

SITUATION AND LAYOUT (S&L) SHEETS GUIDELINES AND CHECKLIST FOR BRIDGE PRESERVATION

Name of Project: _____ Input data
initials _____ Date: _____

Originator: _____ Input name and

Name of Structure: _____ Input data
initials _____ Date: _____

Checker: _____ Input name and

Structure Number: _____ Input data

Project Number: _____ Input data

PIN: _____ Input data

Instructions

The purpose of the Situation and Layout (S&L) sheets for a structure preservation is to provide sufficient information to locate the structure, show the work and show utility locations where preservation work may impact utilities. Hydraulic information is required when the channel is changed.

This document is a required Project Document for Task 4S1 Design and Detail Rehabilitation for a Preservation Project.

The checklists are not all inclusive. Designers must review the plans and include all information required to complete the preservation work, meet the designers' intent and manage the asset through its life. Update all example notes to match the requirements of the design. Present all information neatly and clearly. Refer to the sample sheets for examples of acceptable sheets.

The document contains checklists for the following elements and sheets:

GENERAL

- General
- Border and Signatures

TYPICAL SHEET NAME AND CONTENTS

"SUMMARY AND GENERAL NOTES" SHEET

- Index of Sheets
- For Information Only Sheets
- Location Plan
- General Notes
- Design Data
- Quantities

"PLAN AND DETAILS" SHEET

Provide a separate "PLAN AND DETAILS" sheet for each structure number listed in the quantities table.

- Plan View
- Elevation View
- Typical Section
- Phasing
- Hydraulic Data

Originator (Designer): The Originator completes the checklist during development of the S&L sheets. For each item on the checklist the Originator initials either the "Yes", "No", or "NA" box. Initial the "Yes" box when the information listed is provided on the S&L Sheets. Initial the "No" box and provide a comment if the information listed is not provided but is applicable to the structure. Initial the "NA" box and provide a comment if the information is not applicable to the structure. The Originator provides check prints of this checklist, the S&L drawings and supporting documents to the Checker.

Checker: The Checker performs a thorough review of the checklist check print in conjunction with the S&L sheets and supporting documents. After the Checker verifies the information on the checklist and S&L sheets are complete and accurate (and all corrections have been made), the Checker initials the "Chk" box for each item on the **original** checklist document. Do not initial the "Chk" box if the information is missing or inaccurate. Initial all boxes before submittal to UDOT for review.

Design Lead: Submit the completed checklist with the Structural Documentation Package for Task 4S1 Design and Detail Rehabilitation.

SITUATION AND LAYOUT (S&L) SHEETS GUIDELINES AND CHECKLIST FOR BRIDGE PRESERVATION

GENERAL	Provided (Originator)			Chk	Comments
	Yes	No	NA		
Use font styles, dimension styles, reinforcing callouts, and cells in accordance with sheet SS-0.					
Draw all details to scale.					
Use only the abbreviations listed in SDDM Appendix 4A.					

BORDER AND SIGNATURES	Provided (Originator)			Chk	Comments
	Yes	No	NA		
Use the standard Structures Division border.					
Use the applicable seal configuration from WS-1A on the first sheet.					
Complete all information required in the standard title. - Top line = project name - Second line = structure name - Third line = sheet name					
Complete the title block.					
Include the responsible consulting firm's name under the words "Structures Division" in the title block.					
Fill in initials, dates, and signatures.					

SUMMARY AND GENERAL NOTES SHEET

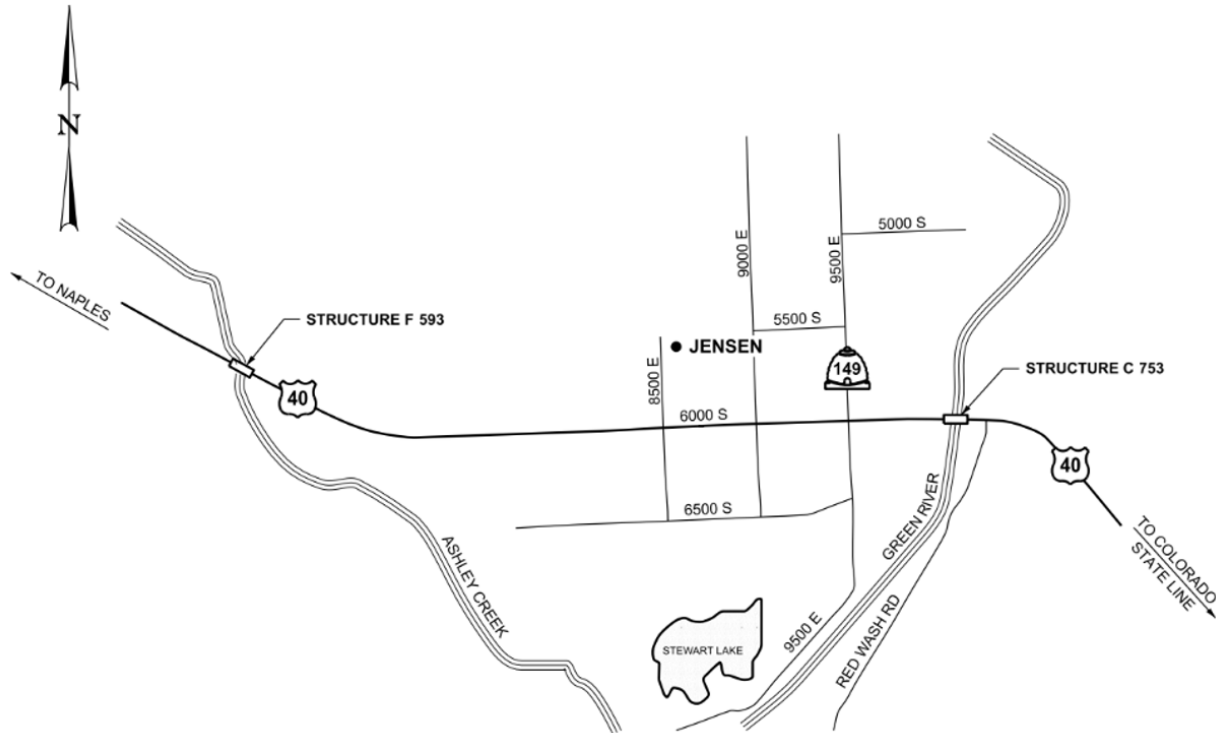
Refer to drawing WS-80 for the Summary and General Notes sheet template.

INDEX OF SHEETS	Provided (Originator)			Chk	Comments
	Yes	No	NA		
List the sheet titles exactly as they appear in the title block of the sheet referenced.					
Typical title: INDEX OF SHEETS					

FOR INFORMATION ONLY SHEETS	Provided (Originator)			Chk	Comments
	Yes	No	NA		
List applicable sheets from the existing structure plan set. This includes applicable reinforcing schedule sheets.					
Typical title: FOR INFORMATION ONLY SHEETS					

SITUATION AND LAYOUT (S&L) SHEETS GUIDELINES AND CHECKLIST FOR BRIDGE PRESERVATION

LOCATION PLAN	Provided (Originator)			Chk	Comments
	Yes	No	NA		
Show a plan view, with north up on the page, covering a large enough area to define the location of the bridge. Showing a larger area is typically preferable. On major roads or highways show adjacent interchanges. On rural roads it is useful to provide enough information to see possible detours. Include sufficient geographical information to ensure an accurate understanding of the bridge location.					
Show and label other structures within the limits of the location plan. Label several streets in the vicinity. Label major streets. Consider using the same base Location Plan for projects with multiple structures.					
Label other local features such as rivers, canals, railroads, etc.					
Label the structure boldly to distinguish it from all other structures or features shown.					
Label and indicate the directions to major features not shown on the Location Plan. TO HERRIMAN					
Show north arrow.					
See the sample below for an acceptable location plan.					
Typical title for single structure: "X XXX" LOCATION PLAN (Replace "X XXX" with the structure number.) Typical title for multiple structures on the same location plan: LOCATION PLAN					



LOCATION PLAN

SITUATION AND LAYOUT (S&L) SHEETS GUIDELINES AND CHECKLIST FOR BRIDGE PRESERVATION

GENERAL NOTES	Provided (Originator)			Chk	Comments
	Yes	No	NA		
Add the following under a general notes heading on the Summary and General Notes sheet if the general notes are placed on a second sheet. <u>GENERAL NOTES</u> SEE "SUMMARY AND GENERAL NOTES 2 OF X" FOR THE GENERAL NOTES.					
Use the standardized wording of general notes shown below. Use only applicable notes. <u>GENERAL NOTES</u> 1. USE COATED DEFORMED CARBON STEEL BARS CONFORMING TO ASTM A767 OR ASTM A775, AND AASHTO M31 GRADE 60, UNLESS SHOWN OTHERWISE. 2. USE COATED DEFORMED CARBON STEEL BARS CONFORMING TO ASTM A767 OR ASTM A775, AND ASTM A706 GRADE 60 IN CONCRETE COLUMNS. 3. USE STRUCTURAL STEEL CONFORMING TO AASHTO M270 GRADE 50, UNLESS SHOWN OTHERWISE. 4. CHAMFER EXPOSED CONCRETE CORNERS 3/4 INCH UNLESS SHOWN OTHERWISE. 5. PROVIDE 2 INCH MINIMUM CONCRETE COVER TO REINFORCING STEEL UNLESS SHOWN OTHERWISE. 6. VERIFY UTILITY LOCATIONS BEFORE CONSTRUCTION. PROTECT EXISTING UTILITIES IN PLACE UNLESS SHOWN OTHERWISE. 7. COAT OR GALVANIZE MISCELLANEOUS STEEL PLACED IN STRUCTURAL CONCRETE, UNLESS SHOWN OTHERWISE. 8. RE-ESTABLISH PAVEMENT MARKING PAINT THAT IS DAMAGED OR REMOVED DURING WORK ON STRUCTURES. MATCH EXISTING PAINT LINE CONFIGURATIONS. DO NOT GRIND IN PAINT ON STRUCTURES. 9. DIMENSIONS SHOWN ARE BASED ON EXISTING DRAWINGS. VERIFY ALL DIMENSIONS BEFORE FABRICATION OF HARDWARE OR COMPONENTS REQUIRED FOR PRESERVATION. COMPLETE VERIFICATION BEFORE BEGINNING CONSTRUCTION. 10. DO NOT SCALE DRAWINGS. HORIZONTAL DIMENSIONS ARE PLAN. VERTICAL DIMENSIONS ARE PLUMB.					<i>Delete notes not required. Add notes as needed. Modify grades of steel when appropriate.</i>

SITUATION AND LAYOUT (S&L) SHEETS GUIDELINES AND CHECKLIST FOR BRIDGE PRESERVATION

DESIGN DATA	Provided (Originator)			Chk	Comments
	Yes	No	NA		
List all the pertinent design data. Use current design guidelines unless project documents or the SDDM require otherwise. See the information below.					
DESIGN DATA PRESERVATION WORK ONLY, NO DESIGN CHECKS PERFORMED. HL-93 LOADING IN ACCORDANCE WITH AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 9TH EDITION 2020 AND THE UDOT STRUCTURES DESIGN AND DETAILING MANUAL, 2022. SEISMIC DESIGN IN ACCORDANCE WITH AASHTO GUIDE SPECIFICATIONS FOR LRFD SEISMIC BRIDGE DESIGN, 2ND EDITION 2010 WITH 2012 INTERIM REVISIONS. LOAD RATING IN ACCORDANCE WITH THE MANUAL FOR BRIDGE EVALUATION, SECOND EDITION, WITH 2013 INTERIMS AND THE UDOT BRIDGE MANAGEMENT MANUAL, 2022. <u>STRUCTURAL CONCRETE</u> ALL LOCATIONS UNLESS SHOWN OTHERWISE 145 PCF $f_c = 4.0$ KSI $n = 7$ CLASS AA(AE) PARAPETS 145 PCF $f_c = 4.0$ KSI $n = 7$ CLASS AA(AE) CONCRETE SLOPE PROTECTION 145 PCF $f_c = 3.0$ KSI $n = 8$ CLASS A(AE) <u>STRUCTURAL CONCRETE - LOW SHRINKAGE</u> DECK, APPROACH SLABS 145 PCF $f_c = 4.0$ KSI $n = 7$ CLASS AA(LS) CONCRETE WEIGHT FOR LOADS 150 PCF UNLESS SHOWN OTHERWISE <u>REINFORCING STEEL</u> ALL LOCATIONS UNLESS SHOWN OTHERWISE $f_y = 60$ KSI STRUCTURAL STEEL: $F_y = 50$ KSI (GRADE 50) $F_y = 36$ KSI (GRADE 36) ANGLES (WHERE SHOWN) SACRIFICIAL WEARING SURFACE: 1/2" CONCRETE FUTURE WEARING SURFACE: 40 PSF DESIGN SPEED: 70 MPH I-15, 35 MPH 1600 NORTH SEISMIC: NO SEISMIC ANALYSIS REQUIRED TRAFFIC DATA: NORTHBOUND 2050 ADT = 107,900 2023 ADT = 65,800 SOUTHBOUND 2050 ADT = 107,900 2023 ADT = 65,800 PARAPET TEST LEVEL: TL-4					List the actual edition of the code and interims used in design. List actual material properties and project parameters used in design. Delete the first paragraph (in red) if design checks were performed. Delete the second paragraph and leave the first paragraph if no design was performed. Use black text. Delete unused values. Revise speeds and road names as required.

QUANTITIES	Provided (Originator)			Chk	Comments
	Yes	No	NA		
Show a quantities table. Include structure number, structure name, milepost and pay items. Use the table format on WS-80.					
Use pay item titles and units identical with the Engineer's Estimate and Measurement and Payment documents. Use only applicable items. See the SDDM Chapter 4 for typical pay items. List in order by item number. The item number is a function of the specification number.					
Label the Structure Name as route over route or feature. SR-71 OVER JORDAN RIVER					

SITUATION AND LAYOUT (S&L) SHEETS GUIDELINES AND CHECKLIST FOR BRIDGE PRESERVATION

PLAN AND DETAILS SHEET

Refer to drawing WS-81 for the Plan and Details sheet template.

PLAN VIEW	Provided (Originator)			Chk	Comments
	Yes	No	NA		
Label the existing or new survey and profile lines of all alignments. If survey and profile lines are unavailable, identify the centerline of the bridge. - I-15 CONTROL LINE, I-15 SB PGL, 1600 NORTH (OREM) CONTROL LINE AND PGL ⬇ BRIDGE					
Show and label the centerline of all supports with the support designations. Match the naming convention shown on the plans.					
Dimension the overall structure length and the approach slab lengths.					
Label the lane directions. NB or SB or WB or EB Show traffic flow arrows with one arrow per lane. Show the shoulder striping up to bridge. Do not show the striping on the bridge and approach slab					
Show and label new deck or approach slab drains. - NEW APPROACH SLAB DRAIN (TYP X PLACES) - NEW DECK DRAIN (TYP X PLACES)					
Verify the new deck and approach slab drains connect to the drainage system. Do not discharge drainage into the RR ROW.					
Show, label and list work required on the deck, approach slab, parapet, curb, sidewalk, noisewall, and fence.					
Show the north arrow and verify the north arrow direction.					
Show and label the limits of the preservation work.					
Show and label approximate locations of special repairs.					
Show all utilities in the vicinity of the structure impacted by any preservation work. Label the utility size and type of utility when known. Provide the owners name in parentheses when known. Label all utilities in uppercase text and provide disposition on existing utilities (e.g. abandon, relocate, relocate by others, protect in place). Add a separate utility sheet showing the plan and elevation with utilities labeled in each view if the utility lines and labels make the primary plan view cluttered and difficult to understand. Add a note under the primary plan title with a reference to the utility sheet if a utility sheet is used.					
Show and label the limits of new riprap. Use the following label. LIMITS OF RIPRAP					
Typical title: "X XXX" PLAN . Replace "X XXX" with the structure number.					
ELEVATION VIEW	Provided (Originator)			Chk	Comments
	Yes	No	NA		
Elevation view is only required when needed to clarify repair or preservation items.					
Show and label the existing substructure elements. Show and label the required limits of rehabilitation.					
Typical title: ELEVATION (ALONG CL OF BRIDGE)					

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TYPICAL SECTION	Provided (Originator)			Chk	Comments
	Yes	No	NA		
Show the section normal to the structure. Show the proposed elements using a solid line style and the existing elements using a hidden line style.					
Show and label the parapets, fences, and noisewalls.					
Dimension the roadway width for surfacing. The roadway width is the distance between parapets or curbs. • X'-X" LIMITS OF...					
Label the structure centerline only if it is required for an adequate interpretation of the view.					
Label the overlay if an overlay is required. • THIN BONDED POLYMER OVERLAY, TYPE 1					
Label the typical deck thickness.					
Typical title: TYPICAL SECTION FOR SURFACING • Use other descriptive titles as needed to distinguish between adjacent structures defined by a single structure number.					

PHASING	Provided (Originator)			Chk	Comments
	Yes	No	NA		
Verify phasing needed to complete the work aligns with limitations for MOT and schedule.					
Provide a typical section for each construction phase in order of work.					
Dimension the traffic lanes and shoulders in each construction phase.					
Dimension the width of the section constructed in the phase shown.					
Dimension the number of girders in the section constructed in the phase shown. Use the format defined in the Section Through Structure section.					
Dimension the girder overhang in the section constructed in the phase shown.					
Provide the lane arrangement for each phase. Show the dimension from the back of temporary parapets to the edge of the supporting structure. Dimension the distance between the existing structure and the new structure.					
Typical title: SECTION THROUGH STRUCTURE PHASE X					

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HYDRAULIC DATA				Provided (Originator)			Chk	Comments																																																																		
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List the hydraulic data using the following format. Information required if the preservation includes changes in the flow line or lowers the vertical clearance.																																																																										
<table border="1"> <thead> <tr> <th colspan="5">HYDRAULIC DATA</th> </tr> <tr> <th>ATTRIBUTE</th> <th>Unit</th> <th>Conveyance Design</th> <th>Scour Design</th> <th>Scour Design Check</th> </tr> </thead> <tbody> <tr> <td>DRAINAGE AREA</td> <td>MI²</td> <td></td> <td></td> <td></td> </tr> <tr> <td>FREQUENCY</td> <td>YR</td> <td></td> <td></td> <td></td> </tr> <tr> <td>DISCHARGE</td> <td>CFS</td> <td></td> <td></td> <td></td> </tr> <tr> <td>FLOWLINE ELEVATION AT UPSTREAM FACE</td> <td>FT</td> <td></td> <td></td> <td></td> </tr> <tr> <td>UPSTREAM WATER SURFACE ELEVATION</td> <td>FT</td> <td></td> <td></td> <td></td> </tr> <tr> <td>MINIMUM FREEBOARD</td> <td>FT</td> <td></td> <td></td> <td></td> </tr> <tr> <td>MAXIMUM VELOCITY</td> <td>FT/S</td> <td></td> <td></td> <td></td> </tr> <tr> <td>CONTRACTION SCOUR DEPTH</td> <td>FT</td> <td></td> <td></td> <td></td> </tr> <tr> <td>TOTAL SCOUR DEPTH AT ABUTMENT #</td> <td>FT</td> <td></td> <td></td> <td></td> </tr> <tr> <td>TOTAL SCOUR DEPTH AT ABUTMENT #</td> <td>FT</td> <td></td> <td></td> <td></td> </tr> <tr> <td>TOTAL SCOUR DEPTH AT BENT #</td> <td>FT</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>								HYDRAULIC DATA					ATTRIBUTE	Unit	Conveyance Design	Scour Design	Scour Design Check	DRAINAGE AREA	MI ²				FREQUENCY	YR				DISCHARGE	CFS				FLOWLINE ELEVATION AT UPSTREAM FACE	FT				UPSTREAM WATER SURFACE ELEVATION	FT				MINIMUM FREEBOARD	FT				MAXIMUM VELOCITY	FT/S				CONTRACTION SCOUR DEPTH	FT				TOTAL SCOUR DEPTH AT ABUTMENT #	FT				TOTAL SCOUR DEPTH AT ABUTMENT #	FT				TOTAL SCOUR DEPTH AT BENT #	FT				Update values.	
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