INDEX OF DRAWINGS

FDOT WU-0  INDEX OF DRAWINGS
FDOT WU-1  GENERAL NOTES
FDOT WU-2  TYPICAL BRIDGE CROSS SECTIONS
FDOT WU-3  END DIAPHRAGM AT ABUTMENT
FDOT WU-4  TYPICAL EXPANSION PIER
FDOT WU-5  TYPICAL INTERIOR PIER WITH BEARINGS
FDOT WU-6  TYPICAL INTEGRAL INTERIOR PIER
FDOT WU-7  GIRDER DIMENSIONS AND REINFORCEMENT
FDOT WU-8  GIRDER SEGMENT LAYOUT 1 - SIMPLE SPAN
FDOT WU-9  GIRDER SEGMENT LAYOUT 2 - CONSTANT DEPTH CONTINUOUS
FDOT WU-10 GIRDER SEGMENT LAYOUT 3 - HAUNCHED CONTINUOUS
FDOT WU-11 COMPARATIVE POST-TENSIONING LAYOUT SCHEMATICS
FDOT WU-12 POST-TENSIONING LAYOUT 1 - PASS THRU OPTION
FDOT WU-13 POST-TENSIONING LAYOUT 2 - LACED OPTION
FDOT WU-14 GIRDER POST-TENSIONING DETAILS 1
FDOT WU-15 GIRDER POST-TENSIONING DETAILS 2
FDOT WU-16 STRESSING CHAMBER DETAILS
FDOT WU-17 CONSTRUCTION SEQUENCE 1 - SIMPLE SPAN
FDOT WU-18 CONSTRUCTION SEQUENCE 2 - CONSTANT DEPTH GIRDER
FDOT WU-19 CONSTRUCTION SEQUENCE 3 - HAUNCHED GIRDER
FDOT WU-20 ERECTION BRACING
FDOT WU-21 EXAMPLE ERECTION PLAN DETAILS
GENERAL NOTES FOR DESIGNERS AND PRODUCERS OF PRECAST, PRESTRESSED CONCRETE SPliced U-GIRDERS WITH BONDED AND UNBONDED TENDONS

PurposE AND INTENT OF THIS INFORmATION:
This set of drawings has been developed through a task force of PCI-certified manufacturing plants in Florida, a subset of plants in PCI geographic zone 6 (southeastern United States). These concept drawings and details explain to owners, designers, and contractors the preliminary information necessary to utilize these bridge framing solutions. Spliced precast concrete has been successfully used on several projects. The spliced precast concrete U-girder has enabled PCI-certified plants to offer an economical structural design solution for both long-span and horizontally curved bridges for vehicular and rail traffic. This set of drawings is compatible with the 2016 details developed by the Florida Department of Transportation (FDOT) for unspliced tendons (tendons with flexible filler).

Background:
Complex interchanges and long-span grade separations created a demand for new innovative solutions. Traditionally, these structures were built with CIP concrete or structural steel. The success of recent U-girder projects clearly demonstrates the advantages of using engineered-to-order prestressed concrete components to construct highly cost-effective, complex, long-span structures in high-profile applications where aesthetics and urban geometries are important design considerations.

Earlier advancements in the use of spliced, post-tensioned precast girders have extended the span range of precast concrete construction. The development of the U-girder introduced a new cross section that has sufficient strength and stability to make the casting of horizontally curved sections feasible. Combining these two advancements established the possibility of using precast concrete for long-span interchange projects. Developments in 2016 introduced the use of standard diabolo, standard deviation blisters, and a new load case as a performance measure.

Enhanced durability, lower life-cycle costs, and lower initial construction costs make precast concrete an attractive design option. Competitive local manufacturers reinforces the appeal of using precast concrete through reduced lead times for fabrication and lower shipping costs.

Spliced U-girder construction requires only intermittent vertical shoring that reduces interference with existing traffic. Conventional construction methods and equipment are used to erect the girders eliminating the need to invest in specialized equipment. Using PCI-certified plants and standard details and casting forms offers shorter lead times for fabrication and delivery of girders, which greatly enhances the cost effectiveness of construction.

The use of precast concrete U-girders invites the appearance of all spans in a project. Trapezoidal sloped webs create a context-sensitive solution that has been well received in high visibility applications.

Construction Challenges:
Construction of U-girders requires handling and erecting large, heavy, curved girders in challenging site conditions using temporary supports and stabilization.

Summary:
The development of spliced, precast concrete U-girders has created an opportunity to use precast concrete in new applications for bridge construction.

The details in these drawings were developed considering constructed projects with challenging site conditions where maintenance of existing traffic was essential. The use of these PCI zone 6 concept plans, prefabricated within a well-established PCI certification quality assurance system, will help assure project success at the job site. The uninterrupted success of earlier projects clearly demonstrates that the application of precast concrete in long-span bridges is limited only by creativity and imagination of the engineer and contractor. This effort at standardization will assist the PCI-certified plants from having an unlimited set of sections and details.

GENERAL NOTES

1. Information shown on this set of drawings is intended to illustrate a working concept for spliced U-girders.
2. All concrete dimensions and reinforcement shown are for illustration purposes only.
3. Use a minimum of 4 external unbonded tendons per web.
4. Size web thickness for external plastic ducts.
5. Pressure test all ducts prior to grout or flexible filler injection. See FDOT specifications & PT standards.

Design Criteria:
1. Design specifications:
   - AASHTO LRFD bridge design specifications (LRFD)
   - SDG - FDOT structures design guidelines
2. Dead load assumptions:
   - Design curved girders for girder lengths along C outside web of outside girder
   - Reinforced concrete 150 (P)
   - Superimposed dead load applied to composite section for construction purposes only
   - Design internal girders to 150 (P)
   - The B/8 inch thick web includes 1 inch sacrificial thickness included in dead load of the deck but omitted from the section properties used for construction.
3. Live loads:
   - ML-43 with dynamic load allowance
   - Permit vehicle per state and local requirements
4. Precast, prestressed concrete girders assumptions:
   - 28 day field compressive strength fc' = 8.3 ksi
   - 0.6 dia. grade 70 low-relaxation strand
   - Friction coefficients: internal girded strand tendons, K = 0.0002 and μ = 0.30; external girded strand tendons, K = 0.0002 and μ = 0.14
5. Anchorage:
   - Anchor set of 3/8 at jacking ends
6. Elastic shortening and provisions for additional long term loss in stress per web
7. Grade 60 reinforcing steel

Notes to Designer:

Straight and curved girders:
1. This set of drawings is conceptual only. All designs based on these concepts must be prepared by a licensed professional engineer and shall conform to LRFD and all state and local design requirements.
2. Satisfy service load stress limitations for all prestressed concrete girders
3. Check all ultimate load combinations for the composite section.
4. Check service and ultimate load conditions and conform to LRFD and local guideline requirements for flexure, stress, tension, crack control, and serviceability during all stages of casting, erection, and construction.
5. Deck slab reinforcement shall be proportioned to control cracking in negative moment regions under service load conditions. (Maximum longitudinal, near tension stress is 24 ksi)
6. Allowable principal tensile stresses in girder webs under construction and service loadings as per LRFD
7. Sectional capacities are provided by a combination of bonded tendons, unbonded tendons, and mild reinforcing steel. Include sectional strain compatibility of bonded tendons and concurrent strain increases in unbonded tendons when computing strength limit state capacities. Limit sectional capacities used for design than those achieved at 95% of guts.

Curved girders:
1. Erect and align girders in a manner to produce a smooth profile in top internal tendons to avoid kinks and undesirable angle breaks. (Angle breaks at splices limited to 4° horizontal degree)
2. Design back reinforcement around web tendons in curved girders to resist all lateral forces due to curvature and incidental misalignment.
3. Curved girders may be erected in an open-top condition if torsional strengths are accounted for, controlled and strength requirements are met during all stages of construction. Prior to deck placement or application of significant loading, close in some manner top of curved, open U-girders to prevent torsional cracking during construction.

Abbreviations:
SDG - FDOT structures design guidelines
CIP - Cast in Place
PT - Post-tensioning
GUTS - Guaranteed ultimate tensile strength

Drawing/Sheet Number: FDOT WU-1

GENERAL NOTES
PCI Zone 6 (SE Region) U-Girders
CROSS SECTION WITH CONVENTIONAL DECK W/O LID SLABS
(STRAIGHT GIRDERS OR GIRDERS WITH LARGE RADIUS ONLY)

NOTES:
1. PRECAST SLABS NOT ALLOWED.

12" MIN. PROJECTION
 TEMP. FORM

MATCH BOTTOM
MAP OF DECK
REINFORCING

4" CIP LID SLAB

PRECAST U-GINDER

CIP LID SLAB

CIP LID SLAB

PRECAST U-GINDER

CIP LID SLAB

CIP LID SLAB

11'-3"
11'-3"

CROSS SECTION WITH CONVENTIONAL DECK WITH LID SLABS

CROSS SECTION WITH CONVENTIONAL DECK W/O LID SLABS

TYPICAL BRIDGE CROSS SECTIONS
PCI Zone 6 (SE Region) U-Girders

FDOT WU-2

Preliminary
NOTES:
1. SEE SHEET FDOT WU-16 FOR GIRDER END DETAIL AT ABUTMENT.
NOTES:
1. SEE SHEET FDOT WU-16 FOR GIRDER END DETAIL AT INTERIOR PIER.
PRELIMINARY

TYPICAL INTERIOR PIER WITH BEARINGS
PCI Zone 6 (SE Region) U-Girders
Bridge Top of Deck Girder Depth

U-Girder Precast Pier Column

Fascia Curved Tendons

Bottom Slab Tendons

Joint Construction Holes (Typ)

36" Ø Access Hole (Typ)

Bridge CIP Exterior Diaphragm Between Girders Prior to Stressing

Provide Sleeve Thru Webs to Allow for PT Bar Duct (OD Duct + 3/8" Min.)

PT Bars (Strand Tendons Not Allowed)

Anchorage Blockout (Typ)

Interiar Diaphragm Shear Keys Ducts for PT Bars (Typ)

Precast U-Girder Construction Joint

Concrete Depth

Pie Cap

Pie Column

Elevation Section

PCI Zone 6 (SE Region) U-Girders
TYPICAL GIRDER GEOMETRY & REINFORCING

GIRDER GEOMETRY OVER PIER

CONSTANT DEPTH 84" & 96"

HAUCHED GIRDER GEOMETRY & REINFORCING

NOTES:
1. POST-TENSIONING SHALL BE USED FOR ALL CURVED GIRDERS (SEE SHEETS FDOT WU-12 THRU FDOT WU-14 FOR BOTTOM FLANGE PT DUCT LOCATIONS).
2. CIP VARIABLE THICKNESS BOTTOM FLANGE IS ALLOWED FOR HAUCHED GIRDER. MINIMUM INTERIOR BOTTOM FLANGE WIDTH IS 2'-0".
3. FOR HAUCHED GIRDERS INCLUDE SHEAR KEYS AND SLEEVES FOR DUCTS AT PIER LOCATIONS, SIMILAR TO CONSTANT DEPTH GIRDER.

ASSUMPTIONS:
- GROSS GIRDER SECTION USED (DUCT VOID VOLUME NOT DEDUCTED) + 6" MAX. OD.

GIRDER "D" EXTERNAL PT DUCT SIZE* "W" "T"
UB4-4 7'-0" 4" MAX. 10'-9" 7'-9"
UB6-4 8'-0" 4" MAX. 11'-7" 7'-9"

STIRRUPS
SPA. W/ COVER (TYP.)
2" MIN. (OD DUCT + 3/8" MIN.)

BOTTOM FLANGE TENDONS OR STRANDS

GIRDER

POST-TENSIONED, PRE-TENSIONED OPTION

SPA W/ STIRRUPS

NOTES:
1. POST-TENSIONING SHALL BE USED FOR ALL CURVED GIRDERS (SEE SHEETS FDOT WU-12 THRU FDOT WU-14 FOR BOTTOM FLANGE PT DUCT LOCATIONS).
2. CIP VARIABLE THICKNESS BOTTOM FLANGE IS ALLOWED FOR HAUCHED GIRDER. MINIMUM INTERIOR BOTTOM FLANGE WIDTH IS 2'-0".
3. FOR HAUCHED GIRDERS INCLUDE SHEAR KEYS AND SLEEVES FOR DUCTS AT PIER LOCATIONS, SIMILAR TO CONSTANT DEPTH GIRDER.
NOTES:
1. STRESSING CHAMBER DIMENSIONS VARY WITH LOCATION IN THE BRIDGE. SEE SHEET FDOT WU-16 FOR CHAMBER DIMENSIONS.
2. INTERNAL DEVIATORS ARE 4' IN LENGTH AND LOCATED WITHIN A SHORT CHORD FORM. INTERNAL DEVIATORS ARE FABRICATED WITH TRANSVERSE SYMMETRY TO MAINTAIN TENDON LOCATIONS.
3. INTERNAL DEVIATORS ARE PLACED WITHIN THE FIRST AND LAST FORMS AS REQUIRED.
4. WHEN A GIRDER SEGMENT INCLUDES MULTIPLE INTERNAL DEVIATORS, SPACE DEVIATORS AT INCREMENTS OF 5' ON CENTER.
5. MAXIMUM SPACE BETWEEN INTERNAL DEVIATORS SHALL BE 50'.

INTERNAL DEVIATOR NOTES:
1. CURVED GIRDER SEGMENTS MAY BE FABRICATED USING SHORT CHORD FORMS 5' IN LENGTH.
2. INTERNAL DEVIATORS ARE 4' IN LENGTH AND LOCATED WITHIN A SHORT CHORD FORM.
3. INTERNAL DEVIATORS ARE FABRICATED WITH TRANSVERSE SYMMETRY TO MAINTAIN TENDON LOCATIONS.
4. WHEN A GIRDER SEGMENT CONTAINS ONLY ONE INTERNAL DEVIATOR, IT MAY BE PLACED AT ANY LOCATION. FORMS ARE LOCATED ACCORDINGLY, AND END BULKHEADS ARE PLACED WITHIN THE FIRST AND LAST FORMS AS REQUIRED.
5. WHEN A GIRDER SEGMENT INCLUDES MULTIPLE INTERNAL DEVIATORS, SPACE DEVIATORS AT INCREMENTS OF 5' ON CENTER.
6. MAXIMUM SPACE BETWEEN INTERNAL DEVIATORS SHALL BE 50'.
NOTES:
1. Piers are assumed perpendicular to a tangent at each girder along curve.
2. Dimensions shown are for illustration purposes only.
3. All girders may be cast on centerline radius; this will require small horizontal angle break at closure pours.
4. Stressing chamber dimensions vary with location in the bridge. See sheet FDOT WU-16 for chamber dimensions.
5. Meet SDG requirements for the jack envelope dimensions.

*INTERNAL DEVIATOR NOTES:
1. Curved girders may be fabricated using short chord forms 5' in length.
2. Internal deviators are 4' in length and located within a short chord form.
3. Internal deviators are fabricated with transverse symmetry to maintain tendon locations.
4. When a girder segment contains only one internal deviator, it may be placed at any location. Forms are located accordingly, and end bulkheads placed within the first and last forms as required.
5. When a girder segment includes multiple internal deviators, space deviators at increments of 5' on center.
6. Maximum space between internal deviators shall be 50'.

(CERTIFIED PLANT
PCI Zone 6 (SE Region) U-Girders
PRELIMINARY
GIRDER SEGMENT LAYOUT 2
- CONSTANT DEPTH CONTINUOUS
Drawing/Sheet Number FDOT WU-9
NOTES:
1. PIERS ARE ASSUMED PERPENDICULAR TO GIRDER ALONG CURVE.
2. CIP VARIABLE THICKNESS BOTTOM FLANGE IS ALLOWED.
3. MIXING CURVED AND STRAIGHT BEAMS IN SAME SPAN NOT ALLOWED.
4. STRESSING CHAMBER DIMENSIONS VARY WITH LOCATION IN THE BRIDGE.
5. MEET SDG REQUIREMENTS FOR THE JACK ENVELOPE DIMENSIONS.

INTERNAL DEVIATOR NOTES:
1. CURVED GIRDER MAY BE FABRICATED USING SHORT CHORD FORMS 5' IN LENGTH.
2. INTERNAL DEVIATORS ARE 4' IN LENGTH AND LOCATED WITHIN A SHORT CHORD FORM.
3. INTERNAL DEVIATORS ARE FABRICATED WITH TRANSVERSE SYMMETRY TO MAINTAIN TENDON LOCATIONS.
4. WHEN A GIRDER SEGMENT CONTAINS ONLY ONE INTERNAL DEVIATOR, IT MAY BE PLACED AT ANY LOCATION. FORMS ARE LOCATED ACCORDINGLY, AND END BULKHEADS PLACED WITHIN THE FIRST AND LAST FORMS AS REQUIRED.
5. WHEN A GIRDER SEGMENT INCLUDES MULTIPLE INTERNAL DEVIATORS, SPACE DEVIATORS AT INCREMENTS OF 5' ON CENTER.
6. MAXIMUM SPACE BETWEEN INTERNAL DEVIATORS SHALL BE 50'.
NOTES:
1. TENDON LAYOUTS ON THIS SHEET DEPICT ALTERNATIVE LAYOUTS FOR EXTERNAL, CONTINUITY TENDONS WITH FLEXIBLE FILLER.
2. THE ALTERNATIVE LAYOUTS SHOWN ARE SCHEMATIC ONLY, AND DO NOT SHOW ALL OF THE EXTERNAL TENDONS.
3. THE LOCATION AND DETAILS OF ALL TENDONS SHALL CONFORM TO FDOT REQUIREMENTS.
4. PROVIDE STRESSING END CHAMBER FOR PASS-THRU OPTION. SEE SHEET FDOT WU-16.

DENOTES STRESSING ANCHOR
DENOTES NON-STRESSING ANCHOR
NOTES:
1. DIMENSIONS SHOWN ARE FOR ILLUSTRATION PURPOSES ONLY.
2. ASSUMPTIONS:
   1. DIMENSIONS SHOWN ARE FOR ILLUSTRATION PURPOSES ONLY.
   2. DIMENSIONS SHOWN ARE FOR ILLUSTRATION PURPOSES ONLY.
   3. FOR DIABOLO LAYOUT, SEE SHEET FDOT WU-15.
   4. MEET SDG REQUIREMENTS FOR THE JACK ENVELOPE DIMENSIONS.

SECTION A-A AT END DIAPHRAGM
SECTION B-B AT INTERNAL DEVIATOR
SECTION C-C AT INTERIOR PIER
NOTES:
1. DIMENSIONS SHOWN ARE FOR ILLUSTRATION PURPOSES ONLY.
2. ASSUMPTIONS:
   - 3/8 IN. PLASTIC DUCTS - 12 STRAND MAX. TOP AND BOTTOM INTERNAL TENDONS CEMENTITIOUS MATERIAL
   - 3/8 IN. PLASTIC DUCTS - EXTERNAL TENDONS WITH FLEXIBLE FILLER
3. FOR DIABOLO LAYOUT, SEE SHEET FDOT WU-15
4. MEET SDG REQUIREMENTS FOR THE JACK ENVELOPE DIMENSIONS.

SECTION A-A AT END DIAPHRAGM
SECTION B-B AT INTERNAL DEVIATOR
SECTION C-C AT INTERIOR PIER
1. The details shown depict standard diablo locations within an internal deviator viable to the engineer for use in detailing the locations of external flexible-filled continuity tendons.

2. The external tendon will only deviate those diabos as required to accommodate tendon profile and horizontal curvature. Avoid contact between duct and the web of the U-girder.

3. Unused, vacant diabos may be cast at the precaster's option.

4. The maximum 3-dimensional (horizontal and vertical) angle break at a diablo shall not exceed 0.1 radians.

5. In conditions where using diabos in standard configurations produce interference between a tendon and intermediate diaphragm, special panels as shown in the specialized deviator details may be used to adjust diablo vertical locations.
PIER DIAPHRAGM - ANCHORED TENDON
STAY IN PLACE FORMED DIABOLO

DIABOLO LAYOUT
REMOVABLE NYLON FORM

DIABOLO LAYOUT
REMOVABLE NYLON FORM

FEMALE DIABOLO
MALE DIABOLO

FEMALE DIABOLO
MALE DIABOLO

DETAIL A

WALL THICKNESS

4'-0" MIN.

PLASTIC PIPE

ELASTOMER SLEEVE

STAINLESS STEEL POWER SEATED BAND CLAMP

PLASTIC PIPE

DUCT COUPLER DETAIL

NOTES:
1. FABRICATE DIABOLO FOR POLYETHYLENE PIPE O.D. TOLERANCES SPECIFIED IN ASTM F114 OR D3035 + ½.
**PHASE 1**
1. Construct foundations, abutments, and piers.
2. Erect shoring towers.

**PHASE 2**
1. Erect girder segments.
2. Brace curved segments.
3. Form & cast lid slabs over girders.
4. Cast all closures.

**PHASE 3**
1. Stress continuity tendons.
2. Grout top and bottom internal continuity pt.
3. Place flexible filler in all external tendons.

**PHASE 4**
1. Cast deck slab.
2. Remove shoring towers.
3. Cast approach slabs and bridge rail.
4. Install expansion joints.

**NOTES:**
1. Include tower locations and reactions in the plans.
2. Include max tower vertical displacement in the plans.
3. Contractor shall develop a monitoring program for erecting shoring towers.
PHASE 1
1. CONSTRUCT FOUNDATIONS, ABUTMENTS, AND PIERS.
2. STRESS PT AT PIER CAPS AND PLACE GROUT (OR FLEXIBLE FILLER).
3. ERECT SHORING TOWERS.

PHASE 2
1. ERECT GIRDER SEGMENTS (PIER GIRDER ARE NOT SET ON INTERIOR PIERS)
2. BRACLE CURVLED SEGMENTS.
3. CAST ALL CLOSERIES.
4. CAST DIAPHRAGMS OVER INTERIOR PIERS.
5. CAST DIAPHRAGMS AT EXPANSION PIERS.
6. FORM & CAST LD SLABS OVER GIRDERS.
7. STRESS TRANSVERSE PT AT INTEGRAL BENTS AND GROUT (OR PLACE FLEXIBLE FILLER).

PHASE 3
1. STRESS CONTINUITY TENDONS.
2. GROUT TOP AND BOTTOM INTERNAL CONTINUITY PT.
3. PLACE FLEXIBLE FILLER IN ALL EXTERNAL TENDONS.

PHASE 4
1. REMOVE ALL SHORING TOWERS.
2. CAST DECK SLAB.
3. CAST APPROACH SLABS AND BRIDGE NA.
4. INSTALL EXPANSION JOINTS.

NOTES:
1. INCLUDE TOWER LOCATIONS AND REACTIONS IN THE PLANS.
2. INCLUDE MAX TOWER VERTICAL DISPLACEMENT IN THE PLANS.
3. CONTRACTOR SHALL DEVELOP A MONITORING PROGRAM FOR ERECTING SHORING TOWERS.
PHASE 1
1. CONSTRUCT FOUNDATIONS, ABUTMENTS, AND PIERS.
2. STRESS PT AT PIER CAPS AND PLACE GROUT (OR FLEXIBLE FILLER).
3. ERECT SHORING TOWERS.

PHASE 2
1. ERECT GIRDERS (PIER GIRDERS ARE NOT SET ON INTERIOR PIERS).
2. BRACE CURVED SEGMENTS.
3. CAST CLOSURE BETWEEN GIRDERS 4 & 5.
4. STRESS BOTTOM FLANGE TENDON TO CONNECT GIRDERS 4 & 5.
5. CAST ALL OTHER CLOSURES.
6. CAST DIAPHRAGMS OVER INTERIOR PIERS.
7. CAST DIAPHRAGMS AT EXPANSION PIERS.
8. FORM & POUR LID SLABS OVER GIRDERS.

PHASE 3
1. STRESS CONTINUITY TENDONS.
2. GROUT TOP AND BOTTOM INTERNAL CONTINUITY PT.
3. PLACE FLEXIBLE FILLER IN ALL EXTERNAL TENDONS.

PHASE 4
1. REMOVE ALL SHORING TOWERS.
2. CAST DECK SLAB.
3. CAST APPROACH SLABS AND BRIDGE RAIL.
4. INSTALL EXPANSION JOINTS.

NOTES:
1. INCLUDE TOWER LOCATIONS AND REACTIONS IN THE PLANS.
2. INCLUDE MAX TOWER VERTICAL DISPLACEMENT IN THE PLANS.
3. CONTRACTOR SHALL DEVELOP A MONITORING PROGRAM FOR ERECTING SHORING TOWERS.
FALSEWORK DECK
HEADFRAME (TYP)
FALSEWORK TOWER
BOLT (TYP.)
DBL ANGLE BRACE
WITH EMBEDDED ANCHOR,
SECURE CLIP ANGLE
WT SHOE
ANGLE OR
8'-3" (MIN.)
SETTING GIRDER
CROSS BEAMS AFTER
SHOE ANGLE TO
FIELD WELD BRACE
INTERNAL TENDONS (TYP.)
INSERT TO CLEAR TOP
FORMED HOLE OR CAST-IN
NOTE:
1. THIS DRAWING IS INTENDED TO REPRESENT SUGGESTED METHODS FOR
BRACING THE PRECAST GIRDER DURING ERECTION TO RESIST ROLLING,
PROVIDE STABILITY AND LIMIT TORSIONAL STRESSES AND DEFLECTIONS.
2. GIRDER SHALL BE SUPPORTED AND TORSIONALLY BRACED ON FALSEWORK
AT EACH END AT EACH SPLICE DURING ERECTION.
3. ALL GIRDERS SHALL BE BRACED AT EACH END PRIOR TO RELEASING ANY
SIGNIFICANT LOAD FROM ERECTION EQUIPMENT TO PREVENT ROLLING.
4. BRACES AND ALL ASSOCIATED CONNECTIONS SHALL BE DESIGNED BY
FALSEWORK ENGINEER.
5. SUPPORTING FALSEWORK SHALL BE DESIGNED TO PROVIDE ADEQUATE
STIFFNESS UNDER BRACE LOADS TO PREVENT SIGNIFICANT DEFLECTIONS
WHEN RELEASING GIRDER.
6. INCLUDE TOWER LOCATIONS AND REACTIONS IN THE PLANS.
7. INCLUDE MAX TOWER VERTICAL DISPLACEMENT IN THE PLANS.
8. CONTRACTOR SHALL DEVELOP A MONITORING PROGRAM FOR ERECTING
SHORING TOWERS.
GENERAL NOTES

1. Soil for any crane pad shall be compacted by the contractor and shall be accepted by the crane operator prior to commencing with erection.

2. Rigging shall be provided by the erector with a minimum safe working load of the charted maximum lift weight. Further details regarding rigging shall be provided by the erector subcontractor.

3. The contractor shall verify that crane movement does not interfere with existing facilities, utilities, or terrain prior to proceeding with girder erection.

4. Girder erection shall not proceed during inclement weather or wind speeds in excess of 25 MPH.

5. Girder shall conform to PCI tolerances. Beams accepted by the owner and assumed to meet the PCI specifications.

6. Actual girder erection schedule and detailed schedule regarding working hour restrictions shall be provided by the contractor.

7. Girder launchers and trolleys will not be used.

8. Refer to falsework drawings for falsework and connection details at splices.

9. All girder shall be lifted by end lift loops per shop drawings.

10. Contractor shall be responsible for safety issues relating to traffic in areas adjacent to erection operations.

RIGGING DETAILS

- Rigging offset x is toward outside of girder curve

GIRDER ERECTION PLAN