

NOT FOR CONSTRUCTION  
PRELIMINARY AND SUBJECT TO CHANGE

**PREFABRICATED STEEL BRIDGE GENERAL NOTES**

**BGN.01 GENERAL**

- A. THESE GENERAL NOTES AND SPECIFICATIONS ARE FOR A FULLY ENGINEERED CLEAR SPAN BRIDGE OF WELDED STEEL CONSTRUCTION AND SHALL BE REGARDED AS MINIMUM STANDARDS FOR DESIGN AND CONSTRUCTION.
- B. THESE GENERAL NOTES ARE APPLICABLE AND SPECIFIC TO THE CONSTRUCTION OF THE PEDESTRIAN BRIDGE OVER SLOAN CREEK TRIBUTARY 4.
- C. GENERAL NOTES FOR OTHER STRUCTURES DETAILED ELSEWHERE FOR THE PROJECT ARE NOT APPLICABLE TO THE PEDESTRIAN BRIDGE AND VICE VERSA.

**BGN.02 CONSTRUCTION SPECIFICATIONS**

- A. CONSTRUCTION TO BE IN ACCORDANCE WITH THE TEXAS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION: EDITION OF 2014, EXCEPT AS SUPPLEMENTED OR AMENDED BY THE CONTRACT DRAWINGS OR TECHNICAL SPECIFICATIONS.
- B. STRUCTURAL STEEL FABRICATION AND ERECTION: STRUCTURAL STEEL FABRICATION AND ERECTION TO BE IN ACCORDANCE WITH THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES (AISC 303-10), EXCEPT AS SUPPLEMENTED OR AMENDED BY THE CONTRACT DRAWINGS OR TECHNICAL SPECIFICATIONS.
- C. INSTALLATION AND INSPECTION OF STRUCTURAL JOINTS: INSTALLATION AND TESTING OF BOLTED STRUCTURAL JOINTS TO BE IN ACCORDANCE WITH THE RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS (RCSC) SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS.

**BGN.03 DESIGN SPECIFICATIONS**

- A. STRUCTURE DESIGN SHALL BE IN ACCORDANCE WITH THE FOLLOWING SPECIFICATIONS:
  - 1. AASHTO LRFD GUIDE SPECIFICATIONS FOR DESIGN OF PEDESTRIAN BRIDGES, 2ND EDITION, 2015 INTERIM REVISION.
  - 2. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 7TH EDITION, 2014 WITH 2015 AND 2016 INTERIM REVISIONS.

**BGN.04 VERTICAL DATA AND DIMENSIONS**

- A. ELEVATIONS ARE IN FEET AND ARE REFERENCED TO NATIONAL GEODETIC VERTICAL DATUM (NAVD) 88 DATUM.
- B. ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED.
- C. ALL DIMENSIONS ARE MEASURED HORIZONTALLY AND VERTICALLY UNLESS OTHERWISE NOTED.
- D. ALL DIMENSIONS AND JOINT OPENINGS IN THE STRUCTURE ARE MEASURED AT MEAN TEMPERATURE OF 70 DEGREES FAHRENHEIT.
- E. BRIDGE SHALL HAVE THE FINAL DIMENSIONS AS INDICATED ON THE PLANS AFTER ITS FABRICATION AND INSTALLATION.
- F. CAMBER: BRIDGE SHALL BE CAMBERED TO OFFSET DEAD LOAD AND CONFORM WITH FINAL DIMENSIONS SHOWN ON PLANS AFTER INSTALLATION. ALL VERTICAL TRUSS MEMBERS SHALL BE PERPENDICULAR TO THE GROUND(HORIZON) AFTER BRIDGE IS ERECTED AND DEAD LOADS APPLIED.

**BGN.05 PROPRIETARY BRIDGE DESIGN**

- A. THE BRIDGE MANUFACTURER SHALL HAVE BEEN IN THE BUSINESS OF DESIGN AND FABRICATION OF BRIDGES FOR A MINIMUM OF FIVE YEARS AND PROVIDE A LIST OF THREE SUCCESSFUL BRIDGE PROJECTS, OF SIMILAR CONSTRUCTION, EACH OF WHICH HAS BEEN IN SERVICE AT LEAST TWO YEARS.

**BGN.05 PROPRIETARY BRIDGE DESIGN (CONT.)**

- B. PROPRIETARY PEDESTRIAN BRIDGE SPAN DESIGN SHALL MEET ALL THE REQUIREMENTS OF THE DESIGN AND CONSTRUCTION SPECIFICATIONS CITED HEREIN (THESE BRIDGE GENERAL NOTES). ALL THE REQUIREMENTS SPECIFIED HEREIN, AND SHALL COMPLY WITH ALL THE STIPULATIONS SPECIFIED BELOW.
- C. STIPULATIONS FOR BRIDGE STEEL TRUSS SPAN DESIGN: COMPLY WITH THE FOLLOWING:
  - 1. BRIDGE TRUSS CONFIGURATION, DEPTH AND SPACING: PROVIDE CHORD TRUSSES, WITH NO REDUCTION IN THE DEPTH OF THE TRUSSES, AND WITH THE SAME CENTERLINE TO CENTERLINE SPACING OF THE TRUSSES.
  - 2. BRIDGE TRUSS PANEL ARRANGEMENT: PROVIDE THE SAME NUMBER OF TRUSS PANELS WITH THE SAME ARRANGEMENT OF TRUSS VERTICALS AND DIAGONALS.
  - 3. BRIDGE TRUSS PROFILE: PROVIDE THE SAME TRUSS PROFILE.
  - 4. BRIDGE TRUSS MEMBERS: UTILIZE HSS SECTIONS: PROVIDE TRUSS CHORDS, VERTICALS AND DIAGONALS OF EQUAL OR GREATER DIMENSIONAL SIZES.
  - 5. BRIDGE FLOOR BEAMS: PROVIDE FLOOR BEAMS OR EQUAL OR GREATER DEPTH.
  - 6. FUNDAMENTAL FREQUENCY: PROVIDE TRUSS WITH A MINIMUM 2.4 HZ FUNDAMENTAL FREQUENCY.
- D. STIPULATIONS FOR BRIDGE DECK AND WALKWAY DESIGNS: COMPLY WITH THE FOLLOWING:
  - 1. BRIDGE DECK THICKNESS: 6 INCHES MINIMUM.
  - 2. BRIDGE DECK FORMS: BRIDGE DECK FORMS MAY NOT BE CONSIDERED AS ACTING COMPOSITELY WITH THE BRIDGE DECK SLABS TO RESIST PERMANENT DEAD LOAD OR LIVE LOADS.
  - 3. RAILING: HANDRAIL MAY NOT BE CONSIDERED AS ACTING COMPOSITELY WITH THE BRIDGE STRUCTURAL SYSTEM TO IMPROVE STIFFNESS WHEN CONSIDERING VIBRATIONS.
- E. THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW AND APPROVAL, PLANS WITH SUPPORTING CALCULATIONS, ALL SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF TEXAS. IF THE DESIGN IS APPROVED BY THE ENGINEER, SUBMIT SHOP AND ERECTION DRAWINGS ALL SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF TEXAS.
- F. A PROPETARY PEDESTRIAN BRIDGE DESIGN SUBMITTED BY THE CONTRACTOR AND NOT APPROVED BY THE ENGINEER WILL BE AT NO ADDITIONAL COST TO THE OWNER AND WITH NO ADDITIONAL CONTRACT TIME GRANTED TO THE CONTRACTOR.

**BGN.06 DESIGN - LOADINGS AND CRITERIA (CONTINUED)**

- A. THERMAL FORCES:
  - 1. TEMPERATURES AND TEMPERATURE VARIATIONS FOR DESIGN OF STEEL STRUCTURES (DEGREES FAHRENHEIT (F)):
    - AA. TEMPERATURE HIGH --- DEGREES F
    - BB. TEMPERATURE MEAN --- DEGREES F
    - CC. TEMPERATURE LOW --- DEGREES F
    - DD. TEMPERATURE RANGE --- DEGREES F
    - EE. THERMAL COEFFICIENT --- DEGREES F

**BGN.07 ENVIRONMENTAL CLASSIFICATION**

- A. DESCRIPTION:
  - 1. SUBSTRUCTURE: SLIGHTLY AGGRESSIVE
  - 2. SUPERSTRUCTURE: SLIGHTLY AGGRESSIVE
- B. LOCATION : INLAND

**BGN.08 STAY-IN-PLACE METAL DECK FORMS**

- A. DESIGN DECK FORMS AS STAY-IN-PLACE DECK FORMS FOR PLACEMENT OF CONCRETE DECK ONLY; DECK FORM DESIGN REQUIRES NO CONSIDERATION FOR PERMANENT VERTICAL LOADS AND NO CONSIDERATION OF DIAPHRAGM ACTION FOR LATERAL LOADS.
- B. DESIGN CRITERIA AND PARAMETERS:
  - 1. SECTION PROPERTIES: COMPUTE SECTION PROPERTIES PER AISI SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS.
  - 2. STRESS: LIMIT TO 60 PERCENT OF YIELD STRENGTH OF MATERIAL.
  - 3. DESIGN LIVE LOADS: AA. 20 PSF UNIFORM LOAD. BB. 150 LB CONCENTRATED LOAD ON ONE FOOT WIDE SECTION OF DECK.
  - 4. DEFLECTION: LIMIT TO SPAN LENGTH/180.
- C. REFERENCES
  - 1. AMERICAN IRON AND STEEL INSTITUTE (AISI) STANDARD - NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS, 2012 EDITION WITH INTERIM SUPPLEMENTS.
  - 2. AMERICAN WELDING SOCIETY - ANSI/AWS D1.3 STRUCTURAL WELDING CODE-SHEET STEEL.
  - 3. AMERICAN SOCIETY FOR TESTING MATERIALS (ASTM) A 653.
  - 4. STEEL DECK INSTITUTE (SDI) MANUAL OF CONSTRUCTION WITH STEEL DECK - MOC2-2006.
  - 5. STEEL DECK INSTITUTE (SDI) STANDARD PRACTICE DETAILS (SPDE) EDITION 2005.
- D. DECK FORM SECTION CONFIGURATION:
  - 1. FORM DEPTH: 2 INCHES (MINIMUM).
- E. DECK FORM SPAN ARRANGEMENT:
  - 1. DECK FORMS SPAN LONGITUDINALLY OVER FLOOR BEAMS.
  - 2. PROVIDE FORM ARRANGEMENTS THAT ARE CONTINUOUS FOR TWO SPANS AT A MINIMUM .
- F. DECK FORM STRUCTURAL REQUIREMENTS:
  - 1. MATERIAL: STEEL ASTM A 653 SS GRADE 33 OR SUPERIOR.
  - 2. GAGE: 16 GAGE MINIMUM THICKNESS.
- G. FINISHES:
  - 1. DECK FORM: GALVANIZED PER ASTM A 924, G90 COATING.
  - 2. APPURTENANCES: GALVANIZED PER APPLICABLE ASTM SPECIFICATION.
- H. DECK FORM DETAILS AND APPURTENANCES:
  - 1. PROVIDE DETAILS AND APPURTENANCES IN ACCORDANCE WITH SDI STANDARD PRACTICE DETAILS.
  - 2. MINIMUM BEARING LENGTH AT SUPPORTS: 1-1/2 INCHES.



**SORREL APT TRAIL  
PEDESTRIAN BRIDGE  
FAIRVIEW, TX**

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**PREFABRICATED STEEL BRIDGE  
GENERAL NOTES  
(1 OF 2)**

DESIGN: CPM  
 DRAWN: YF  
 CHECKED: SF  
 DATE: 09/20/2017

SHEET  
B1-1

File No. 17-111

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**PREFABRICATED STEEL BRIDGE GENERAL NOTES (CONTINUED)**

**BGN.08 STAY-IN-PLACE METAL DECK FORMS (CONT.)**

- I. SUBMIT THE FOLLOWING FOR PROPOSED DECK FORMS, ACCESSORIES AND FASTENERS:
  - 1. PRODUCT DATA AND LOAD TABLES.
  - 2. SHOP/ERECTION DRAWINGS INCLUDING:
    - AA.FASTENING REQUIREMENTS AND DETAILS FOR ATTACHMENT TO SUPERSTRUCTURE FLOOR BEAMS AND EDGE ANGLES.
    - BB.FASTENING REQUIREMENTS FOR SIDE LAPS.
    - CC.ACCESSORIES AND APPURTENANCES AS REQUIRED FOR PROPER SUPPORT OF FORMS ON SUPERSTRUCTURE FLOOR BEAMS.
    - DD.INSTALLATION REQUIREMENTS.
  - 3. HANDLING AND STORAGE REQUIREMENTS.
- J. PROVIDE SHOP/ERECTION DRAWINGS SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF TEXAS.
- K. ACCEPTABLE MANUFACTURERS:
  - 1. WHEELING CORRUGATING
  - 2. NUCOR - VULCRAFT GROUP
  - 3. OTHER MANUFACTURERS WILL BE EVALUATED.
- L. INSTALL DECK FORMS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, SHOP/ERECTION DRAWINGS AND THE SDI MANUAL OF CONSTRUCTION WITH STEEL DECK.
- M. WITH THE EXCEPTION OF THE DECK FORMS LOCATED OVER FIELD SPLICES,INSTALL DECK FORMS ON THE BRIDGE SPAN IN THE STRUCTURAL STEEL FABRICATION SHOP AFTER SHOP PAINTING AND PRIOR TO SHIPMENT OF THE BRIDGE SPAN TO THE SITE.
- N. COMPLETE INSTALLATION OF DECK FORMS NOT INSTALLED IN THE SHOP AFTER FIELD ASSEMBLY OF THE BRIDGE SPAN BUT PRIOR TO ERECTION OF THE BRIDGE SPAN ON THE SUBSTRUCTURE.
- O. WELDING OF DECK FORMS TO BE IN ACCORDANCE WITH ANSI/AWS D1.3.

**BGN.09 STRUCTURAL STEEL**

**BGN.09.01 GENERAL**

- A. STRUCTURAL STEEL CONSISTS OF THE FOLLOWING:
  - 1. BRIDGE SPAN TRUSS ASSEMBLIES (CHORDS,VERTICALS AND DIAGONALS).
  - 2. FLOOR BEAMS INCLUDING SHEAR CONNECTOR STUDS.
  - 3. LATERAL FRAMING.
  - 4. BEARING PLATES.
  - 5. MEMBER SPLICE ASSEMBLIES.

**BGN.09.02 MATERIALS**

- A. PROVIDE ALL STRUCTURAL STEEL, UNLESS OTHERWISE NOTED, IN ACCORDANCE WITH THE FOLLOWING MATERIAL SPECIFICATIONS:
  - 1. STRUCTURAL STEEL PLATE: ASTM A 36 OR SUPERIOR.
  - 2. STEEL STRUCTURAL TUBING (HSS): ASTM A 500, GRADE B OR GRADE C, OR SUPERIOR.
  - 3. STEEL WIDE FLANGE SHAPES, STRUCTURAL TEES, ANGLES AND PLATES:
    - ASTM A 36 OR SUPERIOR.
  - 4. THE MINIMUM THICKNESS OF ALL STRUCTURAL MEMBERS SHALL BE 3/8 INCHES NOMINAL.
- B. WELDING ELECTRODES: E70XX.
- C. DIRECTION OF FINISHED ROLLING IN THE MEMBERS TO BE PARALLEL TO THE DIRECTION OF PRIMARY STRESS.

**BGN.09.02 MATERIALS (CONT.)**

- D. HSS MANUFACTURED BY THE SUBMERGED ARC WELD (SAW) METHOD; UTILIZE 100 PERCENT COMPLETE JOINT PENETRATION WELDS AND INSPECT WELDS WITH ULTRASONIC TESTING (UT).

**BGN.09.03 FABRICATION**

- A. SHOP QUALIFICATIONS; FABRICATE STRUCTURAL STEEL IN A SHOP THAT AT THE TIME OF FABRICATION, HOLDS THE AISC QUALITY CERTIFICATION FOR STEEL BRIDGE STRUCTURES.
- B. GENERAL FABRICATION REQUIREMENTS:
  - 1. POSITION STEEL IN MEMBERS SO THE DIRECTION OF FINISH ROLLING IS PARALLEL TO THE DIRECTION OF PRIMARY STRESS.
  - 2. SHAPE ALL RE-ENTRANT CORNERS FOR COPEES, BLOCKS AND CUTS NOTCH FREE TO A MINIMUM RADIUS OF ONE INCH.
- C. SPLICES OF TRUSS CHORDS:
  - 1. THE CONTRACTOR WILL BE PERMITTED TO INTRODUCE WELDED SHOP SPLICES OF TRUSS CHORDS UTILIZING COMPLETE JOINT PENETRATION GROOVE WELDS; PROVIDE THE LOCATION AND WELD DETAILS AS PART OF THE SHOP DRAWING SUBMITTAL.
  - 2. NON-DESTRUCTIVE RADIOGRAPHIC TESTING IS REQUIRED FOR ALL WELDED SHOP SPLICES OF TRUSS CHORDS.
  - 3. IN LOCATING WELDED SHOP SPLICES OF TRUSS CHORDS, MAINTAIN AS A MINIMUM 24 INCHES OF SEPARATION FROM TRUSS VERTICALS AND TRUSS DIAGONALS.
  - 4. COMPLETE WELDING OF TRUSS CHORD WELDED SHOP SPLICE PRIOR TO THE COMPONENT BEING WELDED INTO ASSEMBLY.
  - 5. FINISH COMPLETE JOINT PENETRATION WELDS SMOOTH AND FLUSH WITH THE BASE METAL BY GRINDING IN THE DIRECTION OF APPLIED STRESS.

**BGN.09.03 FABRICATION (CONT.)**

- 6. FIELD WELDED SPLICES WILL NOT BE PERMITTED.
- 7. THE CONTRACTOR WILL BE PERMITTED TO UTILIZE BOLTED FIELD SPLICE ONLY IN ACCORDANCE WITH THE ARRANGEMENTS DETAILED IN THE CONTRACT DRAWINGS, UNLESS OTHERWISE SUBMITTED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER.
- 8. ADDITIONAL BOLTED FIELD SPLICES WILL NOT BE PERMITTED.
- D. SPLICES OF TRUSS VERTICALS, DIAGONALS, FLOOR BEAMS AND BRACING:
  - 1. INTRODUCTION OF WELDED SHOP OR WELDED FIELD SPLICES OF TRUSS VERTICALS, DIAGONALS, FLOOR BEAMS OR BRACING MEMBERS WILL NOT BE PERMITTED.
  - 2. INTRODUCTION OF BOLTED SPLICES OF TRUSS VERTICALS, FLOOR BEAMS, AND BRACING MEMBERS WILL BE PERMITTED.
  - 3. THE CONTRACTOR WILL BE PERMITTED TO UTILIZE BOLTED FIELD SPLICES OF DIAGONALS.



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