STANDARD 12.12

BILL OLIVA

SECTION E-E

SECTION THRU APPROACH SLAB

SECTION F-F

SECTION G-G

SECTION G-G*

LEGEND

5. Steel有哪些的表面要喷涂层和接缝前涂保护层

6. 在整个顶面铺设乙烯基材料

7. 按FDM 14-10-25要求对道路接近地面

STANDARD 12.10

DESIGNER NOTES

See Chapter 30 for Parapets on Structural Approach Slab Details.

Sections A-A thru G-G are from Standard 12.10
MIN. ELEV. PILES TO BE DESIGNED.

MIN. ELEV. PILES TO BE DESIGNED.

LAP ROADWAY REF. LINE

2'-6" #5 BARS

ALL PILES TO BE VERTICAL

4'-0" MAX.

DETAIL BARS ADJACENT TO EACH PILE LOCATION, ON ONE SIDE ONLY.

SUPERSTRUCTURE.

FOR CONCRETE SLAB PARALLEL TO GRADE MAKE TOP OF PIER TO BE LEVEL.

BOTTOM OF SHAFT CONC. PILING LAYOUT SIMILAR.

STEEL PILING SHOWN. CAST IN PLACE @ ENDS.

@ 4 EQ. SPA'S.

#5 BARS @ 1'-0"

#5 VERTICAL BARS @ 1'-0" BOTH FACES @ 2'-0" SPA.

#5 BARS 1'-0"

2" CL.

#4 BARS @ 1'-0"

#4 BARS @ 1'-0"

2" CL. TYP.

** A 1'-5" MIN. LAP

TYP. #5 @ 1'-0" MAX., ON LARGE SKEWS USE WHEN ECONOMICAL FOR GIRDER

TYP. 2" CL., 2" X 6" BEVELED KEYWAY. FOR CONCRETE SLAB SUPERSTRUCTURE

SEE STANDARD 13.01 FOR ADDITIONAL, APPLICABLE DESIGNER NOTES.

CONSTRUCTION JOINTS ARE NOT REQUIRED, REGARDLESS OF LENGTH OF PILE ENCASED PIER.

SEE STANDARD 13.01 FOR ADDITIONAL, APPLICABLE DESIGNER NOTES.

PILE ENCASED PIER

CONSTRUCTION JOINTS ARE NOT REQUIRED, REGARDLESS OF LENGTH OF PILE ENCASED PIER.

SEE BRIDGE MANUAL SECTION 13.11.5 FOR GUIDANCE ON PIER TYPES, DETAILS, AND APPLICABLE BID ITEMS.

See bridge manual section 13.2.3 and standard 13.09 for STABLE STREAMBED.

Cofferdam shall be dewatered prior to placing pier concrete. At pier __, Cofferdam and cofferdam dewatering required. Not exceed 10.0 feet in depth, unless approved otherwise.

Concrete poured underwater shall not exceed 10.0 feet in depth, unless approved otherwise. At pier __, concrete poured underwater will be allowed and shall be done in accordance with standard spec 502.3.5.3. Concrete poured underwater shall be allowed and shall be done in accordance with standard spec 502.3.5.3.

Concrete poured underwater will be allowed and shall be done in accordance with standard spec 502.3.5.3.
**PIER ENCASED PIER (TYPES)**

**DESIGNER NOTES**

Pier types shown on the standard are based on the observed streambed stability factors. Geometric elevation cuts should be considered when selecting the appropriate bid items and plan notes.

**PILE ENCASED PIER TYPES**

- **Type 1 - Hammerhead (as shown on this standard)**
- **Type 2 - Solid Wall (as shown on this standard)**
- **Type 3 - Cofferdam and Seal Bid Items Required.**

**PILE ENCASED PIER ALTERNATIVES**

- **Solid Wall (as shown on this standard)**
- **Management (as shown on this standard)**

---

### Pile Encased Pier Types

<table>
<thead>
<tr>
<th>Type</th>
<th>所需的设备</th>
<th>Unit</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Cofferdam</td>
<td>CY</td>
</tr>
<tr>
<td>2</td>
<td>Cofferdam</td>
<td>CY</td>
</tr>
<tr>
<td>3</td>
<td>Cofferdam</td>
<td>CY</td>
</tr>
</tbody>
</table>

---

### End View Pile Encased Pier - Type 1

**PLAN**

- Pile encased pier - Type 1

**ELEVATIONS**

- Excavation limits
- Stable encased

**CONSTRUCTION**

- Cofferdam

**LEVELS**

- Observed water

**MATERIALS**

- Concrete masonry seal

**ITEMS**

- Pile encased pier - Type 1

**BILL OF MATERIALS**

- Item 1: Cofferdam (structure) - 206.5000 CY

---

### End View Pile Encased Pier - Type 2

**PLAN**

- Pile encased pier - Type 2

**ELEVATIONS**

- Excavation limits
- Stable encased

**CONSTRUCTION**

- Cofferdam

**LEVELS**

- Observed water

**MATERIALS**

- Concrete masonry seal

**ITEMS**

- Pile encased pier - Type 2

**BILL OF MATERIALS**

- Item 1: Cofferdam (structure) - 206.5000 CY

---

### End View Pile Encased Pier - Type 3

**PLAN**

- Pile encased pier - Type 3

**ELEVATIONS**

- Excavation limits
- Stable encased

**CONSTRUCTION**

- Cofferdam

**LEVELS**

- Observed water

**MATERIALS**

- Concrete masonry seal

**ITEMS**

- Pile encased pier - Type 3

**BILL OF MATERIALS**

- Item 1: Cofferdam (structure) - 206.5000 CY

---

### End View Solid Wall Pier

**PLAN**

- Solid wall pier

**ELEVATIONS**

- Excavation limits
- Stable encased

**CONSTRUCTION**

- Cofferdam

**LEVELS**

- Observed water

**MATERIALS**

- Concrete masonry seal

**ITEMS**

- Solid wall pier

**BILL OF MATERIALS**

- Item 1: Cofferdam (structure) - 206.5000 CY
**EDGE OF DECK FLASHING**

FLASHING DETAIL FOR NEW BRIDGES WITH OPEN RAILING

REHABILITATION FLASHING DETAIL 1

REHABILITATION FLASHING DETAIL 2

DESIGNER NOTES

EDGES OF DECK FLASHING IS FOR OPEN RAIL BRIDGES AND MAY BE USED FOR REHABILITATION OF NEW CONSTRUCTION. CONTACT THE REGION BRIDGE MAINTENANCE ENGINEER FOR THE REGION OR WHETHER OR NOT TO USE THE FLASHING ON NEW BRIDGES. DETAIL 1 OR DETAIL 2, OR A COMBINATION OF THE TWO, MAY BE USED FOR REHABILITATION.

THE DESIGN ENGINEER SHALL PROVIDE CONCRETE SURFACE REPAIR DETAILS AS NEEDED. CONCEPTUAL DETAILS ARE SHOWN ON THIS STANDARD.

NOTES

THE 1/4" X 1/4" CONCRETE SCREWS SHALL BE 304 STAINLESS STEEL. CONCRETE SCREWS AND SILICONE CAULK ARE TO BE USED TO SECURE THE CONCRETE SURFACE REPAIRING.

THE TOP OF THE CLADDING (B.F.) SHALL BE 1-1/2" STAINLESS STEEL. STAINLESS STEEL CONCRETE SCREWS SHALL BE 410 STAINLESS STEEL.

THE FLASHING IS TO BE A CONSTANT HEIGHT BASED ON THE THINNEST SLAB DEPTH OVER THE SPAN LENGTH.

THE FLASHING IS TO BE ATTACHED TO THE DECK PRIOR TO ATTACHMENT OF THE FLUSHING.

THE 1/4" X 1/4" CONCRETE SCREWS SHALL BE Spaced AT 1'-0" EACH ROW, STAGGER ROWS.
PART TRANSVERSE SECTION AT DIAPHRAGM

DETAIL C

DETAIL B

SECTION A-A

(BOR BEAM ATTACHMENT)

NOTES

ALL DIAPHRAGM MATERIAL, NOT EMBEDDED IN THE CONCRETE GIRDER, SHALL BE PAID FOR AT THE UNIT PRICE FOR "STEEL DIAPHRAGMS - 0'-0", EACH.

EACH DIAPHRAGM BETWEEN GIRDERS SHALL CONSTITUTE ONE UNIT.

ALL DIAPHRAGM STRUCTURAL STEEL SHALL BE ASTM A709 GRADE 36.

ALL DIAPHRAGM MATERIAL, INCLUDING BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AFTER FABRICATION.

STEEL DIAPHRAGM ATTACHMENT TO CONCRETE WEB CONNECTION SHALL BE ANCHORED 1/3 TO 2/3 DISTANCE FROM THE END OF EACH GIRDER, UNLESS NOTED OTHERWISE.

DESIGNER NOTES

FOR SPANS EQUAL TO OR LESS THAN 80'-0", PLACE ONE DIAPHRAGM AT MID-LENGTH OF GIRDER. FOR SPANS OVER 80'-0", PLACE AT 1/3 AND 2/3 SPAN.

DIAPHRAGM FOR SKEW ANGLES > 10°

PLAN FOR SKEW ANGLES < 10°

SECTION AT INTERIOR GIRDER THRU DIAPHRAGM FOR SKEW ANGLES > 10°

BUREAU OF STRUCTURES

STANDARD 19.36

APPROVED

Bill Oliva

DATE: T-19
SLAB POURING SEQUENCE

PLAN VIEW - SHOWING PLACEMENT OF TRANSVERSE CONSTRUCTION JOINTS
ALLOW FOR TIGHTENING FACE OF GIRDER WEB

BRACKET DETAIL
ATTACH GRATE TO FRAME FOR SHIPMENT

GIRDER WEB. FACE OF EXTERIOR DETAIL AT RIGHT BRACKET - SEE NEOPRENE WASHER 70 DUROMETER FULL FACED

DRAIN CASTING
CASTING DETAIL
ATTACH GRATE TO FRAME FOR SHIPMENT

PLAN

SECTION A1

SECTION A2

GRATE CASTING DETAIL
ATTACH GRATE TO FRAME FOR SHIPMENT

FLANGED 6 INCH DOWNSPOUTS SHALL BE REINFORCED WITH STANDARD PIPE CONFORMING TO ASTM A53.

ALTERNATE BRACKETS ARE NOT ALLOWED.

DUCTILE IRON BRACKETS SHALL CONFORM TO ASTM A48, CLASS 30.

MATERIAL FOR BRACKETS SHALL CONFORM TO ASTM A36.

ALL MATERIAL FOR FLOOR DRAINS AS SHOWN ON THIS SHEET SHALL CONFORM TO THE FLOOR DRAIN TYPE GC.

MATERIAL FOR DOWNSPOUTS AND BRACKETS AS SHOWN ON THE SHEET SHALL BE INCLUDED IN THE BID ITEM "DOWNSPOUT 6-INCH".

AS SHOWN ON THIS SHEET SHALL BE INCLUDED ALL MATERIAL FOR FLOOR DRAINS AS SHOWN ON THE PREVIOUS SHEET SHEET, SHOW LOCATION OF HOLES FOR BRACKET ANCHORAGE FROM TOP/BOTTOM AND END OF GRIDES.

DISPLACE BARS WHERE POSSIBLE.

REINF. TO BE CUT A MAX. OF TRANS. AND LONGIT. SLAB BAR 4-‡" DIA. HOLES DRILLED & TAPPED 1" R.

4-‡" DIA. HOLES
FOR 1" CL. FROM DRAIN FRAME.

REINF. TO BE CUT A MAX. OF TRANS. AND LONGIT. SLAB BAR 4-‡" DIA. HOLES DRILLED & TAPPED 1" R.

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NOTE:
ALL MATERIAL FOR TYPE "GC" CASTING EXCLUDING GRATE HOLD DOWN SCREWS SHALL BE DUCTILE IRON CONFORMING TO ASTM A48, CLASS 30, APPROXIMATE HEAVY CASTING (APPROXIMATE WEIGHT = 225#)

MATERIAL FOR BRACKETS SHALL CONFORM TO ASTM A48, CLASS 30.

MATERIAL FOR DOWNSPOUTS AND BRACKETS AS SHOWN ON THE SHEET SHALL BE INCLUDED IN THE BID ITEM "DOWNSPOUT 6-INCH".

ALTERNATE BRACKETS ARE NOT ALLOWED.

DUCTILE IRON BRACKETS SHALL CONFORM TO ASTM A48, CLASS 30.

MATERIAL FOR BRACKETS SHALL CONFORM TO ASTM A36.

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**Roadway Opening**

**Parapet End of Wing**

**Vertical Bars**
- At abutments
- At deflection joints

**Plan of Parapet**

**Elevation of Parapet**

**Deflection Joints**
- Illustrated details for 1\'-6\" long galvanized mill head cap screws. Cap screws to be spaced 4\" on c.g. and shall be supplied with washers, and assembly. Receipts to be issued a minimum of 1\".

**Joint Sealer**
- Gray non-bituminous fill with non-staining gray non-bituminous joint sealer.

**Notes**
- PARAPET - SIMILAR TO THAT SHOWN IN THIS AREA
- SECTION "D" BY SHADEd AREA.

**Details of Anchor Assembly**
- Note: Mill head cap screws are necessary to be galvanized in accordance with AASHTO M232 Class C.

**Bill of Bars**

**Design Note**
- A combination rail is allowed for use as a pedestrian or bicycle railing. A combination rail is also allowed for use as a pedestrian or bicycle railing. It is the responsibility of the designer to specify the acceptable alternatives.

**Legend**
- NOTE: WHEN PARAPETS ARE POURED CONTINUOUSLY FROM END TO END, THEY SHALL BE SEPARATED AT THE DEFLECTION JOINTS BY A PIECE OF 1\" PLASTIC OR ZINC PLATE. PROVIDE OPTIONAL CONSTRUCTION JOINTS IN THE PARAPETS.

**Approvals**
- Approved: Bill Oliva
- Date: 7-19

**Standard 3G07**
FOR FENCE W/ BENT TOP

LEGAL NOTICE

NOTES

POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTHED WITH A RASP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUT.

STRUCTURAL TUBING SHALL CONFORM TO ASTM A500, GRADE B, PLATES, ANGLES, BARS, AND SQUARE, CONFORM TO ASTM A53. ROUND TUBING SHALL CONFORM TO ASTM A513, CLASS 3B.

ANCHORAGES SHALL BE ACCURATELY PLACED TO PROVIDE CORRECT ALIGNMENT OF RAILING. SET POSTS NORMAL TO GRADE.

ALL POST SPACINGS ARE TAKEN HORIZONTAL ALONG CENTERLINE OF RAILING AT BASE OF POST.

STEEL SLOTTED HOLES ARE TO BE EXCAVATED AND BASE PLATES ARE TO BE PLANTED. ALL BASE PLATES MUST BE GALVANIZED.

ANCHOR BOLTS, NUTS AND WASHERS SHALL BE EITHER STAINLESS STEEL OR ASTM 307. IF 307 IS USED, ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED.

DESIGNER NOTES

TUBULAR SCREENING MAY BE USED ON STRUCTURES WITH A HORIZONTAL SPEED OF 60 MPH OR LESS, OR WHEN THE SLOPE IS SLOPED FROM THE ROADWAY BY A PARAPET.

BENDS MAY BE MOUNTED DIRECTLY TO A BRIDGE RAILING, OR SETTING建築 MOUNTED ON A BRIDGE RAILING. THEY ARE SEPARATED FROM THE ROADWAY BY A PARAPET. USE 6" CLEAR SPACING BETWEEN VERTICAL MEMBERS. 

FENCE HEIGHTS CURVED OR STRAIGHT, MESH SIZE, COATING AND COLOR SHOULD BE COORDINATED WITH THE REGION. SEE BRIDGE MANUAL 30.3 (8) FOR ADDITIONAL GUIDANCE.
**Combination Railing Types C1-C6**

Combination railings Type C1-C6 may also be used as a pedestrian barrier. Additional approaches should be considered.

- Parapet reinforcing bar size and spacing

---

**Inside Elevation**

Optional construction details in the parapets may be used. Needs analysis should be considered for use on new work.

- Joint spacing of 30'-0". Depth: 2-1/2". Width: 1/4". "V" notch. 

---

**Designer Notes**

Compliance with the standard is recommended. See standard for additional railing details.

- Joint opening for "A1" (2x2" fillers)
- Joint opening and joint seal
- Joint opening for "A1" (2x2" fillers)
- Joint opening for "A1" (2x2" fillers)
- Joint opening for "A1" (2x2" fillers)

---

**Approved:**

Bill Oliva

Date: 7-19

---

**Bureau of Structures**

Standard 30.17
GENERAL PLAN SHT.

FOR WING LOCATIONS.

NOTE FOR SECTIONS A & B ONLY
THE PARAPET TERMINATING ON A WING IS SHOWN.

SECTION A
SECTION B
SECTION C

BILL OF BARS
FOR ABUTMENT PARAPETS

<table>
<thead>
<tr>
<th>BAR</th>
<th>WT</th>
<th>LENGTH</th>
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BARS FOR TRANSITION ON BRIDGE

SINGLE SLOPE PARAPET 32SS

STANDARD 30.30

Approved: Bill Oliva

Date: 7-19

BUREAU OF STRUCTURES

FOR WING LOCATIONS.

SEE "GENERAL PLAN" SHT.

NOTE FOR SECTIONS A & B ONLY
THE PARAPET TERMINATING ON A WING IS SHOWN.
FOR WING LOCATIONS.

"GENERAL PLAN" SHT.

FOR THREE BEAM, SEE `OF ANCHOR ASSEMBLY

<table>
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<tr>
<th>BILL OF BARS</th>
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<tbody>
<tr>
<td>BAR</td>
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</table>

INSIDE ELEVATION

ROADWAY OPENING OR 30" WIDR IN EXPANSION JOINT. USE 15" OPENING WITH FILLER FOR ALL JOINTS.

OUTSIDE ELEVATION

ROADWAY OPENING OR 2" WIDR IN EXPANSION JOINT. USE 15" OPENING WITH FILLER FOR ALL JOINTS.

SECTION A

SECTION B

SECTION C

OUTSIDE ELEVATION

SECTION THRU PARAPET ON BRIDGE

BARS FOR TRANSITION ON BRIDGE

SINGLE SLOPE PARAPET 36SS

APPROVED

STANDARD 30.31

BUREAU OF STRUCTURES

Bill Oliva

DATE: 7-19
DEFINITE JOINT WITH A \( 1' - 6" \) - MIN. JOINT SPACING OF \( 80'-0" \).

LAP LONGIT. BARS A MIN. OF \( 1' - 9" \).

RUN BAR REINF. THRU THE JOINT.

IN THE PARAPETS MAY BE USED.

OPTIONAL CONSTRUCTION JOINTS

\( 3" \)

\( 501 \)
\( 502 \)
\( 503 \)

A

OUTSIDE ELEVATION

PLAN

INSIDE ELEVATION

Roadway opening or expansion joint. Use \( 1/2" \) opening with filler for all abutments.

SCALE: \( 1" = 1' \)

R501
R502
R503

SECTION A

OPTIONAL CONSTRUCTION JOINTS IN THE PARAPET MAY BE USED. LAY BAR NICE THRU THE JOINT.

LAP LENGTH HAS A MIN. OF \( 1' - 3" \).

MAIN SPACING OF \( 1'-5" \) - MINIMUM.

DESIGNER NOTES

THE \( 56SS \) PARAPET IS ONLY TO BE USED IF A "TYPE S" SINGLE SLOPE CONCRETE ROADWAY RAIL IS ATTACHED TO THE TOP OF THE PARAPET.

USE A 1'-0" RNG FOR RNGS PARALLEL TO THE ROADWAY.

A1 ABUTMENTS.

TO THE PAVING NOTCH ON TYPE "A" BILL OF BARS.

DESIGNER MAY ELECT TO USE A \( 501 \) BAR IN LIEU OF A S5__ BAR ADJACENT TO THE NAME PLATE. FOR LOCATION OF THE S5__ BAR.

DATE: 7-19

STANDARD 30.33

BILL OF BARS

<table>
<thead>
<tr>
<th>BAR Mark</th>
<th>DIM.</th>
<th>ABUT. LENGTH</th>
<th>LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>R501</td>
<td>( 1' - 6&quot; )</td>
<td>( 8&quot; )</td>
<td>PARAPET-VERT.</td>
</tr>
<tr>
<td>R502</td>
<td>( 1' - 2&quot; )</td>
<td>( 8&quot; )</td>
<td>PARAPET-VERT.</td>
</tr>
<tr>
<td>R503</td>
<td>( 1'-5&quot; )</td>
<td>( 9&quot; )</td>
<td>PARAPET-VERT.</td>
</tr>
</tbody>
</table>

APPROVED: Bill Oliva

BUREAU OF STRUCTURES

SINGLE SLOPE PARAPET 56SS
**FOR WING LOCATIONS.**

See "GENERAL PLAN" SHT.

"OF ANCHOR ASSEMBLY" R501

**1'-8"**

**2'-6"**

**BAR MARK** C

**O A T**

**B E N T**

**abut.**

**LENGTH**

**LOCATION**

**BILL OF BARS**

<table>
<thead>
<tr>
<th>NO.</th>
<th>BAR SIZE</th>
<th>ASST.</th>
<th>LENGTH</th>
<th>BAR SIZE</th>
<th>LOCATION</th>
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<tbody>
<tr>
<td>R501</td>
<td>2&quot;</td>
<td>4'-5&quot;</td>
<td>4'-5&quot;</td>
<td>1&quot;</td>
<td></td>
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<tr>
<td>R502</td>
<td>2&quot;</td>
<td>6'-8&quot;</td>
<td>4'-4&quot;</td>
<td>1&quot;</td>
<td></td>
</tr>
<tr>
<td>R503</td>
<td>2&quot;</td>
<td>6'-6&quot;</td>
<td>4'-4&quot;</td>
<td>1&quot;</td>
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</tr>
<tr>
<td>R504</td>
<td>2&quot;</td>
<td>6'-6&quot;</td>
<td>4'-4&quot;</td>
<td>1&quot;</td>
<td></td>
</tr>
<tr>
<td>R505</td>
<td>2&quot;</td>
<td>5'-5&quot;</td>
<td>4'-4&quot;</td>
<td>1&quot;</td>
<td></td>
</tr>
<tr>
<td>R506</td>
<td>2&quot;</td>
<td>1'-0&quot;</td>
<td>4'-4&quot;</td>
<td>1&quot;</td>
<td></td>
</tr>
</tbody>
</table>

**parapet-vert.**

**parapet-horiz.**

**OPTIONAL CONSTRUCTION JOINTS**

**WEIGHT = 563 LB/FT**

**AREA = 3.75 SF**

**PLAN**

**INSIDE ELEVATION**

**SECTION A**

**SECTION B**

**SECTION C**

**DESIGNER NOTES**

See Structural Approach Slab Standards 30.2 and 12.6 for Approach Slab Information.

See Standard 30.2 for Details of 42SS Parapet on Bridge.

**SINGLE SLOPE PARAPET 42SS WITH STRUCTURAL APPEAR SLAB**

**BILL OF BARS**

**BAR SERIES TABLE**

**BILL OF BARS**

**FOR APPROACH SLAB INFORMATION.**

See Standard 12.2 for AS ABOVE DETAILS.

See Standard 30.2 for Details of 42SS Parapet on Bridge.

**SLAB FOOTING**

**STRUCTURAL APPROACH**

**BEFORE STRUCTURAL APPROACH SLAB STEEL**

**R501 AND R504 BARS TO BE TIED TO**

**ATTACHED TO THE TOP OF THE PARAPET.**

**BELOW A RAIL OR FENCE SYSTEM THAT IS**

**BENCHMARK (WHEN SUPPLIED). AVOID PLACING**

**FILLER**

**R501**

**R504**

**R507**

**R508**

**R509**

**R510**

**R502**

**R503**

**R505**

**R506**

**APPROVED**

**Bill Oliva**

**DATE:**

**1-18**

**STANDARD 30.36**
STANDARD 40.04

STRIP SEALS & DIAPH.
DETAILS FOR OVERLAYS

END OF GIRDER

DESIGN OPENING

+ +

(If Required)

PAVING NOTCH

4"

DECK STEEL

NEW TRANSVERSE

1'-0"

concrete OVERLAY limits

6 MIN.

SECTION THRU PROPOSED JOINT
STEEL GIRDER WITH END DIAPHRAGM

CONCRETE OVERLAY

SECTION THRU PROPOSED JOINT
PRESTRESSED GIRDER WITH END DIAPHRAGM

CONCRETE OVERLAY

LEGEND

EXPANDING DEVICE

ADHESIVE ANCHORS NO. 5 BAR

JOINT REPAIR

CONCRETE MASONRY BECK REPAIR

EXTRUSION

END (IF REQUIRED)

REPAIR ON GIRDER

CONCRETE OVERLAY LIMITS

EXPANSION JOINT

STRIP SEAL

CONCRETE OVERLAY

ASPHALTIC OVERLAY

TOTAL ESTIMATED QUANTITIES

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>UNIT</th>
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</thead>
<tbody>
<tr>
<td>EXPANSION DEVICE</td>
<td>FT</td>
</tr>
<tr>
<td>ADHESIVE ANCHORS</td>
<td>EA</td>
</tr>
<tr>
<td>JOINT REPAIR</td>
<td>FT</td>
</tr>
<tr>
<td>CONCRETE MASONRY BECK REPAIR</td>
<td>CY</td>
</tr>
<tr>
<td>EXPANSION JOINT</td>
<td>FT</td>
</tr>
<tr>
<td>STRIP SEAL</td>
<td>FT</td>
</tr>
<tr>
<td>CONCRETE MASONRY OVERLAY REPAIR</td>
<td>CY</td>
</tr>
</tbody>
</table>

NOTE: EXPANSION JOINTS OR BLOCKS MUST BE PLACED ALONG THE SKEW.

NOTE: TRANSVERSE REINFORCEMENT SHALL BE PLACED NORMAL TO THE GIRDERS, SAVE AND INCORPORATE 1'-6" MIN. FOR SKEWS > 20°, WHERE ORIGINAL TRANSVERSE DECK REINFORCEMENT WAS PLACED ALONG THE SKEW.

NOTE: ALL REPLACEMENT PAVING BLOCK EXPANSION JOINTS MUST MATCH EXISTING PLAN DIMENSIONS UNLESS DESIGNER DETERMINES OTHERWISE.  SEE STANDARD 28.01 FOR SUPPORTS USED FOR STRIP SEAL STEEL EXTRUSIONS.

NOTE: **PE** BARS MUST BE REMOVED TO FIT EACH INDIVIDUAL CASE.

NOTE: **PE** BARS ARE LIKELY TO BE CORRODED AND/or DAMAGED DURING CONCRETE PLACEMENT.  REPLACE WITH NEW REINFORCEMENT AS INDICATED.  SPACE AT 1'-0".

NOTE: EXISTING DIAPHRAGMS MAY REQUIRE TRENCHES TO BE REMOVED OR BURIED IN CONCRETE SPACE AT 1'-0".

NOTE: ADHESIVE ANCHORS NO. 5 BAR. EMBED 1'-0" IN CONCRETE. SPACE AT 1'-0".

BUREAU OF STRUCTURES

STANDARD 40.04

APPROVED: Bill Oliva

DATE: 7-19
NOTES

1. CONSTRUCTION JOINT: PUSH CONCRETE ABOVE THE JOINT AFTER SUPERSTRUCTURE CONCRETE IS IN PLACE, STRIKE OFF AND LEAVE ROUGH.

2. IF NECESSARY, INSTALL HYDROSTATIC WATERPROOFING SEAL ALL HORIZONTAL & VERTICAL JOINTS AT INTERFACE.

3. SALVAGE PILES, REBAR & EXTEND FULL LENGTH INTO NEW WORK.

4. HORIZONTAL SURFACE OF CONCRETE 3" DEEP WORKING AT ALL AREAS WHERE NEW CONCRETE CONTACTS EXISTING CONCRETE.

5. EXISTING WINGS: REMOVE A MIN OF 2'-0" BEFORE PLACING CONCRETE.

NOTE:

- BEATEN 3'/FT IN THE DIRECTION INDICATES PILE CONTACTS EXISTING CONCRETE.

- MINIMUM AT ALL AREAS WHERE NEW CONCRETE WOULD BE REQUIRED OTHERWISE.

- MATCH RESPECTIVE EXISTING SEAT ELEVATIONS MATCH EXISTING PLAN DIMENSIONS UNLESS DESIGNER DETERMINES OTHERWISE.

DESIGNER NOTES

SEE CHAPTER 12 FOR NEW BAR STEEL PLACEMENT, DETAILS, DIMENSIONS & NOTES.

WING WITHOUT PILE

- SALVAGE EXIST. REINF. & EXTEND FULL LENGTH BELOW FINISHED GRADE.

- EXISTING WINGS: REMOVE A MIN. OF 2'-0" ELEV. @ F.F. ABUT. BACKWALL AND GUTTERLINE.

- INTO NEW WORK.

- BRIDGE SEAT: INCORPORATE EXIST. BAR STEEL REMOVE CONCRETE IN THIS AREA DOWN TO EXIST. ELEV.

- INTO NEW WORK.

PILE PLAN

- INDICATES PILE INDIKES ZONE, SHOWN.

SECTION P-P

- ADD A MINIMUM OF 1'-0" #5 BARS AT 7-3/4" LAP 1'-0"

- SALVAGE EXIST. VERT. BARS

- EXIST. CONST.

- NOTE: INGREDIENTS VARY PER PAVING PATTERN OR BAR STEEL DESIGNER DETERMINES OTHERWISE.

ABUTMENT WIDENING

BUREAU OF STRUCTURES

APPROVED: Bill Oliva

DATE: 11-19

STANDARD 4G.06
NOTES

FOR DOWEL BAR COUPLERS, ALL DOWEL BARS SHALL BE LAPPED AND TIED TO THE REINFORCEMENT BARS.

DESIGNER NOTES

ON THE PLANS PROVIDE LOCATION, SPACING, SIZE AND QUANTITY NEEDED. DO NOT GIVE SPECIFIC INFORMATION REGARDING THE COUPLER AS THIS IS COVERED BY THE BAR COUPLER (COUPLER) BID ITEM.

ON THE PLANS SHOW DETAILS SIMILAR TO "SECTION THRU DECK" AND "BAR COUPLER ALTERNATIVES".

AT THE PLANS, PLACE DOWEL BAR COUPLERS IN STAGE 1 AND STAGE 2, USING THE SAME SYMBOL, ADD A NOTE STATING THAT A BAR COUPLER IS REQUIRED. BAR LENGTHS ARE COMPUTED TO THE END OF THE CONSTRUCTION JOINT AND ARE MODIFIED BY THE BID ITEM. BAR LENGTHS ARE TO BE DETAILED IN THE BAR COUPLER MANUFACTURER'S SPECIFICATIONS.

REQUIRED. BAR LENGTHS TO BE MODIFIED TO THE END OF THE CONSTRUCTION JOINT AND ARE MODIFIED BY THE BID ITEM. BAR LENGTHS TO BE DETAILED IN THE BAR COUPLER MANUFACTURER'S SPECIFICATIONS.

ON THE PLANS PROVIDE LOCATION, SPACING, SIZE AND QUANTITY NEEDED. DO NOT GIVE SPECIFIC INFORMATION REGARDING THE COUPLER AS THIS IS COVERED BY THE BAR COUPLER (COUPLER) BID ITEM.

BAR COUPLER ALTERNATIVES

STAGE 2 DOWEL SCREWS INTO

REINFORCEMENT BARS.

FOR DOWEL BAR COUPLERS, ALL DOWEL BARS SHALL BE LAPPED AND TIED TO THE REINFORCEMENT BARS.

STAGE 2 CONSTRUCTION

STAGE 1 CONSTRUCTION

STAGE 2 CONSTRUCTION

STAGE 1 CONSTRUCTION

STAGE 2 CONSTRUCTION

STAGE 1 CONSTRUCTION

STAGE 2 CONSTRUCTION

STAGE 1 CONSTRUCTION

STAGE 2 CONSTRUCTION

STAGE 1 CONSTRUCTION

ONE-PIECE THREAD COUPLER

BAR COUPLER ALTERNATIVES
CROSS SECTION THRU ROADWAY

PLAN

TOTAL ESTIMATED QUANTITIES
**NOTES**

- **Note:** The provided table and text are not fully transcribed due to the nature of the image.

**TOTAL ESTIMATED QUANTITIES**

<table>
<thead>
<tr>
<th>ID</th>
<th>BID ITEMS</th>
<th>UNIT</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>509.2000.S</td>
<td>FULL-DEPTH DECK REPAIR</td>
<td>SY</td>
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<tr>
<td>509.0310.S</td>
<td>CONCRETE MASONRY DECK REPAIR</td>
<td>CY</td>
<td></td>
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<tr>
<td>509.5100.S</td>
<td>POLYMER OVERLAY</td>
<td>SY</td>
<td></td>
</tr>
<tr>
<td>509.0301</td>
<td>PREPARATION DECKS TYPE 1</td>
<td>SY</td>
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<tr>
<td>509.0302</td>
<td>PREPARATION DECKS TYPE 2</td>
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<tr>
<td>509.0313</td>
<td>SAWING PAVEMENT DECK PREPARATION AREAS</td>
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<tr>
<td>509.0314</td>
<td>FULL-DEPTH DECK REPAIR</td>
<td>CY</td>
<td></td>
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</table>

**DRAWINGS SHALL NOT BE SCALED.**

**DESIGN DATA**

- **Live Load:**
  - Operating Rating Factor: RF = 1.
  - INVENTORY RATING FACTOR: RF = 1.
  - OPERATING RATING: HS-__
  - INVENTORY RATING: HS-__

- **Material Properties:**
  - Concrete Masonry - Deck Patching (fc = 4,000 P.S.I.)

- **Construction Joint:**
  - Optional Longitudinal polymer overlay

- **WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV):**

<table>
<thead>
<tr>
<th>ID</th>
<th>Design Data</th>
<th>Unit</th>
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</thead>
<tbody>
<tr>
<td>SPV.0035</td>
<td>POLYMER OVERLAY</td>
<td>CY</td>
</tr>
</tbody>
</table>

**DESIGNER NOTES**

- Polymer overlays shall not be placed on concrete approaches.

- Polymer overlays shall not be placed on concrete approaches.

- Polymer overlays are intended for use on decks with a minimum age of 20 days and a maximum age of 2 years. Additional curing time may be required for achieving the desired degree of polymerization.

- When the polymer overlay is used, all curing should include the 5 psf overlay.

**CROSS SECTION THRU ROADWAY**

Looking North
FULL-DEPTH DECK REPAIR

DESIGNER NOTES

Concrete overlays are the current preferred method to overlay a bridge.

Repaired areas require a minimum cure time of 7 days before placing overlay.

Provided an average overlay thickness on the plans. The average overlay thickness value is based on the theoretical average overlay thickness plus or minus to account for variations in the deck surface. Quantities are based on the average overlay thickness.

Do not provide a profile grade line on the plans.

Overlays not requiring sheet membrane waterproofing are preferred.

Contact the Regional Bridge Maintenance Engineer to determine if polymer modified asphaltic overalys are preferred.

Total estimated quantities

Possible additional bid items

Bill Oliva

DATE: 7-19

TOTAL ESTIMATED QUANTITIES

<table>
<thead>
<tr>
<th>BID ITEM</th>
<th>UNITS</th>
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</table>

Notes

Drawings shall not be scaled.

Dimensions shown are based on the original structure plans.

Areas of Preparation decks type 1 shall be defined by a saw cut.

Preparation decks type 1, preparation decks type 2, and full-depth deck repair areas are based on the plans and as determined by the Engineer. Preparation and Full-Depth Deck Repair shall be filled with concrete masonry deck repair.

Any excavation required to complete the overlay or joint repair at the abutments to be considered incidental to the bid item "Overlay Polymer Modified".

The plan quantity for the bid item "Overlay Polymer Modified" is based on the average overlay thickness.

Profile grade line shall be determined in the field based on a minimum overlay thickness of 2" placed above the deck surface. Expected average overlay thickness is 2". If expected average overlay thickness is exceeded by more than 10", contact the Structures Design Section.

Bill Oliva

DATE: 7-19

TOTAL ESTIMATED QUANTITIES

<table>
<thead>
<tr>
<th>BID ITEM</th>
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Bill Oliva

DATE: 7-19
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</tr>
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</tbody>
</table>

USE OF PPE OVERLAYS ARE LIMITED AS INDICATED IN THE BRIDGE MANUAL FOR MINIMAL DISTRESS.

POLYESTER POLYMER CONCRETE OVERLAY

BUREAU OF STRUCTURES

APPROVED: Bill Oliva

STANDARD 40.34