B-B

Scale : ¼" = 1'-0"



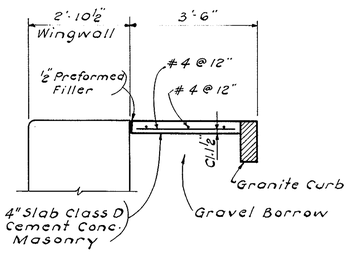
SECTION C-C

Scale : ¼" = 1'-0"



SECTION D-D

Scale : ¼" = 1'-0"

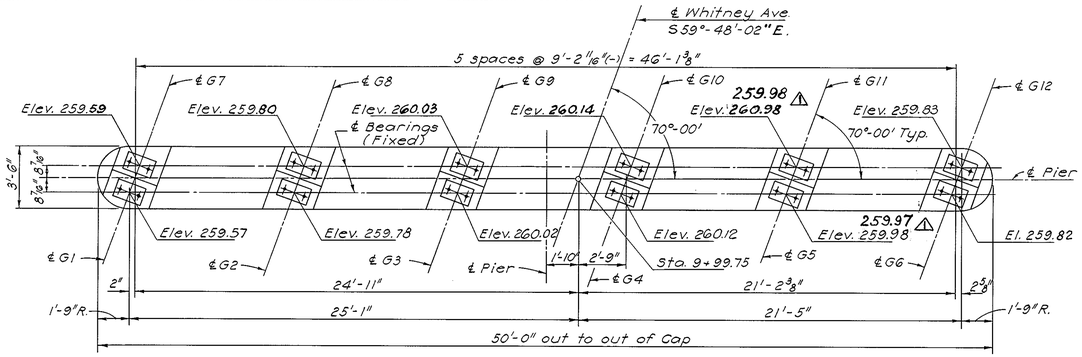


REINFORCING DETAILS SIDEWALK SLAB

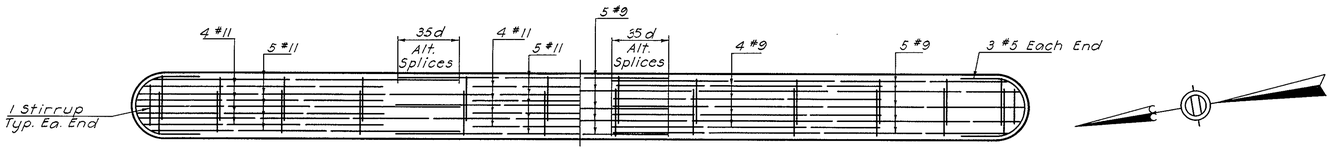
Scale : ½" = 1'-0"

DATE	DESCRIPTION
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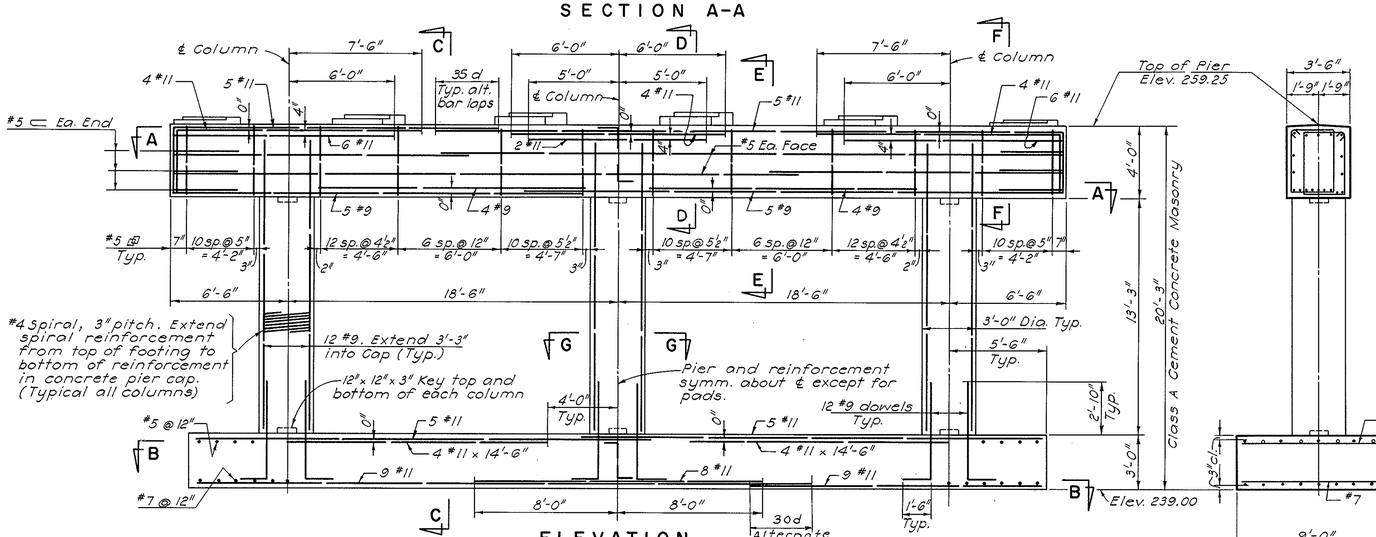
PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS	I-91-1(64)9	1967	133	393



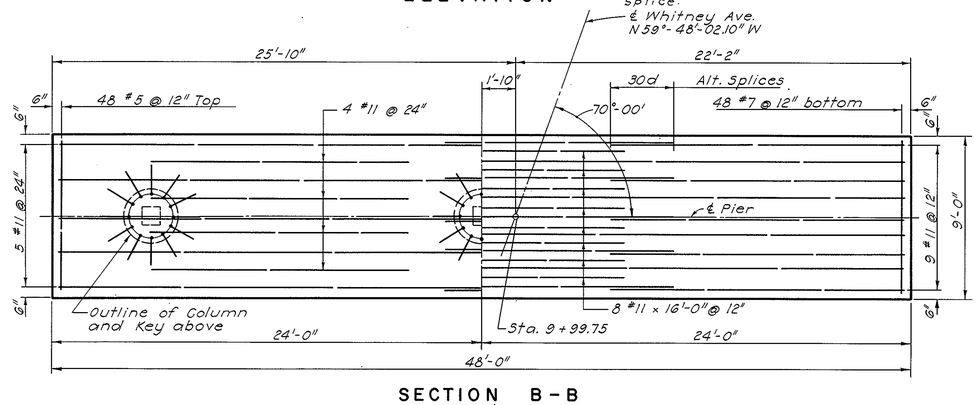
PIER CAP PLAN



SECTION A-A



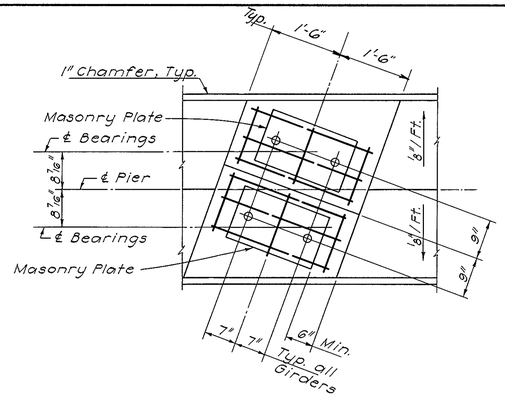
ELEVATION



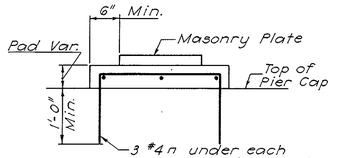
SECTION B-B
Scale: ¼" = 1'-0"



SECTION C-C



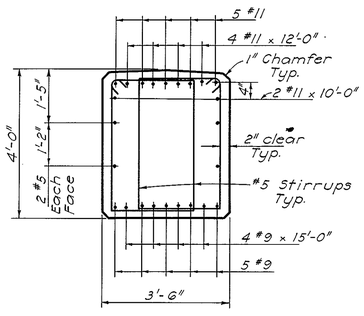
PLAN



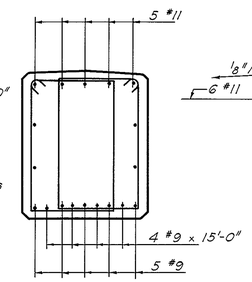
PAD ELEVATION

PAD DETAILS

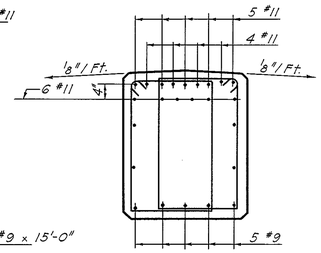
Scale: ¾" = 1'-0"



SECTION D-D
Pads not shown

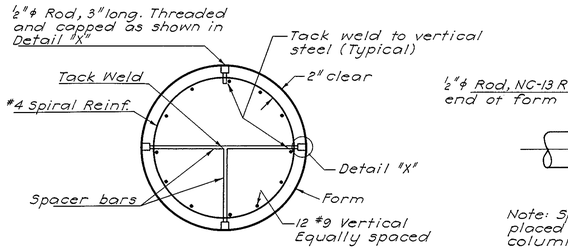


SECTION E-E
Scale: ½" = 1'-0"

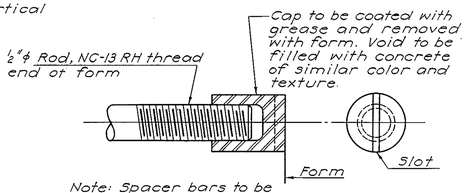


SECTION F-F

Top of Pier Cap to be sloped ⅛"/Ft. from ℄ to face between pads.



SECTION G-G
Scale: ¾" = 1'-0"



END OF CAP

Note: Spacer bars to be placed at ¼ points of column.

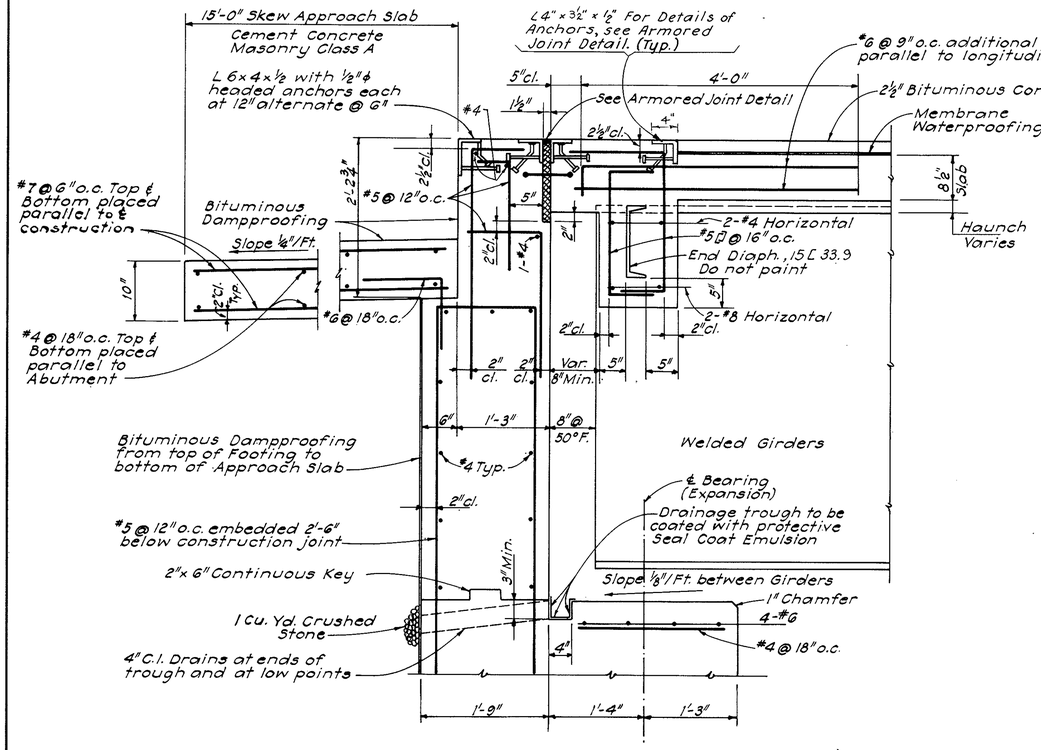
DETAIL X
N.T.S.

Notes:
For bearing and anchor bolt details see Sheet 10
Contractor shall place reinforcement to clear all anchor bolts.
All exposed edges of concrete to have a 1" chamfer unless otherwise shown.
All keys to be slightly tapered.
All forms to be stripped as prescribed in the Specifications.
Maximum Design Bearing Pressure = 4.95 Kips/Sq. Ft.
TIE SOME OF THE TOP BARS IN THE PIER CAP LOOSELY TO PERMIT INSERTION OF VIBRATOR. FASTEN SECURELY AFTER VIBRATING AND BEFORE CONCRETE IS LEVEL WITH THE REINFORCEMENT.

DATE	DESCRIPTION
JULY 13, 1967	⚠ Pier Cap Elevations Revised
MARCH 25, 1967	ISSUED FOR CONSTRUCTION
USE ONLY PRINTS OF LATEST DATE	

⚠ ⚠

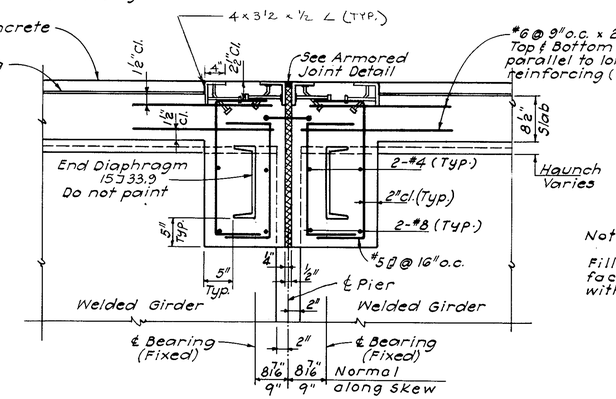
PUB. RD DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS	I-91-1(64)9	1967	134	393



DETAIL AT ABUTMENTS

Scale: 1"=1'-0"

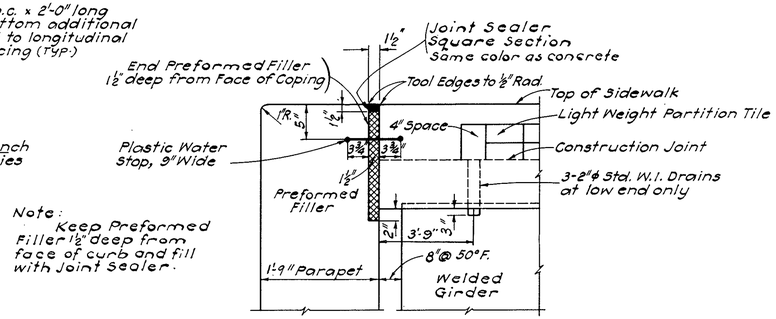
Note: All dimensions shown are square distances except as noted.
For Abutment Details see Sheets 5 and 6.



DETAIL AT PIER

Scale: 1"=1'-0"

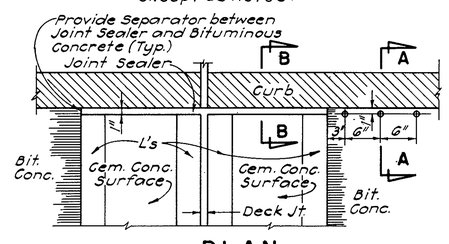
All dimensions shown are square distances except as noted.



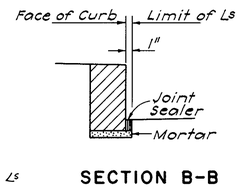
Note: Keep Preformed Filler 1½" deep from face of curb and fill with Joint Sealer.

SIDEWALK SECTION AT ABUTMENT

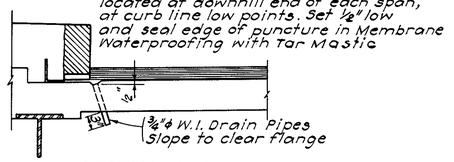
Scale: 1"=1'-0"



PLAN

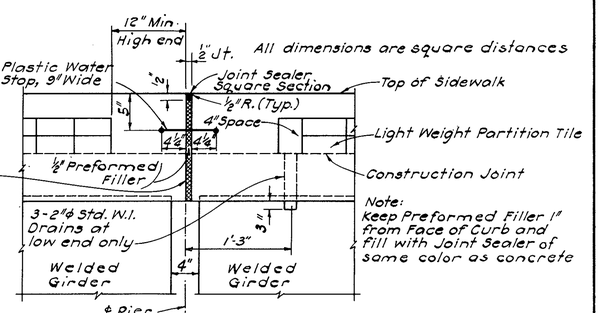


SECTION B-B



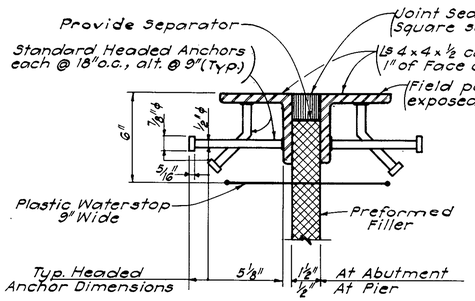
SECTION A-A

DETAILS OF JOINT AT FACE OF CURB



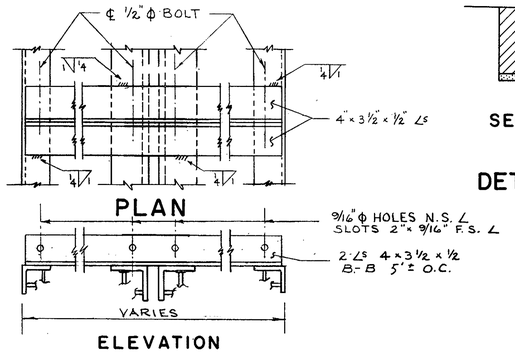
SIDEWALK SECTION OVER PIER

Scale: 1"=1'-0"



ARMORED JOINT DETAIL

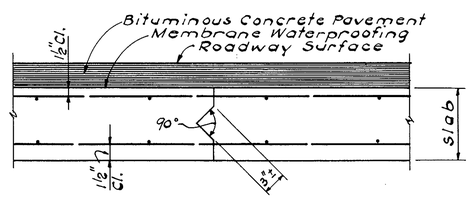
Scale: 3"=1'-0"



SHIPPING DEVICE FOR ARMORED JOINT ASSEMBLY

N.T.S.

Notes:
(A) All Armored Joint Assemblies must be properly fitted in shop and shipped with device for maintaining proper spacing and fit.
(B) Bolts on shipping device must be loosened within one hour after concrete is placed so that movement may take place. Device shall be removed after concrete has set on both sides of assembly.
(C) GRIND ARMORED JOINT SURFACE TO A SMOOTH FINISH AFTER REMOVAL OF SHIPPING DEVICE.
(D) ALL EXPOSED SURFACES OF JOINT SHALL BE FIELD PAINTED AFTER GRINDING.



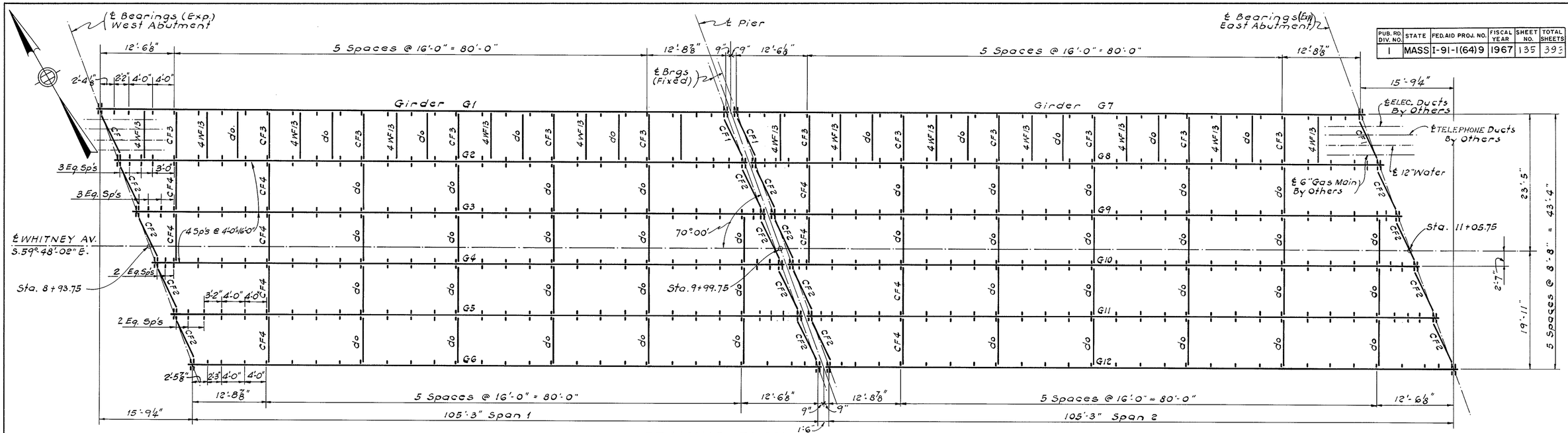
LONGITUDINAL CONSTRUCTION JOINT DETAILS IN SLAB

Scale: 1½"=1'-0"

Note: Longitudinal Construction Joints in Bridge Deck slabs may be omitted when the Contractor's proposed method of construction is approved by the Engineer in writing.

MARCH 25, 1967	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS	I-91-1(64)9	1967	135	395

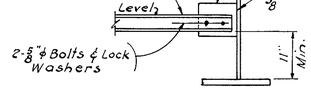


FRAMING PLAN

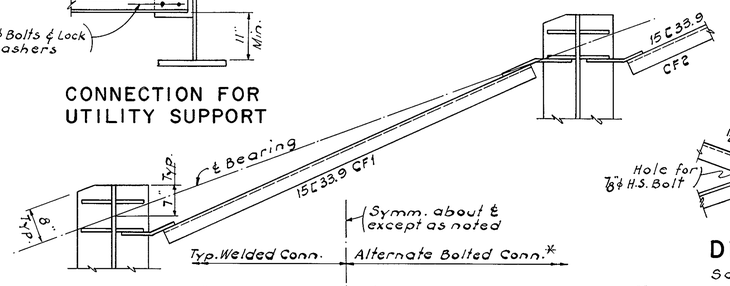
Scale: ⅛"=1'-0"

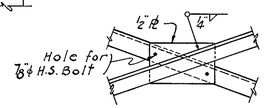
TOP OF FORM ELEVATIONS FOR DECK SLAB PRIOR TO PLACEMENT OF CONCRETE																	
SPAN 1										SPAN 2									
GDR.	℄ BRG.	⅛ PT.	¼ PT	⅜ PT	½ PT.	⅝ PT.	¾ PT.	⅞ PT.	℄ BRG.	GDR.	℄ BRG.	⅛ PT	¼ PT	⅜ PT	½ PT	⅝ PT	¾ PT	⅞ PT	℄ BRG.
G1	263.16	263.62	264.04	264.40	264.70	264.94	265.13	265.26	265.34	G7	265.36	265.56	265.72	265.83	265.88	265.87	265.80	265.68	265.51
G2	263.44	263.90	264.31	264.67	264.96	265.19	265.37	265.49	265.55	G8	265.57	265.78	265.94	266.04	266.08	266.06	265.98	265.85	265.66
G3	263.71	264.16	264.57	264.92	265.20	265.43	265.60	265.71	265.76	G9	265.78	265.98	266.13	266.23	266.27	266.24	266.15	266.01	265.82
G4	263.87	264.32	264.72	265.06	265.34	265.56	265.72	265.82	265.87	G10	265.88	266.08	266.22	266.31	266.34	266.30	266.21	266.06	265.86
G5	263.78	264.22	264.61	264.94	265.22	265.43	265.58	265.67	265.72	G11	265.73	265.92	266.06	266.14	266.16	266.11	266.01	265.85	265.66
G6	263.69	264.12	264.50	264.83	265.13	265.30	265.44	265.53	265.56	G12	265.58	265.76	265.89	265.96	265.97	265.92	265.81	265.65	265.43

NOTE: After the Structural Steel is erected, but before the forms are built, elevations on the top of the flange of the beams are to be obtained at the points indicated in the table above. The difference between the elevation obtained and corresponding elevation shown in the table gives the actual Blocking Distance from the top of the beam to the bottom of the slab at Centerline of Beam. See Haunch detail.



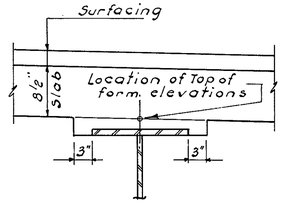
CONNECTION FOR UTILITY SUPPORT





DETAIL A

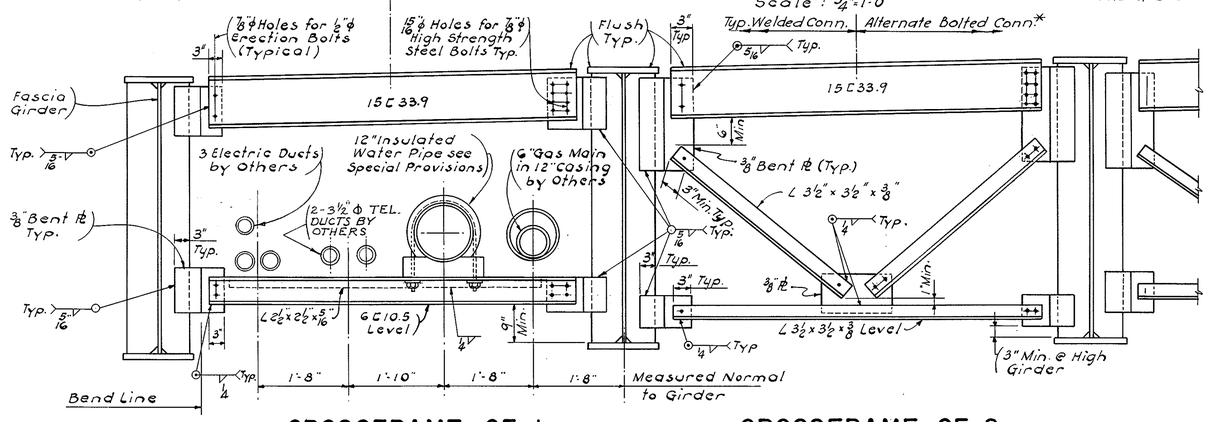
Scale: ¾"=1'-0"



HAUNCH DETAIL

Scale: 1"=1'-0"

*End of C to be plumb

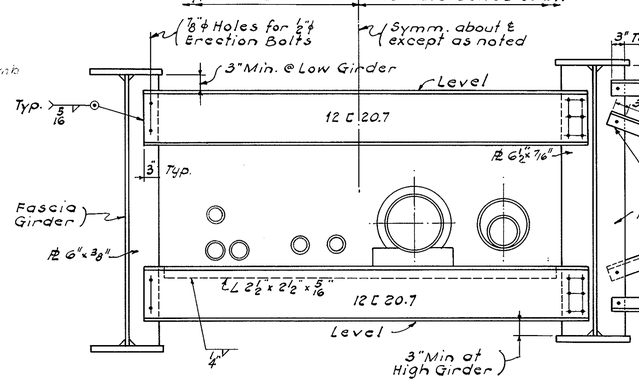


CROSSFRAME CF-1

Scale: ¾"=1'-0"

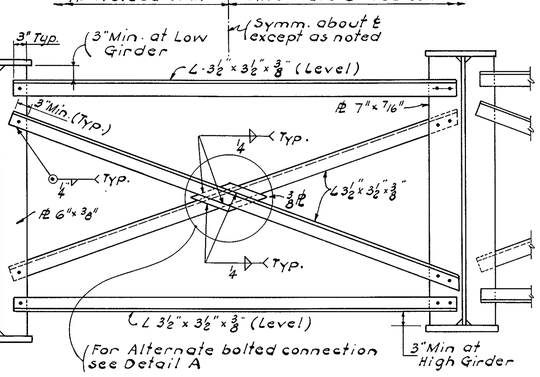
CROSSFRAME CF-2

Scale: ¾"=1'-0"



CROSSFRAME CF-3

Scale: ¾"=1'-0"

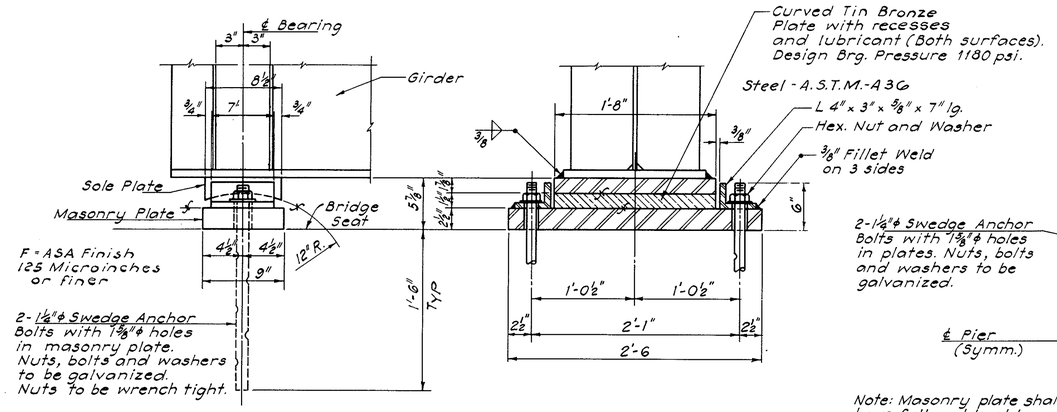


CROSSFRAME CF-4

Scale: ¾"=1'-0"

MARCH 23, 1967	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

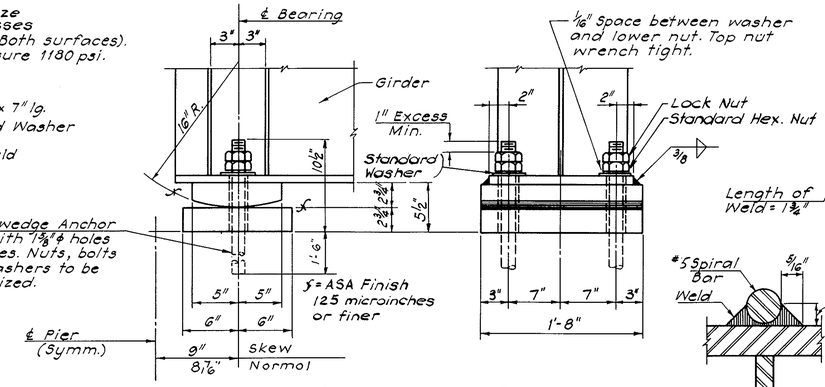
PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS	I-91-1(64)9	1967	136	393



EXPANSION BEARING AT ABUTMENT

Scale: 1½" = 1'-0"

NOTES: 1) f = A.S.A. 125 micro-inches or finer
2) CURVED TIN BRONZE PLATE SHALL CONFORM TO THE REQUIREMENTS OF A.S.T.M. DESIGNATION B22 ALLOY B

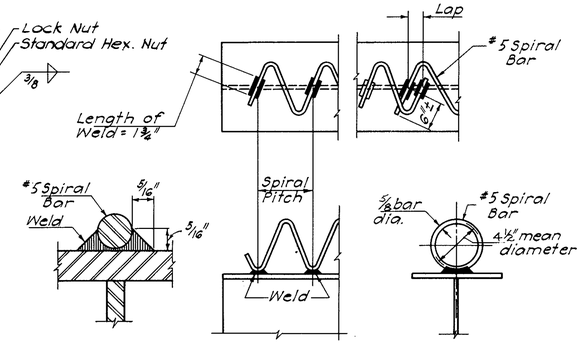


Note: Masonry plate shall have full and level bearing before placing the stringers on the Bearing Assembly.

FIXED BEARING AT PIER

Scale: 1½" = 1'-0"

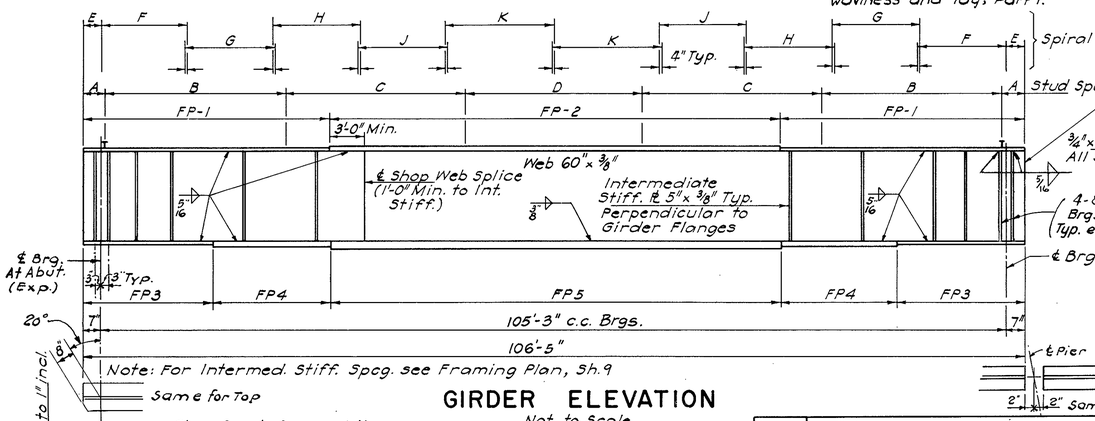
Note: Bevel Washer and Sole Plate as required by profile.



DETAILS OF SPIRAL SHEAR CONNECTORS

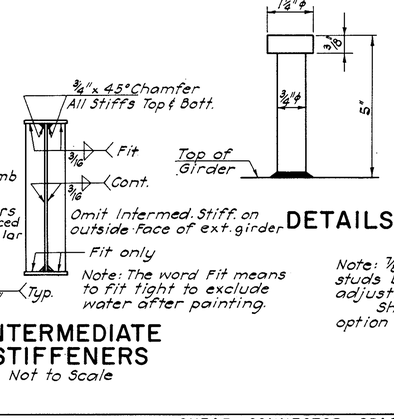
Not to Scale

NOTE: The finished Surfaces shall meet the American Standards Association surface roughness requirements as defined in ASA B46-1, surface roughness, waviness and lay, Part I.



GIRDER ELEVATION

Not to Scale



END BEARING STIFFENERS

Not to Scale

INTERMEDIATE STIFFENERS

Not to Scale

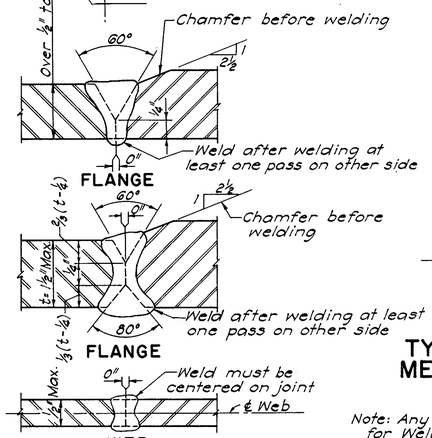
DETAILS OF STUD SHEAR CONNECTORS

Not to Scale

Note: ⅞" diameter studs may be substituted for ¾" diameter studs by providing an equivalent cross-sectional area and adjusting the pitch accordingly with a max. pitch of 24".
Shear connectors shall be either spirals or studs at the option of the Contractor.

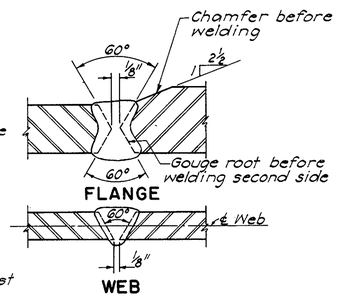
GIRDER NO.	FLANGE PLATE (F.P.) 1	2	3	4	5	SHEAR CONNECTOR SPACING STUDS A	B	C	D	SPIRALS E	F	G	H	J	K	CAMBER
G1 & G7	18"x1"x28'-2½"	18"x1⅛"x50'-0"	18"x1"x17'-2½"	18"x1½"x10'-0"	18"x2⅜"x52'-0"	5	25 5ps@10"=20'-10"	12 5ps@16"=16'-0"	16 5ps@24"=32'-0"	9"	24 5ps@6"=12'-0"	15 5ps@8"=10'-0"	12 5ps@10"=10'-0"	10 5ps@12"=10'-0"	9 9ps@16"=12'-0"	5¾"
G2 & G8	18"x⅞"x28'-2½"	18"x1⅛"x50'x0"	18"x1"x17'-2½"	18"x1½"x10'-0"	18"x2'-3⅛"x52'-0"	"	"	"	"	"	"	"	"	"	"	6"
G3,4,5,6 G9,10,11	18"x⅞"x28'-8½"	18"x1"x49'-0"	18"x1"x17'-8½"	18"x1⅜"x10'-0"	18"x1⅞"x51'-0"	5	"	"	"	"	"	"	"	"	"	6"
G6 & G12	18"x⅞"x30'-8½"	18"x1"x45'-0"	18"x1"x19'-8½"	18"x1⅜"x10'-0"	18"x1⅞"x47'-0"	"	"	"	"	"	"	"	"	"	"	6"

For Girder Location see Framing Plan, Sh. 9



TYPICAL SUBMERGED ARC WELDED JOINTS

Not to Scale



TYPICAL MANUAL SHIELDED METAL ARC WELDED JOINTS

Not to Scale

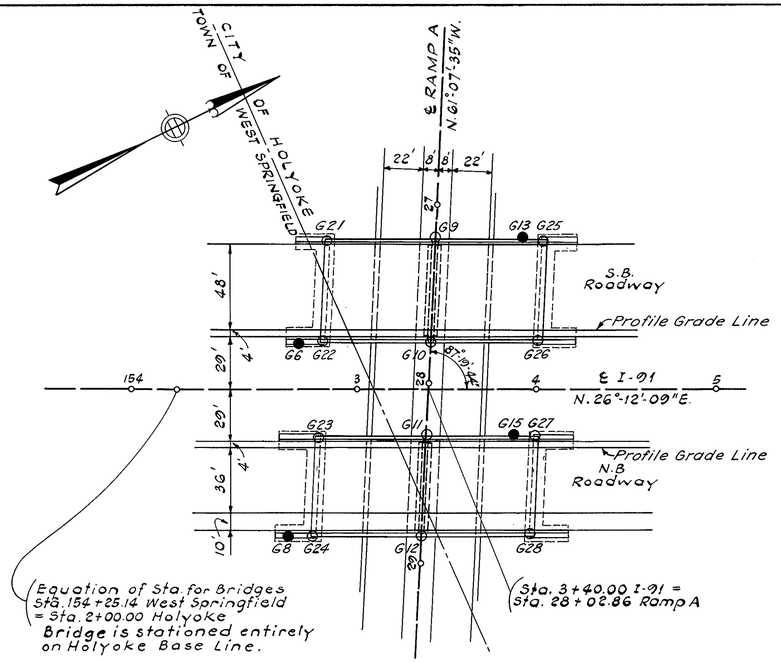
Note: Any welded joint prequalified by A.W.S. Specs. for Welded Highway and Railway Bridges (1966 Edition) will be acceptable in the fabrication of the Structural Steel.
All butt welds on the exterior face of the exterior girders shall be ground smooth and flush.

Preparation of Material for Welding shall conform to Art. 402 A.W.S. D2.0-66.
Assembly of Material for Welding shall conform to Art. 403 A.W.S. D2.0-66.

DATE	DESCRIPTION
MARCH 25, 1967	ISSUED FOR CONSTRUCTION
USE ONLY PRINTS OF LATEST DATE	

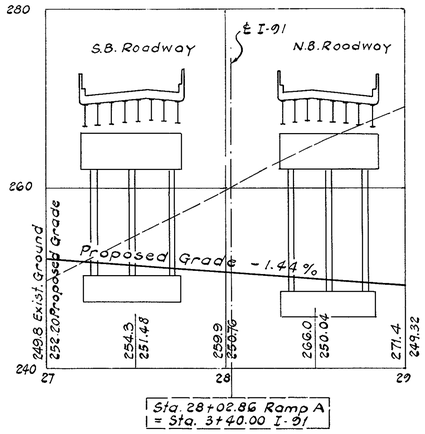
SHEET 10 OF 10 SHEETS BRIDGE NO. H-21-57

PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS	I-91-1(64)9	1967	114	303



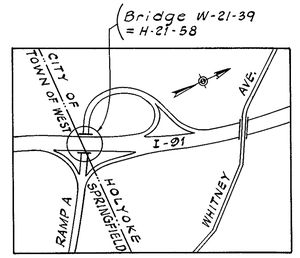
KEY PLAN

Scale : 1" = 40'



PROFILE OF RAMP A

Scales : 1" = 8' Vert.; 1" = 40' Horiz.



LOCUS

Scale : 1" = 800'

GENERAL NOTES

DESIGN
In accordance with the current specifications of the American Association of State Highway Officials (1961 Edition) for HS20-44 Loading and Modified for Military Requirements.

DATE AND SEAL
To be placed on the inside faces of the Northwest End Post of the Southbound Bridge and Southeast End Post of the Northbound Bridge. A sheet showing the size and character of the numerals will be furnished. The Seal will be furnished by the State and shall be set by the Contractor.

FOUNDATIONS
May be altered, if necessary, to suit conditions encountered during construction.

UNSUITABLE MATERIAL
Shall be removed within the limits of the foundations of the structure.

BRIDGE RAILINGS
See Department Standard Metal Railing Plans, dated Oct. 1966 for Details of Bridge Railings.

REINFORCEMENT
All bars shall have deformations conforming to A.S.T.M. Designation A-305. Unless otherwise noted on the Plans, Reinforcing Bars shall be lapped 20 diameters to make a splice, except that Main Reinforcing Bars near the top of the slabs and beams having more than 12 inches of concrete under the bars shall be lapped 35 diameters to make a splice.

ANCHOR BOLTS
Shall be set by template and placed before concrete is poured, except at the Abutments where drilling and grouting may be used at the Contractor's option.

SCALE
Scales noted on Plans are not applicable to reduced size prints. Divide scales by 2 for 1/4 size prints.

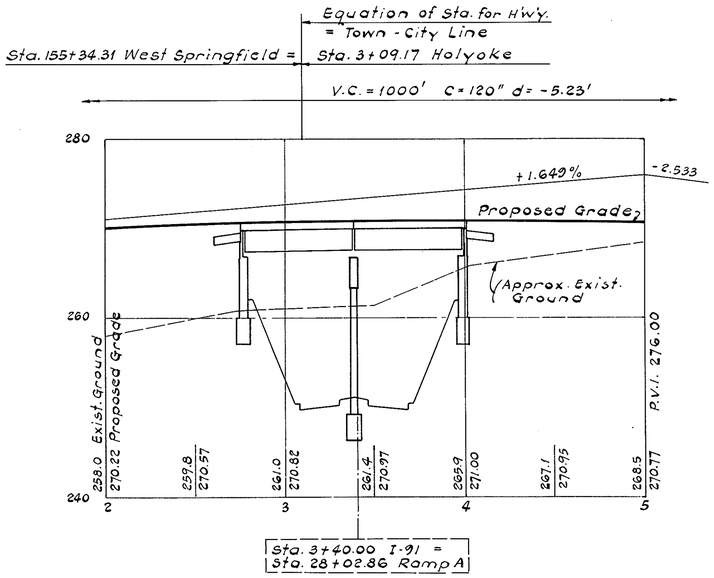
FIELD BOOK:

BENCH MARK BM #14 - R.R. Spike in 30" Oak, 195'± East of I-91. Sta. 5+30 El. 269.66, Mean Sea Level Datum of 1929 (U.S.C. & G.S.)

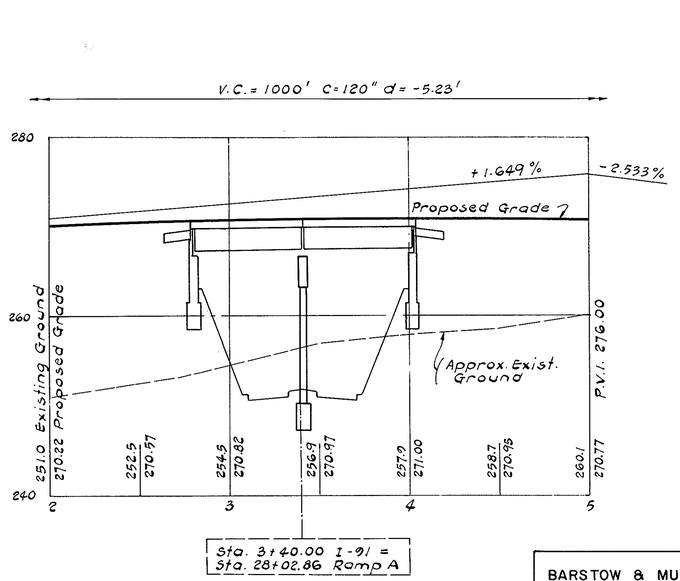
ESTIMATED QUANTITIES
(Not Guaranteed)

Class B Rock Excavation	10 C.Y.
Bridge Excavation	1,210 C.Y.
Gravel Borrow	620 C.Y.
Gravel Borrow for Bridge Foundation	550 C.Y.
Class I Bituminous Concrete Pavement Type I-1.	107 Tons
Class I Dense Protective Bottom Course for Bridges	107 Tons
Metal Bridge Railing (1-Rail) Option	624 L.F.
Bridge Structure (No. H-21-58 = W-21-39)	1 L.S.
Estimated Weight of Reinforcing Steel	181,800 Lbs.
Estimated Weight of Structural Steel, (A.S.T.M. A36)	354,000 Lbs.

These Quantities are part of Lump Sum Item 995.04 Bridge Structure (Bridge No. H-21-58 = W-21-39) and are not guaranteed.



NORTHBOUND ROADWAY



SOUTHBOUND ROADWAY

PROFILE OF I-91

Scales : 1" = 8' Vert.; 1" = 40' Horiz.

BARSTOW & MULLIGAN
CONSULTING ENGINEERS
566 ATLANTIC AVE.
BOSTON, MASS.

DESIGNED BY	MARCH 25, 1967 ISSUED FOR CONSTRUCTION
DRAWN BY	THE COMMONWEALTH OF MASSACHUSETTS
CHECKED BY	PROPOSED BRIDGE
APPROVED FOR	**W. SPRINGFIELD-HOLYOKE**
DESIGN	**INTERSTATE ROUTE 91 OVER RAMP A**
SPECS.	SCALES AS NOTED
	OFFICE OF DEPARTMENT OF PUBLIC WORKS 100 NASHUA ST. BOSTON, MASS.
	MARCH 1967
	BRIDGE ENGINEER — CHIEF ENGINEER

SHEET 1 OF 13 SHEETS BRIDGE NO. H-21-58 = W-21-39

PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	I-91-1(64)9	1967	113	393

G6 STA. 2+92 OFFSET 26'LT.

SO. ABUT. S.B. BOTT. FTG. EL. 258.5

255.2	RED-BROWN FINE TO MEDIUM SAND, LITTLE FINE GRAVEL, LITTLE SILT	5
250.2 W 249.2	RED FINE TO COARSE SAND, LITTLE FINE TO COARSE GRAVEL, TRACE SILT	66
241.2	BOULDERS RED SILTY FINE TO MEDIUM SAND, TRACE FINE GRAVEL	12
244.2	RED FINE SAND, SOME FINE TO MEDIUM GRAVEL, ROCK FRAGMENTS	142
240.2	RED FINE TO COARSE SAND & FINE TO MEDIUM GRAVEL, TRACE SILT, BOULDERS	152
238.0		

G8 STA. 2+87 OFFSET 82'RT.

SO. ABUT. N.B. BOTT. FTG. EL. 257.0

268.5	RED-BROWN FINE TO COARSE SAND, LITTLE SILT, LITTLE FINE GRAVEL	4
262.5 W 260.5	RED COARSE TO FINE SAND, SOME FINE TO MEDIUM GRAVEL, BOULDERS, LITTLE SILT	24
254.5	RED BROWN FINE TO COARSE SAND, LITTLE SILT & FINE GRAVEL	86
251.5	RED MEDIUM COARSE SAND, LITTLE SILT, TRACE FINE TO MEDIUM GRAVEL, BOULDERS	143
237.0		176

G9 STA. 3+44 OFFSET 84'LT.

PIER S.B. BOTT. FTG EL. 247.5

251.0	LIGHT BROWN FINE SAND, SOME SILT	2
248.5 W 248.0	RED BROWN FINE TO COARSE SAND,	9 23
	SOME FINE TO MEDIUM GRAVEL, TRACE SILT	21
240.0	RED-BROWN FINE TO COARSE SAND, GRAVEL, SILT, TILL	89 122
237.0		

G10 STA. 3+41 OFFSET 26'LT.

PIER S.B. BOTT. FTG. EL. 247.5

257.3	BROWN LOAM, SAND, TOP SOIL	3 5
254.3	RED BROWN FINE TO COARSE SAND & GRAVEL, TRACE SILT	42 45
249.3 W 248.3	RED BROWN FINE TO COARSE SAND, LITTLE SILT, TRACE FINE TO MEDIUM GRAVEL	23 29
244.3	RED BROWN FINE TO COARSE SAND & FINE TO COARSE GRAVEL, LITTLE SILT, TILL	101 142
242.3		

G11 STA. 3+39 OFFSET 26'RT.

PIER N.B. BOTT. FTG. EL. 246.0

262.8	SANDY TOP SOIL TO FINE SAND, TRACE SILT	1 7
260.8	RED BROWN FINE TO COARSE SAND AND GRAVEL	28 89
256.8	RED BROWN FINE TO COARSE SAND, LITTLE SILT & FINE TO COARSE GRAVEL	28 42
W 254.3		
247.8	SHALE FRAGMENTS NOTED	169

G12 STA. 3+36 OFFSET 82'RT.

PIER N.B. BOTT. FTG. EL. 246.0

270.6	BROWN FINE TO MEDIUM SAND, TOP SOIL	6 7
267.6	RED BROWN FINE TO COARSE SAND & GRAVEL, TRACE SILT	31 33
263.6	RED BROWN FINE TO COARSE SAND & FINE TO MEDIUM GRAVEL, LITTLE SILT	31 49
259.6 W 258.6	RED BROWN FINE TO COARSE SAND, SOME SILT, TRACE FINE TO COARSE	41 52
255.6	GRAVEL CEMENTED	123

BORING NO. G4 STATION OFFSET

224.7 — W WATER LEVEL — DESCRIPTION — BLOWS PER FT. — CORE — 208.6

UP= UNDISTURBED PISTON

LEGEND

G13 STA. 3+93 OFFSET 84'LT.

NO. ABUT. S.B. BOTT. FTG. EL. 258.5

252.1	RED BROWN FINE TO MEDIUM SAND, LITTLE SILT, TRACE FINE GRAVEL	5
W 248.1 248.1	RED SILTY FINE SAND, TRACE FINE GRAVEL	4
245.1	RED FINE TO COARSE SAND, LITTLE FINE TO MEDIUM GRAVEL, SOME SILT, BOULDERS	178
237.1		138

G15 STA. 3+88 OFFSET 26'RT.

N.ABUT.N.B. BOTT. FTG. EL. 257.0

264.8	BROWN FINE TO MEDIUM SAND, TRACE SILT & FINE GRAVEL	6
260.8 W 259.8	RED BROWN FINE TO MEDIUM SAND, LITTLE FINE GRAVEL, TRACE SILT, COBBLES	22
251.8	RED FINE TO MEDIUM SAND, SOME SILT, TRACE FINE TO MEDIUM GRAVEL, BOULDERS	126
239.8	RED FINE TO MEDIUM SAND, LITTLE FINE TO MEDIUM GRAVEL, BOULDERS	136
236.8		

G21 STA. 2+84 OFFSET 84'LT.

SO. ABUT. S.B. BOTT. FTG. EL. 258.5

250.2	LT. BROWN FINE SAND, SOME SILT, SHALE FRAGMENTS	3 8
248.2 W 246.2	RED BROWN FINE TO COARSE SAND, SOME FINE TO COARSE GRAVEL, LITTLE SILT	21 28
240.2	RED BROWN FINE TO COARSE SAND & FINE GRAVEL, LITTLE SILT CEMENTED	65 140
235.7	REFUSAL 14.5' 131 BLOWS - NO PEN.	181

G22 STA. 2+81 OFFSET 26'LT.

SO. ABUT. S.B BOTT. FTG EL. 258.5

254.3	BROWN FINE SAND, TOPSOIL	6
252.3	RED BROWN FINE TO COARSE SAND & GRAVEL, TRACE SILT	8 24 31
W 248.3		
244.8	RED BROWN FINE TO COARSE SAND & GRAVEL, LITTLE SILT	94 136
239.8		139

G23 STA. 2+78 OFFSET 26'RT.

SO. ABUT. N.B. BOTT. FTG. EL. 257.0

259.5	BROWN FINE TO COARSE SAND, TOP SOIL	3 4
257.5	BROWN FINE TO COARSE SAND, TRACE FINE GRAVEL, TRACE SILT	25 27
250.5 W 249.5	RED-BROWN FINE TO COARSE SAND, & GRAVEL, TRACE SILT	89 121
244.5		163

G24 STA. 2+76 OFFSET 82'RT

267.7	BROWN TOP SOIL	2 5
265.7	RED-BROWN FINE TO COARSE SAND, TRACE FINE GRAVEL, TRACE SILT	11 42
258.7 W 255.7	RED-BROWN FINE TO COARSE SAND, TRACE FINE GRAVEL, LITTLE SILT	96 149
252.7		131

SO ABUT. N.B. BOTT. FTG. EL. 257.0

G25 STA. 4+04 OFFSET 84'LT.

N. ABUT. S.B. BOTT. FTG. EL. 258.5

252.2	BROWN TOP SOIL	3
250.2		3 7
W 248.2	BROWN FINE TO COARSE SAND & GRAVEL, TRACE SILT	15 21
242.7	RED-BROWN FINE TO COARSE SAND & GRAVEL, SOME SILT, TILL	67 133
237.2		131

G26 STA. 4+01 OFFSET 26'LT.

N. ABUT. S.B. BOTT. FTG. EL. 258.5

258.7	BROWN SANDY TOP SOIL	2
256.2	BROWN FINE TO COARSE SAND, SOME FINE TO MEDIUM GRAVEL, TRACE SILT	3 31 42
252.7	RED-BROWN FINE TO COARSE SAND, LITTLE FINE GRAVEL, TRACE SILT	142 119
W 248.7		
243.7		135

G27 STA. 3+99 OFFSET 26'RT.

N. ABUT. N.B. BOTT. FTG. EL. 257.0

265.5	RED-BROWN SANDY TOP SOIL	3 4
263.5	BROWN FINE TO COARSE SAND & GRAVEL, LITTLE SILT	29 42
255.5 W 254.5	RED-BROWN FINE TO COARSE SAND & GRAVEL, TRACE SILT	76 121
250.5		140

G28 STA. 3+96 OFFSET 82'RT.

N. ABUT. NB BOTT. FTG. EL. 257.0

270.4	RED BROWN SANDY TOP SOIL	3 3
268.4	BROWN FINE TO COARSE SAND & GRAVEL, TRACE SILT	31 34
258.9 W 258.4	RED-BROWN FINE TO COARSE SAND & FINE TO MEDIUM GRAVEL, LITTLE SILT, TILL	139 172
255.4		

BORING DATA

Scale: 1" = 8'

BORING NOTES

LOCATION OF BORINGS SHOWN ON BORING LOCATION PLAN THUS: ● G8 - CONTROL BORINGS
○ G9 - DESIGN BORINGS

BORINGS TAKEN FOR PURPOSE OF DESIGN AND SHOW CONDITIONS AT BORING POINTS ONLY AND DO NOT NECESSARILY SHOW NATURE OF MATERIALS TO BE ENCOUNTERED DURING CONSTRUCTION.

FIGURES IN RIGHT HAND COLUMN INDICATE BLOWS PER FOOT ON 1-3/8 INCH I.D. SAMPLER PRODUCED BY 30 INCH FALL OF 140 POUND HAMMER.

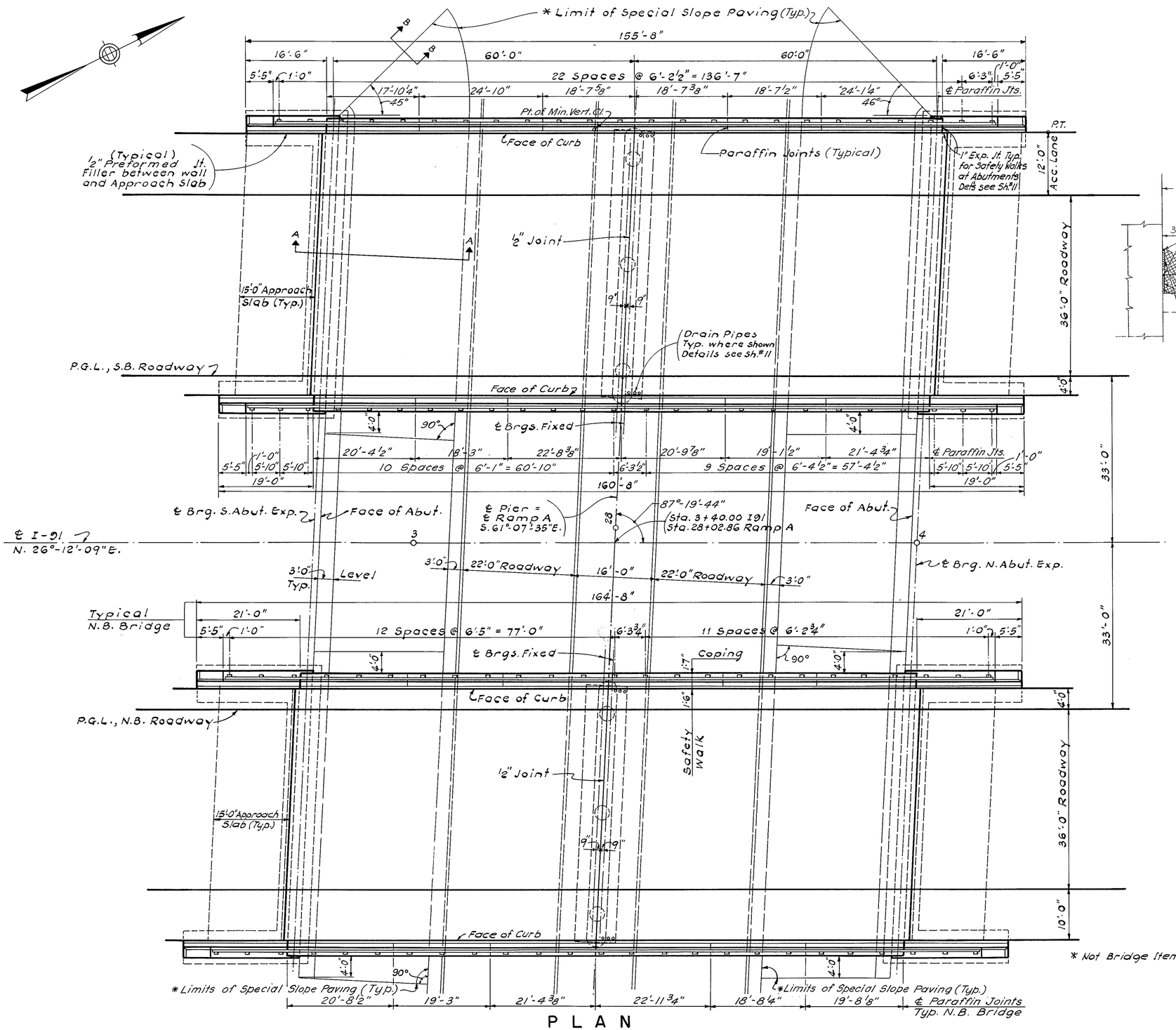
WATER LEVELS SHOWN ON THE BORING LOGS WERE OBSERVED AT THE TIME OF TAKING BORINGS AND DO NOT NECESSARILY SHOW THE TRUE GROUND WATER LEVEL.

BORING SAMPLES MAY BE SEEN AT THE RESEARCH AND MATERIALS DIVISION, 99 WORCESTER STREET, WELLESLEY HILLS (INTERSECTION OF ROUTES 9 AND 128).

ALL BORINGS WERE MADE BY AMERICAN DRILLING & BORING CO., INC. 54 WATER STREET, EAST PROVIDENCE, R. I. DURING JUNE 1966.

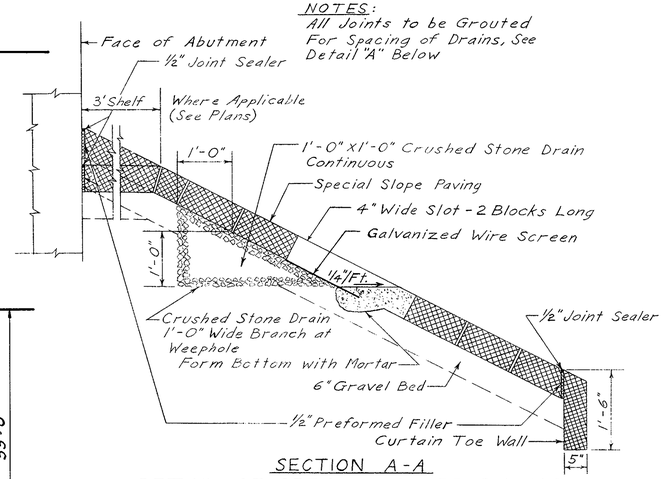
DATE	DESCRIPTION
MARCH 25 1967	ISSUED FOR CONSTRUCTION
USE ONLY PRINTS OF LATEST DATE	

PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS	I-91-1(64)9	1967	116	393

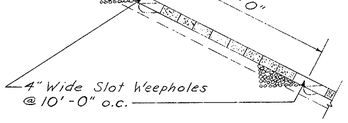


PLAN
Scale: 1"=10'

NOTES:
All Joints to be Grouted
For Spacing of Drains, See Detail "A" Below



SECTION A-A
DETAIL OF SPECIAL SLOPE PAVING
Scale: ¾" = 1'-0"



DETAIL "A"
Scale: ¼" = 1'-0"

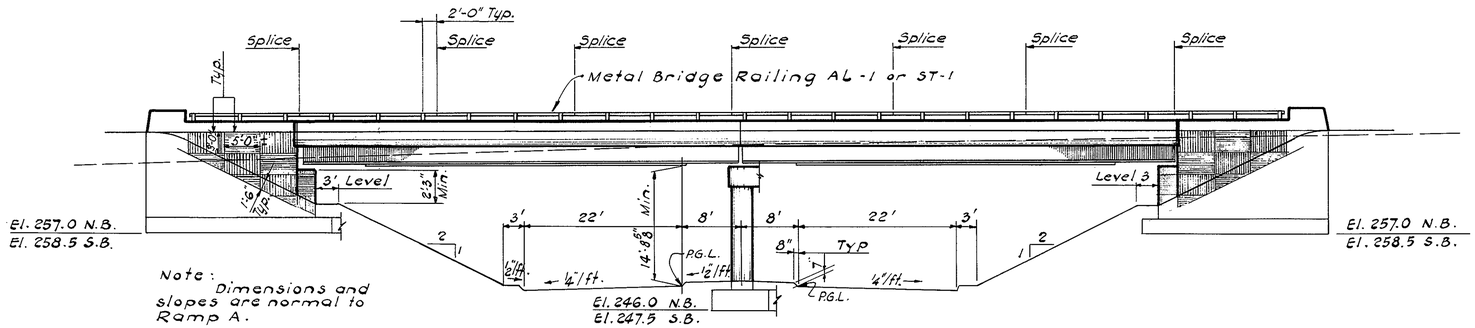


SECTION B-B
Scale: ¼" = 1'-0"

DATE	DESCRIPTION
MARCH 25, 1967	ISSUED FOR CONSTRUCTION
	USE ONLY PRINTS OF LATEST DATE

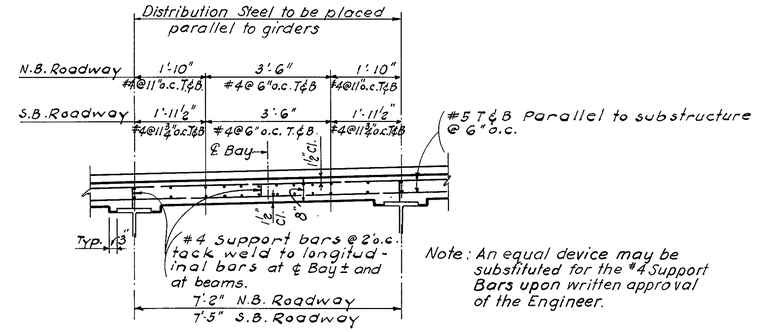
SHEET 3 OF 13 SHEETS BRIDGE NO. W-21-39 H-21-58

PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS	I-91-1(64)9	1967	117	393



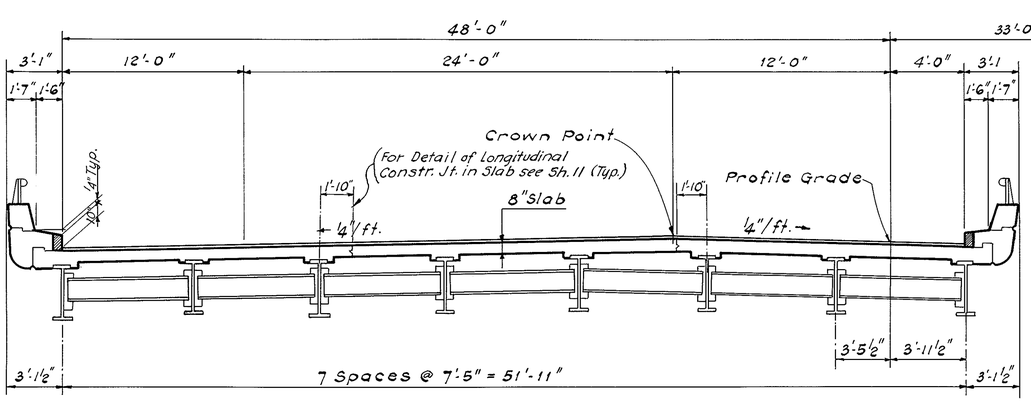
Note: Dimensions and slopes are normal to Ramp A.

ELEVATION
Scale: 1" = 10'

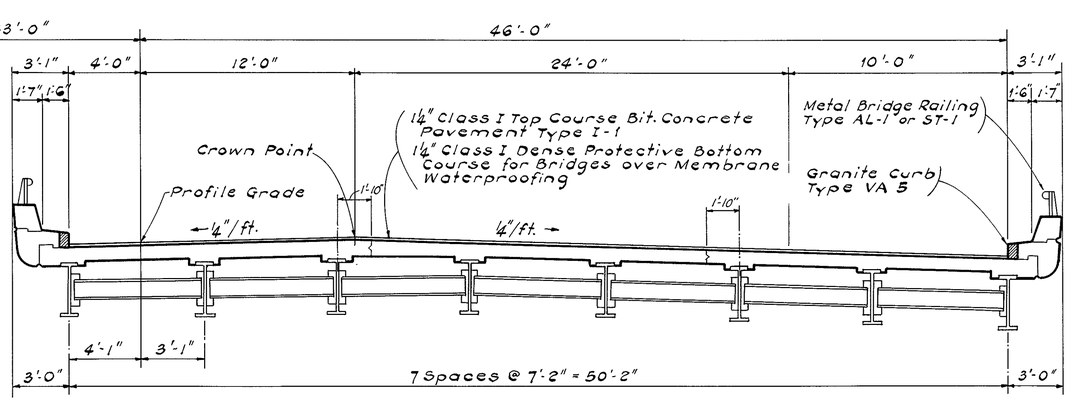


Note: An equal device may be substituted for the #4 Support Bars upon written approval of the Engineer.

TYPICAL SLAB REINFORCEMENT
No Scale



SOUTHBOUND ROADWAY

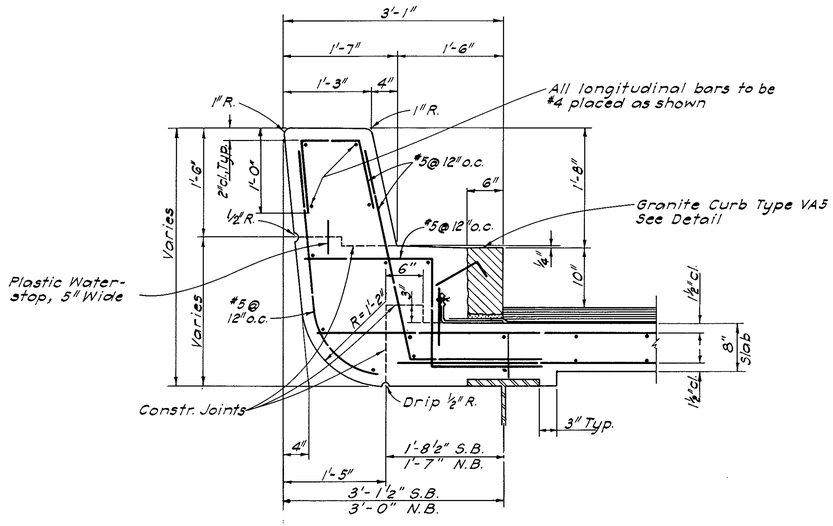


NORTHBOUND ROADWAY

TYPICAL CROSS SECTION
Scale: 1/4" = 1'-0"

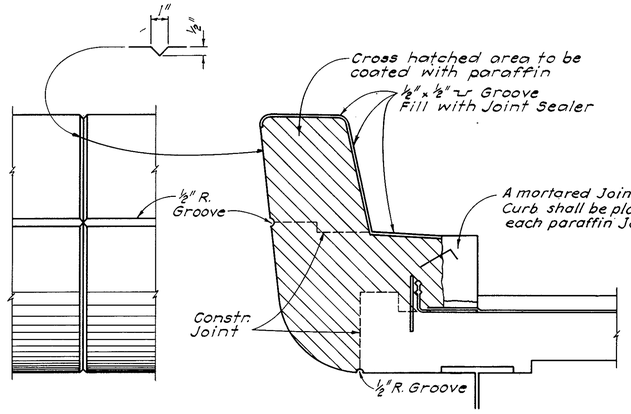
DATE	DESCRIPTION
MARCH 25, 1967	ISSUED FOR CONSTRUCTION
	USE ONLY PRINTS OF LATEST DATE

PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS	I-91-1(64)9	1967	11 8	393



SAFETY CURB DETAIL

Scale: 1" = 1'-0"

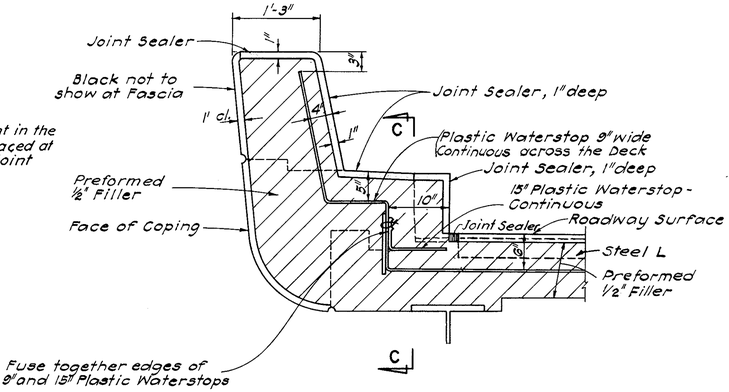


PARAFFIN JOINT THROUGH COPING AND SAFETY WALK

Scale: 1" = 1'-0"

Notes:

1. Safety walk and coping shall be poured in alternate sections and shall have a curing period of not less than 5 days between pours.
2. Joints to be located as shown on sheet 3.
3. End of bars to be 2" clear of joint.
4. Do not carry longitudinal bars in safety walk and coping through the joints.
5. Joint sealer to be same color as concrete.
6. Joint to be square to face of coping.
7. Joint in curb shall be mortared no sooner than 5 days after concrete in safety curb has been poured.

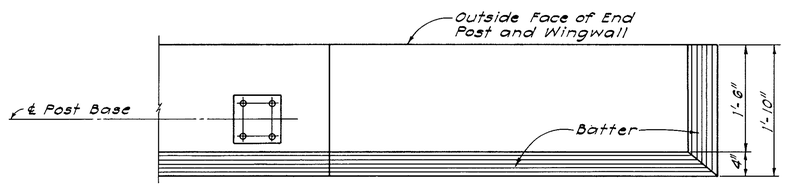


DETAILS OF SAFETY CURB AT DECK JOINTS AT PIER

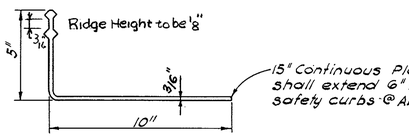
Scale: 1" = 1'-0"

Note:

Joint Sealer to be same color as concrete

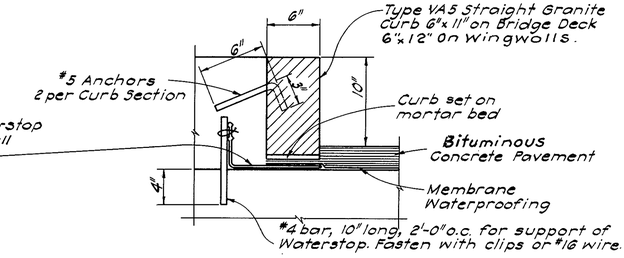


PLAN



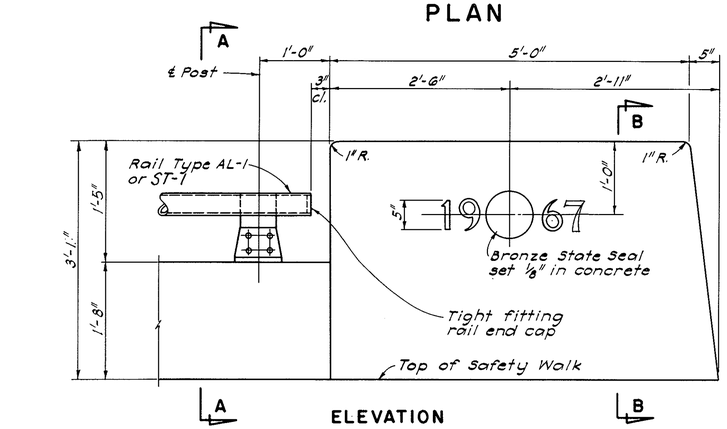
PLASTIC WATER STOP

Scale: 3" = 1'-0"



DETAIL AT CURB

Scale: ½" = 1'-0"

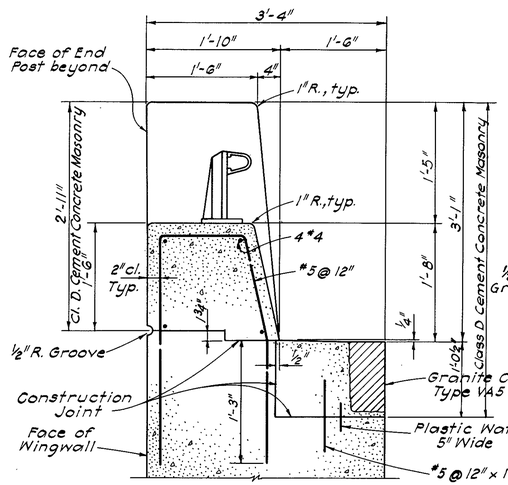


ELEVATION

END POST DETAIL

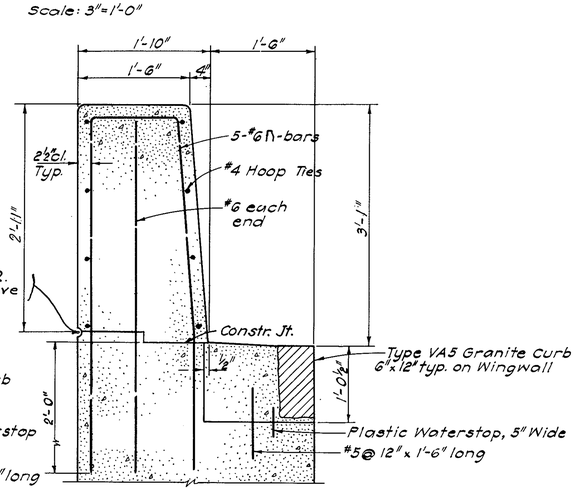
Scale: 1" = 1'-0"

Note: Railing anchor bolts to be set by template and placed before concrete is poured.



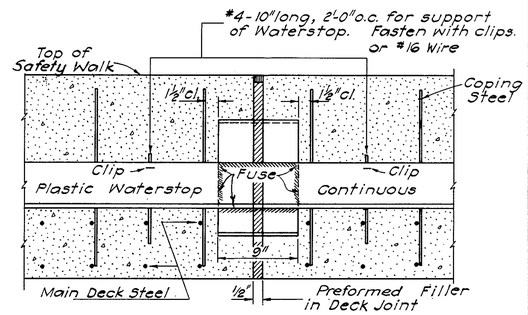
SECTION A-A

Scale: 1" = 1'-0"



SECTION B-B

Scale: 1" = 1'-0"



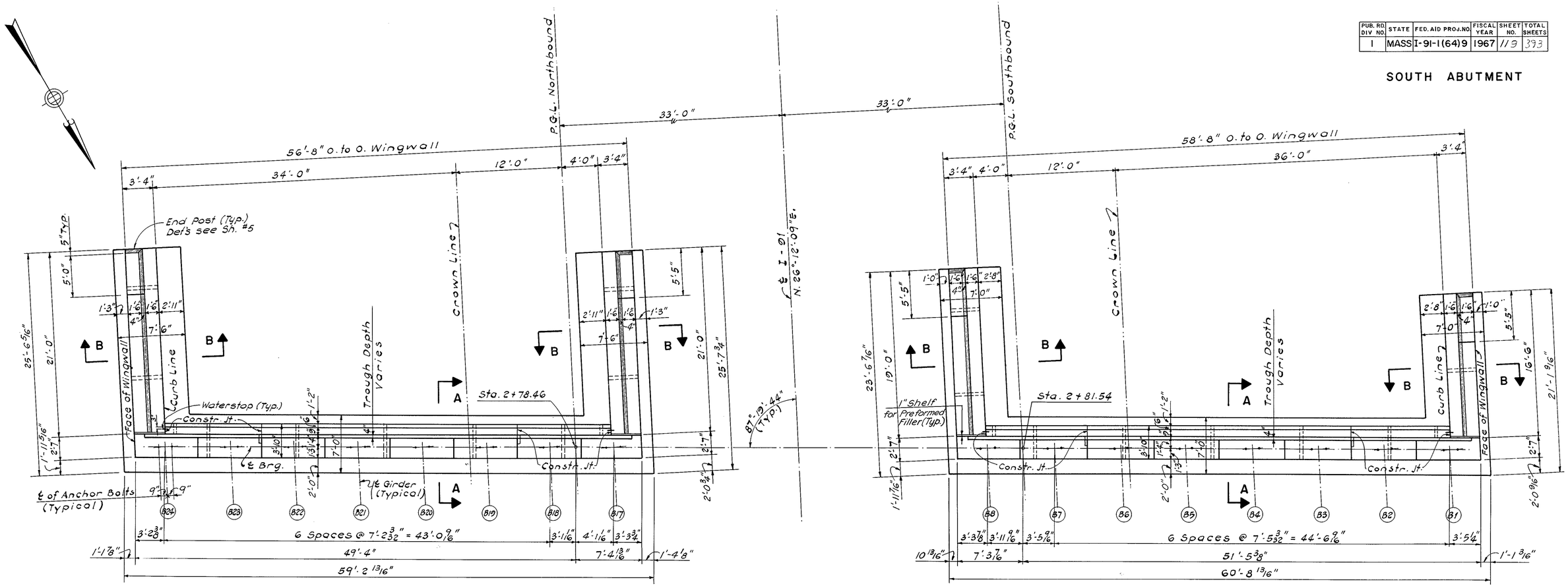
SECTION C-C

Scale: 1½" = 1'-0"

DATE	DESCRIPTION
MARCH 25, 1967	ISSUED FOR CONSTRUCTION
USE ONLY PRINTS OF LATEST DATE	

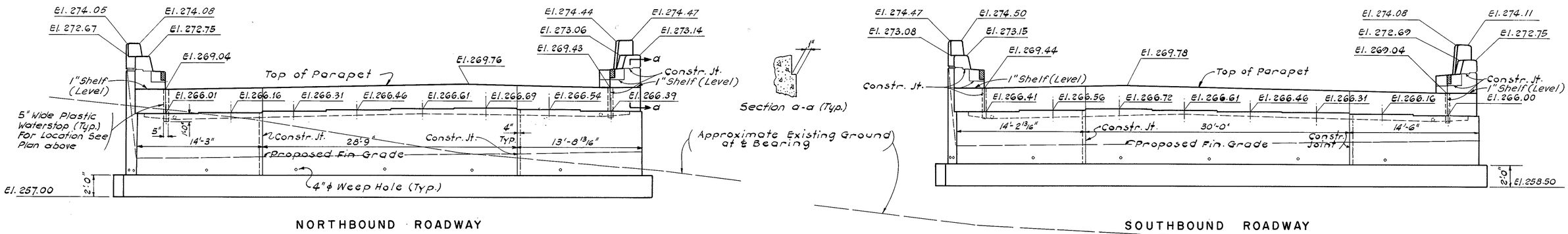
PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS	I-91-1(64)9	1967	119	393

SOUTH ABUTMENT



PLAN

Scale: 3/16" = 1'-0"



NORTHBOUND ROADWAY

SOUTHBOUND ROADWAY

ELEVATION

Scale: 3/16" = 1'-0"

Notes:

For Sections A-A & B-B see Sheet #8

For End Post Detail see Sheet #5

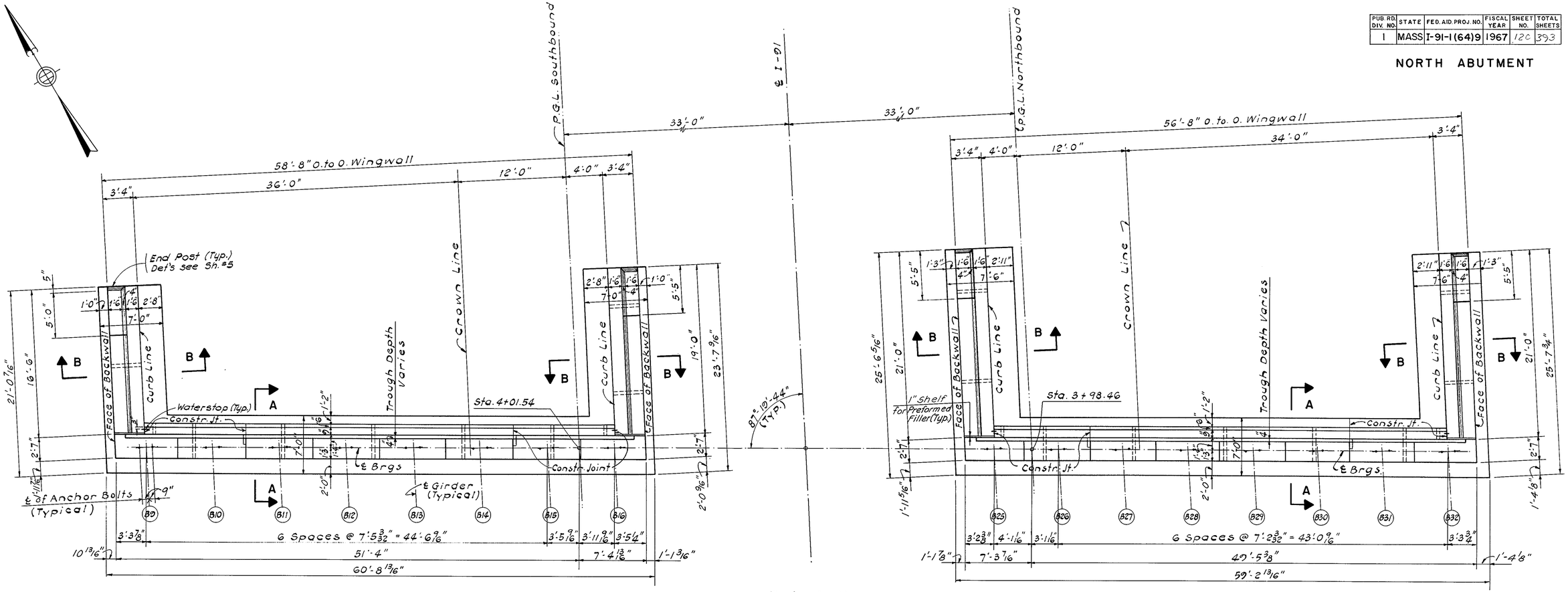
SOUTH ABUTMENTS

DATE	DESCRIPTION
MARCH 29, 1967	ISSUED FOR CONSTRUCTION
USE ONLY PRINTS OF LATEST DATE	

SHEET 6 OF 13 SHEETS BRIDGE NO. W-21-39 H-21-58

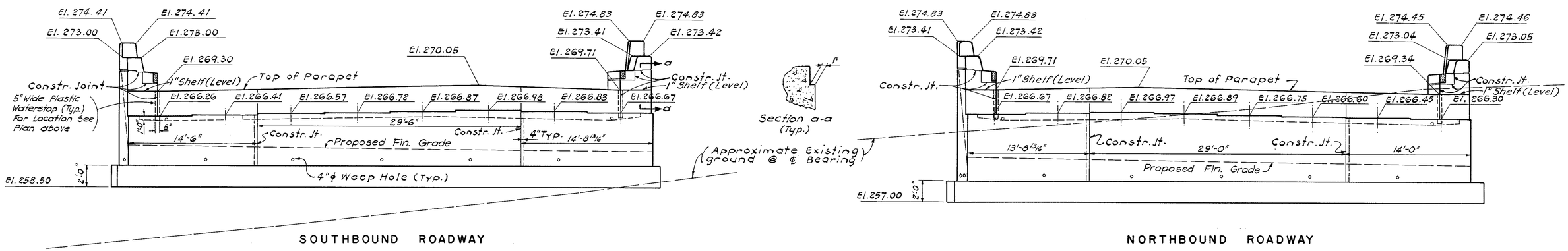
PUB. RD. DIV. NO.	STATE	FED. AID. PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS	I-91-1(64)9	1967	120	393

NORTH ABUTMENT



PLAN

Scale: 3/16" = 1'-0"



SOUTHBOUND ROADWAY

NORTHBOUND ROADWAY

ELEVATION

Scale: 3/16" = 1'-0"

Notes:

For Sections A-A and B℄B see Sheet #8

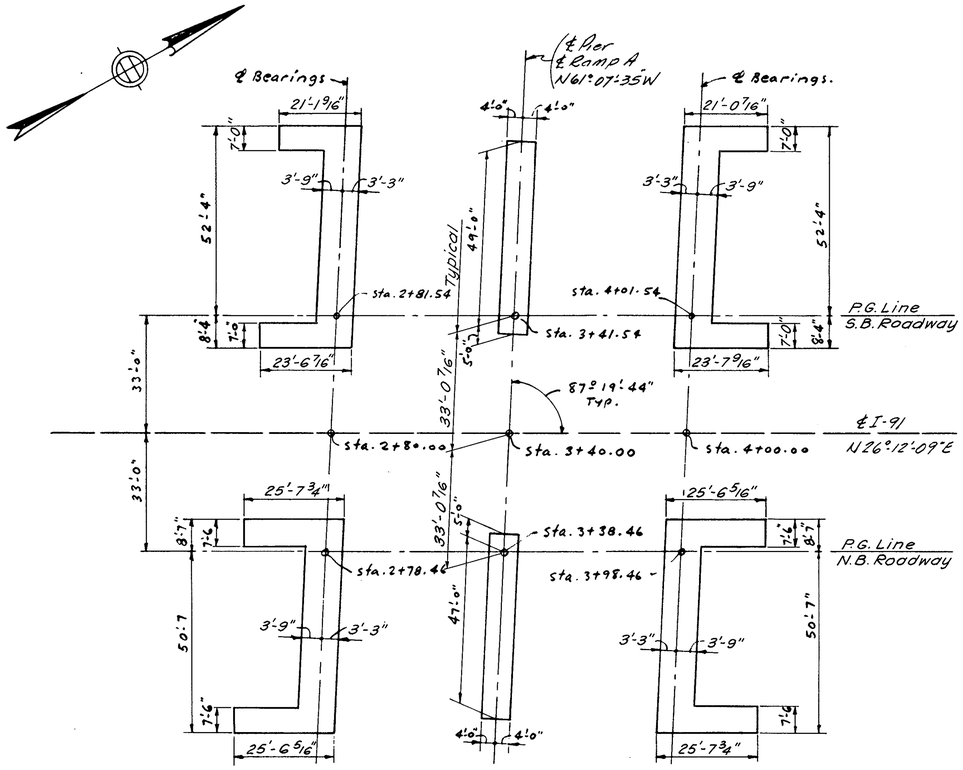
For End Post Details see Sheet #5

NORTH ABUTMENTS

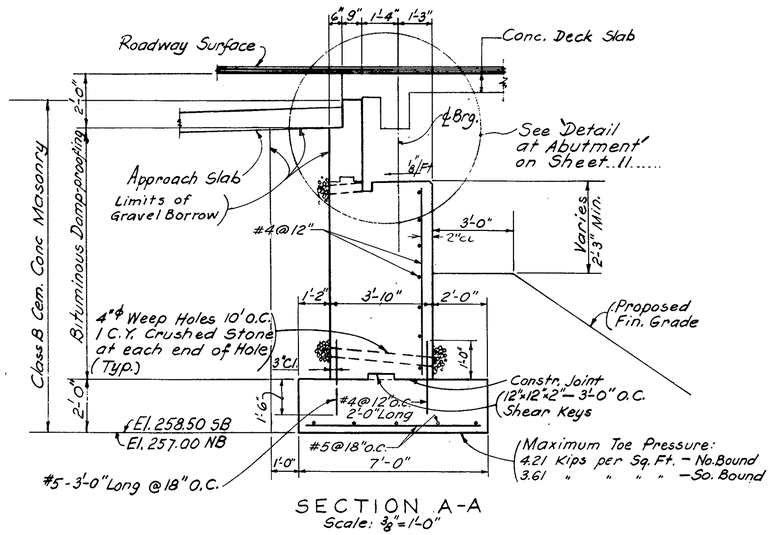
DATE	DESCRIPTION
MARCH 25, 1967	ISSUED FOR CONSTRUCTION
USE ONLY PRINTS OF LATEST DATE	

SHEET 7 OF 13 SHEETS BRIDGE NO. W-21-39 H-21-58

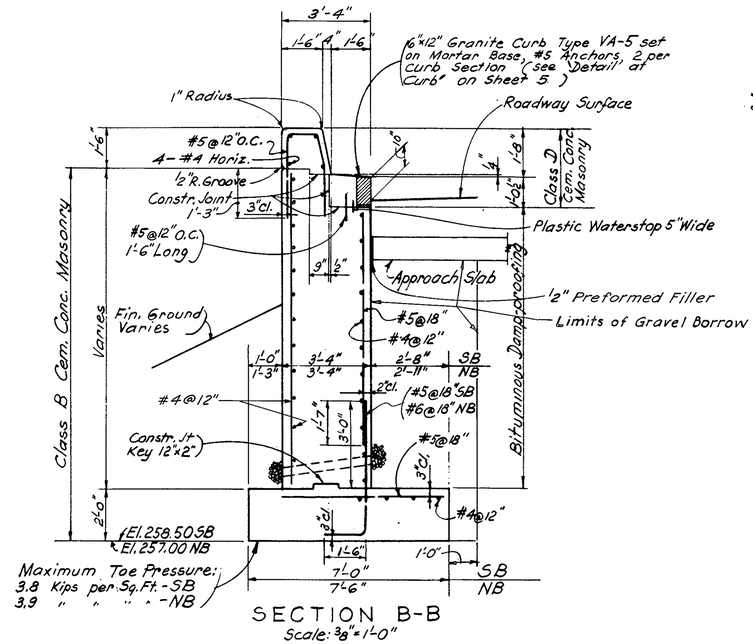
FUB RD DIV NO.	STATE	FED AID PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
1	MASS	I-91-1(64)9	1967	121	393



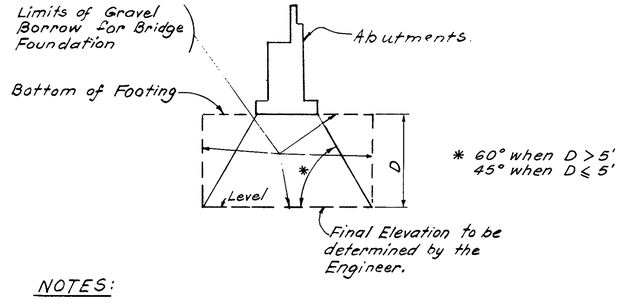
FOOTING LAYOUT PLAN
Scale: 1"=20'



SECTION A-A
Scale: 3/8"=1'-0"



SECTION B-B
Scale: 3/8"=1'-0"

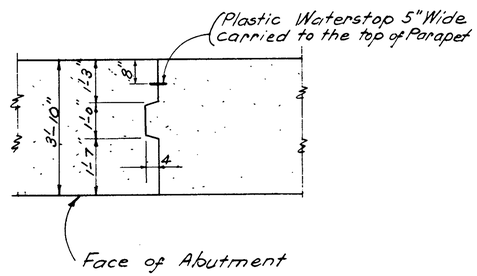


* 60° when D > 5'
45° when D ≤ 5'

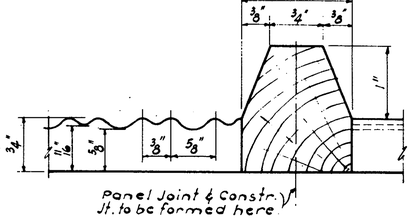
NOTES:

Same Treatment is to be used at Ends.
Unsuitable Material to be removed before Gravel Borrow for Bridge Foundation is placed.

GRAVEL BORROW FOR BRIDGE FOUNDATION
Not to scale



CONSTRUCTION JOINT DETAIL AT ABUTMENT
Scale: 1/2"=1'-0"

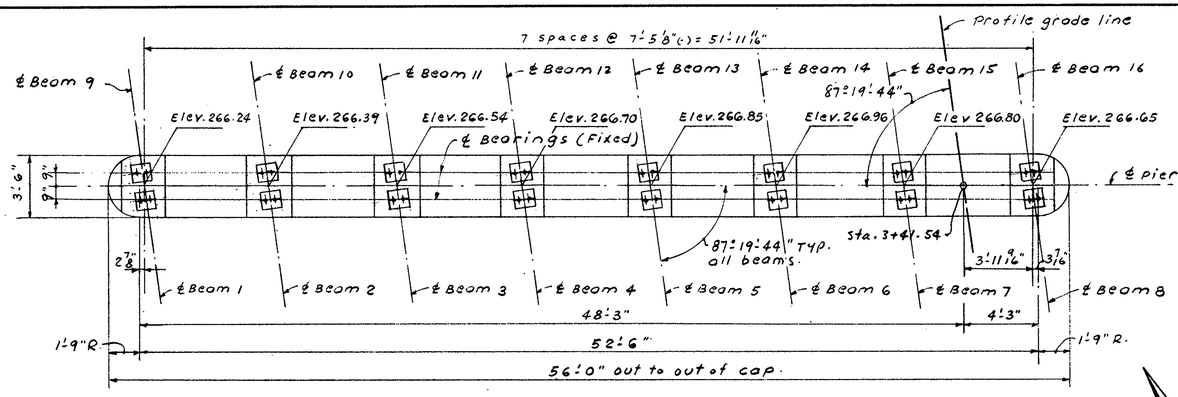


STRIATION DETAIL
Scale: Full Size

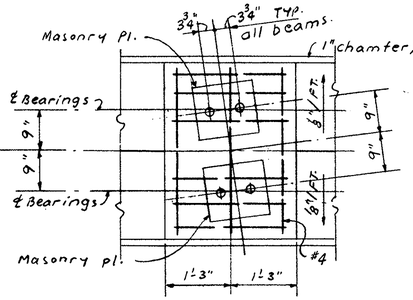
DATE	DESCRIPTION
MARCH 25, 1967	ISSUED FOR CONSTRUCTION
USE ONLY PRINTS OF LATEST DATE	

PUB. RD DIV NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
I	MASS	I-91-1(64)9	1967	122	393

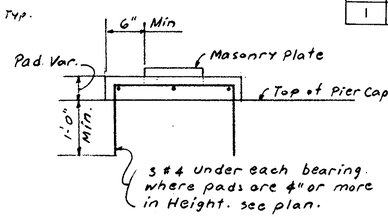
PIER DETAILS SB ROADWAY



PIER CAP PLAN

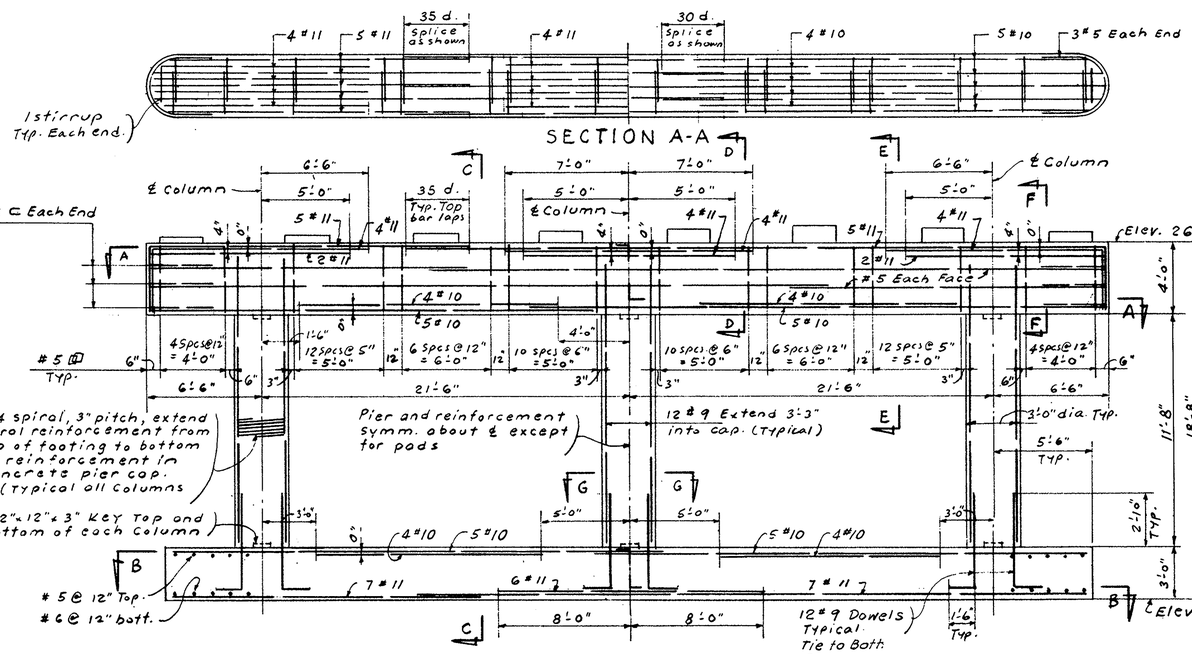


PLAN



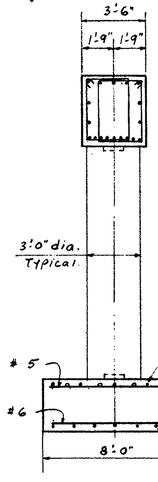
ELEVATION

PAD DETAILS
Scale: 3/4"=1'-0"

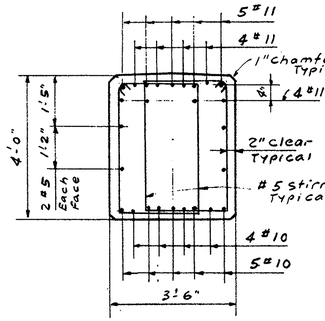


ELEVATION

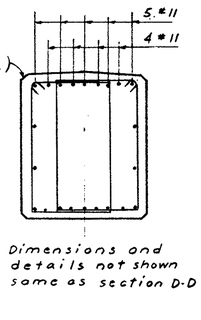
SECTION A-A



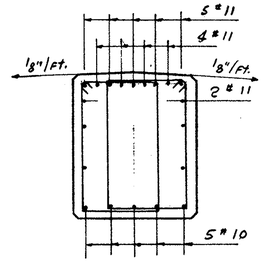
SECTION C-C



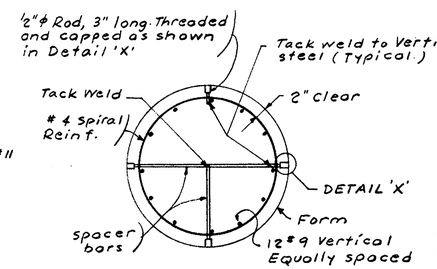
SECTION D-D



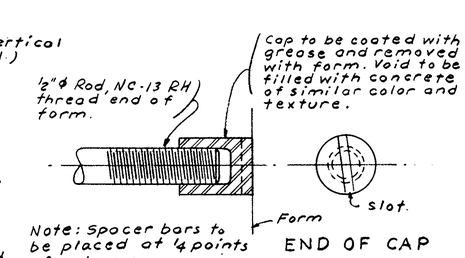
SECTION E-E
scale: 1/2"=1'-0"
Top of Pier cap to be sloped 1/8" /Ft. from ℄ to face between pads.



SECTION F-F

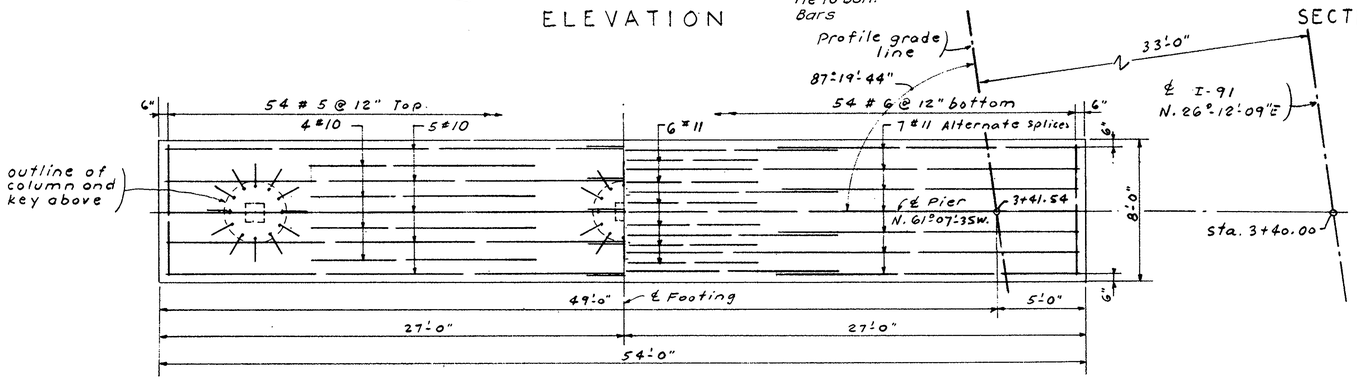


SECTION G-G
scale: 3/4"=1'-0"



DETAIL 'X'
N.T.S.

END OF CAP



SECTION B-B
scale: 1/4"=1'-0"

NOTES:

For bearing and anchor bolt details see sheet. 13

Contractor shall place reinforcement to clear all anchor bolts.

All exposed edges of concrete to have a 1" chamfer unless otherwise shown.

All keys to be slightly tapered.

All forms to be stripped as perscribed in the Specifications.

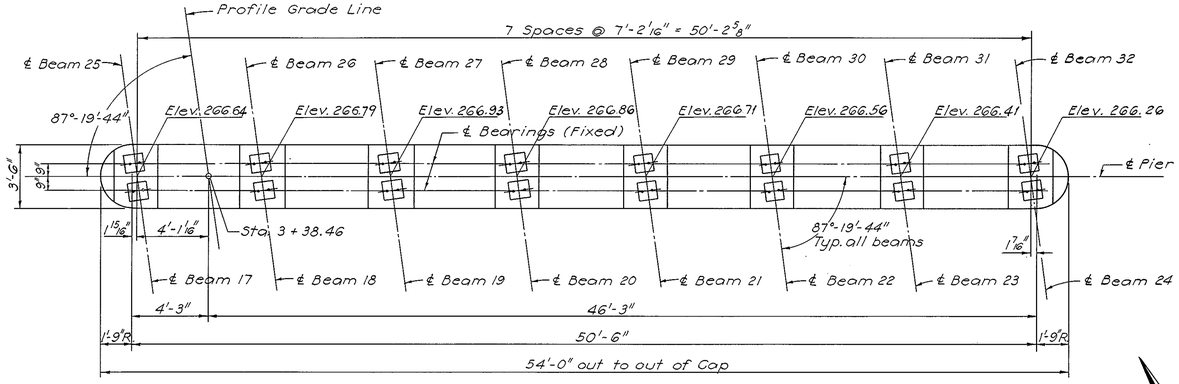
Maximum Design Bearing pressure = 3.2 kips/sq.Ft.

TIE SOME OF THE TOP BARS LOOSELY IN THE PIER CAP TO PERMIT INSERTION OF VIBRATOR. FASTEN SECURELY AFTER VIBRATING AND BEFORE CONCRETE IS LEVEL WITH THE REINFORCEMENT.

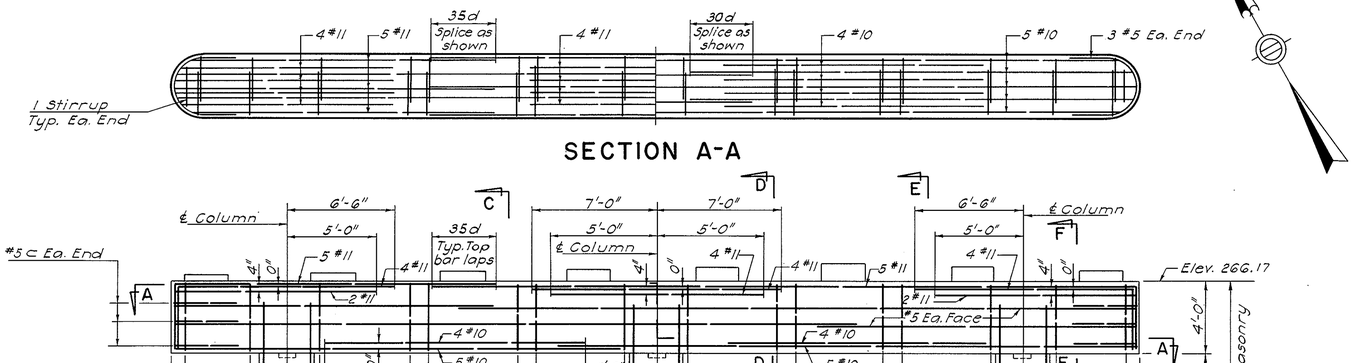
DATE	DESCRIPTION
MARCH 25, 1967	ISSUED FOR CONSTRUCTION
USE ONLY PRINTS OF LATEST DATE	

PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS	I-91-1(64)9	1967	123	393

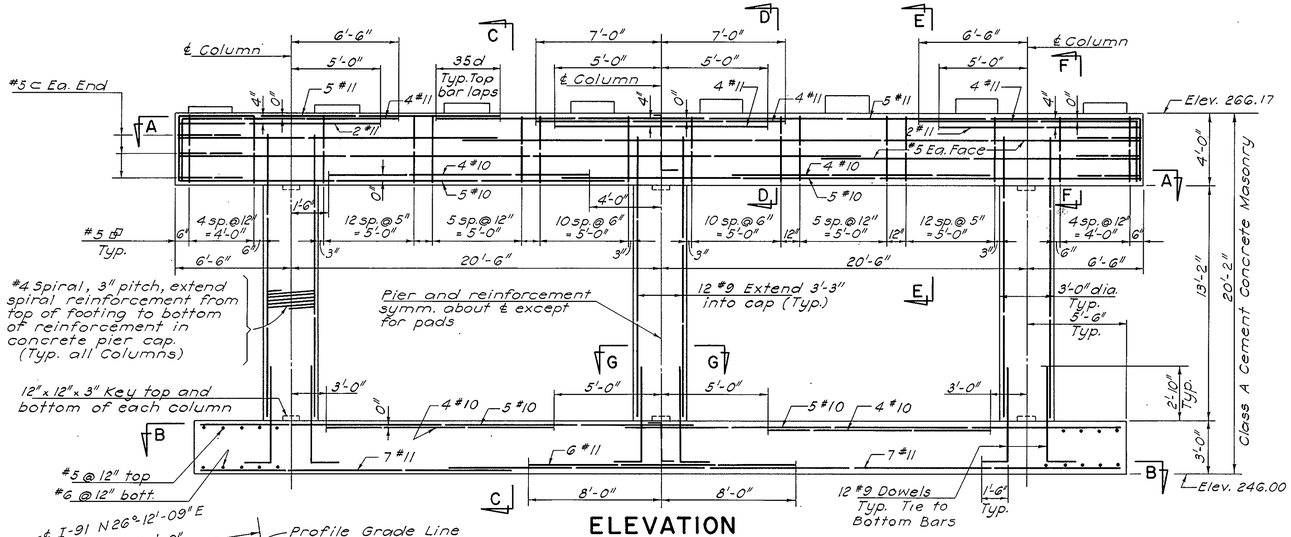
PIER DETAILS
NB ROADWAY



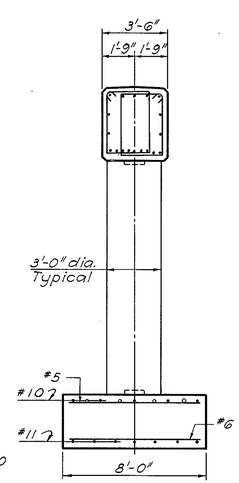
PIER CAP PLAN



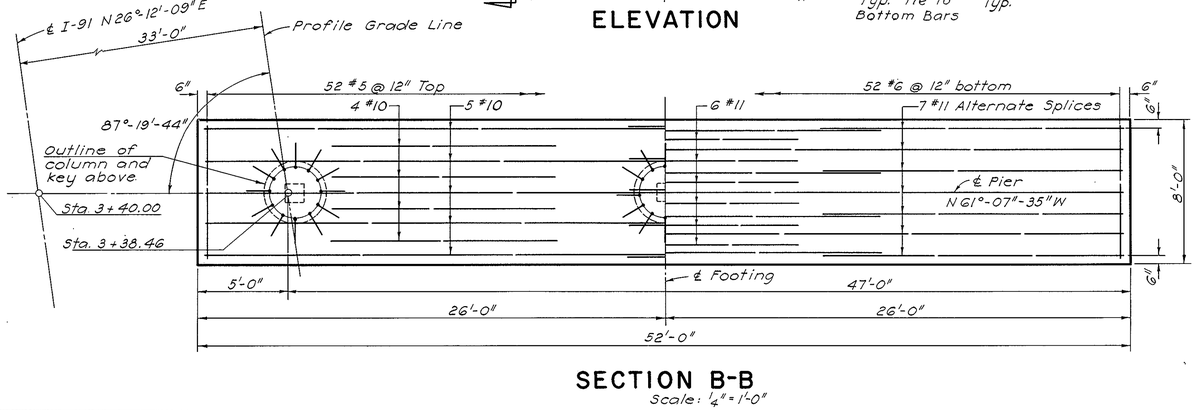
SECTION A-A



ELEVATION



SECTION C-C



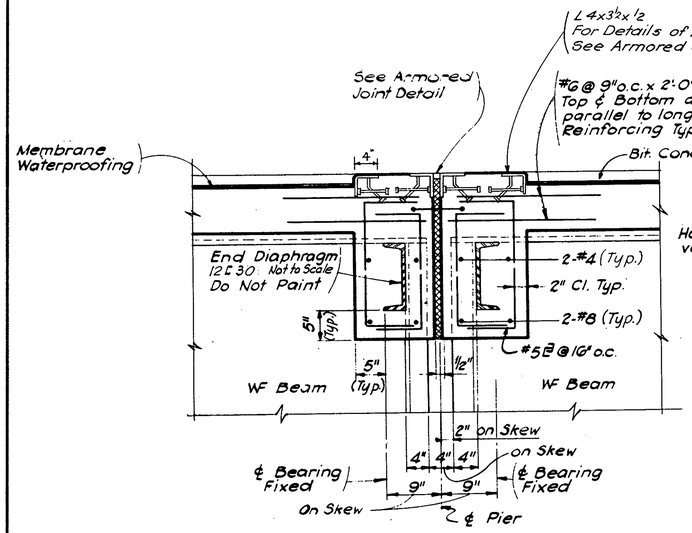
SECTION B-B
Scale: 1/4" = 1'-0"

NOTES:

For Sections D-D, E-E, F-F & G-G and Notes see Sh. 9

DATE	DESCRIPTION
MARCH 25 1967	ISSUED FOR CONSTRUCTION
USE ONLY PRINTS OF LATEST DATE	

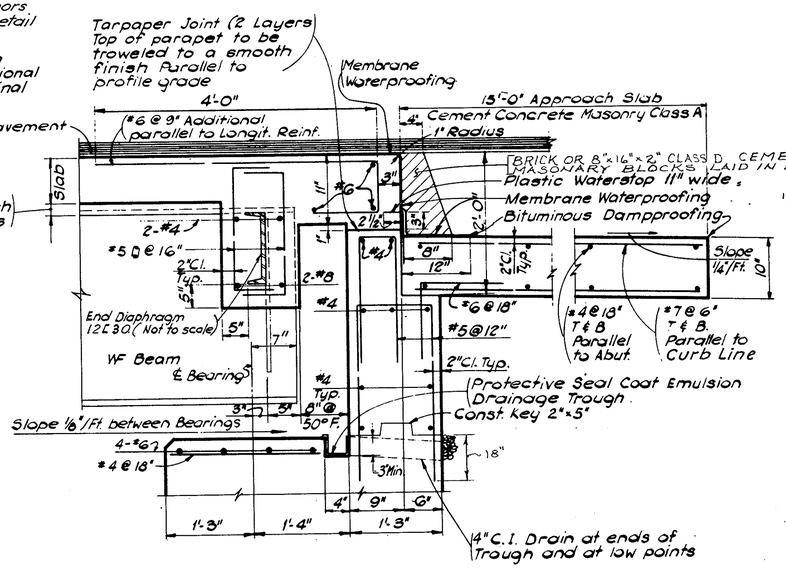
PUB RD DIV. NO.	STATE	FED AID PROJ. NO	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
I	MASS	I-91-1(64)9	1967	124	393



DETAIL AT PIER

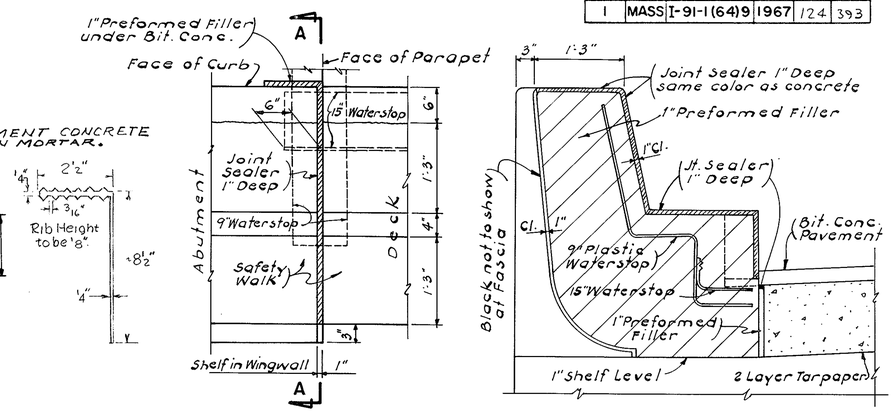
Scale: 1"=1'-0"

All dimensions shown are square distances except as noted



DETAIL AT ABUTMENTS

Scale: 1"=1'-0"



PLAN

SECTION A-A

DETAILS OF JOINT AT SAFETY WALK AT ABUTMENTS

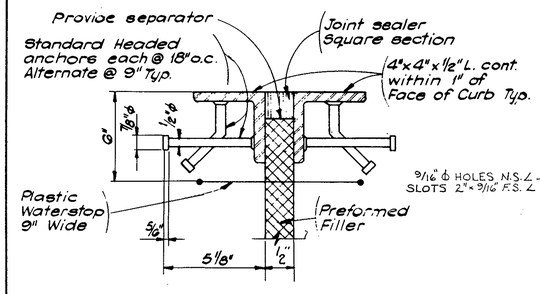
Scale: 1"=1'-0"

PLAN

SECTION A-A

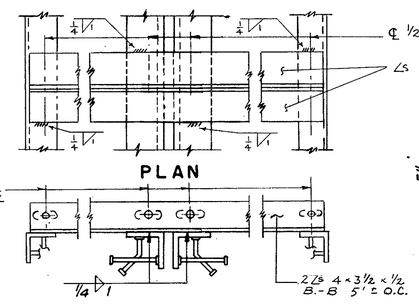
SECTION B-B

DETAILS OF JOINT AT FACE OF CURB



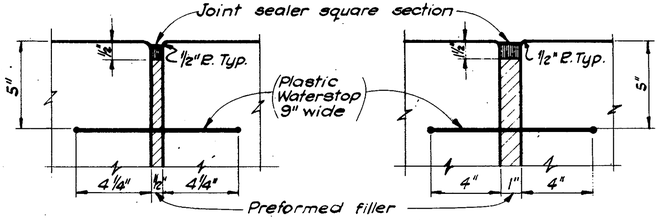
ARMORED JOINT DETAIL

Scale: 3"=1'-0"



SHIPPING DEVICE FOR ARMORED JOINT ASSEMBLY

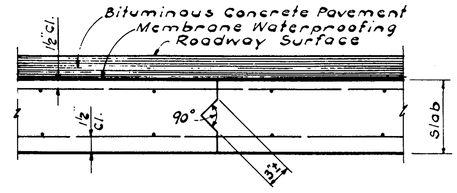
NOT TO SCALE



AT PIER AT ABUTMENT

SAFETY WALK SECTIONS

Scale: 3"=1'-0"



LONGITUDINAL CONSTRUCTION JOINT DETAILS IN SLAB

Scale: ½"=1'-0"

Notes:

(A) All Armored Joint Assemblies must be properly fitted in shop and shipped with device for maintaining proper spacing and fit.

(B) Bolts on shipping device must be loosened within one hour after concrete is placed so that movement may take place. Device shall be removed after concrete has set on both sides of assembly.

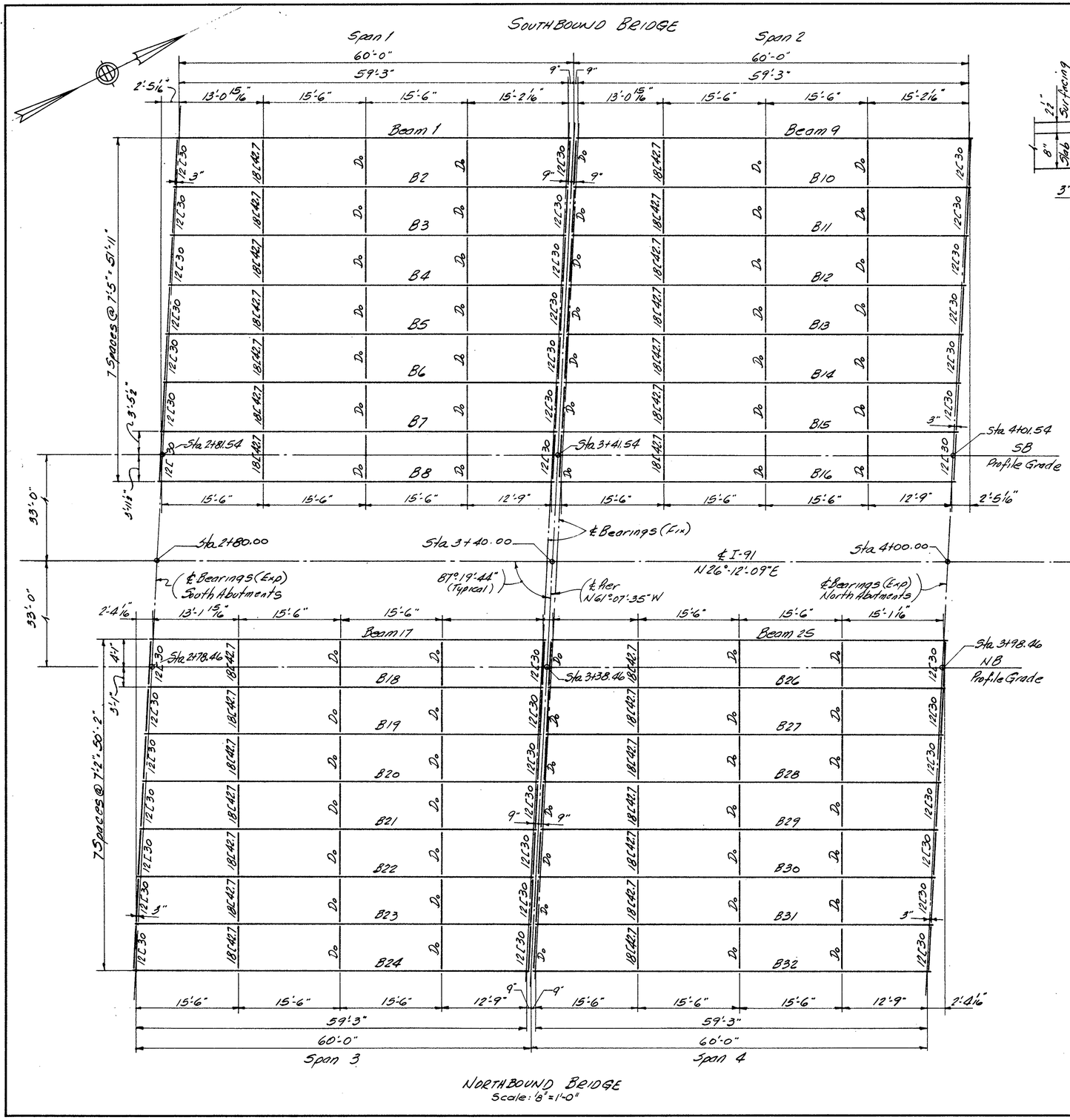
(C) GRIND ARMORED JOINT SURFACE TO A SMOOTH FINISH AFTER REMOVAL OF SHIPPING DEVICE.

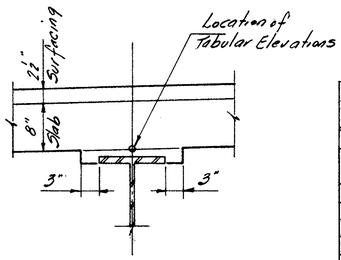
(D) All exposed surfaces of joint shall be field painted after grinding.

Note: Longitudinal Construction Joints in Bridge Deck Slabs may be omitted when the Contractor's proposed method of construction is approved by the Engineer in writing.

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1	MASS	I-91-1(64)9	1967	125	393





HAUNCH DETAIL

TOP OF FORM ELEVATIONS FOR DECK SLAB PRIOR TO PLACEMENT OF CONCRETE

BEAM No *	℄ BRG	⅛ Pt	¼ Pt	⅜ Pt	½ Pt	⅝ Pt	¾ Pt	⅞ Pt	℄ BRG
	SOUTHBOUND BRIDGE SPAN 1								
B1	269.36	269.42	269.48	269.53	269.56	269.58	269.58	269.57	269.56
B2	269.51	269.58	269.64	269.69	269.73	269.74	269.74	269.73	269.71
B3	269.66	269.73	269.80	269.84	269.88	269.90	269.90	269.88	269.86
B4	269.81	269.89	269.95	270.00	270.03	270.05	270.05	270.04	270.02
B5	269.97	270.04	270.10	270.15	270.18	270.20	270.20	270.19	270.17
B6	270.07	270.14	270.21	270.26	270.29	270.31	270.31	270.30	270.28
B7	269.92	269.99	270.05	270.10	270.14	270.15	270.15	270.14	270.12
B8	269.76	269.83	269.89	269.94	269.97	269.99	269.99	269.98	269.97
	SPAN 2								
B9	269.56	269.61	269.65	269.68	269.69	269.69	269.68	269.65	269.61
B10	269.71	269.77	269.81	269.84	269.85	269.85	269.83	269.80	269.76
B11	269.87	269.92	269.96	269.99	270.01	270.01	269.99	269.96	269.92
B12	270.02	270.07	270.12	270.15	270.16	270.16	270.14	270.11	270.07
B13	270.17	270.23	270.27	270.30	270.32	270.31	270.30	270.27	270.23
B14	270.28	270.33	270.38	270.41	270.42	270.42	270.40	270.34	270.34
B15	270.13	270.18	270.22	270.25	270.27	270.27	270.25	270.22	270.18
B16	269.97	270.01	270.06	270.09	270.11	270.11	270.09	270.05	270.03
	NORTHBOUND BRIDGE SPAN 3								
B17	269.75	269.82	269.88	269.93	269.96	269.98	269.98	269.98	269.96
B18	269.89	269.97	270.03	270.08	270.11	270.13	270.14	270.13	270.11
B19	270.04	270.11	270.18	270.23	270.26	270.28	270.28	270.27	270.26
B20	269.96	270.04	270.10	270.15	270.19	270.20	270.21	270.20	270.18
B21	269.81	269.88	269.95	270.00	270.03	270.05	270.06	270.05	270.03
B22	269.66	269.73	269.80	269.85	269.88	269.90	269.91	269.90	269.88
B23	269.51	269.58	269.65	269.70	269.73	269.75	269.76	269.75	269.73
B24	269.36	269.43	269.49	269.54	269.58	269.60	269.60	269.59	269.58
	SPAN 4								
B25	269.96	270.01	270.06	270.09	270.10	270.10	270.09	270.06	270.03
B26	270.11	270.16	270.21	270.24	270.26	270.26	270.24	270.21	270.17
B27	270.26	270.31	270.36	270.39	270.41	270.41	270.39	270.36	270.32
B28	270.18	270.24	270.28	270.31	270.33	270.33	270.31	270.28	270.25
B29	270.03	270.09	270.13	270.16	270.18	270.18	270.16	270.14	270.10
B30	269.88	269.94	269.98	270.01	270.03	270.03	270.01	269.99	269.95
B31	269.73	269.79	269.83	269.86	269.88	269.88	269.87	269.84	269.80
B32	269.58	269.63	269.68	269.71	269.72	269.73	269.71	269.69	269.65

* Stations increase left to right

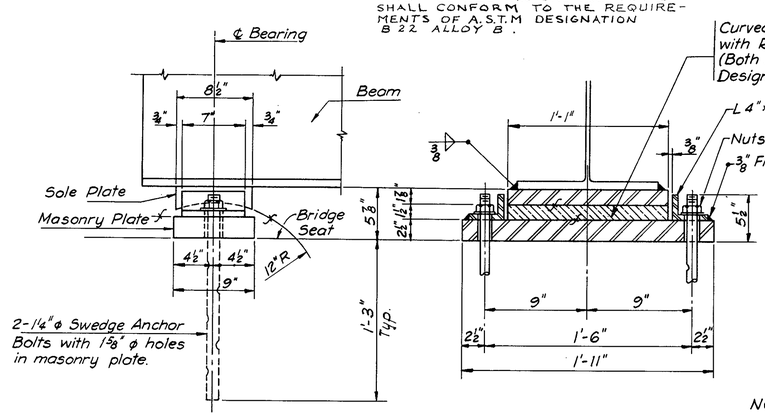
After the Structural Steel is erected but before the forms are built, Elevations on the top of the flange of the beams are to be obtained at the points indicated in the Table. The difference between the Elevation obtained and those shown in the Table gives the actual blocking distance from the top of beam to the bottom of slab at centerline of beam. See Haunch Detail.

DATE	DESCRIPTION
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I-91 over H

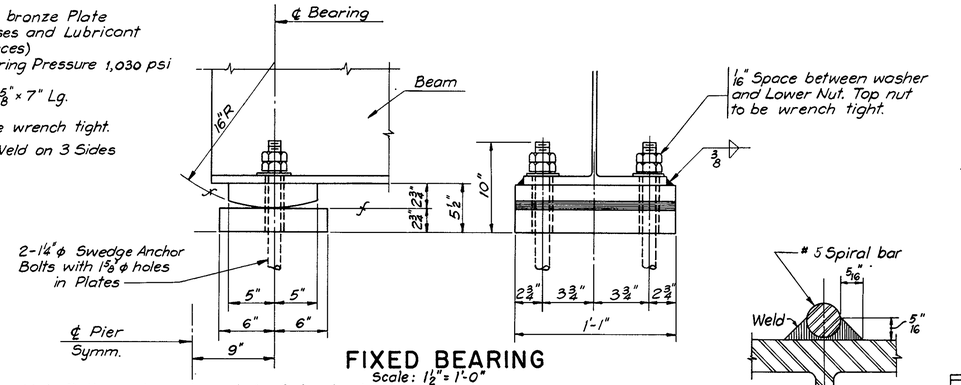
PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
I	MASS	I-91-1(64)9	1967	126	393

NOTE: CURVED TIN BRONZE PLATE SHALL CONFORM TO THE REQUIREMENTS OF A.S.T.M DESIGNATION B 22 ALLOY B.



EXPENSION BEARING

Scale: 1½"= 1'-0"

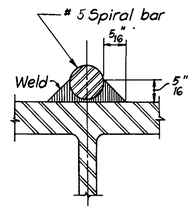


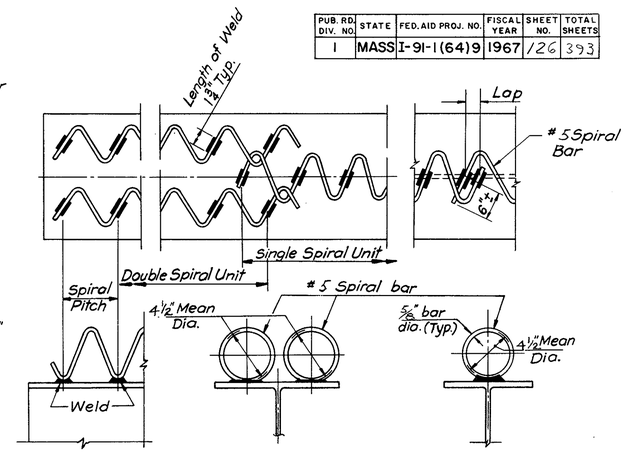
FIXED BEARING

Scale: 1½"= 1'-0"

NOTES: Nuts Bolts and washers to be Galvanized.
Masonry plate shall have full and level bearing before placing the Stringers on the Bearing Assembly.

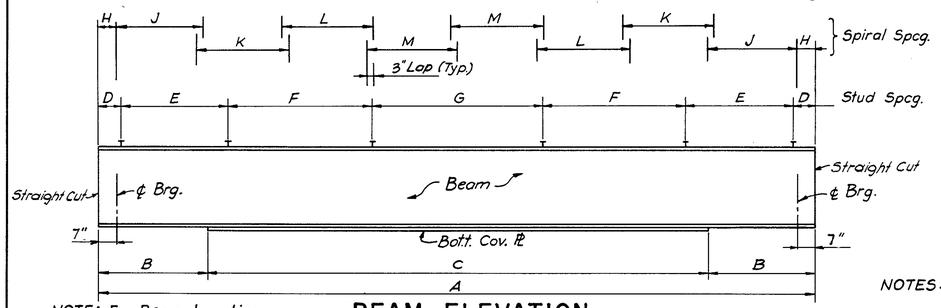
The finished surfaces shall meet the American Standards Association Surface roughness requirements defined in ASA B 46-1 Surface roughness, waviness and lay, Part I.
f = ASA 250 Micro-inches or finer.





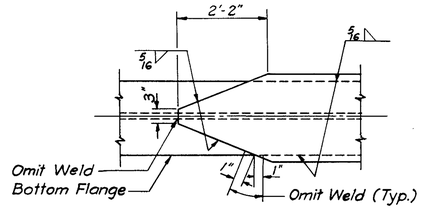
SPIRAL SHEAR CONNECTORS

Not to Scale.



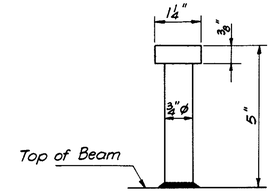
NOTE: For Beam Location See Framing Plan.

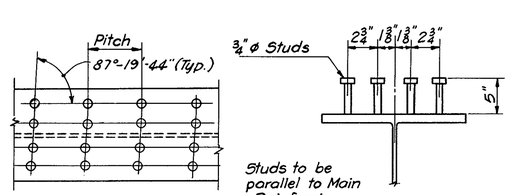
BEAM ELEVATION



COVER PLATE DETAIL

NOTES: a) Preparation of material for welding shall conform to Art. 402 AWS©1966 Edition & Addenda
b) Assembly of material for welding shall conform to Art. 403 AWS©1966 Edition & Addenda.
© D2.0





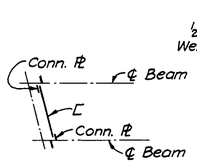
STUD SHEAR CONNECTORS

SPAN	BEAM NO.	SIZE	C. to C. BEARINGS	BOTT. COV. Pl.	DIMENSIONS A	B	C	SHEAR CONNECTOR SPACING STUDS D	E	F	G	SPIRALS H	J	K	L	M
1&2 S.B.	Fascia	33WF118	59'-3"	13×13/16	60'-5"	5'-7"	49'-3"	6½"	325ps.@5"=13'-4"	145ps@8"=9'-4"	145ps@12"=14'-0"	7."	245ps*@4"=8'-0"	195ps*@5"=7'-11"	155ps*@6"=7'-6"	175ps@5"=7'-1"
1&2 S.B.	Interior	"	"	13×⅞	"	5'-7"	49'-3"	"	"	"	"	"	"	"	"	"
3&4 N.B.	Fascia	"	"	13×¾	"	5'-7"	49'-3"	"	"	"	"	"	"	"	"	"
3&4 N.B.	Interior	"	"	13×13/16	"	5'-7"	49'-3"	"	"	"	"	"	"	"	"	"

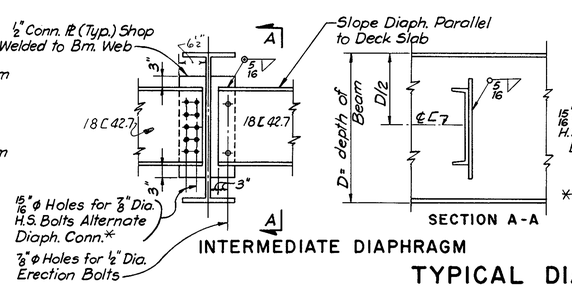
* Double Spiral

BEAM	CAMBER
Fascia	1½"
Interior	1½"
Fascia	1½"
Interior	1½"

NOTE: ⅞" Diameter studs may be substituted for ¾" Diameter studs by providing an equivalent cross-sectional area and adjusting the pitch accordingly with a max. pitch of 18".
Shear connectors shall be either spirals or studs at the option of the Contractor.
Any welded joint prequalified by American Welding Society Specifications for Welded Highway & Railway Bridges (1966 Edition) will be acceptable in the fabrication of Structural Steel.

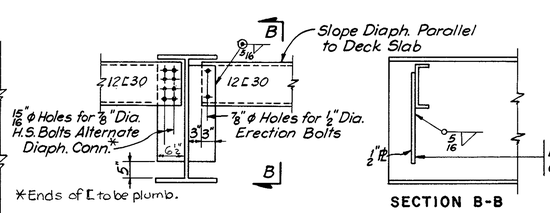


DETAIL X



INTERMEDIATE DIAPHRAGM

SECTION A-A



* Ends of L to be plumb.

END DIAPHRAGM

SECTION B-B

Cope L flanges top & Bottom to clear Conn. Pl. See Detail X

Plate may be coped to allow clearance for anchor bolts.

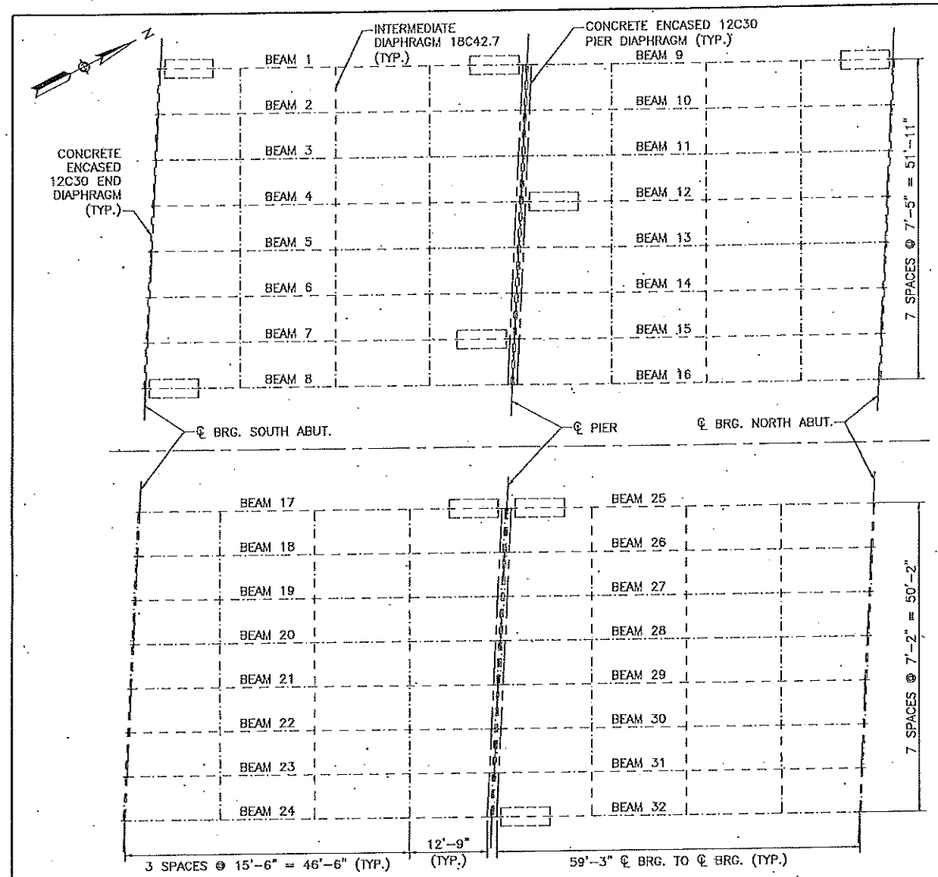
NOTE: Offset connection plate at End Diaphragms. End Diaphragms to be parallel to ℄ Bearing.

TYPICAL DIAPHRAGM CONNECTIONS

NOTES: Erection Bolts, Nuts and Standard Washers for Diaphragm Connections shall be furnished by the Fabricator.

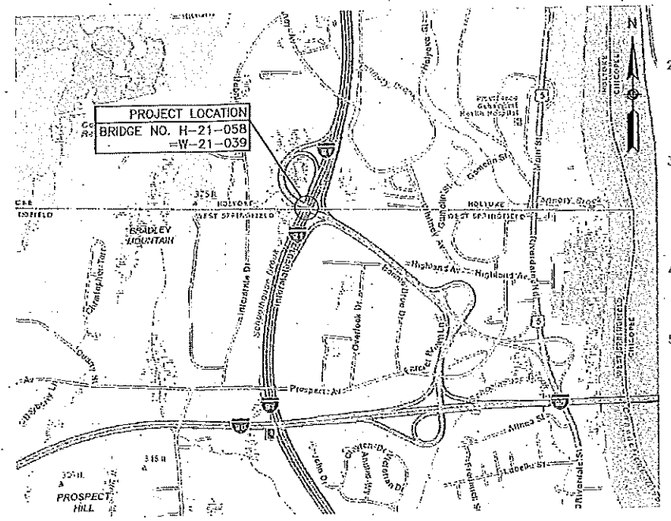
DATE	DESCRIPTION
MARCH 25, 1967	ISSUED FOR CONSTRUCTION
USE ONLY PRINTS OF LATEST DATE	

SHEET 13 OF 13 SHEETS BRIDGE NO. H-21-58 W-21-39



NOTE: [ ] PROPOSED BEAM END REPAIR

FRAMING PLAN
SCALE: 1/16" = 1'-0"



LOCUS PLAN

0 1000 2000 3000 4000
SCALE: 1" = 2000'

✓	Approved		Rejected and resubmit
	Approved as noted, Resubmission not required		Not Approved

MassDOT Massachusetts Department of Transportation Highway Division
District 2 NORTHAMPTON

Signed _____ Date 7/3/18

1. Approval of shop drawings indicates conformance with the concept of this project and general compliance with the contract documents.
2. Contractor is responsible for all dimensions and quantities and for the details of fabrication, construction and coordination of all trades and subcontractors.
3. Approval does not authorize changes to contract requirements unless authorized by prior letter or change order.

REPAIR COMPOUND NOTES:

IN LOCATIONS WHERE HEAVY DETERIORATION HAS OCCURED OR AS DIRECTED BY THE ENGINEER, EPOXY REPAIR COMPOUND SHALL BE APPLIED OVER THE PRIME COAT AS FOLLOWS:

1. THE EPOXY REPAIR COMPOUND SHALL BE APPLIED TO THE DETERIORATED AREAS IN STRICT ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS. THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER OF RECORD FOR REVIEW AND APPROVAL THE METHODS, PROCEDURES, AND MATERIALS TO BE USED FOR THE WORK.
2. THE REPAIR COMPOUND SHALL ONLY BE APPLIED TO THOSE AREAS OF THE EXISTING STEEL THAT EXHIBIT SEVERE SECTION LOSS TO COMPLETELY FILL THE IRREGULARITIES IN THE EXISTING PLATE SUCH THAT NO VOIDS REMAIN BETWEEN THE PLIES OF THE EXISTING STEEL AND THE PROPOSED STRENGTHENING STEEL IN THE FINAL REPAIRED CONDITION.
3. THE PROPOSED REPAIR STEEL SHALL BE PROPERLY POSITIONED AND BROUGHT INTO FIRM CONTACT WITHIN THE WORKING TIME LIMITS OF THE EPOXY REPAIR COMPOUND. THE REPAIR STEEL SHALL BE SECURED IN PLACE USING POSITIONING BOLTS TENSIONED TO A SNUG TIGHT CONDITION AND CLAMPS OR OTHER MECHANICAL MEANS TO BRING THE PLIES OF THE EXISTING STEEL AND NEW STEEL INTO FIRM CONTACT. WELDING IS NOT ALLOWED.
4. ONCE THE PROPOSED STEEL HAS BEEN SECURED INTO POSITION WITH THE POSITIONING BOLTS, AND THE EPOXY COMPOUND HAS CURED, THE REMAINING H.S. BOLTS SHALL BE INSTALLED FOLLOWING THE PROCEDURE OUTLINED IN THE GENERAL NOTES.
5. EPOXY COMPOUND FOR STRUCTURAL STEEL REPAIRS SHALL BE A SOLVENT FREE, MOISTURE TOLERANT, EPOXY PASTE ADHESIVE SYSTEM. THE EPOXY PASTE SHALL BE DEVELOPED SPECIFICALLY FOR FILLING, SMOOTHING, SEALING, OR FAIRING APPLICATIONS ON METALS. THE PASTE SHALL BE APPLIED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S LATEST WRITTEN INSTRUCTIONS. AN ACCEPTABLE PRODUCT SHALL BE ONE OF THE FOLLOWING OR AN APPROVED EQUAL.

ITW PHILADELPHIA RESINS REPAIR COMPOUND MANUFACTURED BY:
ITW PHILADELPHIA RESINS
130 COMMERCE DRIVE, MONTGOMERYVILLE, PA 18936
(215) 855-8450
(215) 855-4688
SALES@ITWPRC.COM
WEBSITE: WWW.PHILADELPHIARESINS.COM

SIKADUR 31, HI-MOD GEL MANUFACTURED BY:
SIKA CORPORATION
201 POLITO AVENUE, LYNDHURST, NJ 07071
800-933-7452
201-933-6225
WEBSITE: WWW.SIKAUSA.COM

DEVCON PLASTIC STEEL PUTTY (A) MANUFACTURED BY:
ITW DEVCON
30 ENDICOTT STREET, DANVERS, MA 01923
800-933-8266
WEBSITE: WWW.DEVCON.COM

FX-738 METAL FILLED EPOXY MANUFACTURED BY:
SIMPSON STRONG-TIE
PLEASANTON, CA 94588
800-999-5099
WEBSITE: WWW.STRONGTIE.COM

GENERAL NOTES

1. GENERAL DESIGN IN ACCORDANCE WITH THE 17TH EDITION OF THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS WITH INTERIM SPECIFICATIONS THROUGH 2002, FOR HS20 LOADING.
2. ALL WORK SHALL BE IN ACCORDANCE WITH THE RELEVANT PROVISIONS OF THE MASSDOT STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES WITH THE LATEST SUPPLEMENTAL SPECIFICATIONS, SECTION 960.
3. THESE DRAWINGS WERE FORMATTED FOR 24"x36" PLAN SHEETS. SCALES NOTED ON THE DRAWINGS ARE NOT APPLICABLE TO REDUCED SIZE PRINTS.
4. EXISTING STRUCTURE DIMENSIONS AND DETAILS ARE ACCORDING TO ORIGINAL CONSTRUCTION DRAWINGS, OBSERVATION, AND FIELD MEASUREMENTS AND ARE NOT GUARANTEED. THE CONTRACTOR SHALL DETERMINE AND ESTABLISH ALL DIMENSIONS AND EXISTING DETAILS NECESSARY FOR COMPLETION OF ALL WORK BY FIELD MEASUREMENT (I.E. BEARING LOCATIONS, EXISTING REPAIRS, ETC.) THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ADEQUACY AND ACCURACY THEREOF, AND SHALL NOT ORDER ANY MATERIAL OR COMMENCE ANY FABRICATION UNTIL THEY HAVE MADE THE REQUIRED MEASUREMENTS ON THE ACTUAL STRUCTURE AND THE EXTENT OF THE PROPOSED WORK HAS BEEN APPROVED BY THE ENGINEER.
5. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY NOT TO DAMAGE UTILITIES, EQUIPMENT, STRUCTURES, OR THOSE PORTIONS OF THE SUPERSTRUCTURE THAT ARE TO REMAIN IN PLACE, THAT ARE TO BE REUSED, OR THAT ARE TO REMAIN THE PROPERTY OF OTHERS. ANY PORTION OF THE SUPERSTRUCTURE TO REMAIN WHICH BECOMES DAMAGED AS A RESULT OF THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER AND AT THE CONTRACTOR'S EXPENSE.
6. ALL STRUCTURAL STEEL SHALL BE AASHTO M270 GRADE 36 OR GRADE 50. MAIN MEMBER CHARPY V-NOTCH TESTING REQUIRED. ALL NEW STRUCTURAL STEEL SHALL BE SHOP PRIMED CLASS A OR CLASS B.
7. ALL BOLTS SHALL BE 7/8"ø HIGH STRENGTH BOLTS (H.S.) IN 15/16"ø HOLES. THE BOLTS SHALL CONFORM TO ASTM F3125, GRADE 325, TYPE 1 AND NUTS AND WASHERS SHALL CONFORM TO AASHTO M291 AND M293 RESPECTIVELY.
8. NO REPAIRS SHALL COMMENCE UNTIL ALL MEASUREMENTS HAVE BEEN MADE AND MATERIALS ARE ON HAND FOR THE REPAIR.
9. WELDING AND FABRICATION OF STEEL SHALL CONFORM TO THE RELEVANT PROVISIONS OF THE AASHTO ASD STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, THE ANSI/AASHTO/AWS D1.5 BRIDGE WELDING CODE, AND THE MASSACHUSETTS STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES.
10. CONTRACTOR SHALL GRIND ALL PLATES AND SHAPES AS REQUIRED TO CLEAR THE FILLET OF THE EXISTING BEAM FLANGES.
11. THE CONTRACTOR SHALL ASSUME ALL EXISTING COATINGS CONTAIN LEAD UNLESS OTHERWISE DETERMINED BY TESTING. ALL DEBRIS CREATED BY CLEANING AND PAINTING OPERATIONS SHALL BE PROPERLY CONTAINED AND DISPOSED OF.
12. BEAM ENDS SHALL BE CLEANED AND PAINTED IN ACCORDANCE WITH MASSDOT SUPPLEMENTAL SPECIFICATION SECTION 961, DATED JULY 1, 2015, SUPPLEMENTAL TO THE 1988 ENGLISH STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES, AND THE PROVISIONS OF ITEM 961.206 IN THE CONTRACT DOCUMENTS. PRIOR TO THE INSTALLATION OF ANY NEW STEEL, THE EXISTING STEEL SHALL BE ABRASIVE BLAST CLEANED TO MEET THE REQUIREMENTS OF SSPC-SP10 "NEAR WHITE METAL BLAST" CONDITION USING RECYCLABLE STEEL ABRASIVES IN ACCORDANCE WITH SUBSECTION 961.63 OF THE SUPPLEMENTAL SPECIFICATION.
13. THE CONTRACTOR SHALL SUBMIT THE REQUIRED PAINTING SUBMITTALS FOR REVIEW AND APPROVAL IN ACCORDANCE WITH SUBSECTION 961.69 OF THE SUPPLEMENTAL SPECIFICATION. THE CONTRACTOR MAY BE REQUIRED TO ERECT ENCLOSURES THAT PROVIDE MEANS TO CONTROL THE ENVIRONMENTAL CONDITIONS WITHIN TO PROVIDE FOR THE MINIMAL CURING TIME. CLEANING, PRIMING, AND PAINTING SHALL EXTEND AT LEAST 5 FEET FROM THE BEAM END, OR AT LEAST 1 FOOT BEYOND THE END OF THE REPAIR, WHICHEVER IS GREATER.
14. THE CONTACT SURFACES OF THE BOLTED PARTS WERE DESIGNED AS A CLASS A CONNECTION WITH A SLIP COEFFICIENT OF 0.33 PER AASHTO STANDARD SPECIFICATIONS. PRIMER SHALL BE ON THE NEPCOAT QUALIFIED PRODUCTS LIST AND HAVE A SLIP COEFFICIENT OF CLASS A OR CLASS B.
15. THE CONTRACTOR SHALL MAKE TEMPLATES FROM THE PROPOSED STEEL LOCATING ALL HOLES FOR H.S. BOLTS. THE TEMPLATES SHALL BE LOCATED AND HELD SECURELY IN PLACE ON THE EXISTING STRUCTURE AND THE LOCATIONS OF ALL HOLES SUB DRILLED TO 15/16"ø.
16. THE PROPOSED STEEL REPAIR PLATES AND SHAPES SHALL BE SECURED IN PLACE WITH POSITIONING BOLTS, INSTALLED SNUG TIGHT TO ENSURE THAT THE PROPOSED STEEL MAINTAINS ITS ALIGNMENT WITH THE EXISTING STEEL.
17. ALL HOLES SHALL BE REAMED TO FULL SIZE, 15/16"ø, IN THE ASSEMBLED POSITION. ADJUST LOCATION OF POSITIONING BOLTS AS REQUIRED TO COMPLETE ALL HOLES.
18. AFTER ALL HOLES HAVE BEEN REAMED TO FULL SIZE, REMOVE THE PROPOSED STEEL AND APPLY A COATING OF EPOXY REPAIR COMPOUND TO ALL FAYING SURFACES (PLUS 1") OF THE EXISTING STEEL.
19. SECURE THE PROPOSED STEEL WITH POSITIONING BOLTS AND ALLOW THE EPOXY COMPOUND TO CURE PRIOR TO INSTALLING THE 7/8"ø H.S. BOLTS.
20. FOR BOLTING OF REPAIR PLATES AND SHAPES, ALL BOLTS SHALL BE INSTALLED SNUG TIGHT. ONCE ALL BOLTS ARE INSTALLED THEY SHALL BE TIGHTENED TO THE PROPER PRETENSION LOAD FOLLOWING MASSDOT STANDARD PROCEDURE. FINAL TENSIONING SHALL BEGIN AT THE CENTER OF THE PLATES AND SHAPES AND THEN PROCEED OUTWARD FROM THE CENTER TO THE TWO ENDS.
21. AFTER BOLTING IS COMPLETED, THE INTERMEDIATE AND TOP COATS OF PAINT SHALL BE APPLIED.
22. IF THERE ARE REVISIONS TO THE APPROVED PLANS, THE CONTRACTOR SHALL SUBMIT THESE CHANGES TO THE ENGINEER OF RECORD FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION. ONCE THESE REVISIONS ARE APPROVED BY THE MASSDOT DESIGNER OF RECORD, THEY SHALL BE SUBMITTED TO MASSDOT FOR FILING.

GILL ENGINEERING
63 KENDRICK STREET
NEEDHAM, MA 02494
781-455-7101
781-455-7101 (FAX)

DATE	DRW. BY	CALC. BY	APPRV. BY	DESCRIPTION
04/25/2018	SJD	SJD	DJK	ISSUED FOR CONSTRUCTION

REGISTERED PROFESSIONAL ENGINEER

DATE

COMMONWEALTH OF MASSACHUSETTS
CHRISTOPHER J. BLAINE
CIVIL
NO. 41351
04-27-2018
REGISTERED PROFESSIONAL ENGINEER

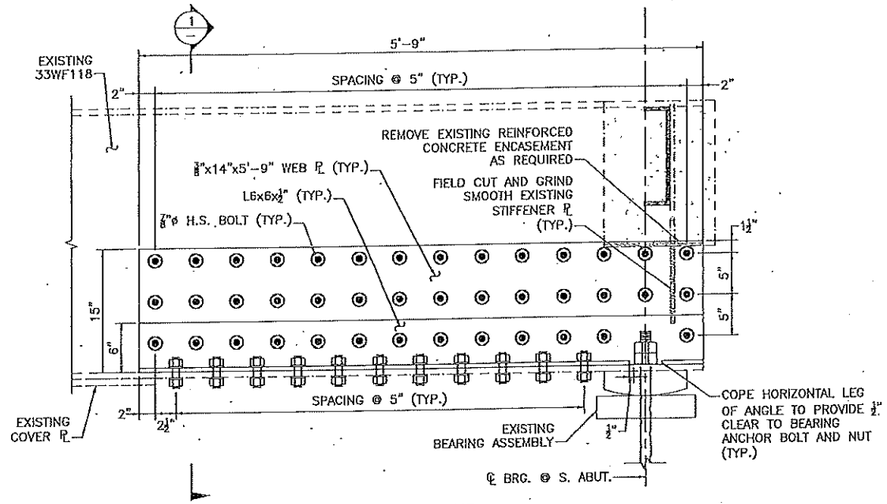
BEAM END REPAIR PLANS

MIG CORPORATION, INC.

BEAM END REPAIR PLANS
HOLYOKE=W. SPRINGFIELD H-21-058=W-21-039
I-91 OVER I-91 RAMP A TURNPIKE CONNECTOR

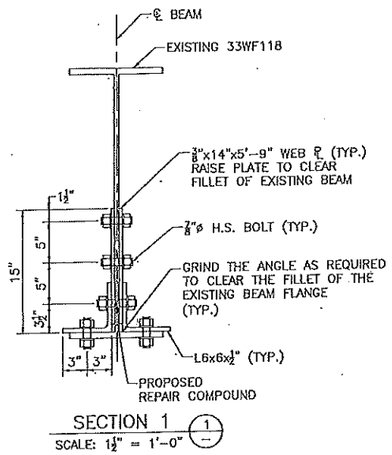
GENERAL NOTES AND REPAIR PLAN

SHEET 1 OF 4



BEAM 1 WEB REPAIR

SCALE: 1½" = 1'-0"



SECTION 1

SCALE: 1½" = 1'-0"

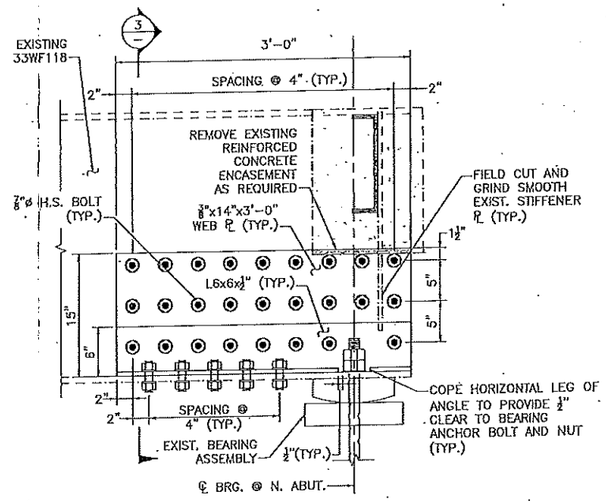
✓	Approved		Revise and resubmit
	Approved as noted, Resubmission not required		Not Approved

MassDOT Highway Department

District 2 NORTHAMPTON

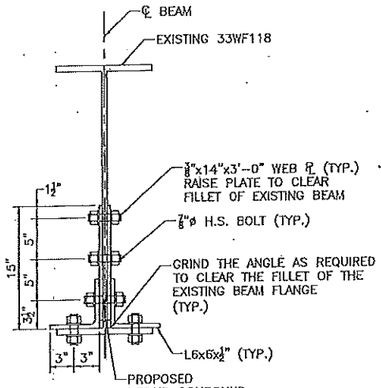
Signed _____ Date 7/3/18

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3. Approval does not authorize changes to contract requirements unless authorized by prior letter or change order.



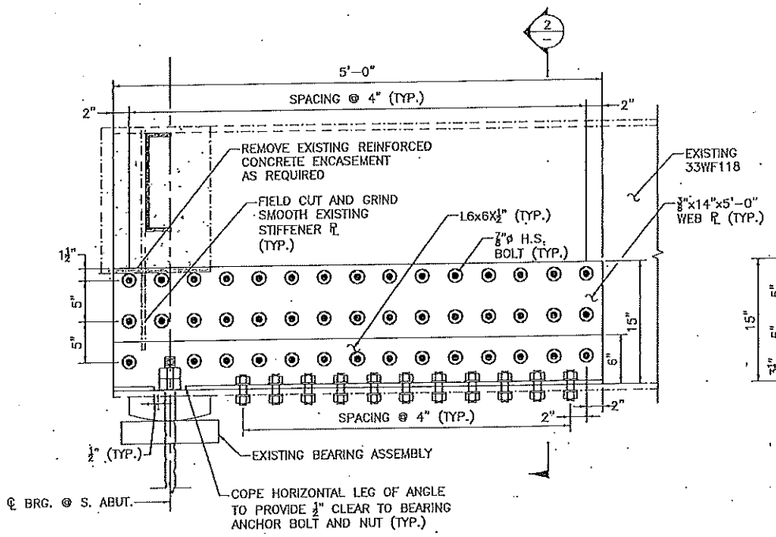
BEAM 9 WEB REPAIR

SCALE: 1½" = 1'-0"



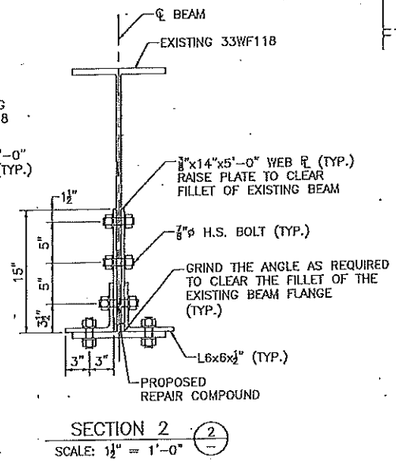
SECTION 3

SCALE: 1½" = 1'-0"



BEAM 8 WEB REPAIR

SCALE: 1½" = 1'-0"



SECTION 2

SCALE: 1½" = 1'-0"

63 KENDRICK STREET
NEEDHAM, MA 02494
781-455-7100
781-455-7101 (FAX)

GILL ENGINEERING

DATE	DRW. BY	CALC. BY	APPRV. BY	DESCRIPTION
04/27/2018	DRT	DJG	CAK	ISSUED FOR CONSTRUCTION

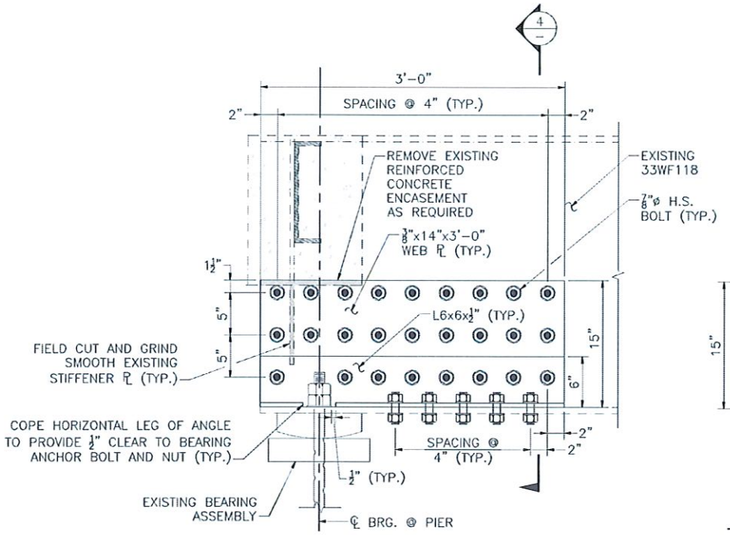
REGISTERED PROFESSIONAL ENGINEER — DATE

BEAM END REPAIR PLANS
MIG CORPORATION, INC.

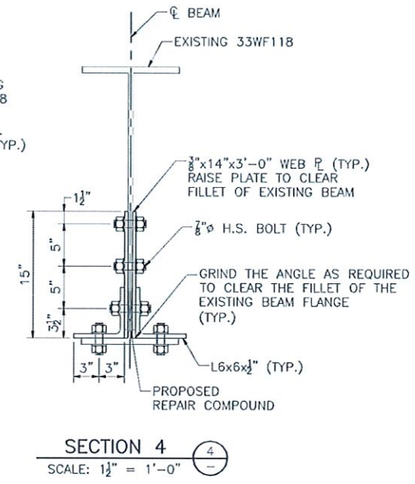
BEAM END REPAIR PLANS
HOLYOKE=W. SPRINGFIELD H-21-058=W-21-039
I-91 OVER I-91 RAMP A TURNPIKE CONNECTOR

REPAIR DETAILS

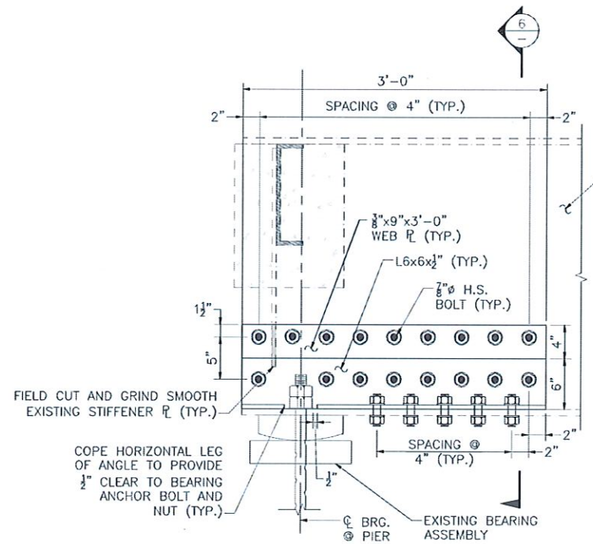
SHEET 2 OF 4



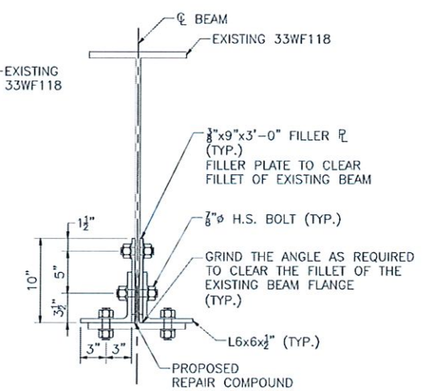
BEAM 17 WEB REPAIR
SCALE: 1½" = 1'-0"



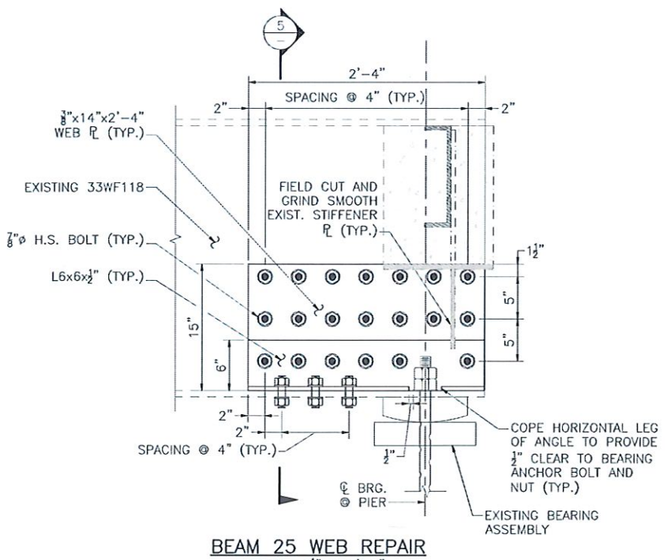
SECTION 4
SCALE: 1½" = 1'-0"



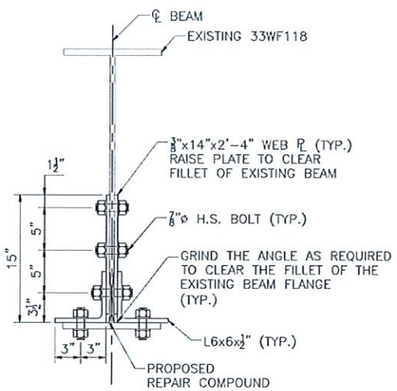
BEAM 32 FLANGE REPAIR
SCALE: 1½" = 1'-0"



SECTION 6
SCALE: 1½" = 1'-0"



BEAM 25 WEB REPAIR
SCALE: 1½" = 1'-0"



SECTION 5
SCALE: 1½" = 1'-0"

63 KENDRICK STREET
NEEDHAM, MA 02494
781-355-7100
781-355-7101 (FAX)

GILL ENGINEERING

DATE	DRW. BY	CALC. BY	APPRV. BY	DESCRIPTION
04/29/2018	DJD	DJD	CJK	ISSUED FOR CONSTRUCTION

REGISTERED PROFESSIONAL ENGINEER

DATE

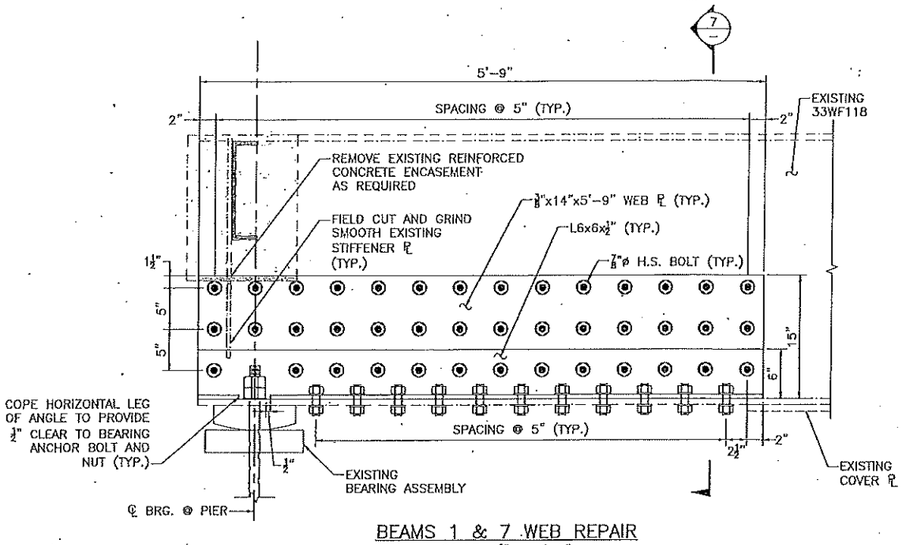
COMMONWEALTH OF MASSACHUSETTS
CHRISTOPHER J. KING
NO. 51515
REGISTERED PROFESSIONAL ENGINEER

BEAM END REPAIR PLANS

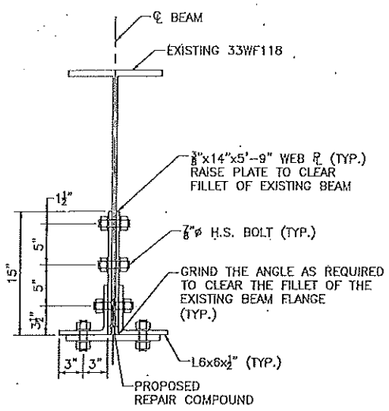
MIG CORPORATION, INC.

BEAM END REPAIR PLANS
HOLYOKE=W. SPRINGFIELD H-21-058=W-21-039
I-91 OVER I-91 RAMP A TURNPIKE CONNECTOR

REPAIR DETAILS



BEAMS 1 & 7 WEB REPAIR
SCALE: 1½" = 1'-0"



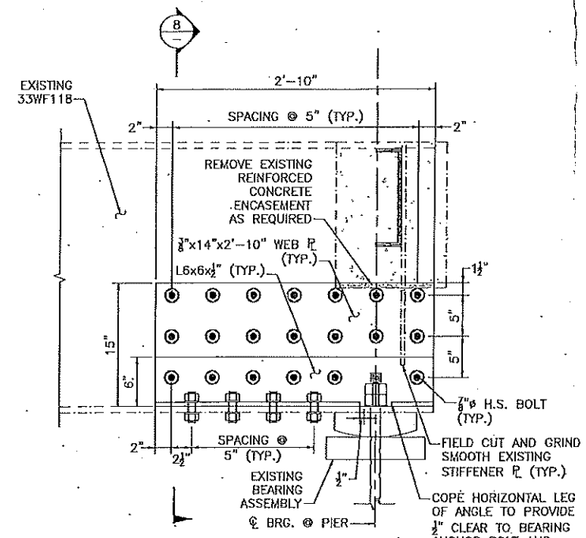
SECTION 7 (7)
SCALE: 1½" = 1'-0"

✓	Approved		Revise and resubmit
	Approved as noted, Resubmission not required		Not Approved

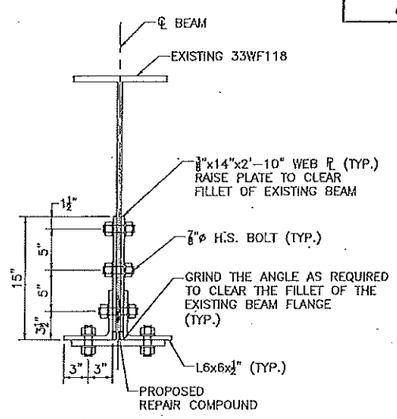
MassDOT Highway Division — District 2 NORTHAMPTON

Signed _____ Date 7/3/18

1. Approval of shop drawings indicates conformance with the concept of this project and general compliance with the contract documents.
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3. Approval does not authorize changes to contract requirements unless authorized by prior letter or change order.



BEAM 12 WEB REPAIR
SCALE: 1½" = 1'-0"



SECTION 8 (8)
SCALE: 1½" = 1'-0"

GILL ENGINEERING
63 KENDRICK STREET
NEEDHAM, MA 02494
781-455-7100
781-455-7101 (FAX)

DATE	DRWN. BY	CALC. BY	APPRV. BY	DESCRIPTION
5/25/2018	PKC	ISD	PAH	ISSUED FOR CONSTRUCTION

REGISTERED PROFESSIONAL ENGINEER _____ DATE _____

COMMONWEALTH OF MASSACHUSETTS — CHRISTOPHER J. KUNZ — CIVIL — NO. 51516 — REGISTERED PROFESSIONAL ENGINEER

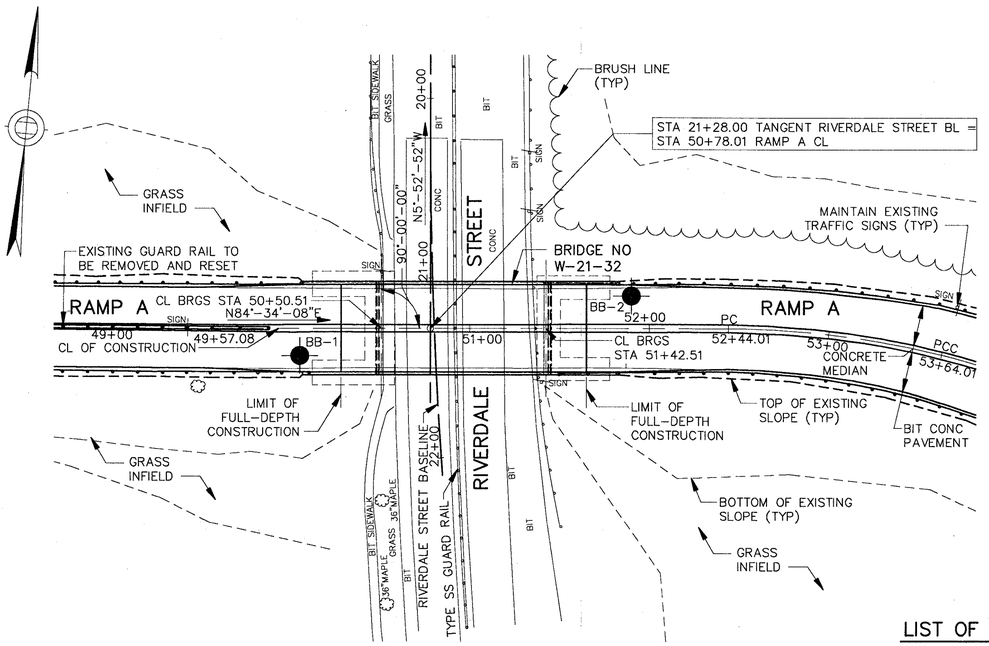
BEAM END REPAIR PLANS

MIG CORPORATION, INC.

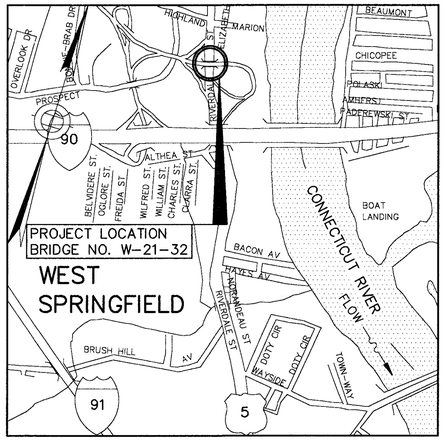
BEAM END REPAIR PLANS
HOLYOKE-W. SPRINGFIELD H-21-058=W-21-039
I-91 OVER I-91 RAMP A TURNPIKE CONNECTOR

REPAIR DETAILS

SHEET 4 OF 4



KEY PLAN
SCALE: 1" = 40'-0"



LOCUS PLAN
SCALE: 1" = 2000'

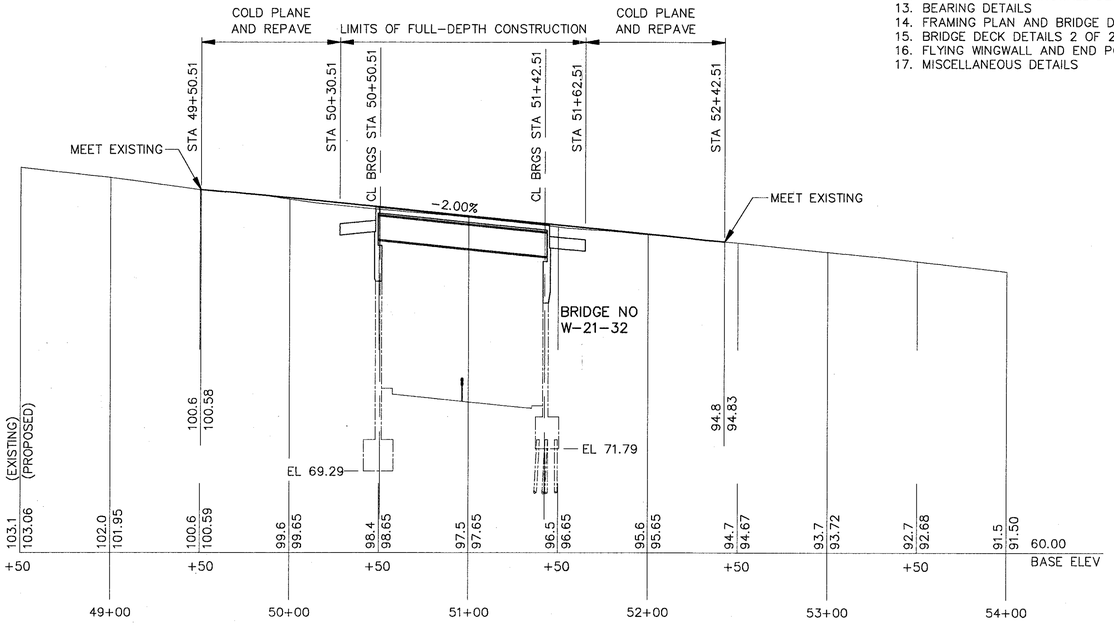
LIST OF DRAWINGS

1. KEY PLAN AND PROFILE
2. BORING LOGS
3. PLAN AND ELEVATION
4. STAGE CONSTRUCTION SEQUENCE 1 OF 2
5. STAGE CONSTRUCTION SEQUENCE 2 OF 2
6. TEMPORARY TRAFFIC BARRIER DETAILS
7. ABUTMENT DEMOLITION PLAN AND ELEVATION
8. PROPOSED ABUTMENT PLAN AND ELEVATION
9. TEMPORARY SUPPORT FRAME DETAILS 1 OF 2
10. TEMPORARY SUPPORT FRAME DETAILS 2 OF 2
11. BRIDGE CROSS SECTIONS
12. ABUTMENT AND WINGWALL DETAILS
13. BEARING DETAILS
14. FRAMING PLAN AND BRIDGE DECK DETAILS 1 OF 2
15. BRIDGE DECK DETAILS 2 OF 2
16. FLYING WINGWALL AND END POST DETAILS
17. MISCELLANEOUS DETAILS

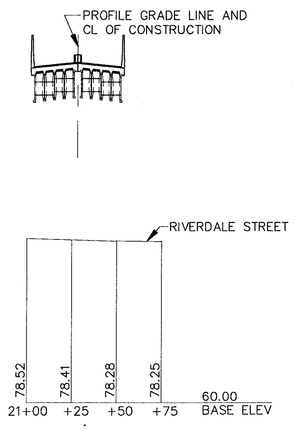
ESTIMATED QUANTITIES

(NOT GUARANTEED)

CLEAN AND PAINT STEEL BRIDGE	1 LS
PRESSURE INJECTION FOR CRACKS	10 LF
DEMOLITION OF SUPERSTRUCTURE BRIDGE No W-21-32	1 LS
EARTH EXCAVATION	65 CY
REINFORCED CONCRETE EXCAVATION	3 CY
GRAVEL BORROW	38 CY
TEMPORARY PRECAST CONCRETE MEDIAN BARRIER ON BRIDGE (SINGLE FACE)	194 LF
TEMPORARY PRECAST CONCRETE MEDIAN BARRIER ON BRIDGE (SINGLE FACE) – REMOVE & RESET	97 LF
4000-3/8-660 CEMENT CONCRETE MASONRY	3 CY
EPOXY COATED STEEL REINFORCEMENT FOR STRUCTURES	50 LB
TEMPORARY EARTH SUPPORT SYSTEM	1 LS
EPOXY BONDING COMPOUND	10 SF
ALTERATIONS TO BRIDGE STRUCTURE No W-21-32	1 LS
TEMPORARY PROTECTIVE SHIELDING BRIDGE No W-21-32	1 LS



PROPOSED RAMP A PROFILE AT CL OF CONSTRUCTION
SCALE: HORIZ. 1" = 40'-0"
VERT. 1" = 8'-0"



PROFILE ALONG BL RIVERDALE STREET
SCALE: HORIZ. 1" = 40'-0"
VERT. 1" = 8'-0"

WEST SPRINGFIELD
CONNECTOR RAMP A TO 190/191

STATE	FED.AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
MASS.	IM-091-1(145)	1996	11	27
PROJECT FILE NO. 600591				

KEY PLAN AND PROFILE

GENERAL NOTES

DESIGN

IN ACCORDANCE WITH THE 1992 AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, AND CURRENT INTERIMS, FOR HS20-44 LOADING.

EXISTING BRIDGE PLANS

PLANS FOR THE EXISTING BRIDGE ARE AVAILABLE AND MAY BE EXAMINED AT THE OFFICE OF THE BRIDGE ENGINEER, MASSACHUSETTS HIGHWAY DEPARTMENT, 10 PARK PLAZA, BOSTON, MASSACHUSETTS.

EXISTING CONDITIONS

EXISTING DIMENSIONS ARE NOT GUARANTEED. THE CONTRACTOR SHALL DETERMINE AND VERIFY ALL PERTINENT DIMENSIONS AND DETAILS NECESSARY FOR COMPLETION OF ALL WORK BY FIELD MEASUREMENT AND SURVEY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ADEQUACY AND ACCURACY THEREOF AND SHALL NOT ORDER ANY MATERIAL OR COMMENCE ANY FABRICATION UNTIL HE/SHE HAS MADE THE REQUIRED MEASUREMENTS AND THE EXTENT OF THE PROPOSED WORK HAS BEEN APPROVED BY THE ENGINEER. EXISTING STRUCTURE IS SHOWN THUS ———————— UNLESS NOTED.

BENCHMARK AND ELEVATIONS

CHISEL MARK (X-CUT) TBM 2 WESTERLY MOST BOLT ON TOP OF HYDRANT ON ROUTE 5 (RIVERDALE STREET).
ELEVATION: 81.53
DATUM: NORTH AMERICAN VERTICAL DATUM 1988 (NAVD 88)
DATUM USED FOR AS BUILT PLANS (1952) : NGVD 29

SURVEY NOTEBOOKS

BOOK No BAI 9424-201

REINFORCEMENT

REINFORCING BARS SHALL BE DEFORMED BARS CONFORMING TO THE REQUIREMENTS OF ASTM A615 GRADE 60. UNLESS OTHERWISE SHOWN ON THE PLANS, ALL #4 BARS SHALL BE LAPPED 31" AND ALL #5 BARS SHALL BE LAPPED 39". FOR HORIZONTAL BARS WITH 12" OR MORE OF CONCRETE BELOW THE BAR, THE LAP LENGTHS SHALL BE 35" FOR #4 BARS AND 44" FOR #5 BARS. IF THE ABOVE BARS ARE SPACED 6" OR MORE ON CENTER, THE LAP LENGTHS SHALL BE 80% OF THE LAP LENGTH AS DETERMINED ABOVE. ALL OTHER BARS SHALL BE LAPPED AS SHOWN ON THE PLANS. ALL REINFORCING BARS AND SUPPORTING DEVICES SHALL BE EPOXY COATED.

CONCRETE MIXES

	(1)	(2)	(3)
CLASS A DENOTES:	4000	1 1/2	565
CLASS B DENOTES:	3500	1 1/2	520
CLASS D DENOTES:	4000	3/4	610
CLASS E DENOTES:	4000	3/8	660

CONCRETE MIXES FOR CEMENT CONCRETE MASONRY WITH SILICA FUME ADDITIVE SHALL BE AS FOLLOWS:

CF-PL3 RAILINGS:	5000	3/4	635

CONCRETE MIX FOR LIGHTWEIGHT CONCRETE SHALL BE AS FOLLOWS:

DECK SLAB:	4000	3/4	610

(1) 28-DAY COMPRESSIVE STRENGTH (PSI)
(2) MAXIMUM AGGREGATE SIZE (INCHES)
(3) MINIMUM CEMENT CONTENT (LBS PER CU YD)

TRAFFIC

ONE LANE IN EACH DIRECTION MUST BE KEPT OPEN TO TRAFFIC AT ALL TIMES DURING THE DEMOLITION AND RECONSTRUCTION PHASES, AS SHOWN ON PLANS.

SCALES

SCALES NOTED ON THE PLANS ARE NOT APPLICABLE TO REDUCED SIZE PRINTS. DIVIDE SCALES BY 2 FOR HALF-SIZE PRINTS (12" X 18").

MAR. 3, 1997	⚠ SHEET 13 REVISED
4-20-96	ISSUED FOR CONSTRUCTION

COMMONWEALTH OF MASSACHUSETTS
MICHAEL McCALL STRUCTURAL No. 38468 REGISTERED PROFESSIONAL ENGINEER
Michael McCall

BRYANT ASSOCIATES, INC.
BOSTON, MASSACHUSETTS

MASS HIGHWAY

PROPOSED BRIDGE REHABILITATION

WEST SPRINGFIELD

RAMP A
OVER RIVERDALE STREET (RT 5)

THE COMMONWEALTH OF MASSACHUSETTS
MASSACHUSETTS HIGHWAY DEPARTMENT
10 PARK PLAZA BOSTON, MASS

Charles L. Bamboy, P.E. — BRIDGE ENGINEER
Thomas J. Broderick, P.E. — CHIEF ENGINEER

SHEET 1 OF 17 SHEETS BRIDGE NO. W-21-32 (159)

Drawing WSP-S01 by KAM on 02/22/1996 15:47:53 at 1:1.00

BORING BB–1

LINE AND STATION: 50+05
OFFSET: 17' RT
GROUND ELEVATION: 99.0±

DEPTH FEET	Sample No.	Depth	STRATA CHANGE	FIELD IDENTIFICATION OF SOIL/ROCK	BLOWS PER 6 IN. ON SAMPLER 0–6	6–12	12–18	MIN PER FOOT
			4"	ASPHALT				
	1	1'–2.5'		Dry, medium dense, brown, FINE SAND, some inorganic silt.	10	10	8	
			5'					
5	2	5'–6.5'		Moist, medium dense, brown, INORGANIC SILT, trace fine gravel, trace coarse to fine sand.	19	16	12	
			10'					
10	3	10'–11.5'		No recovery pushing cobble.	16	22	25	
15				Broke casing at 15' on cobble, unable to obtain sample, pulled casing and readvanced to 20'.				
20	4	20'–21.5'		Wet, medium dense, brown, FINE SAND AND INORGANIC SILT, trace fine gravel.	11	7	6	
			24'					
25	5	25'–26.5'		Wet, loose, brown, ORGANIC SILT AND FINE SAND.	4	4	6	
			29'					
30	6	30'–31.5'		Wet, medium dense, brown, INORGANIC SILT, some fine sand.	4	6	14	
			33'					
35	7	35'–36.5'		Wet, medium dense, brown, FINE SAND, some inorganic silt.	12	12	12	
40	8	40'–41.5'		dense.	13	16	20	
45	9	45'–46.5'			9	14	16	
50	10	50'–51.5'			15	21	18	
			55'					
55	11	55'–56.5'		Wet, dense, brown, FINE SAND, some inorganic silt, trace coarse sand.	14	13	18	
60	12	60'–61.5'			12	15	15	
			65'					
65	13	65'–66.5'		Moist, very dense, brown, INORGANIC SILT, some fine gravel, trace coarse to fine sand.	13	34	40	
70	14	70'–70.58'		wet.	89	75/1"		
			75.42'					
75	15	75'–75.42'		Top of Bedrock	100/4"			
	Run #1	78'–79'		Moderately hard, slightly weathered, moderately fractured to sound, red–brown, fine grained, SILT STONE. Recovery: 93%				12
		79'–80'						12
80		80'–81'						12
		81'–82'						12
		82'–83'						10
		83'–84'		Moderately hard, slightly weathered, sound, red–brown to gray, fine grained, SILT STONE. Recovery: 85%				10
		84'–85'						10
85		85'–86'						10
		86'–87'						10
		87'–88'	88'					10
				BOTTOM OF BORING: 88'				

100.0 — 95.0 — 90.0 — 85.0 — 80.0 — 75.0 — 70.0 — 65.0 — 60.0 — 55.0 — 50.0 — 45.0 — 40.0 — 35.0 — 30.0 — 25.0 — 20.0 — 15.0 — 10.0

ELEV 69.29 BOTTOM OF FOOTING

44.42' ▽

BORING BB–2

LINE AND STATION: 51+89
OFFSET: 18' LT
GROUND ELEVATION: 95.5±

DEPTH FEET	Sample No.	Depth	STRATA CHANGE	FIELD IDENTIFICATION OF SOIL/ROCK	BLOWS PER 6 IN. ON SAMPLER 0–6	6–12	12–18	MIN PER FOOT
			8"	ASPHALT				
	1	9"–2.25'		Moist, dry, dense, brown, FINE SAND AND COARSE GRAVEL. Moist, dense to very dense, dark brown, FINE SAND, some INORGANIC SILT, some rock fragments.	6	33	19	
5	2	5'–6.5'		dense.	5	19	17	
10	3	10'–11.5'		very dense.	22	35	36	
15	4	15'–16.5'			26	28	35	
20	5	20'–21.5'		dense.	19	16	15	
			22.5'					
			24'	Moist, dense, redish–brown, FINE SAND AND ORGANIC SILT. Moist, very dense, brown, FINE SAND, trace organic silt.				
25	6	25'–26.5'			19	27	39	
			29.5'					
30	7	30'–31.5'		Moist to wet, very stiff, grayish brown, ORGANIC SILT, some fine sand.	4	5	8	
			33'					
35	8	35'–36.5'		Wet, medium dense, brown, FINE TO COARSE SAND, trace of organic silt.	11	13	13	
40	9	40'–41.5'			8	9	12	
45	10	45'–46.5'			10	10	12	
			47'					
50	11	50'–51.5'		Wet, medium dense, brown, FINE SAND, trace inorganic silt.	8	12	14	
55	12	55'–56.5'			12	13	16	
			57'					
60	13	60'–61.5'		Wet, medium stiff, gray, CLAY, trace fine sand.	1	1	6	
			63.5'					
65	14	65'–66.5'		Wet, stiff, brown–gray, CLAY, some fine sand.	4	5	6	
			68'					
70	15	70'–71.5'		Moist, very stiff, brown–gray, CLAY AND FINE SAND.	8	12	13	
75	16	75'–76.5'		hard.	12	15	21	
			77'					
80	17	80'–80.83'	80.42'	Wet, very dense, redish brown–gray, FINE TO COARSE SAND, some inorganic silt, trace rock fragments. Dry, very hard, dark gray bedrock.	76	150/4"		
			80.83'	BOTTOM OF BORING: 80.83'				

21.75' ▽

ELEV 71.79 BOTTOM OF FOOTING

WEST SPRINGFIELD
CONNECTOR RAMP A TO I90/I91

STATE	FED.AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
MASS.	IM–091–1(145)	1996	12	27
PROJECT FILE NO. 600591				

SOIL BORING LOGS

BORING NOTES:

1. LOCATION OF BORINGS SHOWN ON THE KEY PLAN THUS: ⊕
2. BORINGS ARE TAKEN FOR THE PURPOSE OF DESIGN AND SHOW CONDITIONS AT THE BORING POINT LOCATION ONLY, BUT DO NOT NECESSARILY SHOW THE NATURE OF THE MATERIALS TO BE ENCOUNTERED DURING CONSTRUCTION.
3. WATER LEVELS SHOWN THUS ▽ ON THE BORING LOGS WERE OBSERVED AT THE TIME OF TAKING THE BORINGS AND DO NOT NECESSARILY SHOW THE TRUE GROUND WATER LEVEL.
4. FIGURES SHOWN TO THE RIGHT OF THE BORING PROFILE INDICATE THE NUMBER OF BLOWS REQUIRED TO DRIVE A 1–3/8" I.D. SPLIT SPOON SAMPLER 6" USING A 140 POUND WEIGHT FALLING 30".
5. BORING SAMPLES MAY BE SEEN AT THE "MHD RESEARCH AND MATERIALS DIVISION" AT 400 D STREET, SOUTH BOSTON, MA.
6. BORING NOS. BB–1 AND BB–2 WERE MADE MAY 10, 11, 12, 15, 16, AND 17, 1994 AND WERE MADE BY GREEN ENVIRONMENTAL, RICCIUTI DRIVE, QUINCY, MASSACHUSETTS.
7. BORING LOG AND NOTES FOR BORINGS PERFORMED IN 1955 MAY BE SEEN AT THE OFFICE OF THE BRIDGE ENGINEER, MASSACHUSETTS HIGHWAY DEPARTMENT, 10 PARK PLAZA, BOSTON, MASSACHUSETTS.

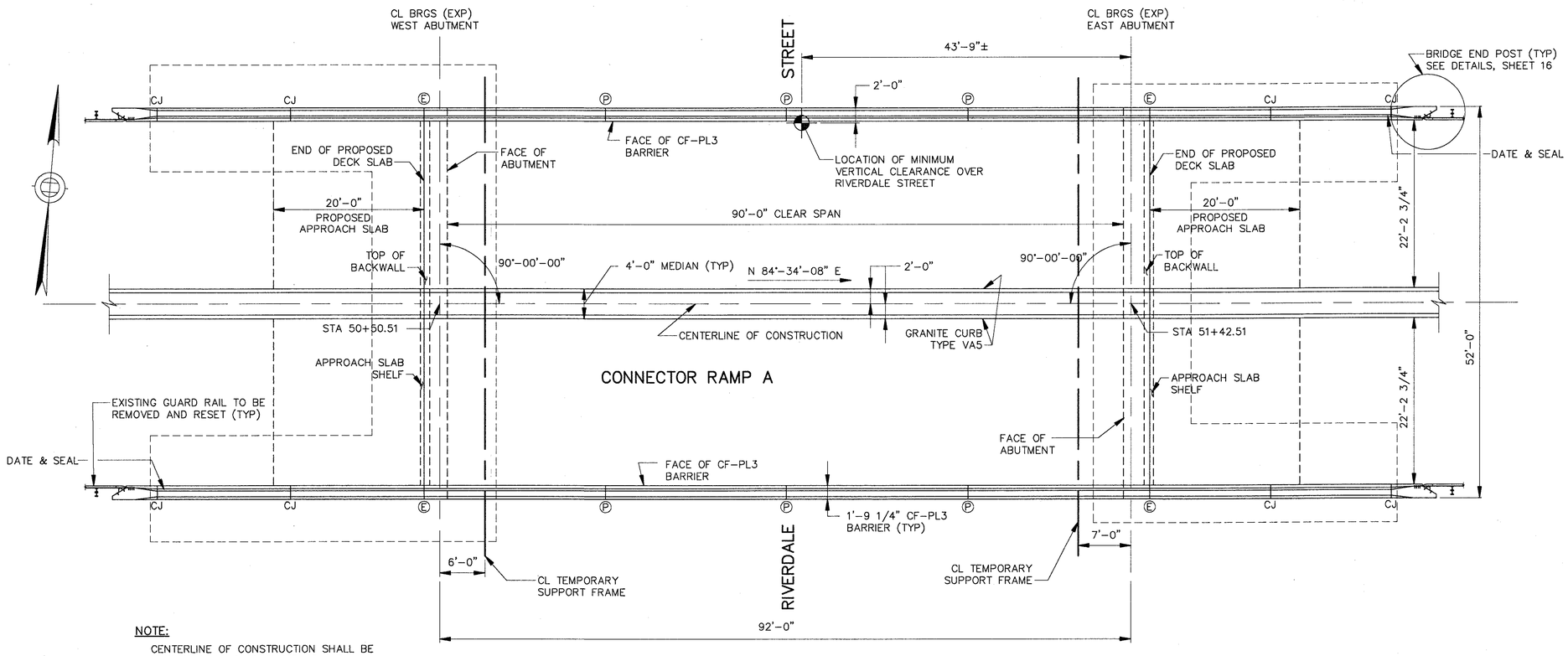
DATE	DESCRIPTION
4-20-96	ISSUED FOR CONSTRUCTION
USE ONLY PRINTS OF LATEST DATE	

Drawing WSP–S02 by DKO on 02/22/1996 15:50:24 at 1:1.00

WEST SPRINGFIELD
CONNECTOR RAMP A TO I90/I91

STATE	FED.AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
MASS.	IM-091-1(145)	1996	13	27
PROJECT FILE NO. 600591				

PLAN AND ELEVATION



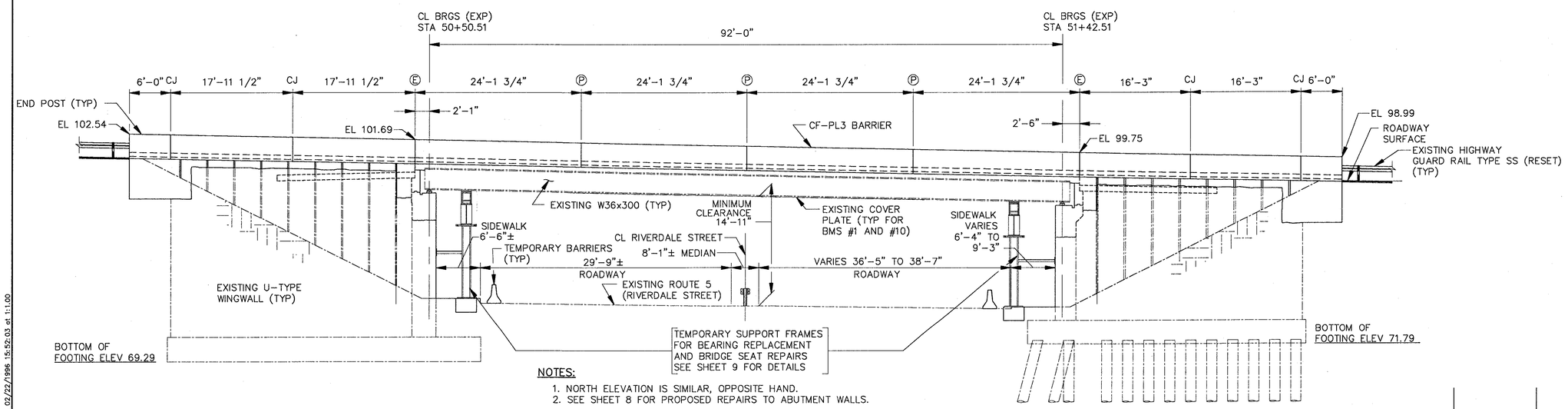
NOTES:

1. (P) DENOTES PARAFFIN JOINT LOCATION.
2. (E) DENOTES EXPANSION JOINT LOCATION (1 1/8" JOINT).
3. CJ DENOTES CONSTRUCTION JOINT LOCATION.

NOTE:

CENTERLINE OF CONSTRUCTION SHALL BE MIDWAY BETWEEN STRINGER #5 AND STRINGER #6. SEE FRAMING PLAN ON SHEET 14.

DECK PLAN
SCALE: 1/8" = 1'-0"



NOTES:

1. NORTH ELEVATION IS SIMILAR, OPPOSITE HAND.
2. SEE SHEET 8 FOR PROPOSED REPAIRS TO ABUTMENT WALLS.

SOUTH ELEVATION
SCALE: 1/8" = 1'-0"

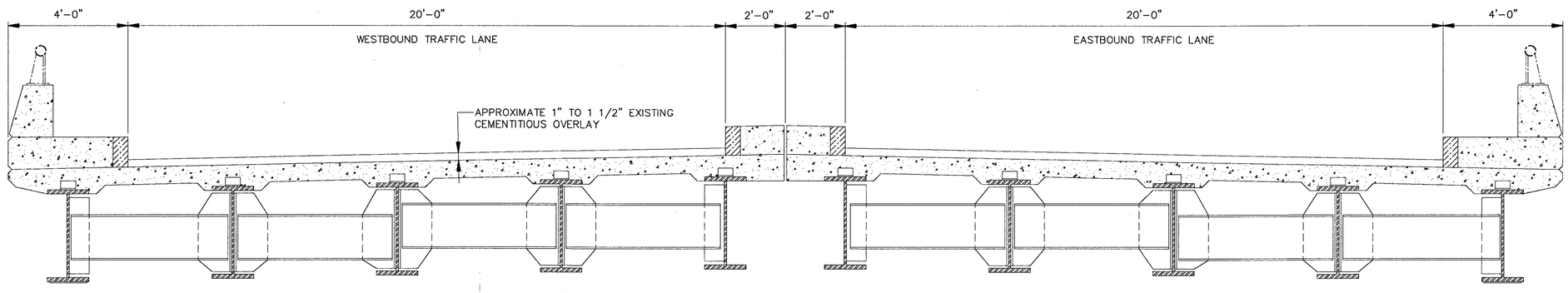
DATE	DESCRIPTION
4-20-96	ISSUED FOR CONSTRUCTION
	USE ONLY PRINTS OF LATEST DATE

Drawing WSP-S03 by APH on 02/22/1996 15:52:03 at 1:1.00

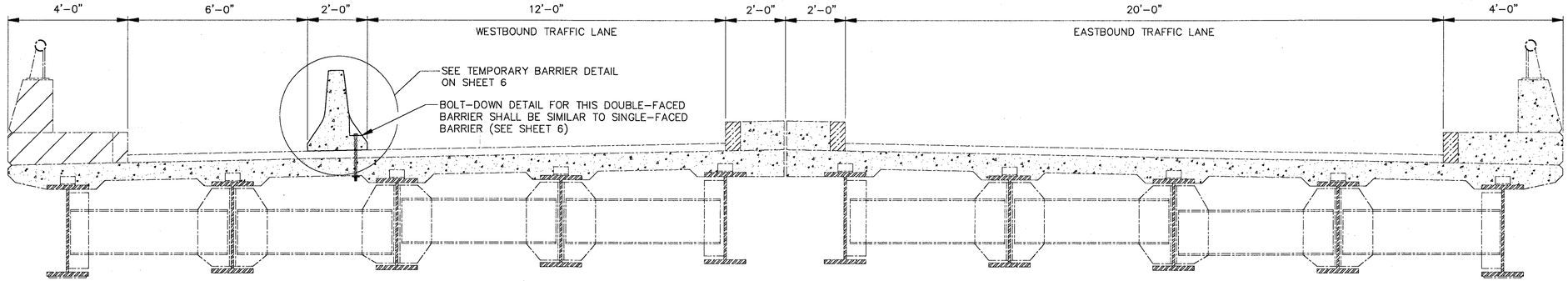
WEST SPRINGFIELD
CONNECTOR RAMP A TO 190/191

STATE	FED.AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
MASS.	IM-091-1(145)	1996	14	27
PROJECT FILE NO. 600591				

STAGE CONSTRUCTION
SEQUENCE 1 OF 2

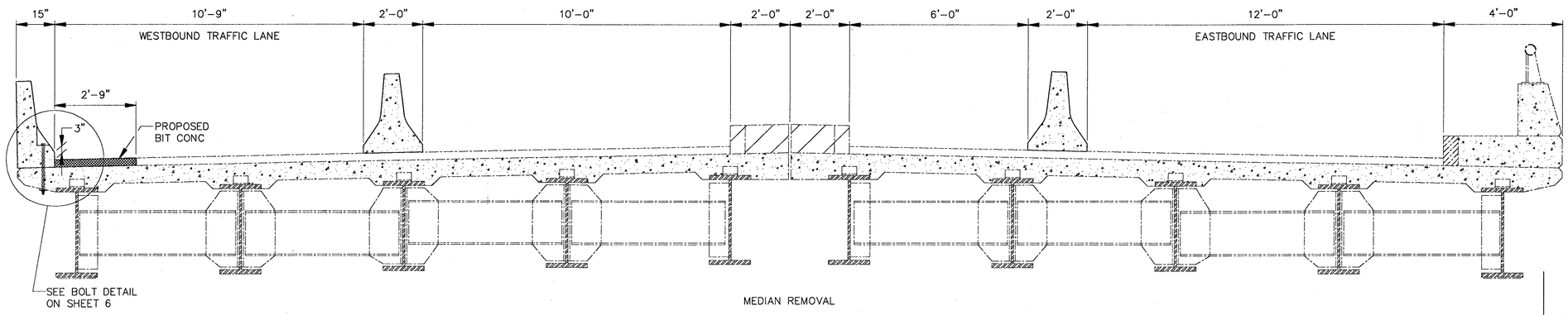


EXISTING CROSS SECTION OF SUPERSTRUCTURE



LEFT SAFETY WALK AND PARAPET REMOVAL

STAGE 1A



MEDIAN REMOVAL

STAGE 1B

NOTES FOR STAGE CONSTRUCTION

1. ▨ DENOTES AREA TO BE DEMOLISHED.
2. ALL EXISTING STRUCTURAL STEEL IS TO BE CLEANED AND PAINTED. SEE SPECIAL PROVISIONS.
3. THE CONTRACTOR SHALL CONSTRUCT EARTH SUPPORT SYSTEM DURING STAGE 1B TO ACCOMMODATE EARTH EXCAVATION DURING STAGES 1C AND 2A. SEE SHEET 17 FOR SUGGESTED DETAILS OF RETAINING WALLS FOR STAGE CONSTRUCTION.
4. VERTICAL LEGS OF EXISTING BULB ANGLE SHEAR CONNECTORS SHALL BE REMOVED. SEE SHEET 14 FOR DETAILS OF EXISTING AND PROPOSED SHEAR CONNECTORS.
5. TEMPORARY PROTECTIVE SHIELDING IS NOT SHOWN. THE CONTRACTOR SHALL DESIGN AND INSTALL TEMPORARY PROTECTIVE SHIELDING SYSTEM AS DESCRIBED IN THE SPECIAL PROVISIONS.

DATE	DESCRIPTION
4-20-96	ISSUED FOR CONSTRUCTION
	USE ONLY PRINTS OF LATEST DATE

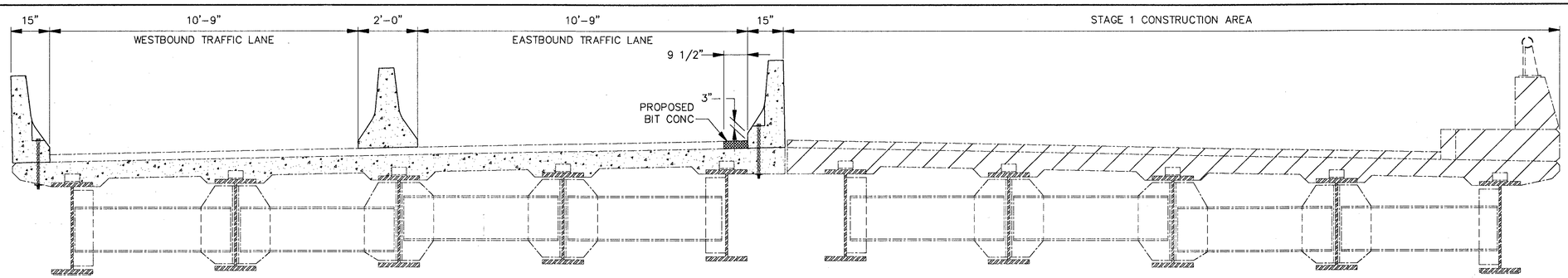
STAGE CONSTRUCTION SEQUENCE (SHEET 1 OF 2)
SCALE: NONE

Drawing WSP-S04 by DKD on 02/22/1996 15:53:21 at 1:1.00

WEST SPRINGFIELD
CONNECTOR RAMP A TO I90/I91

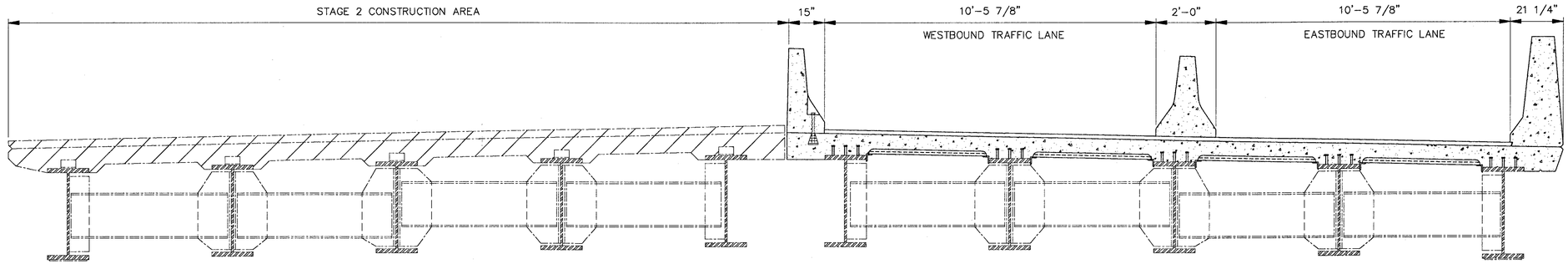
STATE	FED.AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
MASS.	IM-091-1(145)	1996	15	27
PROJECT FILE NO. 600591				

STAGE CONSTRUCTION
SEQUENCE 2 OF 2



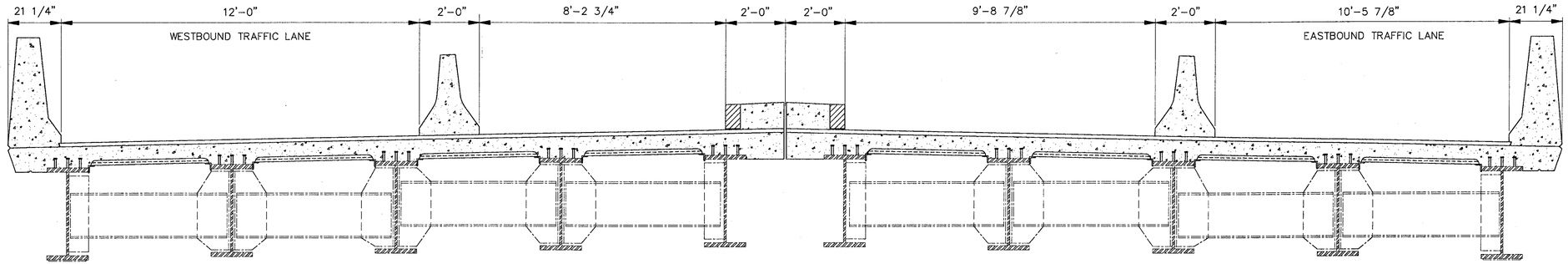
RIGHT DECK AND SAFETY WALK REMOVAL

STAGE 1C



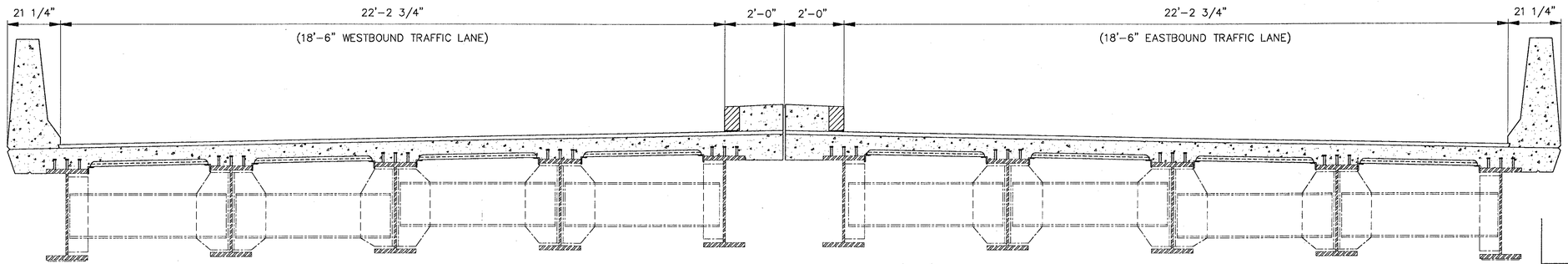
LEFT DECK REMOVAL

STAGE 2A



MEDIAN CONSTRUCTION

STAGE 2B



PROPOSED CROSS SECTION

STAGE CONSTRUCTION SEQUENCE (SHEET 2 OF 2)

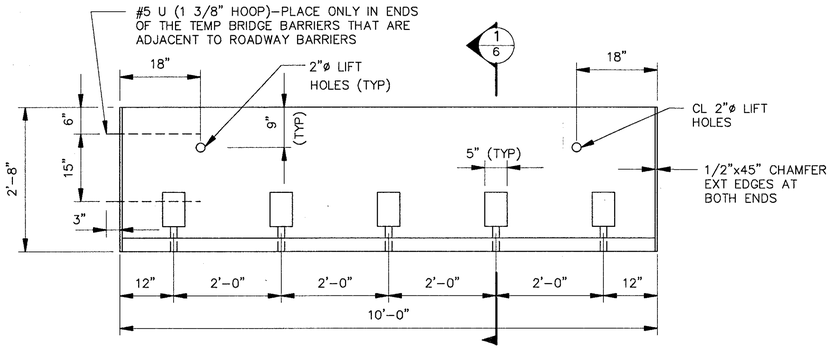
SCALE: NONE

NOTES:

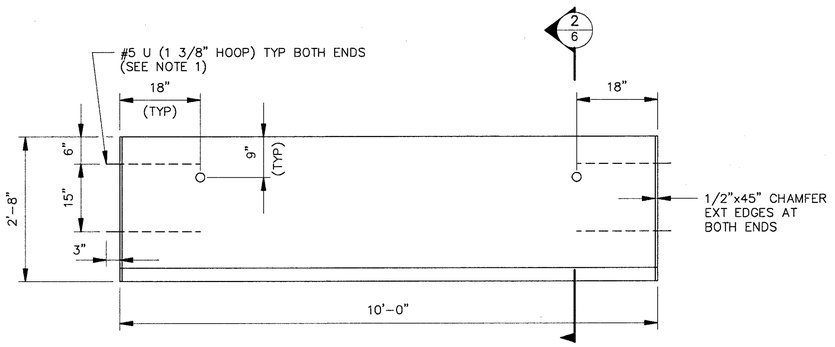
SEE SHEET 4 FOR STAGE CONSTRUCTION NOTES.

DATE	DESCRIPTION
4-20-96	ISSUED FOR CONSTRUCTION
USE ONLY PRINTS OF LATEST DATE	

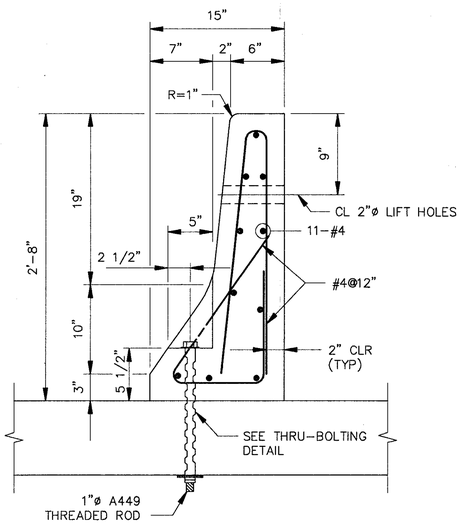
Drawing WSP-S05 by DKD on 02/22/1996 15:55:01 at 1:1.00



ELEVATION

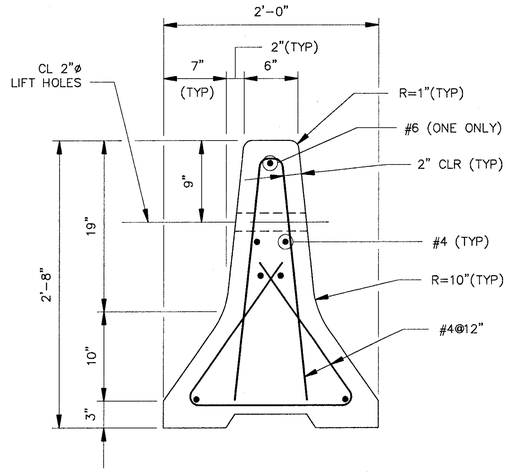


ELEVATION



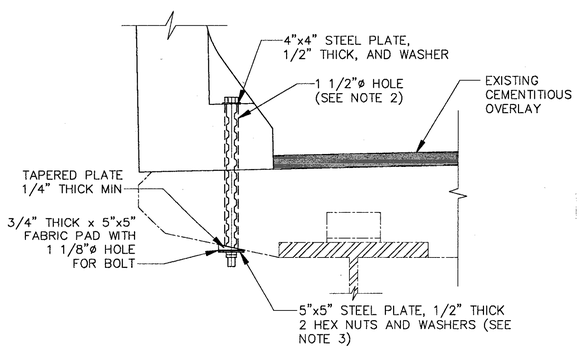
SECTION 1

SINGLE FACED
TEMPORARY PRECAST BARRIER
SCALE: NONE

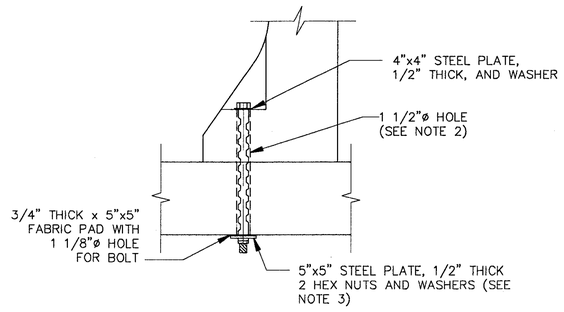


SECTION 2

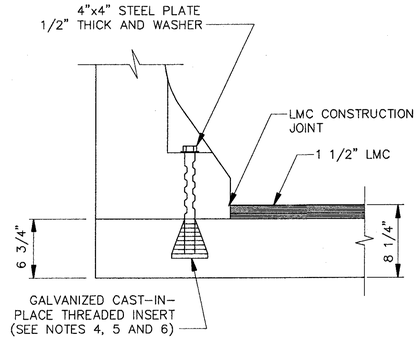
DOUBLE FACED
TEMPORARY PRECAST BARRIER
SCALE: NONE



THRU BOLTING DETAIL
FOR SLOPED EDGE OF EXISTING BRIDGE DECK
SCALE: NONE



THRU BOLTING DETAIL
FOR EXISTING BRIDGE DECK
SCALE: NONE



BOLT DOWN DETAIL
FOR PROPOSED CONCRETE DECK
SCALE: NONE

WEST SPRINGFIELD
CONNECTOR RAMP A TO I90/I91

STATE	FED.AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
MASS.	IM–091–1(145)	1996	16	27
PROJECT FILE NO. 600591				

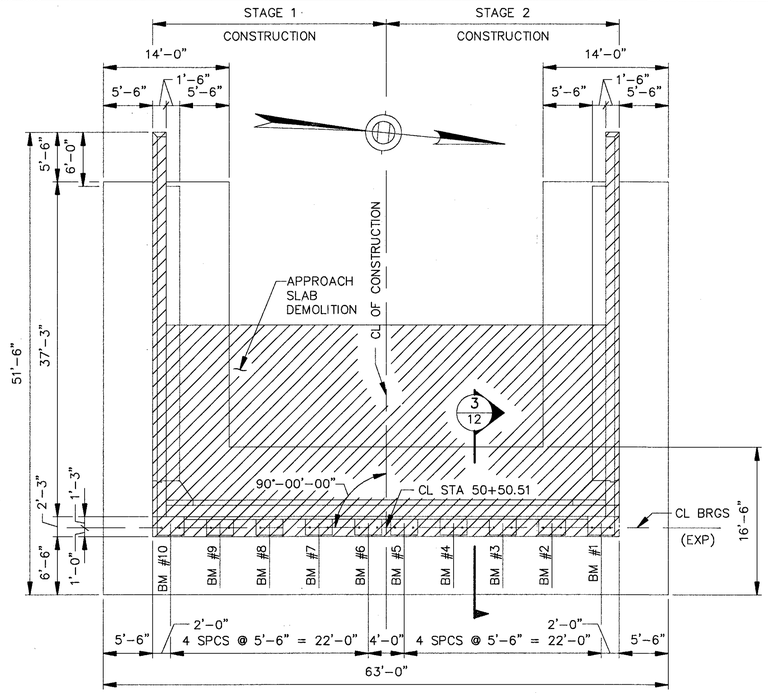
TEMPORARY TRAFFIC BARRIER DETAILS

NOTES FOR TEMPORARY TRAFFIC BARRIERS ON BRIDGE:

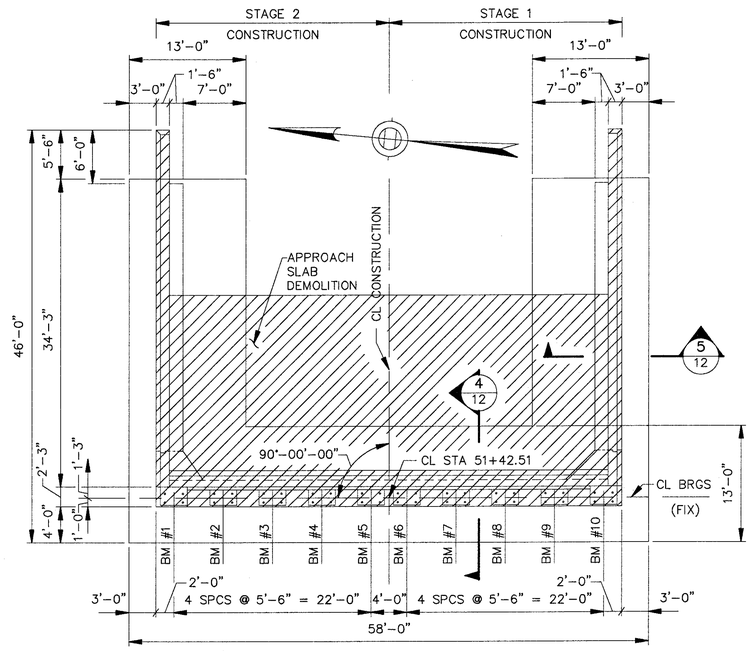
1. ALL DOUBLE FACED BARRIERS MUST BE CONNECTED END–TO–END USING CAST–IN–PLACE HOOPS AND STEEL RODS. SINGLE FACED BRIDGE BARRIERS WHICH ARE ADJACENT TO DOUBLE FACED ROADWAY BARRIERS SHALL BE CONNECTED END–TO–END USING CAST–IN–PLACE HOOPS AND STEEL RODS.
2. ALL SINGLE FACED BARRIERS MUST BE BOLTED DOWN TO THE EXISTING CONCRETE BRIDGE DECK BY BOLTING THROUGH THE DECK. NO IMPACT OR PERCUSSION TYPE DRILLS WILL BE ALLOWED TO ANCHOR TEMPORARY BARRIERS. IN NEW SLAB USE THREADED INSERTS. FOR LOCATION OF HOLES, MEASURE THE HOLE DISTANCE FROM PRECAST BARRIERS ON SITE.
3. SIZE OF STEEL BACK UP PLATE AND FABRIC PAD MAY BE LARGER TO BEAR ON SOUND CONCRETE.
4. THREADED INSERT SHALL BE CAPABLE OF WITHSTANDING A MINIMUM COMBINED TENSION AND SHEAR LOAD OF 8720 LBS IN TENSION AND 8000 LBS IN SHEAR.
5. RECESS INSERTS 1/2" BELOW TOP OF CONCRETE SLAB.
6. FILL INSERTS WITH EPOXY GROUT AFTER THE TEMPORARY CONCRETE BARRIERS HAVE BEEN REMOVED.
7. THRU BOLTING NOT PERMITTED THROUGH LMC WEARING SURFACE.

DATE	DESCRIPTION
4-20-96	ISSUED FOR CONSTRUCTION
USE ONLY PRINTS OF LATEST DATE	

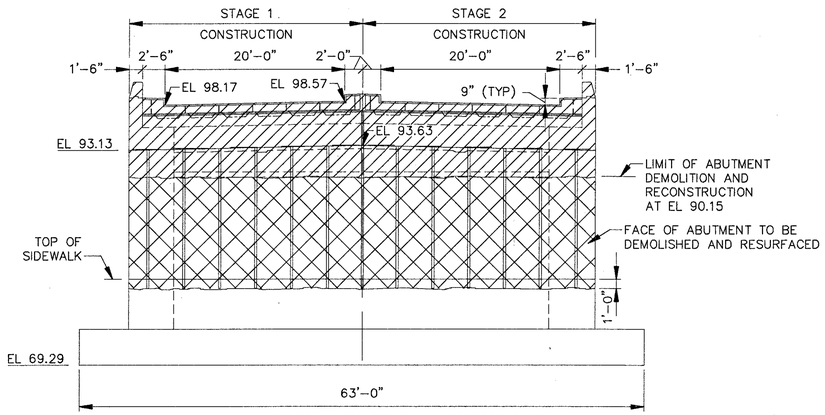
Drawing WSP–506 by DKD on 02/22/1996 15:56:26 at 1:1.00



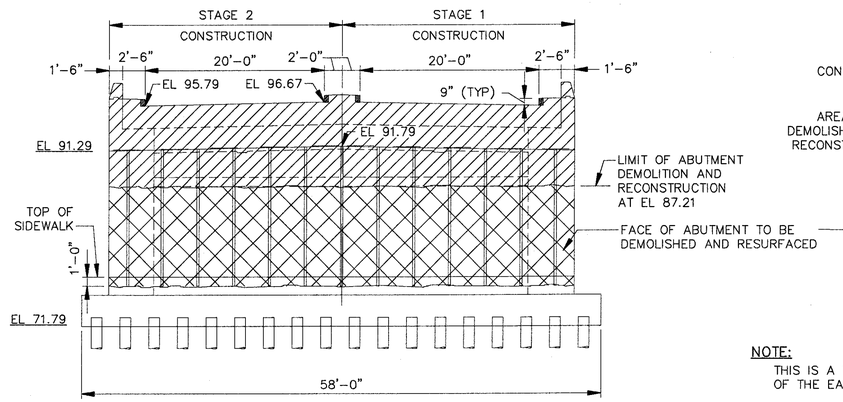
EXISTING PLAN OF WEST ABUTMENT
SCALE: 1/8" = 1'-0"



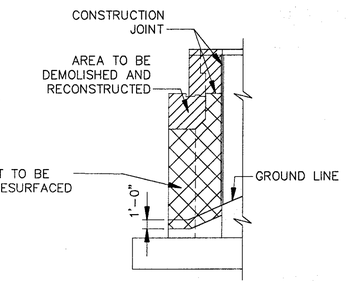
EXISTING PLAN OF EAST ABUTMENT
SCALE: 1/8" = 1'-0"



EXISTING ELEVATION OF WEST ABUTMENT
SCALE: 1/8" = 1'-0"



EXISTING ELEVATION OF EAST ABUTMENT
SCALE: 1/8" = 1'-0"



NOTE:
THIS IS A TYPICAL ELEVATION FOR BOTH SIDES OF THE EAST AND WEST ABUTMENTS.

SIDE OF ABUTMENT – LIMITS OF DEMOLITION/RECONSTRUCTION
SCALE: NONE

WEST SPRINGFIELD
CONNECTOR RAMP A TO I90/I91

STATE	FED.AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
MASS.	IM-091-1(145)	1996	17	27
PROJECT FILE NO. 600591				

ABUTMENT DEMOLITION
PLAN AND ELEVATION

LEGEND:

DENOTES AREA TO BE DEMOLISHED AND RECONSTRUCTED. (SEE SHEET 11 FOR LIMITS OF DEMOLITION)

DENOTES AREA OF ABUTMENT FACE TO BE DEMOLISHED AND RESURFACED. (SEE SHEET 8 FOR ABUTMENT STEM DETAIL)

NOTE:

1. AT ALL LOCATIONS OF REINFORCED CONCRETE EXCAVATION IN THE SUBSTRUCTURES, THE EXISTING CONCRETE SHALL BE SAWCUT ALONG NEAT STRAIGHT LINES TO A MAXIMUM DEPTH OF 3/4".

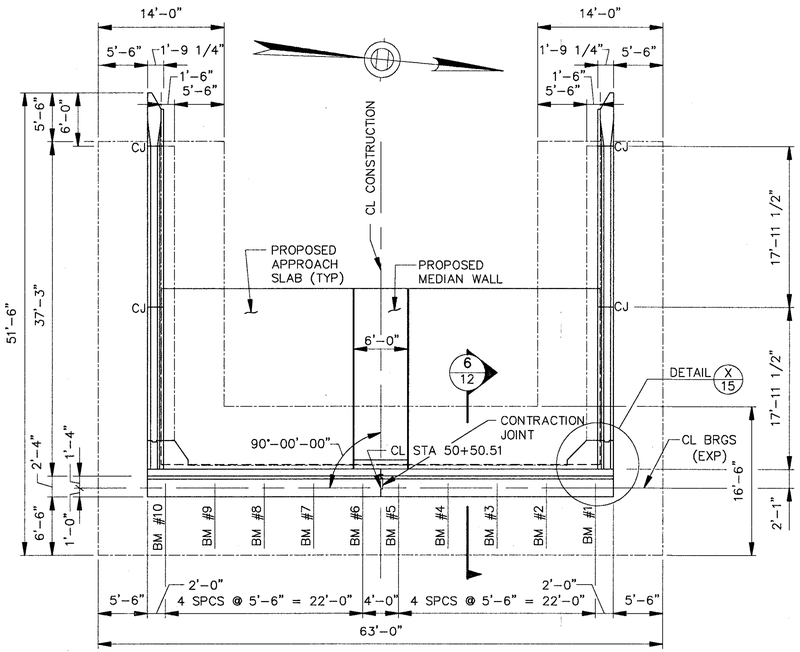
4-20-96	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

Drawing WSP-S07 by APH on 02/22/1996 15:58:01 at 1:1.00

WEST SPRINGFIELD
CONNECTOR RAMP A TO I90/I91

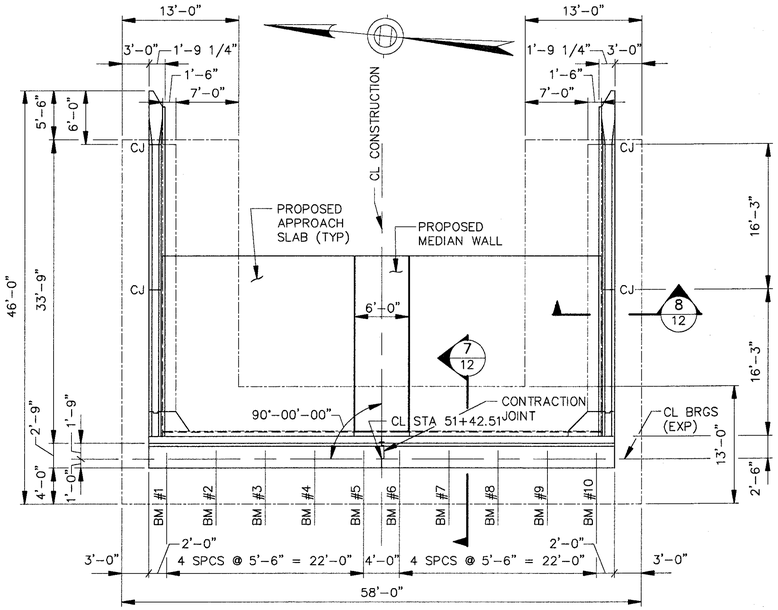
STATE	FED.AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
MASS.	IM-091-1(145)	1996	18	27
PROJECT FILE NO. 600591				

PROPOSED ABUTMENT
PLAN AND ELEVATION



PROPOSED PLAN OF WEST ABUTMENT
SCALE: 1/8" = 1'-0"

NOTES:
CJ DENOTES CONSTRUCTION JOINT LOCATION.

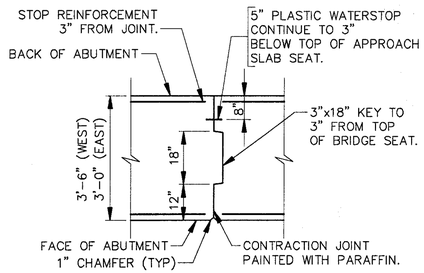


PROPOSED PLAN OF EAST ABUTMENT
SCALE: 1/8" = 1'-0"

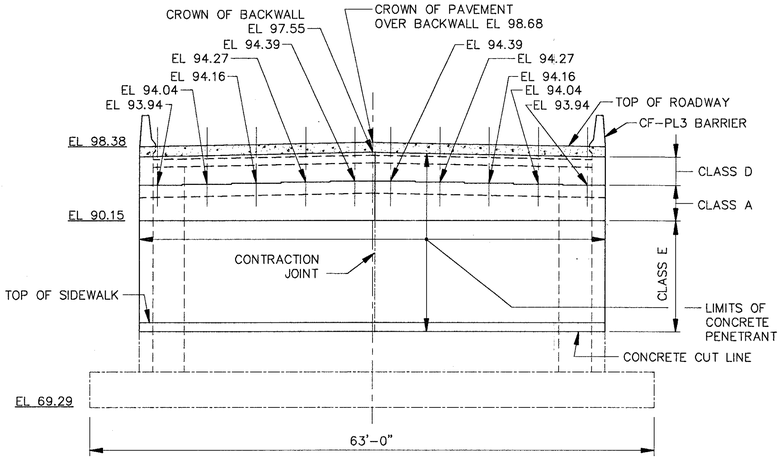
NOTES FOR PLACEMENT OF CONCRETE AGAINST EXISTING SURFACES:

AT ALL LOCATIONS WHERE NEW CONCRETE IS TO BE PLACED AGAINST AN EXISTING CONCRETE SURFACE, THE FOLLOWING PROCEDURES SHALL BE FOLLOWED:

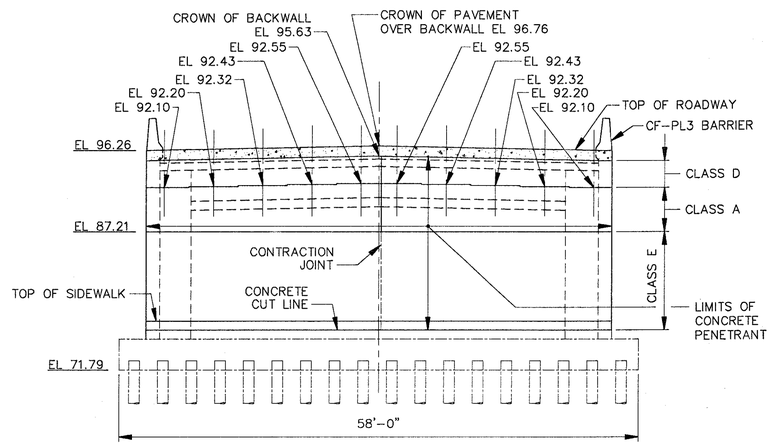
1. ALL REINFORCING STEEL THAT IS TO BE RETAINED SHALL BE PROTECTED FROM DAMAGE. ANY BARS THAT ARE DAMAGED SHALL BE REPAIRED BY THE CONTRACTOR AT HIS OWN EXPENSE.
2. ALL EXISTING CONCRETE SUFACES THAT ARE TO COME IN CONTACT WITH NEW CONCRETE SHALL BE ROUGHENED.
3. PRIOR TO PLACING NEW CONCRETE, RETAINED REINFORCING STEEL SHALL BE CLEANED OF ALL OLD CONCRETE, LOOSE RUST, AND UNBOUND PARTICLES.
4. IF RETAINED REINFORCING STEEL IS NOT EPOXY COATED AND IS TO REMAIN EXPOSED TO THE ATMOSPHERE FOR MORE THAN THREE WEEKS, THE CONTRACTOR SHALL COVER THE BARS WITH A CONCRETE SLURRY. THE RETAINED REINFORCING STEEL SHALL BE CLEANED AND COATED WITH A ZINC-RICH PRIMER PRIOR TO PLACING NEW CONCRETE.
5. IMMEDIATELY PRIOR TO PLACING NEW CONCRETE, CLEAN EXISTING CONCRETE OF ALL DUST AND UNBONDED PARTICLES AND APPLY EPOXY BONDING COMPOUND.



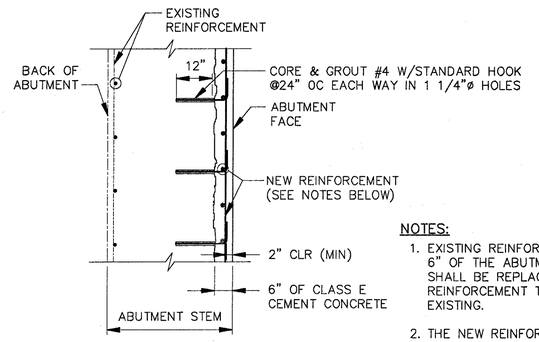
DETAIL OF CONTRACTION JOINT
NO SCALE



PROPOSED ELEVATION OF WEST ABUTMENT
SCALE: 1/8" = 1'-0"



PROPOSED ELEVATION OF EAST ABUTMENT
SCALE: 1/8" = 1'-0"



NOTES:
1. EXISTING REINFORCEMENT WITHIN 6" OF THE ABUTMENT FACE SHALL BE REPLACED WITH NEW REINFORCEMENT TO MATCH EXISTING.
2. THE NEW REINFORCEMENT SHALL BE PROPERLY SPLICED WITH THE EXISTING.
3. SEE NOTES FOR PLACEMENT OF CONCRETE AGAINST EXISTING SURFACE.

ABUTMENT CONCRETE RECONSTRUCTION
SCALE: 1/2" = 1'-0"

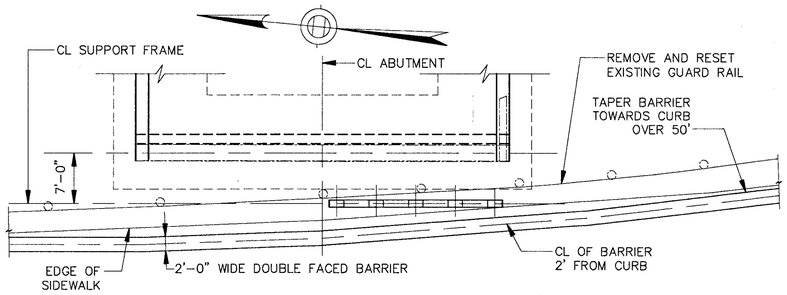
4-20-96	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

Drawing WSP-S08 by KAM on 02/22/1996 15:59:13 at 1:1.00

WEST SPRINGFIELD
CONNECTOR RAMP A TO I90/I91

STATE	FED.AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
MASS.	IM-091-1(145)	1996	19	27
PROJECT FILE NO. 600591				

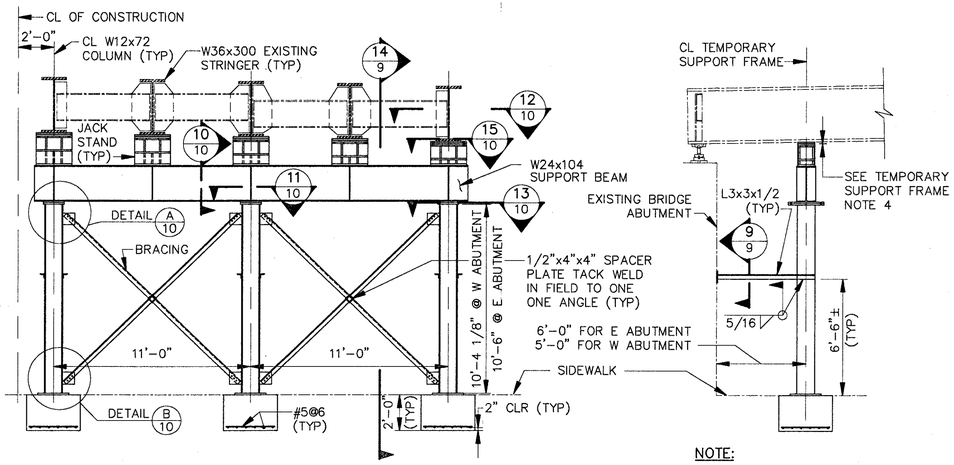
TEMPORARY SUPPORT FRAME DETAILS 1 OF 2



EAST ABUTMENT – STAGE 1C

SUPPORT FRAME PLAN

SCALE: 1" = 10'-0"



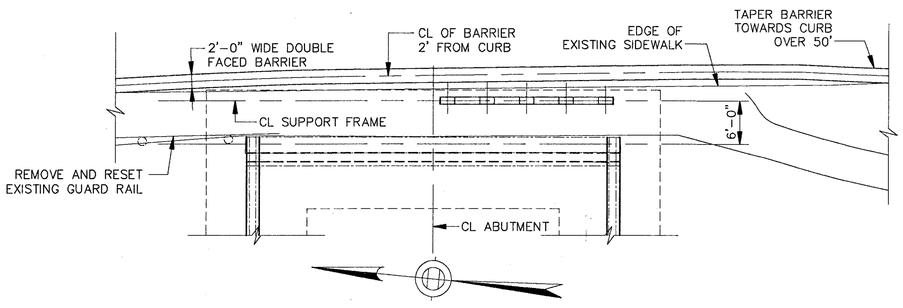
NOTE:
CROSS BRACING NOT SHOWN FOR CLARITY.

TEMPORARY SUPPORT ELEVATION

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

SECTION 14

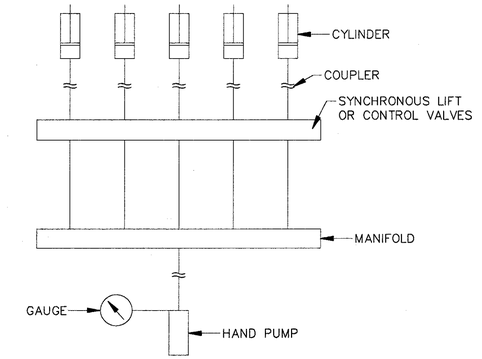
SCALE: 1/4" = 1'-0"



WEST ABUTMENT – STAGE 1C

SUPPORT FRAME PLAN

SCALE: 1" = 10'-0"

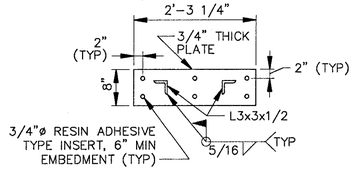


PROPOSED JACK SCHEMATIC

SCALE: NONE

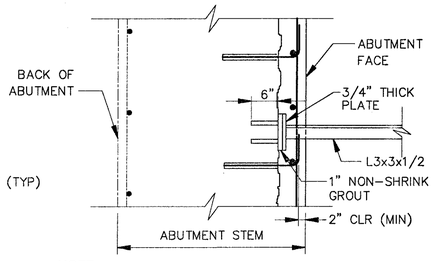
JACKING NOTES:

1. ALL STRINGERS SHALL BE SHIMMED AND SECURED FROM SLIPPAGE BEFORE JACKING COMMENCES.
2. THE CONTRACTOR SHALL OBTAIN APPROVAL OF JACKING EQUIPMENT AND PROCEDURE FROM THE ENGINEER BEFORE JACKING COMMENCES.
3. STRUCTURAL STEEL TO CONFORM TO ASTM A709 GRADE 36 UNLESS NOTED OTHERWISE.
4. STEEL FALSEWORK FRAMING TO HAVE A ONE SHOP COAT OF ZINC RICH PRIMER, SEE SPECIAL PROVISIONS.
5. ALL BOLTS USED IN THE STEEL FALSEWORK FRAMING SHALL BE 3/4"ø UNLESS OTHERWISE NOTED AND CONFORM TO ASTM A325.
6. LOAD SHALL NOT BE SUPPORTED BY JACKS DURING DEMOLITION AND RECONSTRUCTION PHASES.
7. JACK STANDS AND SHIMS TO BE CAPABLE OF SUPPORTING AN AXIAL LOAD OF 50 TONS.



SECTION 9

SCALE: 3/4" = 1'-0"



NOTE:
SEE SHEET 8 FOR ABUTMENT FACE RECONSTRUCTION.

ABUTMENT CONNECTION PLATE

SCALE: 3/4" = 1'-0"

ABUTMENT CONNECTION SUGGESTED SEQUENCE:

1. REMOVE CONCRETE AND REINFORCEMENT FROM ABUTMENT FACE AROUND LOCATION FOR EACH ABUTMENT CONNECTION PLATE.
2. APPLY 1" OF NON-SHRINK GROUT TO ABUTMENT TO PROVIDE A SMOOTH SURFACE FOR THE CONNECTION PLATE.
3. ATTACH THE CONNECTION PLATE TO THE ABUTMENT AND ATTACH THE BRACING TO BOTH THE CONNECTION PLATE AND THE TEMPORARY SUPPORT FRAME.
4. THE AREA 6" AROUND EACH CONNECTION PLATE SHALL NOT BE ENCASED WITH CONCRETE DURING THE ABUTMENT FACE RECONSTRUCTION.
5. AFTER THE TEMPORARY SUPPORT FRAME IS REMOVED, CUT THE BRACING 2" FROM THE CONNECTION PLATE.
6. COMPLETE THE ABUTMENT FACE RECONSTRUCTION ENCASING THE ABUTMENT CONNECTION PLATE AND REMAINING BRACING.

NOTES FOR TEMPORARY SUPPORT FRAME:

1. THE SOLE PLATE SHALL BE BEVELED AS REQUIRED SO THAT ITS BOTTOM SURFACE IS HORIZONTAL.
2. THE BOTTOM OF SOLE PLATE SHALL BE COATED WITH 3/32" OF PTFE.
3. THE SHIM IN CONTACT WITH THE TEFLON SURFACE SHALL BE STAINLESS STEEL.
4. THE CLEAR DISTANCE BETWEEN THE SOLE PLATE AND THE STAINLESS STEEL PLATE BEFORE JACKING SHALL BE 1/8" MIN AND 1/4" MAX.
5. THE PLATES IN THE JACK STAND SHALL BE WELDED ALL AROUND WITH 5/16" FILLET WELDS.
6. THE CONTRACTOR MAY SUBSTITUTE AN ALTERNATE TEMPORARY FRAME CONFIGURATION WITH THE APPROVAL OF THE ENGINEER.
7. PREPARATION AND ASSEMBLY OF MATERIALS FOR WELDING SHALL CONFORM TO THE STANDARD SPECIFICATIONS, THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, AND THE AASHTO/AWS BRIDGE WELDING CODE (ANSI/AASHTO/AWS D1.5).
8. REMOVE SOLE PLATES WELDED TO STRINGERS BY AIR CARBON ARC GOUGING. ALL GRINDING SHALL BE DONE PARALLEL TO THE CENTER LINES OF BEAMS IN THE LONGITUDINAL DIRECTION.

SUGGESTED SEQUENCE OF SUPERSTRUCTURE JACKING:

1. INSTALL TEMPORARY NJ BARRIER, REMOVE AND STACK EXISTING GUARD RAIL, SAWCUT SIDEWALK, AND EXCAVATE EARTH AS NECESSARY TO CONSTRUCT TEMPORARY FOOTING.
2. ASSEMBLE FALSEWORK FRAMING FOR BOTH EAST AND WEST ABUTMENTS AS REQUIRED FOR EACH STAGE.
3. DEMOLISH BRIDGE CONCRETE DECK SLAB.
4. ATTACH ABUTMENT CONNECTION PLATE AND BRACING TO ABUTMENT. SEE ABUTMENT CONNECTION PLATE NOTES.
5. INSTALL SOLE PLATE AND JACK STANDS.
6. PLACE ALL JACKS AS SHOWN ON SUPPORT FRAME PLAN AND ELEVATION.
7. LOOSEN THE NUTS FROM THE ANCHOR BOLTS AT THE BEARINGS.
8. JACK ALL BEAMS ON EAST & WEST ENDS IN STAGE 1. USE SYNCHRONOUS LIFT OR CONTROL VALVES TO LIMIT DIFFERENTIAL MOVEMENTS TO 1/8".
9. TIGHTEN BOLTS AT JACK STANDS. LEAVE 1/16" GAP BETWEEN NUT AND WASHER. TIGHTEN LOCK NUT.
10. MONITOR SETTLEMENT OF TEMPORARY FRAME AND ADJUST SHIMS AS NECESSARY.
11. DEMOLISH AND REBUILD BRIDGE SEAT AND ABUTMENT FACE. REPLACE BRIDGE BEARINGS.
12. LOWER THE STRINGERS ONTO PROPOSED BEARINGS AND FASTEN ANCHOR BOLT AT BEARINGS.
13. DISASSEMBLE JACK STANDS AND TEMPORARY SUPPORT FRAME.
14. CUT BRACING 2" FROM CONNECTION PLATE WITHOUT DAMAGING THE STEEL REINFORCEMENT. SEE ABUTMENT CONNECTION PLATE NOTES.
15. CONSTRUCT PROPOSED CONCRETE DECK SLAB.
16. AFTER STAGE 1 IS COMPLETE, REPEAT STEPS 1 TO 15 FOR STAGE 2.
17. REBUILD SIDEWALK AREAS TO ORIGINAL CONDITION AFTER SUPPORT FRAMES ARE REMOVED.

DATE	DESCRIPTION
4-20-96	ISSUED FOR CONSTRUCTION
USE ONLY PRINTS OF LATEST DATE	

Drawing WSP-509 by PJG on 02/22/1996 16:00:48 at 1:1.00

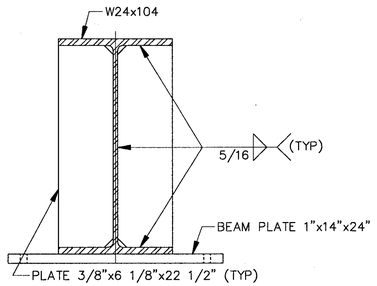
WEST SPRINGFIELD
CONNECTOR RAMP A TO I90/I91

STATE	FED.AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
MASS.	IM-091-1(145)	1996	20	27
PROJECT FILE NO. 600591				

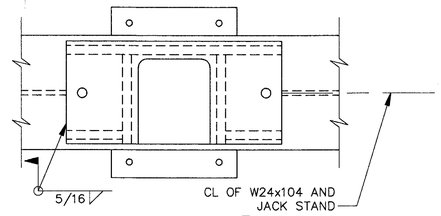
TEMPORARY SUPPORT FRAME DETAILS 2 OF 2

NOTES:

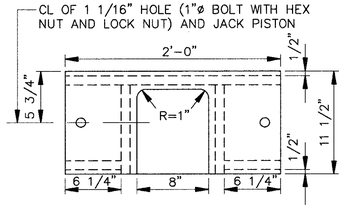
1. SEE SHEET 9 FOR TEMPORARY SUPPORT FRAME NOTES, JACKING NOTES, AND SUGGESTED SEQUENCE OF SUPERSTRUCTURE JACKING NOTES.
2. THE CONTRACTOR SHALL VERIFY THAT ALL DIMENSIONS SHOWN FOR TEMPORARY SUPPORT FRAMES WILL SUIT FIELD CONDITIONS. VERIFICATION BY FIELD SURVEY AND MEASUREMENT IS REQUIRED PRIOR TO ANY FABRICATION OF ANY COMPONENT SHOWN.



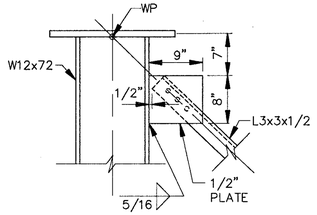
SECTION 10/9
SCALE: 1 1/2" = 1'-0"



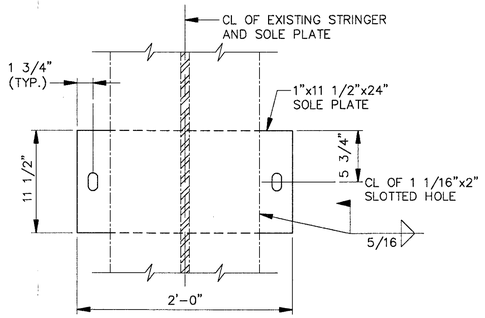
SECTION 15/9
SCALE: 1 1/2" = 1'-0"



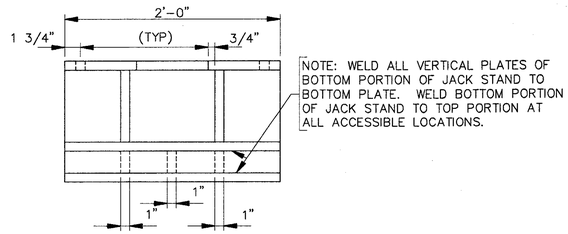
PLAN OF JACK STAND
SCALE: 1 1/2" = 1'-0"



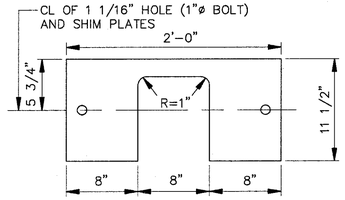
DETAIL A/9
SCALE: 1" = 1'-0"



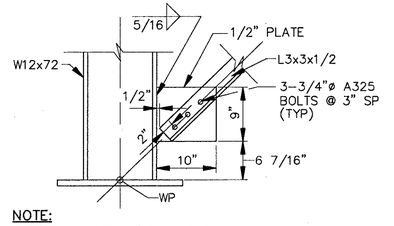
SECTION 12/9
SCALE: 1 1/2" = 1'-0"



FRONT VIEW OF JACK STAND
SCALE: 1 1/2" = 1'-0"

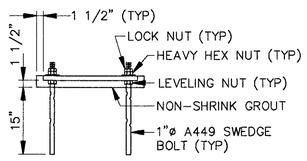


PLAN OF SHIM PLATES
SCALE: 1 1/2" = 1'-0"

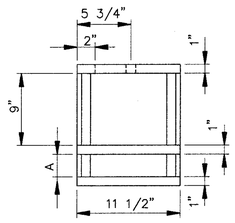


NOTE:
LOCATION, SIZE, AND SPACING OF BOLTS TYPICAL FOR ALL CONNECTIONS.

DETAIL B/9
SCALE: 1" = 1'-0"

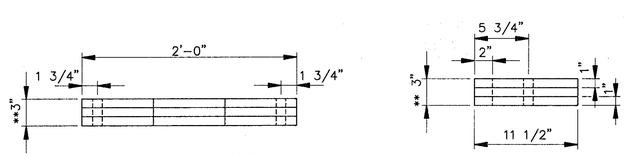


ANCHOR BOLT DETAIL
SCALE: 3/4" = 1'-0"



BEAM No	EAST & WEST ABUT
	A (INCHES)
1 & 10	2 1/2
2 & 9	3 3/4
3 & 8	5 1/8
4 & 7	6 1/4
5 & 6	7 7/8

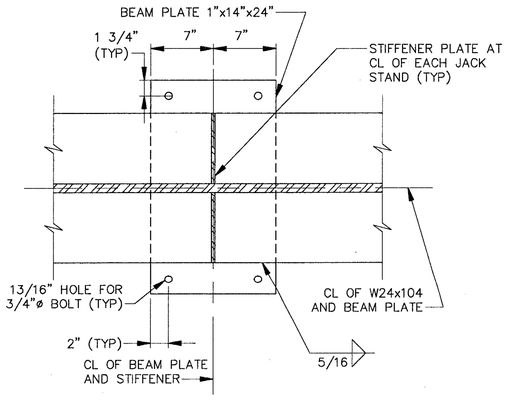
SIDE VIEW OF JACK STAND
SCALE: 1 1/2" = 1'-0"



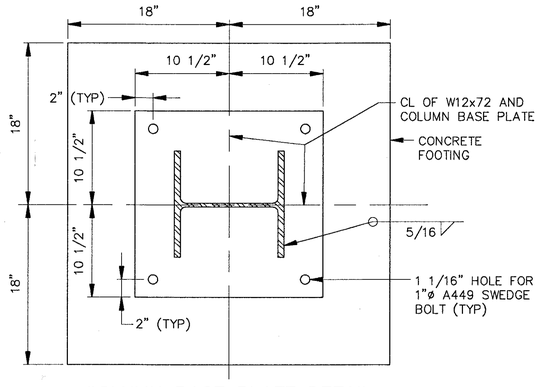
NOTE:
** DENOTES DIMENSION TO BE FIELD VERIFIED.

FRONT VIEW OF SHIM PLATES
SCALE: 1 1/2" = 1'-0"

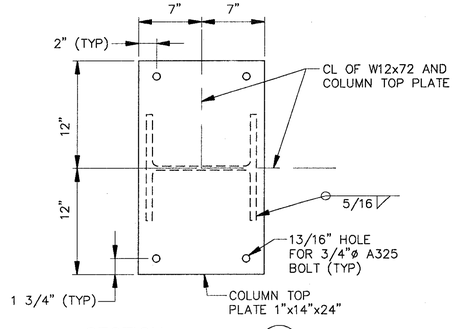
SIDE VIEW OF SHIM PLATES
SCALE: 1 1/2" = 1'-0"



SECTION 11/9
SCALE: 1 1/2" = 1'-0"



COLUMN BASE PLATE DETAIL
SCALE: 1 1/2" = 1'-0"



SECTION 13/9
SCALE: 1 1/2" = 1'-0"

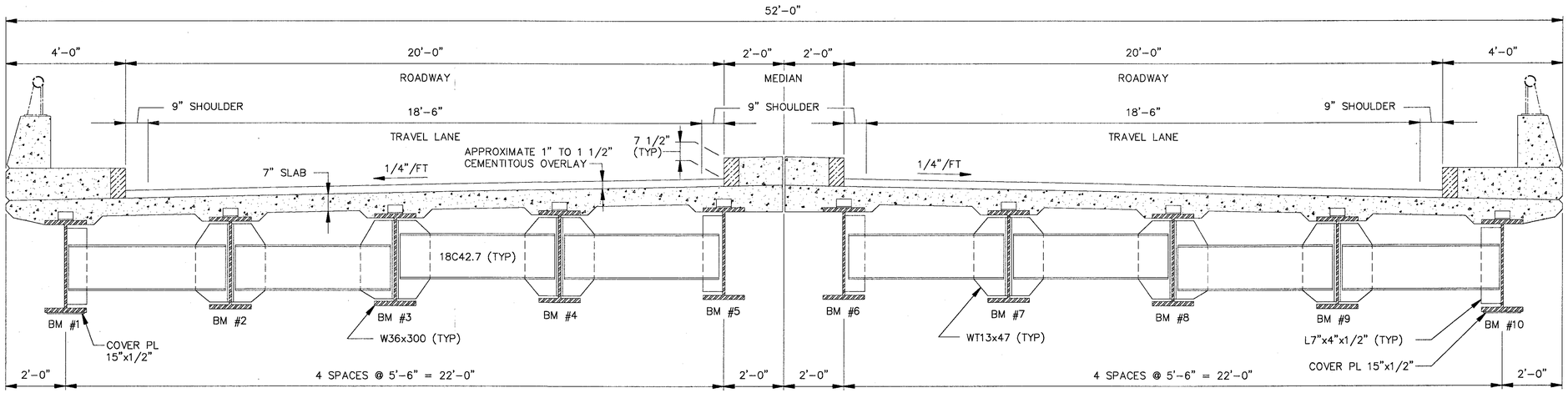
DATE	DESCRIPTION
4-20-96	ISSUED FOR CONSTRUCTION
	USE ONLY PRINTS OF LATEST DATE

Drawing WSP-S10 by PJG on 02/22/1996 16:02:28 at 1:1.00

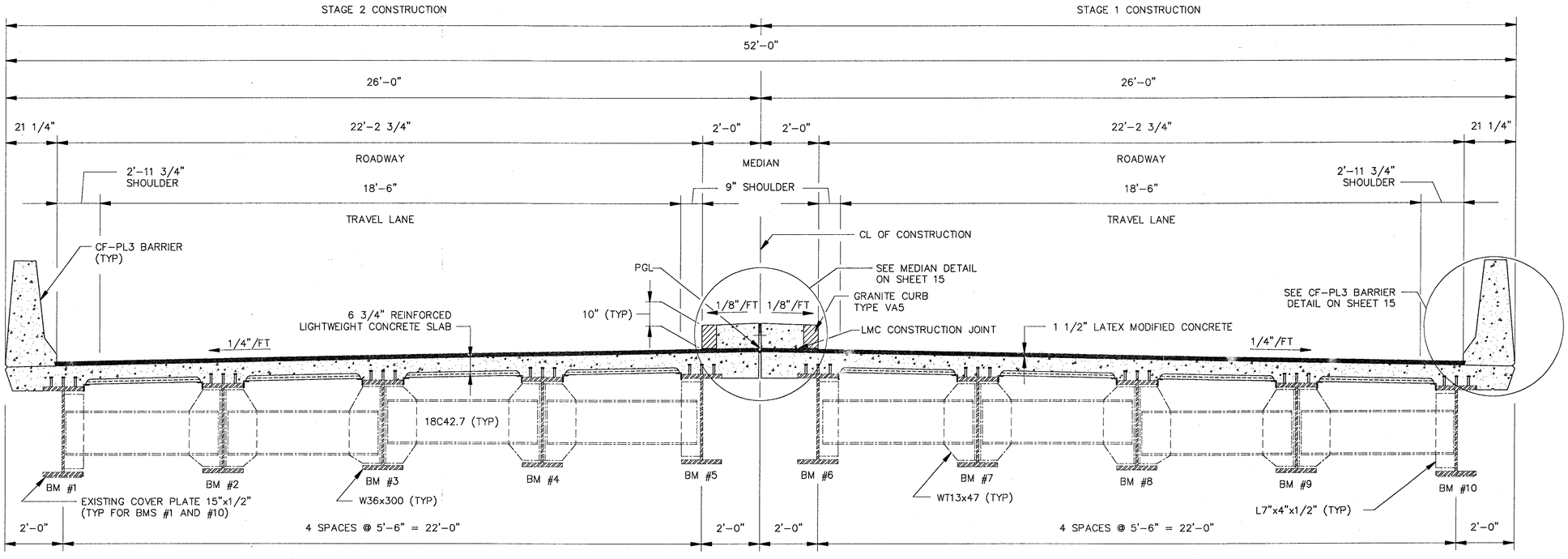
WEST SPRINGFIELD
CONNECTOR RAMP A TO I90/I91

STATE	FED.AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
MASS.	IM-091-1(145)	1996	21	27
PROJECT FILE NO. 600591				

BRIDGE CROSS SECTION



TYPICAL EXISTING CROSS SECTION
SCALE: 1/2" = 1'-0"



TYPICAL PROPOSED CROSS SECTION
SCALE: 1/2" = 1'-0"

NOTES:

1. LIGHTWEIGHT CONCRETE SHOWN ON THE PLANS DENOTES 4000 PSI, 3/4", 610 CEMENT CONCRETE MASONRY WITH A DRY (CURED) WEIGHT OF 115 LB/CY. SEE SPECIAL PROVISIONS.
2. ALL REINFORCING BARS AND SUPPORT DEVICES SHALL BE EPOXY COATED.

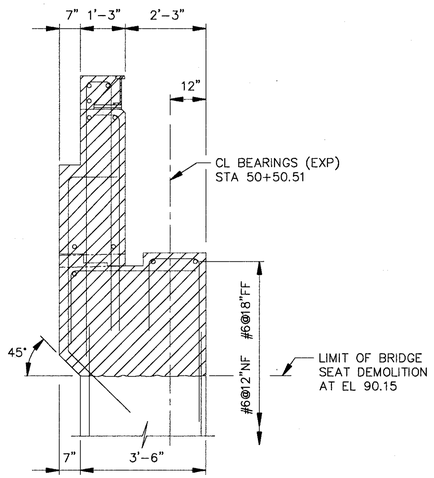
DATE	DESCRIPTION
4-20-96	ISSUED FOR CONSTRUCTION
USE ONLY PRINTS OF LATEST DATE	

Drawing WSP-S11 by KAM on 02/22/1996 16:04:13 at 1:1.00

WEST SPRINGFIELD
CONNECTOR RAMP A TO I90/91

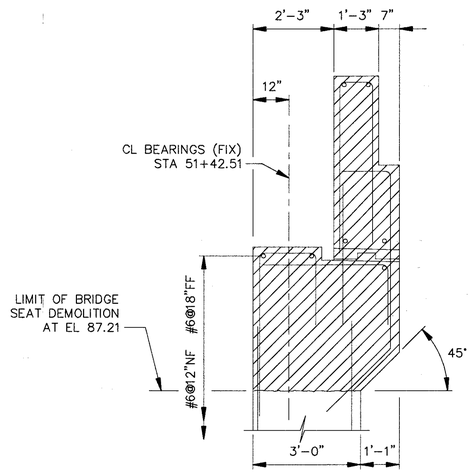
STATE	FED.AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
MASS.	IM-091-1(145)	1996	22	27
PROJECT FILE NO. 600591				

ABUTMENT AND WINGWALL DETAILS



SECTION 3/7

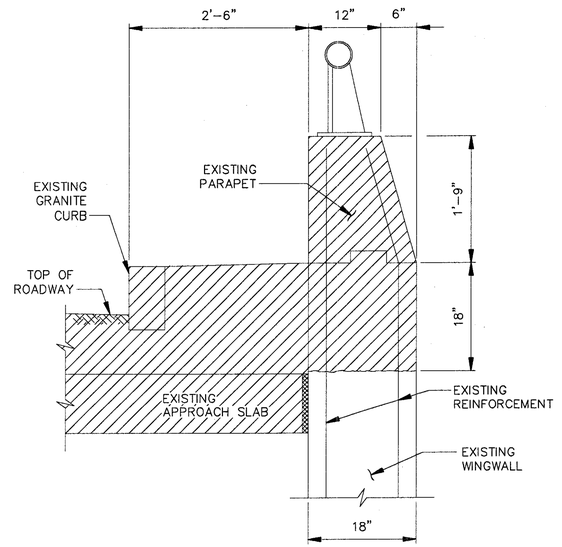
WEST ABUTMENT



SECTION 4/7

EAST ABUTMENT

SECTIONS THRU EXISTING PARAPET AND BRIDGE SEAT
SCALE: 1/2" = 1'-0"

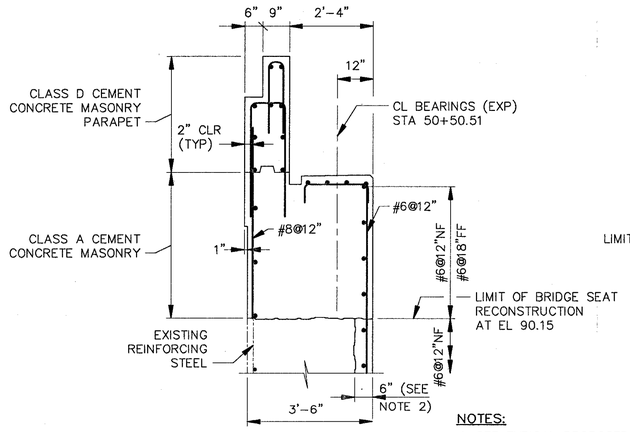


SECTION 5/7

EXISTING SECTION THRU WINGWALL
SCALE: 1" = 1'-0"

LEGEND

DENOTES LIMITS OF DEMOLITION

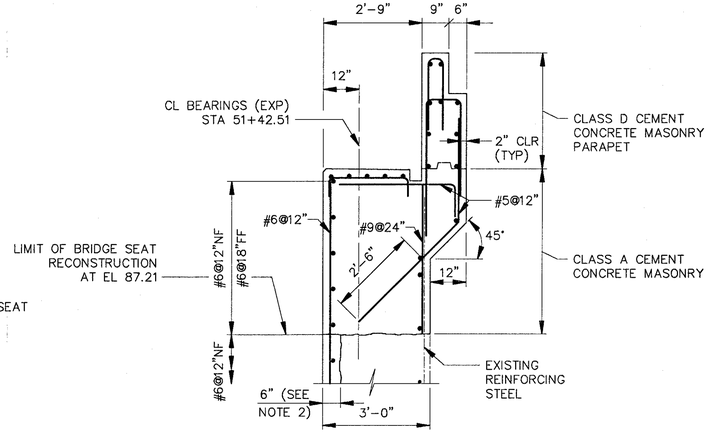


SECTION 6/8

WEST ABUTMENT

NOTES:

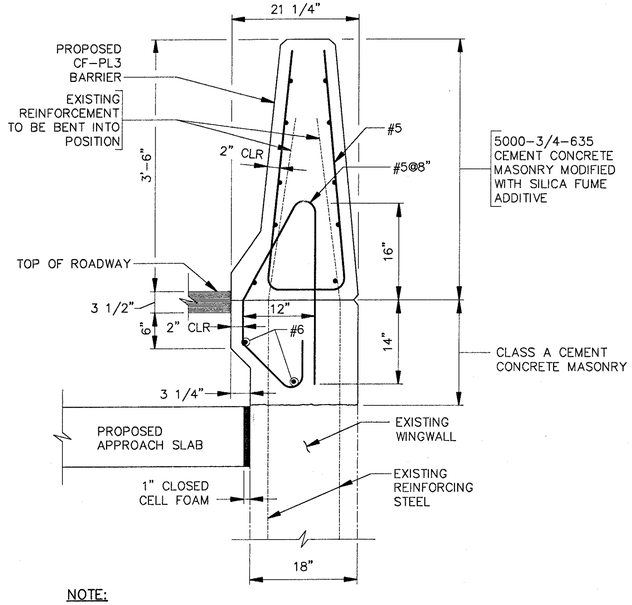
1. SEE TYPICAL PROPOSED DETAIL AT ABUTMENT ON SHEET 13 FOR PARAPET AND BRIDGE SEAT DETAIL.
2. SEE ABUTMENT CONCRETE RECONSTRUCTION ON SHEET 8 FOR CONCRETE REPAIRS.



SECTION 7/8

EAST ABUTMENT

SECTIONS THRU PROPOSED PARAPET AND BRIDGE SEAT
SCALE: 1/2" = 1'-0"



NOTE:

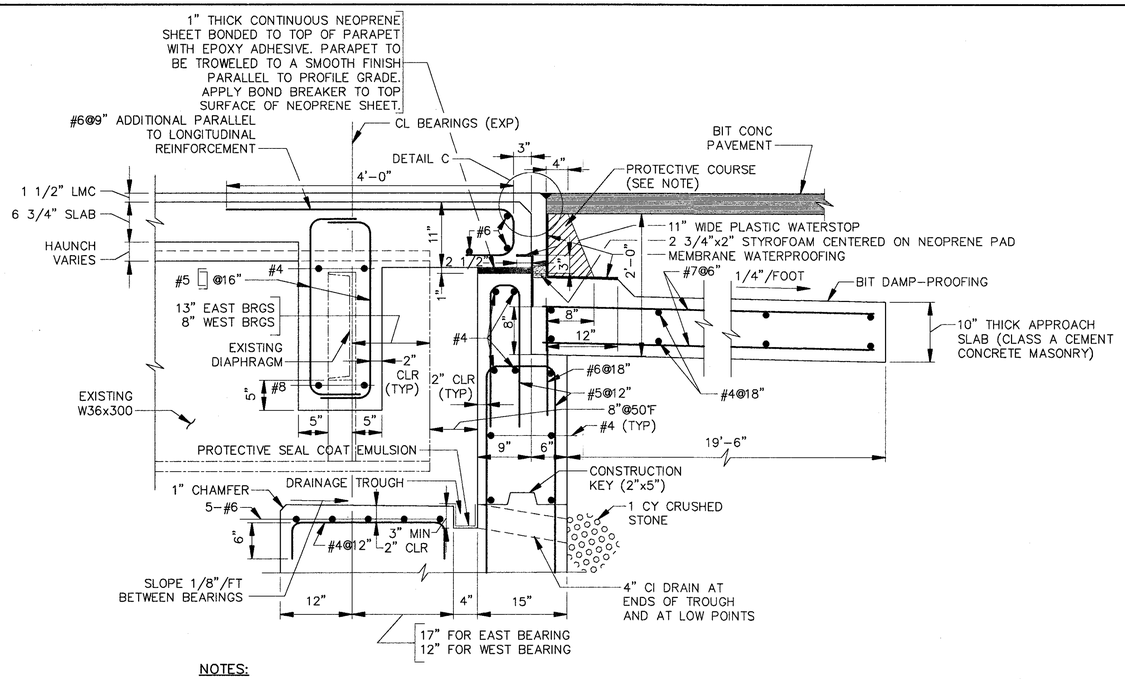
SEE CF-PL3 BARRIER DETAIL ON SHEET 15, FOR REINFORCEMENT AND DETAIL OF CF-PL3 BARRIER.

SECTION 8/8

PROPOSED SECTION THRU WINGWALL AT BARRIER
SCALE: 1" = 1'-0"

DATE	DESCRIPTION
4-20-96	ISSUED FOR CONSTRUCTION
	USE ONLY PRINTS OF LATEST DATE

Drawing WSP-ST1 by KAM on 10/24/1995 09:04:50 at 1:1.00

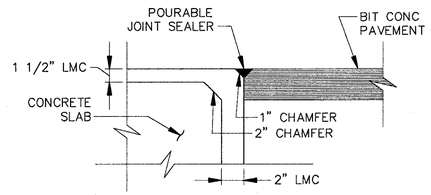


NOTES:

BRICK OR 8"x16"x2" CLASS D CEMENT MASONRY BLOCKS LAID IN MORTAR, OR POURED IN PLACE CLASS D CEMENT CONCRETE MASONRY, SEE PROTECTIVE COURSE ABOVE.

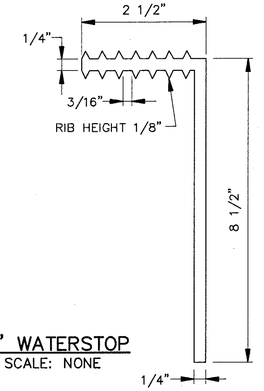
TYPICAL PROPOSED DETAIL AT ABUTMENT

SCALE: 1"=1'-0"



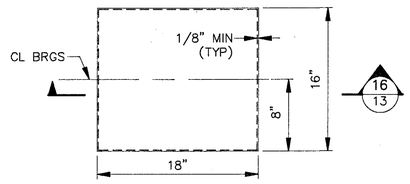
DETAIL C

SCALE: 1 1/2" = 1'-0"



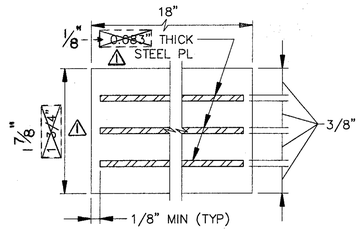
11" WATERSTOP

SCALE: NONE



PLAN VIEW

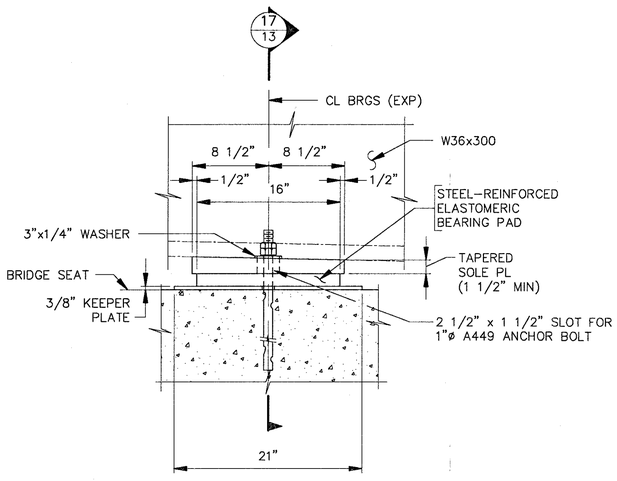
SCALE: 1 1/2" = 1'-0"



SECTION 16

SCALE: FULL

ELASTOMERIC BEARING PAD

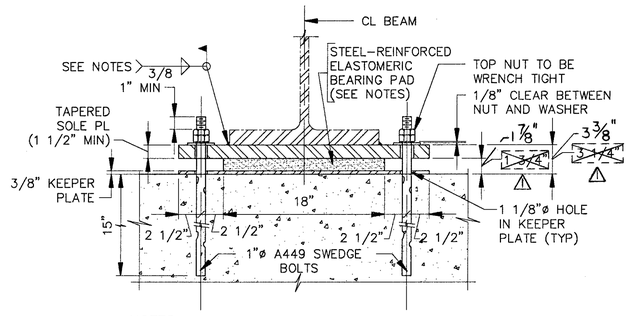


NOTES:

1. SWEDGE BOLTS, NUTS, WASHERS, SOLE PLATE AND KEEPER PLATE SHALL BE HOT-DIP GALVANIZED.
2. NEW SOLE PLATES SHALL BE TAPERED AS REQUIRED BY PROFILE GRADE AND STRINGER CAMBER. BOTTOM OF SOLE PLATES SHALL BE LEVEL UNDER FULL DEAD LOAD.

TYPICAL PROPOSED BEARING DETAIL

SCALE: 1 1/2" = 1'-0"

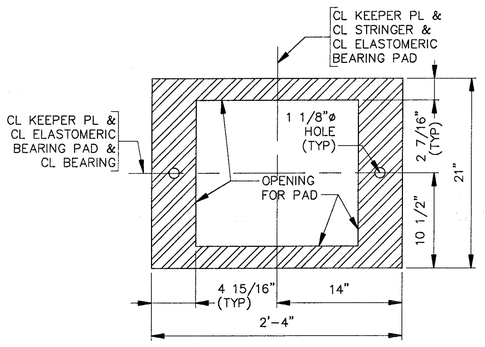


NOTES:

1. SOLE PLATES SHALL BE ADJUSTED IN THE FIELD, AS NECESSARY TO CENTER OVER THE MASONRY PLATE AT 50°F AND THEN FIELD WELDED TO THE BOTTOM FLANGE.
2. HARDNESS OF ELASTOMERIC PAD SHALL BE 60 DUROMETER.
3. AN EPOXY-TYPE ADHESIVE SHALL BE APPLIED TO THE TOP AND BOTTOM SURFACES OF THE ELASTOMERIC PADS TO BOND THEM TO THE STEEL SOLE PLATE AND CONCRETE BRIDGE SEAT.
4. ELASTOMERIC BEARING PADS SHALL BE SET LEVEL ON A THIN BED OF NEAT CEMENT GROUT WHICH SHALL BE ALLOWED TO HARDEN BEFORE THE STRINGER IS RESET.

SECTION 17

SCALE: 1 1/2" = 1'-0"



PLAN OF KEEPER PLATE

SCALE: 1 1/2" = 1'-0"

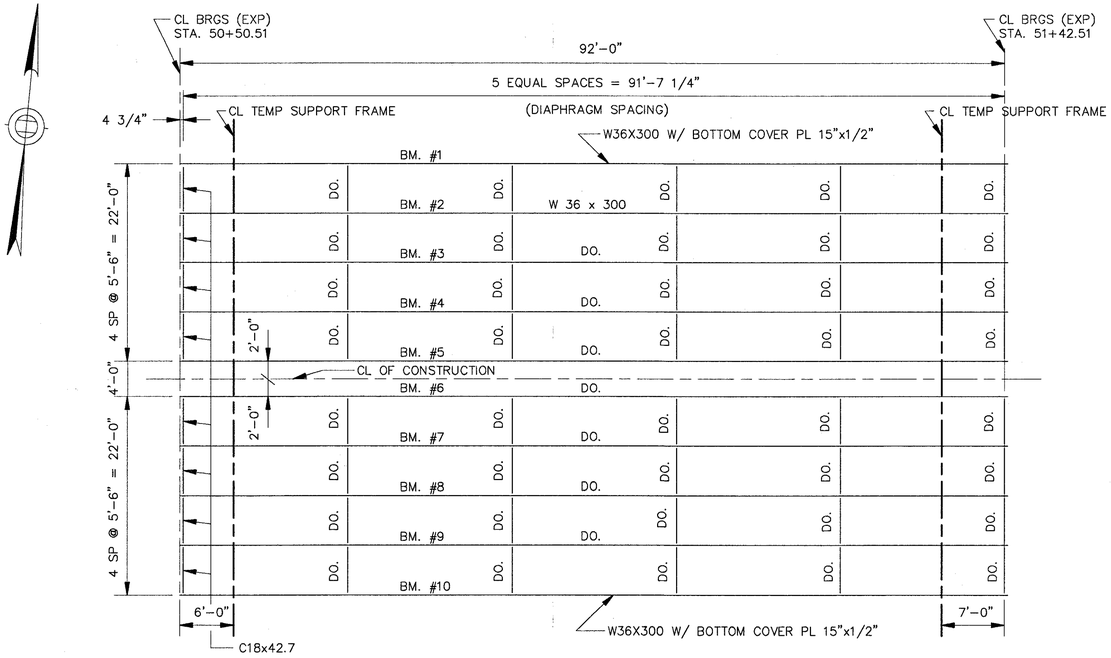
WEST SPRINGFIELD
CONNECTOR RAMP A TO I90/I91

STATE	FED.AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
MASS.	IM-091-1(145)	1996	23	27
PROJECT FILE NO. 600591				

BEARING DETAILS

MAR. 3, 1997	⚠ BEARING PAD REVISED
4-20-96	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

Drawing WSP-S13 by KAM on 02/22/1996 16:06:23 at 1:1.00



EXISTING FRAMING PLAN
SCALE: 1/8" = 1'-0"

WEST SPRINGFIELD
CONNECTOR RAMP A TO I90/I91

STATE	FED.AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
MASS.	IM-091-1(145)	1996	24	27
PROJECT FILE NO. 600591				

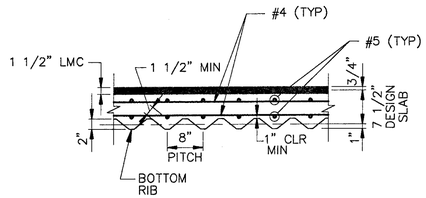
FRAMING PLAN AND
BRIDGE DECK DETAILS 1 OF 2

TOP OF FORM ELEVATIONS FOR DECK SLAB PRIOR TO PLACEMENT OF CONCRETE

BEAM No	CL BRGS WEST ABUT	INCREASING STATIONS → 1/8 PT	1/4 PT	3/8 PT	1/2 PT	5/8 PT	3/4 PT	7/8 PT	CL BRGS EAST ABUT
1 & 10	97.45	97.28	97.10	96.90	96.69	96.44	96.18	95.90	95.61
2 & 9	97.57	97.39	97.20	97.00	96.78	96.54	96.28	96.01	95.73
3 & 8	97.68	97.50	97.31	97.11	96.89	96.65	96.39	96.12	95.84
4 & 7	97.80	97.62	97.43	97.23	97.01	96.77	96.51	96.24	95.96
5 & 6	97.91	97.73	97.54	97.34	97.12	96.88	96.62	96.35	96.07

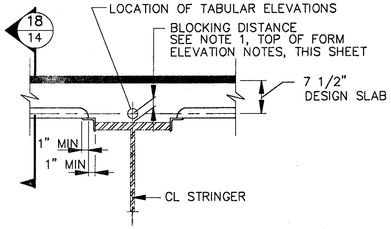
TOP OF FORM ELEVATION NOTES:

1. BEFORE THE FORMS ARE BUILT, ELEVATIONS ON THE TOP FLANGE OF THE BEAMS ARE TO BE OBTAINED AT THE POINTS INDICATED IN THE TABLE. THE DIFFERENCE BETWEEN THE ELEVATIONS OBTAINED AND THOSE SHOWN IN THE TABLE GIVES THE ACTUAL BLOCKING DISTANCE FROM THE TOP OF BEAM TO THE BOTTOM OF SLAB AT THE CENTERLINE OF BEAM. SEE HAUNCH DETAIL ON THIS SHEET.
2. THE ELEVATIONS SHOWN ASSUME THAT ONLY THE DEAD LOAD DEFLECTIONS DUE TO THE STRUCTURAL STEEL WEIGHT HAVE OCCURRED.



SECTION 18

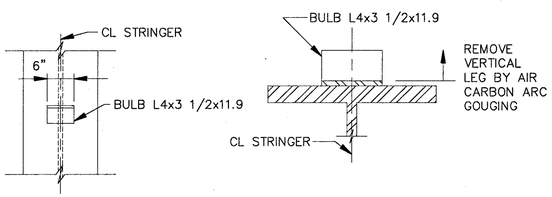
STAY IN PLACE (SIP) FORMS
SCALE: NONE



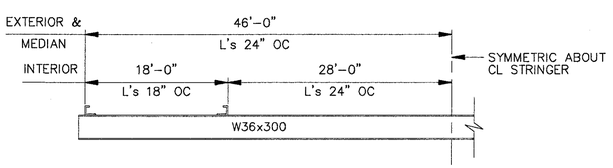
HAUNCH DETAIL
SCALE: NONE

STAY IN PLACE FORM NOTES:

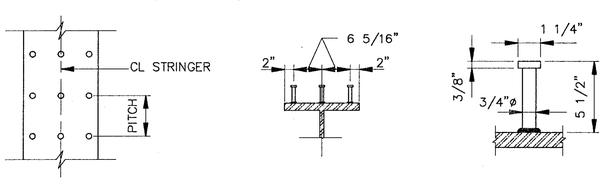
1. STAY IN PLACE (SIP) FORMS SHALL BE USED IN ALL AREAS EXCEPT AT SLAB OVERHANGS, AT END DIAPHRAGM ENCASEMENTS AND AT LOCATIONS NOTED OTHERWISE.
2. FOR TWO (2) INCH SIP FORMS, SET BOTTOM OF FORM ONE (1) INCH BELOW ELEVATIONS GIVEN IN TABLES. FOR TWO AND ONE HALF (2 1/2) INCH SIP FORMS, SET BOTTOM OF FORM ONE AND ONE HALF (1 1/2) INCHES BELOW ELEVATIONS GIVEN IN TABLES.
3. FORM ENDS SHALL BE CRIMPED CLOSED IN A TAPERED MANNER. SEPARATE END CLOSER PIECES WILL NOT BE ALLOWED.
4. SUPPORT ANGLES SHALL BE PLACED IN THE LEG DOWN POSITION WHERE POSSIBLE. WHERE LEG UP POSITION IS NECESSARY, THE UPPER MOST PORTION OF THE ANGLE SHALL NOT PROJECT MORE THAN ONE (1) INCH ABOVE THE TOP FLANGE OR COVER PLATE. THE CONTRACTOR SHALL HAVE AN ASSORTMENT OF ANGLES OF VARIOUS SIZES AVAILABLE ON SITE TO CONFORM TO THIS REQUIREMENT.
5. ALL MAIN STEEL REINFORCEMENT IN THE LOWER MAT SHALL BE CENTERED OVER THE VALLEY OF THE SIP FORM.



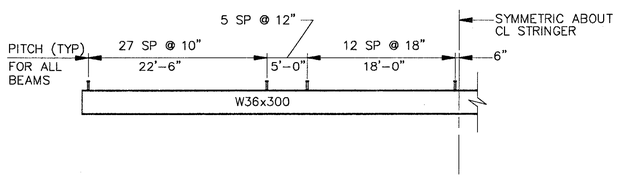
EXISTING SHEAR CONNECTOR DETAILS
SCALE: NONE



EXISTING SHEAR CONNECTOR ARRANGEMENT
SCALE: NONE



PROPOSED STUD SHEAR CONNECTOR DETAILS
SCALE: NONE



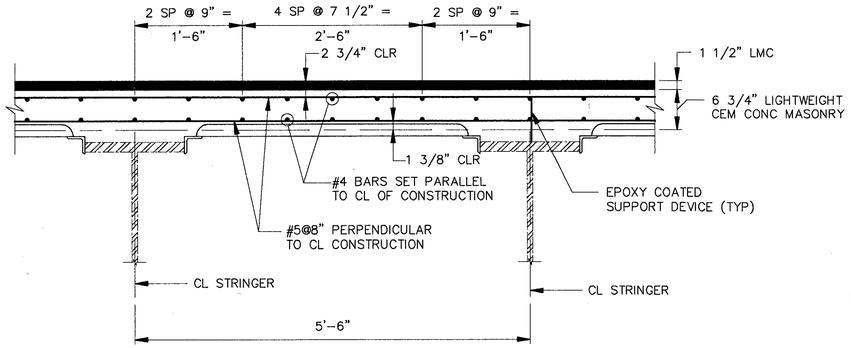
PROPOSED STUD SHEAR CONNECTOR ARRANGEMENT
SCALE: NONE

DATE	DESCRIPTION
4-20-96	ISSUED FOR CONSTRUCTION
	USE ONLY PRINTS OF LATEST DATE

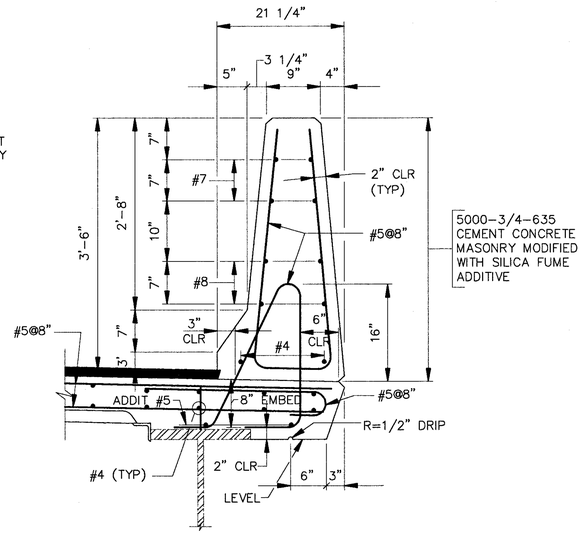
Drawing WSP-SI4 by APH on 02/22/1996 16:10:08 at 1:1.00

STATE	FED.AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
MASS.	IM-091-1(145)	1996	25	27
PROJECT FILE NO. 600591				

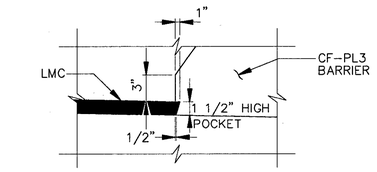
BRIDGE DECK DETAILS 2 OF 2



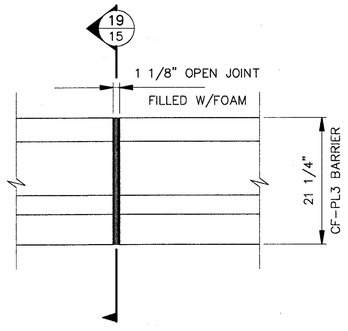
TYPICAL DECK SLAB REINFORCEMENT
SCALE: 1" = 1'-0"



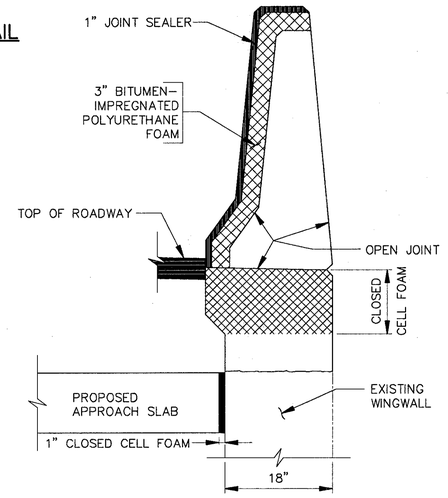
SECTION THRU CF-PL3 BARRIER
SCALE: 1" = 1'-0"



FACE OF SAFETY CURB DETAIL
SCALE: 1 1/2" = 1'-0"

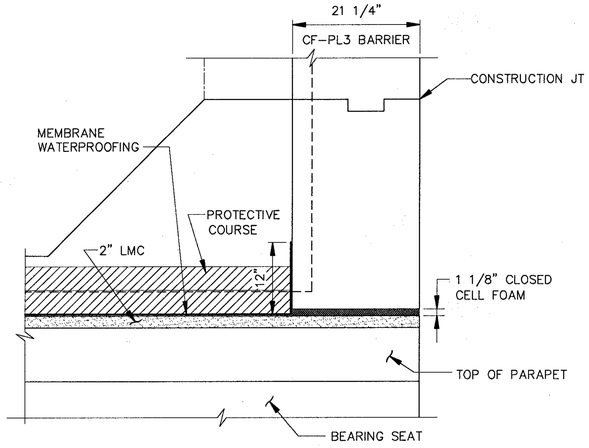


PLAN

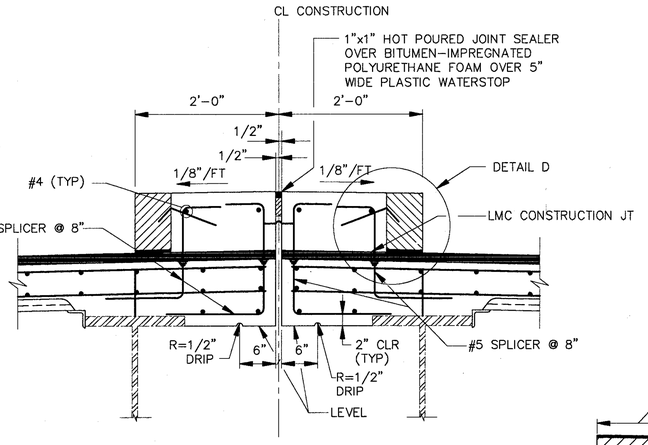


SECTION 19

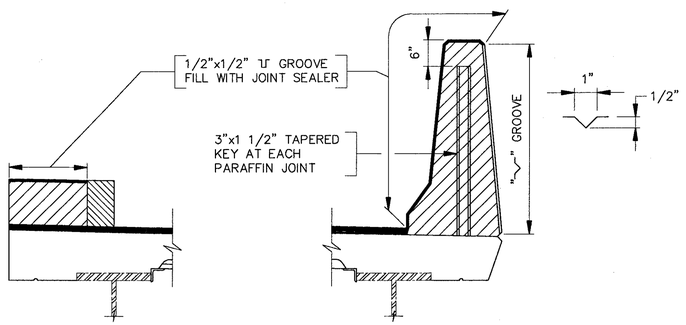
CF-PL3 BARRIER EXPANSION JOINT DETAIL AT END OF DECK
SCALE: 1" = 1'-0"



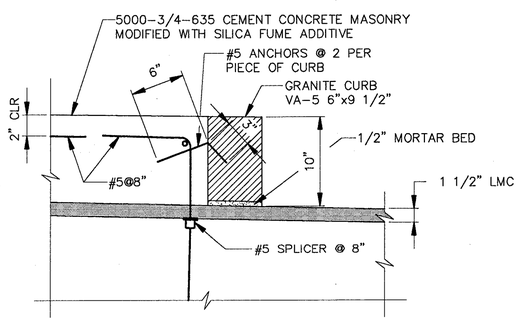
DETAIL X/8
SCALE: 1" = 1'-0"



MEDIAN DETAIL
SCALE: 1" = 1'-0"



MEDIAN DETAIL BARRIER DETAIL

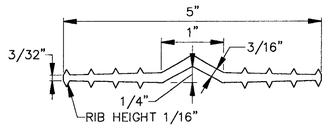


DETAIL D
SCALE: 1 1/2" = 1'-0"

NOTES:

1. ALL CONCRETE CONSTRUCTION ABOVE THE DECK SHALL BE POURED IN ALTERNATE SECTIONS AND SHALL HAVE A CURING PERIOD OF NOT LESS THAN 3 DAYS BETWEEN POURS.
2. DO NOT CARRY LONGITUDINAL BARS THROUGH THE PARAFFIN JOINTS. END THE REINFORCEMENT 2" CLEAR OF JOINTS.
3. JOINT SHALL BE SQUARE TO FACE OF CURB.
4. JOINT SEALER TO BE SAME COLOR AS CONCRETE.
5. ▨ DENOTES PARAFFIN COATED SURFACES.

PARAFFIN JOINT DETAILS
SCALE: 3/4" = 1'-0"



5" WATERSTOP
SCALE: NONE

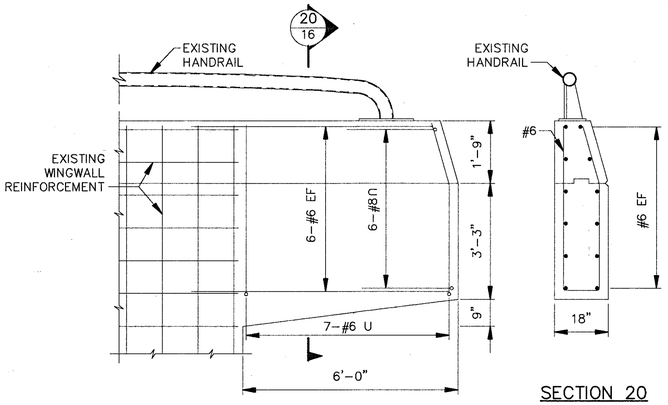
DATE	DESCRIPTION
4-20-96	ISSUED FOR CONSTRUCTION
	USE ONLY PRINTS OF LATEST DATE

Drawing WSP-S15 by DKD on 02/22/1996 16:11:49 at 1:1.00

WEST SPRINGFIELD
CONNECTOR RAMP A TO I90/I91

STATE	FED.AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
MASS.	IM-091-1(145)	1996	26	27
PROJECT FILE NO. 600591				

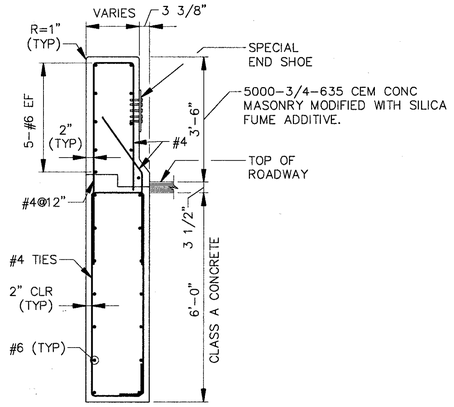
FLYING WINGWALL AND END POST DETAILS



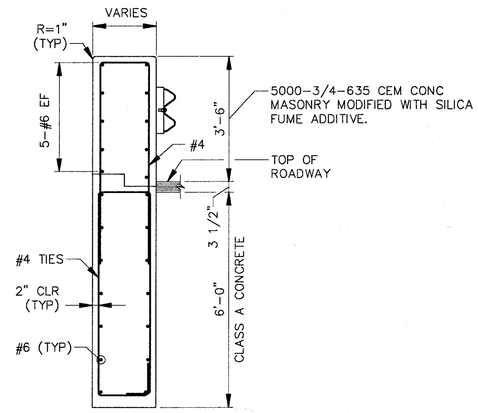
ELEVATION

SECTION 20

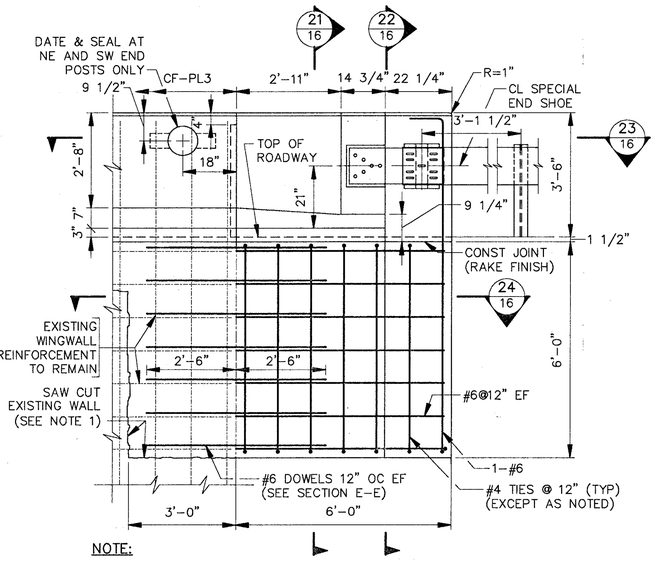
EXISTING FLYING WINGWALL
SCALE: 1/2" = 1'-0"



SECTION 21

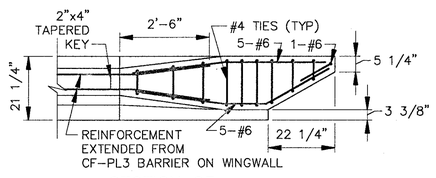


SECTION 22

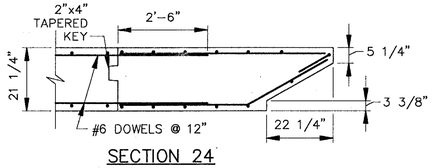


NOTE:
1. SEE NOTES FOR PLACEMENT OF CONCRETE AGAINST EXISTING SURFACES ON SHEET 8.

ELEVATION



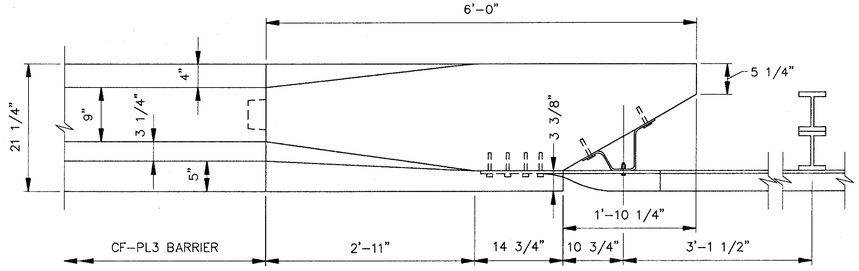
SECTION 23



SECTION 24

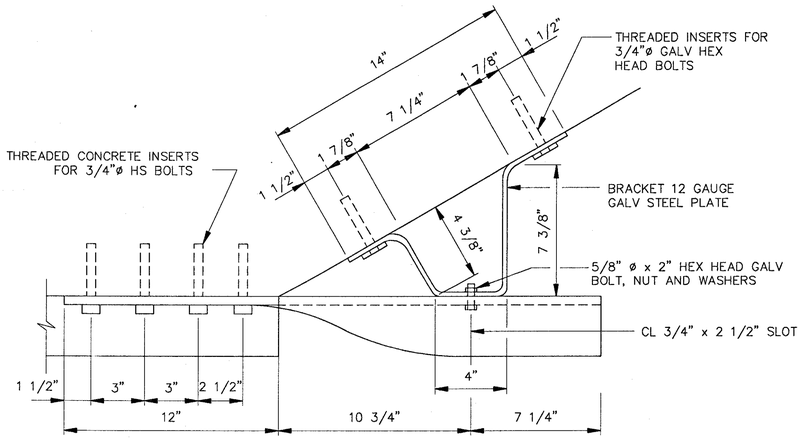
PROPOSED FLYING WINGWALL AND END POST
SCALE: 1/2" = 1'-0"

CF-PL3 TRANSITION
SCALE: 1/2" = 1'-0"

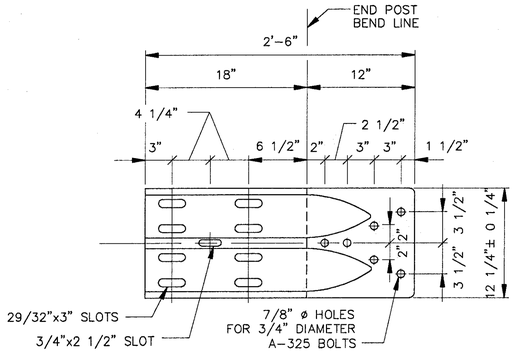


PLAN

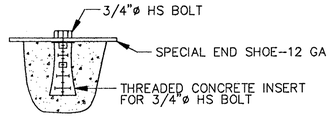
TRANSITION FROM HIGHWAY GUARD RAIL TO CF-PL3 BARRIER
SCALE: 1" = 1'-0"



DETAIL OF CONNECTIONS FOR SPECIAL END SHOE
SCALE: 3" = 1'-0"



SPECIAL END SHOE (TYPE SS)
SCALE: 1 1/2" = 1'-0"



NOTES:
1. CONCRETE INSERT SHALL BE PREQUALIFIED AS CAPABLE OF DEVELOPING 11,000 POUNDS OF SHEAR IN THE BOLT. THE TEST SHALL BE CERTIFIED BY A TESTING AGENCY ACCEPTABLE TO THE MHD.
2. CONCRETE INSERTS FOR HIGH STRENGTH BOLTS SHALL BE CAST IN PLACE.

CONNECTION DETAIL
SCALE: NONE

NOTES FOR DATE & SEAL:
1. DATE & SEAL SHALL BE PLACED ON THE FACE OF THE NORTHEASTERLY AND SOUTHWESTERLY END POSTS, AS SHOWN ON THE DRAWINGS.
2. A SHEET SHOWING THE SIZE AND CHARACTER OF THE NUMERALS WILL BE FURNISHED TO THE CONTRACTOR.
3. THE SEAL WILL BE FURNISHED BY THE STATE AND SET BY THE CONTRACTOR.

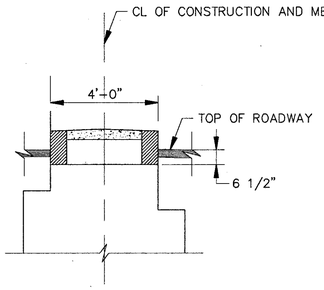
DATE	DESCRIPTION
4-20-96	ISSUED FOR CONSTRUCTION
USE ONLY PRINTS OF LATEST DATE	

Drawing WSP-S16 by JCW on 02/22/1996 16:09:24 at 1:1.00

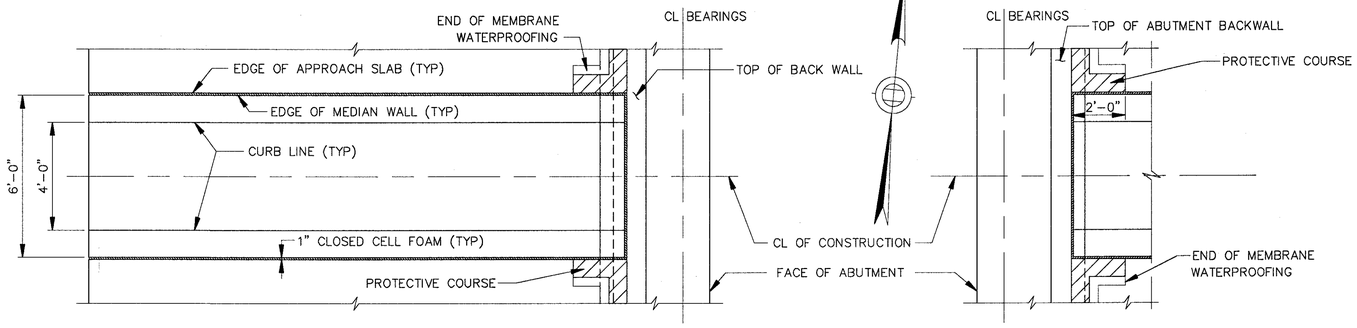
WEST SPRINGFIELD
CONNECTOR RAMP A TO I90/191

STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
MASS.	IM-091-1(145)	1996	27	27
PROJECT FILE NO. 600591				

MISCELLANEOUS DETAILS



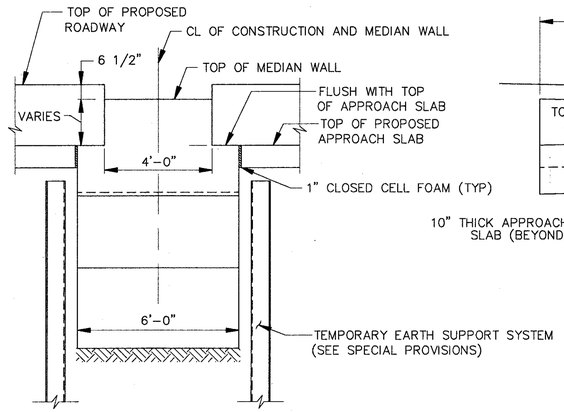
END VIEW



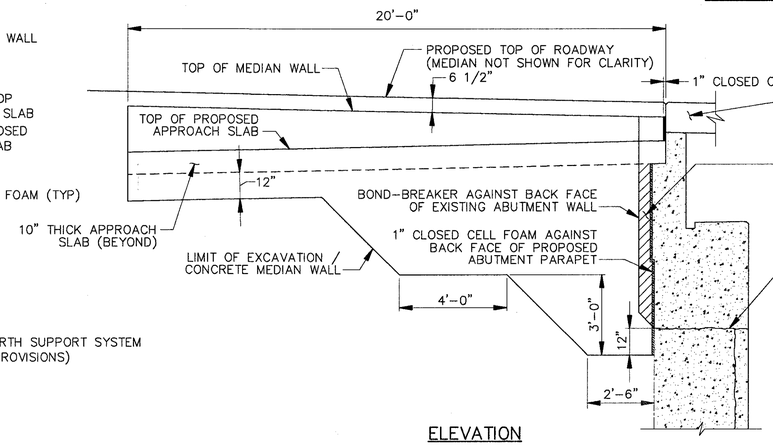
PLAN OF MEDIAN WALL AT ABUTMENTS

MEDIAN WALL PLACEMENT NOTES:

1. THE CONCRETE MEDIAN WALL SHOWN HEREIN IS A SUGGESTED DESIGN TO PROVIDE FOR EXCAVATION SUPPORT DURING STAGE CONSTRUCTION. THE CONTRACTOR MAY SUBMIT ALTERNATE METHODS OF EARTH SUPPORT DURING STAGE CONSTRUCTION, SUBJECT TO THE APPROVAL OF THE ENGINEER. ALL ALTERNATE DESIGNS SHALL BE ACCOMPLISHED, AND STAMPED BY A PROFESSIONAL ENGINEER REGISTERED IN MASSACHUSETTS.
2. MEDIAN WALL TO BE POURED PRIOR TO DEMOLITION OF ABUTMENT BRIDGE SEAT AND BACKWALL (STAGE 1B).
3. BACK FACE OF EXISTING ABUTMENT BACKWALL SHALL BE COATED WITH APPROPRIATE BOND-BREAKING MATERIAL PRIOR TO PLACEMENT OF CONCRETE MEDIAN WALL.
4. 1" CLOSED CELL FOAM SHALL BE FASTENED TO BACK FACE OF PROPOSED ABUTMENT PARAPET AND END OF DECK SLAB PRIOR TO BACKFILLING CONCRETE BETWEEN MEDIAN WALL AND PROPOSED ABUTMENT PARAPET. ANY ALTERNATE DESIGNS FOR EXCAVATION SUPPORT DURING STAGE CONSTRUCTION SHALL PROVIDE FOR 1" EXPANSION OF BRIDGE DECK AT BOTH ENDS OF THE COMPLETED BRIDGE.
5. DURING STAGES 1C AND 2A, PLACE 6 1/2" OF BITUMINOUS CONCRETE OVER TOP OF MEDIAN WALL. PLACE DOUBLE FACED BARRIER DIRECTLY ONTO THIS LAYER. FOR FINAL PROPOSED MEDIAN, REMOVE BITUMINOUS CONCRETE AND PLACE MEDIAN SIMILAR TO FULL-DEPTH CONSTRUCTION.
6. CONCRETE MEDIAN WALL SHALL BE CLASS A CEMENT CONCRETE MASONRY.

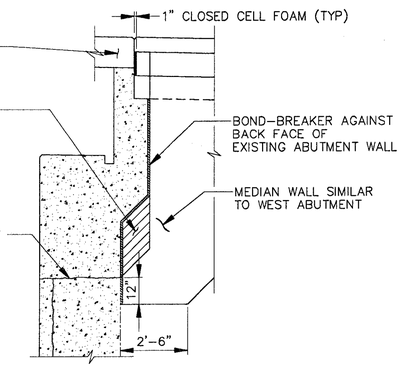


END VIEW



ELEVATION

WEST ABUTMENT

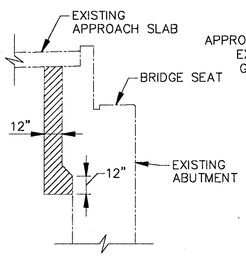


ELEVATION

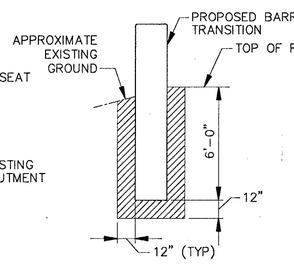
EAST ABUTMENT

SUGGESTED CONCRETE MEDIAN WALL FOR STAGE CONSTRUCTION

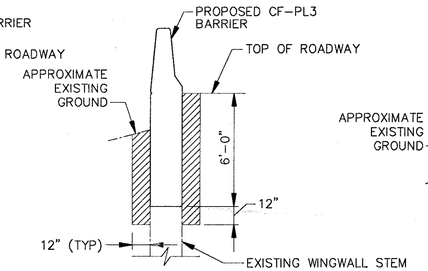
SCALE: 1/2" = 1'-0"



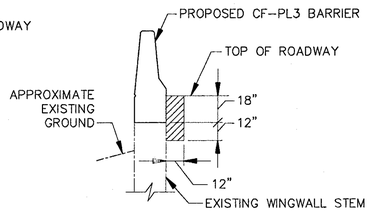
ABUTMENT



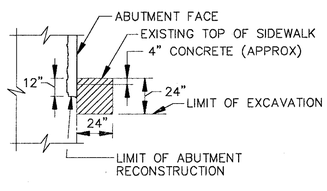
FLYING WINGWALL



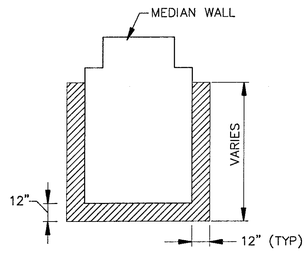
CF-PL3 TRANSITION



WINGWALL



SIDEWALK



MEDIAN WALL

NOTES:

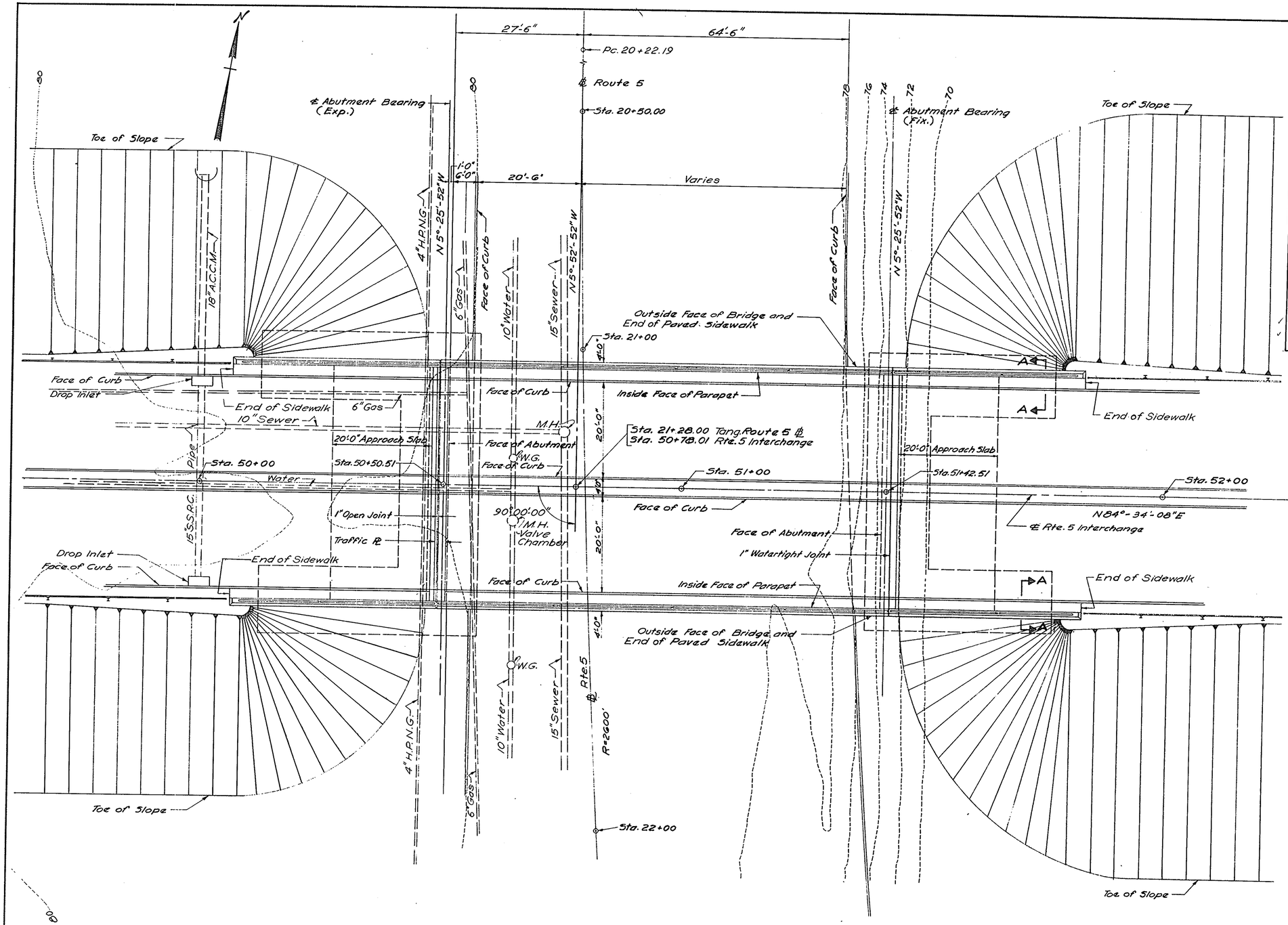
1. HATCHED AREAS ABOVE DENOTE LIMITS OF EXCAVATION (TYPICAL ALL WINGWALLS AND ABUTMENTS).
2. LIMITS OF EXCAVATION ARE SHOWN FOR THE EXISTING ABUTMENT AND WINGWALL CONFIGURATIONS.
3. EXISTING GROUND ELEVATION VARIES ALONG THE FACE OF THE WINGWALL.

PAY LIMITS

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

DATE	DESCRIPTION
4-20-96	ISSUED FOR CONSTRUCTION
	USE ONLY PRINTS OF LATEST DATE

Drawing WSP-S17 by JCW on 02/22/1996 16:06:20 at 1:1.00



QUANTITIES

	ITEM	FINAL	ESTIMATED
A3-1	Bridge Excavation	866	900 C.Y.
A3-5	Class 'B' Rock Excavation		10 C.Y.
A6-2	Gravel Borrow	984	1240 C.Y.
C5-1a	Class 'A' Cement Conc. Mas. in Footings	463.6	470 C.Y.
C5-1b	Class 'A' Cement Concrete Masonry in Stems	563.4	570 C.Y.
C5-1c	Class 'A' Cement Conc. Mas. in Appro. Slabs	90.7	100 C.Y.
C5-4a	Class 'D' Cement Conc. Mas. in Bridge Decks	168.4	170 C.Y.
C5-7	Steel Reinforcement For Structure	174,246	191000 LB
C7-1	Structural Carbon Steel	332787	337000 LB
C10-1	Bituminous Damp-proofing	658	670 S.Y.
C20-2	Aluminum Railing on Concrete	347.3	345 L.F.
C23-1	Cast in Place Concrete Piles	4462	5700 L.F.
F1-9	Granite Curb Type VA5 Straight	376	375 L.F.
G1-1	Concrete Sidewalks 1-Course	36	35 S.Y.
✓ C3-3	Test Piles	1	1 EA.
✓ C3-4	Pile Loading Test		1 EA.
D5-3a	Underdrains With 6" C.I.C.I. Pipe	80	110 L.F.

GENERAL NOTES

1. Designed in accordance with 1953 A.A.S.H.O. Standard Specifications for Highway Bridges and as ammended by the Massachusetts Turnpike Authority Bridge Design Specifications and Standard Detail Sheets.
2. All Deck Concrete is Class "D" Air Entrained. All other Concrete is Class "A" Air Entrained Except 4" Concrete Sidewalk which is Class "C" Air Entrained.
3. Anchor bolt locations were verified in the field before fabrication.
4. All new billet steel reinforcement are either structural or intermediate grade deformed bars in accordance with A.S.T.M-A-305
5. All steel reinforcement laps are 40 diameters.
6. Live Load H 20-S16-44.
7. Normal temperature assumed to be 50°F.
8. Datum for elevations U.S.C.&G.S. Sea Level Datum of 1929
Piles are 30 Ton Cast in place Concrete.

NOTE
For Sect. A-A see Sh. No. 48
For complete Utility information see Sh. No. 17

NO.	REVISION	BY	DATE
	As Built	RJP	8-9-51

	BY	DATE
DESIGNED		
DRAWN	G.M.M.	4/29/35
CHECKED	W/	" "
IN CHARGE J.J.C.		

"AS BUILT" DRAWING

BRIDGE NO. 2

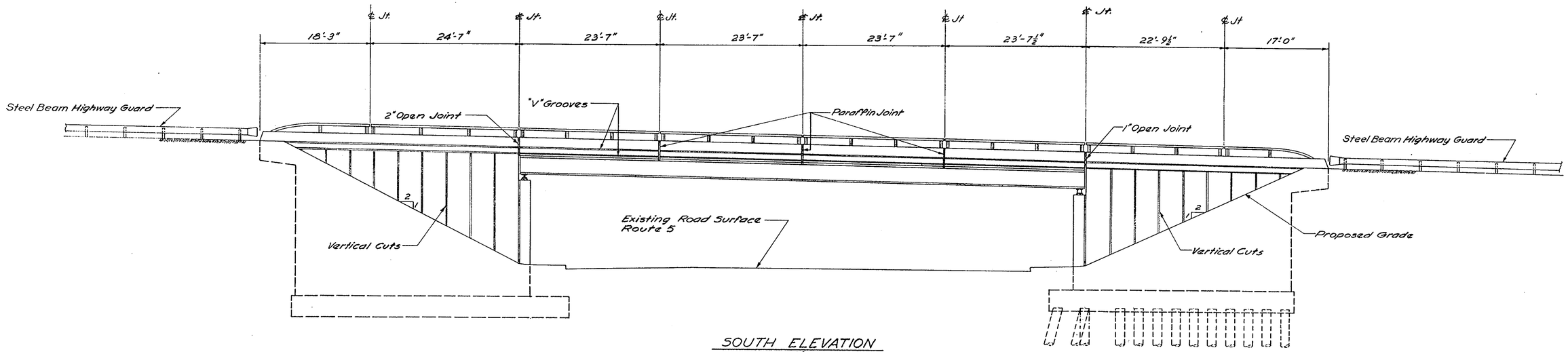
MASSACHUSETTS TURNPIKE AUTHORITY
MASSACHUSETTS TURNPIKE

RTE. 5 INTERCHANGE OVER RIVERDALE ST. (RTE. 5)

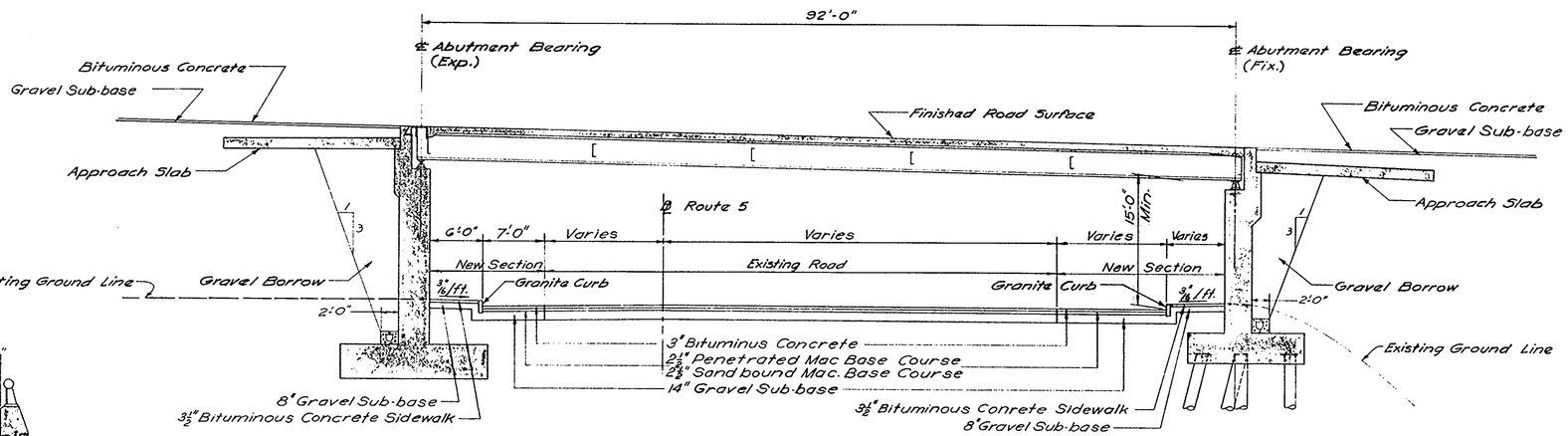
GENERAL PLAN

CHARLES A. MAGUIRE & ASSOCIATES
ENGINEERS
BOSTON, MASSACHUSETTS

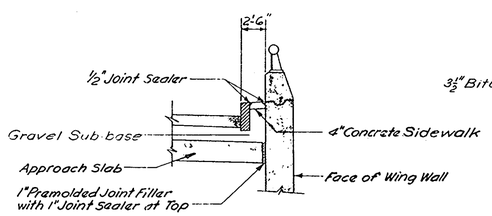
SCALE 1" = 10'
CONTRACT NO. 51-195
SHEET NO. 47 OF 65



SOUTH ELEVATION
Scale: 1/8" = 1'-0"



TYPICAL LONGITUDINAL SECTION
Scale: 1/8" = 1'-0"



SECTION A-A
Scale: 1/4" = 1'-0"

NOTE
For location Section A-A see Sh. No. 41

"AS BUILT" DRAWING

MASSACHUSETTS TURNPIKE AUTHORITY
MASSACHUSETTS TURNPIKE

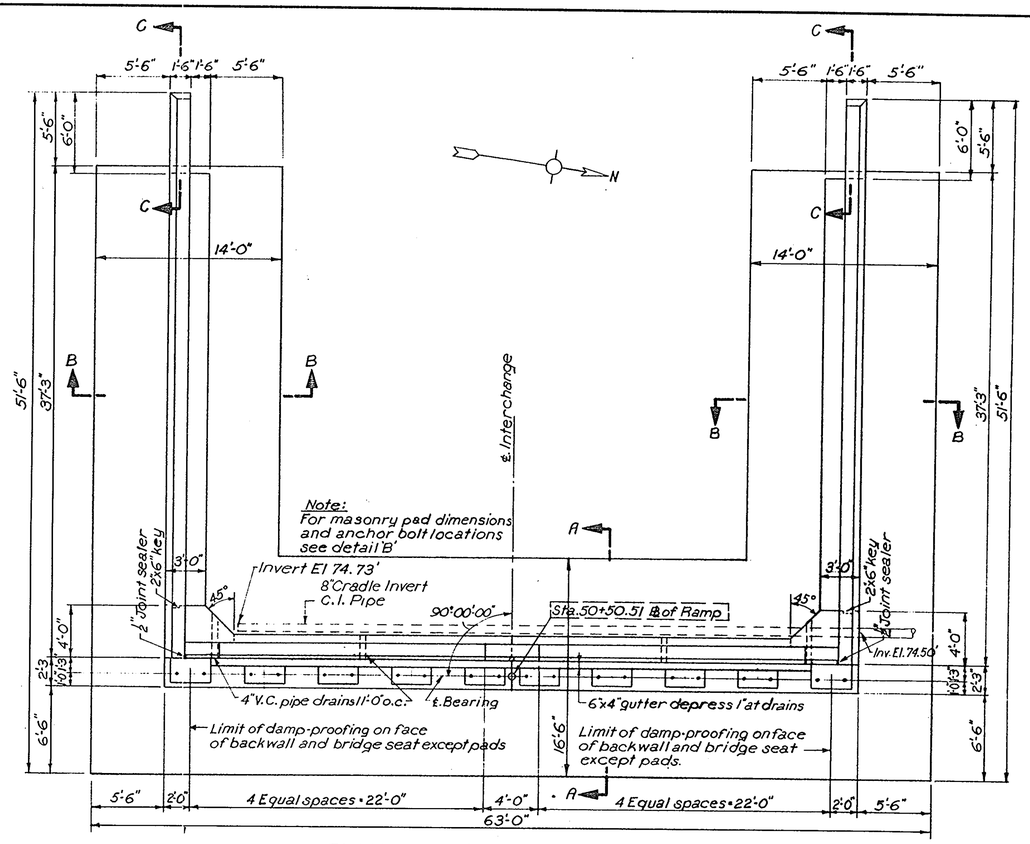
RTE. 5 INTERCHANGE OVER RIVERDALE ST. (RTE.5)
GENERAL ELEVATION & SECTION

CHARLES A. MAGUIRE & ASSOCIATES
ENGINEERS
BOSTON, MASSACHUSETTS

SCALE AS NOTED
CONTRACT NO. 51-195
SHEET NO. 48 OF 65

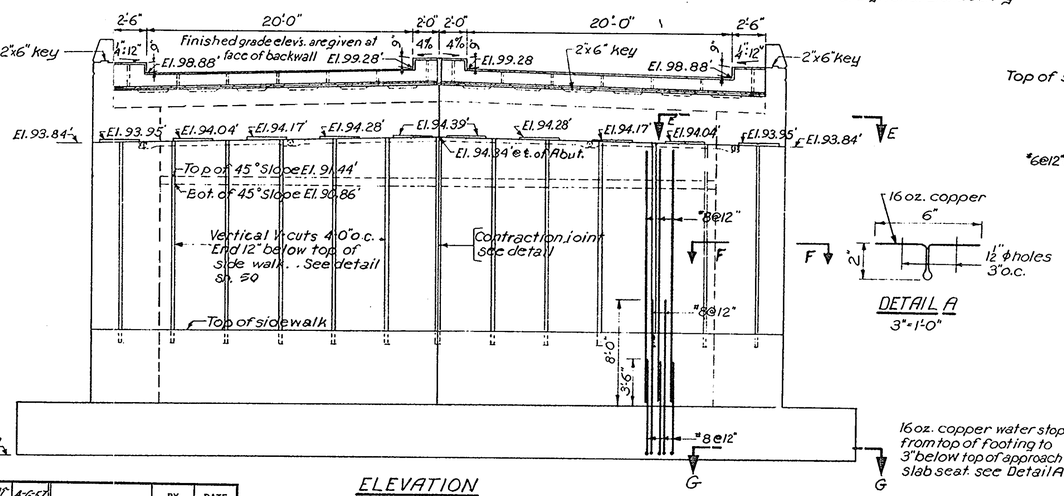
NO.	REVISION	BY	DATE
	As Built	WJT	4-8-57

	BY	DATE
DESIGNED		
DRAWN	G.M.M.	5/2/55
CHECKED	[illegible]	5-13-55
IN CHARGE	J.J.C.	

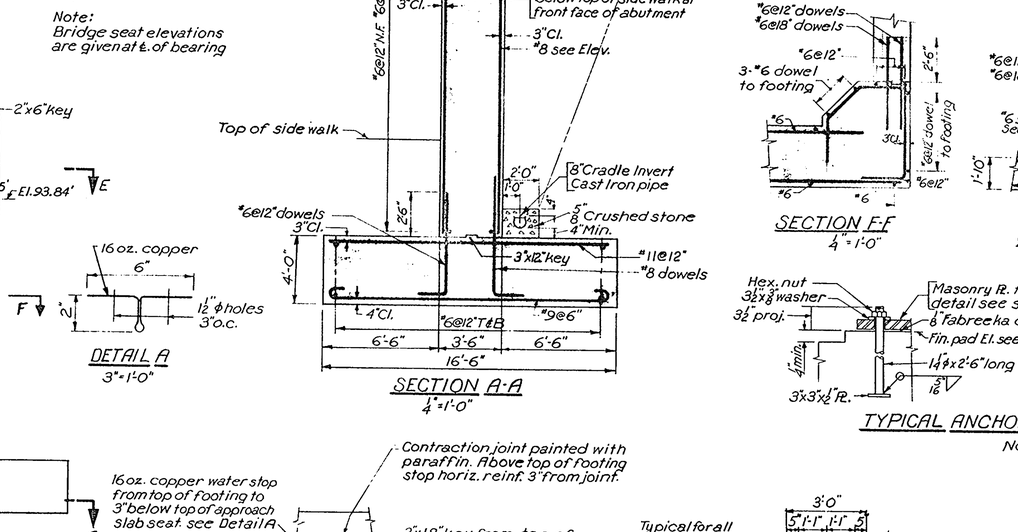


PLAN OF ABUTMENT AT STA. 50+50.51

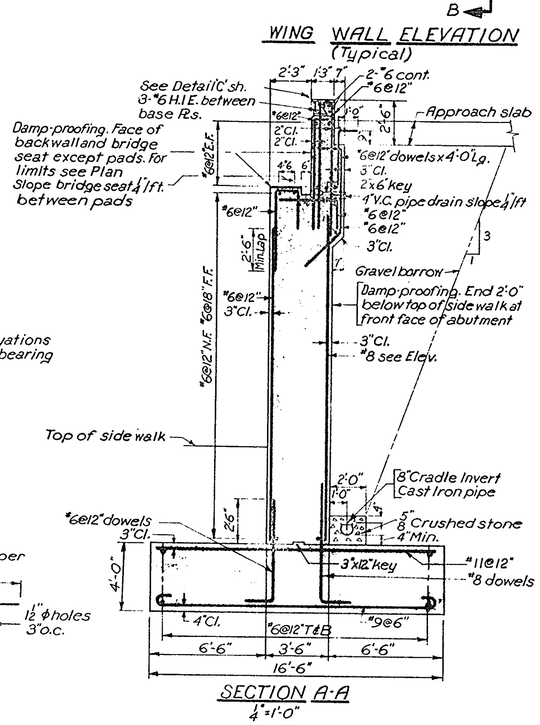
Note:
Bridge seat elevations are given at ℄ of bearing



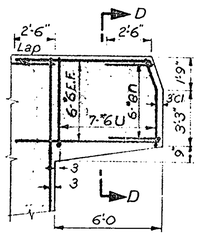
ELEVATION



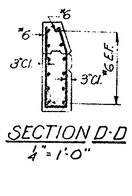
WING WALL ELEVATION
(Typical)



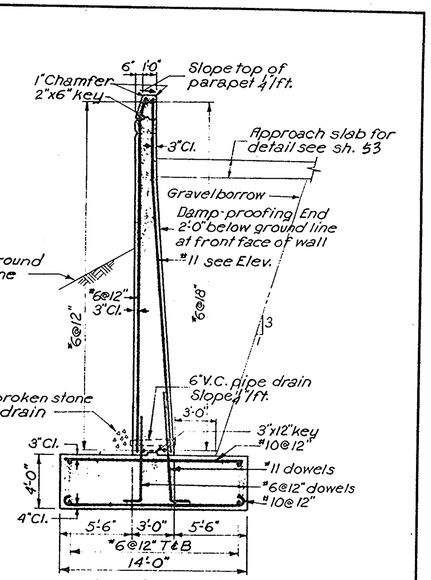
SECTION A-A
4" = 1'-0"



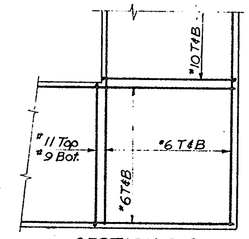
SECTION C-C
4" = 1'-0"



SECTION D-D
4" = 1'-0"

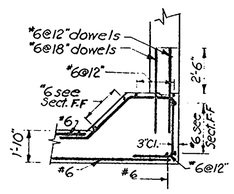


SECTION B-B

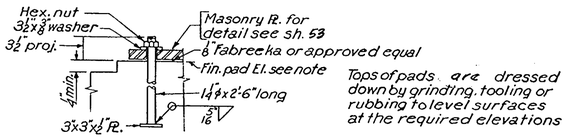


SECTION G-G
8" = 1'-0"

SECTION F-F
4" = 1'-0"

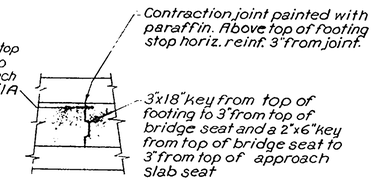


SECTION E-E
4" = 1'-0"

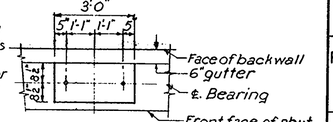


Tops of pads are dressed down by grinding, tooling or rubbing to level surfaces at the required elevations

TYPICAL ANCHOR BOLT DETAIL
No scale



DETAIL OF CONTRACTION JOINT
No Scale



DETAIL B
8" = 1'-0"

DETAIL A
3" = 1'-0"

"AS BUILT" DRAWING

NO.	REVISION	BY	DATE
	As Built	MF	4-6-57

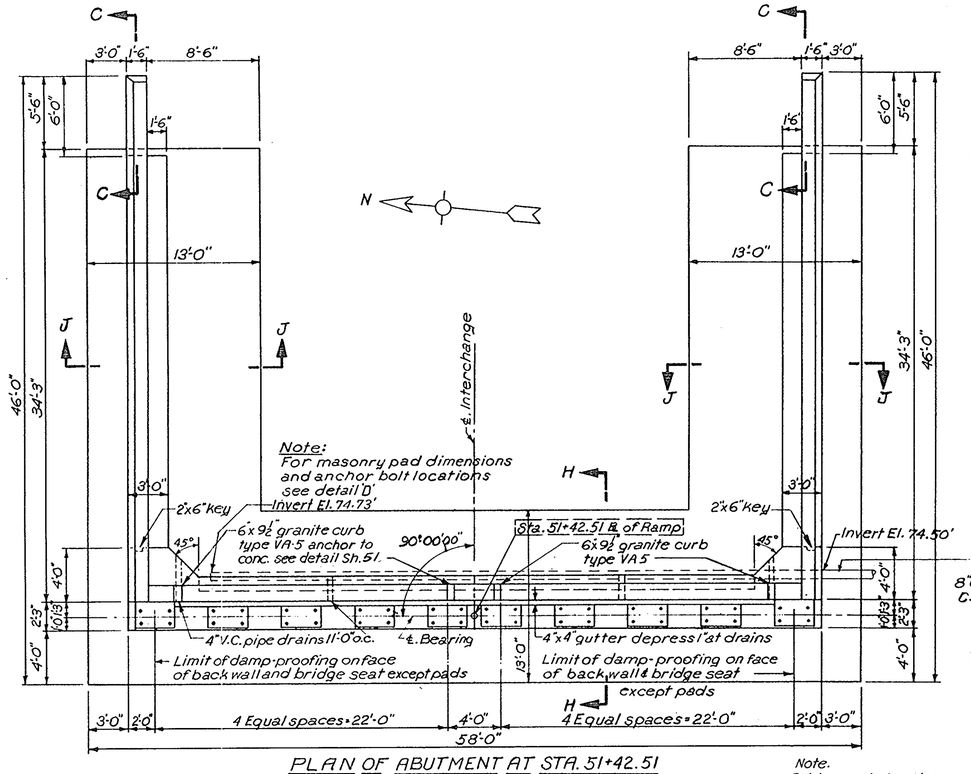
	BY	DATE
DESIGNED	H B	4/5/55
DRAWN	RSB	4/20/55
CHECKED	H B	5/16/55
IN CHARGE	JJC	

MASSACHUSETTS TURNPIKE AUTHORITY
MASSACHUSETTS TURNPIKE

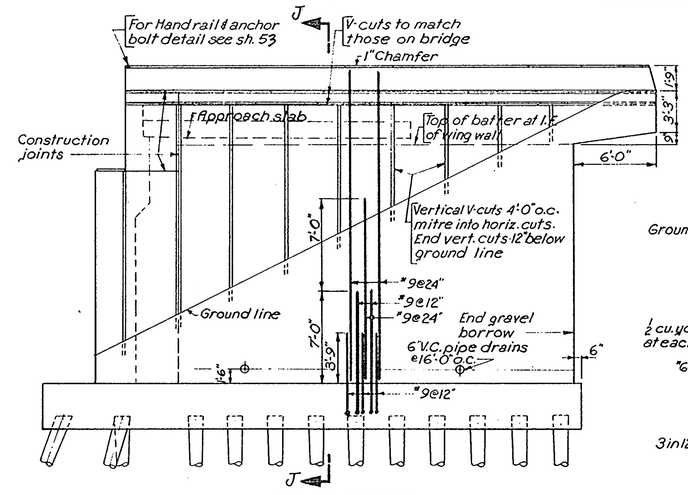
RTE. 5 INTERCHANGE OVER RIVERDALE ST. (RTE. 5)
ABUTMENTS SH. I

CHARLES A. MAGUIRE & ASSOCIATES
ENGINEERS
BOSTON, MASSACHUSETTS

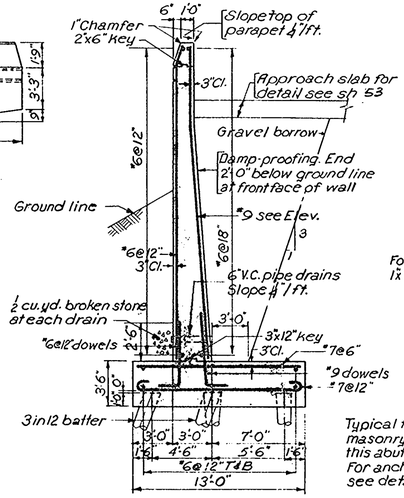
SCALE 3/16" = 1'-0"
CONTRACT NO. 51-195
SHEET NO. 49 OF 65



PLAN OF ABUTMENT AT STA. 51+42.51

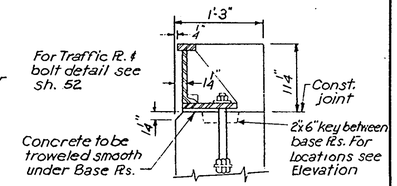


WING WALL ELEVATION
(Typical)

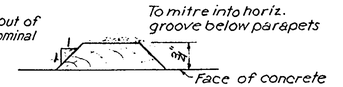


SECTION J-J

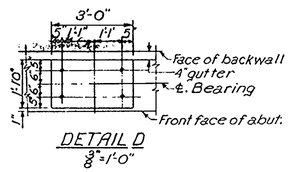
Typical for all masonry pads on this abutment. For anchor bolts see detail sh. 49



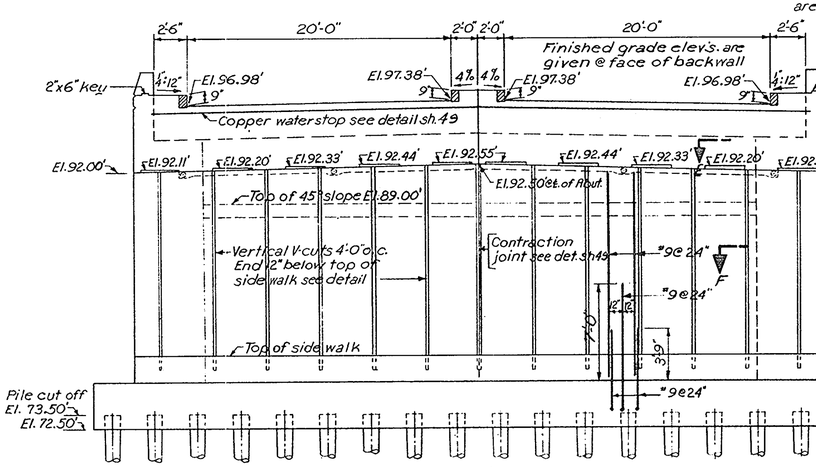
DETAIL C
1" = 1'-0"



DETAIL OF VERTICAL V-CUTS
No Scale

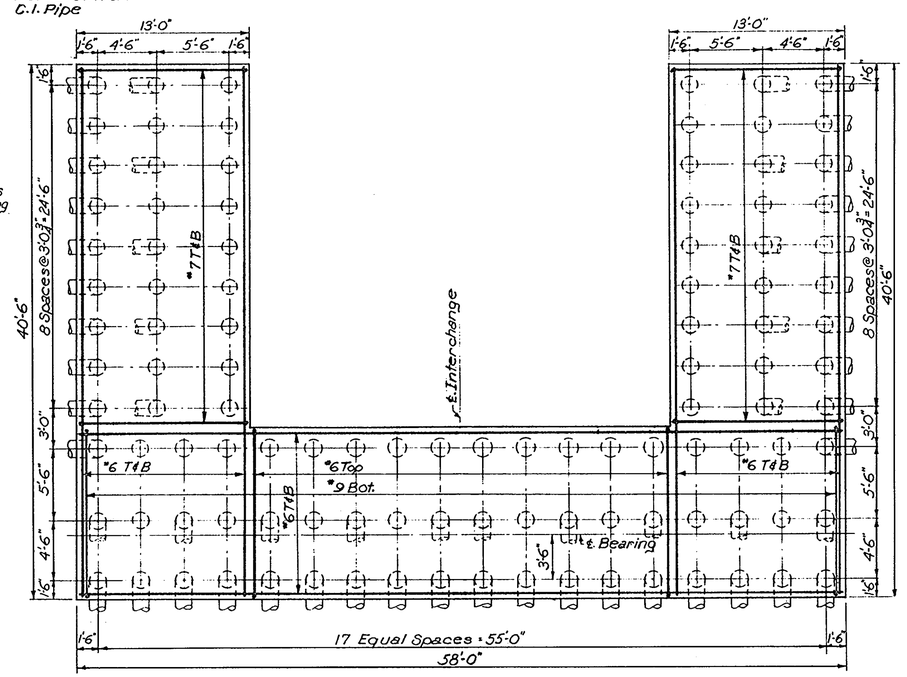


DETAIL D
3/8" = 1'-0"

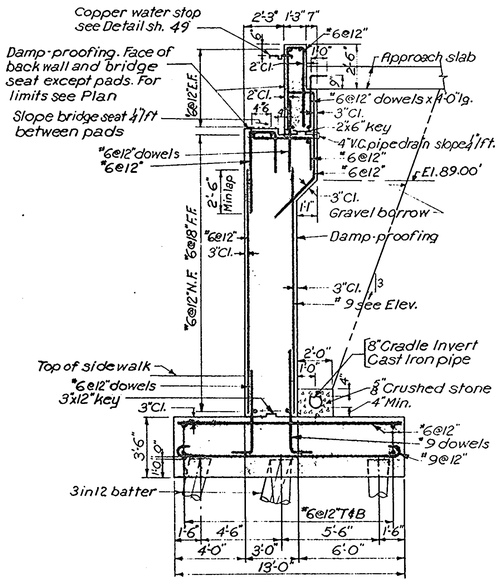


ELEVATION

Note.
Bridge seat elevations are given at ℄ of bearing



PLAN OF FOOTING REINFORCING & PILE SPACING



SECTION H-H
4" = 1'-0"

For Sections not shown see Sh. 49

NO.	REVISION	BY	DATE
	AS BUILT	[illegible]	4-4-57

	BY	DATE
DESIGNED	HB	4-1-55
DRAWN	RSB	4-18-55
CHECKED	HB	5-13-55
IN CHARGE JJC		

"AS BUILT" DRAWING

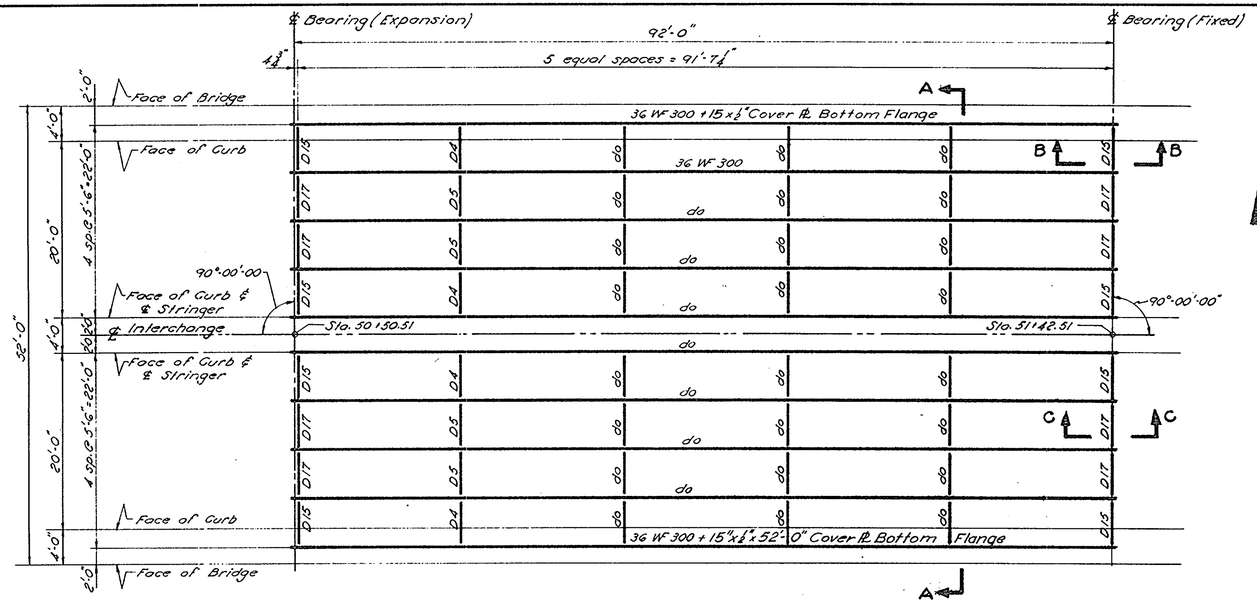
MASSACHUSETTS TURNPIKE AUTHORITY
MASSACHUSETTS TURNPIKE

RTE. 5 INTERCHANGE OVER RIVERDALE ST. (RTE. 5)

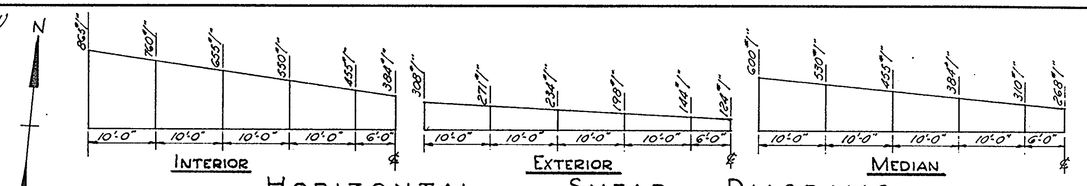
ABUTMENTS SH. 2

CHARLES A. MAGUIRE & ASSOCIATES
ENGINEERS
BOSTON, MASSACHUSETTS

SCALE 3/16" = 1'-0"
CONTRACT NO. 51-195
SHEET NO. 50 OF 65

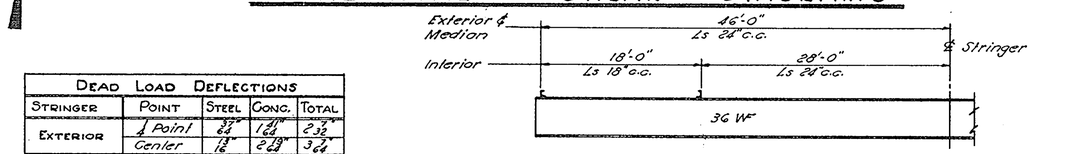


FRAMING PLAN
Scale: 1/8" = 1'-0"

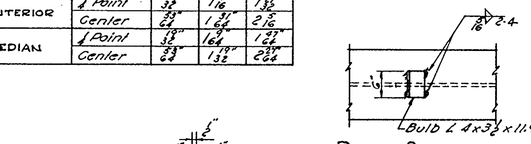


HORIZONTAL SHEAR DIAGRAMS

DEAD LOAD DEFLECTIONS				
STRINGER	POINT	STEEL	CONC.	TOTAL
EXTERIOR	¼ Point	37/64"	1 27/64"	2 32/64"
	Center	13/16"	2 19/64"	3 7/64"
INTERIOR	¼ Point	39/64"	1 1/16"	1 51/64"
	Center	59/64"	1 61/64"	2 7/16"
MEDIAN	¼ Point	37/64"	1 45/64"	1 53/64"
	Center	53/64"	1 59/64"	2 29/64"

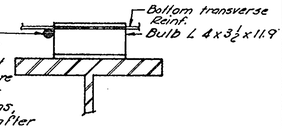


SHEAR CONNECTOR DETAIL



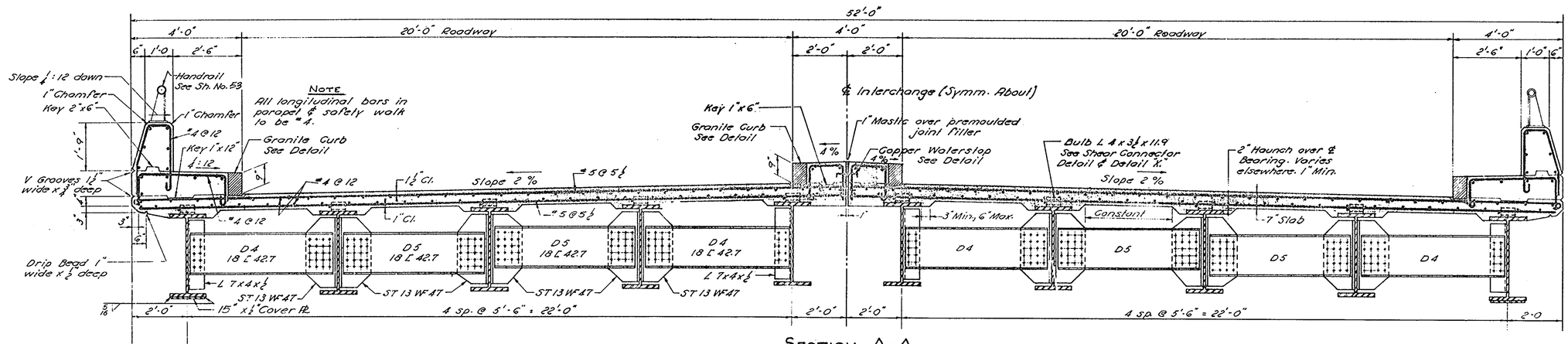
COPPER WATERSTOP
Scale: 1½" = 1'-0"

PLAN SHOWING SHEAR CONN.
Scale: ¾" = 1'-0"

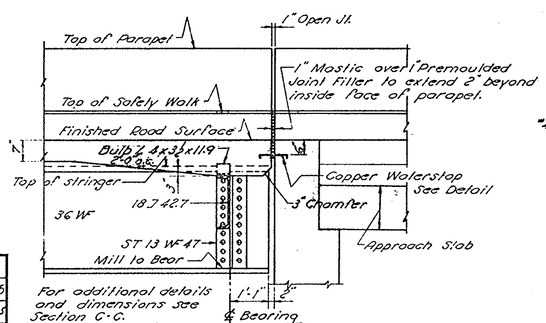


⅞" Plain bar (cont) tack Weld to angle and reinf. in field. Bar is set in such manner to assure that the true profile as shown on Grading Plans, accomplished after dead load deflection has taken place.

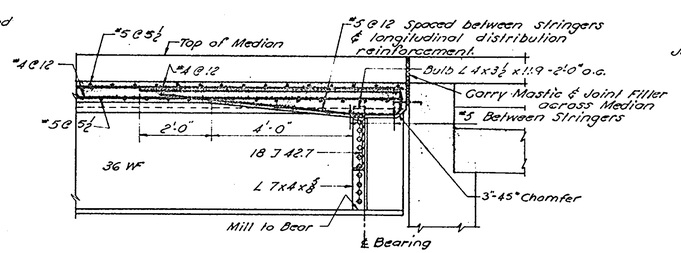
DETAIL "X"



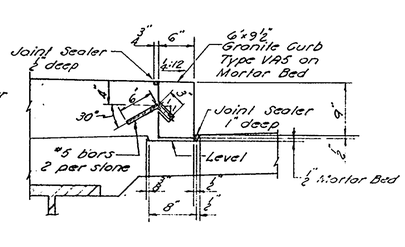
SECTION A-A
Scale: ½" = 1'-0"



SECTION B-B
Scale: ½" = 1'-0"



SECTION C-C
Scale: ½" = 1'-0"



GRANITE CURB DETAIL
Scale: 1" = 1'-0"

NOTES

1. All rivets are ⅞" dia. unless noted otherwise.
2. All stringers have a minimum camber of 3" turned up.

NO.	REVISION	BY	DATE
	As Built	RJT	4-6-51

	BY	DATE
DESIGNED	HB	4-6-55
DRAWN	J.K.H.	4-13-55
CHECKED	E.F.L.	4/27/56
IN CHARGE JJC		

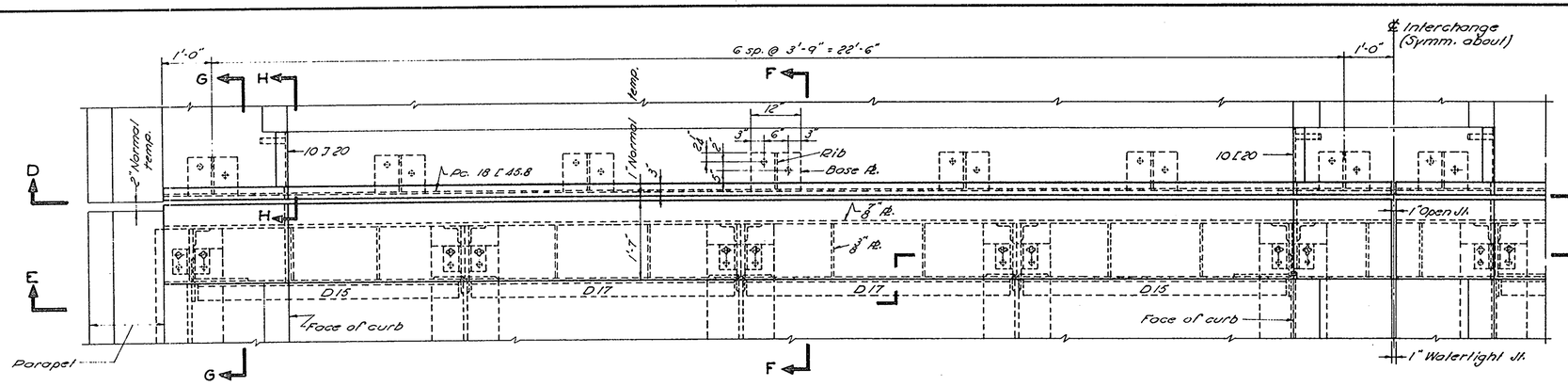
"AS BUILT" DRAWING

MASSACHUSETTS TURNPIKE AUTHORITY
MASSACHUSETTS TURNPIKE

RTE. 5 INTERCHANGE OVER RIVERDALE ST. (RTE. 5)
FRAMING & DECK DETAILS SH. 1

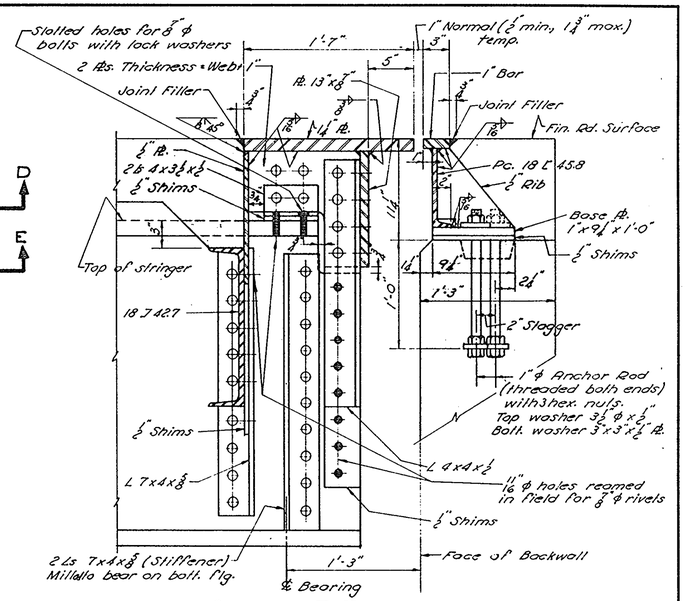
CHARLES A. MAGUIRE & ASSOCIATES
ENGINEERS
BOSTON, MASSACHUSETTS

SCALE AS NOTED
CONTRACT NO. 51-195
SHEET NO. 51 OF 65



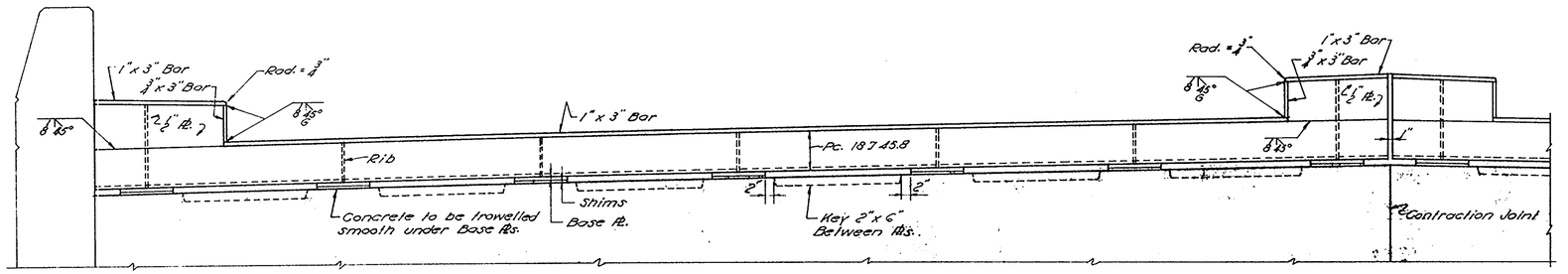
Plan Of Expansion Joint

Scale: $\frac{3}{4}$" = 1'-0"



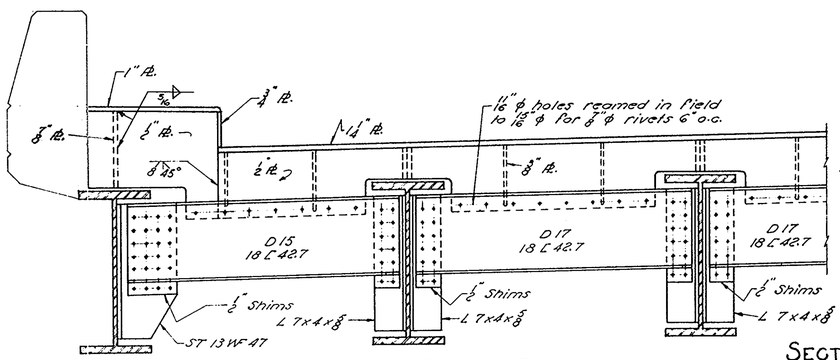
Section F-F

Scale: 1½" = 1'-0"

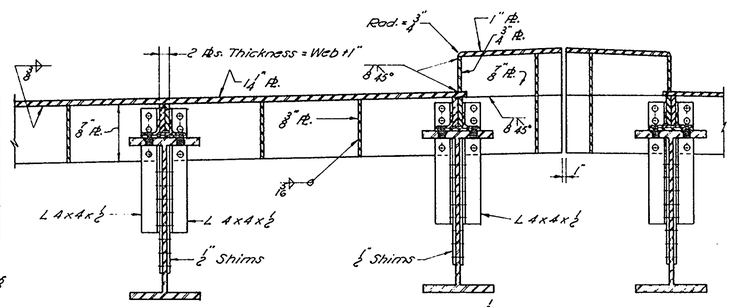


Section D-D

Scale: $\frac{3}{4}$" = 1'-0"



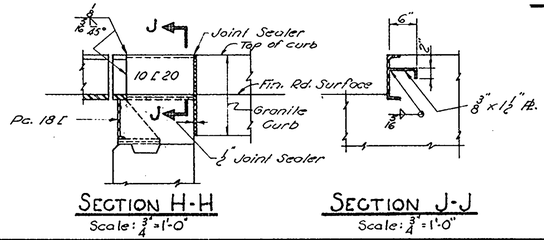
Slab Removed



Section E-E

Scale: $\frac{3}{4}$" = 1'-0"

Note
Bearing Stiffeners not shown

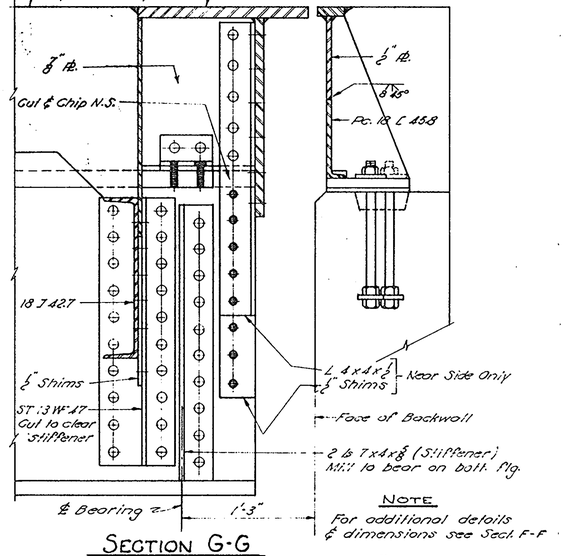


Section H-H

Scale: $\frac{3}{4}$" = 1'-0"

Section J-J

Scale: $\frac{3}{4}$" = 1'-0"



Section G-G

Scale: 1½" = 1'-0"

Note
For additional details & dimensions see Sect. F-F

"AS BUILT" DRAWING

NO.	REVISION	BY	DATE
	As Built	WJT	4-6-57

	BY	DATE
DESIGNED	HB	4-1955
DRAWN	WJK.	4-29-55
CHECKED	E.F.L.	5/9/55
IN CHARGE	J.J.C.	

MASSACHUSETTS TURNPIKE AUTHORITY

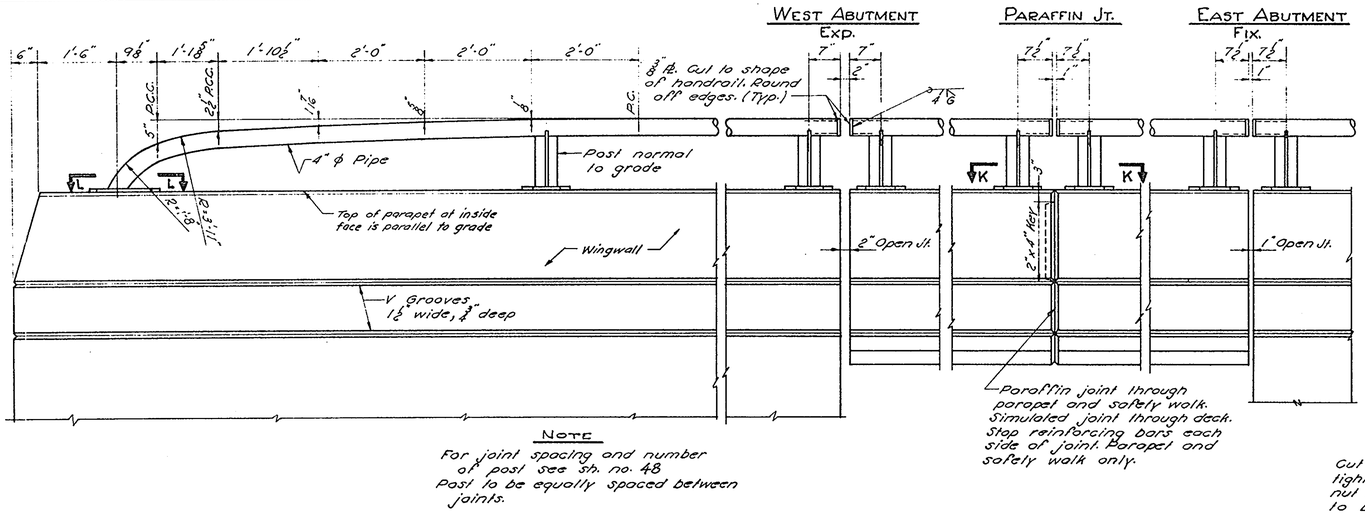
MASSACHUSETTS TURNPIKE

RTE. 5 INTERCHANGE OVER RIVERDALE ST. (RTE.5)

FRAMING & DECK DETAILS SH. 2

CHARLES A. MAGUIRE & ASSOCIATES
ENGINEERS
BOSTON, MASSACHUSETTS

SCALE AS NOTED
CONTRACT NO. 51-195
SHEET NO. 52 OF 65

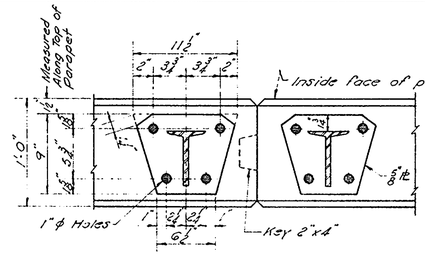


NOTE

For joint spacing and number of post see Sh. no. 48
Post to be equally spaced between joints.

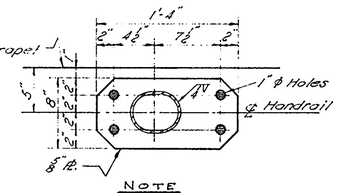
Elevation Of Handrail And Parapet

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



Section K-K

Scale: 1½" = 1'-0"

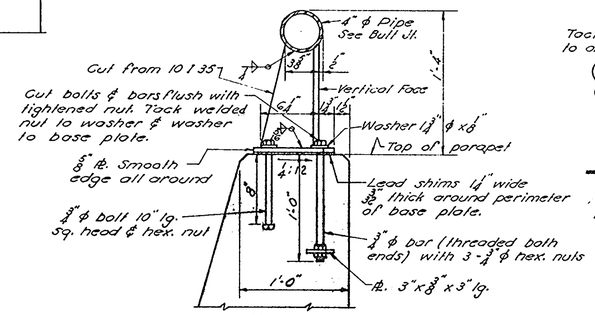


NOTE

Anchor bolts to be same as shown in Handrail Section.

Section L-L

Scale: 1½" = 1'-0"

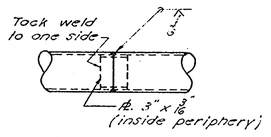


NOTE

Anchor bolts to be normal to base plates of all posts

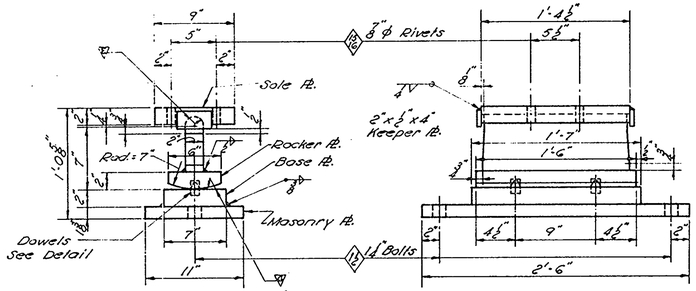
Handrail Section

Scale: 1½" = 1'-0"



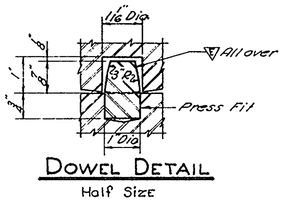
Butt Joint

Used if pipe not obtained in full length.



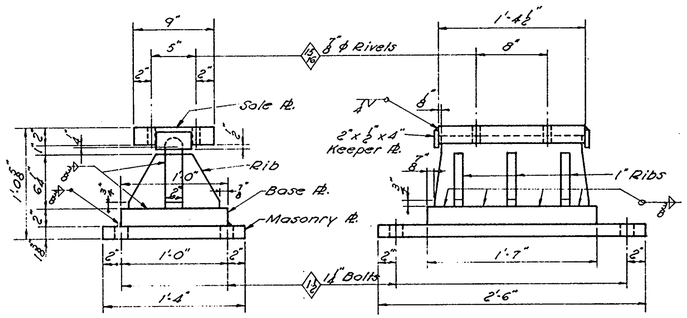
Expansion Shoe

Scale: 1½" = 1'-0"



Dowel Detail

Half Size

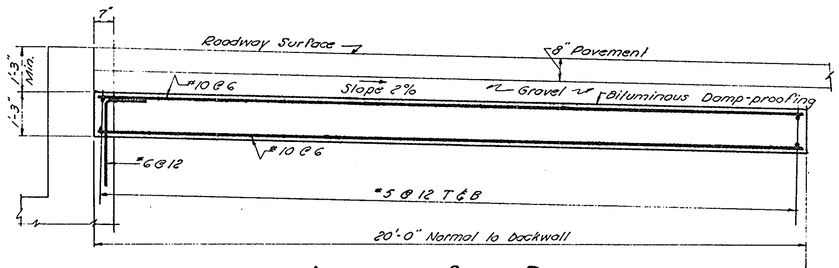


Fixed Shoe

Scale: 1½" = 1'-0"

Shoe Notes

Bottoms of main vertical stem of all shoes are finished to bear on rocker plate or base plate.
Rockers are set so as to be vertical under full dead load at a temperature of 50°F.
Top of sole plates and masonry plates planed, straightened or otherwise treated to secure true level surfaces.
The following contact surfaces are finished in accordance with the standards of the Association of Iron and Steel Engineers to the class of finished prescribed:
a. Top of rocker stems and grooves in sole plates - Fine Finish - symbol F.
b. Top surfaces of base plates and bottoms of rockers - medium Finish - symbol G.
Radius on sole plate to be finished to radius on main vertical stem plus 1/16.



Approach Slab Detail

Scale: ½" = 1'-0"

"AS BUILT" DRAWING

MASSACHUSETTS TURNPIKE AUTHORITY
MASSACHUSETTS TURNPIKE

RTE. 5 INTERCHANGE OVER RIVERDALE ST. (RTE.5)
MISCELLANEOUS DETAILS

NO.	REVISION	BY	DATE
	As Built	RFT	4-6-57

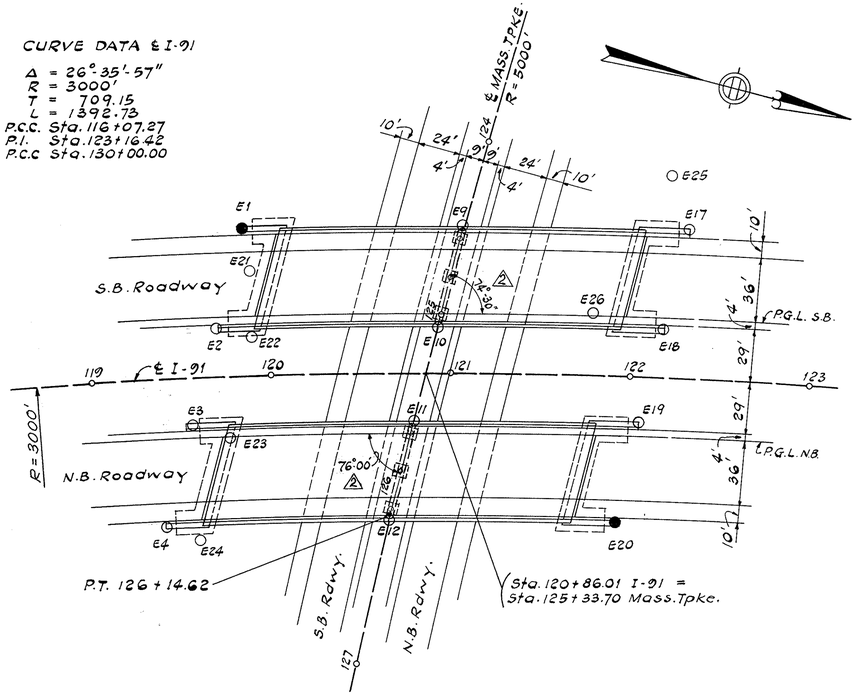
	BY	DATE
DESIGNED	H.B.	4-15-55
DRAWN	W.J.K.	3-29-55
CHECKED	E.F.L.	4/29/55
IN CHARGE J.J.C.		

CHARLES A. MAGUIRE & ASSOCIATES
ENGINEERS
BOSTON, MASSACHUSETTS

SCALE AS NOTED
CONTRACT NO. 51-195
SHEET NO. 53 OF 65

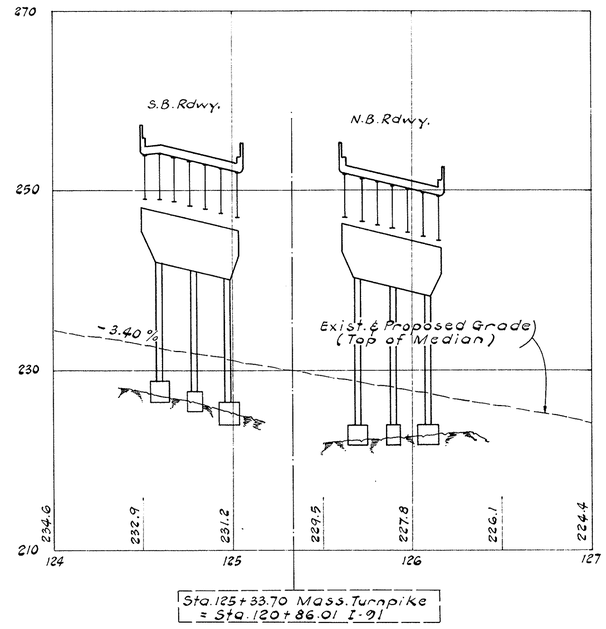
CURVE DATA ℄ I-91

Δ = 26°35'-57"
R = 3000'
T = 709.15
L = 1392.73
P.C.C. Sta. 116+07.27
P.I. Sta. 123+16.42
P.C.C Sta. 130+00.00



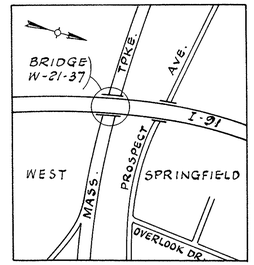
KEY PLAN

Scale : 1" = 40'



PROFILE OF MASSACHUSETTS TURNPIKE

Scales: 1"=8' Vert.; 1"=40' Horiz.



LOCUS

Scale : 1"= 800'

PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS	I-91-1(64)9	1967	90	393

GENERAL NOTES

DESIGN
In accordance with the current specifications of the American Association of State Highway Officials (1961 Edition) for H520-44 Loading and Modified for Military Requirements.

DATE AND SEAL
To be placed on the inside faces of the Northwest End Post of the Southbound Bridge and Southeast End Post of the Northbound Bridge. A sheet showing the size and character of the numerals will be furnished. The seal will be furnished by the State and shall be set by the Contractor.

FOUNDATIONS
May be altered, if necessary, to suit conditions encountered during construction.

UNSUITABLE MATERIAL
Shall be removed within the limits of the foundations of the structure.

BRIDGE RAILINGS
See Department Standard Metal Railing Plans, dated Oct. 1966 for Details of Bridge Railings.

REINFORCEMENT
All bars shall have deformations conforming to A.S.T.M. designation A-305. Unless otherwise noted on the Plans, Reinforcing Bars shall be lapped 20 diameters to make a splice, except that Main Reinforcing Bars near the top of the slabs and beams having more than 12 inches of concrete under the bar shall be lapped 35 diameters to make a splice.

ANCHOR BOLTS
Shall be set by template and placed before concrete is poured, except at the Abutments where drilling and grouting may be used at the Contractors option.

SCALE
Scales noted on Plans are not applicable to reduced size prints. Divide scales by 2 for ½ size prints.

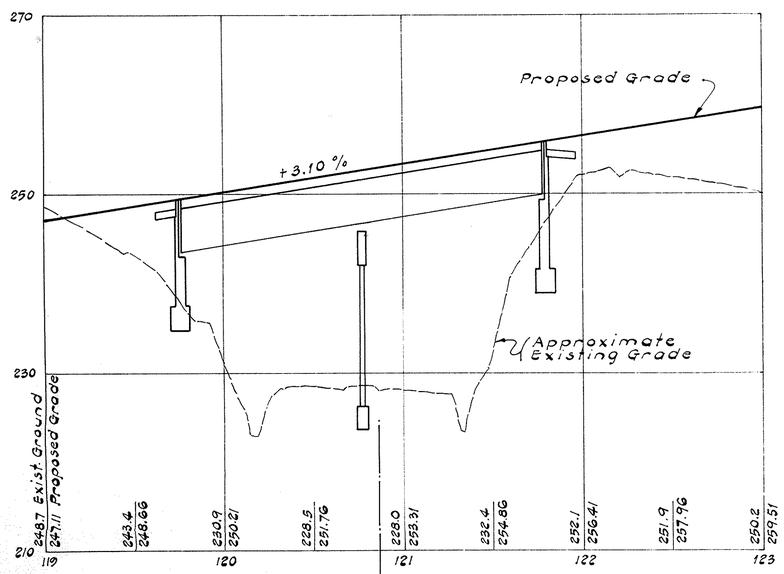
FIELD BOOK

BENCH MARK
B.M. #11 Vert. RR Spike in Root of 24" Elm, South Side of Prospect Ave. 30'± East of W.M.E. Co. Pole #37. El. 257.50, Mean Sea Level Datum of 1929 (USC & GS)

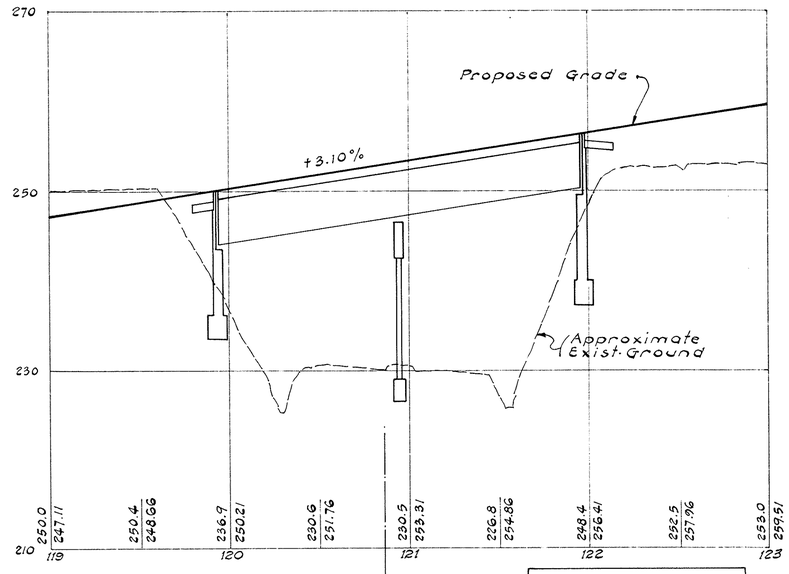
ESTIMATED QUANTITIES
(Not Guaranteed)

Class B Rock Excavation	450 C.Y.
Bridge Excavation	1,170 C.Y.
Gravel Borrow	900 C.Y.
Gravel Borrow for Bridge Foundation	20 C.Y.
Class I Bituminous Concrete Pavement Type I-1	170 Tons
Class I Dense Protective Bottom Course for Bridges	170 Tons
Metal Bridge Railing (1-Rail) Option	940 L.F.
Bridge Structure (No. W-21-37)	1 L.S.
Class G Cem. Conc. Masonry	25 C.Y.
Estimated Weight of Reinforcing Steel	304,000 Lbs.
Estimated Weight of Structural Steel (A.S.T.M. A36)	650,000 Lbs.

These quantities are part of Item 995.02 Bridge Structure, (Bridge No. W-21-37) and are not guaranteed.



NORTHBOUND ROADWAY



SOUTHBOUND ROADWAY

PROFILE OF I-91

Scales: 1"=8' Vert., 1"=40' Horiz.

BARSTOW & MULLIGAN
CONSULTING ENGINEERS
566 ATLANTIC AVE.
BOSTON, MASS.

JULY 28, 1967	5	REVISION - SHEET 10
JULY 13, 1967	4	REVISIONS - SHEETS 1, 7, 8, 9 & 10
JULY 13, 1967	3	Angles deleted
JUNE 23, 1967	2	Revision. Sheet 5
MARCH 25, 1967	1	ISSUED FOR CONSTRUCTION

DESIGNED BY RM, JM
DRAWN BY VK, AMP
CHECKED BY JGH, LK
APPROVED FOR
DESIGN
SPECS.

THE COMMONWEALTH OF MASSACHUSETTS
PROPOSED BRIDGE

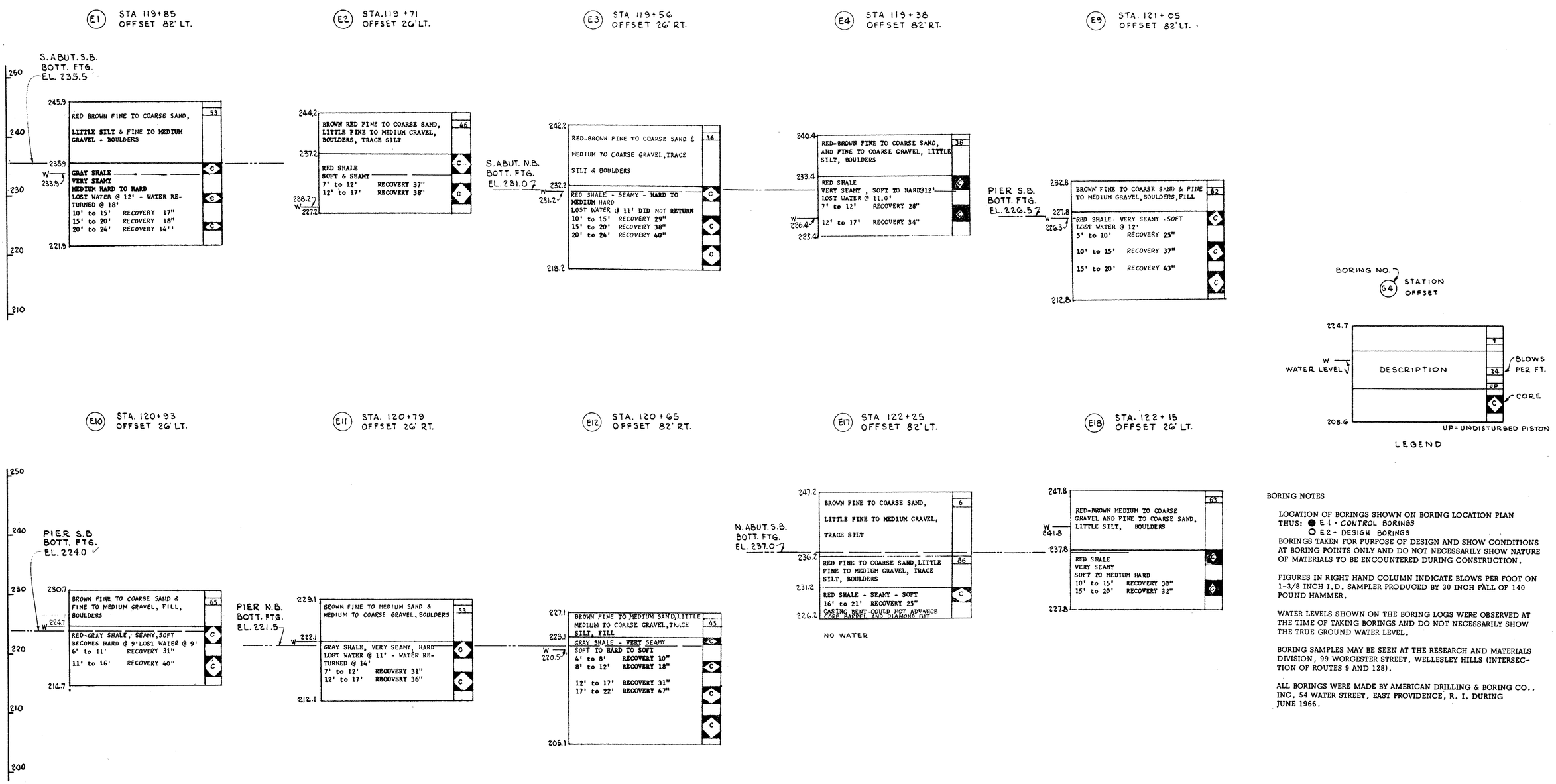
WEST SPRINGFIELD

INTERSTATE ROUTE 91 OVER
MASSACHUSETTS TURNPIKE
SCALES AS NOTED
OFFICE OF
DEPARTMENT OF PUBLIC WORKS
100 NASHUA ST. BOSTON, MASS.

R.D. McDonough — MARCH 1967 — Donald Lyon P.E.
BRIDGE ENGINEER — CHIEF ENGINEER

SHEET 1 OF 13 SHEETS BRIDGE NO. W-21-37

PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS	I-91-1(64)9	1967	91	393



BORING DATA

Scale: 1" = 8'

BORING NOTES

LOCATION OF BORINGS SHOWN ON BORING LOCATION PLAN
THUS: ● E1 - CONTROL BORINGS
○ E2 - DESIGN BORINGS
BORINGS TAKEN FOR PURPOSE OF DESIGN AND SHOW CONDITIONS AT BORING POINTS ONLY AND DO NOT NECESSARILY SHOW NATURE OF MATERIALS TO BE ENCOUNTERED DURING CONSTRUCTION.

FIGURES IN RIGHT HAND COLUMN INDICATE BLOWS PER FOOT ON 1-3/8 INCH I.D. SAMPLER PRODUCED BY 30 INCH FALL OF 140 POUND HAMMER.

WATER LEVELS SHOWN ON THE BORING LOGS WERE OBSERVED AT THE TIME OF TAKING BORINGS AND DO NOT NECESSARILY SHOW THE TRUE GROUND WATER LEVEL.

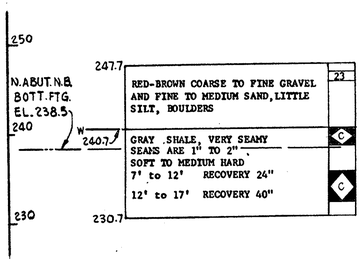
BORING SAMPLES MAY BE SEEN AT THE RESEARCH AND MATERIALS DIVISION, 99 WORCESTER STREET, WELLESLEY HILLS (INTERSECTION OF ROUTES 9 AND 128).

ALL BORINGS WERE MADE BY AMERICAN DRILLING & BORING CO., INC., 54 WATER STREET, EAST PROVIDENCE, R. I. DURING JUNE 1966.

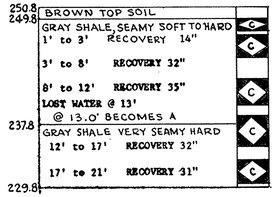
DATE	DESCRIPTION
MARCH 25, 1967	ISSUED FOR CONSTRUCTION
USE ONLY PRINTS OF LATEST DATE	

PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
I	MASS	I-91-1(64)9	1967	92	393

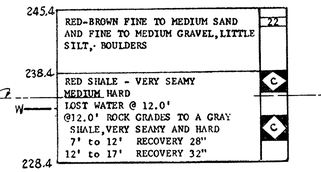
E19 STA. 122+05 OFFSET 26' RT.



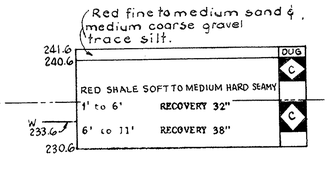
E20 STA. 121+95 OFFSET 82' RT.



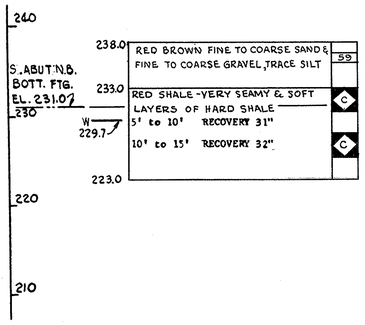
E21 STA. 119+90 OFFSET 59' LT.



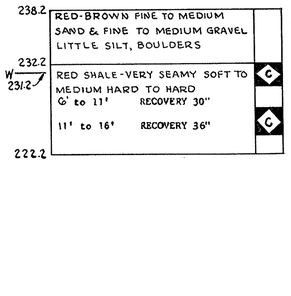
E22 STA. 119+90 OFFSET 23' LT.



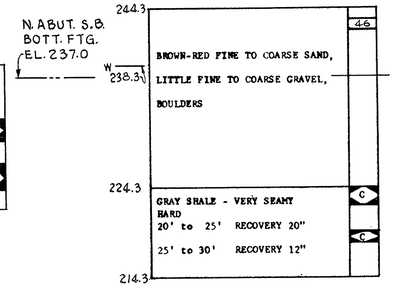
E23 STA. 119+76 OFFSET 33' RT.



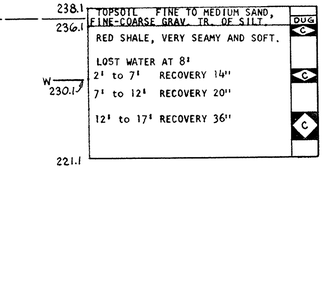
E24 STA. 119+56 OFFSET 90' RT.



E25 STA. 122+18 OFFSET 112' LT.



E26 STA. 121+78 OFFSET 34' LT.



BORING DATA

Scale: 1" = 8'

MARCH 25, 1967	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

SHEET 3 OF 13 SHEETS BRIDGE NO. W-21-37

PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS	I-91-1(64)9	1967	93	393

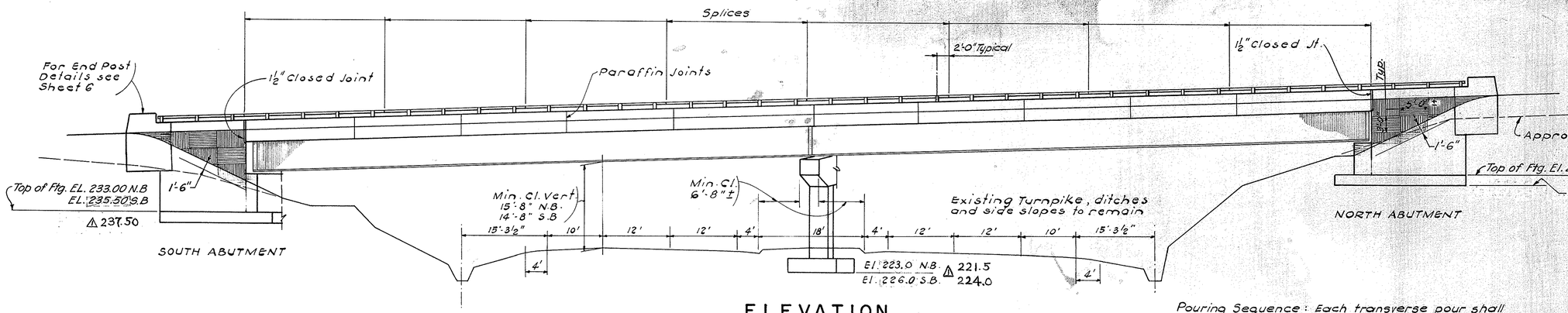
246'-1 5/8"
201'-7 5/8"
36 Spaces @ 6'-3 3/4" = 227'-3"
20'-6"
5'-5"
1'-0"
Paraffin Jt. Spacing
20'-7 5/8"
3 Spaces @ 18'-11 1/4" = 56'-9 3/4"
25'-3"
4 Spaces @ 18'-11 1/4" = 75'-9"
23'-2 1/4"
24'-0"
6'-0 5/8"
5'-5"
1'-0"
Face of Bridge
Face of Parapet
Face of Granite Curb
Date and Seal see Sh. 6
10'-0"
1/2" Preformed Jt. Filler between wall and approach slab - Typical
℄ Fixed Bearings ℄ Pier
1 1/2" Joint see Sh. 11
15'-0"
Approach Slab Slab Typical
Drains, Typ. where shown. For Details, see Sheet 11
Pt. of Min. Vert. Clearance S.B.
36'-0" Roadway
P.G.L. S.B.
4'-0"
Paraffin Jt. Spacing
19'-7 5/8"
3 Spaces @ 18'-11 1/4" = 56'-9 3/4"
25'-3"
36 Spaces @ 6'-3 3/4" = 227'-3"
4 Spaces @ 18'-11 1/4" = 75'-9"
24'-2 5/8"
6'-1"
1'-0"
5'-5"
5'-5"
1'-0"
21'-6"
201'-8"
246'-2"
23'-0"
33'-0"
℄ Expansion Bearings South Abutments
℄ MASS. TPKE. R=5000'
Sta. 120+86.01 I-91 = Sta. 125+33.70 Mass. Tpke.
+86.42
℄ Piers N. 87°05'43"E.
10'-0"
24'-0" Roadway
4'-0"
9'-0"
120
121
122
℄ I-91
R=3000'
℄ Expansion Bearings North Abutments
246'-7 1/2"
202'-1 1/2"
36 Spaces @ 6'-3 7/8" = 227'-7 1/2"
20'-6"
5'-5"
1'-0"
20'-8 3/8"
3 Spaces @ 18'-11 5/8" = 56'-10 3/8"
25'-3 1/2"
4 Spaces @ 18'-11 5/8" = 75'-10 1/2"
23'-4 3/8"
24'-0"
6'-2"
1'-0"
5'-5"
3'-1"
7'-1"
1'-6"
TYP.
℄ Fixed Bearings ℄ Pier
P.G.L., N.B.
4'-0"
36'-0" Roadway
10'-0"
Date & Seal see Sheet 6
Pt. of Min. Vert. Clearance, N.B.
19'-8 3/8"
3 Spaces @ 18'-11 5/8" = 56'-10 3/8"
25'-3 1/2"
4 Spaces @ 18'-11 5/8" = 75'-10 1/2"
24'-5"
36 Spaces @ 6'-3 7/8" = 227'-7 1/2"
202'-2 1/8"
246'-8 1/8"
6'-2 3/8"
1'-0"
5'-5"
5'-5"
1'-0"
21'-6"
23'-0"

PLAN Scale: 1"=10'-0"

DATE	DESCRIPTION
MARCH 25 1967	ISSUED FOR CONSTRUCTION
USE ONLY PRINTS OF LATEST DATE	

SHEET 4 OF 13 SHEETS BRIDGE NO. W-21-37

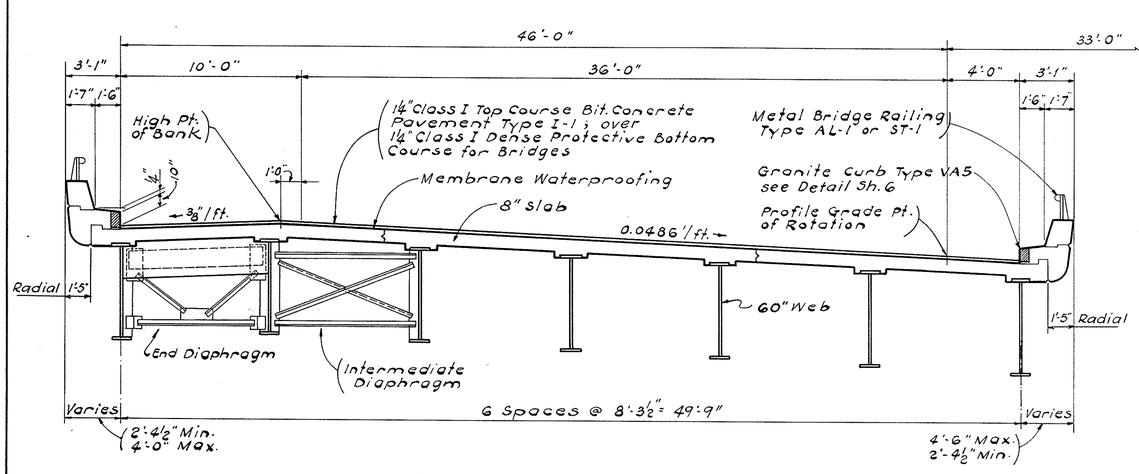
PUB. RD DIV. NO	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS	I-91-1(64)9	1967	54	393



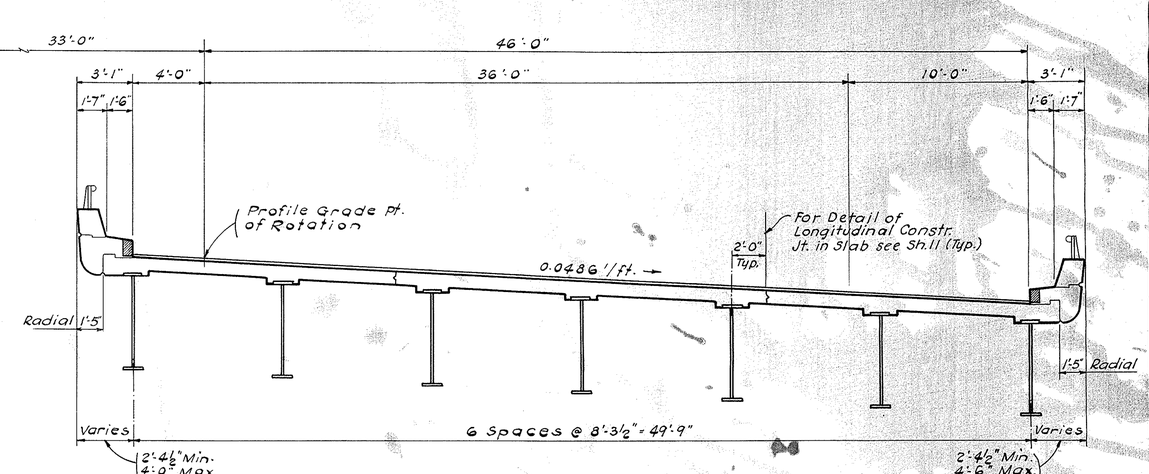
ELEVATION

Scale : 1" = 10'

Pouring Sequence : Each transverse pour shall be made simultaneously in each Span starting from the Abutments and pouring toward the Pier continously until the transverse pour is completed.



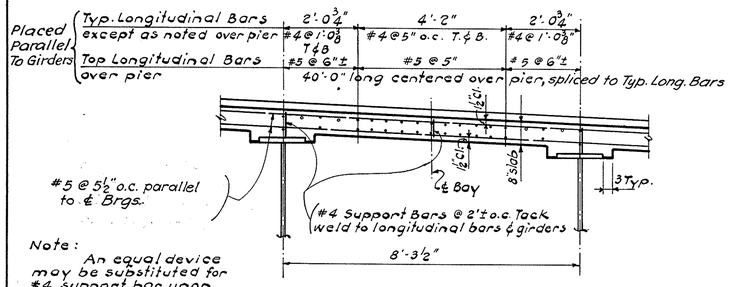
SOUTHBOUND ROADWAY



NORTHBOUND ROADWAY

TYPICAL CROSS SECTION

Scale : ¼" = 1'-0"



Note : An equal device may be substituted for #4 support bar upon written approval of the Engineer.

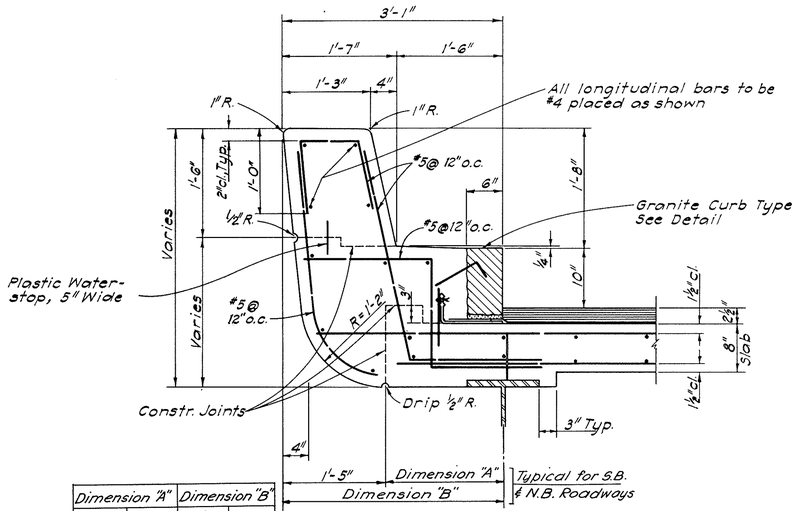
TYPICAL SLAB REINFORCEMENT

Scale : ½" = 1'-0"

DATE	DESCRIPTION
JUNE 29, 1967	△ Elev. Top & Bot. of Ftgs. revised
MARCH 25, 1967	ISSUED FOR CONSTRUCTION
USE ONLY PRINTS OF LATEST DATE	

SHEET 5 OF 13 SHEETS BRIDGE NO. W-21-37

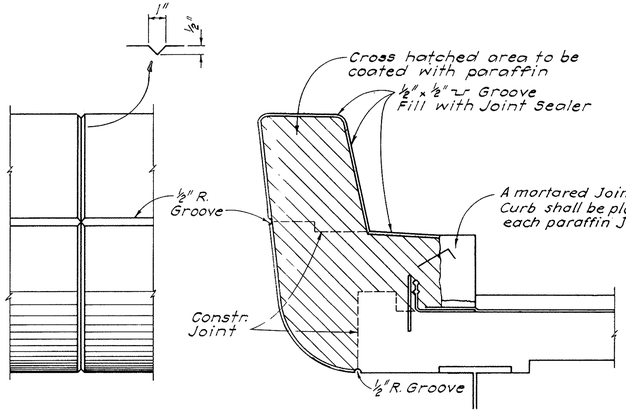
PUB. RD DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS	I-91-1(64)9	1967	95	393



	Dimension "A"		Dimension "B"	
	Min.	Max.	Min.	Max.
West Fascia	11½"	2'-7"	2'-4½"	4'-0"
East Fascia	11½"	3'-1"	2'-4½"	4'-6"

SAFETY CURB DETAIL

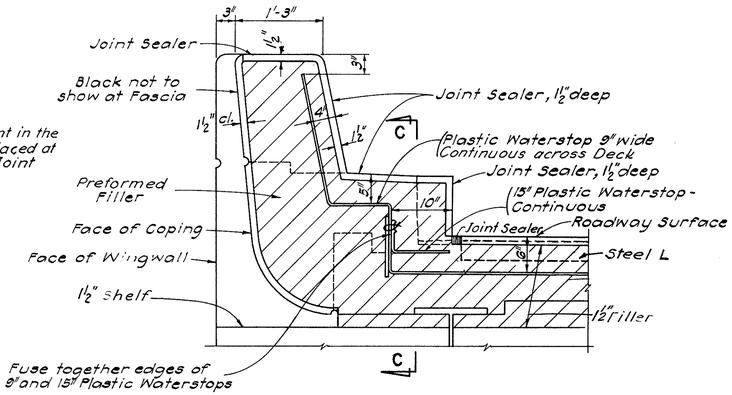
Scale: 1" = 1'-0"



PARAFFIN JOINT THROUGH COPING AND SAFETY WALK

Scale: 1" = 1'-0"

Notes:
1. Safety walk and coping shall be poured in alternate sections and shall have a curing period of not less than 5 days between pours.
2. Joints to be at locations shown on Sheet No. 4.
3. End of bars to be 2" clear of joint.
4. Do not carry longitudinal bars in safety walk and coping through the joints.
5. Joint sealer to be same color as concrete.
6. Joint to be square to face of coping.
7. Joint in curb shall be mortared no sooner than 5 days after concrete in sidewalk has been poured.

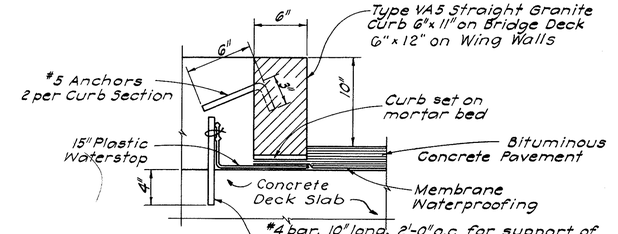


DETAILS OF SAFETY CURB AT DECK JOINTS

Scale: 1" = 1'-0"

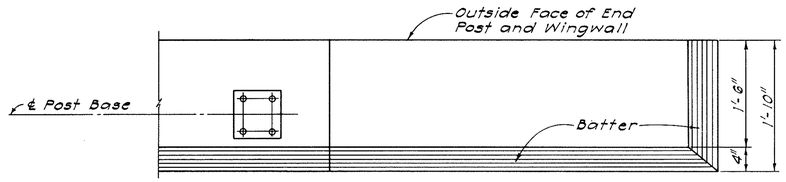
Note:

Joint Sealer to be same color as concrete

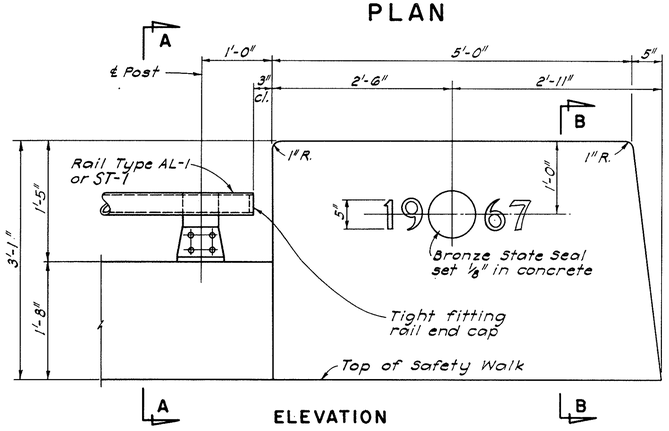


DETAIL AT CURB

Scale: 1½" = 1'-0"



PLAN

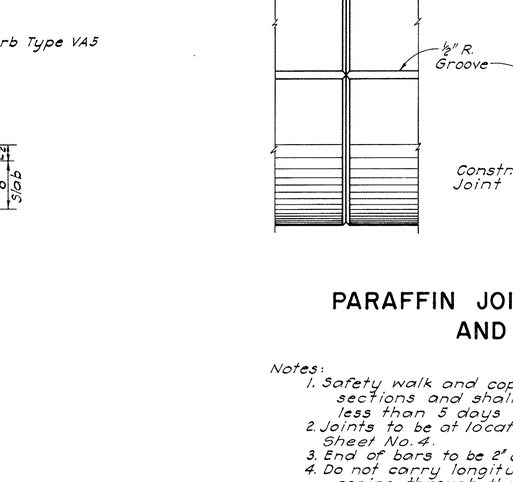


ELEVATION

END POST DETAIL

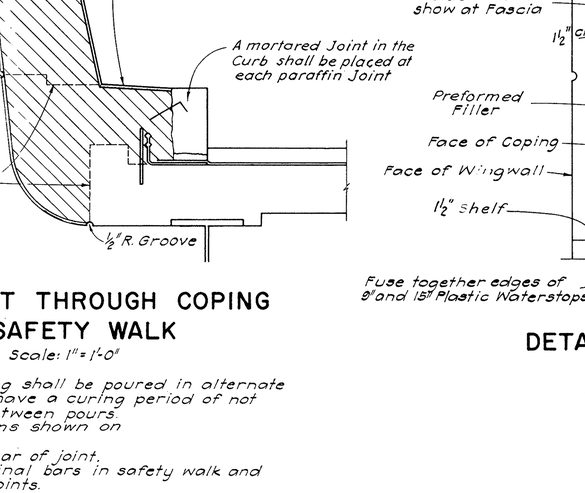
Scale: 1" = 1'-0"

Note: Railing anchor bolts to be set by template and placed before concrete is poured.



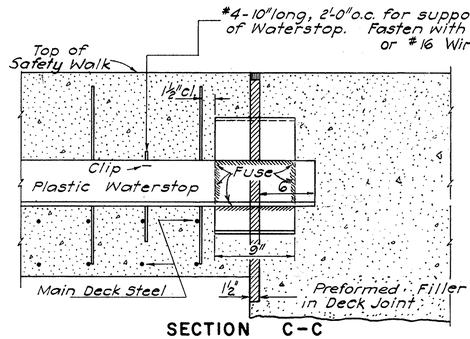
SECTION A-A

Scale: 1" = 1'-0"



SECTION B-B

Scale: 1" = 1'-0"



SECTION C-C

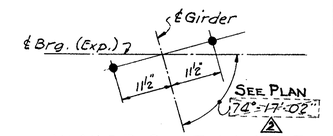
Scale: 1½" = 1'-0"

DATE	DESCRIPTION
MARCH 25, 1967	ISSUED FOR CONSTRUCTION
USE ONLY PRINTS OF LATEST DATE	

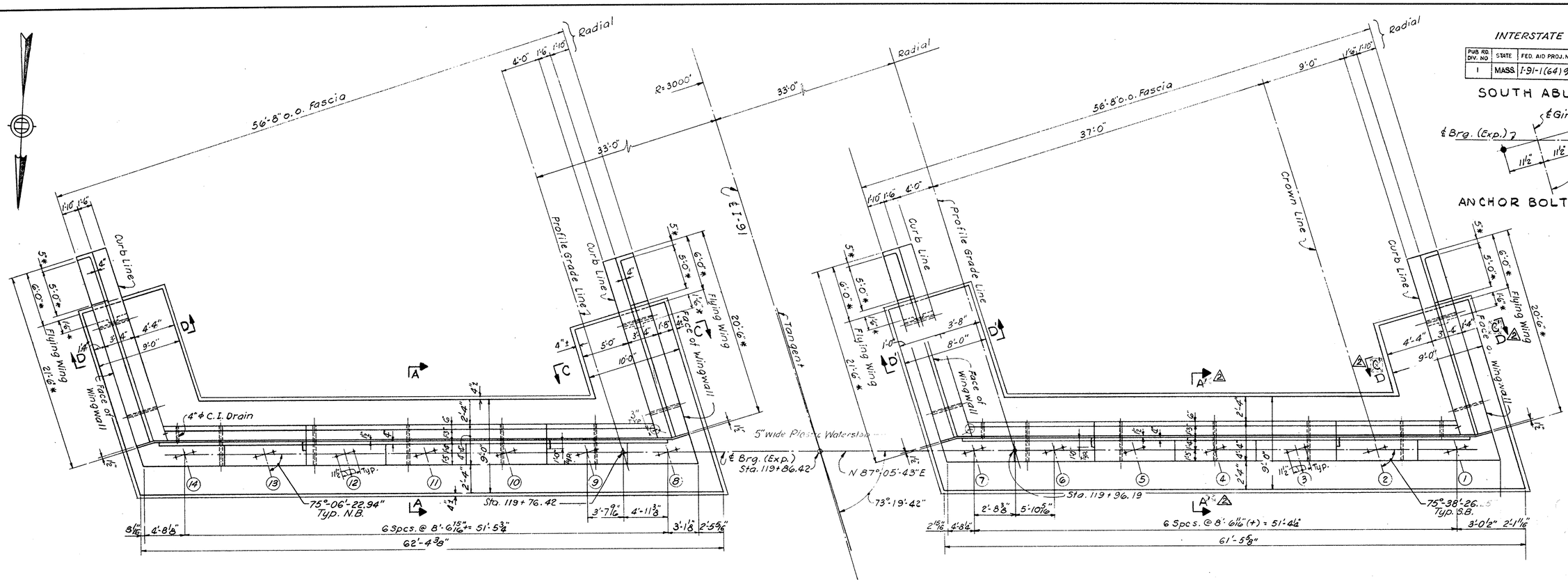
INTERSTATE ROUTE 91

PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	I-91-1(64)9	1967	96	393

SOUTH ABUTMENT



ANCHOR BOLT LAYOUT

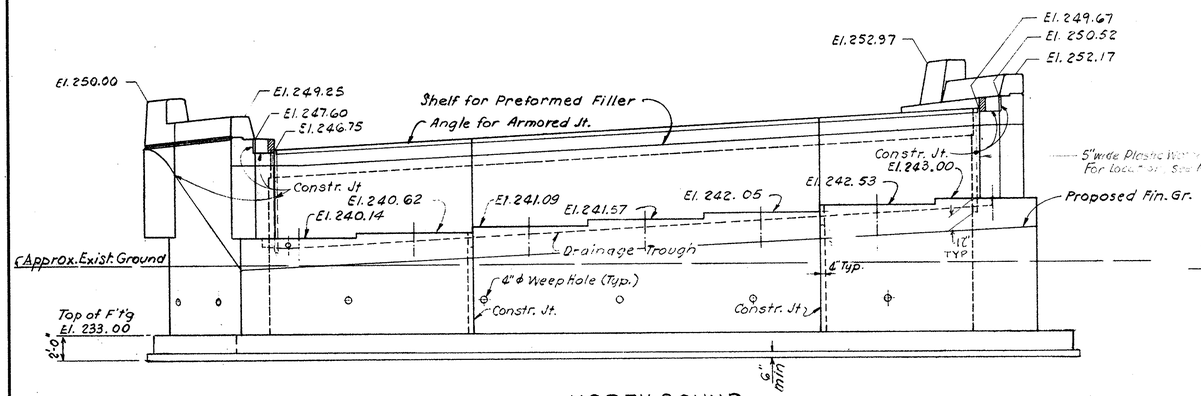


PLAN

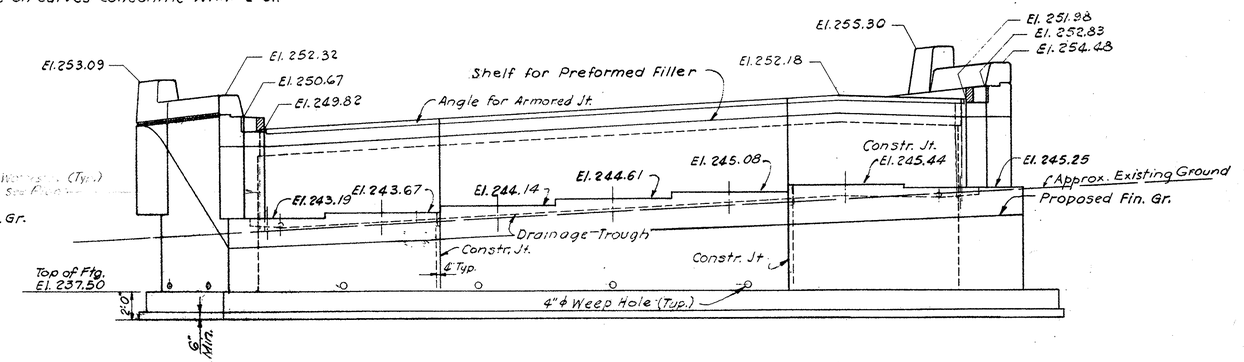
Scale: 3/16" = 1'-0"

* Measured Along Face of Wingwall

All wingwalls are on curves concentric with I-91.



NORTH BOUND



SOUTH BOUND

ELEVATION

Scale: 3/16" = 1'-0"

SOUTH ABUTMENTS

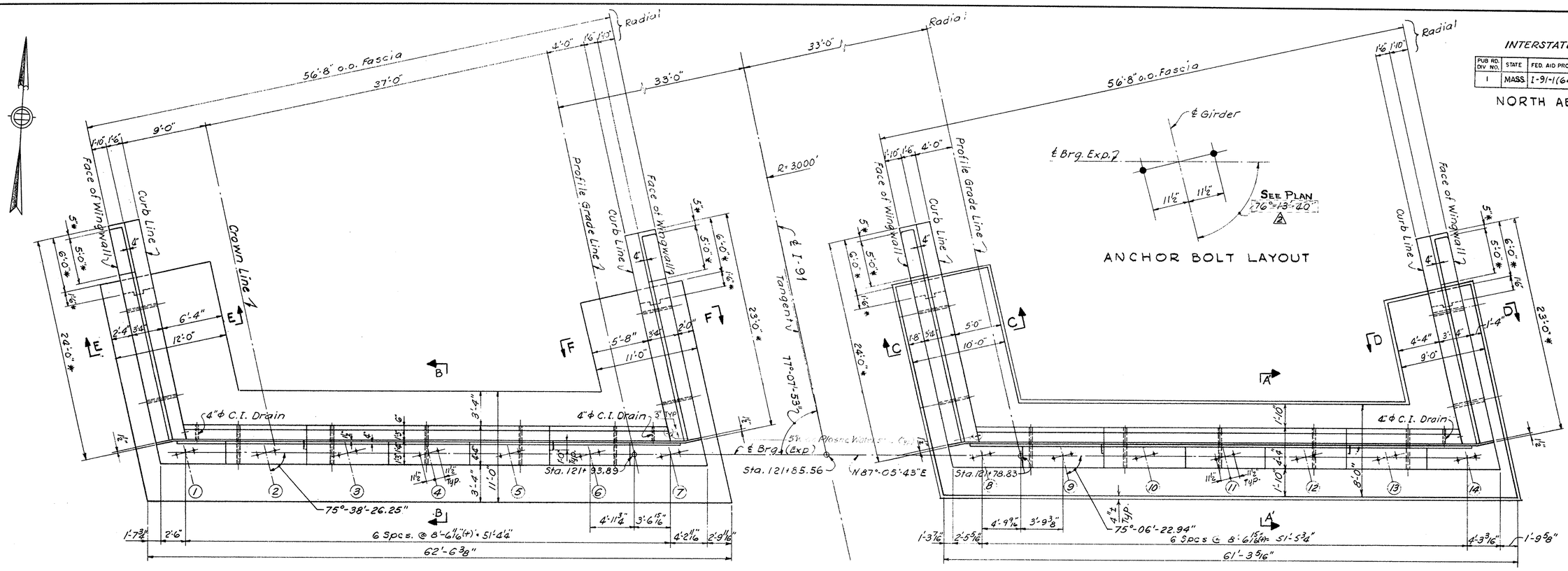
DATE	DESCRIPTION
JULY 13, 1967	Section Symbols revised; ⚠2 Anchor Bolt Layout Angle revised
MARCH 23, 1967	ISSUED FOR CONSTRUCTION
	USE ONLY PRINTS OF LATEST DATE

⚠2 ⚠2 ⚠2 ⚠2

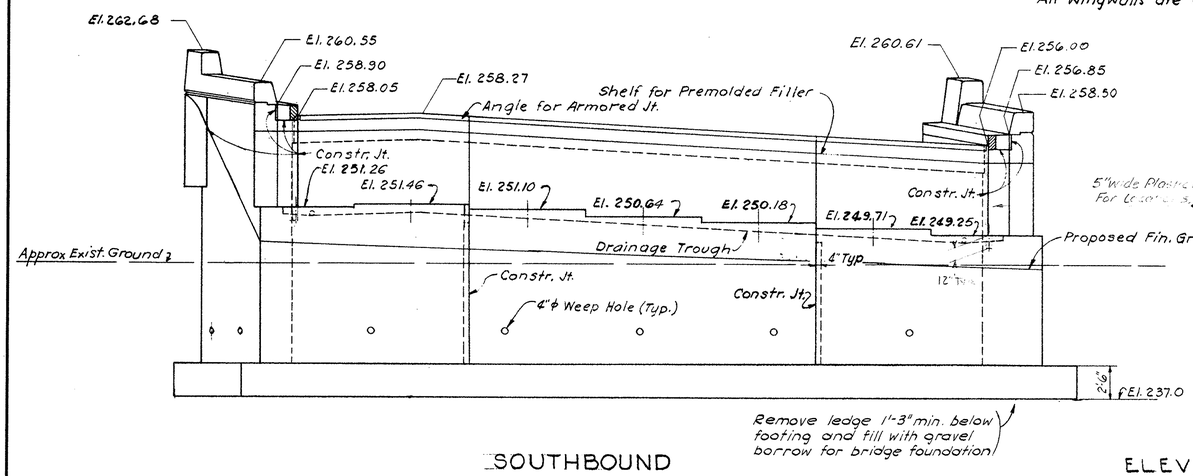
INTERSTATE ROUTE 91

PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	I-91-1(64)9	1967	97	393

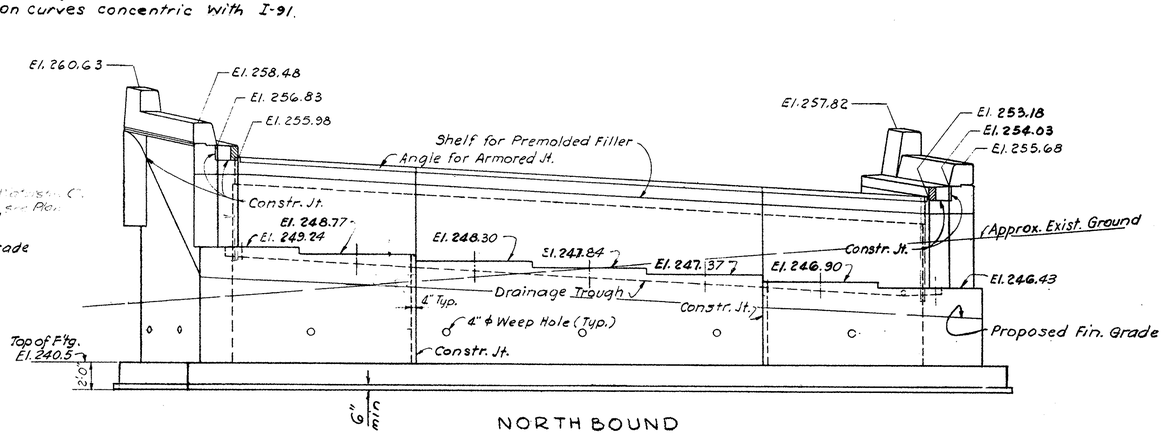
NORTH ABUTMENT



PLAN
Scale: 3/16" = 1'-0"
* Measured Along Face of Wingwall
All wingwalls are on curves concentric with I-91.



SOUTHBOUND



NORTH BOUND

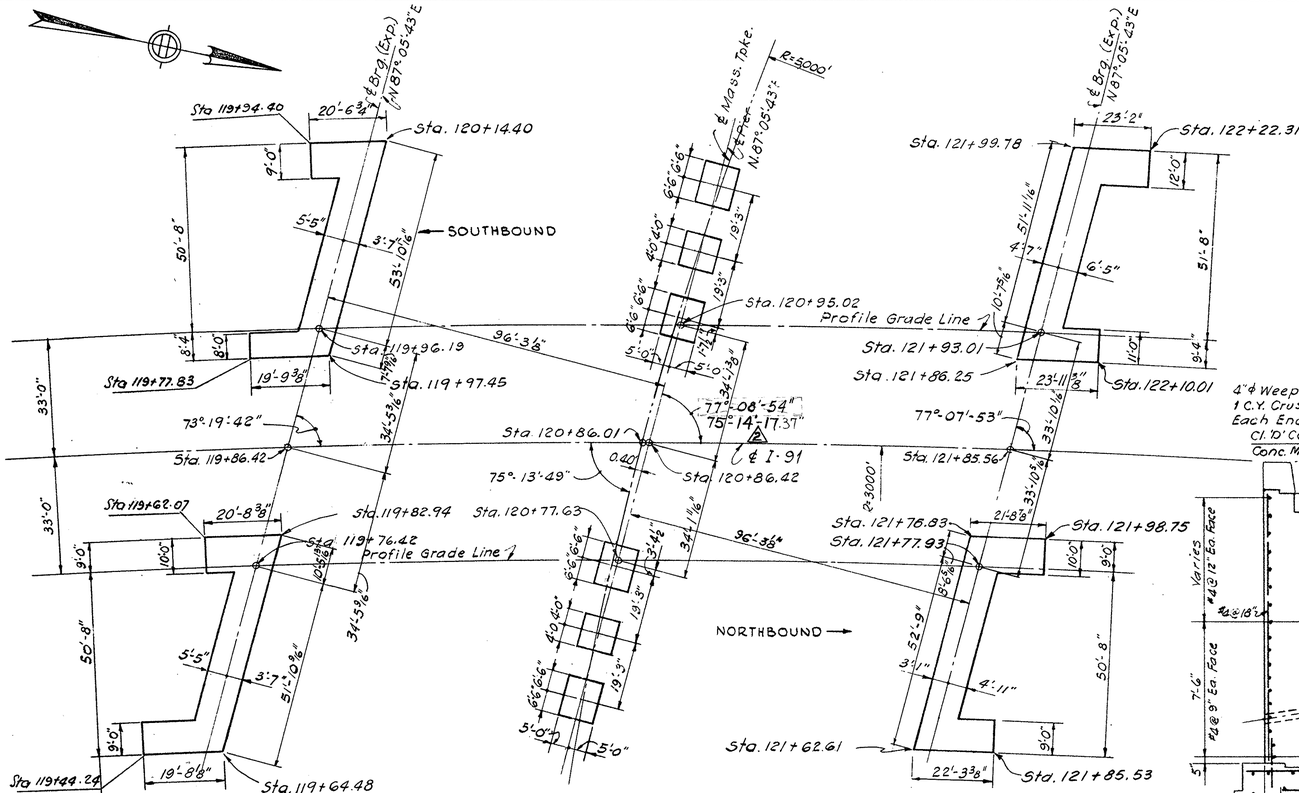
ELEVATION
Scale: 3/16" = 1'-0"

NORTH ABUTMENTS

DATE	DESCRIPTION
JULY 13, 1967	⚠2 Anchor Bolt Layout Angle Revised
MARCH 25, 1967	ISSUED FOR CONSTRUCTION
USE ONLY PRINTS OF LATEST DATE	

SHEET 8 of 13 SHEETS BRIDGE No. W-21-37

⚠2

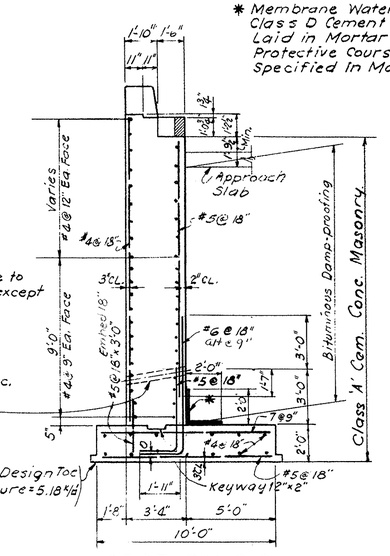


FOOTING LAYOUT PLAN
Scale: 1" = 20'

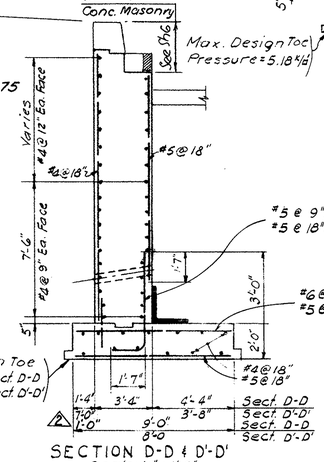
* Membrane Waterproofing and 8"×16"×2" Class D Cement Concrete Masonry Blocks Laid in Mortar or other Waterproofing Protective Course. Min. 2" thick as Specified in Mass. D.P.W. Std. Specs.

NOTE: All Concrete to be Class A except as noted.

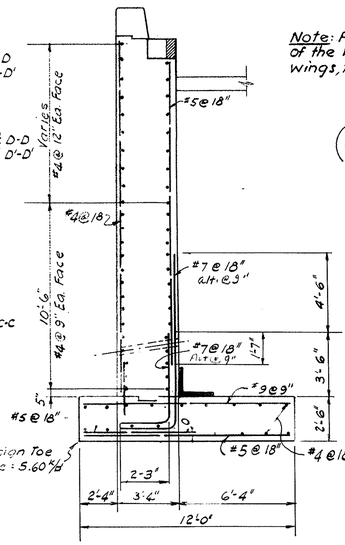
4" ϕ Weep Holes @ 10'-0" o.c. 1 C.Y. Crushed Stone at Each End of Hole. Cl. 'D' Cem. Conc. Masonry



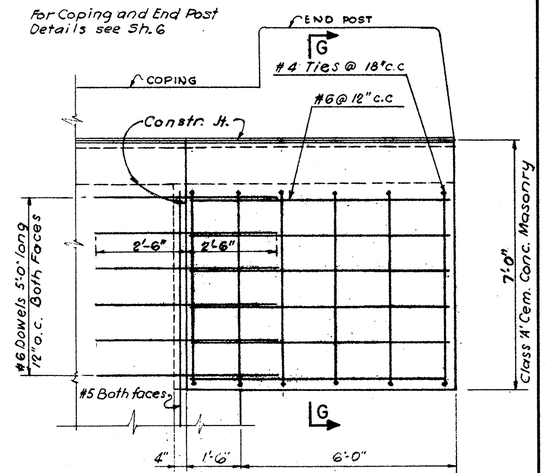
SECTION C-C



SECTION D-D & D'-D'
Scale: 1/4" = 1'-0"
For Dimensions and Notes not shown, see Sec. C-C

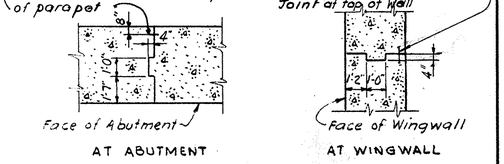


SECTION E-E
Scale: 1/4" = 1'-0"
For Dimensions and Notes not shown see Sec. C-C

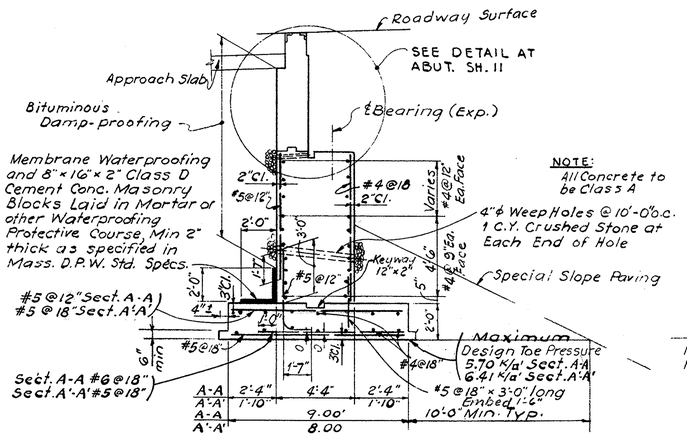


Note: Fill shall be placed and thoroughly compacted to the grade of the bottom of the wings; or where no fill is required below the wings, the concrete shall be placed upon undisturbed soil.

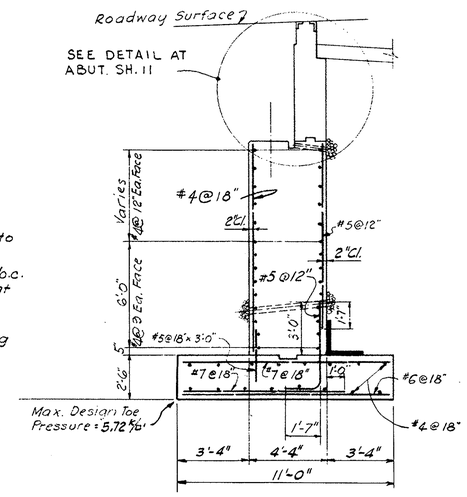
FLYING WING FOR WINGWALLS
Scale: 1/2" = 1'-0"



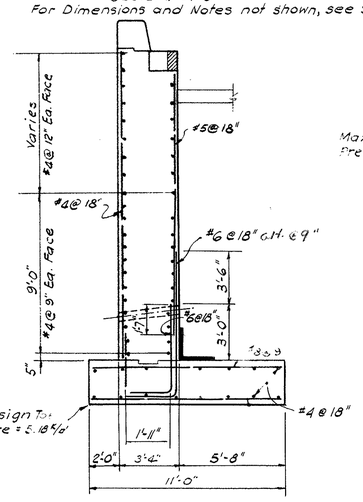
CONSTRUCTION JOINT DETAIL
Scale: 1/4" = 1'-0"



SECTION A-A & A'-A'
Scale: 1/4" = 1'-0"



SECTION B-B
Scale: 1/4" = 1'-0"
For Dimensions and Notes not shown see Sec. A-A



SECTION F-F
Scale: 1/4" = 1'-0"
For Dimensions and Notes not shown see Sec. C-C

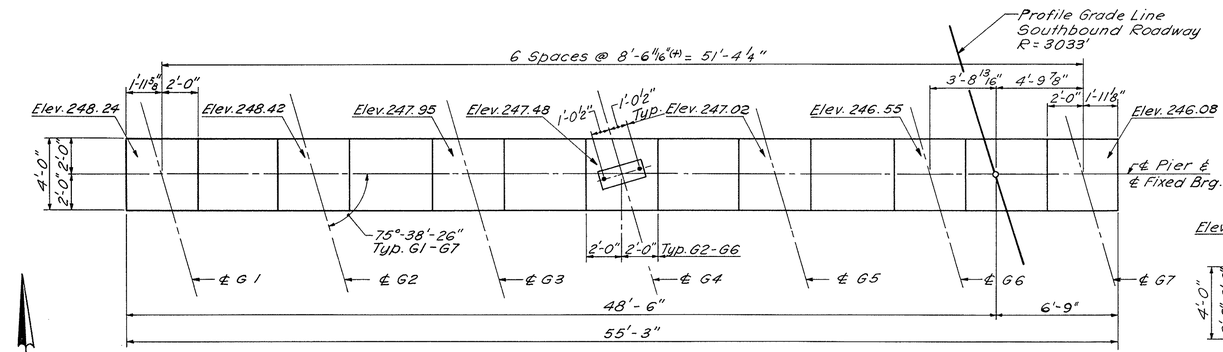
INTERSTATE ROUTE 91

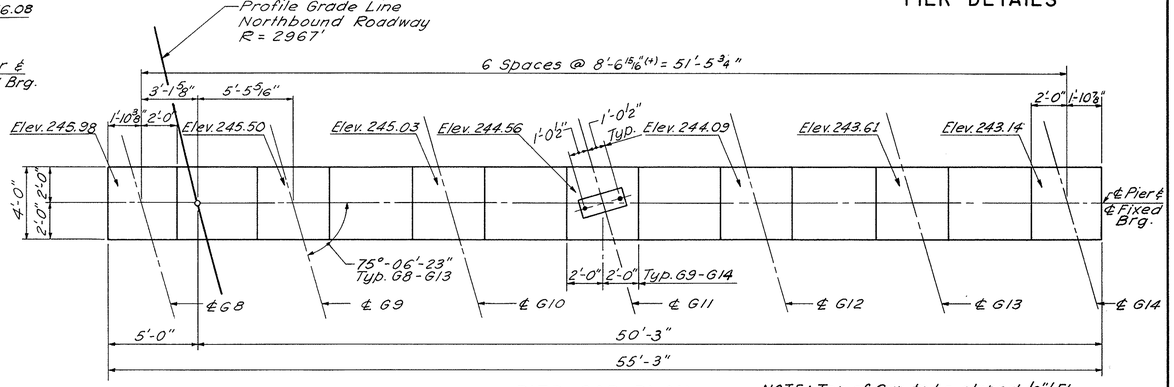
PUB RD DIV. NO	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	I-91-1(64)9	1967	9B	393

DATE	DESCRIPTION
JULY 13, 1967	⚠2 Angle and Dimension Revised
MARCH 25, 1967	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

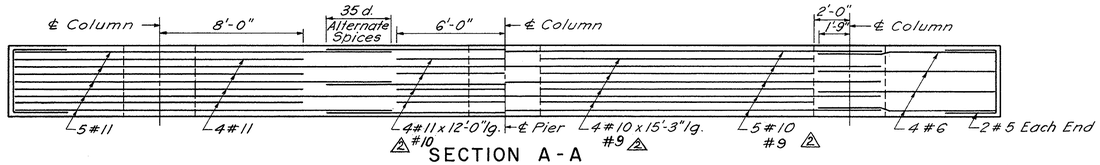
PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS	I-91-1(64)9	1967	99	393

PIER DETAILS

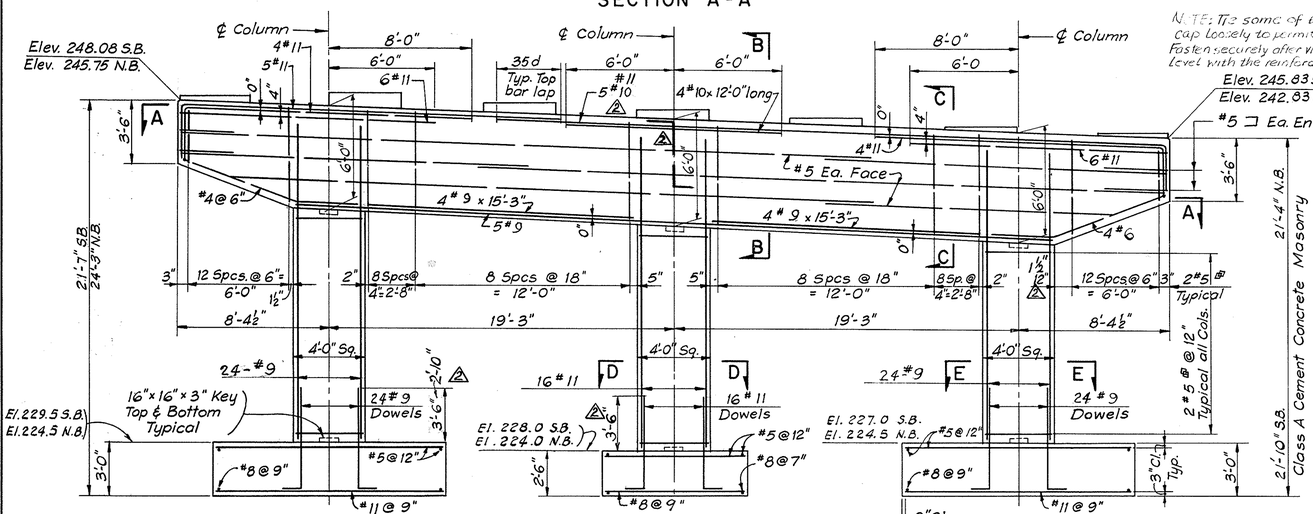




PIER CAP PLAN SOUTHBOUND



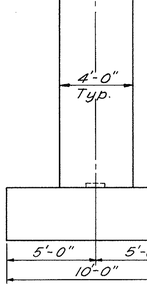
SECTION A-A



ELEVATION

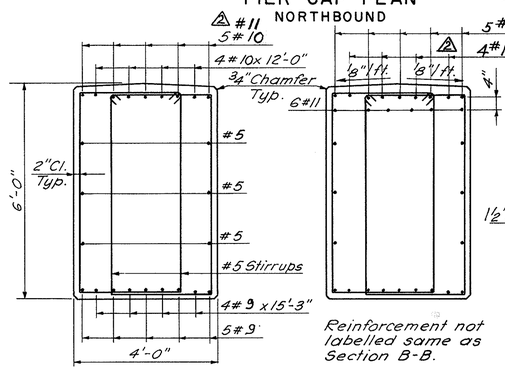
NOTE: Extend main column Steel 4'-0" into cap.

NOTE: The some of the top bars in the pier cap loosely to permit insertion of vibrator. Fasten securely after vibrating & before concrete is level with the reinforcement.



END ELEVATION

PIER CAP PLAN NORTHBOUND



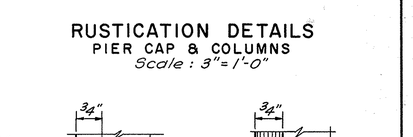
NOTE: Top of Cap to be sloped 1/8" / Ft. from ℄ to face between Pads. (Typ.)

Use smooth forms, arranging the panels symmetrically about ℄ pier to produce an orderly pattern, all joints being vertical.

Reinforcement not labelled same as Section B-B.

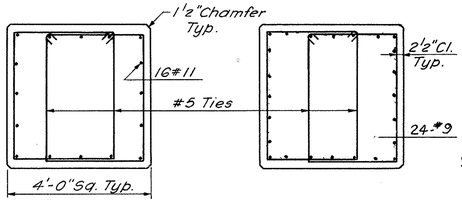
SECTION B-B

SECTION C-C



RUSTICATION DETAILS PIER CAP & COLUMNS

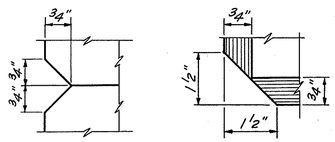
Scale : 3"=1'-0"



SECTION D-D

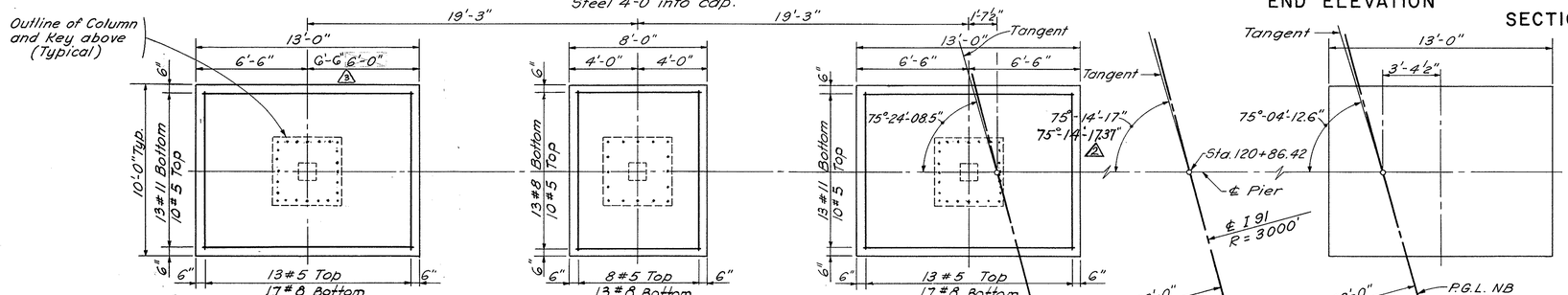
SECTION E-E

Scale : 1/2"= 1'-0"



SECTION W-W SECTION X-X

Scale : 6"=1'-0"

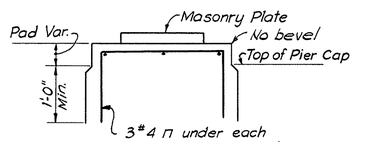


FOOTING PLAN

Scale : 1/4"= 1'-0"

PAD ELEVATION

Not to Scale



NOTE: Footings not shown for Northbound Roadway are similar to the Southbound Roadway.

NOTES:

For bearing and anchor bolt details see sheet 13.

Contractor shall place reinforcement to clear all anchor bolts.

All exposed edges of concrete to have a 3/4" chamfer except as shown.

All keys to be slightly chamfered.

All forms to be stripped as prescribed in the specifications.

Maximum Design Bearing Pressure = 12.4 kip / SQ. FT.

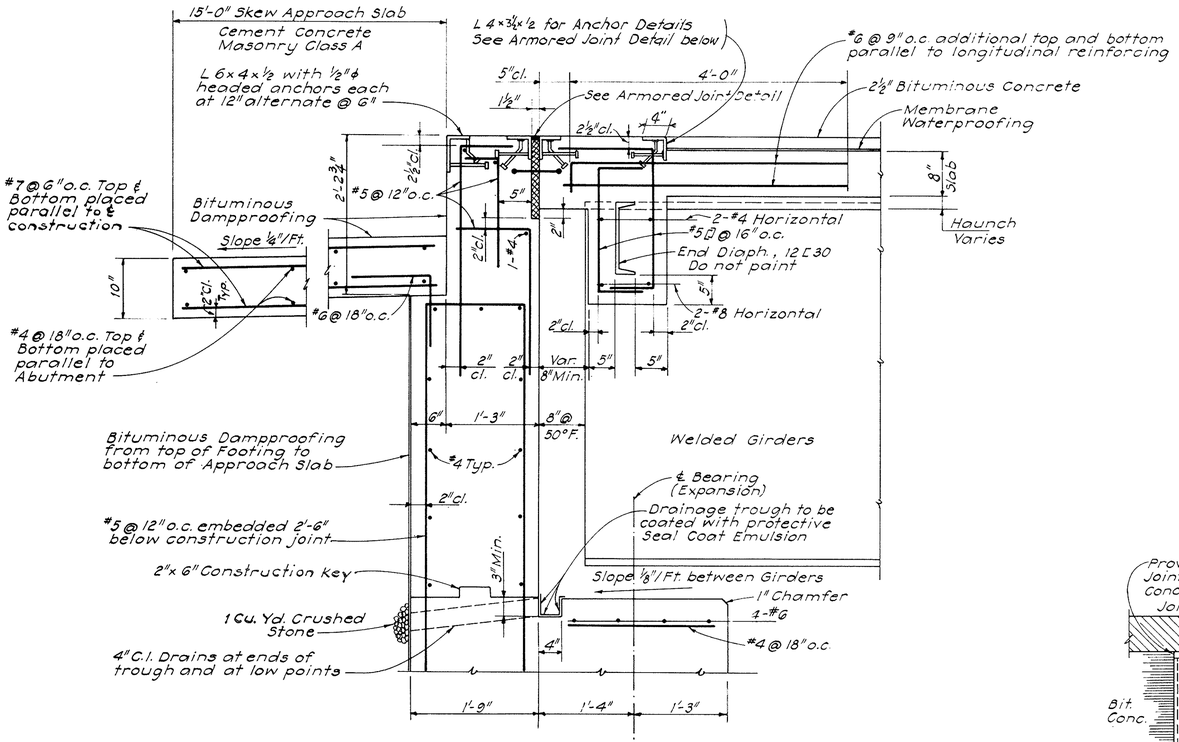
Class G Conc. shall be used to fill from top of final broken rock to bott. of footing and shall be poured to fill the overbroken area outside the footing.

DATE	DESCRIPTION
JULY 13, 1967	2 Reinf. Bars, Angle & Dimensions revised; Dimension symbol added
MARCH 23, 1967	ISSUED FOR CONSTRUCTION
JULY 28, 1966	1 PIER FOOTING DIMENSION REVISED

USE ONLY PRINTS OF LATEST DATE

SHEET 10 OF 13 SHEETS BRIDGE NO. W-21-37

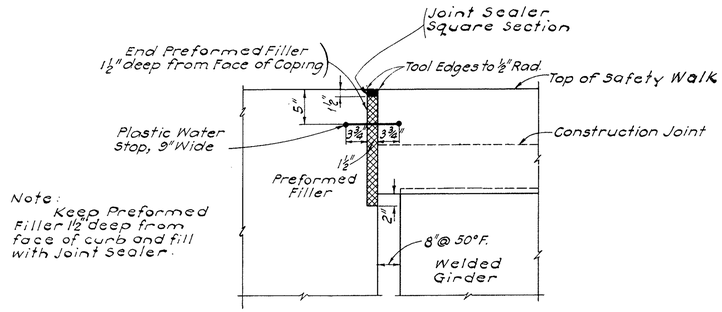
PUB. RD DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS	I-91-1(64)9	1967	100	393



DETAIL AT ABUTMENTS

Scale: 1"=1'-0"

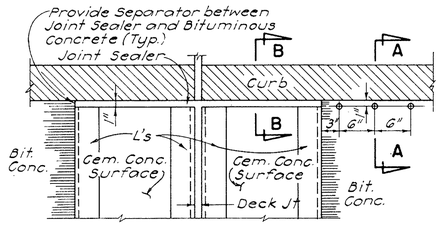
Note: All dimensions shown are square distances except as noted.
For Abutment Details see Sheets 5 and 6.



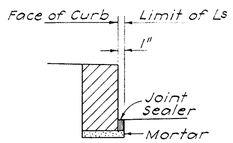
Note:
Keep Preformed Filler 1½" deep from face of curb and fill with Joint Sealer.

SAFETY-WALK SECTION AT ABUTMENT

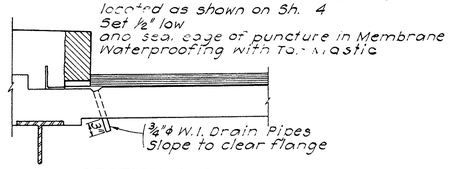
Scale: 1"=1'-0"



PLAN

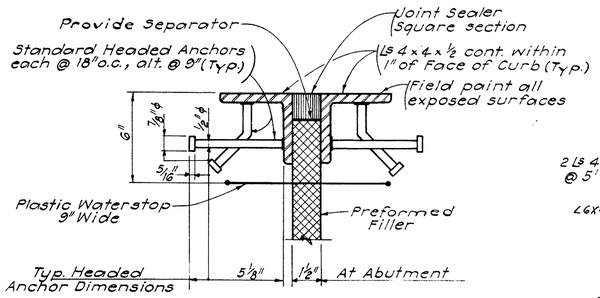


SECTION B-B



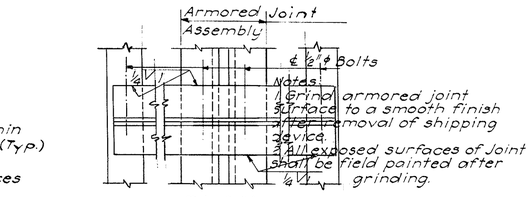
SECTION A-A

DETAILS OF JOINT AT FACE OF CURB

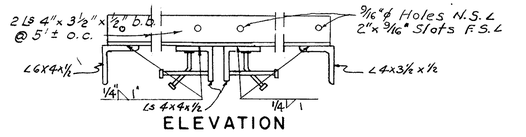


ARMORED JOINT DETAIL

Scale: 3"=1'-0"



PLAN

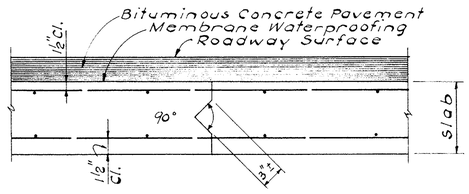


ELEVATION

SHIPPING DEVICE FOR ARMORED JOINT ASSEMBLY

Scale: 1½"=1'-0"

Notes:
(A) All Armored Joint Assemblies must be properly fitted in shop and shipped with device for maintaining proper spacing and fit.
(B) Bolts on shipping device must be loosened within one hour after concrete is placed so that movement may take place. Device shall be removed after concrete has set on both sides of assembly.



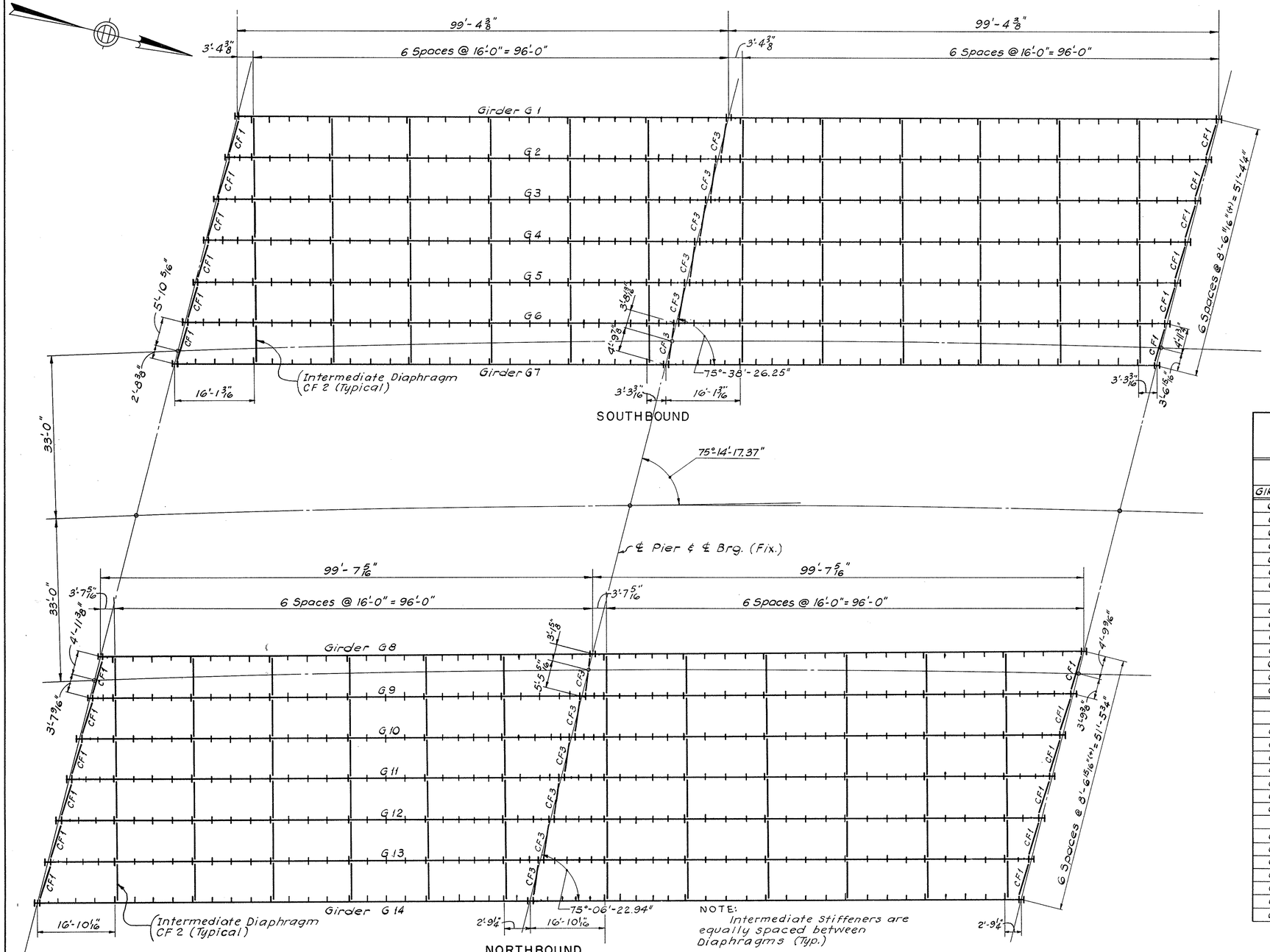
LONGITUDINAL CONSTRUCTION JOINT DETAILS IN SLAB

Scale: 1½"=1'-0"

Note:
Longitudinal Construction Joints in Bridge Deck Slabs may be omitted when the Contractor's proposed method of construction is approved by the Engineer in writing.

DATE	DESCRIPTION
MARCH 25, 1967	ISSUED FOR CONSTRUCTION
USE ONLY PRINTS OF LATEST DATE	

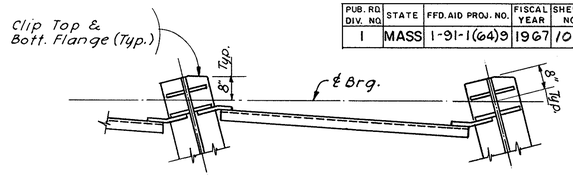
PUB. RD DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
I	MASS	I-91-1(64)9	1967	101	393



FRAMING PLAN

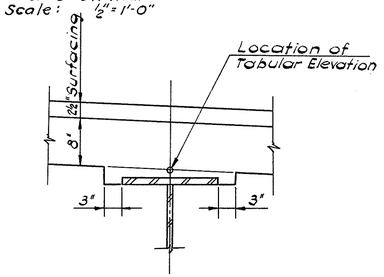
Scale: 3/32" = 1'-0"

NOTE:
Intermediate Stiffeners are equally spaced between Diaphragms (Typ.)



PLAN - CROSS FRAME CF-1

CF-3 Similar
Scale: 1/2" = 1'-0"



HAUNCH DETAIL

TOP OF FORM ELEVATIONS FOR DECK SLAB PRIOR TO PLACEMENT OF CONCRETE

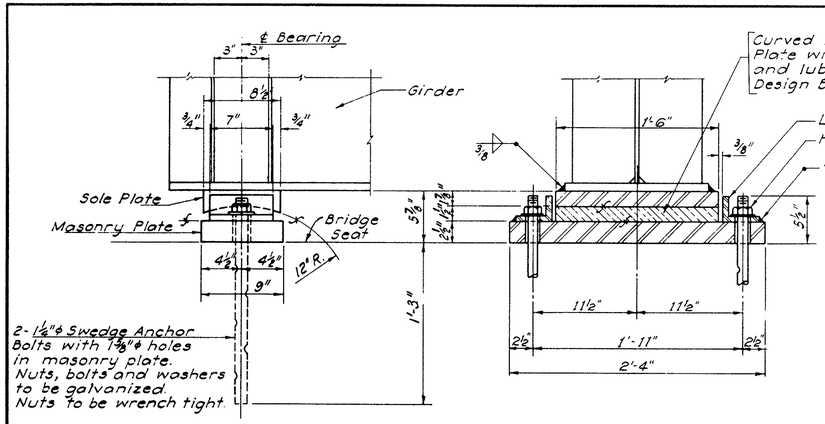
	SOUTHBOUND BRIDGE								
	SPAN I								
GIRDER*	℄ BRG.	1/8 PT.	1/4 PT.	3/8 PT.	1/2 PT.	5/8 PT.	3/4 PT.	7/8 PT.	℄ BRG.
G 1	251.11	251.53	251.95	252.34	252.72	253.09	253.44	253.80	254.16
G 2	251.29	251.72	252.14	252.53	252.91	253.28	253.62	253.97	254.34
G 3	250.94	251.33	251.72	252.10	252.46	252.81	253.16	253.51	253.87
G 4	250.47	250.86	251.25	251.63	251.99	252.34	252.69	253.04	253.40
G 5	249.99	250.39	250.78	251.16	251.52	251.87	252.22	252.57	252.93
G 6	249.52	249.92	250.31	250.69	251.05	251.40	251.75	252.10	252.46
G 7	249.05	249.44	249.83	250.21	250.58	250.93	251.28	251.63	252.00
SPAN 2									
G 1	254.16	254.55	254.94	255.34	255.73	256.10	256.45	256.79	257.11
G 2	254.34	254.72	255.13	255.53	255.93	256.30	256.66	256.99	257.32
G 3	253.87	254.26	254.66	255.07	255.47	255.86	256.24	256.60	256.96
G 4	253.40	253.79	254.19	254.60	255.01	255.40	255.77	256.14	256.49
G 5	252.93	253.32	253.73	254.14	254.54	254.93	255.31	255.67	256.03
G 6	252.46	252.86	253.26	253.67	254.07	254.47	254.85	255.21	255.57
G 7	252.00	252.39	252.79	253.20	253.61	254.00	254.38	254.74	255.10
NORTHBOUND BRIDGE									
SPAN 3									
G 8	248.86	249.27	249.67	250.06	250.43	250.79	251.15	251.52	251.89
G 9	248.38	248.79	249.19	249.58	249.96	250.32	250.68	251.04	251.42
G 10	247.90	248.31	248.72	249.11	249.48	249.85	250.21	250.57	250.95
G 11	247.43	247.84	248.24	248.63	249.01	249.37	249.73	250.10	250.48
G 12	246.95	247.36	247.76	248.15	248.53	248.90	249.26	249.62	250.00
G 13	246.47	246.88	247.29	247.68	248.06	248.42	248.78	249.15	249.53
G 14	245.99	246.40	246.81	247.20	247.58	247.94	248.31	248.67	249.06
SPAN 4									
G 8	251.89	252.30	252.71	253.13	253.55	253.95	254.34	254.72	255.09
G 9	251.42	251.82	252.24	252.66	253.08	253.49	253.88	254.25	254.62
G 10	250.95	251.35	251.77	252.19	252.61	253.02	253.41	253.79	254.16
G 11	250.48	250.88	251.30	251.72	252.14	252.55	252.94	253.32	253.69
G 12	250.00	250.41	250.83	251.25	251.67	252.08	252.47	252.85	253.22
G 13	249.53	249.93	250.35	250.78	251.20	251.61	252.00	252.38	252.75
G 14	249.06	249.46	249.88	250.31	250.73	251.13	251.53	251.91	252.29

NOTE:
After the Structural Steel is erected, but before the forms are built, Elevations on the top of the Flange of the Beams are to be obtained at the Points indicated in the Table. The Difference between the Elevation and those shown in the Table gives the actual Blocking Distance from the Top of Beam to the bottom of Slab at Centerline of Beam. See Haunch Detail.

DATE	DESCRIPTION
MARCH 25, 1967	ISSUED FOR CONSTRUCTION

USE ONLY PRINTS OF LATEST DATE

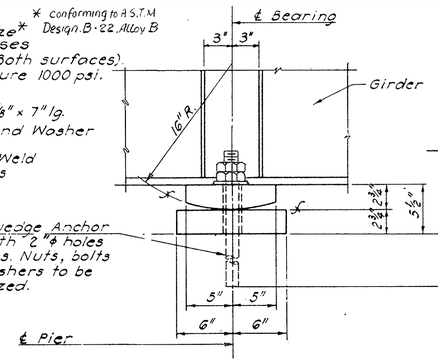
PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS	I-91-1(64)9	1967	102	393

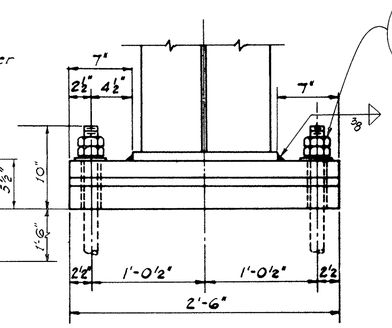


EXPANSION BEARING AT ABUTMENT

Scale: 1½" = 1'-0"

Note: Masonry plate shall have full and level bearing before placing the stringers on the Bearing Assembly.

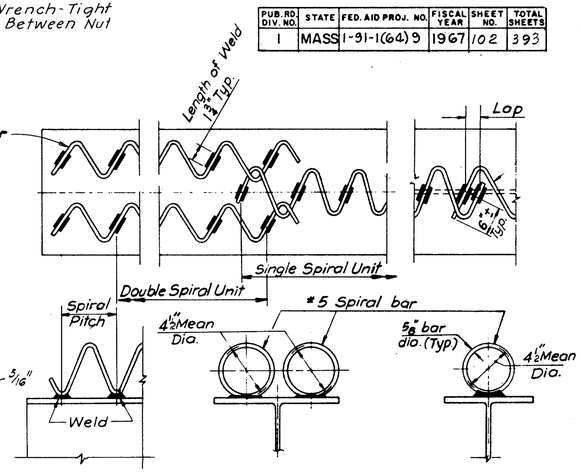




FIXED BEARING AT PIER

Scale: 1½" = 1'-0"

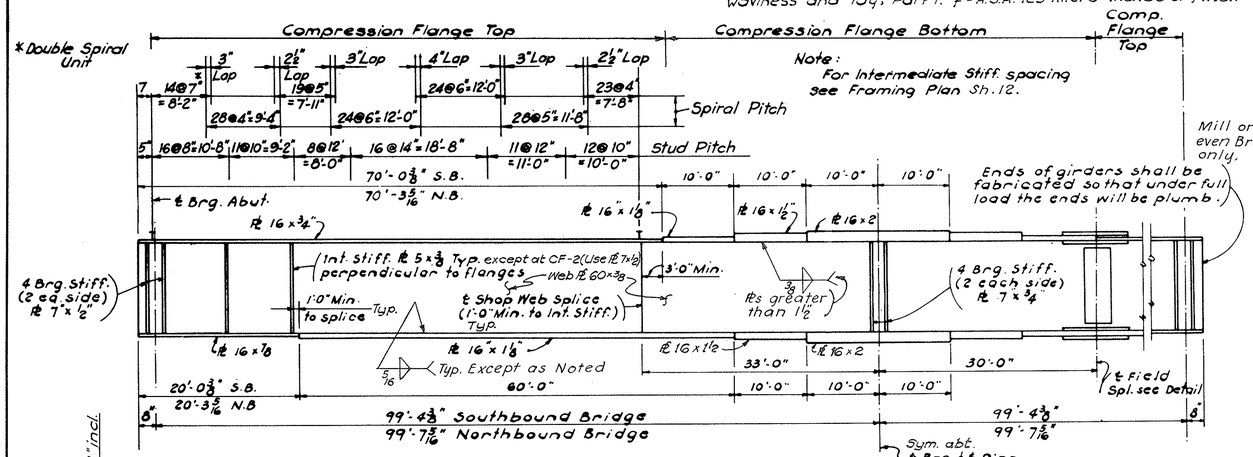
Note: Bevel Washer and Sole Plate as required by profile



SPIRAL SHEAR CONNECTORS

Not to Scale.

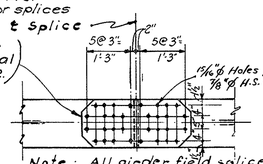
NOTE: The finished surfaces shall meet the American Standards Association surface roughness requirements as defined in ASA B46-1, surface roughness, waviness and lay, Part I. f = A.S.A. 125 micro-inches or finer.



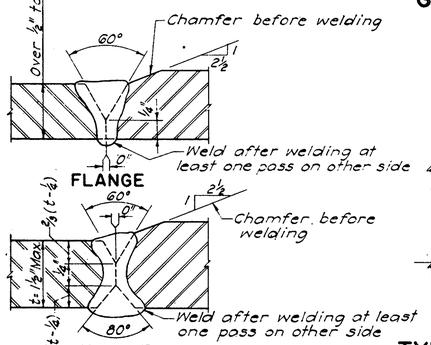
GIRDER ELEVATION

Not to Scale

Note: All Steel shall be A36 except as noted. Top & Bottom Splices Identical except for Fill ℓ.

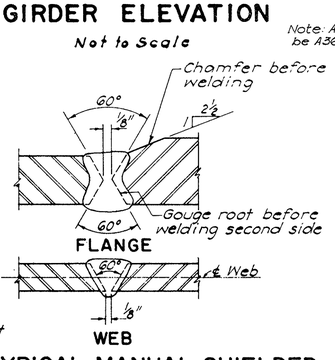


Note: All girder field splices shall be made with ⅞"ϕ High Strength Bolts.



TYPICAL SUBMERGED ARC WELDED JOINTS

Not to Scale



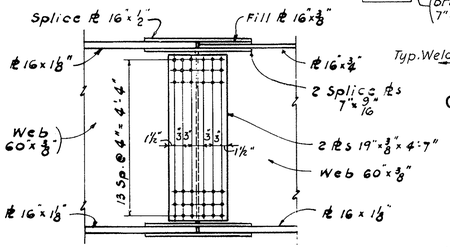
TYPICAL MANUAL SHIELDED METAL ARC WELDED JOINTS

Not to Scale

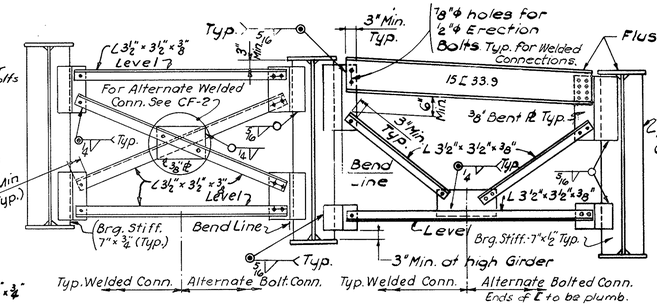
Note: Any welded joint prequalified by A.W.S. Specs. for Welded Highway and Railway Bridges (1966 Edition) will be acceptable in the fabrication of the Structural Steel.

All butt welds shall be ground smooth and flush for Radiographing.

Preparation of Material for Welding shall conform to Art 402, AWS D2.0-66
Assembly of Material for Welding shall conform to Art 403, AWS. D2.0-66



FIELD SPLICE DETAIL



BEARING STIFFENERS

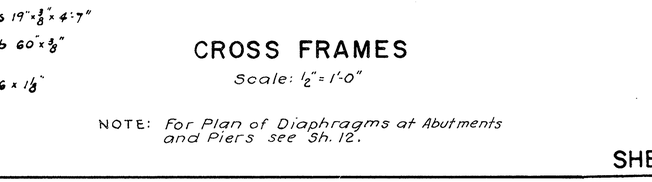
Not to Scale

INTERMEDIATE STIFFENERS

Not to Scale

CAMBER DIAGRAM

Not to Scale



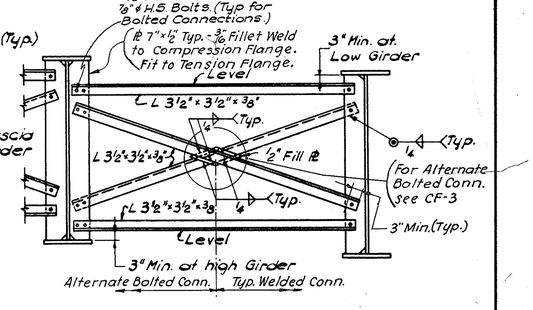
CF-3 AT PIER

CF-1 AT ABUTMENTS

CROSS FRAMES

Scale: ½" = 1'-0"

NOTE: For Plan of Diaphragms at Abutments and Piers see Sh. 12.



CROSS FRAME CF-2

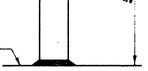
Scale: ½" = 1'-0"

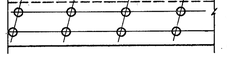
DETAILS OF STUD SHEAR CONNECTORS

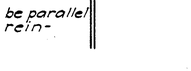
Not to Scale

Note: ⅞" diameter studs may be substituted for ¾" diameter studs by providing an equivalent cross-sectional area and adjusting the pitch accordingly with a max. pitch of 24".

Shear connectors shall be either spirals or studs at the option of the Contractor.







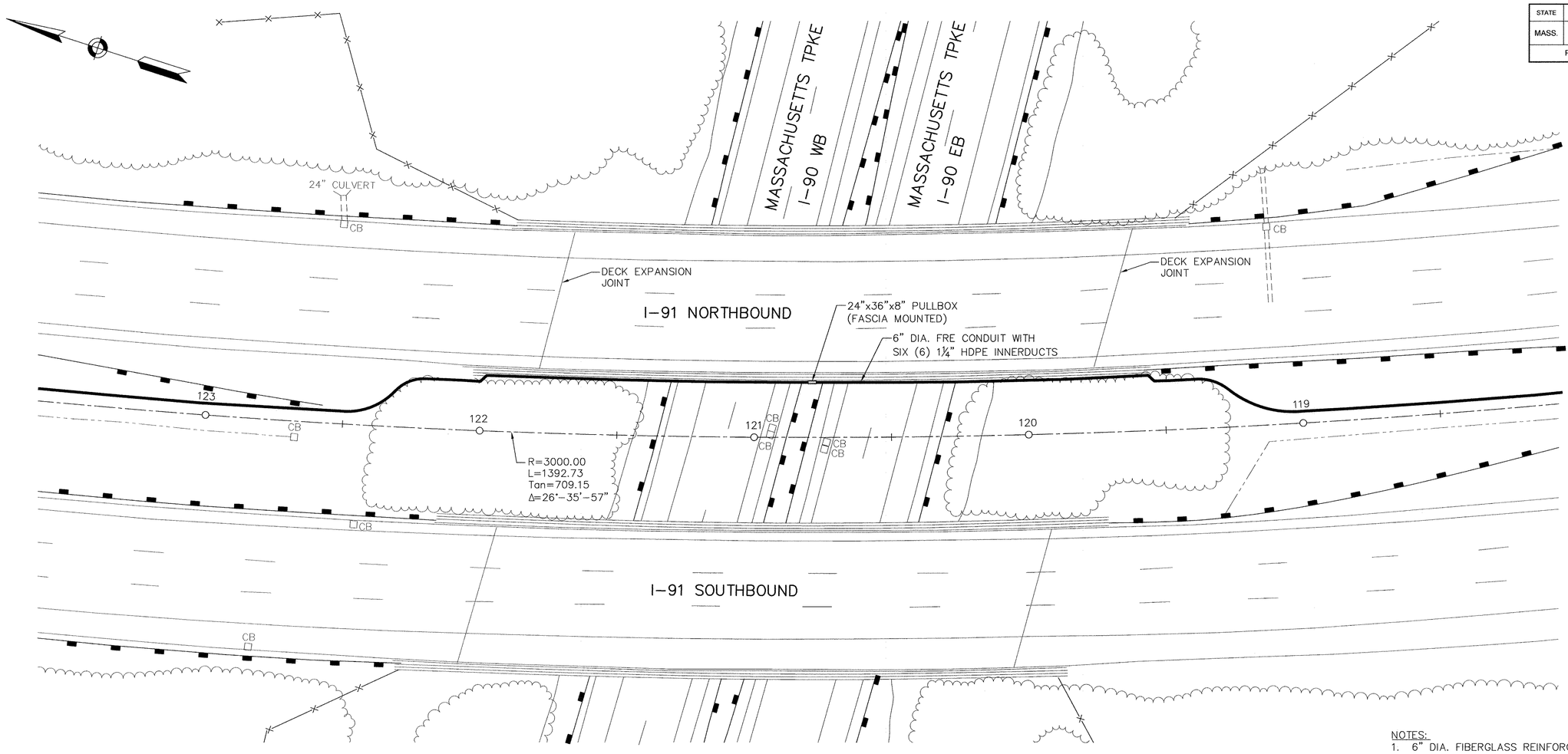
DATE	DESCRIPTION
MARCH 25, 1967	ISSUED FOR CONSTRUCTION
USE ONLY PRINTS OF LATEST DATE	

SHEET 13 OF 13 SHEETS BRIDGE NO. W-21-37

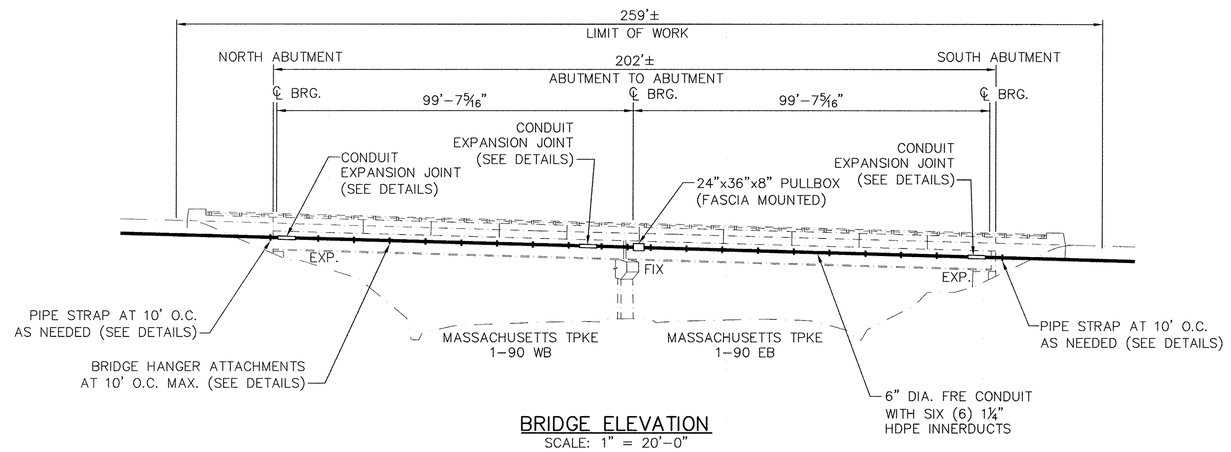
WEST SPRINGFIELD
I-91 & I-291

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	ITS-001A (818)	255	311
PROJECT FILE NO. 603903			

BRIDGE PLAN AND ELEVATION



BRIDGE PLAN
SCALE: 1" = 20'-0"



BRIDGE ELEVATION
SCALE: 1" = 20'-0"

NOTES:
1. 6" DIA. FIBERGLASS REINFORCED EPOXY SHALL EXTEND FOR A MINIMUM OF 10' UNDERGROUND OR UNTIL A BURIED DEPTH OF 36" IS ACHIEVED. THE 6" FRE SHALL BE PROPERLY SEALED (POLYURETHANE FOAM OR DUCT PLUG) AT TRANSITION TO SIX (6) 1¼" HDPE INNERDUCTS.
2. HANDHOLES SUBJECT TO CHANGE BASED ON FIELD CONDTIONS.
3. SPAN LENGTHS AND BEARING ARRANGEMENTS ARE REFERENCED FROM AS-BUILTS, AND ARE FOR INFORMATION ONLY.

COMMONWEALTH OF MASSACHUSETTS
OWEN A. TRICKEY
CIVIL
No. 48467
REGISTERED PROFESSIONAL ENGINEER

Gannett Fleming
199 WELLS AVENUE
NEWTON, MA 02459
(617) 527-7822

Moving Massachusetts Forward. massDOT Highway

PROPOSED BRIDGE ATTACHMENTS
WEST SPRINGFIELD
INTERSTATE 91
OVER I-90
(MASSACHUSETTS TURNPIKE)

THE COMMONWEALTH OF MASSACHUSETTS
MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
10 PARK PLAZA BOSTON, MA.

ENGINEER OF RECORD — 7/31/08 DATE

SHEET 1 OF 3 SHEETS BRIDGE NO. W-21-037 (OXU)

S:\49792-Adesta MHD I-91\As-Built Package Jan 2011\Bridges\255-256 - W-21-037\255 - BRIDGE PLAN-ELEVATION.dwg, Sht.255, 6/20/2011 3:33:05 PM

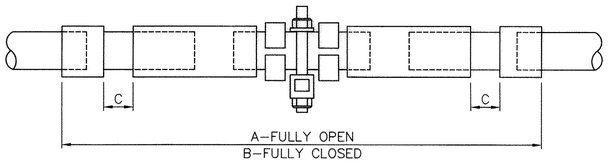
WEST SPRINGFIELD
I-91 & I-291

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	ITS-001A (818)	256	311
PROJECT FILE NO. 603903			

ATTACHMENT DETAILS

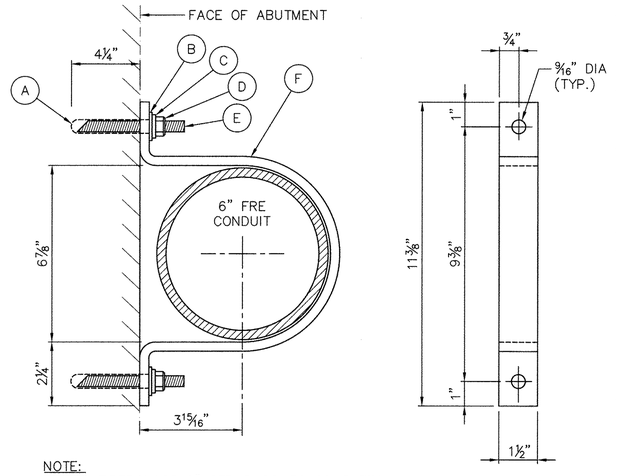
DETAIL NO.	QTY.	DESCRIPTION	
A	2	½"x 4¼" HILTI HVU ADHESIVE CAPSULE	ASTM E 1512 NSF/ANSI 61
B	2	½" HDG FLAT WASHER	ASTM F844 A153 GALV.
C	2	½" HDG LOCK WASHER	ASME 569 A153 GALV.
D	2	½" HDG FINISHED HEX NUT	ASTM A563 A153 GALV.
E	2	½"x 6½" LONG ALL THREAD (CHISEL CUT 45° ONE END)	ASTM A36 A153 GALV.
F	1	¼"x 1½" TWO-HOLE PIPE STRAP	ASTM A36 A153 GALV.
G	TBD	¼" x 1½" SPACER PLATE	ASTM A36 A153 GALV.

NOTE:
DISTANCE BETWEEN EXPANSION JOINTS SHALL NOT BE GREATER THAN 150'.



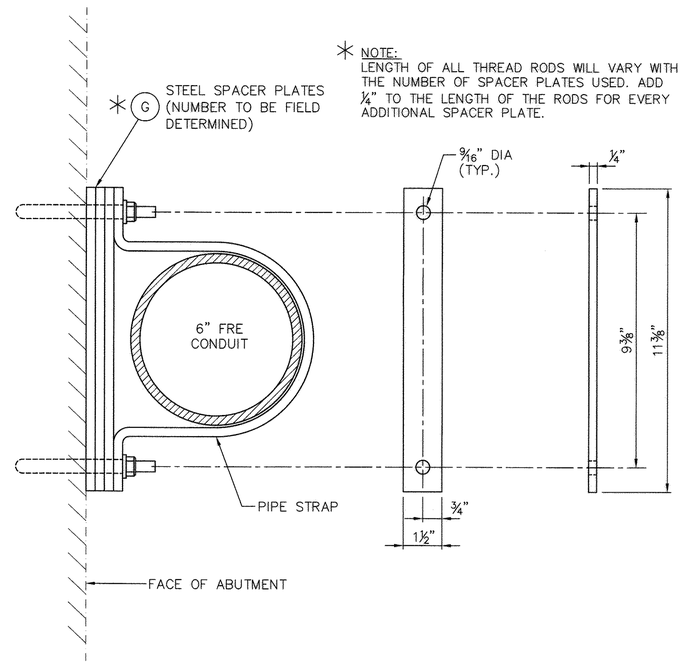
A	B	C (STROKE EACH SIDE)
60½"	48½"	6"

EXPANSION JOINT DETAIL
NOT TO SCALE

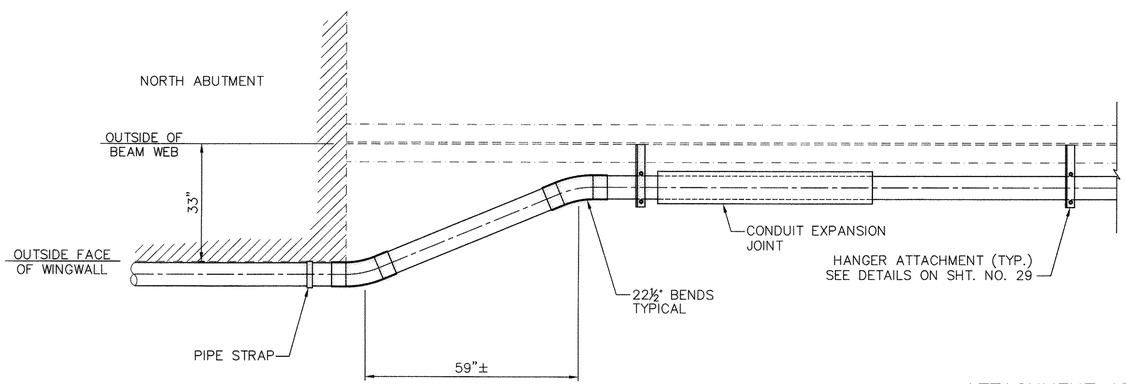


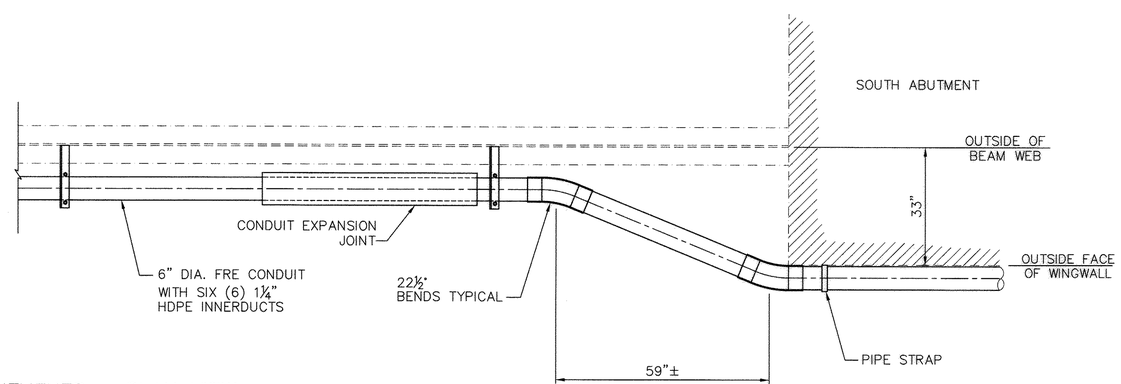
NOTE:
UNITED FIBERGLASS 6" STRAP COMES COMPLETE WITH TWO-EAR STRAP, CHISEL POINT STUDS, NUTS, WASHERS AND EPOXY CAPSULES.

PIPE STRAP DETAIL
NOT TO SCALE



SPACER PLACEMENT DETAIL
NOT TO SCALE





ATTACHMENT AT ABUTMENTS – PLAN VIEW
NOT TO SCALE

NOTES:
1. HANGERS SHALL BE SPACED NO MORE THAN 10' ON CENTER TO OFFSET POTENTIAL INTERFERENCES DUE TO ANY SPLICE PLATES, INTERMEDIATE STIFFENERS AND DIAPHRAGM CONNECTION PLATES THAT MAY BE LOCATED ON EITHER SIDE OF FASCIA GIRDER WEB.
2. SEE SHEET 1 OF 3 FOR CONDUIT EXPANSION JOINT LOCATED ADJACENT TO PULLBOX.

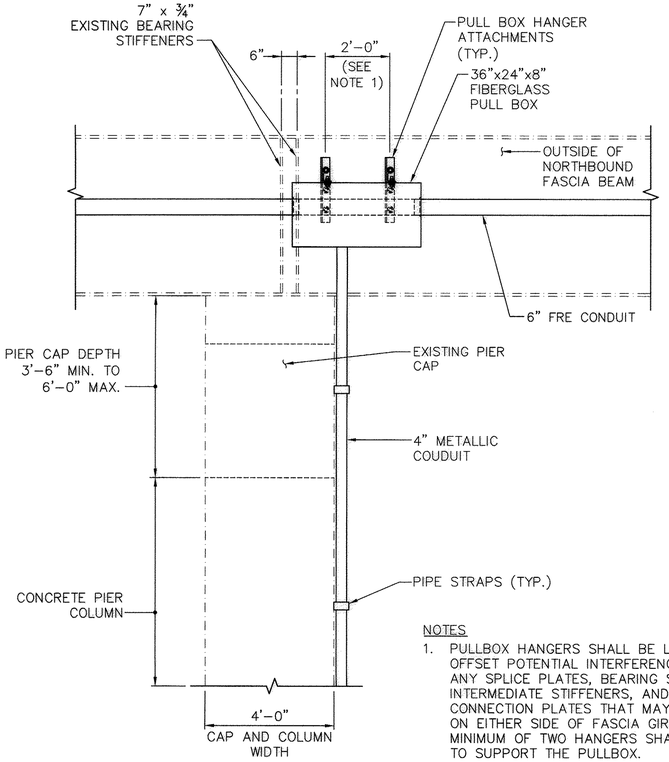
DATE	DESCRIPTION
7/31/08	
USE ONLY PRINTS OF LATEST DATE	

S:\49792-Adesta MHD I-91\As-Built Package Jan 2011\Bridges\255-257 - W-21-037\256-257 - HANGER DETAILS.dwg, Sht.256, 7/8/2011 5:02:17 PM

WEST SPRINGFIELD
I-91 & I-291

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	ITS-001A (818)	257	311
PROJECT FILE NO. 603903			

PULL BOX HANGER DETAILS



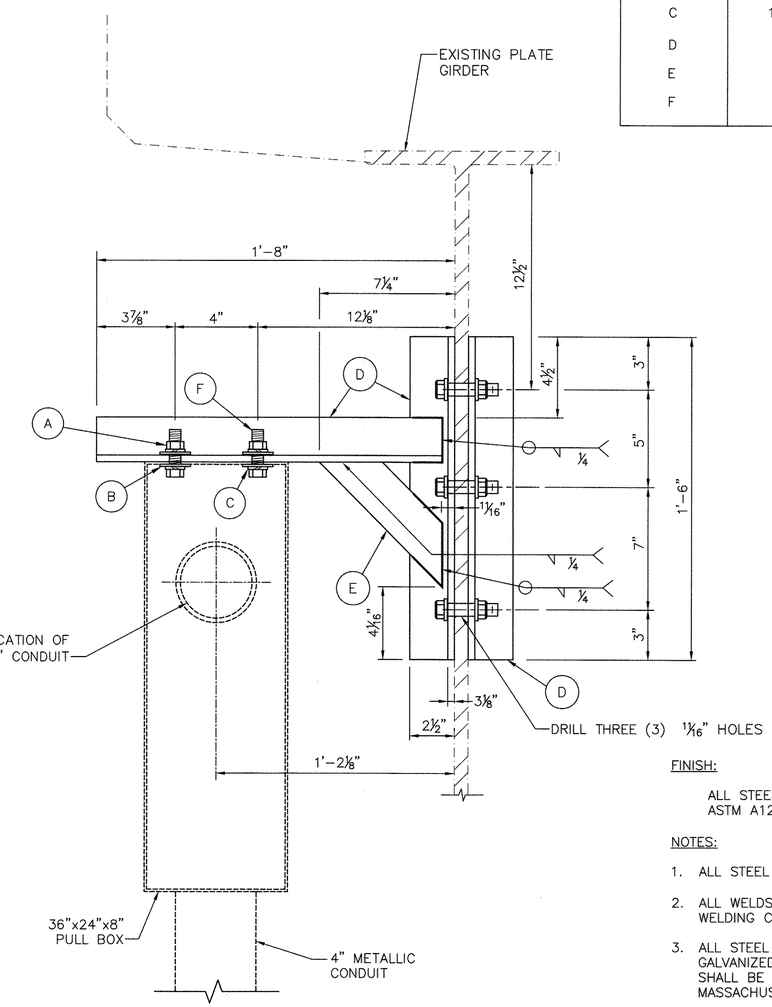
NOTES

1. PULLBOX HANGERS SHALL BE LOCATED TO OFFSET POTENTIAL INTERFERENCES DUE TO ANY SPLICE PLATES, BEARING STIFFENERS, INTERMEDIATE STIFFENERS, AND DIAPHRAGM CONNECTION PLATES THAT MAY BE LOCATED ON EITHER SIDE OF FASCIA GIRDER WEB. A MINIMUM OF TWO HANGERS SHALL BE USED TO SUPPORT THE PULLBOX.
2. STIFFENER AND PIER DIMENSIONS ARE REFERENCED FROM AS–BUILTS. CONTRACTOR SHALL FIELD VERIFY NECESSARY DIMENSIONS PRIOR TO THE START OF WORK.
3. SEE SHEET 2 OF 3 FOR PIPE STRAP DETAILS.
4. SEE SHEET 1 OF 3 FOR APPROXIMATE LOCATION OF CONDUIT EXPANSION JOINT ADJACENT TO PULLBOX.

PULL BOX ATTACHMENT AT PIER PARTIAL ELEVATION
NOT TO SCALE

MATERIAL LIST

DETAIL NO.	NO. REQ'D	DESCRIPTION
A	5	⅝" HEX NUT HDG PER ASTM A325
B	10	⅝" FLAT WASHER HDG PER ASTM A153
C	10	⅝" LOCK WASHER HDG PER ASTM A153
D	3	2½"x2½"x⅜" STEEL ANGLE
E	1	2½"x⅜"x9¾" FLAT STEEL
F	5	⅝" A325 BOLTS (SEE NOTE 4)



PULL BOX ATTACHMENT FOR PLATE GIRDER
NOT TO SCALE

FINISH:

ALL STEEL SHAPES AND PLATES SHALL BE GALVANIZED PER ASTM A123.

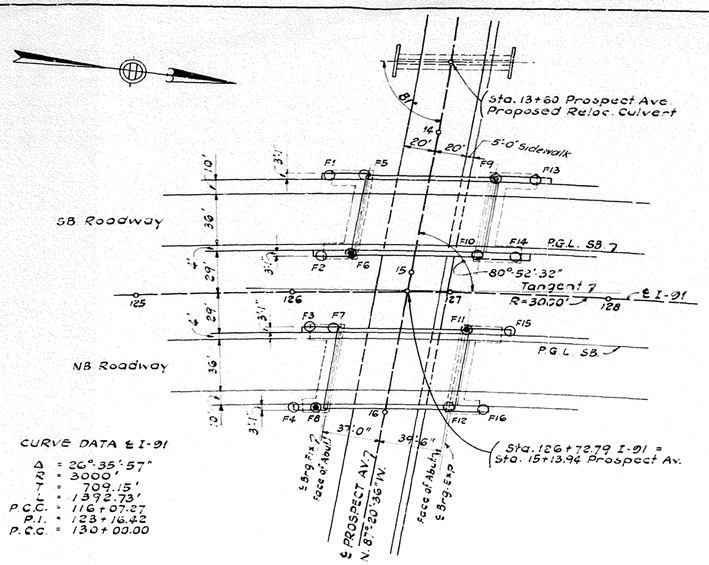
NOTES:

1. ALL STEEL SHALL CONFORM TO ASTM A36.
2. ALL WELDS SHALL CONFORM TO AWS/AASHTO D1.5 2008 BRIDGE WELDING CODE.
3. ALL STEEL SURFACES, INCLUDING CONNECTIONS SHALL BE GALVANIZED. ANY DAMAGED OR SCRAPED GALVANIZED STEEL SHALL BE REPAIRED BY METHODS INDICATED IN THE MASSACHUSETTS HIGHWAY STANDARD SPECIFICATION M8.18.5
4. EXISTING GIRDER DIMENSIONS VARY PER BRIDGE. WEB THICKNESS SHALL BE FIELD VERIFIED PRIOR TO FABRICATION OF HANGER AND ITS ATTACHMENTS.

DATE	DESCRIPTION
7/31/08	
USE ONLY PRINTS OF LATEST DATE	

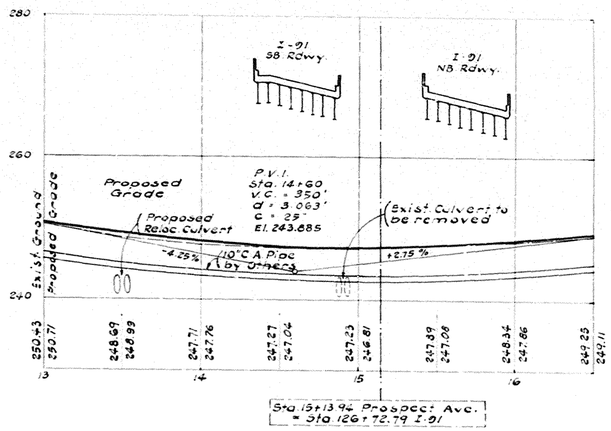
S:\49792-Adesta MHD I-91\As-Built Package Jan 2011\Bridges\255-257 - W-21-037\256-257 - HANGER DETAILS.dwg, Sht.257, 7/8/2011 5:02:36 PM

FED. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
I	MASS.	I-91-1(64)9	1967		



KEY PLAN

Scale: 1" = 40'



PROFILE OF PROSPECT AVE.

Scales: 1" = 8' Vert; 1" = 40' Horiz.

GENERAL NOTES

DESIGN
In accordance with the current specifications of the American Association of State Highway Officials (1961 Edition) for HS20-44 Loading and Modified for Military Requirements.

DATE AND SEAL
To be placed on the inside faces of the Northwest End Post of the Southbound Bridge and Southeast End Post of the Northbound Bridge. A sheet showing the size and character of the numerals will be furnished. The seal will be furnished by the State and shall be set by the Contractor.

FOUNDATIONS
May be altered, if necessary, to suit conditions encountered during construction.

UNSUITABLE MATERIAL
Shall be removed within the limits of the foundations of the structure.

BRIDGE RAILINGS
See Department Standard Metal Railing Plans, dated Oct 1966 for Details of Bridge Railings.

REINFORCEMENT
All bars shall have deformations conforming to A.S.T.M. designation A-305. Unless otherwise noted on the Plans, Reinforcing Bars shall be lapped 20 diameters to make a splice, except that Main Reinforcing Bars near the top of the slabs and beams having more than 12 inches of concrete under the bars shall be lapped 35 diameters to make a splice.

ANCHOR BOLTS
May be set by template and placed before concrete is poured, or by drilling and grouting at the Contractor's option.

SCALE
Scales noted on Plans are not applicable to reduced size prints. Divide scales by 2 for ½ size prints.

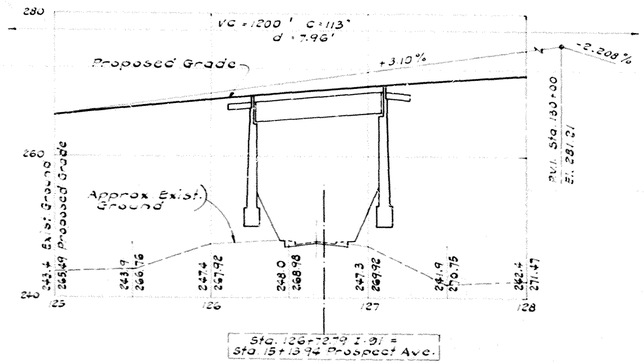
FIELD BOOK

BENCH MARK
B.M. #11 Vert. RR Spike in Root of 24" Elm South side of Prospect Ave. 30'± East of W.M.E. Co. Pole #37 El. 257.50 Mean Sea Level Datum of 1929 (U.S.C. & G.S.)

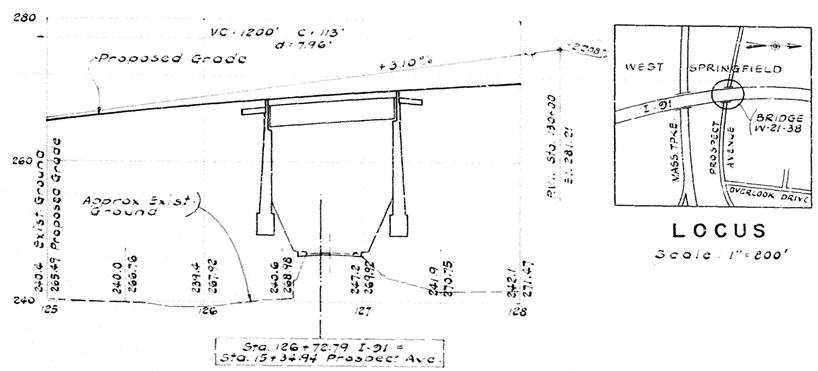
ESTIMATED QUANTITIES
(Not Guaranteed)

Class B Rock Excavation	10	C.Y.
Bridge Excavation	620	C.Y.
Gravel Borrow	1,060	C.Y.
Gravel Borrow for Bridge Foundation	1,430	C.Y.
Class I Bituminous Concrete Pavement Type I-1	75	Tons
Class I Dense Protective Bottom Course for Bridges	75	Tons
Metal Bridge Railing (1-Rail) Option	531	L.F.
Bridge Structure (No. W-21-38)	1	L.S.
Estimated Weight of Reinforcing Steel	103,000	Lbs
Estimated Weight of Structural Steel (ASTM A36)	338,000	Lbs

These Quantities are part of Lump Sum Item 995.03 for Bridge Structure, (Bridge No. W-21-38) and are not guaranteed.



NORTHBOUND ROADWAY



SOUTHBOUND ROADWAY

PROFILE OF I-91

Scales: 1" = 8' Vert; 1" = 40' Horiz.

LOCUS

Scale: 1" = 800'

BARSTOW & MULLIGAN
CONSULTING ENGINEERS
566 ATLANTIC AVE.
BOSTON, MASS.

DESIGNED BY	MARCH 25, 1967	ISSUED FOR CONSTRUCTION
DRAWN BY		
CHECKED BY		
APPROVED FOR DESIGN		
SPECS		

THE COMMONWEALTH OF MASSACHUSETTS
PROPOSED BRIDGE

WEST SPRINGFIELD

INTERSTATE ROUTE 91 OVER PROSPECT AVENUE

SCALES AS NOTED

OFFICE OF
DEPARTMENT OF PUBLIC WORKS
100 NASHUA ST. BOSTON, MASS.

MARCH 1967

BRIDGE ENGINEER — CHIEF ENGINEER

SHEET 1 OF 11 SHEETS BRIDGE NO. W-21-38

0 1 2 3
3" SCALE

PUB. RD O.V. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS	I-91-1(64)9	1967	104	293

F1 STA. 126+25 OFFSET 82' LT.

BOTT FTG EL. 249

247.5	BROWN COARSE TO FINE SAND, AND GRAVEL, TRACE OF SILT, (FINE TO MEDIUM).	12
242.5	BROWN SILT, TRACE OF FINE SAND.	9
W 239.5 / 238.5	BROWN COARSE TO FINE SAND, LITTLE FINE GRAVEL, TRACE OF SILT.	17
228.5	RED BROWN FINE SAND, AND FINE TO MEDIUM GRAVEL, LITTLE SILT, COBBLES.	136
224.5		

F2 STA. 126+18 OFFSET 26' LT.

239.7 / W 238.7	BROWN COARSE TO FINE SAND, AND FINE GRAVEL.	8
230.7	BROWN COARSE TO FINE SAND, AND FINE TO MEDIUM GRAVEL, COBBLES, AND BOULDERS.	135
221.7 / 220.7	RED BROWN DECOMPOSED SANDSHALE	151

F3 STA. 126+10 OFFSET 26' RT.

248.2	BROWN COARSE TO FINE SAND, LITTLE FINE GRAVEL, TRACE OF SILT.	6
240.7 / W 239.2	BROWN SILTY FINE SAND, LITTLE FINE GRAVEL.	17
234.2	BROWN COARSE TO FINE SAND, AND FINE TO COARSE GRAVEL	33
231.2 / 230.2	BR. FINE SAND & F. GRAV. LTL. SILT	219

F4 STA. 126+00 OFFSET 82' RT.

248.8	BROWN COARSE TO FINE SAND LITTLE MEDIUM TO FINE GRAVEL, TRACE OF SILT.	7
241.3	BROWN SILTY FINE SAND, TRACE OF FINE GRAVEL, COBBLES.	27
W 239.8 / 233.8	GRLT, DECOMPOSED SHALE AND SAND-SHALE.	192
231.8		

F5 STA. 126+46 OFFSET 82' LT.

BOTT. FTG. EL. 249.0

247.2	BROWN SILTY FINE SAND, LITTLE FINE GRAVEL.	11
242.7	BROWN FINE SAND LITTLE SILT, LITTLE FINE GRAVEL.	7
240.2 / W 239.7	BROWN COARSE TO FINE SAND, AND FINE TO MEDIUM GRAVEL, LITTLE SILT.	30
221.2 / 219.4	RED BROWN FINE SAND, AND GRAVEL LITTLE SILT	133

F6 STA. 126+38 OFFSET 26' LT.

241.8 / W 241.3	BROWN FINE SAND, LITTLE SILT, TRACE OF FINE GRAVEL.	8
237.8	BROWN COARSE TO FINE SAND, LITTLE FINE TO MEDIUM GRAVEL, TRACE OF SILT.	20
232.8	BROWN COARSE TO FINE GRAVEL, COB. BOUL. LIT. FINE-CRS. SAND.	133
229.8		

BORING NO. 64 STATION OFF 3 RT

F7 STA. 126+30 OFFSET 26' RT.

BOTT FTG EL. 249.0

247.7	BROWN COARSE TO FINE SAND, SOME FINE GRAVEL, TRACE OF SILT.	12
238.7 / W 238.2	BROWN COARSE TO FINE SAND, AND GRAVEL.	68
226.7	BROWN FINE SAND, LITTLE SILT, SOME FINE GRAVEL, AND SHALE FRAGMENTS.	130
223.7		

F8

248.4	BROWN COARSE TO FINE SAND, AND FINE TO MEDIUM GRAVEL.	13
243.4	BROWN SILTY FINE SAND, LITTLE FINE GRAVEL.	33
237.4 / W 235.4 / 234.4	*BROWN MEDIUM TO FINE SAND, AND FINE GRAVEL, TRACE OF SILT.	137

F9 STA. 127+26 OFFSET 82' LT

247.2	BROWN LOAM, SILT, AND FIBERS.	3
243.2	BROWN COARSE TO FINE SAND, SOME FINE GRAVEL.	13
W 241.2 / 238.2	BROWN COARSE TO FINE GRAVEL, LITTLE MEDIUM TO FINE SAND, COBBLES AND BOULDERS.	158
232.2		

F10 STA. 127+17 OFFSET 26' LT.

244.3 / 243.8 / W 242.3	BROWN SILTY FINE SAND, TRACE OF FINE GRAVEL.	2
	BROWN COARSE TO FINE SAND, SOME FINE GRAVEL, TRACE OF SILT.	17
232.3	BROWN SILTY FINE SAND LITTLE FINE GRAVEL, TRACE OF COBBLES.	83
221.3 / 220.3	GREY DECOMPOSED SHALE.	256

F11 STA. 127+10 OFFSET 26' RT.

BOTT FTG EL 249.0

247.3	BROWN LOAM, SILT, AND FIBERS.	3
W 243.3 / 242.3	BROWN SILTY FINE SAND, TRACE OF PEAT, TRACE OF FINE GRAVEL.	5
238.3	BROWN FINE TO COARSE SAND, TRACE OF SILT.	12
234.0	BROWN COARSE TO FINE SAND, AND FINE TO MEDIUM GRAVEL.	21
231.8		

F12 STA. 127+02 OFFSET 82' RT.

BOTT. FTG. EL 249.0

248.6	BROWN SILTY FINE SAND, TRACE LOAM & FIBERS	6
242.6	BROWN SILTY FINE TO MEDIUM SAND	23
236.6	TRACE SILT & FINE GRAVEL	21
228.6 / 227.6	BROWN COARSE TO FINE SAND & GRAVEL LITTLE SILT	175
	NO. DECOMPOSED SHALE & SANDSTONE	

F13 STA. 127+50 OFFSET 82' LT

	WATER DEPTH 3.5'	
242.3 / 241.3	GRAVEL FILL TO BOTTOM BROWN SILT, TRACE FINE SAND	1
239.3	BROWN COARSE TO FINE SAND & GRAVEL	27
233.3	BROWN SILTY FINE SAND, TRACE FINE GRAVEL	165
229.3 / 227.3	BROWN COARSE TO FINE SAND & GRAVEL	175

F14 STA. 127+40 OFFSET 26' LT.

	DEPTH OF WATER 4.0'	
241.8	BROWN SILT, LITTLE FINE SAND, TRACE PEAT	1
239.3	BROWN MEDIUM TO FINE SAND AND GRAVEL, TRACE SILT	12
232.8	BROWN COARSE TO FINE SAND AND GRAVEL, TRACE SILT	31
224.8 / 222.8	BROWN SILTY FINE SAND, LITTLE FINE GRAVEL.	171

F15 STA. 127+35 OFFSET 26' RT.

BOTT FTG. EL 249.0

	DEPTH OF WATER 4.5'	
241.4	BROWN SILT, TRACE PEAT	F
239.4	BROWN COARSE TO FINE & LITTLE MEDIUM TO FINE GRAVEL, TRACE SILT	19
233.6	BROWN COARSE TO FINE SAND & GRAVEL, COBBLES, TRACE SILT	31
223.4 / 222.9	BROWN DECOMPOSED SANDSHALE	150 6"

F16 STA. 127+20 OFFSET 82' RT.

	DEPTH WATER 3.0'	
242.9	BROWN SILT, TRACE PEAT	F
241.9	GRAY-BROWN SILTY FINE SAND	4
240.9	BROWN COARSE TO FINE SAND AND GRAVEL, TRACE SILT, COBBLES	19
229.9	BROWN DECOMPOSED SHALE AND SANDSTONE	175
227.9		

224.7

W WATER LEVEL

DESCRIPTION — BLOWS PER FT.

CORE

208.6

UP = UNDISTURBED PISTON

LEGEND

BORING NOTES

LOCATION OF BORINGS SHOWN ON BORING LOCATION PLAN
THUS: ◉ F6 - CONTROL BORINGS
○ F7 - DESIGN BORINGS
BORINGS TAKEN FOR PURPOSE OF DESIGN AND SHOW CONDITIONS AT BORING POINTS ONLY AND DO NOT NECESSARILY SHOW NATURE OF MATERIALS TO BE ENCOUNTERED DURING CONSTRUCTION.

FIGURES IN RIGHT HAND COLUMN INDICATE BLOWS PER FOOT ON 1-3/8 INCH I.D. SAMPLER PRODUCED BY 30 INCH FALL OF 140 POUND HAMMER.

WATER LEVELS SHOWN ON THE BORING LOGS WERE OBSERVED AT THE TIME OF TAKING BORINGS AND DO NOT NECESSARILY SHOW THE TRUE GROUND WATER LEVEL.

BORING SAMPLES MAY BE SEEN AT THE RESEARCH AND MATERIALS DIVISION, 99 WORCESTER STREET, WELLESLEY HILLS (INTERSECTION OF ROUTES 9 AND 128).

ALL BORINGS WERE MADE BY AMERICAN DRILLING & BORING CO., INC. 54 WATER STREET, EAST PROVIDENCE, R. I. DURING JUNE 1966.

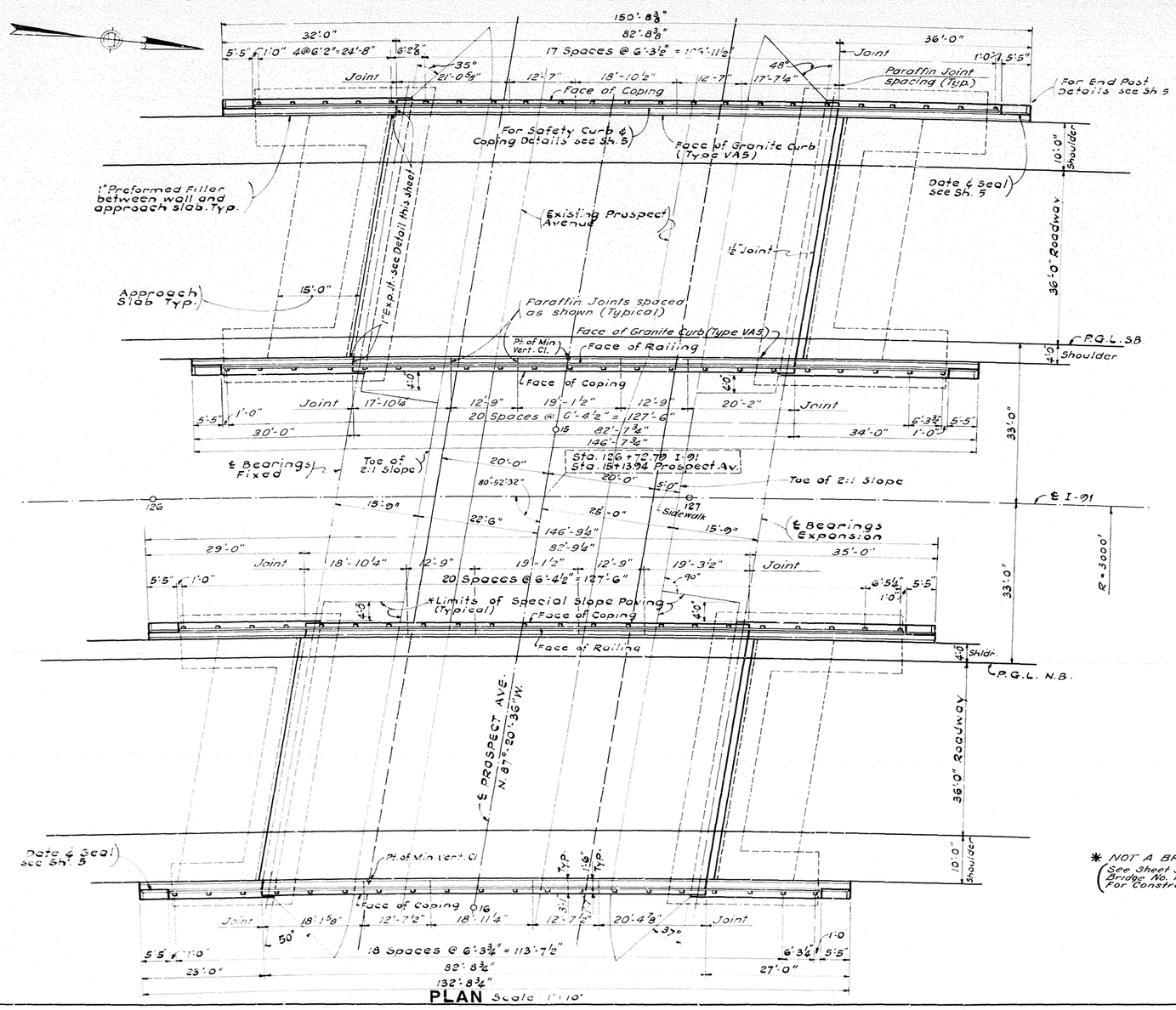
BORING DATA

Scale: 1" = 8'

0 1 2 3
3" SCALE

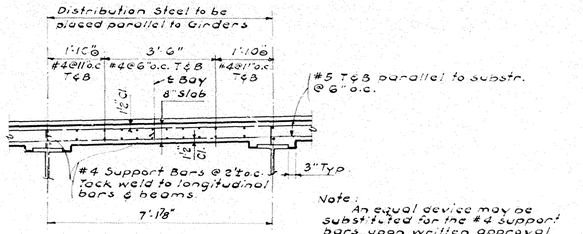
DATE	DESCRIPTION
MARCH 25, 1967	ISSUED FOR CONSTRUCTION
	USE ONLY PRINTS OF LATEST DATE

FUD. RD DIV. NO	STATE	FED AID PROJ. NO	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS	I-91-1(64)9	1967		



PLAN Scale 1" = 10'

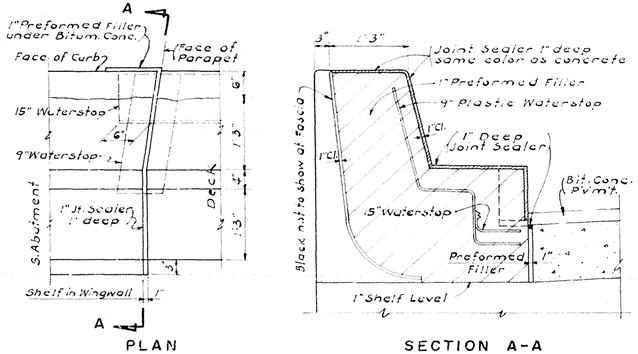
* NOT A BRIDGE ITEM
(See Sheet 3 Of 13 Sheets Bridge No. W-21-58 - W-21-39 For Construction Details)



Note: An equal device may be substituted for the #4 support bars upon written approval of the Engineer.

TYPICAL SLAB REINFORCEMENT

Scale: 1/2" = 1'-0"



PLAN SECTION A-A

DETAILS OF JOINT AT SAFETY WALK OF SOUTH ABUTMENT

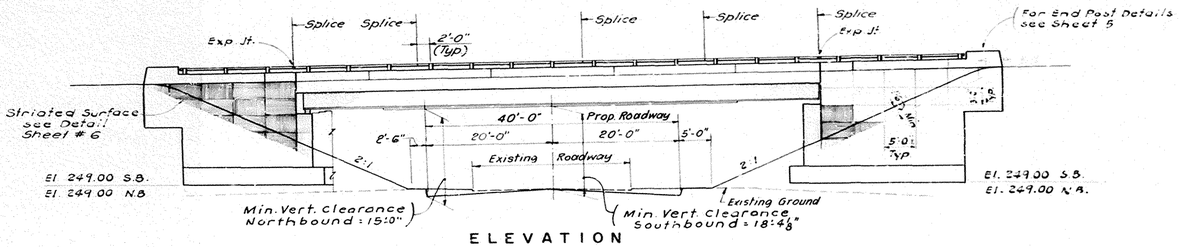
Scale: 1" = 1'-0"

MARCH 15, 1971	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

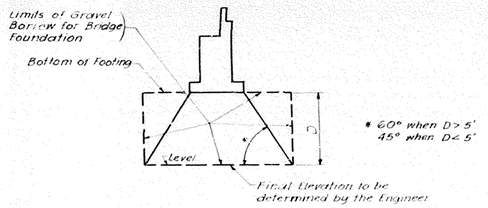
SHEET 3 OF 11 SHEETS BRIDGE NO. W-21-38

0 1 2 3
3" SCALE

PUB RD DIV NO	STATE	FED AID PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
1	MASS	I-91-1(64)9	1967		



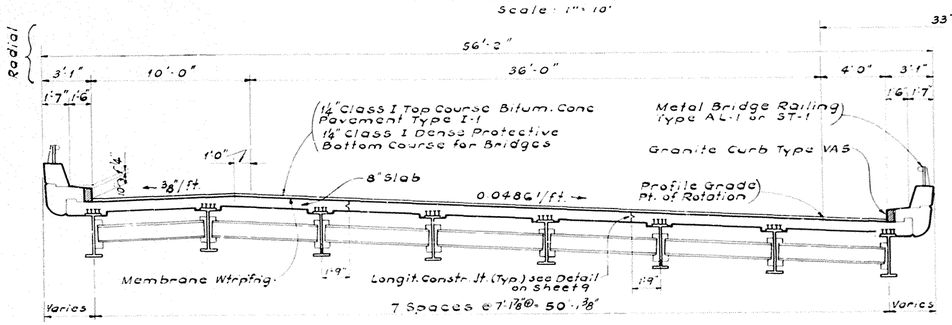
ELEVATION
Scale: 1" = 10'



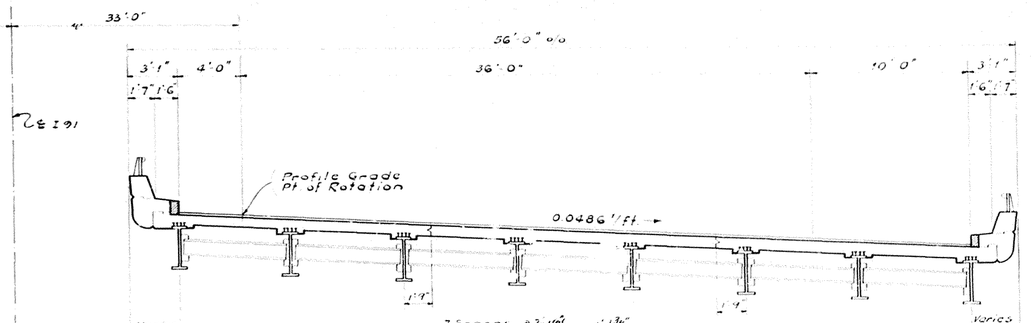
NOTES:
Same Treatment to be used at Ends.
Unsuitable Material to be removed before Gravel Borrow for Bridge Foundation is placed.

GRAVEL BORROW FOR BRIDGE FOUNDATION

Not to scale



SOUTHBOUND ROADWAY



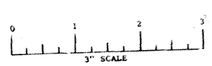
NORTHBOUND ROADWAY

TYPICAL CROSS SECTION

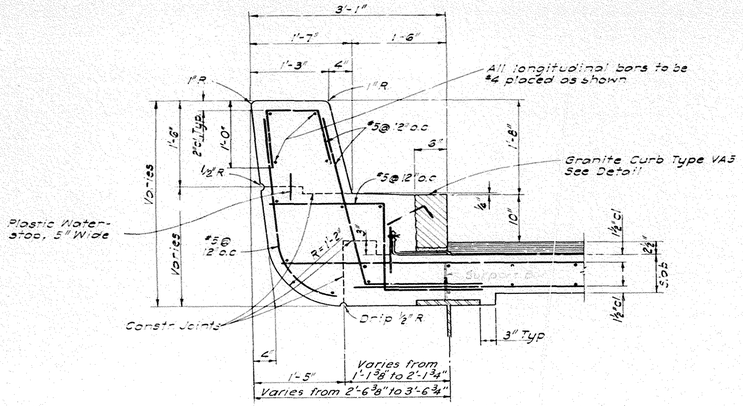
Scale: ½" = 1'-0"
All Superstructure Concrete to be Class D

DATE	DESCRIPTION
MARCH 25, 1967	ISSUED FOR CONSTRUCTION
USE ONLY PRINTS OF LATEST DATE	

SHEET 4 OF 11 SHEETS BRIDGE NO. W-21-38

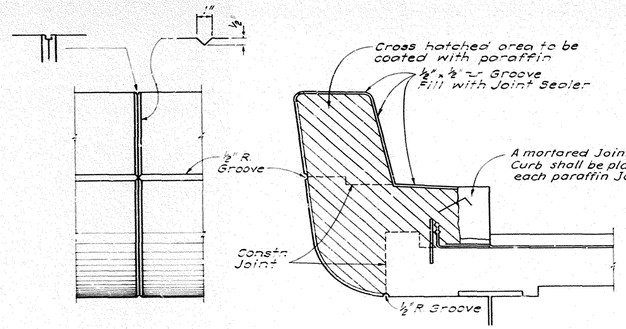


PUB. RD DIV. NO.	STATE	FED AID PROJ. NO	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS	I-91-1(64)9	1967	107	393



SAFETY CURB DETAIL

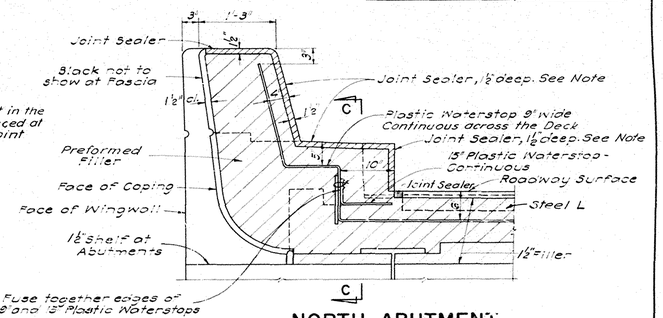
Scale: 1" = 1'-0"



PARAFFIN JOINT THROUGH COPING AND SAFETY WALK

Scale: 1" = 1'-0"

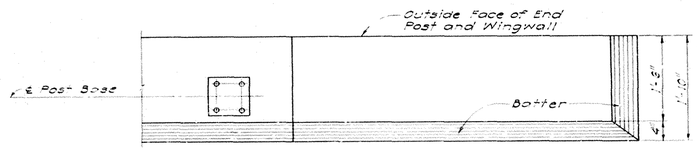
Notes:
1. Safety walk and coping shall be poured in alternate sections and shall have a curing period of not less than 5 days between pours.
2. For location of Paraffin Joints see Sheet 3.
3. End of bars to be 2" clear of joint.
4. Do not carry longitudinal bars in safety walk and coping through the joints.
5. Joint sealer to be same color as concrete.
6. Joint to be square to face of coping.
7. Joint in curb shall be mortared no sooner than 5 days after concrete in sidewalk has been poured.



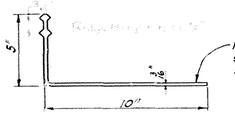
NORTH ABUTMENT
DETAILS OF SAFETY CURB AT DECK JOINTS

Scale: 1" = 1'-0"

Note:
Joint Sealer to be same color as concrete.

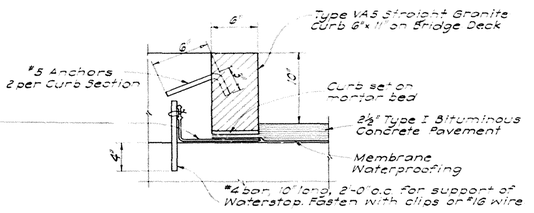


PLAN



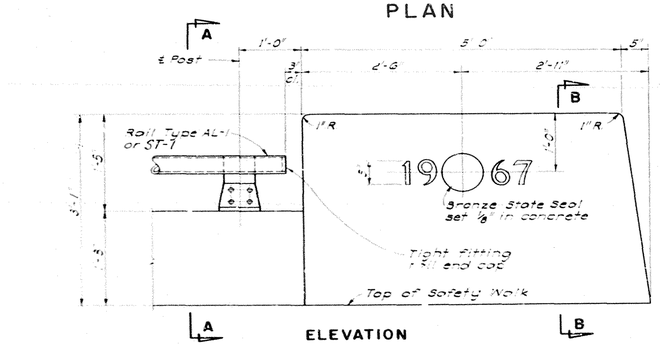
PLASTIC WATER STOP

Scale: 3" = 1'-0"



DETAIL AT CURB

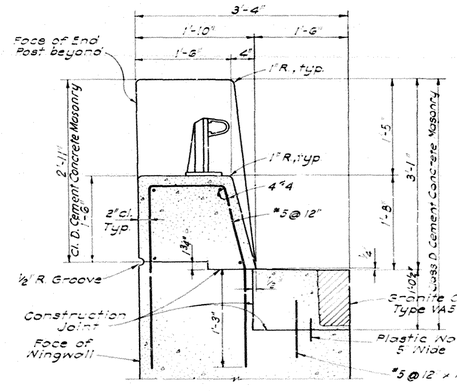
Scale: ½" = 1'-0"



ELEVATION
END POST DETAIL

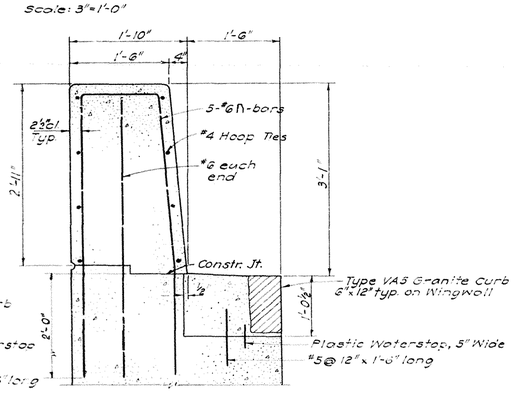
Scale: 1" = 1'-0"

Note: Rolling anchor bolts to be set by template and placed before concrete is poured.



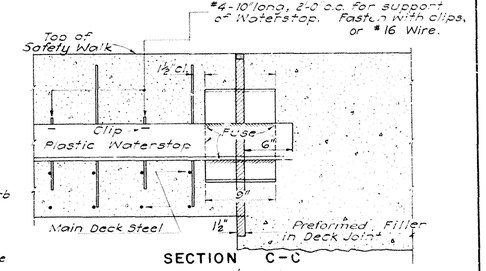
SECTION A-A

Scale: 1" = 1'-0"



SECTION B-B

Scale: 1" = 1'-0"



SECTION C-C

Scale: ½" = 1'-0"

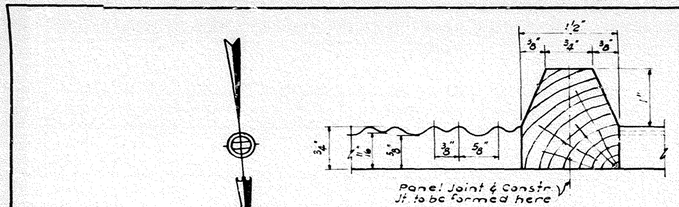
DATE	DESCRIPTION
MARCH 25, 1967	ISSUED FOR CONSTRUCTION
USE ONLY PRINTS OF LATEST DATE	

SHEET 5 OF 11 SHEETS BRIDGE NO. W-21-38

0 1 2 3
3" SCALE

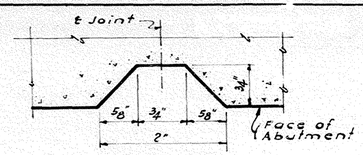
FUB RD DIV NO	STATE	FED AID PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
1	MASS	I-91-1(64)9	1967	106	193

SOUTH ABUTMENT



STRIATION DETAIL

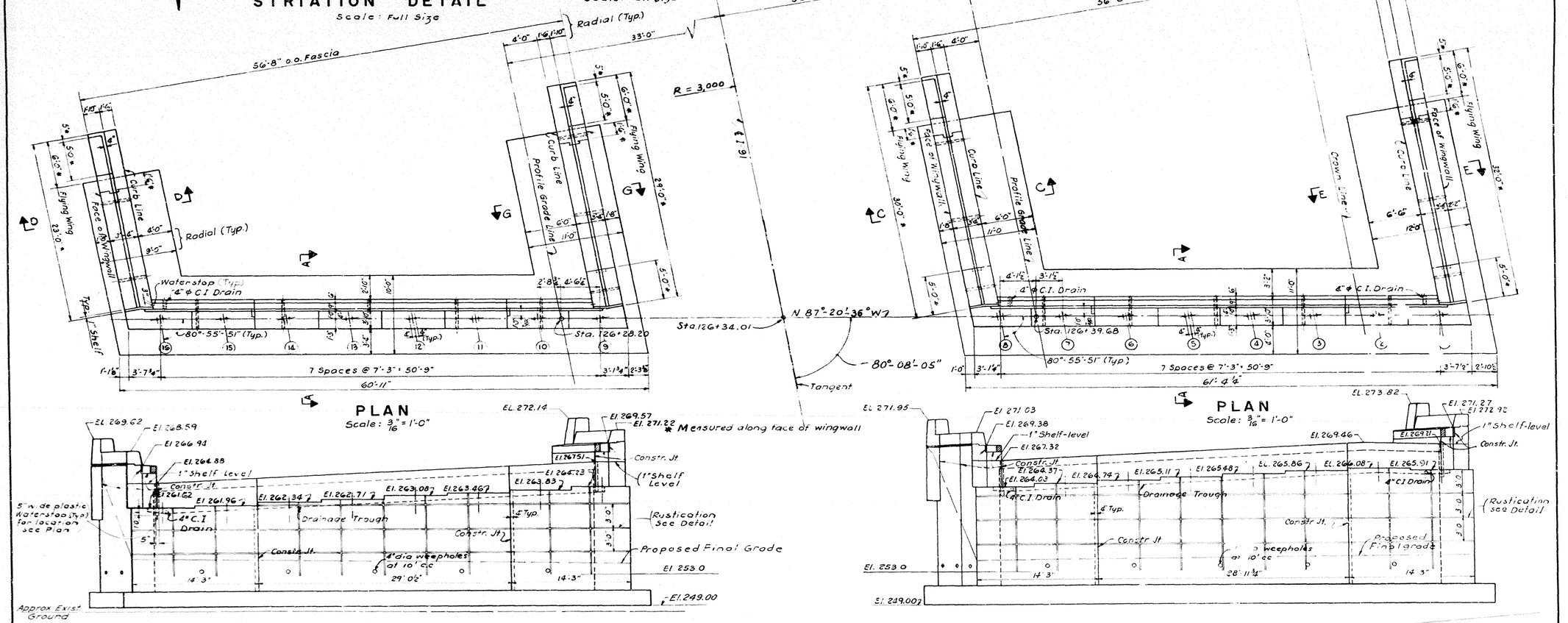
Scale: Full Size



FACE OF ABUTMENT RUSTICATION

Horizontal and Vertical Groove Detail

Scale: Full Size



ELEVATION - SOUTH ABUTMENTS

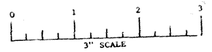
Scale: 3/16" = 1'-0"

NORTHBOUND

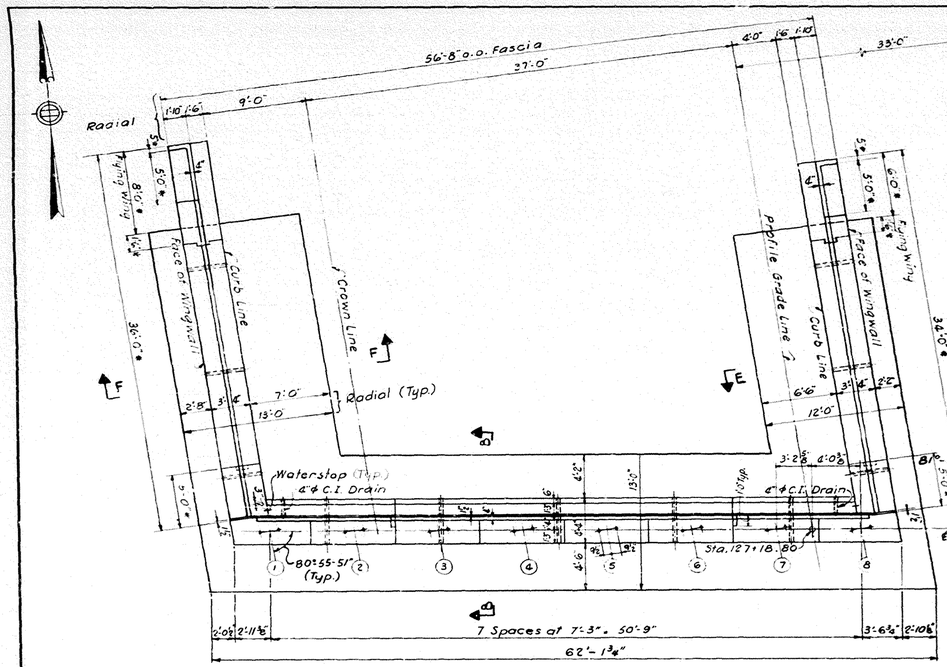
SOUTHBOUND

DATE	DESCRIPTION
March 23, 1967	ISSUED FOR CONSTRUCTION
USE ONLY PRINTS OF LATEST DATE	

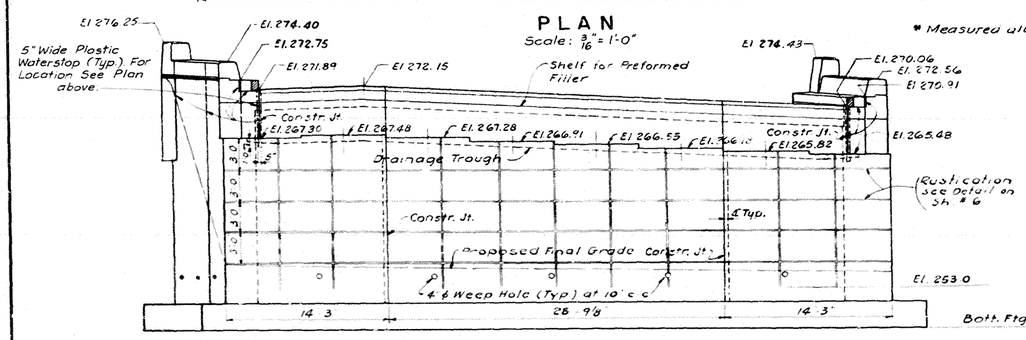
SHEET 6 OF 11 SHEETS BRIDGE NO. W-21-38



HWY DIV NO.	STATE	FED AID PROJ NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	I-91-1(64)9	1967	189	993



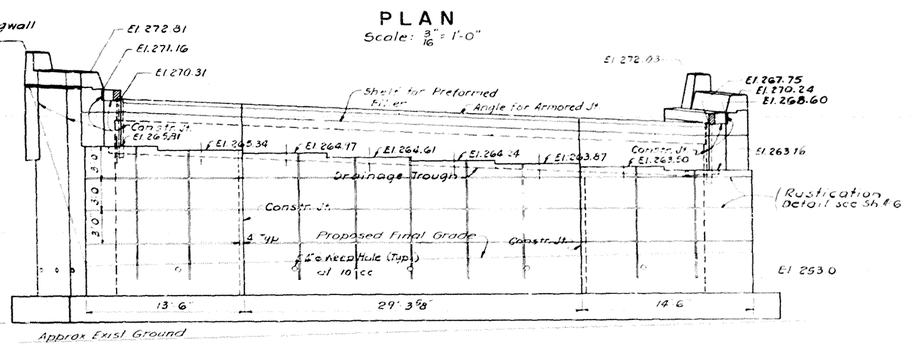
PLAN
Scale: 3/16" = 1'-0"



SOUTHBOUND

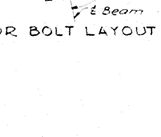
* Measured along face of wingwall

PLAN
Scale: 3/16" = 1'-0"



NORTHBOUND

NORTH ABUTMENT ANCHOR BOLT LAYOUT



ELEVATION - NORTH ABUTMENTS
Scale 3/16" = 1'-0"

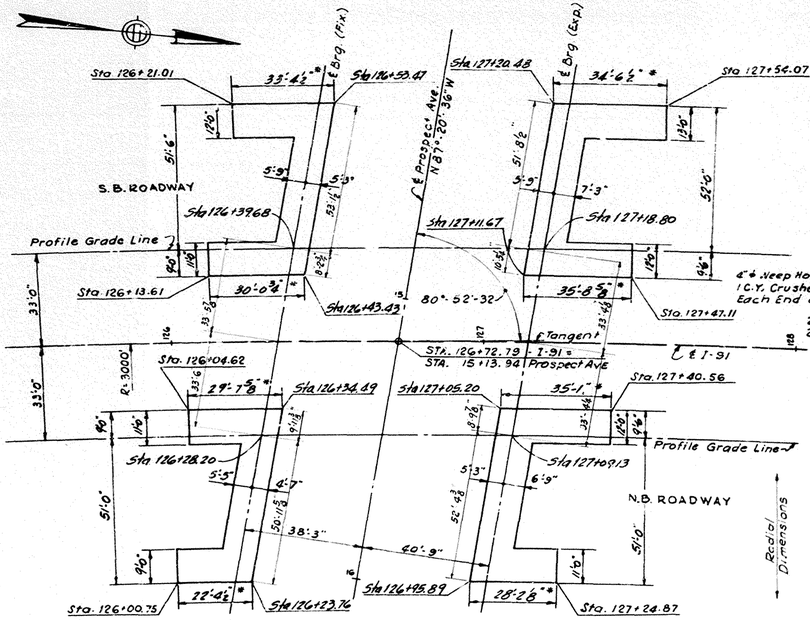
MARCH 25, 1967	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION

USE ONLY PRINTS OF LATEST DATE

SHEET 7 OF 11 SHEETS BRIDGE NO. W-21-38

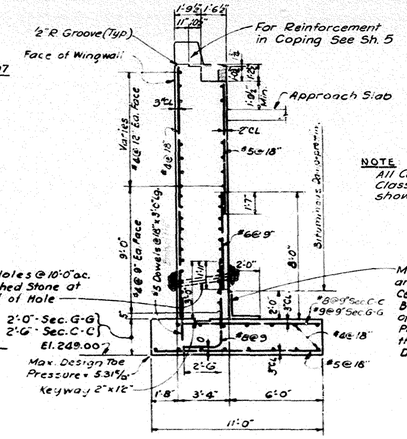
0 1 2 3
3" SCALE

FUB RD DIV NO	STATE	FED AID PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
1	MASS.	I-91-1(64)9	1967	116	327

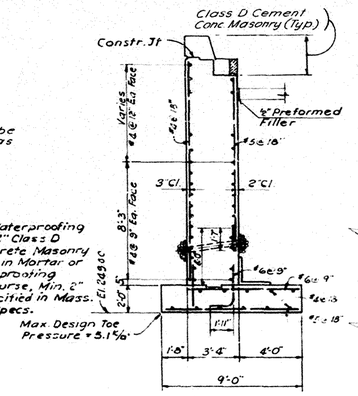


FOOTING LAYOUT PLAN
Scale: 1"=20'

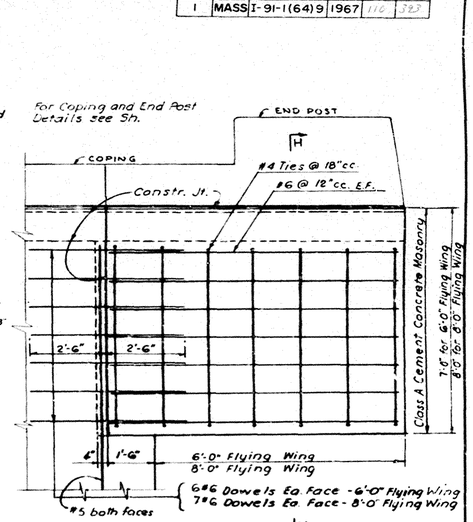
* Measured along face of Wingwall



SECTION C-C
SECTION G-G
Scale: ¼"=1'-0"

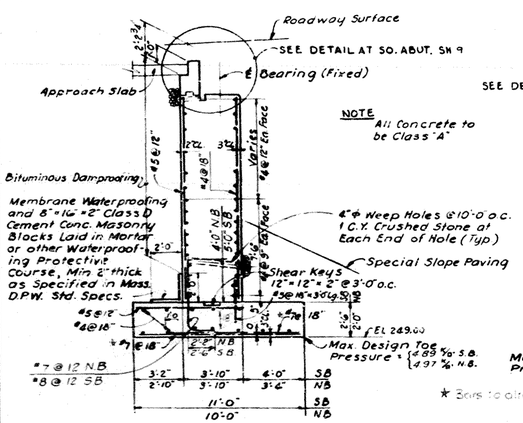


SECTION D-D
Scale: ¼"=1'-0"
For Dimensions and Note not shown see Sec C-C

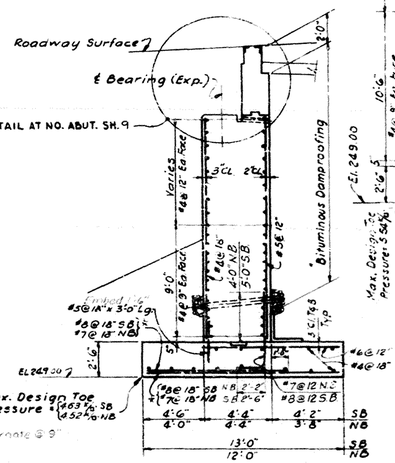


Note: Fill shall be placed and thoroughly compacted to the grade of the bottom of the wings; or where no fill is required below the wings, the concrete shall be placed upon undisturbed soil.

FLYING WING FOR WINGWALLS
Scale: ½"=1'-0"

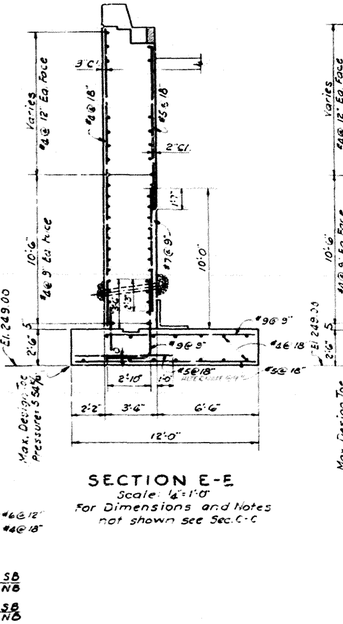


SECTION A-A
Scale: ½"=1'-0"



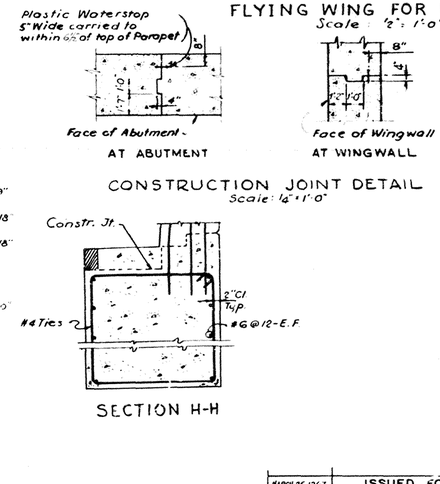
★ Bars to alternate @ 9"

SECTION B-B
Scale: ½"=1'-0"
For Dimensions and Notes not shown see Sec. A-A



SECTION E-E
Scale: ½"=1'-0"
For Dimensions and Notes not shown see Sec. C-C

SECTION F-F
Scale: ½"=1'-0"
For Dimensions and Notes not shown see Sec C-C



CONSTRUCTION JOINT DETAIL
Scale: ½"=1'-0"

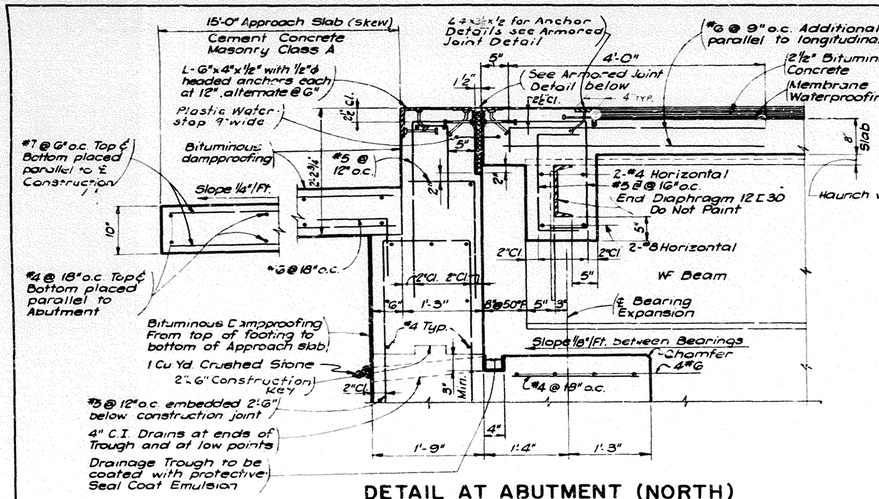
SECTION H-H

MARCH 25, 1967	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

SHEET 8 OF 11 SHEETS BRIDGE NO. W-21-38

0 1 2 3
3" SCALE

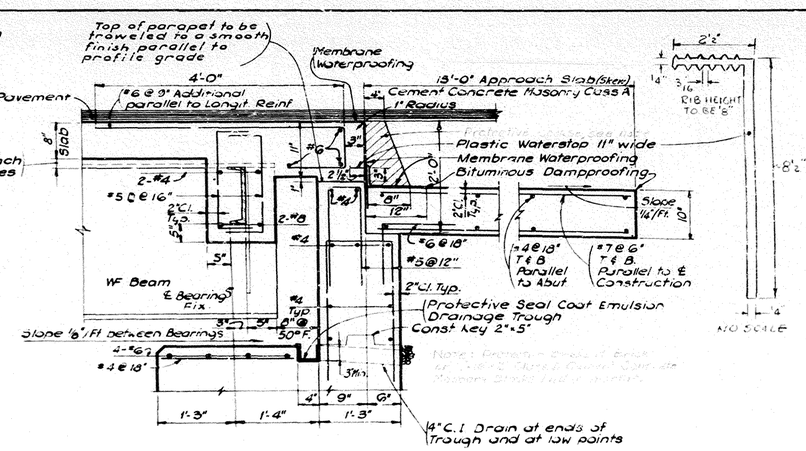
PUB RD DIV NO	STATE	FED AID PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
I	MASS	I-91-1(64)9	1967	111	393



DETAIL AT ABUTMENT (NORTH)

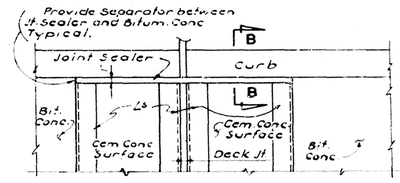
Scale: 1"=1'-0"

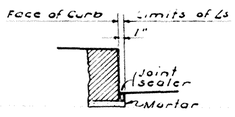
Note All dimensions shown are square distances except as noted
For Abutment details see sheets



DETAIL AT ABUTMENT (SOUTH)

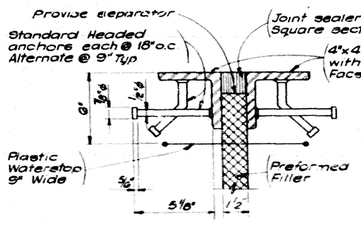
Scale: 1"=1'-0"





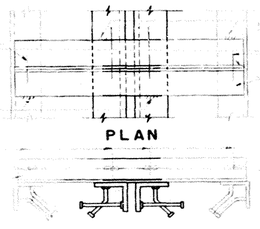
SECTION B-B

PLAN AT NORTH ABUTMENT



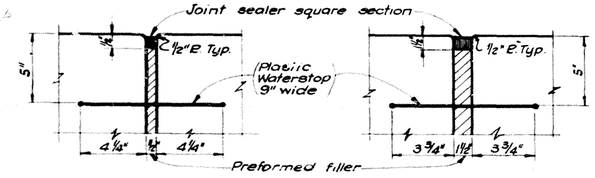
ARMORED JOINT DETAIL

Scale: 3"=1'-0"



ELEVATION

SHIPPING DEVICE FOR ARMORED JOINT ASSEMBLY

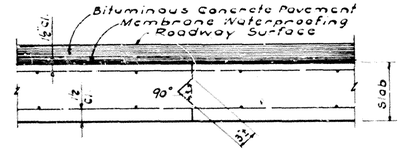


AT ABUTMENT (SOUTH)

AT ABUTMENT (NORTH)

SAFETY WALK SECTIONS

Scale: 3"=1'-0"



LONGITUDINAL CONSTRUCTION JOINT DETAILS IN SLAB

Scale: 1/2"=1'-0"

Notes:

(A) All Armored Joint Assemblies must be properly fitted in shop and shipped with device for maintaining proper spacing and fit.

(B) Bolts on shipping device must be loosened within one hour after concrete is placed so that movement may take place. Device shall be removed after concrete has set on both sides of assembly.

(C) Grind armored joint surface to a smooth finish after removal of shipping device.

(D) All exposed surfaces of joint shall be field painted after grinding.

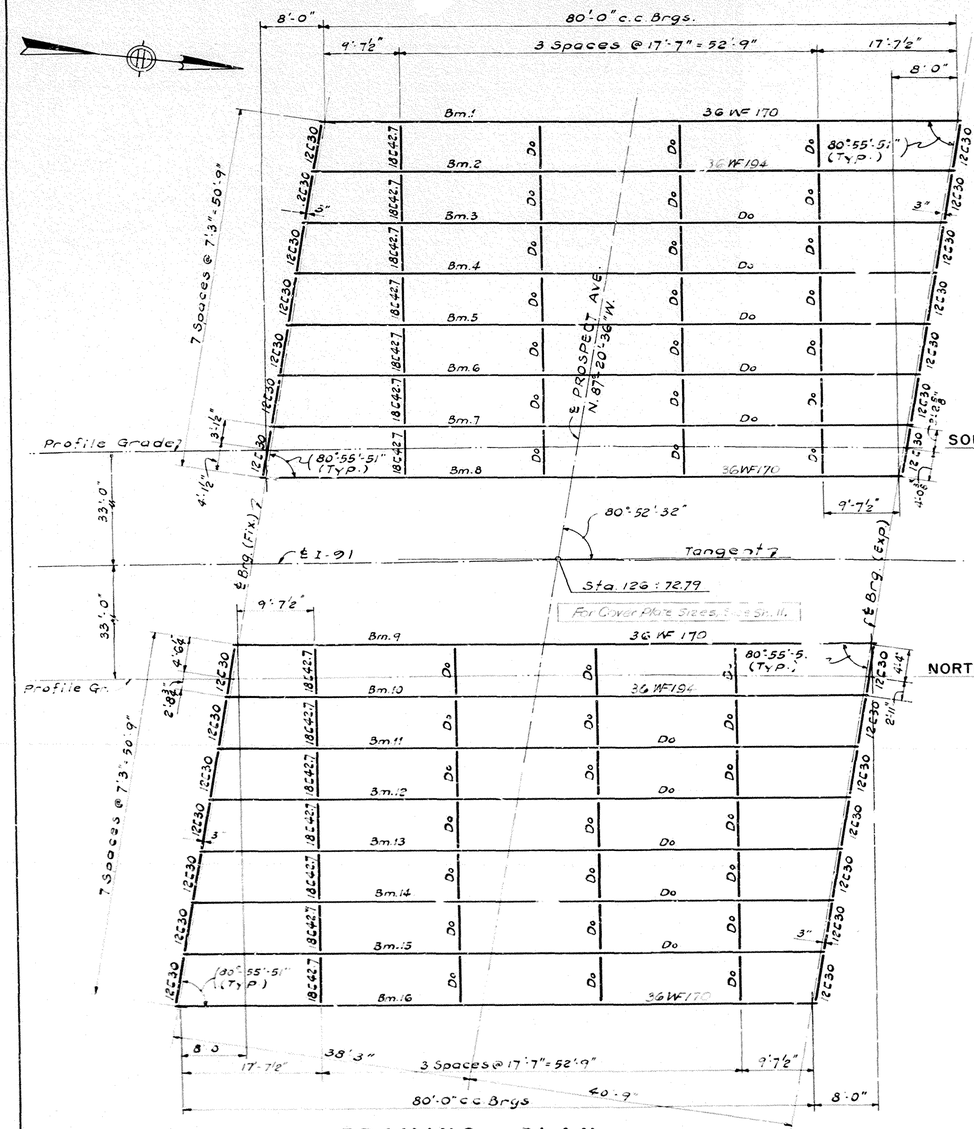
Note: Longitudinal Construction Joints in Bridge Deck Slabs may be omitted when the Contractor's proposed method of construction is approved by the Engineer in writing.

MARCH 25, 1967	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

SHEET 9 OF 11 SHEETS BRIDGE NO. W-21-38

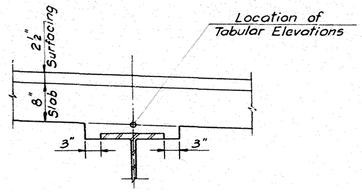
0 1 2 3"
3" SCALE

FUB.RD DIV. NO.	STATE	FED.AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	I-91-1(64)9	1967	112	123



FRAMING PLAN

Scale: 1/8" = 1'-0"



HAUNCH DETAIL

TOP OF FORM ELEVATIONS FOR DECK SLAB PRIOR TO PLACEMENT OF CONCRETE

BEAM No.	℄ BRG.	⅛ PT.	¼ PT.	⅜ PT.	½ PT.	⅝ PT.	¾ PT.	⅞ PT.	℄ BRG.
SOUTHBOUND BRIDGE									
B1	269.55	269.81	270.05	270.27	270.46	270.63	270.76	270.87	270.97
B2	269.75	270.01	270.26	270.48	270.67	270.84	270.97	271.08	271.18
B3	269.52	269.78	270.02	270.24	270.44	270.61	270.75	270.87	270.98
B4	269.15	269.41	269.65	269.87	270.07	270.24	270.38	270.50	270.61
B5	268.78	269.04	269.28	269.50	269.70	269.87	270.01	270.14	270.24
B6	268.41	268.67	268.91	269.13	269.33	269.50	269.65	269.77	269.88
B7	268.03	268.29	268.54	268.77	268.96	269.13	269.28	269.40	269.51
B8	267.66	267.92	268.17	268.39	268.59	268.76	268.91	269.03	269.15
NORTHBOUND BRIDGE									
B9	267.87	268.14	268.39	268.62	268.82	269.00	269.16	269.29	269.40
B10	267.50	267.76	268.02	268.25	268.46	268.64	268.79	268.92	269.04
B11	267.12	267.39	267.65	267.88	268.09	268.27	268.42	268.55	268.67
B12	266.75	267.02	267.27	267.51	267.72	267.90	268.05	268.18	268.30
B13	266.37	266.65	266.90	267.14	267.35	267.53	267.68	267.82	267.93
B14	266.00	266.27	266.53	266.77	266.98	267.16	267.31	267.45	267.57
B15	265.63	265.90	266.16	266.39	266.61	266.79	266.94	267.08	267.20
B16	265.25	265.52	265.78	266.02	266.23	266.41	266.57	266.71	266.83

NOTE:

After the Structural Steel is erected, but before the forms are built, Elevations on the top of the Flange of the Beams are to be obtained at the Points indicated in the Table. The Difference between the Elevation obtained and those shown in the Table gives the actual Blocking Distance from the top of Beam to the bottom of slab at Centerline of Beam. See Haunch Detail.

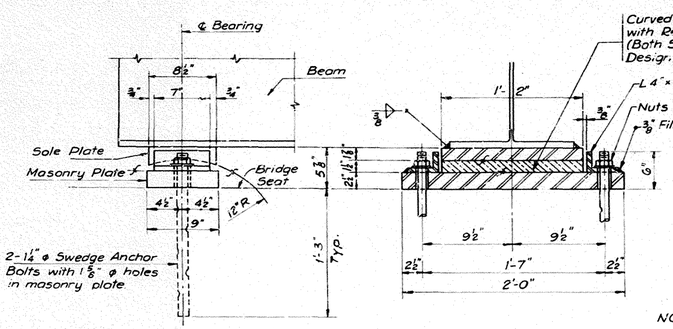
DATE	DESCRIPTION
MARCH 25, 1967	ISSUED FOR CONSTRUCTION
USE ONLY PRINTS OF LATEST DATE	

SHEET 10 OF 11 SHEETS BRIDGE NO. W-21-38

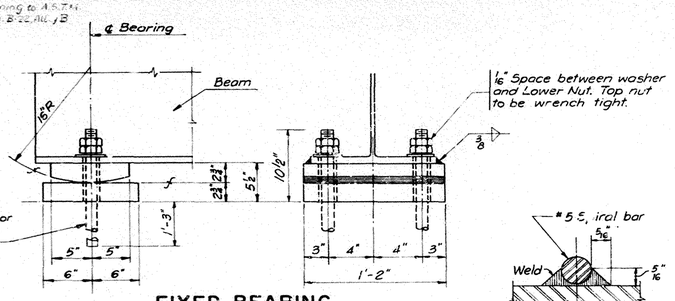
0 1 2 3

3" SCALE

PUB RD DIV NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS	I-91-1(64)9	1967	113	193



EXPANSION BEARING
Scale: 1½"= 1'-0"

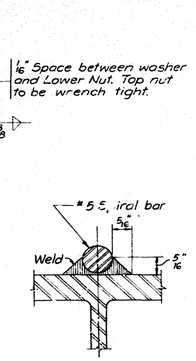


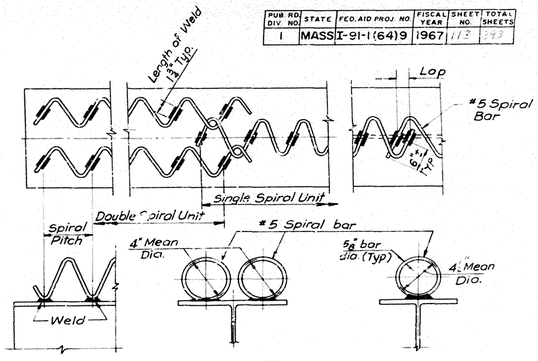
FIXED BEARING
Scale: 1½"= 1'-0"

*Conforming to A.S.T.M. Designation: B-22, Alloy B

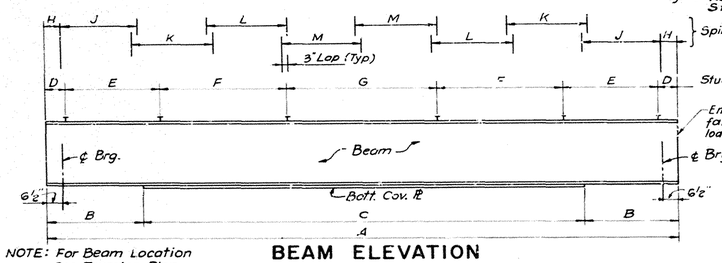
NOTES: Nuts Bolts and washers to be Galvanized.
Masonry plate shall have full and level bearing before placing the Stringers on the Bearing Assembly.

The finished surfaces shall meet the American Standards Association Surface roughness requirements defined in ASA B 46-1 Surface roughness, waviness and lay, Part I.
f = ASA 125 Micro-inches or finer.
Steel A.S.T.M., A36



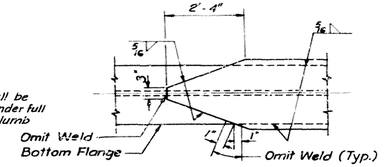


SPIRAL SHEAR CONNECTORS
Not to Scale.



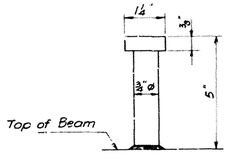
NOTE: For Beam Location See Framing Plan.

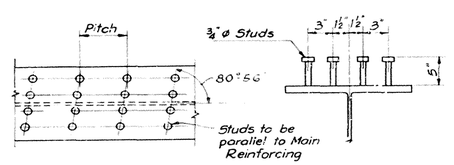
BEAM ELEVATION



COVER PLATE DETAIL

NOTES: a) Preparation of material for welding shall conform to Art. 402 AWS 1966 Edition & Addenda
b) Assembly of material for welding shall conform to Art. 403 AWS 1966 Edition & Addenda.





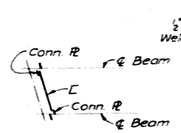
STUD SHEAR CONNECTORS

NOTE: ⅞" Diameter studs may be substituted for ¾" Diameter studs by providing an equivalent cross-sectional area and adjusting the pitch accordingly with a max pitch of 18".
Shear connectors shall be either spirals or studs at the option of the Contractor.

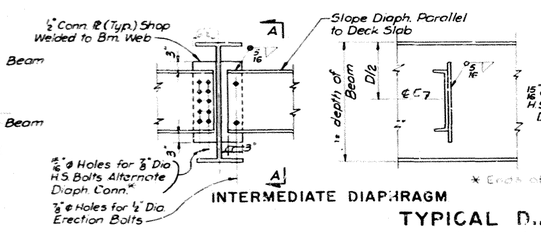
SPAN	BEAM NO.	SIZE	C. to C. BEARINGS	BOTT. COV. PL	DIMENSIONS A	B	C	SHEAR CONNECTOR SPACING STUDS D	E	F	G	H	SPIRALS J	K	L	M
1 & 2	Exterior Beams	36WF194	80'-0"	14"x1"	81'-1"	9'-3½"	62'-6"	4½"	365ps@6"-18'-0	215ps@8"-14'-0	145ps@14"-16'-3"	5"	24 5ps*@3"-10'-0"	20 5ps*@6"-10'-0	185ps*@7"-10'-6"	255ps*@5"-10'-5"
do	1,8,9,16	36WF170	80'-0"	15"x1¾"	do.	do.	do.	do.	do.	do.	do.	do.	do.	do.	do.	do.

BEAM NO.	CAMBER
1, 2	3½"
All Others	3½"

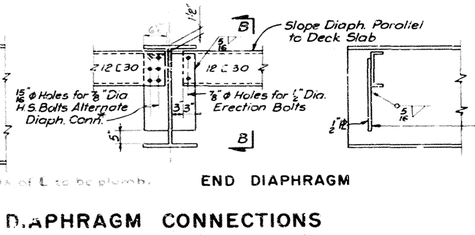
* Double Spiral



DETAIL X



INTERMEDIATE DIAPHRAGM



END DIAPHRAGM

NOTE: Offset connection plate at End Diaphragms. End Diaphragms to be parallel to ℄ Bearing.

TYPICAL DIAPHRAGM CONNECTIONS

NOTES: Erection Bolts, Nuts and Standard Washers for Diaphragm Connections shall be furnished by the Fabricator.

MARCH 25 1967	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

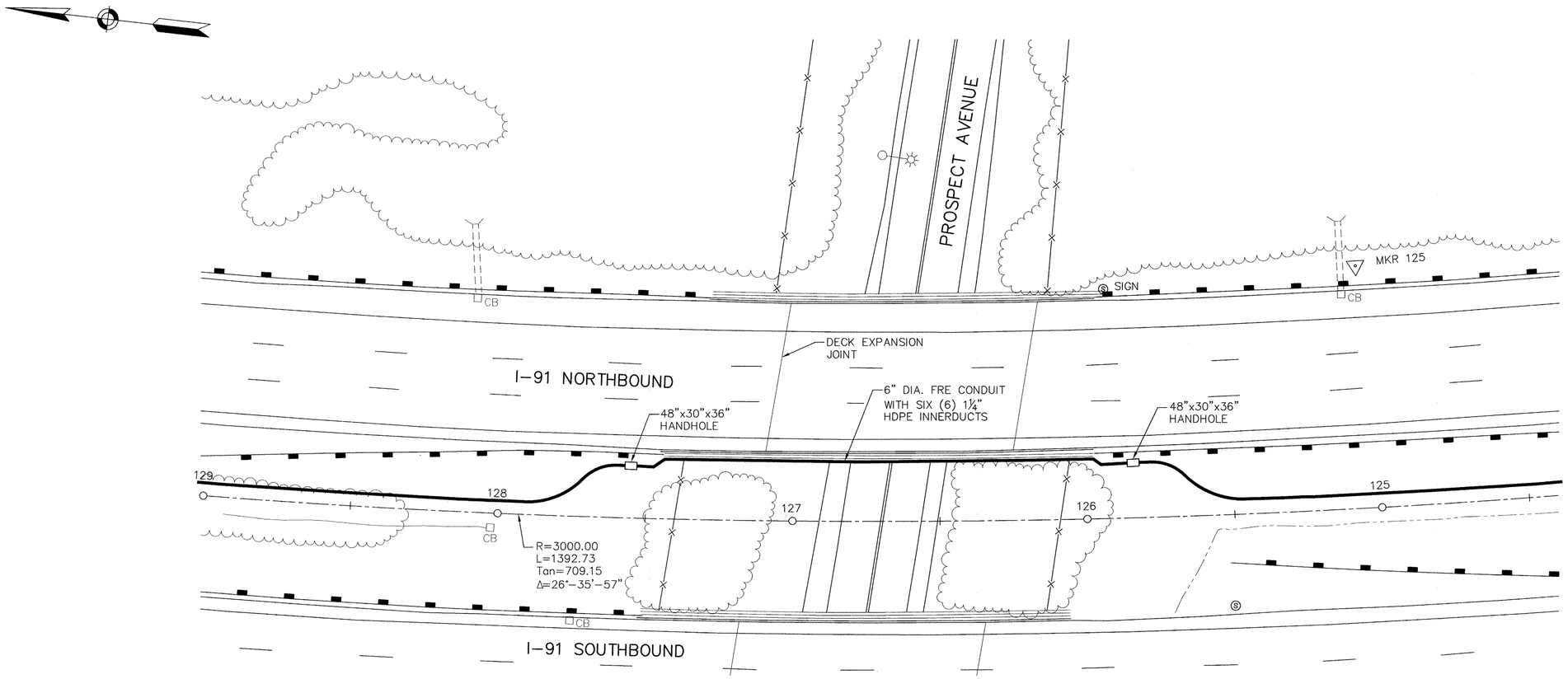
SHEET 11 OF 11 SHEETS BRIDGE NO. W-21-38

0 1 2 3
3" SCALE

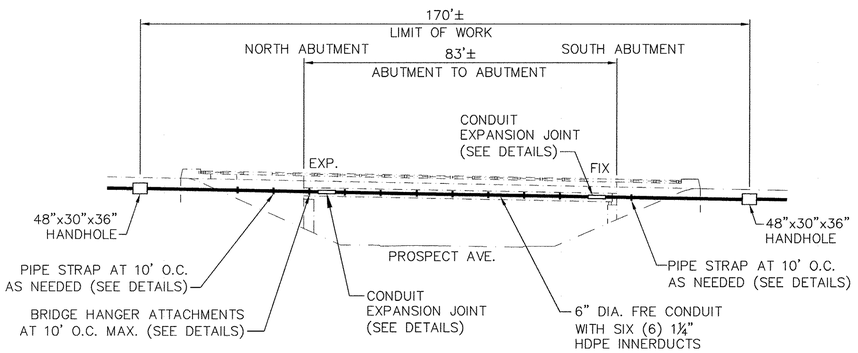
WEST SPRINGFIELD
I-91 & I-291

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	ITS-001A (818)	258	311
PROJECT FILE NO. 603903			

BRIDGE PLAN AND ELEVATION



BRIDGE PLAN
SCALE: 1" = 20'-0"



BRIDGE ELEVATION
SCALE: 1" = 20'-0"

NOTES:
1. 6" DIA. FIBERGLASS REINFORCED EPOXY SHALL EXTEND FOR A MINIMUM OF 10' UNDERGROUND OR UNTIL A BURIED DEPTH OF 36" IS ACHEIVED. THE 6" FRE SHALL BE PROPERLY SEALED (POLYURETHANE FOAM OR DUCT PLUG) AT TRANSITION TO SIX (6) 1¼" HDPE INNERDUCTS.
2. SPAN LENGTHS AND BEARING ARRANGEMENTS ARE REFERENCED FROM AS-BUILTS AND ARE FOR INFORMATION ONLY.
3. HANDHOLES SUBJECT TO CHANGE PER FIELD CONDITIONS.

COMMONWEALTH OF MASSACHUSETTS
OWEN A. TRICKEY
CIVIL
No. 48467
REGISTERED PROFESSIONAL ENGINEER

Gannett Fleming
199 WELLS AVENUE
NEWTON, MA 02459
(617) 527-7822

Moving Massachusetts Forward
massDOT Highway

PROPOSED BRIDGE ATTACHMENTS
WEST SPRINGFIELD
INTERSTATE 91
OVER PROSPECT AVENUE

THE COMMONWEALTH OF MASSACHUSETTS
MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
10 PARK PLAZA BOSTON, MA.

ENGINEER OF RECORD — DATE 7/31/08

SHEET 1 OF 2 SHEETS BRIDGE NO. W-21-038 (111)

S:\49792-Adesta MHD I-91\As-Built Package Jan 2011\Bridges\258-259 - W-21-038\258 - BRIDGE PLAN-ELEVATION.dwg, Sht-258, 6/20/2011 3:34:14 PM

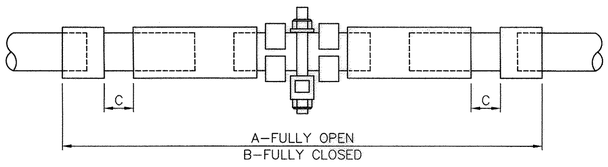
WEST SPRINGFIELD
I-91 & I-291

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	ITS-001A (818)	259	311
PROJECT FILE NO. 603903			

ATTACHMENT DETAILS

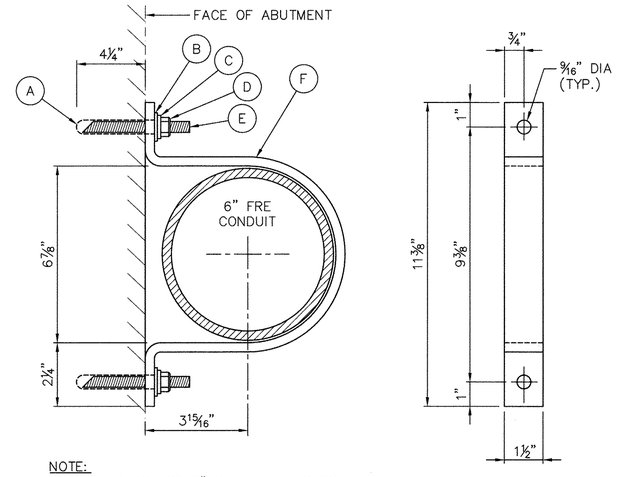
DETAIL NO.	QTY.	DESCRIPTION	
A	2	½"x 4¼" HILTI HVU ADHESIVE CAPSULE	ASTM E 1512 NSF/ANSI 61
B	2	½" HDG FLAT WASHER	ASTM F844 A153 GALV.
C	2	½" HDG LOCK WASHER	ASME 569 A153 GALV.
D	2	½" HDG FINISHED HEX NUT	ASTM A563 A153 GALV.
E	2	½"x 6½" LONG ALL THREAD (CHISEL CUT 45° ONE END)	ASTM A36 A153 GALV.
F	1	¼"x 1½" TWO-HOLE PIPE STRAP	ASTM A36 A153 GALV.
G	TBD	¼" x 1½" SPACER PLATE	ASTM A36 A153 GALV.

NOTE:
DISTANCE BETWEEN EXPANSION JOINTS SHALL NOT BE GREATER THAN 150'.



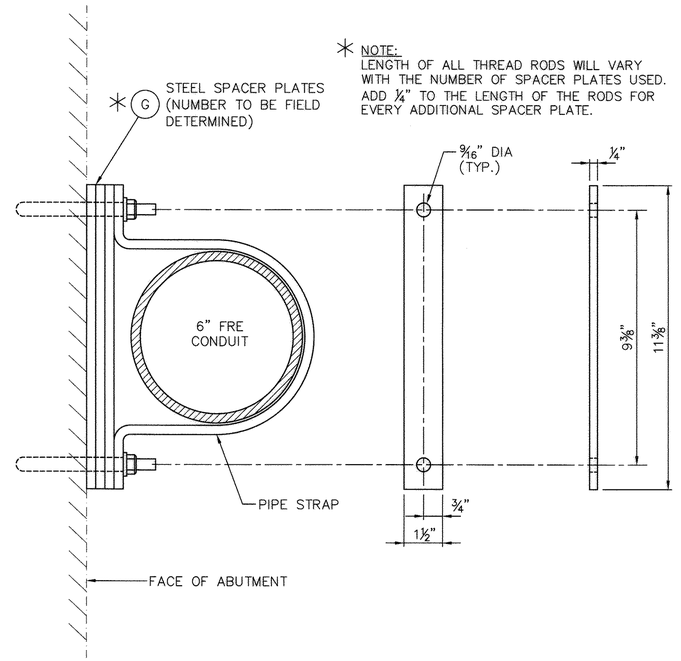
A	B	C (STROKE EACH SIDE)
60½"	48½"	6"

EXPANSION JOINT DETAIL
NOT TO SCALE

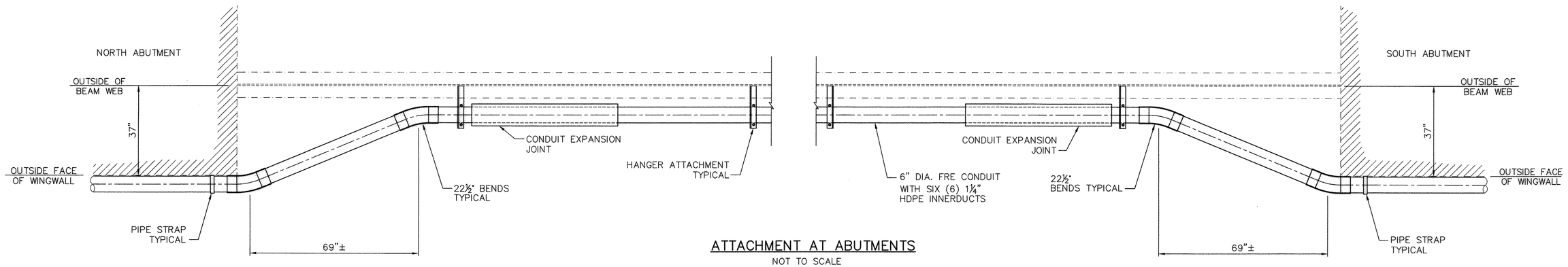


NOTE:
UNITED FIBERGLASS 6" STRAP COMES COMPLETE WITH TWO-EAR STRAP, CHISEL POINT STUDS, NUTS, WASHERS AND EPOXY CAPSULES.

PIPE STRAP DETAIL
NOT TO SCALE



SPACER PLACEMENT DETAIL
NOT TO SCALE



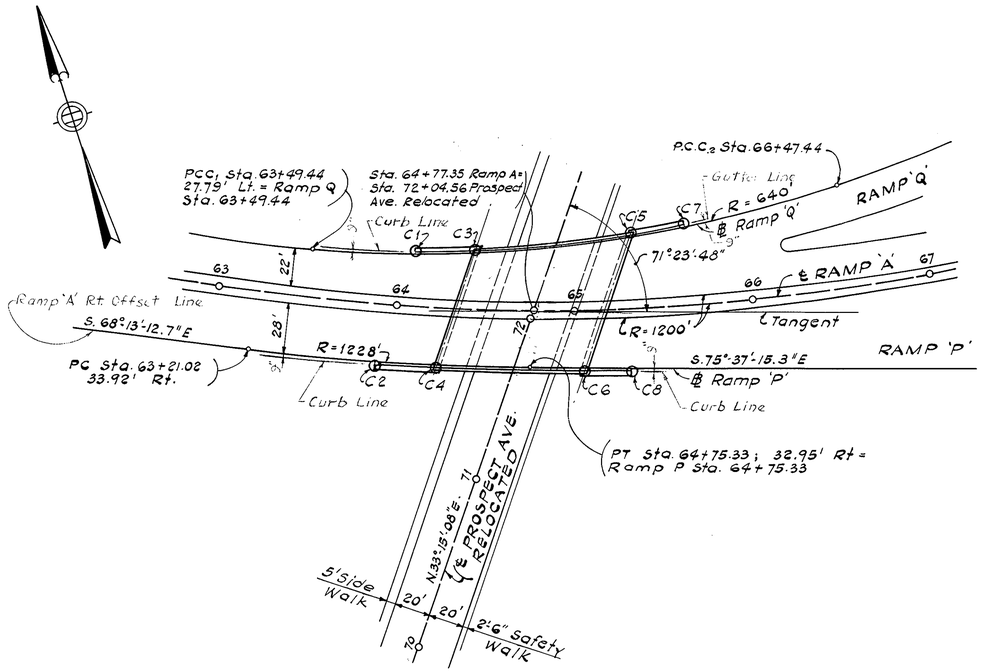
ATTACHMENT AT ABUTMENTS
NOT TO SCALE

NOTE:
HANGERS SHALL BE SPACED NO MORE THAN 10' ON CENTER TO OFFSET POTENTIAL INTERFERENCES DUE TO ANY SPLICE PLATES, INTERMEDIATE STIFFENERS AND DIAPHRAGM CONNECTION PLATES THAT MAY BE LOCATED ON EITHER SIDE OF FASCIA GIRDER WEB.

DATE	DESCRIPTION
7/31/08	
USE ONLY PRINTS OF LATEST DATE	

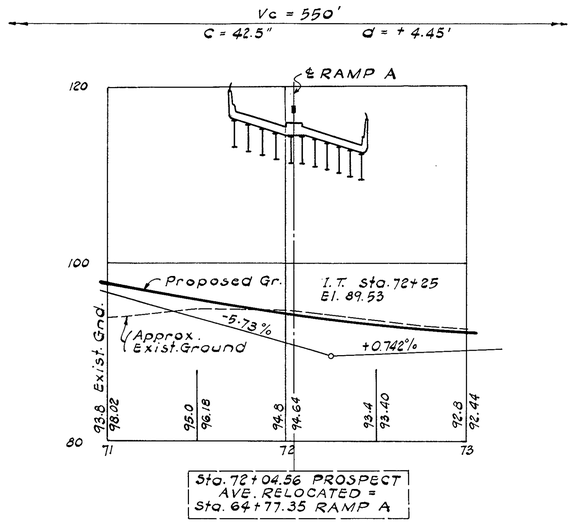
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PUB. RD. DIV. NO.	STATE	FED. AID. PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS	I-91-1(68)111	19	120	242



KEY PLAN

Scale: 1" = 40'

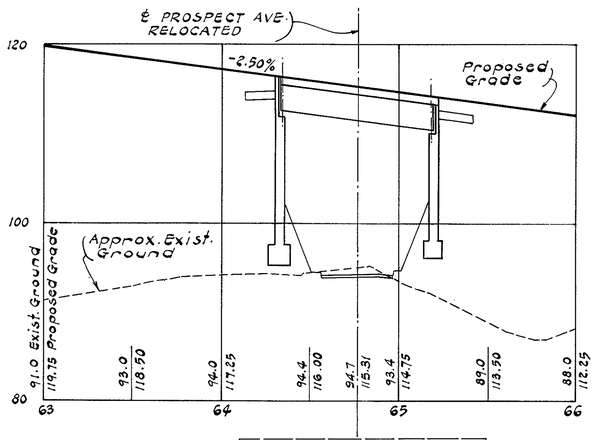


PROFILE OF PROSPECT AVE. RELOCATED

Scales: 1" = 8' Vert.; 1" = 40' Horiz.

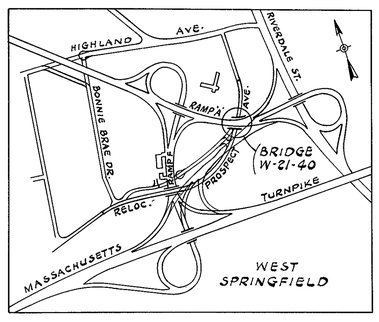
CURVE DATA

	RAMP A ℄	RAMP A MEDIAN LT. EDGE	RAMP A MEDIAN RT. EDGE	RAMP 'Q' ℄	RAMP 'A' RT. OFFSET LINE
Δ	47°-02'-35"	47°-02'-35"	47°-02'-35"	26°-40'-42"	7°24'-02.6"
R	1200	1200	1200	640	1228
T	522.31	522.31	522.31	151.75	79.42
L	985.27	985.27	985.27	298.00	158.61
PC OR PCC	59+08.00	59+12.74 ; 7.99 Lt.	59+03.28 ; 8.0' Rt.	63+49.44 ; 27.79 Lt.	63+21.02 ; 33.92 Rt.
PT OR PCC	68+93.27	69+02.34 ; 2.0' Lt.	68+84.21 ; 2.03 Rt.	66+47.44	64+75.33 ; 32.95 Rt.



PROFILE OF RAMP A

Scales: 1" = 8' Vert.; 1" = 40' Horiz.



LOCUS

Scale: 1" = 800'

BARSTOW & MULLIGAN
CONSULTING ENGINEERS
566 ATLANTIC AVE.
BOSTON, MASS.

GENERAL NOTES

DESIGN
In accordance with the current specifications of the American Association of State Highway Officials (1961 Edition) for H 20-44 Loading.

DATE AND SEAL
To be placed on the inside faces of the Northeast End Post and Southwest End Post. A Sheet showing the size and character of the numerals will be furnished. The seal will be furnished by the State and shall be set by the Contractor.

FOUNDATIONS
May be altered, if necessary, to suit conditions encountered during construction.

UNSUITABLE MATERIAL
Shall be removed within the limits of the foundations of the structure.

BRIDGE RAILINGS (1 Rail) option.
See Department Standard Metal Railing Plans, dated March 1968 for Details of Bridge Railings.

REINFORCEMENT
All bars shall have deformations conforming to A.S.T.M. designation A-305. Unless otherwise noted on the Plans, Reinforcing Bars shall be lapped 20 diameters to make a splice except that Main Reinforcing Bars near the top of the slabs and beams having more than 12 inches of concrete under the bars shall be lapped 35 diameters to make a splice.

ANCHOR BOLTS
May be set by template and placed before concrete is poured except at Abutments where drilling and grouting for anchor bolts is allowed at the Contractor's option.

SCALE
Scales noted on Plans are not applicable to reduced size prints. Divide scales by 2 for 14 size prints.

FIELD BOOK

BENCH MARK
BM-VWS-20, Left outer Corner of Concrete Platform Main Entrance to Nursing Home. El. 101.679 Mean Sea Level Datum of 1929 (U.S.C. & G.S.)

ESTIMATED QUANTITIES
(Not Guaranteed)

Class B Rock Excavation	10 C.Y.
Bridge Excavation	490 C.Y.
Gravel Borrow	1,000 C.Y.
Gravel Borrow for Bridge Foundation	790 C.Y.
Crushed Stone for Bridge Foundation	400 Ton
Class I Bituminous Concrete Pavement Type I-1	42 Ton
Class I Dense Protective Bottom Course for Bridges	42 Ton
Metal Bridge Railing (1-Rail) Option	275 L.F.
Metal Bridge Railing Type M-2	90 L.F.
Bridge Structure (No. W-21-40)	1 L.S.
Estimated Weight of Reinforcing Steel	105,200 Lb.
Estimated Weight of Structural Steel (A.S.T.M.A 36)	243,000 Lb.

These Quantities are part of Lump Sum Item 995.01 for Bridge Structure, (Bridge No. W-21-40) and are not guaranteed.

MAY 18, 1968 | ISSUED FOR CONSTRUCTION

THE COMMONWEALTH OF MASSACHUSETTS
PROPOSED BRIDGE
INTERCHANGE I 91 WITH MASS. TURNPIKE

WEST SPRINGFIELD

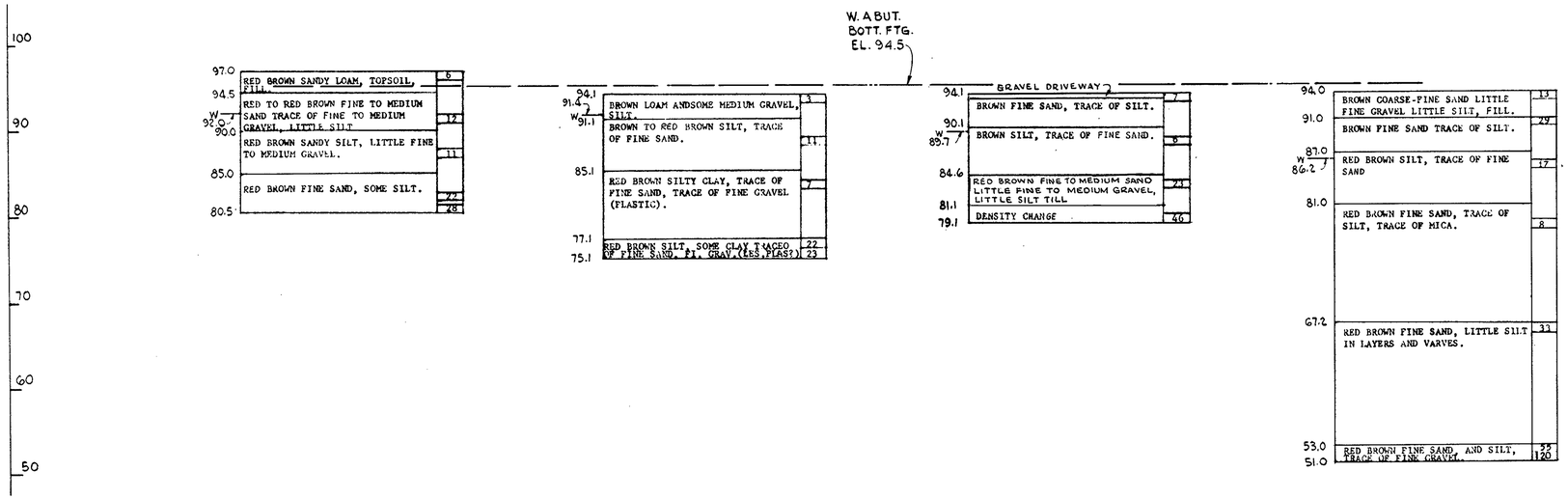
RAMP A OVER RELOCATED PROSPECT AVE.

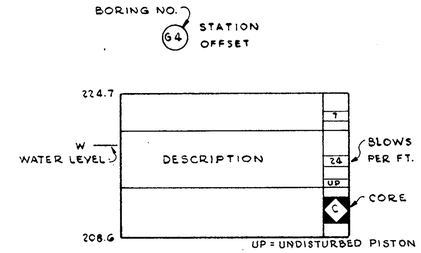
SCALES AS NOTED
OFFICE OF
DEPARTMENT OF PUBLIC WORKS
100 NASHUA ST. BOSTON, MASS

BRIDGE ENGINEER — MAY 1968 — CHIEF ENGINEER

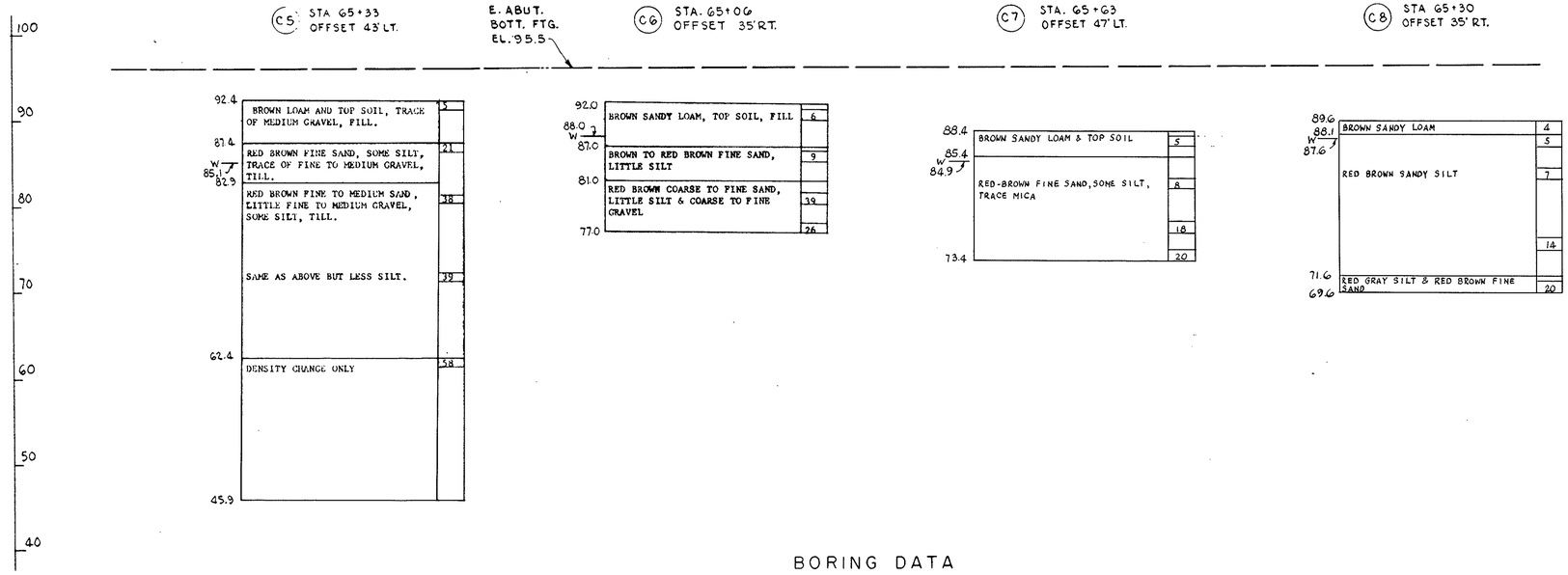
SHEET 1 OF 10 SHEETS BRIDGE NO. W-21-40

PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS	I-91-1(68)11	19	121	242





LEGEND



BORING DATA

Scale: 1"= 1'-0"

BORING NOTES

LOCATION OF BORINGS SHOWN ON BORING LOCATION PLAN, SH.1, THUS: ● C4- CONTROL BORINGS
○ C6- DESIGN BORINGS
BORINGS TAKEN FOR PURPOSE OF DESIGN AND SHOW CONDITIONS AT BORING POINTS ONLY AND DO NOT NECESSARILY SHOW NATURE OF MATERIALS TO BE ENCOUNTERED DURING CONSTRUCTION.

FIGURES IN RIGHT HAND COLUMN INDICATE BLOWS PER FOOT ON 1-3/8 INCH I.D. SAMPLER PRODUCED BY 30 INCH FALL OF 140 POUND HAMMER.

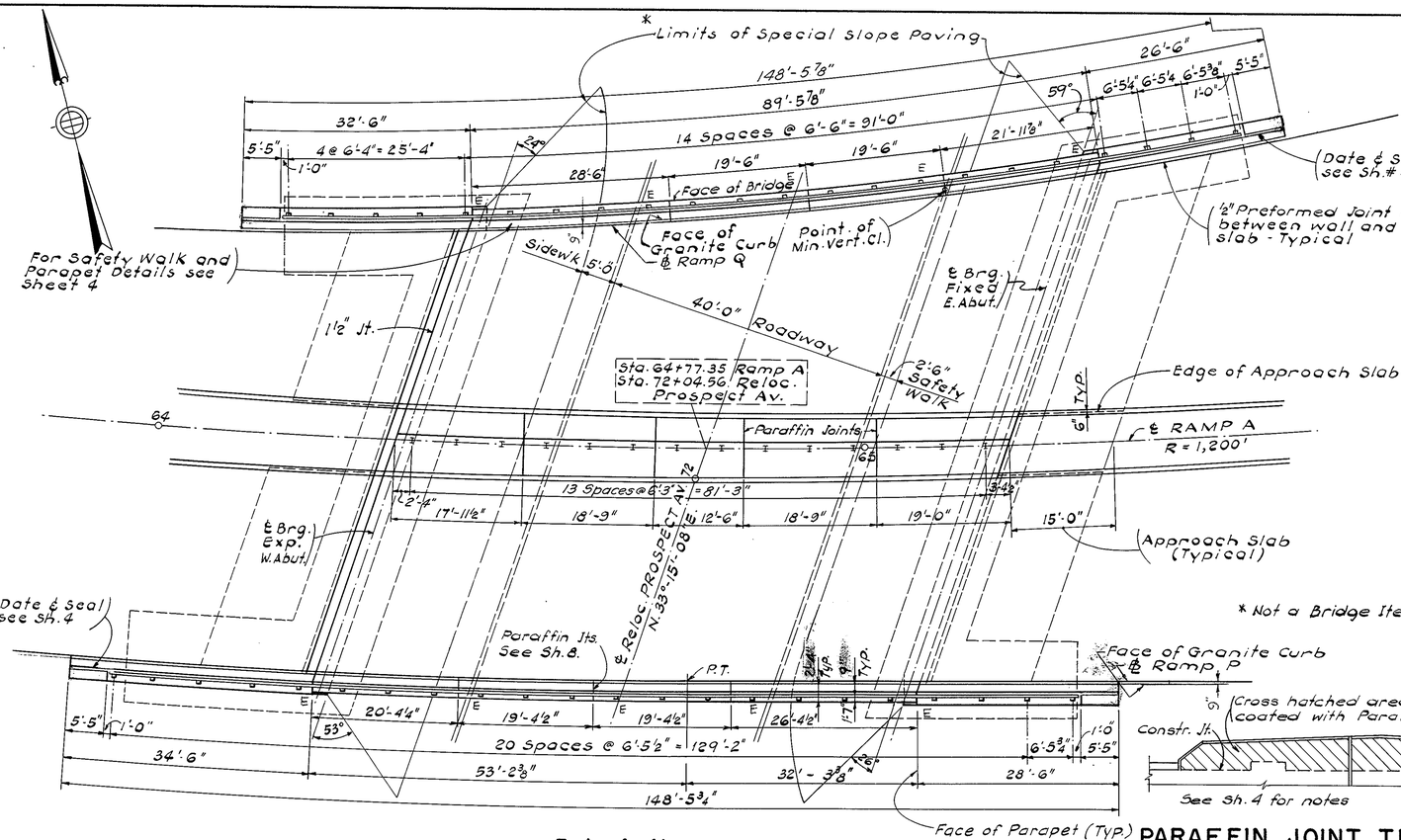
WATER LEVELS SHOWN ON THE BORING LOGS WERE OBSERVED AT THE TIME OF TAKING BORINGS AND DO NOT NECESSARILY SHOW THE TRUE GROUND WATER LEVEL.

BORING SAMPLES MAY BE SEEN AT THE RESEARCH AND MATERIALS DIVISION, 99 WORCESTER STREET, WELLESLEY HILLS (INTERSECTION OF ROUTES 9 AND 128).

ALL BORINGS WERE MADE BY AMERICAN DRILLING & BORING CO., INC. 54 WATER STREET, EAST PROVIDENCE, R. I. DURING JUNE 1966.

DATE	DESCRIPTION
MAY 18,1968	ISSUED FOR CONSTRUCTION
USE ONLY PRINTS OF LATEST DATE	

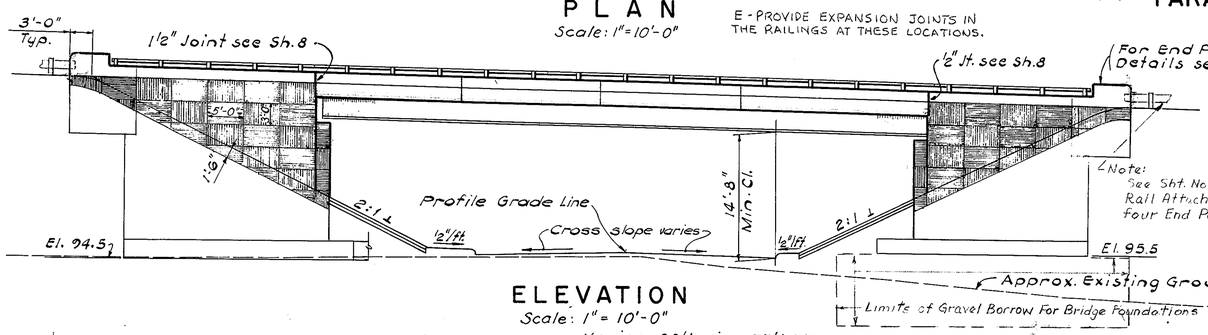
PUB. RD DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	I-91-1(68)11	19	122	242



PLAN

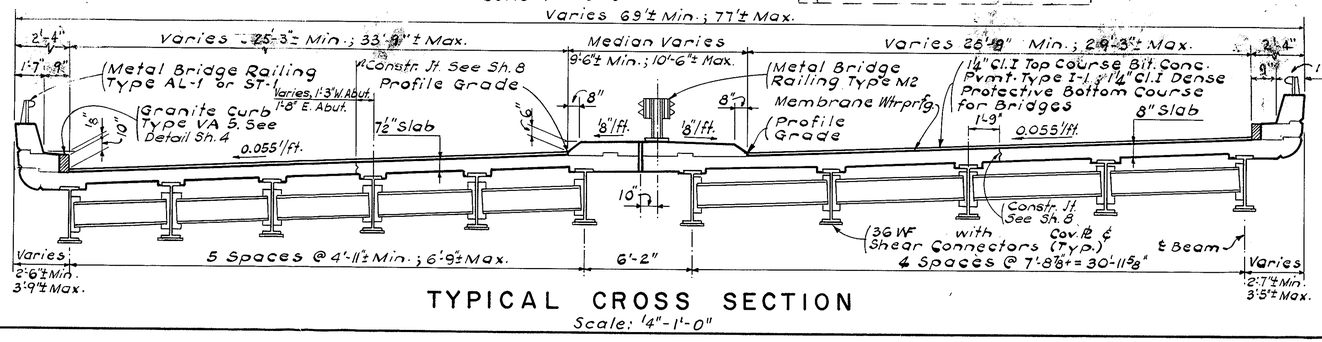
Scale: 1" = 10'-0"

E - PROVIDE EXPANSION JOINTS IN THE RAILINGS AT THESE LOCATIONS.



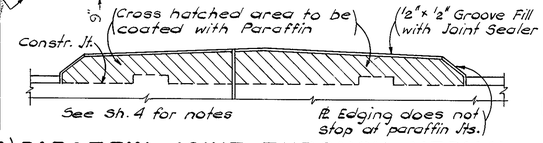
ELEVATION

Scale: 1" = 10'-0"



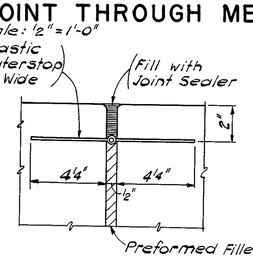
TYPICAL CROSS SECTION

Scale: 1/4" - 1'-0"



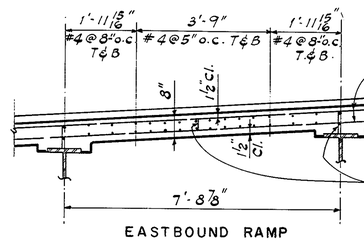
PARAFFIN JOINT THROUGH MEDIAN

Scale: 1/2" = 1'-0"



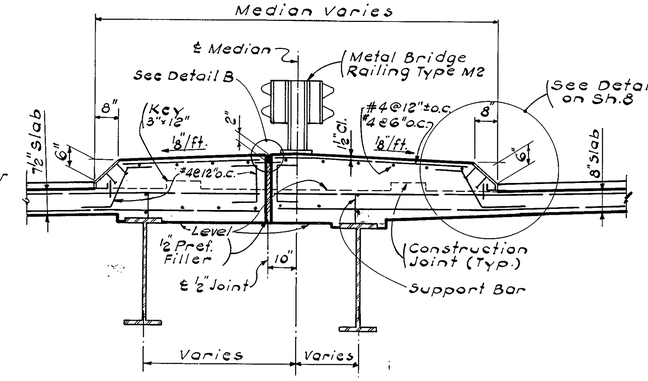
DETAIL B

Scale: 3" = 1'-0"



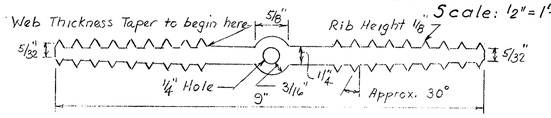
TYPICAL SLAB REINFORCEMENT

Scale: 1/2" = 1'-0"



MEDIAN DETAILS

Scale: 1/2" = 1'-0"

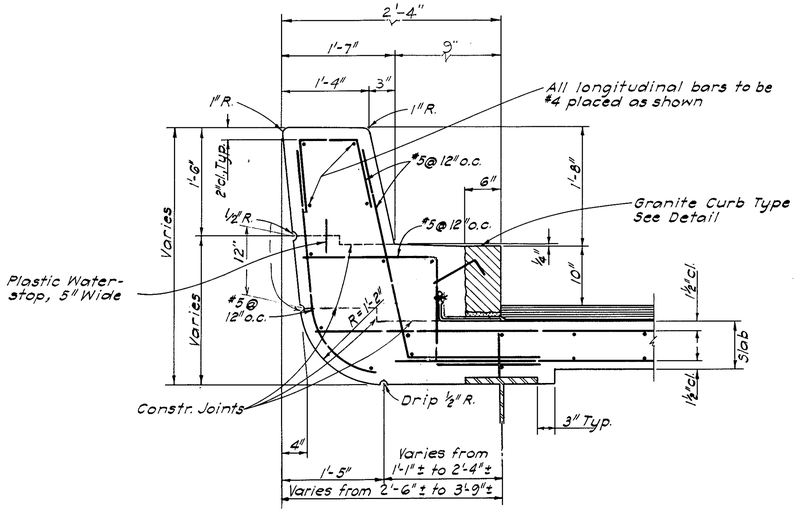


9" WATERSTOP

No Scale

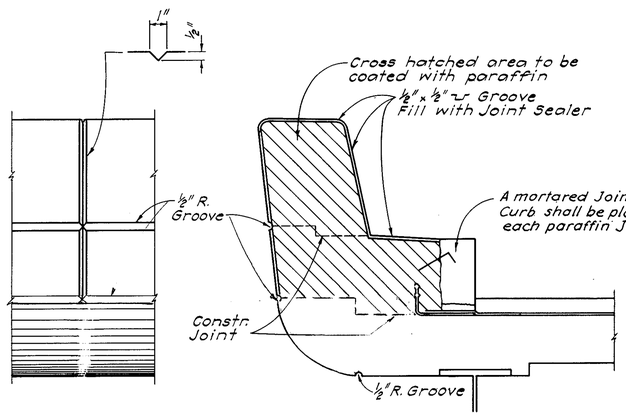
DATE	DESCRIPTION
MAY 18, 1968	ISSUED FOR CONSTRUCTION
USE ONLY PRINTS OF LATEST DATE	

PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS	I-91-1(68)11	19	123	242



SAFETY CURB DETAIL

Scale: 1" = 1'-0"

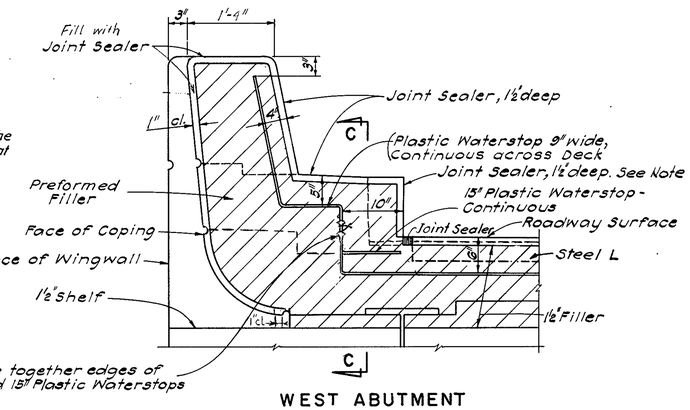


PARAFFIN JOINT THROUGH COPING AND SAFETY WALK (See Sh. 3 for Median)

Scale: 1" = 1'-0"

Notes:

1. Median, walk and coping shall be poured in alternate sections and shall have a curing period of not less than 5 days between pours.
2. For location of Paraffin Joints see Sh. 3
3. End of bars to be 2" clear of joint.
4. Do not carry longitudinal bars in safety walk, median and coping through the joints.
5. Joint sealer to be same color as concrete.
6. Joint to be square to face of curb.
7. Joint in curb shall be mortared no sooner than 5 days after concrete in sidewalk has been poured.



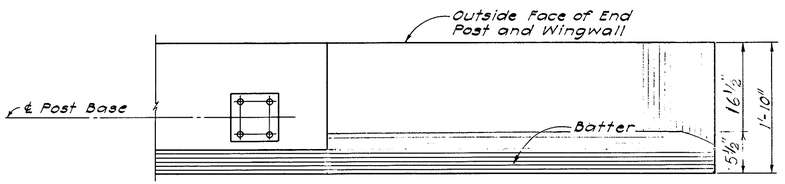
WEST ABUTMENT

DETAILS OF SAFETY CURB AT DECK JOINT

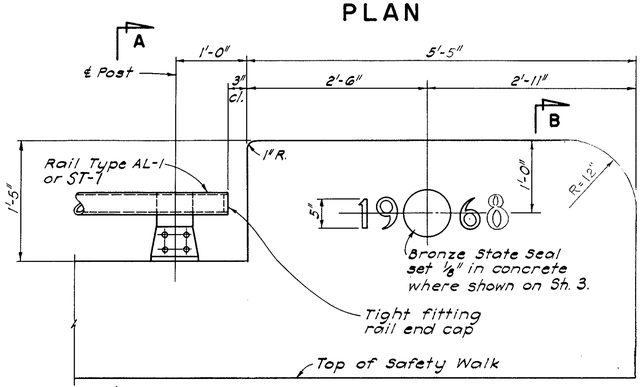
Scale: 1" = 1'-0"

Note:

Joint Sealer to be same color as concrete.



PLAN



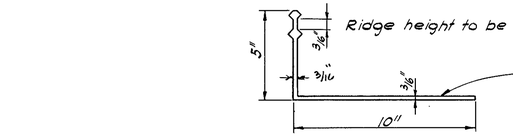
ELEVATION

END POST DETAIL

Scale: 1" = 1'-0"

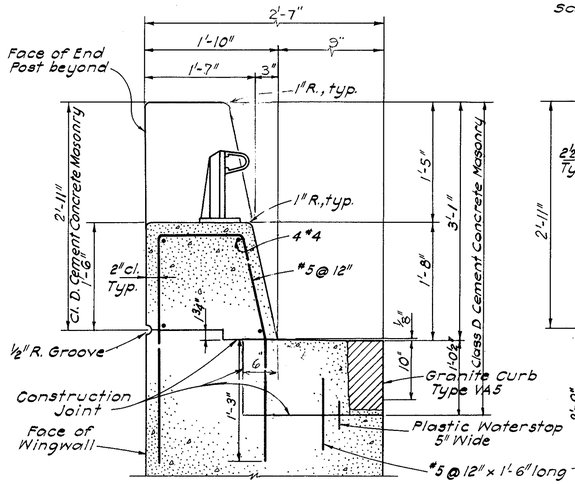
Note: Railing anchor bolts to be set by template and placed before concrete is poured.

Note:
See Sht. No. 6 for Guard Rail Attachment to all four End Posts.



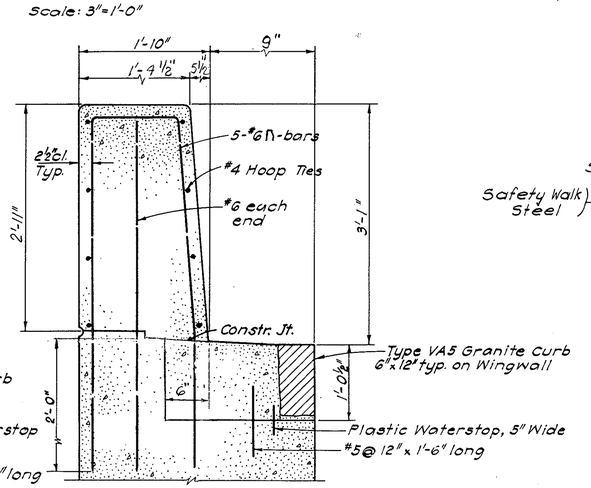
PLASTIC WATER STOP

Scale: 3" = 1'-0"



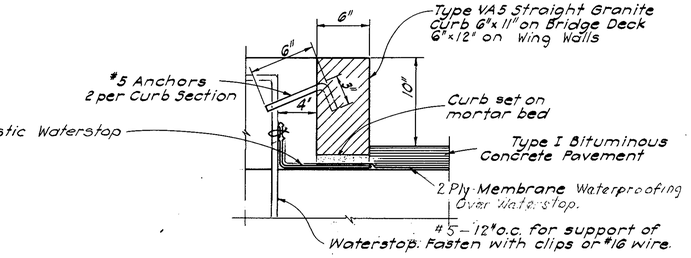
SECTION A-A

Scale: 1" = 1'-0"



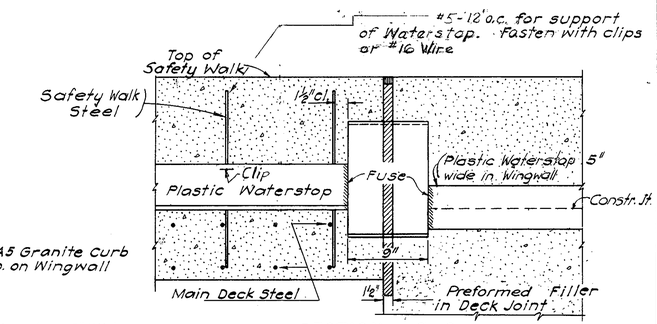
SECTION B-B

Scale: 1" = 1'-0"



DETAIL AT CURB

Scale: 1½" = 1'-0"

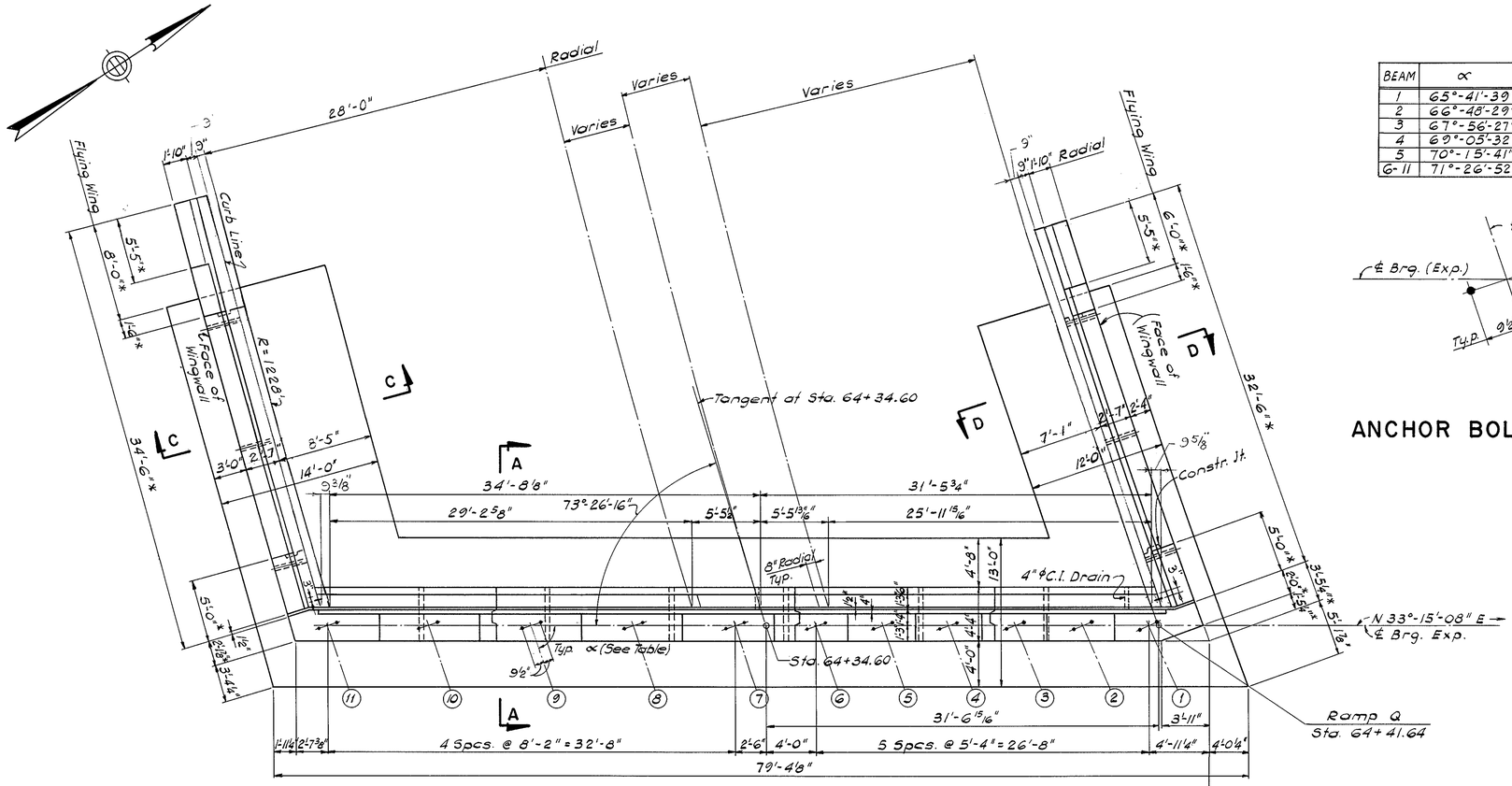


SECTION C-C

Scale: 1½" = 1'-0"

DATE	DESCRIPTION
MAY 18, 1968	ISSUED FOR CONSTRUCTION
USE ONLY PRINTS OF LATEST DATE	

PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	I-91-1(68)111	19	121	242

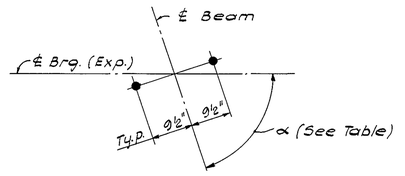


PLAN

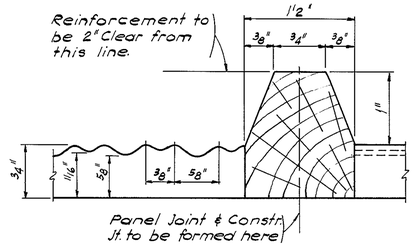
Scale: 3/16" = 1'-0"

* Measured Along Face of Wingwall

BEAM	∝
1	65°-41'-39"
2	66°-48'-29"
3	67°-56'-27"
4	69°-05'-32"
5	70°-15'-41"
6-11	71°-26'-52"

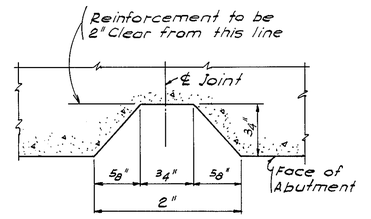


ANCHOR BOLT LAYOUT



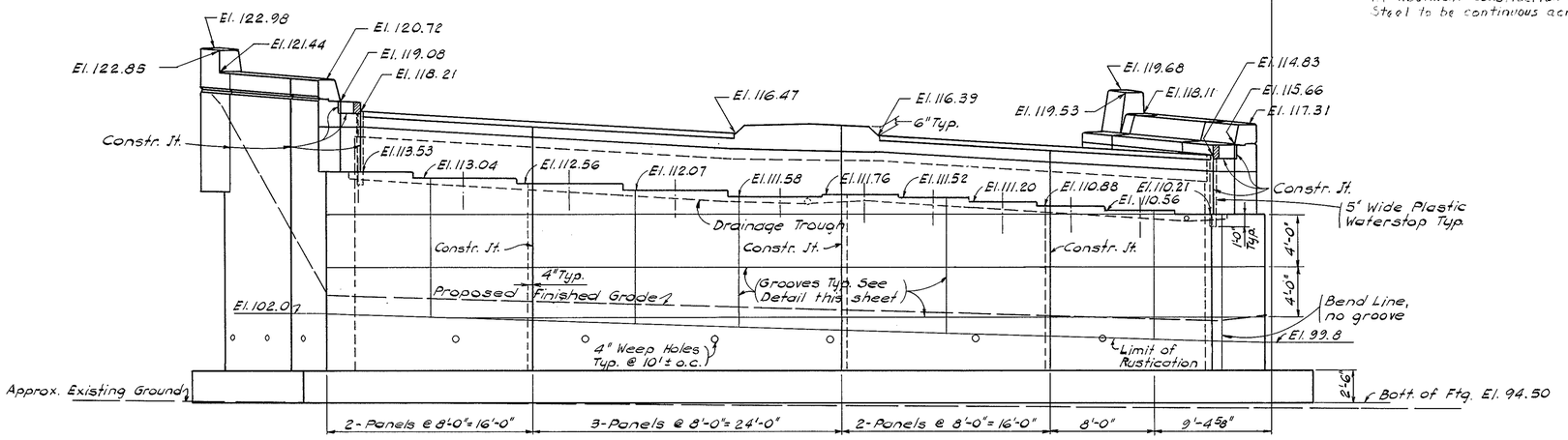
STRIATION DETAIL

Scale: Full Size



FACE OF ABUTMENT RUSTICATION

HORIZONTAL AND VERTICAL GROOVE DETAIL



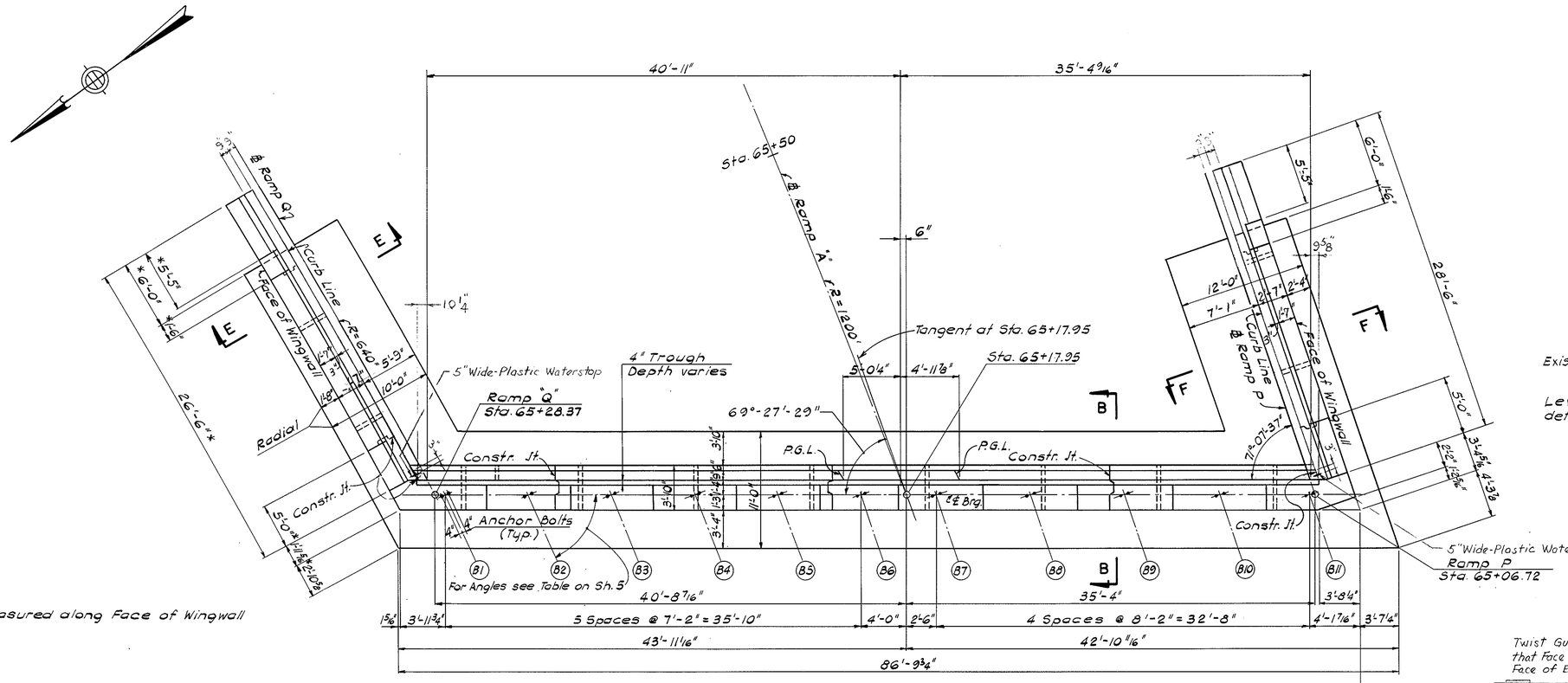
ELEVATION - WEST ABUTMENT

Scale: 3/16" = 1'-0"

Note:
At Abutment Construction Joints, Reinforcing Steel to be continuous across Joint.

DATE	DESCRIPTION
MAY 18, 1968	ISSUED FOR CONSTRUCTION
USE ONLY PRINTS OF LATEST DATE	

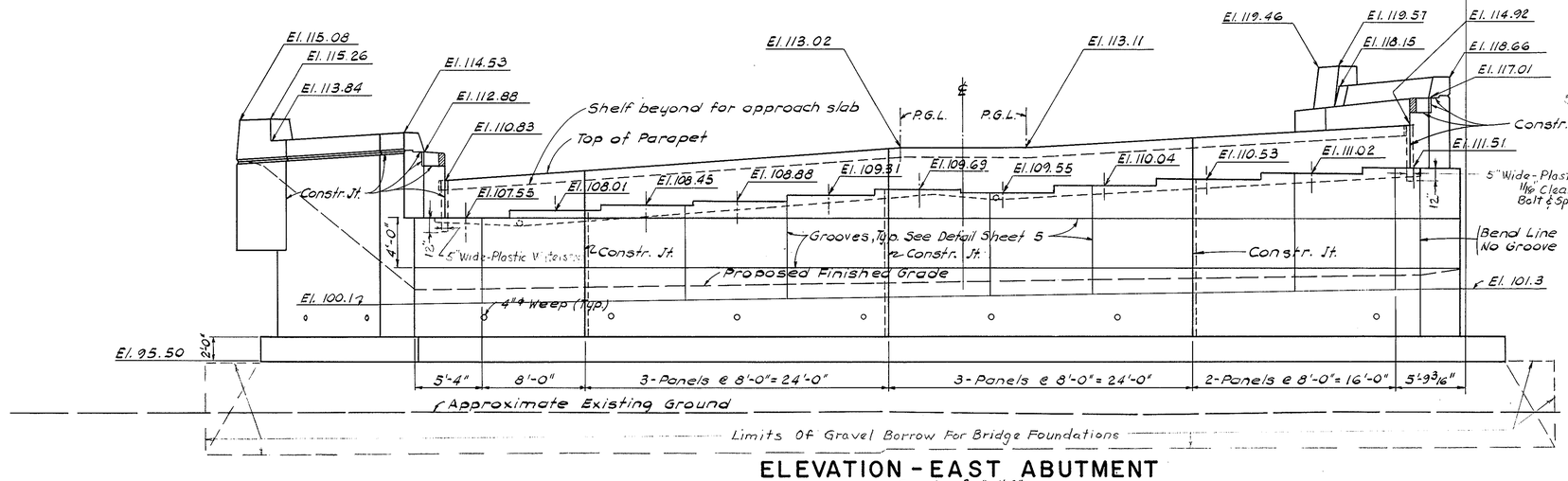
PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	I-91-1(68)11	19	125	242



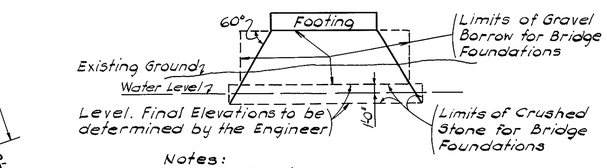
* Measured along Face of Wingwall

Note:
At Abutment Construction Joints Reinforcing Steel to be continuous across Joint.

PLAN
Scale: 3/16"=1'-0"

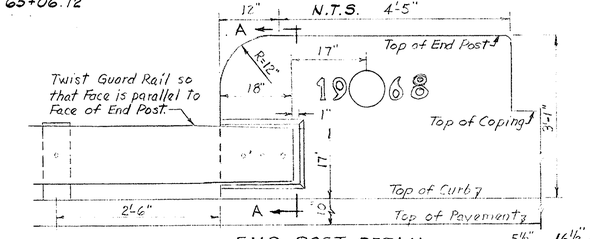


ELEVATION - EAST ABUTMENT
Scale: 3/16"=1'-0"

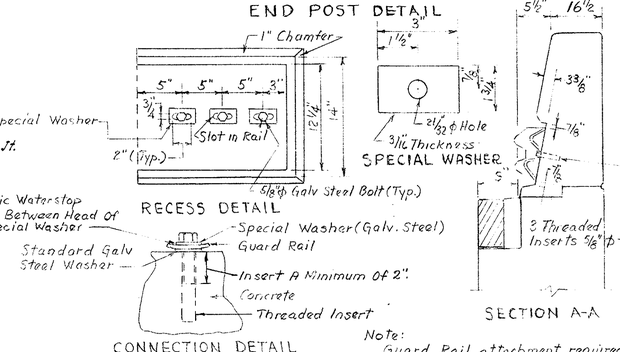


Notes:
Same Treatment to be used at ends.
Unsuitable material to be removed before Gravel Borrow is placed.

CRUSHED STONE AND GRAVEL BORROW FOR BRIDGE FOUNDATION



END POST DETAIL



Note:
Guard Rail attachment required at all four End Posts.

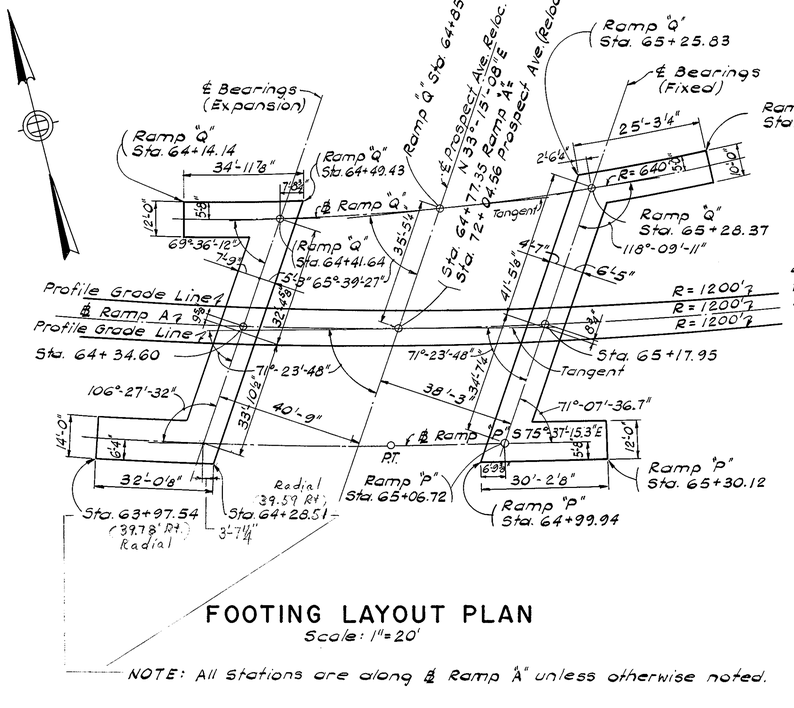
GUARD RAIL ATTACHMENT DETAIL
No Scale

Note
Galvanizing Shall Conform To A.S.T.M. A 153.
Bolts and Washers Shall Conform To A.S.T.M. A 307.

DATE	DESCRIPTION
MAY 18, 1968	ISSUED FOR CONSTRUCTION
USE ONLY PRINTS OF LATEST DATE	

SHEET 6 OF 10 SHEETS BRIDGE NO. W-21-40

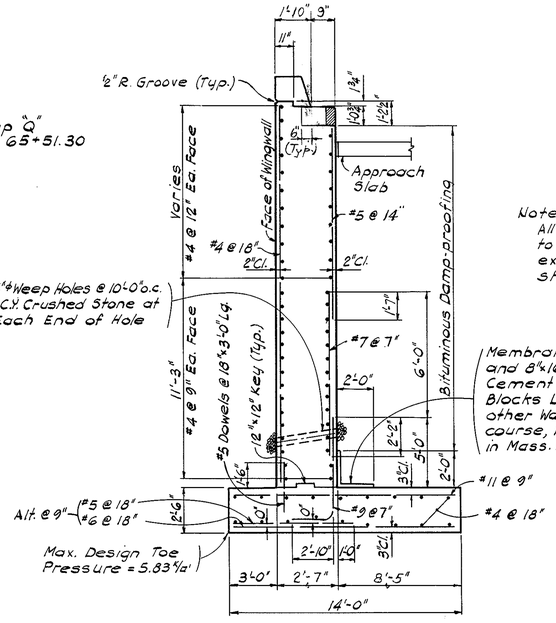
PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
I	MASS.	I-91-1(68)11	19	126	242



FOOTING LAYOUT PLAN

Scale: 1" = 20'

NOTE: All Stations are along ℄ Ramp "A" unless otherwise noted.

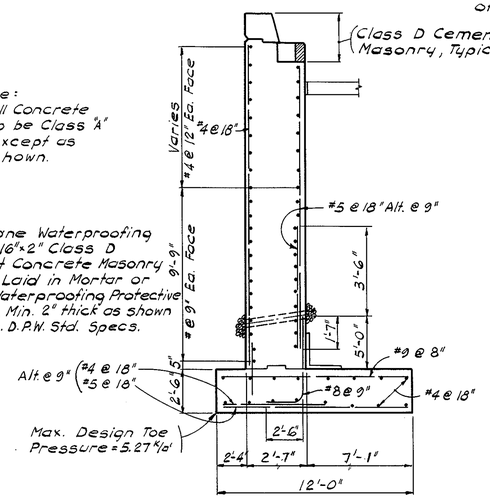


SECTION C-C

Scale: 1/4" = 1'-0"

Note: All Concrete to be Class "A" except as shown.

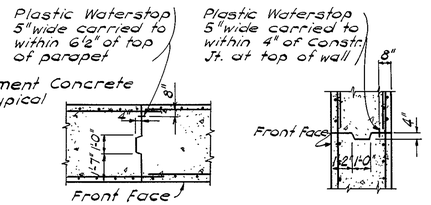
Membrane Waterproofing and 8"x16"x2" Class D Cement Concrete Masonry Blocks Laid in Mortar or other Waterproofing Protective course, Min. 2" thick as shown in Mass. D.P.W. Std. Specs.



SECTION D-D

Scale: 1/4" = 1'-0"

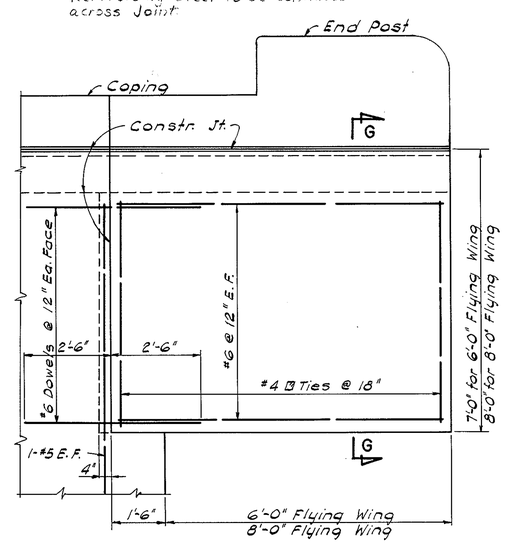
For Dimensions and Notes not shown see Sec. C-C.



CONSTRUCTION JOINT DETAIL

Scale: 1/4" = 1'-0"

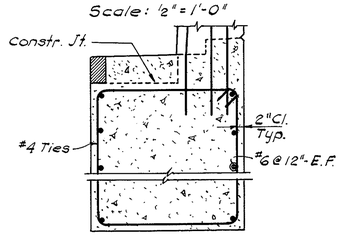
Note: Reinforcing Steel to be continous across Joint.



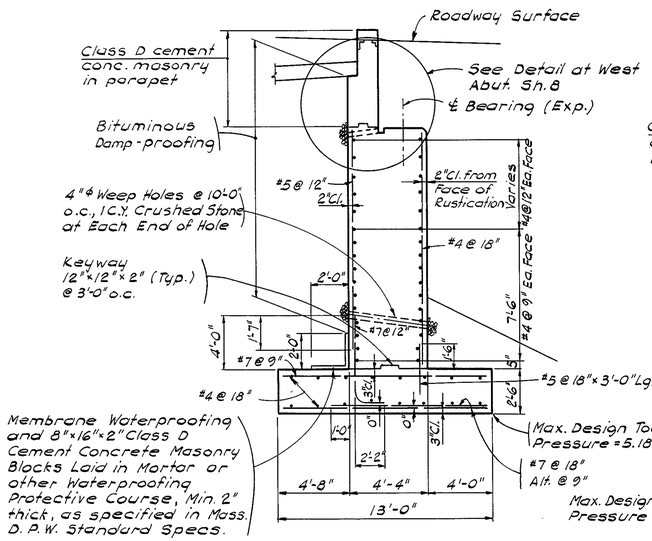
NOTE: Fill shall be placed and thoroughly compacted to the grade of the bottom of the Wings.

FLYING WING FOR WINGWALLS

Scale: 1/2" = 1'-0"

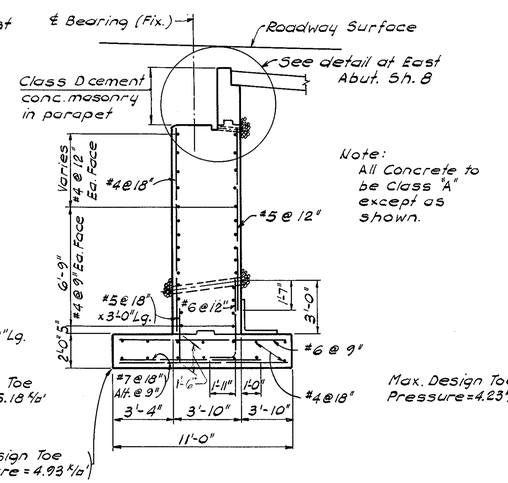


SECTION G-G



SECTION A-A

Scale: 1/4" = 1'-0"

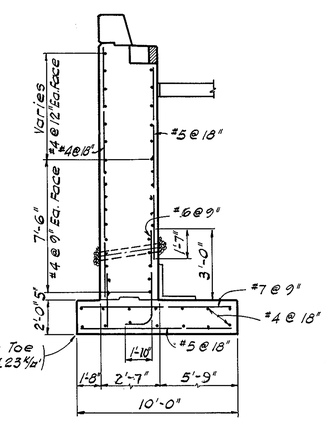


Note: All Concrete to be Class "A" except as shown.

SECTION B-B

Scale: 1/4" = 1'-0"

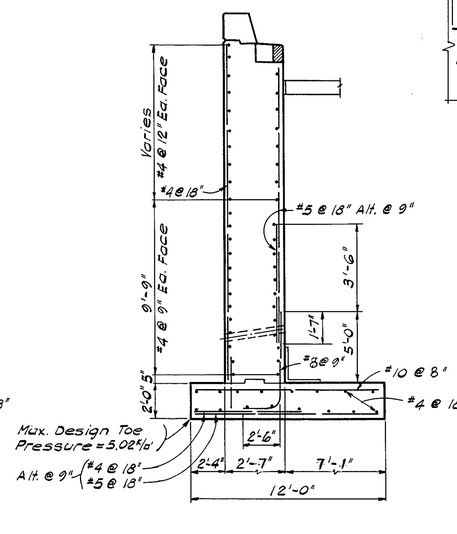
For Dimensions and Notes not shown See Sec. A-A



SECTION E-E

Scale: 1/4" = 1'-0"

For Dimensions and Notes not shown See Sec. C-C.



SECTION F-F

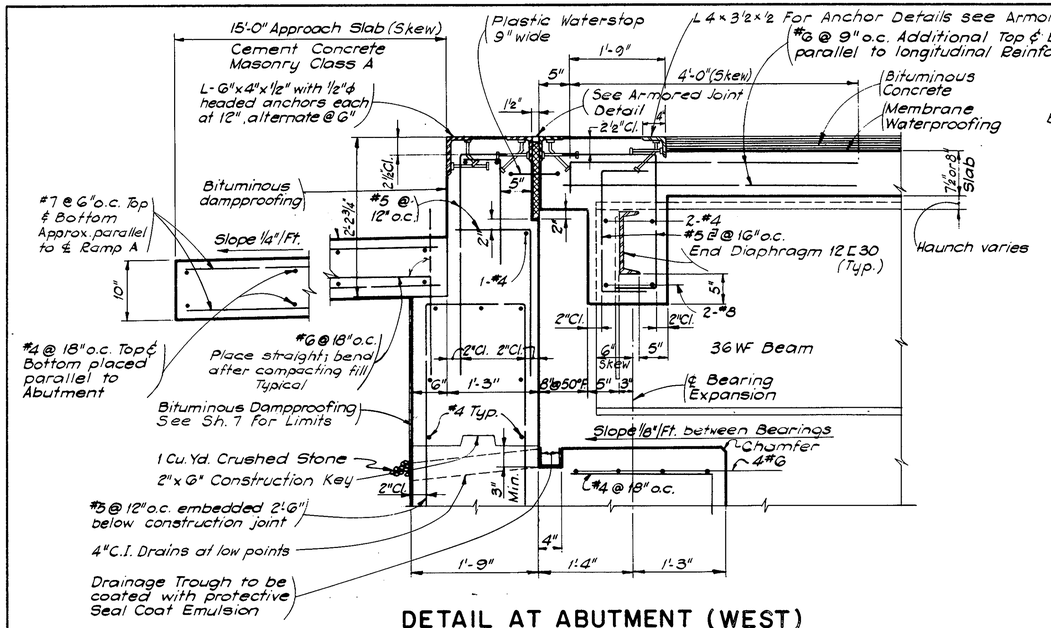
Scale: 1/4" = 1'-0"

For Dimensions and Notes not shown See Sec. C-C

DATE	DESCRIPTION
MAY 18, 1968	ISSUED FOR CONSTRUCTION
USE ONLY PRINTS OF LATEST DATE	

SHEET 7 OF 10 SHEETS BRIDGE NO. W-21-40

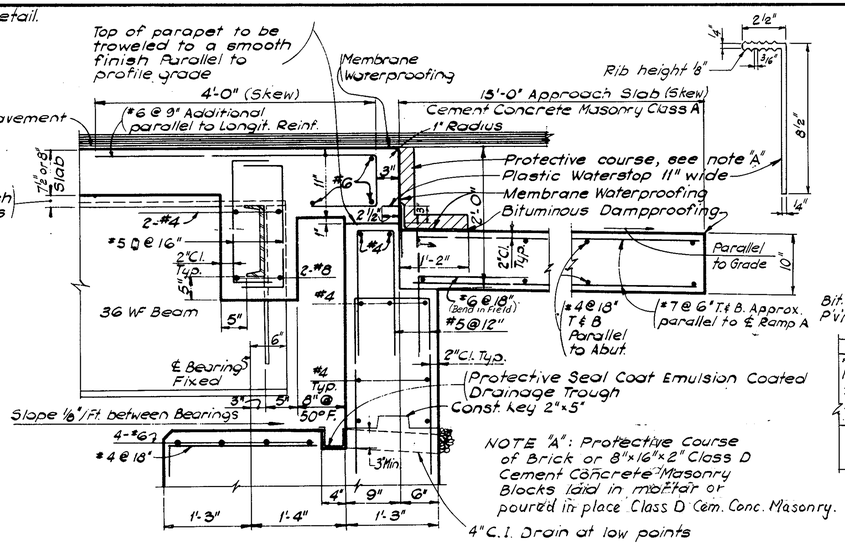
PUB RD DIV NO	STATE	FED AID PROJ. NO	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS	I-91-1(68)111	19	127	242



DETAIL AT ABUTMENT (WEST)

Scale: 1" = 1'-0"

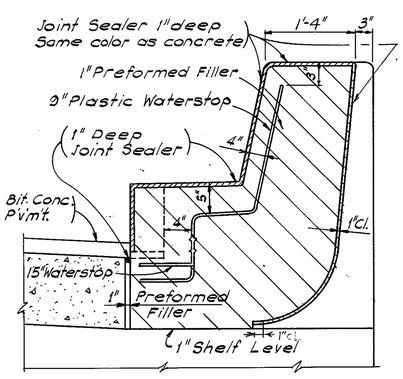
Note: All dimensions shown are square distances exept as noted.
For Abutment details see sheets 5, 6 & 7



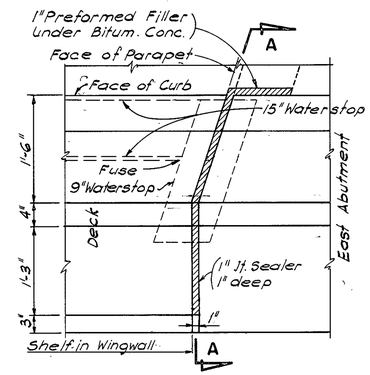
NOTE "A": Protective Course of Brick or 8" x 16" x 2" Class D Cement Concrete Masonry Blocks laid in mortar or poured in place Class D Cem. Conc. Masonry.

DETAIL AT ABUTMENT (EAST)

Scale: 1" = 1'-0"

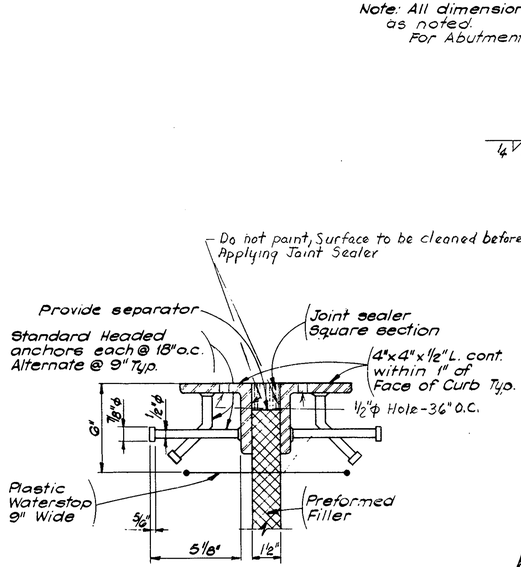


SECTION A-A



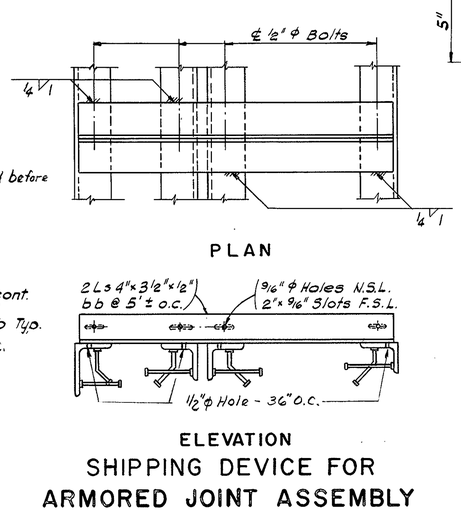
PLAN

EAST ABUTMENT DETAILS OF JOINT AT SAFETY WALK



ARMORED JOINT DETAIL

Scale: 3" = 1'-0"



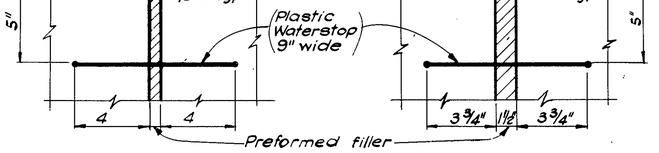
PLAN

ELEVATION

SHIPPING DEVICE FOR ARMORED JOINT ASSEMBLY

Scale: 1/2" = 1'-0"

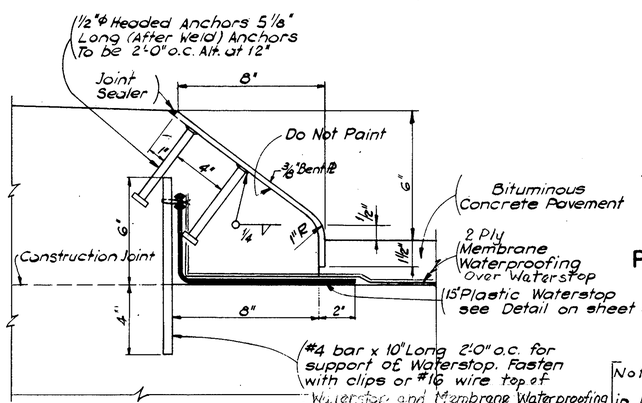
Notes:
(A) All Armored Joint Assemblies must be properly fitted in shop and shipped with device for maintaining proper spacing and fit.
(B) Bolts on shipping device must be loosened within one hour after concrete is placed so that movement may take place. Device shall be removed after concrete has set on both sides of assembly.
(C) Grind Armored Joint Surface to a smooth finish after removal of shipping device.
(D) All exposed surfaces of joint shall be field painted after grinding.



AT ABUTMENT (EAST) AT ABUTMENT (WEST)

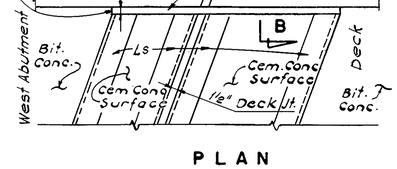
SAFETY WALK JOINTS

Scale: 3" = 1'-0"
(Transverse Joints in Median Similar)

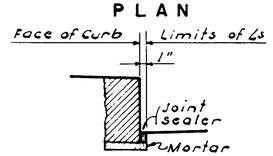


DETAIL A

Scale: 3" = 1'-0"



PLAN



SECTION B-B
WEST ABUTMENT

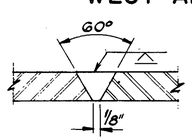
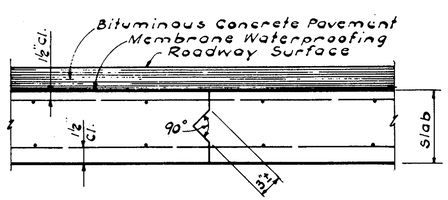


PLATE SPLICE

Scale: Full Size

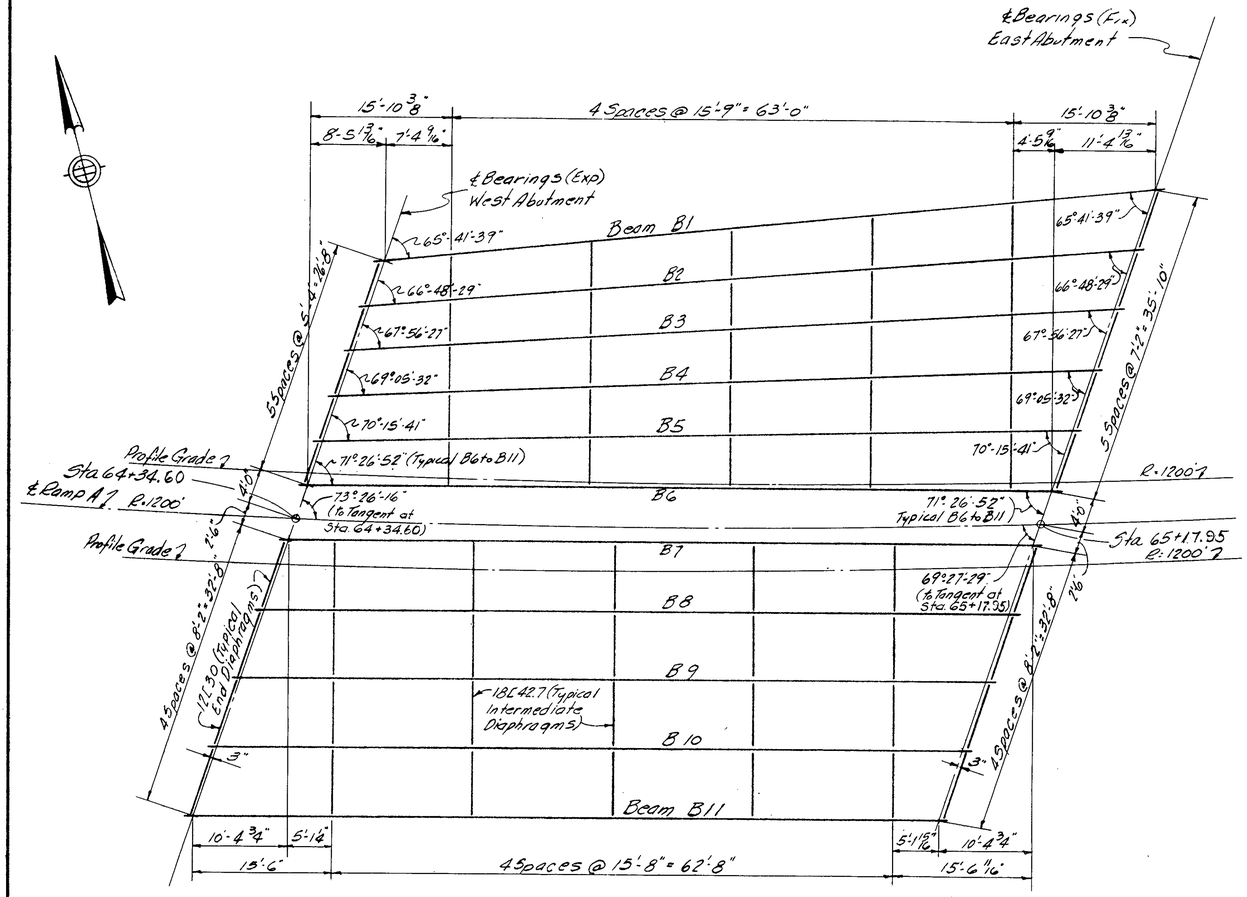


LONGITUDINAL CONSTRUCTION JOINT DETAILS IN SLAB

Scale: 1/2" = 1'-0"

Note: Longitudinal Construction Joints in Bridge Deck slabs may be omitted when the Contractor's proposed method of construction is approved by the Engineer in writing.

DATE	DESCRIPTION
MAY 18, 1968	ISSUED FOR CONSTRUCTION
USE ONLY PRINTS OF LATEST DATE	



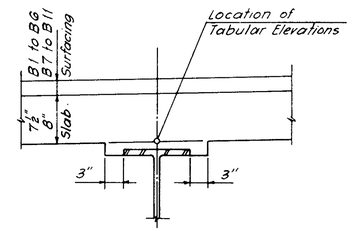
FRAMING PLAN
Scale: 16" = 1'-0"

TOP OF FORM ELEVATIONS FOR DECK SLAB PRIOR TO PLACEMENT OF CONCRETE

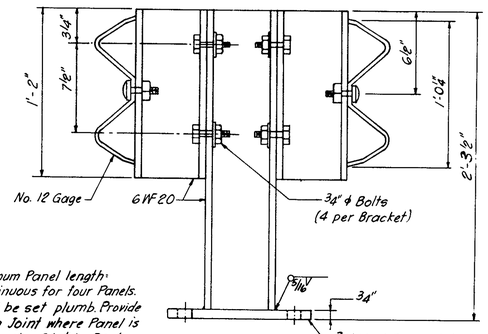
BEAM No*	℄ BRG	⅛ PT	¼ PT	⅜ PT	½ PT	⅝ PT	¾ PT	⅞ PT	℄ BRG
B1	113.39	113.72	113.44	113.14	112.81	112.47	112.09	111.71	111.31
B2	114.31	114.05	113.79	113.50	113.19	112.86	112.50	112.13	111.74
B3	114.63	114.39	114.13	113.86	113.56	113.24	112.90	112.54	112.18
B4	114.95	114.72	114.48	114.22	113.93	113.63	113.30	112.96	112.61
B5	115.27	115.05	114.82	114.58	114.31	114.02	113.71	113.38	113.04
B6	115.50	115.32	115.11	114.89	114.65	114.37	114.07	113.75	113.41
B7	115.36	115.17	114.98	114.75	114.51	114.24	113.94	113.63	113.31
B8	115.85	115.65	115.45	115.23	114.98	114.71	114.42	114.12	113.80
B9	116.34	116.14	115.94	115.72	115.47	115.21	114.92	114.61	114.29
B10	116.83	116.63	116.43	116.21	115.96	115.70	115.41	115.10	114.78
B11	117.31	117.12	116.92	116.70	116.46	116.19	115.90	115.59	115.27

* Stations increase left to right

Note:
1. After the Structural Steel is erected but before the forms are built, Elevations on the top of the flange of the beams are to be obtained at the points indicated in the Table. The difference between the Elevation obtained and those shown in the Table gives the actual blocking distance from the top of beam to the bottom of slab at center line of beam. See Haunch Detail.
2. The elevations shown assume that only Dead Load Deflection due to the structural steel weight has occured.

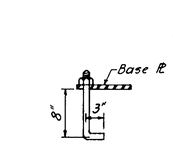


HAUNCH DETAIL

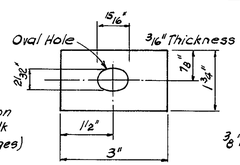


Notes:
Maximum Panel length 6'-3" continuous for four Panels. Post shall be set plumb. Provide Expansion Joint where Panel is over Expansion Joint in Deck.

ELEVATION OF RAILING
Scale: 1" = 0'-6"

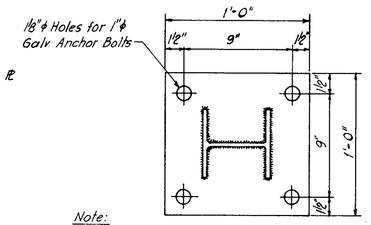


ANCHOR BOLT DETAIL
Scale: 1" = 1'-0"



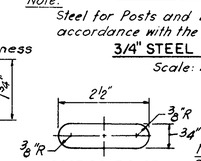
Rail Washer to be placed between rail and rail bolt head

RAIL WASHER
Scale: ½ F.S.

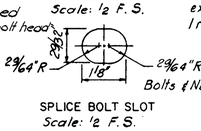


Note:
Steel for Posts and Base Plates to be in accordance with the provisions of A.S.T.M. A-36

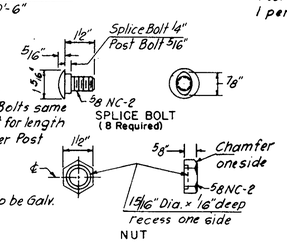
3/4" STEEL BASE PLATE
Scale: 1" = 0'-6"



POST BOLT SLOT
Scale: ½ F.S.



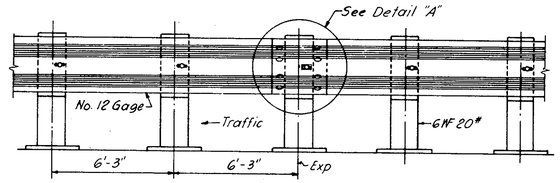
SPLICE BOLT SLOT
Scale: ½ F.S.



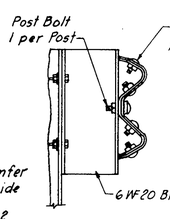
Note:
Post Bolts same except for length 1 req. per Post

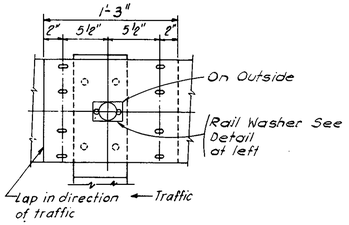
Bolts & Nuts to be Galv.

DETAIL A



ELEVATION OF RAILING
Scale: ¾" = 1'-0"



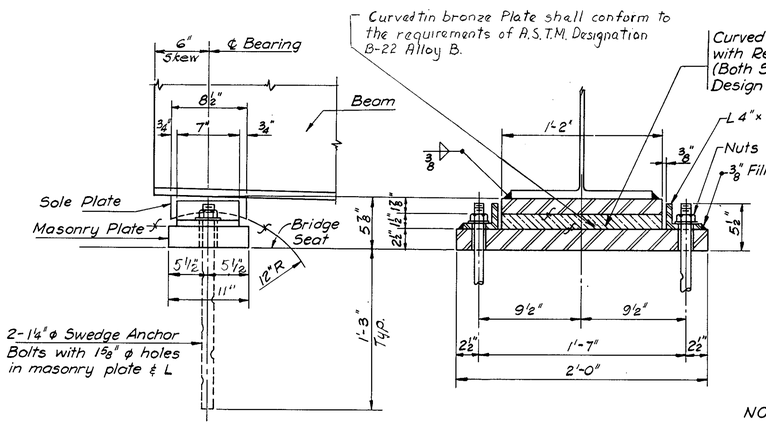


RAIL SPLICE
Scale: 1½" = 1'-0"

METAL BRIDGE RAILING TYPE M-2

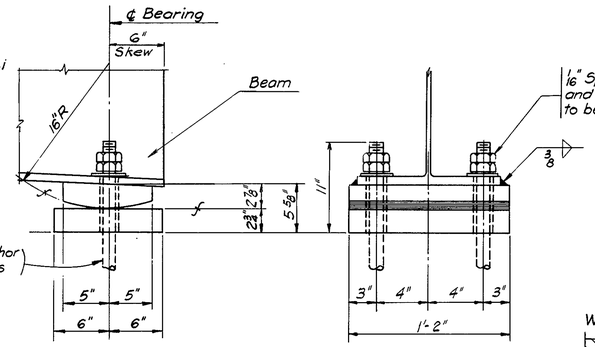
MAY 18, 1968	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
I	MASS	I-91-1(68)11	19	129	242



EXPANSION BEARING

Scale: 1½" = 1'-0"

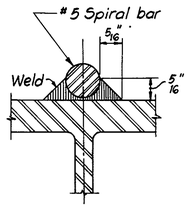


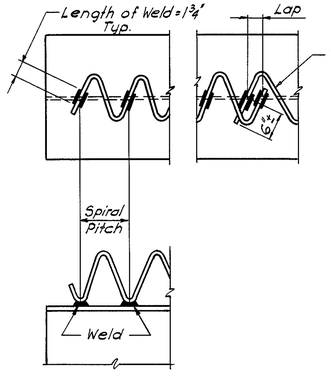
FIXED BEARING

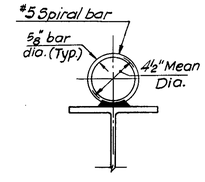
Scale: 1½" = 1'-0"

NOTES: Nuts Bolts and washers to be Galvanized.
Masonry plate shall have full and level bearing before placing the Stringers on the Bearing Assembly.

The finished surfaces shall meet the American Standards Association Surface roughness requirements defined in ASA B 46-1 Surface roughness, waviness and lay, Part I.
f = ASA 125 Micro-inches or finer.
Bevel Washers and Sole Plates as Reqd by Profile

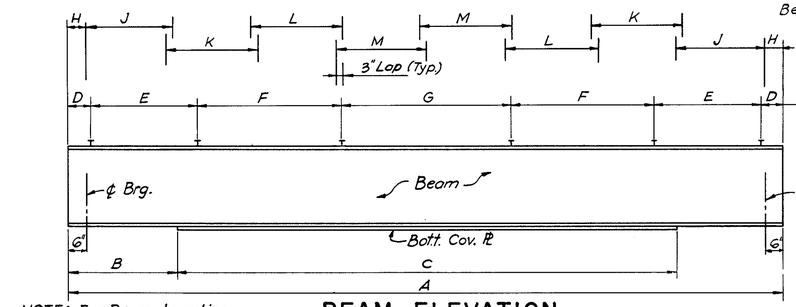






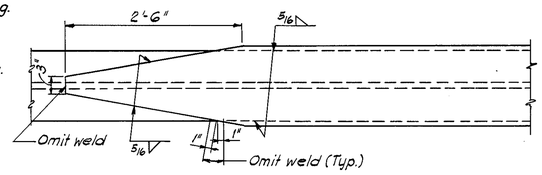
SPIRAL SHEAR CONNECTORS

Not to Scale.



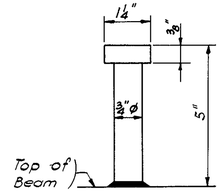
NOTE: For Beam Location See Framing Plan.

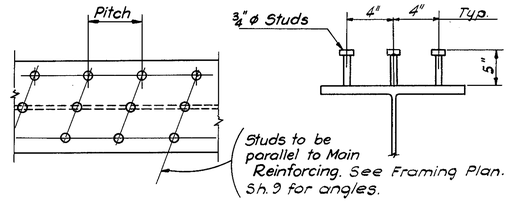
BEAM ELEVATION



COVER PLATE DETAILS

NOTES: a) Preparation of material for welding shall conform to Art. 402 AWS D2.0-66 Edition & Addenda
b) Assembly of material for welding shall conform to Art. 403 AWS D2.0-66 Edition & Addenda.



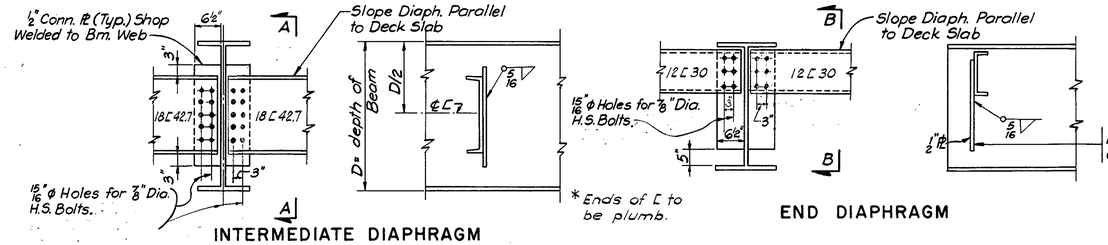


STUD SHEAR CONNECTORS

NOTE: ⅞" Diameter studs may be substituted for ¾" Diameter studs by providing an equivalent cross-sectional area and adjusting the pitch accordingly with a max. pitch of 18".
Shear connectors shall be either spirals or studs at the option of the Contractor.

SPAN	BEAM NO.	SIZE	C. to C. BEARINGS	BOTT. COV. PL	DIMENSIONS A	DIMENSIONS B	DIMENSIONS C	SHEAR CONNECTOR SPACING STUDS (¾"ϕ) D	STUDS E	STUDS F	STUDS G	SPIRALS H	SPIRALS J	SPIRALS K	SPIRALS L	SPIRALS M
1	B1	36WF194	86'-8 3/16"	15"x⅞"	87'-8 3/16"	10'-10 5/8"	66'-0"	5 1/8"	15 Sps@11"=13'-9"	8 Sps@16"=10'-8"	19 Sps@24"=38'-0"	4 5/8"	20 Sps@6"=10'-0"	17 Sps@8"=11'-4"	11 Sps@12"=11'-0"	9 Sps@16"=12'-0"
	B2	36WF170	85'-11 5/16"	15"x1 5/16"	86'-11 5/16"	9'-11 5/8"	68'-0"	3 5/8"	14 Sps@11"=12'-10"	10 Sps@16"=13'-4"	17 Sps@24"=34'-0"	4 1/8"	20 Sps@6"=10'-0"	18 Sps@8"=12'-0"	10 Sps@12"=10'-0"	9 Sps@16"=12'-0"
	B3	36WF170	85'-2 7/8"	15"x1 7/16"	86'-2 7/8"	9'-10 7/16"	66'-6"	6 7/16"	13 Sps@11"=11'-11"	11 Sps@16"=14'-8"	16 Sps@24"=32'-0"	5"	18 Sps@6"= 9'-0"	16 Sps@8"=10'-8"	13 Sps@11"=11'-11"	9 Sps@16"=12'-0"
	B4	36WF170	84'-6 13/16"	15"x1 5/16"	85'-6 13/16"	9'-9 3/8"	66'-0"	7 3/8"	14 Sps@11"=12'-10"	10 Sps@16"=13'-4"	16 Sps@24"=32'-0"	5 7/8"	19 Sps@6"= 9'-6"	16 Sps@8"=10'-8"	12 Sps@11"=11'-0"	9 Sps@16"=12'-0"
	B5	36WF170	83'-11 3/16"	15"x1 3/8"	84'-11 3/16"	9'-7 5/8"	65'-9"	3 5/8"	14 Sps@11"=12'-10"	10 Sps@16"=13'-4"	16 Sps@24"=32'-0"	4 1/8"	20 Sps@6"=10'-0"	18 Sps@8"=12'-0"	9 Sps@12"=9'-0"	9 Sps@16"=12'-0"
	B6	36WF194	83'-3 15/16"	15"x1⅛"	84'-3 15/16"	8'-8"	67'-0"	4"	18 Sps@9"=13'-6"	14 Sps@14"=16'-4"	12 Sps@24"=24'-0"	6'2"	27 Sps@5"=11'-3"	21 Sps@7"=12'-3"	12 Sps@11"=11'-0"	6 Sps@16"=8'-0"
	B7	36WF194		15"x1⅛"		8'-8"	67'-0"	4"	18 Sps@9"=13'-6"	14 Sps@14"=16'-4"	12 Sps@24"=24'-0"	6'2"	27 Sps@5"=11'-3"	21 Sps@7"=12'-3"	12 Sps@11"=11'-0"	6 Sps@16"=8'-0"
	B8-B10	36WF194		15"x1 3/8"		8'-8"	67'-0"	6"	22 Sps@9"=16'-6"	13 Sps@14"=15'-2"	10 Sps@24"=20'-0"	5'2"	27 Sps@5"=11'-3"	20 Sps@7"=11'-8"	14 Sps@10"=11'-8"	6 Sps@16"=8'-0"
	B11	36WF194	83'-3 15/16"	15"x1 3/16"	84'-3 15/16"	8'-8"	67'-0"	6"	22 Sps@9"=16'-6"	13 Sps@14"=15'-2"	10 Sps@24"=20'-0"	5'2"	27 Sps@5"=11'-3"	20 Sps@7"=11'-8"	14 Sps@10"=11'-8"	6 Sps@16"=8'-0"

BEAM	CAMBER
1	4 1/8"
2	4 1/8"
3	4"
4	4"
5	4"
6	3⅞"
7	4"
8 - 10	4"
11	4"



NOTE: End Diaphragms to be parallel to ℄ Bearing.

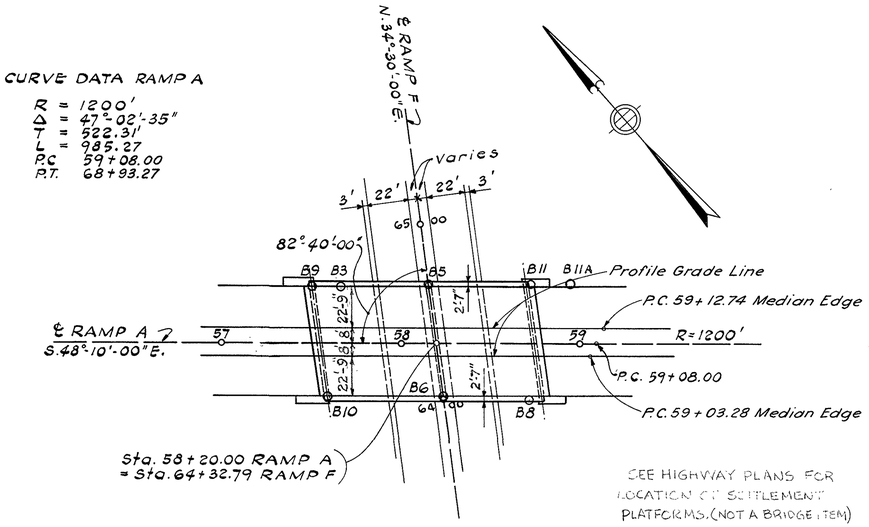
TYPICAL DIAPHRAGM CONNECTIONS

DATE	DESCRIPTION
MAY 18, 1968	ISSUED FOR CONSTRUCTION
USE ONLY PRINTS OF LATEST DATE	

PUB. RD DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS	I-91-1(68)11	19	141	242

CURVE DATA RAMP A

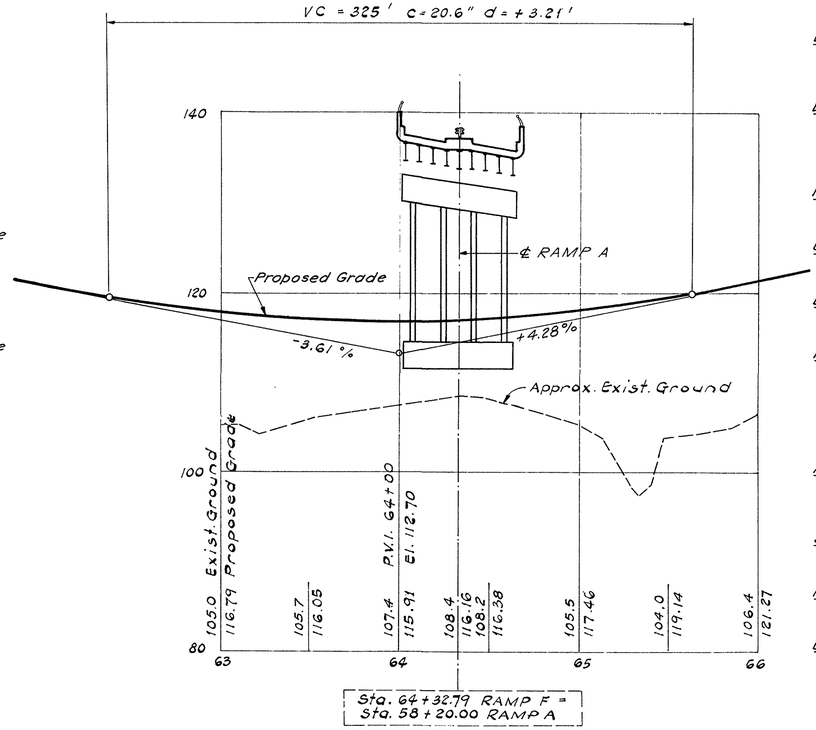
R = 1200'
Δ = 47°-02'-35"
T = 522.31'
L = 985.27
P.C. 59+08.00
P.T. 68+93.27



SEE HIGHWAY PLANS FOR LOCATION OF SETTLEMENT PLATFORMS. (NOT A BRIDGE ITEM)

KEY PLAN

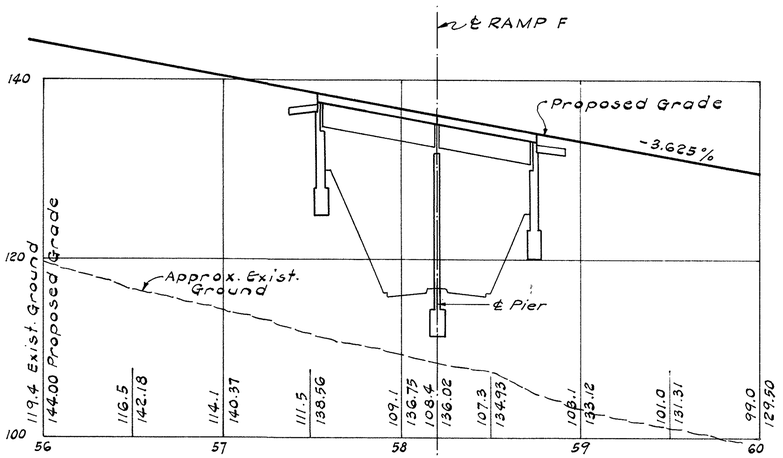
Scale : 1" = 40'



Sta. 64+32.79 RAMP F = Sta. 58+20.00 RAMP A

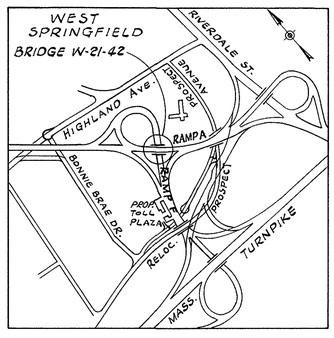
PROFILE OF RAMP F

Scales : 1" = 8' Vert.; 1" = 40' Horiz.



PROFILE OF RAMP A

Scales : 1" = 8' Vert.; 1" = 40' Horiz.



LOCUS

Scale : 1" = 800'

BARSTOW & MULLIGAN
CONSULTING ENGINEERS
566 ATLANTIC AVE.
BOSTON, MASS.

GENERAL NOTES

DESIGN
In accordance with the current specifications of the American Association of State Highway Officials (1965 Edition) for H 20-44 Loading

DATE AND SEAL
To be placed on the inside faces of the Northeast End Post and Southwest End Post. A Sheet showing the size and character of the numerals will be furnished. The seal will be furnished by the State and shall be set by the Contractor.

FOUNDATIONS
May be altered, if necessary, to suit conditions encountered during construction.

UNSUITABLE MATERIAL
Shall be removed within the limits of the foundations of the structure.

BRIDGE RAILINGS (1-Rail) Option.
See Department Standard Metal Railing Plans, dated March 1968 for Details of Bridge Railings.

REINFORCEMENT
All bars shall have deformations conforming to A.S.T.M. designation A-305. Unless otherwise noted on the Plans, Reinforcing Bars shall be lapped 20 diameters to make a splice except that Main Reinforcing Bars near the top of the slabs and beams having more than 12 inches of concrete under the bars shall be lapped 35 diameters to make a splice.

ANCHOR BOLTS
Shall be set by template and placed before concrete is poured, except at the Abutments where drilling and grouting may be used at the Contractor's option.

SCALE
Scales noted on Plans are not applicable to reduced size prints. Divide scales by 2 for 14 size prints.

FIELD BOOK

BENCH MARK
B.M. V.W.S.19, Left outer Corner of Middle concrete Step of Northwest Corner of House #116-Prospect Ave. El. 139.999. Mean Sea Level Datum of 1929 (U.S.C.& G.S.)

ESTIMATED QUANTITIES
(Not Guaranteed)

Class B Rock Excavation	10 C.Y.
Bridge Excavation	530 C.Y.
Gravel Borrow	150 C.Y.
Gravel Borrow for Bridge Foundation	7,000 C.Y.
Class I Bituminous Concrete Pavement Type I-1	44 Ton.
Class I Dense Protective Bottom Course for Bridges	44 Ton.
Metal Bridge Railing (1-Rail) Option	291 L.F.
Metal Bridge Railing Type M-2	126 L.F.
Bridge Structure (No. W-21-42)	1 L.S.
Estimated Weight of Reinforcing Steel	100,300 Lb.
Estimated Weight of Structural Steel (A.S.T.M. A36)	200,000 Lb.

These Quantities are part of Lump Sum Item 995.03 for Bridge Structure, (Bridge No. W-21-42) and are not guaranteed.

MAY 18, 1968 ISSUED FOR CONSTRUCTION

THE COMMONWEALTH OF MASSACHUSETTS
PROPOSED BRIDGE
INTERCHANGE I 91 WITH MASS. TURNPIKE

WEST SPRINGFIELD

RAMP A OVER
RAMP F

SCALES AS NOTED
OFFICE OF
DEPARTMENT OF PUBLIC WORKS
100 NASHUA ST. BOSTON, MASS.

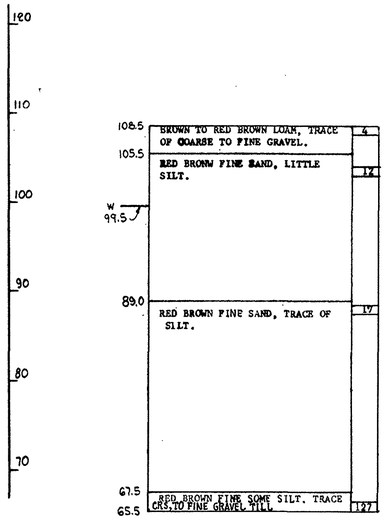
R. J. McDonough — MAY 1968 — D. J. Murphy P.E.
BRIDGE ENGINEER — CHIEF ENGINEER

SHEET 1 OF 10 SHEETS BRIDGE NO. W-21-42

PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS	I-91-1(68)11	19	142	242

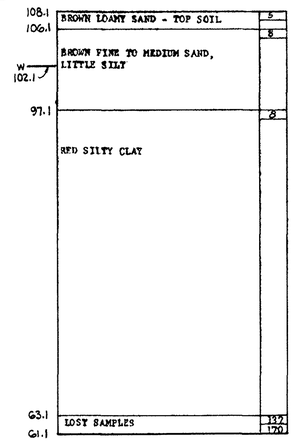
W. ABUT. BOTT. FTG. EL. 127.0

(B3) STA 57+68 OFFSET 32' LT.



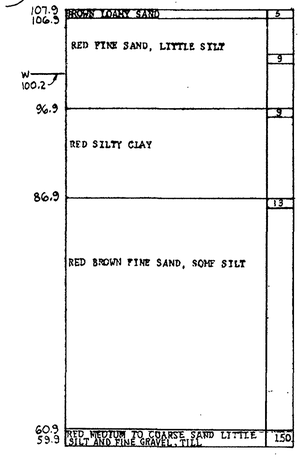
(B5) STA. 58+16 OFFSET 32' LT.

PIER BOTT. FTG. EL. 111.5



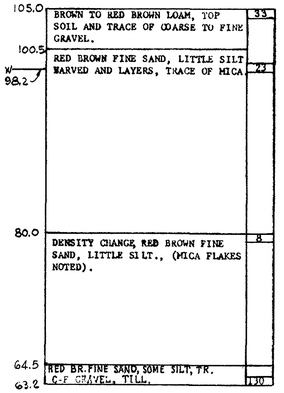
(B6) STA. 58+24 OFFSET 32' RT.

PIER BOTT. FTG. EL. 111.5



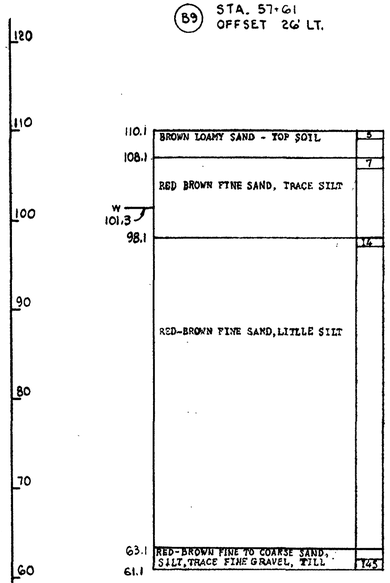
(B8) STA. 58+71 OFFSET 32' RT.

E. ABUT. BOTT. FTG. EL. 122.5



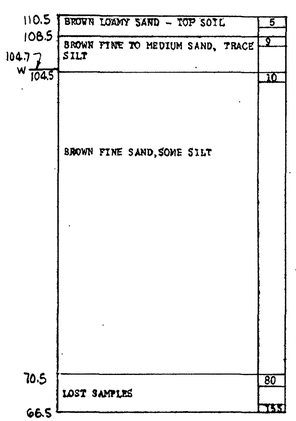
W. ABUT. BOTT. FTG. EL. 127.0

(B9) STA. 57+61 OFFSET 26' LT.



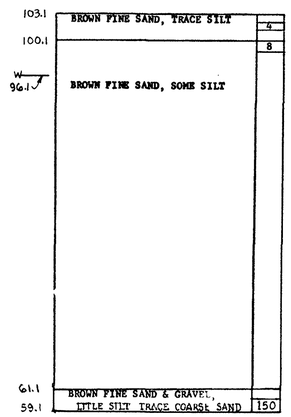
W. ABUT BOTT. FTG. EL 127.0

(B10) STA 57+64 OFFSET 33' RT.

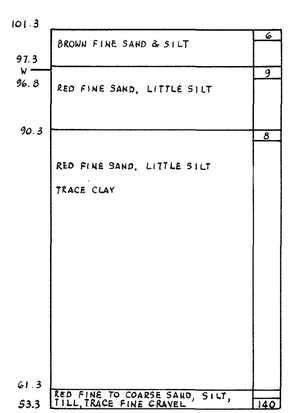


E. ABUT. BOTT. FTG. EL. 122.5

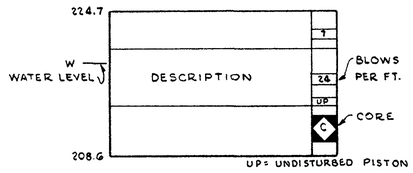
(B11) STA. 58+71 OFFSET 32' LT.



(B11A) STA. 58+95 OFFSET 33' LT.



BORING NO. (G4) STATION OFFSET



LEGEND

BORING NOTES

LOCATION OF BORINGS SHOWN ON BORING LOCATION PLAN SH. 1
THUS: ● B8 - CONTROL BORINGS
○ B9 - DESIGN BORINGS

BORINGS TAKEN FOR PURPOSE OF DESIGN AND SHOW CONDITIONS AT BORING POINTS ONLY AND DO NOT NECESSARILY SHOW NATURE OF MATERIALS TO BE ENCOUNTERED DURING CONSTRUCTION.

FIGURES IN RIGHT HAND COLUMN INDICATE BLOWS PER FOOT ON 1-3/8 INCH I.D. SAMPLER PRODUCED BY 30 INCH FALL OF 140 POUND HAMMER.

WATER LEVELS SHOWN ON THE BORING LOGS WERE OBSERVED AT THE TIME OF TAKING BORINGS AND DO NOT NECESSARILY SHOW THE TRUE GROUND WATER LEVEL.

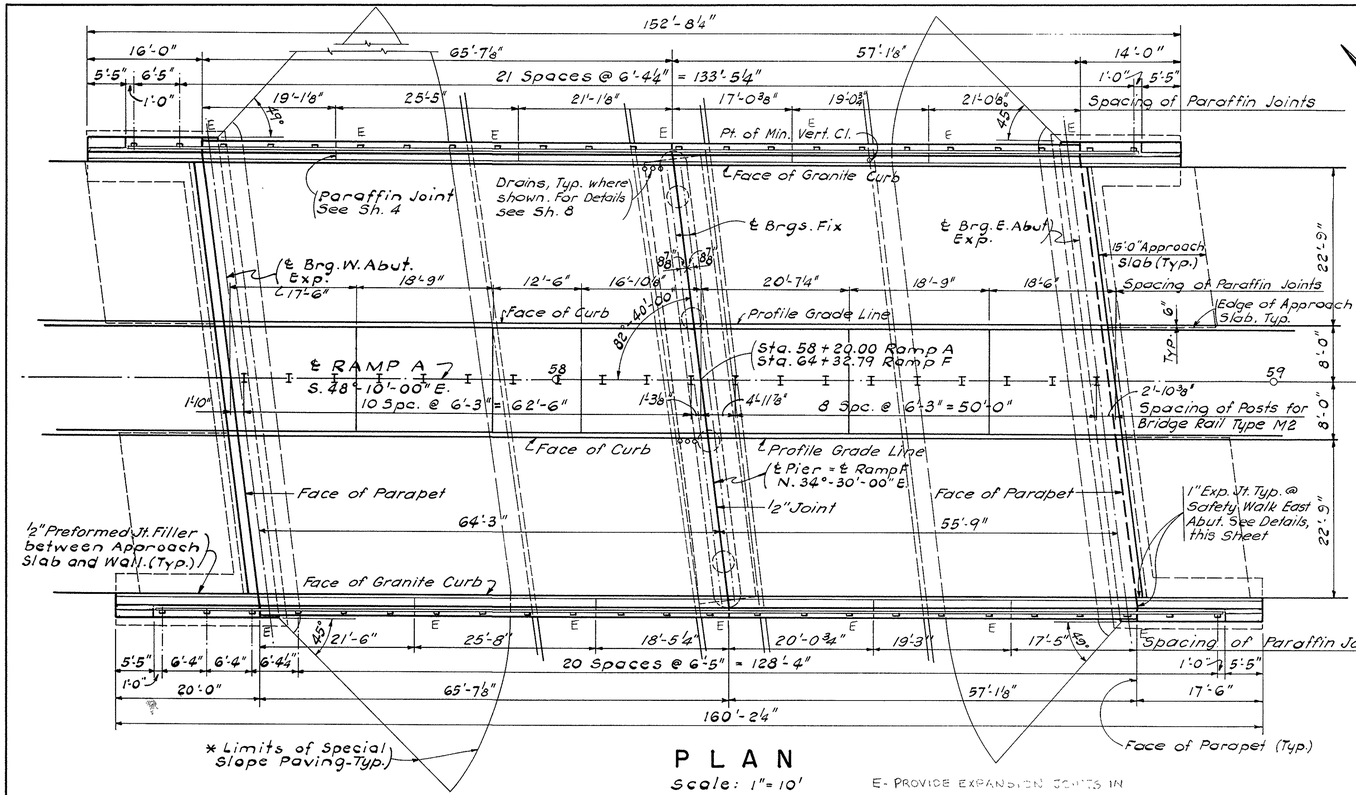
BORING SAMPLES MAY BE SEEN AT THE RESEARCH AND MATERIALS DIVISION, 99 WORCESTER STREET; WELLESLEY HILLS (INTERSECTION OF ROUTES 9 AND 128).

ALL BORINGS WERE MADE BY AMERICAN DRILLING & BORING CO., INC. 54 WATER STREET, EAST PROVIDENCE, R. I. DURING JUNE 1966.

BORING DATA
Scale: 1"=10'

DATE	DESCRIPTION
MAY 18, 1968	ISSUED FOR CONSTRUCTION
USE ONLY PRINTS OF LATEST DATE	

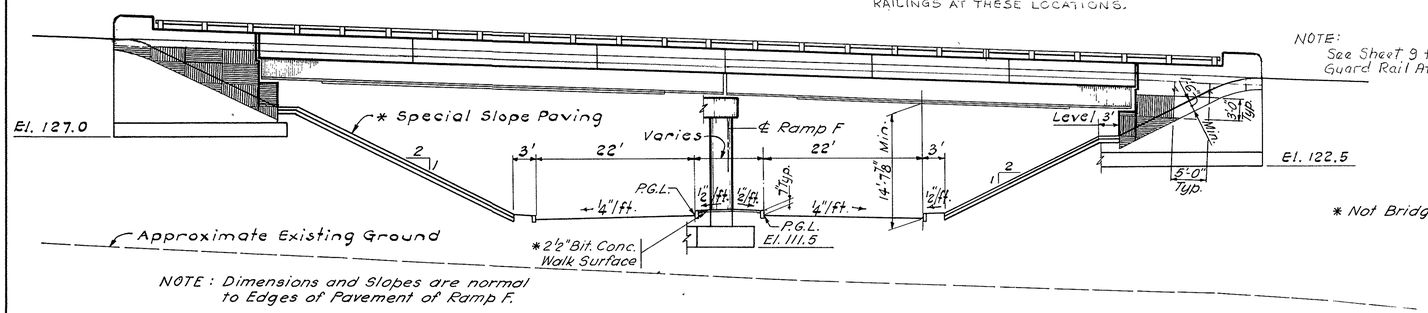
PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS	I-91-1(68)11	19	143	242



PLAN

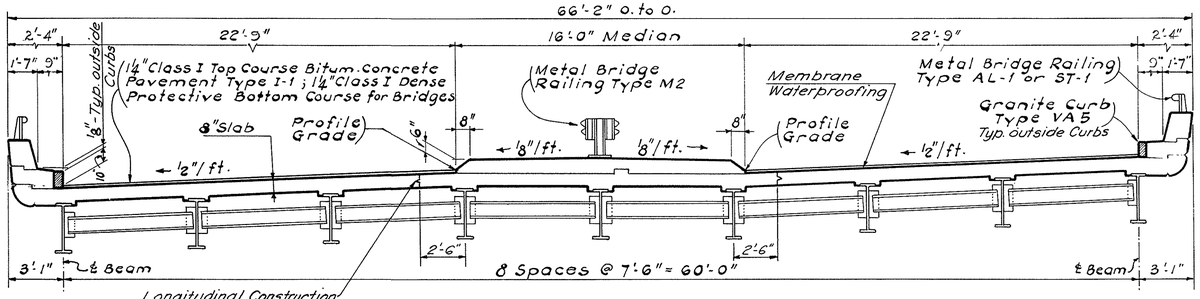
Scale: 1" = 10'

E- PROVIDE EXPANSION JOINTS IN RAILINGS AT THESE LOCATIONS.



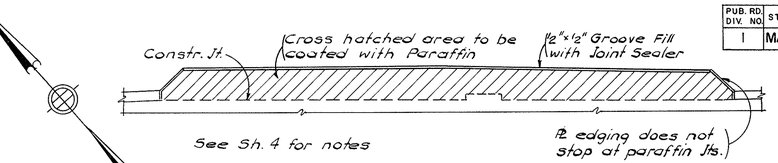
ELEVATION

Scale: 1" = 10'



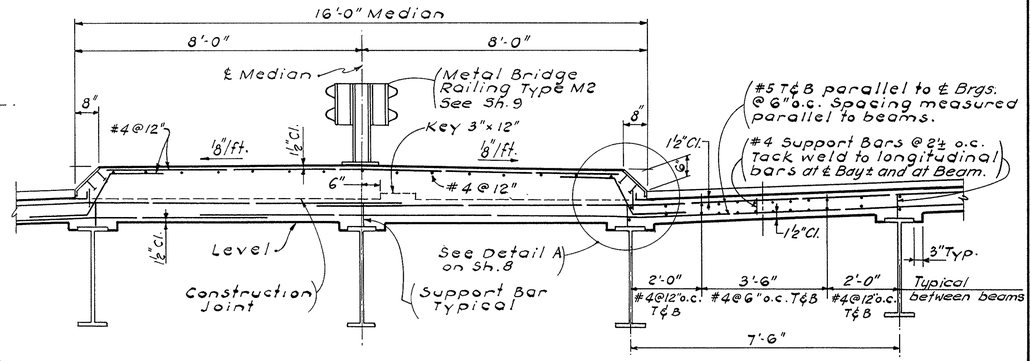
TRANSVERSE SECTION

Scale: ¼" = 1'-0"



PARAFFIN JOINT THROUGH MEDIAN

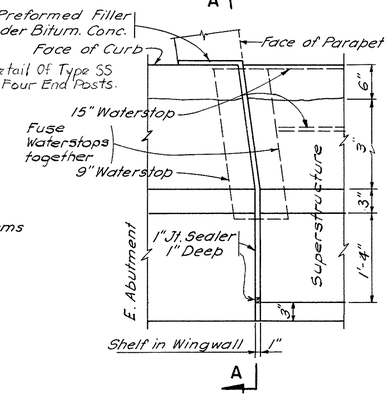
Scale: ½" = 1'-0"



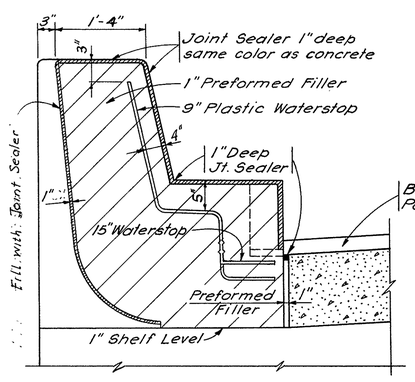
MEDIAN & SLAB REINFORCEMENT

Scale: ½" = 1'-0"

NOTE : An equal device may be substituted for the #4 Support bars upon written approval of the Engineer.



PLAN



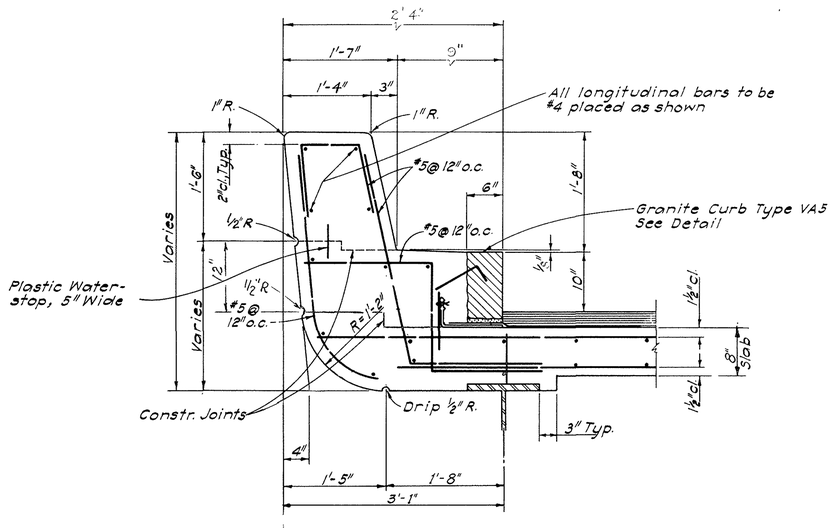
SECTION A-A

DETAILS OF JOINT AT SAFETY WALK AT EAST ABUTMENT

Scale: 1" = 1'-0"

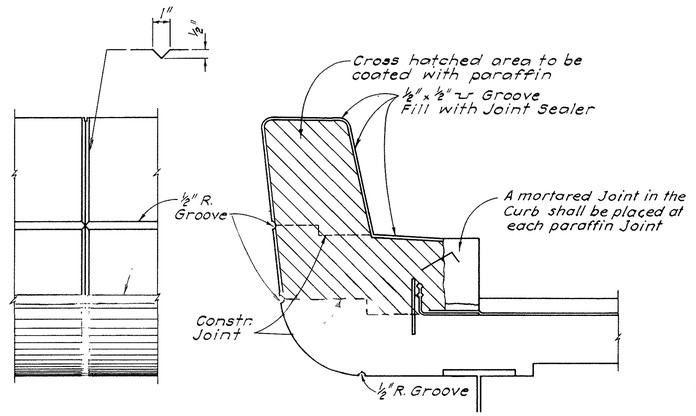
DATE	DESCRIPTION
MAY 18, 1968	ISSUED FOR CONSTRUCTION
USE ONLY PRINTS OF LATEST DATE	

PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS	I-91-1(68)11	19	144	242



SAFETY CURB DETAIL

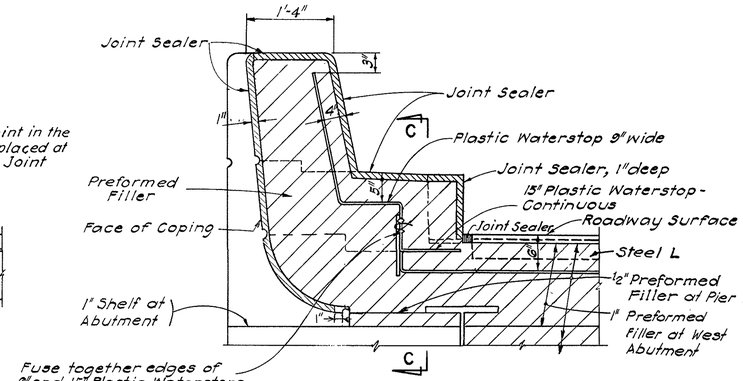
Scale: 1" = 1'-0"



PARAFFIN JOINT THROUGH COPING AND SAFETY WALK

Scale: 1" = 1'-0"

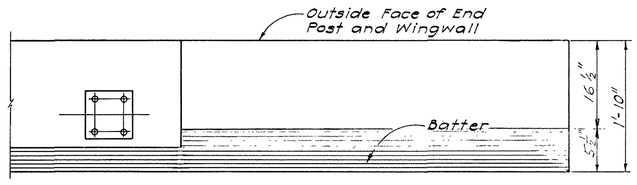
Notes:
1. Safety walk and coping shall be poured in alternate sections and shall have a curing period of not less than 5 days between pours
2. Joints to be located as shown on sheet No. 3
3. End of bars to be 2" clear of joint.
4. Do not carry longitudinal bars in safety walk and coping through the joints.
5. Joint sealer to be same color as concrete.
6. Joint to be square to face of coping.
7. Joint in curb shall be mortared no sooner than 5 days after concrete in safety curb has been poured.



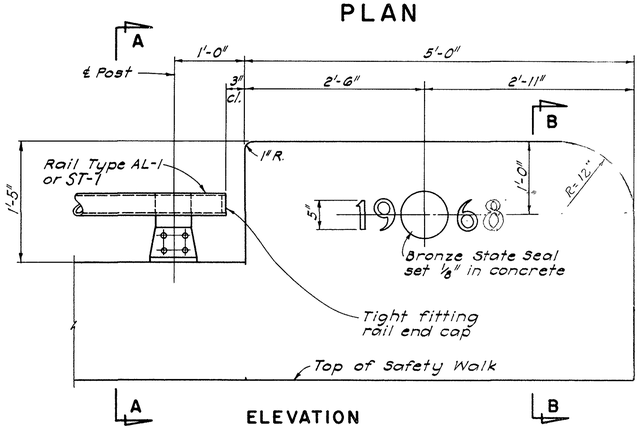
DETAILS OF SAFETY CURB AT DECK JOINTS AT PIER AND WEST ABUTMENT

Scale: 1½" = 1'-0"

Note:
Joint Sealer to be same color as concrete



PLAN

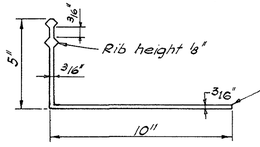


ELEVATION

END POST DETAIL

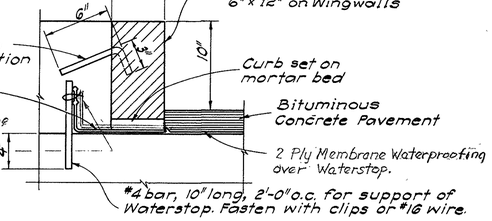
Scale: 1" = 1'-0"

Note: Railing anchor bolts to be set by template and placed before concrete is poured. See Sheet 9 for Detail Of Type SS Guard Rail At End Posts.



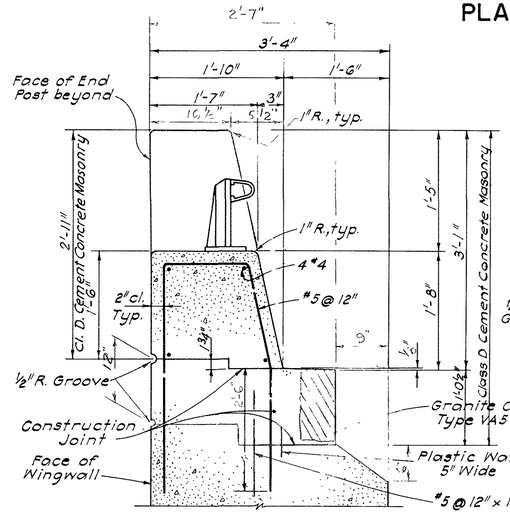
PLASTIC WATER STOP

Scale: 3" = 1'-0"



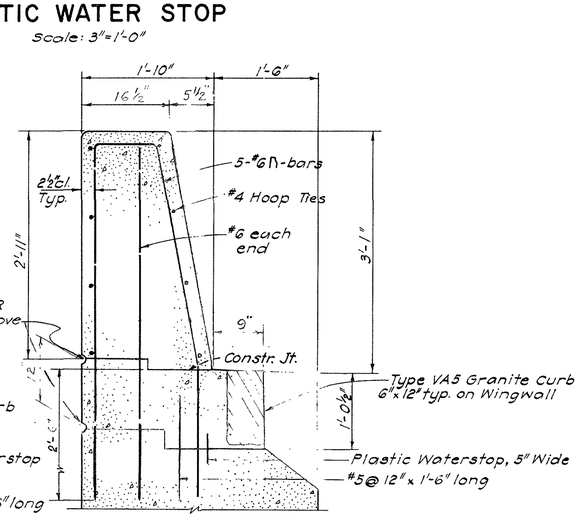
DETAIL AT CURB

Scale: 1½" = 1'-0"



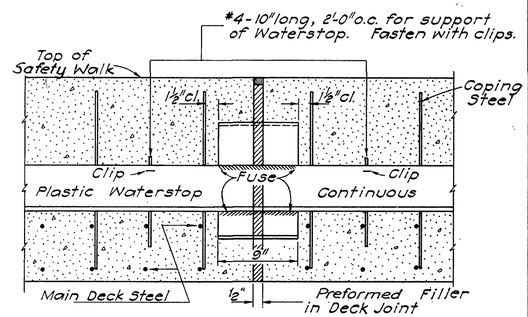
SECTION A-A

Scale: 1" = 1'-0"



SECTION B-B

Scale: 1" = 1'-0"

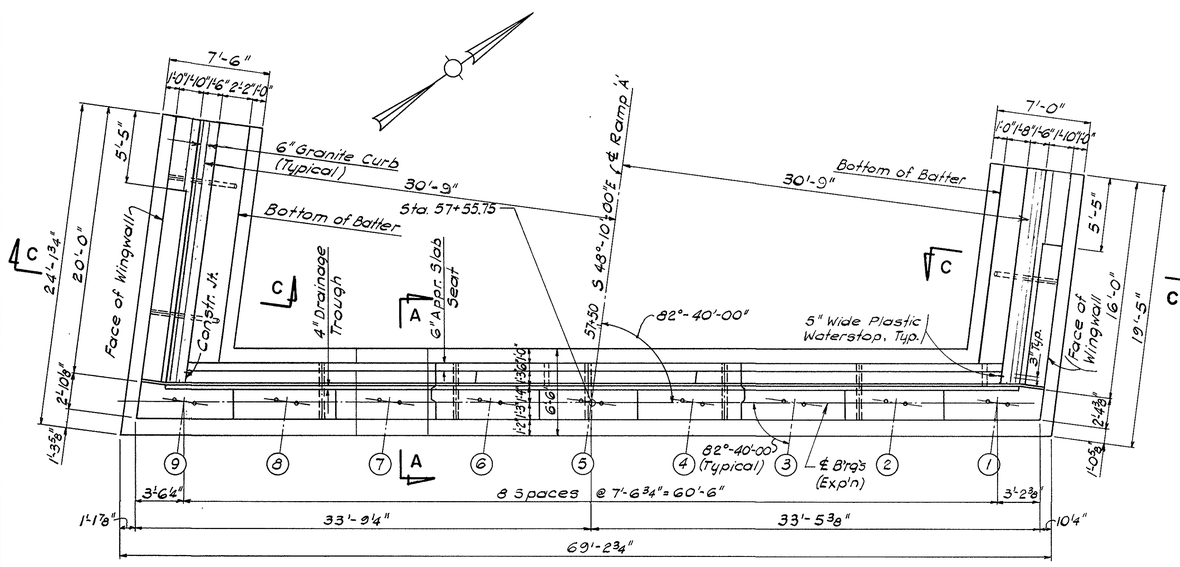


SECTION C-C (Shown at Pier; Similar at West Abutment)

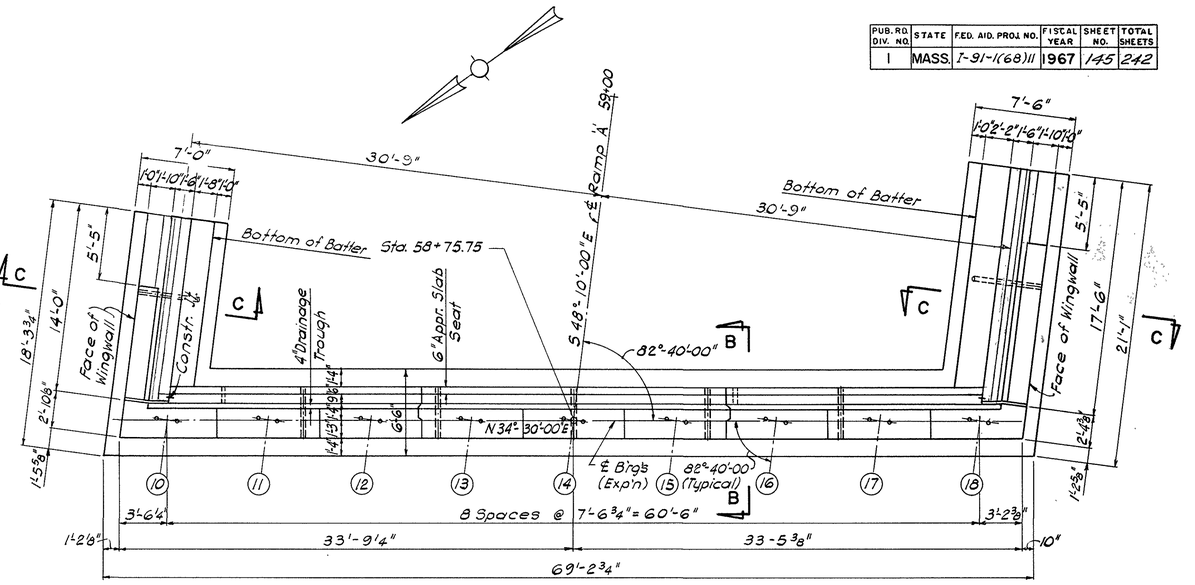
Scale: 1½" = 1'-0"

DATE	DESCRIPTION
MAY 18, 1968	ISSUED FOR CONSTRUCTION
USE ONLY PRINTS OF LATEST DATE	

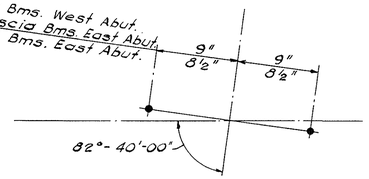
PUB. RD. DIV. NO.	STATE	F.ED. AID. PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	I-91-1(68)II	1967	145	242



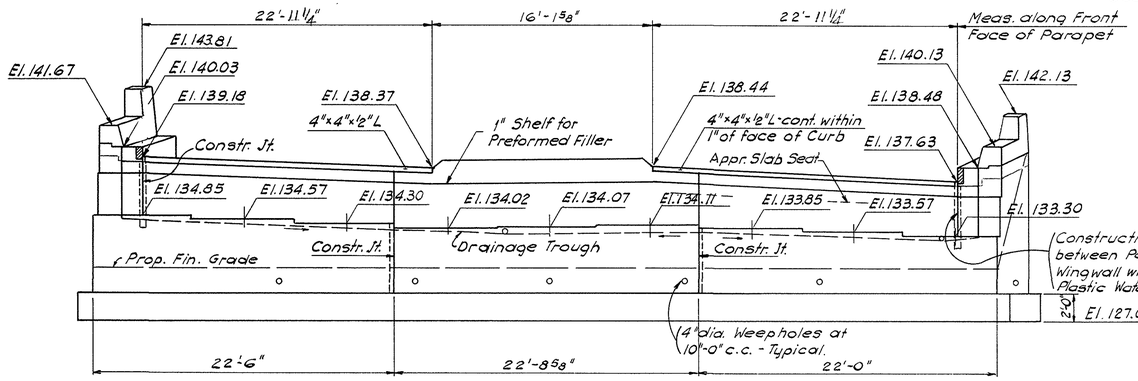
PLAN
Scale: 3/16" = 1'-0"



PLAN
Scale: 3/16" = 1'-0"

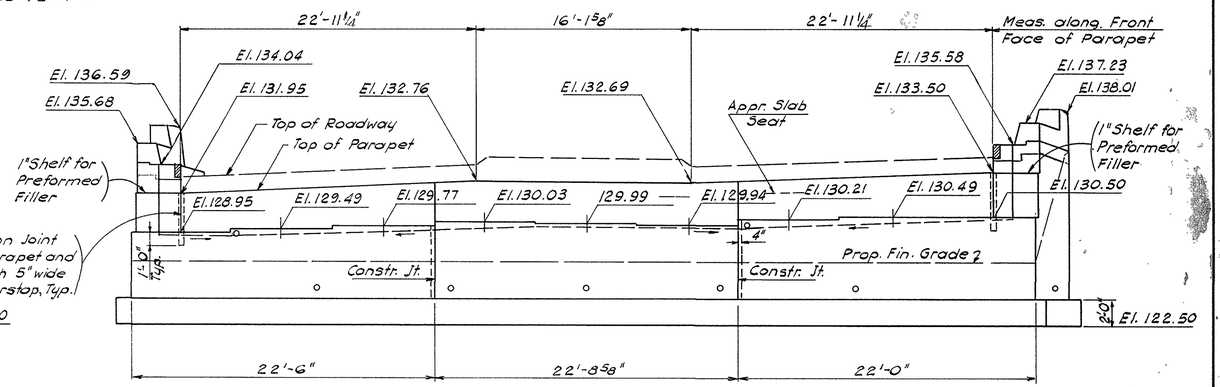


ANCHOR BOLT LAYOUT
Scale: 1/2" = 1'-0"



ELEVATION
Scale: 3/16" = 1'-0"

WEST ABUTMENT



ELEVATION
Scale: 3/16" = 1'-0"

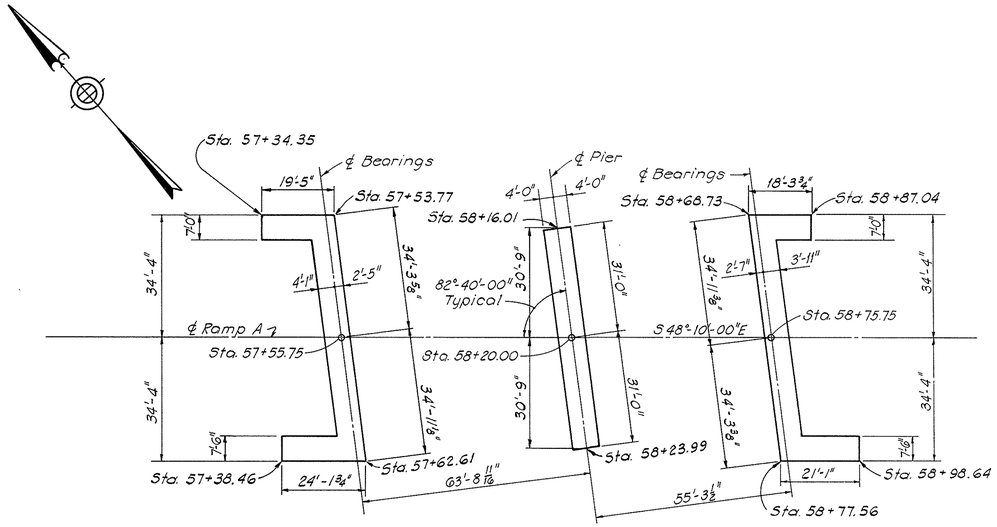
EAST ABUTMENT

Approx. Existing Ground

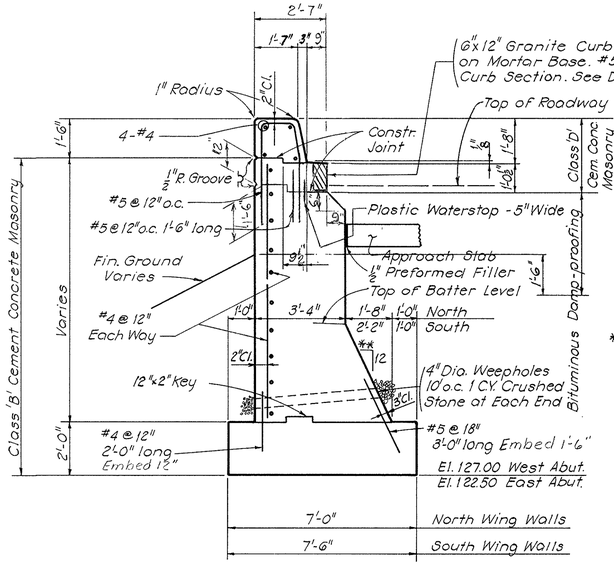
DATE	DESCRIPTION
MAY 18, 1968	ISSUED FOR CONSTRUCTION
USE ONLY PRINTS OF LATEST DATE	

SHEET 5 OF 10 SHEETS BRIDGE NO. W-21-42

PUB. RD. DIV. NO.	STATE	FED. AID. PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	I-91-1(68)11	1967	146	242



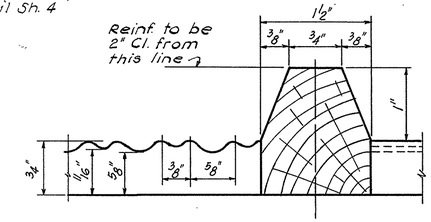
FOOTING LAYOUT
Scale: 1"=20'



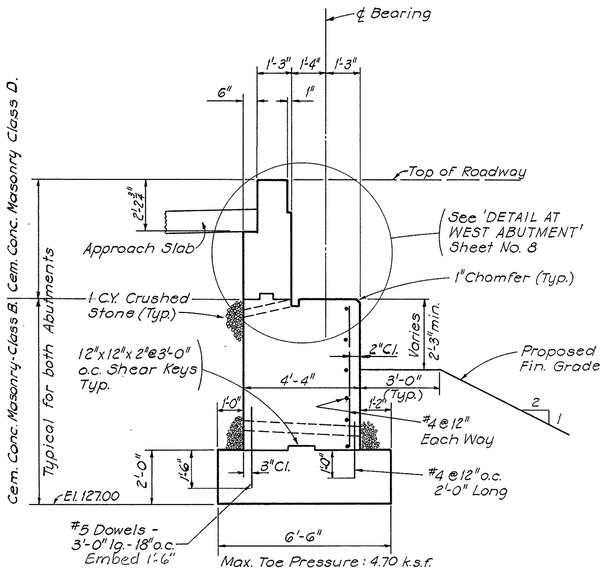
** 5½" North
5" South

Max. Toe Pressure: 3.84 k.s.f. South Wing Walls
3.25 k.s.f. North Wing Walls

SECTION C-C
Scale: ⅜"=1'-0"

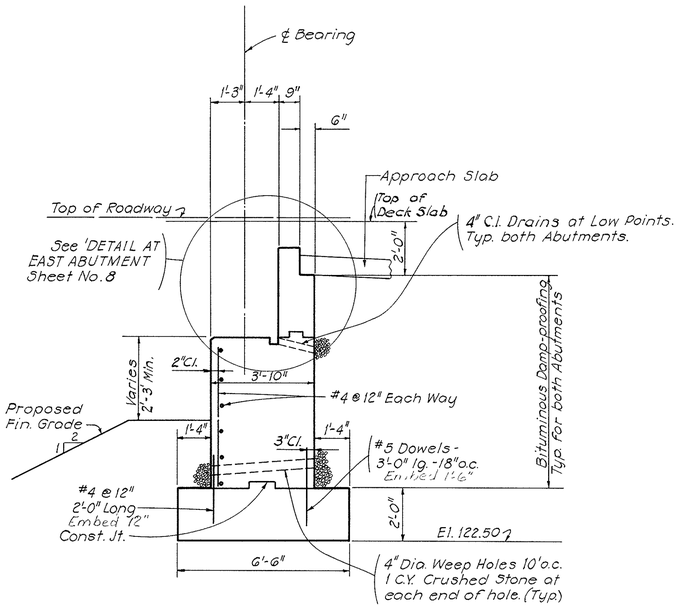


STRIATION DETAIL
Scale: Full Size



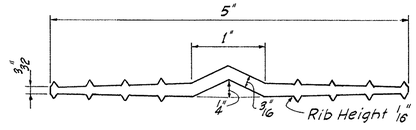
Max. Toe Pressure: 4.70 k.s.f.

SECTION A-A
Scale: ⅜"=1'-0"

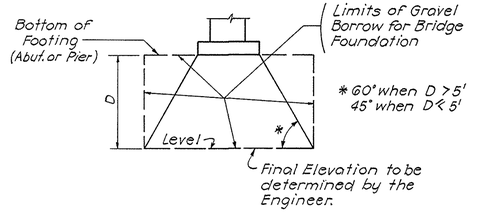


Max. Toe Pressure: 4.19 k.s.f.

SECTION B-B
Scale: ⅜"=1'-0"

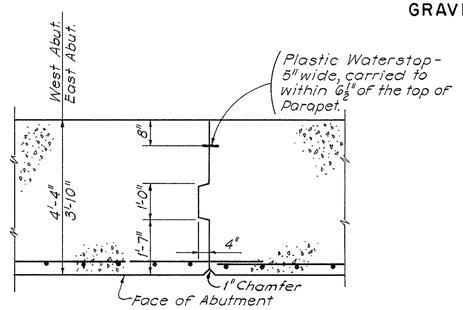


5" PLASTIC WATERSTOP DETAIL
Scale: 1"=1'-0"



Notes:
Same treatment is to be used at Ends.
Unsuitable Material is to be removed before Gravel Borrow for Bridge foundation is placed.

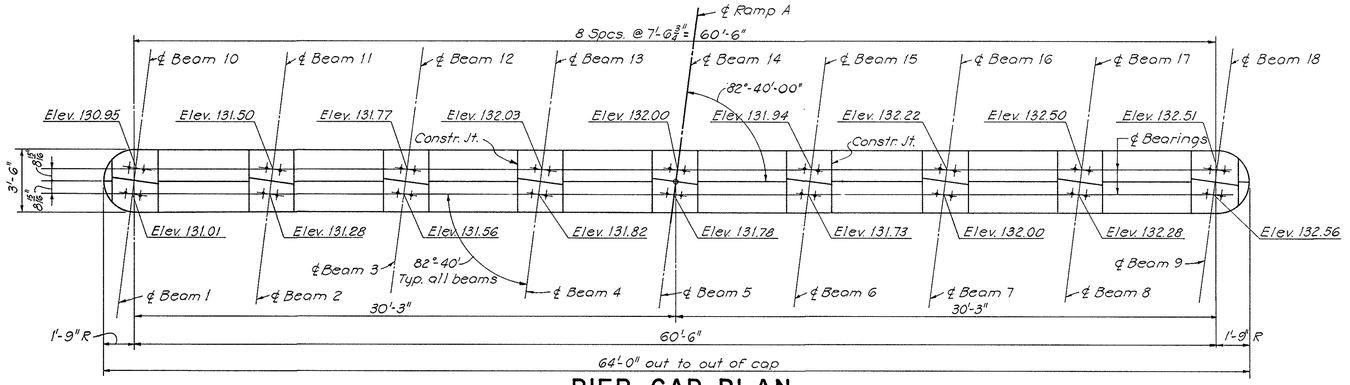
GRAVEL BORROW FOR BRIDGE FOUNDATION
Not to Scale



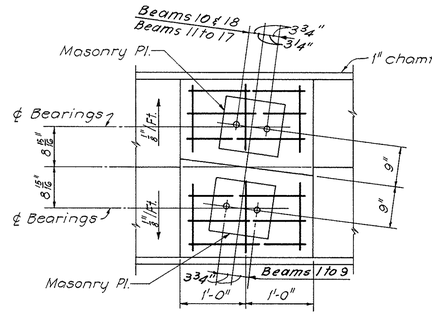
CONSTRUCTION JOINT DETAIL AT ABUTMENT
Scale: ½"=1'-0"

DATE	DESCRIPTION
MAY 18, 1968	ISSUED FOR CONSTRUCTION
USE ONLY PRINTS OF LATEST DATE	

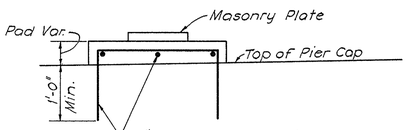
PUB. RD. DIV. NO.	STATE	FED. AID. PROJ. NO	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
I	MASS.	I-91-1(68)11	196	147	242



PIER CAP PLAN

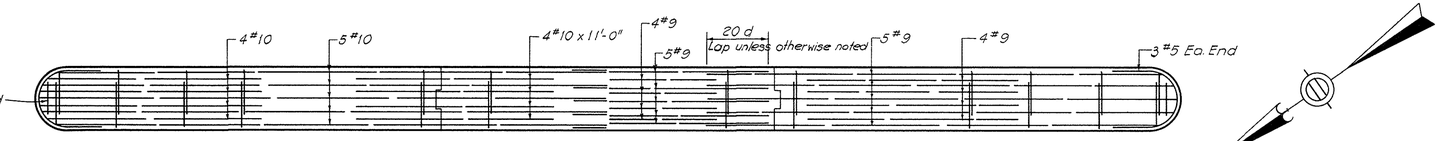


PLAN

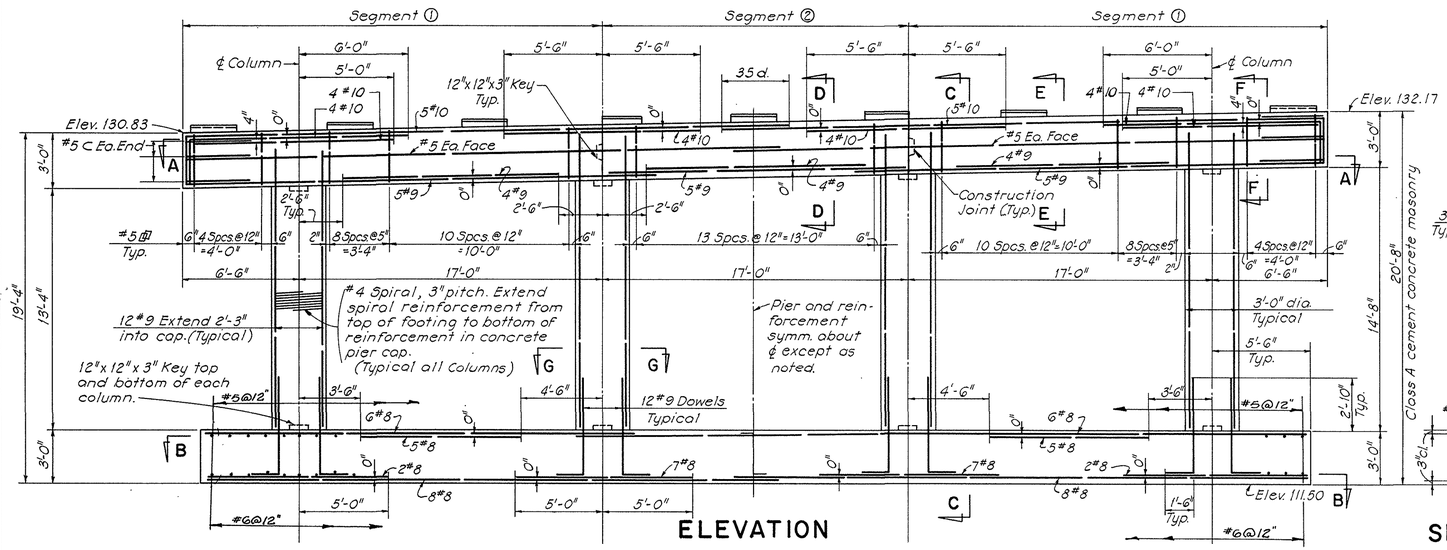


ELEVTION

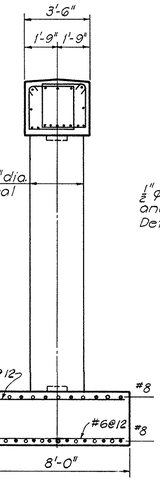
PAD DETAILS Scale: 3/4"=1'-0"



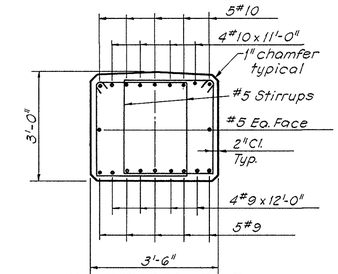
SECTION A-A



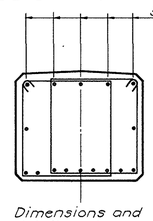
ELEVATION



SECTION C-C

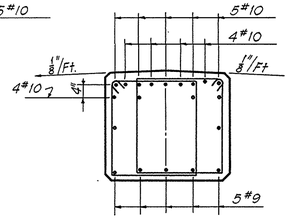


SECTION D-D



Dimensions and details not shown, same as Section D-D

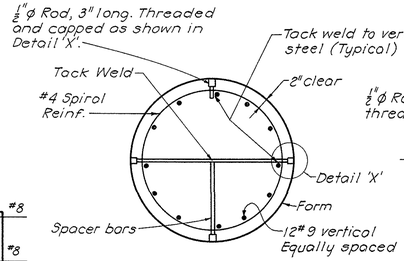
SECTION E-E



SECTION F-F

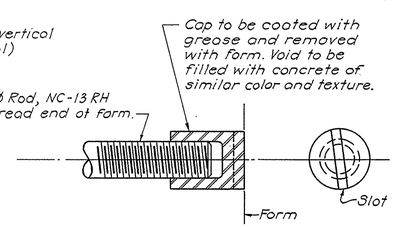
Scale: 1/2" = 1'-0"

Top of pier cap to be sloped 1/8" Ft. from ℄ to face between pads.



SECTION G-G

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

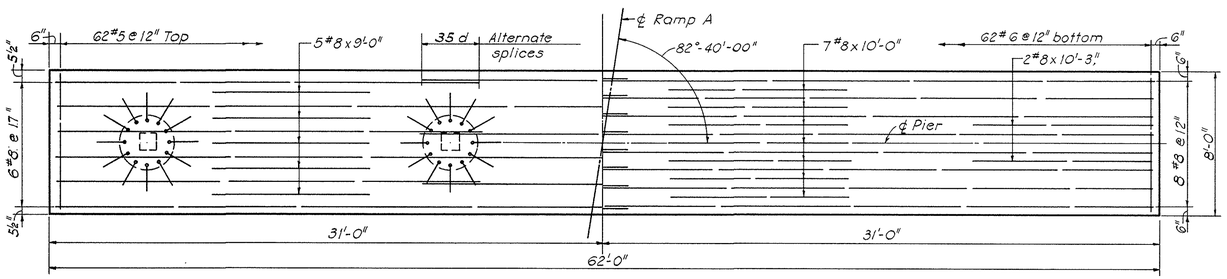


Note: Spacer bars to be placed at 1/4 points of column.

DETAIL "X"

N.T.S.

END OF CAP



SECTION B-B

Scale: 1/4" = 1'-0"

Notes:

For bearing and anchor bolt details see Sheet 10

Contractor shall place reinforcement to clear all anchor bolts.

All exposed edges of concrete to have a 1" chomfer unless otherwise shown.

All keys to be slightly tapered.

Maximum Design Bearing Pressure = 3.22 kips/Sq. Ft.

Pour segments ① first.

Pour segment ② not less than 24 hours after completion of pours of segments ①

If required to permit insertion of vibrator, and conc. placing chute, some of the bars in the top of the cap beam may be tied loosely. All bars shall be tied securely before concrete is level with reinforcements.

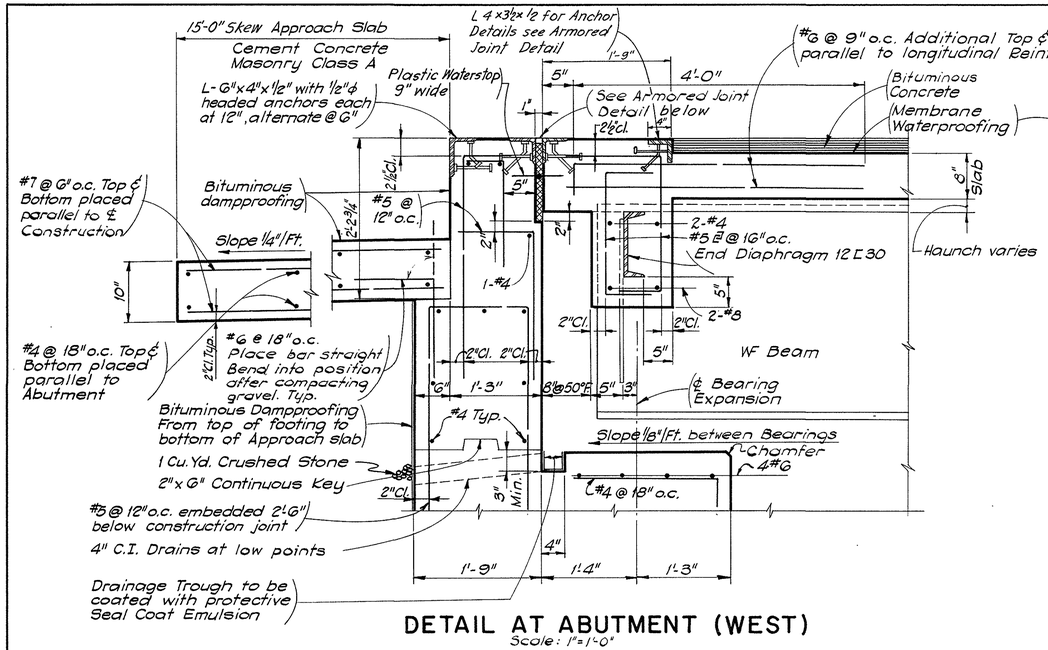
For Gravel Borrow for Bridge Foundation See Sheet 6.

Conc. in column to be placed to proper elevation so as not to interfere with 2" clearance of conc. on steel in bottom of Pier Cap.

DATE	DESCRIPTION
MAY 18, 1968	ISSUED FOR CONSTRUCTION
USE ONLY PRINTS OF LATEST DATE	

SHEET 7 OF 10 SHEETS BRIDGE NO. W-21-42

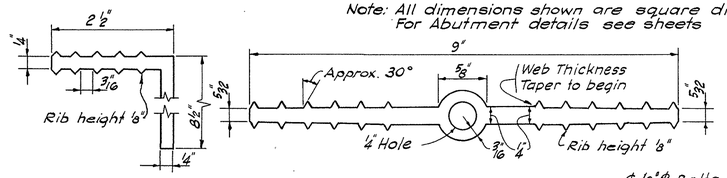
PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
I	MASS	I-91-1(68)111	19	148	242



DETAIL AT ABUTMENT (WEST)

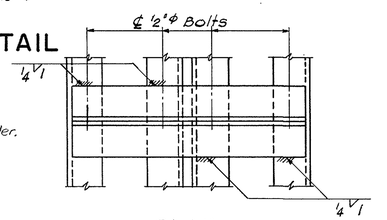
Scale: 1"=1'-0"

Note: All dimensions shown are square distances
For Abutment details see sheets

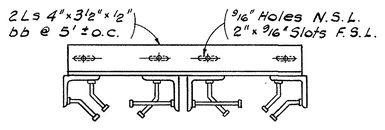


11" & 9" PLASTIC WATERSTOP DETAIL

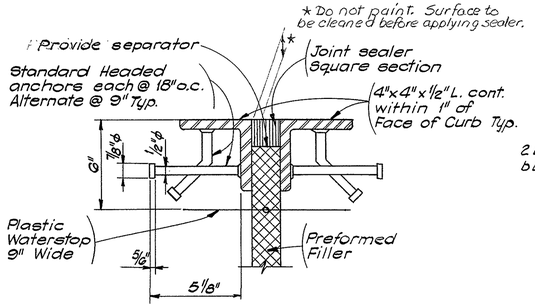
Not to Scale



PLAN



ELEVATION



ARMORED JOINT DETAIL

Scale: 3"=1'-0"

Notes:

(A) All Armored Joint Assemblies must be properly fitted in shop and shipped with device for maintaining proper spacing and fit.

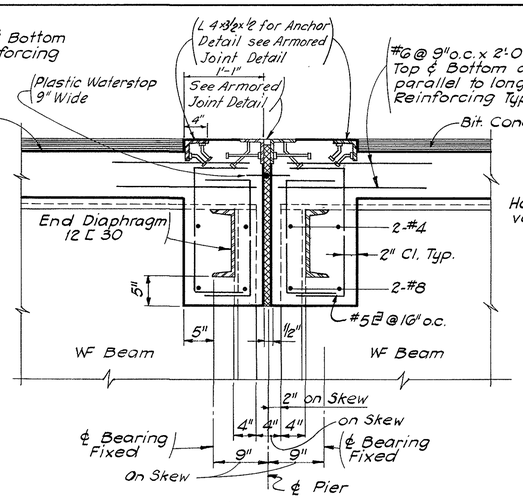
(B) Bolts on shipping device must be loosened within one hour after concrete is placed so that movement may take place. Device shall be removed after concrete has set on both sides of assembly.

SHIPPING DEVICE FOR ARMORED JOINT ASSEMBLY

Scale: 1½"=1'-0"

(C) Grind Armored Joint Surface to a smooth finish after removal of shipping device.

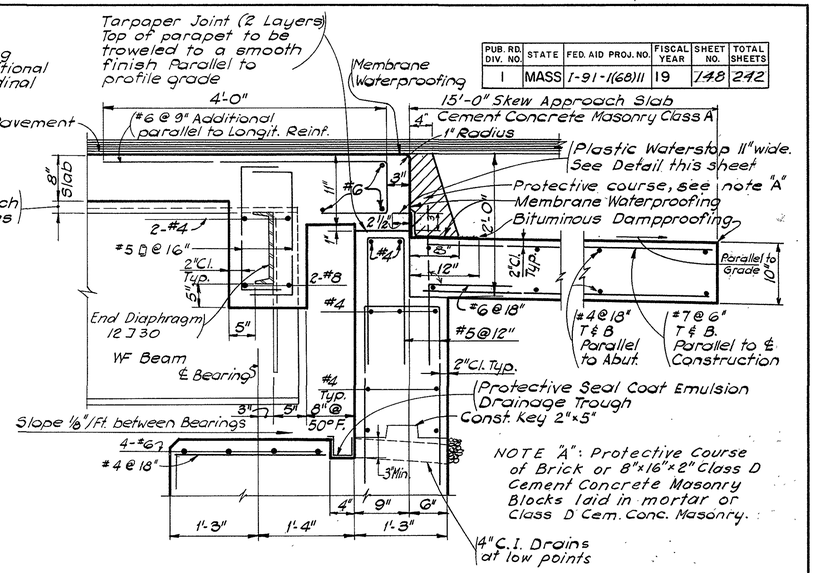
(D) All exposed surfaces of joint shall be field painted after grinding.



DETAIL AT PIER

Scale: 1"=1'-0"

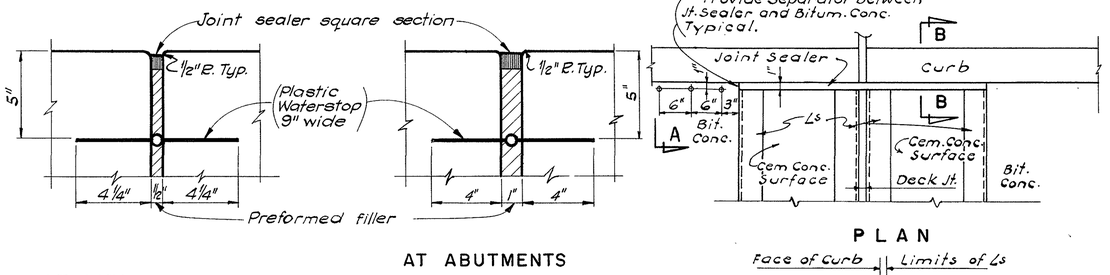
All dimensions shown are square distances except as noted



NOTE "A": Protective Course of Brick or 8"x16"x2" Class D Cement Concrete Masonry Blocks laid in mortar or Class D Cem. Conc. Masonry.

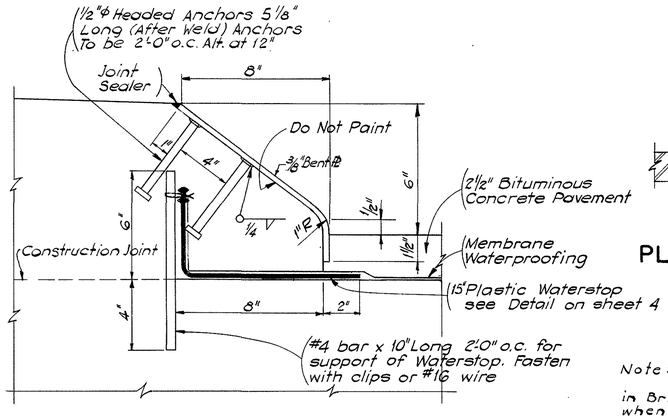
DETAIL AT ABUTMENT (EAST)

Scale: 1"=1'-0"



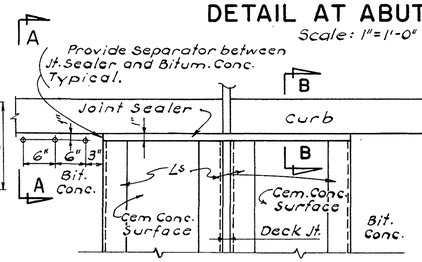
SAFETY WALK SECTIONS

Scale: 3"=1'-0"

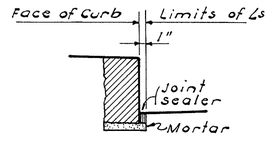


DETAIL A

Scale: 3"=1'-0"



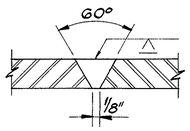
PLAN



SECTION B-B

PLATE SPLICE (⅜" Bent Plate)

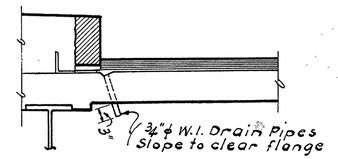
Scale: Full Size



Note:

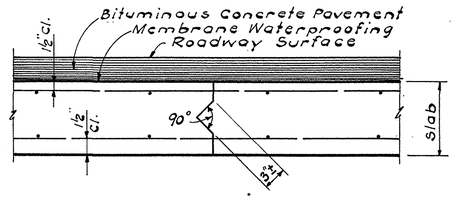
Longitudinal Construction Joints in Bridge Deck slabs may be omitted when the Contractor's proposed method of construction is approved by the Engineer in writing.

¾"ϕ Wrought Iron Drain Pipes to be located as shown on Sh. 3 at curb line low points. Set ½" low and seal edge of puncture in Membrane Waterproofing with Tar Mastic.



SECTION A-A

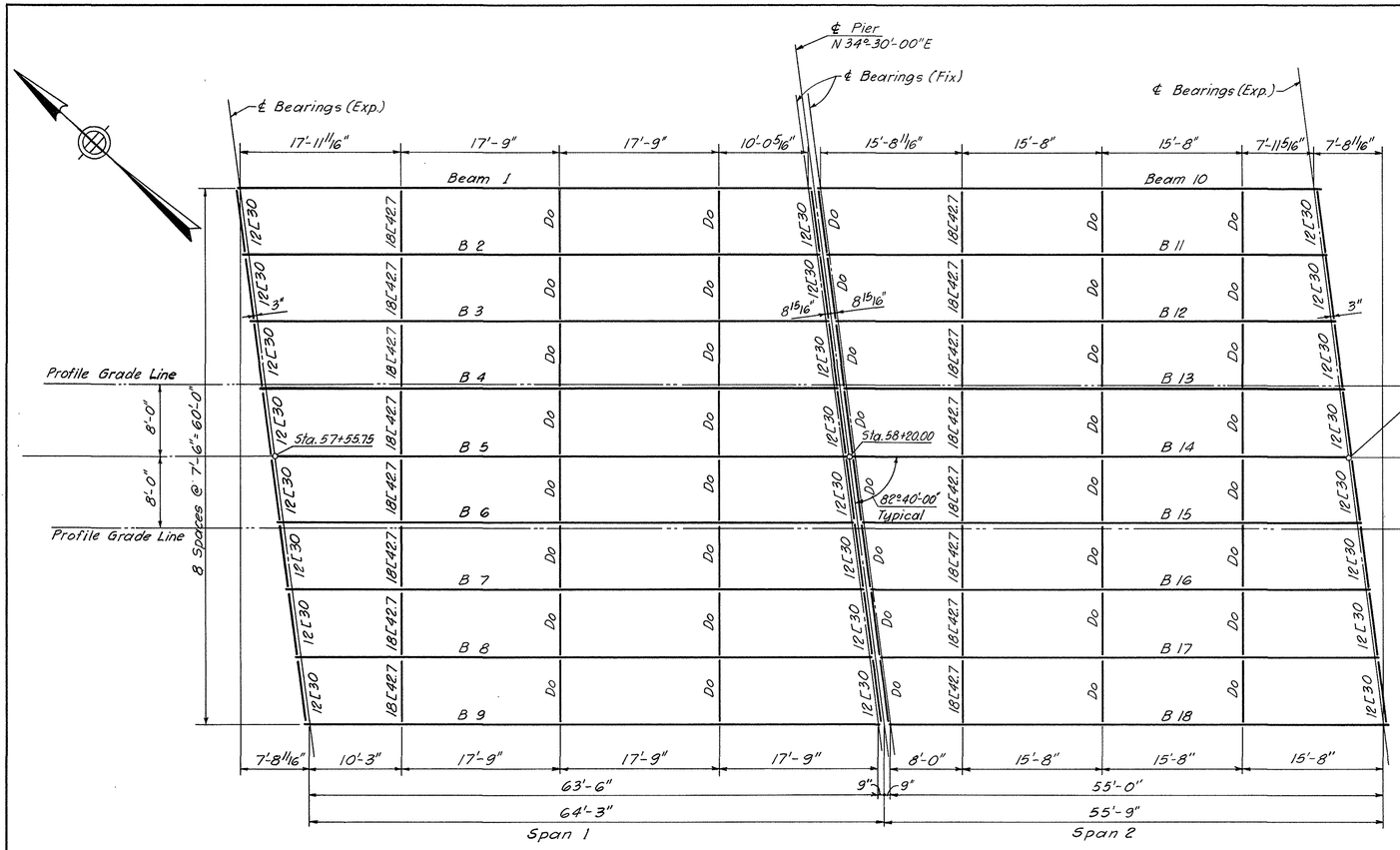
DETAILS OF JOINT AT FACE OF CURB



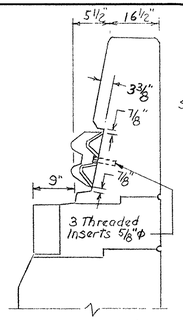
LONGITUDINAL CONSTRUCTION JOINT DETAILS IN SLAB

Scale: 1½"=1'-0"

DATE	DESCRIPTION
MAY 18, 1968	ISSUED FOR CONSTRUCTION
USE ONLY PRINTS OF LATEST DATE	

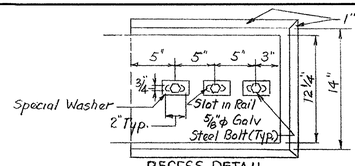


FRAMING PLAN
Scale: 16" = 1'-0"

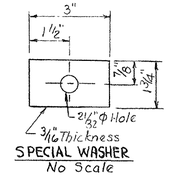


SECTION A-A
No Scale

Note:
Steel Reinforcement unchanged except for modification of Vertical U-Bars, where necessary, to clear Recess by 2".



RECESS DETAIL
No Scale



SPECIAL WASHER
No Scale

INTERSTATE ROUTE 91

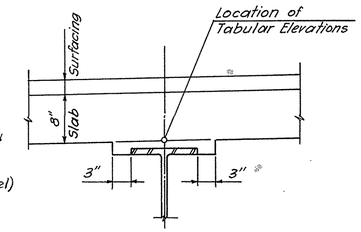
PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS	I-91-1(68)11	196	149	242

TOP OF FORM ELEVATIONS FOR DECK SLAB PRIOR TO PLACEMENT OF CONCRETE

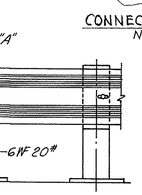
BEAM NO.	℄ Brg.	1/8 Pt.	1/4 Pt.	3/8 Pt.	1/2 Pt.	5/8 Pt.	3/4 Pt.	7/8 Pt.	℄ Brg.
	SPAN 1								
1	136.68	136.44	136.19	135.93	135.65	135.36	135.04	134.72	134.38
2	136.96	136.72	136.48	136.22	135.94	135.64	135.32	134.99	134.66
3	137.24	137.00	136.75	136.49	136.21	135.92	135.60	135.27	134.93
4	137.49	137.26	137.01	136.75	136.47	136.17	135.86	135.53	135.19
5	137.46	137.22	136.97	136.71	136.44	136.14	135.82	135.49	135.16
6	137.40	137.17	136.92	136.66	136.38	136.08	135.77	135.44	135.10
7	137.68	137.44	137.20	136.94	136.66	136.36	136.05	135.72	135.38
8	137.96	137.72	137.47	137.21	136.94	136.64	136.32	135.99	135.66
9	138.24	138.00	137.75	137.49	137.21	136.91	136.60	136.27	135.93
	SPAN 2								
10	134.32	134.11	133.89	133.65	133.41	133.16	132.89	132.61	132.33
11	134.60	134.39	134.18	133.95	133.71	133.45	132.18	132.90	132.61
12	134.88	134.67	134.46	134.23	133.99	133.73	133.46	133.18	132.89
13	135.14	134.93	134.71	134.49	134.24	133.99	133.72	133.43	133.14
14	135.10	134.89	134.68	134.45	134.21	133.95	133.68	133.40	133.11
15	135.05	134.84	134.62	134.40	134.15	133.90	133.63	133.34	133.05
16	135.32	135.12	134.90	134.67	134.43	134.17	133.90	133.62	133.33
17	135.60	135.39	135.18	134.95	134.71	134.45	134.18	133.90	133.61
18	135.88	135.66	135.44	135.21	134.97	134.71	134.44	134.17	133.89

Stations increase left to right

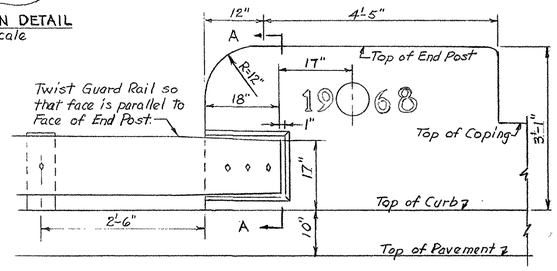
Note:
1. After the Structural Steel is erected but before the forms are built, Elevations on the top of the flange of the beams are to be obtained at the points indicated in the Table. The difference between the Elevation obtained and those shown in the Table gives the actual blocking distance from the top of beam to the bottom of slab at center line of beam. See Haunch Detail.
2. The elevations shown assume that only the Dead Load Deflection due to the structural steel weight has occured.



HAUNCH DETAIL

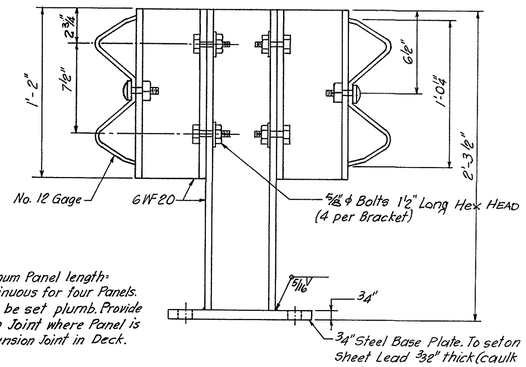


CONNECTION DETAIL
No Scale



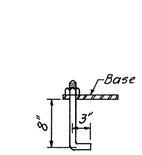
DETAIL OF TYPE SS GUARD RAIL AT END POSTS
No Scale

Note:
1. Type SS Guard Rail to be attached to all four End Posts.
2. See above for Section A-A, Recess Detail, Special Washer Detail and Connection Detail.

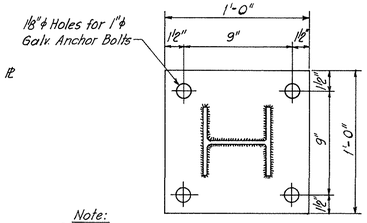


Notes:
Maximum Panel length = 6'-3" continuous for four Panels. Post shall be set plumb. Provide Expansion Joint where Panel is over Expansion Joint in Deck.

ELEVATION OF RAILING
Scale: 1" = 0'-6"

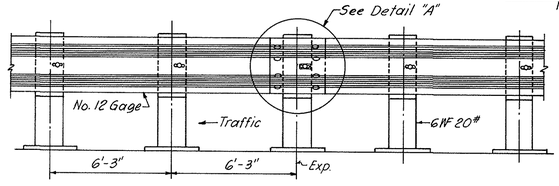


ANCHOR BOLT DETAIL
Scale: 1" = 1'-0"

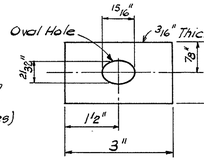


Note:
Steel For Posts, Anchor Bolts and Base Plates to be in accordance with the provisions of A.S.T.M. A-36

3/4" STEEL BASE PLATE
Scale: 1" = 0'-6"

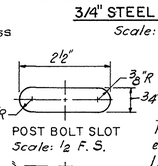


ELEVATION OF RAILING
Scale: 3/4" = 1'-0"

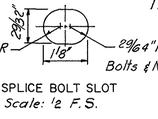


Rail Washer to be placed between rail and rail bolt head

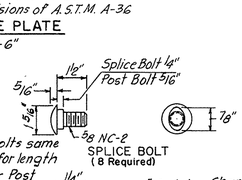
RAIL WASHER
Scale: 1/2 F.S.



POST BOLT SLOT
Scale: 1/2 F.S.

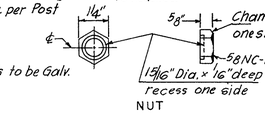


SPLICE BOLT SLOT
Scale: 1/2 F.S.



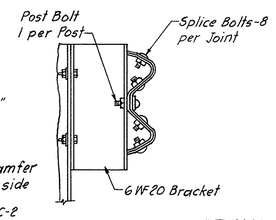
SPLICE BOLT (8 Required)

Note:
Post Bolts same except for length 1 req. per Post

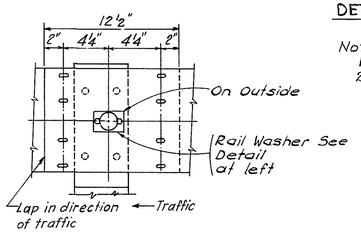


Bolts & Nuts to be Galv.

NUT



DETAIL "A"
Scale: 12" = 1'-0"

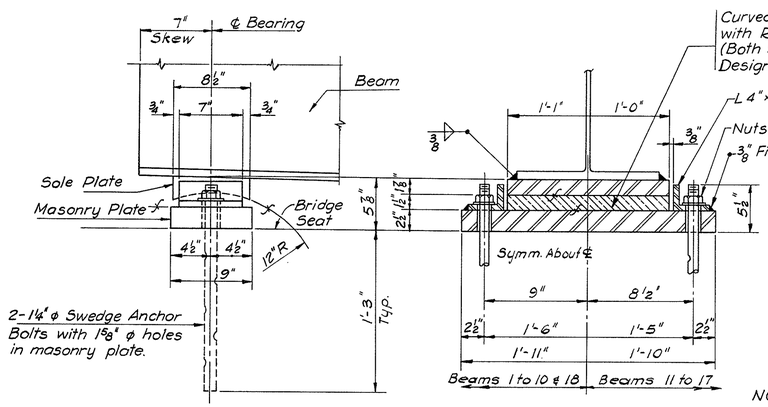


METAL BRIDGE RAILING TYPE M-2

DATE	DESCRIPTION
MAY 18, 1968	ISSUED FOR CONSTRUCTION
USE ONLY PRINTS OF LATEST DATE	

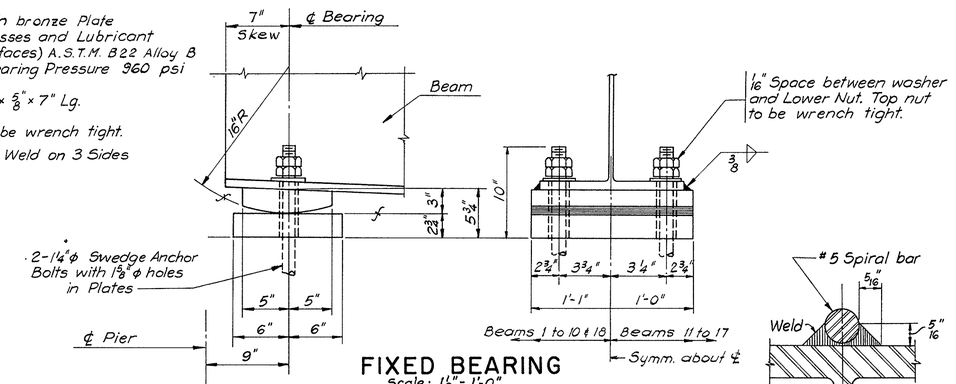
SHEET 9 OF 10 SHEETS BRIDGE NO. W-21-42

PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS	I-91-1(68)11	19	150	242



EXPANSION BEARING

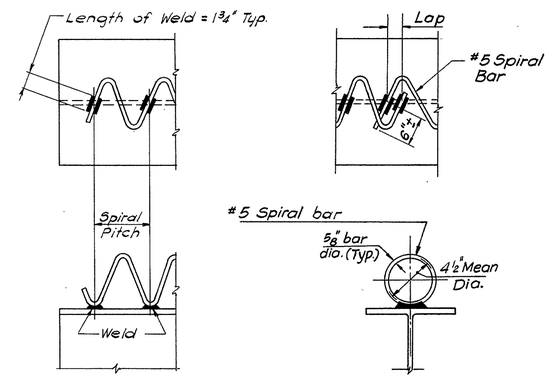
Scale: 1½"= 1'-0"



FIXED BEARING

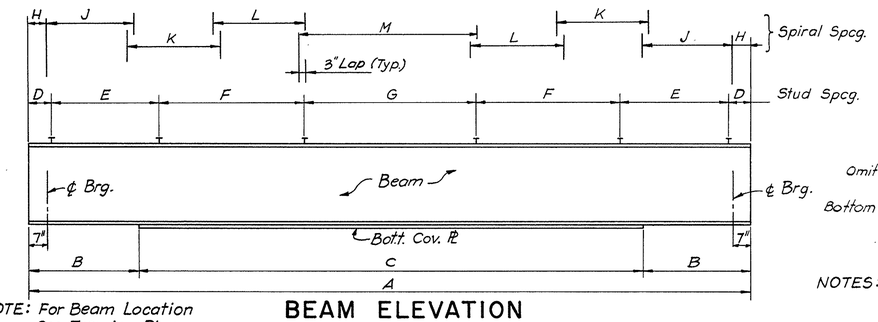
Scale: 1½"= 1'-0"

NOTES: Nuts Bolts and washers to be Galvanized.
Masonry plate shall have full and level bearing before placing the Stringers on the Bearing Assembly.
Bevel washers and Sole Pls as required by Profile.
The finished surfaces shall meet the American Standards Association Surface roughness requirements defined in ASA B 46-1 Surface roughness, waviness and lay, Part I.
f = ASA 125 Micro-inches or finer.



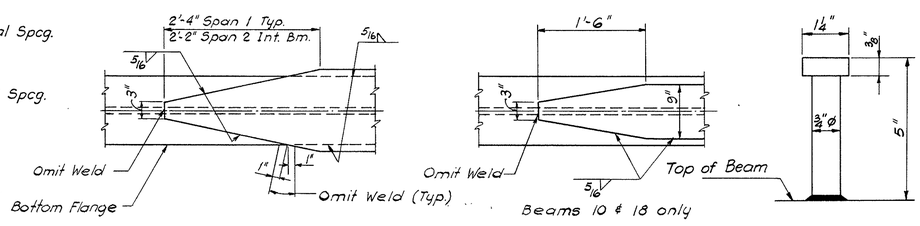
SPIRAL SHEAR CONNECTORS

Not to Scale.



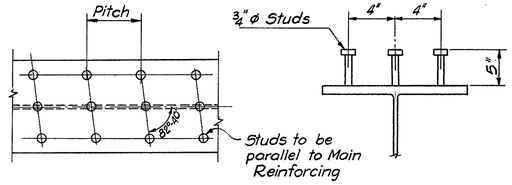
NOTE: For Beam Location See Framing Plan.

BEAM ELEVATION



COVER PLATE DETAILS

NOTES: a) Preparation of material for welding shall conform to Art. 402 AWS D2.0-66
b) Assembly of material for welding shall conform to Art. 403 AWS D2.0-66



STUD SHEAR CONNECTORS

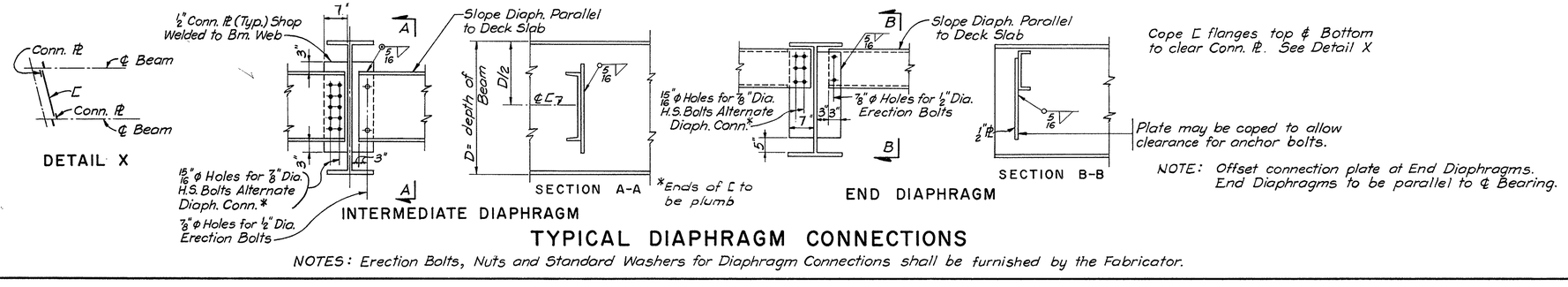
SPAN	BEAM NO.	SIZE	C. to C. BEARINGS	BOTT. COV. Pl.	DIMENSIONS A	B	C	SHEAR CONNECTOR SPACING STUDS D	E	F	G	SPIRALS H	J	K	L	M
1	Fascia	33 WF 118	63'-6"	14 x 13/16	64'-8"	5'-10"	53'-0"	6"	20@8"=13'-4"	9@14"=10'-6"	8@24"=16'-0"	7	20@5"=8'-4"	18@7"=10'-6"	10@10"=8'-4"	8@16"=10'-8"
1	Interior	33 WF 118	63'-6"	14 x 13/16	64'-8"	5'-10"	53'-0"	8"	21@8"=14'-0"	10@14"=11'-8"	6@24"=12'-0"	7	20@5"=8'-4"	18@7"=10'-6"	10@10"=8'-4"	8@16"=10'-8"
2	Fascia	33 WF 118	55'-0"	9 x 9/16	56'-2"	8'-1"	40'-0"	8"	13@9"=9'-9"	10@14"=11'-8"	6@24"=12'-0"	7	19@5"=7'-11"	14@7"=8'-2"	9@10"=7'-6"	7@16"=9'-4"
2	Interior	30 WF 99	55'-0"	13 x ¾	56'-2"	4'-10"	46'-6"	7"	18@8"=12'-0"	9@14"=10'-6"	5@24"=10'-0"	6	20@5"=8'-4"	15@7"=8'-9"	9@10"=7'-6"	6@15"=7'-6"

For Beam Location see Framing Plan Sh. 9

BEAM	CAMBER
B1 & B9	2'6"
B2 - B8	2'4"
B10 & B18	1'2"
B11 - B17	1'13/16"

Beams are to be fabricated so that under full load the ends will be plumb.

NOTE: ⅞" Diameter studs may be substituted for ¾" Diameter studs by providing an equivalent cross-sectional area and adjusting the pitch accordingly with a max. pitch of 18".
Shear connectors shall be either spirals or studs at the option of the Contractor.
Any welded joint prequalified by American Welding Society Specifications for Welded Highway & Railway Bridges (1966 Edition) will be acceptable in the Fabrication of Structural Steel.



NOTE: Offset connection plate at End Diaphragms. End Diaphragms to be parallel to ℄ Bearing.

TYPICAL DIAPHRAGM CONNECTIONS

NOTES: Erection Bolts, Nuts and Standard Washers for Diaphragm Connections shall be furnished by the Fabricator.

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