

Steel Girder Bridge Submission Checklist

DIRECTIONS FOR COMPLETING THE CHECKLIST

Contract No. _____ F.A.P. No. _____

Contract Title: _____

Bridge No. _____

This checklist indicates, in general, what content should be included on each plan sheet at each submission. Managers and designers should use engineering judgment to determine any additional information to be included or unnecessary information to be omitted.

Items may need to be added for some projects and may not be required for others. If the Project Manager determines an item is not required, write an "N/A" in the white box next to the item.

The gray boxes indicate that information is not required at this plan submission. 

The white boxes indicate that information is required and must be included in the plan submission. 

For each submission, initial in the white boxes under the current submission, to indicate the required information is included in the plan submission.

DeIDOT's Project Manager shall review this checklist with the Designer/Consultant at each submission to verify that all necessary information has been included in the plans and shall sign below for each submission to attest to the completeness of the plan submission.

A TS&L Submission is only required for certain structures. Please refer to DeIDOT's *Bridge Design Manual* for clarification.

TS&L Plans:

Designer: _____ Project Manager: _____

Preliminary Plans:

Designer: _____ Project Manager: _____

Semi-Final Construction Plans:

Designer: _____ Project Manager: _____

Final Construction Plans:

Designer: _____ Project Manager: _____

Steel Girder Bridge Submission Checklist

ALL SHEETS				
	TS&L	Prelim	Semi	Final
Title Block information in accordance with general Plan Submission Checklist (including DeIDOT Assigned Bridge Number, Designed By, and Checked By boxes)				
All views in accordance with Bridge Design Manual				
All CADD work in accordance with CADD Standards Manual				

STRUCTURE LOCATION MAP				
	TS&L	Prelim	Semi	Final
All projects with multiple structures shall have a Structures Location Map. This should be included on the Plan Sheet Index unless a separate sheet is necessary.				

BRIDGE NOTES & TYPICAL SECTION				
	TS&L	Prelim	Semi	Final
Approved Standard and Bridge Specific Notes				
Index of Bridge Sheets				
Table of LRFR Ratings				
Typical Bridge Section				
Scale Bar				
Show Section View of the Structure Looking Ahead Station				
Label Proposed Beam or Girder Type				
Dimension Beam or Girder Spacing				
Dimension Overhangs				
Dimension Out-to-Out Width of Bridge				
Dimension Travel Lanes, Shoulders, Sidewalks, and Parapets				
Label Point of Grade Application (P.G.A.)				
Label Baseline				
Number Beam or Girder Lines				
Label limits of concrete sealer				
Label Cross Slopes				
Label Fencing or Railing on Parapets				
Show and Existing and Proposed Utilities				

GENERAL PLAN & ELEVATION				
	TS&L	Prelim	Semi	Final
General Plan				
Scale Bar				
Bridge Design North Arrow				
Show Existing (if rehabilitation or phased construction) and Proposed Structures in Appropriate Line Weights and Line Types including bridge, approach slab, and limits of wingwalls and/or MSE Walls				

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Show and Label Roadway and Construction Baseline for Roadway over Bridge				
Label and Dimension Lanes, Shoulders, and Sidewalks over Bridge				
Construction Baseline for Roadway Under Bridge				
Label and Dimension Lanes, Shoulders, and Sidewalks Under Bridge				
Label Station Equality and Angle for Intersecting Baselines				
Show Direction Arrows for All Travel Lanes				
Include Associated Horizontal Curve Data				
Show Flow Arrow or Tidal Arrow and Name of Waterway Under Bridge				
Label Point of Minimum Vertical Clearance over Roadways or Railroads				
Show Limits and Type of Slope Protection				
Show Span Numbers and Span Length Dimensions				
Label Centerlines of Bearing for Each Substructure Unit and Angle at Intersection of Baseline				
Label Approach Guardrail/Barrier				
Show All Existing Utilities and Their Disposition (Relocated, DND, etc)				
Show all Proposed Utilities				
Show Additional Pertinent Topographic Features				
Dimension Backwall to Backwall Length				
Show and Label Soil Boring Locations				
Elevation				
Scale Bar				
Show Elevation View of the Structure as a Projection of the General Plan				
Show Existing and Proposed Ground Lines				
Label and dimension proposed lane widths, shoulder widths, cross-slopes, and side slopes				
Label Minimum Vertical Clearance over Roadways or Railroads				
Label Proposed Beam or Girder Type				
Show Any Fencing or Railing Along Parapet				
Label and Dimension Parapet				
Show All Bearing Designations (Fix or Exp.)				
Show All Applicable Water Surface Elevations				
Show All Existing and Proposed Utilities				
Show Grading Details Under Bridge				
Show Span Numbers and Span Length Dimensions				
Dimension Backwall to Backwall Lengths				
Vertical Curve Data				

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SEQUENCE OF CONSTRUCTION (For Phased Construction)				
	TS&L	Prelim	Semi	Final
General				
The terminology (Stage II, Phase 2, etc.) must be consistent for all sheets (Highway and Structure)				
Sequence of Construction sheets are required for the superstructure and substructure portions of the bridge if work is being proposed for these elements				
Superstructure				
Show existing bridge typical with out to out, lane, shoulder, sidewalk, and parapet widths tied to the Baseline of Construction				
Draw subsequent stage construction typical directly beneath the existing typical (Baseline of Construction on the existing view lines up with the Baseline of Construction for stage construction typical) which indicate the location of traffic for each stage				
Show proposed lane, shoulder and sidewalk widths tied to the Baseline of Construction				
Show location of temporary barrier				
Show typical for Stage I removal with removal limits tied to the Baseline of Construction. Show separate typical for Stage I construction with build limits tied to the Baseline of Construction. Repeat for each subsequent stage				
Show gap between existing and proposed construction. Identify requirements for mechanical rebar couplers or lap splices				
Show completed typical with out to out, lane, shoulder, sidewalk and parapet widths tied to the Baseline of Construction				
Substructure				
Show existing substructure units with column and stringer spacings				
Draw subsequent stage construction typical directly beneath the existing typical (Baseline of Construction on the existing view lines up with the Baseline of Construction for stage construction typical)				
Show proposed column and stringer spacings				
Show location of temporary pier cap supports				
Show typical for Stage I removal with removal limits tied to the Baseline of Construction. Show separate typical for Stage I construction with build limits tied to the Baseline of Construction. Repeat for each subsequent stage				
Show the location of any sheeting necessary to maintain the existing or proposed construction				

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Show gap between existing and proposed construction. Identify requirements for mechanical rebar couplers or lap splices				
Show completed typical with column and stringer spacings				

PILE DETAILS

	TS&L	Prelim	Semi	Final
Use Standard Pile Detail Sheet				
Add Project Specific Pile Notes				
Cross Out or Delete Unnecessary Details or Notes				

ABUTMENTS (Multiple Sheets If Necessary)

	TS&L	Prelim	Semi	Final
Abutment Plan				
Show Baseline of Construction with station and angle at intersection with center line of bearing				
Show all working points and include working point schedule				
Show North Arrow				
Show Layout of Proposed Concrete Abutment				
Show layout of MSE walls, wingwalls, and/or cheekwalls				
Show drainage system behind abutment stem and wing walls				
Show layout of beam seats along center line of bearing and label beam/girder numbers				
Show footing steps when necessary				
Show layout of wing walls off Baseline of Construction				
Show location of utility opening(s) in back wall. Include proposed utilities and sleeve for future use				
Show location of construction joints for staged construction				
Show location of expansion and contraction joints				
Dimension all appropriate elements				
Identify location where typical section is cut				
Pile Layout Plan				
Show Baseline of Construction with station and angle at intersection with centerline of bearing				
Show pile legend				
Show all pile location points in a schedule				
Show North Arrow				
Show Layout of Proposed Piles				
Identify Test Piles				
Dimension and Label Proposed Piles				
Show location of expansion and contraction joints				
Show location of construction joints for staged construction				
Reinforcement Plan				
Show Baseline of Construction with station and angle at intersection with centerline of bearing				

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Show all working points				
Show North Arrow				
Show Layout of Proposed Concrete Abutment				
Show layout of reinforcing steel				
Label and dimension reinforcing steel (including clear cover)				
Show drainage system behind abutment stem and wing walls				
Show layout of beam seats along centerline of bearing				
Show footing steps when necessary				
Show layout of wing walls off Baseline of Construction				
Show location of utility opening(s) in back wall. Include proposed utilities and sleeve for future use				
Show location of construction joints for staged construction				
Show location of expansion and contraction joints				
Identify Mechanical Couplers or Lap Splices				
Dimension all appropriate elements				
Elevation				
Show existing and proposed ground lines				
Show P.G.A. and elevations along back wall at break points and label slopes				
Show elevation of masonry pads				
Number masonry pads to correspond with beam/girder lines				
Show masonry pad details				
Show MSE abutment walls and wingwalls				
Show MSE wall bottom of footing elevations				
Show architectural treatments of MSE Walls				
Show elevation of bottom and top of footing				
Show location of utility opening(s) in back wall. Include proposed utilities and sleeve for future use				
Show drainage system behind abutment stem				
Show location of construction joints for staged construction				
Show location of expansion and contraction joints				
Show footing steps when necessary				
Show abutment reinforcing steel				
Label and Dimension abutment reinforcing steel (including clear cover)				
Identify Mechanical Couplers or Lap Splices				
Show drainage system outlet				
Show and dimension coarse aggregate layer				
Typical Section				
Show Typical Section through abutment with dimensions locating the centerline of bearing, etc				
Show limits of payment for Footing Concrete and Substructure Concrete				
Show appropriate details for integral and/or semi-integral abutments (end diaphragms, waterproofing, etc.)				

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Show abutment drainage system				
Show and dimension coarse aggregate or subfoundation concrete layer				
Label and dimension abutment reinforcing steel (including clear cover)				
Show any piles (type & size) in footing				
Show location of bridge seat elevation at face of back wall				
Show abutment seat area sloped to drain at 1/4" per foot from back wall to abutment face.				
Include note: Top portion of back wall shall not be placed until entire bride deck slab is complete in place				
Show center line of bearing and dimension back wall, stem and footing widths off of it				
Show and dimension coarse aggregate layer				

MSE WALLS

	TS&L	Prelim	Semi	Final
Elevation				
Show Elevation View of each MSE wall				
Dimension lengths, angles, slopes, and elevations at break points and top of leveling pad				
Identify any architectural treatments				
Include any special details required (special drainage layer, underdrain outlets, interaction with piles, etc.)				
Section				
Show Typical Section View of each MSE wall				
Dimension all necessary elements				
Show and dimension barriers in front of or on top of MSE Walls (may require additional details)				

WINGWALLS

	TS&L	Prelim	Semi	Final
Elevation				
Show Elevation View of a typical wing wall				
Show an elevation view of all wing walls including lengths				
Show elevation of bottom and top of footing				
Show where Typical Section is cut				
Show drainage system behind wing wall stem				
Identify Mechanical Couplers or Lap Splices				
Show any fencing or railing on top of the wall or on top of the barrier on top of the wall				
Label and dimension wingwall reinforcing steel (including clear cover)				
Show location of expansion and construction joints				
Show existing and proposed ground lines				

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Show and dimension coarse aggregate layer				
Typical Section				
Show Typical Section with stem, parapets, and surface treatment				
Show limits of payment for Footing Concrete, Substructure Concrete and Parapet Concrete				
Show location of optional or required construction joints				
Show abutment drainage system				
Show special MSE Wall details				
Show any piles (type & size) in footing				
Show any fencing or railing on top of the wing wall				
Label and dimension wingwall reinforcing steel (including clear cover)				
Show and dimension coarse aggregate layer				
Plan				
Show Baseline of Construction with station and angle at intersection with center line of bearing				
Show all working points and include working point schedule				
Show North Arrow				
Show Layout of Proposed wingwall footing				
Show drainage system behind abutment stem and wing walls				
Show layout of beam seats along center line of bearing				
Show footing steps when necessary				
Show layout of wingwalls off Baseline of Construction				
Show all pile location points in a schedule				
Show Layout of Proposed Piles				
Identify test piles				
Show location of expansion and contraction joints				
Dimension all appropriate elements				

PIERS				
	TS&L	Prelim	Semi	Final
Pile Layout Plan				
Show Baseline of Construction with station and angle at intersection with centerline of bearing				
Show pile legend				
Show all pile location points in a schedule				
Show North Arrow				
Show Layout of Proposed Piles				
Identify Test Piles				
Dimension and Label Proposed Piles				
Show location of expansion and contraction joints				
Show location of construction joints for staged construction				
Footing Plan				
Show Baseline of Construction with station and angle at				

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intersection with center line of bearing				
Show all working points and include working point schedule				
Show North Arrow				
Show Layout of Proposed Concrete Pier Footer				
Show layout of masonry pads along center line of bearing				
Show layout of concrete columns along centerline of bearing				
Show footing steps when necessary				
Show location of construction joints for staged construction				
Show location of expansion and contraction joints				
Label and dimension reinforcing steel (including clear cover)				
Dimension all appropriate elements				
Elevation				
Show Elevation View of the type of pier proposed with any aesthetic treatments				
Show layout of columns tied to the Baseline of Construction				
Show elevation of top of pier and masonry pads				
Show elevation of bottom and top of footing				
Show where Typical Section is cut				
Show existing and proposed ground lines				
Show construction joints at the top and bottom of all columns with key size				
Show layout of stirrup and tie reinforcement				
Label and dimension reinforcing steel (including clear cover)				
Show location of construction joints for staged construction				
Show location of expansion and contraction joints				
Number masonry pads and provide pad elevations				
Dimension all appropriate elements				
Pier Cap Section				
Dimension pier cap				
Label and dimension reinforcing steel (including clear cover)				
Typical Column Section				
Dimension column including radius				
Label and dimension reinforcing steel (including clear cover and angular spacing of vertical bars)				
Masonry Pad Details				
Dimension masonry pad				
Label and dimension reinforcing steel (including clear cover)				

FRAMING PLAN

	TS&L	Prelim	Semi	Final
Framing Plan				
North Arrow				
Show location of baseline of construction				
Layout of proposed beams or girders				
Number beam or girder lines				

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Dimension appropriate elements including beam spacing and diaphragm spacing				
Dimension skew angles of diaphragms				
Show centerline of bearing and dimension skew angles				
Identify beam or girder type (i.e., W44x290, 60" Deep Plate Girder, etc.)				
Include framing plan notes as needed				
Include table of beam/girder lengths and radii for each beam/girder (curved girders)				
Bearing Pad Details				
Bearing notes				
Show plan, section, and elevation views and dimension as needed				
Include additional bearing details as needed to show layout on abutments and piers and connections to steel beams/girders				
Show typical bearing section				
Include pertinent bearing information for steel reinforced elastomeric bearing pads				

STEEL BEAM OR GIRDER DETAILS (May require multiple sheets)

	TS&L	Prelim	Semi	Final
Beam or Girder Elevation				
Label and Dimension beam or girder				
Label and dimension shear stud spacing				
Label and dimension splices				
Label and dimension bearing stiffeners				
Label any necessary welds				
Note which elements require additional charpy v-notch testing				
Steel Notes				
Use approved notes				
Camber Diagram				
Use approved camber diagram and chart				
Painting Detail				
Use approved painting detail showing area of beam/girder to be painted				
Splice Details				
Show splices in as many different views as needed				
Dimension splice plates and splice bolts				
Bearing Stiffener Details				
Dimension plates and welds for bearing stiffener				
Connection Plate Details				
Dimension plates and welds for connection plate(s)				
Corner Chamfer Detail				

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Use standard corner chamfer detail showing required welds, dimensions, and chamfers				
Shear Stud Detail				
Use standard shear stud detail				
End Diaphragm Detail				
Label and dimension end diaphragm member or cross frame members				
Dimension center-to-center beam/girder spacing				
Label and dimension shear studs				
Label and dimension bolts and/or welds				
Detail connection plate if necessary				
Intermediate Diaphragm Detail				
Label and dimension intermediate diaphragm member or cross frame members				
Dimension center-to-center beam/girder spacing				
Label and dimension bolts and/or welds				
Detail connection plate if necessary				

CONCRETE DECK DETAILS (Multiple Sheets If Necessary)

	TS&L	Prelim	Semi	Final
Deck Plan				
North Arrow				
Show construction baseline				
Show centerline of abutments and piers and label skew angle				
Dimension concrete deck				
Identify and dimension pours if multiple pours are required				
Label centerlines of beam/girder lines				
Identify lap splices				
Label and dimension reinforcing steel				
Identify RWIS puck locations				
Deck Section				
Show cross slopes				
Show construction baseline and identify P.G.A.				
Dimension concrete deck				
Label and dimension reinforcing steel (including barrier connection reinforcing)				
Label beams/girders and dimension spacing and overhangs				
Label v-notches, drip notches, parapets, limits of concrete sealer, and railings or fences				
Label shear keys				
Show edge beam section (if required) including reinforcing steel				
Finished Deck Elevations				
Show plan view of proposed concrete deck				
North Arrow				

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Show construction baseline				
Show centerline of abutments and piers and label skew angle				
Label centerlines of beam/girder lines				
Label finished deck elevations at tenth points (each span) along each beam/girder				
Label parapet with joints				
Pouring Sequence				
Show plan view of proposed concrete deck				
North Arrow				
Number each deck pour				
Show direction of each pour				
Dimension each pour				
Show construction baseline				
Show centerline of abutments and piers and label skew angle				
Construction Joint Section				
Show section view of construction joint between pours				
Label and dimension construction joint and shear key				
Include note to roughen surface and add bonding agent to joint				
Stay-in-Place Form Details				
Use standard SIP Form Details				
Include SIP form notes				
RWIS Puck Details				
Use standard RWIS Puck and installation details				

EXPANSION JOINT DETAILS

	TS&L	Prelim	Semi	Final
Plan				
Show centerline of bearings				
Show centerlines of beams/girders and label skew angle				
Label and dimension anchor studs (including spacing)				
Label and dimension anchor angles (including spacing)				
Show any change in angle at the parapet				
Show location where section is taken				
Elevation				
Show centerlines of beams/girders and label skew angle				
Label and dimension beams/girders (including spacing)				
Label and dimension change in angle at the parapet				
Label and dimension diaphragms				
Dimension overall length, spacing of anchor studs, and spacing of anchor angles				
Section				
Show centerlines of bearings				
Label and dimension deck and approach slab				
Label and dimension construction joint in backwall				

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Label and dimension anchor systems in backwall and diaphragms				
Label and dimension expansion joint system				
Note joint opening at 68°				
Include expansion joint notes				
Include standard steel extrusion detail				

PARAPET AND SAFETY FENCE OR HANDRAIL DETAILS				
	TS&L	Prelim	Semi	Final
Deck Parapet Elevation				
Show typical parapet section with deck in elevation view (more than one if end sections differ)				
Dimension parapet section				
Label contraction joint				
Label and dimension reinforcing steel				
Label and dimension conduits				
Deck Parapet Section				
Show typical parapet section with deck in section view				
Dimension parapet section				
Label and dimension reinforcing steel				
Label and dimension conduits				
Show and label deck connection reinforcement				
Label and dimension shear key				
Safety Fence Details				
Show standard safety fence details				
Handrail Details				
Show standard handrail details				
Junction Box Details				
Use standard junction box and installation details				
Conduit Details				
Use standard details for conduits exiting the parapet and for conduit expansion/contraction joints				

CONCRETE APPROACH SLAB DETAILS				
	TS&L	Prelim	Semi	Final
Approach Slab Plan				
North Arrow				
Show construction baseline				
Dimension approach slab including haunches				
Show and dimension construction joints				
Label and dimension reinforcing steel				
Identify lap splices				
Show location of typical section				
Approach Slab Section				
Show approach slab in section view including haunches and				

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shear keys				
Dimension approach slab				
Label and dimension reinforcing steel				
Label and dimension lap splices				
Construction Joint Detail				
Show construction joint in section view				
Dimension approach slab including shear key				
Label and dimension reinforcing steel				
Show and label waterstop				
Side Haunch Detail				
Show approach slab side haunch and parapet in section view				
Dimension approach slab				
Label and dimension reinforcing steel				
Label and dimension lap splices				
Label joint between approach slab and wingwall/barrier if applicable				
P.V.C. Waterstop Detail				
Show standard P.V.C. waterstop detail with dimensions				

MISCELLANEOUS DETAILS				
	TS&L	Prelim	Semi	Final
Miscellaneous Details (Moment Slab Details, Demolition Plan, etc.)				
Include all views needed to provide enough information for contractor to construct				

REINFORCING BAR LIST				
	TS&L	Prelim	Semi	Final
Reinforcing Bar List				
Use DelDOT reinforcing bar program				
Shade bar bends used in project				