WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
Division of Highways
1900 Kanawha Boulevard East • Building Five • Room 110
Charleston, West Virginia 25305-0430 • 304/558-3505

Joe Manchin III
Governor

September 19, 2008

MEMORANDUM

TO: ALL HOLDERS OF STANDARD DETAILS BOOK, VOLUME 3

FROM: GREGORY L. BAILEY, DIRECTOR Gregory Bailey
ENGINEERING DIVISION

SUBJECT: ADDENDUM 3 TO THE 1999 STANDARD DETAILS BOOK, VOLUME 3

Attached for your use is Addendum 3 to the 1999 Standard Details Book, Volume 3. This addendum is necessary to revise the West Virginia Department of Transportation, Division of Highways Standard Details Volume 3, dated August 1, 1999.

Also included in this package are copies of the Standard Details that have been approved for use. The revision is as follows:

- Add the attached Standard Details, dated September 22, 2008

Please note that the Standard Details added by this addendum consists of the entire series of 4 ft spread boxes (17' thru 42" deep) and bridge deck scuppers. All Standard Detail pages are assigned a prefix BR-* or BRD-*.

Any questions concerning this addendum should be directed to Mr. Joe Hall at (304)558-9733 or Nimal Suhir at (304) 558-9712.

GLB:ns

PROJECT NUMBERS		DISTRICT	COUNTY	SHEET NO.	TOTAL
STATE	FEDERAL				

BR–1	SUPERSTRUCTURE PLAN–NORMAL CROSSING
BR–1	SUPERSTRUCTURE PLAN–LEFT FORWAD SKEW
BR–1	SUPERSTRUCTURE PLAN–RIGHT FORWARD SKEW
BR–1A	SUPERSTRUCTURE PLAN ON PILING NORMAL CROSSING
BR–1A	SUPERSTRUCTURE PLAN ON LEFT FORWARD SKEW
BR–1A	SUPERSTRUCTURE PLAN ON PILING RIGHT FORWARD SKEW
BR–2A	GENERAL NOTES
BR–2B	GENERAL NOTES
BR–7S	CONCRETE ABUTMENT BRIDGE SEAT DETAILS–LT. FORWARD SKEW
BR–7S	CONCRETE ABUTMENT BRIDGE SEAT DETAILS–RT. FORWARD SKEW
BR–10	STEEL BEAM STRINGERS AND TIMBER DECK
BR–10A	DOWEL LAMINATED TIMBER DECK
BR–11	STEEL BEAM STRINGERS AND STEEL GRID DECK
BR–11M	MODIFIED STEEL GRID DETAILS–OPEN TYPE
BR–12	SHOE ASSEMBLY DETAILS–SPAN 60′–0″ OR LESS
BR–12L	SHOE ASSEMBLY DETAILS
BR–13	CONCRETE ABUTMENT LAYOUT
BR–P13	CONCRETE ABUTMENT ON PILING
BR–P14	CONCRETE ABUTMENT ON PILING–REINFORCING STEEL DETAILS
BR–P15	CONCRETE ABUTMENT ON PILING–LEFT WINGWALL DETAILS
BR–P16	CONCRETE ABUTMENT ON PILING–RIGHT WINGWALL DETAILS
BR–P17	CONCRETE ABUTMENT ON PILING–RANGE 1, 2, & 3
BR–P17	CONCRETE ABUTMENT ON PILING–RANGE 4 & 5
BR–14	REINFORCED CONCRETE ABUTMENT–REINFORCING STEEL DETAILS
BR–14S	BRIDGE SEAT DETAILS–LEFT FORWARD SKEW
BR–14S	BRIDGE SEAT DETAILS–RIGHT FORWARD SKEW
BR–15	LEFT WINGWALL DETAILS
BR–16	RIGHT WINGWALL DETAILS
BR–17	ABUTMENT FOOTING–RANGE 1, 2, & 3
BR–17	ABUTMENT FOOTING–RANGE 4 & 5
BR–17A	ABUTMENT FOOTING
BR–S12A	12″ PRESTRESSED PLANK BEAM DESIGN AND ASSEMBLY DETAILS
BR–S12B	DESIGN TABLE FOR 12″ PRESTRESSED PLANK BEAM
BR–B17A	17″ PRESTRESSED BOX BEAM DESIGN AND ASSEMBLY DETAILS
BR–B17B	DESIGN TABLE FOR 17″ PRESTRESSED BOX BEAM
BR–B21A	21″ PRESTRESSED BOX BEAM DESIGN AND ASSEMBLY DETAILS
BR–B21B	DESIGN TABLE FOR 21″ PRESTRESSED BOX BEAM
BR–B27A	27″ PRESTRESSED BOX BEAM DESIGN AND ASSEMBLY DETAILS
BR–B27B	DESIGN TABLE FOR 27″ PRESTRESSED BOX BEAM
BR–B33A	33″ PRESTRESSED BOX BEAM DESIGN AND ASSEMBLY DETAILS
BR–B33B	DESIGN TABLE FOR 33″ PRESTRESSED BOX BEAM
BR–B39A	39″ PRESTRESSED BOX BEAM DESIGN AND ASSEMBLY DETAILS
BR–B39B	DESIGN TABLE FOR 39″ PRESTRESSED BOX BEAM
BR–B42A	42″ PRESTRESSED BOX BEAM DESIGN AND ASSEMBLY DETAILS
BR–B42B	DESIGN TABLE FOR 42″ PRESTRESSED BOX BEAM
BR–B100	PRESTRESSED BOX BEAM DESIGN AND ASSEMBLY DETAILS
BR–B101	PRESTRESSED BOX BEAM DESIGN AND ASSEMBLY DETAILS
BR–B102A	PRESTRESSED BOX BEAM DESIGN AND ASSEMBLY DETAILS
BR–B102B	PRESTRESSED BOX BEAM DESIGN AND ASSEMBLY DETAILS
BR–B103	PRESTRESSED BOX BEAM TRANSVERSE POST–TENSIONING DESIGN AND ASSEMBLY DETAILS
BR–B104	PRESTRESSED BOX BEAM DESIGN AND ASSEMBLY DETAILS
BR–B105A	PRESTRESSED CONCRETE BEAM DESIGN AND ASSEMBLY NOTES
BR–B105B	PRESTRESSED CONCRETE BEAM DESIGN AND ASSEMBLY NOTES
BR–B106	PRESTRESSED CONCRETE BEAM SKEWED END REINFORCING MISC. DESIGN AND ASSEMBLY DETAILS
BR–T1	GLULAM TIMBER SUPERSTRUCTURE PLAN–NORMAL CROSSING
BR–T1	GLULAM TIMBER SUPERSTRUCTURE PLAN–RIGHT FORWARD SKEW
BR–T1	GLULAM TIMBER SUPERSTRUCTURE PLAN–LEFT FORWARD SKEW
BR–T2	GLULAM TIMBER SUPERSTRUCTURE PLAN–GENERAL NOTES
BR–T3	GLULAM TIMBER SUPERSTRUCTURE DECK FASTENING DETAILS
BR–T4	GLULAM TIMBER SUPERSTRUCTURE DIAPHRAGM DETAILS
BR–T5	GLULAM TIMBER SUPERSTRUCTURE–GUARDRAIL POST DETAILS
BR–T6	GLULAM TIMBER SUPERSTRUCTURE–GIRDER ANCHORAGE DETAILS
BR–PP2	REINFORCED CONCRETE PIER ON PILES LAYOUT
BR–PP3	REINFORCED CONCRETE PIER STEM DETAILS (SQUARE NOSE)
BR–PS1	REINFORCED CONCRETE PIER STEM DETAILS (ROUND NOSE)
BR–PS2	REINFORCED CONCRETE PIER FOOTING ON PILING
BR–PS3	REINFORCED CONCRETE PIER LAYOUT
BR–DD1	***DECK DRAIN DETAILS FOR AASHTO TYPE IV PRECAST PC BEAM SUPERSTRUCTURE***
BR–DD2	***DECK DRAIN DETAILS FOR AASHTO TYPE IV MODIFIED PRECAST PC BEAM SUPERSTRUCTURE***
BR–DD3	***DECK DRAIN DETAILS FOR PRECAST PC BOX BEAM SUPERSTRUCTURE***
BR–DD4	***DECK DRAIN DETAILS FOR STEEL SUPERSTRUCTURE***
BRD–B 17X36	17″X36″ P.C. SPREAD BOX BEAM
BRD–B 21X36	21″X36″ P.C. SPREAD BOX BEAM
BRD–B 27X36	27″X36″ P.C. SPREAD BOX BEAM
BRD–B 33X36	33″X36″ P.C. SPREAD BOX BEAM
BRD–B 39X36	39″X36″ P.C. SPREAD BOX BEAM
BRD–B 42X36	42″X36″ P.C. SPREAD BOX BEAM
BRD–B17X48	***17″X48″ P.C. SPREAD BOX BEAM***
BRD–B21X48	***21″X48″ P.C. SPREAD BOX BEAM***
BRD–B27X48	***27″X48″ P.C. SPREAD BOX BEAM***
BRD–B33X48	***33″X48″ P.C. SPREAD BOX BEAM***
BRD–B39X48	***39″X48″ P.C. SPREAD BOX BEAM***
BRD–B42X48	***42″X48″ P.C. SPREAD BOX BEAM***
BRD–II 36X12	AASHTO TYPE II 36″ PRECAST CONCRETE BEAM
BRD–III 45X16	AASHTO TYPE III 45″ PRECAST CONCRETE BEAM
BRD–IV 54X20	AASHTO TYPE IV 54″ PRECAST CONCRETE BEAM
BRD–IVJ 60X37	AASHTO TYPE IV–J PC BEAM 60″ DEEP, 37″ TOP FLANGE
BRD–IVJ 60X43	AASHTO TYPE IV–J PC BEAM 60″ DEEP, 43″ TOP FLANGE
BRD–IVJ 60X49	AASHTO TYPE IV–J PC BEAM 60″ DEEP, 49″ TOP FLANGE
BRD–IVJ 60X61	AASHTO TYPE IV–J PC BEAM 60″ DEEP, 61″ TOP FLANGE
BRD–IVJ 66X37	AASHTO TYPE IV–J PC BEAM 66″ DEEP, 37″ TOP FLANGE
BRD–IVJ 66X43	AASHTO TYPE IV–J PC BEAM 66″ DEEP, 49″ TOP FLANGE
BRD–IVJ 66X49	AASHTO TYPE IV–J PC BEAM 66″ DEEP, 49″ TOP FLANGE
BRD–IVJ 66X61	AASHTO TYPE IV–J PC BEAM 66″ DEEP, 61″ TOP FLANGE
BRD–IVJ 72X37	AASHTO TYPE IV–J PC BEAM 72″ DEEP, 37″ TOP FLANGE
BRD–IVJ 72X43	AASHTO TYPE IV–J PC BEAM 72″ DEEP, 43″ TOP FLANGE
BRD–IVJ 72X49	AASHTO TYPE IV–J PC BEAM 72″ DEEP, 49″ TOP FLANGE
BRD–IVJ 72X61	AASHTO TYPE IV–J PC BEAM 72″ DEEP, 61″ TOP FLANGE
BRD–IVJ 78X37	AASHTO TYPE IV–J PC BEAM 78″ DEEP, 37″ TOP FLANGE
BRD–IVJ 78X43	AASHTO TYPE IV–J PC BEAM 78″ DEEP, 43″ TOP FLANGE
BRD–IVJ 78X49	AASHTO TYPE IV–J PC BEAM 78″ DEEP, 49″ TOP FLANGE
BRD–IVJ 78X61	AASHTO TYPE IV–J PC BEAM 78″ DEEP, 61″ TOP FLANGE
BRD–IVJ 84X37	AASHTO TYPE IV–J PC BEAM 84″ DEEP, 37″ TOP FLANGE
BRD–IVJ 84X43	AASHTO TYPE IV–J PC BEAM 84″ DEEP, 43″ TOP FLANGE
BRD–IVJ 84X49	AASHTO TYPE IV–J PC BEAM 84″ DEEP, 49″ TOP FLANGE
BRD–IVJ 84X61	AASHTO TYPE IV–J PC BEAM 84″ DEEP, 61″ TOP FLANGE
BRD–IVM 60X36	AASHTO TYPE IV MODIFIED 60″ PRECAST CONCRETE BEAM
BRD–IVM 66X36	AASHTO TYPE IV MODIFIED 66″ PRECAST CONCRETE BEAM
BRD–IVM 72X36	AASHTO TYPE IV MODIFIED 72″ PRECAST CONCRETE BEAM
BRD–IVM 78X36	AASHTO TYPE IV MODIFIED 78″ PRECAST CONCRETE BEAM
BRD–IVM 84X36	AASHTO TYPE IV MODIFIED 84″ PRECAST CONCRETE BEAM

NO.	REVISION	DATE:	BY:

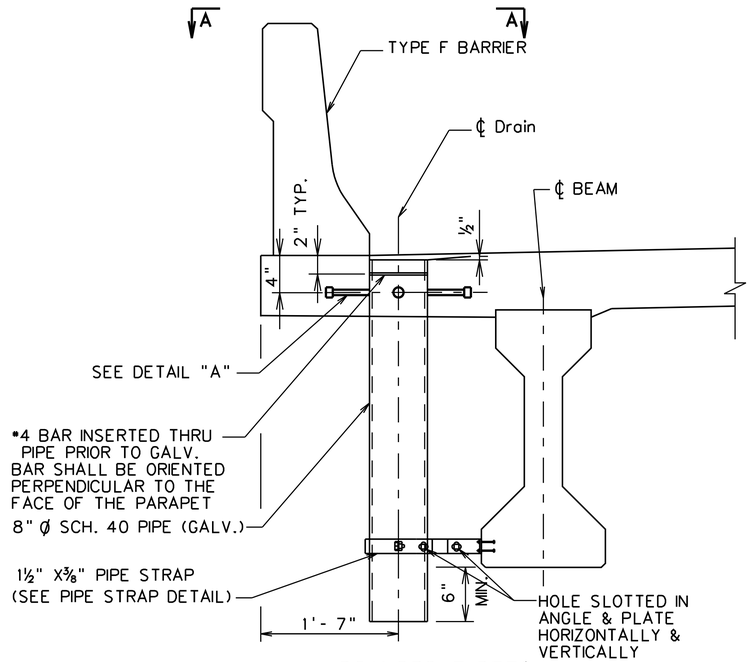
WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
ENGINEERING DIVISION

APPROVED Gregory Bailey DATE 09/22/08
DIRECTOR ENGINEERING DIVISION

DESIGNED	DATE 12/5/06	
DRAWN		
CHECKED		
REVIEWED		

SHEET OF
BRIDGE NO.

PROJECT NUMBERS		DISTRICT	COUNTY	SHEET NO.	TOTAL
STATE	FEDERAL				
				—	



DOWNSPOUT DETAIL
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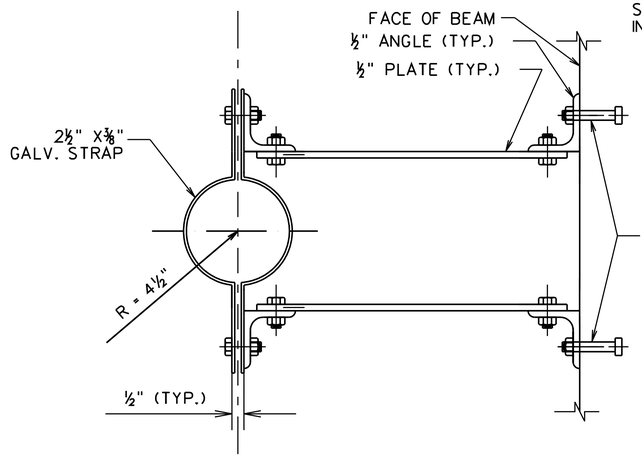

PIPE STRAP DETAIL
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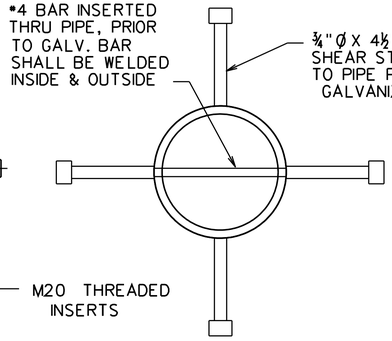

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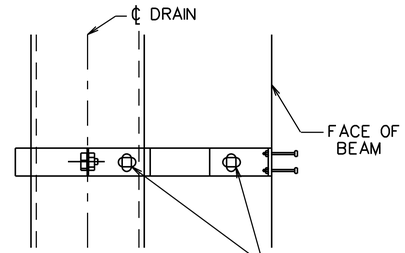
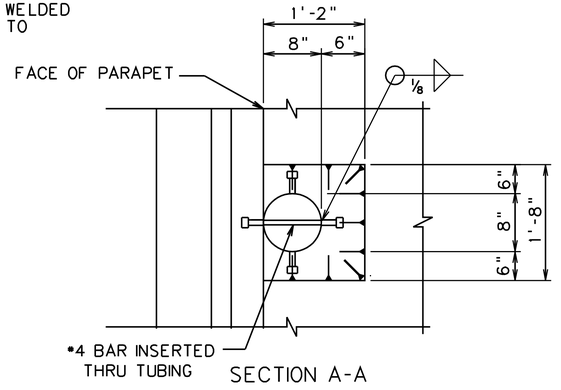


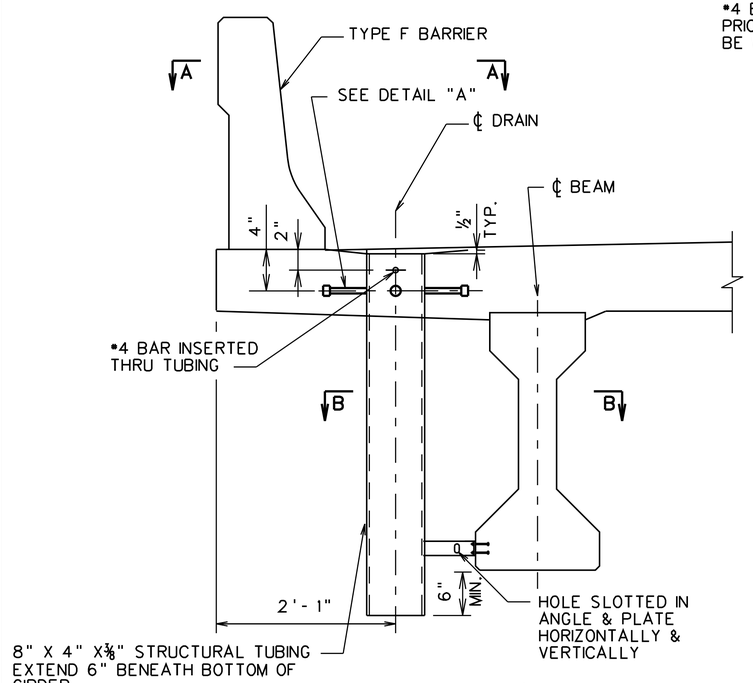
SECTION C-C



SECTION A-A

1. COSTS FOR THE DRAINAGE SYSTEM, INCLUDING GALVANIZING, PAINTING, FLOOR DRAINS, DOWNSPOUTS AND SUPPORTS ARE INCLUDED IN ITEM 603018-XXX, PRESTRESSED CONCRETE BEAMS.
2. ALL MATERIALS FOR DRAINAGE SHALL BE GALVANIZED AFTER FABRICATION AND THEN PAINTED.
3. NUMBER OF DRAINS REQUIRED:

CIRCULAR STEEL PIPE DRAIN



DOWNSPOUT DETAIL
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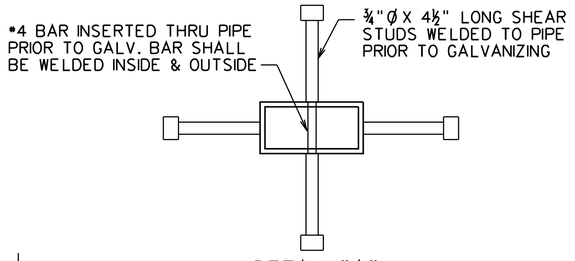
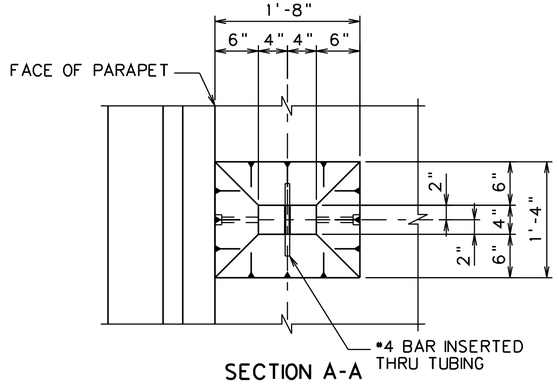
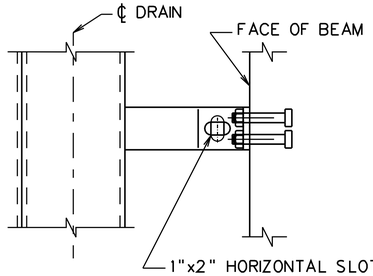


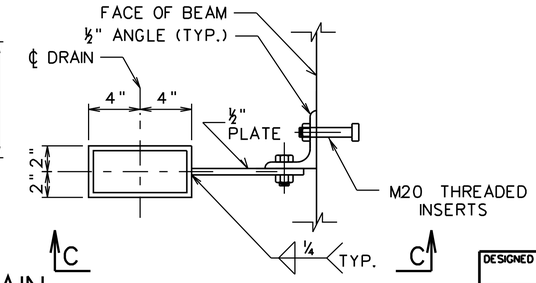
DETAIL "A"
N.T.S.



SECTION A-A



SECTION C-C



SECTION B-B

STRUCTURAL STEEL TUBING DRAIN

NOTE:

STRUCTURAL STEEL TUBING FOR DECK DRAINS SHALL BE 8" X 4" X ⅜" COLD FORMED STEEL IN ACCORDANCE WITH ASTM A500, GRADE B. CONTRACTOR MAY SUBSTITUTE ½" WALL THICKNESS TUBING FOR ⅜" TUBING AT HIS OPTION AND EXPENSE.

THE DRAIN ASSEMBLY SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M111, 2 OUNCES.

PAYMENT FOR THE DRAINAGE SYSTEM SHALL BE INCLUDED IN THE LUMP SUM BID ITEM PRICE FOR ITEM 603018-XXX, PRESTRESSED CONCRETE BEAMS.

NUMBER OF DRAINS REQUIRED:

NO.	REVISION	DATE:	BY:

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
ENGINEERING DIVISION

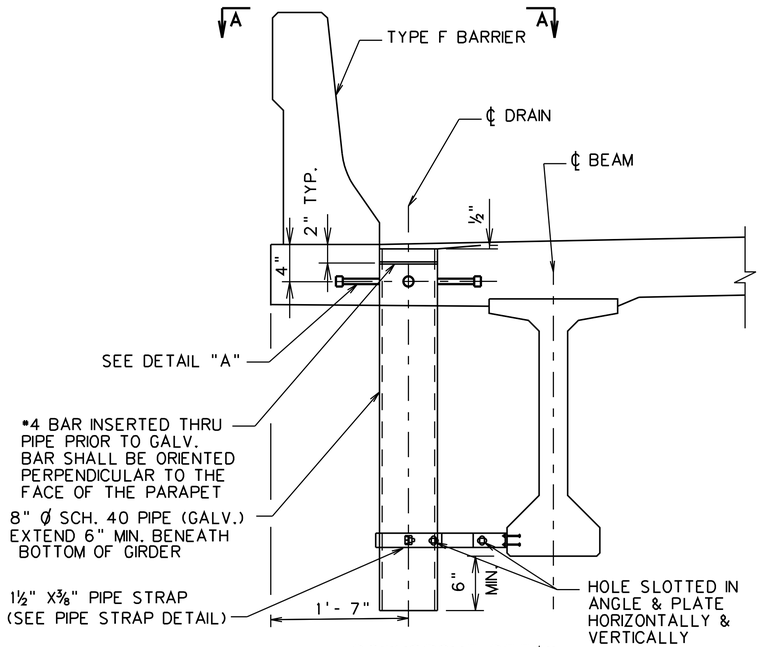
DESIGNED	DATE
DRAWN	
CHECKED	
REVIEWED	

APPROVED Gregory Bailey DIRECTOR ENGINEERING DIVISION DATE 09/22/08

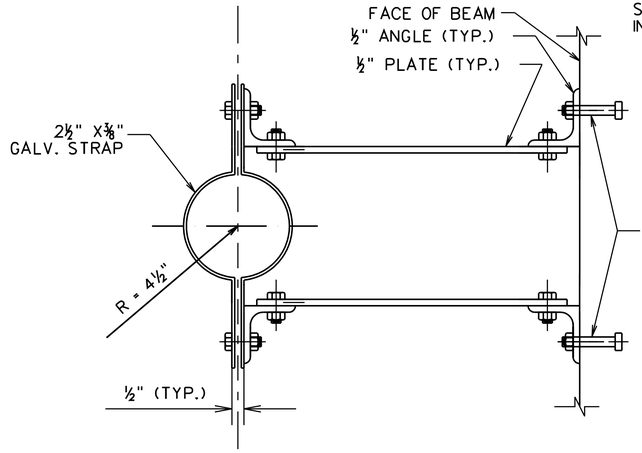
DECK DRAIN DETAILS FOR AASHTO TYPE IV PRECAST PC BEAM SUPERSTRUCTURE
BR-DD1

SHEET OF
BRIDGE NO.

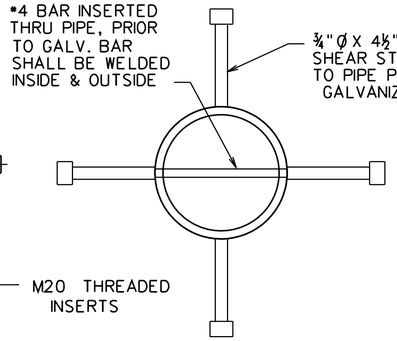
PROJECT NUMBERS		DISTRICT	COUNTY	SHEET NO.	TOTAL
STATE	FEDERAL				
				—	



DOWNSPOUT DETAIL
N.T.S.



PIPE STRAP DETAIL
N.T.S.



DETAIL "A"
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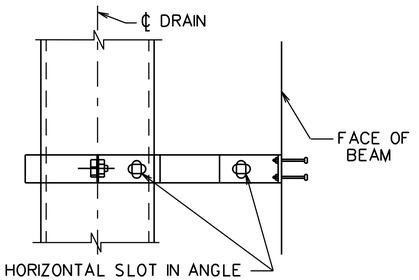
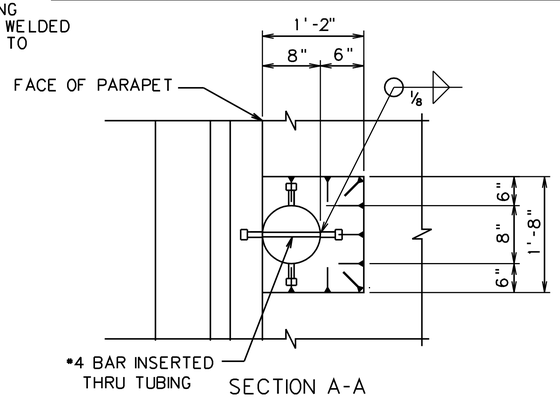


SECTION C-C

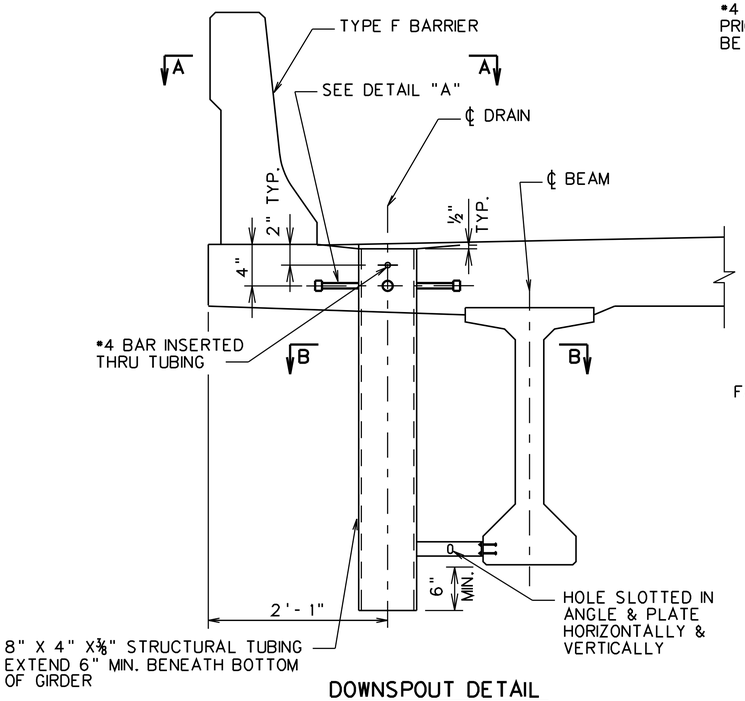


SECTION A-A

NOTE:

1. COSTS FOR THE DRAINAGE SYSTEM, INCLUDING GALVANIZING, PAINTING, FLOOR DRAINS, DOWNSPOUTS AND SUPPORTS ARE INCLUDED IN ITEM 603018-XXX, PRE-STRESSED CONC. BEAMS.
2. ALL MATERIALS FOR DRAINAGE SHALL BE GALVANIZED AFTER FABRICATION AND THEN PAINTED.
3. NUMBER OF DRAINS REQUIRED:

CIRCULAR STEEL PIPE DRAIN



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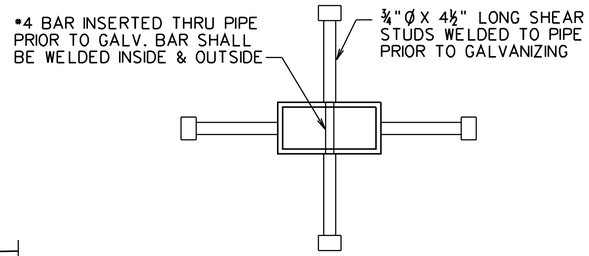

DETAIL "A"
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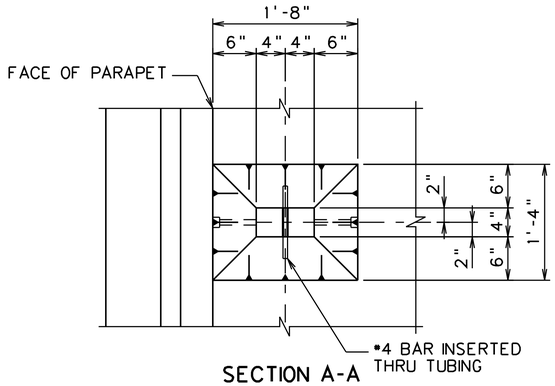
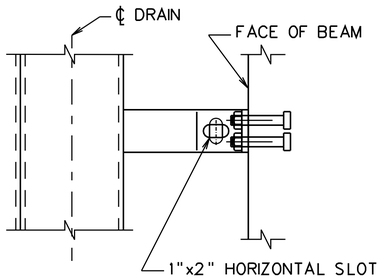
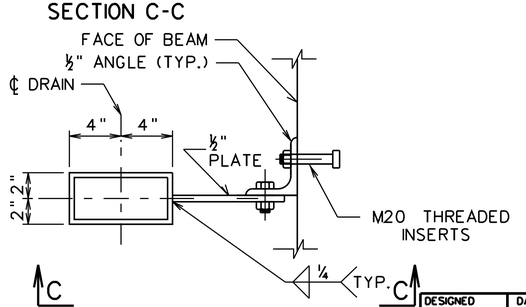


SECTION A-A

STRUCTURAL STEEL TUBING DRAIN



SECTION C-C



SECTION B-B

NOTE:

1. STRUCTURAL STEEL TUBING FOR DECK DRAINS SHALL BE 8" X 4" X ⅜" COLD FORMED STEEL IN ACCORDANCE WITH ASTM A500, GRADE B. CONTRACTOR MAY SUBSTITUTE ½" WALL THICKNESS TUBING FOR ⅜" TUBING AT HIS OPTION AND EXPENSE.
2. THE DRAIN ASSEMBLY SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M111, 2 OUNCES.
3. PAYMENT FOR THE DRAINAGE SYSTEM SHALL BE INCLUDED IN THE LUMP SUM BID ITEM PRICE FOR ITEM 603018-XXX, PRESTRESSED CONC. BEAMS.
4. NUMBER OF DRAINS REQUIRED:

NO.	REVISION	DATE:	BY:

APPROVED Gregory Bailey DIRECTOR ENGINEERING DIVISION DATE 09/22/08

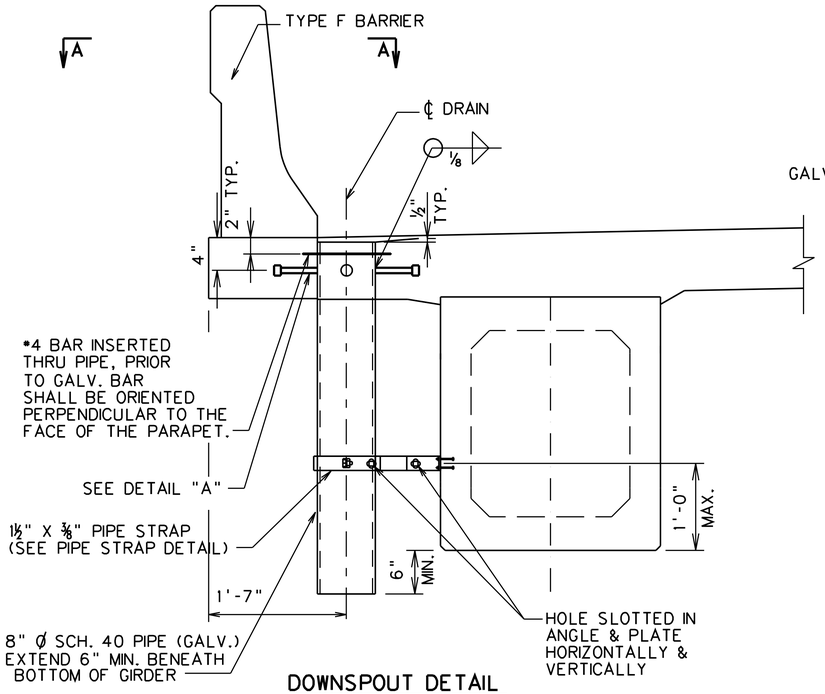
DESIGNED	DATE
DRAWN	
CHECKED	
REVIEWED	

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
ENGINEERING DIVISION

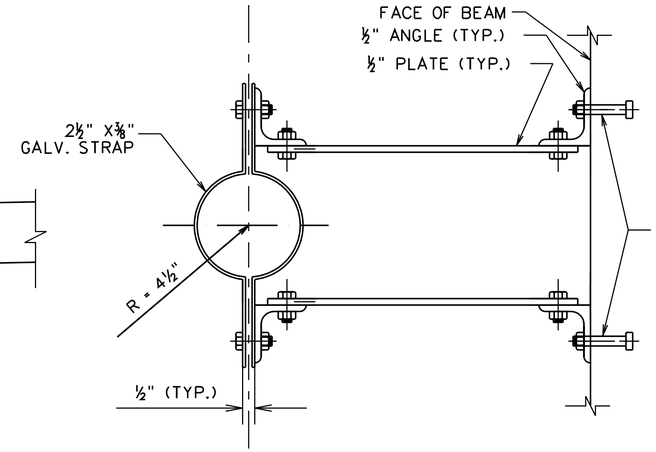
DECK DRAIN DETAILS FOR AASHTO TYPE IV MODIFIED PRECAST PC BEAM SUPERSTRUCTURE
BR-DD2

SHEET OF
BRIDGE NO.

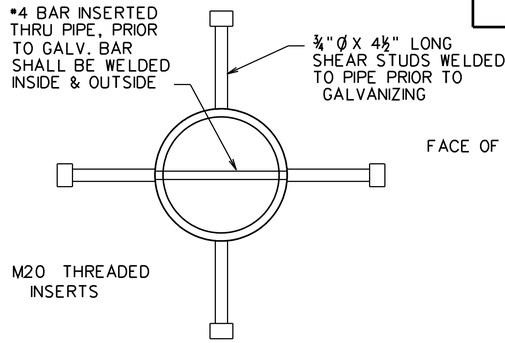
PROJECT NUMBERS		DISTRICT	COUNTY	SHEET NO.	TOTAL
STATE	FEDERAL				
				—	



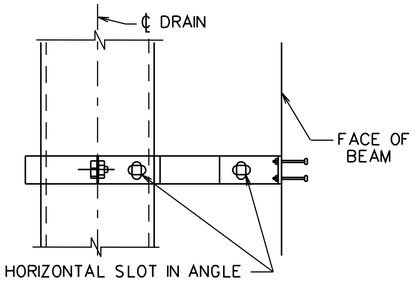
DOWNSPOUT DETAIL
N.T.S.



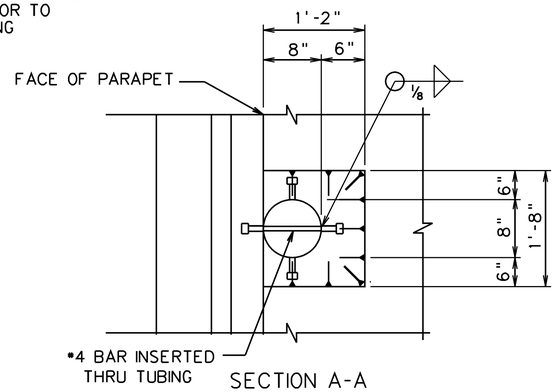
PIPE STRAP DETAIL
N.T.S.



DETAIL "A"
N.T.S.



SECTION C-C

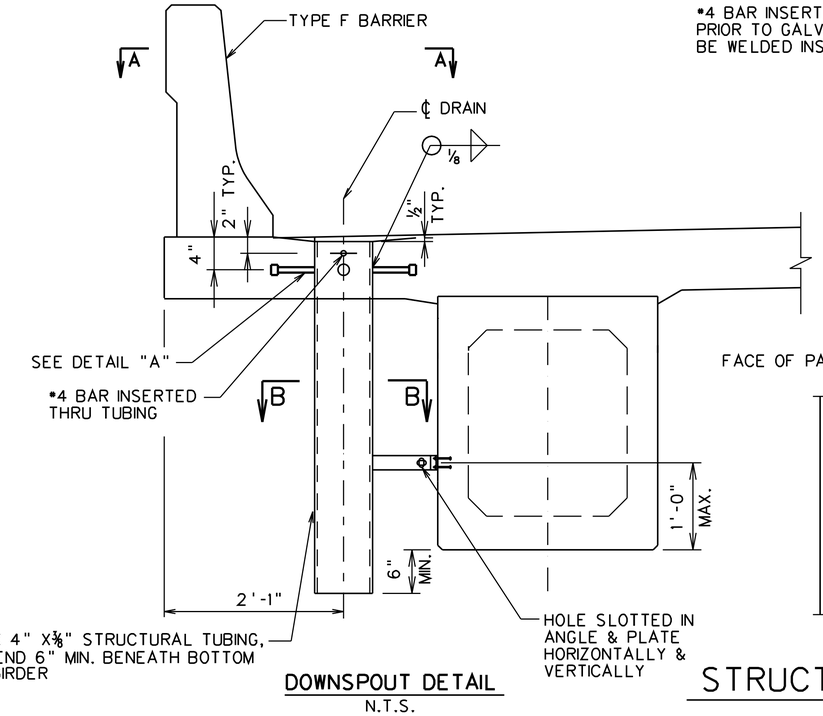


SECTION A-A

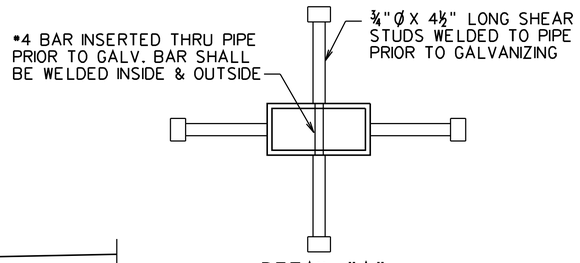
NOTE:

1. COSTS FOR THE DRAINAGE SYSTEM, INCLUDING GALVANIZING, PAINTING, FLOOR DRAINS, DOWNSPOUTS AND SUPPORTS ARE INCLUDED IN ITEM 603016-XXX, PRE-STRESSED CONC. BOX BEAMS.
2. ALL MATERIALS FOR DRAINAGE SHALL BE GALVANIZED AFTER FABRICATION AND THEN PAINTED.
3. NUMBER OF DRAINS REQUIRED:

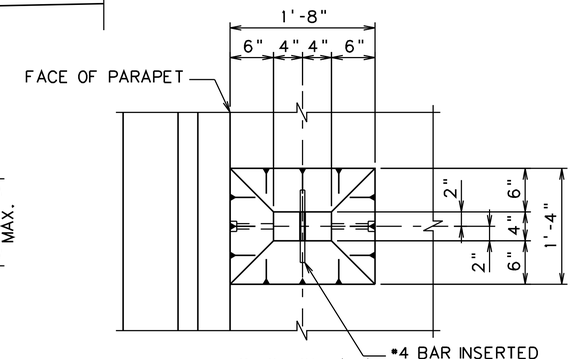
CIRCULAR STEEL PIPE DRAIN



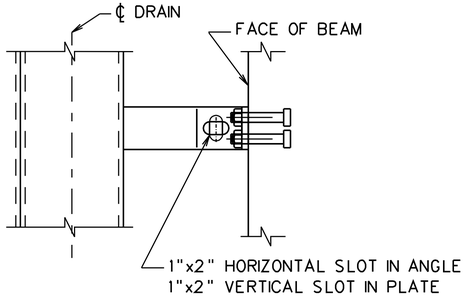
DOWNSPOUT DETAIL
N.T.S.



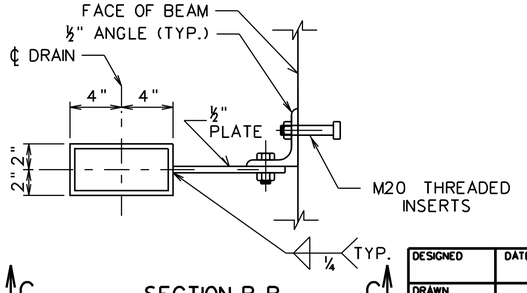
DETAIL "A"
N.T.S.



SECTION A-A



SECTION C-C



SECTION B-B

NOTE:

1. STRUCTURAL STEEL TUBING FOR DECK DRAINS SHALL BE 8" X 4" X ⅜" COLD FORMED STEEL IN ACCORDANCE WITH ASTM A500, GRADE B. CONTRACTOR MAY SUBSTITUTE ½" WALL THICKNESS TUBING FOR ⅜" TUBING AT HIS OPTION AND EXPENSE.
2. THE DRAIN ASSEMBLY SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M111, 2 OUNCES.
3. PAYMENT FOR THE DRAINAGE SYSTEM SHALL BE INCLUDED IN THE LUMP SUM BID ITEM PRICE FOR ITEM 603016-XXX, PRESTRESSED CONC. BOX BEAMS.
4. NUMBER OF DRAINS REQUIRED:

STRUCTURAL STEEL TUBING DRAIN

NO.	REVISION	DATE:	BY:

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
ENGINEERING DIVISION

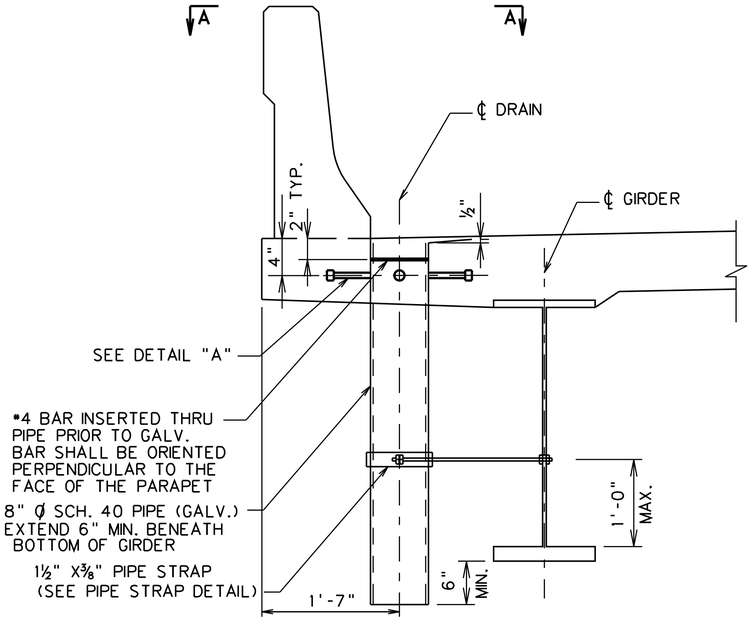
DESIGNED	DATE	
DRAWN		
CHECKED		
REVIEWED		

APPROVED Gregory Bailey DATE 09/22/08
DIRECTOR ENGINEERING DIVISION

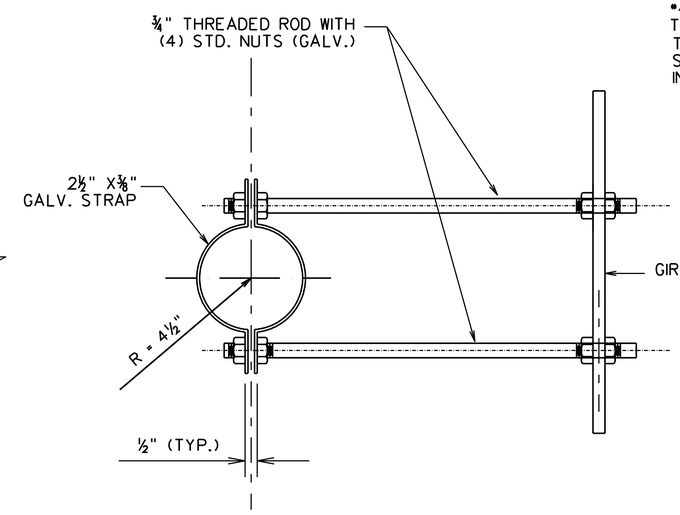
DECK DRAIN DETAILS FOR PRECAST PC BOX BEAM SUPERSTRUCTURE
BR-DD3

SHEET OF
BRIDGE NO.

PROJECT NUMBERS		DISTRICT	COUNTY	SHEET NO.	TOTAL
STATE	FEDERAL				
				—	



DOWNSPOUT DETAIL
N.T.S.



PIPE STRAP DETAIL
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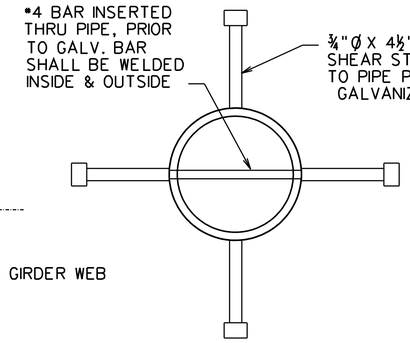

DETAIL "A"
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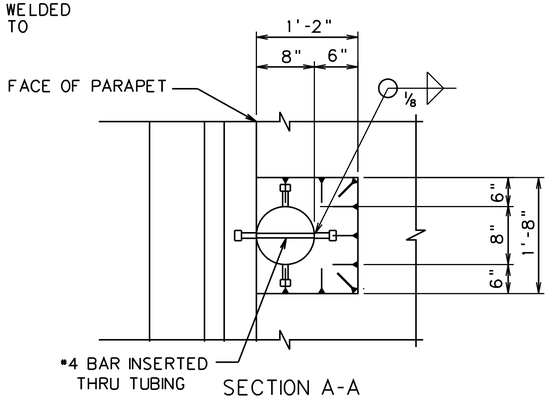
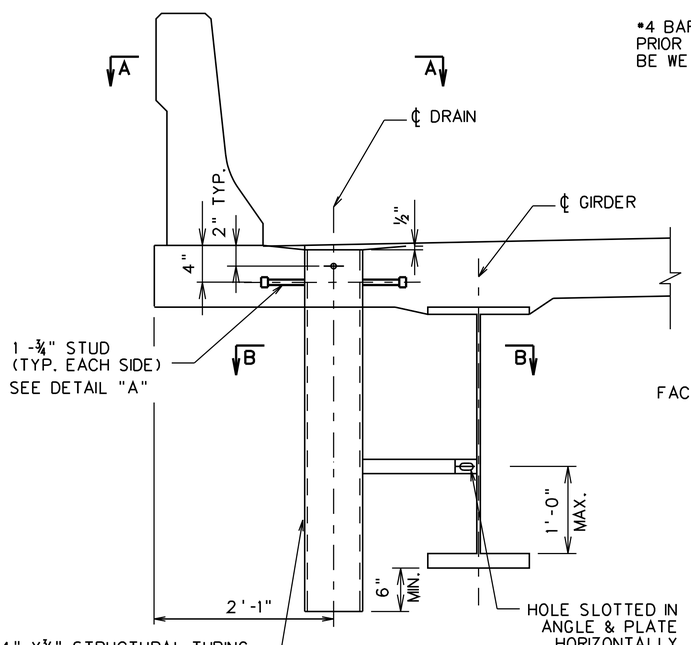


SECTION A-A

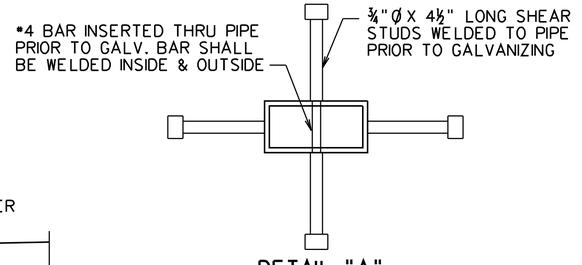
NOTE:

1. COSTS FOR THE DRAINAGE SYSTEM, INCLUDING GALVANIZING, PAINTING, FLOOR DRAINS, DOWNSPOUTS AND SUPPORTS ARE INCLUDED IN ITEM 615001-001, STEEL SUPERSTRUCTURE.
2. ALL MATERIALS FOR DRAINAGE SHALL BE GALVANIZED AFTER FABRICATION AND THEN PAINTED.
3. NUMBER OF DRAINS REQUIRED:

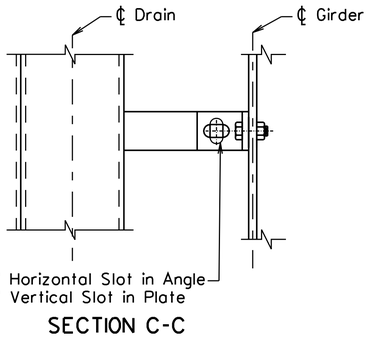
CIRCULAR STEEL PIPE DRAIN



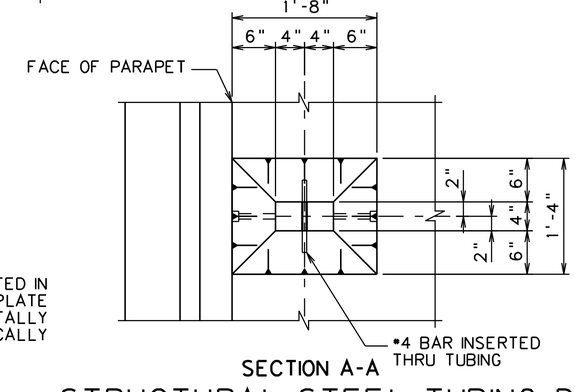
DOWNSPOUT DETAIL
N.T.S.



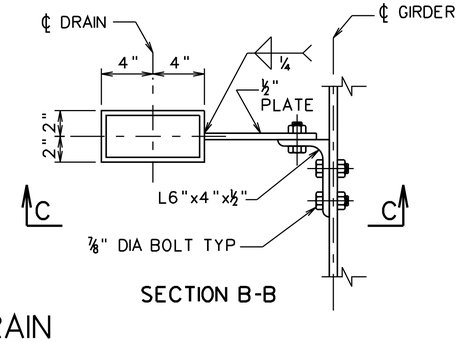
DETAIL "A"
N.T.S.



SECTION C-C



SECTION A-A



SECTION B-B

STRUCTURAL STEEL TUBING DRAIN

NOTE:

1. STRUCTURAL STEEL TUBING FOR DECK DRAINS SHALL BE 8" X 4" X ⅜" COLD FORMED STEEL IN ACCORDANCE WITH ASTM A500, GRADE B. CONTRACTOR MAY SUBSTITUTE ½" WALL THICKNESS TUBING FOR ⅜" TUBING AT HIS OPTION AND EXPENSE.
2. THE DRAIN ASSEMBLY SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M111, 2 OUNCES.
3. PAYMENT FOR THE DRAINAGE SYSTEM SHALL BE INCLUDED IN THE LUMP SUM BID ITEM PRICE FOR ITEM 615001-001, STEEL SUPERSTRUCTURE.
4. NUMBER OF DRAINS REQUIRED:

NO.	REVISION	DATE:	BY:

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
ENGINEERING DIVISION

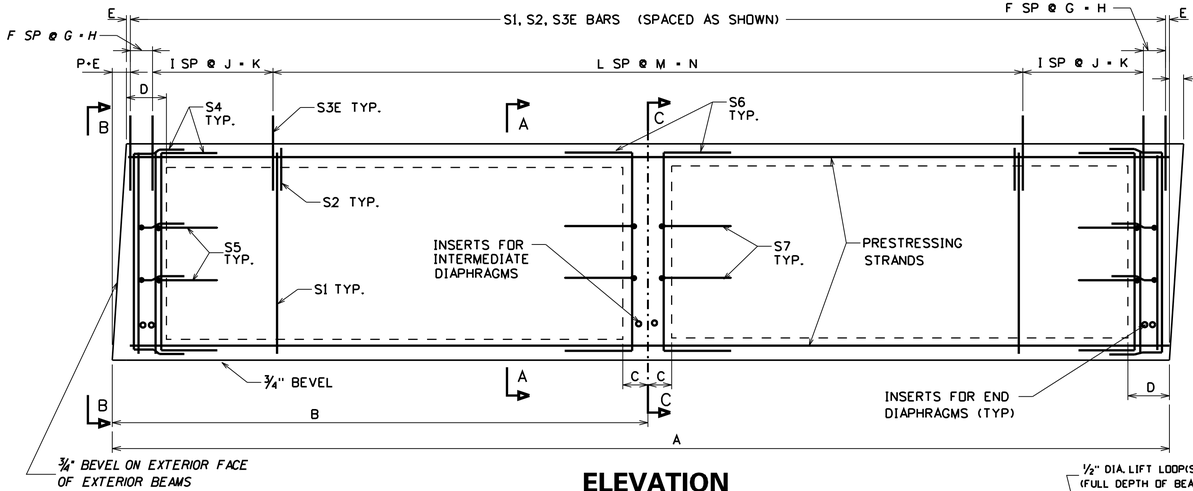
DESIGNED	DATE
DRAWN	
CHECKED	
REVIEWED	

APPROVED Gregory Bailey DIRECTOR ENGINEERING DIVISION DATE 09/22/08

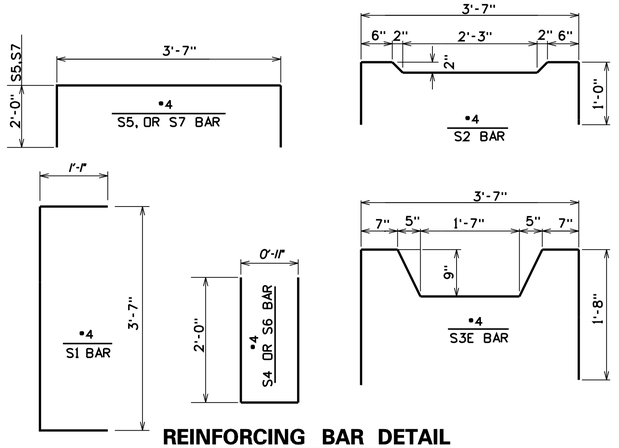
DECK DRAIN DETAILS FOR STEEL SUPERSTRUCTURE
BR-DD4

SHEET OF
BRIDGE NO.

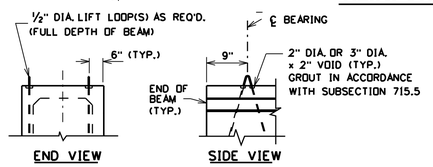
PROJECT NUMBERS		DISTRICT	COUNTY	SHEET NO.	TOTAL
STATE	FEDERAL				



ELEVATION

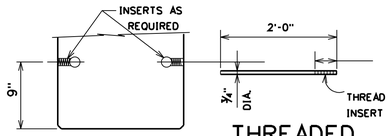


REINFORCING BAR DETAIL



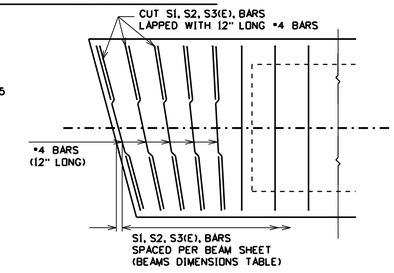
NOTE: LIFTING LOOPS SHALL NOT BE EPOXY COATED. ON SKEWED BEAMS LIFTING DEVICES SHALL BE LOCATED IN A LINE TRANSVERSE TO THE CENTERLINE OF BEAM.

LIFT DETAILS



INSERT DETAIL

THREADED BAR DETAIL



SHEAR REINFORCEMENT DETAIL

SKEWED BEAMS (15° SKEW OR GREATER)

NOTES:

THE CONCRETE SHALL ATTAIN A COMPRESSIVE STRENGTH OF AT LEAST XXX psi, AS SHOWN BY STANDARD CYLINDERS CURED IDENTICALLY WITH THE BEAMS, BEFORE TRANSFERRING BOND STRESS TO THE CONCRETE; OR BEFORE RELEASING THE END ANCHORS. CYLINDER STRENGTH SHALL BE XXX psi WITHIN 28 DAYS.

PRETENSIONED XXXX P. C. BOX BEAMS SHALL BE USED. APPLY AN INITIAL FORCE OF XXXX lbs TO EACH LOW-RELAXATION STRAND. THE DEPARTMENT WILL REJECT THE BEAMS IF THE FINISHED UNITS CONTAINED HONEYCOMBED CONCRETE TO THE EXTENT THAT THE ENGINEER DETERMINES THE STRENGTH OR DETERIORATION RESISTANCE IS REDUCED. BEAM SHORTENING DUE TO SHRINKING AND ELASTIC CHANGES IS LIMITED TO 0.0005L.

PRESTRESSING STRANDS SHALL BE ½" NOMINAL DIA., GRADE 270, UNCOATED SEVEN WIRE LOW-RELAXATION STRAND IN ACCORDANCE WITH AASHTO M203. THE STRANDS SHALL BE PLACED SYMMETRICALLY IN EACH LAYER. SHOP DRAWINGS SHALL SHOW THE STRAND LOCATIONS AND THE DETENSIONING PLAN BY NUMBERING THE SEQUENCE OF THE STRAND PATTERN. THE SHOP DRAWINGS SHALL ALSO SHOW THE STRAND PATTERN FOR DEBONDED STRANDS.

ROUGHEN THE TOP SURFACE OF EACH BEAM TO AN AMPLITUDE OF APPROXIMATELY ¼" AND MAINTAIN CLEAN AND FREE OF LAITANCE.

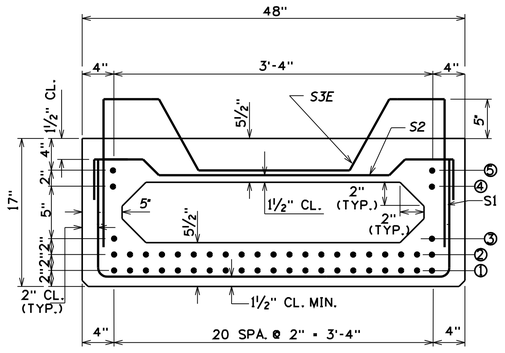
DEFORMED WIRE FABRIC IS PERMITTED INSTEAD OF REINFORCING STEEL BARS PROVIDED AN EQUAL STEEL AREA IS ATTAINED. WIRE FABRIC MUST CONFORM TO THE REQUIREMENTS OF AASHTO SECTION M225.

ALL NON-PRESTRESSING REINFORCING BARS SHALL BE GRADE 60.

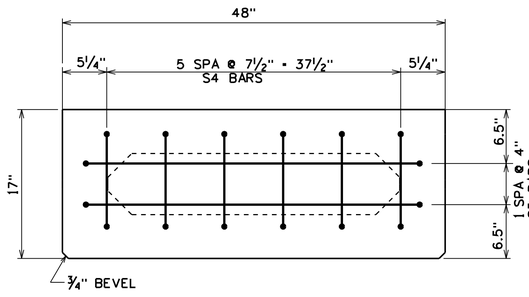
ALL REINFORCING STEEL BARS DESIGNATED "E" SHALL BE EPOXY COATED.

ALL STRANDS SHALL BE ENCLOSED INSIDE STIRRUP CAGE FOR THE ENTIRE LENGTH OF BEAM.

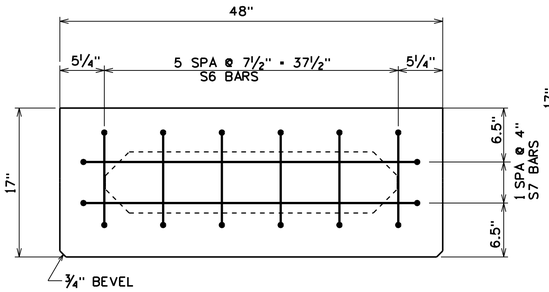
LIFTING DEVICES SHALL BE SHOWN ON SHOP DRAWINGS FOR APPROVAL. LIFTING SHALL BE BY EQUAL LOADS TO EACH DEVICE. INCLUDE PAYMENT IN ITEM 603-01, PRESTRESSED CONCRETE BEAMS, PER FOOT.



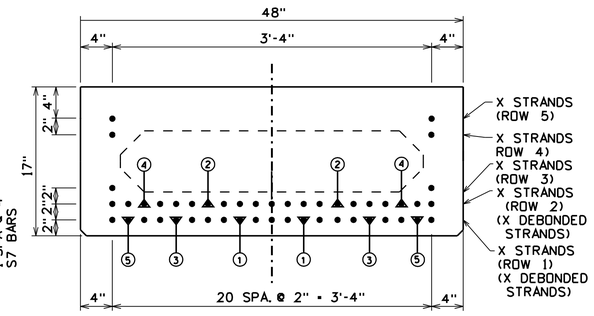
SECTION A-A
TYPICAL BEAM PRESTRESSING



SECTION B-B
TYPICAL BEAM REINFORCEMENT

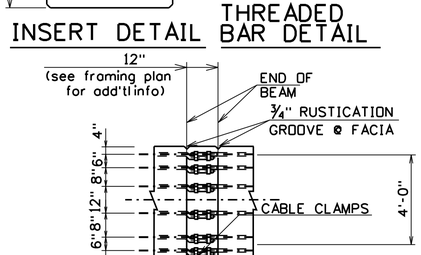


SECTION C-C
TYPICAL BEAM REINFORCEMENT

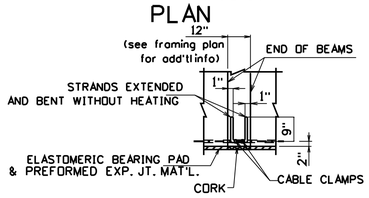


STRAND POSITIONS & DEBONDED STRANDS (ALL BEAMS)

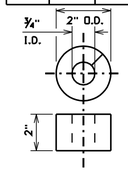
NOTE: DEBONDED STRAND PAIR POSITIONS ARE SUGGESTED AND MAY BE MOVED AS NECESSARY TO MEET DESIGN REQUIREMENTS.



PLAN



ELEVATION
STRAND SPLICING DETAILS



LIFTING LOOP BLOCKOUT DETAILS

BEAM DIMENSIONS (MEASURED ALONG ℄ BEAM)

MARK	NO. REQ'D.	DIMENSIONS A	B	C	D	E	F	G	H	I	J	K	L	M	N	P	Q	APPROX. WEIGHT EACH (lbs)

DEBONDING OF STRANDS

GROUP	NUMBER OF STRANDS EA. GROUP	HEIGHT OF STRAND (IN)	SHIELDING LENGTH FROM EA. BM. END (IN)

REINFORCING BAR LIST

MARK	TYPE	COUNT/BEAM A_1,B_1,C_1	COUNT/BEAM A_2,B_2,C_2	LENGTH
S1	BENT			
S2	BENT			
S3E	BENT			
S4	BENT			
S5	BENT			
S6	BENT			
S7	BENT			

NUMBER OF ½" DIA. - 7 WIRE STRANDS IN INDICATED ROW

MARK	BOTTOM ①	②	③	TOP ④	⑤	TOTAL NO. PER BEAM	CONCRETE STRENGTHS (psi) f'ci	f'c	INITIAL PRESTRESS FORCE/STRAND (lbs)

NOTE: DRAWINGS NOT TO SCALE

APPROVED _____ DATE _____
DIRECTOR ENGINEERING DIVISION

NO.	REVISION	DATE:	BY:

$$$$$$$$$FILENAME$$$$$$$$$ DD-MMM-YYYY HH:MM

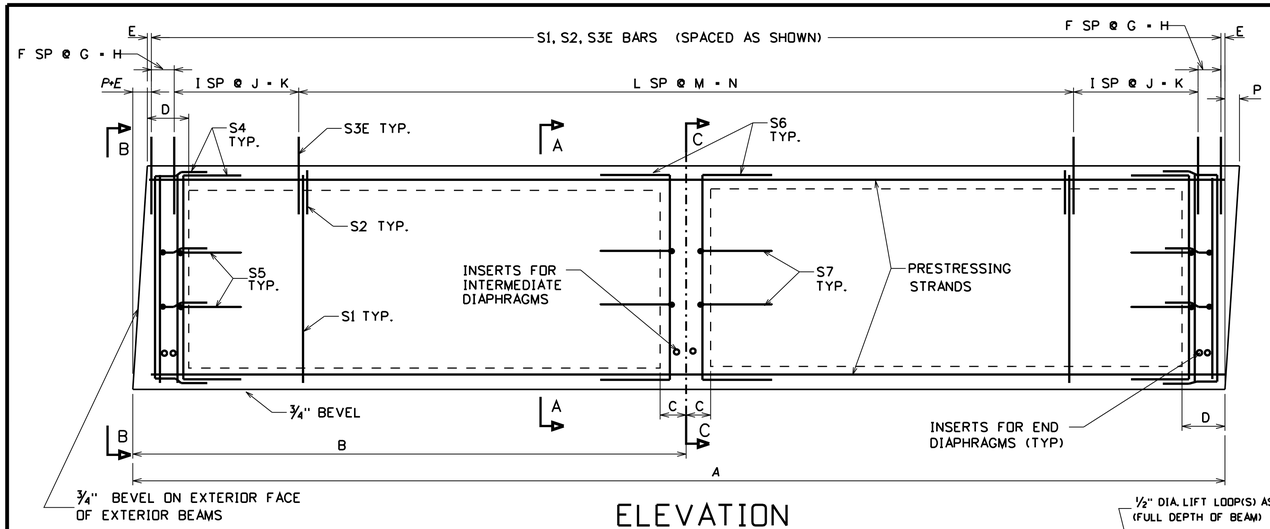
W. VA. DEPARTMENT OF HIGHWAYS
ENGINEERING DIVISION

DESIGNED	DATE
DRAWN	
CHECKED	
REVIEWED	

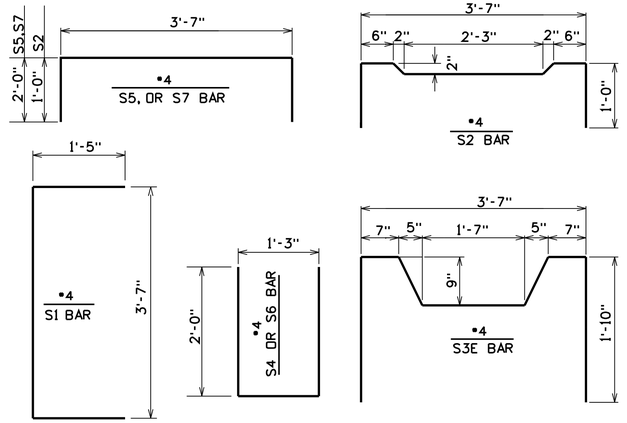
17" X 48" P.C. SPREAD BOX BEAM DETAILS
BRD-B 17 X 48

SHEET OF
BRIDGE NO.

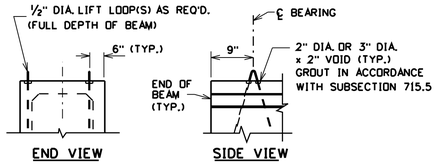
PROJECT NUMBERS		DISTRICT	COUNTY	SHEET NO.	TOTAL
STATE	FEDERAL				



ELEVATION

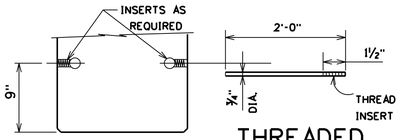


REINFORCING BAR DETAIL



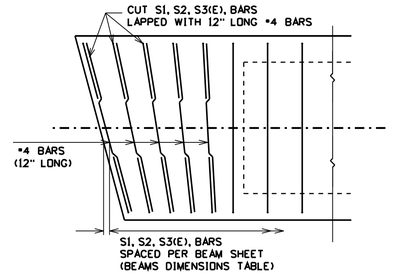
NOTE: LIFTING LOOPS SHALL NOT BE EPOXY COATED. ON SKEWED BEAMS LIFTING DEVICES SHALL BE LOCATED IN A LINE TRANSVERSE TO THE CENTERLINE OF BEAM.

LIFT DETAILS



INSERT DETAIL

THREADED BAR DETAIL



SHEAR REINFORCEMENT DETAIL

SKEWED BEAMS (15° SKEW OR GREATER)

NOTES:

THE CONCRETE SHALL ATTAIN A COMPRESSIVE STRENGTH OF AT LEAST XXX psi, AS SHOWN BY STANDARD CYLINDERS CURED IDENTICALLY WITH THE BEAMS, BEFORE TRANSFERRING BOND STRESS TO THE CONCRETE: OR BEFORE RELEASING THE END ANCHORS. CYLINDER STRENGTH SHALL BE XXX psi WITHIN 28 DAYS.

PRETENSIONED XXXX P. C. BOX BEAMS SHALL BE USED. APPLY AN INITIAL FORCE OF XXXX lbs TO EACH LOW-RELAXATION STRAND. THE DEPARTMENT WILL REJECT THE BEAMS IF THE FINISHED UNITS CONTAINED HONEYCOMBED CONCRETE TO THE EXTENT THAT THE ENGINEER DETERMINES THE STRENGTH OR DETERIORATION RESISTANCE IS REDUCED. BEAM SHORTENING DUE TO SHRINKING AND ELASTIC CHANGES IS LIMITED TO 0.0005L.

PRESTRESSING STRANDS SHALL BE ½" NOMINAL DIA., GRADE 270, UNCOATED SEVEN WIRE LOW-RELAXATION STRAND IN ACCORDANCE WITH AASHTO M203. THE STRANDS SHALL BE PLACED SYMMETRICALLY IN EACH LAYER. SHOP DRAWINGS SHALL SHOW THE STRAND LOCATIONS AND THE DETENSIONING PLAN BY NUMBERING THE SEQUENCE OF THE STRAND PATTERN. THE SHOP DRAWINGS SHALL ALSO SHOW THE STRAND PATTERN FOR DEBONDED STRANDS.

ROUGHEN THE TOP SURFACE OF EACH BEAM TO AN AMPLITUDE OF APPROXIMATELY ¼" AND MAINTAIN CLEAN AND FREE OF LAITANCE.

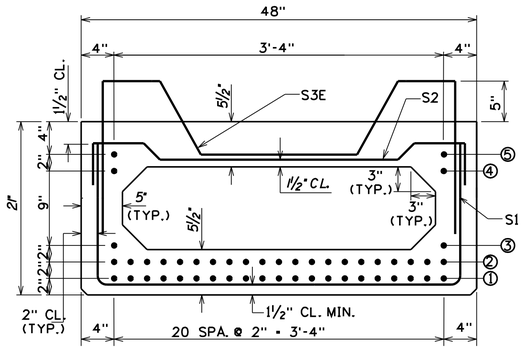
DEFORMED WIRE FABRIC IS PERMITTED INSTEAD OF REINFORCING STEEL BARS PROVIDED AN EQUAL STEEL AREA IS ATTAINED. WIRE FABRIC MUST CONFORM TO THE REQUIREMENTS OF AASHTO SECTION M225.

ALL NON-PRESTRESSING REINFORCING BARS SHALL BE GRADE 60.

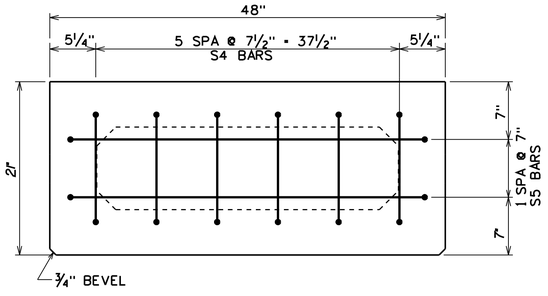
ALL REINFORCING STEEL BARS DESIGNATED "E" SHALL BE EPOXY COATED.

ALL STRANDS SHALL BE ENCLOSED INSIDE STIRRUP CAGE FOR THE ENTIRE LENGTH OF BEAM.

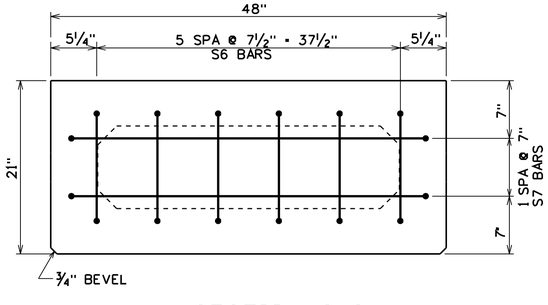
LIFTING DEVICES SHALL BE SHOWN ON SHOP DRAWINGS FOR APPROVAL. LIFTING SHALL BE BY EQUAL LOADS TO EACH DEVICE. INCLUDE PAYMENT IN ITEM 603-01, PRESTRESSED CONCRETE BEAMS, PER FOOT.



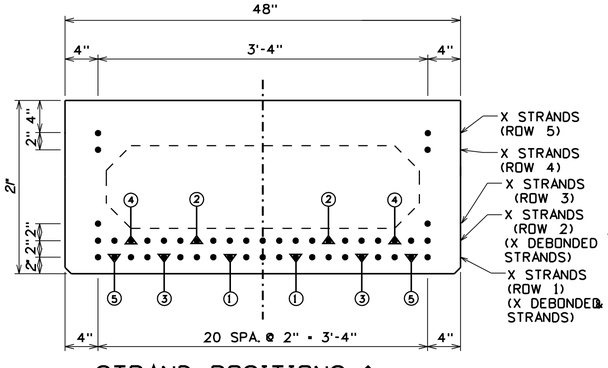
SECTION A-A
TYPICAL BEAM PRESTRESSING



SECTION B-B
TYPICAL BEAM REINFORCEMENT

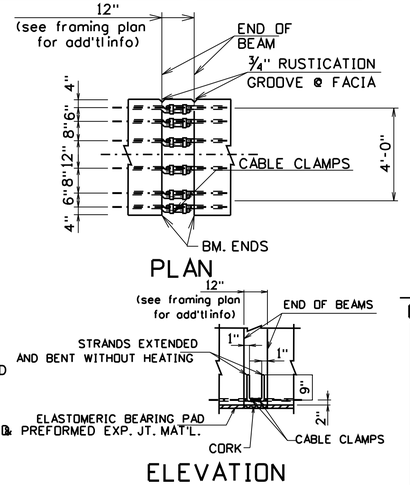


SECTION C-C
TYPICAL BEAM REINFORCEMENT

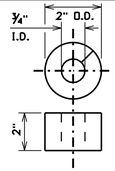


STRAND POSITIONS & DEBONDED STRANDS (ALL BEAMS)

NOTE: DEBONDED STRAND PAIR POSITIONS ARE SUGGESTED AND MAY BE MOVED AS NECESSARY TO MEET DESIGN REQUIREMENTS.



ELEVATION
STRAND SPLICING DETAILS



LIFTING LOOP
BLOCKOUT DETAILS

BEAM DIMENSIONS (MEASURED ALONG ℄ BEAM)

MARK	NO. REQ'D.	DIMENSIONS A	B	C	D	E	F	G	H	I	J	K	L	M	N	P	Q	APPROX WEIGHT EACH (lbs)

DEBONDING OF STRANDS

GROUP	NUMBER OF STRANDS EA. GROUP	HEIGHT OF STRAND (IN)	SHIELDING LENGTH FROM EA. BM. END (IN)

REINFORCING BAR LIST

MARK	TYPE	COUNT/BEAM A_1,B_1,C_1	A_2,B_2,C_2	LENGTH
S1	BENT			
S2	BENT			
S3E	BENT			
S4	BENT			
S5	BENT			
S6	BENT			
S7	BENT			

NUMBER OF ½" DIA. - 7 WIRE STRANDS IN INDICATED ROW

MARK	BOTTOM ①	②	③	TOP ④	⑤	TOTAL NO. PER BEAM	CONCRETE STRENGTHS (psi) f'ci	f'c	INITIAL PRESTRESS FORCE/STRAND (lbs)

NO.	REVISION	DATE:	BY:

NOTE: DRAWINGS NOT TO SCALE

APPROVED Gregory Bailey DATE 09/22/08
DIRECTOR ENGINEERING DIVISION

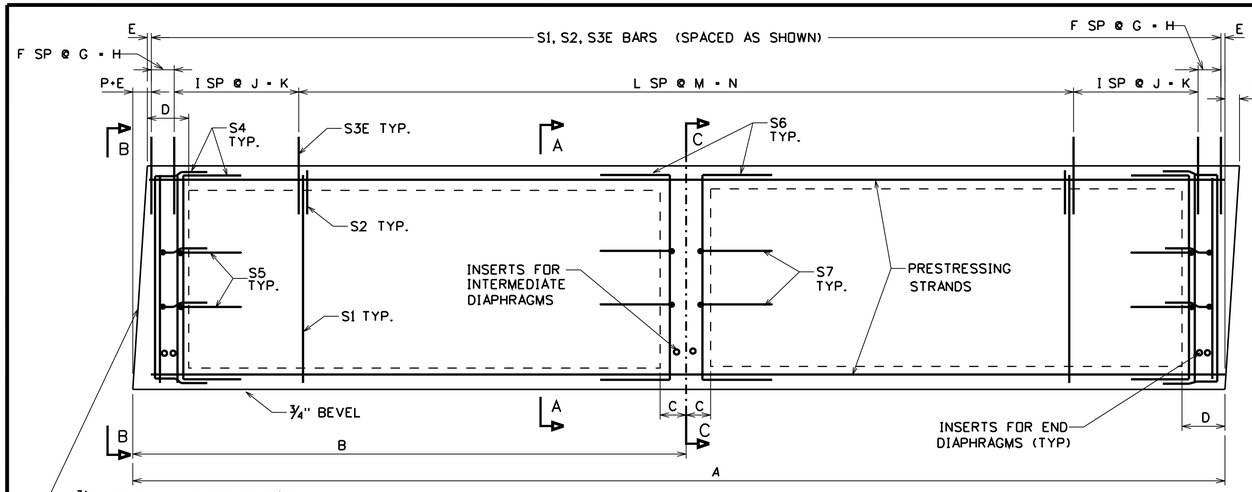
W. VA. DEPARTMENT OF HIGHWAYS
ENGINEERING DIVISION

DESIGNED	DATE
DRAWN	
CHECKED	
REVIEWED	

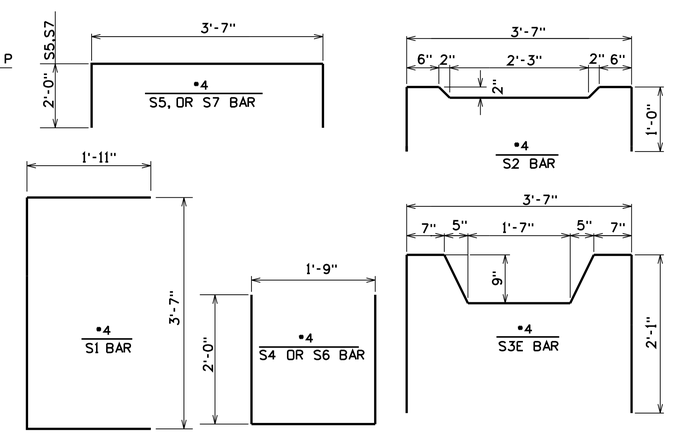
21" X 48" P.C. SPREAD BOX BEAM DETAILS
BRD-B 21X48

SHEET OF
BRIDGE NO.

PROJECT NUMBERS		DISTRICT	COUNTY	SHEET NO.	TOTAL
STATE	FEDERAL				



ELEVATION



REINFORCING BAR DETAIL

NOTES:

THE CONCRETE SHALL ATTAIN A COMPRESSIVE STRENGTH OF AT LEAST XXX psi, AS SHOWN BY STANDARD CYLINDERS CURED IDENTICALLY WITH THE BEAMS, BEFORE TRANSFERRING BOND STRESS TO THE CONCRETE: OR BEFORE RELEASING THE END ANCHORS. CYLINDER STRENGTH SHALL BE XXX psi WITHIN 28 DAYS.

PRETENSIONED XXXX P. C. BOX BEAMS SHALL BE USED. APPLY AN INITIAL FORCE OF XXXX lbs TO EACH LOW-RELAXATION STRAND. THE DEPARTMENT WILL REJECT THE BEAMS IF THE FINISHED UNITS CONTAINED HONEYCOMBED CONCRETE TO THE EXTENT THAT THE ENGINEER DETERMINES THE STRENGTH OR DETERIORATION RESISTANCE IS REDUCED. BEAM SHORTENING DUE TO SHRINKING AND ELASTIC CHANGES IS LIMITED TO 0.0005L.

PRESTRESSING STRANDS SHALL BE ½" NOMINAL DIA., GRADE 270, UNCOATED SEVEN WIRE LOW-RELAXATION STRAND IN ACCORDANCE WITH AASHTO M203. THE STRANDS SHALL BE PLACED SYMMETRICALLY IN EACH LAYER. SHOP DRAWINGS SHALL SHOW THE STRAND LOCATIONS AND THE DETENSIONING PLAN BY NUMBERING THE SEQUENCE OF THE STRAND PATTERN. THE SHOP DRAWINGS SHALL ALSO SHOW THE STRAND PATTERN FOR DEBONDED STRANDS.

ROUGHEN THE TOP SURFACE OF EACH BEAM TO AN AMPLITUDE OF APPROXIMATELY ¼" AND MAINTAIN CLEAN AND FREE OF LAITANCE.

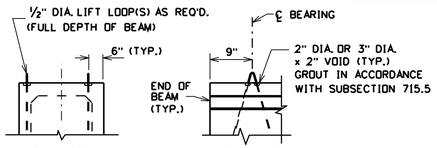
DEFORMED WIRE FABRIC IS PERMITTED INSTEAD OF REINFORCING STEEL BARS PROVIDED AN EQUAL STEEL AREA IS ATTAINED. WIRE FABRIC MUST CONFORM TO THE REQUIREMENTS OF AASHTO SECTION M225.

ALL NON-PRESTRESSING REINFORCING BARS SHALL BE GRADE 60.

ALL REINFORCING STEEL BARS DESIGNATED "E" SHALL BE EPOXY COATED.

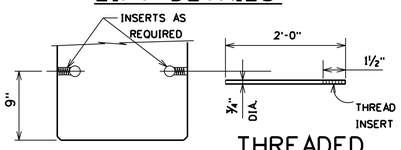
ALL STRANDS SHALL BE ENCLOSED INSIDE STIRRUP CAGE FOR THE ENTIRE LENGTH OF BEAM.

LIFTING DEVICES SHALL BE SHOWN ON SHOP DRAWINGS FOR APPROVAL. LIFTING SHALL BE BY EQUAL LOADS TO EACH DEVICE. INCLUDE PAYMENT IN ITEM 603-01, PRESTRESSED CONCRETE BEAMS, PER FOOT.



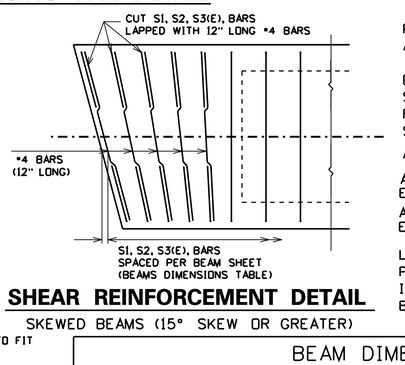
NOTE: LIFTING LOOPS SHALL NOT BE EPOXY COATED. ON SKEWED BEAMS LIFTING DEVICES SHALL BE LOCATED IN A LINE TRANSVERSE TO THE CENTERLINE OF BEAM.

LIFT DETAILS



INSERT DETAIL

THREADED BAR DETAIL

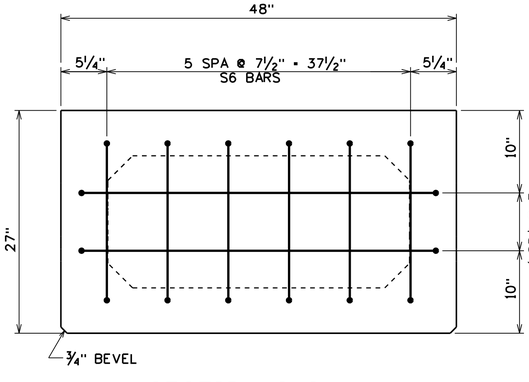


SHEAR REINFORCEMENT DETAIL

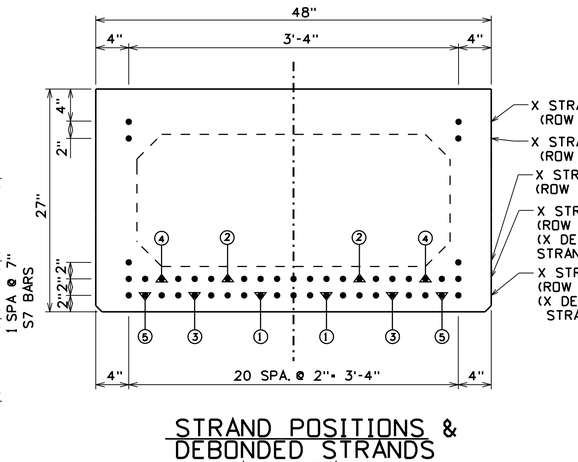
SKEWED BEAMS (15° SKEW OR GREATER)

BEAM DIMENSIONS (MEASURED ALONG ℄ BEAM)

MARK	NO. REQ'D.	DIMENSIONS A	B	C	D	E	F	G	H	I	J	K	L	M	N	P	Q	APPROX. WEIGHT EACH (lbs)



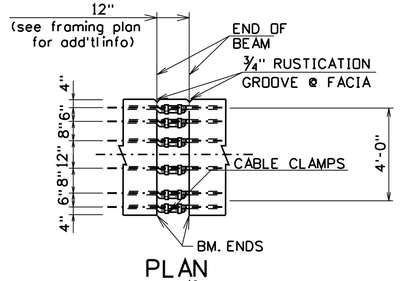
SECTION A-A
TYPICAL BEAM PRESTRESSING



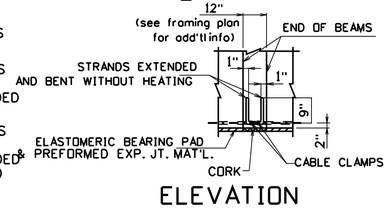
SECTION B-B
TYPICAL BEAM REINFORCEMENT

SECTION C-C
TYPICAL BEAM REINFORCEMENT

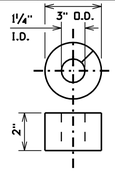
STRAND POSITIONS & DEBONDED STRANDS (ALL BEAMS)



PLAN



ELEVATION
STRAND SPLICING DETAILS



LIFTING LOOP
BLOCKOUT DETAILS

DEBONDING OF STRANDS

GROUP	NUMBER OF STRANDS EA. GROUP	HEIGHT OF STRAND (IN)	SHIELDING LENGTH FROM EA. BM. END (IN)

REINFORCING BAR LIST

MARK	TYPE	COUNT/BEAM A_1,B_1,C_1	COUNT/BEAM A_2,B_2,C_2	LENGTH
S1	BENT			
S2	BENT			
S3E	BENT			
S4	BENT			
S5	BENT			
S6	BENT			
S7	BENT			

NUMBER OF ½" DIA. - 7 WIRE STRANDS IN INDICATED ROW

MARK	BOTTOM ①	②	③	TOP ④	⑤	TOTAL NO. PER BEAM	CONCRETE STRENGTHS (psi) f'ci	f'c	INITIAL PRESTRESS FORCE/STRAND (lbs)

NOTE: DRAWINGS NOT TO SCALE

NOTE: DEBONDED STRAND PAIR POSITIONS ARE SUGGESTED AND MAY BE MOVED AS NECESSARY TO MEET DESIGN REQUIREMENTS.

APPROVED _____ DATE 09/22/08
DIRECTOR ENGINEERING DIVISION

NO.	REVISION	DATE:	BY:

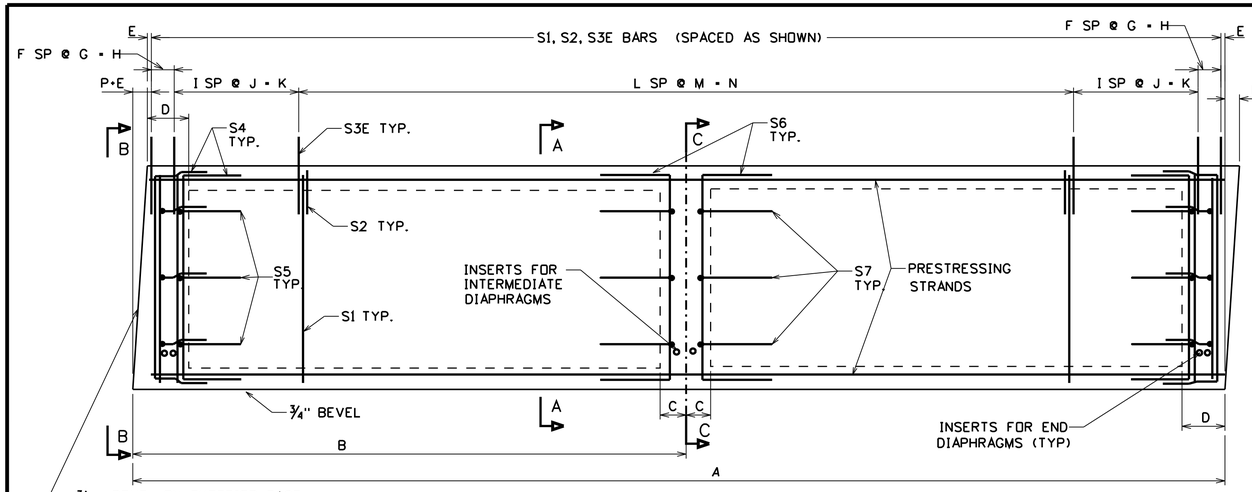
W. VA. DEPARTMENT OF HIGHWAYS
ENGINEERING DIVISION

DESIGNED	DATE
DRAWN	
CHECKED	
REVIEWED	

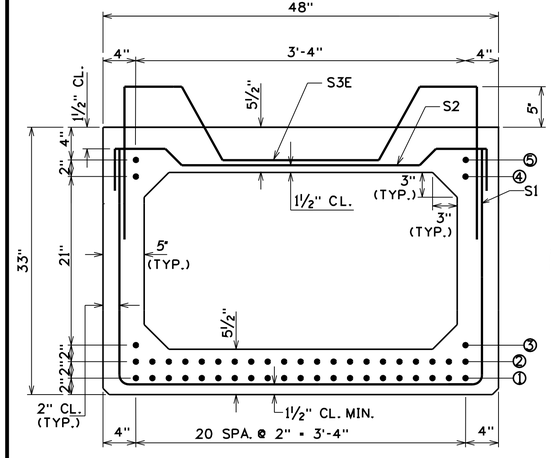
27" X 48" P.C. SPREAD BOX BEAM DETAILS
BRD-B 27X48

SHEET OF
BRIDGE NO.

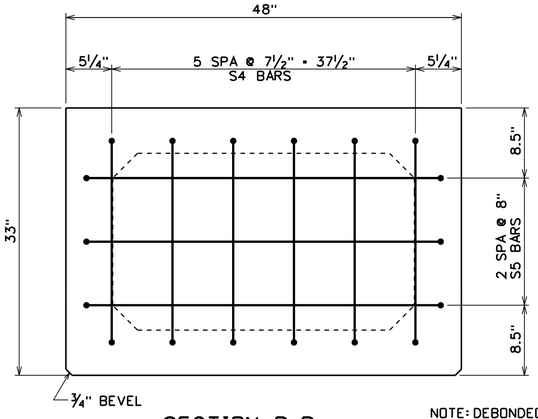
PROJECT NUMBERS		DISTRICT	COUNTY	SHEET NO.	TOTAL
STATE	FEDERAL				



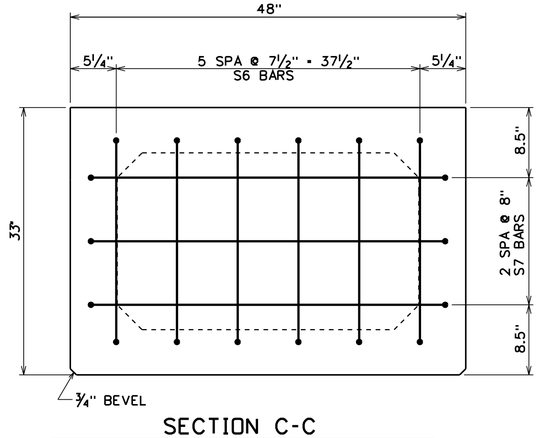
ELEVATION



SECTION A-A
TYPICAL BEAM PRESTRESSING

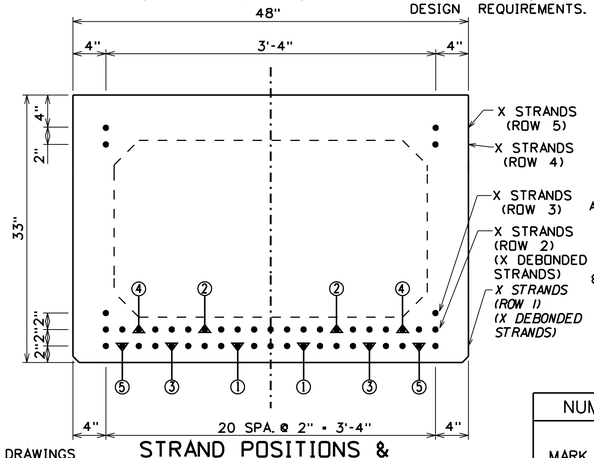


SECTION B-B
TYPICAL BEAM REINFORCEMENT



SECTION C-C
TYPICAL BEAM REINFORCEMENT

NOTE: DRAWINGS NOT TO SCALE



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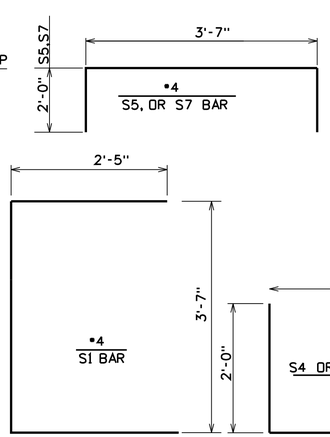
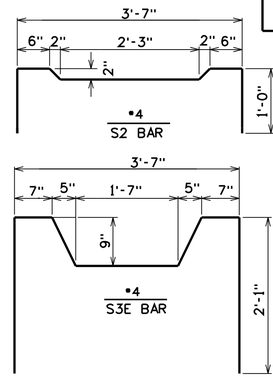
STRAND POSITIONS & DEBONDED STRANDS (ALL BEAMS)



REINFORCING BAR DETAIL



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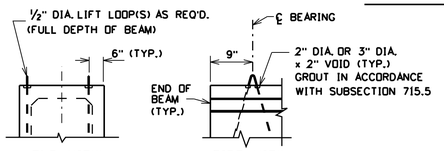

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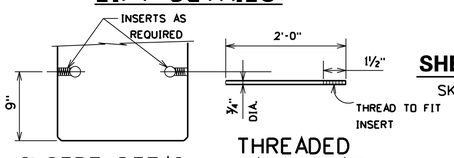
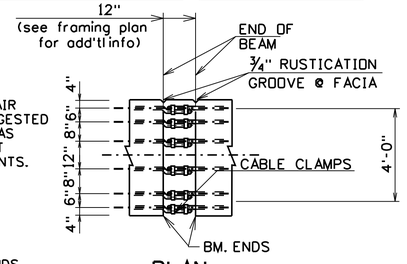
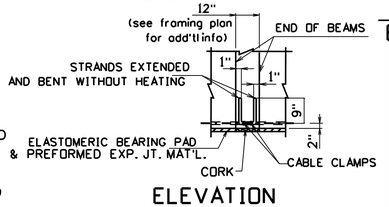
LIFT DETAILS



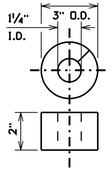
INSERT DETAIL
THREADED BAR DETAIL



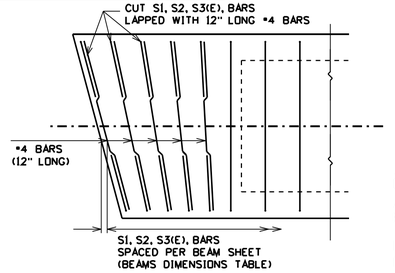
PLAN



ELEVATION
STRAND SPLICING DETAILS



LIFTING LOOP BLOCKOUT DETAILS



SHEAR REINFORCEMENT DETAIL
SKEWED BEAMS (15° SKEW OR GREATER)

BEAM DIMENSIONS (MEASURED ALONG ℄ BEAM)

MARK	NO. REQ'D.	DIMENSIONS A	B	C	D	E	F	G	H	I	J	K	L	M	N	P	Q	APPROX. WEIGHT EACH (lbs)

DEBONDING OF STRANDS

GROUP	NUMBER OF STRANDS EA. GROUP	HEIGHT OF STRAND (IN)	SHIELDING LENGTH FROM EA. BM. END (IN)

REINFORCING BAR LIST

MARK	TYPE	COUNT/BEAM A_1,B_1,C_1	COUNT/BEAM A_2,B_2,C_2	LENGTH
S1	BENT			
S2	BENT			
S3E	BENT			
S4	BENT			
S5	BENT			
S6	BENT			
S7	BENT			

NUMBER OF ½" DIA. - 7 WIRE STRANDS IN INDICATED ROW

MARK	BOTTOM ①	②	③	TOP ④	⑤	TOTAL NO. PER BEAM	CONCRETE STRENGTHS (psi) f'ci	f'c	INITIAL PRESTRESS FORCE/STRAND (lbs)

NO.	REVISION	DATE:	BY:

W. VA. DEPARTMENT OF HIGHWAYS
ENGINEERING DIVISION

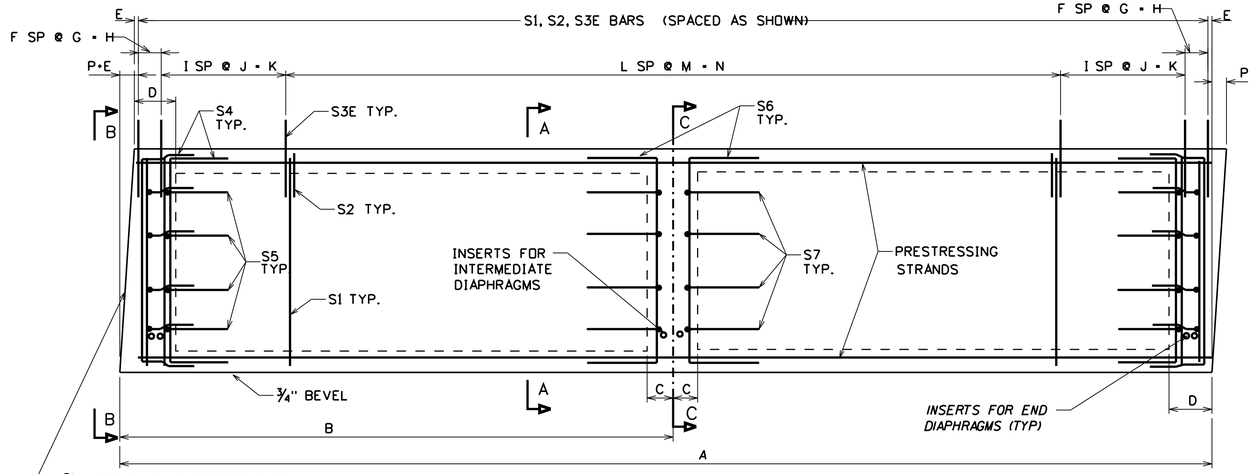
APPROVED Gregory Bailey DATE 09/22/08
DIRECTOR ENGINEERING DIVISION

DESIGNED	DATE
DRAWN	
CHECKED	
REVIEWED	

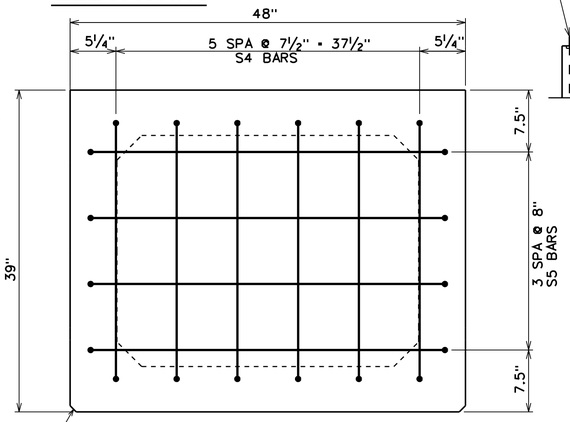
33" X 48" P.C. SPREAD BOX BEAM DETAILS
BRD-B 33X48

SHEET OF
BRIDGE NO.

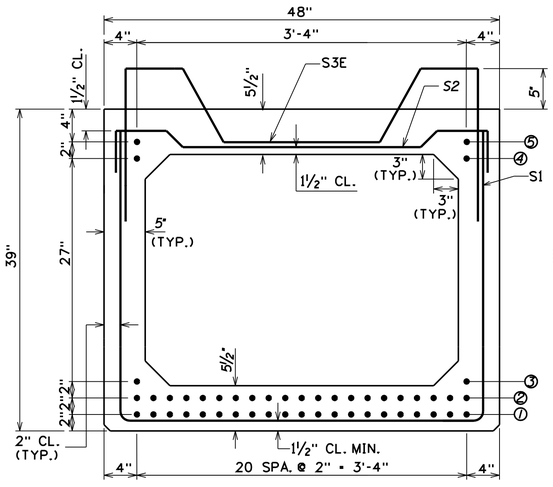
PROJECT NUMBERS		DISTRICT	COUNTY	SHEET NO.	TOTAL
STATE	FEDERAL				



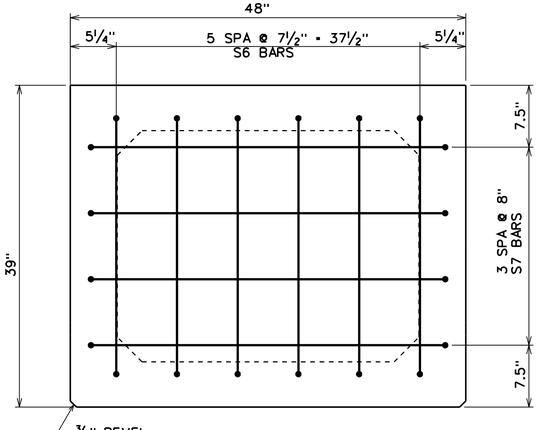
ELEVATION



SECTION B-B
TYPICAL BEAM REINFORCEMENT

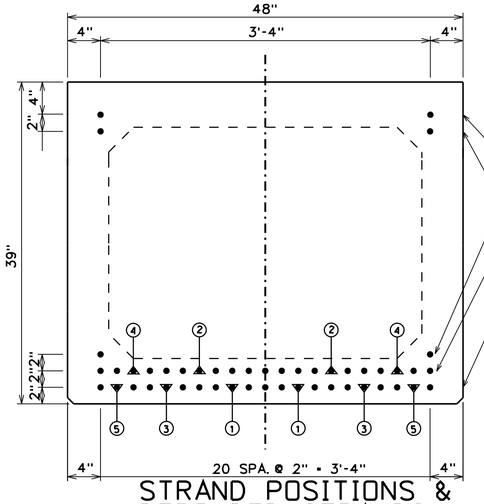


SECTION A-A
TYPICAL BEAM PRESTRESSING



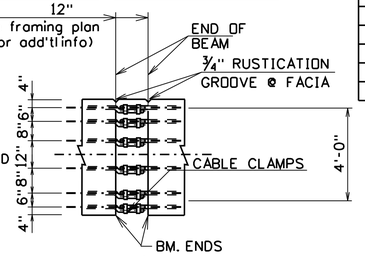
NOTE: DRAWINGS NOT TO SCALE

SECTION C-C
TYPICAL BEAM REINFORCEMENT

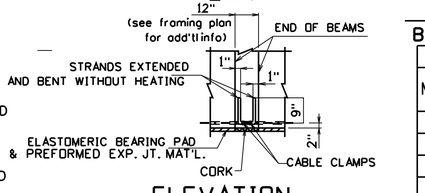


STRAND POSITIONS & DEBONDED STRANDS (ALL BEAMS)

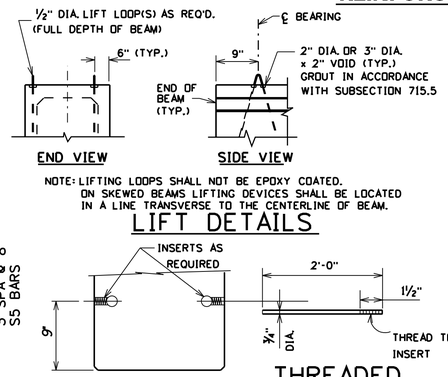
NOTE: DEBONDED STRAND PAIR POSITIONS ARE SUGGESTED AND MAY BE MOVED AS NECESSARY TO MEET DESIGN REQUIREMENTS.



PLAN



ELEVATION
STRAND SPLICING DETAILS



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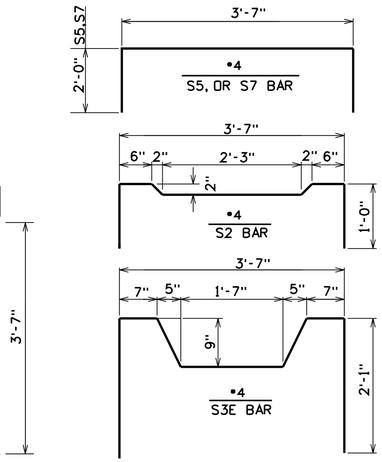
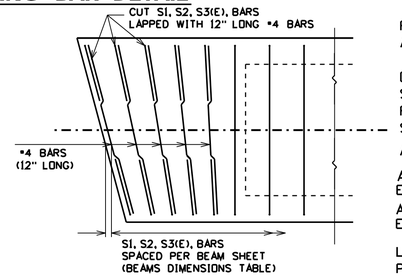
LIFT DETAILS

INSERT DETAIL
THREADED BAR DETAIL



REINFORCING BAR DETAIL



SHEAR REINFORCEMENT DETAIL

SKEWED BEAMS (15° SKEW OR GREATER)

NOTES:

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ROUGHEN THE TOP SURFACE OF EACH BEAM TO AN AMPLITUDE OF APPROXIMATELY ¼" AND MAINTAIN CLEAN AND FREE OF LAITANCE.

DEFORMED WIRE FABRIC IS PERMITTED INSTEAD OF REINFORCING STEEL BARS PROVIDED AN EQUAL STEEL AREA IS ATTAINED. WIRE FABRIC MUST CONFORM TO THE REQUIREMENTS OF AASHTO SECTION M225.

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ALL STRANDS SHALL BE ENCLOSED INSIDE STIRRUP CAGE FOR THE ENTIRE LENGTH OF BEAM.

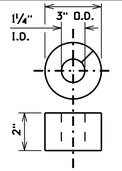
LIFTING DEVICES SHALL BE SHOWN ON SHOP DRAWINGS FOR APPROVAL. LIFTING SHALL BE BY EQUAL LOADS TO EACH DEVICE. INCLUDE PAYMENT IN ITEM 603-01, PRESTRESSED CONCRETE BEAMS, PER FOOT.

BEAM DIMENSIONS (MEASURED ALONG ℄ BEAM)

MARK	NO. REQ'D.	DIMENSIONS A	B	C	D	E	F	G	H	I	J	K	L	M	N	P	Q	APPROX. WEIGHT EACH (lbs)

DEBONDING OF STRANDS

GROUP	NUMBER OF STRANDS EA. GROUP	HEIGHT OF STRAND (IN)	SHIELDING LENGTH FROM EA. BM. END (IN)



LIFTING LOOP BLOCKOUT DETAILS

REINFORCING BAR LIST

MARK	TYPE	COUNT/BEAM A_1,B_1,C_1	COUNT/BEAM A_2,B_2,C_2	LENGTH
S1	BENT			
S2	BENT			
S3E	BENT			
S4	BENT			
S5	BENT			
S6	BENT			
S7	BENT			

NUMBER OF ½" DIA. - 7 WIRE STRANDS IN INDICATED ROW

MARK	BOTTOM ①	②	③	TOP ④	⑤	TOTAL NO. PER BEAM	CONCRETE STRENGTHS (psi) f'ci	f'c	INITIAL PRESTRESS FORCE/STRAND (lbs)

NO.	REVISION	DATE:	BY:

APPROVED Gregory Bailey DATE 09/22/08
DIRECTOR ENGINEERING DIVISION

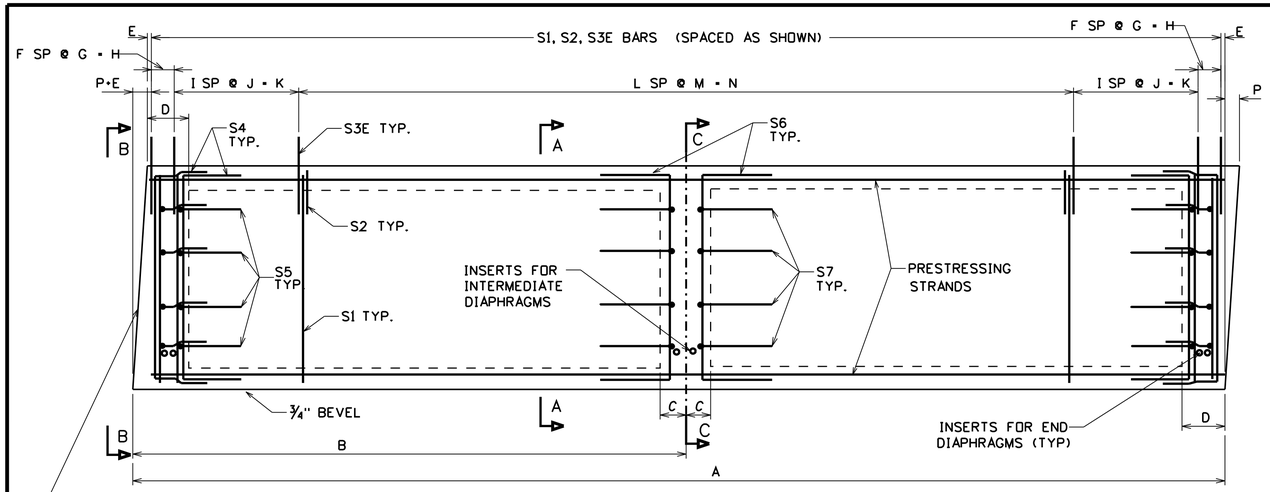
W. VA. DEPARTMENT OF HIGHWAYS
ENGINEERING DIVISION

DESIGNED	DATE
DRAWN	
CHECKED	
REVIEWED	

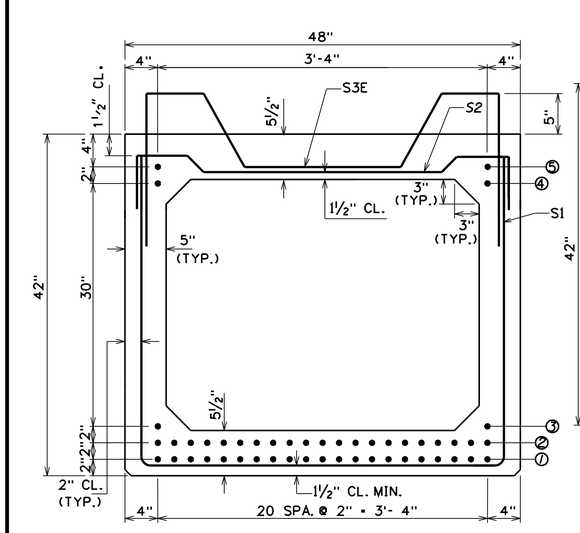
39" X 48" P.C. SPREAD BOX BEAM DETAILS
BRD-B 39X48

SHEET OF
BRIDGE NO.

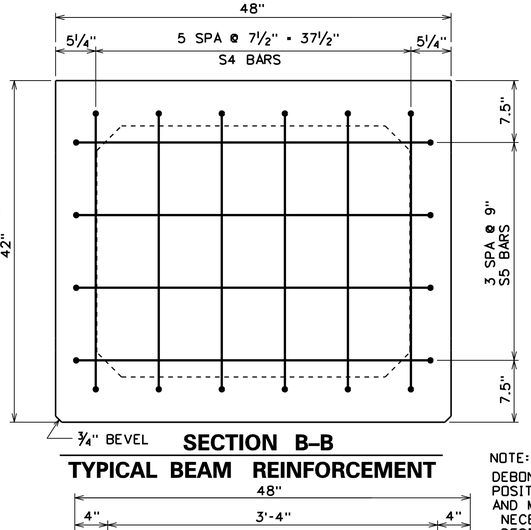
PROJECT NUMBERS		DISTRICT	COUNTY	SHEET NO.	TOTAL
STATE	FEDERAL				



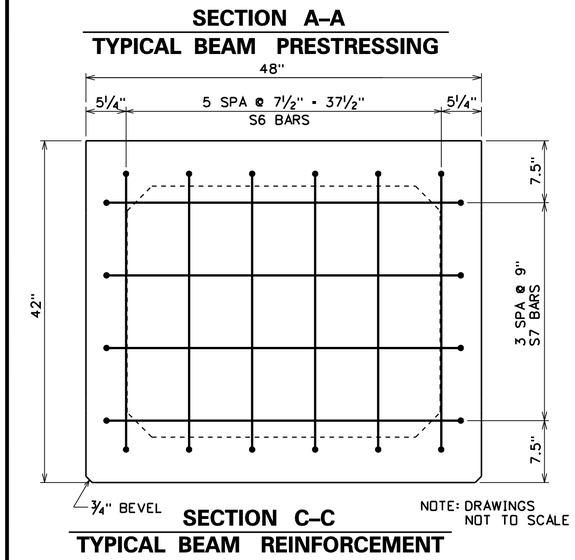
ELEVATION



SECTION A–A
TYPICAL BEAM PRESTRESSING

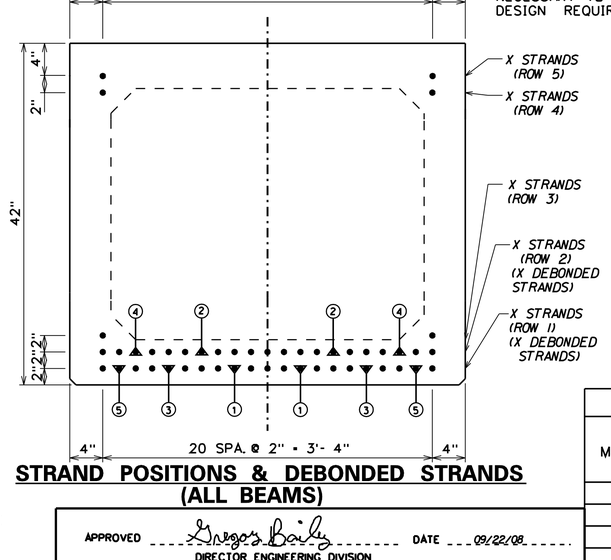


SECTION B–B
TYPICAL BEAM REINFORCEMENT



NOTE: DRAWINGS NOT TO SCALE

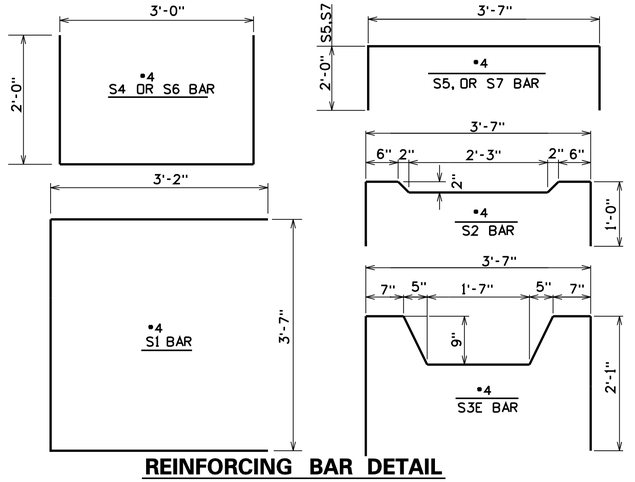
SECTION C–C
TYPICAL BEAM REINFORCEMENT



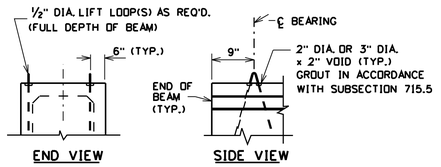
STRAND POSITIONS & DEBONDED STRANDS (ALL BEAMS)

NOTE: DEBONDED STRAND PAIR POSITIONS ARE SUGGESTED AND MAY BE MOVED AS NECESSARY TO MEET DESIGN REQUIREMENTS.

APPROVED Gregg's Baily DATE 09/22/08
DIRECTOR ENGINEERING DIVISION

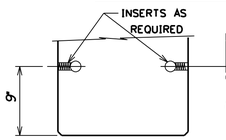


REINFORCING BAR DETAIL

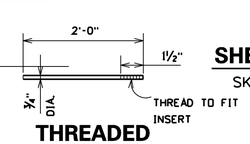


NOTE: LIFTING LOOPS SHALL NOT BE EPOXY COATED. ON SKEWED BEAMS LIFTING DEVICES SHALL BE LOCATED IN A LINE TRANSVERSE TO THE CENTERLINE OF BEAM.

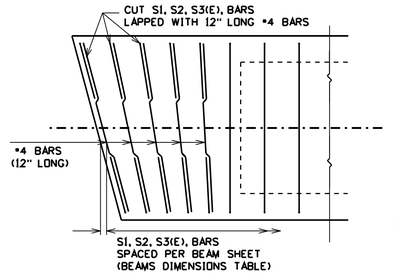
LIFT DETAILS



INSERT DETAIL

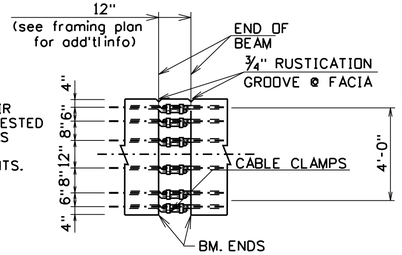


THREADED BAR DETAIL

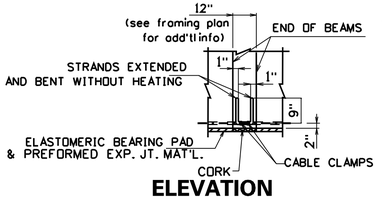


SHEAR REINFORCEMENT DETAIL

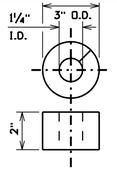
SKEWED BEAMS (15° SKEW OR GREATER)



PLAN



ELEVATION
STRAND SPLICING DETAILS



LIFTING LOOP BLOCKOUT DETAILS

NOTES:

THE CONCRETE SHALL ATTAIN A COMPRESSIVE STRENGTH OF AT LEAST XXX psi, AS SHOWN BY STANDARD CYLINDERS CURED IDENTICALLY WITH THE BEAMS, BEFORE TRANSFERRING BOND STRESS TO THE CONCRETE: OR BEFORE RELEASING THE END ANCHORS. CYLINDER STRENGTH SHALL BE XXX psi WITHIN 28 DAYS.

PRETENSIONED XXXX P. C. BOX BEAMS SHALL BE USED. APPLY AN INITIAL FORCE OF XXXX lbs TO EACH LOW-RELAXATION STRAND. THE DEPARTMENT WILL REJECT THE BEAMS IF THE FINISHED UNITS CONTAINED HONEYCOMBED CONCRETE TO THE EXTENT THAT THE ENGINEER DETERMINES THE STRENGTH OR DETERIORATION RESISTANCE IS REDUCED. BEAM SHORTENING DUE TO SHRINKING AND ELASTIC CHANGES IS LIMITED TO 0.0005L.

PRESTRESSING STRANDS SHALL BE ½" NOMINAL DIA., GRADE 270, UNCOATED SEVEN WIRE LOW-RELAXATION STRAND IN ACCORDANCE WITH AASHTO M203. THE STRANDS SHALL BE PLACED SYMMETRICALLY IN EACH LAYER. SHOP DRAWINGS SHALL SHOW THE STRAND LOCATIONS AND THE DETENSIONING PLAN BY NUMBERING THE SEQUENCE OF THE STRAND PATTERN. THE SHOP DRAWINGS SHALL ALSO SHOW THE STRAND PATTERN FOR DEBONDED STRANDS.

ROUGHEN THE TOP SURFACE OF EACH BEAM TO AN AMPLITUDE OF APPROXIMATELY ¼" AND MAINTAIN CLEAN AND FREE OF LAITANCE.

DEFORMED WIRE FABRIC IS PERMITTED INSTEAD OF REINFORCING STEEL BARS PROVIDED AN EQUAL STEEL AREA IS ATTAINED. WIRE FABRIC MUST CONFORM TO THE REQUIREMENTS OF AASHTO SECTION M225.

ALL NON-PRESTRESSING REINFORCING BARS SHALL BE GRADE 60.

ALL REINFORCING STEEL BARS DESIGNATED "E" SHALL BE EPOXY COATED.

ALL STRANDS SHALL BE ENCLOSED INSIDE STIRRUP CAGE FOR THE ENTIRE LENGTH OF BEAM.

LIFTING DEVICES SHALL BE SHOWN ON SHOP DRAWINGS FOR APPROVAL. LIFTING SHALL BE BY EQUAL LOADS TO EACH DEVICE. INCLUDE PAYMENT IN ITEM 603-01, PRESTRESSED CONCRETE BEAMS, PER FOOT.

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NO.	REVISION	DATE:	BY:

W. VA. DEPARTMENT OF HIGHWAYS
ENGINEERING DIVISION

DESIGNED	DATE
DRAWN	
CHECKED	
REVIEWED	

42" X 48" P.C. SPREAD BOX BEAM DETAILS
BRD–B 42X48

SHEET OF
BRIDGE NO.