

# STATE OF VERMONT AGENCY OF TRANSPORTATION

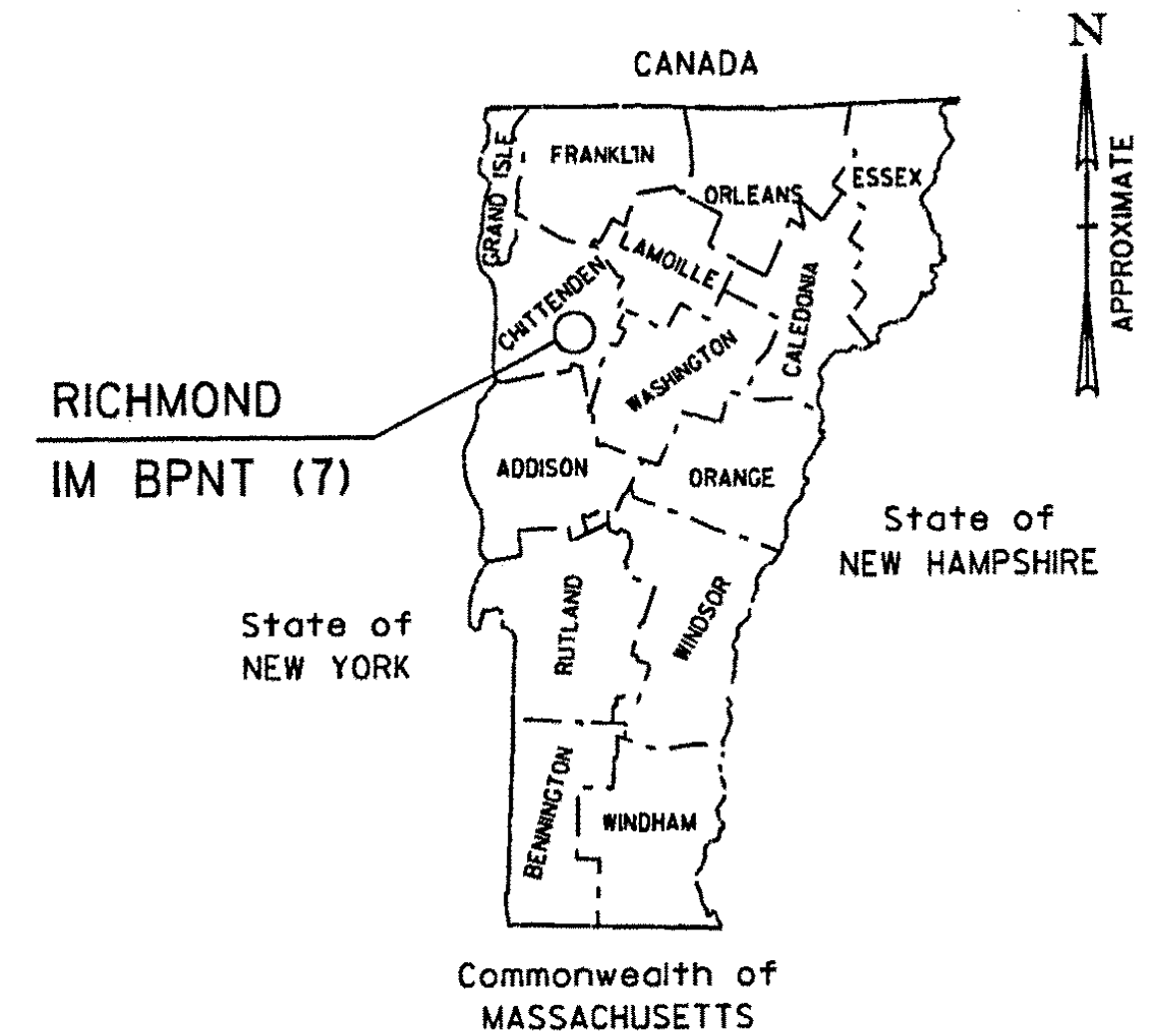


## PROPOSED IMPROVEMENT BRIDGE PROJECT

TOWN OF RICHMOND  
COUNTY OF CHITTENDEN  
BRIDGE NO. 57 N&S ON I-89

PROJECT LOCATION: BRIDGE NO. 57 N&S LOCATED ON I-89 OVER NECR, VERBURG ROAD AND BROOK.

PROJECT DESCRIPTION: THIS PROJECT INVOLVES CLEANING AND REPAINTING THE EXISTING STEEL SUPERSTRUCTURE MEMBERS AND MINOR ASSOCIATED WORK.



LOCATION MAP  
NOT TO SCALE

INDEX OF SHEETS

- 1 TITLE SHEET
- 2 QUANTITY SHEET
- 3 PROJECT NOTES & STANDARD DETAILS
- 4-6 TRAFFIC CONTROL SHEETS
- 7-10 REFERENCE SHEETS - BRIDGE 57
- 11-14 REFERENCE SHEETS - STANDARDS
- 15 REFERENCE SHEET - BRIDGE 57 RIGHT OF WAY

STANDARD SHEETS

E-100	CONSTRUCTION APPROACH SIGNS	01/02/04
E-100A	SIDE ROAD CONSTRUCTION-APPROACH SIGNS	01/02/04
E-101	CONSTRUCTION SIGN DETAILS	05/30/03
E-102	CONSTRUCTION SIGN DETAILS	06/30/03
E-102A	CONSTRUCTION SIGN DETAILS	05/01/04
E-103	MAINLINE TRAFFIC CONTROL DIVIDED HIGHWAY ONE LANE CLOSED	03/01/04
E-106	TRAFFIC CONTROL-MISCELLANEOUS DETAILS	03/01/04
E-107	DELINEATION, BARRICADES AND DETOURS FOR CONSTRUCTION AREAS	06/30/03
E-107A	BREAKAWAY BARRICADE DETAILS	06/08/09

RECORD PLANS

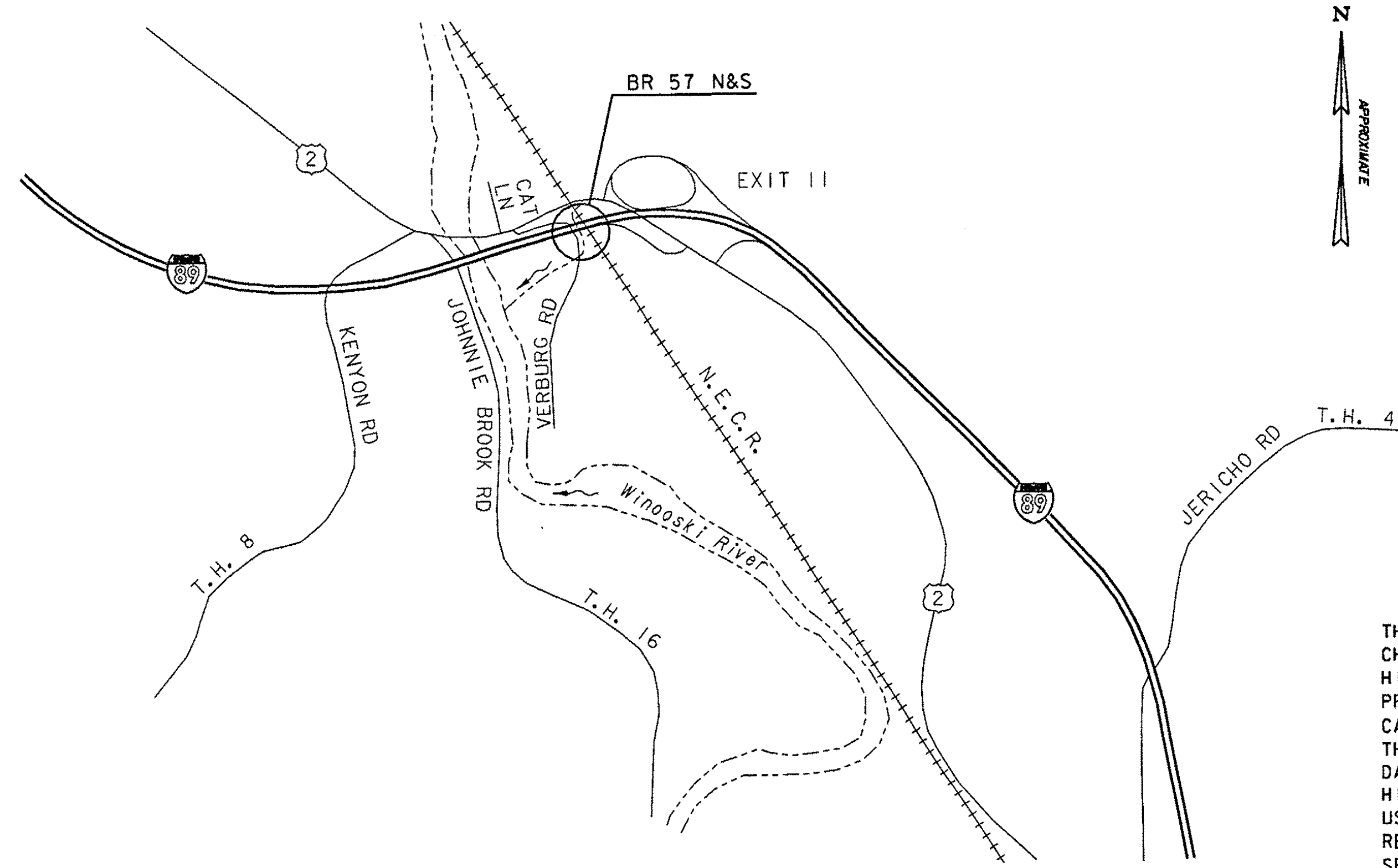
CONTRACTOR: ATSALIS BROTHERS PAINTING CO.-WARREN, MI  
 RESIDENT ENGINEER: SCOTT WHEATLEY  
 CONSTRUCTION BEGAN: AUGUST 23, 2010  
 CONSTRUCTION COMPLETE: MARCH 16, 2012  
 RECORD PLANS BY: SCOTT WHEATLEY

I HEREBY CERTIFY THAT ALL THE CONSTRUCTION REQUIRED BY THIS SET OF DRAWINGS HAS BEEN ACCOMPLISHED AS INDICATED HEREIN.

BY Scott Wheatley RESIDENT ENGINEER

DATE February 2012

NOTE: Any further information concerning final quantities, amounts or other details relative to this project may be found at Central Files in the electronic archives.



PLAN  
NOT TO SCALE

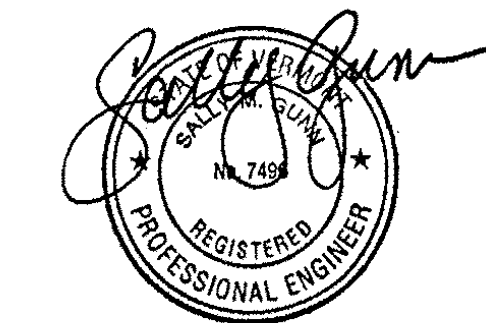
QUALITY ASSURANCE PROGRAM: LEVEL

**CONVENTIONAL SYMBOLS**

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

DATUM

VERTICAL N/A  
 HORIZONTAL N/A



THESE PLANS ARE SUBJECT TO SUCH ENGINEERING CHANGES AS MAY BE REQUIRED BY THE FEDERAL HIGHWAY ADMINISTRATION OR THE DIRECTOR OF PROGRAM DEVELOPMENT. CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE WITH THESE PLANS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2006, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON JUNE 15, 2006 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS.

DIRECTOR OF PROGRAM DEVELOPMENT	
APPROVED <u>Richard F. Sargent</u>	DATE <u>4/11/11</u>
PROJECT MANAGER : MARK SARGENT, P.E.	
PROJECT NAME : RICHMOND	
PROJECT NUMBER : IM BPNT (7)	
SHEET 1 OF 15 SHEETS	



# QUANTITY SHEET

SUMMARY OF ESTIMATED QUANTITIES										TOTALS		DESCRIPTIONS			DETAILED SUMMARY OF QUANTITIES				
					BRIDGE NO. 57 N	BRIDGE NO. 57 S	EROSION CONTROL	ROADWAY	RAILROAD	FULL CE ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
					500	500					1000		LB	STRUCTURAL STEEL	506.60				
					50	50					100		HR	TRUCK-MOUNTED ATTENUATOR	608.45				
					500	500					1000		LF	TEMPORARY TRAFFIC BARRIER	621.90				
					500	500					1000		LF	REMOVE AND RESET TEMPORARY TRAFFIC BARRIER	621.95				
					30	30					60		HR	UNIFORM TRAFFIC OFFICERS	630.10				
					120	120					240		HR	FLAGGERS	630.15				
										1	1		LS	FIELD OFFICE - ENGINEERS	631.10				
										1	1		LS	TESTING EQUIPMENT, PROTECTIVE COATINGS	631.18				
										3000	3000		DL	FIELD OFFICE - TELEPHONE (N.A.B.I.)	631.26				
								1			1		LS	MOBILIZATION/DEMOBILIZATION	635.11				
					1						1		LS	TRAFFIC CONTROL (I-89-BRIDGE NO. 57N)	641.10				
						1					1		LS	TRAFFIC CONTROL (I-89-BRIDGE NO. 57S)	641.10				
					2	2					4		EA	PORTABLE CHANGEABLE MESSAGE SIGN	641.15				
							50				50		SY	GEOTEXTILE FOR SILT FENCE	649.51				
							100				100		SY	TEMPORARY EROSION MATTING	653.20				
					1						1		LS	SPECIAL PROVISION (CONTAINMENT AND DISPOSAL OF LEAD PAINT CLEANING RESIDUES) (I-89-BR. NO. 57N)	900.645				
						1					1		LS	SPECIAL PROVISION (CONTAINMENT AND DISPOSAL OF LEAD PAINT CLEANING RESIDUES) (I-89-BR. NO. 57S)	900.645				
					1						1		LS	SPECIAL PROVISION (QC/QA CLEAN AND PAINT EXISTING STEEL STRUCTURES, BARE STEEL) (I-89-BR. NO. 57N)	900.645				
						1					1		LS	SPECIAL PROVISION (QC/QA CLEAN AND PAINT EXISTING STEEL STRUCTURES, BARE STEEL) (I-89-BR. NO. 57S)	900.645				
									1		1		LU	SPECIAL PROVISION (MAINTENANCE OF RAILROAD TRAFFIC) (N.A.B.I.)	900.650				

PROJECT NAME: RICHMOND	PLOT DATE: 4/26/2011
PROJECT NUMBER: IM BPNT (7)	DRAWN BY: B. J. MASSE
FILE NAME: z10a056qs.dgn	CHECKED BY: S. M. GUNN
PROJECT LEADER: S. M. GUNN	QUANTITY SHEET
DESIGNED BY: B. J. MASSE	SHEET 2 OF 15



**PROJECT NOTES:**

**GENERAL**

- ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO STATE OF VERMONT, AGENCY OF TRANSPORTATION, 2006 STANDARD SPECIFICATIONS FOR CONSTRUCTION, AND ITS LATEST REVISIONS.
- ALL WORK AND ANY ASSOCIATED ACTIVITY ON THIS PROJECT SHALL BE PERFORMED WITHIN THE EXISTING RIGHT-OF-WAY LIMITS. THE RIGHT-OF-WAY FOR ALL HIGHWAYS OTHER THAN I-89, SHALL BE ASSUMED TO BE 3 RODS UNLESS SHOWN OTHERWISE ON REFERENCE PLANS.
- STAGING AREAS OFF THE PAVEMENT SHALL UNDERGO VTRANS CONSTRUCTION STAGING REVIEW. ALL DISTURBED STAGING AREAS SHALL BE RESTORED TO THEIR ORIGINAL CONDITION. TEMPORARY STAGING AREAS OFF PAVEMENT, IF APPROVED, SHALL UTILIZE ITEMS 649.51 GEOTEXTILE FOR SILT FENCE AND 653.20 TEMPORARY EROSION MATTING TO PREVENT EROSION AND CONTROL SEDIMENT FROM THE STAGING AREAS.
- ALL COSTS ASSOCIATED WITH EXTENDING OR FILLING THE DRAIN TUBES SHALL BE INCIDENTAL TO ITEM 900.645, SPECIAL PROVISION (QC/QA CLEAN AND PAINT EXISTING STEEL STRUCTURES, BARE STEEL).
- GREASE COATING SHALL BE APPLIED TO ALL BEAMS AND DIAPHRAGMS WITHIN 20 FEET OF EACH ABUTMENT (FIXED AND EXPANSION JOINTS); AND AT PIERS FROM BEAM END TO A LENGTH EQUAL TO TWO TIMES THE BEAM DEPTH FROM POINT OF BEARING AND SHALL INCLUDE ALL EXPOSED SURFACE AREAS OF ATTACHMENTS OR MEMBERS WITHIN THE DISTANCE. COST SHALL BE INCIDENTAL TO ITEM 900.645, SPECIAL PROVISION (QC/QA CLEAN AND PAINT EXISTING STEEL STRUCTURES, BARE STEEL).
- THE CONTRACTOR SHALL NOT DRILL OR DOWEL INTO THE PIERS FOR CONTAINMENT SUPPORT OR ANY OTHER WORK.

**TRAFFIC CONTROL**

- THE CONTRACTOR SHALL SUBMIT SITE SPECIFIC TRAFFIC CONTROL PLANS DEPICTING EACH PHASE OF THE PLANNED WORK FOR ANY WORK ON I-89 OR FROM THE ROADS BELOW THE BRIDGES. THE DESIGN SHALL ENSURE STATE-REGULATED WIDE LOADS CAN BE ACCOMMODATED DURING LANE CLOSURES. TRAFFIC CONTROL PLANS SHALL BE DEVELOPED IN ACCORDANCE WITH THE 2009 M.U.T.C.D. SITE CONDITIONS MAY WARRANT ADDITIONAL CONSIDERATIONS FOR SAFETY. PLANS SHALL BE SUBMITTED IN ACCORDANCE WITH SUBSECTION 105.03 AND SHALL BE STAMPED BY A PROFESSIONAL ENGINEER LICENSED IN AN APPROPRIATE DISCIPLINE IN THE STATE OF VERMONT.
- THE CONTRACTOR SHALL OBTAIN THE MOST CURRENT TRAFFIC VOLUMES FOR I-89 FOR USE IN THE PROJECT SPECIFIC TRAFFIC CONTROL PLANS.

BRIDGE NUMBER	2009 AADT	
	NORTHBOUND	SOUTHBOUND
57	13,700	13,700

- THE TRAFFIC CONTROL PLANS SHALL SHOW ALL RAMPS AND I-89 ACCELERATION AND DECELERATION LANES AT EXIT II.
- UNIFORMED TRAFFIC OFFICERS ARE REQUIRED FOR THE TRAFFIC CONTROL DESIGN ON I-89.
- NIGHT WORK WILL BE THE PREFERRED METHOD OF CONSTRUCTION UNLESS OTHERWISE APPROVED BY THE RESIDENT ENGINEER. LANE CLOSURES WILL NOT BE ALLOWED DURING THE FOLLOWING TIME PERIODS:
  - I-89 NORTHBOUND**
    - 6AM-10AM MONDAY-THURSDAY
    - 6AM-10AM AND 2PM-7PM FRIDAY
  - I-89 SOUTHBOUND**
    - 3PM-7PM MONDAY-THURSDAY
    - 2PM-7PM FRIDAY
- UNLESS COVERED UNDER INDIVIDUAL PAY ITEMS, ALL COSTS FOR TEMPORARY TRAFFIC CONTROL DEVICES WILL BE CONSIDERED TO BE INCLUDED IN THE CONTRACT LUMP SUM PRICE FOR TRAFFIC CONTROL, ITEM 641.10.
- THE PORTABLE CHANGEABLE MESSAGE SIGNS (PCMS) AND PRINT MEDIA SHALL BE USED 2 WEEKS IN ADVANCE OF NIGHTTIME LANE CLOSURE AS DIRECTED BY THE ENGINEER.
- RIGHT-OF-WAY FENCE MAY HAVE TO BE REMOVED AND RESET IN ACCORDANCE WITH SECTION 620 FOR EGRESS AND INGRESS. THIS WORK SHALL BE INCIDENTAL TO TRAFFIC CONTROL, ITEM 641.10.
- ALL EQUIPMENT AND CONTAINMENT FACILITIES SHALL BE PROTECTED BY A CONCRETE BARRIER OVERNIGHT AND DURING NON-WORKING HOURS.
- THE WIDTH OF VERBURG ROAD SHALL NOT BE DECREASED UNDER THE BRIDGES.

**RAILROAD**

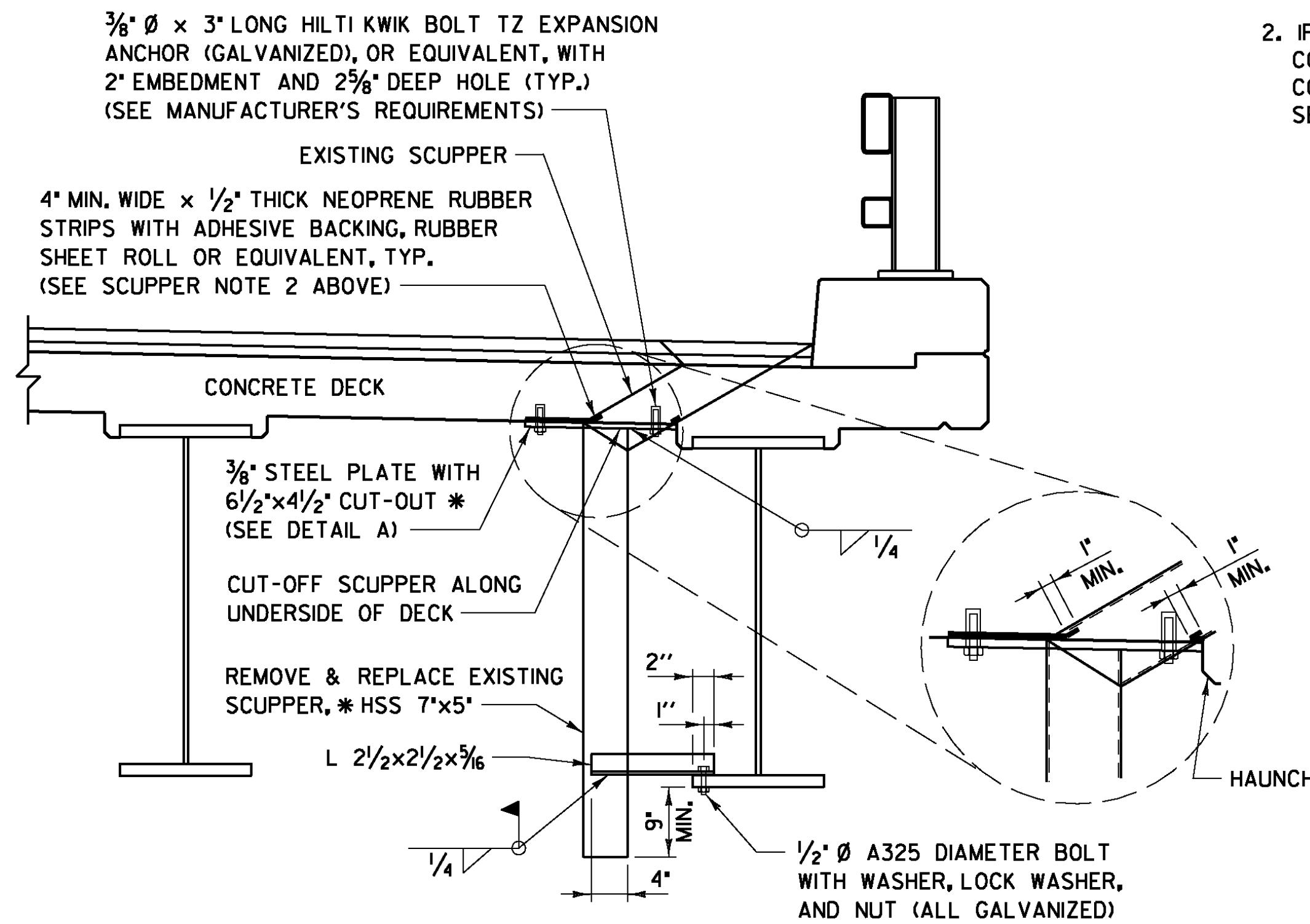
- REFER TO RAILROAD SPECIAL PROVISIONS.

**UTILITIES**

- REFER TO UTILITIES SPECIAL PROVISIONS.

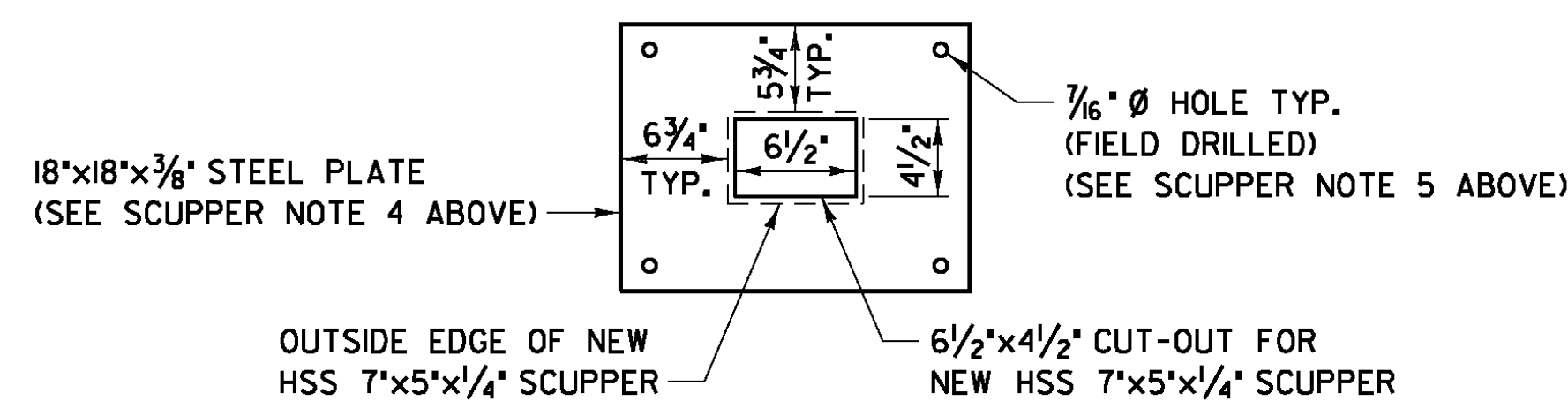
**SCUPPERS**

- ALL DETERIORATED SCUPPERS WITH SIGNIFICANT LOSS OF SECTION THAT CAN NOT BE SUFFICIENTLY REPAIRED BY CLEANING AND PAINTING SHALL BE CUT-OFF ABOVE DETERIORATION AND REPAIRED. IF THE DETERIORATION EXTENDS TO THE UNDERSIDE OF THE DECK, THE SCUPPER SHALL BE CUT-OFF AND REPLACED. THE ENGINEER SHALL APPROVE EACH DETERIORATED SCUPPER IDENTIFIED BY THE CONTRACTOR PRIOR TO BEING REPAIRED OR REPLACED. WORK SHALL BE PAID UNDER ITEM 506.60, STRUCTURAL STEEL.
- ADHESIVE SIDE OF NEOPRENE SHALL BE PLACED ON UNDERSIDE OF CONCRETE DECK AND INTERIOR OF EXISTING SCUPPER AROUND PERIMETER OF DRAIN. NEOPRENE SHALL COVER ENTIRE SURFACE OF THE STEEL PLATE AND EXTEND A MINIMUM OF 1 INCH UP INTO THE INTERIOR OF THE EXISTING SCUPPER DRAIN. NEOPRENE, EXPANSION ANCHOR AND OTHER MATERIALS NECESSARY FOR SCUPPER REPAIR OR REPLACEMENT SHALL BE INCIDENTAL TO ITEM 506.60.
- ALL EXISTING DIMENSIONS AND SCUPPER SIZES SHALL BE FIELD VERIFIED.
- PLATE WILL BE CUT IN THE FIELD TO ACCOMMODATE HAUNCH.
- BOLT HOLES SHALL BE FIELD DRILLED AND SHALL HAVE A MINIMUM EDGE DISTANCE OF 1.5 INCHES.
- ALL NEW STEEL SHALL BE ZINC PRIMED AND PAINTED WITH INTERNATIONAL PAINTS INTERFINE 979 PAINT SYSTEM.
- ALL WELDING SHALL CONFORM WITH THE PROVISIONS OF SUBSECTION 506.10.
- HOLLOW STRUCTURAL STEEL TUBING SHALL CONFORM TO ASTM A 500 GRADE B OR ASTM A 501.
- STEEL PLATES AND ANGLES SHALL CONFORM TO AASHTO M270, GRADE 50 (ASTM A709, GRADE 50).
- HIGH STRENGTH BOLTS, NUTS, AND CIRCULAR WASHERS SHALL CONFORM TO SUBSECTION 714.05.



**SCUPPER REPLACEMENT DETAIL**

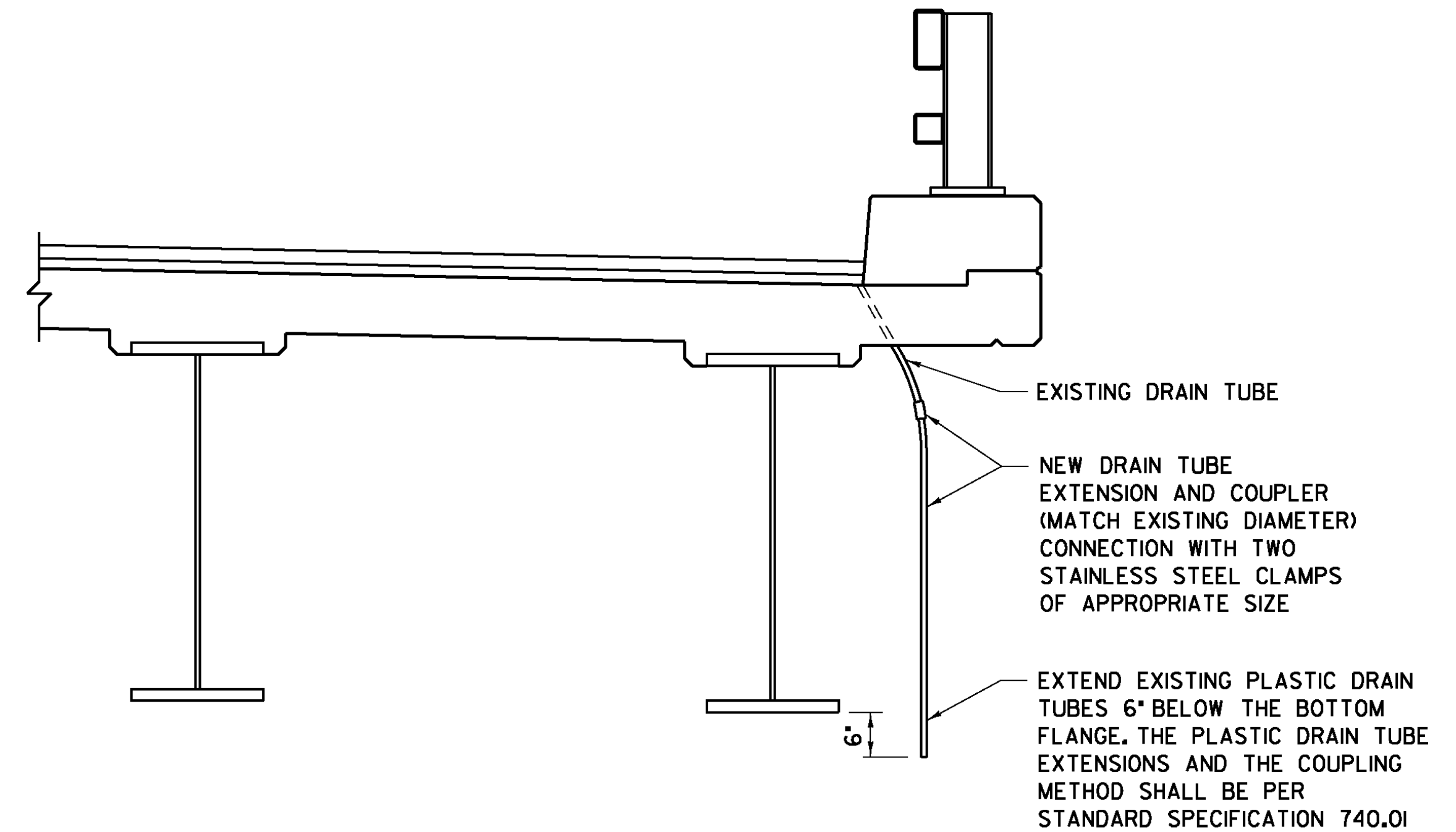
NOT TO SCALE



**DETAIL A \***

NOT TO SCALE

\* EXISTING SCUPPER SIZES TO BE VERIFIED BY CONTRACTOR  
SCUPPER PLATE MAY REQUIRE ADDITIONAL RESIZING IN THE FIELD

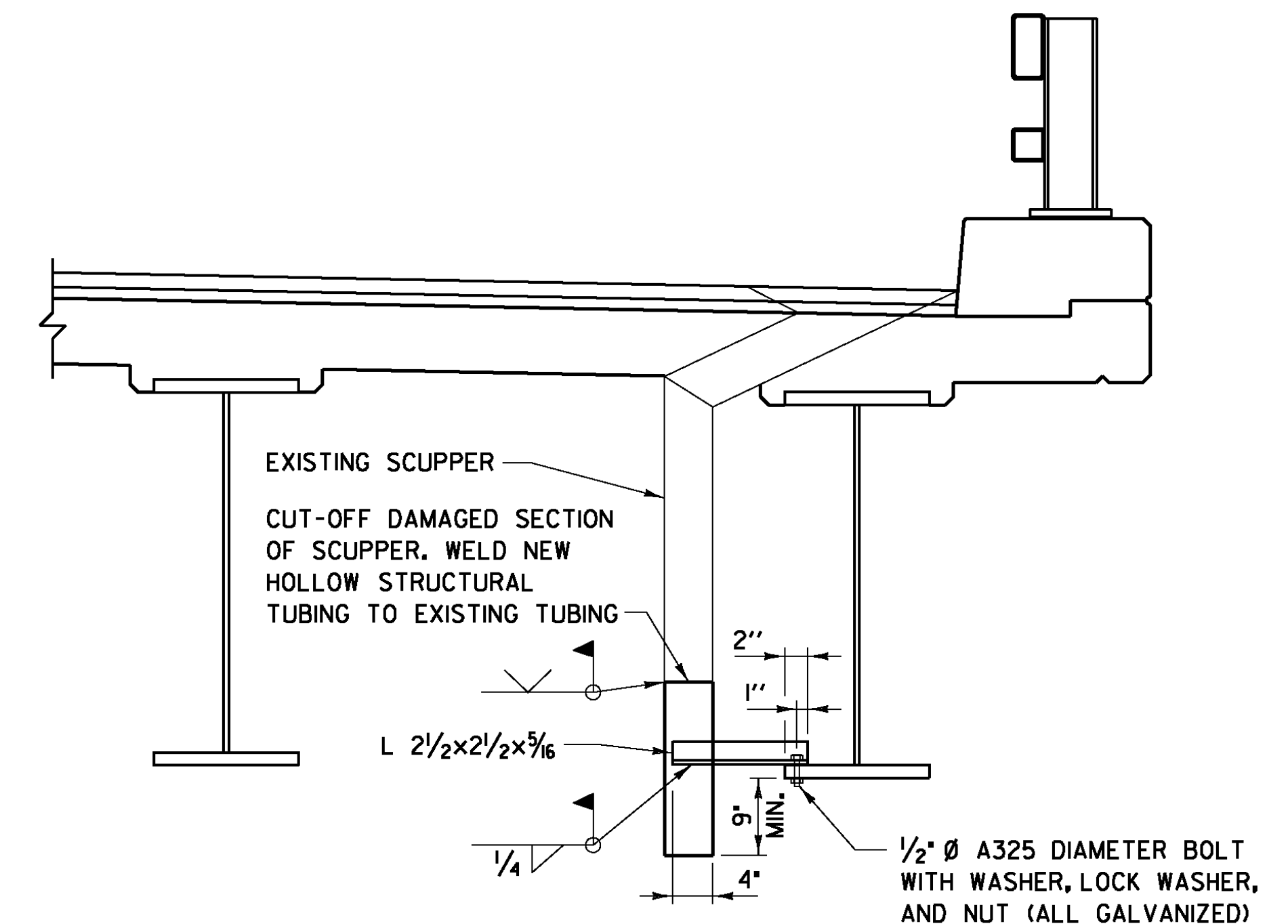


**DRAIN TUBE EXTENSION DETAIL**

NOT TO SCALE

**NOTES:**

- DRAIN TUBE EXTENSION DETAIL TO BE USED WHERE THE END OF EXISTING TUBES ARE LESS THAN 6\"/>
- IF EXISTING DRAIN TUBE IS TOO SHORT TO PROVIDE AN ADEQUATE CONNECTION, THE CONTRACTOR SHALL COMPLETELY FILL THE TUBE WITH POLYURETHANE SEALANT CONFORMING TO SUBSECTION 707.05. TUBES TO BE FILLED WITH POLYURETHANE SEALANT SHALL BE APPROVED BY THE ENGINEER PRIOR TO BEING FILLED.



**SCUPPER REPAIR DETAIL**

NOT TO SCALE

PROJECT NAME: RICHMOND

PROJECT NUMBER: IM BPNT (7)

FILE NAME: z10a056det.dgn

PROJECT LEADER: S. M. GUNN

DESIGNED BY: G. M. EDINGTON

PROJECT NOTES & STANDARD DETAILS

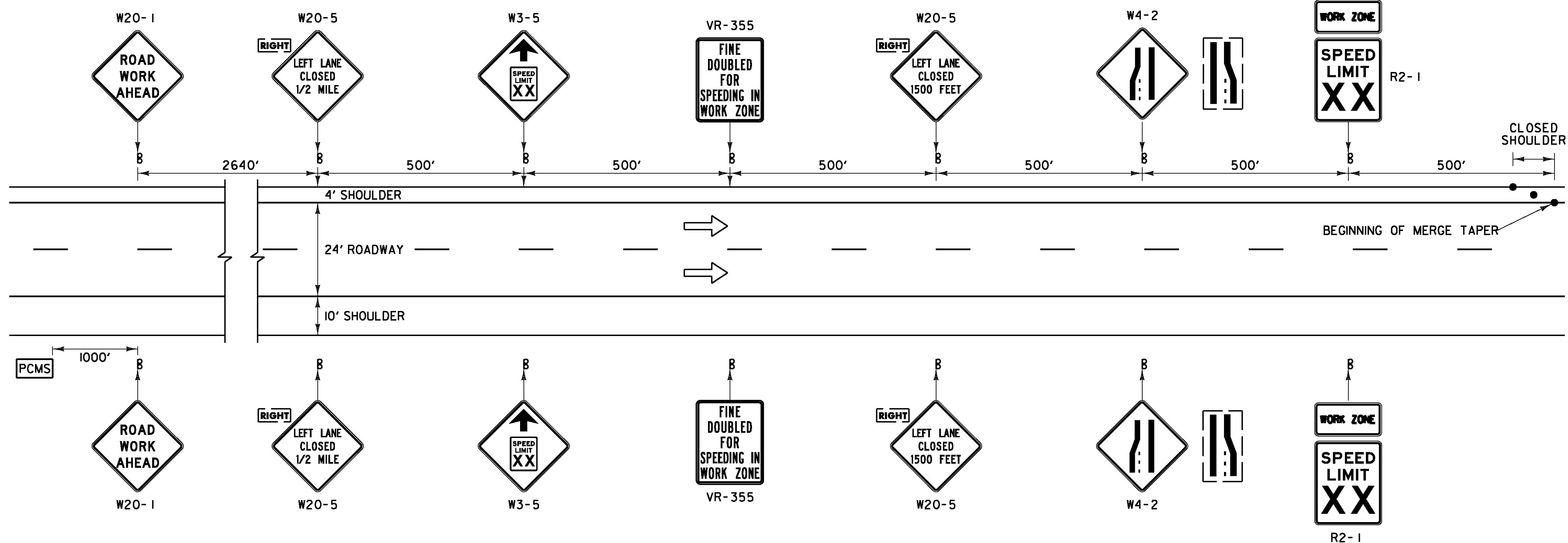
PLOT DATE: 4/20/2011

DRAWN BY: B. J. MASSE

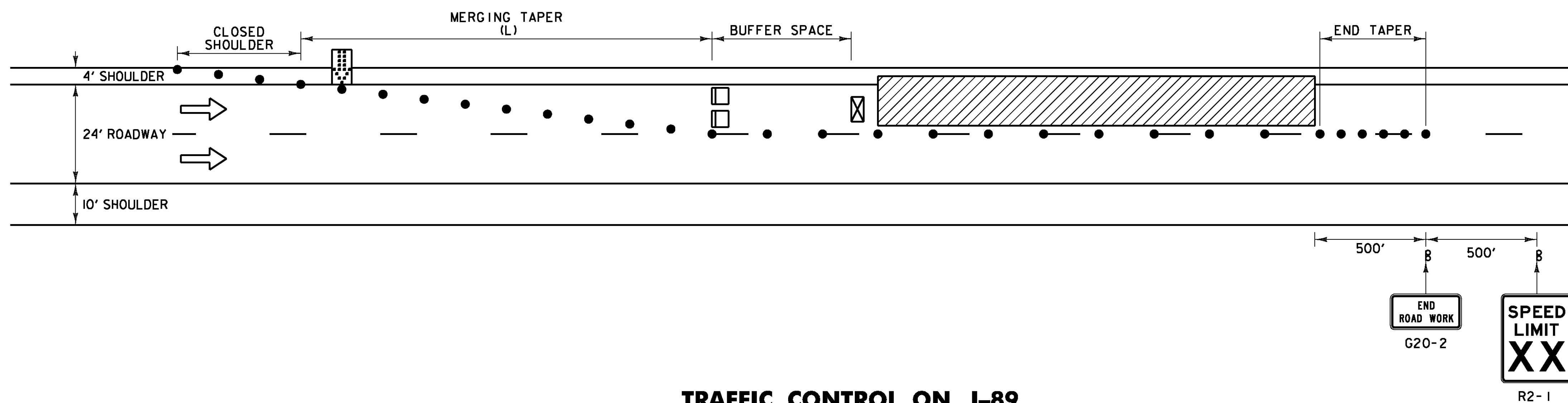
CHECKED BY: S. M. GUNN

SHEET 3 OF 15





**CONSTRUCTION APPROACH SIGNING ON I-89**



**TRAFFIC CONTROL ON I-89**

**TRAFFIC CONTROL NOTES I-89:**

1. THE TRAFFIC CONTROL PLAN SHOWN IS A SCHEMATIC ONLY AND SHOULD BE USED AS AN EXAMPLE ONLY. THE CONTRACTOR SHALL SUBMIT A SITE SPECIFIC TRAFFIC CONTROL PLAN FOR BRIDGES 57N AND 57S TO VTRANS FOR APPROVAL. PAYMENT FOR PREPARING AND SUBMITTING THE TRAFFIC CONTROL PLAN, AND MAKING ANY NECESSARY REVISIONS TO THE PLAN, WILL BE INCLUDED IN THE UNIT PRICE BID FOR CONTRACT ITEM 6410. THE CONTRACTOR SHALL ALLOW TWO WEEKS FOR APPROVAL OF THE TRAFFIC CONTROL PLAN. NO WORK SHALL COMMENCE UNTIL THE CONTRACTOR HAS AN APPROVED TRAFFIC CONTROL PLAN.
2. THE EXISTING SPEED LIMIT FOR I-89 IS 65 MPH. THE SPEED LIMIT WILL BE REDUCED TO 50 MPH IN THE WORK ZONE FOR THIS PROJECT. ANY EXISTING SPEED LIMIT SIGNS WITHIN THE SPEED REDUCTION AREA SHALL BE COMPLETELY COVERED.
3. SIGNS SHALL BE INSTALLED SO AS NOT TO OBSTRUCT EXISTING SIGNS.
4. ALL SIGNS SHALL BE IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) AND THE "STANDARD HIGHWAY SIGNS" BOOK (SHS) PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION (FHWA).
5. SOLID SUBSTRATE CONSTRUCTION SIGNS SHALL HAVE RETROREFLECTIVE SHEETING EQUAL TO OR EXCEEDING "AMERICAN SOCIETY FOR TESTING AND MATERIALS" (ASTM) TYPE VII, VIII OR IX REQUIREMENTS, UNLESS OTHERWISE NOTED.
6. ROLL UP SIGNS SHALL HAVE RETROREFLECTIVE SHEETING EQUAL TO OR EXCEEDING ASTM TYPE VI.
7. SIGNS SHALL BE ERECTED BEFORE THE START OF ANY WORK AND SHALL BE COVERED UNTIL WORK COMMENCES, DURING PERIODS OF INACTIVITY OR UPON COMPLETION OF THE WORK. EACH SIGN SHALL BE ERECTED IN A NEAT AND WORKMANLIKE MANNER. SIGNS SHALL BE REMOVED UPON COMPLETION OF THE WORK AT THE DISCRETION OF THE ENGINEER.
8. FIXED SIGNS SHALL BE SET SECURELY IN THE GROUND. THE BOTTOM OF A SIGN SHALL BE AT LEAST SEVEN FEET ABOVE THE EDGE OF PAVEMENT. THE NEAREST EDGE OF A SIGN SHALL BE AT LEAST SIX FEET OUTSIDE THE SHOULDER POINT OR FOUR FEET OUTSIDE GUARDRAIL.
9. PORTABLE SIGNS SHALL BE PLACED ON THE EDGE OF ROADWAY AND A ONE FOOT MINIMUM ABOVE TRAVELED WAY. ALL VEGETATION THAT INTERFERES WITH VISIBILITY OF THE SIGNS SHALL BE REMOVED. WHEN PLACED BEHIND GUARDRAIL, THE BOTTOM OF THE SIGN FACE SHALL BE ABOVE THE TOP OF THE GUARDRAIL.
10. WHERE SIGN INSTALLATIONS ARE NOT PROTECTED BY GUARDRAIL OR OTHER APPROVED TRAFFIC BARRIERS, ALL SIGN STANDS AND POST INSTALLATIONS SHALL BE "NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM" (NCHRP) REPORT 350 COMPLIANT. NO SIGN POSTS SHALL EXTEND OVER THE TOP OF THE SIGN INSTALLED ON SAID POST(S). WHEN ANCHORS ARE INSTALLED STUB SHALL NOT BE GREATER THAN FOUR INCHES ABOVE EXISTING GROUND.
11. THE CONTRACTOR SHALL HAVE SIGNS FOR CLOSURE OF RIGHT AND LEFT LANES ON PROJECT BEFORE WORK COMMENCES.
12. THE NUMBER OF CHANNELIZING DEVICES, TYPE III BARRICADE AND OTHER TRAFFIC CONTROL DEVICES SHOWN ARE FOR ILLUSTRATIVE PURPOSES ONLY. THE ACTUAL NUMBER REQUIRED ARE TO BE DETERMINED BASED ON INDIVIDUAL DETOUR CONDITIONS (TAPERS, SPEED LIMITS, LENGTH OF DETOUR, CURVE, ETC.). WARNING LIGHTS SHALL NOT BE USED ON CHANNELIZING DEVICES.
13. PLACE LAST CHANNELIZING DEVICE 100 FEET BEYOND THE ANTICIPATED WORK ZONE TERMINAL POINT EACH DAY AND THEN START THE END TAPER. THE END TAPER SHALL BE CONSTRUCTED OF 5 ADDITIONAL RETROREFLECTIVE DRUMS SPACED AT 10 FEET ON CENTER.
14. THE ARROW BOARD SHALL BE PLACED ON THE SHOULDER OF THE ROADWAY, OR IF PRACTICAL FURTHER FROM THE TRAVELED LANE AT THE END OF THE SHOULDER TAPER.
15. THE PORTABLE CHANGEABLE MESSAGE SIGNS (PCMS) SHALL BE USED AT THE DISCRETION OF THE ENGINEER, THE PCMS SHALL BE USED IN ACCORDANCE WITH SECTION 6F.55 OF THE MUTCD.
16. TRAVEL LANE SHALL BE MINIMUM 12 FEET WIDE.

**LEGEND**

- FLOW OF TRAFFIC
- RETROREFLECTIVE PLASTIC DRUM
- PORTABLE ARROW BOARD
- TYPE III BARRICADE
- WORK AREA
- TRUCK/TRAILER MOUNTED ATTENUATOR
- PORTABLE CHANGEABLE MESSAGE SIGN (SEE NOTE 15)

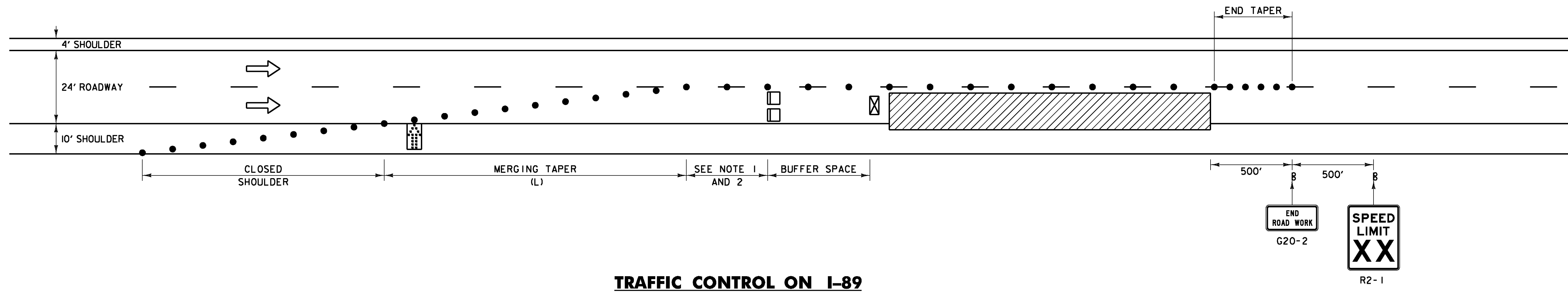
POSTED SPEED (MPH)	TAPER LENGTHS (FT)		TANGENT W=12 FT (L/2)	BARRIER FLARE RATE (MINIMUM)	MINIMUM BUFFER SPACE LENGTH (FT)	MAXIMUM CHANNELIZING DEVICE SPACING (FT)	
	SHOULDER W=10 FT (L/3)	MERGING 12 FT LANE (L)				TAPER (S)	TANGENT (2S)
≤40	90	320	160	1:9	305	40	80
45	150	540	270	1:9	360	45	90
50	170	600	300	1:11	425	50	100
55	185	660	330	1:13	495	55	110
60	200	720	360	1:13	570	60	120
65	215	780	390	1:13	645	65	130

TAPER RATES ARE DETERMINED USING THE FOLLOWING EQUATION:  
 $L = WS$  FOR POSTED SPEEDS OF 45 MPH OR GREATER  
 $L = WS^2/60$  FOR POSTED SPEEDS OF 40 MPH OR LESS

L = MINIMUM LENGTH OF TAPER  
W = WIDTH OF OFFSET IN FEET. (TYPICAL)  
S = POSTED SPEED IN MPH



PROJECT NAME: RICHMOND	PLOT DATE: 4/20/2011
PROJECT NUMBER: IM BPNT (7)	DRAWN BY: VTRANS
FILE NAME: z10a056tc.dgn	CHECKED BY: S. M. GUNN
PROJECT LEADER: S. M. GUNN	TRAFFIC CONTROL (SHEET 1 OF 3)
DESIGNED BY: VTRANS	SHEET 4 OF 15



**TRAFFIC CONTROL ON I-89**

**TRAFFIC CONTROL NOTES:**

SEE NOTES ON SHEET 4

**LEGEND**

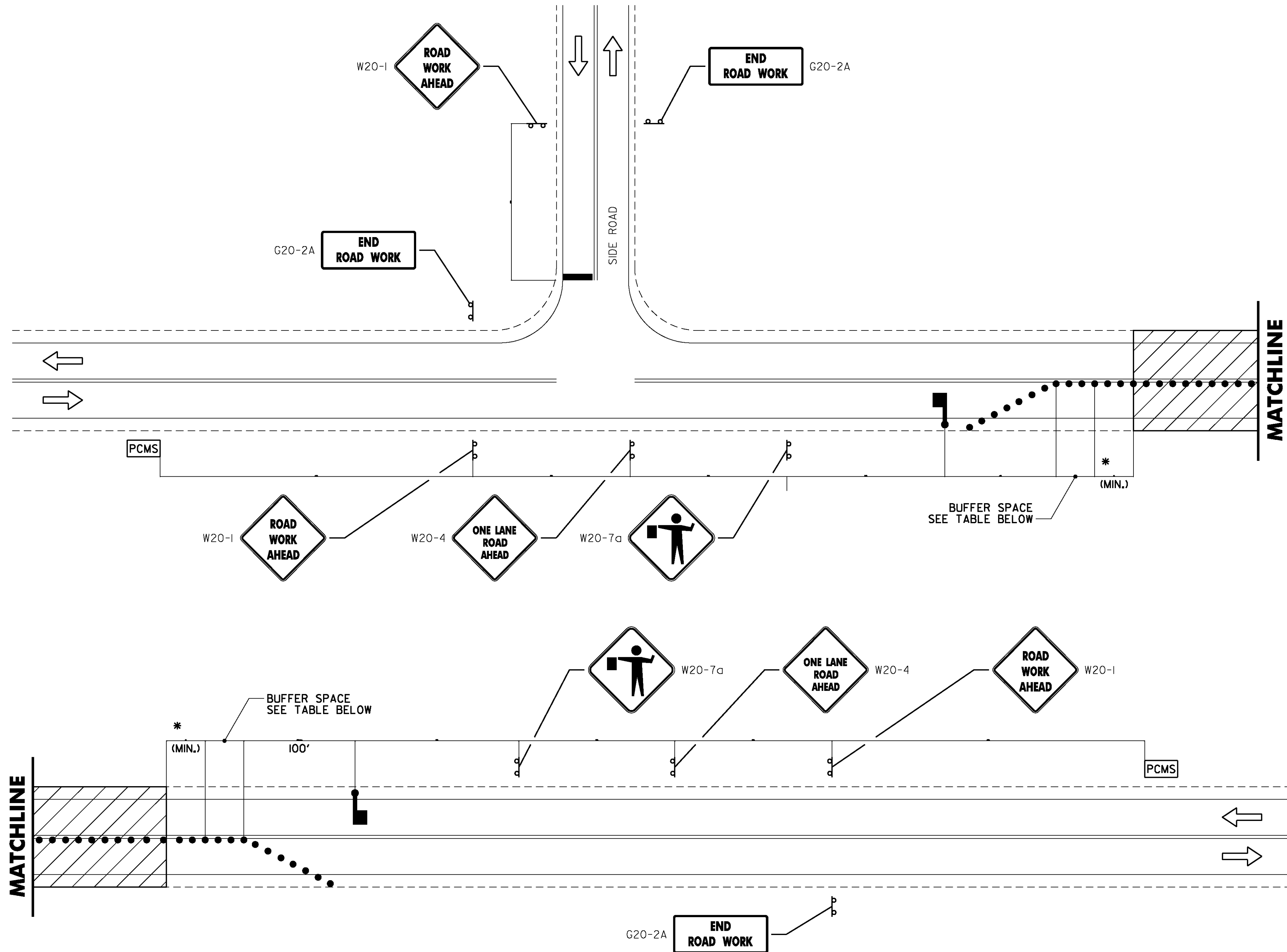
- FLOW OF TRAFFIC
- RETROREFLECTIVE PLASTIC DRUM
- PORTABLE ARROW BOARD
- TYPE III BARRICADE
- WORK AREA
- TRUCK/TRAILER MOUNTED ATTENUATOR
- PORTABLE CHANGEABLE MESSAGE SIGN (SEE NOTE 15 ON TRAFFIC CONTROL SHEET 1)

POSTED SPEED (MPH)	TAPER LENGTHS (FT)		TANGENT W=12 FT (L/2)	BARRIER FLARE RATE (MINIMUM)	MINIMUM BUFFER SPACE LENGTH (FT)	MAXIMUM CHANNELIZING DEVICE SPACING (FT)	
	SHOULDER W=10 FT (L/3)	MERGING 12 FT LANE (L)				TAPER (S)	TANGENT (2S)
≤40	90	320	160	1:9	305	40	80
45	150	540	270	1:9	360	45	90
50	170	600	300	1:11	425	50	100
55	185	660	330	1:13	495	55	110
60	200	720	360	1:13	570	60	120
65	215	780	390	1:13	645	65	130

TAPER RATES ARE DETERMINED USING THE FOLLOWING EQUATION:  
 $L = WS$  FOR POSTED SPEEDS OF 45 MPH OR GREATER  
 $L = WS^2/60$  FOR POSTED SPEEDS OF 40 MPH OR LESS  
 L = MINIMUM LENGTH OF TAPER  
 W = WIDTH OF OFFSET IN FEET. (TYPICAL)  
 S = POSTED SPEED IN MPH

PROJECT NAME: RICHMOND	PLOT DATE: 4/20/2011
PROJECT NUMBER: 1M BPNT (7)	DRAWN BY: VTRANS
FILE NAME: z10a056tc.dgn	CHECKED BY: S. M. GUNN
PROJECT LEADER: S. M. GUNN	TRAFFIC CONTROL (SHEET 2 OF 3)
DESIGNED BY: VTRANS	SHEET 5 OF 15





\* - ACTUAL DIMENSION TO BE DETERMINED BY INDIVIDUAL BRIDGE SITE CONDITIONS AND TO BE SHOWN ON TRAFFIC CONTROL PLANS SUBMITTED BY THE CONTRACTOR.

**TRAFFIC CONTROL PLAN ON HIGHWAYS BELOW BRIDGES**  
NOT TO SCALE

**LEGEND**

- FLOW OF TRAFFIC
- RETROREFLECTIVE PLASTIC DRUM OR CONCRETE BARRIER
- WORK AREA
- FLAGGER
- PORTABLE CHANGEABLE MESSAGE SIGN (SEE NOTE 13)

**TRAFFIC CONTROL NOTES OTHER HIGHWAYS:**

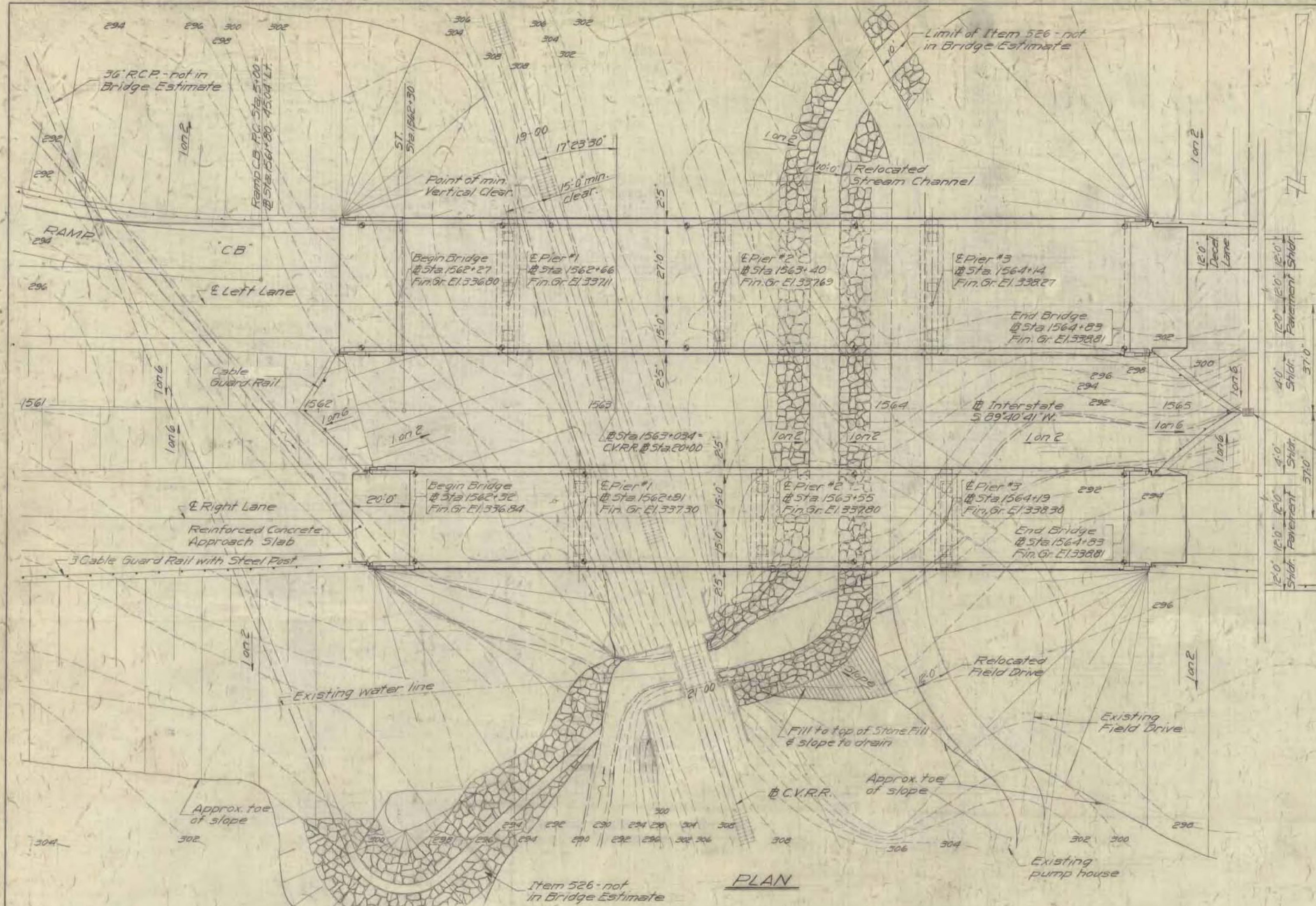
1. THE TRAFFIC CONTROL PLAN SHOWN IS A SCHEMATIC ONLY AND SHOULD BE USED AS AN EXAMPLE ONLY. THE CONTRACTOR SHALL SUBMIT A SITE SPECIFIC TRAFFIC CONTROL PLAN FOR BRIDGES 57N AND 57S TO VTRANS FOR APPROVAL. PAYMENT FOR PREPARING AND SUBMITTING THE TRAFFIC CONTROL PLAN, AND MAKING ANY NECESSARY REVISIONS TO THE PLAN, WILL BE INCLUDED IN THE UNIT PRICE BID FOR CONTRACT ITEM 64110. THE CONTRACTOR SHALL ALLOW TWO WEEKS FOR APPROVAL OF THE TRAFFIC CONTROL PLAN. NO WORK SHALL COMMENCE UNTIL THE CONTRACTOR HAS AN APPROVED TRAFFIC CONTROL PLAN.
2. ANY PARKING AREAS OR DRIVES WITH AN ENTRANCE/EXIT BETWEEN THE FLAGGER AND THE WORK ZONE SHALL HAVE THAT ENTRANCE/EXIT CLOSED WITH CONES OR DRUMS, PROVIDED ADDITIONAL ENTRANCES/EXITS EXIST IN THE AREA APPROACHING THE FLAGGER.
3. ANY PUBLIC HIGHWAYS BETWEEN THE FLAGGER AND THE WORK ZONE WILL REQUIRE AN ADDITIONAL FLAGGER TO MAINTAIN TRAFFIC CONTROL FOR THE PUBLIC HIGHWAY.
4. SIGNS SHALL BE INSTALLED SO AS NOT TO OBSTRUCT EXISTING SIGNS OR CORNER SIGHT DISTANCE FROM TOWN HIGHWAYS OR DRIVES.
5. ALL SIGNS SHALL BE IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) AND THE "STANDARD HIGHWAY SIGNS" BOOK (SHS) PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION (FHWA).
6. SOLID SUBSTRATE CONSTRUCTION SIGNS SHALL HAVE RETROREFLECTIVE SHEETING EQUAL TO OR EXCEEDING "AMERICAN SOCIETY FOR TESTING AND MATERIALS" (ASTM) TYPE VII, VIII OR IX REQUIREMENTS, UNLESS OTHERWISE NOTED.
7. ROLL UP SIGNS SHALL HAVE RETROREFLECTIVE SHEETING EQUAL TO OR EXCEEDING ASTM TYPE VI.
8. SIGNS SHALL BE ERECTED BEFORE THE START OF ANY WORK AND SHALL BE COVERED UNTIL WORK COMMENCES, DURING PERIODS OF INACTIVITY OR UPON COMPLETION OF THE WORK. EACH SIGN SHALL BE ERECTED IN A NEAT AND WORKMANLIKE MANNER. SIGNS SHALL BE REMOVED UPON COMPLETION OF THE WORK AT THE DISCRETION OF THE ENGINEER.
9. FIXED SIGNS SHALL BE SET SECURELY IN THE GROUND. THE BOTTOM OF A SIGN SHALL BE AT LEAST SEVEN FEET ABOVE THE EDGE OF PAVEMENT. THE NEAREST EDGE OF A SIGN SHALL BE AT LEAST SIX FEET OUTSIDE THE SHOULDER POINT OR FOUR FEET OUTSIDE GUARDRAIL.
10. PORTABLE SIGNS SHALL BE PLACED ON THE EDGE OF ROADWAY AND AT ONE FOOT MINIMUM ABOVE TRAVELED WAY. ALL VEGETATION THAT INTERFERES WITH VISIBILITY OF THE SIGNS SHALL BE REMOVED. WHEN PLACED BEHIND GUARDRAIL, THE BOTTOM OF THE SIGN FACE SHALL BE ABOVE THE TOP OF THE GUARDRAIL.
11. WHERE SIGN INSTALLATIONS ARE NOT PROTECTED BY GUARDRAIL OR OTHER APPROVED TRAFFIC BARRIERS, ALL SIGN STANDS AND POST INSTALLATIONS SHALL BE "NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM" (NCHRP) REPORT 350 COMPLIANT. NO SIGN POSTS SHALL EXTEND OVER THE TOP OF THE SIGN INSTALLED ON SAID POST(S). WHEN ANCHORS ARE INSTALLED STUB SHALL NOT BE GREATER THAN FOUR INCHES ABOVE EXISTING GROUND.
12. THE NUMBER OF CHANNELIZING DEVICES SHOWN ARE FOR ILLUSTRATIVE PURPOSES ONLY. THE ACTUAL NUMBER REQUIRED ARE TO BE DETERMINED BY THE CONTRACTOR AND SHOWN ON THE TRAFFIC CONTROL PLAN SUBMITTED BY THE CONTRACTOR. WARNING LIGHTS SHALL NOT BE USED ON CHANNELIZING DEVICES.
13. THE PORTABLE CHANGEABLE MESSAGE SIGN (PCMS) SHALL BE USED AT THE DISCRETION OF THE ENGINEER. THE PCMS SHALL BE USED IN ACCORDANCE WITH SECTION 6F.55 OF THE MUTCD. THE PCMS SHALL READ "ONE WAY TRAFFIC AHEAD BE PREPARED TO STOP".

**BUFFER SPACE TABLE**

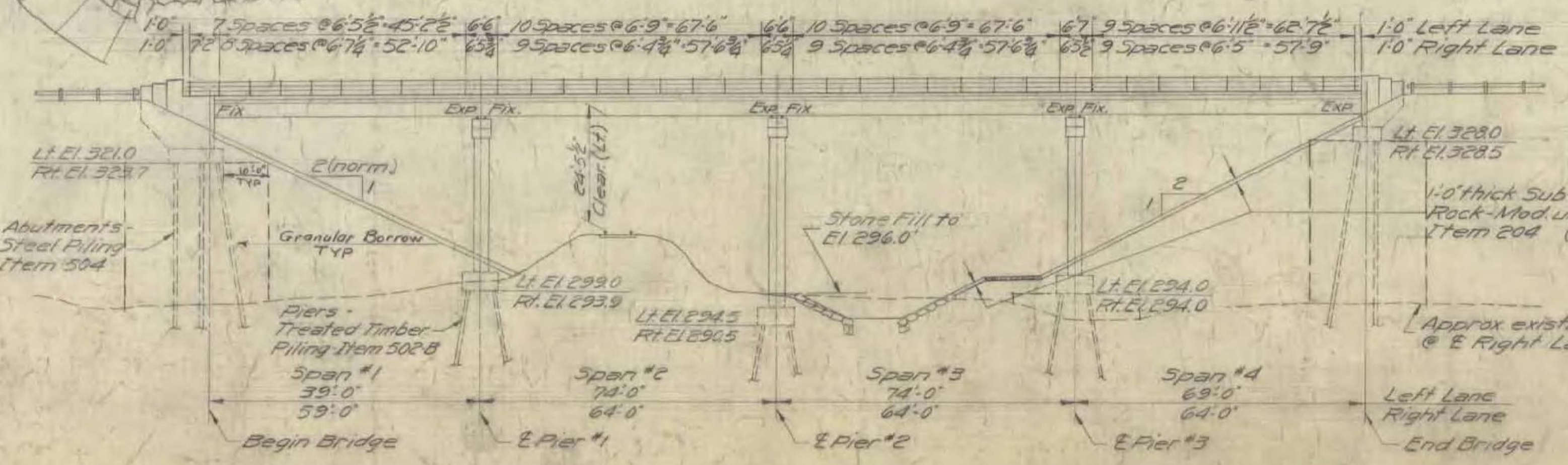
POSTED SPEED (MPH)	MINIMUM BUFFER SPACE LENGTH (FT)
35	250
40	305
45	360
50	425

PROJECT NAME: RICHMOND  
 PROJECT NUMBER: 1M BPNT (7)  
 FILE NAME: z10a056tc.dgn  
 PROJECT LEADER: S. M. GUNN  
 DESIGNED BY: VTRANS  
 TRAFFIC CONTROL (SHEET 3 OF 3)

PLOT DATE: 4/20/2011  
 DRAWN BY: VTRANS  
 CHECKED BY: S. M. GUNN  
 SHEET 6 OF 15



PLAN



ELEVATION

12. All expansion material shall be pre-molded cork containing no bituminous or asphalt.

INDEX OF DRAWINGS

- Dr. 1. General Plan & Elevation
- Dr. 2. Profiles & Sections
- Dr. 3. Boring Logs
- Dr. 4. East Abutment - Left Lane
- Dr. 5. West Abutment - Left Lane
- Dr. 6. East Abutment - Right Lane
- Dr. 7. West Abutment - Right Lane
- Dr. 8. Piers - Left Lane
- Dr. 9. Piers - Right Lane
- Dr. 10. East Approach Slab - Left Lane
- Dr. 11. West Approach Slab - Left Lane
- Dr. 12. East Approach Slab - Right Lane
- Dr. 13. West Approach Slab - Right Lane
- Dr. 14. Reinforcement Sheet 1 of 2
- Dr. 15. Reinforcement Sheet 2 of 2

REFERENCE DRAWINGS

- STANDARD DRAWINGS
- 5CB-30-60
  - 5CB-42-60
  - 5CB-D-60
  - 5B-55-60
  - 5B-20-60
  - 5B-22-60

DI not included in Bridge Estimate

RICHMOND  
IM BPNT (7)  
SHEET 7 OF 15  
BRIDGE 57  
FOR REFERENCE ONLY

GENERAL NOTES:

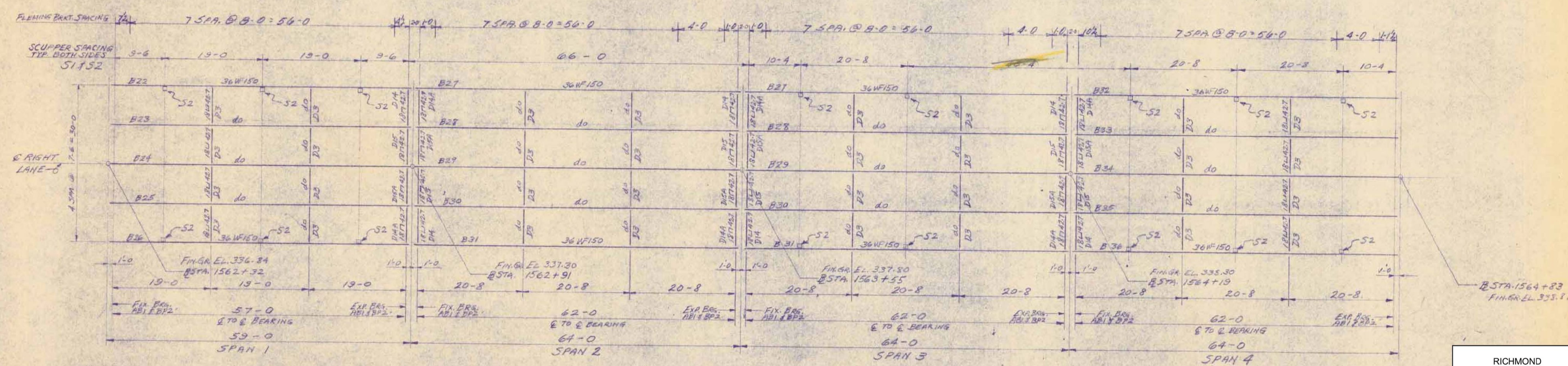
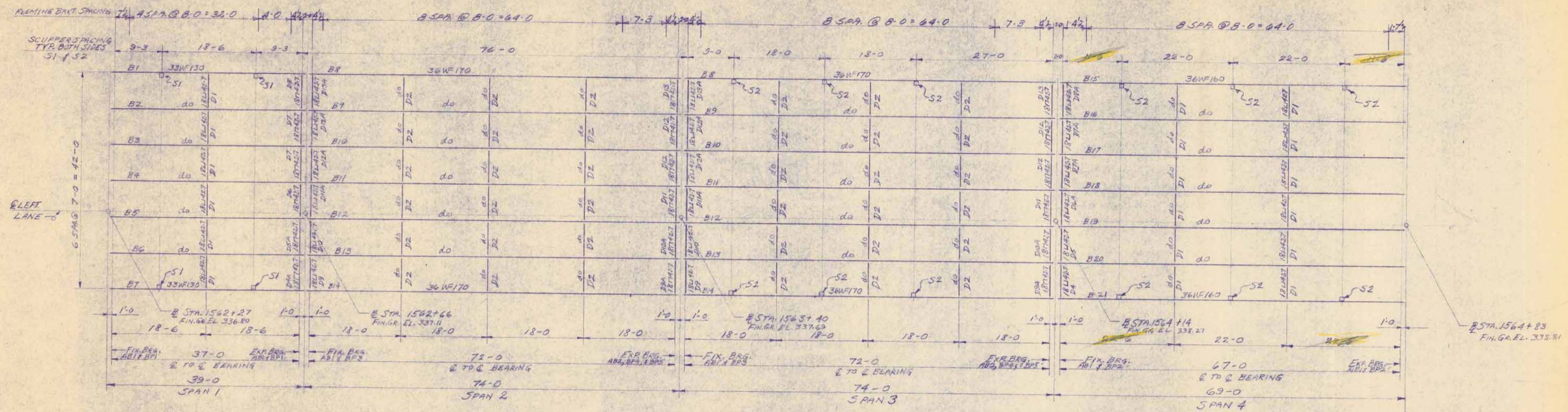
1. Materials and construction shall conform to State of Vermont Department of Highways Standard Specifications for Highway and Bridge Construction dated 1956.
2. All design in accordance with A.A.S.H.O. Standard Specifications for Highway Bridges, dated 1957. Loading is H20-316-44 truck, as modified for National System of Interstate Highways.
3. Hydraulic Data:
  - a) Existing Structure under C.V.R.R.:
    - Clear Span = 13'
    - Clear Height = 12'
    - Extreme High Water El. = 294.7
    - All water passes through this structure.
  - b) New Structure: (E Interstate)
    - Extreme High Water El. = 294.5
    - Waterway to E.H.W. = 72 sf.
    - Velocity @ E.H.W. = 7.6 fps
    - Discharge @ E.H.W. = 350 cfs.
    - Drainage Area = 1625 Acres
    - Character of Terrain - Hilly
    - Drift, Scour & Ice - Light
    - All water will pass through this structure.
4. Piers shall be supported on 12" dia. Treated Timber Piles - Item 502B. Abutments shall be supported on 12" dia. steel bearing piles - Item 504. Estimated length of piles:
  - Lt. Lane: E. Abut. = 70'
  - Piers = 40'
  - W. Abut. = 70'
  - Rt. Lane: E. Abut. = 95'
  - Piers = 45'
  - W. Abut. = 100'
5. The final coat of field paint shall be green unless otherwise directed by the Engineer.
6. All dimensions given are measured horizontally or vertically unless otherwise noted or shown.
7. All dimensions given at 68°F.
8. All reinforcement to have a clear cover of 2" unless otherwise noted.
9. All exposed edges of concrete shall be chamfered 1" unless otherwise noted.
10. Steel Bearing Piles shall be driven to ledge rock or refusal unless otherwise approved by the Engineer. When piles are driven in fill, the material shall be Granular Boron, Item 102-A. (Fill to be brought to elev. at top of piles before driving - then excavate 107).
11. Unless otherwise called for all beams shall be cambered as specified on 3CB-0-60.
12. (See note on top of page).

PRELIMINARY INFORMATION SHEET FOR BRIDGES

VERMONT  
STATE HIGHWAY DEPARTMENT  
TOWNS OF BOLTON - RICHMOND  
INTERSTATE ROUTE 89  
INTERSTATE BRIDGE OVER C.V.R.R.

GENERAL PLAN AND ELEVATION  
M<sup>c</sup>FARLAND - JOHNSON  
CONSULTING ENGINEERS  
BINGHAMTON, NEW YORK

DESIGNED LWS CHECKED H.B. DATE: 7-25-61  
DRAWN CEZ IN CHARGE NSC SCALE 1"=20'  
PROJECT NO. I 89-2(8) SH 131 OF 261



PLACEMENT PLAN

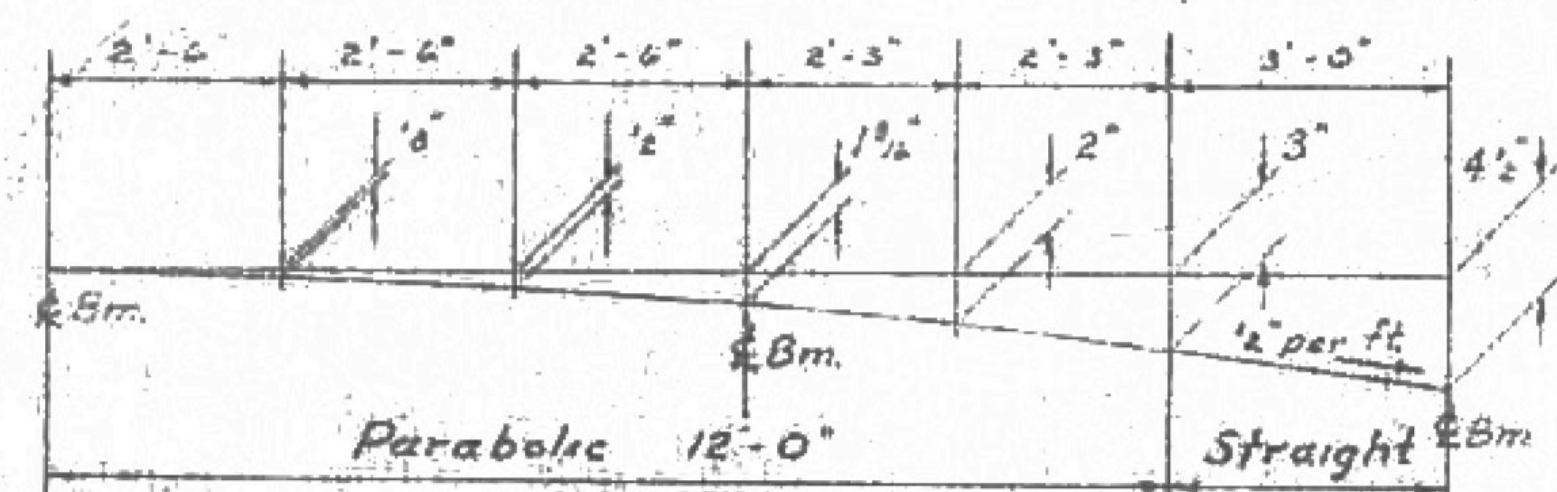
*CHK RPO  
1/3/62  
Approved  
1/2/62  
J.H.T.*

RICHMOND  
IM BPNT (7)  
SHEET 8 OF 15  
BRIDGE 57  
FOR REFERENCE ONLY

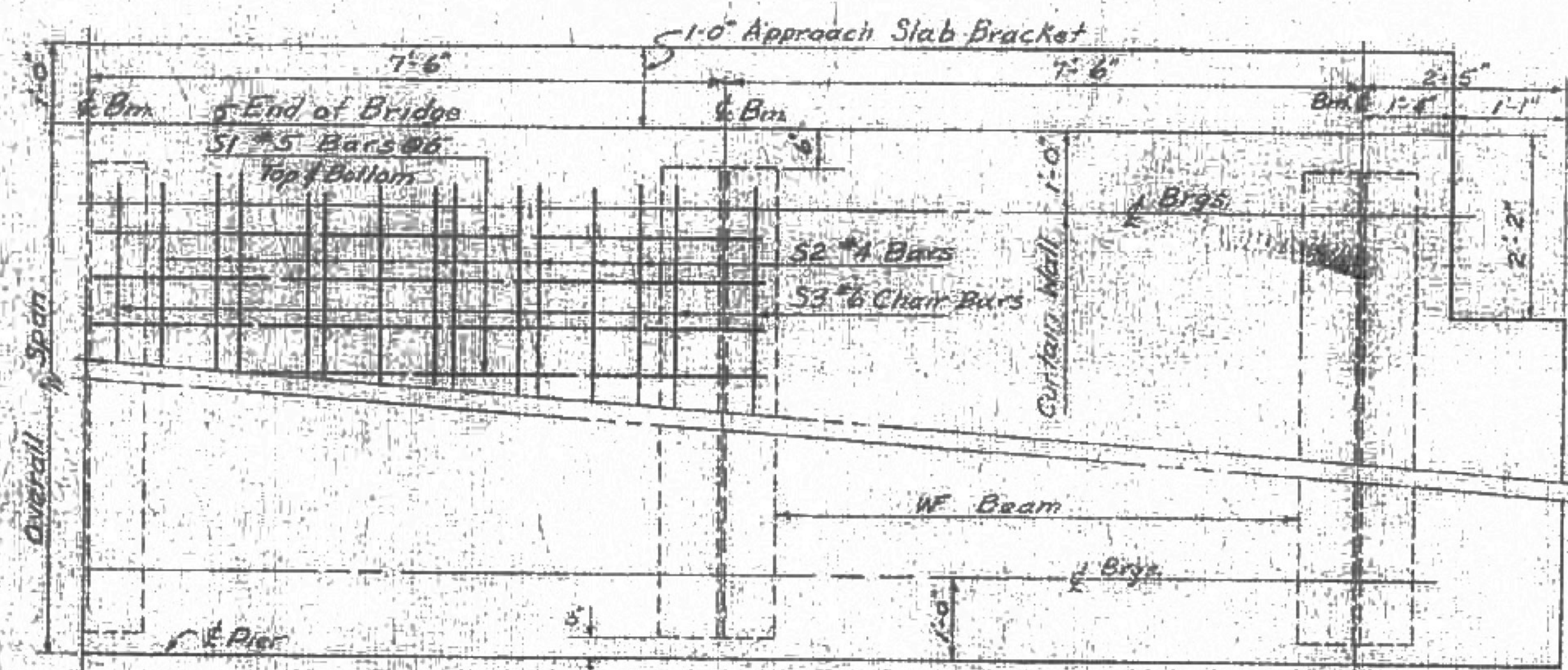
VERMONT STRUCTURAL STEEL CORPORATION				PRINT RECORD		
BURLINGTON, VT.				NO.	FOR	DATE
REV. PER	DATE	PROJECT	INTERSTATE BRIDGE OVER C.V.R.R.	2	PROJEN	12-12
DRAWN BY	11-20-60	LOCATION	TOWNS OF BOLTON - RICHMOND R. 89	3	APP	12-12
CRD BY	W.T.G.	CUSTOMER	CARTIER CONST. CO.	2	CHG	12-12
HOLE		ARCHITECT	VT. STATE HIGHWAY DEPT.	3	APP	1-22
REVTS		JOB NO.	62-644-11			
FAINT	RL (Vt. Steel)	SHEET NO.	PI			



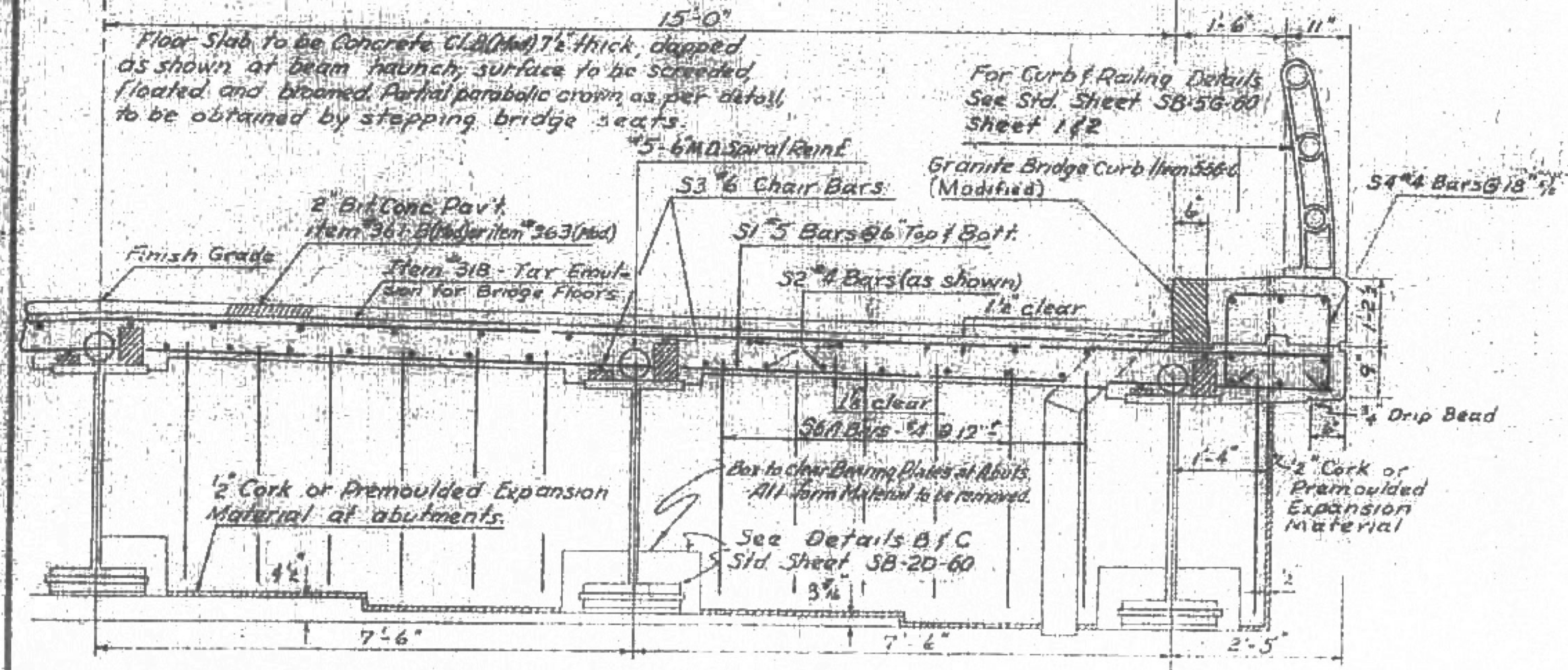




DETAIL OF PARTIAL PARABOLIC CROWN OF SLAB



HALF PLAN



TYPICAL HALF SECTION

**TABLE OF QUANTITIES FOR SINGLE (SQUARE) SPAN**

Span, Out to Out	99-0	94-0	89-0	84-0	79-0	74-0	69-0	64-0	59-0	54-0	49-0	44-0	39-0	34-0
Span E to E Brngs.	97-0	92-0	87-0	82-0	77-0	72-0	67-0	62-0	57-0	52-0	47-0	42-0	37-0	32-0
Length of Brngs.	98-0	93-0	88-0	83-0	78-0	73-0	68-0	63-0	58-0	53-0	48-0	43-0	38-0	33-0
Size W Beam	36WF300	36WF300	36WF300	36WF245	36WF194	36WF170	36WF160	36WF150	36WF150	36WF150	36WF150	36WF150	33WF130	30WF116
Lght. of Size Bot Cover R.	84" x 12"	78" x 12"	72" x 12"	66" x 12"	60" x 12"	54" x 12"	48" x 12"	42" x 12"	36" x 12"	30" x 12"	24" x 12"	18" x 12"	12" x 12"	6" x 12"
Dead load Deflection	3"	2 1/2"	2 1/8"	2 1/4"	1 7/8"	1 1/2"	1 1/4"	1"	7/8"	5/8"	1/2"	3/8"	1/4"	1/8"
Mean Dia. of Spiral														Non Composite
Spiral Pitch 0'-10" from Brng.	Double @ 5"	Double @ 5 1/2"	Double @ 6"	Double @ 6 1/2"	Double @ 7"	Double @ 7 1/2"	Double @ 8"	Double @ 8 1/2"	Double @ 9"	Double @ 9 1/2"	Double @ 10"	Double @ 10 1/2"	Double @ 11"	Double @ 11 1/2"
10'-20' or E Span	Double @ 6"	Double @ 6 1/2"	Double @ 7"	Double @ 7 1/2"	Double @ 8"	Double @ 8 1/2"	Double @ 9"	Double @ 9 1/2"	Double @ 10"	Double @ 10 1/2"	Double @ 11"	Double @ 11 1/2"	Double @ 12"	Double @ 12 1/2"
20'-30' or E Span	4 1/2"	4"	3 1/2"	3"	2 1/2"	2"	1 1/2"	1 1/4"	1 1/8"	1 1/16"	3/8"	1/4"	1/8"	1/16"
30'-40' or E Span	5 1/2"	5"	4 1/2"	4"	3 1/2"	3"	2 1/2"	2"	1 1/2"	1 1/4"	1 1/8"	1 1/16"	3/8"	1/4"
40'-E Span	7"	7"	8"	8"	6"	6"	7"	7 1/2"						
Length of #4 Studs (Other than 4 span)	(2 Studs required per patch, 62" long unless otherwise specified on the plans)													
Total Steel (1 span) (lbs)	192,860	169,900	156,910	123,370	99,000	82,950	69,500	59,080	52,070	46,560	41,610	37,780	28,150	22,190
Reinforcing Bars - S1	376	374	359	336	316	296	276	256	236	216	196	176	156	136
-S2	192	192	192	192	192	192	192	192	192	192	192	192	192	192
-S3	30	30	30	30	30	30	30	30	30	30	30	30	30	30
-S4	128	120	112	108	100	94	88	80	74	68	60	54	48	40
-S5	16	16	16	16	16	16	16	16	16	16	16	16	16	16
-S6A	52	52	52	52	52	52	52	52	52	52	52	52	52	52
-S7	44	44	44	44	44	44	44	44	44	44	44	44	44	44
Total Weight - Reinf. Bars (lbs)	21,570	20,530	19,520	18,480	17,450	16,440	15,400	14,220	13,190	12,170	11,140	10,120	9,070	7,900
Approx. Wt. Spiral Reinf. (lbs)	2,530	2,520	2,280	2,370	2,320	2,190	2,070	1,960	1,690	1,550	1,430	1,310	1,190	1,070
Total Wt. Conc. Class. (Mod) (lbs)	116	111	106	101	95	90	85	79	73	68	63	58	51	45
Total Wt. Return Conc. (Mod) (lbs)	42	40	38	36	34	32	29	27	25	23	21	19	17	15
Approx. Quantity of #4 Studs	3000	2900	2600	2700	2700	2500	2400	2250	1990	1810	1660	1510	1360	1210

**REINFORCING STEEL SCHEDULE**

Span	S1-#5 Str. Length	S3-#6 Str. Length	S6A-#4 B/D	Total Length	S4-#4 T.L. = 5'-3" B = 1'-6" D = 1'-6" C = 1'-5"	S6A-#4 T.L. Varies A-5" G-5" H-3" I-3" B D C-8"
34	95'-6"	33'-2"	2'-6"	6'-6"		
39	20'-3"	20'-6"	2'-9"	7'-0"		
44	22'-9"	23'-0"	3'-0"	7'-6"		
49	25'-3"	25'-6"	3'-0"	7'-6"		
54	27'-9"	28'-0"	3'-0"	7'-6"		
59	30'-3"	30'-6"	3'-0"	7'-6"		
64	32'-9"	33'-0"	3'-0"	7'-6"		
69	24'-3"	24'-6"	3'-2"	7'-10"	A-5" G-5"	C-8"
74	26'-0"	26'-3"	3'-2"	7'-10"	S7-#6	S6P-#5
79	27'-6"	28'-0"	3'-3"	8'-0"	T.L. = 3'-0"	T.L. = 4'-2"
84	29'-3"	29'-6"	3'-3"	8'-0"	B = 1'-8"	B = 2'-6"
89	31'-0"	31'-3"	3'-3"	8'-0"	J-6"	C-8"
94	32'-6"	33'-0"	3'-4"	8'-2"	A-8"	G-8"
99	34'-3"	34'-6"	3'-4"	8'-2"		D-1'-0"

RICHMOND  
IM BPNT (7)  
SHEET 11 OF 15  
BRIDGE 57  
FOR REFERENCE ONLY

Revisions & Corrections  
Changed To 12" Curb 9/7/60

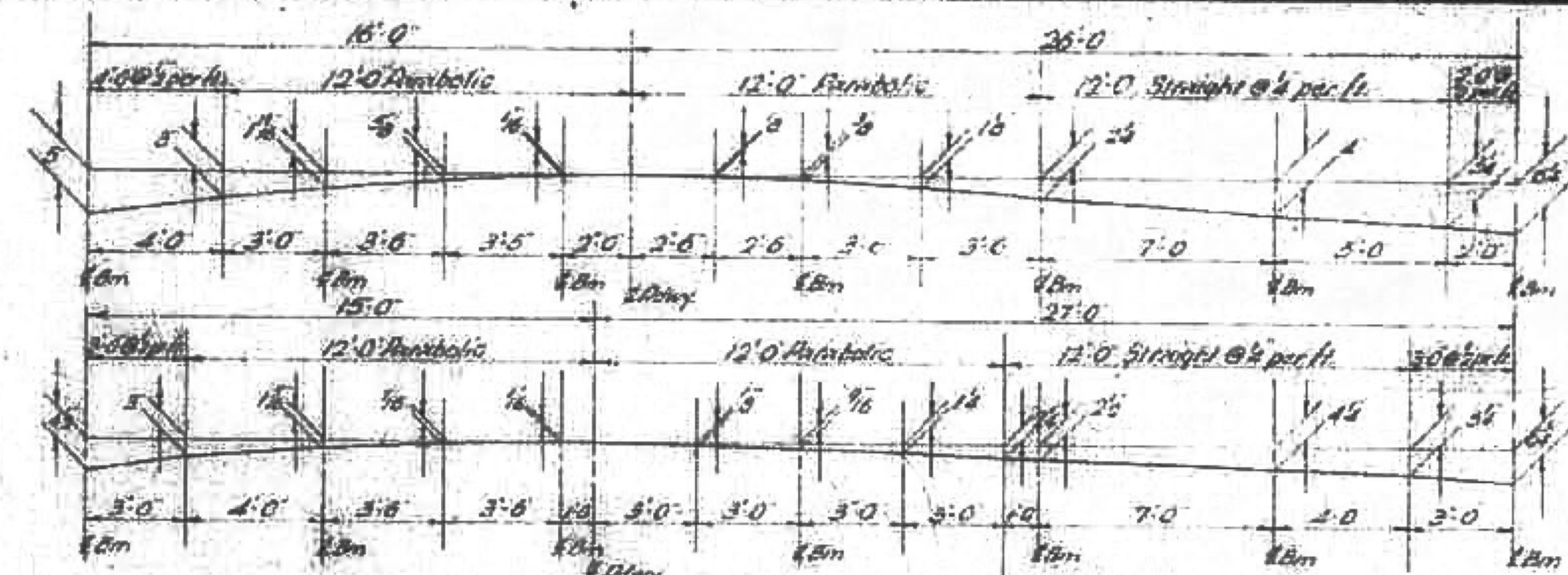
Drawn By: R.S.H. June 1960  
Traced By: R.S.H. June 1960  
Checked By: R.T.B. & R.S.H. July 1960

Correct: 13 July 1960  
Bridge Engineer  
Approved: 13 July 1960  
Chief Engineer

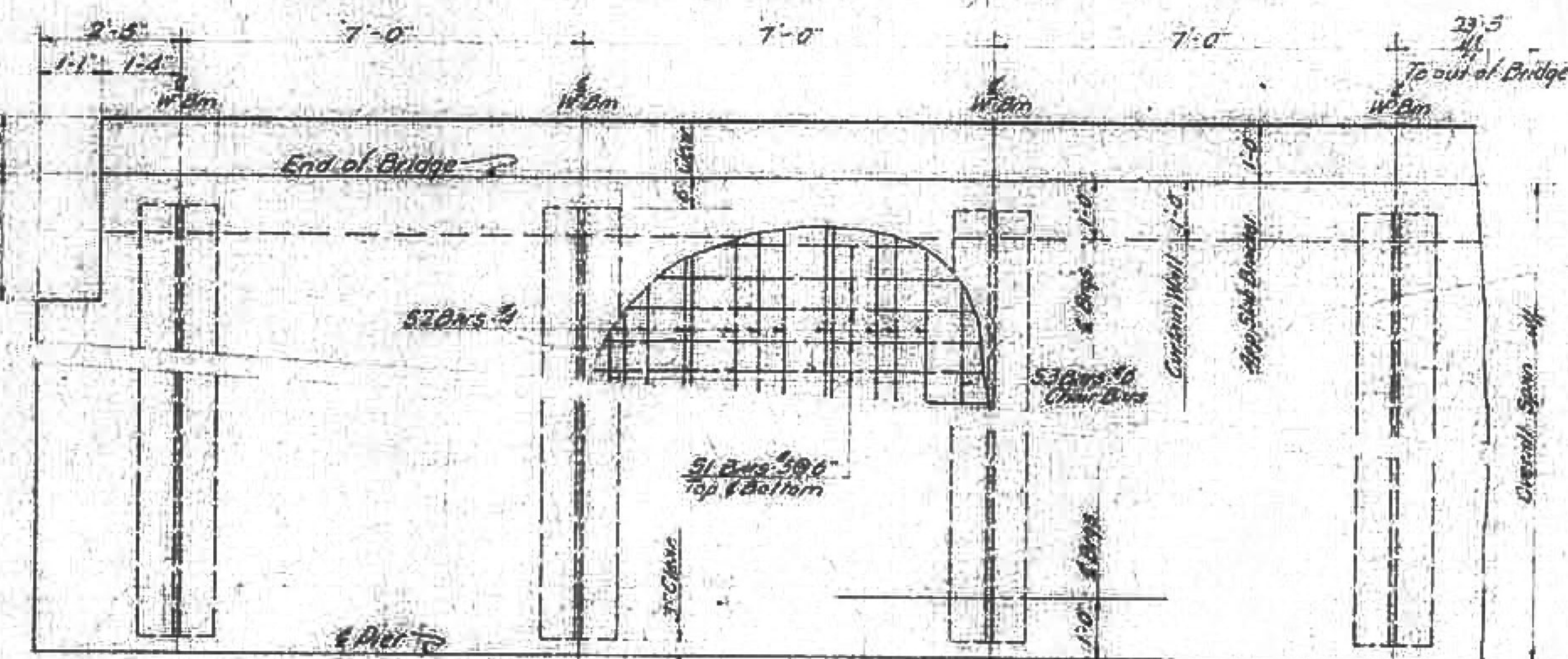
TYPICAL SECTION, PLAN VIEW, & QUANTITIES  
30 FOOT ROADWAY WF BEAM BRIDGES  
34-44 NON COMPOSITE, 49-99 COMPOSITE  
FOR ADDITIONAL DETAILS SEE STANDARD SCB-D-60

DEPARTMENT OF HIGHWAYS  
STANDARD STRUCTURES  
**SCB-30-60**  
VOID Reprinted for photoduplicating July 1962

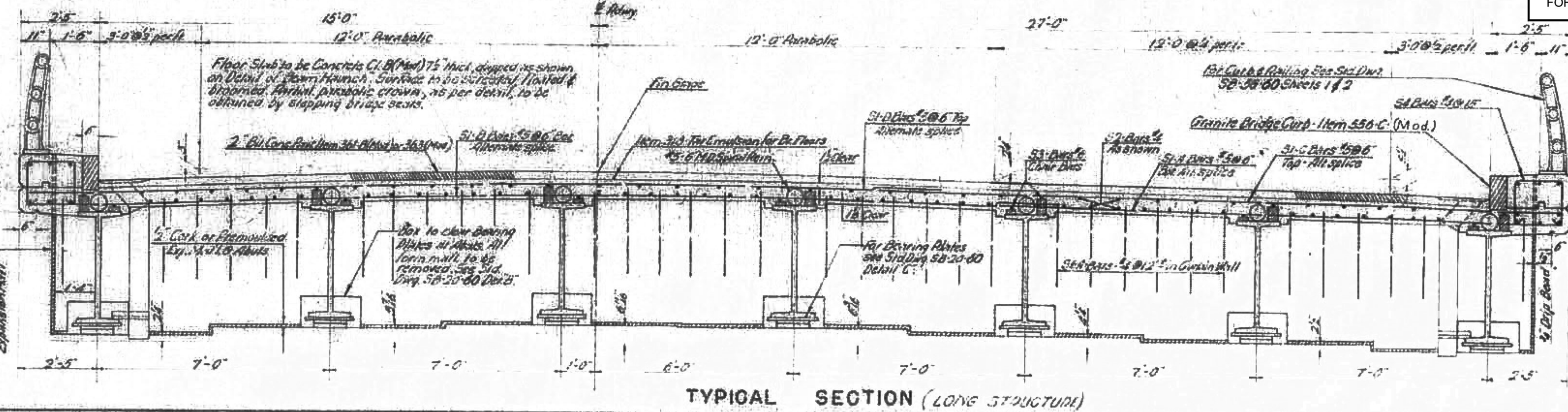




DETAIL OF PARTIAL PARABOLIC CROWN OF SLAB



PARTIAL PLAN



TYPICAL SECTION (LONG STRUCTURE)

**TABLE OF QUANTITIES FOR SINGLE (SQUARE) SPAN**

Span - Out to Out	99'-0"	94'-0"	89'-0"	84'-0"	79'-0"	74'-0"	69'-0"	64'-0"	59'-0"	54'-0"	49'-0"	44'-0"	39'-0"	34'-0"
Span - E to E Bearings	97'-0"	92'-0"	87'-0"	82'-0"	77'-0"	72'-0"	67'-0"	62'-0"	57'-0"	52'-0"	47'-0"	42'-0"	37'-0"	32'-0"
Length of Beams	98'-0"	93'-0"	88'-0"	83'-0"	78'-0"	73'-0"	68'-0"	63'-0"	58'-0"	53'-0"	48'-0"	43'-0"	38'-0"	33'-0"
Size W Beams	36W300	36W300	36W300	36W245	36W194	36W170	36W160	36W150	36W150	36W150	36W150	36W150	33W130	30W116
Lqth. & Size Top Cover A	85'-0" 18	80'-0" 18	75'-0" 18	70'-0" 18	65'-0" 18	60'-0" 18	55'-0" 18	50'-0" 18	45'-0" 18	40'-0" 18	35'-0" 18	30'-0" 18	25'-0" 18	20'-0" 18
Lqth. & Size Top Cover B	85'-0" 18	80'-0" 18	75'-0" 18	70'-0" 18	65'-0" 18	60'-0" 18	55'-0" 18	50'-0" 18	45'-0" 18	40'-0" 18	35'-0" 18	30'-0" 18	25'-0" 18	20'-0" 18
Dead Load Deflection	3	2 1/2	2 1/2	2 1/2	1 3/4	1 1/2	1 1/4	1	7/8	5/8	5/8	5/8	4	4
Diameter of Spiral Bars														Non Composite
Main Diameter of Spiral														Non Composite
Spiral Pitch 0'-10" From Brng.	Double @ 5"	Double @ 5"	Double @ 6"	Double @ 5"	Double @ 5"	Double @ 5"	Double @ 5"	Double @ 5"	Double @ 5"	Double @ 5"	Double @ 5"	Double @ 5"	Double @ 5"	Double @ 5"
10'-20" or E Span	Double @ 5"	Double @ 5"	Double @ 5"	Double @ 5"	Double @ 5"	Double @ 5"	Double @ 5"	Double @ 5"	Double @ 5"	Double @ 5"	Double @ 5"	Double @ 5"	Double @ 5"	Double @ 5"
20'-30"	45	4	4	4	4	4	4	4	4	4	4	4	4	4
30'-40"	5 1/2	5 1/2	5 1/2	5 1/2	6	6	7	7 1/2	7 1/2	6	6	6	6	6
40'-E Span	7	7	8	8										
Lqth. of 2" Studs (All to Spirals)			6 1/2	Long unless otherwise specified	on the Plans	2 Studs required per Pitch								
Total Struct. Steel (1 Span) (lbs)	269,740	237,590	218,700	172,520	138,420	115,910	97,160	82,550	72,740	65,810	58,080	52,730	39,290	30,930
Reinforcing Bars - S1-A	198	188	178	168	158	148	138	128	118	108	98	88	78	68
S1-B	198	188	178	168	158	148	138	128	118	108	98	88	78	68
S1-C	198	188	178	168	158	148	138	128	118	108	98	88	78	68
S1-D	198	188	178	168	158	148	138	128	118	108	98	88	78	68
S2	264	264	264	264	264	264	264	264	264	264	264	264	264	264
S3	42	42	42	42	42	42	42	42	42	42	42	42	42	42
S4	128	122	114	108	102	94	88	82	74	68	62	54	48	42
S5	32	32	32	32	32	32	32	32	32	32	32	32	32	32
S6A	76	76	76	76	76	76	76	76	76	76	76	76	76	76
S7	62	62	62	62	62	62	62	62	62	62	62	62	62	62
Total Weight Reinf. Bars (lbs)	30,140	28,710	27,290	25,840	24,400	22,980	21,530	19,900	18,460	17,030	15,500	14,160	12,710	11,090
Approx. Weight Spiral (lbs)	3,570	3,530	3,490	3,310	3,250	3,070	2,920	2,740	2,600	2,360	2,170	Non Composite		
Total Concrete Class B (Cords)	151	144	137	131	124	117	110	103	95	89	82	75	67	59
Total Weight Column Conc. (Tons)	59	56	53	50	47	44	41	38	35	32	29	26	23	20
Tie Reinforcement for End Post (lbs)	185	176	166	157	148	138	129	120	110	101	92	82	73	64
Approx. Quantity 2" x 6" Studs	4,150	4,050	3,650	3,800	3,750	3,300	3,300	3,100	3,000	2,700	2,500	Non Composite		

RICHMOND  
IM BPNT (7)  
SHEET 13 OF 15  
BRIDGE 57  
FOR REFERENCE ONLY

**REINFORCING STEEL SCHEDULE**

Span	S2-2	S3-4	S6A-4d	S4-2	S6A-4
	Length	Length	B & D	TL 5'-3"	TL Varies
34	33'-6"	33'-6"	2'-8"	B 1'-6"	4.5 5'-5"
39	20'-3"	20'-6"	2'-9"	D 1'-6"	A 6
44	22'-9"	23'-0"	3'-0"	C 1'-5"	H 3"
49	25'-3"	25'-6"	3'-0"		
54	27'-9"	28'-0"	3'-0"		
59	30'-3"	30'-6"	3'-0"		
64	32'-9"	33'-0"	3'-0"		
69	34'-3"	34'-6"	3'-2"		
74	26'-0"	26'-3"	3'-2"	57'-6"	56D-5
79	27'-6"	28'-0"	3'-3"	TL 3'-0"	TL 4'-2"
84	29'-3"	29'-6"	3'-3"		
89	31'-0"	31'-3"	3'-3"	B 1'-8"	B 2'-6"
94	32'-6"	33'-0"	3'-4"	J 1'-6"	C 3"
99	34'-3"	34'-6"	3'-4"	A 1'-8"	D 1'-0"

Revisions & Corrections  
Changed To 12" Curb 9/7/60

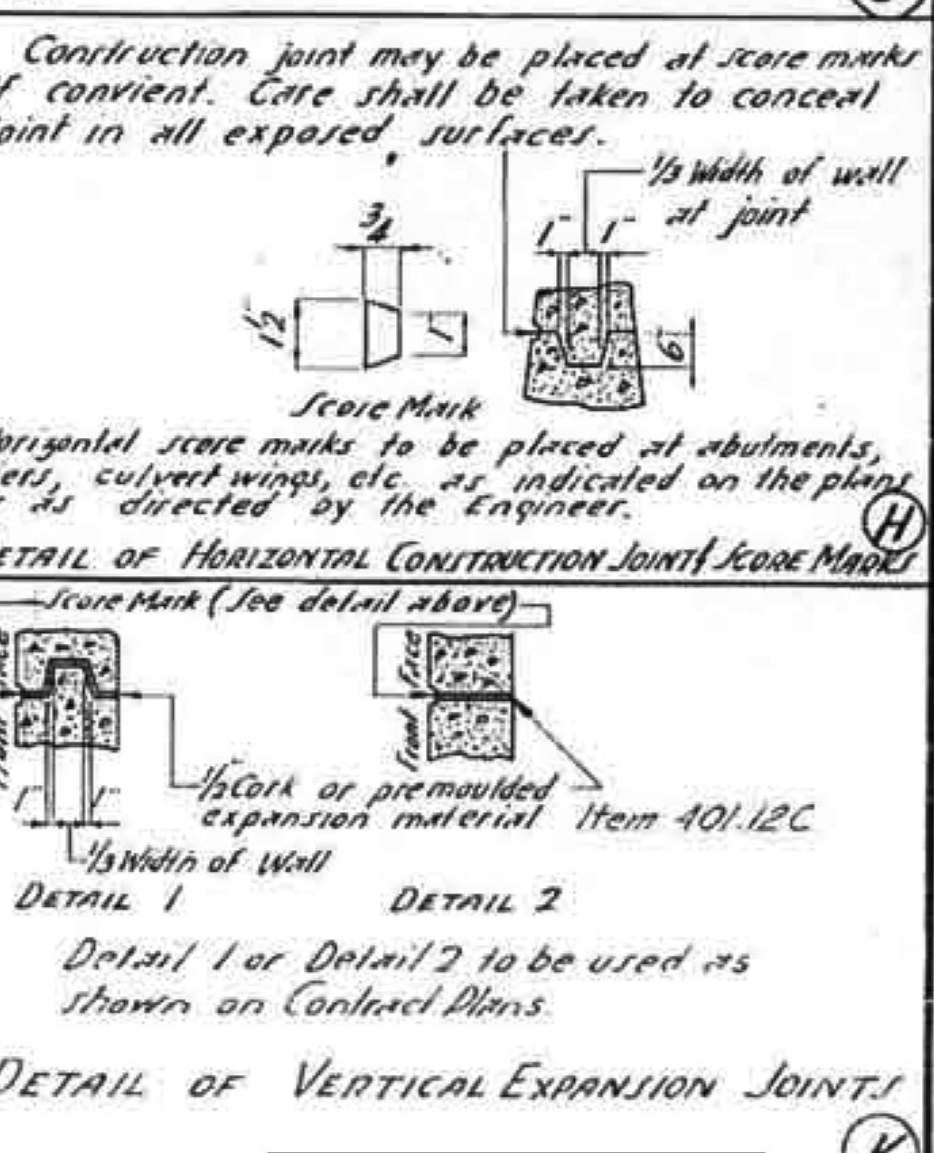
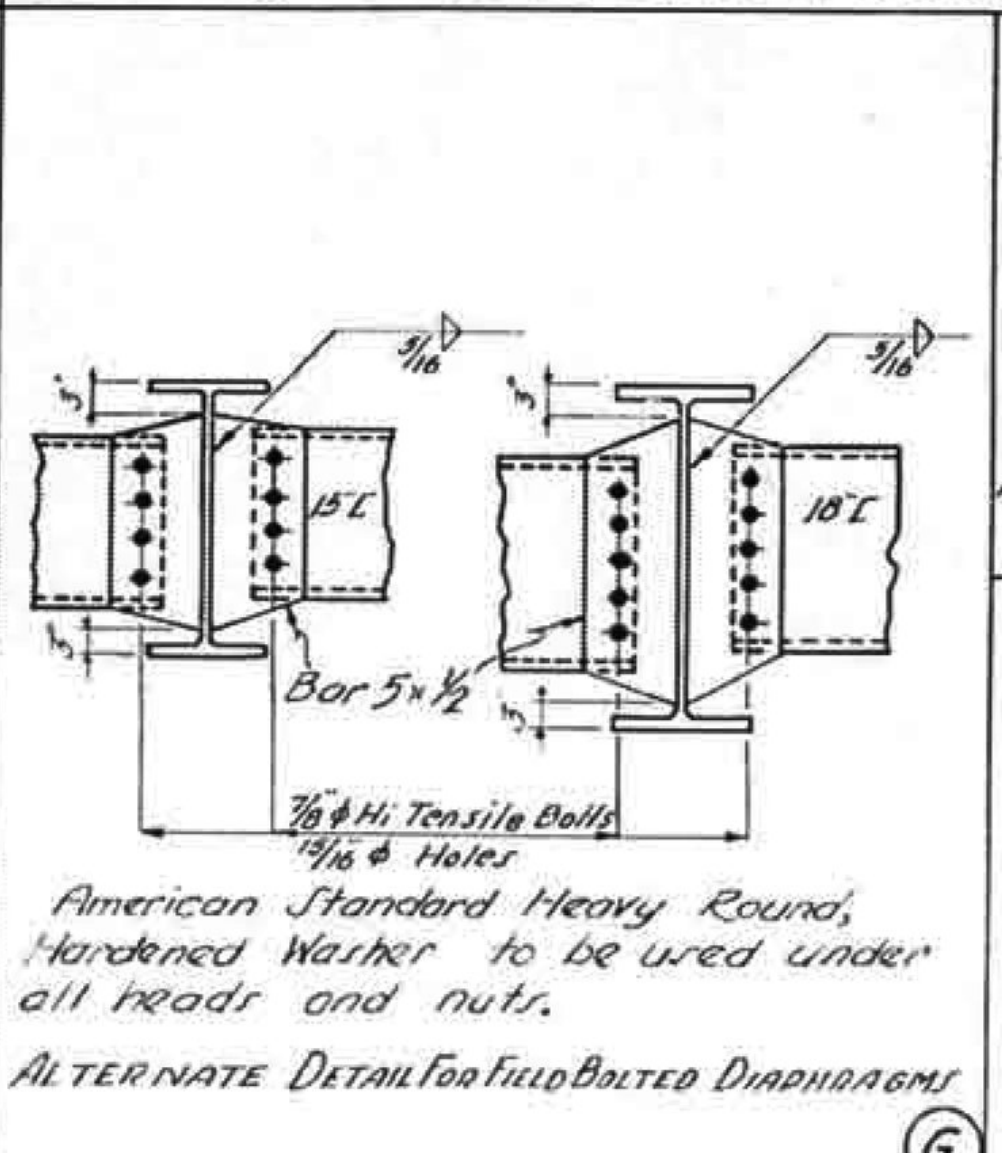
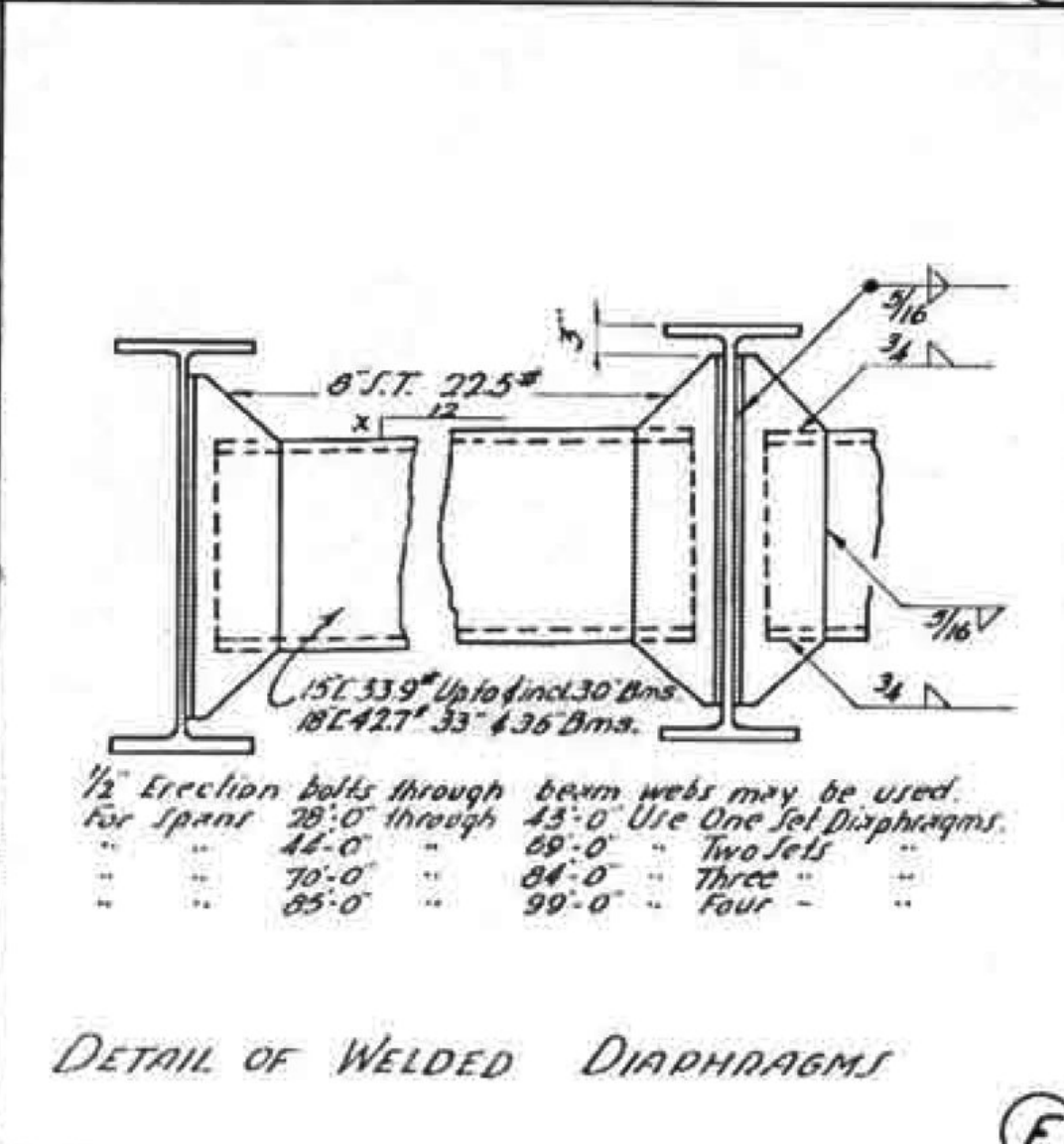
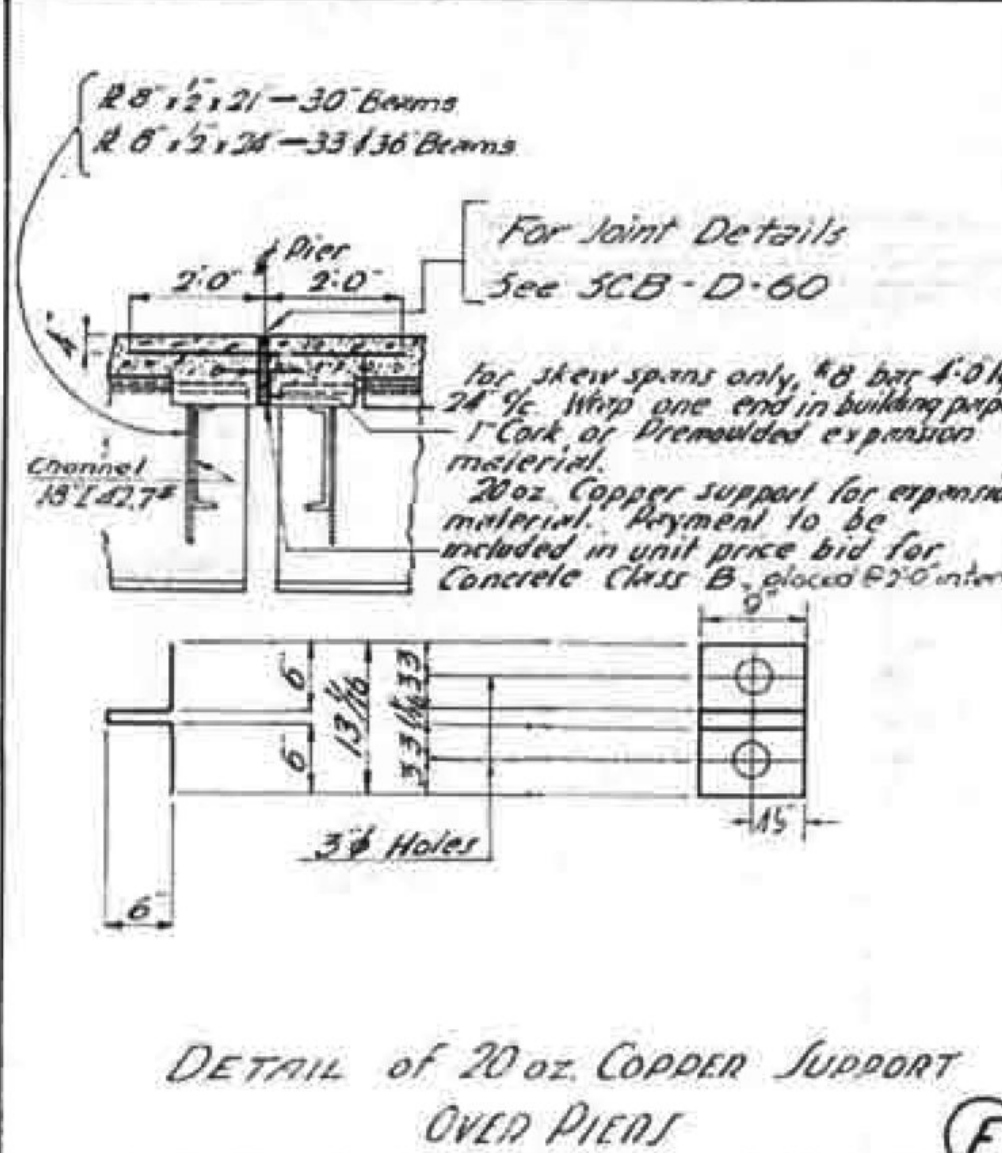
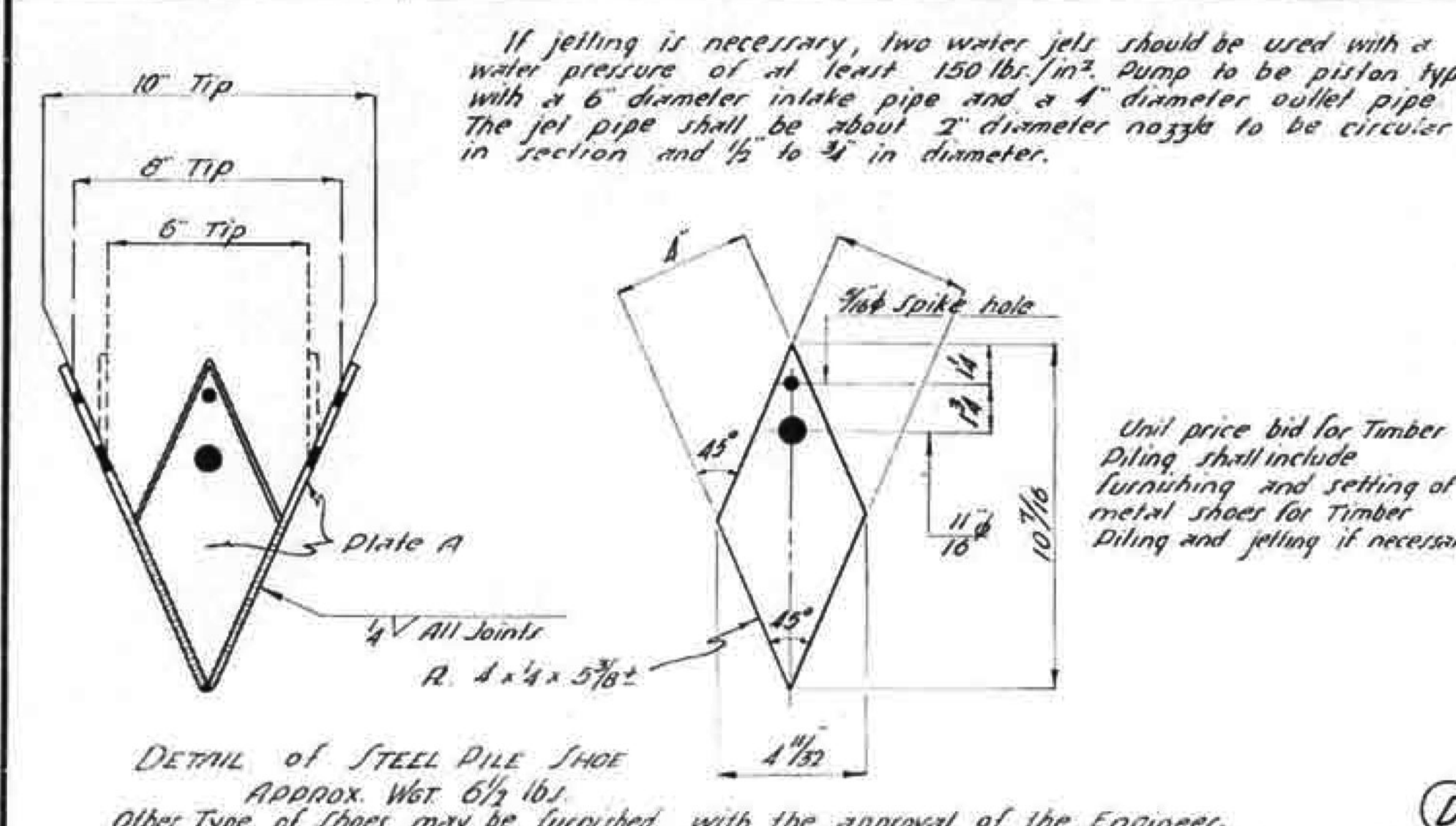
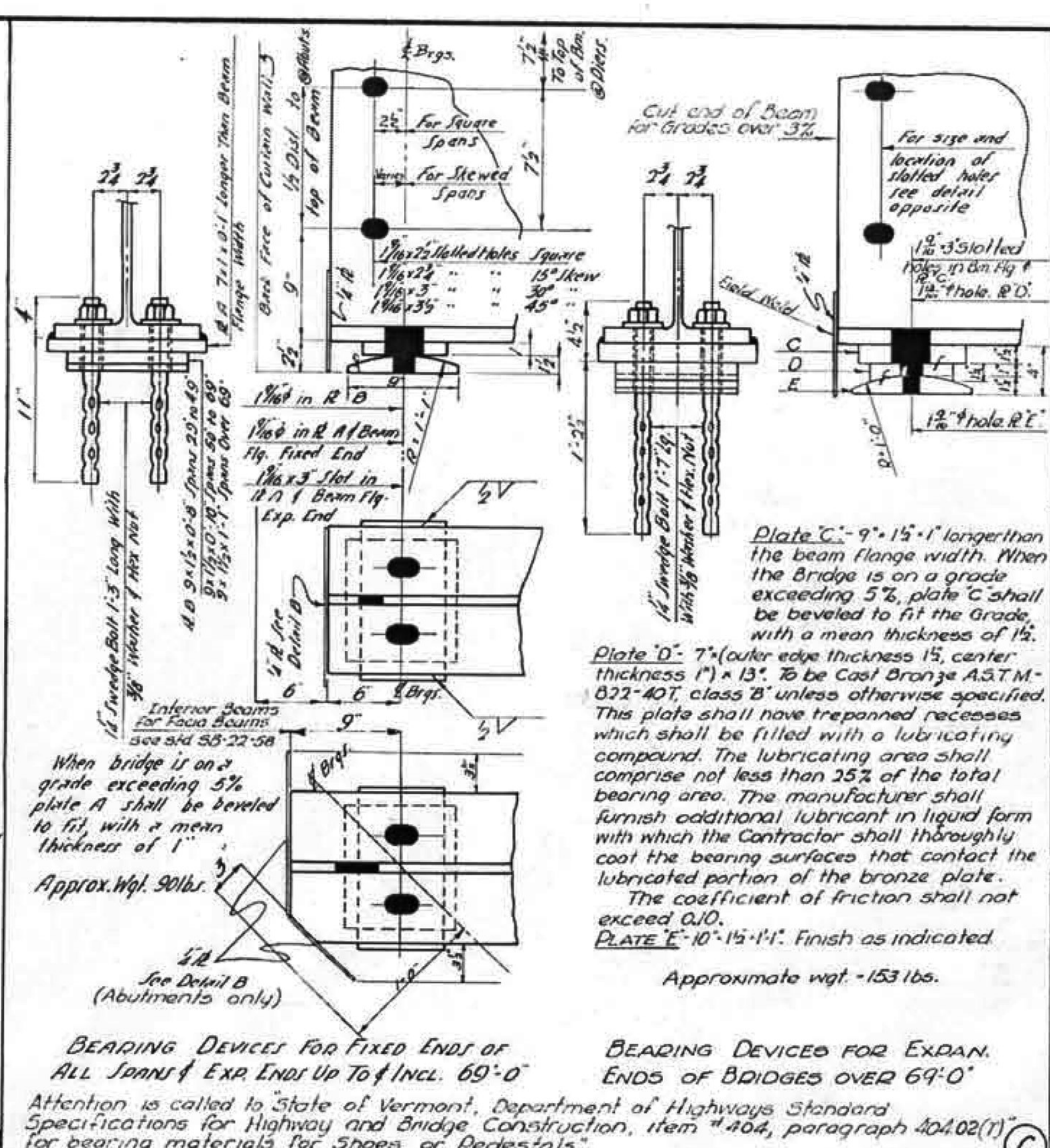
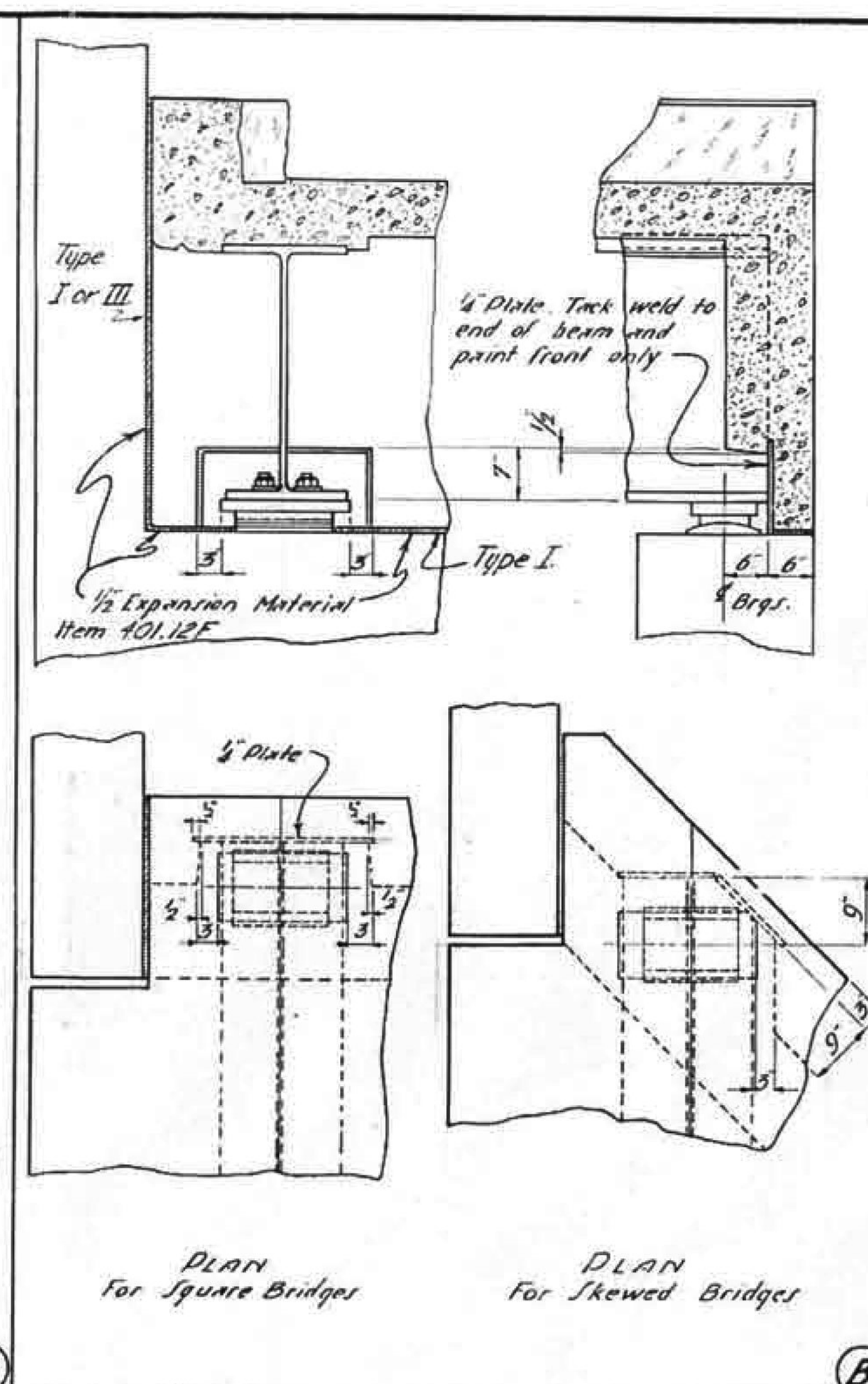
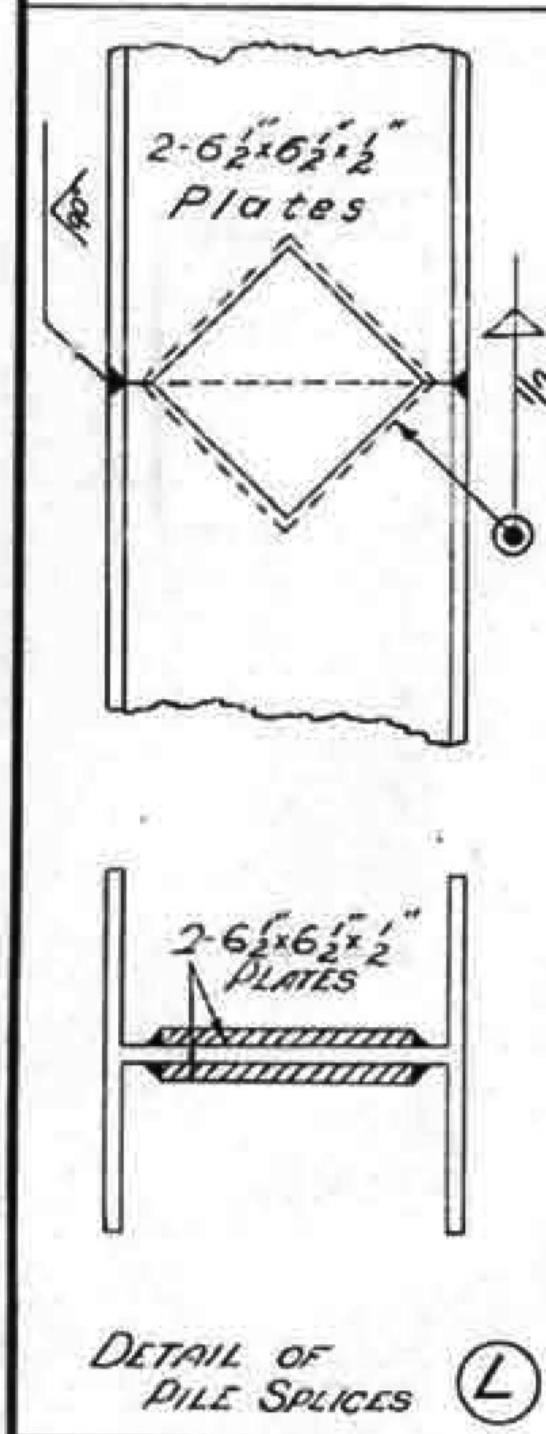
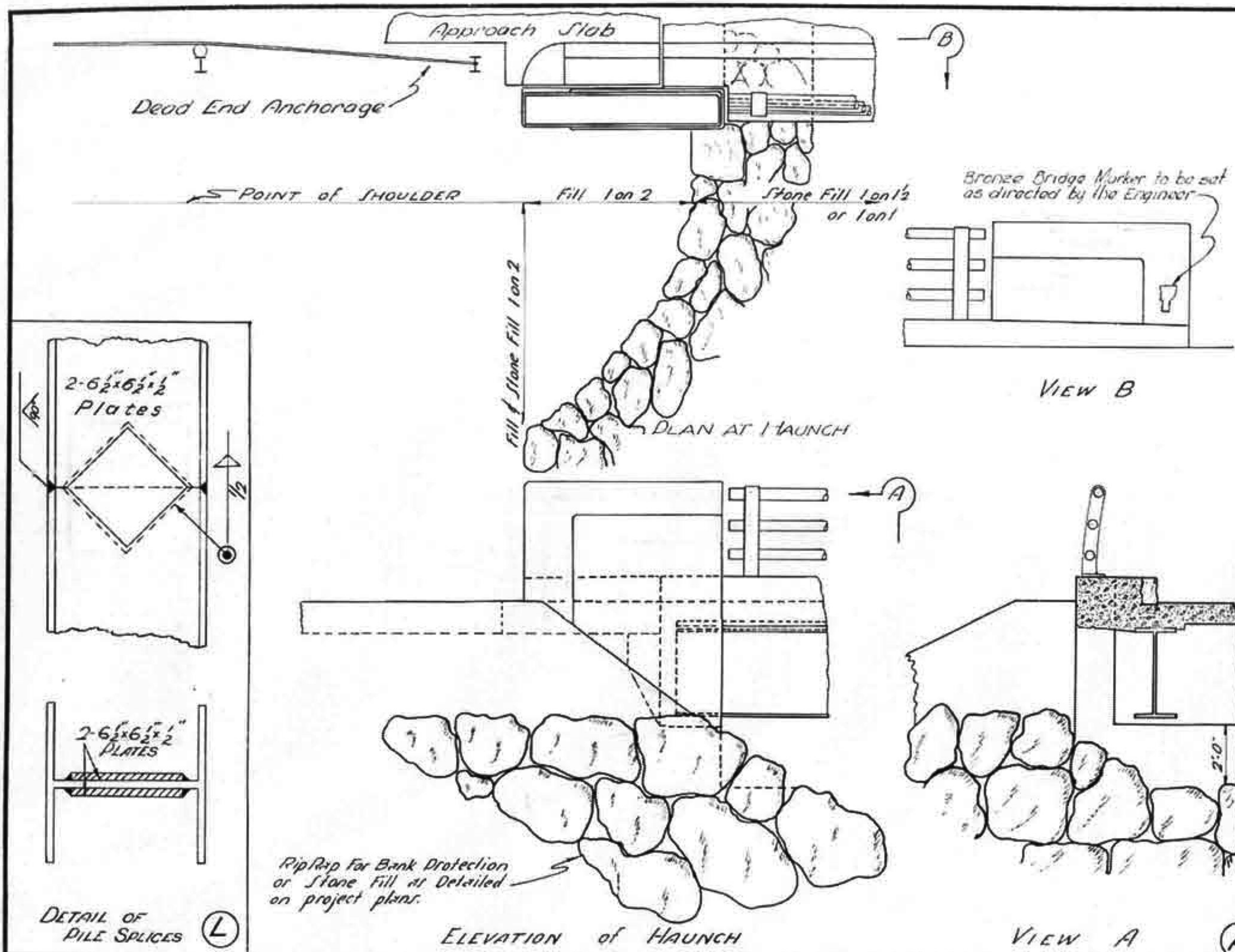
Drawn By: A.B.M. 6-17-60  
Traced By: A.B.M. 6-17-60  
Checked By: R.I.B. & R.S.H. July, 1960  
Correct: 13 July 1960  
Approved: 13 July 1960  
Chief Engineer

TYPICAL SECTION, PLAN VIEW, & QUANTITIES  
42 FOOT ROADWAY W/ BEAM BRIDGES  
34-44 NON COMPOSITE, 49-99 COMPOSITE  
FOR ADDITIONAL DETAILS SEE STANDARD SCB-D-60

DEPARTMENT OF HIGHWAYS  
STANDARD STRUCTURES

SCB-42-60

VOID  
Reprinted  
for photographing  
July 1962



REVISIONS & CORRECTIONS  
 Revised July 1962

DRAWN BY L.M. Bjorn 2-36  
 TRACED BY B. E. C. Evers 2-36  
 CHECKED BY L. L. Hibbard 2-36  
 CORRECT 13 July 1960  
 L.M. Bjorn  
 BRIDGE ENGINEER  
 APPROVED 13 July 1960  
 O. S. J. Rupp  
 CHIEF ENGINEER

## CONSTRUCTION DETAILS FOR WF BEAM BRIDGES

DEPARTMENT OF HIGHWAYS  
STANDARD STRUCTURES

RICHMOND  
IM BPNT (7)  
SHEET 14 OF 15  
BRIDGE 57  
FOR REFERENCE ONLY

# SB-20-60

