

Index of Sheets

SHEET NO.	REVISION	SHEET NAME
1		TITLE SHEET
2		ESTIMATED QUANTITIES
3		GENERAL NOTES
3A		PROJECT COMMITMENTS
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STATE OF TENNESSEE DEPARTMENT OF TRANSPORTATION BUREAU OF ENGINEERING

TENN.	YEAR	SHEET NO.
	2015	1
FED AID PROJ NO.		
STATE PROJ NO.	40030-4208-04	

STANDARD ROADWAY AND STRUCTURE DRAWINGS

ROADWAY DESIGN STANDARDS

DWG. NO.	REVISION	DESCRIPTION
RD-A-1	12-18-99	STANDARD ABBREVIATIONS
RD-L-1	10-26-94	STANDARD LEGEND
RD-L-2	9-05-01	STANDARD LEGEND FOR UTILITY INSTALLATIONS

SAFETY APPURTENANCES AND FENCE

DWG. NO.	REVISION	DESCRIPTION
S-GR31-1	12-01-14	W-BEAM GUARDRAIL
S-GRC-1	--	GUARDRAIL CONNECTION TO BRIDGE ENDS OR BARRIER WALL
S-GRT-2	11-03-14	TYPE 38 GUARDRAIL TERMINAL
S-GRC-2P	--	EARTH PAD FOR TYPE 38 TERMINAL
S-GRC-2R	--	EARTH PAD FOR TYPE 38 (RETROFIT)

TRAFFIC CONTROL APPURTENANCES

DWG. NO.	REVISION	DESCRIPTION
T-WZ-32	10-29-13	TRAFFIC CONTROL PLAN SIGNAL LAYOUT FOR TRAFFIC SIGNAL AT TWO LANE BRIDGE RECONSTRUCTION SITE
T-WZ-34	09-01-05	TRAFFIC CONTROL PLAN GENERAL NOTES FOR TRAFFIC SIGNAL AT TWO LANE BRIDGE RECONSTRUCTION SITE
T-WZ-35	04-02-12	TRAFFIC CONTROL PLAN PAY ITEM AND SIGN DETAILS FOR TRAFFIC SIGNAL AT TWO LANE BRIDGE RECONSTRUCTION SITE

EROSION CONTROL AND LANDSCAPING

DWG. NO.	REVISION	DESCRIPTION
EC-STR-3C	08-01-12	SILT FENCE WITH WIRE BACKING
EC-STR-3E	04-01-08	SILT FENCE FABRIC JOINING DETAILS

LIST OF STANDARD DRAWINGS

DWG. NO.	REVISION	DESCRIPTION
STD-1-1SS	05-01-14	BRIDGE RAILING SINGLE SLOPE CONCRETE PARAPET
STD-1-2SS	--	STEEL SLIDER PLATE ASSEMBLIES FOR SINGLE SLOPE CONCRETE AND BRIDGE DECK DRAIN DETAILS - 2007
STD-5-1	10-25-93	STANDARD PILE DETAILS
STD-14-3	10-15-08	STANDARD DETAILS FOR PRESTRESSED BOX BEAMS
SBR-2-115	01-04-96	GENERAL NOTES AND DETAILS FOR EXPANSION JOINT REPLACEMENT CONSTRUCTION TYPES "A" THRU "J" - 1991
SBR-2-116	01-04-96	GENERAL NOTES AND DETAILS FOR EXPANSION JOINT REPLACEMENT TYPES "A" THRU "J" - 1991
SBR-2-119	05-30-96	STRIP SEAL EXPANSION JOINTS - REPLACEMENT CONSTRUCTION DETAILS TYPE "E" AND "F" - 1991

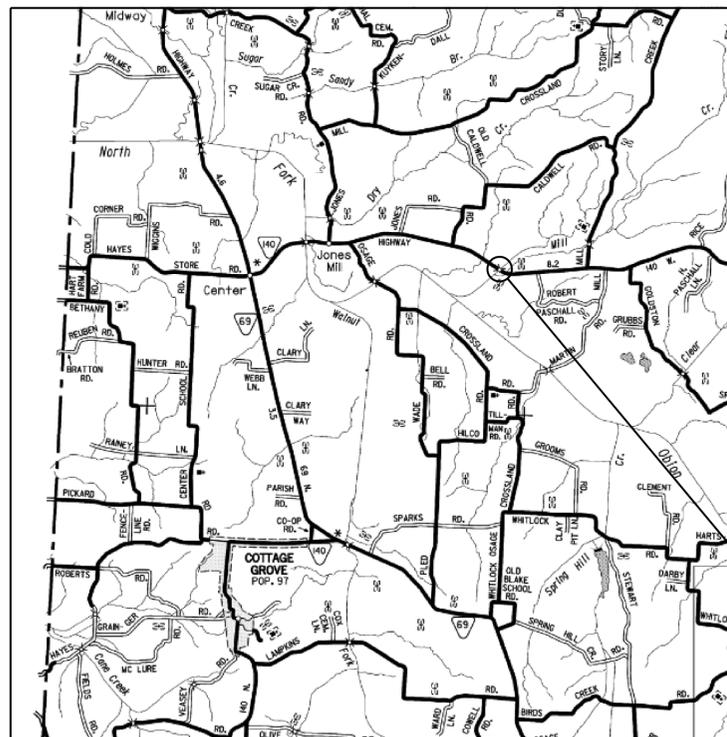
HENRY COUNTY

BRIDGE NO. 40-SR140-23.03
OVER MILL CREEK

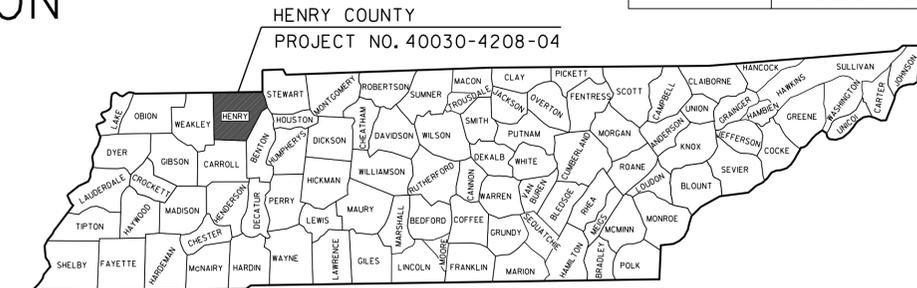
BRIDGE REPAIR

STATE ROUTE 140 F.A.H.S. NO.

SCALE: 1" = 1 MILE



PROJECT LENGTH
0.00 MILE



LIST OF DRAWINGS

DWG. NO.	DRAWING
BR-116-151	LAYOUT OF BRIDGE TO BE REPAIRED
BR-116-152	ESTIMATED QUANTITIES
BR-116-153	GENERAL NOTES
BR-116-154	BRIDGE REPAIR DETAILS
BR-116-155	BRIDGE REPAIR DETAILS
BR-116-156	BRIDGE REPAIR DETAILS
BR-116-157	BRIDGE REPAIR DETAILS
BR-116-158	BRIDGE REPAIR DETAILS
BR-116-159	BRIDGE REPAIR DETAILS
BR-116-160	BRIDGE REPAIR DETAILS
BR-116-161	BRIDGE REPAIR DETAILS
BR-116-162	BRIDGE REPAIR DETAILS
BR-116-163	BRIDGE REPAIR DETAILS
BR-116-164	BRIDGE REPAIR DETAILS
BR-116-165	BRIDGE REPAIR DETAILS
BR-116-166	BRIDGE REPAIR DETAILS
BR-116-167	BRIDGE REPAIR DETAILS
BR-116-168	BRIDGE REPAIR DETAILS
BR-116-169	BRIDGE REPAIR DETAILS
BR-116-170	BRIDGE REPAIR DETAILS
BR-116-171	BRIDGE REPAIR DETAILS
BR-116-172	BRIDGE REPAIR DETAILS
BR-116-173	BRIDGE REPAIR DETAILS
BR-116-174	BRIDGE REPAIR DETAILS

LIST OF REFERENCE DRAWINGS

DWG. NO.	LAST REV.	DRAWING
F-14-83		LAYOUT OF BRIDGE
F-10-9		STD. CONCRETE BENT & ABUT.

1957 CONSTRUCTION PLANS

⊙ ALL REFERENCE DRAWINGS TO BE PRINTED WITH THE PLANS

PROJECT NO. 40030-4208-04
SR140 - L.M. 28.03

APPROVED: Paul D. Degges
PAUL D. DEGGES, CHIEF ENGINEER

DATE _____

APPROVED: John Schroer
JOHN SCHROER, COMMISSIONER

SPECIAL NOTES

PROPOSALS MAY BE REJECTED BY THE COMMISSIONER IF ANY OF THE UNIT PRICES CONTAINED THEREIN ARE OBVIOUSLY UNBALANCED, EITHER EXCESSIVE OR BELOW THE REASONABLE COST ANALYSIS VALUE.

THIS PROJECT TO BE CONSTRUCTED UNDER THE STANDARD SPECIFICATIONS OF THE TENNESSEE DEPARTMENT OF TRANSPORTATION DATED JANUARY 1, 2015 AND ADDITIONAL SPECIFICATIONS AND SPECIAL PROVISIONS CONTAINED IN THE PLANS AND IN THE PROPOSAL CONTRACT.

T.D.O.T. MANAGER MIKE LAWSON
DESIGNED BY GARVER, LLC
DESIGNER A. J. KHAIRI CHECKED BY J. H. RUDELL
PE NO. 40030-4208-04 PIN. NO. 117914.00

UNOFFICIAL SET
NOT FOR BIDDING

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED: _____
DIVISION ADMINISTRATOR DATE _____

2/25/2015 8:32:45 AM
 WORKSPACE: T001 Br-1409
 \\gtrdco\ltp\office15\2015\0017622 - T001 - Br-1409 Repair over Mill Creek Drawings\BRO\Final\01-Sheet 1.dgn

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST	2015	40030-4208-04	3A

PROJECT COMMITMENTS

COMMITMENT ID	SOURCE DIVISION	DESCRIPTION	STA./LOCATION
EDHZ001	ENVIRONMENTAL DIVISION, HAZARDOUS MATERIALS	<p>1. TO MINIMIZE THE RISK TO CONSTRUCTION WORKERS, TDOT IS COMMITTED TO THE REMOVAL OF ASBESTOS CONTAINING MATERIALS (ACM) FROM BRIDGES THAT ARE BEING DEMOLISHED, REHABILITATED OR REPAIRED.</p> <p>2. BRIDGE NO. 40S81720003, SR-140 BRIDGE OVER MILL CREEK, L.M. 23.03 (40-140-23.03), HAS ACM IN THE DECK DRAINS. ABATEMENT OF THIS MATERIAL SHOULD BE ACCOMPLISHED PER SP202ACM SPECIAL PROVISION REGARDING REMOVAL OF ASBESTOS CONTAINING MATERIALS. ACM ABATEMENT SHOULD BE COMPLETED PRIOR TO ANY DEMOLITION ACTIVITIES.</p> <p>3. STATE OF TENNESSEE ASBESTOS ACCREDITATION REQUIREMENTS (TCA 1200-01-20) MANDATE THAT ACM ABATEMENT WORK BE PERFORMED BY AN ACCREDITED FIRM (CONTRACTOR) USING ACCREDITED ABATEMENT WORKERS AND SUPERVISORS.</p> <p>4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTING A NOTICE TO THE TDEC, DIVISION OF AIR POLLUTION CONTROL TEN (10) DAYS IN ADVANCE OF ANY ACM ABATEMENT OR DEMOLITION.</p>	DECK DRAINS

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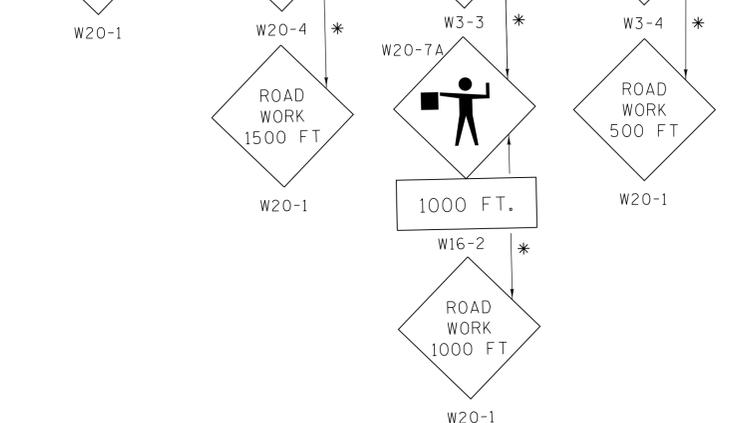
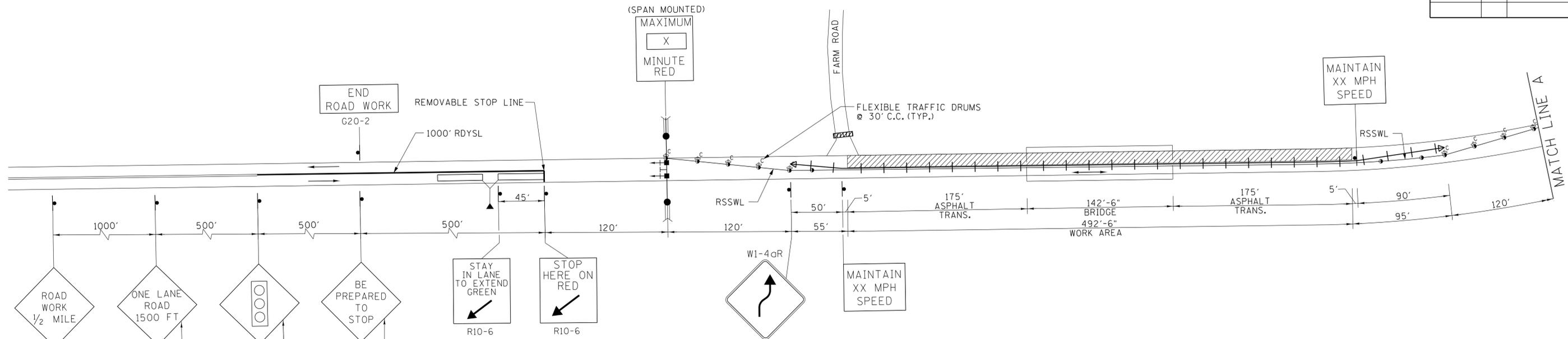
 NOT FOR BIDDING

STATE OF TENNESSEE
 DEPARTMENT OF TRANSPORTATION
 BUREAU OF PLANNING AND DEVELOPMENT

PROJECT COMMITMENTS

SCALE: NONE

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST	2015	40030-4208-04	4



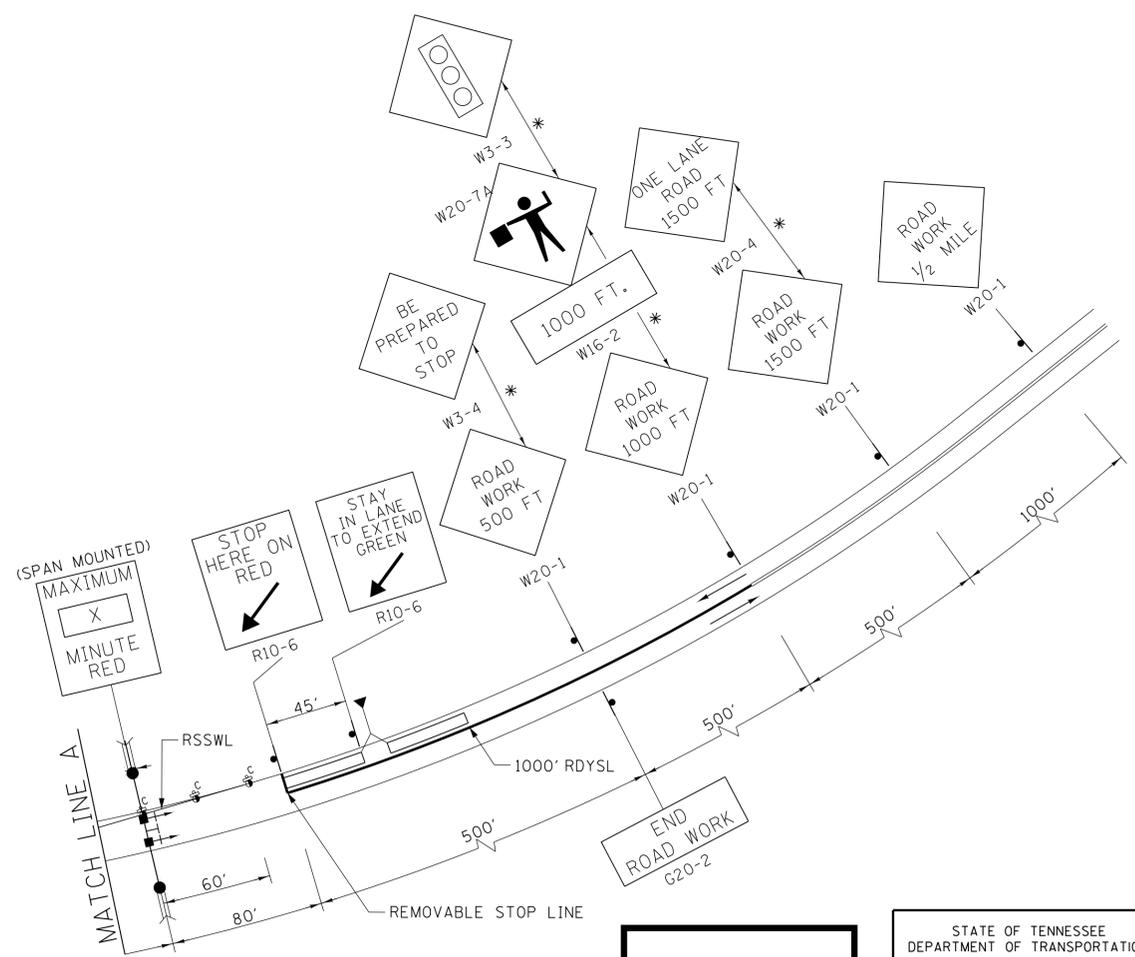
LEGEND

- AREA UNDER CONSTRUCTION
- FLEXIBLE TRAFFIC DRUM
- FLEXIBLE TRAFFIC DRUM WITH TYPE "C" WARNING LIGHT ATTACHED
- REMOVABLE INTERCONNECTED PORTABLE BARRIER RAIL WITH BARRIER RAIL DELINEATORS @ 20' (TYP.)
- TRAFFIC SIGN
- DIRECTION OF TRAFFIC
- ATTENUATOR
- TYPE III BARRICADE
- RDYSL REMOVABLE DOUBLE YELLOW SOLID LINE
- RSSWL REMOVABLE SINGLE SOLID WHITE LINE

NOTES:
 * 1. FOR ADDITIONAL NOTES AND DETAILS, SEE STD. DWGS. T-WZ-32, T-WZ-34, AND T-WZ-35.

DESCRIPTION	MUTCD. NO.	SIZE	SR140 PHASE		BID QUANTITY	TOTAL SQ. FT.
			I	II		
END ROAD WORK	G20-2	48"x24"	2	2	2	16
STOP HERE ON RED	R10-6	24"x36"	2	2	2	12
STAY IN LANE TO EXTENDED GREEN	R10-6 (MOD.)	30"x42"	2	2	2	17.5
REVERSE CURVE	W1-4AR	48"x48"	1	1	1	16
SIGNAL AHEAD (SYMBOL)	W3-3	36"x36"	2	2	2	18
BE PREPARED TO STOP	W3-4	48"x48"	2	2	2	32
1000 FT.	W16-2	24"x12"	2	2	2	4
ROAD WORK 500 FT.	W20-1	48"x48"	2	2	2	32
ROAD WORK 1000 FT.	W20-1	48"x48"	2	2	2	32
ROAD WORK 1500 FT.	W20-1	48"x48"	2	2	2	32
ROAD WORK 1/2 MILE	W20-1	48"x48"	2	2	2	32
ONE LANE ROAD 1500 FT.	W20-4	48"x48"	2	2	2	32
FLAGGER	W20-7A	48"x48"	2	2	2	32
MAINTAIN XX MPH SPEED	-	36"x42"	2	2	2	21
MAXIMUM X MIN. RED	-	48"x42"	2	2	2	28
TOTAL			2	2	2	356.5

ITEM NO.	DESCRIPTION	UNIT	SR140 PHASE		TOTAL
			I	II	
705-04.50	PORTABLE BARRIER RAIL DELINEATOR	EACH	66	66	66
705-08.51	PORTABLE IMPACT ATTENUATOR (INCHRP 350-TL3)	EACH	2	2	2
712-01	TRAFFIC CONTROL	L.S.	.5	.5	1
712-02.02	INTERCONNECTED PORTABLE BARRIER RAIL	L.F.	643	643	643
712-04.01	FLEXIBLE DRUMS (CHANNELIZING)	EACH	15	15	15
712-05.03	WARNING LIGHT (TYPE C)	EACH	12	12	12
712-06	SIGNS (CONSTRUCTION)	SQ. FT.	357	357	357
712-07.03	TEMPORARY BARRICADES (TYPE III)	L.F.	10	10	10
712-09.01	REMOVABLE PAVEMENT MARKING LINE	L.F.	4943	4943	4943
712-09.04	REMOVABLE PAVEMENT MARKING (STOP LINE)	L.F.	24	24	24
730-40	TEMPORARY TRAFFIC CONTROL SYSTEM	EACH	-	-	1



**STATE ROUTE 140
 PHASE I TRAFFIC CONTROL**

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STATE OF TENNESSEE
 DEPARTMENT OF TRANSPORTATION
 BUREAU OF PLANNING AND DEVELOPMENT

TRAFFIC CONTROL PLAN

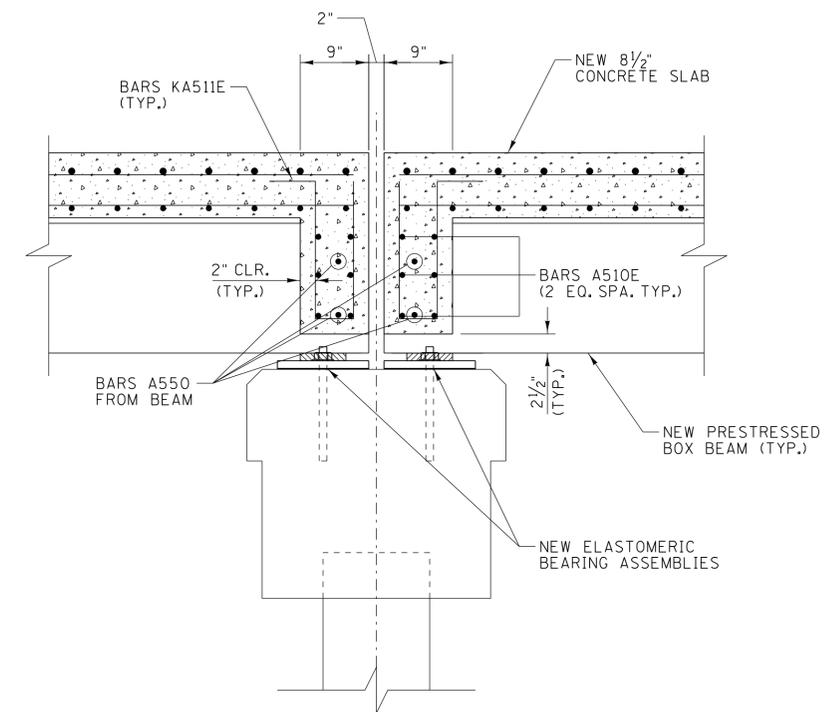
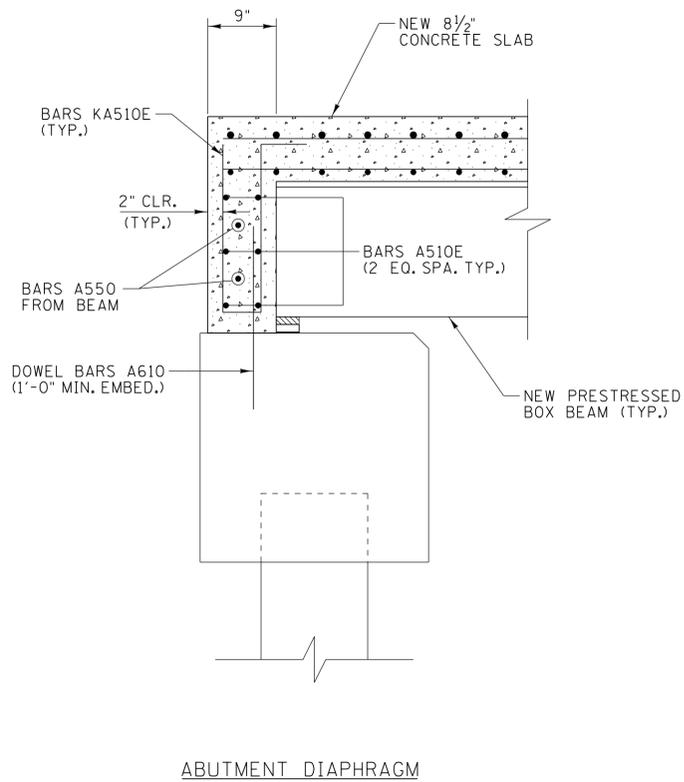
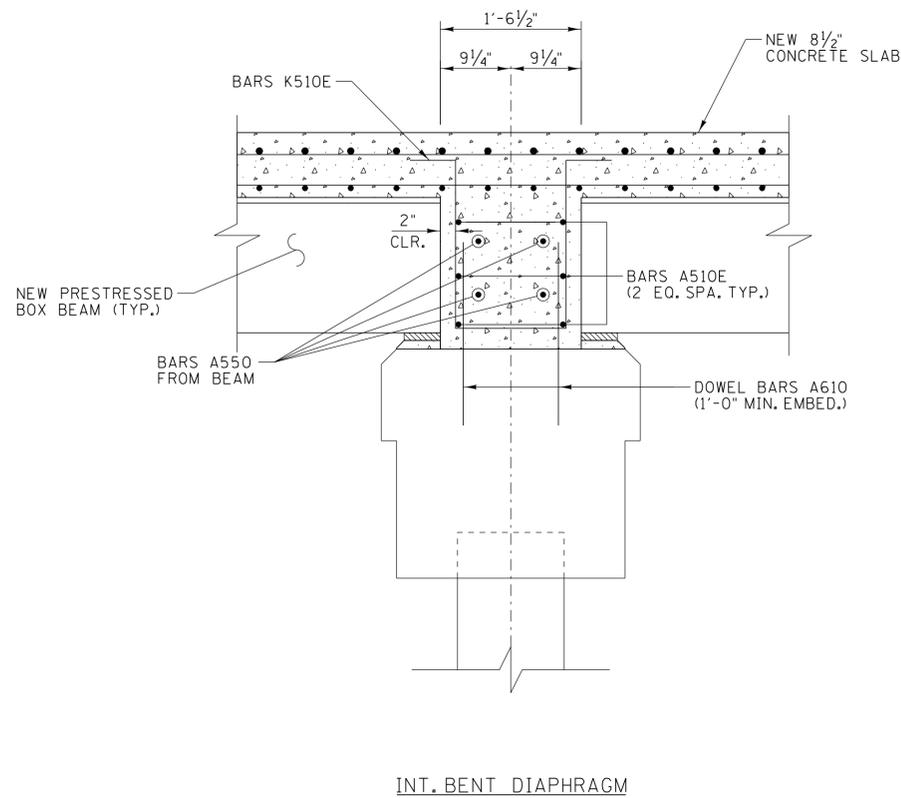
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PROJECT NO.	YEAR	SHEET NO.	
40030-4208-04	2015		
REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION



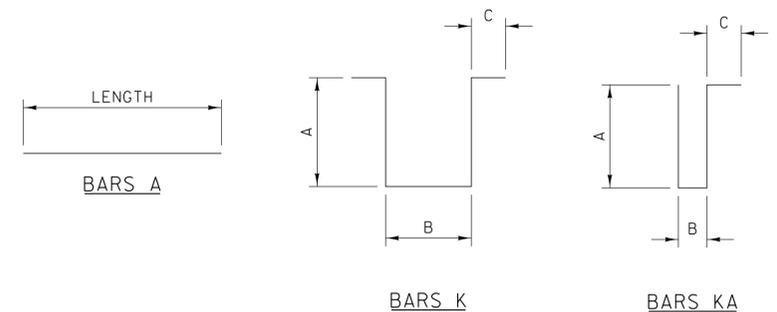
INT. BENT DIAPHRAGM

ABUTMENT DIAPHRAGM

SECTION B-B

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

SCALE: 1" = 1'-0"



BILL OF STEEL							
DIAPHRAGM REINFORCEMENT SECTION A-A (INT. BENT) - 3 REQ'D							
BARS	SIZE	NO. REQ'D	BENDING DIMENSIONS				LENGTH
			A	B	C	D	
A510E	5	18					4'-7"
*A550	5	24					2'-0"
A610	6	42					2'-0"
K510E	5	21	1'-10"	1'-2 1/2"	6"		5'-10 1/2"
DIAPHRAGM REINFORCEMENT SECTION A-A (ABUTMENT) - 2 REQ'D							
A510E	5	18					4'-7"
*A550	5	12					2'-0"
A610	6	21					2'-0"
KA510E	5	21	1'-10"	5"	6"		4'-7"
DIAPHRAGM REINFORCEMENT SECTION B-B - 1 REQ'D							
A510E	5	36					4'-7"
*A550	5	24					2'-0"
KA511E	4	42	1'-6"	5"	6"		3'-11"

NOTES:
 ALL BAR DIMENSIONS ARE OUT-TO-OUT.
 ALL DIMENSIONS SHALL BE FIELD VERIFIED BY CONTRACTOR PRIOR TO FABRICATION.
 BARS ENDING IN "E" TO BE EPOXY COATED.
 * ONE END TAPERED AND THREADED TO MATCH BOX BEAM INSERT THREAD REQUIREMENTS.
 NUMBER OF BARS IS FOR ONE (1) BENT/ABUTMENT LOCATION. SEE DWG. NOS BR-116-154 THRU BR-116-157 FOR LOCATIONS.

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STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

BRIDGE REPAIR DETAILS
SR140 OVER MILL CREEK
BRIDGE NO. 40-SR140-23.03

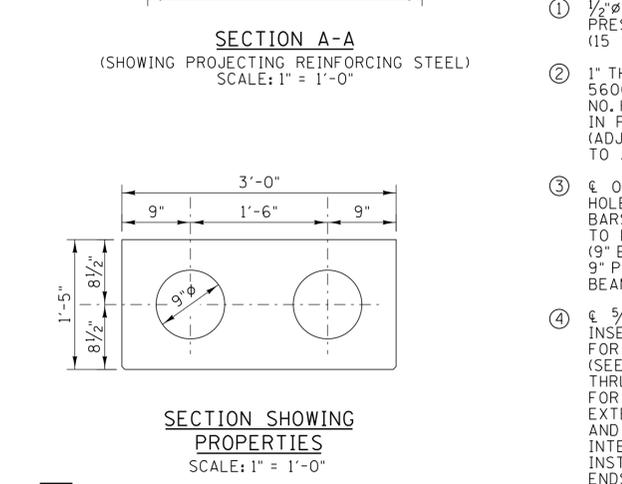
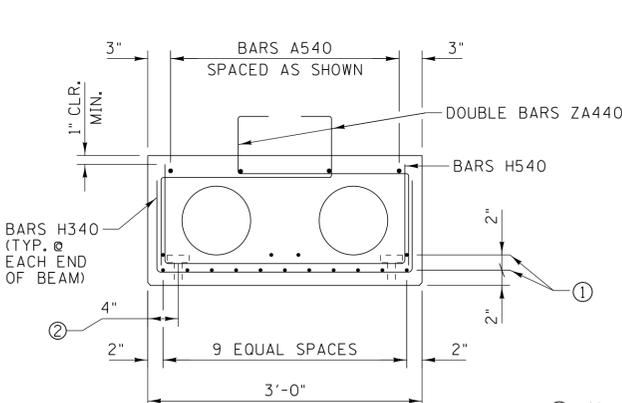
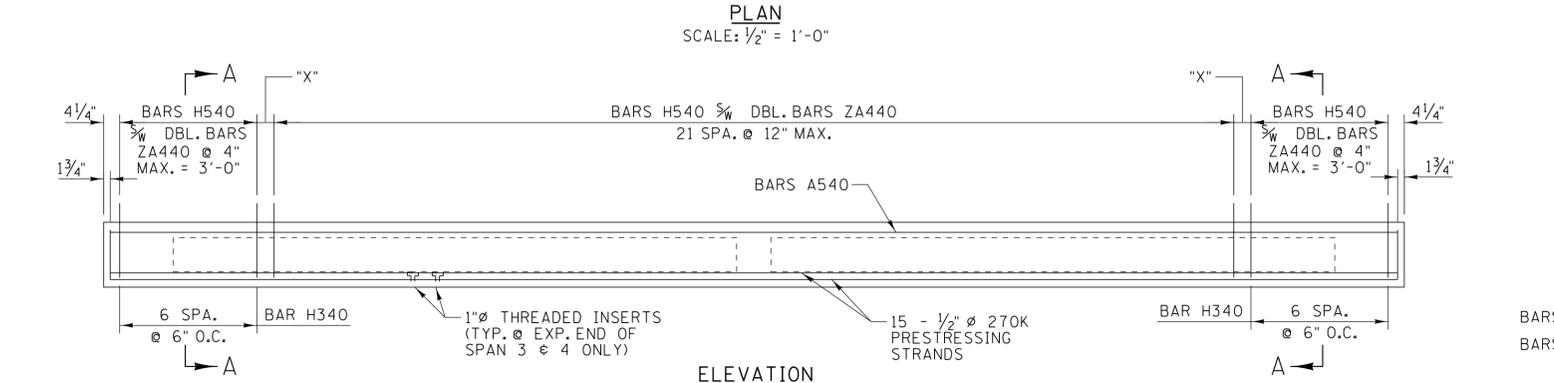
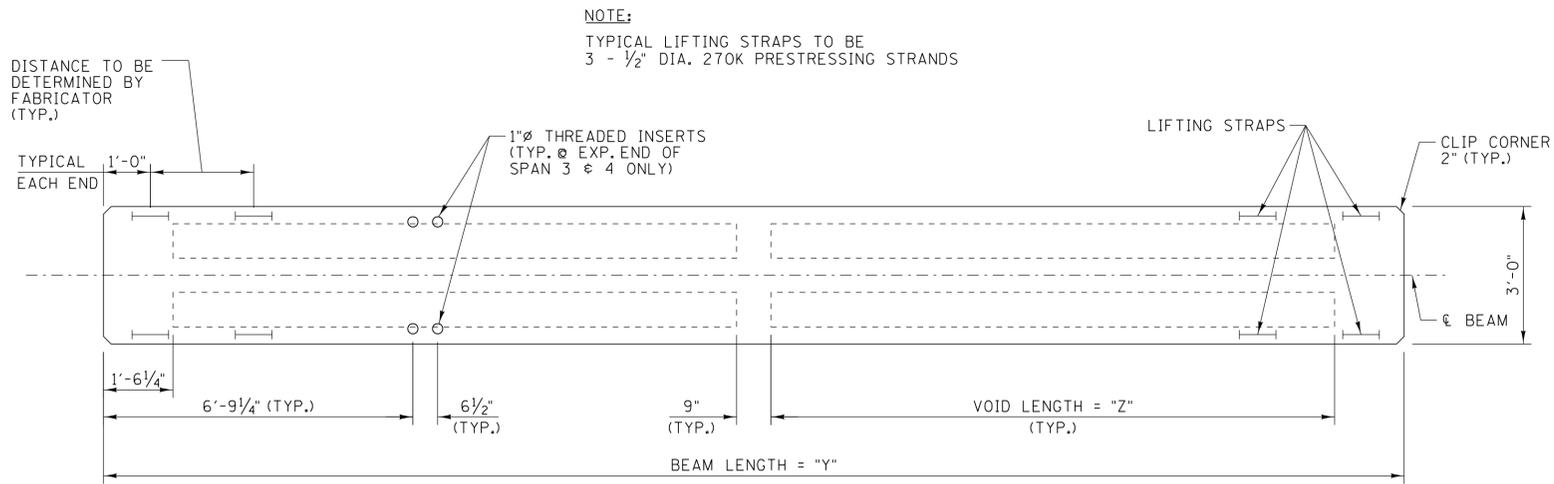
HENRY COUNTY
2015

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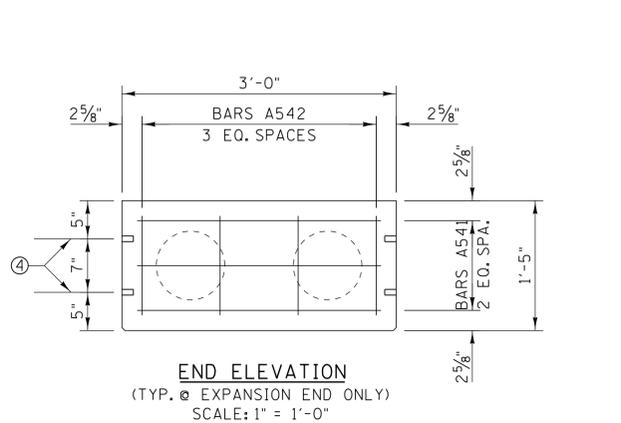
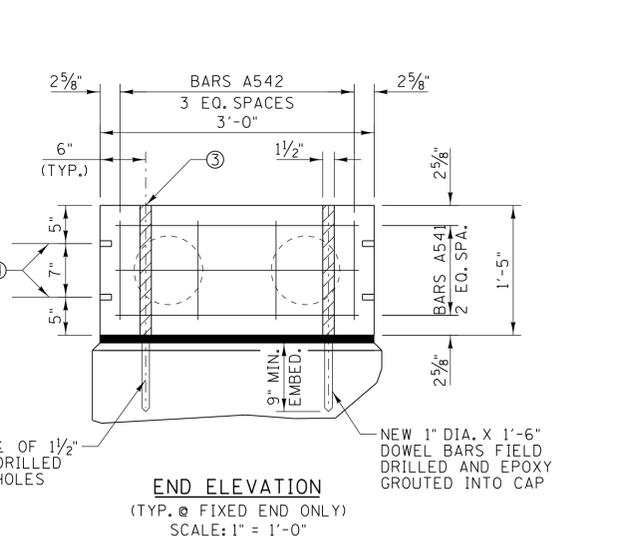
DESIGNED BY: J. L. HALBROOK DATE: APR. 2014
 DRAWN BY: J. L. HALBROOK DATE: APR. 2014
 SUPERVISED BY: J. H. RUDDLELL DATE: APR. 2014
 CHECKED BY: A. J. KHAIRI DATE: APR. 2014

TN D.O.T. ENGINEERING SUPERVISOR: M. LAWSON

BR-116-158



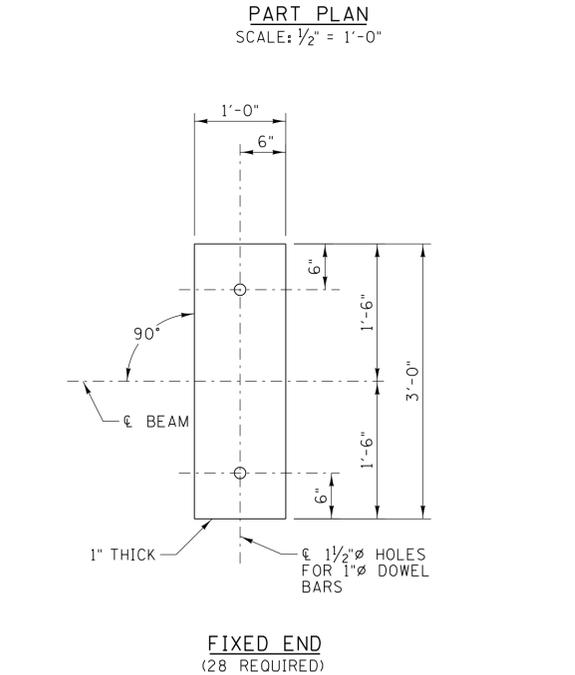
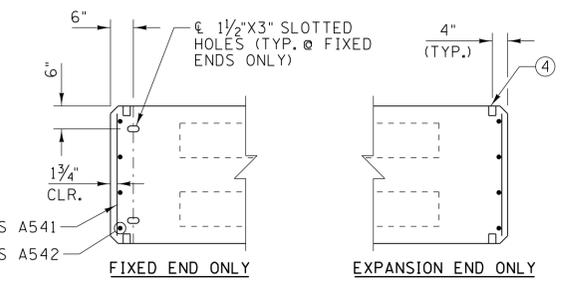
- 1/2" Ø ASTM GRADE 270K PRESTRESSING STRANDS (15 STRANDS REQUIRED)
- 1" THREADED INSERTS 5600# MIN. HOHMAN NO. HJ OR EQUAL. CAST IN PLACE, 8 PER BEAM (ADJUST LOCATION TO AVOID STIRRUPS)
- 1/2" Ø SLOTTED HOLES FOR 1" DOWEL BARS. GROUTED BARS TO BE 1'-6" LONG. (9" EMBEDMENT AND 9" PROJECTION INTO BEAM END.)
- 5/8" Ø THREADED STEEL INSERTS (CAST IN PLACE) FOR THREADED BARS A550 (SEE DWG. NOS. BR-116-154 THRU BR-116-158). TYPICAL FOR INTERIOR SIDE OF EXTERIOR BEAMS AT BENTS AND BOTH SIDES OF INTERIOR BEAMS AT BENTS. INSTALL PARALLEL TO BEAM ENDS (TYP.)



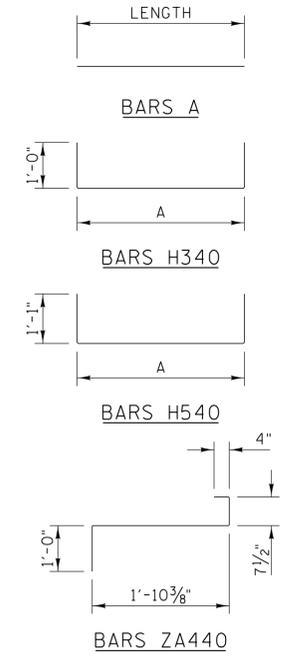
BILL OF STEEL				
BAR	SIZE	NO. REQ'D	A	LENGTH
A540	5	4		28'-2"
A541	5	6		2'-8"
A542	5	8		1'-1"
H340	3	14	2'-9 1/2"	4'-9 1/2"
H540	5	42	2'-7 1/2"	4'-9 1/2"
ZA440	4	84		3'-9 3/8"

NOTE:
"NO. REQ'D" IS FOR ONE BEAM. TWENTY (20) BEAMS REQ'D.
ALL DIMENSIONS ARE OUT-TO-OUT.

TABLE OF VARIABLES			
LOCATION	"X"	"Y"	"Z"
SPAN NOS. 1 & 5	4 5/8"	28'-5 3/4"	12'-4 1/8"
SPAN NO. 2	4 1/2"	28'-5 1/2"	12'-4"
SPAN NOS. 3 & 4	4 1/8"	28'-4 3/4"	12'-3 5/8"



NOTE:
FOR EXPANSION BEARING PAD ASSEMBLY NOTES AND DETAILS, SEE DWG. NO. BR-116-163.



NOTES:
THE TOP OF THE BEAM SHALL BE ROUGH FLOATED. AT APPROXIMATELY THE TIME OF INITIAL SET, THE TOP OF THE BEAM WILL ALSO BE SCRUBBED TRANSVERSELY WITH A COARSE WIRE BRUSH TO REMOVE ALL LAITANCE AND PRODUCE A ROUGH SURFACE.

MILD STEEL REINFORCING SHALL BE ASTM A615 GRADE 60.
ALL PRESTRESSING STRANDS SHALL BE 1/2" DIA. ASTM GRADE 270:7 WIRE UNCOATED LOW RELAXATION PRESTRESSING STRANDS.
THE CONCRETE FOR THIS CONSTRUCTION SHALL BE A OF SUCH PROPERTIES AS TO ATTAIN A COMPRESSIVE STRENGTH OF 5,500 PSI AT THE AGE OF 28 DAYS AND STRESS TRANSFER SHALL NOT BE MADE TO THE BRIDGE MEMBER UNTIL THE TEST SPECIMENS INDICATE THAT THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF AT LEAST 4,000 PSI.

AN INITIAL FORCE OF 31,000 LB. SHALL BE APPLIED TO EACH STRAND.
PRESTRESSING STRANDS SHALL NOT BE GREATER THAN 1/2" DIAMETER.
COST OF FORMING TWENTY (20) NEW PRECAST BEAMS, AND ALL THE LABOR AND MATERIAL NECESSARY TO FABRICATE THE NEW BEAMS AS SHOWN ON THIS SHEET, SHALL BE PAID FOR UNDER ITEM NO. 615-02.02, PRESTRESSED CONCRETE BOX BEAM (17" X 36"), L.F.

1" DIAMETER WEEP HOLES SHALL BE PROVIDED AT THE LOW POINT OF EACH CELL. VENT HOLES SHALL BE PROVIDED IN THE TOP OF EACH CELL DURING FABRICATION TO RELIEVE GAS PRESSURES THAT OCCUR DURING CURING. THE VENT HOLES SHALL BE PLUGGED AFTER CURING IS COMPLETED.
THE SEQUENCE FOR TRANSFER OF STRESS OR CUTTING THE STRANDS SHALL BE IN ACCORDANCE WITH ARTICLE 615.14 OF THE "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" AND SHALL BE SHOWN ON THE APPROVED SHOP DRAWINGS. AT NO TIME SHALL MORE THAN 1/6TH OF TOTAL PRESTRESSING FORCE BE ECCENTRIC ABOUT THE CENTERLINE OF THE BEAM.

COST OF REINFORCING STEEL IN THE NEW BEAMS WILL NOT BE MEASURED FOR SEPARATE PAYMENT, BUT WILL BE INCLUDED IN ITEM NO. 615-02.02, PRESTRESSED CONCRETE BOX BEAM (17" X 36"), L.F.
COST OF ELASTOMERIC PADS SHOWN ON THIS SHEET, RUBBER BONDING CEMENT, AND DOWEL BARS TO BE INCLUDED IN COST OF PRESTRESSED BEAMS.

PROJECT NO.	YEAR	SHEET NO.
40030-4208-04	2015	

REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

BRIDGE REPAIR DETAILS
SR140 OVER MILL CREEK
BRIDGE NO. 40-SR140-23.03

UNOFFICIAL SET
NOT FOR BIDDING

HENRY COUNTY
2015

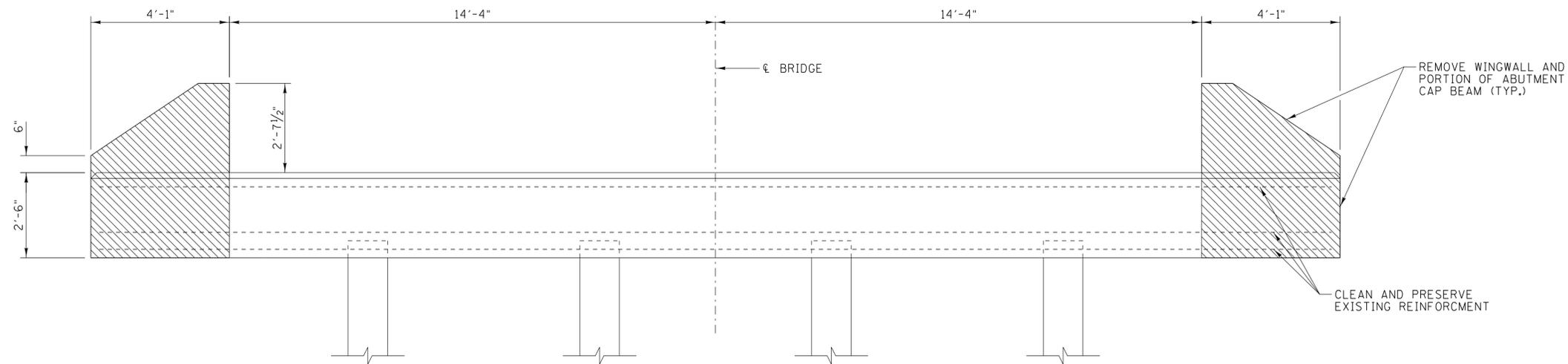
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DESIGNED BY L. I. COBOS DATE APR. 2014
 DRAWN BY C. W. THOMAS DATE APR. 2014
 SUPERVISED BY J. H. RUDELL DATE APR. 2014
 CHECKED BY A. J. KHAIRI DATE APR. 2014

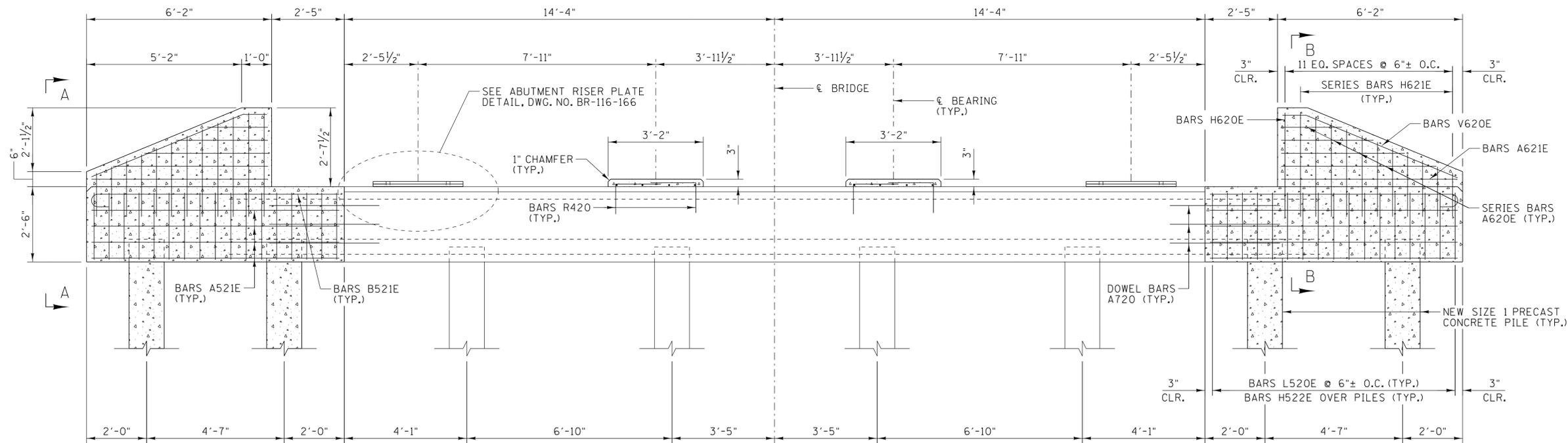
TN D.O.T. ENGINEERING SUPERVISOR M. LAWSON

BR-116-162

PROJECT NO.	YEAR	SHEET NO.	
40030-4208-04	2015		
REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION



ELEVATION VIEW - DEMOLITION
 (SHOWN FOR ABUTMENT NO. 1, ABUTMENT NO. 2 IS SIMILAR)
 SCALE: 1/2" = 1'-0"



ELEVATION VIEW - CONSTRUCTION
 (SHOWN FOR ABUTMENT NO. 1, ABUTMENT NO. 2 IS SIMILAR)
 SCALE: 1/2" = 1'-0"

NOTE:
 FOR SECTION A-A, SECTION B-B, AND BILL OF STEEL, SEE DWG. NO. BR-116-166.
 FOR DOWEL BAR DETAILS, SEE DWG. NO. BR-116-166.

NOTES:
 ALL EXISTING LONGITUDINAL REINFORCING STEEL TO REMAIN IN THE ABUTMENT IS TO BE CLEANED AND INCORPORATED IN WITH THE NEW REINFORCING STEEL.

ALL COSTS ASSOCIATED WITH THE REMOVAL OF THE EXISTING ABUTMENT ENDS AND WINGWALLS AND CLEANING OF REMAINING LONGITUDINAL REINFORCING TO BE INCLUDED IN ITEM NO. 604-10.07, CONCRETE REMOVAL, L.S.

COST OF FORMING AND POURING HIGH EARLY STRENGTH CONCRETE FOR ABUTMENT, NEW WINGWALLS, AND FOR NEW RISER BLOCKS TO BE INCLUDED IN ITEM NO. 604-10.42, CONCRETE REPAIRS, C.F.

COST OF EXCAVATION ASSOCIATED WITH THE REMOVAL OF EXISTING PORTION OF ABUTMENT AND FORMING OF NEW ABUTMENT BEAM AND WINGWALLS TO BE INCLUDED IN ITEM NO. 604-10.42, CONCRETE REPAIRS, C.F.

COST OF REINFORCING STEEL TO BE INCLUDED IN ITEM NO. 604-10.18, REINFORCING STEEL (REPAIRS), L.B.

NO LOADING, LIVE OR DEAD, WILL BE PERMITTED ON THE NEW BENT CAP WIDENING UNTIL TEST SPECIMENS ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI.

ALL DIMENSIONS ARE TO BE FIELD VERIFIED BY THE CONTRACTOR.

ALL COSTS ASSOCIATED WITH FORMING, FABRICATING, AND DRIVING SIZE 1 PRECAST CONCRETE PILES AT BENT CAP EXTENSIONS SHALL BE INCLUDED UNDER ITEM NO. 606-09.03, PRECAST CONCRETE PILES (SIZE 1), L.F. THIS ITEM WILL ALSO INCLUDE ALL COSTS ASSOCIATED WITH TRANSPORTING THE PRECAST CONCRETE PILES. FOR ADDITIONAL NOTES AND DETAILS, SEE STANDARD DWG. STD-5-1.

ALL PILES TO BE DRIVEN TO REFUSAL OR TO AN ULTIMATE BEARING CAPACITY OF 50 TONS. EACH PILE SHALL HAVE A LENGTH OF 40'.

TOP OF ABUTMENT CAP EXTENSIONS TO BE POURED LEVEL, MATCHING THE ELEVATION OF THE EXISTING ABUTMENT CAP.

STATE OF TENNESSEE
 DEPARTMENT OF TRANSPORTATION

BRIDGE REPAIR DETAILS

SR140 OVER MILL CREEK
 BRIDGE NO. 40-SR140-23.03

HENRY COUNTY
 2015

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DESIGNED BY L. I. COBOS DATE APR. 2014
 DRAWN BY C. W. THOMAS DATE APR. 2014
 SUPERVISED BY J. H. RUDELL DATE APR. 2014
 CHECKED BY A. J. KHAIRI DATE APR. 2014

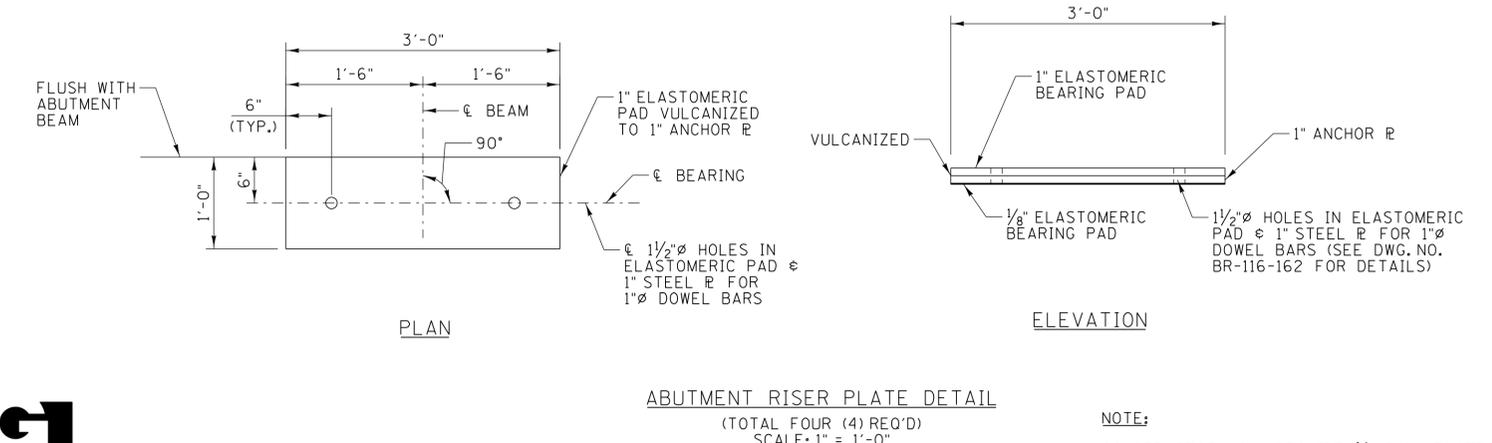
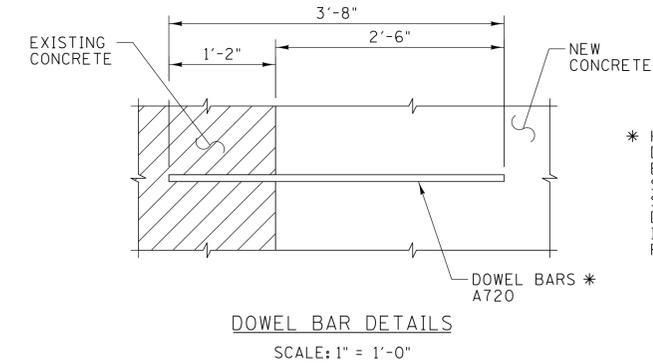
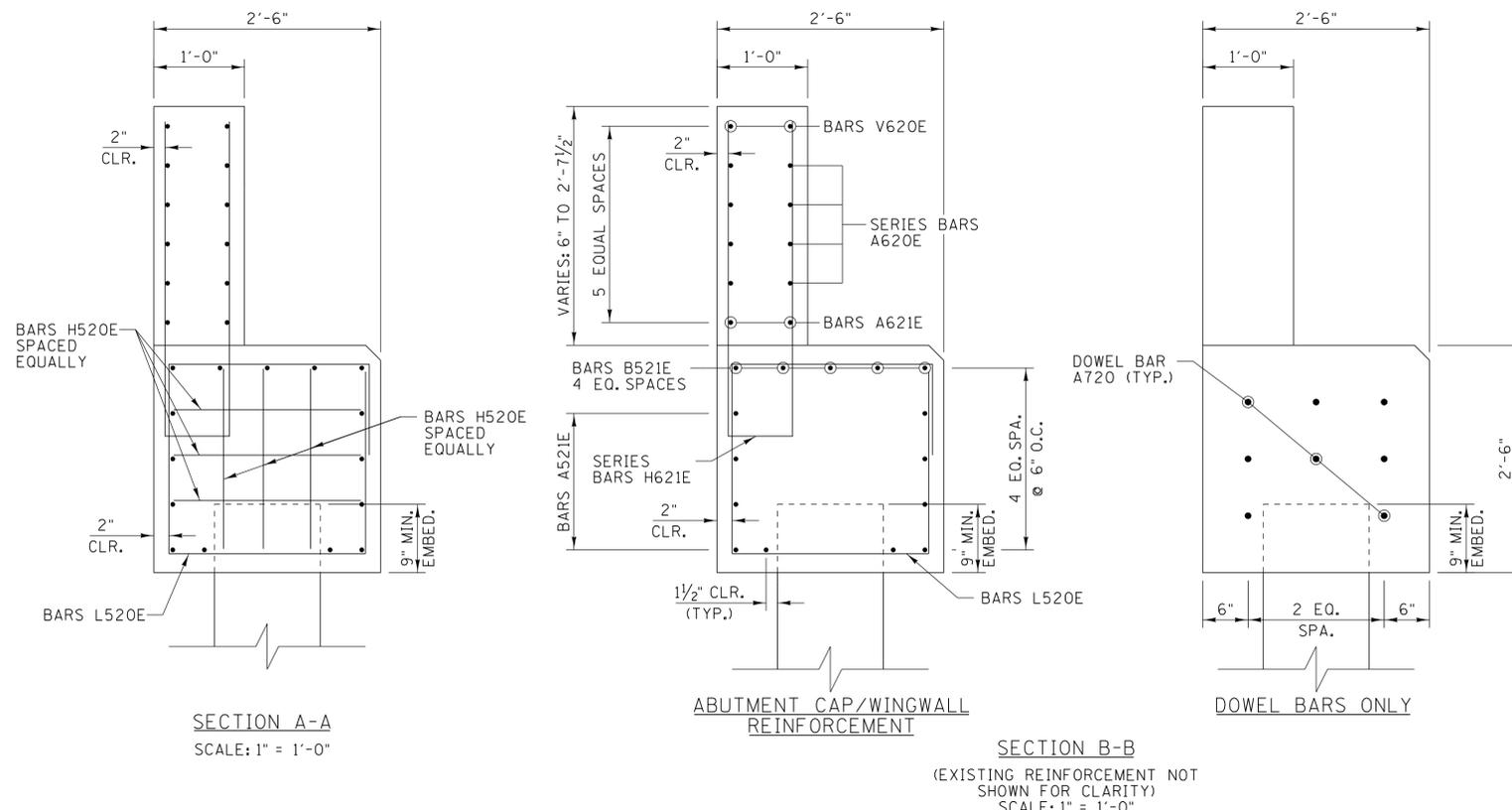
TN D.O.T. ENGINEERING SUPERVISOR M. LAWSON

BR-116-164

PROJECT NO.	YEAR	SHEET NO.	
40030-4208-04	2015		
REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION

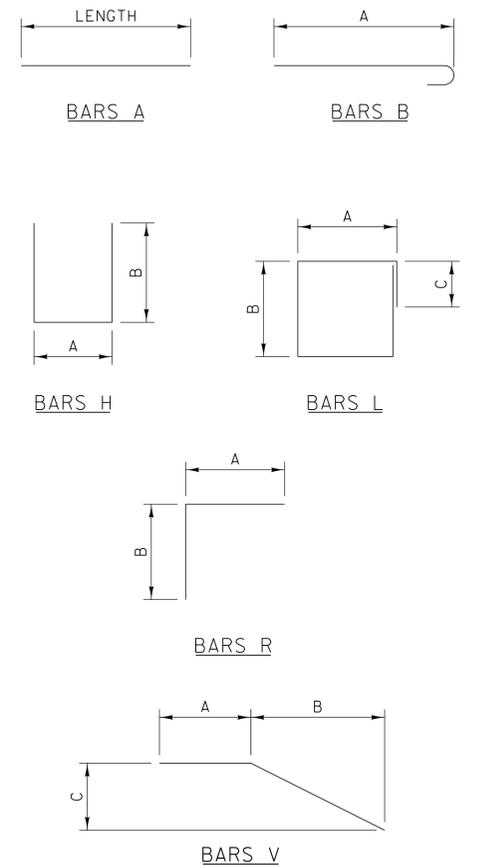
BILL OF STEEL							
ABUTMENT WIDENING REINFORCEMENT							
BARS	SIZE	NO. REQ'D	BENDING DIMENSIONS				LENGTH
			A	B	C	D	
A421E	4	8					2'-0"
A521E	5	20					8'-3"
SERIES A620E	6	4	LENGTH VARIES FROM 5'-17/16" TO 1'-11 3/4" IN INC. OF 1'-3/16" (5 REQ'D)				14'-2 3/8"
A621E	6	4					5'-10"
A720	7	18					3'-8"
B521E	5	18	8'-3"				8'-10"
H520E	5	12	2'-1/2"	1'-8"			4'-8 1/2"
H522E	5	12	2'-2"	2'-2"			6'-6"
H620E	6	2	8"	1'-5 3/4"			3'-7 1/2"
SERIES H621E	6	2	8"	DIM. B VARIES FROM 3'-5 1/2" TO 1'-5 3/4" IN INC. OF 2 3/8" (11 REQ'D)			27'-1 1/8"
L520E	5	26	2'-2"	2'-2"	1'-0"		9'-8"
R420	4	16	1'-6"	1'-0"			2'-6"
V620E	6	4	9 3/8"	5'-5 5/8"	2'-7 1/8"		6'-2 7/8"

NOTES:
 ALL BAR DIMENSIONS ARE OUT-TO-OUT.
 ALL DIMENSIONS SHALL BE FIELD VERIFIED BY CONTRACTOR PRIOR TO FABRICATION.
 BARS ENDING IN "E" SHALL BE EPOXY COATED.
 NO. REQ'D IS FOR ONE (1) ABUTMENT, TWO (2) REQUIRED.



NOTES:
 ALL EXISTING LONGITUDINAL REINFORCING STEEL TO REMAIN IN THE ABUTMENT IS TO BE CLEANED AND INCORPORATED IN WITH THE NEW REINFORCING STEEL.
 ALL COSTS ASSOCIATED WITH THE REMOVAL OF THE EXISTING ABUTMENT ENDS AND WINGWALLS AND CLEANING OF REMAINING LONGITUDINAL REINFORCING TO BE INCLUDED IN ITEM NO. 604-10.07, CONCRETE REMOVAL, L.S.
 COST OF FORMING AND POURING HIGH EARLY STRENGTH CONCRETE FOR ABUTMENT, NEW WINGWALLS, AND FOR NEW RISER BLOCKS TO BE INCLUDED IN ITEM NO. 604-10.42, CONCRETE REPAIRS, C.F.
 COST OF REINFORCING STEEL TO BE INCLUDED IN ITEM NO. 604-10.18, REINFORCING STEEL (REPAIRS), LB.
 NO LOADING, LIVE OR DEAD, WILL BE PERMITTED ON THE NEW BENT CAP WIDENING UNTIL TEST SPECIMENS ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI.
 ALL DIMENSIONS ARE TO BE FIELD VERIFIED BY THE CONTRACTOR.

COSTS OF LABOR AND MATERIALS ASSOCIATED WITH THE ABUTMENT RISER PLATE ASSEMBLY INCLUDING THE ANCHOR PLATE, ELASTOMERIC BEARING PAD, RUBBER BONDING CEMENT, AND DOWEL BARS TO BE INCLUDED IN ITEM NO. 615-02.02, PRESTRESSED CONCRETE BOX BEAM (17"X36"), L.F.



STATE OF TENNESSEE
 DEPARTMENT OF TRANSPORTATION

BRIDGE REPAIR DETAILS
 SR140 OVER MILL CREEK
 BRIDGE NO. 40-SR140-23.03

HENRY COUNTY
 2015

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NOTE:
 CONSTRUCTOR WILL PROVIDE 1/8" SHIM PLATES TO ENSURE THE EXTERIOR BEAMS MEET REQUIRED ELEVATIONS.

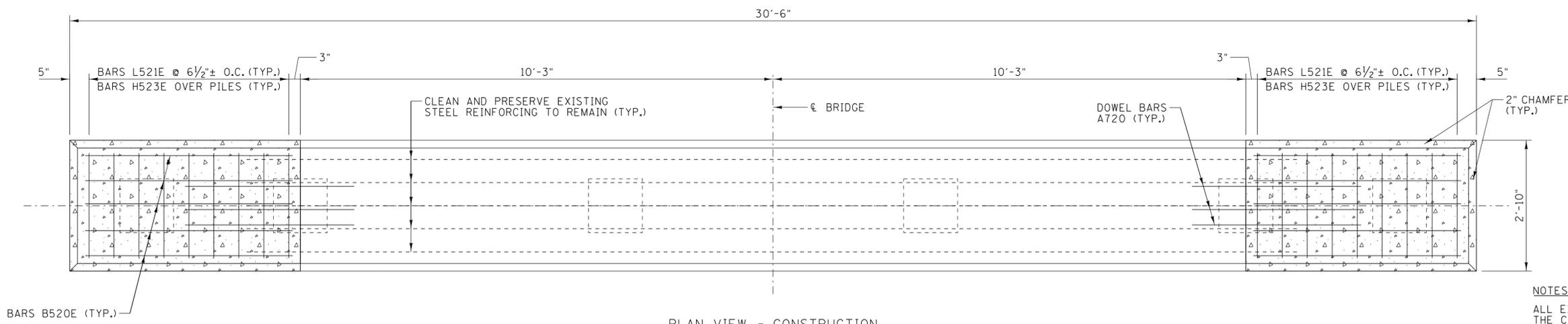
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DESIGNED BY L. I. COBOS DATE APR. 2014
 DRAWN BY C. W. THOMAS DATE APR. 2014
 SUPERVISED BY J. H. RUDDLELL DATE APR. 2014
 CHECKED BY A. J. KHAIRI DATE APR. 2014

TN D.O.T. ENGINEERING SUPERVISOR M. LAWSON

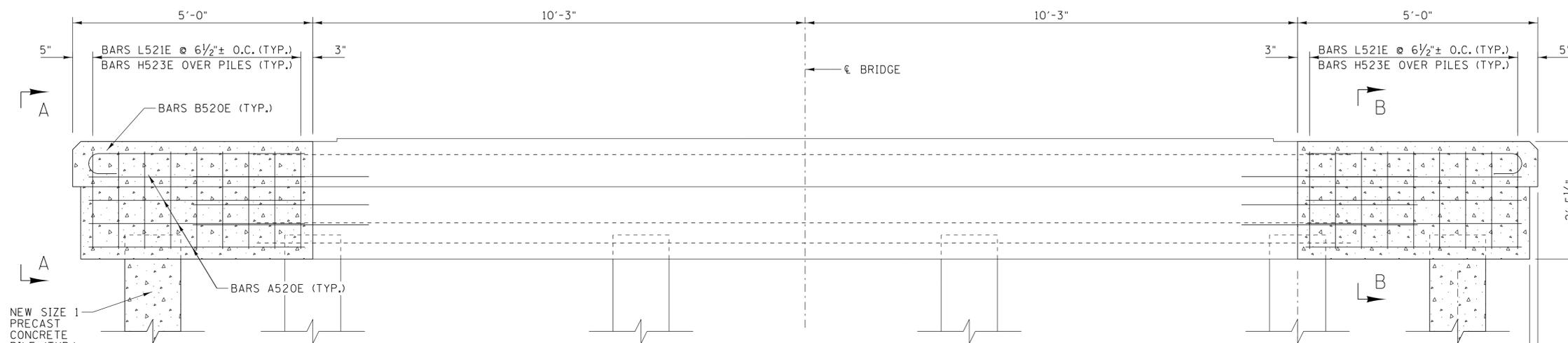
BR-116-166

PROJECT NO.	YEAR	SHEET NO.	
40030-4208-04	2015		
REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION



PLAN VIEW - CONSTRUCTION

(INT. BENT NO. 3 ONLY)
SCALE: 3/4" = 1'-0"



ELEVATION VIEW - CONSTRUCTION

(INT. BENT NO. 3 ONLY)
SCALE: 3/4" = 1'-0"

NOTES:

ALL EXISTING LONGITUDINAL REINFORCING STEEL TO REMAIN IN THE CAP IS TO BE CLEANED AND INCORPORATED IN WITH THE NEW REINFORCING STEEL.

ALL COSTS ASSOCIATED WITH THE REMOVAL OF THE EXISTING BENT CAP ENDS AND CLEANING OF REMAINING LONGITUDINAL REINFORCING TO BE INCLUDED IN ITEM NO. 604-10.07, CONCRETE REMOVAL, L.S.

COST OF FORMING AND POURING HIGH EARLY STRENGTH CONCRETE FOR WIDENING OF BENT CAP AND FOR NEW RISER BLOCKS TO BE INCLUDED IN ITEM NO. 604-10.42, CONCRETE REPAIRS, C.F.

COST OF REINFORCING STEEL TO BE INCLUDED IN ITEM NO. 604-10.18, REINFORCING STEEL (REPAIRS), LB.

NO LOADING, LIVE OR DEAD, WILL BE PERMITTED ON THE NEW BENT CAP WIDENING UNTIL TEST SPECIMENS ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI.

ALL DIMENSIONS ARE TO BE FIELD VERIFIED BY THE CONTRACTOR.

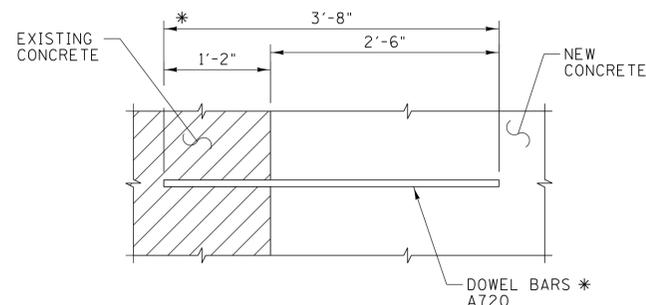
ALL COSTS ASSOCIATED WITH FORMING, FABRICATING, AND DRIVING SIZE 1 PRECAST CONCRETE PILES AT BENT CAP EXTENSIONS SHALL BE INCLUDED UNDER ITEM NO. 606-09.03, PRECAST CONCRETE PILES (SIZE 1), L.F. THIS ITEM WILL ALSO INCLUDE ALL COSTS ASSOCIATED WITH TRANSPORTING THE PRECAST CONCRETE PILES. FOR ADDITIONAL NOTES AND DETAILS, SEE STANDARD DWG. STD-5-1.

ALL PILES TO BE DRIVEN TO REFUSAL OR TO AN ULTIMATE BEARING CAPACITY OF 50 TONS, EACH PILE SHALL HAVE A LENGTH OF 40'.

BILL OF STEEL							
BENT NO. 3 CAP REINFORCEMENT							
BARS	SIZE	NO. REQ'D	BENDING DIMENSIONS				LENGTH
			A	B	C	D	
A520E	5	16					4'-6"
A720	7	18					3'-8"
B520E	7	10	4'-6"				5'-1"
H520E	5	6	2'-1/2"	1'-8"			4'-8 1/2"
H521E	5	6	1'-11 1/2"	1'-8"			4'-7 1/2"
H523E	5	6	2'-2"	2'-1/4"			6'-2 1/2"
L521E	5	12	2'-2"	2'-1/4"	1'-0"		9'-4 1/2"

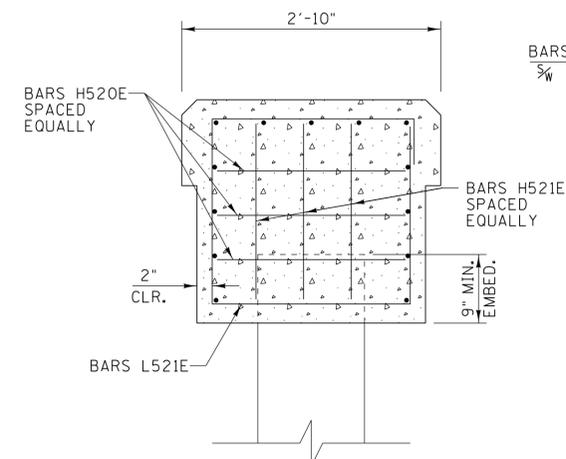
NOTES:
ALL BAR DIMENSIONS ARE OUT-TO-OUT.
ALL DIMENSIONS SHALL BE FIELD VERIFIED BY CONTRACTOR PRIOR TO FABRICATION.
BARS ENDING IN "E" SHALL BE EPOXY COATED.
NO. REQ'D IS FOR BENT NO. 3 ONLY.

* HOLES SHALL BE DRILLED 1/2" IN DIAMETER LARGER THAN THE DOWEL BAR, CLEANED, PACKED WITH NON-SHRINK GROUT AND DRIVEN TO ITS SEAT. ALL COSTS OF GROUT AND DRILLING TO BE INCLUDED UNDER ITEM NO. 604-10.42, CONCRETE REPAIRS, C.F.



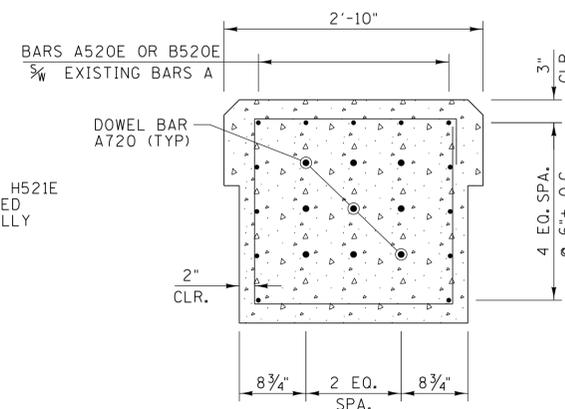
DOWEL BAR DETAILS

SCALE: 1" = 1'-0"



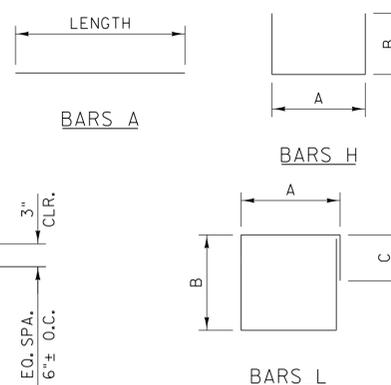
SECTION A-A

SCALE: 1" = 1'-0"



SECTION B-B

(EXISTING REINFORCEMENT NOT SHOWN FOR CLARITY)
SCALE: 1" = 1'-0"



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STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

BRIDGE REPAIR DETAILS

SR140 OVER MILL CREEK
BRIDGE NO. 40-SR140-23.03

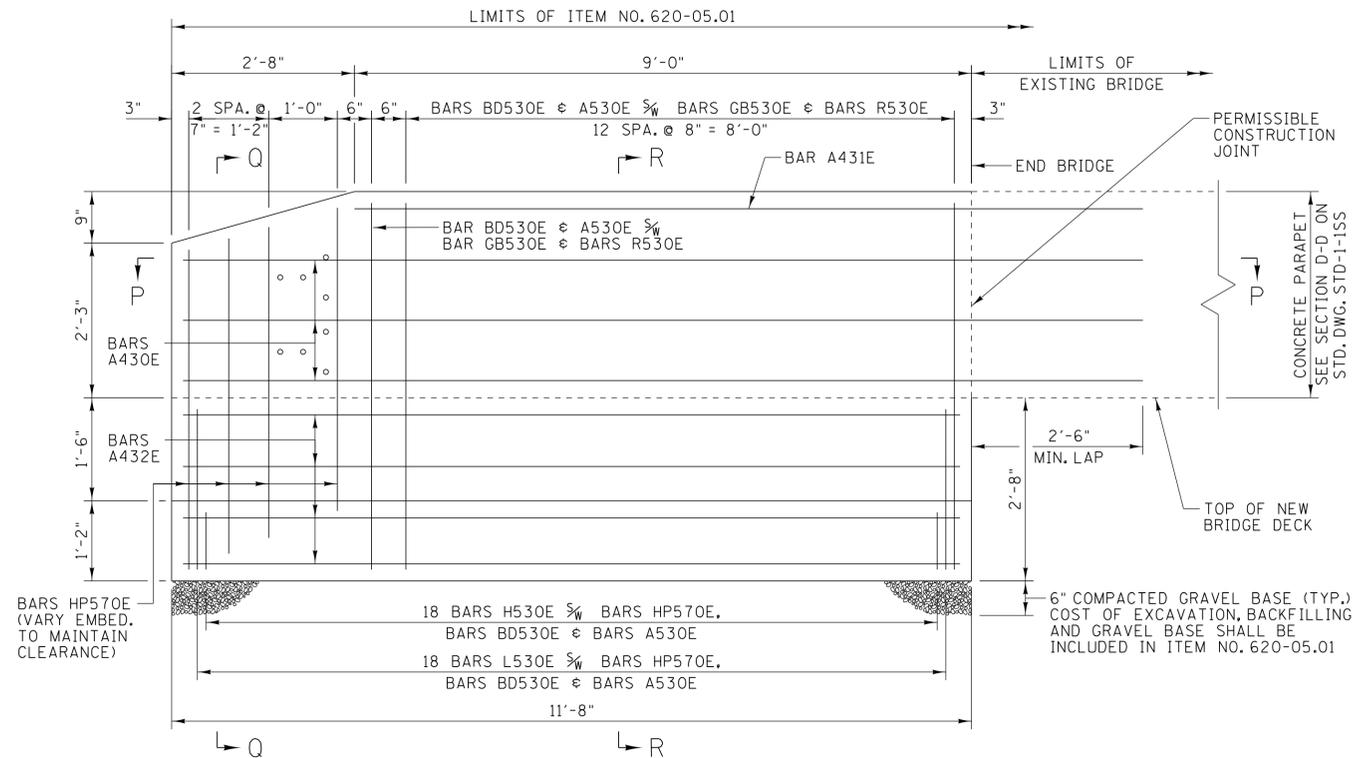
HENRY COUNTY
2015

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 DESIGNED BY L. I. COBOS DATE APR. 2014
 DRAWN BY C. W. THOMAS DATE APR. 2014
 SUPERVISED BY J. H. RUDELL DATE APR. 2014
 CHECKED BY A. J. KHAIRI DATE APR. 2014

TN D.O.T. ENGINEERING SUPERVISOR M. LAWSON

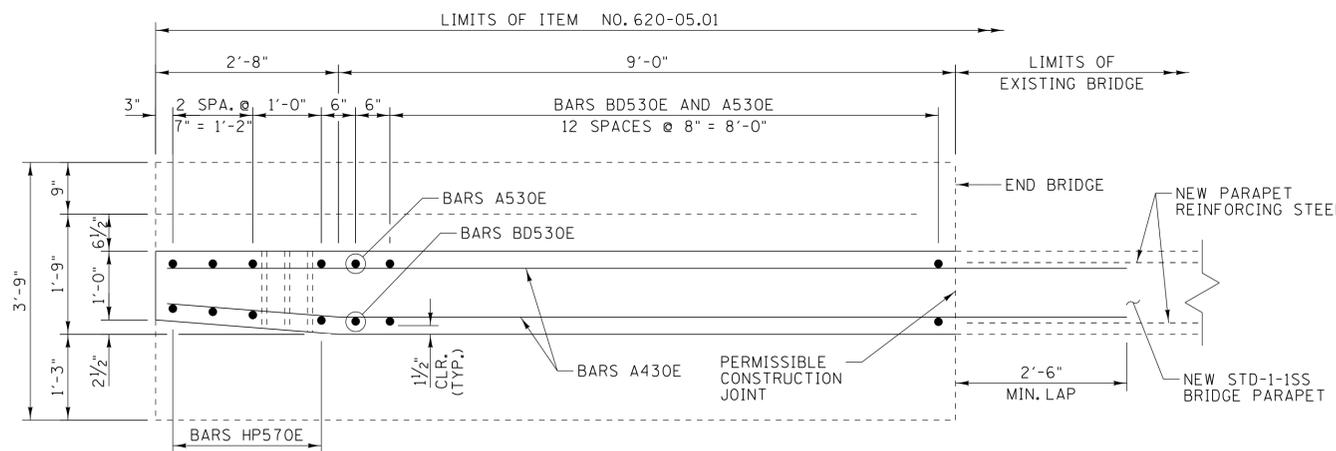
PROJECT NO.	YEAR	SHEET NO.	
40030-4208-04	2015		
REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION



NOTE:
FOR ADDITIONAL NOTES
AND DETAILS, SEE STD.
DWG. STD-1-ISS.

ELEVATION SHOWING REINFORCING STEEL
SCALE: 3/4" = 1'-0"

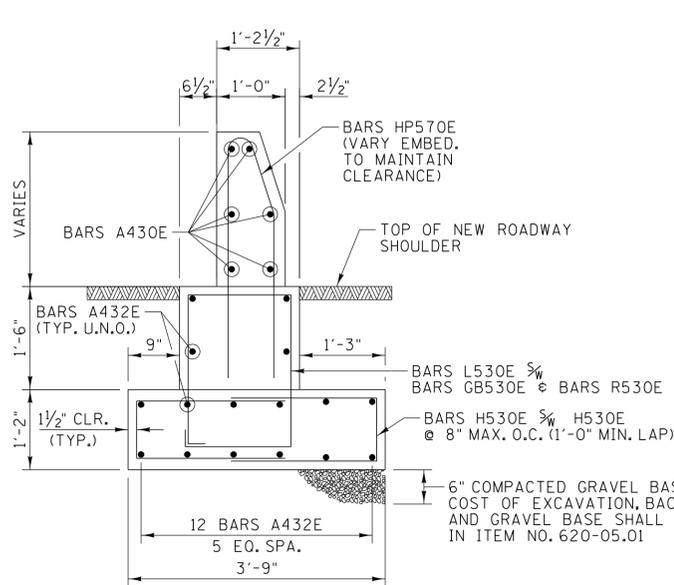
NOTE:
FOR NOTES AND DETAILS
REGARDING GUARDRAIL
CONNECTION, SEE STD.
DWG. STD-1-ISS.



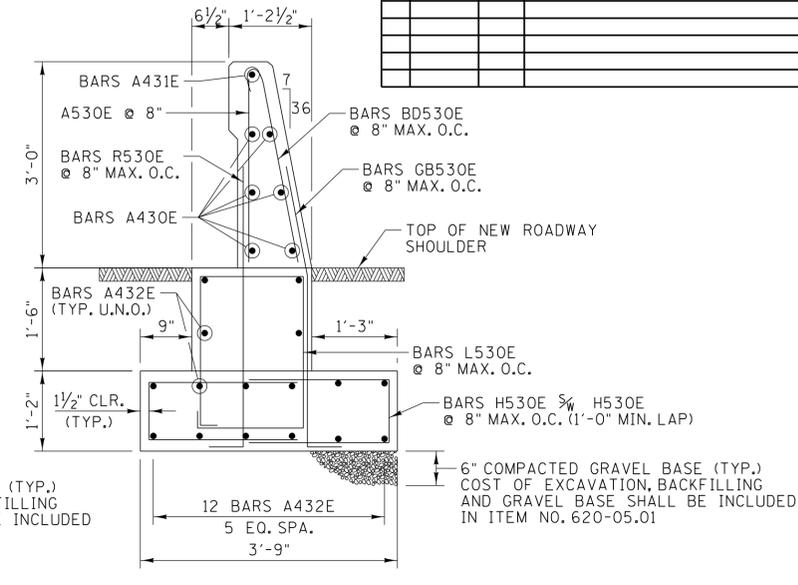
SECTION P-P
SCALE: 3/4" = 1'-0"

NOTE:
ALL COSTS OF CLASS "A" CONCRETE, EPOXY COATED REINFORCING STEEL,
EXCAVATION, BACKFILLING, GRAVEL BASE, GUARDRAIL CONNECTION HARDWARE,
LABOR AND INCIDENTALS NECESSARY TO CONSTRUCT NEW CONCRETE END
POSTS TO BE INCLUDED IN ITEM NO. 620-05.01, SINGLE SLOPE CONCRETE
PARAPET (STD-1-ISS), L.F.

NOTE:
CONTRACTOR SHALL BACKFILL
WITH MATERIAL ACCEPTABLE
TO THE ENGINEER.



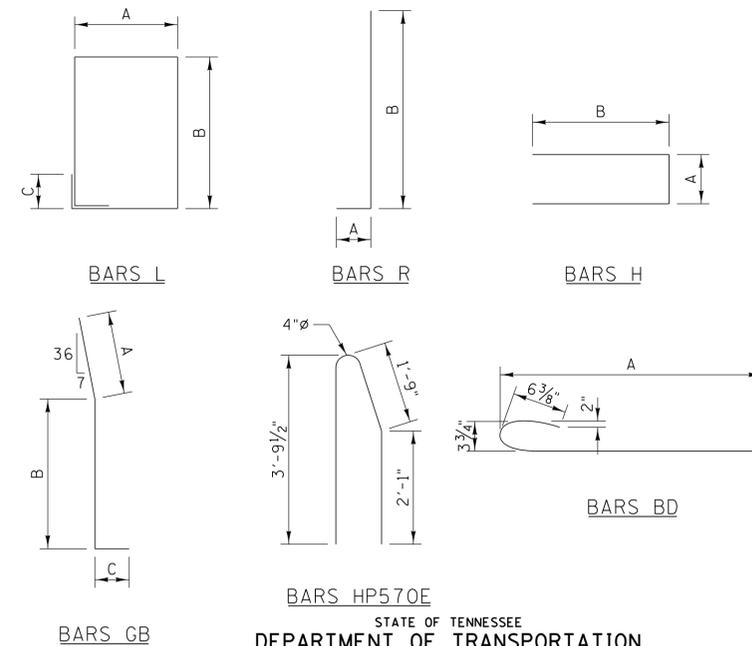
SECTION Q-Q
SCALE: 3/4" = 1'-0"



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

BILL OF STEEL							
CONCRETE END POST							
BARS	SIZE	NO. REQ'D	BENDING DIMENSIONS				LENGTH
			A	B	C	D	
A430E	4	6					14'-0"
A431E	4	1					11'-6"
A432E	4	16					11'-4"
A530E	5	14					2'-8"
BD530E	5	14	2'-10"				3'-9"
GB530E	5	14	1'-6"	2'-6 1/2"	1'-0"		5'-0 1/2"
H530E	5	36	11"	2'-6"			5'-11"
HP570E	5	4					7'-10 1/2"
L530E	5	18	1'-6"	2'-5"	6"		8'-10"
R530E	5	14	1'-0"	4'-1"			5'-1"

NOTES:
ALL BAR DIMENSIONS ARE OUT-TO-OUT.
ALL DIMENSIONS SHALL BE FIELD VERIFIED BY CONTRACTOR
PRIOR TO FABRICATION.
BARS ENDING IN "E" TO BE EPOXY COATED.
NUMBER OF BARS IS FOR 1 (ONE) END POST, FOUR (4) REQUIRED.



CONCRETE END POST DETAILS
(4 REQ'D)

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BRIDGE REPAIR DETAILS
SR140 OVER MILL CREEK
BRIDGE NO. 40-SR140-23.03

HENRY COUNTY
2015

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DESIGNED BY J. L. HALBROOK DATE APR. 2014
 DRAWN BY C. W. THOMAS DATE APR. 2014
 SUPERVISED BY J. H. RUDDLELL DATE APR. 2014
 CHECKED BY A. J. KHAIRI DATE APR. 2014

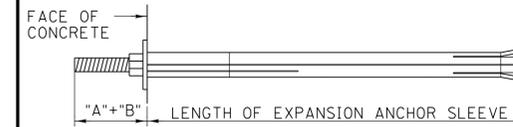
TN D.O.T. ENGINEERING SUPERVISOR M. LAWSON



PROJECT NO.	YEAR	SHEET NO.	
40030-4208-04	2015		
REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION



INITIAL POSITION



SET POSITION

PROCEDURE FOR INSTALLATION OF ANCHOR BOLTS
(3/4" DIAMETER DRILLCO MAXI-BOLT OR WILLIAMS BOLTS) (UNDERCUTTING REQUIRED)

1. LOCATE PLACEMENT OF EXISTING REBAR IN VICINITY OF ANCHORS WITH A REBAR LOCATING DEVICE AND MAKE NECESSARY CORRECTIONS IN LOCATIONS OF ANCHORS ON CONCRETE. ANCHOR LOCATION MAY VARY PLUS OR MINUS THREE (3) INCHES IN ANY DIRECTION BUT THE HOLE SHALL BE DRILLED WITHIN SIX (6) DEGREES OF PERPENDICULAR TO THE NOMINAL CONCRETE SURFACE. CUTTING OF REBAR WILL BE ALLOWED.
2. HOLES SHALL BE DRILLED WITH A CARBIDE PERCUSSION DRILL BIT, A "REBAR EATER" BIT OR A DIAMOND CORE BIT.
3. THE DRILL BIT DIAMETER AND HOLE DEPTHS SHALL CONFORM TO MANUFACTURER'S SPECIFICATIONS.
4. IF AN ANCHOR MUST BE RELOCATED AND A NEW HOLE DRILLED, THE OLD HOLE SHALL BE REPAIRED WITH A NON SHRINKAGE PACK GROUT.
5. UNDERCUT IN PRIMARY HOLE SHALL BE AS SPECIFIED BY THE MANUFACTURER OF THE UNDERCUTTING TOOL.
6. CLEAN THE HOLE OF CONCRETE DUST AND DEBRIS USING OIL FREE COMPRESSED AIR OR BY VACUUMING. PLACE BEARING SLEEVE FLUSH WITH THE CONCRETE SURFACE.
7. THE EXPANSION SLEEVE IS TO EXPAND INTO THE UNDERCUT CREATED BY THE UNDERCUTTING TOOL, THEREFORE THE ANCHOR TUBE MUST TERMINATE AT THE BASE OF THE UNDERCUT SECTION.
8. TO SET THE ANCHOR, IT IS NECESSARY TO DRAW THE CONICAL NUT OF THE STUD BOLT INTO THE ANCHOR SLEEVE. AFTER THE ASSEMBLY IS INSERTED INTO THE DRILLED HOLE, THE ANCHOR WILL BE CONSIDERED SET WHEN THE DIMENSION "A" (SEE ANCHOR SETTING DETAILS) HAS INCREASED BY AN AMOUNT EQUAL TO DIMENSION "B". AFTER THE STEEL PLATES ARE IN PLACE, TIGHTEN AS MUCH AS POSSIBLE AND THEN TIGHTEN A SECOND NUT AGAINST THE FIRST TO ENSURE NO LOOSENING TAKES PLACE.
9. BECAUSE OF CLOSE TOLERANCE BETWEEN CONICAL NUT O.D. AND HOLE I.D., IT MAY BE NECESSARY TO LIGHTLY HAMMER THE ANCHOR INTO THE HOLE. IF HAMMERING IS NECESSARY, STEPS SHALL BE EMPLOYED WHICH WILL PREVENT DAMAGE TO THE STUD BOLT THREADS.
10. INSTALLATION PROCEDURES REQUIRED BY THE ANCHOR MANUFACTURER IN ADDITION TO THE INSTRUCTIONS LISTED ABOVE SHALL BE FOLLOWED.
11. BENT PLATES SHALL BE ASTM A709 (GRADE 36) MATERIAL GALVANIZED TO ASTM A123 STANDARD.
12. POSITION OF PLATE OR ANGLE OF BEAM:

ABUTMENTS AND PIERS: THE PLATE OR ANGLE SHALL BE POSITIONED ON THE BEAM WITH CABLE IN THE FULL EXTENDED POSITION AND THE ANCHOR BOLT LOCATIONS MARKED THROUGH THE PLATE OR ANGLE ANCHOR HOLES.

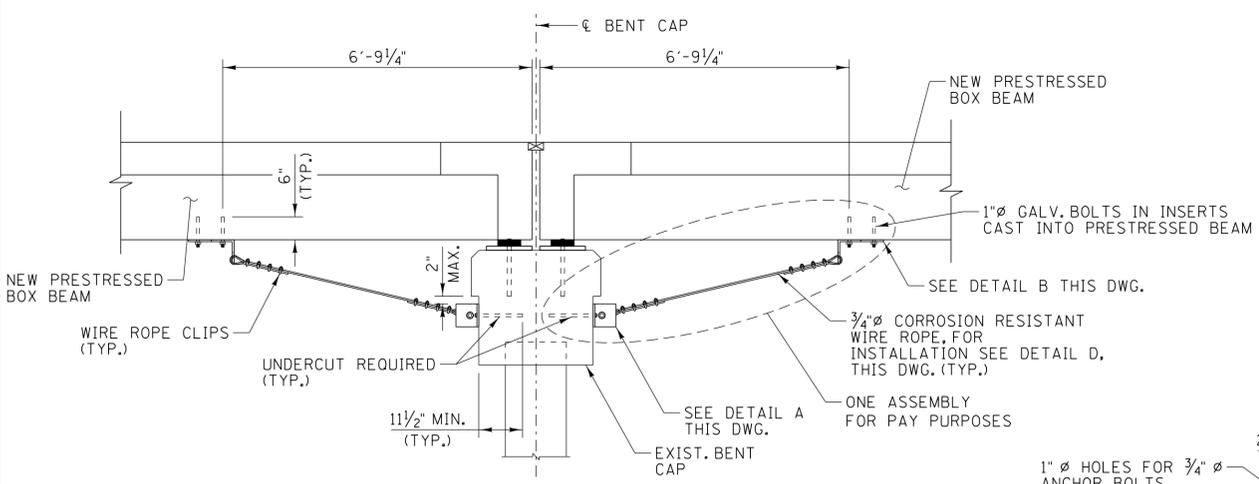
STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

BRIDGE REPAIR DETAILS

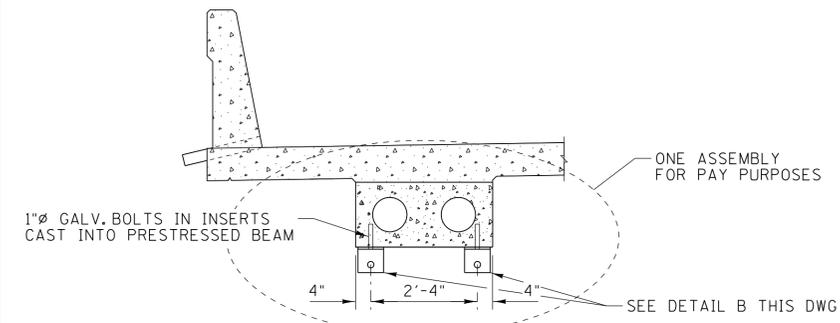
SR140 OVER MILL CREEK
BRIDGE NO. 40-SR140-23.03

HENRY COUNTY
2015

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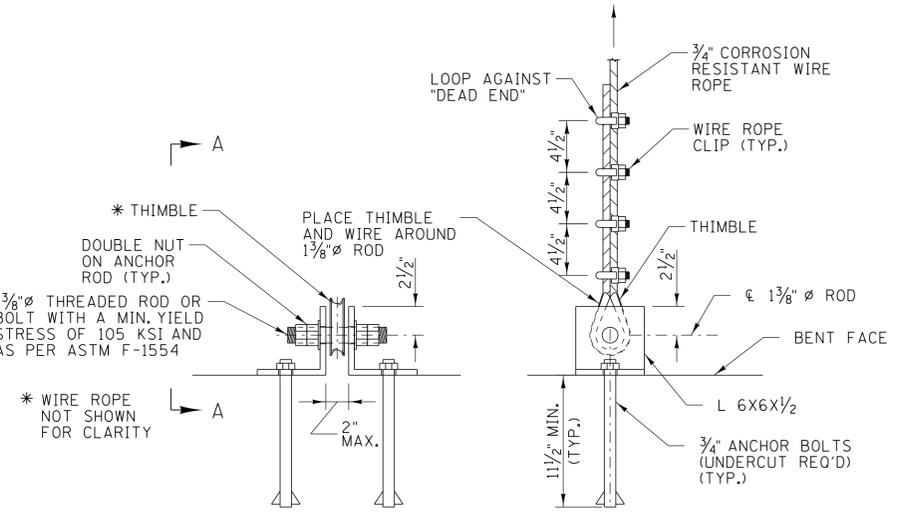
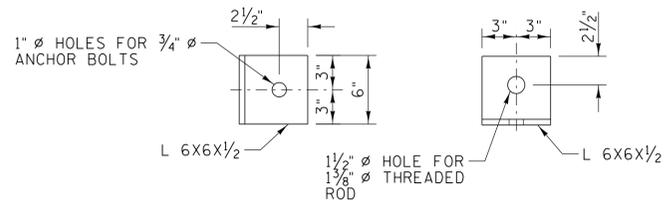


SEISMIC RESTRAINT AT NEW PRESTRESSED BOX BEAM
(SHOWN AT BENT NO. 3)
SCALE: 1/2" = 1'-0"



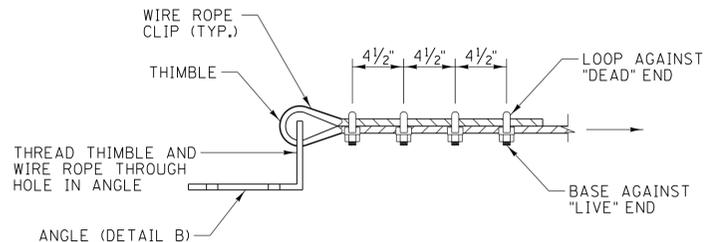
TYPICAL BOX BEAM
(SHOWING LOCATIONS OF DETAIL B)
SCALE: 1/2" = 1'-0"

NOTES:
ALL COSTS ASSOCIATED WITH INSTALLING 3/4" DIA. CORROSION RESISTANT STEEL ROPES AT DESIGNATED LOCATIONS AT BENT NO. 3 OF BRIDGE NO. 40-SR140-23.03, AS SHOWN ON DETAILS THIS DWG. SHALL BE PAID FOR UNDER ITEM NO. 604-03.60, BRIDGE JOINT SEISMIC MODIFICATION (LONGITUDINAL), EACH (8 REQ'D.), FOR LOCATIONS SEE DWG. NO. BR-116-151.
ALL STRUCTURAL STEEL PLATES AND SHAPES SHALL MEET ASTM A36, ALL STRUCTURAL STEEL SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A123.

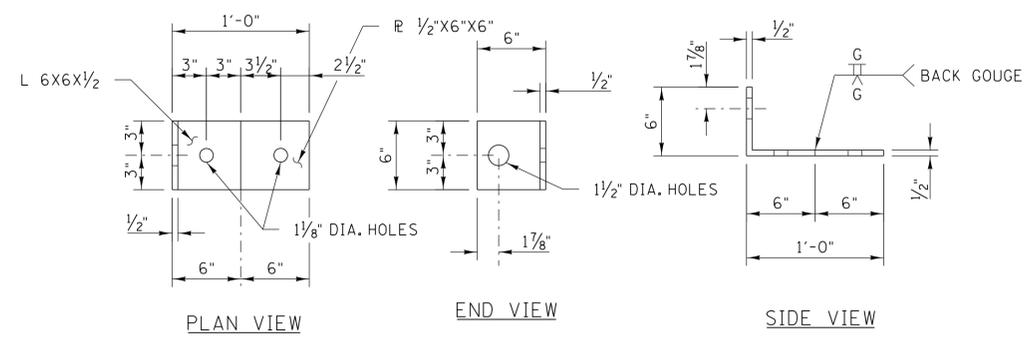


SECTION A-A

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



DETAIL D
TYPICAL 3/4" WIRE ROPE INSTALLATION
SCALE: 1/2" = 1'-0"



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

NOTE:
ONE ASSEMBLY CONSISTS OF TWO (2) WIRE ROPES, TWO (2) ANGLES (DETAIL A), TWO (2) ANGLES AND TWO (2) PLATES (DETAIL B), AND ASSOCIATED HARDWARE.

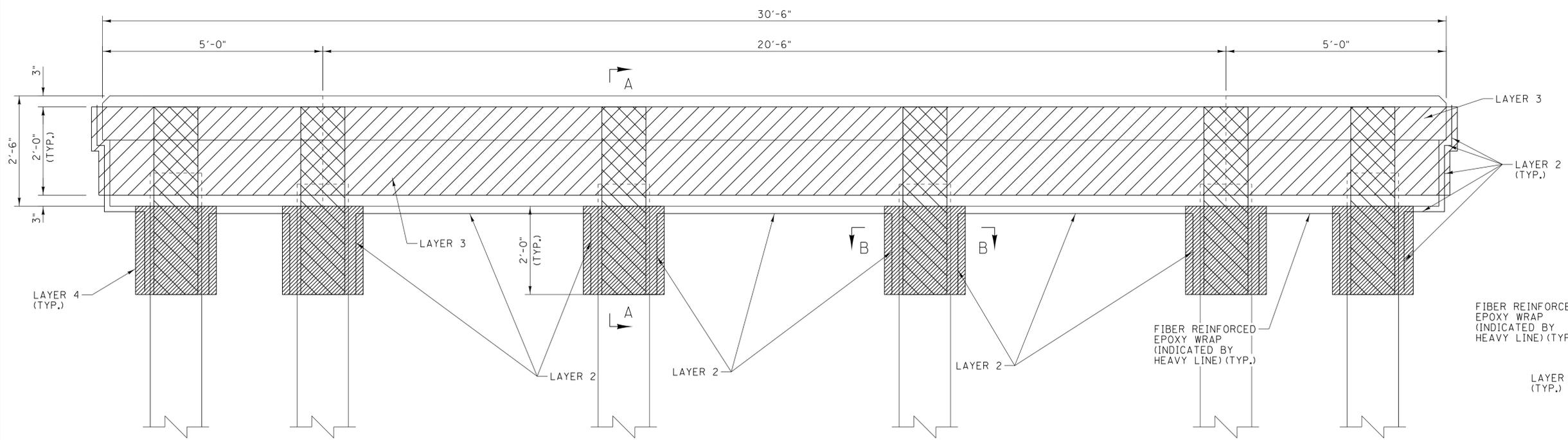
BRIDGE JOINT SEISMIC DETAILS AT BENT NO. 3
(8 REQ'D.)

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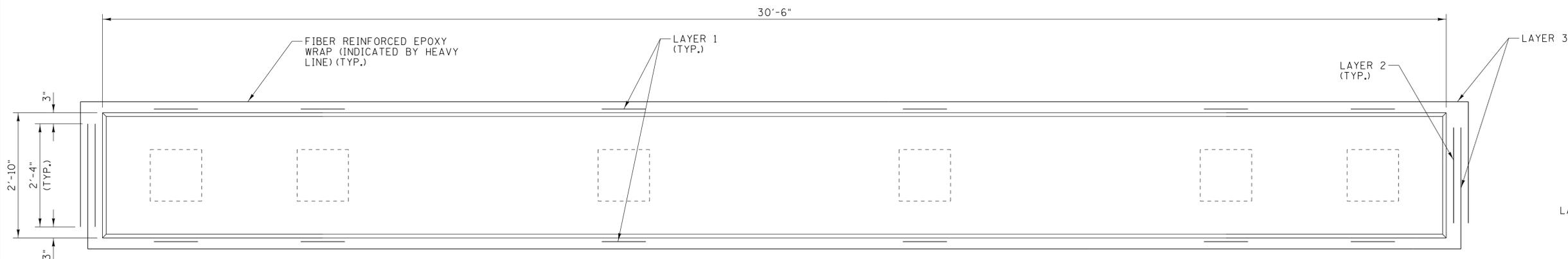
DESIGNED BY	L. I. COBOS	DATE	APR. 2014
DRAWN BY	C. W. THOMAS	DATE	APR. 2014
SUPERVISED BY	J. H. RUDELL	DATE	APR. 2014
CHECKED BY	A. J. KHAIRI	DATE	APR. 2014

TN D.O.T. ENGINEERING SUPERVISOR M. LAWSON

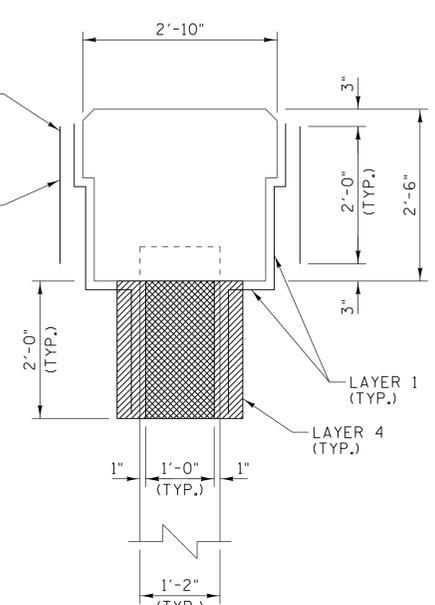
PROJECT NO.	YEAR	SHEET NO.	
40030-4208-04	2015		
REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION



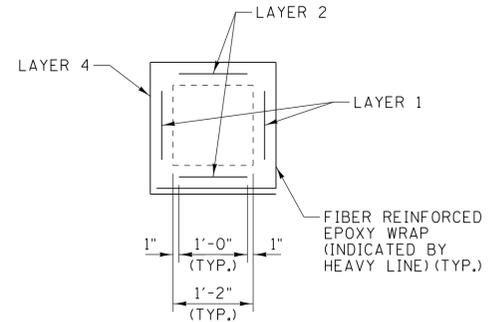
ELEVATION
LOOKING FORWARD AT BENT (TYP.)
SCALE: 3/4" = 1'-0"



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



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



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

REQ'D. FIBER REINF. EPOXY WRAP PROPERTIES		
FABRIC PROPERTIES	REQUIREMENT	ASTM TEST METHOD
ULTIMATE TENSILE STRENGTH IN PRIMARY FIBER DIRECTION (MIN.)	580,000 PSI	D3039
TENSILE MODULUS BASED ON CROSS SECTIONAL AREA OF PRIMARY FIBERS (MIN.)	33.4 X 10 ⁶ PSI	D3039
EPOXY PROPERTIES	REQUIREMENT	ASTM TEST METHOD
TENSILE STRENGTH	10,500 PSI	D-638
TENSILE MODULUS	452,000 PSI	D-638

COST OF ALL LABOR, MATERIALS, AND EQUIPMENTS TO PROVIDE FIBER WRAP SHALL BE INCLUDED UNDER ITEM NO. 604-10.83, COMPOSITE FIBER ENCASEMENT, S.F.

PILES AND BENT CAPS TO BE CLEANED PRIOR TO APPLICATIONS OF FIBER REINFORCED EPOXY WRAP. ANY INCIDENTAL EXCAVATION TO BE INCLUDED IN ITEMS BID ON.

- LEGEND
- LAYER 1 - VERTICAL FIBER REINFORCED EPOXY WRAP ON BENT CAP AND PILES
 - LAYER 2 - TRANSVERSE FIBER REINFORCED EPOXY WRAP ON BENT CAP AND PILES
 - LAYER 3 - HORIZONTAL FIBER REINFORCED EPOXY WRAP ON BENT CAP
 - LAYER 4 - FIBER REINFORCED EPOXY WRAP AROUND PILES

UNOFFICIAL SET
NOT FOR BIDDING

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

BRIDGE REPAIR DETAILS
SR140 OVER MILL CREEK
BRIDGE NO. 40-SR140-23.03

HENRY COUNTY
2015

LIC0005 2/25/2015 8:32:28 AM
 WORKSPACE: TD01_Bridge
 \\garver\ltp\p\c\13200\0017622 - TD01 - Bridge Repair - over Mill Creek\Drawings\BRO\Final\25- BR-116-172.dgn

DESIGNED BY J. L. HALBROOK DATE APR. 2014
 DRAWN BY J. L. HALBROOK DATE APR. 2014
 SUPERVISED BY J. H. RUDELL DATE APR. 2014
 CHECKED BY A. J. KHAIRI DATE APR. 2014

TN D.O.T. ENGINEERING SUPERVISOR M. LAWSON

