Chapter 03 - Superstructure

SECTION 07

CONCRETE SLAB (SUP-SLAB)
Chapter 03 - Superstructure

Section 07 – Concrete Slabs

SUB-SECTION 01

GENERAL

(SUP-SLAB(GEN))
**GENERAL NOTES**

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Design Assumptions:</td>
<td>The superimposed dead load is 1020 lb/ft for a 4 foot slab and 950 lb/ft for a 3 foot slab unless specified otherwise on the Plans. No composite action between the prestressed concrete slab panels and the concrete overlay has been considered.</td>
</tr>
<tr>
<td>Prestressed Concrete:</td>
<td>The superimposed dead load is 1020 lb/ft for a 4 foot slab and 950 lb/ft for a 3 foot slab unless specified otherwise on the Plans. No composite action between the prestressed concrete slab panels and the concrete overlay has been considered.</td>
</tr>
<tr>
<td>Prestressing Steel:</td>
<td>Prestressing steel shall consist of 1/2&quot; diameter 7-wire low relaxation strands conforming to the requirements of M 203 Grade 270. Each 1/2&quot; strand shall be pretensioned to 31,000 lb. 0.75 fpu. Have an ultimate strength of 41,300 lb and a yield strength of 37,200 lb (0.90 fpu).</td>
</tr>
<tr>
<td>Prestressed Concrete:</td>
<td>All concrete for prestressed concrete slabs shall be self consolidating concrete with a 28 day compressive strength of f'c = 8,000 psi.</td>
</tr>
<tr>
<td>Construction:</td>
<td>Strands shall be pretensioned to the values specified on the Plans. Camber readings and report shall conform to 440.03.16. Tolerances shall be as specified in 440.03.17. Surface finish of the shear keys shall be as specified in 440.03.14.01(a)</td>
</tr>
<tr>
<td>Measurement and Payment:</td>
<td>Measurement and Payment shall be as specified in 440.04.</td>
</tr>
</tbody>
</table>

**STATE OF MARYLAND**

**DEPARTMENT OF TRANSPORTATION**

**OFFICE OF STRUCTURES**

**PRESTRESSED CONCRETE SLAB PANEL**

**GENERAL NOTES**

| APPROVAL |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------|
| OFICE OF STRUCTURES |
| DATE 02-15-2017 |
| VERSION 1.0 |

**STATE HIGHWAY ADMINISTRATION**

**OFFICE OF STRUCTURES**

**DETAIL NO.** SUP-SLAB-101 **SHEET 1 OF 1**
The Contractor shall follow the following sequence of operations and Section 440.03.20 for the erection of slab panel units:

1. The Contractor shall coordinate and hold a pre-grout meeting prior to concrete slab panel erection with SHA Construction and Office of Structures personnel. The purpose of the meeting will be to discuss slab panel preparation and shear key grout placement procedures.

2. Immediately prior to erecting slab panels, clean the abrasive blasted shear key surfaces with compressed air, stiff bristle fiber brushes, or vacuuming.

3. Pull the slab panels together and field tighten in the transverse direction to the initial tensioning force as specified in Std. No. SUP-SLAB-401. Tension lateral tie rods near mid span first and then progress towards the ends of the beam.

4. Isolate lateral tie rods from shear key grout by placing expandable spray foam sealant at all tie rod locations, following the manufacturer's guidelines and as detailed in the Std. No. SUP-SLAB-501.

5. Seal the joint below the shear keys using an approved method that does not interfere with the grout in the shear key pocket.

6. Once the expandable spray foam sealant has met the manufacturer's curing requirements, procedures for placement of the shear key grout may begin.

7. Clean the shear key surface with compressed air and keep it moist until the grout is placed.

8. Grout the shear keys by overfilling the joints. Drive the grout or compactly tamp it into the keyways; do not vibrate. After 30 minutes, strike off the excess grout flush with the top of the panels. Follow the manufacturer's recommendations for grouting in cold or hot weather.

9. Start curing of the shear key grout immediately after the grout has been finished, but do not leave any portion of the grout uncovered for more than 45 minutes after placement.

10. Keep the surfaces wet, even in areas where there is no ready water supply.

11. Cure the shear key grout for three (3) days with burlap as specified in 420.03.09(B) or (D), respectively.

12. Allow a minimum of 48 hours between grouting of the last shear keys and final tensioning of lateral tie rods.

13. Tension lateral tie rods to final tensioning force as specified in Std. No. SUP-SLAB-401.
CONCRETE OVERLAY
SEQUENCE OF OPERATIONS

In preparation for the placement of the Mix No. 8 concrete overlay over the precast concrete slab units, the Contractor shall follow the following sequence of operations:

1. Concrete curbs and parapets may be placed once the lateral tie rods have been tensioned to the final tensioning force and the shear key grout has met the curing requirements.

2. Placement of the overlay may occur once the parapet and curbs have cured for 24 hours.

3. The overlay reinforcing mat may be assembled on or off the structure. However, the mats must be assembled in units that can be lifted on and off the structure prior to placing overlay. Reinforcing units shall be assembled with proper bar lap lengths to tie reinforcing units together. Temporary supports attached to the mats, such as diagonal rebars or similar support steel such as steel angles, may be required to prevent racking of the mat during lifting operations. No welding will be allowed.

4. To locate the reinforcing mat 2½" clear of the top of deck overlay the Contractor shall place and tie the support chairs to the underside of the reinforcing mat.

5. The finishing screed shall be set-up and a dry run of the finishing operation made to verify that the reinforcing is properly located and the finished deck elevations shown on the plans can be achieved.

6. The reinforcing mat, including chairs, shall be lifted off of the bridge just prior to the placement of the overlay to permit the entire deck to be cleaned in accordance with Section 440.03.22.

7. Prior to beginning the placement of the overlay, the Contractor shall float the cement slurry across the bridge deck as described in the specifications and work it into the top of the slab units.

8. Keeping the slurry moist with a misting operation, the reinforcing mat shall be placed back on top of the precast slab units, segments tied together and resting on chairs, and the placement of the Mix No.8 concrete overlay shall commence immediately. It is imperative that the overlay shall be placed while the slurry is in a non-set condition.
Notes:
1. For Type A recess detail see Std. No. SUP-SLAB-401.
2. Skew angle shall not be less than 60°.
Notes:
1. For Type A recess detail see Std. No. SUP-SLAB-401.
2. Skew angle shall not be less than 60°.
Notes:
1. For Type A recess detail see Std. No. SUP-SLAB-401.
2. Skew angle shall not be less than 60°.
Notes:
1. For Type A & B recess details see Std.No. SUP-SLAB-401, for Type B Tie Rod Details for Stage Construction see Std.No. SUP-SLAB-401.
2. Skew angle shall not be less than 60°.

For Type A recess detail see Std.No. SUP-SLAB-301.

* FOR OFFICE USE ONLY *
Notes:
1. For Type A & B recess details see Std. No. SUP-SLAB-401, for Type B Tie Rod Details for Stage Construction see Std. No. SUP-SLAB-401.
2. Skew angle shall not be less than 60°.

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF STRUCTURES

PRECAST SLAB UNIT AND TIE ROD LAYOUT
SLABS GREATER THAN 30' UP TO 50'
WITH STAGE CONSTRUCTION

APPROVAL
DATE: 02-15-2017

VERSION
1.0

DETAIL NO. SUP-SLAB-302

* FOR OFFICE USE ONLY *
Notes:
1. For Type A & B recess details see Std. No. SUP-SLAB-401, for Type B Tie Rod Details for Stage Construction see Std. No. SUP-SLAB-401.
2. Skew angle shall not be less than 60°.
Exterior face of precast concrete slab unit

Heavy hex, nut

6" x 6" x 1 1/2"

plate ASTM A 709

Grade 36

Width of precast slab units to be tensioned together minus 2"

2" dia. tie-rod hole

5/2"

Typ.

Exterior face of precast concrete slab unit

After tensioning is complete fill recess flush with face of exterior precast slab unit with nonshrink grout.

ASTM A 722, Type II threaded bar with minimum tensile strength of 150 000 psi, before hot dipped galvanized procedure. Threaded bars shall be hot rolled and cold stressed alloy steel.

**SECTION**

**LATERAL TIE-ROD DETAIL**

Scale: 1/2" = 1'-0"

---

<table>
<thead>
<tr>
<th>Rod Diameter (Inches)</th>
<th>Initial Tension (Force, lb)</th>
<th>Final Tension (Force, lb)</th>
<th>Plate Hole Diameter (Inches)</th>
<th>Minimum Root Area through threads (in²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4</td>
<td>20 000</td>
<td>120 000</td>
<td>1/8</td>
<td>0.91</td>
</tr>
</tbody>
</table>

**Notes:**

1. For tie-rod tensioning procedures, see Contract Plans and 440.03.20.
2. All nuts, plates and tie-rods shall be hot dipped galvanized.
3. All nonshrink grout shall conform to 902.11(C).
4. Heavy hex, nut shall be supplied by tie-rod manufacturer and develop full tensile strength of tie-rod.
Face of precast exterior concrete slab unit
6" x 6" x 1/2"
Plate, ASTM A 709 Grade 36

Threaded bar conforming to ASTM A 722, Type II
2 1/2" dia. tie-rod hole

6 1/2"
3/4", 3/4"

2 1/2" dia. tie-rod hole

SECTION A-A

Cut exterior #5 bar around hand hole

For skewed bridges, the Contractor has the option providing a tapered 1 1/2" min. thickness x 6" x 6" plate or forming the tie-rod end of the tie-rod recess to be 90° to the centerline of the tie-rod. No additional compensation will be allowed for whatever option is selected.

Notes:
1. For tie-rod tensioning procedures, see Contract Plans and 440.03.20.
2. All tie-rods, plates and nuts shall be hot-dipped galvanized.
3. All nonshrink grout shall conform to 902.11(C).
4. Shear keys in slabs not shown for clarity.

TIE-ROD RECESS DETAILS - TYPE A
Scale: 1 1/2" = 1'-0"

*See precast concrete slab units details for dimensions.
For skewed bridges, the Contractor has the option providing a tapered 1/2" min. thickness x 6" x 6" plate or forming the tie-rod end of the tie-rod recess to be 90° to the centerline of the tie-rod. No additional compensation will be allowed for whatever option is selected.

Notes:
1. For tie-rod tensioning procedures, see Contract Plans and 440.03.20.
2. All couplers tie-rods, plates and nuts shall be hot dipped galvanized.
3. All nonshrink grout shall conform to 902.11(C).
4. Shear keys in slabs not shown for clarity.
5. Coupler shall be supplied by tie rod manufacturer and develop full tensile strength of tie rod.

**PLAN**

LATERAL TIE-ROD FOR STAGE CONSTRUCTION

Scale: 1/2" = 1'-0"

**ELEVATION**

TIE-ROD RECESS DETAILS - TYPE B

Scale: 1/2" = 1'-0"

**SECTION A-A**

*See precast concrete slab units details for dimensions.
Notes:
1. For shear key placement procedures, see 440.03.20.
2. All nonshrink grout shall conform to 902.11(C).
3. Shear keys shall not be placed on the exposed face of the exterior slab units unless specifically called for on the plans to accommodate future widenings.
4. See sheet 2 of 2 for Section B-B and Section C-C and A, B, C dimensions.
Shear key pocket limits of expandable spray foam sealant

Precast Concrete Slab Unit

5" (min) Overlay

\[ \frac{7}{8}" \text{ Typ.} \]

\[ \frac{5}{8}" \text{ Typ.} \]

5" (min) Overlay

SECTION B-B

SECTION C-C

SHEAR KEY DETAILS
Scale: \( \frac{1}{8}" = 1'-0" \)

- Pourable Epoxy Nonshrink grout
- Expandable spray foam sealant

<table>
<thead>
<tr>
<th>Precast Concrete Slab Panel</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simple Span 20'-0&quot; or less</td>
<td>1'-6&quot;</td>
<td>10&quot;</td>
<td>8&quot;</td>
<td>3&quot;</td>
</tr>
<tr>
<td>Simple Span greater than 20'-0&quot; to 25'-0&quot;</td>
<td>1'-6&quot;</td>
<td>10&quot;</td>
<td>8&quot;</td>
<td>3&quot;</td>
</tr>
<tr>
<td>Simple Span greater than 25'-0&quot; to 30'-0&quot;</td>
<td>1'-6&quot;</td>
<td>10&quot;</td>
<td>8&quot;</td>
<td>3&quot;</td>
</tr>
<tr>
<td>Simple Span greater than 30'-0&quot; to 35'-0&quot;</td>
<td>1'-9&quot;</td>
<td>1'-0&quot;</td>
<td>9&quot;</td>
<td>5&quot;</td>
</tr>
<tr>
<td>Simple Span greater than 35'-0&quot; to 40'-0&quot;</td>
<td>2'-0&quot;</td>
<td>1'-2&quot;</td>
<td>10&quot;</td>
<td>5&quot;</td>
</tr>
<tr>
<td>Simple Span greater than 40'-0&quot; to 45'-0&quot;</td>
<td>2'-0&quot;</td>
<td>1'-2&quot;</td>
<td>10&quot;</td>
<td>5&quot;</td>
</tr>
<tr>
<td>Simple Span greater than 45'-0&quot; to 50'-0&quot;</td>
<td>2'-3&quot;</td>
<td>1'-4&quot;</td>
<td>11&quot;</td>
<td>7&quot;</td>
</tr>
<tr>
<td>Simple Span greater than 50'-0&quot; to 55'-0&quot;</td>
<td>2'-6&quot;</td>
<td>1'-4&quot;</td>
<td>1'-2&quot;</td>
<td>7&quot;</td>
</tr>
</tbody>
</table>

Notes:
1. For shear key placement procedures, see 440.03.20.
2. All nonshrink grout shall conform to 902.11C.
3. Shear keys shall not be placed on the exposed face of the exterior slab units unless where specifically called for on the plans to accommodate future widenings.
Concrete overlay and end portion of slab shall be placed as one continuous pour as shown using Mix. No. 8 concrete.

- 2½" dia. dowel holes in ends of precast concrete slab units. If an expansion end it is to be filled with an elastomeric or rubberized joint material. If a fixed end it is to be filled with nonshrink grout.
- #4's @ 6" c/c each way located 2½" clear from top of concrete overlay. The cost of all reinforcing and concrete in the overlay shall be included in the lump sum price for the Superstructure Concrete Item.

**Notes:**
1. All reinforcing steel to be epoxy coated.
2. All nonshrink grout shall conform to 902.11(c).

**Details:**
- 2 ply roofing paper bond breaker
- 4½" dia. x 8" lg. @ 1'-0" c/c Studs staggered @ 6"
- 1½" dia. vent holes @ 1'-0" c/c (as close to the vertical leg as possible). Contractor and Engineer shall verify during overlay placement that all vent holes are filled with concrete that has been forced from under the angles.
- 4" x 6" x ½" roadway angle with studs on each leg of roadway angle (angle to run from face of curb to face of curb)
- 6 - #5's full width of bridge (if stage construction, splicing at construction joint is allowed)
- 2 ply roofing paper bond breaker
- Porous backfill Refer to plans for limits

**ABUTMENT - SECTION**

Scale: ½" = 1'-0"

*Measured perpendicular to centerline of bearing.

**All elastomeric bearing pads shall be placed with an epoxy adhesive in accordance with Section 432.03.04.**
1. Styrofoam blocking

2. Reinforcing steel to be epoxy coated.

3. Double stirrups, longitudinal reinforcing steel and prestressing strands not shown for clarity.

4. For additional curb reinforcing details see Std.No. SUP-TB(TR)-301.
PARCEL NO.

TYPICAL SECTION
Scale: $\frac{\text{n}}{16} = \text{1'-0''}$

Mix No. 8 concrete overlay

$\frac{1}{2}''$ clear (typ.)

$\phi$ bearing

substructure unit

$\phi$'s @ 6'' c/c each way (epoxy coated)

PARTIAL DECK OVERLAY PLAN
Scale: $\frac{\text{n}}{16} = \text{1'-0''}$

Three strand tube rail
details shall be modified
to account for the
actual overlay depth

Modified F-Shape or
Single Slope parapet
details shall be modified
to account for the
actual overlay depth

Parapet/curb (typ.)

Edge of slab unit (typ.)

* GUIDE SHEET FOR PLAN DEVELOPMENT ONLY – DO NOT INCLUDE THIS SHEET IN CONTRACT PLANS *

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF STRUCTURES

PRECAST CONCRETE SLAB PANEL BRIDGE
OVERLAY REINFORCEMENT DETAILS

DETAIL NO. SUP-SLAB-701

APPROVAL

DATE: 07/15/2019

VERSION

2.0

SHEET OF

*X:* FOR OFFICE USE ONLY

*GUIDE SHEET FOR PLAN DEVELOPMENT ONLY - DO NOT INCLUDE THIS SHEET IN CONTRACT PLANS*
Lifting devices to have a minimum factor of safety of 2 on a working load of 20,000 lb. for each device.

Notes:
1. If prestressing strands are used for the lifting device, they shall be cut flush with the slab surface and epoxy coated prior to placing the overlay.
2. Lifting device working load of 20,000 lb. is satisfactory for all slab panels up to and including those 4' wide & 55' span length.
3. The exact location of the lifting device may be altered to avoid all prestressing strands, stirrups, mild reinforcing steel, tie rods, and railing anchorage as long as the specified clear cover is maintained.
Chapter 03 - Superstructure

Section 07 – Concrete Slabs

SUB-SECTION 02

3 FT WIDE SLABS (SUP-SLAB(3FT))
Camber Notes:
Camber due to prestress plus slab dead load to be checked in the field.

The thickness of the concrete overlay shall be varied to compensate for any inaccuracies in the camber of slabs.

Prestress camber and dead load deflection data shown is theoretical and may vary with concrete strength, variable prestressing conditions and prestress losses.

Camber in slabs will increase due to concrete creep during storage. Precautions shall be taken by loading or other means to prevent additional camber from developing during storage of prestressed slabs.

A = Estimated camber due to prestress
B = Deflection due to dead load of prestressed slabs
C = Deflection due to dead load of cast-in-place concrete overlay, curbs and railing
D = Net final camber

<table>
<thead>
<tr>
<th>Precast Concrete Slab Panel</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simple Span 20'-0'' or less</td>
<td>3/16&quot;</td>
<td>1/16''</td>
<td>1/16''</td>
<td>1/16''</td>
</tr>
<tr>
<td>Simple Span greater than 20'-0'' to 25'-0''</td>
<td>3/8''</td>
<td>1/8''</td>
<td>1/8''</td>
<td>1/8''</td>
</tr>
<tr>
<td>Simple Span greater than 25'-0'' to 30'-0''</td>
<td>1/4''</td>
<td>1/4''</td>
<td>1/4''</td>
<td>1/4''</td>
</tr>
<tr>
<td>Simple Span greater than 30'-0'' to 35'-0''</td>
<td>3/16''</td>
<td>3/16''</td>
<td>3/16''</td>
<td>3/16''</td>
</tr>
<tr>
<td>Simple Span greater than 35'-0'' to 40'-0''</td>
<td>1/4''</td>
<td>1/2''</td>
<td>1/2''</td>
<td>1/2''</td>
</tr>
<tr>
<td>Simple Span greater than 40'-0'' to 45'-0''</td>
<td>2''</td>
<td>3/4''</td>
<td>7/16''</td>
<td>7/16''</td>
</tr>
<tr>
<td>Simple Span greater than 45'-0'' to 50'-0''</td>
<td>21/4''</td>
<td>11/16''</td>
<td>7/16''</td>
<td>7/16''</td>
</tr>
<tr>
<td>Simple Span greater than 50'-0'' to 55'-0''</td>
<td>21/8''</td>
<td>7/16''</td>
<td>1/2''</td>
<td>1/2''</td>
</tr>
</tbody>
</table>
1. Extreme care shall be used in locating tie rod holes during the casting operation. Contractor shall assemble the slab units for the entire bridge width at the casting plant to ensure that there is no hole misalignment prior to shipping slab units to the site. Any misalignment of the holes will be cause for rejection of the slab unit. Drilling or coring of the slabs to create new or modified cast holes is prohibited.

2. Adjust stirrup spacing as needed to avoid tie rod hole.

3. All reinforcing steel to be epoxy coated.

Note:
Reinforcing steel at ends of slab not shown for clarity.

Note:
Stirrup spacing shown is for a 90° crossing. For bridges with other skew angles, see Std. No. SUP-SLAB(3FT)-103 for details of skewed ends.

Note:
Bars to be bent at casting plant after formwork has been removed.
For stage construction
Type B tie rod recess may be required.
For location see Slab Layout sheet in Plans

SECTION - SLAB AT MIDSPAN
Scale: 3/4" = 1'-0"

Roughened surface in accordance with Section 440.03.14 for concrete overlay
See Shear Key Detail Std. No. SUP-SLAB-501

4 - #5's placed as shown
4 1/2" dia. tie rod hole

#4 double stirrups placed in pairs @ 10 1/2" c/c, see Plans.
8 - 1/2" dia. prestressing strands placed as shown

Note:
For location of tie rod holes, see contract plans.

SECTION - SLAB AT ENDS
Scale: 3/4" = 1'-0"

Roughened surface in accordance with Section 440.03.14 for concrete overlay

4 - #5's placed as shown
2 1/2" dia. dowel bar holes

#4 double stirrups placed in pairs see Plans for spacing at ends
8 - 1/2" dia. prestressing strands placed as shown

Note:
Any misplaced dowel bar holes or tie rod holes will be cause for rejection of the precast slab unit.
Adjust curb rebar and stirrup spacing as needed to avoid tie rod hole and all reinforcing steel to equally spaced between stirrups - 10 1/2" max.

Note:
Reinforcing steel at ends of slab and curb reinforcing not shown for clarity.

EXTERIOR 3'-0'' PRECAST CONCRETE SLAB PANEL

Bars to be bent at casting plant after formwork has been removed.

Notes:
1. Extreme care shall be used in locating tie rod holes during the casting operation. Contractor shall assemble the slab units for the entire bridge width at the casting plant to ensure that there is no hole misalignment prior to shipping slab units to the site. Any misalignment of the holes will be cause for rejection of the slab unit. Drilling or coring of the slabs to create new or modified cast holes is prohibited.
2. Adjust curb rebar and stirrup spacing as needed to avoid tie rod hole and railing anchor bolts (if applicable).
3. All reinforcing steel to be epoxy coated.

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
OFFICE OF STRUCTURES

SIMPLE SPAN 20'-0'' OR LESS
EXTERIOR 3'-0'' PRECAST CONCRETE SLAB PANEL
PLAN & ELEVATION

DATE: 05/04/2017

VERSION 1.0

DETAIL NO. SUP-SLAB(3FT)-102

SUPERSTRUCTURE SLABS
**SECTION - SLAB AT MIDSPAN**

Scale: 3/4" = 1'-0"

- 4 - #5's placed as shown
- 8 - 1/2" dia. prestressing strands placed as shown
- 2 1/2" dia. dowel bar holes
- Roughened surface in accordance with Section 440.03.14 for concrete overlay

**SECTION - SLAB AT ENDS**

Scale: 3/4" = 1'-0"

- 4 - #5's placed in pairs see Plans for spacing at ends
- 8 - 1/2" dia. prestressing strands placed as shown
- Note:
  - Extreme care shall be used when placing and tying the curb rebar, railing and anchor bolts assembly to provide for the required clearances. Any misplaced rebar, dowel bar holes, tie rod holes or anchor bolts will be cause for rejection of the precast slab unit.

Notes:
1. For location of tie rod holes, see contract plans.
2. For location of curb reinforcement and anchor bolts and plates to be cast in slab for railing, see Std. No. SUP-TB(TR)-301

---

**Extreme care shall be used when placing and tying the curb rebar, railing and anchor bolts assembly to provide for the required clearances. Any misplaced rebar, dowel bar holes, tie rod holes or anchor bolts will be cause for rejection of the precast slab unit.**
Center line slab
#4 double stirrups placed as shown
2" cl. (typ.)

be epoxy coated.

Note:
All reinforcing steel to be epoxy coated.

DATE:
STATE HIGHWAY ADMINISTRATION
DEPARTMENT OF TRANSPORTATION
STATE OF MARYLAND

SHEET
OF
APPROVAL

Scale: 3/4" = 1'-0"

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

* For exact skew angle, see contract plan sheets.

Note:
1. 2½" dia. dowel hole (typ.)
2. Top of slope area
3. #4 double stirrups
4. Normal stirrup spacing
5. 4 equal spaces 10½" c/c max.
6. 3" c/c min. - 10½" c/c max.

Note to Fabricator:
End stirrup spacing must be laid out to determine spacing.

Note to Designer:
Layout shown works up to a skew angle of 55°. For angles less than 55° designer must layout skewed end detail on plans.

* GUIDE SHEET FOR PLAN DEVELOPMENT ONLY - DO NOT INCLUDE THIS SHEET IN CONTRACT PLANS *

* FOR OFFICE USE ONLY *

VERSION
1.0

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF STRUCTURES

SIMPLE SPAN 20'-0" OR LESS
INTERIOR 3'-0" PRECAST CONCRETE SLAB PANEL
SKEWED END DETAIL

DETAIL NO. SUP-SLAB(3FT)-103
SHEET 1 OF 2
Note:
All reinforcing steel to be epoxy coated.

*For exact skew angle, see contract plan sheets.

Note to Fabricator:
End stirrup spacing must be laid out to determine spacing.

Note to Designer:
Layout shown works up to a skew angle of 55°. For angles less than 55°, designer must layout skewed end detail on plans.

Note:
Center line slab unit
Top of slope area
2'' cl. (typ.)

4 equal spaces
10 1/2'' c/c max.

Normal stirrup spacing
3'' c/c min. - 10 1/2'' c/c max.

2'' x 6'' key

#4 double stirrups

2 1/2'' dia. dowel hole (typ.)

4 47 bars in end of slab not shown for clarity.

PLAN
Scale: 1/8'' = 1'-0''

Note:
For Office Use Only

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF STRUCTURES

SIMPLE SPAN 20'-0'' OR LESS
EXTERIOR 3'-0'' PRECAST CONCRETE SLAB PANEL
SKewed END DETAIL

DETAIL NO. SUP-SLAB(3FT)-103

SHEET 2 OF 2
Notes:

1. Extreme care shall be used in locating tie rod holes during the casting operation. The contractor shall assemble the slab units for the entire bridge width at the casting plant to ensure that there is no hole misalignment prior to shipping slab units to the site. Any misalignment of the holes will cause the rejection of the slab unit. Drilling or coring of the slabs to create new or modified cast holes is prohibited.

2. Adjust curb rebar and stirrup spacing as needed to avoid tie rod hole and rolling anchor bolt locations (if applicable).

3. All reinforcing steel to be epoxy coated.

Note: Stirrup spacing shown is for a 90° skew angle. For bridges with other skew angles, see Std. No. SUP-SLAB(3FT-203) for details of skewed ends.

Superstructure Slabs

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF STRUCTURES
SIMPLE SPAN GREATER THAN 20'-0" TO 25'-0"
EXTERIOR 3'-0" PRECAST CONCRETE SLAB PANEL
PLAN & ELEVATION

DETAIL NO. SUP-SLAB(3FT)-202

SHEET 1 OF 2

* FOR OFFICE USE ONLY *
SECTION - SLAB AT MIDSPAN
Scale: 3/4" = 1'-0"

For stage construction
Type B tie rod recess may be required.
For location see Slab Layout sheet in Plans.

SECTION - SLAB AT ENDS
Scale: 3/4" = 1'-0"

Note:
For location of tie rod holes, see contract plans.

Note:
Any misplaced dowel bar holes or tie rod holes will be cause for rejection of the precast slab unit.
Notes:

1. Extreme care shall be used in locating tie rod holes during the casting operation. Contractor shall assemble the slab units for the entire bridge width at the casting plant to ensure that there is no hole misalignment prior to shipping slab units to the site. Any misalignment of the holes will cause rejection of the slab unit. Drilling or coring of the slabs to create new or modified cast holes is prohibited.

2. Adjust curb rebar and stirrup spacing as needed to avoid tie rod hole and railing anchor bolts (if applicable).

3. All reinforcing steel to be epoxy coated.

Bars to be bent at casting plant after formwork has been removed.

For exact slab lengths, skew angles and tie rod pattern see contract plans' sheets.

Reinforcing steel at ends of slab not shown for clarity.

For bridges with other skew angles, see Std. No. SUP-SLAB(3FT)-203 for details of skewed ends.
**SECTION - SLAB AT MIDSPAN**

Scale: 3/4" = 1'-0"

- Roughened surface in accordance with Section 440.03.14 for concrete overlay
- See Shear Key Detail Std. No. SUP-SLAB-S01
- 4 - #5’s placed as shown
- 2 1/2" dia. tie rod hole
- #4 double stirrups placed in pairs @ 10" c/c, see Plans.
- 11 - 1/2" dia. strands placed as shown

**SECTION - SLAB AT ENDS**

Scale: 3/4" = 1'-0"

- #5 curb rebar - see note 2
- Alternate @ 10" c/c between #4 double stirrups
- If bridge has curb

Notes:

1. For location of tie rod holes, see contract plans.

2. For location of curb reinforcement and anchor bolts to be cast in slab for railing, see Std. No. SUP-TBTR-301

Note:

Extreme care shall be used when placing and tying the curb rebar, railing and anchor bolts assembly to provide for the required clearances. Any misplaced rebar, dowel bar holes, tie rod holes or anchor bolts will be cause for rejection of the precast slab unit.

*GUIDE SHEET FOR PLAN DEVELOPMENT ONLY - DO NOT INCLUDE THIS SHEET IN CONTRACT PLANS*

*FOR OFFICE USE ONLY*

**STATE OF MARYLAND**

DEPARTMENT OF TRANSPORTATION

OFFICE OF STRUCTURES

SIMPLE SPAN GREATER THAN 20'-0" TO 25'-0"

EXTERIOR 3'-0" PRECAST CONCRETE SLAB PANEL

SECTIONS

DETAIL NO. SUP-SLAB(3FT)-202

SHEET 2 OF 2
All reinforcing steel to be epoxy coated.

Note:

1. For exact skew angle, see contract plan sheets.

2. #4 double stirrups placed as shown

3. Skew angle

4. 21/2'' dia. dowel hole (typ.)

5. Center line slab

6. Normal stirrup spacing

7. 4 equal spaces

8. 5'' c/c max.

9. 10'' c/c max.

10. Top of slope area

11. 2'' c/c (typ.)

12. 3'' c/c min. - 10'' c/c max.

Note:

1. For exact skew angle, see contract plan sheets.

2. End stirrup spacing must be laid out to determine spacing.

3. Layout shown works up to a skew angle of 55°. For angles less than 55°, designer must layout skewed end detail on plans.

Note:

4. #5 bars in end of slab not shown for clarity.
* For exact skew angle, see contract plan sheets.

**Plan**

Scale: 3/4" = 1'-0"

Note: End stirrup spacing must be laid out to determine spacing.

Note to Fabricator:
End stirrup spacing must be laid out to determine spacing.

Note to Designer:
Layout shown works up to a skew angle of 55°. For angles less than 55° designer must layout skewed end detail on plans.

Note:
All reinforcing steel to be epoxy coated.
**Notes:**
1. Extreme care shall be used in locating tie rod holes during the casting operation. Contractor shall assemble the slab units for the entire bridge width at the casting plant to ensure that there is no hole misalignment prior to shipping slab units to the site. Any misalignment of the holes will be cause for rejection of the slab unit. Drilling or coring of the slabs to create new or modified cast holes is prohibited.
2. Adjust curb rebar and stirrup spacing as needed to avoid tie rod hole and railing anchor bolts (if applicable).
3. All reinforcing steel to be epoxy coated.

**Bars to be bent at casting plant after formwork has been removed.**

**Dimensions:**
- **Scale:** $\frac{3}{16}'' = 1'-0''$
- **L + 1'-0'' Slab Length (max. 31'-0'')**
- **10'' dia. tie rod hole (typ.)**
- **2 1/2 '' dia. tie rod hole (typ.)**
- **2 1/2 '' dia. dowel hole (typ.)**

**Sections:**
- **3'-0'' INTERIOR SLAB PLAN**
- **3'-0'' INTERIOR SLAB ELEVATION**

**Reinforcing steel at ends of slab not shown for clarity.**

**Bars:**
- **4 - #5 bars (typ.)**
- **3 1/2'' INTERIOR 3'-0'' PRECAST CONCRETE SLAB PANEL PLAN & ELEVATION**

**FOR OFFICE USE ONLY**
For stage construction
Type B tie rod recess may be required.
For location see Slab Layout sheet in Plans.

Note:
For location of tie rod holes, see contract plans.

SECTION - SLAB AT MIDSPAN
Scale: 7/8" = 1'-0"

Roughened surface in accordance with Section 440.03.14 for concrete overlay

4 - #5's placed as shown

4 double stirrups placed in pairs @ 10" c/c, see Plans.

23 - ½" dia. strands placed as shown

Note:
Any misplaced dowel bar holes or tie rod holes will be cause for rejection of the precast slab unit.

SECTIONS

SECTION - SLAB AT ENDS
Scale: 7/8" = 1'-0"

Roughened surface in accordance with Section 440.03.14 for concrete overlay

4 - #5's placed as shown

4 double stirrups placed in pairs see Plans for spacing at ends.

23 - ½" dia. strands placed as shown

Note:
Any misplaced dowel bar holes or tie rod holes will be cause for rejection of the precast slab unit.

Notes:
1. All reinforcing steel to be epoxy coated.
2. Adjust stirrup spacing to avoid tie rod holes as needed.
1. Extreme care shall be used in locating tie rod holes during the casting operation. For the entire bridge width at the casting plant. If curb rebar and stirrup spacing as needed to avoid tie rod hole and all reinforcing steel to railing anchor bolts (if applicable).

2. If curb steel is required use #5 bars.

3. Adjust curb rebar and stirrup spacing as needed to avoid tie rod hole and all reinforcing steel to railing anchor bolts (if applicable).

Note:
Stirrup spacing shown is for a 90° crossing. For bridges with other skew angles, see Std. No. SUP-SLAB(3FT)-303 for details of skewed ends.

Extreme care shall be used in locating tie rod holes during the casting operation. For the entire bridge width at the casting plant. If curb rebar and stirrup spacing as needed to avoid tie rod hole and all reinforcing steel to railing anchor bolts (if applicable).

2. If curb steel is required use #5 bars.

3. Adjust curb rebar and stirrup spacing as needed to avoid tie rod hole and all reinforcing steel to railing anchor bolts (if applicable).

Notes:
- Extreme care shall be used in locating tie rod holes during the casting operation.
- For the entire bridge width at the casting plant. If curb rebar and stirrup spacing as needed to avoid tie rod hole and all reinforcing steel to railing anchor bolts (if applicable).

Contractor shall assemble the slab units for the entire bridge width at the casting plant to ensure that there is no hole to the site. Any misalignment of the holes will be cause for rejection of the slab unit. Drilling or coring of the slab, after removal of the formwork, is prohibited.

Note:
Reinforcing steel at ends of slab and curb reinforcing not shown for clarity.

For exact slab lengths, skew angle and tie rod pattern see contract plans' sheets.

Bars to be bent at casting plant after formwork has been removed.

* GUIDE SHEET FOR PLAN DEVELOPMENT ONLY - DO NOT INCLUDE THIS SHEET IN CONTRACT PLANS *

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
OFFICE OF STRUCTURES
OFFICE OF PRECAST, CONCRETE SLAB PANEL & ELEVATION

3'-0'' EXTERIOR SLAB PLAN

3'-0'' EXTERIOR SLAB ELEVATION

For Office Use Only

Version 1.0

5'-0''

4 - #5 bars (typ.)

Note: Stirrup spacing shown is for a 90° crossing. For bridges with other skew angles, see Std. No. SUP-SLAB(3FT)-303 for details of skewed ends.

Bars to be bent at casting plant after formwork has been removed.

* FOR OFFICE USE ONLY *

05/04/2017
NOTES:

1. For location of tie rod holes, see contract plans.

2. For location of curb reinforcement and anchor bolts to be cast in slab for railing, see Std. No. SUP-TB(TR)-301.

SECTION - SLAB AT MIDSPAN

Scale: \( \frac{3}{4}'' = 1'-0'' \)

- 2 x 6" key
- 1'-0" typ.
- 2" cl.
- 2 1/2" dia. tie rod hole

SECTION - SLAB AT ENDS

Scale: \( \frac{3}{4}'' = 1'-0'' \)

- 21/2" dia. dowel bar holes

Notes:

1. For location of tie rod holes, see contract plans.

2. For location of curb reinforcement and anchor bolts to be cast in slab for railing, see Std. No. SUP-TB(TR)-301.

3. #5 curb rebar - see note 2.

Alternate @ 10" c/c between #4 double stirrups

If bridge has curb

4. #4 double stirrups placed in pairs @ 10" c/c, see Plans

5. 23 - 1/2" dia. strands placed as shown

Roughened surface in accordance with Section 440.03.14 for concrete overlay

See Shear Key Detail Std. No. SUP-SLAB-501

4 - #5's placed as shown

#4 double stirrups placed in pairs see Plans for spacing at ends

23 - 1/2" dia. strands placed as shown

Note:

Extreme care shall be used when placing and tying the curb rebar, railing and anchor bolts assembly to provide for the required clearances. Any misplaced rebar, dowel bar holes, tie rod holes or anchor bolts will be cause for rejection of the precast slab unit.

* GUIDE SHEET FOR PLAN DEVELOPMENT ONLY - DO NOT INCLUDE THIS SHEET IN CONTRACT PLANS *

* FOR OFFICE USE ONLY *

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
OFFICE OF STRUCTURES
STATE HIGHWAY ADMINISTRATION

SIMPLE SPAN GREATER THAN 25'-0" TO 30'-0"
EXTERIOR 3'-0" PRECAST CONCRETE SLAB PANEL

SECTION

DETAIL NO. SUP-SLAB(3FT)-302 SHEET 2 OF 2

VERSION 1.0

DIRECTOR OFFICE OF STRUCTURES

DATE 05/04/2017
Note: All reinforcing steel to be epoxy coated.

Note to Fabricator:
End stirrup spacing must be laid out to determine spacing.

Note to Designer:
Note that layout shown is for angles up to 45°. For angles greater than 45°, designer must layout skewed end detail on plans.

Note: 4 equals bars in end of slab not shown for clarity.

For exact skew angle, see contract plan sheets.

Scale: 3/4" = 1'-0"
Note: All reinforcing steel to be epoxy coated.

* For exact skew angle, see contract plan sheets.

Note to Fabricator: End stirrup spacing must be laid out to determine spacing.

Note to Designer: Layout shown works up to a skew angle of 55°. For angles less than 55° designer must layout skewed end detail on plans.

**For Office Use Only**

*GUIDE SHEET FOR PLAN DEVELOPMENT ONLY - DO NOT INCLUDE THIS SHEET IN CONTRACT PLANS*
Notes:
1. Extreme care shall be used in locating tie rod holes during the casting operation. Contractor shall assemble the slab units for the entire bridge width at the casting plant to ensure that there is no hole misalignment prior to shipping slab units to the site. Any misalignment of the holes will cause rejection of the slab unit. Drilling or coring of the slabs to create new or modified cast holes is prohibited.
2. Adjust curb rebar and stirrup spacing as needed to avoid tie rod hole and ralling anchor bolts (if applicable).
3. All reinforcing steel to be epoxy coated.

For exact slab lengths, skew angle and tie rod pattern see contract plans.

Bars to be bent at casting plant after formwork has been removed.

Reinforcing steel at ends of slab not shown for clarity.

Center line bearing

Center line slab

Bars: 4 4/5

#4 double stirrups spaced as shown

Scale: 5/16'' = 1'-0"
SECTION - SLAB AT MIDSPAN

Scale: \( \frac{3}{4}'' = 1'-0'' \)

Roughened surface in accordance with Section 440.03.14 for concrete overlay

2\(\frac{1}{2}''\) dia. tie rod hole

4 - #5's placed as shown

2\(\frac{1}{2}''\) dia. dowel bar holes

4 - #5's placed as shown

3'' cl.

*4 double stirrups placed in pairs @ 1'0'' c/c, see Plans.

22 - \(\frac{1}{2}''\) dia. strands placed as shown

SECTION - SLAB AT ENDS

Scale: \( \frac{3}{4}'' = 1'-0'' \)

Roughened surface in accordance with Section 440.03.14 for concrete overlay

2\(\frac{1}{2}''\) dia. dowel bar holes

4 - #5's placed as shown

*4 double stirrups placed in pairs see Plans for spacing at ends.

22 - \(\frac{1}{2}''\) dia. strands placed as shown

Note:
Any misplaced dowel bar holes or tie rod holes will be cause for rejection of the precast slab unit.
Notes:

1. Extreme care shall be used in locating tie rod holes during the casting operation. Contractor shall assemble the slab units for the entire bridge width at the casting plant to ensure that there is no hole misalignment prior to shipping slab units to the site. Any misalignment of the holes will be cause for rejection of the slab unit. Drilling or coring of the slabs to create new or modified cast holes is prohibited.

2. Adjust curb rebar and stirrup spacing as needed to avoid tie rod hole and railing anchor bolts (if applicable).

3. All reinforcing steel to be epoxy coated.

State of Maryland
Department of Transportation
Superstructure Slabs

Simple Span Greater Than 30'-0" to 35'-0"
Exterior 3'-0" Precast Concrete Slab Panel
Plan & Elevation

Detail No. SUP-SLAB(3FT)-402

Sheet 1 of 2
**SECTION - SLAB AT MIDSPAN**

Scale: $\frac{3}{4}'' = 1'-0''$

- Roughened surface in accordance with Section 440.03.14 for concrete overlay

- See Shear Key Detail

- Std. No. SUP-SLAB-501

- 4 - #5's placed as shown

- 2 1/2'' dia. tie rod hole

- 2'' x 6'' key

- 1'-0'' typ.

- 2'' cl.

**SECTION - SLAB AT ENDS**

Scale: $\frac{3}{4}'' = 1'-0''$

- Roughened surface in accordance with Section 440.03.14 for concrete overlay

- 4 - #5's placed as shown

- 22 - 1/2'' dia. strands placed as shown

- #4 double stirrups placed in pairs @ 1'' c/c, see Plans.

- 2 1/2'' dia. dowel bar holes

**Notes:**

1. For location of tie rod holes, see contract plans.

2. For location of curb reinforcement and anchor bolts and plates to be cast in slab for railing, see Std. No. SUP-SLAB-501

Extreme care shall be used when placing and tying the curb rebar, railing, and anchor bolts assembly to provide for the required clearances. Any misplaced rebar, dowel bar holes, tie rod holes or anchor bolts will be cause for rejection of the precast slab unit.

**DATE:** 05/04/2017
Note:
All reinforcing steel to be epoxy coated.

Note to Fabricator:
End stirrup spacing must be laid out to determine spacing.

Note to Designer:
Layout shown works up to a skew angle of 55°. For angles less than 55° designer must layout skewed end detail on plans.

1.0 VERSION

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
OFFICE OF STRUCTURES

SIMPLE SPAN GREATER THAN 30'-0" TO 35'-0"
INTERIOR 3'-0" PRECAST CONCRETE SLAB PANEL
SKEWED END DETAIL

DETAIL NO. SUP-SLAB(3FT)-403 SHEET 1 OF 2
**STATE OF MARYLAND**

**DEPARTMENT OF TRANSPORTATION**

**OFFICE OF STRUCTURES**

**SINGLE SPAN GREATER THAN 30'-0'' TO 35'-0''**

**EXTERIOR 3'-0'' PRECAST CONCRETE SLAB PANEL**

**SKewed END DETAIL**

---

Note:
All reinforcing steel to be epoxy coated.

Centrl line slab
2'' cl.

---

**Center line slab**

*Skew angle*

Center line bearing

2½'' dia. dowel hole (typ.)

4 equal spaces

1'-0'' c/c max.

Top of slope area

2'' cl. (typ.)

2'' x 6'' key

Normal stirrup spacing

3'' min.

1'-0'' c/c max.

#4 double stirrups

*4 double stirrups placed as shown*

4 equal spaces

#4 double stirrups

#4 double stirrups

Note to Fabricator:
End stirrup spacing must be laid out to determine spacing.

Note to Designer:
Layout shown works up to a skew angle of 55°. For angles less than 55° designer must layout skewed end detail on plans.

Note:
4 - #5 bars in end of slab not shown for clarity.

---

Note:
For exact skew angle, see contract plan sheets.
Notes:

1. Extreme care shall be used in locating tie rod holes during the casting operation. Contractor shall assemble the slab units for the entire bridge width at the casting plant to ensure that there is no hole misalignment prior to shipping slab units to the site. Any misalignment of the holes will be cause for rejection of the slab unit. Drilling or coring of the slabs to create new or modified cast holes is prohibited.

2. Adjust curb rebar and stirrup spacing as needed to avoid tie rod hole and railing anchor bolts (if applicable).

3. All reinforcing steel to be epoxy coated.

Bars to be bent at casting plant after formwork has been removed.

**FOR OFFICE USE ONLY**

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
OFFICE OF STRUCTURES

SIMPLE SPAN GREATER THAN 35'-0" TO 40'-0"
INTERIOR 3'-0" PRECAST CONCRETE SLAB PANEL
PLAN & ELEVATION

05/04/2017
SECTION - SLAB AT MIDSPAN
Scale: \(\frac{3}{4}'' = 1'-0''\)

- Roughened surface in accordance with Section 440.03.14 for concrete overlay
- See Shear Key Detail Std. No. SUP-SLAB-501
- 4 - #5’s placed as shown
- 2½” dia. tie rod hole
- #4 double stirrups placed in pairs @ 1½'' c/c, see Plans.
- 25 - ½” dia. strands placed as shown

Note:
For location of tie rod holes, see contract plans.

SECTION - SLAB AT ENDS
Scale: \(\frac{3}{4}'' = 1'-0''\)

- Roughened surface in accordance with Section 440.03.14 for concrete overlay
- 2½” dia. dowel bar holes
- #4 double stirrups placed in pairs see Plans for spacing at ends.
- 25 - ½” dia. strands placed as shown

Note:
Any misplaced dowel bar holes or tie rod holes will be cause for rejection of the precast slab unit.
Notes:

1. Extreme care shall be used in locating tie rod holes during the casting operation. Contractor shall assemble the slab units prior to shipping slab units to the site. Any misalignment of the tie rod holes will be cause for rejection of the slab unit. Drilling or coring of the slab to create new or modified tie rod holes is prohibited. Extreme care shall be used in locating tie rod holes during the casting operation.

2. Bars to be bent at casting plant after formwork has been removed. All reinforcing steel to be epoxy coated.

3. Stirrup spacing shown is for a 90° crossing. For bridges with other skew angles, see Std. No. SUP-SLAB(3FT)-503 for details of skewed ends.

Note:

Reinforcing steel at ends of slab and curb reinforcing not shown for clarity.

For exact slab lengths, skew angle and tie rod pattern see contract plans' sheets.

3'-0" EXTERIOR SLAB PLAN
Scale: 1/8" = 1'-0"

3'-0" EXTERIOR SLAB ELEVATION
Scale: 1/8" = 1'-0"
**SECTION - SLAB AT MIDSPAN**

Scale: \( \frac{3}{4}'' = 1'-0'' \)

- #5 curb rebar - see note 2.
- Alternate @ 1'-1/2'' c/c between #4 double stirrups
- If bridge has curb

- 2'' x 6'' key
- 1'-0'' typ.
- 2'' cl.

- Roughened surface in accordance with Section 440.03.14 for concrete overlay
- See Shear Key Detail Std. No. SUP-SLAB-501
- 4 - #5's placed as shown
- 2 1/2'' dia. tie rod hole

- #4 double stirrups placed in pairs @ 1'-1/2'' c/c, see Plans.
- 25 - 1/2'' dia. strands placed as shown

**SECTION - SLAB AT ENDS**

Scale: \( \frac{3}{4}'' = 1'-0'' \)

- Roughened surface in accordance with Section 440.03.14 for concrete overlay
- 4 - #5's placed as shown
- 2 1/2'' dia. dowel bar holes

- #4 double stirrups placed in pairs see Plans for spacing at ends
- 25 - 1/2'' dia. strands placed as shown

Notes:

1. For location of tie rod holes, see contract plans.
2. For location of curb reinforcement and anchor bolts and plates to be cast in slab for railing, see Std. No. SUP-SLAB-501

---

**EXTERIOR 3'-0'' PRECAST CONCRETE SLAB PANEL**

**SUPERSTRUCTURE SLABS**

**STATE OF MARYLAND**

DEPARTMENT OF TRANSPORTATION

STATE HIGHWAY ADMINISTRATION

OFFICE OF STRUCTURES

**VERSE**

**VERSION**

**SHEET 2 OF 2**
Note:
All reinforcing steel to be epoxy coated.

Note:
All reinforcing steel to be epoxy coated.

Note to Fabricator:
End stirrup spacing must be laid out to determine spacing.

Note to Designer:
Layout shown works up to a skew angle of 55°. For angles less than 55° designer must layout skewed end detail on plans.

Note:
4 - #5 bars in end of slab not shown for clarity.

For exact skew angle, see contract plan sheets.
**SIMPLE SPAN GREATER THAN 35'-0" TO 40'-0"

Scale: \(\frac{3}{4}\)" = 1'-0"

Center line slab

Step 6"

3" cl.

#4 double stirrups

2" cl. (typ.)

be epoxy coated.

Note: All reinforcing steel to be epoxy coated.

DATE:

STATE HIGHWAY ADMINISTRATION

DEPARTMENT OF TRANSPORTATION

STATE OF MARYLAND

SHEET OF APPROVAL

DIRECTOR

TOP OF SLOPE AREA

End stirrup spacing must be laid out to determine spacing.

Note to Fabricator:

End stirrup spacing must be laid out to determine spacing.

Note to Designer:

Layout shown works up to a skew angle of 55°. For angles less than 55° designer must layout skewed end detail on plans.

PLAN

Scale: \(\frac{3}{4}\)" = 1'-0"

Note:

4 - #5 bars in end of slab not shown for clarity.

Note to Fabricator:

Layout shown works up to a skew angle of 55°. For angles less than 55° designer must layout skewed end detail on plans.

For exact skew angle, see contract plan sheets.

2" x 6"

key

Normal stirrup spacing

* For exact skew angle, see contract plan sheets.

EXTERIOR 3'-0" PRECAST CONCRETE SLAB PANEL

2'' x 6'' key

4 equal spaces

3'' min.- 1'-1\(\frac{1}{2}\)" c/c max.

4 equal spaces

1'' cl.

Center line bearing

1'-2"

4 equal spaces

2'' cl. (typ.)

2'' x 6''

key

4-#5 curb reinforcement placed as shown

For exact skew angle, see contract plan sheets.

* For exact skew angle, see contract plan sheets.

4 equal spaces

3'' min.- 1'-1\(\frac{1}{2}\)" c/c max.

4 equal spaces

2'' cl. (typ.)

2'' x 6''

key

Normal stirrup spacing

* For exact skew angle, see contract plan sheets.
Notes:

1. Extreme care shall be used in locating tie rod holes during the casting operation. Contractor shall assemble the slab units for the entire bridge width at the casting plant to ensure that there is no hole misalignment prior to shipping slab units to the site. Any misalignment of the holes will be cause for rejection of the slab unit. Drilling or coring of the slabs to create new or modified cast holes is prohibited.

2. Adjust curb rebar and stirrup spacing as needed to avoid tie rod hole and railing anchor bolts (if applicable).

3. All reinforcing steel to be epoxy coated.

Note:

Stirrup spacing shown is for a 90° crossing. For bridges with other skew angles, see SD No. SUP-SLAB(3FT)-603 for details of skewed ends.

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

DATE:

STATE HIGHWAY ADMINISTRATION
DEPARTMENT OF TRANSPORTATION
STATE OF MARYLAND

OFFICE OF STRUCTURES

FOR OFFICE USE ONLY

* GUIDE SHEET FOR PLAN DEVELOPMENT ONLY - DO NOT INCLUDE THIS SHEET IN CONTRACT PLANS *

VERSION 1.0

DETAIL NO. SUP-SLAB(3FT)-601

SHEET 1 OF 2
Type B tie rod recess, for location see Slab Layout sheet.

Section - Slab at Midspan
Scale: $\frac{3}{4}'' = 1'-0''$

- 4 - #5's placed as shown
- 42 - $\frac{1}{2}''$ dia. strands placed as shown
- #6 double stirrups placed in pairs see Plans for spacing at ends.

Roughened surface in accordance with Section 440.03.14 for concrete overlay.

Note: Any misplaced dowel bar holes or tie rod holes will be cause for rejection of the precast slab unit.

Section - Slab at Ends
Scale: $\frac{3}{4}'' = 1'-0''$

- 4 - #5's placed as shown
- 42 - $\frac{1}{2}''$ dia. strands placed as shown

Roughened surface in accordance with Section 440.03.14 for concrete overlay.

Note: For location of tie rod holes, see contract plans.
Notes:

1. Extreme care shall be used in locating tie rod holes during the casting operation. Contractor shall assemble the slab units to ensure that there is no hole misalignment prior to shipping slab units to the site. Any misalignment of the holes will be cause for rejection of the slab unit. Drilling or coring of the slab to create new or modified hole patterns is prohibited. If curb steel is required use #5 bars be epoxy coated.

2. Adjust curb rebar and stirrup spacing as needed to avoid tie rod hole and #6 Double stirrups spaced as shown.

3. Bars to be bent at casting plant after formwork has been removed.

4 - #6 bars (typ.)

For exact slab lengths, skew angle and tie rod pattern see contract plans' sheets.

Note:
Reinforcing steel at ends of slab and curb reinforcing not shown for clarity.

Reinforcing steel at ends of slab and curb reinforcing not shown for clarity.

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

3'-0" EXTERIOR SLAB PLAN

Exterior face
2' x 6" Continuous key

L + 1'-0" Slab Length (max. 46'-0"

L = over 40'-0" to 45'-0" *

2/12" dia. dowel hole (typ.)

2/12" dia. tie rod hole (typ.)

2/12" dia. tie rod hole with recess (exterior face only)

2 1/2" dia. dowel hole (typ.)

2 1/2" dia. tie rod hole with recess (exterior face only)

Note:
Stirrup spacing shown is for a 90° crossing. For bridges with other skew angles, see Std. No. SUP-SLAB(3FT)-603 for details of skewed ends.

1'-0" Variable 1'-11/2" Max. if curb steel is required use #5 bars equally spaced between stirrups - 1'-11/2" max.

6" 2 1/2" Spacing #6 Double Stirrups

Bars to be bent at casting plant after formwork has been removed.
**SECTION - SLAB AT MIDSPAN**

Scale: \( \frac{3}{4}'' = 1'-0'' \)

- **Center line key**
- **2'' x 6'' key**
- **1'-0'' typ.**
- **2'' cl.**
- **2'' cl.**
- **3'-0'' Slab Unit**

**Notes:**
1. For location of tie rod holes, see contract plans.
2. For location of curb reinforcement and anchor bolts and plates to be cast in slab for railing, see Std. No. SUP-TB(TR)-301

**SECTION - SLAB AT ENDS**

Scale: \( \frac{3}{4}'' = 1'-0'' \)

- **2'' x 6'' key**
- **1'-0'' typ.**
- **2'' cl.**
- **3'-0'' Slab Unit**

**Notes:**
- **#5 curb rebar - see note 2. Alternate @ 1'-1\(\frac{1}{2}''\) c/c between **#4 double stirrups**
- **Roughened surface in accordance with Section 440.03.14 for concrete overlay**
- **See Shear Key Detail Std. No. SUP-SLAB-501**
- **4 - #5's placed as shown**
- **\(\frac{3}{4}''\) dia. tie rod hole**
- **4 - #5's placed in pairs as shown**
- **42 - \(\frac{1}{2}''\) dia. strands placed as shown**
- **Alternate @ 1'-1\(\frac{1}{2}''\) c/c between #4 double stirrups placed in pairs as shown**
- **#6 double stirrups placed in pairs see Plans for spacing at ends**
- **42 - \(\frac{1}{2}''\) dia. strands placed as shown**

**Note:**
Extreme care shall be used when placing and tying the curb rebar, railing and anchor bolts assembly to provide for the required clearances. Any misplaced rebar, dowel bar holes, tie rod holes or anchor bolts will be cause for rejection of the precast slab unit.
Note: All reinforcing steel to be epoxy coated.

Note to Fabricator: End stirrup spacing must be laid out to determine spacing.

Note to Designer: Layout shown works up to a skew angle of 55°. For angles less than 55° designer must layout skewed end detail on plans.

Note: 4 - #5 bars in end of slab not shown for clarity.

For exact skew angle, see contract plan sheets.
Note: All reinforcing steel to be epoxy coated.

*Guide sheet for plan development only - do not include this sheet in contract plans*

**State Highway Administration**
**Office of Structures**

**Simple Span Greater Than 40'-0" to 45'-0"**
**Exterior 3'-0" Precast Concrete Slab Panel**
**Skewed End Detail**

**PLAN**
Scale: \( \frac{1}{4}" = 1'-0" \)

- 4 equal spaces
- 3' min. - 1'-1\(\frac{1}{2}\)" c/c max.
- 4 equal spaces
- 1'-1\(\frac{1}{2}\)" c/c max.

- 2" x 6" key
- 4 equal spaces
- 1'-1\(\frac{1}{2}\)" c/c max.
- 4 equal spaces
- 3'-0" PRECAST CONCRETE SLAB PANEL

- 6" x 6" Center line slab
- 6" x 3" Center line bearing
- 6" x 6" 1'-2"
- 6" x 6" 3" cl.
- 6" x 6" 5" cl.
- 6" x 6" 6" cl.
- 6" x 6" 1" cl.

- #6 double stirrups placed as shown
- #4 double stirrups
- 2" cl. (typ.)
- 3" cl.
- 1" cl.

- 2\(\frac{1}{2}\)" dia. dowel hole (typ.)
- 4\(\frac{1}{2}\)" curb reinforcement placed as shown
- 4\(\frac{1}{2}\)" bars in end of slab not shown for clarity.

- Note to Fabricator:
  End stirrup spacing must be laid out to determine spacing.

- Note to Designer:
  Layout shown works up to a skew angle of 55°. For angles less than 55° designer must layout skewed end detail on plans.

- *Skew angle*
- *For exact skew angle, see contract plan sheets.*

Note:
4 - 5 bars in end of slab not shown for clarity.
**3'-0'' INTERIOR SLAB PLAN**

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

**3'-0'' INTERIOR SLAB ELEVATION**

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

---

**Notes:**

1. Extreme care shall be used in locating tie rod holes during the casting operation. All reinforcing steel at ends of slab not shown for clarity.

2. Adjust curb rebar and stirrup spacing as needed to avoid tie rod hole and all reinforcing bolts if applicable.

3. Bars to be bent at casting plant after formwork has been removed.

---

**Details:**

- **Spacing:**
  - #6 Double Stirrups
  - 7''
  - 11''
  - 1'-3 1/2'' Max.

- **Stirrup spacing shown is for a 90° crossing. For bridges with other skew angles, see Std. No. SUP-SLAB(3FT)-703 for details of skewed ends.**

---

**For exact slab lengths, skew angle and tie rod pattern see contract plans' sheets.**
SECTION - SLAB AT MIDSPAN
Scale: 3/4" = 1'-0"

Type B tie rod recess, for location see Slab Layout sheet.

SECTION - SLAB AT ENDS
Scale: 3/4" = 1'-0"

Roughened surface in accordance with Section 440.03.14 for concrete overlay.

Note: Any misplaced dowel bar holes or tie rod holes will be cause for rejection of the precast slab unit.
Notes:
1. Extreme care shall be used in locating tie rod holes during the casting operation. Contractor shall assemble the slab units for the entire bridge width at the casting plant to ensure that there is no hole misalignment prior to shipping slab units to the site. Any misalignment of the holes will cause for rejection of the slab unit. Drilling or coring of the slabs to create new or modified cast holes is prohibited.
2. Adjust curb rebar and stirrup spacing as needed to avoid tie rod hole and railing anchor bolts (if applicable).
3. All reinforcing steel to be epoxy coated.

Bars to be bent at casting plant after formwork has been removed.

SUP-SLAB(3FT)-702

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF STRUCTURES

SIMPLE SPAN GREATER THAN 45'-0" TO 50'-0"
EXTERIOR 3'-0" PRECAST CONCRETE SLAB PANEL
PLAN & ELEVATION

DETAIL NO. SUP-SLAB(3FT)-702

SHEET __ OF __
Notes:
1. For location of tie rod holes, see contract plans.
2. For location of curb reinforcement and anchor bolts and plates to be cast in slab for railing, see Std. No. SUP-TBTR-301

Note:
Extreme care shall be used when placing and tying the curb rebar, railing and anchor bolts assembly to provide for the required clearances. Any misplaced rebar, dowel bar holes, tie rod holes or anchor bolts will be cause for rejection of the precast slab unit.
**PLAN**

Scale: \( \frac{\frac{3}{4}}{1'0''} \)

* For exact skew angle, see contract plan sheets.

Note:
- All reinforcing steel to be epoxy coated.
- **5# bars in end of slab not shown for clarity.**
- **End stirrup spacing must be laid out to determine spacing.**
- **Layout shown works up to a skew angle of 55°. For angles less than 55° designer must layout skewed end detail on plans.**

**OFFICE OF STRUCTURES**

**STATE OF MARYLAND**

**DEPARTMENT OF TRANSPORTATION**

**OFFICE OF STRUCTURES**

**STATE HIGHWAY ADMINISTRATION**

**SINGLE SPAN GREATER THAN 45'-0'' TO 50'-0''**

**INTERIOR 3'-0'' PRECAST CONCRETE SLAB PANEL**

**SKewed END DETAIL**

**DETAIL NO.** SUP-SLAB(3FT)-703

**SHEET 1 OF 2**

**APPROVAL**

**DATE:** 05/04/2017

**VERSION:** 1.0

* GUIDE SHEET FOR PLAN DEVELOPMENT ONLY - DO NOT INCLUDE THIS SHEET IN CONTRACT PLANS *

* FOR OFFICE USE ONLY *
**FOR OFFICE USE ONLY**

- All reinforcing steel to be epoxy coated.

**Note:**

- 5 - #5 bars in end of slab not shown for clarity.
- End stirrup spacing must be laid out to determine spacing.
- Layout shown works up to a skew angle of 55°. For angles less than 55°, designer must layout skewed end detail on plans.

**PLAN**

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

- #4 double stirrups
- 4 equal spaces 1'-3/2" c/c max.
- 2" cl. (typ.)
- #4 double stirrups placed as shown
- *Skew angle* Center line slab
- 2 1/2" dia. dowel hole (typ.)
- *6 double stirrups placed as shown*
- 5 - 5" curb reinforcement placed as shown
- 4 equal spaces 3" min. - 1'-3/2" c/c max.
- 2" x 6" key

**Note:**

- For exact skew angle, see contract plan sheets.

---

**STATE OF MARYLAND**
**DEPARTMENT OF TRANSPORTATION**
**STATE HIGHWAY ADMINISTRATION**
**OFFICE OF STRUCTURES**

**SINGLE SPAN GREATER THAN 45'-0" TO 50'-0"**
**EXTERIOR 3'-0" PRECAST CONCRETE SLAB PANEL**
**SKewed END DETAIL**

**DETAIL NO.** SUP-SLAB(3FT)-703

**SHEET 2 OF 2**
Notes:
1. Extreme care shall be used in locating tie rod holes during the casting operation. Contractor shall assemble the slab units for the entire bridge width at the casting plant to ensure that there is no hole misalignment prior to shipping slab units to the site. Any misalignment of the holes will cause for rejection of the slab unit. Drilling or coring of the slabs to create new or modified cast holes is prohibited.

2. Adjust curb rebar and stirrup spacing as needed to avoid tie rod hole and railing anchor bolts (if applicable).

3. All reinforcing steel to be epoxy coated.

**Guide Sheet for Plan Development Only - Do Not Include This Sheet in Contract Plans**
SECTION - SLAB AT MIDSPAN
Scale: 3/4" = 1'-0"

- Type B tie rod recess, for location see Slab Layout sheet.
- #4 double stirrups @ 1'-3 3/4" c/c, see Plans.
- 2 1/2" tie rod hole
- 2 - #5's placed as shown
- 56 - 1/2" dia. strands placed as shown

Roughened surface in accordance with Section 440.03.14 for concrete overlay

SECTION - SLAB AT ENDS
Scale: 3/4" = 1'-0"

- 2 1/2" dia. dowel bar holes
- #6 double stirrups placed in pairs see Plans for spacing at ends.
- 2 - #5's placed as shown
- 56 - 1/2" dia. strands placed as shown

Roughened surface in accordance with Section 440.03.14 for concrete overlay

Notes:
Any misplaced dowel bar holes or tie rod holes will be cause for rejection of the precast slab unit.

Note:
For location of tie rod holes, see contract plans.

Note:
For location of tie rod holes, see contract plans.

Note:
For location of tie rod holes, see contract plans.
Notes:
1. Extreme care shall be used in locating tie rod holes during the casting operation. Contractor shall assemble the slab units for the entire bridge width at the casting plant to ensure that there is no hole misalignment prior to shipping slab units to the site. Any misalignment of the holes will cause for rejection of the slab unit. Drilling or coring of the slabs to create new or modified cast holes is prohibited.
2. Adjust curb rebar and stirrup spacing as needed to avoid tie rod hole and railing anchor bolts (if applicable).
3. All reinforcing steel to be epoxy coated.

1.0

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF STRUCTURES

SIMPLE SPAN GREATER THAN 50'-0" TO 55'-0"
EXTERIOR 3'-0" PRECAST CONCRETE SLAB PANEL
PLAN & ELEVATION

DETAIL NO. SUP-SLAB(3FT)-802
SHEET 1 OF 2
Notes:

1. For location of tie rod holes, see contract plans.

2. For location of curb reinforcement and anchor bolts and plates to be cast in slab for railing, see Std. No. SUP-TBTR-301.

Note:
Extreme care shall be used when placing and tying the curb rebar, railing and anchor bolts assembly to provide for the required clearances. Any misplaced rebar, dowel bar holes, tie rod holes or anchor bolts will be cause for rejection of the precast slab unit.

* GUIDE SHEET FOR PLAN DEVELOPMENT ONLY - DO NOT INCLUDE THIS SHEET IN CONTRACT PLANS *

* FOR OFFICE USE ONLY *

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF STRUCTURES

SIMPLE SPAN GREATER THAN 50'-0" TO 55'-0"
EXTERIOR 3'-0" PRECAST CONCRETE SLAB PANEL SECTIONS

DETAIL NO. SUP-SLAB(3FT)-802 SHEET 2 OF 2

08/11/2017
Normal stirrup spacing

4 equal spaces
1'-3\(\frac{3}{4}\)" c/c max.

2" cl. (typ.)

Top of slope area

4 equal spaces
3" min. - 1'-3\(\frac{3}{4}\)" c/c max.

Center line bearing

6''

1'-2''

5'' cl.

Center line slab

2\(\frac{1}{2}\)" dia. dowel hole (typ.)

*4 double stirrups

*6 double stirrups placed as shown

*Skew angle

*For exact skew angle, see contract plan sheets.

PLAN
Scale: \(\frac{\frac{1}{4}}{1}" = 1'-0"

Note:
4 - #5 bars in end of slab not shown for clarity.

Note to Fabricator:
End stirrup spacing must be laid out to determine spacing.

Note to Designer:
Layout shown works up to a skew angle of 55°. For angles less than 55° designer must layout skewed end detail on plans.

Note:
All reinforcing steel to be epoxy coated.
#4 double stirrups

4 equal spaces

1'-3 3/4" c/c max.

2" cl. (typ.)

#6 double stirrups placed as shown

*Skew angle

Center line slab

2 1/2" dia. dowel hole (typ.)

5-#5 curb reinforcement placed as shown

5'-5" curb

Note:

4 - #5 bars in end of slab not shown for clarity.

Note to Fabricator:

End stirrup spacing must be laid out to determine spacing.

Note to Designer:

Layout shown works up to a skew angle of 55°. For angles less than 55° designer must layout skewed end detail on plans.

**FOR OFFICE USE ONLY**

Note:

For exact skew angle, see contract plan sheets.

Note:

All reinforcing steel to be epoxy coated.

**GUIDE SHEET FOR PLAN DEVELOPMENT ONLY - DO NOT INCLUDE THIS SHEET IN CONTRACT PLANS**
**ALTERNATE REINFORCING SECTION - SLAB AT MIDSPAN**

Scale: $\frac{1}{4''} = 1'-0''$

- Reinforcing bars, bent as shown, see plans for size and spacing at ends
- $2\frac{1}{2}''$ dia. dowel bar holes
- Hooks can be rotated up to $90^\circ$ as required for mat placement
- $\#5$ bars, see plans for spacing and amount
- Strands (location and amount vary according to precast slab design)

**ALTERNATE REINFORCING SECTION - SLAB AT ENDS**

Scale: $\frac{1}{4''} = 1'-0''$

- All reinforcing steel to be epoxy coated.
- These bars are only required for span lengths greater than 50'-0''.

**Note:**

- *FOR OFFICE USE ONLY*
Note:
All reinforcing steel to be epoxy coated.

* GUIDE SHEET FOR PLAN DEVELOPMENT ONLY – DO NOT INCLUDE THIS SHEET IN CONTRACT PLANS *

* FOR OFFICE USE ONLY *
Chapter 03 - Superstructure

Section 07 – Concrete Slabs

SUB-SECTION 03

4 FT WIDE SLABS
(SUP-SLAB(4FT))
Camber Notes:
Camber due to prestress plus slab dead load to be checked in the field.

The thickness of the concrete overlay shall be varied to compensate for any inaccuracies in the camber of slabs.

Prestress camber and dead load deflection data shown is theoretical and may vary with concrete strength, variable prestressing conditions and prestress losses.

Camber in slabs will increase due to concrete creep during storage. Precautions shall be taken by loading or other means to prevent additional camber from developing during storage of prestressed slabs.

A = Estimated camber due to prestress
B = Deflection due to dead load of prestressed slabs
C = Deflection due to dead load of cast-in-place concrete overlay, curbs and railing
D = Net final camber

<table>
<thead>
<tr>
<th>Precast Concrete Slab Panel</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simple Span 20'-0&quot; or less</td>
<td>3/16&quot;</td>
<td>1/16&quot;</td>
<td>1/16&quot;</td>
<td>1/16&quot;</td>
</tr>
<tr>
<td>Simple Span greater than 20'-0&quot; to 25'-0&quot;</td>
<td>5/32&quot;</td>
<td>1/8&quot;</td>
<td>1/16&quot;</td>
<td>1/8&quot;</td>
</tr>
<tr>
<td>Simple Span greater than 25'-0&quot; to 30'-0&quot;</td>
<td>3/16&quot;</td>
<td>1/4&quot;</td>
<td>1/16&quot;</td>
<td>1/8&quot;</td>
</tr>
<tr>
<td>Simple Span greater than 30'-0&quot; to 35'-0&quot;</td>
<td>5/32&quot;</td>
<td>3/32&quot;</td>
<td>3/32&quot;</td>
<td>3/32&quot;</td>
</tr>
<tr>
<td>Simple Span greater than 35'-0&quot; to 40'-0&quot;</td>
<td>3/16&quot;</td>
<td>1/2&quot;</td>
<td>3/32&quot;</td>
<td>3/32&quot;</td>
</tr>
<tr>
<td>Simple Span greater than 40'-0&quot; to 45'-0&quot;</td>
<td>5/32&quot;</td>
<td>3/8&quot;</td>
<td>3/32&quot;</td>
<td>3/32&quot;</td>
</tr>
<tr>
<td>Simple Span greater than 45'-0&quot; to 50'-0&quot;</td>
<td>3/16&quot;</td>
<td>3/8&quot;</td>
<td>3/32&quot;</td>
<td>3/32&quot;</td>
</tr>
<tr>
<td>Simple Span greater than 50'-0&quot; to 55'-0&quot;</td>
<td>5/32&quot;</td>
<td>3/16&quot;</td>
<td>3/32&quot;</td>
<td>3/16&quot;</td>
</tr>
</tbody>
</table>
4'-0'' INTERIOR SLAB PLAN

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

Note:
Reinforcing steel at ends of slab not shown for clarity.

* Note to designers:
Include the exact slab length, skew angle and tie rod pattern in the Contract Plans.

4'-0'' INTERIOR SLAB ELEVATION

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

Bars to be bent at casting plant after formwork has been removed.

Notes:
1. Extreme care shall be used in locating tie rod holes during the casting operation.
2. Contractor shall assemble the slab units for the entire bridge width at the casting plant to ensure that there is no hole misalignment prior to shipping slab units to the site. Any misalignment of the holes will be cause for rejection of the slab unit. Drilling or coring of the slabs to create new or modified cast holes is prohibited.
3. Adjust stirrup spacing as needed to avoid tie rod hole.
4. All reinforcing steel to be epoxy coated.

* For Office Use Only *
For stage construction
Type B tie rod recess
For location see Slab Layout sheet in Plans.
Do not show unless required.

SECTION - SLAB AT MIDSPAN
Scale: 3/4" = 1'-0"

Note:
For location of tie rod holes, see Plans.

SECTION - SLAB AT ENDS
Scale: 3/4" = 1'-0"

Note:
Any misplaced dowel bar holes or tie rod holes will be cause for rejection of the precast slab unit.
**4'-0'' EXTERIOR SLAB PLAN**

Scale: $\frac{1}{4}'' = 1'-0''$

Note to designers:
Include the exact slab length, skew angle and tie rod pattern in the Contract Plans.

### 1.00 SUPERSTRUCTURE SLABS

**STATE OF MARYLAND**

DEPARTMENT OF TRANSPORTATION

STATE HIGHWAY ADMINISTRATION

OFFICE OF STRUCTURES

SIMPLE SPAN 20'-0'' OR LESS

EXTERIOR 4'-0'' PRECAST CONCRETE SLAB PANEL

PLAN & ELEVATION

DETAIL NO. SUP-SLAB(4FT)-102

SHEET 1 OF 2
**SECTION - SLAB AT MIDSPAN**

Scale: \( \frac{3}{4}'' = 1'\text{-}0'' \)

- 6 - #5's placed as shown
- \( 2\frac{1}{2}'' \) dia. tie rod hole
- #4 double stirrups placed in pairs @ \( 10\frac{1}{2}'' \) c/c, see Plans.

**SECTION - SLAB AT ENDS**

Scale: \( \frac{3}{4}'' = 1'\text{-}0'' \)

- 4 double stirrups placed in pairs see Plans for spacing at ends
- 11 - \( \frac{1}{2}'' \) dia. prestressing strands placed as shown

Notes:
1. For location of tie rod holes, see contract plans.
2. For location of curb reinforcement and anchor bolts and plates to be cast in slab for railing, see Detail No. SUP-TB(TR)-301

Extreme care shall be used when placing and tieing the curb rebar, railing and anchor bolts assembly to provide for the required clearances. Any misplaced rebar, dowel bar holes, tie rod holes or anchor bolts will be cause for rejection of the precast slab unit.
**Note to designers:** Draw to scale on the contract plan sheets.

**PLAN**

\[
\text{Scale: } \frac{1/4}{1'-0''}
\]

**Note:**
All reinforcing steel to be epoxy coated.

**Note to Fabricator:**
End stirrup spacing must be laid out to determine spacing.

**Note to Designer:**
Layout shown works up to a skew angle of 55°. For angles less than 55° designer must layout skewed end detail on plans.

* Guide sheet for plan development only - do not include this sheet in contract plans *

* For office use only *
Note: All reinforcing steel to be epoxy coated.

**Note to designer:** Draw to scale on the contract plan sheets.

**Note to Fabricator:**
End stirrup spacing must be laid out to determine spacing.

**Note to Designer:**
Layout shown works up to a skew angle of 55°. For angles less than 55°, designer must layout skewed end detail on plans.

---

**STATE OF MARYLAND**

**DEPARTMENT OF TRANSPORTATION**

**OFFICE OF STRUCTURES**

**SINGLE SPAN 20'-0" OR LESS**

**EXTERIOR 4'-0" PRECAST CONCRETE SLAB PANEL**

**SKewed END DETAIL**

**DETAIL NO:** SUP-SLAB(4FT)-103

**SHEET 2 OF 2**
1. Extreme care shall be used in locating tie rod holes during the casting operation. Contractor shall assemble the slab units for the entire bridge width at the casting plant to ensure that there is no hole misalignment prior to shipping slab units to the site. Any misalignment of the holes will be cause for rejection of the slab unit. Drilling or coring of the slabs to create new or modified cast holes is prohibited.

2. Adjust curb rebar and stirrup spacing as needed to avoid tie rod hole and railing anchor bolts (if applicable).

3. All reinforcing steel to be epoxy coated.
SECTION - SLAB AT MIDSPAN

Scale: \( \frac{3}{4}'' = 1'-0'' \)

- 2\(\frac{1}{2}'' \) dia. dowel bar holes
- Roughened surface in accordance with Section 440.03.14 for concrete overlay

- #4 double stirrups placed in pairs @ 10" c/c, see Plans.
- 13 - \( \frac{1}{2}'' \) dia. strands placed as shown
- 6 - #5's placed as shown

Note:
For location of tie rod holes, see contract plans.

SECTION - SLAB AT ENDS

Scale: \( \frac{3}{4}'' = 1'-0'' \)

- Roughened surface in accordance with Section 440.03.14 for concrete overlay

- See Shear Key Detail No. SUP-SLAB-501
- 6 - #5's placed as shown
- \( \frac{1}{2}'' \) dia. tie rod hole
- #4 double stirrups placed in pairs @ 10" c/c, see Plans.
- 13 - \( \frac{1}{2}'' \) dia. strands placed as shown

Note:
For location of tie rod holes, see contract plans.

* GUIDE SHEET FOR PLAN DEVELOPMENT ONLY - DO NOT INCLUDE THIS SHEET IN CONTRACT PLANS *

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF STRUCTURES

SUPERSTRUCTURE SLABS

SIMPLE SPAN GREATER THAN 20'-0'' TO 25'-0''
INTERIOR 4'-0'' PRECAST CONCRETE SLAB PANEL SECTIONS

DETAIL NO. SUP-SLAB(4FT)-201
SHEET 2 OF 2
1. Center line slab bearing

L + 1'-0'' Slab Length (max. 26'-0'')

L = over 20'-0'' to 25'-0'' *

Center line bearing

2. 2 1/2 '' dia. dowel hole (typ.)

3. 2 1/2 '' dia. tie rod hole (typ.)

* Note to designers: Include the exact slab length, skew angle, and tie rod pattern in the Contract Plans.

4. 4'-0'' EXTERIOR SLAB PLAN

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

5. 4'-0'' EXTERIOR SLAB ELEVATION

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

Note: Reinforcing steel at ends of slab and curb reinforcing not shown for clarity.

Bars to be bent at casting plant after formwork has been removed.

* Guide Sheet for Plan Development Only - Do Not Include This Sheet in Contract Plans *

* For Office Use Only *
SECTION - SLAB AT MIDSPAN
Scale: 3/4" = 1'-0"

Roughened surface in accordance with Section 440.03.14 for concrete overlay
See Shear Key Detail No. SUP-SLAB-501
6 - #5's placed as shown
#2 1/2" dia. tie rod hole

#4 double stirrups placed in pairs @ 10" c/c, see Plans.
13 - 1/2" dia. strands placed as shown

SECTION - SLAB AT ENDS
Scale: 3/4" = 1'-0"

#5 curb rebar - see note 2.
Alternate @ 10" c/c between #4 double stirrups
If bridge has curb

Notes:
1. For location of tie rod holes, see contract plans.
2. For location of curb reinforcement and anchor bolts and plates to be cast in slab for railing, see Detail No. SUP-TB(TR)-301

Note:
Extreme care shall be used when placing and tying the curb rebar, railing and anchor bolts assembly to provide for the required clearances. Any misplaced rebar, dowel bar holes, tie rod holes or anchor bolts will be cause for rejection of the precast slab unit.
**Note to designers:** Draw to scale on the contract plan sheets.

**Note to Fabricator:**
End stirrup spacing must be laid out to determine spacing.

**Note to Designer:**
Layout shown works up to a skew angle of 55°. For angles less than 55°, designer must layout skewed end detail on plans.

*Note: All reinforcing steel to be epoxy coated.*

---

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

---

**STATE OF MARYLAND**
**DEPARTMENT OF TRANSPORTATION**
**OFFICE OF STRUCTURES**

**SIMPLE SPAN GREATER THAN 20'-0" TO 25'-0"**
**INTERIOR 4'-0" PRECAST CONCRETE SLAB PANEL**
**SKewed END DETAIL**

**DETAIL NO. SUP-SLAB(4FT)-203**
Note: All reinforcing steel to be epoxy coated.

* Note to designers: Draw to scale on the contract plan sheets.

PLAN
Scale: 7/8" = 1'-0"

Note to Fabricator:
End stirrup spacing must be laid out to determine spacing.

Note to Designer:
Layout shown works up to a skew angle of 55°. For angles less than 55° designer must layout skewed end detail on plans.

Date: 05/12/2017
Notes:
1. Extreme care shall be used in locating tie rod holes during the casting operation. Contractor shall assemble the slab units for the entire bridge width at the casting plant to ensure that there is no hole misalignment prior to shipping slab units to the site. Any misalignment of the holes will be cause for rejection of the slab unit. Drilling or coring of the slabs to create new or modified cast holes is prohibited.
2. Adjust curb rebar and stirrup spacing as needed to avoid tie rod hole and railing anchor bolts (if applicable).
3. All reinforcing steel to be epoxy coated.
Note:
For location of tie rod holes, see contract plans.

SECTION - SLAB AT MIDSPAN
Scale: 3/4" = 1'-0"

Roughened surface in accordance with Section 440.03.14 for concrete overlay

2 1/2" dia. dowel bar holes

6 - #5's placed as shown

22 - 1/2" dia. strands placed as shown

Note:
For location of tie rod holes, see contract plans.

SECTION - SLAB AT ENDS
Scale: 3/4" = 1'-0"

2 1/2" dia. tie rod hole

#4 double stirrups placed in pairs @ 10" c/c, see plans.

Roughened surface in accordance with Section 440.03.14 for concrete overlay

6 - #5's placed as shown

#4 double stirrups placed in pairs see Plans for spacing at ends.

22 - 1/2" dia. strands placed as shown

Note:
Any misplaced dowel bar holes or tie rod holes will be cause for rejection of the precast slab unit.

Notes:
1. All reinforcing steel to be epoxy coated.
2. Adjust stirrup spacing to avoid tie rod holes as needed.
For stage construction
Type B tie rod recess may be required.
For location see Slab Layout sheet in Plans.

SECTION - SLAB AT MIDSPAN
Scale: 1/4" = 1'-0"

For location of tie rod holes, see contract plans.

SECTION - SLAB AT ENDS
Scale: 1/4" = 1'-0"

Notes:
1. All reinforcing steel to be epoxy coated.
2. Adjust stirrup spacing to avoid tie rod holes as needed.
**SECTION - SLAB AT MIDSPAN**

Scale: 3/4" = 1'-0"

Roughened surface in accordance with Section 440.03.14 for concrete overlay.

See Shear Key Detail No. SUP-SLAB-501

6 - #5's placed as shown

2 1/2" dia. tie rod hole

#4 double stirrups placed in pairs @ 10" c/c, see Plans

22 - 1/2" dia. strands placed as shown

**SECTION - SLAB AT ENDS**

Scale: 3/4" = 1'-0"

Roughened surface in accordance with Section 440.03.14 for concrete overlay.

6 - #5's placed as shown

#4 double stirrups placed in pairs see Plans for spacing at ends

22 - 1/2" dia. strands placed as shown

**Notes:**

1. For location of tie rod holes, see contract plans.

2. For location of curb reinforcement and anchor bolts and plates to be cast in slab for railing, see Detail No. SUP-TB(TR)-301

3. For location of tie rod holes, see contract plans.

4. For location of curb reinforcement and anchor bolts and plates to be cast in slab for railing, see Detail No. SUP-TB(TR)-301.
All reinforcing steel to be epoxy coated.

Note:

* Note to designer: Draw to scale on the contract plan sheets.

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

* Note to Fabricator:
End stirrup spacing must be laid out to determine spacing.

Note to Designer:
Layout shown works up to a skew angle of 55°. For angles less than 55° designer must layout skewed end detail on plans.

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
OFFICE OF STRUCTURES

SIMPLE SPAN GREATER THAN 25'-0" TO 30'-0"
INTERIOR 4'-0" PRECAST CONCRETE SLAB PANEL
SKewed END DETAIL

SKEWED END DETAIL

1/2" dia. dowel hole (typ.)

2" cl. (typ.)

6" cl.

6" c/l (typ.)

4 equal spaces
10" c/c max.

"4 double stirrups placed as shown

* Skew angle

Center line slab

Top of slope area
2" cl. (typ.)

Normal stirrup spacing

4 equal spaces
3" c/c min.
10" c/c max.

Note:
6 - #5 bars in end of slab not shown for clarity.

Note to Designer:
Layout shown works up to a skew angle of 55°. For angles less than 55° designer must layout skewed end detail on plans.
Note: All reinforcing steel to be epoxy coated.

* Note to designer: Draw to scale on the contract plan sheets.

PLAN
Scale: $\frac{3/4}{''} = 1'-0''$

State Highway Administration
Office of Structures

Note: 6 - #5 bars in end of slab not shown for clarity.

Note to Fabricator: End stirrup spacing must be laid out to determine spacing.

Note to Designer: Layout shown works up to a skew angle of 55°. For angles less than 55°, designer must layout skewed end detail on plans.
Notes:
1. Extreme care shall be used in locating tie rod holes during the casting operation. Contractor shall assemble the slab units for the entire bridge width at the casting plant to ensure that there is no hole misalignment prior to shipping slab units to the site. Any misalignment of the holes will be cause for rejection of the slab unit. Drilling or coring of the slabs to create new or modified cast holes is prohibited.
2. Adjust curb rebar and stirrup spacing as needed to avoid tie rod hole and railing anchor bolts (if applicable).
3. All reinforcing steel to be epoxy coated.

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

**FOR OFFICE USE ONLY**

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF STRUCTURES

SIMPLE SPAN GREATER THAN 30'-0'' TO 35'-0''
INTERIOR 4'-0'' PRECAST CONCRETE SLAB PANEL
PLAN & ELEVATION

DATE: 05/12/2017

VERSION 1.0

DETAIL NO. SUP-SLAB(4FT)-401

SHEET 1 OF 2
Type B tie rod recess, for location see Slab Layout sheet. Do not include unless required.

Note:
For location of tie rod holes, see contract plans.

SECTION - SLAB AT MIDSPAN
Scale: \(\frac{3}{4}'' = 1'-0''\)

- Roughened surface in accordance with Section 440.03.14 for concrete overlay
- See Shear Key Detail No. SUP-SLAB-501
- 6 - #5's placed as shown
- \(\frac{2}{3/8}''\) dia. tie rod hole
- #4 double stirrups placed in pairs @ 11\(\frac{3}{4}''\) c/c, see Plans.
- 26 - \(\frac{1}{2}''\) dia. strands placed as shown

SECTION - SLAB AT ENDS
Scale: \(\frac{3}{4}'' = 1'-0''\)

- Roughened surface in accordance with Section 440.03.14 for concrete overlay
- #5 double stirrups placed in pairs see Plans for spacing at ends.
- 26 - \(\frac{1}{2}''\) dia. strands placed as shown

Note:
Any misplaced dowel bar holes or tie rod holes will be cause for rejection of the precast slab unit.
Notes:
1. Extreme care shall be used in locating tie rod holes during the casting operation. Contractor shall assemble the slab units for the entire bridge width at the casting plant to ensure that there is no hole misalignment prior to shipping slab units to the site. Any misalignment of the holes will be cause for rejection of the slab unit. Drilling or coring of the slabs to create new or modified cast holes is prohibited.
2. Adjust curb rebar and stirrup spacing as needed to avoid tie rod hole and railing anchor bolts (if applicable).
3. All reinforcing steel to be epoxy coated.
Notes:
1. For location of tie rod holes, see contract plans.
2. For location of curb reinforcement and anchor bolts and plates to be cast in slab for railing, see Detail No. SUP-TB(Tr)-301

SECTION - SLAB AT MIDSPAN
Scale: \( \frac{3}{8} '' = 1' - 0'' \)

SECTION - SLAB AT ENDS
Scale: \( \frac{3}{8} '' = 1' - 0'' \)

Note:
Extreme care shall be used when placing and tieing the curb rebar, railing and anchor bolts assembly to provide for the required clearances. Any misplaced rebar, dowel bar holes, tie rod holes or anchor bolts will be cause for rejection of the precast slab unit.
**Note to designer:** Draw to scale on the contract plan sheets.

Note: All reinforcing steel to be epoxy coated.

**Note:**
6 - #5 bars in end of slab not shown for clarity.

**Note to Fabricator:**
End stirrup spacing must be laid out to determine spacing.

**Note to Designer:**
Layout shown works up to a skew angle of 55°. For angles less than 55°, designer must layout skewed end detail on plans.

---

**PLAN**

Scale: $\frac{3}{4}'' = 1'-0''$

---

**STATE OF MARYLAND**

DEPARTMENT OF TRANSPORTATION

OFFICE OF STRUCTURES

**SIMPLE SPAN GREATER THAN 30'-0'' TO 35'-0''**

**INTERIOR 4'-0'' PRECAST CONCRETE SLAB PANEL**

**SKewed END DETAIL**

**APPROVAL**

**OFFICE OF STRUCTURES**

DATE: 05/12/2017

**VERSION**

1.0

**DETAIL NO.** SUP-SLAB(4FT)-403

**SHEET 1 OF 2**
Note: All reinforcing steel to be epoxy coated.

Note to designer: Draw to scale on the contract plan sheets.

Note to Fabricator:
End stirrup spacing must be laid out to determine spacing.

Note to Designer:
Layout shown works up to a skew angle of 55°. For angles less than 55° designer must layout skewed end detail on plans.
**4'-0'' INTERIOR SLAB PLAN**

Scale: $\frac{3}{16}'' = 1'-0''$

1. **Center line bearing**
2. **6''**
3. **5'-0''**
4. **6''**
5. **2/2'' dia. dowel hole (typ.)**
6. **2/2'' dia. tie rod hole (typ.)**
7. **1'-2'' step**
8. **Center line slab**

**Note to designers:**
- Include the exact slab length, skew angle, and tie rod pattern in the Contract Plans.

**4'-0'' INTERIOR SLAB ELEVATION**

Scale: $\frac{3}{16}'' = 1'-0''$

1. **Center line bearing**
2. **6''**
3. **5'-0''**
4. **6''**
5. **2/2'' dia. dowel hole (typ.)**
6. **2/2'' dia. tie rod hole (typ.)**
7. **1'-2'' step**
8. **Center line slab**

**Note to designers:**
- Reinforcing steel at ends of slab not shown for clarity.
Type B tie rod recess, for location see Slab Layout sheet. Do not show unless required.

Note:
For location of tie rod holes, see contract plans.

SECTION - SLAB AT MIDSPAN
Scale: 1/4" = 1'-0"

10'-0"

2'-0"

2 1/8"

2" cl.

2" cl.

4'-0" Slab Unit

Roughened surface in accordance with Section 440.03.14 for concrete overlay

See Shear Key Detail No. SUP-SLAB-501

6 - #5's placed as shown

2 1/2" dia. tie rod hole

4 double stirrups placed in pairs @ 11 3/4" c/c, see Plans.

28 - 1/2" dia. strands placed as shown

SECTION - SLAB AT ENDS
Scale: 1/4" = 1'-0"

2 1/2" dia. dowel bar holes

#5 double stirrups placed in pairs see Plans for spacing at ends.

28 - 1/2" dia. strands placed as shown

Note:
Any misplaced dowel bar holes or tie rod holes will be cause for rejection of the precast slab unit.

* GUIDE SHEET FOR PLAN DEVELOPMENT ONLY - DO NOT INCLUDE THIS SHEET IN CONTRACT PLANS *

* FOR OFFICE USE ONLY *

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF STRUCTURES

SIMPLE SPAN GREATER THAN 35'-0" TO 40'-0"
INTERIOR 4'-0" PRECAST CONCRETE SLAB PANEL

DETAIL NO. SUP-SLAB(4FT)-501  SHEET 2 OF 2
Notes:
1. Extreme care shall be used in locating tie rod holes during the casting operation. Contractor shall assemble the slab units for the entire bridge width at the casting plant to ensure that there is no hole misalignment prior to shipping slab units to the site. Any misalignment of the holes will be cause for rejection of the slab unit. Drilling or coring of the slabs to create new or modified cast holes is prohibited.
2. Adjust curb rebar and stirrup spacing as needed to avoid tie rod hole and railing anchor bolts (if applicable).
3. All reinforcing steel to be epoxy coated.

Note to designers:
- Bars to be bent at casting plant after formwork has been removed.
- Extreme care shall be used in locating tie rod holes during the casting operation.
- All reinforcing steel to be epoxy coated.

**GUIDE SHEET FOR PLAN DEVELOPMENT ONLY – DO NOT INCLUDE THIS SHEET IN CONTRACT PLANS**
Notes:
1. For location of tie rod holes, see contract plans.
2. For location of curb reinforcement and anchor bolts to be cast in slab for railing, see Detail No. SUP-TB(TR)-301

SECTION - SLAB AT MIDSPAN
Scale: 3/4” = 1'-0"

SECTION - SLAB AT ENDS
Scale: 3/4” = 1'-0"

Note:
Extreme care shall be used when placing and tying the curb rebar, railing and anchor bolts assembly to provide for the required clearances. Any misplaced rebar, dowel bar holes, tie rod holes or anchor bolts will be cause for rejection of the precast slab unit.
Note: All reinforcing steel to be epoxy coated.

Note to designer: Draw to scale on the contract plan sheets.

Note: End stirrup spacing must be laid out to determine spacing.

Note to Fabricator: Layout shown works up to a skew angle of 55°. For angles less than 55° designer must layout skewed end detail on plans.

PLAN
Scale: $\frac{3}{4}'' = 1'-0''$

* Note to designer: Draw to scale on the contract plan sheets.
**Note:** All reinforcing steel to be epoxy coated.

*4 double stirrups

4 equal spaces

11 3/4" c/c max.

Top of slope area

2" cl. (typ.)

**Note to designer:** Draw to scale on the contract plan sheets.

**Plan**

Scale: 3/4" = 1'-0"

*5 double stirrups placed as shown

* Skew angle

Center line slab

2 1/2" dia. dowel hole (typ.)

6-#5 curb reinforcement placed as shown

Note:

6 - #5 bars in end of slab not shown for clarity.

Note to Fabricator:

End stirrup spacing must be laid out to determine spacing.

Note to Designer:

Layout shown works up to a skew angle of 55°. For angles less than 55°, designer must layout skewed end detail on plans.
**PLAN & ELEVATION**

**SIMPLE SPAN GREATER THAN 40'-0'' TO 45'-0''**

**Spacing**

**Stirrup**

**4'-0'' INTERIOR SLAB ELEVATION**

**5'' step**

**1'-2'' step**

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

**DATE:**

**STATE HIGHWAY ADMINISTRATION**

**DEPARTMENT OF TRANSPORTATION**

**STATE OF MARYLAND**

**OFFICE OF STRUCTURES**

**SUPERSTRUCTURE SLABS**

**SHEET**

**APPROVAL DATE:** 05/12/2017

**VERSION 1.0**

**DETAIL NO. SUP-SLAB(4FT)-601**

**SHEET 1 OF 2**

**Notes:**

1. Extreme care shall be used in locating tie rod holes during the casting operation. Contractor shall assemble the slab units for the entire bridge width at the casting plant to ensure that there is no hole misalignment prior to shipping slab units to the site. Any misalignment of the holes will be cause for rejection of the slab unit. Drilling or coring of the slabs to create new or modified cast holes is prohibited.

2. Adjust curb rebar and stirrup spacing as needed to avoid tie rod hole and railing anchor bolts (if applicable).

3. All reinforcing steel to be epoxy coated.

**Bars to be bent at casting plant, after formwork has been removed.**

**Bars in slab shown is for detail of skews shown in detail of skirt slab.**

**Note to designer:**

*Guide Sheet for Plan Development Only - Do not include this sheet in Contract Plans*

*For Office Use Only*
Type B tie rod recess, for location see Slab Layout sheet. Do not show unless required.

SECTION - SLAB AT MIDSPAN
Scale: $\frac{1}{4}'' = 1'-0''$

- Roughened surface in accordance with Section 440.03.14 for concrete overlay
- See Shear Key Detail No. SUP-SLAB-501
- 6 - #5's placed as shown
- $\frac{3}{4}''$ dia. tie rod hole
- #4 double stirrups placed in pairs @ $\frac{11}{4}''$ c/c, see Plans.
- 39 - $\frac{1}{2}''$ dia. strands placed as shown

Note:
- For location of tie rod holes, see contract plans.

SECTION - SLAB AT ENDS
Scale: $\frac{1}{4}'' = 1'-0''$

- Roughened surface in accordance with Section 440.03.14 for concrete overlay
- 6 - #5's placed as shown
- $\frac{3}{4}''$ dia. dowel bar holes
- #5 double stirrups placed in pairs see Plans for spacing at ends.
- 39 - $\frac{1}{2}''$ dia. strands placed as shown

Note:
- Any misplaced dowel bar holes or tie rod holes will be cause for rejection of the precast slab unit.

SUPERSTRUCTURE SLABS

**GUIDE SHEET FOR PLAN DEVELOPMENT ONLY - DO NOT INCLUDE THIS SHEET IN CONTRACT PLANS**

**FOR OFFICE USE ONLY**

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
OFFICE OF STRUCTURES

SIMPLE SPAN GREATER THAN 40'-0'' TO 45'-0''
INTERIOR 4'-0'' PRECAST CONCRETE SLAB PANEL SECTIONS

DETAIL NO. SUP-SLAB(4FT)-601 SHEET 2 OF 2
Notes:
1. Extreme care shall be used in locating tie rod holes during the casting operation. Contractor shall assemble the slab units for the entire bridge width at the casting plant to ensure that there is no hole misalignment prior to shipping slab units to the site. Any misalignment of the holes will cause for rejection of the slab unit. Drilling or coring of the slabs to create new or modified cast holes is prohibited.
2. Adjust curb rebar and stirrup spacing as needed to avoid tie rod hole and railing anchor bolt (if applicable).
3. All reinforcing steel to be epoxy coated.

For bridges with other skew angles, see detail no. SUP-SL(4FT)-602 for details of skew anchor bolts.

Bars to be bent at casting plant, after formwork has been removed.

L = over 40'-0''

** Ext. Slab Length (max. 46'-0'')

Exterior face

#4 stirrups spaced as shown

Bars to be bent at casting plant
Notes:
1. For location of tie rod holes, see contract plans.
2. For location of curb reinforcement and anchor bolts to be cast in slab for railing, see Detail No. SUP-TB(TR)-301

Note:
Extreme care shall be used when placing and tying the rebar, dowel bar holes, tie rod holes, or anchor bolts to provide for the required clearances. Any misplaced rebar, dowel bar holes, tie rod holes, or anchor bolts will be cause for rejection of the precast slab unit.
Simple span greater than 40'-0'' to 45'-0''

- Center line slab
- Step 3'' cl.
- Scale: 3/4 '' = 1'-0''
- Placed as shown 2'' cl. (typ.)
- Be epoxy coated.

Note: All reinforcing steel to be epoxy coated.

* Guide Sheet for Plan Development Only - Do Not Include This Sheet in Contract Plans *

* For Office Use Only *

Date: 05/12/2017

**Office of Structures**

**State Highway Administration**

**State of Maryland**

Superstructure Slabs

**Detail No.** SUP-SLAB(4FT)-603

Sheet 1 of 2
Note:
All reinforcing steel to be epoxy coated.

Note: End stirrup spacing must be laid out to determine spacing.

Note to Designer:
Layout shown works up to a skew angle of 55 degrees. For angles less than 55 degrees, the designer must layout skewed end detail on plans.

Note to Fabricator:
End stirrup spacing must be laid out to determine spacing.

Note:
6 #5 bars in end of slab not shown for clarity.

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

Note:
#5 double stirrups placed as shown

Center line slab

2 1/2" dia. dowel hole (typ.)

6 #5 curb reinforcement placed as shown

Top of slope area

2" cl. (typ.)

#4 double stirrups

4 equal spaces
11 3/4" c/c max.

Normal stirrup spacing

3" min. - 11 3/4" c/c max.

Center line bearing

2" x 6" key

4 equal spaces

Note to Designer: Draw to scale on the contract plan sheets.
Notes:
1. Extreme care shall be used in locating tie rod holes during the casting operation. Contractor shall assemble the slab units for the entire bridge width at the casting plant to ensure that there is no hole misalignment prior to shipping slab units to the site. Any misalignment of the holes will be cause for rejection of the slab unit. Drilling or coring of the slabs to create new or modified cast holes is prohibited.
2. Adjust curb rebar and stirrup spacing as needed to avoid tie rod hole and railing anchor bolts (if applicable).
3. All reinforcing steel to be epoxy coated.

* Note to designer: Include the exact slab length, skew angle, and rod pattern in the Contract Plans.

Reinforcing steel at ends of slab not shown for clarity.

Bars to be bent at casting plant after formwork has been removed.

1.25" dia. tie rod hole (typ.)

2. For bridges with other skew angles, see details.

In Contract Plans.

Scale: 3/16" = 1'-0"
Type B tie rod recess, for location see Slab Layout sheet. Do not show unless required.

**SECTION - SLAB AT MIDSPAN**

Scale: 3/4" = 1'-0"

- Roughened surface in accordance with Section 440.03.I4 for concrete overlay
- See Shear Key Detail No. SUP-SLAB-SO1
- 8 - #5's placed as shown
- $\frac{1}{2}$" dia. dowel bar holes

**SECTION - SLAB AT ENDS**

Scale: 3/4" = 1'-0"

- Roughened surface in accordance with Section 440.03.I4 for concrete overlay
- 8 - #5's placed as shown
- #6 double stirrups placed in pairs see Plans for spacing at ends.
- $\frac{1}{2}$" dia. strands placed as shown

**Note:**

Any misplaced dowel bar holes or tie rod holes will be cause for rejection of the precast slab unit.
Notes:
1. Extreme care shall be used in locating tie rod holes during the casting operation. Contractor shall assemble the slab units for the entire bridge width at the casting plant to ensure that there is no hole misalignment prior to shipping slab units to the site. Any misalignment of the holes will be cause for rejection of the slab unit. Drilling or coring of the slabs to create new or modified cast holes is prohibited.
2. Adjust curb rebar and stirrup spacing as needed to avoid tie rod hole and railing anchor bolts (if applicable).
3. All reinforcing steel to be epoxy coated.

Bars to be bent at casting plant after formwork has been removed.

Variations in 1 3/4'' Max.
2 1/2'' dia. tie rod hole with recess exterior face only.

#6 double stirrups spaced as shown.

#4 double stirrups spaced as shown.

For bridges with other skew angles, see detail No. SUP-SLAB(4FT)-702 for details of skewed ends. Adjust this detail to show proper skew in contract plans.

Note: Reinforcing steel at ends of slab and curb reinforcing not shown for clarity.

1.0 VER

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF STRUCTURES

SIMPLE SPAN GREATER THAN 45'-0'' TO 50'-0''
EXTERIOR 4'-0'' PRECAST CONCRETE SLAB PANEL
PLAN & ELEVATION

DATE: 05/12/2017

APPROVAL

05/12/2017

OFFICE OF STRUCTURES

STATE HIGHWAY ADMINISTRATION

VERSIO

1.0

DETAIL NO. SUP-SLAB(4FT)-702

SHEET 1 OF 2
Center line key

#5 curb rebar - see note 2.
Alternate @ 11¾” c/c between

#4 double stirrups

2” x 6” key

1’-0” typ.

2” cl.

Roughened surface in accordance with Section 440.03.14 for concrete overlay

See Shear Key Detail No. SUP-SLAB-501

8 - #5’s placed as shown

$ 2½” dia. tie rod hole

#4 double stirrups placed in pairs @ 11¾” c/c, see Plans.

46 - ½” dia. strands placed as shown

Notes:

1. For location of tie rod holes, see contract plans.

2. For location of curb reinforcement and anchor bolts and plates to be cast in slab for railing, see Detail No. SUP-TB(TR)-301

SECTION - SLAB AT MIDSPAN

Scale: ¼” = 1’-0”

Roughened surface in accordance with Section 440.03.14 for concrete overlay

2½” dia. dowel bar holes

1’-2”

8 - #5’s placed as shown

#6 double stirrups placed in pairs see Plans for spacing at ends

46 - ½” dia. strands placed as shown

Note:

Extreme care shall be used when placing and tieing the curb rebar, railing and anchor bolts assembly to provide for the required clearances. Any misplaced rebar, dowel bar holes, tie rod holes or anchor bolts will be cause for rejection of the precast slab unit.

* FOR OFFICE USE ONLY *

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF STRUCTURES

SIMPLE SPAN GREATER THAN 45’-0” TO 50’-0”
EXTERIOR 4’-0” PRECAST CONCRETE SLAB PANEL SECTIONS

DETAIL NO. SUP-SLAB(4FT)-702 SHEET 2 OF 2

APPROVAL

DIRECTOR, OFFICE OF STRUCTURES

OFFICE OF STRUCTURES

DATE: 05/12/2017

VERSION 1.0
Note to designer: Draw to scale on the contract plan sheets.

Note: All reinforcing steel to be epoxy coated.
Note: All reinforcing steel to be epoxy coated.

Note to Fabricator: End stirrup spacing must be laid out to determine spacing.

Note to Designer: Layout shown works up to a skew angle of 55°. For angles less than 55° designer must layout skewed end detail on plans.

* #4 double stirrups

4 equal spaces

11 3/4" c/c max.

Top of slope area

2" cl. (typ.)

8-#5 curb reinforcement placed as shown

Note to Designer: Draw to angle on the contract plan sheets.

PLAN

Scale: $\frac{3}{4}" = 1'-0"$

Note: 8-#5 bars in end of slab not shown for clarity.
Notes:
1. Extreme care shall be used in locating tie rod holes during the casting operation. Contractor shall assemble the slab units for the entire bridge width at the casting plant to ensure that there is no hole misalignment prior to shipping slab units to the site. Any misalignment of the holes will be cause for rejection of the slab unit. Drilling or coring of the slabs to create new or modified cast holes is prohibited.
2. Adjust curb rebar and stirrup spacing as needed to avoid tie rod hole and railing anchor bolts (if applicable).
3. All reinforcing steel to be epoxy coated.
TYPE B TIE ROD RECESS, FOR LOCATION SEE SLAB LAYOUT SHEET. DO NOT SHOW UNLESS REQUIRED.

SECTION - SLAB AT MIDSPAN
Scale: 3/4" = 1'-0"

SECTION - SLAB AT ENDS
Scale: 3/4" = 1'-0"

Notes:
For location of tie rod holes, see contract plans.

Any misplaced dowel bar holes or tie rod holes will be cause for rejection of the precast slab unit.

Note:
For location of tie rod holes, see contract plans.

* FOR OFFICE USE ONLY *

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
OFFICE OF STRUCTURES
STATE HIGHWAY ADMINISTRATION

SHEET 2 OF 2

DETAIL NO. SUP-SLAB(4FT)-801

REVISION 1.0

DATE: 05/12/2017

APPRAVAL

DIRECTOR OF STRUCTURES
OFFICE OF STRUCTURES

SUPERSTRUCTURE SLAB
Notes:
1. Extreme care shall be used in locating tie rod holes during the casting operation. Contractor shall assemble the slab units for the entire bridge width at the casting plant to ensure that there is no hole misalignment prior to shipping slab units to the site. Any misalignment of the holes will cause for rejection of the slab unit. Drilling or coring of the slabs to create new or modified cast holes is prohibited.
2. Adjust curb rebar and stirrup spacing as needed to avoid tie rod hole and railing anchor bolts (if applicable).
3. All reinforcing steel to be epoxy coated.

* GUIDE SHEET FOR PLAN DEVELOPMENT ONLY - DO NOT INCLUDE THIS SHEET IN CONTRACT PLANS *

* FOR OFFICE USE ONLY *

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
OFFICE OF STRUCTURES

SUPERSTRUCTURE SLABS

SHEET 1 OF 2

DETAIL NO. SUP-SLAB(4FT)-802

VERSION 1.0

STATE HIGHWAY ADMINISTRATION
OFFICE OF STRUCTURES
SIMPLE SPAN GREATER THAN 50'-0" TO 55'-0"
EXTERIOR 4'-0" PRECAST CONCRETE SLAB PANEL
PLAN & ELEVATION

APPROVAL

05/12/2017

FOR OFFICE USE ONLY
Notes:

1. For location of tie rod holes, see contract plans.

2. For location of curb reinforcement and anchor bolts and plates to be cast in slab for railing, see Detail No. SUP-TBTR-301.

Note: Extreme care shall be used when placing and tying the curb rebar, railing and anchor bolts assembly to provide for the required clearances. Any misplaced rebar, dowel bar holes, tie rod holes or anchor bolts will cause for rejection of the precast slab unit.

SECTION - SLAB AT MIDSPAN

Scale: \( \frac{1}{4}'' = 1'-0'' \)

Center line key

2" x 6" key

1'-0" typ.

2" cl.

Roughened surface in accordance with Section 440.03.14 for concrete overlay

See Shear Key Detail No. SUP-SLAB-501

8 - #5's placed as shown

2 1/2 '' dia. tie rod hole

#4 double stirrups placed in pairs @ 11 3/4 '' c/c, see Plans. 2 - #5's placed as shown

51 - 1/2 '' dia. strands placed as shown

SECTION - SLAB AT ENDS

Scale: \( \frac{1}{4}'' = 1'-0'' \)

Roughened surface in accordance with Section 440.03.14 for concrete overlay

8 - #5's placed as shown

2 1/2 '' dia. dowel bar holes

#6 double stirrups placed in pairs see Plans for spacing at ends

2 - #5's placed as shown

51 - 1/2 '' dia. strands placed as shown

SUPERSTRUCTURE SLABS

DETAIL NO. SUP-SLAB(4FT)-802

SHEET 2 OF 2
**Note to Designer:** Draw to scale on the contract plan sheets.

**Note:**
All reinforcing steel to be epoxy coated.

**Note:**
Layout shown works up to a skew angle of 55°. For angles less than 55° designer must layout skewed end detail on plans.

**Note to Fabricator:**
End stirrup spacing must be laid out to determine spacing.

**Note:**
8 - #5 bars in end of slab not shown for clarity.

**Scale:** $\frac{3}{4}'' = 1'-0''$

---

**STATE OF MARYLAND**
**DEPARTMENT OF TRANSPORTATION**
**STATE HIGHWAY ADMINISTRATION**
**OFFICE OF STRUCTURES**

**SIMPLE SPAN GREATER THAN 50'-0'' TO 55'-0''**
**INTERIOR 4'-0'' PRECAST CONCRETE SLAB PANEL**
**SKewed END DETAIL**

**DETAIL NO.** SUP-SLAB(4FT)-803

**SHEET** 1 OF 2
**Note to designer:** Draw to scale on the contract plan sheets.

8 - #5 bars in end of slab not shown for clarity.

Note to Fabricator:
End stirrup spacing must be laid out to determine spacing.

Note to Designer:
Layout shown works up to a skew angle of 55°. For angles less than 55° designer must layout skewed end detail on plans.

Note:
All reinforcing steel to be epoxy coated.
Note:
All reinforcing steel to be epoxy coated.

* These bars are only required for span lengths greater than 50'-0".
ALTERNATE REINFORCING SECTION - SLAB AT MIDSPAN

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

Longitudinal reinforcing as required

2" cl. (typ.)

2-#5 bars*

3" cl.

4'-0" Slab Unit

ALTERNATE REINFORCING SECTION - SLAB AT ENDS

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

Longitudinal reinforcing as required

Reinforcing bars, bent as shown, see plans for size and spacing at ends

2 1/2" dia. dowel bar holes

2" cl. (typ.)

2-#5 bars*

3" cl.

4'-0" Slab Unit

Note:
All reinforcing steel to be epoxy coated.