ELEVATION

PLAN

TABLE OF GR-S ABUTMENT STATIONS AND ELEVATIONS

NOTES

1. DRAWINGS SHALL NOT BE SCALDED.
2. ALL GR-S ABUTMENT STATIONS AND OFFSETS ARE GIVEN AT THE FRONT FACE OF THE ABUTMENT KEYBLOCK. SEE SECTIONS A-A AND B-B IN STANDARD 7.02 FOR LOCATION OF THE ABUTMENT KEYBLOCK.
3. FACTORED BEARING RESISTANCE OF XX PSI AT BOTTOM OF REINFORCED SOIL FOUNDATION.
4. MAXIMUM ALLOWABLE WALL BATTER IS 1 VERTICAL TO 1 HORIZONTAL OR 12 DEGREES.
5. PROTECT MODULAR BLOCK DURING PLACEMENT OF HEAVY RIPRAPS.
6. PROVIDE Corner BLOCKS AND/OR DETAILS COMPATIBLE WITH THE SELECTED MODULAR BLOCK SYSTEM. ROUNDED CORNERS ARE ALLOWABLE.
7. TEMPORARY FAULTWORK NOT TO BE SUPPORTED ON THE GR-S ABUTMENT UNLESS APPROVED BY THE BUREAU OF STRUCTURES DEVELOPMENT SECTION.

DESIGNER NOTES

1. THE USE OF GR-S ABUTMENTS IS SUBJECT TO PRIOR APPROVAL BY THE BUREAU OF STRUCTURES.
3. MINIMUM TENSILE STRENGTH OF THE GEOSYNTHETIC REINFORCEMENT SHOWN WITHIN THE SPECIAL PROVISIONS, "GEOSYNTHETIC REINFORCED SOIL ABUTMENT" TABLE OF GR-S ABUTMENT STATIONS AND ELEVATIONS SHOWN ON STANDARD 7.02.
4. MAXIMUM ALLOWABLE WALL BATTER IS 1 VERTICAL TO 1 HORIZONTAL OR 12 DEGREES.
5. THE TOP OF THE CONTRAST-COLORED BLOCKS SHALL BE 2-3 BLOCK COURSES BELOW THE TOP OF RIPRAPS ELEVATION.
6. THE MINIMUM REQUIRED TENSIION STRENGTH OF THE GEOSYNTHETIC REINFORCEMENT SHALL BE SHOWN IN THE SPECIAL PROVISIONS, "GEOSYNTHETIC REINFORCED SOIL ABUTMENT" TABLE.

FACTORED BEARING RESISTANCE OF XX PSI AT BOTTOM OF REINFORCED SOIL FOUNDATION.

G-R-S ABUTMENT GENERAL PLAN

BUREAU OF STRUCTURES

APPROVED: Bill Oliva

STANDARD 7.01

DATE: 7-18
**GRS ABUTMENT DETAILS**

**NOTES**
- Front face of alignment keyblock location to be held regardless of actual modular block size or GRS abutment batter.
- 4" £ wrap (typ.)
- Indicates geosynthetic reinforcement layer number, for locating. See GRS abutment information table for reinforcement layers to be designed.
- Full height block is typical in front of bearing seat but a half-height block and a special expanded polystyrene thickness may be required in some applications.
- Limits of GRS backfill to be paid for under the bid item geosynthetic reinforced soil abutment.

**DESIGNER NOTES**
- The top of the contrast-colored blocks shall be at least 3' below the top of riprap elevation.
- Dimensions to be designed.
- The minimum required tensile strength of the geosynthetic reinforcement shall be shown within the special provision.
- Geosynthetic reinforced soil abutment.
- Minimum clear space shall be at least 2% of GRS abutment height. Minimum clear space shall be shown on the plans.
- **CONCRETE SPREAD FOOTING TO BE DETERMINED PER DESIGN.**

**GRS ABUTMENT INFORMATION**

<table>
<thead>
<tr>
<th>Layer Number</th>
<th>Width Length*</th>
<th>Reinforcement Type</th>
</tr>
</thead>
</table>

*S: Length measured from front face of modular block to end of geotextilewrap included. Geotextile wrap applied.

**BUREAU OF STRUCTURES**

Approved: Bill Oliva

Date: 7-18

STANDARD 7.02
NOTES (BOX CULVERTS)

The upper limits of excavation for structures Culverts C-_-_ shall be the existing groundline.

The design engineer shall determine the pay limits shown on the plans and may not exceed the indicated quantities.

Type B structure type B required for the entire wall length. The upper limits of excavation shall be 6" minimum depth.

Type A structure type A required on the box culvert sides and behind apron wings for 3 feet. Backfill placed beyond pay limits or exceeding plan quantities shall be incidental to excavation for structures.

NOTE: Undercut not required per geotechnical engineer or when constructed on fills.

Design engineer may determine if "other granular material" is acceptable.

All precast box sections shall be placed on a bedding of "backfill structure type A" of minimum depth. (Note applicable when precast note is shown on the plans)

NOTES (RETI WAIL CS)

The upper limits of excavation for structures retaining walls R-_-_ shall be the existing groundline.

The design engineer shall determine the pay limits shown on the plans and may not exceed the indicated quantities.

Type B structure type B required for the entire wall length. The upper limits of excavation shall be 6" minimum depth.

Design engineer may determine if "other granular material" is acceptable.

All precast box sections shall be placed on a bedding of "backfill structure type A" of minimum depth. (Note applicable when precast note is shown on the plans)

LEGEND

Backfill pay limits shall be according to Table 6.4.1. Backfill pay limits for Structure Backfill Limits and Notes 2 shall be determined by the design engineer.

Surface drainage, extant material shall be included in the construction.

Bill Oliva

STANDARD 9.02
DESIGNER NOTES

FULL SCALE DRAWINGS CAN BE USED IF PREBORED HOLE IS LARGE ENOUGH TO AVOID PILE MARKUPS AND ALLOW FILLING WITH SAND.

SEE BRIDGE MANUAL SECTION 11.3.1.12.3 FOR GUIDANCE ON "HP" PILES.

IF LESS THAN THE MAXIMUM AXIAL RESISTANCE IS REQUIRED BY DESIGN, CONSULT WITH THE GEOTECHNICAL ENGINEER REGARDING POSSIBLE MODIFICATIONS TO THE DRIVING RESISTANCE.

STATE ONLY THE REQUIRED CORRESPONDING DRIVING RESISTANCE ON THE PLANS.

CONSULT WITH THE GEOTECHNICAL ENGINEER REGARDING POSSIBLE AXIAL RESISTANCE MODIFICATIONS.

IF LESS THAN THE MAXIMUM AXIAL RESISTANCE IS REQUIRED BY DESIGN, CONSULT WITH THE GEOTECHNICAL ENGINEER REGARDING POSSIBLE MODIFICATIONS TO THE DRIVING RESISTANCE.

CONSULT WITH THE GEOTECHNICAL ENGINEER REGARDING POSSIBLE AXIAL RESISTANCE MODIFICATIONS.

STANDARD SPECIFICATION.

CAST-IN-PLACE PILE SHELL MATERIAL SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATION.

SEE BRIDGE MANUAL SECTION 11.3.1.17.7 FOR PILE RESISTANCE VALUES.

SEE WISDOT POLICY ITEM IN BRIDGE MANUAL 11.3.1.12.3 FOR GUIDANCE ON "HP" PILES.

PILE DIA. + 4 in.

END PLATE DETAIL FOR CIP PILING

END PLATE DETAIL FOR CIP PILING

IN ARTESIAN CONDITIONS

CAST-IN-PLACE PILING

USED WHEN PILES ARE EXPOSED

SECTION THRU CONCRETE

CAST-IN-PLACE PILING

(OPEN PILE BEAMS ON WING PILING.

BAR STEEL REINFORCEMENT 6" BELOW TOP

FOR TIMBER BACKED ABUTMENTS, CUT OFF

GROUNDLINE OR STREAMBED ELEVATION.

TERMINATE REINFORCEMENT 10'-0" BELOW

( FOR ALL PILE SIZES) INTO CONCRETE CAP.

INCLUDE IN BILL OF BARS. EXTEND 1'-2"

FOR 14" DIA. PILES, USE 8 - #7 BARS.

FOR 12" DIA. PILES, USE 6 - #7 BARS.

END PLATE DETAIL FOR CIP PILING

IN ARTESIAN CONDITIONS

ONLY USE FOR ARTESIAN CONDITIONS

FOR SPECIFIC PILES, USE 6 - 7 BARS.

FOR 6" DIA. PILES, USE 5 - #7 BARS.

PLACE 10" DIA. END PLATE IN THE HOLE EXTEND "H" FOR ALL PILE SIZES INTO CONCRETE CAP.

TERMINATE REINFORCEMENT 10' BELOW GROUNDLINE OR STREAMBED ELEVATION.

FOR TIMBER BACKED ABUTMENTS, USE 4" BAR STEEL REINFORCEMENT 6" BELOW TOP OF PILE OR PILE PLATE.

END PLATE TO BE "H" END PLATE TO BE THE SAME DIAMETER AS THE

BASE PLATE "H"

H" END PLATE TO BE THE SAME DIAMETER AS THE

BASE PLATE "H"

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IN ARTESIAN CONDITIONS

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USED WHEN PILES ARE EXPOSED

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BASE PLATE "H"

H" END PLATE TO BE THE SAME DIAMETER AS THE

BASE PLATE "H"

H" END PLATE TO BE THE SAME DIAMETER AS THE
**DESIGNER NOTES**

Structural approach slabs and parapets shall be used on all bridges carrying total volumes greater than 30,000 vehicles per day. The design shall be reviewed by the bridge structural design engineer. The design engineer shall ensure that the approach slab is properly detailed to accommodate the loads and supports. The design engineer shall provide any additional details required to ensure proper functioning of the structure.

**BILL OF BARS**

<table>
<thead>
<tr>
<th>BAR</th>
<th>LENGTH</th>
<th>LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>SS901</td>
<td>3&quot;</td>
<td>Long, Abut., Trans., Approach slab</td>
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</table>

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<thead>
<tr>
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<tbody>
<tr>
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<td>Long, Abut., Trans., Approach slab</td>
</tr>
</tbody>
</table>

**STRUCTURAL APPROACH SLAB**

- Concrete strength: 4,000 psi
- Maximum temperature: 90°F
- Maximum bar spacing: 8" on centers
- Bar size: 1"
- Bar reinforcement: SS901 and SS902 bars
- Bar spacing: 8" on centers

**STANDARD**

- Standard thickness: 12"
- Standard width: 3'-0" to 3'-6"
- Standard length: 2'-7" to 5'-0"

**APPROACH SLAB PLAN**

This plan includes the following details:

- Approach slab footing
- Parapet details
- Construction joint details
- Reinforcement details

**LEGEND**

- Concrete
- Steel
- Stainless steel
- Wood

**BILL OF BARS**

- Stainless steel bars
- SS901 and SS902 bars

**CONSTRUCTION NOTES**

- Construction joints shall be provided to accommodate expansion and contraction of the structure.
- Parapets and guardrails shall be designed to meet the requirements of the California Department of Transportation.
- Allowable soil bearing pressure: 2,000 psi

**DESIGNER NOTES**

- The design engineer shall ensure that all construction joints are properly detailed to prevent water infiltration.
- Parapet rails shall be provided to meet the requirements of the California Department of Transportation.
- The design engineer shall provide any additional details required to ensure proper functioning of the structure.

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**TYPICAL WALL SECTION WITH CAST-IN-PLACE CONCRETE TRAFFIC BARRIER**

See typical wall section with cast-in-place concrete coping detail for additional information.

- **CONSTRUCTION GUIDELINES**
  - **Concrete Masonry Retaining Wall**
    - Wall height: 3'-6" min.
    - Pay limits for "Wall Wire Faced Mechanically Stabilized Earth" 3'-0" min.
  - **Prestressed Precast Concrete Wall Panel**
    - Wall height: 2'-0" min.
    - Pay limits for "Wall Wire Faced Mechanically Stabilized Earth" 2'-0" min.

- **Basis of Design**
  - Contractor to design length to provide required horizontal capacity of anchor assembly minus payoff of compacted MSE backfill to be completed at the connection.
  - Wall panel height is defined as the length from the top of the wall panel to the top of the concrete footing. The maximum allowable wall panel height is 30'.

- **Material Properties**
  - Concrete Masonry Retaining Wall:
    - f'c = 3,500 PSI
  - Prestressed Precast Concrete Wall Panel:
    - f'c = 5,000 PSI
  - Bar Steel Reinforcement (Grade 60):
    - fy = 60,000 PSI
  - Prestressed Carbon Steel - ASTM A416:
    - fy = 36,000 PSI

- **Design Notes**
  - Bar steel reinforcement and concrete included in bid item includes connections St6x25 may be field drilled.
  - 1" (GALV.) Adhesive may be used to facilitate installation of the wire faced MSE wall.
  - Includes concrete for coping, footing, and deadman anchor.

- **Panel Connection Detail**
  - As an alternative, ½" galvanized anchor may be used to facilitate installation of the wire faced MSE wall.

- **MSE Wall Wire Facing I**

- **Approved: Bill Oliva**

- **Date: 7-18**
PLACEMENT OF HEAVY RIPRAP AT RIVER CROSSINGS

ALTERNATE 1
NORMAL CONDITION FOR EMBANKMENT FILLS

ALTERNATE 2
USE WHERE BERM ELEVATION IS LESS THAN 7'-0" ABOVE HIGH WATER

ALTERNATE 3
USE WHERE BERM ELEVATION IS OVER 7'-0" ABOVE HIGH WATER

NORMAL WATER ELEVATION > 2'-0" ABOVE STREAM BED
NORMAL WATER ELEVATION < 2'-0" ABOVE STREAM BED

HEAVY RIPRAP OR OTHER SLOPE PROTECTION IS REQUIRED.
If heavy riprap is used, place geotextile Type 'HR' below it.

TOE DETAIL
NORMAL WATER ELEVATION 2'-0" ABOVE STREAM BED

STANDARD 15.01

Approved: Bill Oliva
Date: 7-18
SECTION A-A
SYMMETRICAL ABOUT OUTER EDGE OF SUPERSTRUCTURE
VARIABLE - 5'-0" MIN.
EMBANKMENT BLEND WITH ADJACENT WINGWALL

PLAN

TYPICAL SECTION THRU SELECT CRUSHED MATERIAL
Asphaltic material shall not be applied to the surface of select crushed material.

2'-6" MIN.
EDGES OF SHOULDER

TYPICAL SECTION THRU CRUSHED AGGREGATE
Round stone will not be accepted.

APPLY ASPHALTIC MATERIAL UNIFORMLY OVER THE SURFACE OF THE PAVING

NOTES
SLOPE PAVING - STRUCTURES (CRUSHED AGGREGATE & SELECT CRUSHED MATERIAL)

DESIGNER NOTE
PREPARED: SEE FDM 11-35-1 FOR ALTERNATE SECTION USE FOR 0'-0".

BILL OF MATERIALS

BUREAU OF STRUCTURES

APPROVED: Bill Oliva

STANDARD 15.02
FALSE JOINT

APPROX. 12:1 SLOPE

A P P R O X . 100:1 SLOPE

SECTION A-A

BLEND WITH ADJACENT TERRAIN
VARIABLE - 5'-0" MIN.

SLOPE PAVING
EDGE OF CONCRETE
WIDTH OF SLOPE PAVING
CONCRETE HEADER WALL FULL WIDTH OF SLOPE PAVING

2 '-0"

UNIFORM SPACING
WINGWALL
PARALLEL TO ROADWAY CONSTRUCTION JOINT

BERM HEADER CONCRETE

CURB AND GUTTER FORMED BY 2" X 2"
KEYED CONST. JOINT
SUBSTRUCTURE NORMAL TO CONSTRUCTION JOINT

SECTION @ SIDEWALK
2 :1

OF SLOPE PAVING WALL FULL WIDTH CONCRETE HEADER
M IN.

EDGE OF SHOULDER
4 " M IN .

1'-6 "

3 :1 MAX.

SLOPE BREAK POINT FOR LOCATION OF SEE FDM 11-35-1

LIMITS OF SLOPE PAVING

EDGE OF SUPERSTRUCTURE

PLANS OF WEAKNESS OR FALSE JOINTS IN THE CONCRETE BY FORM PLANES OF WEAKNESS OR WIDTH OF SLOPE PAVING CONCRETE HEADER WALL FULL WIDTH OF SLOPE PAVING

NOTE

The item shall be "SLOPE PAVING CONCRETE"

SLOPE PAVING - STRUCTURES (CONCRETE CAST-IN-PLACE)

BILL OLIVA

STANDARD 15.03
EDGE OF DECK FLASHING

DESIGNER NOTES

This design requires small pieces of concrete surface repair. Details are needed. Conceptual details are shown on this Standard.

NOTE

Concrete screws shall be 410 stainless steel.

REHABILITATION FLASHING DETAIL 1

DETAIL 1 NOT TO BE USED IF CLEARANCE IS AN ISSUE OR IF DEBRIS IS A CONCERN.

The 410 stainless steel flashing detail shall include providing and installing the stainless steel flashing, silicone caulk, 1/8" concrete screws, and cleaning the edge of the deck prior to attachment of the flashing.

REHABILITATION FLASHING DETAIL 2

DETAIL 2 NOT TO BE USED IF CLEARANCE IS AN ISSUE OR IF DEBRIS IS A CONCERN.

The 410 stainless steel flashing detail shall include providing and installing the stainless steel flashing, silicone caulk, 1/8" concrete screws, and cleaning the edge of the deck prior to attachment of the flashing.

FLASHING DETAIL FOR NEW BRIDGES WITH OPEN RAILING

The 410 stainless steel flashing detail shall include providing and installing the stainless steel flashing, silicone caulk, 1/8" concrete screws, and cleaning the edge of the deck prior to attachment of the flashing.

FLUSHING DETAIL A

Detail for concrete slab bridge similar.
**Location of Draped Strands**

**Plan View**

**Side View of Girder**

**Support with Steel or Elastomeric Brgs.**

**Support with 1/2 Elastomeric Brg. Pad**

**Design Notes**

- Dist. Typical at Each End
- The Design Engineer Determines the Value Based on the Evaluation of Stress in the Girder and the Design of the Web Section. This Value Can Vary from 1.5 to 1.7 for Each Girder. The Final Design Value Will Be Determined by the Design Engineer and the Specifications. The Design Engineer Makes a Final Design Value and This Value Will Be Applied to the Girder.

**Notes**

- Top of Girder to be Smooth Finished and Smoothly Rounded Transversely, Except the Outside 2" of Girder, Which Shall Receive a Smooth Finish. The Surface-to-Surface Area Shall Be 8 to 10 Grit. Do Not Apply Concrete Sealer on Rough Surfaces Receiving Application of Concrete Sealer.

- The Girder shall be provided with a suitable lifting device for handling and erecting the Girder. The design of the lifting device should provide for a smooth finish to the Girder. The Girder shall be designed to be handled and erected without damage to the surface finish. The Girder shall be provided with a suitable lifting device for handling and erecting the Girder. The design of the lifting device should provide for a smooth finish to the Girder. The Girder shall be designed to be handled and erected without damage to the surface finish.

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GIRDER END OF GIRDER

SECTION A-A

STURRUP PAIRS.

STIRRUP PAIRS. BETWEEN LIMITS OF #3 AT #4 STIRRUP SPACING #4, 2'-3" LONG.

PLACE @ STIRRUP SPACING.

STIRRUP PAIRS. 1'-5 ½".

#4 STIRRUPS & #3 BARS EMBED INTO GIRDER 1'-3".

PLACE @ STIRRUP SPACING. 2'-7" LONG.

(18" MAX. SPACE.) TO BE DESIGNED AT EDGE OF GIRDER, X-SLOPE, PROFILE GRADE LINE AND CALCULATED RESIDUAL GIRDER CAMBER, INCLUDING THE CAMBER MULTIPLIER OF 1.4.

THE DESIGN ENGINEER DETERMINES THIS VALUE BASED ON 2" MIN. HAUNCH VARIANCE IN ACTUAL CAMBER VERSUS THE CALCULATED RESIDUAL CAMBER.

AND 2½" CLEAR FROM TOP OF DECK WHILE ACCOUNTING FOR 0.25 L) POINT OF BEARING SUPPORT WITH.

BETWEEN LIMITS OF #3.

#6 BARS EACH END.

#6 BARS FULL LENGTH, PLACE #6 STIRRUPS EMBED INTO GIRDER P-2.5' LONG.

#4 BAR, EPOXY COATED. PLACE #4 STIRRUPS, EMBED INTO GIRDER 1'-3".

TOP OF ORDER TO BE ROUGH FLOATED AND REINFORCED TRANSPARENTLY. EXCEPT THE OUTSIDE 8" OF GIRDER, WHICH SHALL RECEIVE A SMOOTH Finish and APPROACHING COLORS IF ALLOWED TO ALL SMOOTH SURFACES INCLUDING THE OUTSIDE 8" OF THE TOP PLATE.

1½" C L.

#6 BAR @ EACH END. 8" OF GIRDER, WHICH SHALL RECEIVE A SMOOTH FINISH AND APPROACHING COLORS IF ALLOWED TO ALL SMOOTH SURFACES INCLUDING THE OUTSIDE 8" OF THE TOP PLATE.

DO NOT APPLY ANY SEALER ON EVERY 20 SURFACES RECEIVING APPLICATION OF CONCRETE STIRRUPS.

THE GIRDERS SHALL BE PROVIDED WITH A STRONG SEALING DEVICE FOR MATERIALS AND DURABILITY. SEE DETAIL 303.3.3 OF STANDARD SPECIFICATIONS FOR CONCRETE.

SPACING SHOWN FOR #4 STIRRUPS IS FOR GRADE 60 REINFORCEMENT.

AN EQUIPMENT OF REINFORCED PIPES THAT MAY BE USED. THE MAXIMUM NUMBER OF DRAPE STRANDS SHOWN IS 8.

REINFORCEMENT IN STANDARD END SECTION OF THE GIRDER IS BASED ON THE STANDARD STRAND PATTERNS LISTED ON STANDARD 19.12 AND THE MAX. NUMBER OF DRAPED 0.6" DIA. STRANDS IS 8.

STRENGTH IS 6800 PSI. USE 0.6" DIA. STRAND FOR ALL PATTERNS.

MINIMUM OF 6,000 PSI TO A MAX. OF 8,000 PSI. MAXIMUM RELEASE SPECIFY CONCRETE STRENGTH AS REQUIRED BY DESIGN FROM A

BID ITEM SHALL BE "PRESTRESSED GIRDER TYPE I 36W-INCH".

CONCRETE FABRICATION LIBRARY AND ACCEPTED PRIOR TO SHOP DRAWING SUBMISSION. DETAILS SHALL BE SUBMITTED ELECTRONICALLY TO THE DESIGNER NOTES.

IF USED, WWF BE SUBSTITUTED FOR THE STIRRUP REINFORCEMENT SHOWN, UPON APPROVAL OF THE STRUCTURES MAINTENANCE SECTION. IF USED, WWF PATTERNS OR LONGER SPANS WILL REQUIRE A COMPLETE DESIGN OF THE SPAN LENGTHS SHOWN IN TABLE 19.3-1. USING DIFFERENT STRAND NON WWF STIRRUPS. EMBED @ STIRRUP SPACING REQUIRED #4 BAR, EPOXY COATED. PLACE #4 STIRRUPS REQUIRED #4, 2'-3" LONG.

THE DESIGNER DETERMINES THE VALUE BASED ON 2" MIN. HAUNCH AT EDGE OF GIRDER, X-SLOPE, PROFILE GRADE LINE AND CALCULATED RESIDUAL GIRDER CAMBER. THE CAMBER FACTOR IS 0.25 L.) POINT OF BEARING SUPPORT WITH.

PROVE STIRRUP SPACING THAT IS SYMMETRICAL ABOUT THE C/L OF GIRDER.

NOTE:

DO NOT APPLY CONCRETE SEALER OR EPOXY TO SURFACES RECEIVING HANDLING AND ERECTING THE GIRDERS. SEE SECTION 503.3.3 OF STANDARD 19.11.

THE GIRDERS SHALL BE PROVIDED WITH A SUITABLE LIFTING DEVICE FOR

MINIMUM CLEARANCE TO VERTICAL WIRE 1" MINIMUM CLEARANCE TO VERTICAL WIRE. 1" MIN. CLEARANCE TO A AREA OF HORIZONTAL WIRE (deformed) D18 min. vertical TO VERTICAL WIRE (EPOXY COAT) 7" STD. OR 1" (4½" LEG)

SHOWING WELDED WIRE FABRIC (WWF) STIRRUPS

CONCRETE SEALER OR EPOXY TO SURFACES RECEIVING HANDLING AND ERECTING THE GIRDERS. SEE SECTION 503.3.3 OF STANDARD 19.11.

THE GIRDERS SHALL BE PROVIDED WITH A SUITABLE LIFTING DEVICE FOR

5" U-SHAPED BAR

ANCHOR PLATE ELASTOMERIC & STEEL BRGS.

ELASTOMERIC BEARING PAD

2 ½ SLOPE MAX.

8" MIN. CLEARANCE TO VERTICAL WIRE.

2 ½ SLOPE MAX.

8" MIN. CLEARANCE TO VERTICAL WIRE.

A" "B" & "C" RECORD DIMENSIONS (ASTM A1064)

MATERIAL FOR NON WWF STIRRUPS. EMBED @ STIRRUP SPACING REQUIRED #4 @ 1'-0" BETWEEN. 2'-7" LONG.

STRANDS NOT SHOWN LOCATION OF DRAPED STRANDS #4, 2'-3" LONG.

#4 STIRRUPS & #3 BARS EMBED INTO GIRDER 1'-3".

PLACE @ STIRRUP SPACING.

STIRRUP PAIRS. 1'-5 ½".

#4 BAR, EPOXY COATED. PLACE #4 STIRRUPS, EMBED INTO GIRDER 1'-3".

TOP OF ORDER TO BE ROUGH FLOATED AND REINFORCED TRANSPARENTLY. EXCEPT THE OUTSIDE 8" OF GIRDER, WHICH SHALL RECEIVE A SMOOTH FINISH AND APPROACHING COLORS IF ALLOWED TO ALL SMOOTH SURFACES INCLUDING THE OUTSIDE 8" OF THE TOP PLATE.

DO NOT APPLY ANY SEALER ON EVERY 20 SURFACES RECEIVING APPLICATION OF CONCRETE STIRRUPS.

THE GIRDERS SHALL BE PROVIDED WITH A STRONG SEALING DEVICE FOR MATERIALS AND DURABILITY. SEE DETAIL 303.3.3 OF STANDARD SPECIFICATIONS FOR CONCRETE.

SPACING SHOWN FOR #4 STIRRUPS IS FOR GRADE 60 REINFORCEMENT.

AN EQUIPMENT OF REINFORCED PIPES THAT MAY BE USED. THE MAXIMUM NUMBER OF DRAPE STRANDS SHOWN IS 8.

STRENGTH IS 6800 PSI. USE 0.6" DIA. STRAND FOR ALL PATTERNS.

MINIMUM OF 6,000 PSI TO A MAX. OF 8,000 PSI. MAXIMUM RELEASE SPECIFY CONCRETE STRENGTH AS REQUIRED BY DESIGN FROM A

BID ITEM SHALL BE "PRESTRESSED GIRDER TYPE I 36W-INCH".

CONCRETE FABRICATION LIBRARY AND ACCEPTED PRIOR TO SHOP DRAWING SUBMISSION. DETAILS SHALL BE SUBMITTED ELECTRONICALLY TO THE DESIGNER NOTES.

IF USED, WWF BE SUBSTITUTED FOR THE STIRRUP REINFORCEMENT SHOWN, UPON APPROVAL OF THE STRUCTURES MAINTENANCE SECTION. IF USED, WWF PATTERNS OR LONGER SPANS WILL REQUIRE A COMPLETE DESIGN OF THE SPAN LENGTHS SHOWN IN TABLE 19.3-1. USING DIFFERENT STRAND NON WWF STIRRUPS. EMBED @ STIRRUP SPACING REQUIRED #4 @ 1'-0" BETWEEN. 2'-7" LONG.

STRANDS NOT SHOWN LOCATION OF DRAPED STRANDS #4, 2'-3" LONG.

#4 STIRRUPS & #3 BARS EMBED INTO GIRDER 1'-3".

PLACE @ STIRRUP SPACING.

STIRRUP PAIRS. 1'-5 ½".

#4 BAR, EPOXY COATED. PLACE #4 STIRRUPS, EMBED INTO GIRDER 1'-3".

TOP OF ORDER TO BE ROUGH FLOATED AND REINFORCED TRANSPARENTLY. EXCEPT THE OUTSIDE 8" OF GIRDER, WHICH SHALL RECEIVE A SMOOTH FINISH AND APPROACHING COLORS IF ALLOWED TO ALL SMOOTH SURFACES INCLUDING THE OUTSIDE 8" OF THE TOP PLATE.

DO NOT APPLY CONCRETE SEALER OR EPOXY TO SURFACES RECEIVING HANDLING AND ERECTING THE GIRDERS. SEE SECTION 503.3.3 OF STANDARD 19.11.

THE GIRDERS SHALL BE PROVIDED WITH A SUITABLE LIFTING DEVICE FOR
PART TRANSVERSE SECTION AT DIAPHRAGM

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

INTERM. STEEL DIAPHS. FOR 28", 36", 45", 45W", 54" & 54W" PRESTRESSED GIRDERS

BUREAU OF STRUCTURES

STANDARD 19.36

APPROVED

Bill Oliva

DATE: 

1-18

PLAN FOR SKEW ANGLES < 10°

PLAN FOR SKEW ANGLES > 10°

DETAIL B

(DIM "A" AND "B"), BUT ALSO FROM THE ENDS OF EACH GIRDER.

TO WEB CONNECTION, NOT ONLY FROM THE BOTTOM OF THE GIRDER ON THE PLANS, SHOW LOCATION OF INSERTS/HOLES FOR DIAPHRAGM AND 2/3 POINTS.

AT MID-LENGTH OF GIRDER. FOR SPANS OVER 80'-0", PLACE ONE DIAPHRAGM EVERY 80 FT.-LBS. 3" x 3" x \(""

PLATE WASHER.

TO GIRDER

WITH LOCK-WASHER. TORQUE ELECTROPLATED CAP SCREW \(\frac{1}{2}\)" DIA. X 2" LONG

OR APPROVED EQUAL.

(MEDIUM HIGH CARBON WIRE)

†" DIA. ELECTROPLATED FERRULE LOOP INSERT

‡" DIA. HIGH STRENGTH BOLTS WITH HEX NUT, TWO WASHERS AND A 3" x 3" x \(""

PLATE WASHER.

FORM 1 " DIA. HOLES IN WEB WITH PIPE SLEEVE. FORM 1 " DIA. HOLES IN HEX NUT AND TWO WASHERS.

‡" DIA. HIGH STRENGTH BOLTS FOR STEEL DIAPHRAGM TO CONCRETE WEB CONNECTION SHALL BE SNUG-TIGHT.

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

ALL DIAPHRAGM STRUCTURAL STEEL SHALL BE ASTM A709 GRADE 36.

EACH DIAPHRAGM BETWEEN GIRDERS SHALL CONSTITUTE ONE UNIT.

SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "STEEL DIAPHRAGMS IN CHANNEL".

SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "ALTERNATE DIAPHRAGMS"

NOTES

ON THE PLANS, SHOW LOCATION OF INSERTS/HOLES FOR DIAPHRAGM AND 2/3 POINTS.

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

DESIGNER NOTES

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

ON THE PLANS, SHOW LOCATION OF INSERTS/HOLES FOR DIAPHRAGM AND 2/3 POINTS.

FOR SPANS OVER 80'-0", PLACE ONE DIAPHRAGM EVERY 80 FT.-LBS.

FOR SPANS EQUAL TO OR LESS THAN 80'-0", PLACE ONE DIAPHRAGM EVERY 40 FT.-LBS.

DIAPHRAGM MATERIAL NOT EMBEDDED IN THE CONCRETE GIRDER TO CONCRETE WEB CONNECTION SHALL MEET THE REQUIREMENTS FOR ASTM A325 OR PLUS ' TURN, UNLESS NOTED OTHERWISE. HIGH STRENGTH BOLTS FOR STEEL DIAPHRAGM TO CONCRETE WEB CONNECTION SHALL BE SNUG-TIGHT.

ALL DIAPHRAGM MATERIAL NOT EMBEDDED IN THE CONCRETE GIRDER TO CONCRETE WEB CONNECTION SHALL BE SNUG-TIGHT.

HOLE IN ANGLE " X 2" SLOTTED (TYP.)

FORM 1 " DIA. HOLES IN WEB WITH PIPE SLEEVE. FORM 1 " DIA. HOLES IN HEX NUT AND TWO WASHERS.

FORM 1 " DIA. HOLES IN WEB WITH PIPE SLEEVE. FORM 1 " DIA. HOLES IN HEX NUT AND TWO WASHERS.

FORM 1 " DIA. HOLES IN WEB WITH PIPE SLEEVE. FORM 1 " DIA. HOLES IN HEX NUT AND TWO WASHERS.

FORM 1 " DIA. HOLES IN WEB WITH PIPE SLEEVE. FORM 1 " DIA. HOLES IN HEX NUT AND TWO WASHERS.

FORM 1 " DIA. HOLES IN WEB WITH PIPE SLEEVE. FORM 1 " DIA. HOLES IN HEX NUT AND TWO WASHERS.

FORM 1 " DIA. HOLES IN WEB WITH PIPE SLEEVE. FORM 1 " DIA. HOLES IN HEX NUT AND TWO WASHERS.
PRESTRESSED BOX GIRDER SECTIONS

3'-0" PRESTRESSED BOX GIRDER SECTIONS

REBAR DIMENSION

SECT. 3'-0"

1. BOTTOM ABUTMENT BAR
2. TOP ABUTMENT BAR
3. DUCT STRAP
4. LONGITUDINAL BAR
5. SHEAR CONNECTOR

SECT. 1

1. BOTTOM ABUTMENT BAR
2. TOP ABUTMENT BAR
3. DUCT STRAP
4. LONGITUDINAL BAR
5. SHEAR CONNECTOR

SECT. 2

1. BOTTOM ABUTMENT BAR
2. TOP ABUTMENT BAR
3. DUCT STRAP
4. LONGITUDINAL BAR
5. SHEAR CONNECTOR

SECT. 4

1. BOTTOM ABUTMENT BAR
2. TOP ABUTMENT BAR
3. DUCT STRAP
4. LONGITUDINAL BAR
5. SHEAR CONNECTOR

SECT. 5

1. BOTTOM ABUTMENT BAR
2. TOP ABUTMENT BAR
3. DUCT STRAP
4. LONGITUDINAL BAR
5. SHEAR CONNECTOR

SECT. 6

1. BOTTOM ABUTMENT BAR
2. TOP ABUTMENT BAR
3. DUCT STRAP
4. LONGITUDINAL BAR
5. SHEAR CONNECTOR

SECT. 7

1. BOTTOM ABUTMENT BAR
2. TOP ABUTMENT BAR
3. DUCT STRAP
4. LONGITUDINAL BAR
5. SHEAR CONNECTOR

SECT. 8

1. BOTTOM ABUTMENT BAR
2. TOP ABUTMENT BAR
3. DUCT STRAP
4. LONGITUDINAL BAR
5. SHEAR CONNECTOR

SECT. 9

1. BOTTOM ABUTMENT BAR
2. TOP ABUTMENT BAR
3. DUCT STRAP
4. LONGITUDINAL BAR
5. SHEAR CONNECTOR

SECT. 10

1. BOTTOM ABUTMENT BAR
2. TOP ABUTMENT BAR
3. DUCT STRAP
4. LONGITUDINAL BAR
5. SHEAR CONNECTOR

SECT. 11

1. BOTTOM ABUTMENT BAR
2. TOP ABUTMENT BAR
3. DUCT STRAP
4. LONGITUDINAL BAR
5. SHEAR CONNECTOR

LEGEND

- DUCT STRAP
- LONGITUDINAL BAR
- SHEAR CONNECTOR
- END BLOCK BOTTOM STRAP
- SEE ELEVATION FOR SPACING

NOTES

The concrete mix for the prestressed box girder shall conform to Section 319.52 of the Standard Specifications.

An approved concrete sealant shall be applied to the bottom of the girder and the exterior face of exterior girders do not apply concrete sealant on any part of the top of girders.

Strands shall be flush with end of girder for concrete bridges, and end of strands shall be covered with non-prestressed joint filler for concrete bridges. Coat the strands and all non-prestressed surfaces with a minimum of 0.01" of the bonding epoxy cement. If the cement is not applied, the strands shall be coated with non-bituminous cement. The application shall be to the application of the sealant.

Ducts shall be cored and drained by casting 2 1/2" dia. tubes at least 8" of the design. Locate these tubes at bottom edge of the concrete fillets. Avoid strand locations.

Four way splices must be used to engage all lift devices on both ends of units.

Distance between transverse tendon splices shall be rounded to a circular or parallel curve with a minimum length of 2'-6".

DESIGNER NOTES

Use of prestressed box girders is subject to prior approval by the Bureau of Structures. See 19.3.2.3 in the Bridge Manual for horizontal guidance.

The maximum recommended skew angle of the structure shall be 30°.

Beam seats shall be sloped along the substructure units to account for the design value of superimposed loads and strength of the beam seats. Beam seats parallel to grade line of girder at 3'-0" place elevations on plans to meet these requirements.

Strands to be designed. Maximum number of strands and strand arrangements are specified. Strands are to be replaced with new strands when major damage occurs. The strand location may exceed the maximum number of strands available by 2 currently not used.

Contact the Bureau of Structures for the most current prestressed box girder special provisions.

See standard plan for beam seat design.

MATERIAL PROPERTIES

CONCRETE

Concrete Masonry Bridge
f'c = 5,000 PSI
fy = 60,000 PSI
f'c = 4,000 PSI
fy = 50,000 PSI

PRE-TENSION

f'c = 270,000 PSI
f'c = 2,000 PSI
fy = 60,000 PSI
fy = 50,000 PSI

STANDARD

f'c = 2,000 PSI
f'c = 1,200 PSI
fy = 60,000 PSI
fy = 50,000 PSI

NOTES

The concrete mix for the prestressed box girder shall conform to Section 319.52 of the Standard Specifications.

An approved concrete sealant shall be applied to the bottom of the girder and the exterior face of exterior girders do not apply concrete sealant on any part of the top of girders.

Strands shall be flush with end of girder for concrete bridges, and end of strands shall be covered with non-prestressed joint filler for concrete bridges. Coat the strands and all non-prestressed surfaces with a minimum of 0.01" of the bonding epoxy cement. If the cement is not applied, the strands shall be coated with non-bituminous cement. The application shall be to the application of the sealant.

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Four way splices must be used to engage all lift devices on both ends of units.

Distance between transverse tendon splices shall be rounded to a circular or parallel curve with a minimum length of 2'-6".
STANDARD 27.05

BUREAU OF STRUCTURES

PRECAST DOUBLE TEE OR MULTI-STEM SECTION

Elastomeric Bridge Pad

End of Girder

Steel Girder with Fixed Seat

Steel Girder with Semi-Expansion Seat

NOTES

1. For skewed structures cast End of Precast Tee along skew.

2. Dimension is taken normal to % Substructure units.

3. Rubberized Membrane Waterproofing

4. Bars placed parallel to girders, spacing perpendicular to % girders.

DESIGNER NOTES

1. See Standard 12.10 for Prestressed Box Girder bearing details.

2. The use of this Opt. Const. Joint is not recommended for structures with large SKEWS.

3. Use Paving Notch on all Major Bridges. Structural Appraoch Plats determine use.

4. See Std. 12.01
BEARING (DUROMETER 60-50) ELASTOMERIC LAMINATED, EACH.

Designer Notes
See chapter 40 standards for use of elastomeric bearings in new and rehabilitated steel girder bridges. For all new bridges, the steel top plate shall have a minimum thickness of 1¾".

Notes
Bearing shall not be placed at a temperature greater than 85°F.

All material used for bearings shall be paid for at the unit price bid for "bearing pads laminated rubber".

Approved:
Bill Oliva

Bureau of Structures

Standard 27.07
ANCHOR BOLTS

EXPANSION BEARING ASSEMBLY

STANDARD 27.09

BEARING NOTES

ALL BEARINGS ARE SYMMETRICAL ABOUT \( \pm \) OF GIRDER AND \( \pm \) OF BEARING.

ALL MATERIALS IN BEARINGS MUST BE STAINLESS STEEL PLATE, TELFON SURFACE, PRECAST ANCHOR BOLTS, NUTS AND WASHERS. ALL BEARINGS SHALL COMPLY TO ANSI A709 GRADE 36.

STAINLESS STEEL PLATE SHALL CONFORM TO ANSI A307, TYPE B.

STEEL PARTS SHALL CONFORM TO ANSI A312 ON MATERIAL OF EQUIVALENT YIELD STRENGTH AND ELONGATION.

ANCHOR BOLTS, NUTS AND WASHERS SHALL COMPLY TO ANSI A307 GRADE 26. ON MATERIAL OF EQUIVALENT YIELD STRENGTH AND ELONGATION.

ALL EXPANSION BEARING PLATES SHALL BE FLAT, PRECUT PLATE WITH ALL SURFACES, SURFACES AND PRECAST CONCRETE AND ALL EDGES, SHARP AND STRAIGHT.

ALL BEARINGS SHALL BE MACHINE OR MACHINE PLANE CUTS.

ALL SURFACES SHALL BE MACHINE FINISHED BY AN AUTOMATIC PROCESS.

ANCHOR BOLTS SHALL BE SQUARE TYPE, PROVIDE ONE STANDARD SQUARE MASONRY PLATE.
PLAN OF LF/HF

ELEVATION OF PARAPET LF/HF

SECTION E-E

SECTION F-F

SECTION H-H

ADIPRENE BUTTON DETAIL

COVER PLATES FOR PARAPET LF/HF
PLAN

LOE WORKING POINT

LEGEND

DESIGN DATA

INLET

SECTION C1

OUTLET

DESIGNER NOTES

BOX CULVERT LAYOUT

BUREAU OF STRUCTURES

STANDARD 36.01

APPROVED

Bill Oliva

DATE:

1-18
IF PILES ARE REQUIRED

IF BASE SLAB IS REQUIRED

IF PEDESTAL IS REQUIRED WITH GROUT.

OF PRECAST BRIDGE UNIT LEG BOTTOM OF KEYWAY AND BOTTOM NOMINAL 1" VOID BETWEEN FILL ENTIRE KEYWAY INCLUDING NOTE: **

VARIES AS PER DESIGN

3" KEYWAY

3" CLR.

4" CLR.

(TYP.)

4" CLR.

BRIDGE UNIT (TYP.) PRECAST

HEADWALL PRECAST VARIES VARIES RISE VARIES SPAN VARIES VARIES VARIES VARIES AS PER DESIGN MIN. 2'-0"

3" CLR.

TYP.

NOTES:

HEADWALL DETAILS AND FEASIBILITY GUIDELINES

SEE STANDARDS 36.13 AND 36.14 FOR

GROUT 1" MIN.

HEADWALL

FLOW ON SOLID ROCK BASE

MIN. UNLESS

OPTIONAL DETAIL 2

BASE SLAB FOUNDATIONS, "SEE (FOR PEDESTAL WALL, PILE AND FOUNDATION TYPES POSSIBLE. SPREAD FOOTING SHOWN, OTHER

WING 2

WING 4

WING 1

WING 3

NOTES:

2" MAX.

GROUT 1" MIN.

3" MAX.

GROUT 1" MIN.

2" MAX.
4-CHORD GALVANIZED STEEL SIGN BRIDGE

**Notes:**
- **Steel column and chord pipes** shall be 4-CHORD GALVANIZED STEEL.
- **Steel anchor rods** shall meet the requirements of ASTM A36.
- **Plates, bars, & structural angles** shall be ASTM A36.
- **Column** and **chord pipes** shall be API SPEC. 5L.

**Material:**
- **Steel anchor rods** shall meet the requirements of ASTM F1554 GRADE 55.
- **Steel column and chord pipes** shall be API SPEC. 5L GRADE X42.
- **All structural steel members**, **plates**, **anchor rods**, **bolts, nuts, and washers** shall be GALVANIZED.

**Design Data:**
- **Dead Load:** 3-FOOT-6-INCHES OF SUPPORTING STRUCTURE, COLUMNS, LUMPS, AND F作用, for 20'-0" HIGH CLEARANCE ROUTE, 18'-3" MIN. FOR ALL OTHERS.
- **Live Load:** 100% FROM SIGN AREA & EXPOSED MEMBERS.
- **Wind Pressure:** 90 MPH (3-SECOND GUST SPEED) TO SIGN AREA & EXPOSED MEMBERS.
- **Ice Load:** 3 PSF TO 1 FACE OF SIGN & AROUND SURFACE OF MEMBERS.
- **Dead Load:** 3 PSF OF SIGN, WT. OF SUPPORTING STRUCTURE, CATWALK, LIGHTS AND RAILINGS.

**Approvals:**
- **Bill Oliva**

**Standard:** 39.02
BE STAINLESS STEEL NUT, BOLT AND WASHERS SHALL

LOCK WASHER

FLAT WASHER

NUT

"J" HOOK

HOOK TO POLE

FACTORY WELDED

HANDHOLE

WALL OPPOSITE HANDHOLE

SEE TABLE*

TYPICAL "J" HOOK LOCATION

HANDHOLE DETAILS

HANDHOLE NOTES

HANDHOLES SHALL BE LOCATED IN ONE COLUMN OF THE SIGN BRIDGE STRUCTURE. ELECTRICALLY OPERATED DEVICES ARE INSTALLED ON THE STRUCTURE. COLUMNS WITH HANDHOLES SHALL BE NEAR THE ELECTRICAL SERVICE, THE CONTRACTOR SHALL VERIFY THE LOCATION OF THE ELECTRICAL SERVICE ENTRANCE WITH THE DESIGNER. SHOWN SECTION PRIOR TO FABRICATION OF THE SIGN BRIDGE COLUMNS AND MEMBERS.

COLUMN SIZE

ELECTRICAL PLAN DETAIL SHEETS. UNLESS NOTED OTHERWISE, ALL HANDHOLE ELEMENTS TO BE GALVANIZED PER SECTION 641 OF THE WISDOT STANDARD SPECIFICATIONS.

<table>
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<tr>
<th>COLUMN SIZE</th>
<th>HANDHOLE PIPE</th>
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<tbody>
<tr>
<td>5.562&quot; X 0.5&quot;</td>
<td>1.256&quot; X 0.625&quot;</td>
<td>1.256&quot; X 0.625&quot;</td>
</tr>
<tr>
<td>6.625&quot; X 0.562&quot;</td>
<td>1.256&quot; X 0.625&quot;</td>
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ANCHOR RODS

WRAP PERIMETER OF ANCHOR ROD ASSEMBLY TIES AND SECURE TO ANCHOR ROD WITH GALVANIZED RING AT EACH ANCHOR ROD.

HANDHOLE DETAILS

BUREAU OF STRUCTURES

STANDARD 39.13

Approved: Bill Oliva

Date: 7-18
For Culvert Wings:
- Use wing wall thickness 8"+.
- Adhesive anchors centered.
- Use detail "c".
- Weld underside of channel.
- Notch detail "a".
- See channel notch detail for use with angled wings only.
- Place channel as high as possible while maintaining 9" clear.

Wing Elevation:
- 1/4" x 1 3/4" long slotted holes for use with angled wings only.
- 1/4" x 1 3/4" long slotted holes.
- Shim channel bent at midpoint to accommodate wing angle.
- Notch detail see channel.

NOTES:
- Wing strapping detail for the purpose of weighting award applicants or alternative to the preferred method.
- All provided steel material shall conform to ASTM A36.
- All structural steel shown shall be galvanized. Threaded rod, masonry anchors, nuts and washers shall be galvanized in accordance with ASTM A693.
- Cutting and drilling of channel shall be done in fabrication shops prior to galvanizing.
- All provided steel material shall be galvanized, threaded rod, masonry anchors, nuts and washers shall be galvanized in accordance with ASTM A693.
- Rods, masonry anchors, nuts and washers shall be centered along length of channel.
- All provided steel material shall conform to ASTM A36.
- Adhesive anchors shall conform to section 502.2.12 of the standard specifications.

Approved: Bill Oliva

STANDARD SPECIFICATIONS.

Adhesive anchors shall conform to section 502.2.12 of the standard specifications.

Trimming and/or cutting of channel shall be done in fabrication shops prior to galvanizing.

Wing strapping detail for the purpose of weighting award applicants or alternative to the preferred method.

All provided steel material shall conform to ASTM A36.

Adhesive anchors shall conform to section 502.2.12 of the standard specifications.

All provided steel material shall be galvanized. Threaded rod, masonry anchors, nuts and washers shall be galvanized in accordance with ASTM A693.

Aluminum and/or cutting of channel shall be done in fabrication shops prior to galvanizing.

Adhesive anchors shall conform to section 502.2.12 of the standard specifications.

Approved: Bill Oliva

Date: 7-18

WING STRAPPING

STANDARD 40.23
**DESIGN DATA**

- **LIVE LOAD:**
  - PREPARATION DECKS TYPE 1:
  - PREPARATION DECKS TYPE 2:
  - CLEANING DECKS:
  - FULL-DEPTH DECK REPAIR:
  - CONCRETE MASONRY OVERLAY DECKS:

**NOTES**

- **CONCRETE OVERLAY**

**DETERMINATION**

- **CONCRETE MASONRY OVERLAY DECKS**
- **OVERLAY THICKNESS**

**SURVEY TYPES**

- **DECK PREPARATION AREAS**

**TOTAL ESTIMATED QUANTITIES**

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<th>BID ITEM</th>
<th>UNIT</th>
<th>TOTAL</th>
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<td>ST</td>
<td></td>
</tr>
<tr>
<td>509.2000</td>
<td>ST</td>
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<tr>
<td>509.2500</td>
<td>ST</td>
<td></td>
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<tr>
<td>504.5000</td>
<td>CY</td>
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**POSSIBLE ADDITIONAL ITEMS**

- **ADJUSTING FLOOR DRAINS**
- **REMOVING CONCRETE MASONRY DECK OVERLAY (STRUCTURE)**
- **REMOVING CONCRETE MASONRY DECK OVERLAY (STRUCTURE)**
- **REMOVING CONCRETE MASONRY DECK OVERLAY (STRUCTURE)**

**REMARKS**

- **CONCRETE OVERLAY**

**BUREAU OF STRUCTURES**

**STANDARD 40.31**

**BILL OLIVA**

**DATE:**

**STANDARD 40.31**
Polymer overlays shall not be placed on concrete approaches. When bid item "polymer Overlay" is used rating should include the 5 psf overlay. Polymer overlays shall not be placed on concrete approaches.

Polymer overlays shall not be placed on concrete approaches. When bid item "polymer Overlay" is used rating should include the 5 psf overlay. Polymer overlays shall not be placed on concrete approaches.

Polymer overlays shall not be placed on concrete approaches. When bid item "polymer Overlay" is used rating should include the 5 psf overlay. Polymer overlays shall not be placed on concrete approaches.

Polymer overlays shall not be placed on concrete approaches. When bid item "polymer Overlay" is used rating should include the 5 psf overlay. Polymer overlays shall not be placed on concrete approaches.
**Design Data**

**Live Load**
- Design Maximum: ___ kips
- Design Minimum: ___ kips

**Operating Rating**: HS-___

**Inventory Rating**: HS-___

**Notes**
- Dimensions shown are based on the original structure plans.
- Use of Polyester Polymer Concrete Overlays are limited. See 40.5 in the Bridge Manual for additional guidance.
- Special provisions, notes, and designer notes are still under development.

**Designer Notes**

**Possible Additional Bid Items**

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<th>Item</th>
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**Total Estimated Quantities**

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<thead>
<tr>
<th>Item</th>
<th>Description</th>
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</table>

- Use the list of possible bid items, or items that may need to be added or removed to fit each individual case.

- This is a partial list of possible bid items. The design may need to be modified or removed to fit each individual case.