

**SPECIFICATIONS**

**DESIGN**  
 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS  
 5TH EDITION, WITH 2010 INTERIM REVISIONS.

**CONSTRUCTION**  
 STATE OF MAINE, DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS,  
 HIGHWAYS AND BRIDGES, REVISION OF DECEMBER 2002.

STATE OF MAINE DEPARTMENT OF TRANSPORTATION STANDARD DETAILS  
 FOR HIGHWAYS AND BRIDGES, DECEMBER 2002 WITH LATEST REVISIONS.

AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS, THIRD EDITION  
 WITH 2010 INTERIMS.

**DESIGN LOADING**

**LIVE LOAD** - HL-93  
 - BRIDGE IS DESIGNED FOR ONE LANE OF TRAFFIC IN EACH DIRECTION

**MATERIALS**

**CONCRETE**

ALL CONCRETE SHALL BE CLASS AAA

**REINFORCING STEEL**

AASHTO M31, GRADE 60 (EPOXY-COATED AND UNCOATED BARS)  
 ALL REINFORCING SHALL BE EPOXY-COATED, EXCEPT BARS LOCATED  
 ENTIRELY WITHIN THE FOOTINGS.

**STRUCTURAL STEEL**

ALL PROPOSED STEEL SHALL BE AASHTO M270, GRADE 50 PAINTED.

STEEL H-PILES SHALL BE AASHTO M270, GRADE 50.

HIGH STRENGTH BOLTS SHALL BE AASHTO M164 (ASTM A325) TYPE I.

**PROTECTIVE COATING**

GIRDERS AND BEARING BOLSTERS: NEPCOAT LIST A SYSTEM

DIAPHRAGMS AND ANCILLARY STEEL: HOT DIP GALVANIZED (U.O.N.)

**BASIC DESIGN STRESSES**

**CONCRETE** - CLASS AAA,  $f'c = 4,500$  P.S.I.

**REINFORCING STEEL** -  $f_y = 60,000$  P.S.I.

**STRUCTURAL STEEL**

AASHTO M270 (ASTM 709) GRADE 50,  $F_y = 50,000$  P.S.I.

**LIST OF ABBREVIATIONS**

ABUT. - ABUTMENT  
 ADDL. - ADDITIONAL  
 ALT. - ALTERNATE  
 APPROX. - APPROXIMATELY  
 BOT. - BOTTOM  
 BRG. - BEARING  
 CL. - CLEAR  
 CL - CENTERLINE  
 CONC. - CONCRETE  
 CONSTR. - CONSTRUCTION  
 DEMO. - DEMOLITION  
 DIA. - DIAMETER  
 DIAPH. - DIAPHRAGM  
 EA. - EACH  
 EB - EASTBOUND  
 E.F. - EACH FACE  
 EL. - ELEVATION  
 EQ. - EQUAL  
 EXIST. - EXISTING  
 EXP. - EXPANSION  
 F.F. - FAR FACE  
 JT. - JOINT  
 MAX. - MAXIMUM  
 DIAPH. - DIAPHRAGM  
 MIN. - MINIMUM  
 MTA - MAINE TURNPIKE AUTHORITY  
 NB - NORTHBOUND  
 N.F. - NEAR FACE  
 N.T.S. - NOT TO SCALE  
 O.H.W. - OBSERVED HIGH WATER  
 PED. - PEDESTAL  
 PGL - PROFILE GRADE LINE  
 PL - PLATE  
 PROP. - PROPOSED  
 P.S.I. - POUNDS per SQUARE INCH  
 PROP. - PROPOSED  
 RDWY. - ROADWAY  
 SHLD. - SHOULDER  
 SB - SOUTHBOUND  
 SP. - SPACES  
 STA. - STATION  
 T.&B. - TOP & BOTTOM  
 TPKE. - TURNPIKE  
 TYP. - TYPICAL  
 U.O.N. - UNLESS OTHERWISE NOTED  
 VERT. - VERTICAL  
 WB - WESTBOUND  
 W.P. - WORKING POINT

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ITEM NO.	ITEM DESCRIPTION	UNIT	STRUCTURAL QUANTITY
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202.2012	REMOVING BRIDGE PAVEMENT SURFACE AND MEMBRANE	SY	691
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501.38	STEEL H-BEAM PILES 42 LB/FT, DELIVERED	LF	744
501.381	STEEL H-BEAM PILES 42 LB/FT, IN PLACE	LF	624
501.90	PILE TIPS	EA	24
501.92	PILE DRIVING EQUIPMENT MOBILIZATION	LS	1
502.21	STRUCTURAL CONCRETE, ABUTMENTS AND RETAINING WALLS	CY	175
502.23	STRUCTURAL CONCRETE, PIERS	CY	292
502.25	STRUCTURAL CONCRETE, SUPERSTRUCTURE SLAB (280 CY)	LS	1
502.264	STRUCTURAL CONCRETE, PARAPETS (85 CY)	LS	1
503.12	REINFORCING STEEL, FABRICATED AND DELIVERED	LB	12,100
503.13	REINFORCING STEEL, PLACING	LB	12,100
503.14	EPOXY-COATED REINFORCING STEEL, FABRICATED AND DELIVERED	LB	156,500
503.15	EPOXY-COATED REINFORCING STEEL, PLACING	LB	156,500
504.70	STRUCTURAL STEEL, FABRICATED AND DELIVERED (90,000 LB)	LS	1
504.71	STRUCTURAL STEEL ERECTION (90,000 LB)	LS	1
504.7211	JACKING EXISTING STRUCTURAL STEEL	LS	1
505.09	STUD WELDED SHEAR CONNECTORS (5,922 EA)	LS	1
506.9102	ZINC-RICH COATING SYSTEM (SHOP APPLIED)	LS	1
506.9104	ZINC-RICH COATING SYSTEM (EXISTING STEEL)	LS	1
507.091	ALUMINUM BRIDGE RAILING, 1 BAR	LF	444
508.14	HIGH PERFORMANCE WATERPROOFING MEMBRANE	SY	1,146
511.091	TEMPORARY EARTH SUPPORT SYSTEM (6,800 SF)	LS	1
512.081	FRENCH DRAINS	LF	88
514.06	CURING BOX FOR CONCRETE CYLINDER	LS	1
515.201	PIGMENTED PROTECTIVE COATING FOR CONCRETE SURFACES	SY	595
515.202	CLEAR PROTECTIVE COATING FOR CONCRETE SURFACES	SY	754
518.6313	ABUTMENT REPAIRS	SF	292
518.63132	ABUTMENT CRACK REPAIRS	LF	10
518.6314	PIER REPAIRS	SF	480
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**NOTES:**

- THE PROPOSED ELEVATIONS ARE BASED ON THE NAVD 88 DATUM. THE AS-BUILT PLANS ARE BASED ON NGVD 29 DATUM.
- FOR ADDITIONAL DETAILS REFERENCED OR NOT SHOWN IN THESE DRAWINGS, SEE THE STATE OF MAINE, DEPARTMENT OF TRANSPORTATION STANDARD DETAILS, HIGHWAYS AND BRIDGES, DECEMBER 2002 WITH UPDATES.
- COPIES OF THE AS-BUILT PLANS ARE ON FILE AT THE MAINE TURNPIKE AUTHORITY. A PORTION OF THESE PLANS ARE INCLUDED IN THIS CONTRACT FOR THE CONTRACTOR'S CONVENIENCE. THE COMPLETENESS AND ACCURACY OF THESE PLANS IS NOT GUARANTEED.
- REINFORCING STEEL SHALL HAVE A CLEAR COVER OF 2" MIN., UNLESS OTHERWISE NOTED.
- CHAMFER ALL EXPOSED CONCRETE EDGES 3/4" UNLESS OTHERWISE NOTED.
- THE AUTHORITY'S PERSONNEL SHALL PROFILE THE TOPS OF THE GIRDERS BEFORE THE FORMWORK IS STARTED AND SHALL SUPPLY THE CONTRACTOR WITH THE FINAL BLOCKING ELEVATIONS. FIVE (5) WORKING DAYS SHALL BE ALLOWED FOR THE BLOCKING POINT TURN AROUND TIME.
- ALL BRIDGE PARAPET, WINGWALL AND ENDPPOST CONCRETE, INSIDE FACE AND TOP FACE, SHALL HAVE A RUBBED FINISH PRIOR TO THE APPLICATION OF THE PROTECTIVE COATING FOR CONCRETE SURFACE.
- SHIELDING REQUIRED DURING CONSTRUCTION SHALL NOT PROJECT BELOW THE BOTTOM FLANGES OF GIRDERS.
- ALL PAINT ON PROPOSED STEEL, DAMAGED BY CONTRACTOR'S OPERATIONS, SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER AT THE CONTRACTOR'S EXPENSE.

- WHERE DRILLING AND ANCHORING OF REINFORCING STEEL IS SPECIFIED THE CONTRACTOR SHALL USE A MATERIAL LISTED ON THE MAINE DOT PREQUALIFIED LIST OF CHEMICAL ANCHORING MATERIALS. THE DEPTH OF EMBEDMENT SHALL BE SUFFICIENT TO DEVELOP 125% OF THE YIELD STRENGTH OF THE BAR, BUT SHALL BE NO LESS THAN THE MINIMUM DEPTH OF EMBEDMENT WHEN SPECIFIED. WHERE MINIMUM EMBEDMENT DEPTHS HAVE NOT BEEN SPECIFIED, BAR LENGTHS HAVE BEEN DEVELOPED BASED ON AN ASSUMED EMBEDMENT DEPTH OF 9" FOR #5 BARS AND 11" FOR #6 BARS. THE CONTRACTOR SHALL VERIFY THE REQUIRED DEPTH OF EMBEDMENT AND ADJUST THE REQUIRED BAR LENGTHS AS REQUIRED.
- PAYMENT FOR DRILLING AND ANCHORING OF REINFORCING STEEL IS INCIDENTAL TO ITEM 503.15, EPOXY-COATED REINFORCING STEEL, PLACING.
- AT ALL LOCATIONS OF SUBSTRUCTURE WIDENING WHERE PROPOSED CONCRETE IS TO BE CAST AGAINST EXISTING CONCRETE, EXISTING CONCRETE SHALL BE CHIPPED AWAY TO EXPOSE THE EXISTING REINFORCEMENT. ANY ADDITIONAL DELAMINATED OR DETERIORATED AREAS OF THE EXISTING CONCRETE SHALL BE REMOVED TO SOUND CONCRETE TO THE SATISFACTION OF THE RESIDENT ENGINEER. THIS WORK SHALL BE INCIDENTAL TO THE RELATED CONTRACT ITEMS.

Filename: 077\_Index.dgn

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<table border="1"> <thead> <tr> <th>No.</th> <th>Revision</th> <th>By</th> <th>Date</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Addendum No. 2</td> <td>JDW</td> <td>8/11</td> </tr> </tbody> </table>		No.	Revision	By	Date	1	Addendum No. 2	JDW	8/11				
		No.	Revision	By	Date								
1	Addendum No. 2	JDW	8/11										
		Designed	JKC	2/11	Checked	PH	2/11						
		Drawn	RJT	2/11	In Charge of	RAL	2/11						

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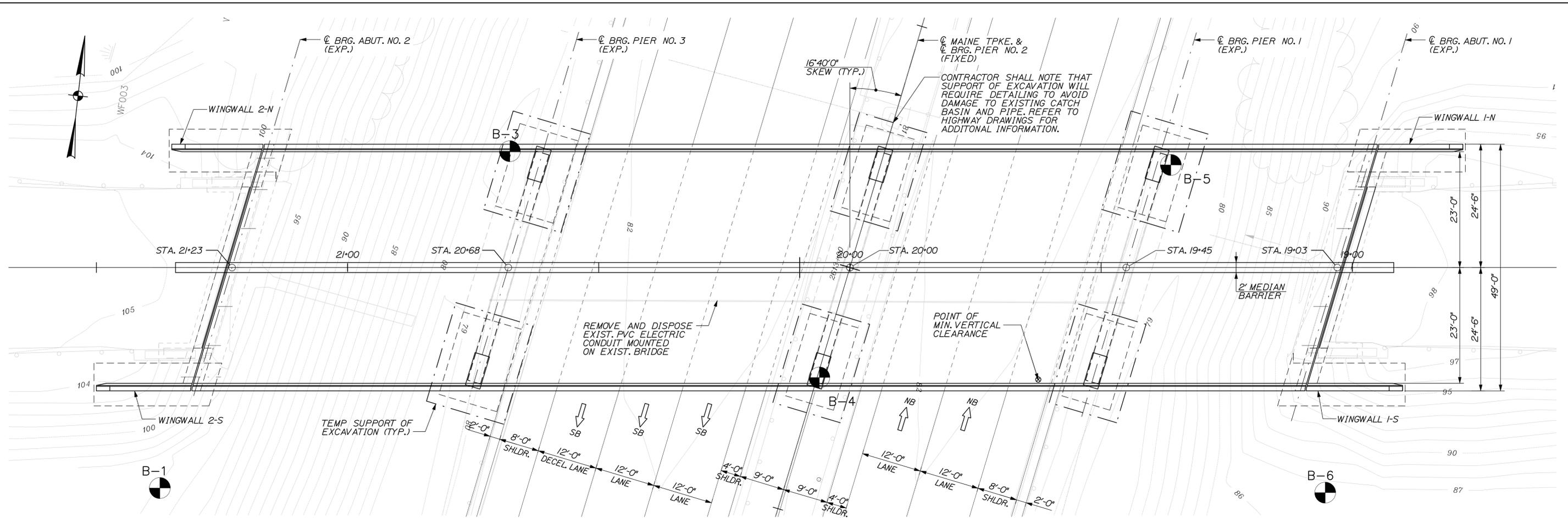


## THE GOLD STAR MEMORIAL HIGHWAY

BRIDGE REHABILITATION  
 EXIT 53 BRIDGE  
 GENERAL NOTES,  
 INDEX AND QUANTITIES

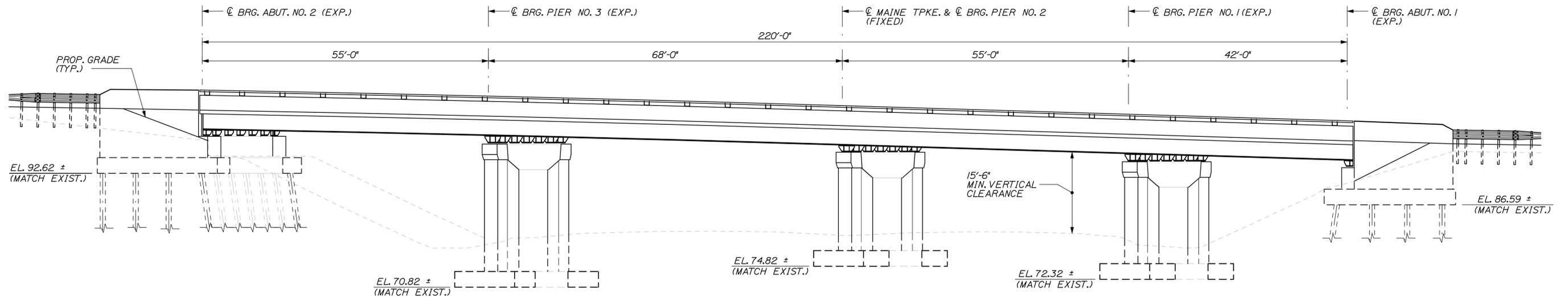
SHEET NUMBER: S-01  
 CONTRACT: 2011.04  
 77 OF 122

Date: 6/21/2011



PLAN  
1" = 10'-0"

NOTE:  
1. BORING B-2 ELIMINATED DURING GEOTECHNICAL EVALUATION.



ELEVATION  
1" = 10'-0"

Filename: 078\_GeneralPlan.dgn

Scale:		1" = 10'-0"	
No.	Revision	By	Date

Designed by:						
<b>HNTB</b>						
	By	Date		By	Date	
	Designed	JKC	2/11	Checked	PH	2/11
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**THE GOLD STAR  
MEMORIAL HIGHWAY**

BRIDGE REHABILITATION  
EXIT 53

GENERAL PLAN AND ELEVATION

CONTRACT: 2011.04

SHEET NUMBER: S-02  
78 OF 122

Date: 6/21/2011

Sample Information		Sample Description & Classification	Stratum Description	Notes
Depth BGS (ft.)	Casing Blows			
5 (11.5m)	18 2D 24/20 5-7 5-6	2D: Olive-brown, v. stiff, Clayey SILT, with numerous partings and seams of silt and fine sand, appears undisturbed. (SILT-CLAY CRUST)	5.3'	
10 (3.0m)	27 3D 24/24 10-12 2-3	3D: Brownish-gray, SILT & CLAY, transitioning at 10.8 ft. to fine SAND, little silt, with numerous 1/4- to 1/2-in. thick seams of SILT & CLAY, little fine sand.	10.8'	
15 (4.4m)	30 4D 24/14 15-17 4-8	4D: Brown, m. dense, fine SAND, trace silt; upper 5 inches of sample contains numerous 1/4- to 1/2-in. thick seams of SILT & CLAY, little fine sand.	16.2'	
20 (6.1m)	98 5D 24/13 20-22 13-18	5D: Grayish-brown, dense, fine SAND, some gravel, trace silt, trace medium to coarse sand.	20' +/-	
25 (7.6m)	32 6D 24/14 25-27 7-9	6D: Light brown, m. dense, fine to coarse SAND, little gravel, trace silt.		

Sample Information		Sample Description & Classification	Stratum Description	Notes
Depth BGS (ft.)	Casing Blows			
30	7D 3/0 30-30.3 50/3"	7D: No recovery. (Few pieces of gravel.)	WEATHERED ROCK 31' (Elev 65')	4, 5
35	R1 60/59 31.0-39.0	R-1: Light gray, fine grained, hard, fresh to slightly weathered, GRANITE. Some banding of minerals apparent. Moderately spaced, typically low angle, planar, slightly rough, fresh to slightly discolored, tight to partially open joints. Mineralogy in joints typically muscovite rich. Core times: 31 to 32 ft. 2:05 min/ft 32 to 33 ft. 2:05 33 to 34 ft. 1:55 34 to 35 ft. 1:55 35 to 36 ft. 1:45	GRANITE	
40	R2 56/56 36.0-40.6	R-2: Same as R-1. Core times: 36 to 37 ft. 1:50 min/ft 37 to 38 ft. 1:40 38 to 39 ft. 1:40 39 to 40 ft. 1:50 40 to 40.6 ft. n/a		6, 7

Sample Information		Sample Description & Classification	Stratum Description	Notes
Depth BGS (ft.)	Casing Blows			
5 (11.5m)	1D 24/18 2-4 2-4	1D: Top 6 inches of sample: Grayish-brown, fine SAND, some silt, wet. (SILT-CLAY FILL) Bottom 13 inches of sample: Brown, fine to coarse SAND and Gravel, trace silt, moist.	2.5'	1
10 (3.0m)	2D 24/12 5-7 7-7	2D: Top 6 inches of sample: Brown, fine to coarse SAND and GRAVEL, trace silt, moist. Bottom 6 inches of sample: Brown, fine SAND, trace silt, moist.	6.5'	
15 (4.4m)	3D 5/2 10-10.4 50/5"	3D: Black-brown, very fine SAND. Appears to be decomposed rock (bitte-rich)	9.1'	2, 3
20 (6.1m)	R-1 60/55 11.0-18.0	R-1: Light gray, fine grained, hard, slightly weathered, GRANITE. Some banding of minerals apparent. Close, typically low to moderate angle with one vertical, planar, slightly rough, slightly to moderately discolored, typically open joints. Mineralogy in joints typically biotite rich. Upper 2.8 ft. of core is fractured and weathered, has more feldspathic minerals, and appears to be a large vein. Core times: 11 to 12 ft. 1:45 min/ft 12 to 13 ft. 1:00 13 to 14 ft. 1:30 14 to 15 ft. 1:25 15 to 16 ft. 1:30	11.0' (Elev 69')	4, 5

Filename: 079\_Boring\_Logs.dgn

Scale: NOT TO SCALE

No.	Revision	By	Date

Designed by:

SCHONEWALD ENGINEERING ASSOCIATES, INC. GEOTECHNICAL • SOLID WASTE • STORMWATER/E&S	
By	Date
IVS	2/11
Checked	IVS
By	Date
RJT	2/11
In Charge of	RAL
	2/11

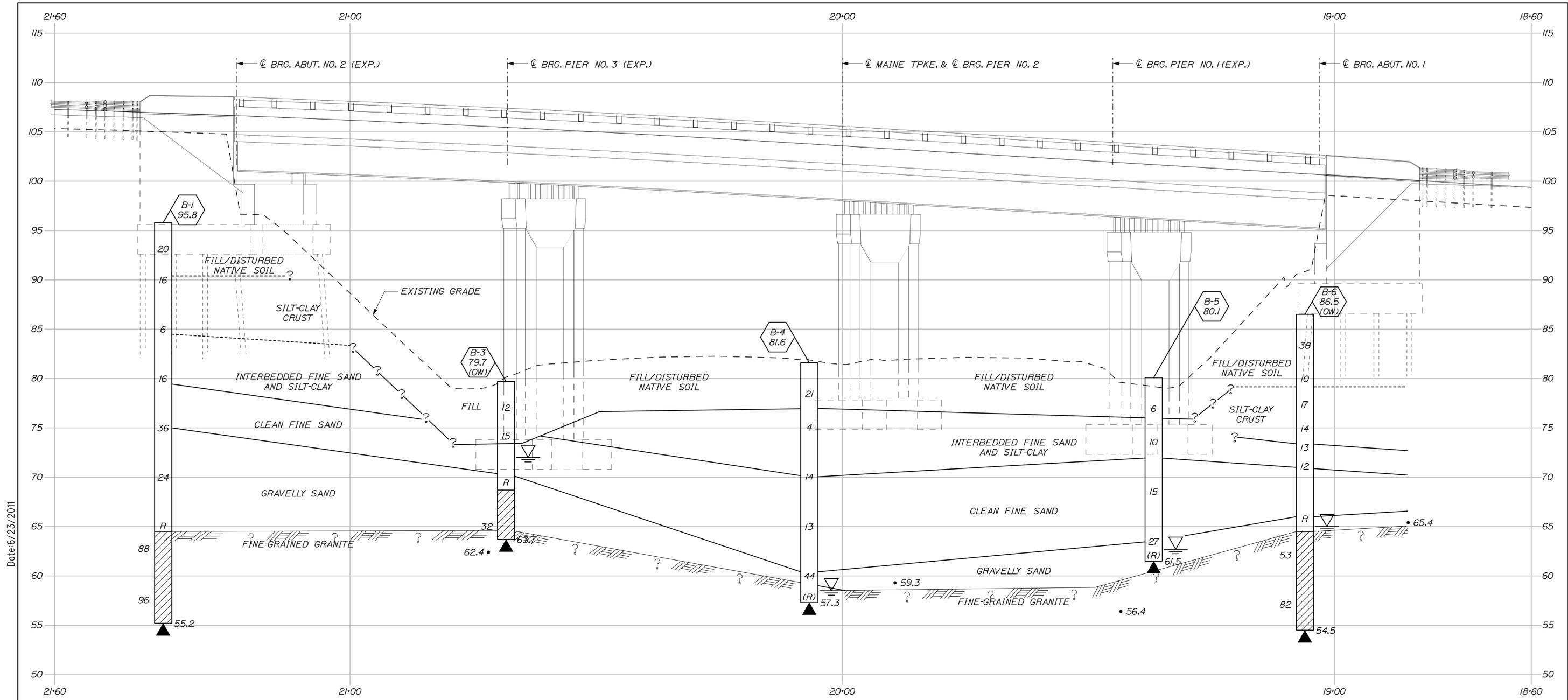
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BRIDGE REHABILITATION  
EXIT 53 BRIDGE  
BORING LOGS I

SHEET NUMBER: S-03  
CONTRACT: 2011.04  
97 OF 122

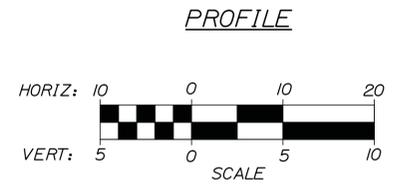




Date: 6/23/2011

**LEGEND**

- 65.4 — ROCK ELEVATION NOTED ON ORIGINAL DRAWINGS
- B-4 86.5 (OW) — TEST BORING DESIGNATION, GROUND SURFACE ELEVATION, OBSERVATION WELL INSTALLED
- 38 — SPT N60 VALUE
- R — SPLIT-SPOON REFUSAL (SPT N60 > 50 FOR 6 IN.)
- ▽ — WATER LEVEL
- (R) — AUGER AND/OR ROD REFUSAL
- 53 — RQD OF CORE RUN
- ROCK CORE
- ▲ 54.5 — BOTTOM OF BOREHOLE ELEVATION



- NOTES:**
1. THE SUBSURFACE CONDITIONS DEPICTED ON THIS INTERPRETATIVE SUBSURFACE PROFILE WERE DEVELOPED BY SCHONEWALD ENGINEERING ASSOCIATES, INC. BASED UPON INTERPOLATIONS BETWEEN WIDELY SPACED BORINGS. THE STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES. ACTUAL TRANSITIONS WILL VARY FROM THOSE DEPICTED.
  2. THE BASE PLAN WAS DEVELOPED BY HNTB FROM A DRAWING ENTITLED "BRIDGE REHABILITATION, INTERCHANGE 53 UNDERPASS, GENERAL PLAN AND ELEVATION". EXISTING GROUND SURFACE TOPOGRAPHY ALONG THE CENTERLINE OF THE EXISTING BRIDGE AND BORING LOCATIONS WERE ADDED BY HNTB BASED UPON A RECENT PROJECT SURVEY. IT IS NOTED THAT THE BORINGS DEPICTED ON THE INTERPRETATIVE SUBSURFACE PROFILE ARE OFFSET FROM THE EXISTING BRIDGE CENTERLINE AS DEPICTED ON THE PROJECT PLANS.
  3. THE LOCATIONS OF THE RECENT TEST BORINGS ARE BASED UPON A FIELD SURVEY COMPLETED SUBSEQUENT TO THE TEST BORING PROGRAM; THE LOCATIONS OF THE ORIGINAL BORINGS ARE ESTIMATED BASED UPON THE 1956 AS-BUILT GENERAL PLAN AND ELEVATION DRAWING AND SHOULD BE CONSIDERED APPROXIMATE.
  4. THE RECENT TEST BORINGS WERE COMPLETED BY MAINE TEST BORINGS BETWEEN JANUARY 6 AND 14, 2011 AND WERE OBSERVED AND LOGGED BY SCHONEWALD ENGINEERING ASSOCIATES, INC. DETAILED DESCRIPTIONS OF THE MATERIALS ENCOUNTERED ARE PROVIDED ON THE TEST BORING LOGS.

No.	Revision	By	Date

Designed by:


By: Date:      By: Date:

Designed: IVS 06/11      Checked: TRC 06/11

Drawn: MPC 06/11      In Charge of: RAL 06/11

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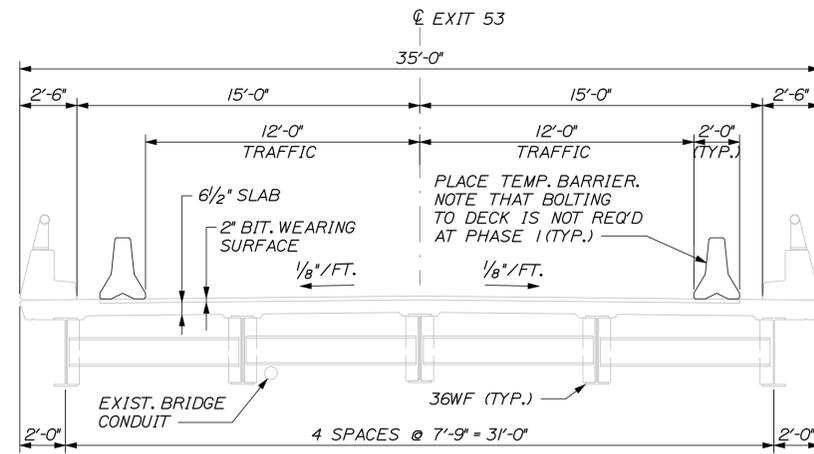


**BRIDGE REHABILITATION  
 INTERCHANGE 53 UNDERPASS  
 INTERPRETIVE SUBSURFACE PROFILE**

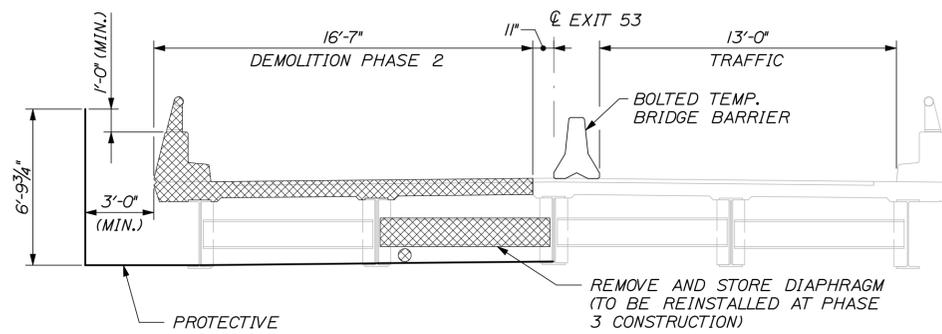
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 CONTRACT: 2011.04      81 OF 122

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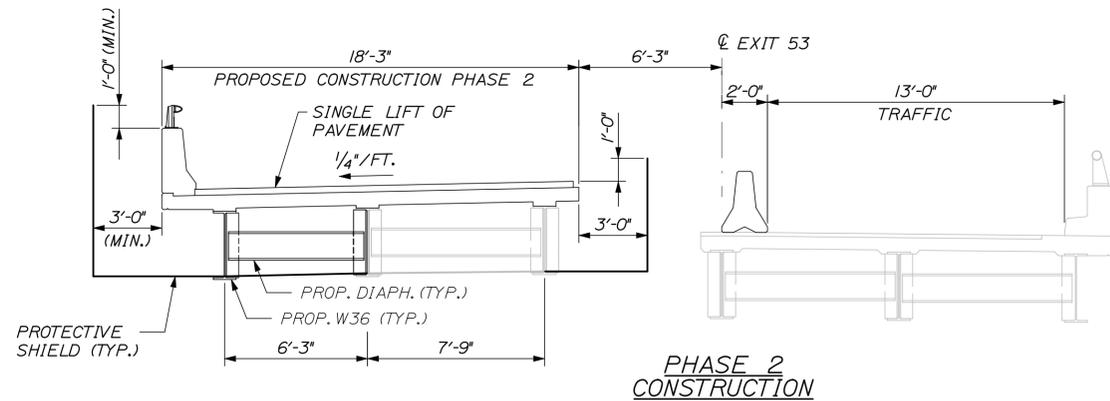
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PHASE 1  
EXISTING CONDITION & INITIAL WORK



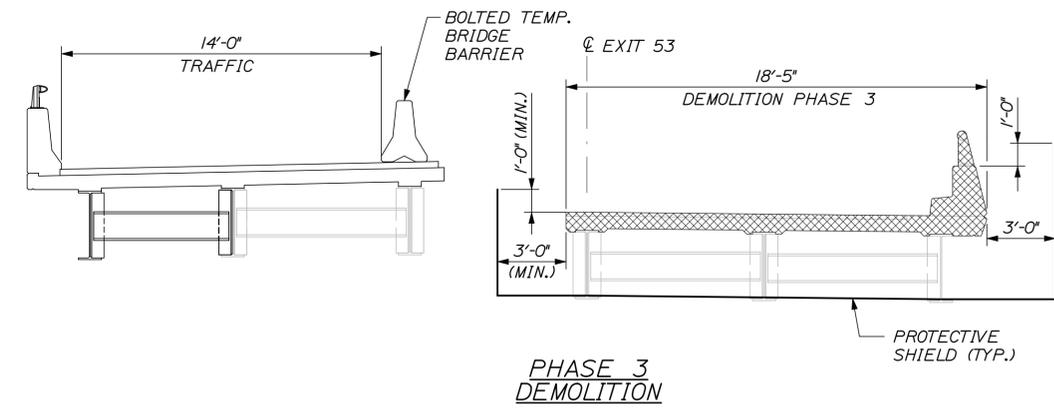
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DEMOLITION



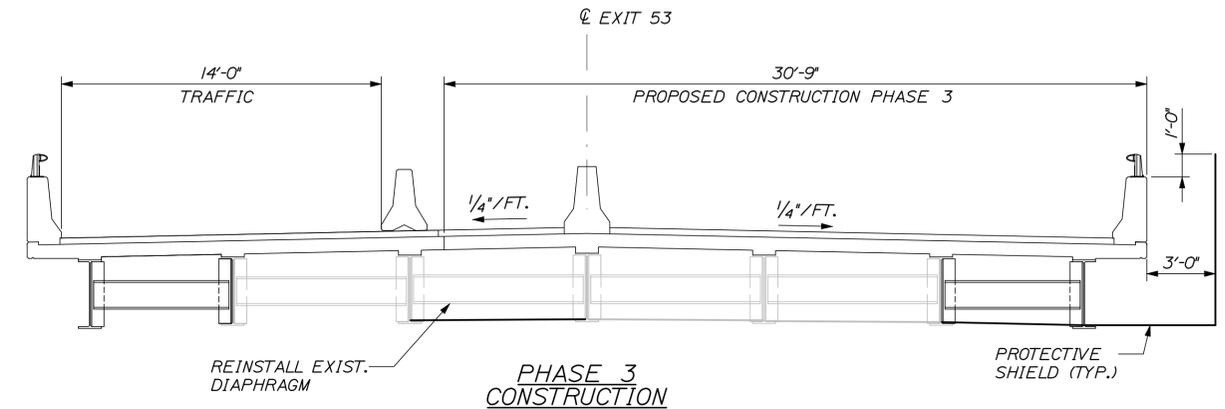
PHASE 2  
CONSTRUCTION

APPROXIMATE SHIELDING QUANTITIES

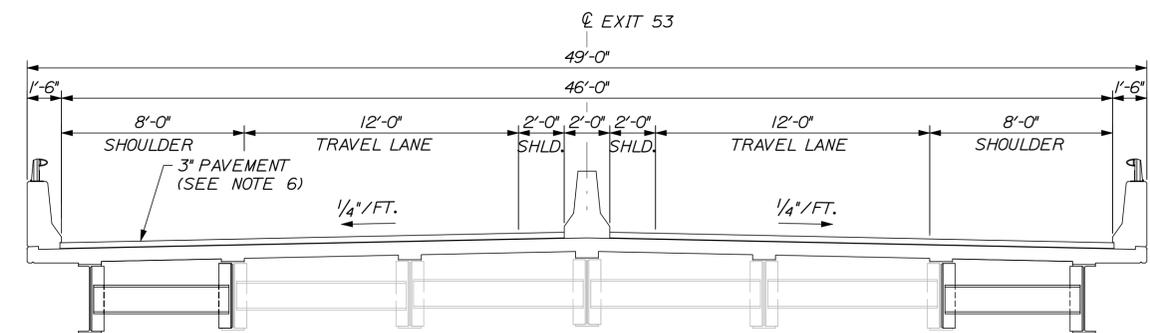
	PHASE 1	PHASE 2		PHASE 3		TOTAL
		DEMOLITION	CONSTRUCTION	DEMOLITION	CONSTRUCTION	
APPROX. WIDTH OF NEW SHIELDING INSTALLED (FT)	0	20.5	16.5	24.4	19.8	81.2
APPROX. AREA OF SHIELDING INSTALLED (SY)	0	280	226	334	270	1110



PHASE 3  
DEMOLITION



PHASE 3  
CONSTRUCTION



PROPOSED CROSS SECTION

NOTES:

- ALTERNATE PHASING SEQUENCE MAY BE SUBMITTED BY CONTRACTOR FOR APPROVAL.
- CONSTRUCTION SEQUENCE SHOWN FACING UPSTATION.
- PROTECTIVE SHIELDING SHALL EXTEND LONGITUDINALLY FROM PIERS 1 THRU 3. THE WIDTH OF THIS SHIELDING SHALL BE EQUAL TO THE TOTAL WIDTH OF THE NEW OR EXISTING STRUCTURE PLUS THREE FEET BEYOND THE FASCIA LINES ON EACH SIDE OF THE STRUCTURE.
- IF NECESSARY, CONTRACTOR SHALL LOOSEN BOLTS OR REMOVE RIVETS AT END DIAPHRAGMS TO ENSURE THAT BEAMS SEAT PROPERLY ON BEARINGS. REMOVED RIVETS SHALL BE REPLACED WITH BOLTS AS REQUIRED. REFER TO BEARING DETAILS.
- AT THE CONTRACTOR'S OPTION, SINGLE FACED BARRIERS MAY BE USED IN LIEU OF JERSEY BARRIERS. IF THE CONTRACTOR ELECTS TO USE SINGLE FACED BARRIERS, NO ADDITIONAL COMPENSATION WILL BE PAID.
- FINAL LIFT OF PAVEMENT FOR THE AREA OF DECK CONSTRUCTED DURING PHASE 2 SHALL BE PLACED FOLLOWING PHASE 3 CONSTRUCTION.

Filename: 082\_Construction Sequence 1.dgn

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

Designed by:



HNTB CORPORATION  
340 County Road, Suite 6-C  
Westbrook, ME 04092  
TEL (207) 774-5155  
FAX (207) 228-0909



THE GOLD STAR  
MEMORIAL HIGHWAY

BRIDGE REHABILITATION  
EXIT 53  
CONSTRUCTION SEQUENCE

No.	Revision	By	Date

	By	Date	By	Date	
Designed	JKC	2/11	Checked	PH	2/11
Drawn	RJT	2/11	In Charge of	RAL	2/11

SHEET NUMBER: S-06

CONTRACT: 2011.04

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**NOTES:**

1. ABUTMENT CONCRETE REPAIRS, INCLUDING THE ASSOCIATED REMOVALS, BEYOND THE FULL DEMOLITION LIMITS WILL BE PAID UNDER ITEM 518.6313.
2. BACKWALL REPAIRS UNDER THE APPROACH PAVEMENT (NOT SHOWN), IF REQUIRED, WILL BE PAID UNDER THE APPROPRIATE PAY ITEM(S) BASED ON THE METHOD OF REPAIR SELECTED BY THE RESIDENT. AN ESTIMATED QUANTITY IS CARRIED UNDER ITEM 518.6313.
3. FOOTING REPAIRS AT THE ABUTMENT EXTENSIONS, IF DIRECTED BY THE RESIDENT, WILL BE PAID UNDER ITEM 518.6313 OR ITEM 518.6312 AS APPROPRIATE.
4. CONTRACTOR SHALL PERFORM REPAIRS AS PART OF THE ASSOCIATED DEMOLITION PHASE. REPAIRS SHALL NOT BE PERFORMED WHEN TRAFFIC LANES ARE PRESENT ON THE ROADWAY ABOVE UNLESS AUTHORIZED BY THE RESIDENT.
5. LIMITS OF DEMOLITION ARE SHOWN HERE FOR CONTRACTOR REFERENCE. FOR DEMOLITION DETAILS SEE SHEETS S-12.

**REMOVAL PROCEDURE:**

1. PRIOR TO THE START OF THE CONCRETE REMOVALS, THE RESIDENT AND THE CONTRACTOR SHALL SOUND THE CONCRETE AND AGREE ON THE REMOVAL LIMITS. SHOULD THE REMOVAL AREA LIMITS APPEAR TO CHANGE DURING THE DEMOLITION PROCESS, THE CONTRACTOR SHALL NOTIFY THE RESIDENT. THE RESIDENT AND CONTRACTOR SHALL AGREE ON THE REVISED PAY LIMITS PRIOR TO THE CONTRACTOR CONTINUING THE REMOVALS.
2. PERFORM 1 INCH DEEP SAWCUTS ALONG LIMITS OF REMOVAL.
3. CHIP CONCRETE TO DEPTH SHOWN.

**CONCRETE SURFACE PATCH/REPAIR PROCEDURE:**

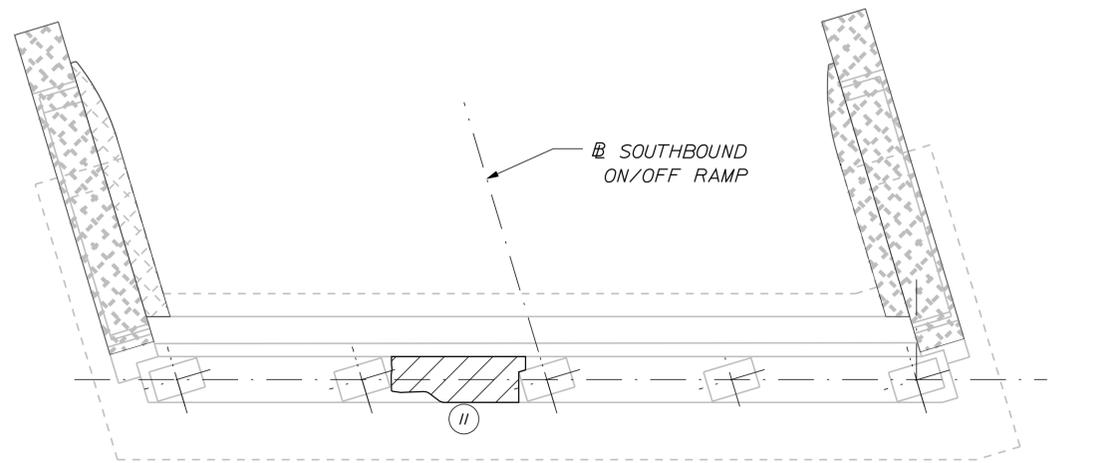
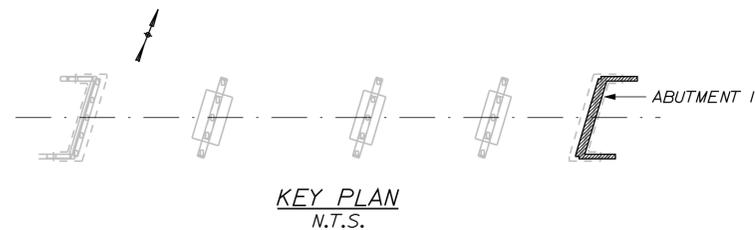
1. PREPARE AND PATCH REPAIR AREAS WITH CLASS AAA MODIFIED CONCRETE. SEE SPECIFICATIONS FOR MATERIAL, PREPARATION, PLACEMENT, AND CURING REQUIREMENTS.
2. PERFORM GENERAL FINISHING (SEE BELOW).

**EPOXY INJECTION CRACK REPAIR**

1. PREPARE CONCRETE SURFACE AND CRACK AREA BY CLEANING SUBSTRATE WITH WIRE BRUSH TO REMOVE LAITANCE AND CONTAMINANTS. BLAST CLEAN THE CRACK AND CONCRETE SURFACE; DO NOT USE WATER.
2. SET INJECTION PORTS ALONG THE LENGTH OF THE CRACK USING A HIGH-MODULUS EPOXY ADHESIVE. ONCE SET, SEAL PORTS AND CRACK WITH SAME EPOXY ADHESIVE.
3. WHEN THE EPOXY ADHESIVE SEAL HAS CURED, INJECT A HIGH-MODULUS, LOW-VISCOSITY EPOXY SUCH AS SIKADUR 35, SIKADUR 55, OR APPROVED EQUAL.

**GENERAL FINISHING:**

1. CONTRACTOR SHALL REMOVE TECTYL COATING WHERE PRESENT PRIOR TO APPLYING PIGMENTED PROTECTIVE CONCRETE COATING. WORK SHALL BE INCIDENTAL TO THE SPECIFIED ITEM IN S.P. 518.
2. ALL EXPOSED SURFACES SHALL BE COATED WITH A PIGMENTED PROTECTIVE SUITABLE FOR CONCRETE SURFACES AFTER PATCHING IS COMPLETE AND PATCH MATERIALS HAVE CURED.

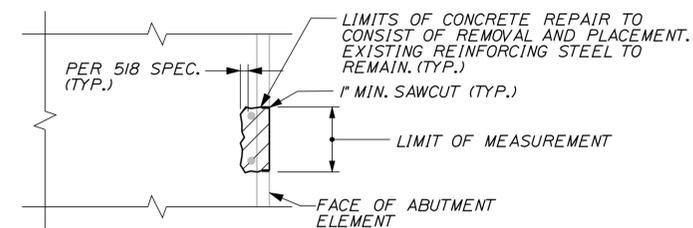


**ABUTMENT #1 PLAN**  
1/4" = 1'-0"

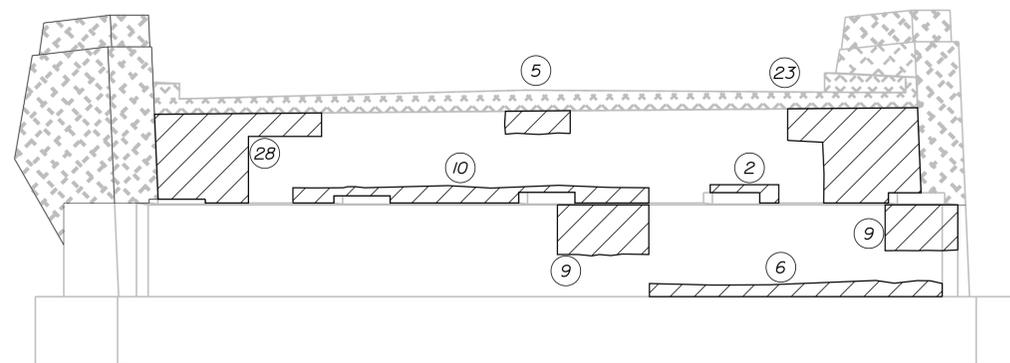
**ABUTMENT #1 - REPAIR QUANTITIES**

ABUTMENTS-EXPOSED	
CONCRETE SURFACE REMOVAL & PATCH/REPAIR	109 S.F.*
BACKWALLS- UNDER APPROACH PAVEMENT	
CONCRETE SURFACE REMOVAL & PATCH/REPAIR	34 S.F.**
FOOTINGS	
EPOXY INJECTION CRACK REPAIR	5 L.F.***

\* INCLUDES 10% ADDITIONAL REPAIR QUANTITY IN UNDETERMINED LOCATIONS  
 \*\* ESTIMATED AT APPROX. 1 S.F. PER L.F. OF BACKWALL  
 \*\*\* ESTIMATED AT APPROX. 5 L.F. PER FOOTING



**CONCRETE SURFACE PATCH/REPAIR DETAIL**  
1" = 1'-0"



**ABUTMENT #1 ELEVATION**  
1/4" = 1'-0"

**LEGEND**

- LIMIT OF CONCRETE DEMOLITION (NO REPAIR)
- LIMIT OF CONCRETE REMOVAL AND REPAIR
- SQUARE FOOT AREA OF REMOVAL AND REPAIRS

Date: 6/23/2011

Filename: 083\_Abutment 1 Repair .dgn

Scale: AS NOTED			
No.	Revision	By	Date

Designed by:			
<b>HNTB</b>			
	By	Date	
	By	Date	
	By	Date	
	By	Date	

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**THE GOLD STAR  
MEMORIAL HIGHWAY**

BRIDGE REHABILITATION AND  
 INTERCHANGE IMPROVEMENT  
 EXIT 53 UNDERPASS  
 SUBSTRUCTURE REPAIRS  
 ABUTMENT #1 REPAIRS

SHEET NUMBER: S-07

CONTRACT: 2011.04 83 OF 122

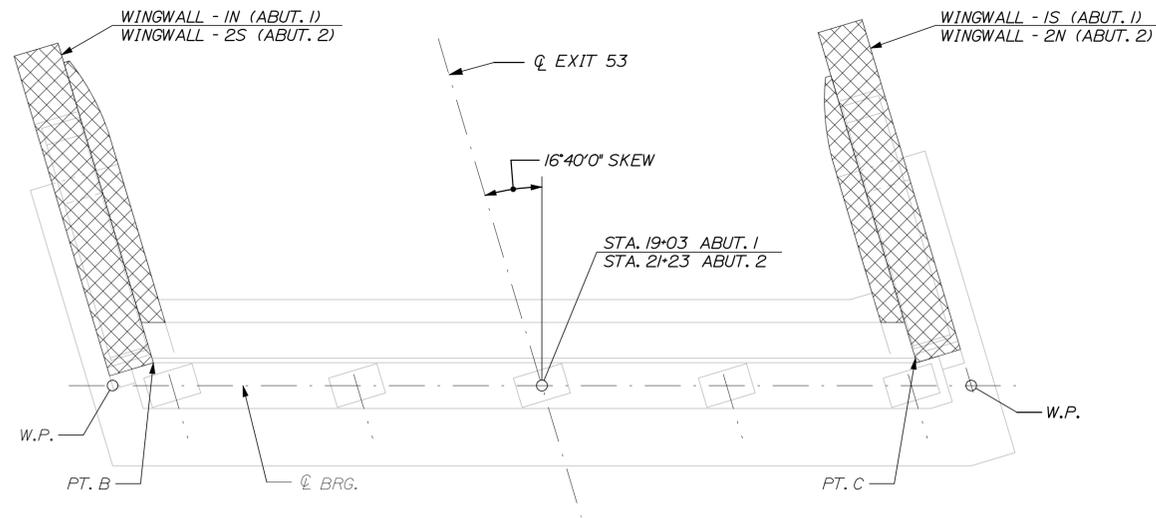




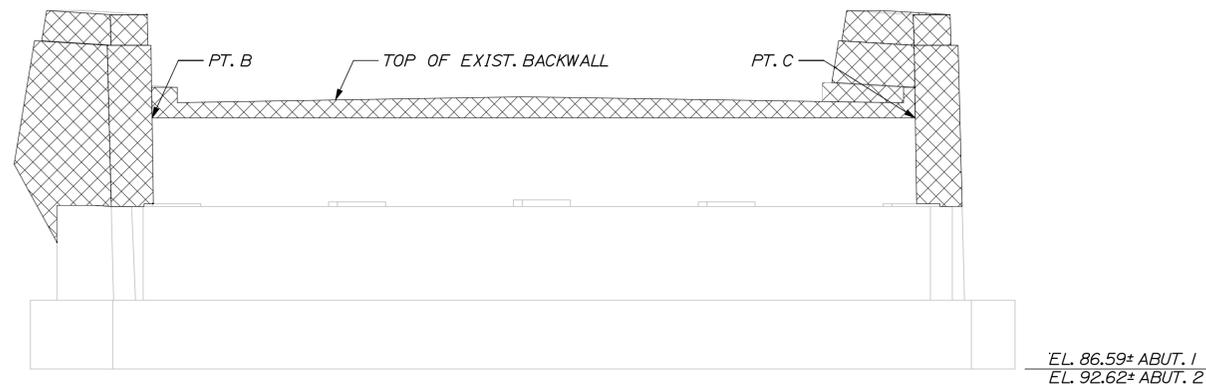




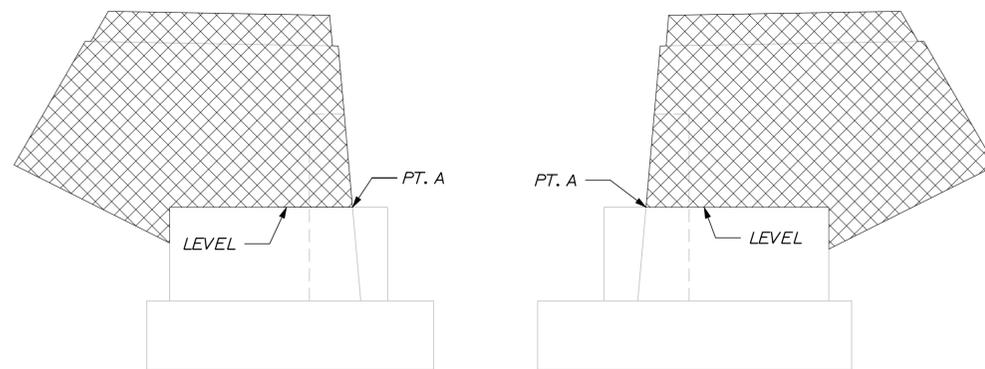
Date: 6/21/2011



PLAN - ABUTMENTS 1 & 2  
1/4" = 1'-0"



ELEVATION - ABUTMENTS 1 & 2  
1/4" = 1'-0"



ELEVATION - WINGWALLS  
1/4" = 1'-0"

**NOTES:**

1. CONTRACTOR SHALL REMOVE TECTYL COATING WHERE PRESENT PRIOR TO APPLYING PIGMENTED CONCRETE COATING, WORK SHALL BE INCIDENTAL TO THE SPECIFIED ITEM IN S.P. 515.201.
2. ALL LIMITS OF DEMOLITION SHALL BE SAWCUT 1" DEEP.

WORKING POINT LOCATIONS	
WINGWALL IN	STA. 18+97.61, 18.0' RIGHT
WINGWALL 1S	STA. 19+08.40, 18.0' LEFT
WINGWALL 2N	STA. 21+17.61, 18.0' RIGHT
WINGWALL 2S	STA. 21+28.40, 18.0' LEFT

STRUCTURAL CONCRETE REMOVAL [CY]	
ABUTMENT 1	18.5
ABUTMENT 2	18.5

ELEVATIONS		
POINT (PT)	ABUTMENT 1	ABUTMENT 2
A	93.68	99.70
B	96.54	102.55
C	96.54	102.55

**LEGEND:**

 AREA OF REMOVAL

Filename: 088\_Abutment Demolition Limits.dgn

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

No.	Revision	By	Date

Designed by:

**HNTB**

	By	Date		By	Date
Designed	JKC	2/11	Checked	PH	2/11
Drawn	RJT	2/11	In Charge of	RAL	2/11

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**THE GOLD STAR  
MEMORIAL HIGHWAY**

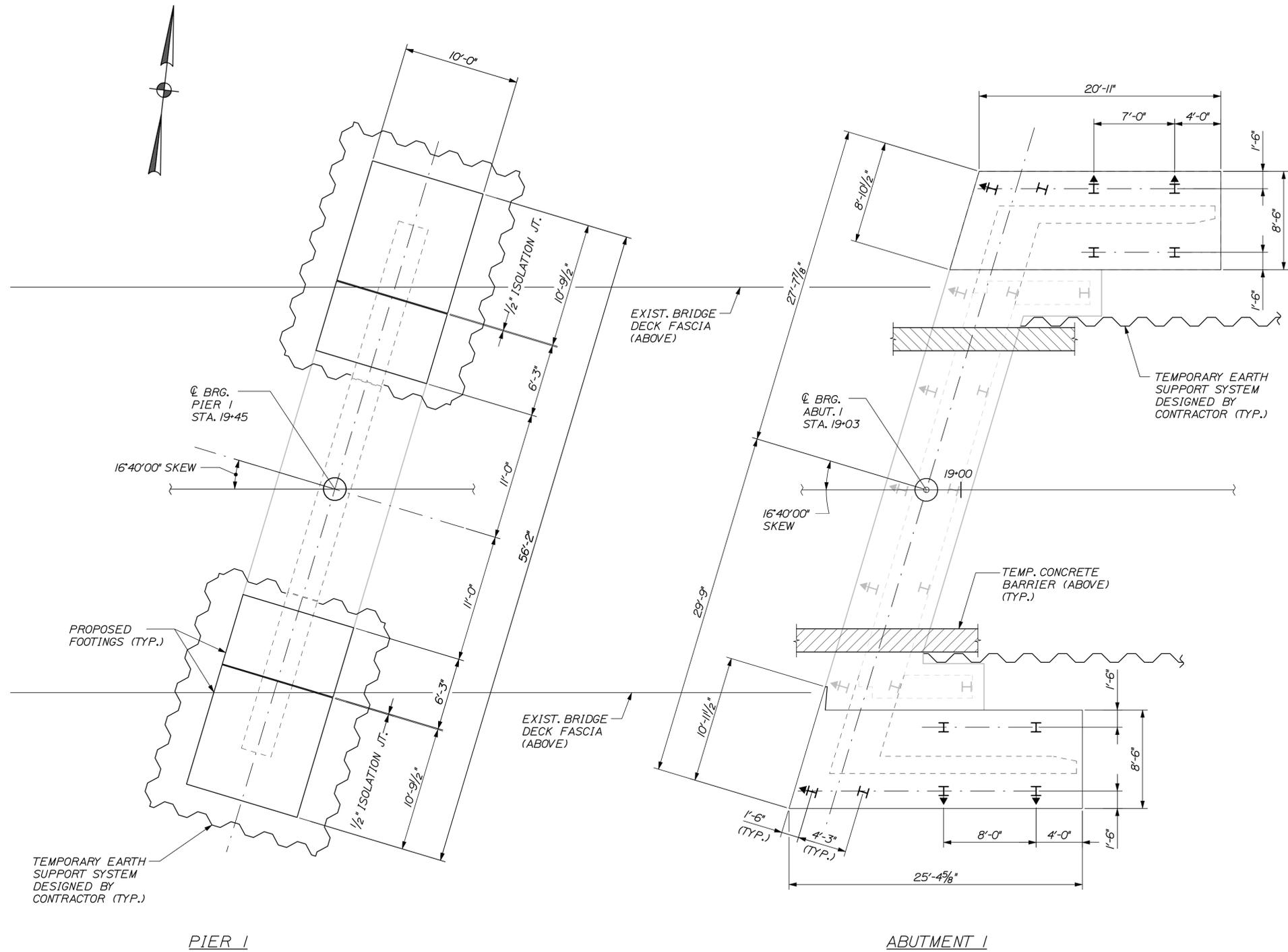
BRIDGE REHABILITATION  
EXIT 53  
ABUTMENT DEMOLITION LIMITS

SHEET NUMBER: S-12  
CONTRACT: 2011.04  
88 OF 122



Date: 6/21/2011

Filename: 090\_FoundationPlan-2.dgn



**FOUNDATION NOTES:**

1. A TEMPORARY EARTH RETAINING STRUCTURE SHALL BE CONSTRUCTED AT THE ABUTMENTS AND PIERS PRIOR TO THE START OF CONSTRUCTION IN ACCORDANCE WITH SPECIAL PROVISION 511.
2. THE CONTRACTOR SHALL SURVEY THE SOLID WHITE AND YELLOW LANE LINES OF THE MAINE TURNPIKE AT 10' INTERVALS EXTENDING 50' NORTH AND SOUTH OF THE EXIT 53 BASELINE PRIOR TO INSTALLATION OF THE PIER TEMPORARY EARTH SUPPORT STRUCTURE. THE POINTS SHALL BE SURVEYED AFTER PIER CONSTRUCTION IS COMPLETE AND THE TEMPORARY EARTH SUPPORT STRUCTURE IS REMOVED. THE CONTRACTOR WILL BE RESPONSIBLE FOR REPAIRING ANY SETTLEMENT OF THE NORTHBOUND AND SOUTHBOUND ROADWAY GREATER THAN 1/2" RESULTING FROM FAILURE OF THE TEMPORARY EARTH SUPPORT STRUCTURE TO ADEQUATELY SUPPORT THE TURNPIKE SUBBASE MATERIAL. SETTLEMENT WILL BE DETERMINED FROM THE PRE AND POST CONSTRUCTION SURVEY ELEVATIONS. ANY REPAIRS REQUIRED SHALL BE COMPLETED TO THE SATISFACTION OF THE AUTHORITY AT NO ADDITIONAL COST TO THE AUTHORITY. PAYMENT FOR SURVEYING WILL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED INCIDENTAL TO THE RELATED CONTRACT ITEMS.
3. LIMITS OF TEMPORARY EARTH SUPPORT SYSTEMS SHOWN ARE APPROXIMATE AND SUBJECT TO CONTRACTOR MEANS AND METHODS.
4. SEE SHEET S-16 FOR TEMPORARY EARTH SUPPORT SYSTEM DETAIL.

**PILE NOTES:**

1. PILES MARKED THUS H ▶, SHALL BE BATTERED 3° HORIZONTAL TO 1'-0" VERTICAL (1H:4V) IN THE DIRECTION OF THE ARROW.
2. ULTIMATE CAPACITY (NOMINAL RESISTANCE) OF PILES:  
 AT ABUTMENTS: HP 10 x 42 PILES SHALL BE DRIVEN TO AN ULTIMATE CAPACITY OF 446 KIPS TO PROVIDE A FACTORED RESISTANCE (ALLOWABLE CAPACITY) OF 267 KIPS. TOTAL FACTORED DESIGN LOAD IS 135 KIPS.  
  
 AT WINGWALLS: HP 10 x 42 PILES SHALL BE DRIVEN TO AN ULTIMATE CAPACITY OF 446 KIPS TO PROVIDE A FACTORED RESISTANCE (ALLOWABLE CAPACITY) OF 267 KIPS. TOTAL FACTORED DESIGN LOAD IS 75 KIPS.
3. ESTIMATE OF PILES REQUIRED:  
 ABUTMENT 1: 12 - HP 10 x 42 @ 23 FT  
 ABUTMENT 2: 12 - HP 10 x 42 @ 29 FT
4. PILES SHALL NOT BE OUT OF POSITION BY MORE THAN 6 INCHES IN ANY DIRECTION. THE FINAL CENTROID OF THE PILE GROUP SHALL BE WITHIN 5% OF THE DESIGNATED CENTROID SHOWN ON THE PLANS. SEE SPECIAL PROVISION 501.
5. THE CONTRACTOR SHALL PERFORM AND SUBMIT A WAVE EQUATION ANALYSIS FOR REVIEW AND ACCEPTANCE BY THE RESIDENT. THE CONTRACTOR SHALL DETERMINE A STOPPING CRITERIA BASED ON THE WAVE EQUATION ANALYSIS. THE STOPPING CRITERIA SHALL INCLUDE THE BLOWS PER INCH AND THE NUMBER OF 1 INCH INTERVALS AT WHICH PILE INSTALLATION MAY BE TERMINATED. THE COST OF PERFORMING THE WAVE EQUATION ANALYSIS WILL BE CONSIDERED INCIDENTAL TO PAY ITEM 501.92, PILE DRIVING EQUIPMENT MOBILIZATION.
6. THE CONTRACTOR SHALL PERFORM A TOTAL OF TWO (2) DYNAMIC LOAD TEST, ONE AT EACH ABUTMENT, TO EVALUATE THE PERFORMANCE OF THE HAMMER-PILE SYSTEM; CALCULATE THE STRESSES IN THE PILE DURING DRIVING; AND CONFIRM THE ULTIMATE CAPACITY OF THE PILE. THE REQUIRED NOMINAL RESISTANCE OF THE PILES TO ACHIEVE THE PRESCRIBED ULTIMATE CAPACITY SHALL BE THE TOTAL FACTORED PILE LOAD DIVIDED BY 0.6 PER LRFD SPECIFICATIONS. THE DYNAMIC PILE LOAD TEST SHALL BE PERFORMED AT THE FIRST PRODUCTION PILE DRIVEN AT EACH ABUTMENT. THE FIRST PRODUCTION PILE AT EACH ABUTMENT SHALL BE A PLUMB PILE.
7. ALL PILES SHALL BE EQUIPPED WITH A PILE TOP IN ACCORDANCE WITH STANDARD SPECIFICATION SECTION 501.10, PREFABRICATED PILE TIPS.
8. H-PILE MATERIAL SHALL BE ASTM A572 GRADE 50.
9. THE CONTRACTOR SHALL EXPOSE ONE PILE AT EACH ABUTMENT FOR INSPECTION BY RESIDENT ENGINEER. RESIDENT SHALL NOTIFY THE ENGINEER IF LOSSES TO THE PILE IN EXCESS OF 1/16" AROUND THE PERIMETER OF THE PILE ARE OBSERVED. RESIDENT SHALL DOCUMENT THE CONDITION OF THE EXISTING PILE AND PROVIDE TO THE ENGINEER FOR THE RECORD. THIS SHALL BE COMPLETED PRIOR TO COMMENCEMENT OF CONSTRUCTION OF THE PROPOSED ABUTMENT EXTENSIONS OR WINGWALLS. THIS WORK WILL BE PAID ON A TIME AND MATERIAL BASIS USING HOURLY ITEMS IN THE CONTRACT.

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

No.	Revision	By	Date

Designed by:

**HNTB**

	By	Date		By	Date
Designed	JKC	2/11	Checked	PH	2/11
Drawn	RJT	2/11	In Charge of	RAL	2/11

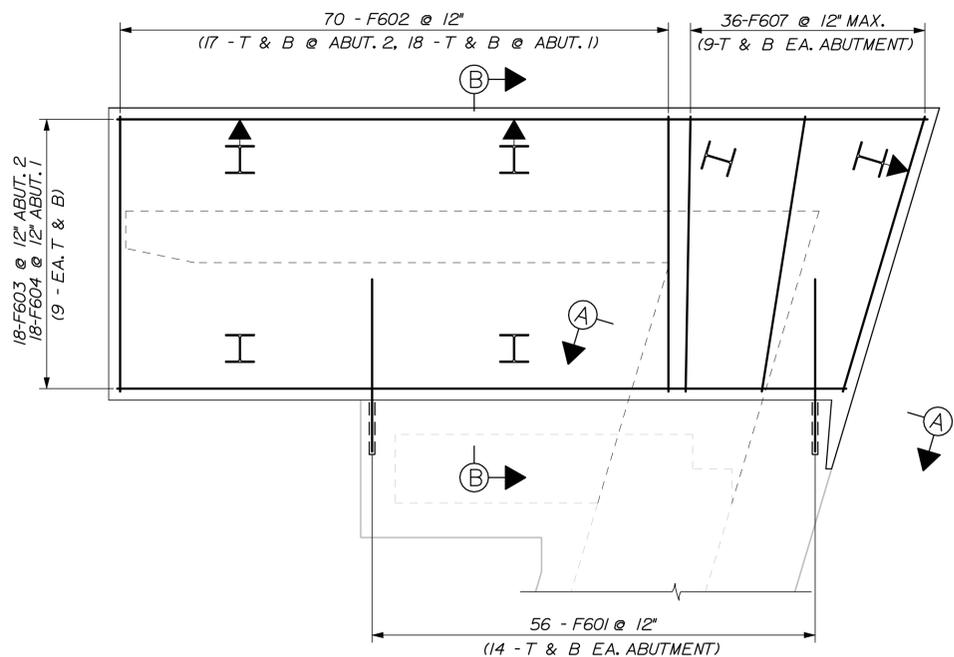
HNTB CORPORATION  
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 Westbrook, ME 04092  
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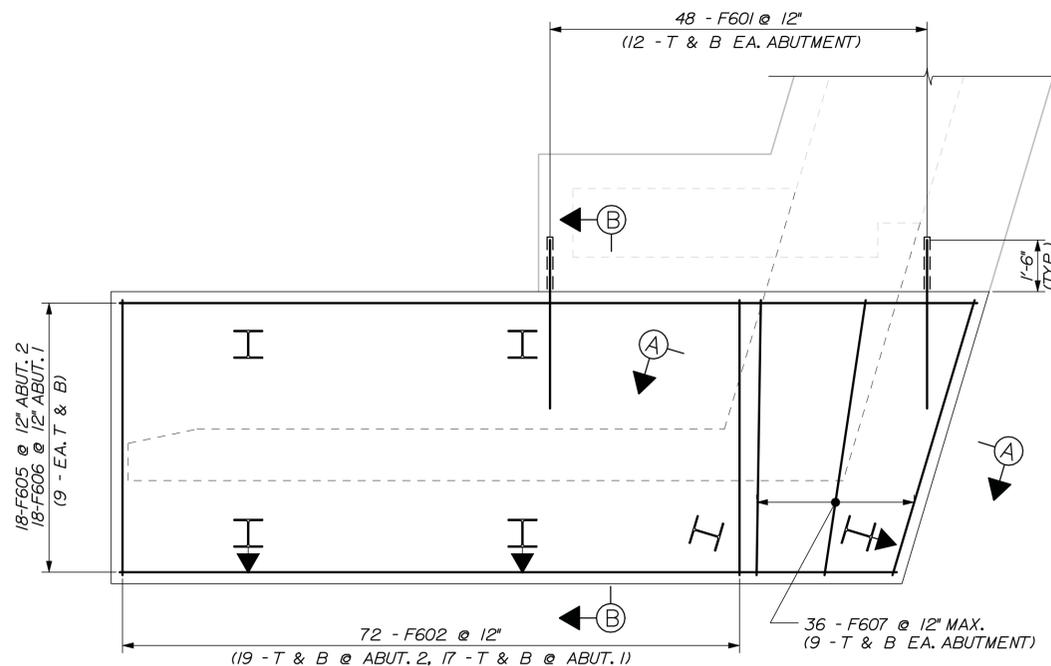
BRIDGE REHABILITATION  
 EXIT 53  
 FOUNDATION PLAN II

SHEET NUMBER: S-14  
 CONTRACT: 2011.04  
 90 OF 122

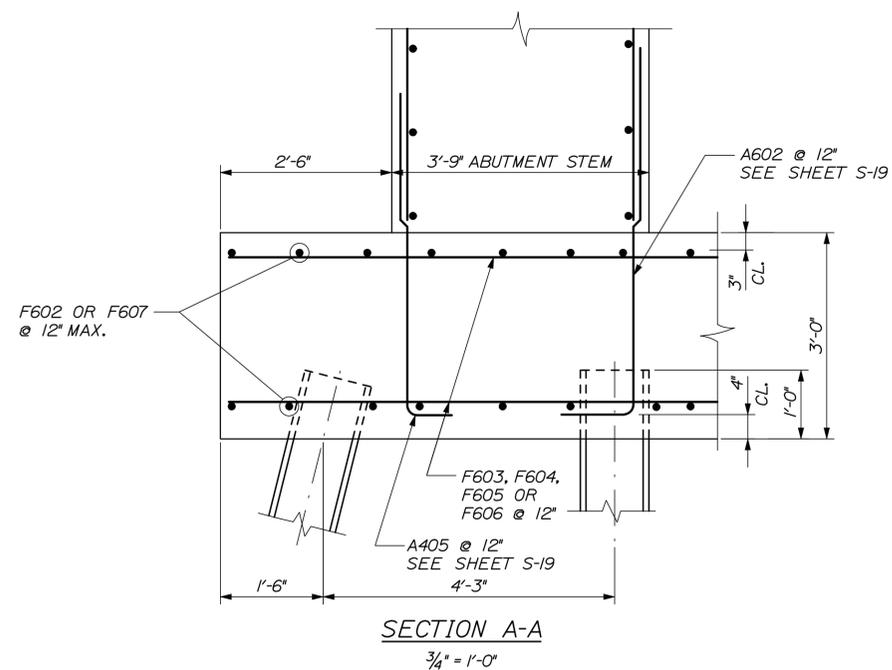
Date: 6/21/2011



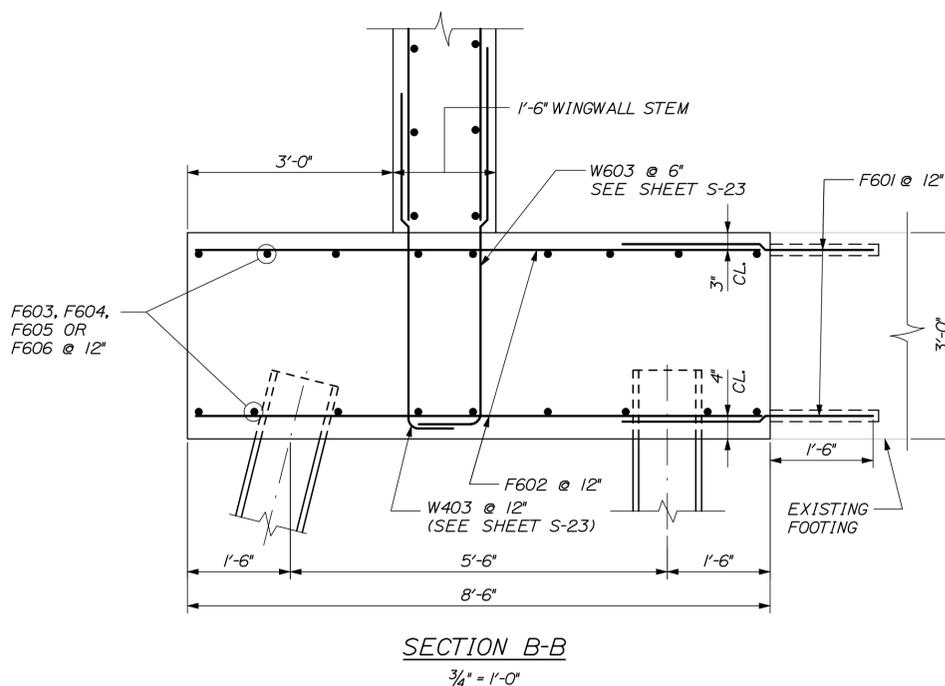
FOOTING PLAN - WINGWALL 2-N SHOWN  
(WINGWALL 1-S SIMILAR)  
3/8" = 1'-0"



FOOTING PLAN - WINGWALL 2-S SHOWN  
(WINGWALL 1-N SIMILAR)  
3/8" = 1'-0"



SECTION A-A  
3/4" = 1'-0"



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

**NOTES:**

1. FOR ABUTMENT REINFORCEMENT DETAILS, SEE SHEET S-19. FOR WINGWALL REINFORCEMENT DETAILS, SEE SHEETS S-21 THROUGH S-23.
2. DOWEL BARS FOR ABUTMENT AND WINGWALL STEM TO FOOTING CONNECTION (BARS A405, A602, W403 AND W603) NOT SHOWN IN FOOTING PLANS.
3. PLACE FOOTING REINFORCEMENT AS SHOWN TO AVOID PILES.
4. REFER TO NOTE 12 ON SHEET S-01.

Filename: 091\_FoundationDet-1.dgn

Scale: AS NOTED			
No.	Revision	By	Date

Designed by:					
<b>HNTB</b>					
	By	Date		By	Date
	PH	2/11	Checked	JKC	2/11
	RJT	2/11	In Charge of	RAL	2/11

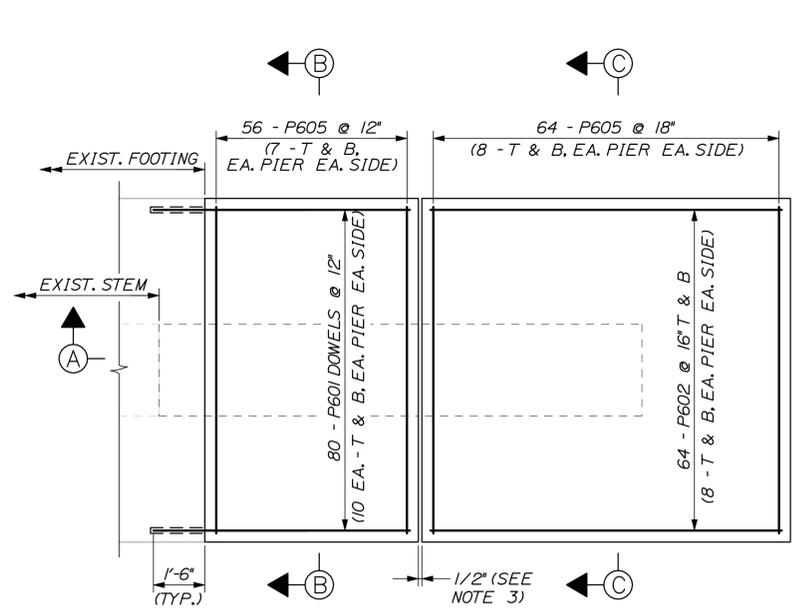
HNTB CORPORATION  
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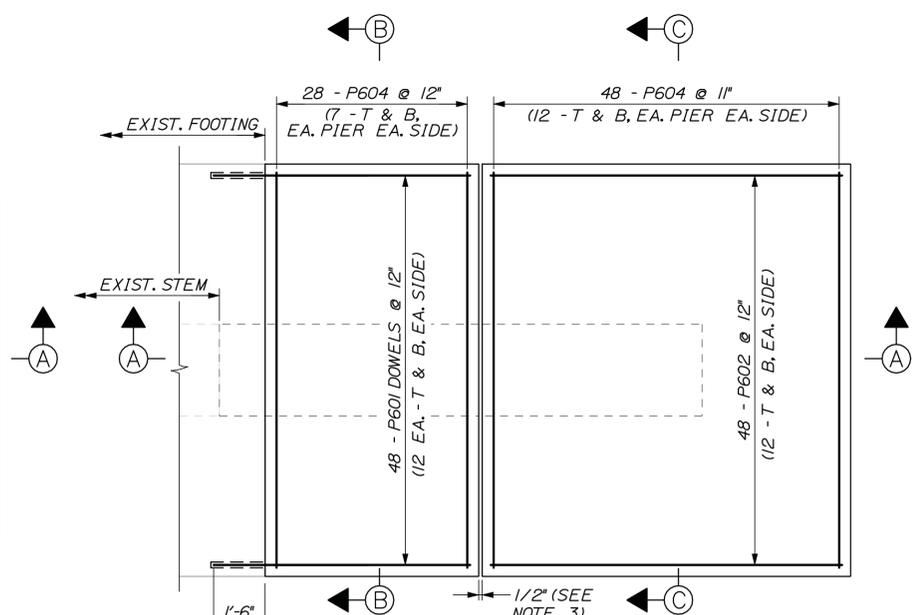
BRIDGE REHABILITATION  
EXIT 53  
FOUNDATION DETAILS I

SHEET NUMBER: S-15  
CONTRACT: 2011.04  
91 OF 122

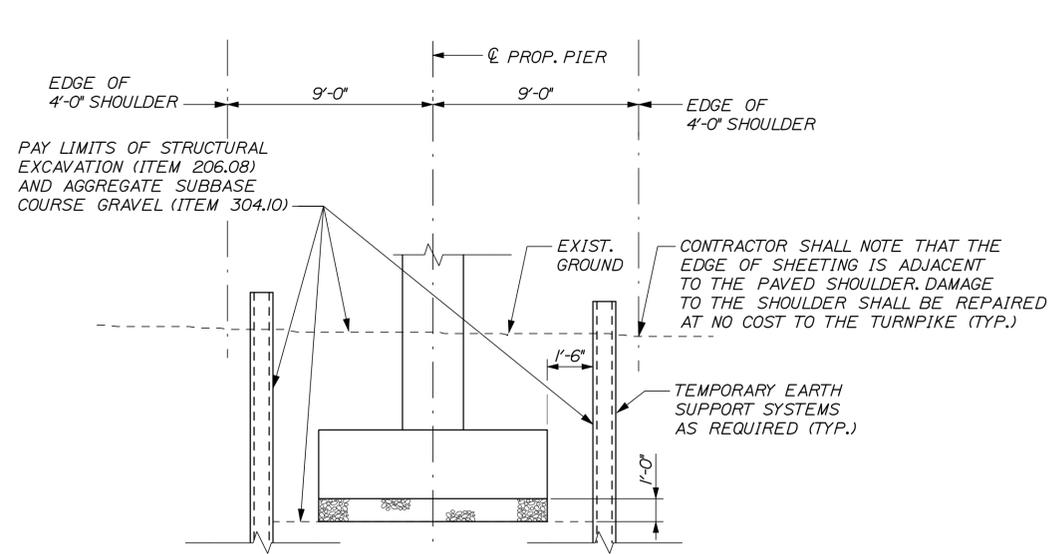
Date: 6/21/2011



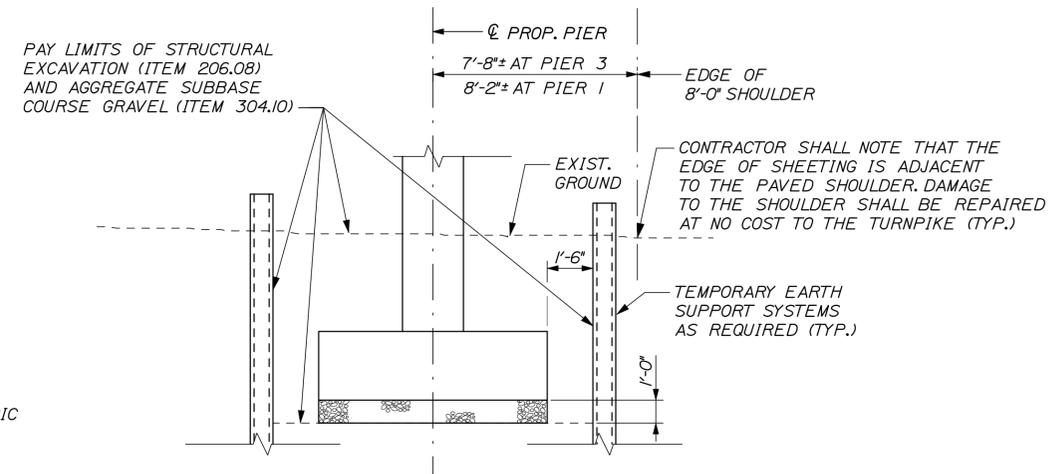
**FOOTING PLAN - PIERS 1 & 2**  
(TYPICAL EACH END)  
3/8" = 1'-0"



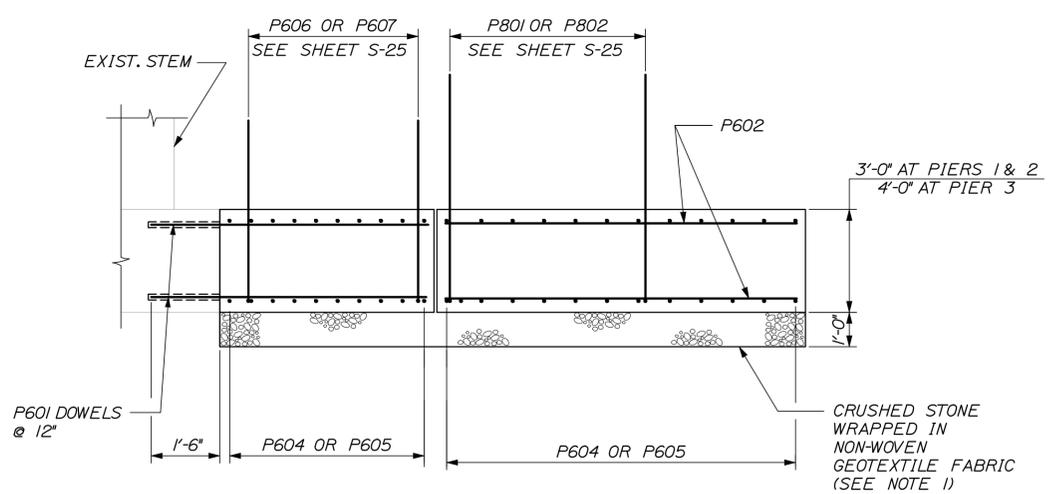
**FOOTING PLAN - PIER 3**  
(TYPICAL EACH END)  
3/8" = 1'-0"



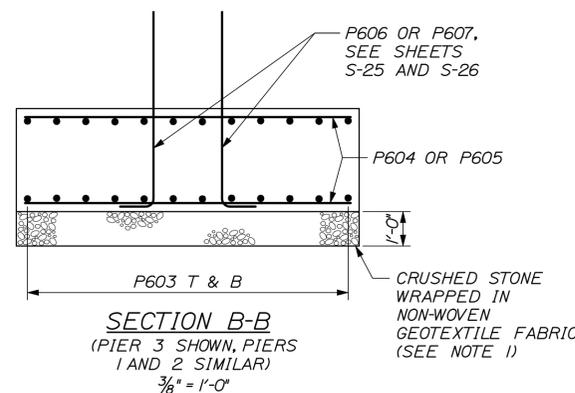
**TEMPORARY EARTH SUPPORT - PIER 2**  
1/4" = 1'-0"



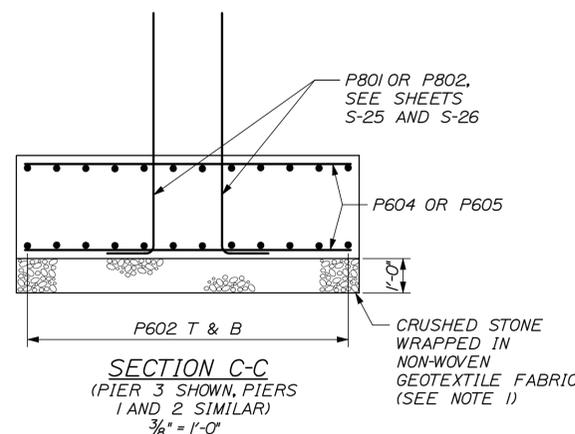
**TEMPORARY EARTH SUPPORT - PIERS 1 & 3**  
1/4" = 1'-0"



**SECTION A-A**  
3/8" = 1'-0"



**SECTION B-B**  
(PIER 3 SHOWN, PIERS 1 AND 2 SIMILAR)  
3/8" = 1'-0"



**SECTION C-C**  
(PIER 3 SHOWN, PIERS 1 AND 2 SIMILAR)  
3/8" = 1'-0"

**NOTES:**

- CRUSHED STONE SHALL CONFORM TO MAINE DOT STANDARD SPECIFICATION 703.22, TYPE B OR C. PAYMENT FOR CRUSHED STONE AND GEOTEXTILE FABRIC SHALL BE INCIDENTAL TO RELATED CONTRACT ITEMS.
- REFER TO NOTE 12 ON SHEET S-01.
- FORM 1/2" GAP BETWEEN ADJACENT PIER FOOTING CONCRETE POURS USING PLYWOOD TO SERVE AS BOND BREAKER.

Filename: 092\_FoundationDet-II.dgn

Scale: AS NOTED			
No.	Revision	By	Date

Designed by:			
<b>HNTB</b>			
	By	Date	
	PH	2/11	
	Checked	JKC	2/11
	By	Date	
	Drawn	RJT	2/11
	In Charge of	RAL	2/11

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**THE GOLD STAR  
MEMORIAL HIGHWAY**

BRIDGE REHABILITATION  
EXIT 53

FOUNDATION DETAILS II

CONTRACT: 2011.04

SHEET NUMBER: S-16  
92 OF 122



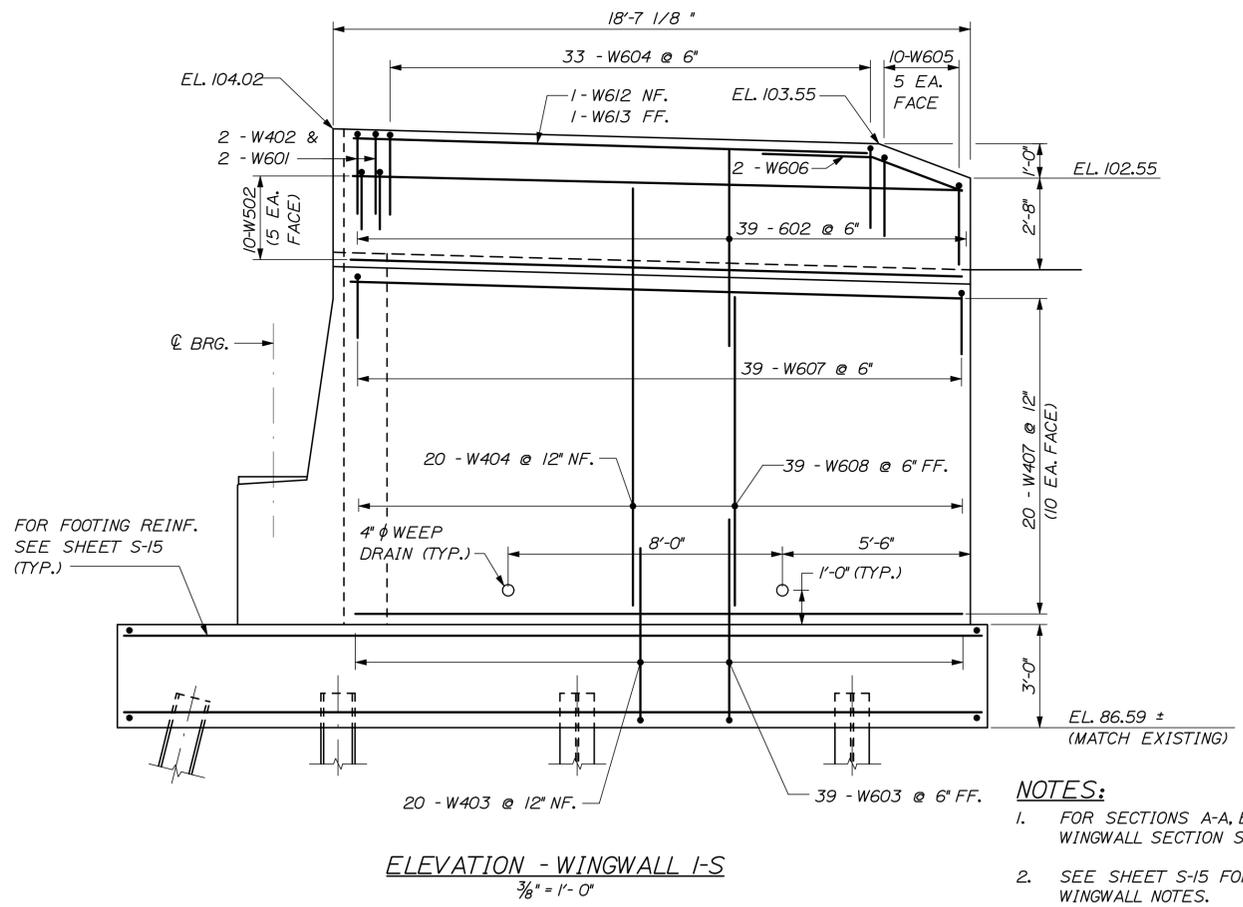
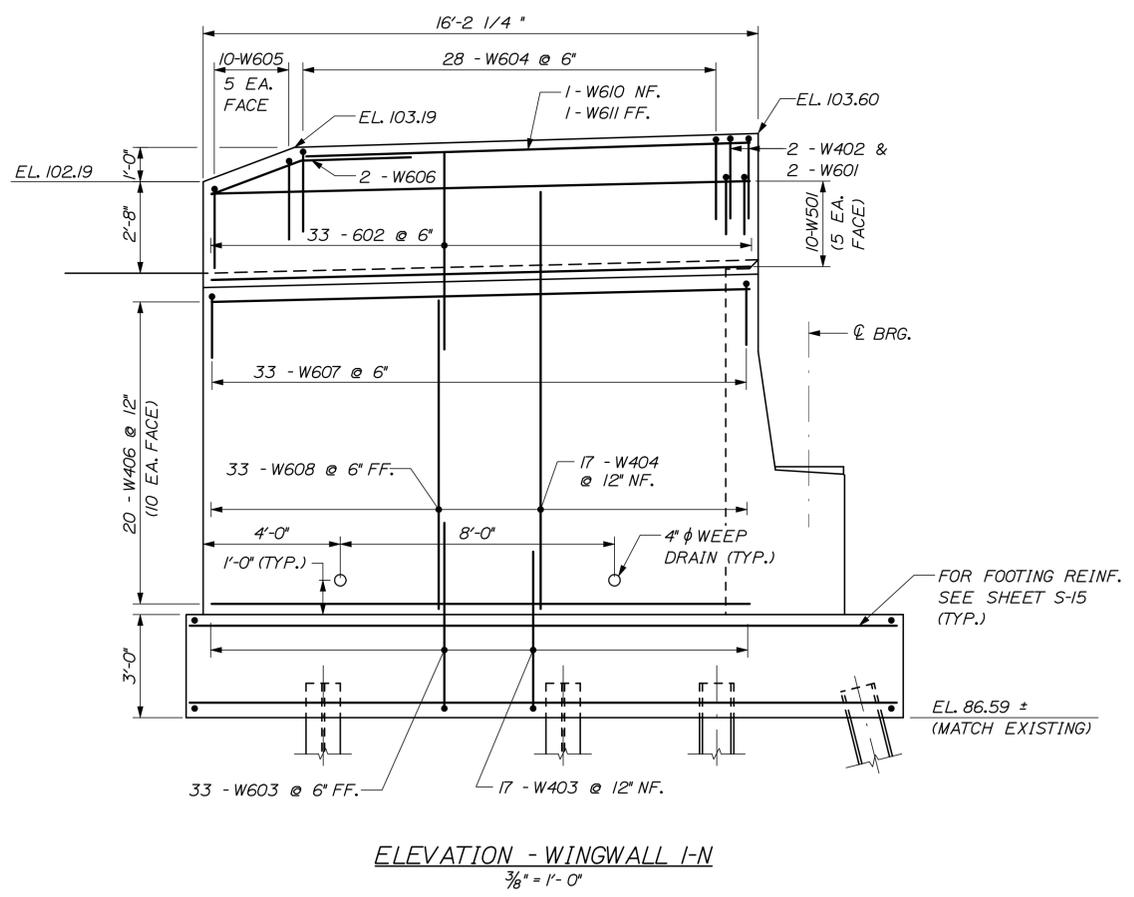
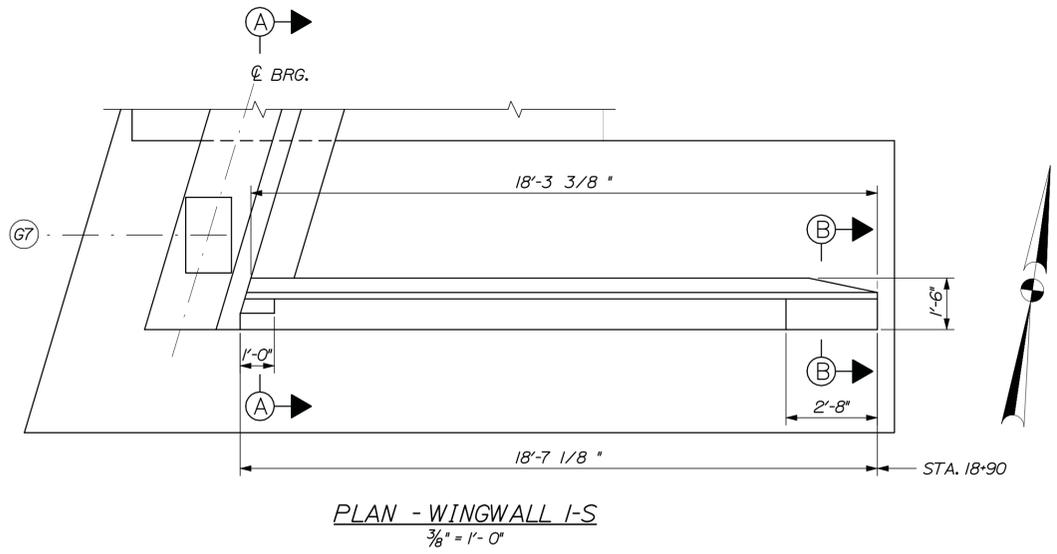
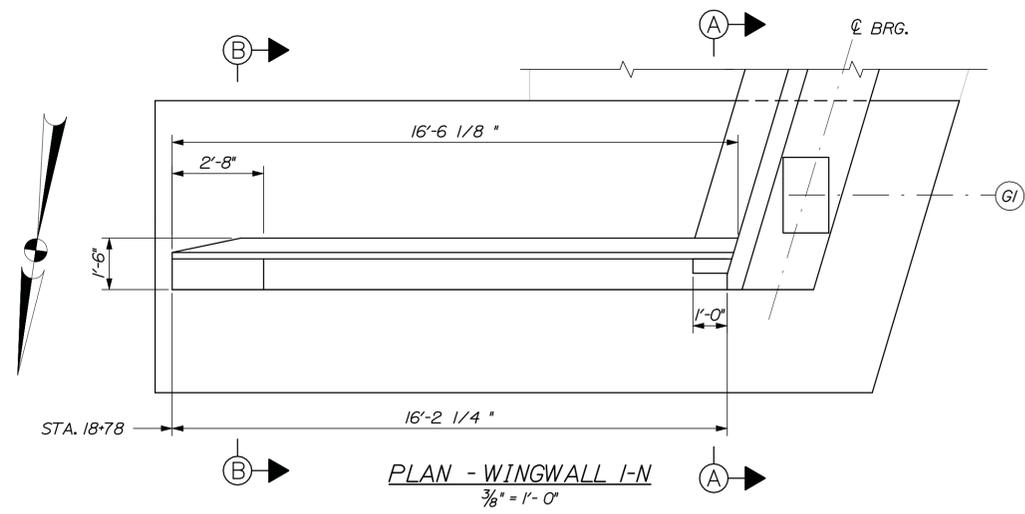






Date: 6/21/2011

Filename: 097\_WingwallPlan & Elev 1.dgn



- NOTES:**
- FOR SECTIONS A-A, B-B AND TYPICAL WINGWALL SECTION SEE SHEET S-23.
  - SEE SHEET S-15 FOR ABUTMENT AND WINGWALL NOTES.

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

No.	Revision	By	Date

Designed by:

<b>HNTB</b>					
	By	Date		By	Date
	PH	2/11	Checked	JKC	2/11
	RJT	2/11	In Charge of	RAL	2/11

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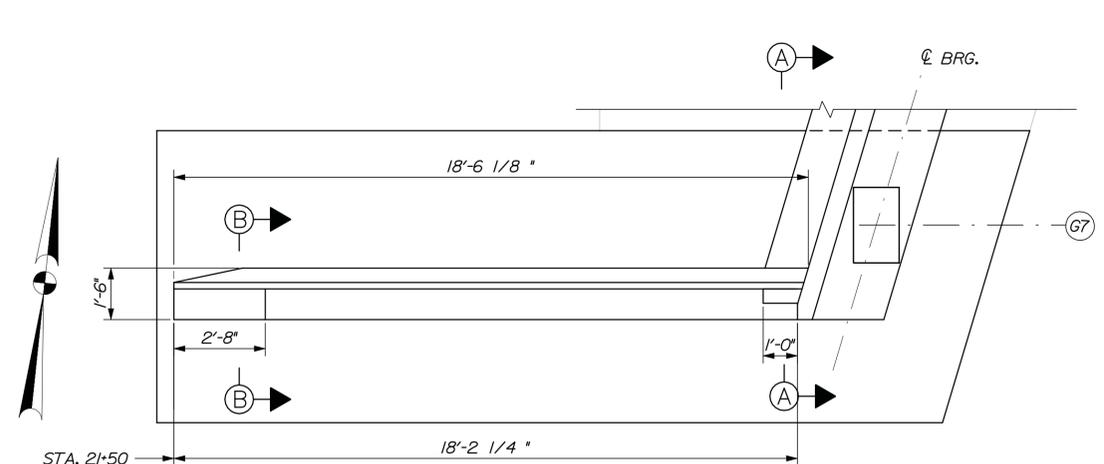


BRIDGE REHABILITATION  
 EXIT 53  
 WINGWALL PLAN AND ELEVATION I

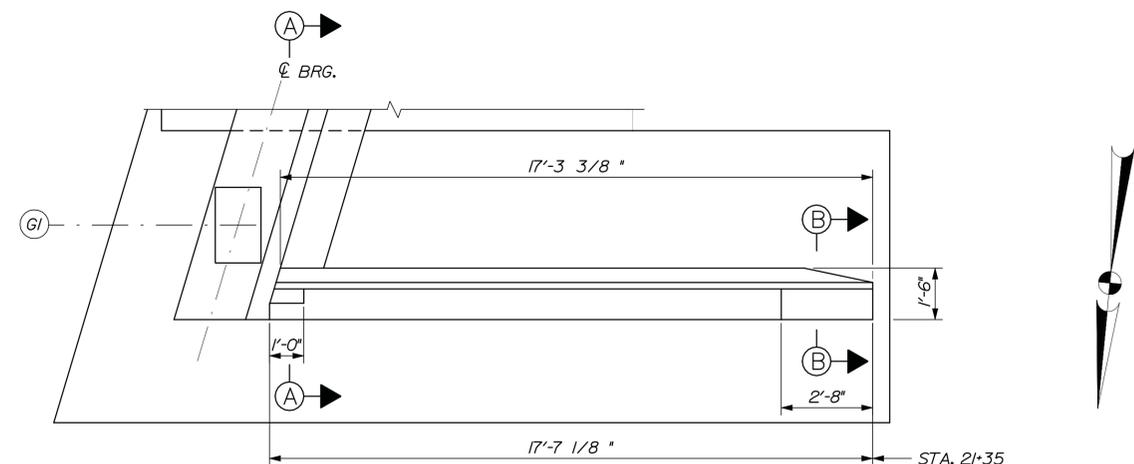
SHEET NUMBER: S-21  
 CONTRACT: 2011.04  
 97 OF 122

Date: 6/21/2011

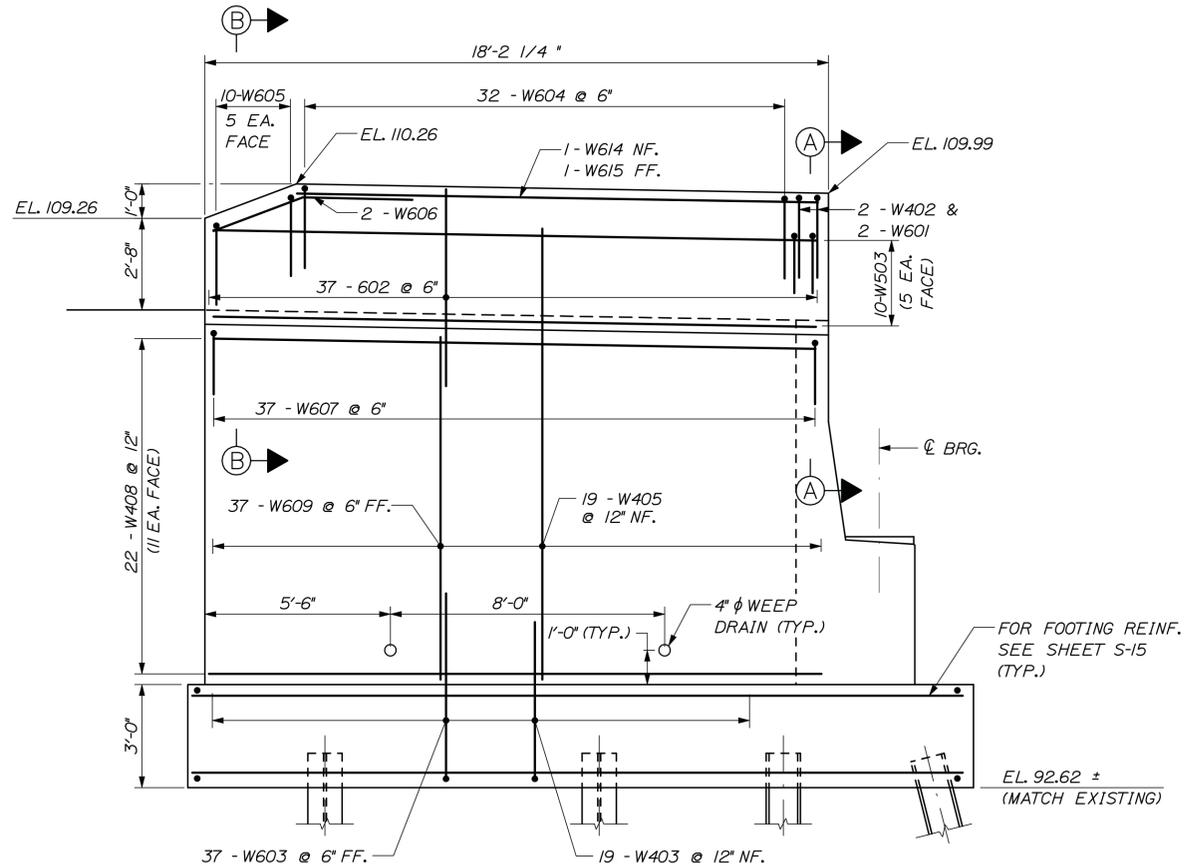
Filename: 098\_WingwallPlan & Elev 2.dgn



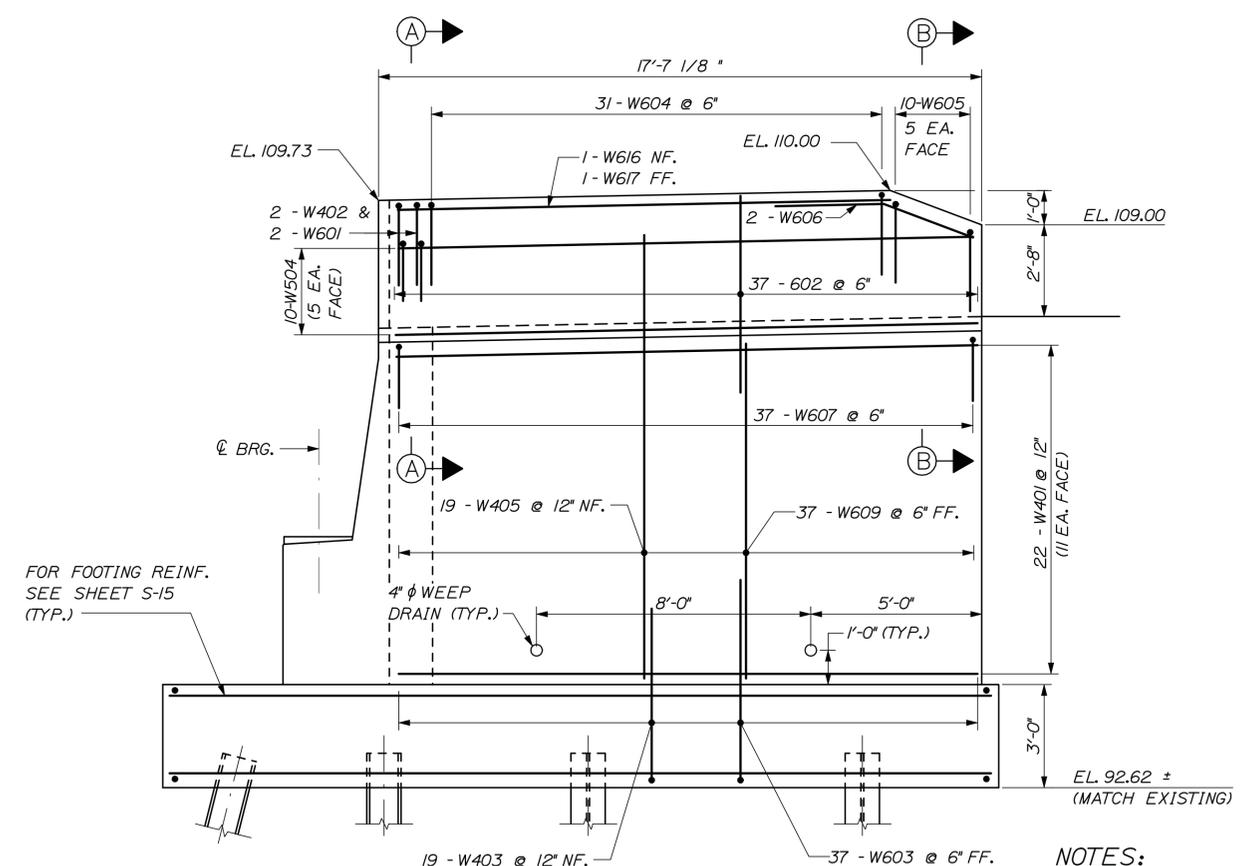
PLAN - WINGWALL 2-S  
3/8" = 1'-0"



PLAN - WINGWALL 2-N  
3/8" = 1'-0"



ELEVATION - WINGWALL 2-S  
3/8" = 1'-0"



ELEVATION - WINGWALL 2-N  
3/8" = 1'-0"

- NOTES:**
- FOR SECTIONS A-A, B-B AND TYPICAL WINGWALL SECTION SEE SHEET S-23.
  - SEE SHEET S-15 FOR ABUTMENT AND WINGWALL NOTES.

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

No.	Revision	By	Date

Designed by:

**HNTB**

	By	Date		By	Date
Designed	PH	2/11	Checked	JKC	2/11
Drawn	RJT	2/11	In Charge of	RAL	2/11

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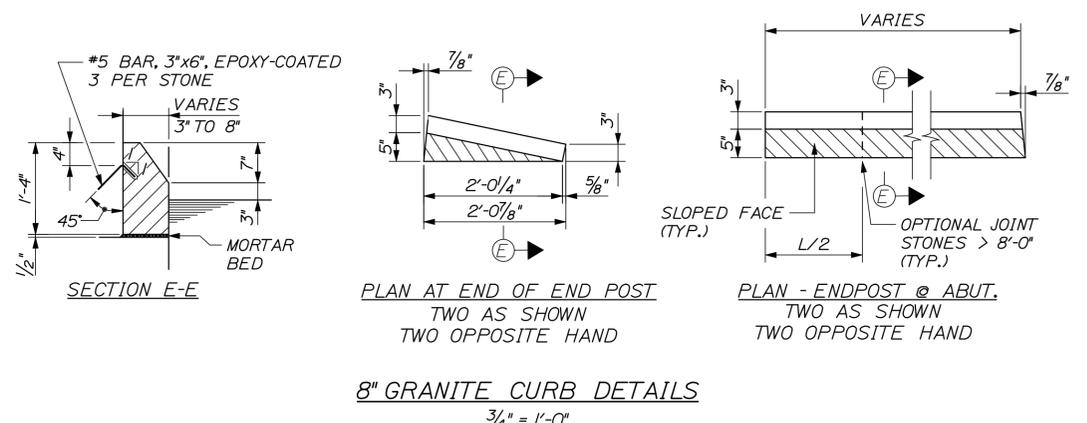
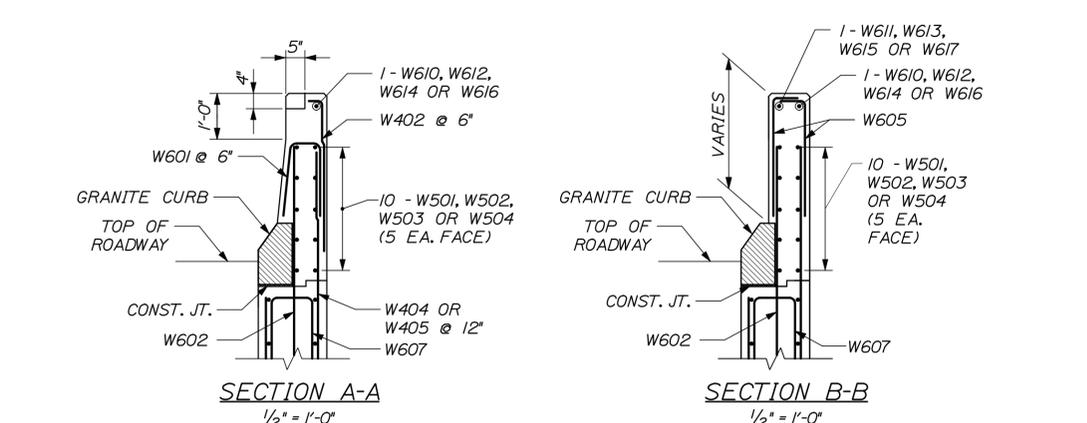
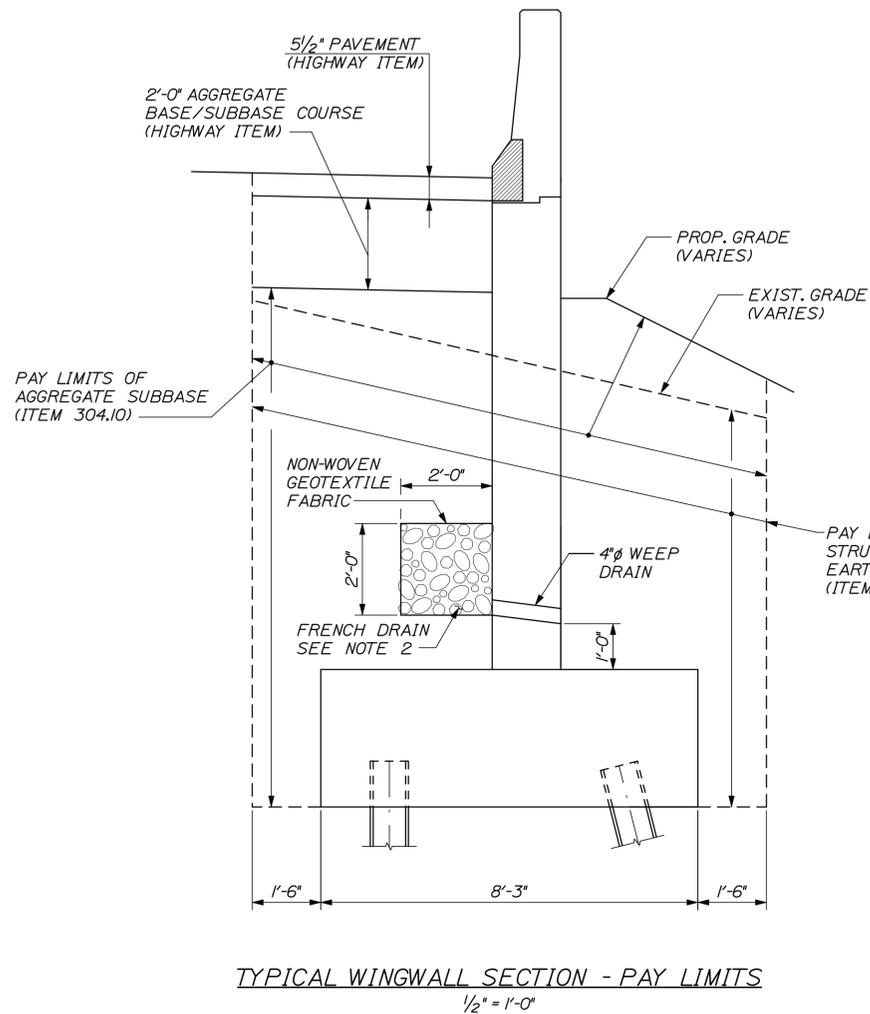
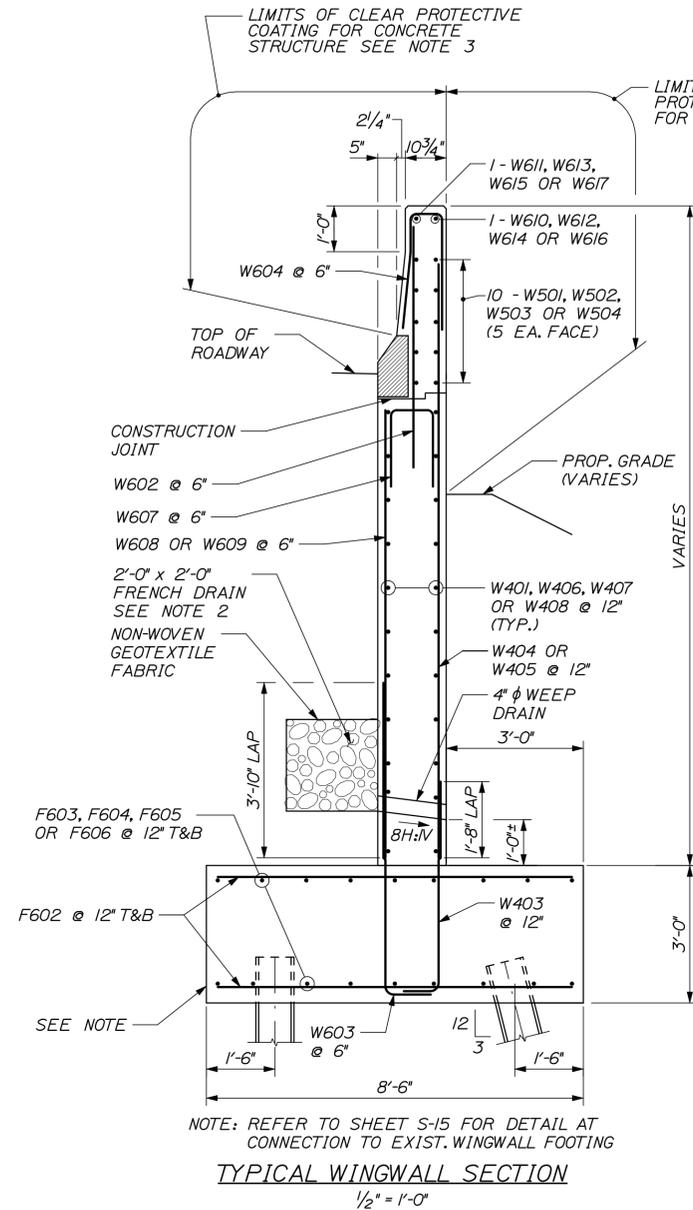


BRIDGE REHABILITATION  
EXIT 53  
WINGWALL PLAN AND ELEVATION II

SHEET NUMBER: S-22  
CONTRACT: 2011.04  
98 OF 122

Date: 6/21/2011

Filename: 099\_WingwallDetails\_1.dgn



- NOTES:**
- SEE SHEET S-17 FOR ABUTMENT AND WINGWALL NOTES.
  - CONSTRUCT FRENCH DRAINS BEHIND THE ABUTMENTS IN ACCORDANCE WITH STANDARD SPECIFICATION SECTION 512 FRENCH DRAINS. THE FRENCH DRAINS SHALL EXTEND THE ENTIRE LENGTH OF THE PROPOSED ABUTMENTS AND WINGWALLS. A PIECE OF GALVANIZED HARDWARE CLOTH SHALL BE INSTALLED OVER THE WEEP HOLES ALONG THE BACKFACE AND WINGWALLS OF THE ABUTMENT OR WINGWALL STEM PRIOR TO CONSTRUCTING THE FRENCH DRAIN. A NON-WOVEN GEOTEXTILE FABRIC SHALL BE PLACED AROUND THE FRENCH DRAIN STONES, SEPARATING THEM FROM THE AGGREGATE SUBBASE COURSE GRAVEL.
  - EXPOSE VERTICAL FACE AT END OF WINGWALL SHALL BE COATED WITH CLEAR PROTECTIVE COATING FOR CONCRETE STRUCTURES.

Scale:		AS NOTED	
Designed by:		HNTB	
No.	Revision	By	Date

By	Date	By	Date
Designed	PH 2/11	Checked	JKC 2/11
Drawn	RJT 2/11	In Charge of	RAL 2/11

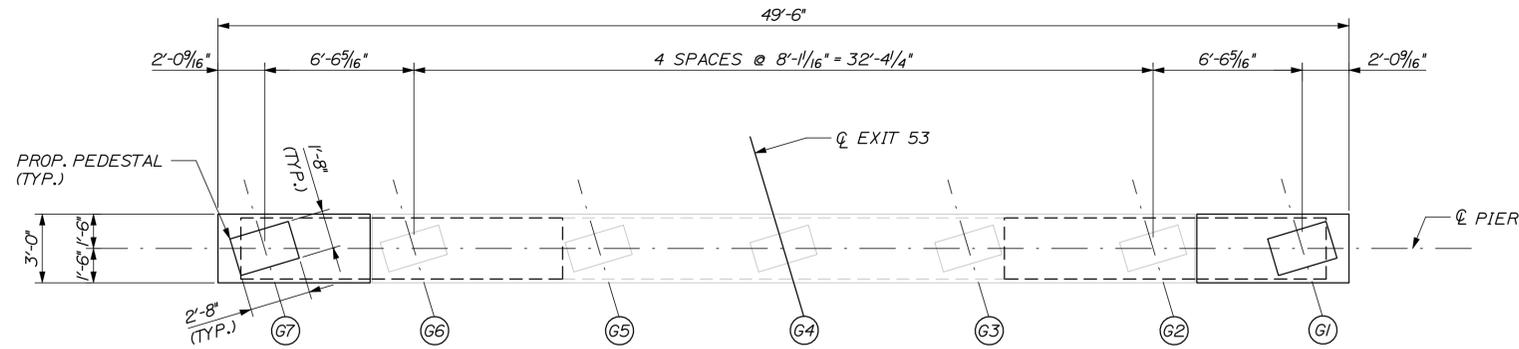
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BRIDGE REHABILITATION  
EXIT 53  
WINGWALL DETAILS

SHEET NUMBER: S-23  
CONTRACT: 2011.04  
99 OF 122

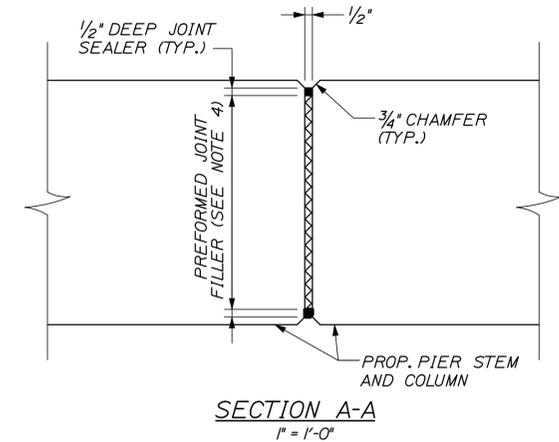
Date: 6/21/2011



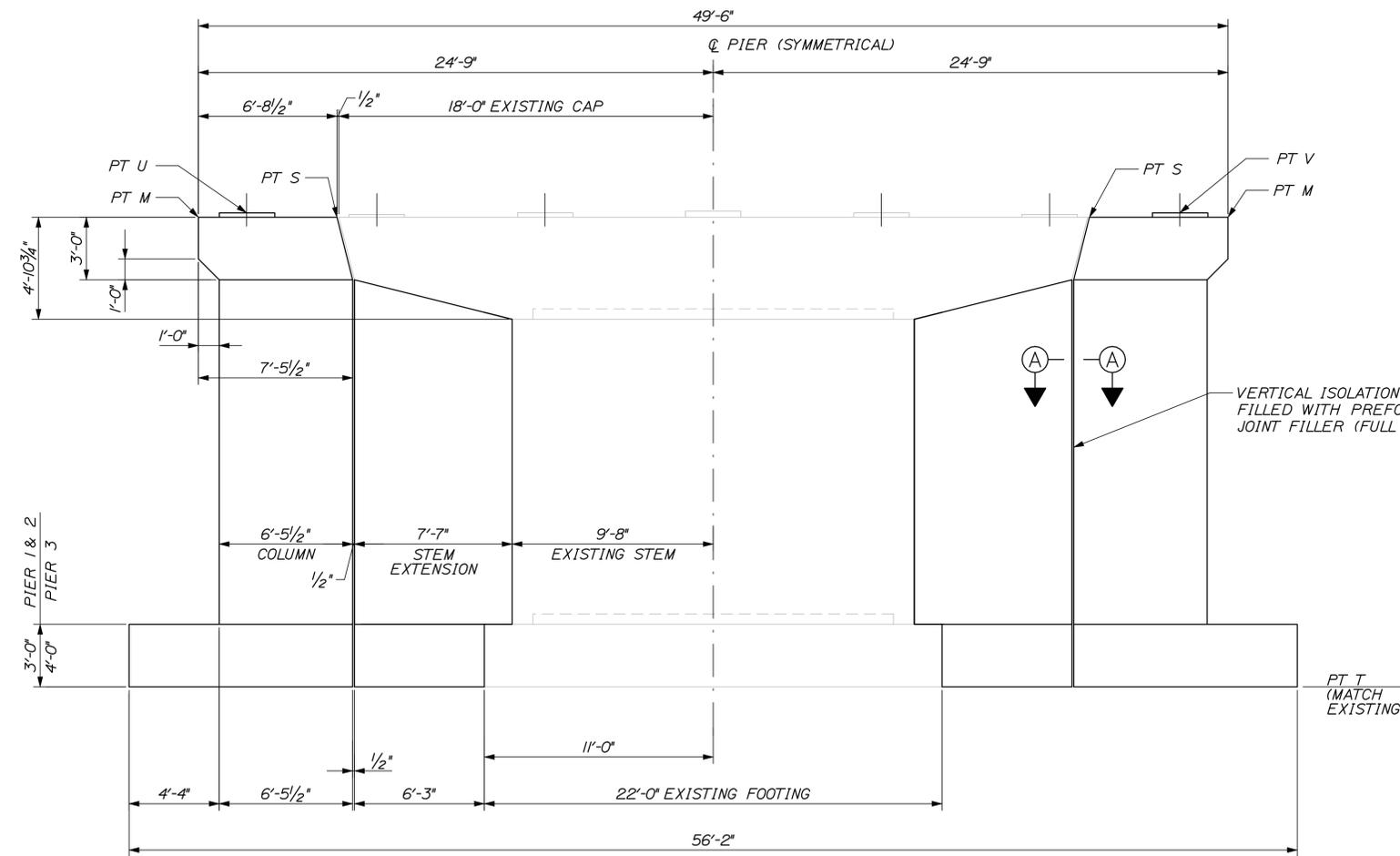
PLAN - PIERS 1, 2 & 3  
1/4" = 1'-0"

PIER ELEVATIONS			
POINT	PIER 3	PIER 2	PIER 1
M*	98.22	96.65	94.84
S*	98.22	96.65	94.84
T*	70.82	74.82	72.32
U	98.46	96.85	94.95
V	98.46	96.85	94.95

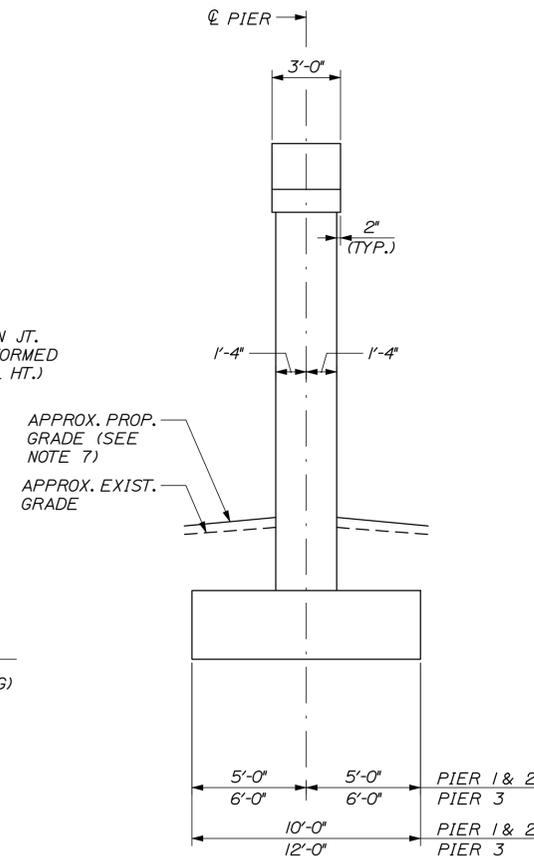
\* TO MATCH EXISTING ELEVATION



SECTION A-A  
1" = 1'-0"



ELEVATION - PIERS 1, 2 & 3  
1/4" = 1'-0"



SIDE ELEVATION - PIERS 1, 2 & 3  
1/4" = 1'-0"

**PIER NOTES:**

1. REINFORCING STEEL SHALL HAVE 3 INCHES MINIMUM COVER IN THE FOOTINGS AND 2 INCHES MINIMUM COVER ELSEWHERE UNLESS OTHERWISE NOTED.
2. ALL EXPOSED NEW AND EXISTING PIER ENDS AND TURNPIKE FACING SIDES SHALL BE COATED WITH A PIGMENTED COATING FOR CONCRETE SURFACES AFTER CONSTRUCTION IS COMPLETE AND MATERIAL HAS CURED. ALL EXPOSED EXISTING AND PROPOSED PIER TOPS AND NON-TURNPIKE FACING SIDES SHALL BE COATED WITH A CLEAR COATING FOR CONCRETE SURFACES AFTER CONSTRUCTION IS COMPLETE AND MATERIAL HAS CURED.
3. MAXIMUM FACTORED FOOTING BEARING PRESSURE IS 4 TSF.
4. PREFORMED JOINT FILLER SHALL BE NONEXTRUDING AND RESILIENT NON-BITUMINOUS TYPE CONFORMING TO AASHTO M153.
5. PAYMENT FOR PREFORMED JOINT FILLER WILL BE INCIDENTAL TO PAY ITEM 502.23 "STRUCTURAL CONCRETE, PIERS".
6. REFER TO NOTE 12 ON SHEET S-01.
7. PROPOSED GRADE AT EACH PIER TO MATCH EXISTING EXCEPT WHERE RAISING IS REQUIRED TO PROVIDE A MINIMUM OF 4'-6" COVER MEASURED FROM THE BOTTOM OF THE FOOTING.

Filename: 100\_Pier Plan Elev.dgn

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

No.	Revision	By	Date

Designed by:

**HNTB**

	By	Date		By	Date
Designed	JKC	2/11	Checked	PH	2/11
Drawn	RJT	2/11	In Charge of	RAL	2/11

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**THE GOLD STAR MEMORIAL HIGHWAY**

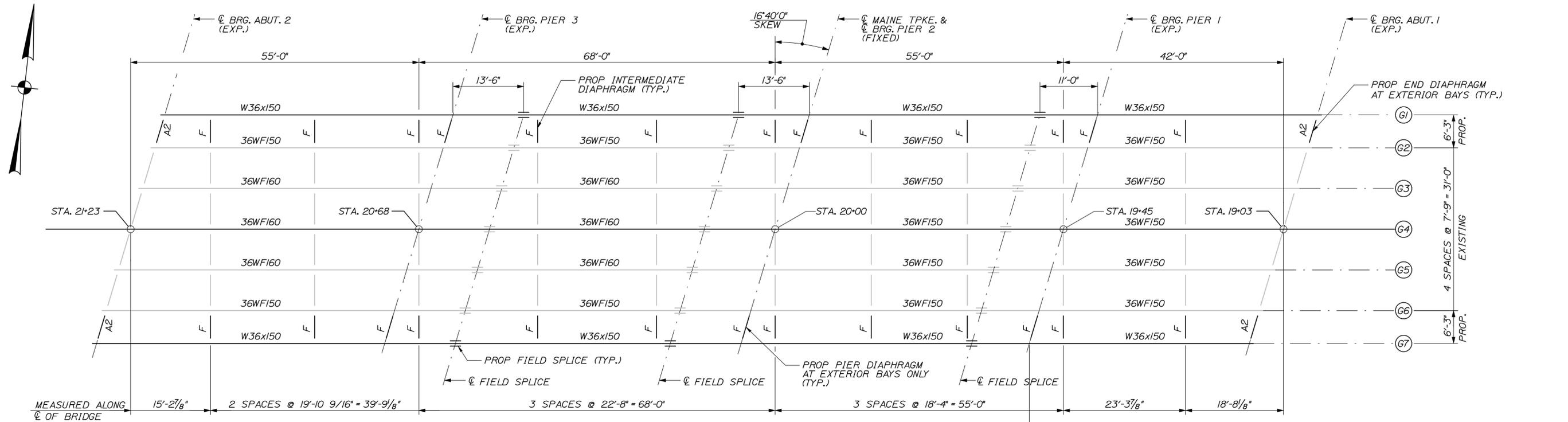
BRIDGE REHABILITATION  
EXIT 53  
PIER PLANS, ELEVATION  
AND SECTION

SHEET NUMBER: S-24  
CONTRACT: 2011.04  
100 OF 122

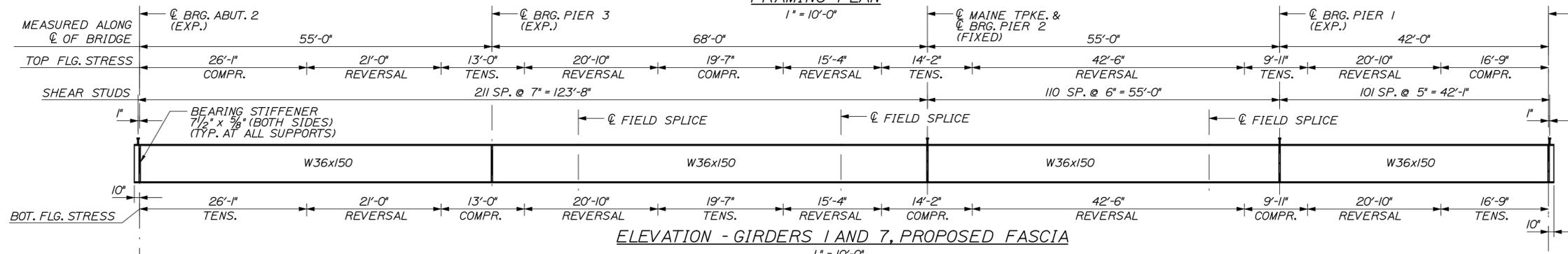




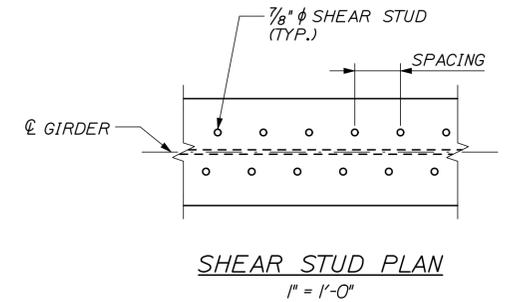
Date: 6/21/2011



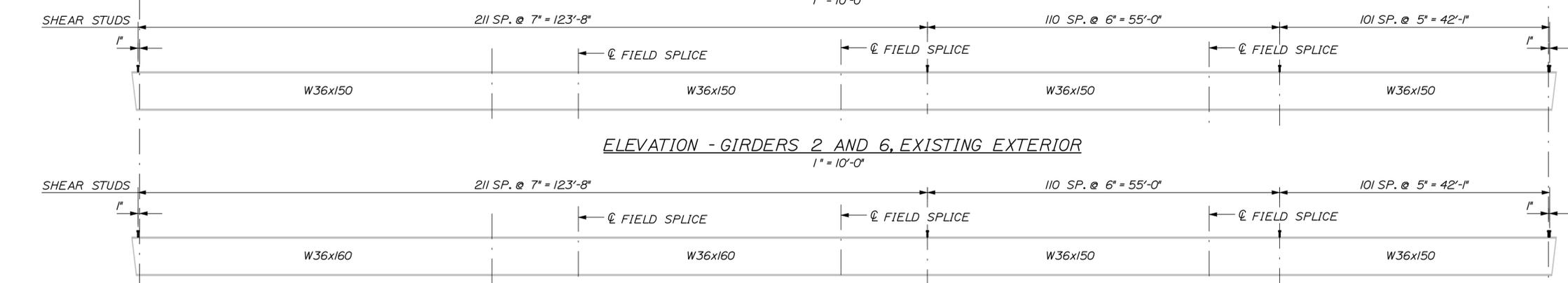
**FRAMING PLAN**  
1" = 10'-0"



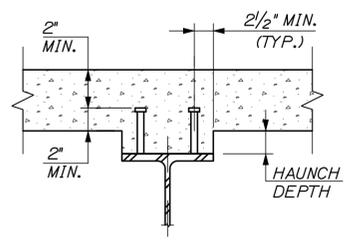
**ELEVATION - GIRDERS 1 AND 7, PROPOSED FASCIA**  
1" = 10'-0"



**SHEAR STUD PLAN**  
1" = 1'-0"



**ELEVATION - GIRDERS 2 AND 6, EXISTING EXTERIOR**  
1" = 10'-0"



**SHEAR CONNECTOR DETAIL**  
1" = 1'-0"



**ELEVATION - GIRDERS 3 TO 5, EXISTING INTERIOR**  
1" = 10'-0"

**NOTE:**  
1. FOR STRUCTURAL STEEL NOTES, SEE S-28.

Scale: AS NOTED

No.	Revision	By	Date

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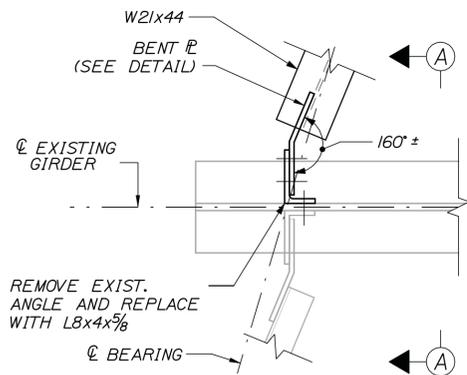

**THE GOLD STAR  
MEMORIAL HIGHWAY**

BRIDGE REHABILITATION  
EXIT 53

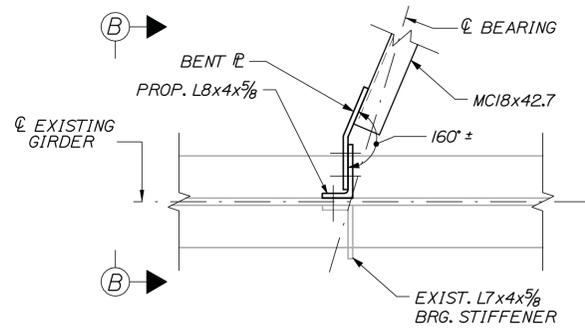
FRAMING PLAN AND GIRDER ELEVATIONS

SHEET NUMBER: S-27  
CONTRACT: 2011.04  
103 OF 122

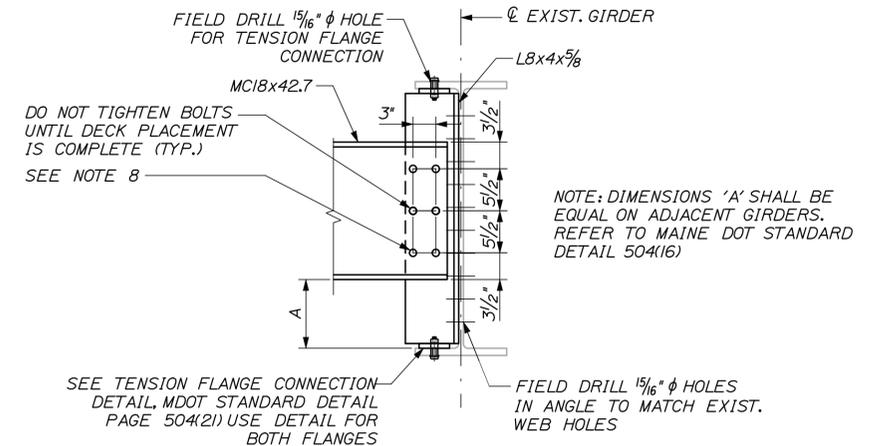
Date: 6/21/2011



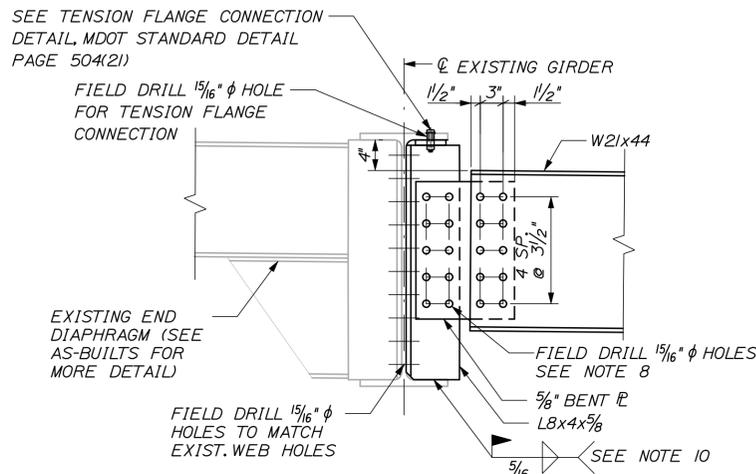
**PLAN VIEW**  
**END DIAPHRAGM TYPE A2**  
**CONNECTION TO EXISTING GIRDER**  
1" = 1'-0"



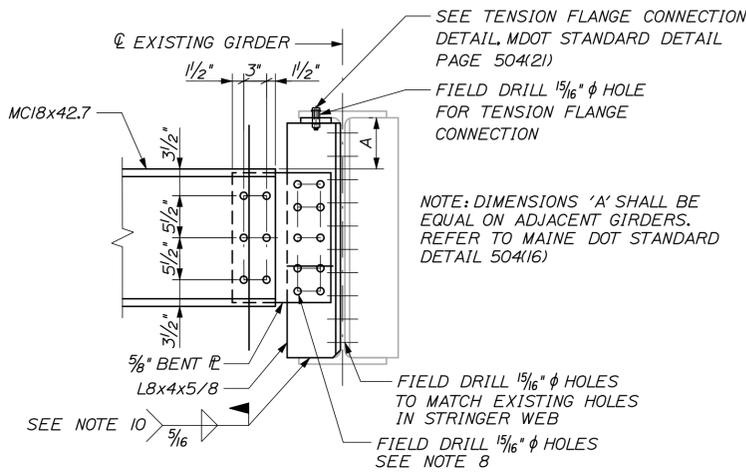
**PLAN VIEW**  
**PIER DIAPHRAGM TYPE F**  
**CONNECTION TO EXISTING GIRDER**  
1" = 1'-0"



**INTERMEDIATE DIAPHRAGM**  
**TYPE F CONNECTION**  
**AT EXISTING GIRDER**  
1" = 1'-0"



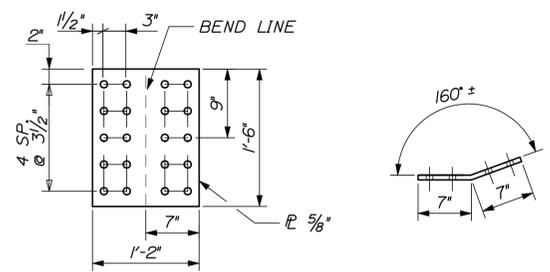
**SECTION A-A**  
1" = 1'-0"



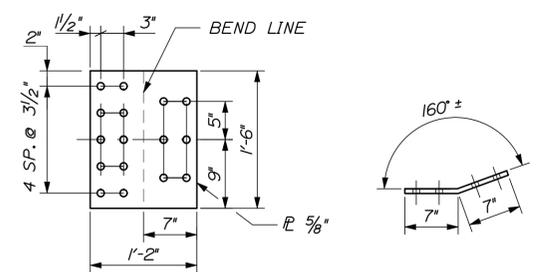
**SECTION B-B**  
1" = 1'-0"

**STRUCTURAL STEEL NOTES:**

1. AT THE CONTRACTOR'S OPTION AND WITH THE APPROVAL OF THE ENGINEER, AN EQUIVALENT PLATE GIRDER MAY BE SUBSTITUTED FOR PROPOSED GIRDERS.
2. CAMBER ORDINATES AS SHOWN ON SHEET S-30 ARE COMPUTED TO COMPENSATE FOR ALL DEAD LOAD DEFLECTIONS AND FOR THE CURVATURE OF THE FINISHED GRADE PROFILE.
3. BEARING STIFFENERS SHALL BE PLUMB AFTER ERECTION AND DEAD LOADING OF THE STRUCTURE. INTERMEDIATE WEB STIFFENERS MAY BE PLUMB OR NORMAL TO TOP FLANGE.
4. CROSS-FRAME OR DIAPHRAGM CONNECTION PLATES OR ANGLES SHALL BE EITHER PLUMB OR NORMAL TO THE TOP FLANGE, WHICHEVER MATCHES THE EXISTING CROSS-FRAME OR DIAPHRAGM CONNECTION PLATES OR ANGLES.
5. ALL BOLTS SHALL BE 7/8" φ AASHTO M164, HIGH STRENGTH BOLTS. HOLES SHALL BE 15/16" φ UNLESS NOTED OTHERWISE.
6. NUTS SHALL BE ON INSIDE FACE OF WEB SPLICE FOR FASCIA GIRDERS.
7. NUTS SHALL BE UP ON ALL BOTTOM FLANGE SPLICES AND DOWN ON ALL TOP FLANGE SPLICES.
8. SHOP DRILL 15/16" HOLES IN DIAPHRAGM AND CONNECTION PLATE OR STIFFENER AT PROPOSED STRINGER. FIELD DRILL 15/16" HOLES IN CONNECTION ANGLE OR PLATE AT EXISTING STRINGER TO MATCH DIAPHRAGM (TYP.)
9. FOR DIAPHRAGM TYPES A2 AND F (SEE SHEET S-27 FOR LOCATIONS), SEE MAINE D.O.T. STANDARD DETAILS 504(15) AND 504(16), RESPECTIVELY. AT CONTRACTOR'S OPTION, WELDED CONNECTIONS BETWEEN CONNECTION PLATES AND PROPOSED GIRDER FLANGES MAY BE USED IN THE TENSION AND REVERSAL ZONES IN LIEU OF MDOT "TENSION FLANGE CONNECTION" DETAIL WITH THE APPROVAL OF THE ENGINEER. WELDS SHALL COMPLY WITH THE REQUIREMENTS OF AWS BRIDGE WELDING CODE (AWS D1.5).
10. FIELD WELD AT CONNECTION / STIFFENER ANGLE TO EXISTING GIRDER BOTTOM FLANGE CONNECTION SHALL TERMINATE 5/8" ± 1/8" FROM ENDS OF PLATES. FIELD WELDS SHALL COMPLY WITH THE REQUIREMENTS OF AWS BRIDGE WELDING CODE (AWS D1.5). MATERIALS FOR NON-DESTRUCTIVE TESTING WILL BE PROVIDED BY THE AUTHORITY.



**BENT PLATE AT END DIAPHRAGM DETAIL**  
1" = 1'-0"



**BENT PLATE AT PIER DIAPHRAGM DETAIL**  
1" = 1'-0"

Filename: 104\_SteelDetails 1.dgn

Scale: 1" = 1'-0"			
No.	Revision	By	Date

Designed by:						
<b>HNTB</b>						
	By	Date		By	Date	
	Designed	JKC	2/11	Checked	PH	2/11
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**THE GOLD STAR**  
**MEMORIAL HIGHWAY**

BRIDGE REHABILITATION  
EXIT 53

STRUCTURAL STEEL DETAILS I

CONTRACT: 2011.04

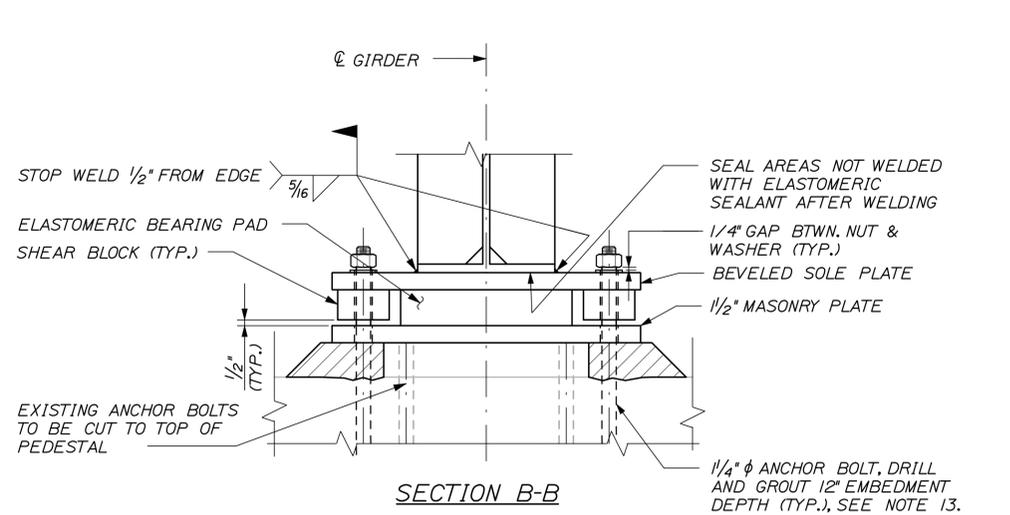
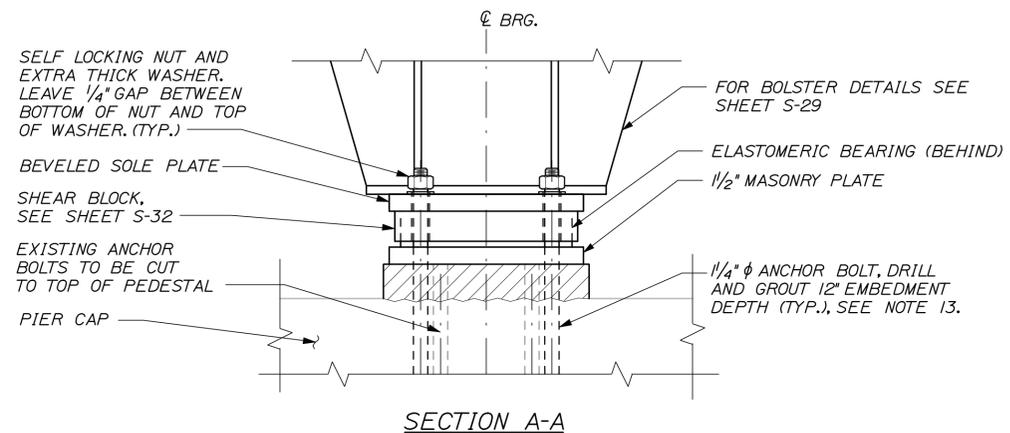
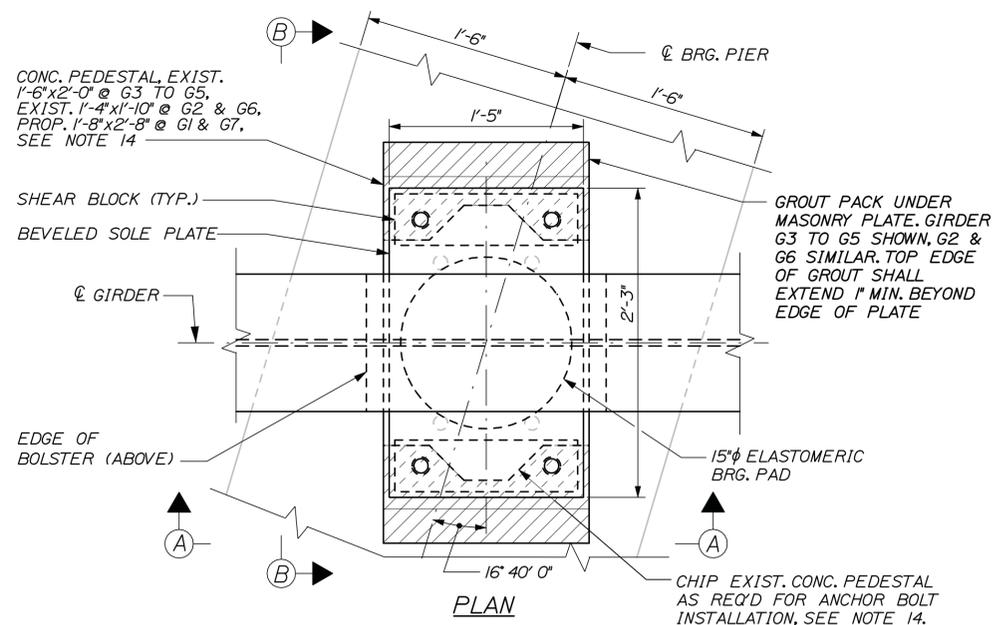
SHEET NUMBER: S-28

104 OF 122

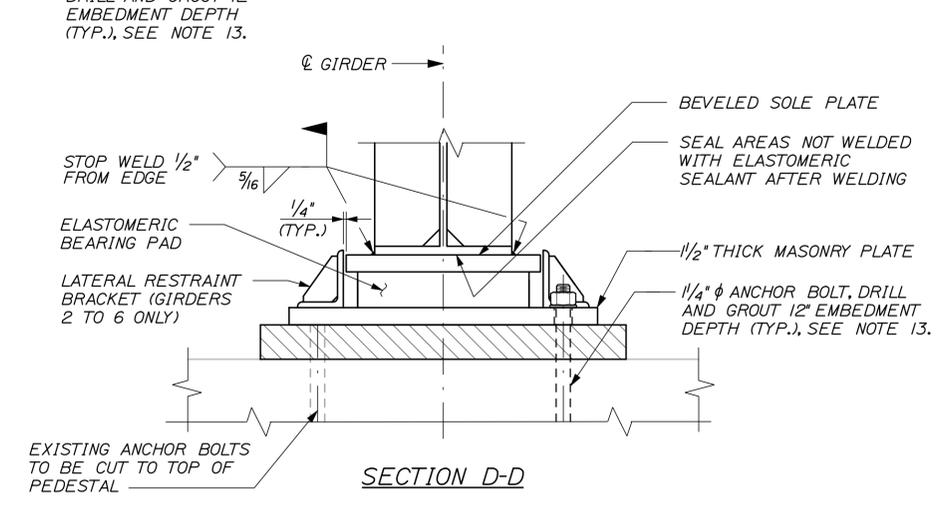
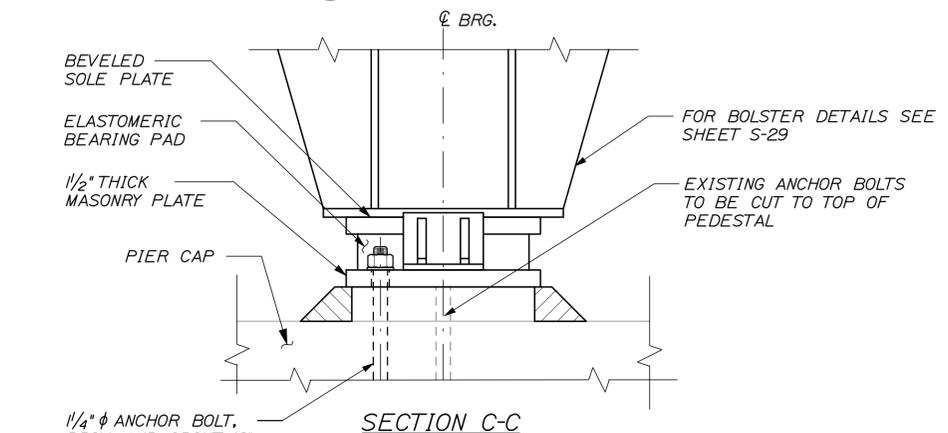
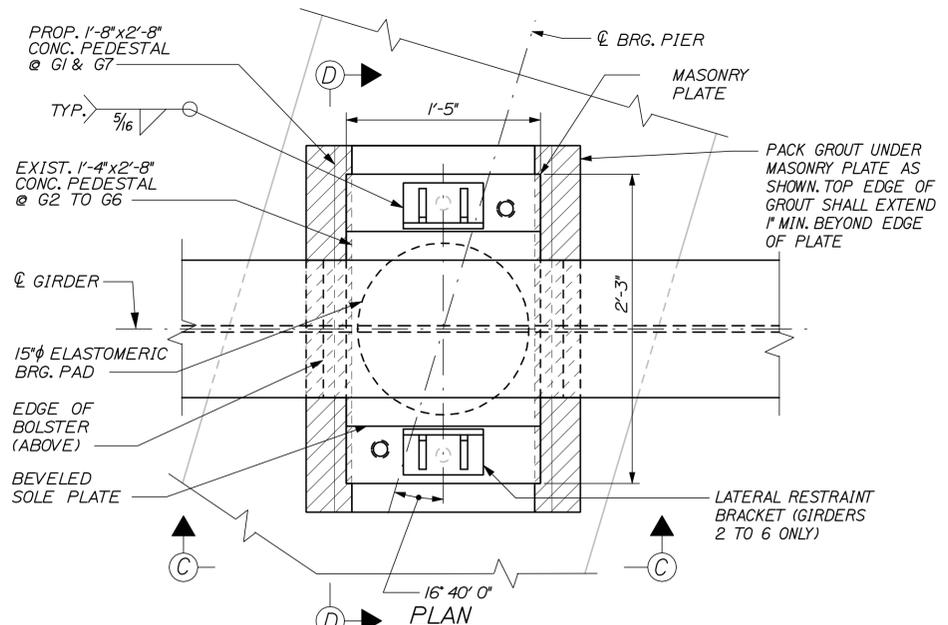




Date: 6/21/2011



**FIXED BEARING ASSEMBLY - PIER 2**  
(7 REQUIRED)  
1/2" = 1'-0"



**EXPANSION BEARING ASSEMBLY - PIERS 1 & 3**  
(14 REQUIRED)  
1/2" = 1'-0"

**BEARING NOTES:**

1. THE ELASTOMER SHALL HAVE A SHEAR MODULUS BETWEEN 100 AND 130 PSI.
2. THE ELASTOMER SHALL BE VULCANIZED TO THE MASONRY PLATE DURING THE PRIMARY MOLD PROCESS.
3. BEARINGS HAVE BEEN DESIGNED USING AASHTO METHOD A
4. UPSET THE THREADS ON THE ANCHOR RODS AFTER ASSEMBLY.
5. MASONRY PLATES, SOLE PLATES AND LOAD PLATES SHALL MEET THE REQUIREMENTS OF ASTM A 709, GRADE 50.
6. BEARINGS SHALL BE COVERED DURING TRANSIT.
7. ALL EXPOSED STEEL COMPONENTS SHALL BE HOT DIP GALVANIZED AFTER STEEL FABRICATION IN ACCORDANCE WITH ASTM A123 AND ASTM A153 AS APPLICABLE.
8. ALL BEARINGS SHALL BE MARKED PRIOR TO SHIPPING. THE MARKS SHALL INCLUDE THE BEARING LOCATION ON THE BRIDGE, AND A DIRECTION ARROW THAT POINTS UP-STATION. ALL MARKS SHALL BE PERMANENT AND SHALL BE VISIBLE AFTER THE BEARING IS INSTALLED.
9. ALL PRECAUTIONS NECESSARY SHALL BE TAKEN TO PROTECT BEARING COMPONENTS FROM FIELD WELD FLASH AND SPATTER. WELDING PROCEDURES SHALL BE ESTABLISHED BY THE CONTRACTOR TO RESTRICT THE MAXIMUM TEMPERATURE OF STEEL ADJACENT TO THE ELASTOMER TO 200°F THROUGH USE OF TEMPERATURE INDICATING CRAYONS OR OTHER SUITABLE MEANS.
10. CONTRACTOR SHALL RE-FINISH GALVANIZING IN ACCORDANCE WITH ASTM A780 AFTER FIELD WELDING.
11. ALL STEEL REINFORCEMENT PLATES SHALL MEET THE REQUIREMENTS OF ASTM A36 UNLESS OTHERWISE NOTED AND SHALL BE DEBURRED PRIOR TO MOLDING THE BEARING.
12. ANCHOR RODS SHALL MEET THE REQUIREMENTS OF ASTM F1554, GRADE 55, AND BE SWEDGED OR THREADED ON THE EMBEDDED PORTION.
13. ANCHOR BOLT EMBEDMENT SHALL BE MEASURED FROM TOP OF PIER CAP OR ABUTMENT SEAT, NOT INCLUDING DEPTH OF PEDESTALS.
14. AT PIER 2, CHIP EXISTING CONCRETE PEDESTAL TO ALLOW FOR MIN. 1" CLEARANCE AROUND PROPOSED ANCHOR BOLTS AND PROVIDE NEW GROUT WHERE NECESSARY TO EXTEND MIN. 1" BEYOND EDGE OF PLATE. NEW PEDESTALS FOR FACIA BEAMS ARE SIZED TO PROVIDE A LARGE ENOUGH BEARING AREA FOR THE MASONRY PLATES AND GROUTING IS NOT REQUIRED. PAYMENT IS INCIDENTAL TO BEARING INSTALLATION.
15. IF NECESSARY, CONTRACTOR SHALL LOOSEN BOLTS OR REMOVE RIVETS AT END DIAPHRAGMS TO ENSURE THAT BEAMS SEAT PROPERLY ON BEARINGS. REMOVED RIVETS SHALL BE REPLACED WITH BOLTS AS REQUIRED.

ELASTOMERIC BEARING DESIGN CRITERIA, PER BEARING			
	ABUTMENT 1 & 2 BEARINGS	PIER 1 & 3 BEARINGS	PIER 2 BEARINGS
UNFACTORED DEAD LOAD	32 KIPS	105 KIPS	95 KIPS
UNFACTORED LIVE LOAD	61 KIPS	101 KIPS	99 KIPS
MAX. LONGITUDINAL DISPL.	0.75 IN	0.40 IN	N/A
ROTATIONAL TOLERANCE	0.005 RAD	0.005 RAD	0.005 RAD
DEAD LOAD ROTATION	0.003 RAD	0.003 RAD	0.003 RAD
MAX. LIVE LOAD ROTATION	0.002 RAD	0.002 RAD	0.001 RAD

ELASTOMERIC BEARING OFFSET (IN)							
TEMPERATURE (F)	25	35	45	55	65	75	85
ABUTMENT 1	-0.15	-0.08	0.00	0.08	0.15	0.23	0.30
PIER 1	-0.09	-0.04	0.00	0.04	0.09	0.13	0.17
PIER 3	-0.11	-0.05	0.00	0.05	0.11	0.16	0.21
ABUTMENT 2	-0.19	-0.10	0.00	0.10	0.19	0.29	0.38

NOTE: OFFSETS ARE MEASURED ALONG CL OF GIRDER. POSITIVE NUMBERS INDICATE OFFSET AWAY FROM PIER 2.

Filename: 107\_Bearing\_Details I.dgn

Scale: AS NOTED			
No.	Revision	By	Date

Designed by:						
<b>HNTB</b>						
	By	Date	By	Date		
	PH	03/11	Checked	JKC	03/11	
	Drawn	RJT	03/11	In Charge of	RAL	03/11

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## THE GOLD STAR MEMORIAL HIGHWAY

BRIDGE REHABILITATION  
EXIT 53

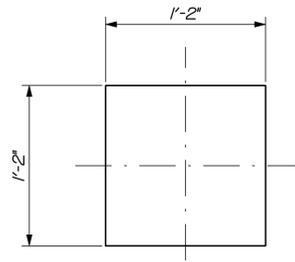
BEARING DETAILS I

SHEET NUMBER: S-31

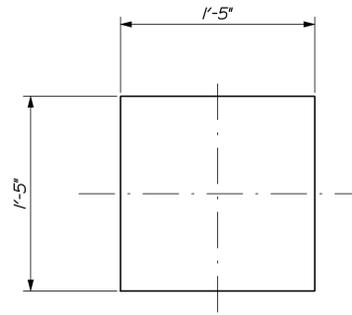
CONTRACT: 2011.04 107 OF 122



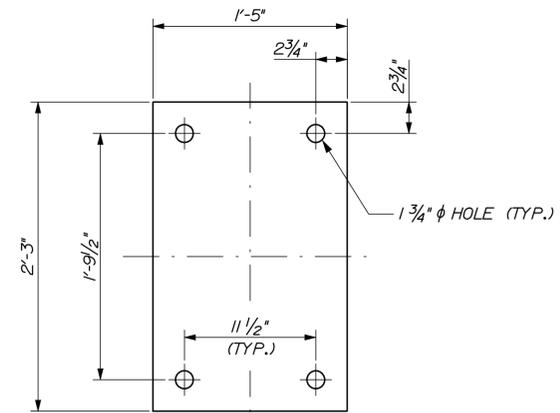
Date:6/21/2011



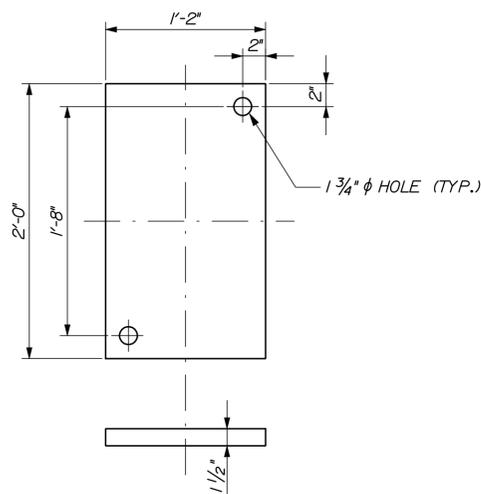
SOLE PLATE - ABUTMENTS  
1/2" = 1'-0"



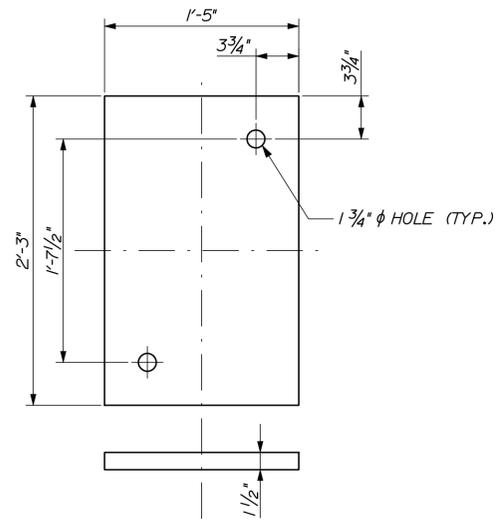
SOLE PLATE - PIERS 1 & 3  
1/2" = 1'-0"



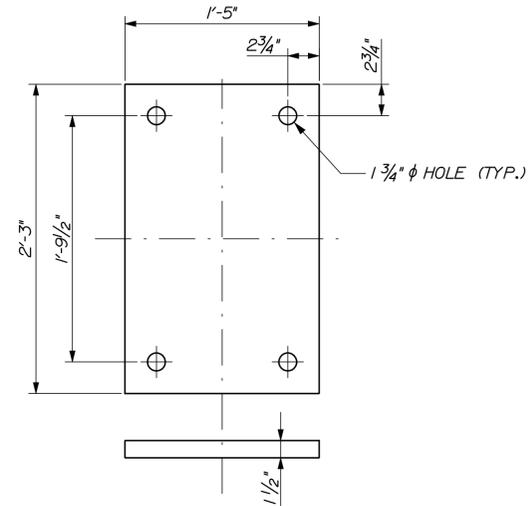
SOLE PLATE - PIER 2  
1/2" = 1'-0"



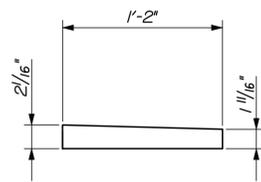
MASONRY PLATE - ABUTMENTS  
1/2" = 1'-0"



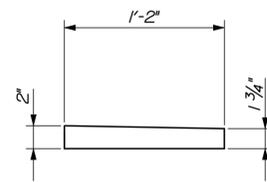
MASONRY PLATE - PIERS 1 & 3  
1/2" = 1'-0"



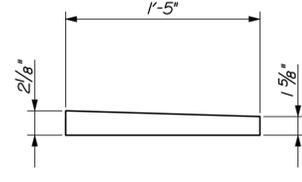
MASONRY PLATE - PIER 2  
1/2" = 1'-0"



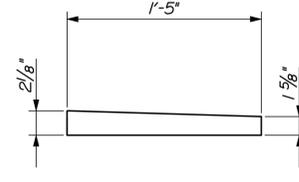
ELEVATION  
ABUT. 1 - SOLE PLATE  
N.T.S.



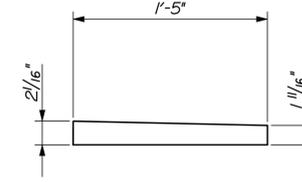
ELEVATION  
ABUT. 2 - SOLE PLATE  
N.T.S.



ELEVATION  
PIER. 1 - SOLE PLATE  
N.T.S.



ELEVATION  
PIER. 2 - SOLE PLATE  
N.T.S.



ELEVATION  
PIER. 3 - SOLE PLATE  
N.T.S.

Filename: 109\_Bearing Details III.dgn

Scale: AS NOTED			
No.	Revision	By	Date

Designed by:					
<b>HNTB</b>					
	By	Date		By	Date
	PH	03/11	Checked	JKC	03/11
	Drawn	RJT	03/11	In Charge of	RAL
					03/11

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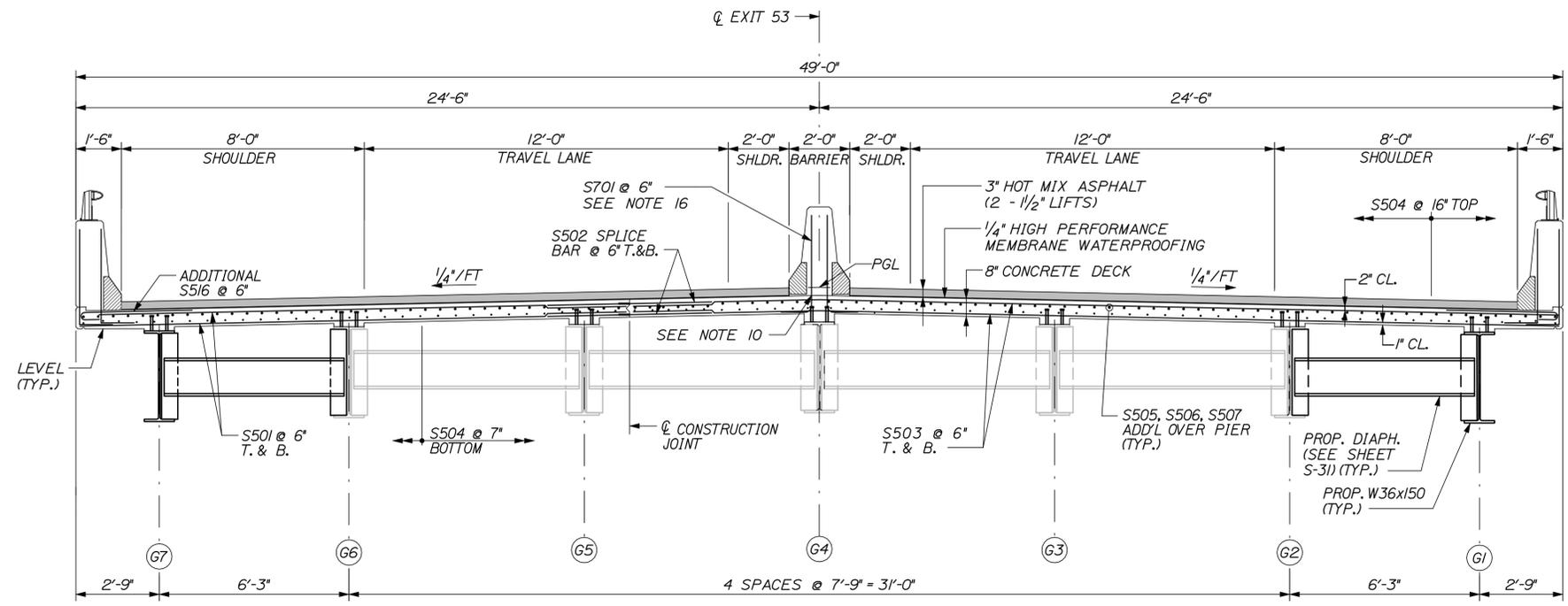
**MAINE  
TURNPIKE**

**THE GOLD STAR  
MEMORIAL HIGHWAY**

BRIDGE REHABILITATION  
EXIT 53  
BEARING DETAILS III

SHEET NUMBER: S-33  
CONTRACT: 2011.04  
109 OF 122

Date: 6/21/2011



**PROPOSED TYPICAL SECTION**  
3/8" = 1'-0"

**SUPERSTRUCTURE NOTES:**

1. FORM A 1 INCH V-GROOVE ON THE FASCIAS AT THE HORIZONTAL JOINT BETWEEN THE CURB AND SLAB.
2. REINFORCING STEEL SHALL HAVE A MINIMUM COVER OF 2 INCHES UNLESS OTHERWISE NOTED.
3. CHAMFER ALL EXPOSED EDGES OF CONCRETE 3/4 IN., UNLESS OTHERWISE NOTED.
4. ADJUST REINFORCING STEEL TO FIT AROUND THE BRIDGE DRAINS IN A MANNER APPROVED BY THE RESIDENT. DO NOT CUT TRANSVERSE REINFORCING BARS. CUT LONGITUDINAL REINFORCING STEEL IN THE FIELD TO SUIT, THEN EPOXY-COAT CUT ENDS. SEE SHEET S-35.
5. THE SUPERSTRUCTURE SLAB CONCRETE SHALL BE PLACED IN ONE CONTINUOUS OPERATION AND THE CONCRETE SLAB SHALL BE KEPT PLASTIC ONE COMPLETE SPAN BEHIND THE SPAN BEING PLACED.
6. THE FORMWORK AND ITS SUPPORTS, OVER THE FULL WIDTH OF THE STRUCTURAL SLAB, SHALL REMAIN IN PLACE UNTIL A MINIMUM OF 48 HOURS HAS ELAPSED AFTER PLACEMENT OF THE FINAL SECTION OF THE SLAB. REMOVAL OF FORMWORK FOR SECTIONS MAY THEN PROCEED AND SHALL MEET THE REQUIREMENTS FOR FORM REMOVAL IN STANDARD SPECIFICATIONS SECTION 502, STRUCTURAL CONCRETE.
7. MORTAR FOR BEDDING AND FOR JOINTS IN THE GRANITE CURB SHALL CONTAIN AN APPROVED NON-SHRINK ADDITIVE.
8. PRECAST DECK PANELS MAY NOT BE USED IN PLACE OF THE FULL DEPTH CAST-IN-PLACE SLAB.
9. SEE SHEET S-30 FOR THEORETICAL BLOCKING AT THE CENTERLINE OF BEARINGS OF THE ABUTMENTS AND PIERS USED FOR DESIGN OF THE STRUCTURE. SEE STANDARD DETAIL 502(2) FOR BLOCKING DETAILS.
10. CLEAR PROTECTIVE COATING FOR CONCRETE SURFACE SHALL BE APPLIED TO THE FOLLOWING AREAS: PARAPET SURFACES, FASCIA DOWN TO DRIP NOTCH AND ALL EXPOSED CONCRETE SURFACES ON THE END POSTS.
11. ALL BRIDGE PARAPET CONCRETE, INCLUDING INSIDE FACE, TOP AND OUTSIDE FACE, END POSTS AND DECK FASCIA SHALL HAVE A RUBBED FINISH PRIOR TO THE APPLICATION OF THE CLEAR PROTECTIVE COATING FOR CONCRETE SURFACE. SEE SHEET S-36.
12. THE CONCRETE DECK SHALL BE GIVEN A SMOOTH BULL FLOAT OR WOOD FLOAT FINISH.
13. GRANITE CURB JOINTS SHALL LINE UP WITH PARAFFIN AND DUMMY JOINTS.
14. SHOP DRAWINGS FOR BAR CHAIRS USED WITH REINFORCING STEEL IN SLAB CONSTRUCTION SHALL BE SUBMITTED WITH REQUIRED SPACING TO THE RESIDENT FOR APPROVAL. BAR CHAIRS SHALL BE EPOXY-COATED OR PLASTIC PROTECTED.
15. PRIOR TO INSTALLING THE PROPOSED SHEAR STUDS THE CONTRACTOR SHALL CLEAN THE GIRDER TOP FLANGE SO THAT IT IS FREE OF DEBRIS, RUST, SCALE, OIL, AND OTHER CONTAMINATES THAT WOULD ADVERSELY AFFECT THE WELDING OPERATION. ALL GRINDING SHALL BE PERFORMED IN THE LONGITUDINAL DIRECTION OF THE BEAM. PAYMENT FOR PREPARING GIRDER TOP FLANGE FOR INSTALLATION OF PROPOSED SHEAR STUDS SHALL BE INCIDENTAL TO ITEM 505.09.
16. DOWELS FOR MEDIAN BARRIER MAY BE "L" BARS AS SHOWN, MAY BE MODIFIED TO INCLUDE THREADED COUPLERS AT DECK SURFACE, OR MAY BE DRILLED AND GROUTED TO A MINIMUM DEPTH OF EIGHT INCHES AFTER THE DECK IS CAST. NO ADDITIONAL PAYMENT WILL BE MADE FOR THE USE OF MECHANICAL COUPLERS OR DRILLING AND ANCHORING.

Filename: 110\_Typical Section.dgn

Scale:		3/8" = 1'-0"	
No.	Revision	By	Date

Designed by:			
<b>HNTB</b>			
	By	Date	
	JKC	2/11	
	RJT	2/11	

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THE GOLD STAR  
MEMORIAL HIGHWAY

BRIDGE REHABILITATION  
EXIT 53

TYPICAL SECTION

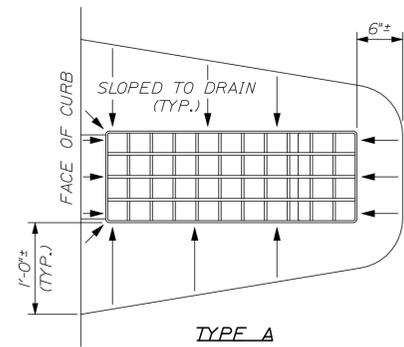
CONTRACT: 2011.04

SHEET NUMBER: S-34  
110 OF 122

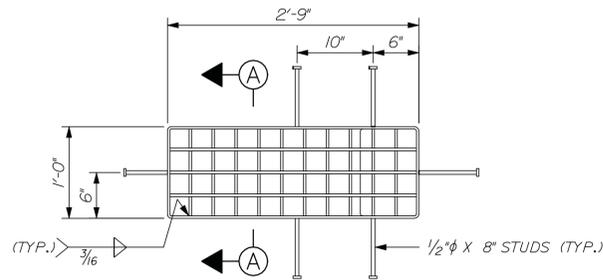




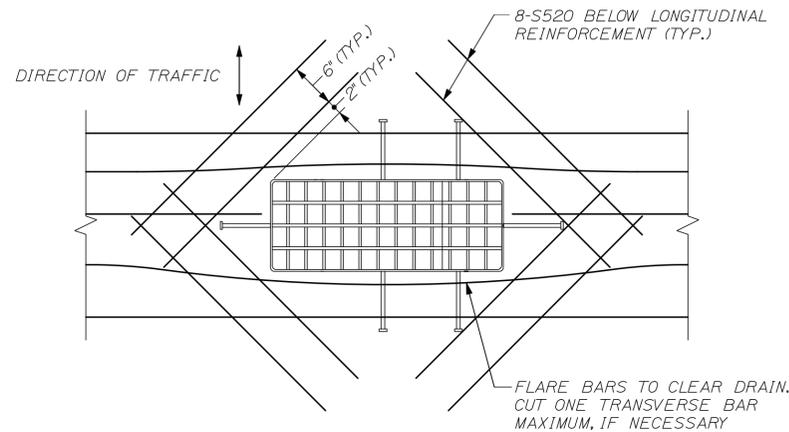
Date:6/21/2011



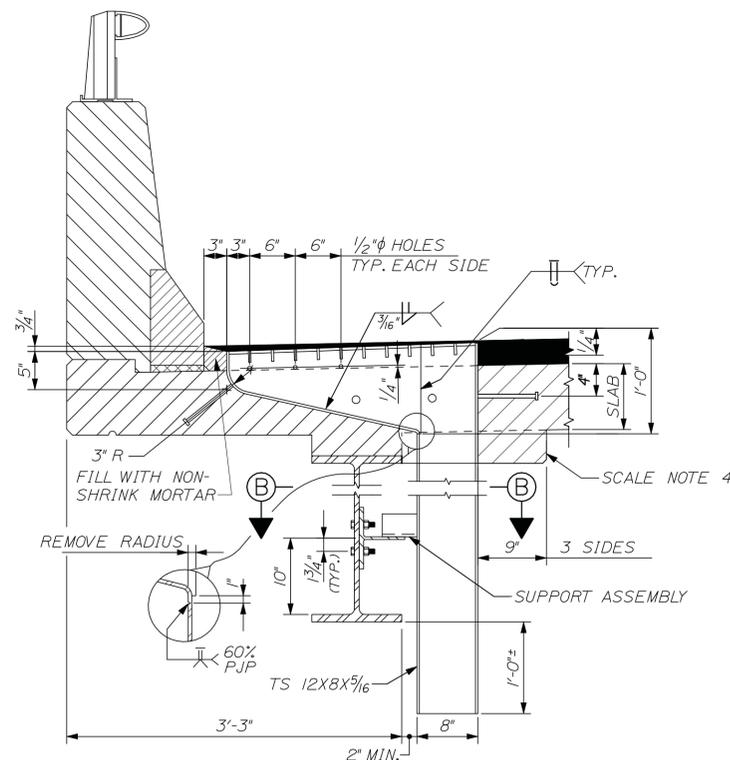
TYPE A



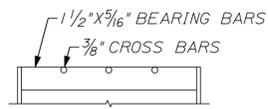
PLAN



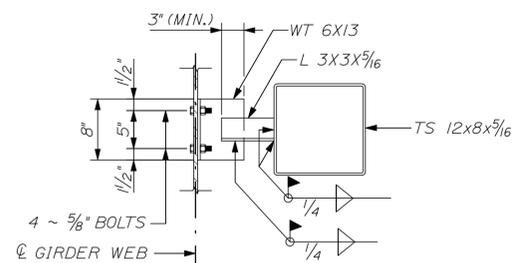
SLAB REINFORCEMENT AT BRIDGE DRAINS



SECTION  
BRIDGE DRAIN TYPE A  
1" = 1'-0"



SECTION A-A



SECTION B-B

**BRIDGE DRAIN NOTES:**

1. ALL PLATES, IF ANY, SHALL BE 1/4" THICK AND SHALL CONFORM TO ASTM A 36.
2. DOWNSPOUTS SHALL CONFORM TO ASTM A500.
3. GRATING SHALL BE A COMMERCIAL HEAVY - DUTY GRATING WITH 1/2"x5/16" BEARING BARS SPACED AT 2 3/8" AND 3/8"  $\phi$  CROSS BARS SPACED AT 4". GRATING SHALL BE CENTERED IN THE DRAIN TOP.
4. IF THE MINIMUM THICKNESS OF CONCRETE BELOW THE DRAIN IS 2" OR LESS, THE CONCRETE HAUNCH SHALL BE EXTENDED AS SHOWN.
5. SHEAR CONNECTORS WELDED TO TOP FLANGE OF BEAM MAY NEED TO BE BENT OUT OF THE WAY SHOULD AN INTERFERENCE WITH THE BRIDGE DRAIN OCCUR.
6. DRAINS, WT6X13 AND L 3X3X5/16 SHALL BE BLAST CLEANED TO THE REQUIREMENTS OF SSPC-SP6/NACE 3 AND HOT-DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A 123. ASSOCIATED FASTENERS SHALL BE GALVANIZED.
7. THE ADDITIONAL REINFORCING STEEL AROUND EACH BRIDGE DRAIN WILL NOT BE PAID FOR DIRECTLY. PAYMENT WILL BE CONSIDERED INCIDENTAL TO RELATED CONTRACT ITEMS.
8. FOR LOCATION OF SCUPPERS AND 1"  $\phi$  PVC MEMBRANE DRAINS, SEE SHEET S-35.

Filename: 113\_Bridge Drain Details.dgn

Scale: 1" = 1'-0"

Designed by:



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THE GOLD STAR  
MEMORIAL HIGHWAY

BRIDGE REHABILITATION  
EXIT 53  
BRIDGE DRAIN DETAILS

No.	Revision	By	Date

	By	Date	By	Date	
Designed	JKC	2/11	Checked	PH	2/11
Drawn	RJT	2/11	In Charge of	RAL	2/11

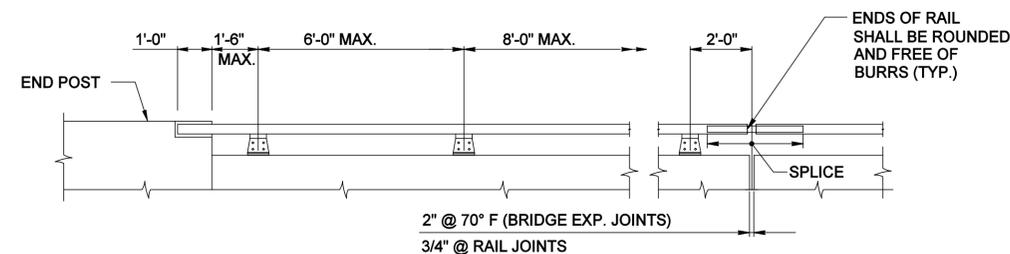
SHEET NUMBER: S-37

CONTRACT: 2011.04

113 OF 122

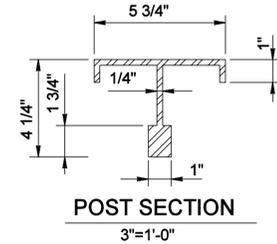
Date: 6/21/2011

Filename: 114\_Single\_Rail\_Details.dgn

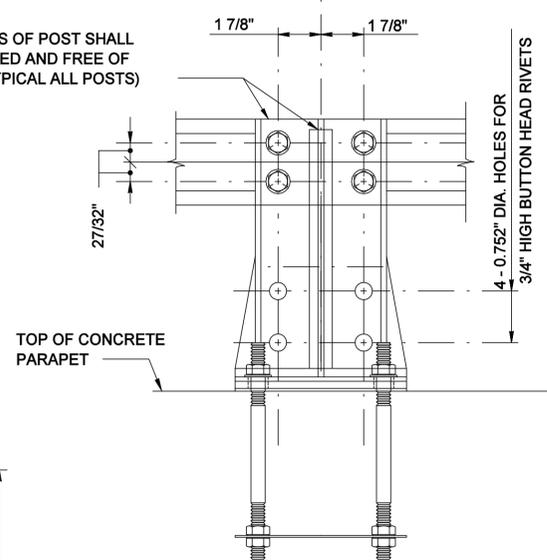


**NOTE**  
LENGTHS OF RAIL SHALL BE ATTACHED TO A MIN. OF FOUR (4) RAIL POSTS WHENEVER POSSIBLE AND, IN ANY CASE, NEVER LESS THAN TWO (2). RAIL POSTS ARE TO BE SET NORMAL TO GRADE, UNLESS OTHERWISE SHOWN ON THE BRIDGE PLANS.

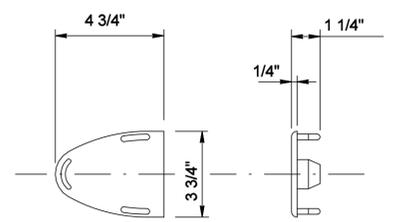
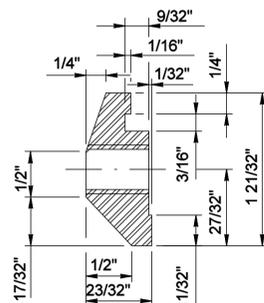
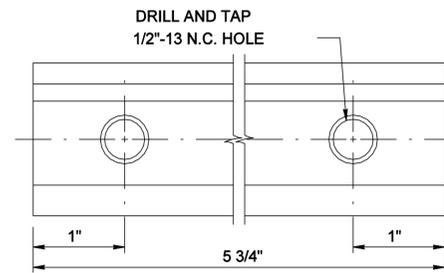
RAILING - ELEVATION  
3/8"=1'-0"



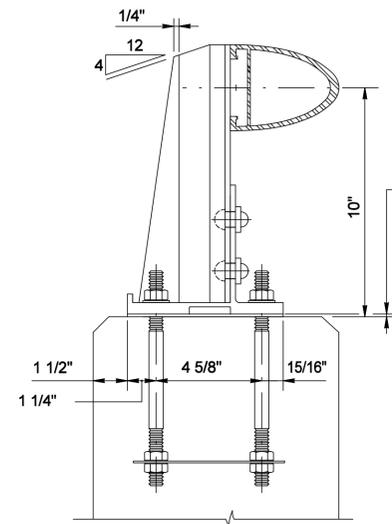
TOP EDGES OF POST SHALL BE ROUNDED AND FREE OF BURRS (TYPICAL ALL POSTS)



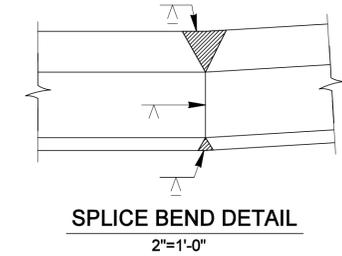
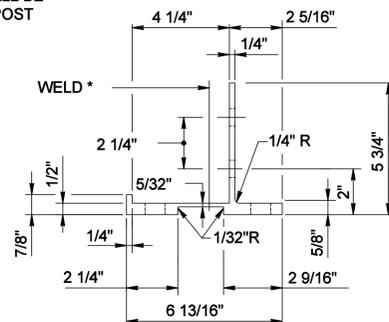
SPLICE DETAIL  
3"=1'-0"



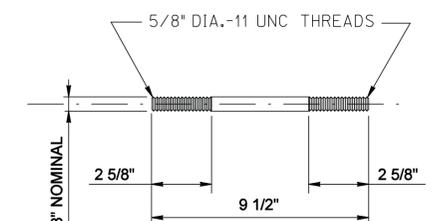
CAST ALUMINUM DRIVE FIT RAIL CAP  
3"=1'-0"



PREFORMED PAD 1/8" DIA. THICK AFTER COMPRESSION (TYP.) AT LEAST ONE PAD SHALL BE PLACED UNDER EACH POST

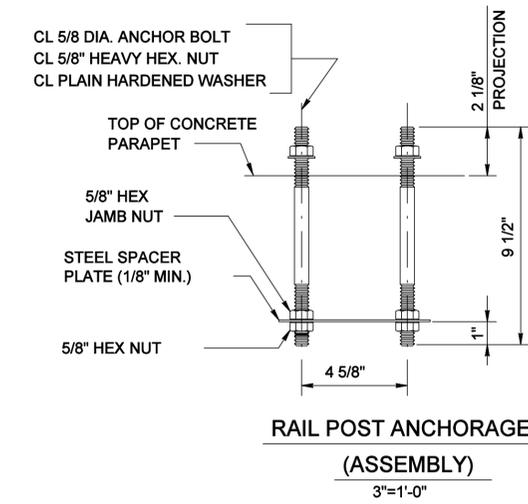
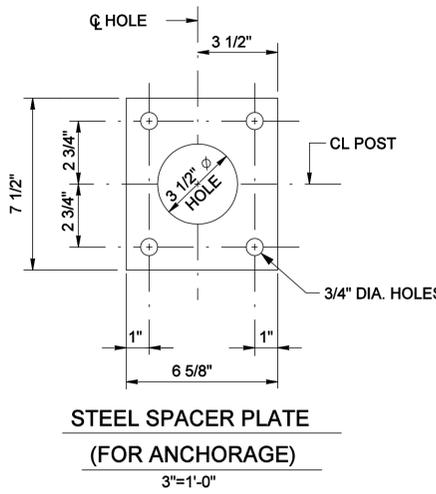
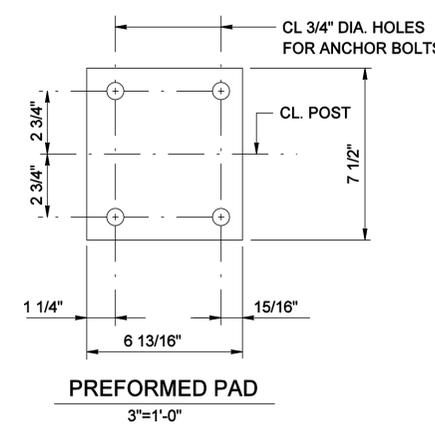
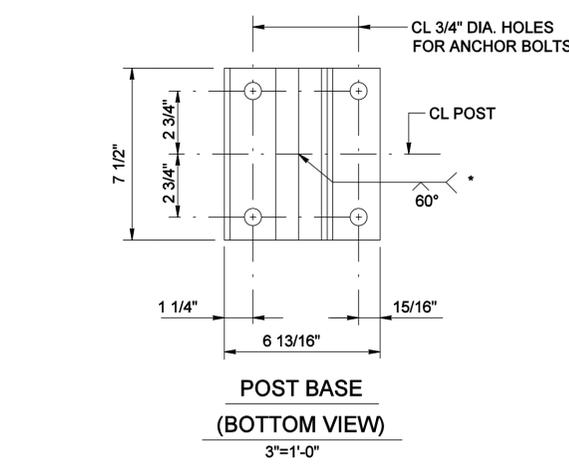


**NOTE**  
\* ONE-PIECE BASE PLATE MAY BE SUBSTITUTED, PROVIDED THAT THE REQUIRED LENGTH IS CUT FROM A ONE-PIECE EXTRUSION AND HAS THE GEOMETRIC SHAPE OF THE TWO-PIECE BASE PLATE



**NOTE**  
IF CUT THREADS ARE USED, BODY DIAMETER SHALL BE NOT LESS THAN NOMINAL DIAMETER. IF ROLLED THREADS ARE USED, BODY DIAMETER SHALL BE NOT LESS THAN PITCH DIAMETER OF THE THREADS.

**NOTE**  
FOUR(4) BOLT, NUT AND WASHER SETS ARE REQUIRED PER ASSEMBLY, ALL HARDWARE SHALL BE GALVANIZED.



Scale: AS NOTED

Designed by:



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THE GOLD STAR MEMORIAL HIGHWAY

BRIDGE REHABILITATION  
EXIT 53  
SINGLE RAIL DETAILS

No.	Revision	By	Date

	By	Date		By	Date
Designed	RJT	02/11	Checked	PH	03/11
Drawn	RJT	02/11	In Charge of	RAL	03/11

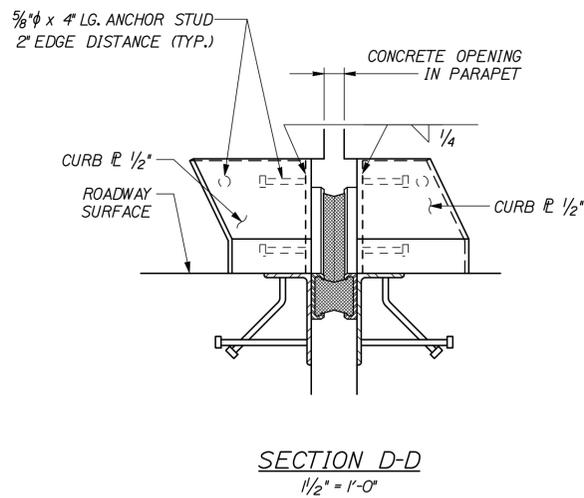
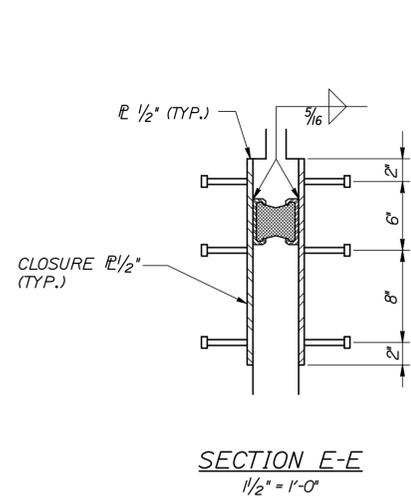
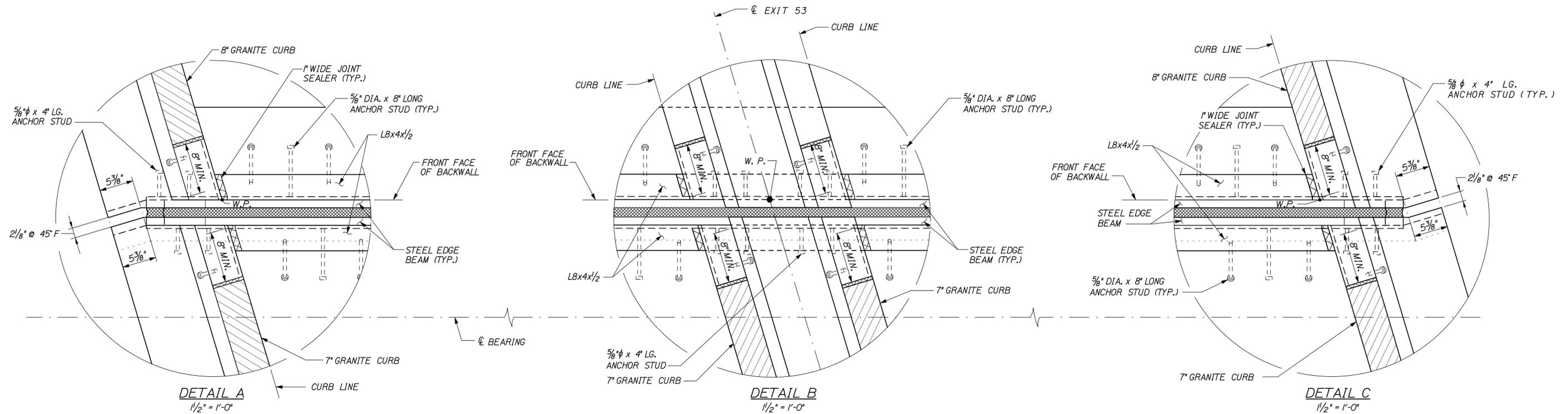
CONTRACT: 2011.04

SHEET NUMBER: S-38

114 OF 122



Date: 6/21/2011



**EXPANSION JOINT NOTES:**

1. SHOP DRAWINGS OF THE EXPANSION DEVICE SHALL BE SUBMITTED FOR APPROVAL BY THE RESIDENT.
2. THE JOINT OPENING SHALL BE SET BASED ON THE SEAL OPENING GRAPH. THE MINIMUM OPENING "A" FOR SEAL INSTALLATION IS 2 INCHES.
3. THE SEAL SHALL BE ONE CONTINUOUS PIECE AND SHALL BE FIELD INSTALLED AFTER THE PHASE 2 STEEL EXTRUSION HAS BEEN INSTALLED.
4. THE CONTRACTOR SHALL APPLY AN EPOXY BONDING AGENT LISTED ON MAINE DOT'S PREQUALIFIED PRODUCT LIST TO ALL STEEL SURFACES OF THE EXPANSION JOINT TO BE EMBEDDED IN CONCRETE.
5. ALL STEEL COMPONENTS SHALL BE AASHTO M270 GRADE 36. UNLESS OTHERWISE NOTED, THE EXPANSION JOINT ASSEMBLY AND ASSOCIATED HARDWARE SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION.
6. FOR CLARITY, NOT ALL REINFORCING STEEL HAS BEEN SHOWN IN ALL DETAILS.
7. THE NEOPRENE LOCKING COMPRESSION SEALS TO BE FURNISHED SHALL HAVE A MINIMUM MOVEMENT RANGE OF 3 INCHES. SEALS AND EDGE BEAMS SHALL BE "WABO D SERIES" AS MANUFACTURED BY WATSON BOWMAN ACME.
8. THE SLAB AND BACKWALL CONCRETE SHALL BE IN PLACE BEFORE THE NEOPRENE SEAL IS INSTALLED IN THE STEEL EXTRUSION.

Filename: 116\_ExpJoint\_Det\_2.dgn

Scale: AS NOTED			
No.	Revision	By	Date

Designed by:					
<b>HNTB</b>					
	By	Date		By	Date
	JKC	3/11		PH	3/11
	RJT	3/11	In Charge of	RAL	3/11

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**THE GOLD STAR  
MEMORIAL HIGHWAY**

BRIDGE REHABILITATION  
EXIT 53

EXPANSION JOINT DETAILS II

CONTRACT: 2011.04

SHEET NUMBER: S-40  
116 OF 122



Date: 6/21/2011

**DECK SLAB, PARAPET AND MEDIAN**

MARK	SIZE	NO.	LENGTH	TYPE	A	B	C	D	E	INCR.	REMARKS
S501	5	884	18'- 6"	STR							STAGE 1 TRANSVERSE
S502	5	884	5'- 8"	113	2'- 10"	2'- 10"					TRANSVERSE SPLICE
S503	5	884	31'- 6"	STR							STAGE 2 TRANSVERSE
S504	5	738	38'- 10"	STR							LONGITUDINAL
S505	5	74	24'- 6"	STR							ADD'L LONG. PIER 1
S506	5	74	31'- 6"	STR							ADD'L LONG. PIER 2
S507	5	74	33'- 0"	STR							ADD'L LONG. PIER 3
S508	5	32	7'- 7"	STR							TRANSV. END OF DECK
S509	5	16	6'- 0"	STR							TRANSV. END OF DECK
S510	5	48	38'- 10"	STR							LONGITUDINAL PARAPET
S511	5	12	14'- 2"	STR							LONGITUDINAL PARAPET
S512	5	156	7'- 6"	STR							LONGITUDINAL PARAPET
S513	5	72	15'- 6"	STR							LONGITUDINAL PARAPET
S514	5	12	7'- 2"	STR							LONGITUDINAL PARAPET
S515	5	446	3'- 6"	127	0'- 6"	1'- 6"	1'- 6"				PARAPET
S516	5	892	6'- 2"	108	5'- 7"						DECK CANTILEVER
S517	5	170	4'- 0"	118	3'- 4"	0'- 8"					LONG. END OF DECK
S518	5	170	3'- 0"	109	1'- 5"	0'- 8"	0'- 8"	0'- 11"	0'- 8"		LONG. END OF DECK
S519	5	223	3'- 5"	144	1'- 4"	1'- 4"	0'- 9"				MEDIAN BARRIER
S520	5	16	3'- 0"	STR							SCUPPER
S601	6	4	14'- 2"	STR							LONG. MEDIAN BARRIER
S602	6	52	7'- 6"	STR							LONG. MEDIAN BARRIER
S603	6	24	15'- 6"	STR							LONG. MEDIAN BARRIER
S604	6	4	7'- 2"	STR							LONG. MEDIAN BARRIER
S605	6	24	39'- 1"	STR							LONG. MEDIAN BARRIER
S606	6	892	4'- 2"	118	3'- 2"	1'- 0"					PARAPET
S701	7	446	4'- 4"	118	3'- 2"	1'- 2"					MEDIAN BARRIER

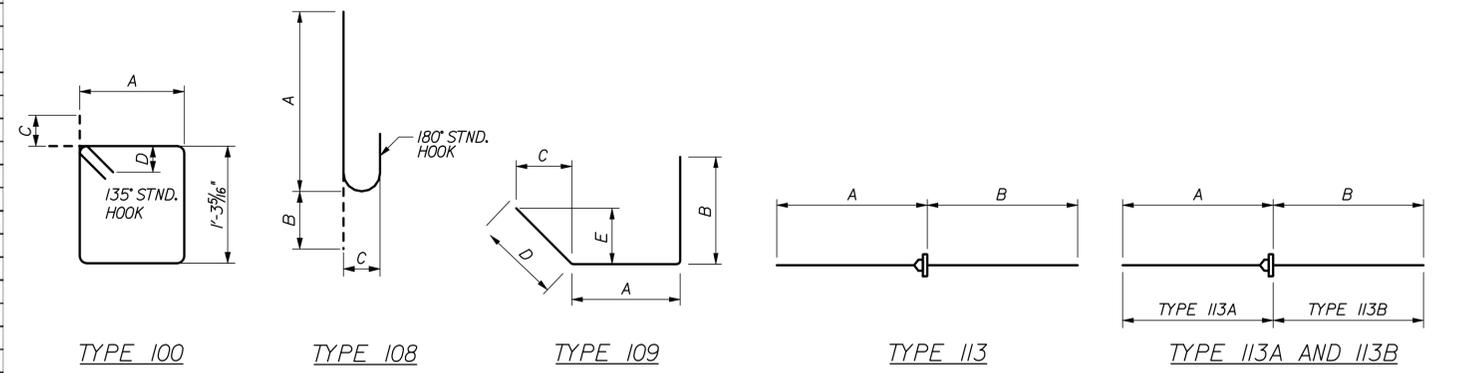
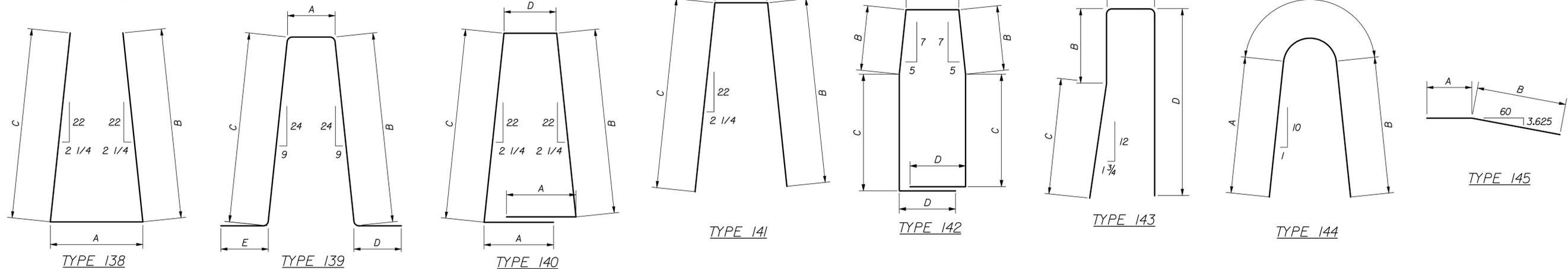
**ABUTMENT AND WINGWALL FOOTING**

MARK	SIZE	NO.	LENGTH	TYPE	A	B	C	D	E	INCR.	REMARKS
F601*	6	104	4'- 10"	STR							DOWELS TO EXISTING FOOTING
F602*	6	142	8'- 0"	STR							TYP. TRANSVERSE BARS
F603*	6	18	AVR: 22'-7"	STR	MAX: 23'-9"	MIN: 21'-4"				3 5/8"	LONGITUDINAL BARS ABUT 2N
F604*	6	18	AVR: 23'-7"	STR	MAX: 24'-9"	MIN: 22'-4"				3 5/8"	LONGITUDINAL BARS ABUT 1S
F605*	6	18	AVR: 23'-7"	STR	MAX: 24'-9"	MIN: 22'-5"				3 5/8"	LONGITUDINAL BARS ABUT 2S
F606*	6	18	AVR: 21'-7"	STR	MAX: 22'-9"	MIN: 20'-5"				3 5/8"	LONGITUDINAL BARS ABUT 1N
F607*	6	72	AVR: 8'-2"	STR	MAX: 8'-4"	MIN: 8'-0"				1/2"	VARYING LENGTH TRANSVERSE BARS

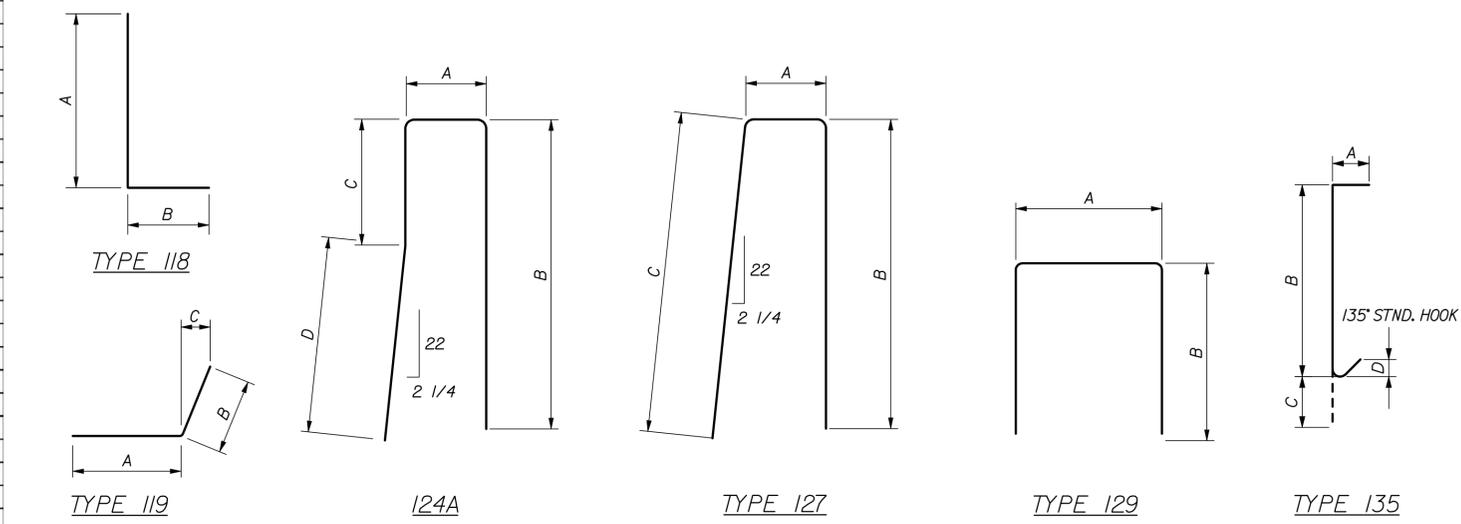
**ABUTMENTS**

MARK	SIZE	NO.	LENGTH	TYPE	A	B	C	D	E	INCR.	REMARKS
A401	4	32	9'- 1"	143	0'- 10"	3'- 7"	4'- 8"	0'- 0"			BACKWALL FRONT FACE
A402	4	32	6'- 9"	118	3'- 7"	3'- 2"					STEM FRONT FACE VERTICAL
A403	4	68	7'- 4"	STR							STEM AND BACKWALL HORIZONTAL
A404	4	32	26'- 3"	STR							TOP BACKWALL HORIZONTAL
A405	4	28	5'- 6"	118	4'- 11"	0'- 8"					FRONT FACE VERTICAL DOWELS
A406	4	68	3'- 3"	STR							HORIZONTAL DOWELS
A501	5	140	5'- 8"	118	4'- 10"	0'- 10"					TOP BACKWALL DOWELS
A601	6	32	10'- 3"	118	9'- 7"	0'- 8"					STEM BACK FACE VERTICAL
A602	6	28	7'- 6"	118	6'- 6"	1'- 0"					BACK FACE VERTICAL DOWELS

\* - DENOTES UNCOATED (BLACK) BARS. ALL OTHER BARS ARE TO BE EPOXY COATED.



NOTE:  
PAYMENT FOR THREADED COUPLINGS SHALL BE  
INCIDENTAL TO ITEMS 503.14 AND 503.15



Filename: 118\_ReinSteelSch 1.dgn

Scale: AS NOTED			
No.	Revision	By	Date

Designed by:			
<b>HNTB</b>			
	By	Date	
	PH	02/11	
	Checked	JKC	03/11
	By	Date	
	Drawn	RJT	02/11
	In Charge of	RAL	03/11

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THE GOLD STAR  
MEMORIAL HIGHWAY

BRIDGE REHABILITATION  
EXIT 53

REINFORCEMENT STEEL SCHEDULE I

SHEET NUMBER: S-42

CONTRACT: 2011.04

118 OF 122

Date:6/21/2011

WINGWALLS											
MARK	SIZE	NO.	LENGTH	TYPE	A	B	C	D	E	INCR.	REMARKS
W401	4	22	17'- 0"	STR							HORIZONTAL BARS WW 2N
W402	4	8	4'- 1"	118	3'- 10"	0'- 3"					BARRIER HOOKED BAR @ ABUT.
W403	4	75	5'- 6"	118	4'- 11"	0'- 8"					FOUNDATION DOWELS
W404	4	37	12'- 1"	STR							FRONT VERTICAL BARS @ ABUT. 1
W405	4	38	12'- 7"	STR							FRONT VERTICAL BARS @ ABUT. 2
W406	4	20	15'- 8"	STR							HORIZONTAL BARS WW 1N
W407	4	20	18'- 0"	STR							HORIZONTAL BARS WW 1S
W408	4	22	17'- 8"	STR							HORIZONTAL BARS WW 2S
W501	5	10	15'- 8"	STR							BARRIER HORIZ BARS @ WW 1N
W502	5	10	18'- 0"	STR							BARRIER HORIZ BARS @ WW 1S
W503	5	10	17'- 8"	STR							BARRIER HORIZ BARS @ WW 2N
W504	5	10	17'- 0"	STR							BARRIER HORIZ BARS @ WW 2S
W601	6	8	3'- 8"	127	0'- 6"	1'- 6"	1'- 8"				BARRIER BARS @ ABUT
W602	6	146	5'- 7"	STR							BARRIER VERTICAL BACK BARS
W603	6	146	7'- 7"	118	6'- 8"	1'- 0"					FOUNDATION DOWELS
W604	6	124	6'- 9"	124A	0'- 6"	3'- 6"	1'- 0"	1'- 8"			BARRIER TOP U-BAR
W605	6	40	3'- 1"	118	2'- 7"	0'- 6"					BARRIER HOOK @ TAPERED END.
W606	6	8	6'- 8"	119	4'- 0"	2'- 8"	2'- 6"				BARRIER HORIZ BENT END BAR
W607	6	146	7'- 3"	129	1'- 1"	3'- 1"					WALL TOP U-BAR
W608	6	72	9'- 3"	STR							BACK VERTICAL BARS @ ABUT. 1
W609	6	74	9'- 10"	STR							BACK VERTICAL BARS @ ABUT. 2
W610	6	1	13'- 0"	STR							BARRIER TOP HORIZ @ WW 1N NF.
W611	6	1	12'- 0"	STR							BARRIER TOP HORIZ @ WW 1N FF.
W612	6	1	15'- 4"	STR							BARRIER TOP HORIZ @ WW 1S NF.
W613	6	1	14'- 4"	STR							BARRIER TOP HORIZ @ WW 1S FF.
W614	6	1	15'- 0"	STR							BARRIER TOP HORIZ @ WW 2S NF.
W615	6	1	14'- 0"	STR							BARRIER TOP HORIZ @ WW 2S FF.
W616	6	1	14'- 4"	STR							BARRIER TOP HORIZ @ WW 2N NF.
W617	6	1	13'- 4"	STR							BARRIER TOP HORIZ @ WW 2N FF.

PIERS											
MARK	SIZE	NO.	LENGTH	TYPE	A	B	C	D	E	INCR.	REMARKS
P501	5	84	7'- 3"	129	2'- 7"	2'- 4"					PIER CAP STIRRUPS
P502	5	12	6'- 2"	129	2'- 7"	1'- 9"					PIER CAP OUTER STIRRUP
P503	5	12	6'- 1"	STR							PIER CAP BOTTOM HORIZONTAL
P504	5	402	3'- 3"	135	0'- 6"	2'- 4"	0'- 5.5"	0'- 3.25"			TIES
P505	5	296	4'- 4"	STR							WALL EXTENSION DOWELS
P506	5	100	16'- 8"	129	2'- 3"	7'- 2"					WALL EXTENSION STIRRUPS
P507	5	112	17'- 7"	100	6'- 1"	2'- 3"	0'- 5.5"	0'- 3.25"			INDEPENDENT COL. STIRRUPS
P508	5	30	6'- 4"	STR							PIER CAP TOP
P509	5	30	6'- 9"	109	1'- 9"	2'- 1"	2'- 0"	2'- 10"	2'- 0"		PIER CAP OUTER VERTICAL
P510	5	18	8'- 2"	129	2'- 6"	2'- 10"					PIER CAP END HORIZ U-BAR
P601*	6	128	7'- 6"	STR							FOOTING DOWELS
P602*	6	112	10'- 3"	STR							FOOTING TRANSVERSE
P603	(NOT USED)										
P604*	6	76	11'- 6"	STR							FOOTING TRANSVERSE @ P3
P605*	6	120	9'- 6"	STR							FOOTING TRANSVERSE @ PIER 1 AND 2
P606	6	28	8'- 9"	118	7'- 9"	1'- 0"					FOOTING DOWELS PIER 3
P607	6	56	7'- 9"	118	6'- 9"	1'- 0"					FOOTING DOWELS PIER 1 AND 2
P608	6	32	AVR: 19'-11"	STR	MAX: 19'-11"	MIN: 18'-2"				3"	WALL EXTENSION VERTICALS PIER 3
P609	6	32	AVR: 14'-6"	STR	MAX: 15'-4"	MIN: 13'-7"				3"	WALL EXTENSION VERTICALS PIER 2
P610	6	32	AVR: 15'-2"	STR	MAX: 16'-0"	MIN: 14'-3"				3"	WALL EXTENSION VERTICALS PIER 1
P801	8	64	11'- 2"	118	9'- 10"	1'- 4"					FOOTING DOWELS PIER 3
P802	8	128	10'- 2"	118	8'- 10"	1'- 4"					FOOTING DOWELS PIER 1 AND 2
P803	8	12	20'- 0"	STR							INDEPENDENT COL. VERTICAL P3 @ JOINT
P804	8	52	23'- 0"	STR							INDEPENDENT COL. VERTICAL P3
P805	8	12	15'- 5"	STR							INDEPENDENT COL. VERTICAL P2 @ JOINT
P806	8	52	18'- 5"	STR							INDEPENDENT COL. VERTICAL P2
P807	8	12	16'- 2"	STR							INDEPENDENT COL. VERTICAL P1 @ JOINT
P808	8	52	19'- 2"	STR							INDEPENDENT COL. VERTICAL P1

APPROACH MEDIAN											
MARK	SIZE	NO.	LENGTH	TYPE	A	B	C	D	E	INCR.	REMARKS
M501	5	12	5'- 10"	145	1'- 1"	4'- 9"					TOP LONGITUDINAL
M502	5	16	7'- 8"	STR							BOTTOM LONGITUDINAL
M503	5	12	6'- 5"	140	0'- 9"	2'- 3"	2'- 3"	0'- 5"			STIRRUP
M504	5	20	6'- 3***	141	0'- 9***	2'- 9"	2'- 9"				STIRRUP
M505	5	32	7'- 8"	142	0'- 9"	0'- 9"	1'- 3"	1'- 6"			STIRRUP
M506	5	4	9'- 0"	STR							BENT LONGITUDINAL
M507	5	12	6'- 7"	129	1'- 1"	2'- 9"					STIRRUP
M508	5	12	4'- 6"	STR							LONGITUDINAL

\* - DENOTES UNCOATED (BLACK) BARS. ALL OTHER BARS ARE TO BE EPOXY COATED.  
 \*\* - AVERAGE DIMENSION PROVIDED. DIMENSION VARIES FROM 5.25' TO 12.75' AT NINE (9) EQUAL INCREMENTS.

Filename: 119\_ReinSteelSch 2.dgn

Scale: AS NOTED			
No.	Revision	By	Date

Designed by:



By	Date	By	Date
PH	02/11	JKC	03/11
Drawn	RJT	In Charge of	RAL

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**THE GOLD STAR  
 MEMORIAL HIGHWAY**

BRIDGE REHABILITATION  
 EXIT 53  
 REINFORCEMENT STEEL SCHEDULE II

SHEET NUMBER: S-43  
 CONTRACT: 2011.04  
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