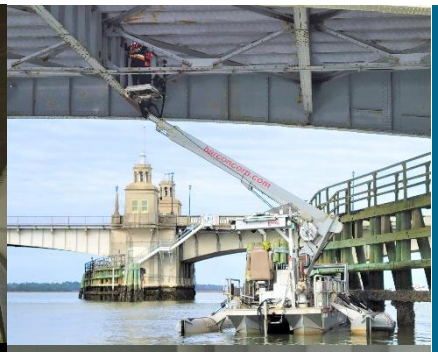
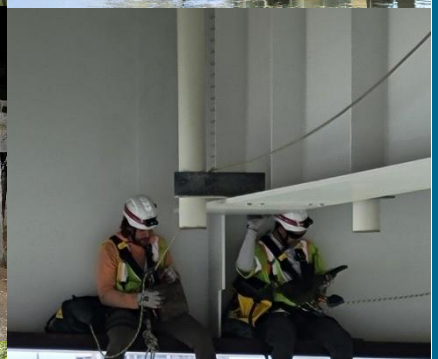
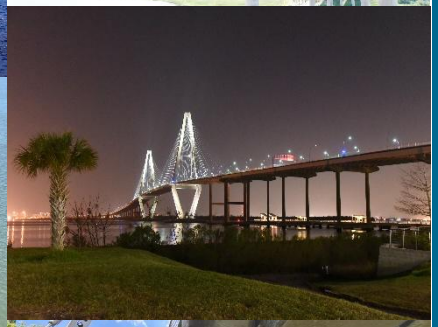
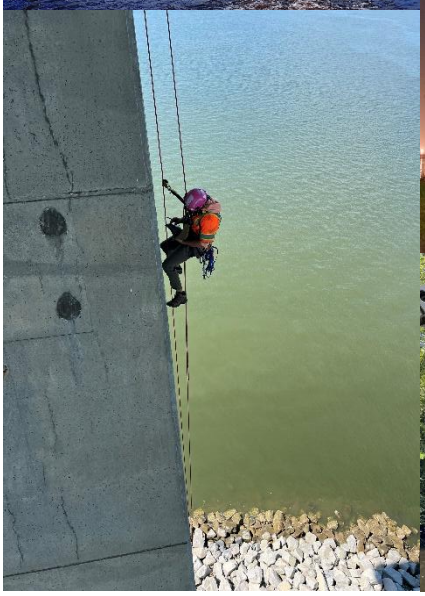








South Carolina Department of Transportation

SNBI Supplemental Guide

2026

DISCLAIMER

THE SNBI SUPPLEMENTAL GUIDE IS PUBLISHED SOLELY TO PROVIDE INFORMATION AND GUIDANCE TO BRIDGE INSPECTORS WHEN INSPECTING BRIDGES IN THE STATE OF SOUTH CAROLINA. THIS DOCUMENT IS ISSUED TO PROMOTE, SO FAR AS POSSIBLE, UNIFORMITY OF THE SPECIFICATION FOR THE NATIONAL BRIDGE INVENTORY. THIS DOCUMENT IS NOT PURPORTED TO BE A COMPLETE GUIDE IN ALL AREAS OF BRIDGE INSPECTION AND IS NOT A SUBSTITUTE FOR ENGINEERING JUDGMENT.

DOCUMENT INTRODUCTION

The South Carolina Department of Transportation (SCDOT) Supplemental Guide for the Specification for the National Bridge Inventory (SNBI) has been developed to provide additional direction and clarity for the collection, coding, and management of bridge inventory and inspection data within the State of South Carolina. While the Federal Highway Administration's (FHWA) SNBI establishes the national standards and data specifications required for uniform bridge reporting, this supplemental guide identifies SCDOT-specific interpretations, procedures, and requirements to ensure consistency across all structures owned, maintained, or inspected by SCDOT.

This document serves as an implementation companion to the FHWA SNBI by detailing how individual data items, attributes, and element definitions are to be applied within South Carolina's bridge management systems. It addresses state-specific data collection practices, inspection methodologies, and quality control expectations that support accurate and efficient data reporting to FHWA. By standardizing these processes, the guide promotes uniformity among inspection teams, data managers, and program administrators across SCDOT and its consultant partners.

The SNBI Supplemental Guide will be periodically updated as national guidance evolves, new data requirements emerge, or SCDOT needs change. Users of this guide are responsible for referencing the most current version of both the SNBI and this supplement to ensure compliance with federal and state reporting standards. Together, these documents form the foundation for maintaining reliable bridge inventory data that supports SCDOT's mission to preserve public safety, optimize bridge performance, and ensure the long-term sustainability of South Carolina's transportation infrastructure.

This guidance includes both "Specification" language which includes the requirements for reporting the data item and "Commentary" language which includes expanded guidance on the specification. SCDOT has provided FHWA "Specification" and "Commentary" language and SCDOT has provided expanded state guidance to aid the coding of these items.

Examples are presented to further clarify the specification. Each item typically has brief examples. While examples are included throughout this document, but the BITL or Load Rating Engineer are ultimately responsible for coding accuracy. Additional examples may be added as SCDOT needs change.

BORDER BRIDGES

Bridges located along the boundary between South Carolina and both Georgia and North Carolina are considered border bridges. Under the Specification for the National Bridge Inventory (SNBI), each state is required to ensure that all bridges within its inventory are coded accurately and consistently, including those that are jointly owned or maintained.

For border bridges, SCDOT coordinates directly with the neighboring state's Department of Transportation to determine ownership, inspection responsibility, and data reporting procedures. The state that owns or maintains the structure is considered the "Designated Lead State" and is responsible for submitting all bridge data to FHWA under its own National Bridge Inventory (NBI) records. The non-owning state, however, must still maintain a reference record in its system to capture any bridge features that fall within its jurisdiction, such as approach roadways, connecting routes, or highway features, using the appropriate SNBI data items. This ensures both states can account for all transportation assets within their respective boundaries, even when physical structures or functional responsibilities overlap.

To support consistent and accurate reporting, SCDOT works with adjoining states to reconcile differences in feature identification, route numbering, and data element coding. Shared bridges are reviewed annually to confirm that key SNBI data matches across both inventories. In cases where shared or split features exist (e.g., a bridge owned by Georgia but carrying a South Carolina route), SCDOT records will reference the corresponding feature and route identifiers agreed upon between agencies. All data exchanges and coordination efforts should be documented to ensure traceability and compliance with both SCDOT and FHWA data management policies. The Bridge Management Office is responsible for the annual review and coordination of bridge data of border bridges.

Concurrence as to the accuracy of the items associated with the border bridge occurs between the bordering States prior to submittal. Submittal of the border bridge data signifies such concurrence. The data reported by the Designated Lead State for a border bridge is incorporated into the Neighboring State's bridge inventory upon acceptance into the NBI, except for the data contained in the abbreviated bridge record submitted by the Neighboring State.

The Neighboring State reports only the items listed below, as values for these items may vary between States. Additional data items reported by the Neighboring State are not processed. It is essential that Item B.F.01 (Feature Type) values be assigned to the same features by both States so that the Designated Lead State's submitted feature data are assigned to the correct feature records in the Neighboring State's inventory.

Item ID	Data Item	Item ID	Data Item
B.ID.01	Bridge Number	B.F.01	Feature Type
B.ID.03	Previous Bridge Number	B.F.02	Feature Location
B.L.01	State Code	B.F.03	Feature Name
B.L.02	County Code	B.RT.01	Route Designation
B.L.03	Place Code	B.RT.02	Route Number
B.L.04	Highway Agency District	B.RT.03	Route Direction
B.L.07	Border Bridge Number	B.RT.04	Route Type
B.L.08	Border Bridge State or County Code	B.RT.05	Service Type
B.L.09	Border Bridge Inspection Responsibility	B.H.03	NHS Designation
B.L.10	Border Bridge Designated Lead State	B.H.06	LRS Route ID
B.L.12	Metropolitan Planning Organization	B.H.07	LRS Mile Point
		B.H.18	Crossing Bridge Number

FHWA INTRODUCTION

Bridge inventory information collected by each State transportation department, Federal agency and Tribal government is reported to the Federal Highway Administration (FHWA), as requested, in accordance with the National Bridge Inspection Standards (NBIS) reporting requirements (23 CFR 650.315). The resulting information is maintained in the National Bridge Inventory (NBI) database, which enables state-level and national-level analyses and reporting, supports Federal funding programs, and facilitates the identification of freight and defense-critical corridors and connectors. By having a complete and thorough inventory, an accurate report can be made to the Congress on the number, condition, and performance of the Nation's bridges. The data also support FHWA's programs, and the efforts of the Military Surface Deployment and Distribution Command (SDDC) Transportation Engineering Agency (TEA).

The Manual for Bridge Evaluation (MBE), produced by the American Association of State Highway and Transportation Officials (AASHTO), discusses the various items of information that are to be recorded as part of bridge inspections. That manual and the FHWA's Bridge Inspector's Reference Manual (BIRM) discuss inspection procedures and the preparation of detailed reports about bridge members. These reports are the basis for reporting values for many of the data items shown in these specifications.

The proper assessment of element-level bridge conditions and the ability to use condition data to efficiently and effectively manage bridge inventories are cornerstones to providing a safe and efficient highway transportation system. These specifications include the description of bridge condition rating data for both component-level (deck, superstructure, substructure, and culvert) and element-level evaluation.

The reporting of inventory data for all highway bridges subject to the NBIS, and their related features, are based on the definitions, explanations, and data items supplied in these specifications and supplemented by the NBIS, AASHTO Manual for Bridge Element Inspection (MBEI), MBE, and BIRM. State transportation departments use the data items and instructions in these specifications when reporting NBI data to FHWA. These agencies are responsible for the accuracy and completeness of the reported data, using agency data quality control and quality assurance procedures. Agencies may use their own data names and codes for their agency inventory but must report NBI data to FHWA in accordance with these specifications.

It is expected that coordination is needed between various personnel, in various infrastructure disciplines of an agency, to obtain and report the data in accordance with these specifications and does not solely rely on bridge inspection personnel. All possible combinations of actual bridge characteristics may not be addressed in these specifications. Consult with the local FHWA division office contact for an acceptable solution when a special situation is encountered that is not addressed by these specifications.

The data items in these specifications have been grouped into sections and subsections with like characteristics. In most subsections, each data item has a single value associated with the reported bridge record. These items are referred to as having a "one-to-one" relationship with the bridge. Even if the value of a data item changes multiple times over a reporting period, only the value that applies at the time of submittal is reported. In some cases, multiple values may apply but are still reported in a single instance. For these items, multiple values are delimited by the pipe character (|).

Other subsections contain data items for which there may be multiple values associated with the reported bridge record; however, each value is reported as a separate instance. These items are characterized as having a "many-to-one" relationship with the bridge.

SPECIFICATION FORMAT

Data Item Name			
Format	Frequency	Item ID Number	Item Ownership
BrM Page	BrM Group Box	BrM Database Table	BrM Database Column
FHWA Specification *[and SCDOT Markups]*		FHWA Commentary *[and SCDOT Markups]*	

Format - Designates the format of the data using one of the following:

- AN (X) – Alphanumeric, where X is the maximum number of characters. Use the pipe character (|) as the text or code delimiter when applicable.
- N (X,Y) – Numeric, where X is the maximum number of digits (excludes decimal point), and Y is the number of decimal places.
- YYYYMMDD – Date, where leading zeroes are required.

Frequency - Designates when the data is updated:

- I (Initial) – Data are recorded initially and updated, when necessary, but would not typically change from inspection to inspection. Data are recorded or updated by the inspector or other agency personnel.
- EI (Each Inspection) – Data are verified and/or updated by the inspector during each inspection (or load rating).
- C (Calculated) – Data are automatically calculated and stored by FHWA and are not recorded during inspections or reported to FHWA.

Item ID Number - This is a unique indicator assigned to each bridge item, following this format: "B.X.Y", where B indicates that it is a bridge item in the National Bridge Inventory, X is an alphabetic designation for the section or subsection of the Specifications in which the item appears, and Y is a unique numerical designation indicating the order of appearance for that item within the section or subsection. If a "SC" is used instead of the "B" in the Item ID Number, the item is part of the State Bridge Inventory (SBI) and is not reported to FHWA.

Item Ownership - Designates the user responsible for updating the data:

- BI – Bridge Inspector
- DBIS – District Bridge Inspection Supervisor, not all bridge inspector can update
- BMO – Bridge Management Office
- LR – Load Rater
- HDSO – Hydraulic Design Support Office
- RDS – Road Data Services, from Inventory Manager

BrM Fields - The second row indicates the BrM Page and Group Box (if applicable) as to where the data field is in the BrM User Interface. The second row also indicates the BrM Table and Column where the data field is stored in the BrM Database.

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Bridge Number

Format	Frequency	Item ID Number	Item Ownership
AN (15)	I	B.ID.01	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Identification	Bridge	BridgeNumber

FHWA Specification and SCDOT Markups

Report the unique bridge number *[Asset ID]* assigned according to agency policy for each bridge meeting the NBIS bridge definition that is fully or partially located within the State's boundaries, Federal agency's responsibility or jurisdiction, or Tribal government's responsibility or jurisdiction; regardless of inspection or financial responsibility.

Do not change the *[Asset ID]* once it has been assigned and recorded, except for a rare or unusual circumstance that requires a one-time change. *[SCDOT cannot change Asset IDs.]*

When *[an Asset ID]* is changed, report the previous *[Asset ID]* under B.ID.03.

Report all spans from abutment to abutment as one bridge.

[SCDOT is responsible for assigning Asset IDs based on agency policy. All bridges and culverts meeting the requirements in Chapter 1 of the BIGD are assigned an Asset ID. Other structures may be assigned an Asset ID required .]

FHWA Commentary and SCDOT Markups

There are no national policies established for assigning unique *[Asset IDs]*. Therefore, each State transportation department, Federal agency, or Tribal government develops policy for assigning unique *[Asset IDs]*.

It is preferable that a new and unique *[Asset ID]* be assigned when a bridge is replaced. When any portion of the existing bridge is retained for a rehabilitated or partially replaced bridge, it is preferable to retain the existing *[Asset ID. A bridge being rehabilitated, repaired, and/or widened shall re-use the same Asset ID. The Bridge File shall be updated with applicable documents to maintain the same bridge history until Asset ID retirement.]*

[For most bridges, it can be expected that] all spans of a superstructure spanning from one abutment to another be recorded as one bridge, per the NBIS bridge definition, not as multiple bridges.

[The following is a list of FHWA preferences for the recording of an Asset ID, but there are no FHWA requirements.]

- It is preferable that one *[Asset ID]* be assigned to a bridge that supports multiple features.
- It is preferable that any bridge or bridges with a closed median, where the area between the two roadways on the bridge is bridged over and can support traffic, be reported as one bridge. Closed medians may have either mountable or non-mountable curbs or barriers.
- It is preferable that separate superstructures with an open median (not meeting the closed median criteria above) sharing a common substructure unit or units be reported as two bridges.

Section 1: Bridge Identification
Subsection 1.1: Identification
B.ID.01 Bridge Number
B.ID.02 Bridge Name
B.ID.03 Previous Bridge Number
Subsection 1.2: Location
Subsection 1.3: Classification
Section 2: Bridge Material and Type
Section 3: Bridge Geometry
Section 4: Features
Section 5: Loads, Rating, and Posting
Section 6: Inspections
Section 7: Bridge Condition
Section 8: State Bridge Inventory Fields
Appendix S1: Component Rating
Appendix S2: Timber Element & Defect
Appendix S3: Element Coding
Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Bridge Number (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (15)	I	B.ID.01	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Identification	Bridge	BridgeNumber

FHWA Commentary and SCDOT Markups	FHWA Commentary and SCDOT Markups
[The following is a continuation of the list of FHWA preferences for the recording of an Asset ID, but there are no FHWA requirements.] • It is preferable that separate *[Asset IDs]* be reported for each mainline bridge and the ramp that connects to the mainline bridge, when the ramp has at least one distinct abutment and is greater than 20 feet in length. • It is also preferable that separate *[Asset IDs]* be reported for a bridge that divides into two or more separate bridges, or two or more bridges that merge into one single bridge. In both cases, the separating point between bridges should be the closest deck joint, or substructure unit to the separating point, or other logical and reasonable location as determined by the bridge owner.	Double deck bridges may be reported as one or two bridges. However, all related data items need to be compatible with the method selected. Consult with the local FHWA division office contact for questions concerning assigning *[Asset IDs]* to unique or complex bridges. *[The Asset ID is not the same number as the Structure Number, see Item S.ID.01.* *For a new structure, an Asset ID number shall be assigned during the design phase and included on the design plans and the initial bridge load rating. All new bridges which replace existing structures, regardless of the nature of their replacement, need a new Asset ID Number. Numbers shall not be reused.]*

SCDOT Commentary on B.ID.01

Asset ID Number for Parallel Structures

Where twin, sister or parallel structures exist in close proximity, unique Asset IDs should be assigned to each structure if it is clear the structures are acting independently of one another (i.e. a longitudinal joint or larger physical separation) and opposing traffic is physically separated by a barrier or median, as to prevent traffic from crossing from one structure to the other. In lieu of an obvious structure separation or absence of details, the DBIS shall determine Asset ID assignments.

If the separated superstructures share a substructure (i.e. the end bents are continuous and support both superstructures), substructure and/or foundational elements are a part of two unique Asset IDs but should be labeled as if they were one structure. The labeling diagram shall include numbering which continues sequentially from the labeling diagram of the first Asset ID to the next. On the labeling diagrams of both Asset IDs, add a note stating, "For continuation of substructure, see Asset [#####]." See LRGD requirements for labeling diagrams.

Temporary Bridge Asset ID Management

SCDOT will assign a single Asset ID to each temporary bridge owned by SCDOT. This Asset ID shall remain with the bridge for the entirety of its service life and will not change as the bridge is assembled, disassembled, relocated, retired, or reactivated. Temporary bridges will be assigned to a county based on the maintenance yard responsible for maintaining the bridge while it is out of service.

Section 1: Bridge Identification
Subsection 1.1: Identification
B.ID.01 Bridge Number
B.ID.02 Bridge Name
B.ID.03 Previous Bridge Number
Subsection 1.2: Location
Subsection 1.3: Classification
Section 2: Bridge Material and Type
Section 3: Bridge Geometry
Section 4: Features
Section 5: Loads, Rating, and Posting
Section 6: Inspections
Section 7: Bridge Condition
Section 8: State Bridge Inventory Fields
Appendix S1: Component Condition
Appendix S2: Timber Element and Defect
Appendix S3: Element Coding
Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Bridge Number (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (15)	I	B.ID.01	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Identification	Bridge	BridgeNumber

SCDOT Commentary on B.ID.01

When a temporary bridge is assembled and placed into service, inspectors shall request data updates to the bridge record to reflect needed revisions. Similarly, when a temporary bridge is disassembled and returned to the maintenance yard, the same Asset ID shall be retired and inspectors shall request data updates to the bridge record to reflect needed revisions. Data fields that need to be updated include but is not limited to:

- The new physical location, including county in which the bridge is located
- The carried and intersected features. including route carried
- Load Posting Status

When the temporary bridge is redeployed, the original Asset ID shall be reactivated, and all location and route data shall be updated accordingly. Under this approach, Asset IDs for temporary bridges remain consistent for the full lifespan of the structure, with status cha (retired/reactivated) used to track whether the bridge is in service or stored at a maintenance yard.

Examples

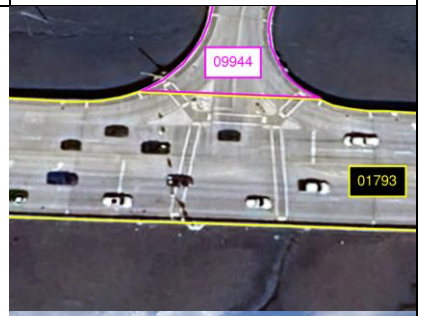
CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
01965	While the deck and superstructures are separated by an open joint, there is no physical separation of opposing traffic, access hatches and catwalks are shared between the two superstructures, and the superstructures bear on the same substructure, thus a single Asset ID is assigned. **Code 01965.**	01965	
10486 - 03030	A new bridge is being built adjacent to an existing bridge as part of phased construction. The existing bridge's Asset ID shall not be re-used for the new bridge. The new bridge shall be given a new Asset ID. The existing bridge Asset ID shall not be retired until it is demolished as it crosses an SCDOT roadway. **Code 10486 (new bridge) and 03030 (existing bridge).**	10486 - 03030	

Section 1: Bridge Identification
Subsection 1.1: Identification
B.ID.01 Bridge Number
B.ID.02 Bridge Name
B.ID.03 Previous Bridge Number
Subsection 1.2: Location
Subsection 1.3: Classification
Section 2: Bridge Material and Type
Section 3: Bridge Geometry
Section 4: Features
Section 5: Loads, Rating, and Posting
Section 6: Inspections
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Section 8: State Bridge Inventory Fields
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Appendix S3: Element Coding
Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Bridge Number (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (15)	I	B.ID.01	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Identification	Bridge	BridgeNumber

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
00635	The subject bridge is closed and is being replaced. The bridge does not cross an SCDOT roadway. The Asset ID can be retired and does not need to be reported to FHWA. **Code 00635.**	00635	
01793 - 09944	Asset ID 01793 and Asset ID 09944 share elements. Both Asset IDs shall be reported to FHWA. Inspection scope shall be included in Item B.IE.11. Since Asset ID 01793 carries a mainline route and Asset ID 09944 carries a ramp, the shared elements shall be reported with Asset ID 01793. **Code 01793 (mainline bridge) and 09944 (ramp bridge).**	01793 - 09944	 

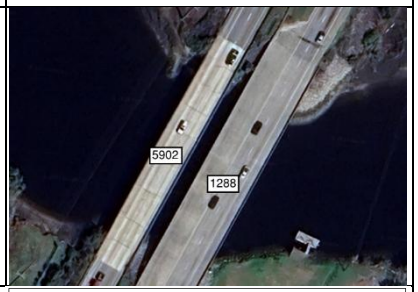
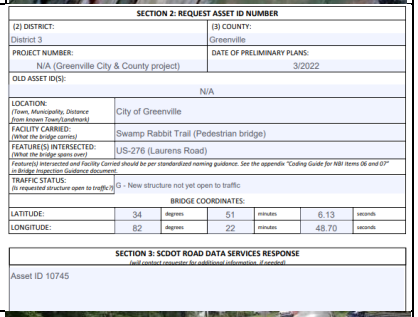
South Carolina Department of Transportation

Section 1: Bridge Identification
Subsection 1.1: Identification
B.ID.01 Bridge Number
B.ID.02 Bridge Name
B.ID.03 Previous Bridge Number
Subsection 1.2: Location
Subsection 1.3: Classification
Section 2: Bridge Material and Type
Section 3: Bridge Geometry
Section 4: Features
Section 5: Loads, Rating, and Posting
Section 6: Inspections
Section 7: Bridge Condition
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Appendix S1: Component Condition
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Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Bridge Number (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (15)	I	B.ID.01	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Identification	Bridge	BridgeNumber

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
05902 — 01288	Asset ID 01288 and Asset ID 05902 are parallel structures acting independently of one another. **Code 05902 and 01288.**	05902 01288	
10745	A new bridge is in the design/construction phase. The Asset ID request form has been completed, and the bridge has been assigned Asset ID 10745. **Code 10745.**	10745	
99997	The bridge is a temporary bridge. The Asset ID was previously 10961. The Asset ID is being changed to 99997 as part of this guidance. **Code 99997.**	99997	

Section 1: Bridge Identification
Subsection 1.1: Identification
B.ID.01 Bridge Number
B.ID.02 Bridge Name
B.ID.03 Previous Bridge Number
Subsection 1.2: Location
Subsection 1.3: Classification
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Section 3: Bridge Geometry
Section 4: Features
Section 5: Loads, Rating, and Posting
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Section 7: Bridge Condition
Section 8: State Bridge Inventory Fields
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Appendix S3: Element Coding
Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Bridge Name

Format	Frequency	Item ID Number	Item Ownership
AN (300)	I	B.ID.02	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Identification	Bridge	Name

FHWA Specification and SCDOT Markups	FHWA Commentary and SCDOT Markups
Report the commonly known name(s) for the bridge. For more than one name, report all names with the most common name first. Report multiple names separated by pipe (|) delimiters.	There are no national policies established for assigning unique bridge names. Therefore, each State transportation department, Federal agency, or Tribal government develops their own policy for assigning unique bridge names. If the bridge has no commonly known name, it is optional to report this item, but it is preferable to enter a general description. *[Item B.ID.02 can be coded by RDS. RDS will update the dedicated name of the bridge (if one).]*

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
JAMES B. EDWARDS BRIDGE	The bridge has both a dedicated name (James B. Edwards Bridge), and a commonly known bridge name (Wando River Bridge). For B.ID.02, use the dedicated name of the bridge. **Code JAMES B. EDWARDS BRIDGE.**	08238	

Section 1: Bridge Identification
Subsection 1.1: Identification
B.ID.01 Bridge Number
B.ID.02 Bridge Name
B.ID.03 Previous Bridge Number
Subsection 1.2: Location
Subsection 1.3: Classification
Section 2: Bridge Material and Type
Section 3: Bridge Geometry
Section 4: Features
Section 5: Loads, Rating, and Posting
Section 6: Inspections
Section 7: Bridge Condition
Section 8: State Bridge Inventory Fields
Appendix S1: Component Condition
Appendix S2: Timber Element and Defect
Appendix S3: Element Coding
Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Bridge Name (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (300)	I	B.ID.02	RDS & BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Identification	Bridge	Name

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
ISLE OF PALMS CONNECTOR	The bridge does not have a dedicated name, but it does have a commonly known bridge name (ISLE OF PALMS CONNECTOR). SC 517 which is carried on the bridge has a dedicated roadway name of "Clyde Moultrie Dangerfield Highway" but the bridge does not have dedicated name. **Code ISLE OF PALMS CONNECTOR.**	08720	
N/A	The bridge does not have a commemorative name, and the bridge does not have a commonly known bridge name. Item B.ID.02 does not need to be coded.	09134	
S-10-475|LEEDS AVENUE OVER I-526	The bridge does not have a commemorative name, and the bridge does not have a commonly known bridge name. Item B.ID.02 can be coded with a general description. **Code S-10-475|LEEDS AVENUE OVER I-526.**	07332	

Section 1: Bridge Identification
Subsection 1.1: Identification
B.ID.01 Bridge Number
B.ID.02 Bridge Name
B.ID.03 Previous Bridge Number
Subsection 1.2: Location
Subsection 1.3: Classification
Section 2: Bridge Material and Type
Section 3: Bridge Geometry
Section 4: Features
Section 5: Loads, Rating, and Posting
Section 6: Inspections
Section 7: Bridge Condition
Section 8: State Bridge Inventory Fields
Appendix S1: Component Condition
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Appendix S3: Element Coding
Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Previous Bridge Number

Format	Frequency	Item ID Number	Item Ownership
AN (15)	I	B.ID.03	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Identification	Bridge	PastAssetID

FHWA Specification and SCDOT Markups	FHWA Commentary and SCDOT Markups
Report the bridge number *[Asset ID]* previously associated with the bridge that has been replaced by the inventoried bridge, or when the inventoried *[Asset ID]* has changed. Report 0 if no previous *[Asset ID]*.	The purpose of this item is to retain a link to data for previous *[Asset IDs]* associated with this bridge in the NBI. *[The populating of historical bridge numbers is not required. This data started to be collected with the Asset ID Request Form (2025 Version) that is sent to RDS. Previous bridge numbers for Asset IDs requested before the use of the form do not need to be populated. If inspectors or load raters want to populate data, they can coordinate with Road Data Services to update data.* *SCDOT also collects a second Asset ID which has been replaced as Item SC.ID.05. If two parallel bridges are being replaced with a single bridge, the lower Asset ID shall be coded as B.ID.03 and the higher Asset ID shall be coded as Item SC.ID.05.]*

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
0	The bridge was built on a new alignment and did not replace any bridges. **Code 0.**	10394	
0 — 0	Asset ID 01288 was built in 2008 and replaced the original bridge carrying US 17 over the Wallace River. This original bridge did not have an Asset ID, it may have had Structure Number since those numbers were historically used. Asset ID 05902 was built in 1971 was built as a parallel bridge to the original bridge carrying US 17 over the Wallace River and did not replace any bridge. **Code 0 and 0.**	05902 01288	

Section 1: Bridge Identification
Subsection 1.1: Identification
B.ID.01 Bridge Number
B.ID.02 Bridge Name
B.ID.03 Previous Bridge Number
Subsection 1.2: Location
Subsection 1.3: Classification
Section 2: Bridge Material and Type
Section 3: Bridge Geometry
Section 4: Features
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Section 6: Inspections
Section 7: Bridge Condition
Section 8: State Bridge Inventory Fields
Appendix S1: Component Condition
Appendix S2: Timber Element and Defect
Appendix S3: Element Coding
Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Previous Bridge Number (continued)

Format	Frequency	FHWA NBIS Item ID	Item Ownership
AN (15)	I	B.ID.03	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Identification	Bridge	PastAssetID

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
03596	When coding Asset ID 10404, the bridge is replacing Asset ID 03596. **Code 03596.**	10404	
05579	When coding Asset ID 10861, there are two bridges that are being replaced by this bridge. For B.ID.01, code 05579 and for SC.ID.05, code 05584. Use this coding because 05579 is the lower Asset ID. **Code 05579.**	10861	

Section 1: Bridge Identification
Subsection 1.1: Identification
Subsection 1.2: Location
B.L.01 State Code
B.L.02 County Code
B.L.03 Place Code
B.L.04 Highway Agency District
B.L.05 Latitude
B.L.06 Longitude
B.L.07 Border Bridge Number
B.L.08 Border Bridge Code
B.L.09 Border Bridge Responsibility
B.L.10 Border Bridge Lead State
B.L.11 Bridge Location
B.L.12 Metro Planning Organization
Subsection 1.3: Classification
Section 2: Bridge Material and Type
Section 3: Bridge Geometry
Section 4: Features
Section 5: Loads, Rating, and Posting
Section 6: Inspections
Section 7: Bridge Condition
Section 8: State Bridge Inventory Fields
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Appendix S2: Timber Element and Defect
Appendix S3: Element Coding
Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

State Code

Format	Frequency	Item ID Number	Item Ownership
N (2,0)	I	B.L.01	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Bridge List View Bridge	Location Data	Bridge	StateCode

FHWA Specification and SCDOT Markups	FHWA Commentary and SCDOT Markups
Report the State code where the bridge is located using one of the codes listed below. *[All of South Carolina is State Code 45.]*	State codes are derived from the FIPS, Standard Codes for States (FIPS PUB 5-2).

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
45 - South Carolina	The bridge is located in South Carolina. **Code 45.**	07332	
45 - South Carolina	The bridge is located on the South Carolina/Georgia Border but is maintained by SCDOT. **Code 45.**	01061	

Section 1: Bridge Identification
Subsection 1.1: Identification
Subsection 1.2: Location
B.L.01 State Code
B.L.02 County Code
B.L.03 Place Code
B.L.04 Highway Agency District
B.L.05 Latitude
B.L.06 Longitude
B.L.07 Border Bridge Number
B.L.08 Border Bridge Code
B.L.09 Border Bridge Responsibility
B.L.10 Border Bridge Lead State
B.L.11 Bridge Location
B.L.12 Metro Planning Organization
Subsection 1.3: Classification
Section 2: Bridge Material and Type
Section 3: Bridge Geometry
Section 4: Features
Section 5: Loads, Rating, and Posting
Section 6: Inspections
Section 7: Bridge Condition
Section 8: State Bridge Inventory Fields
Appendix S1: Component Condition
Appendix S2: Timber Element and Defect
Appendix S3: Element Coding
Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

County Code

Format	Frequency	Item ID Number	Item Ownership
N (3,0)	I	B.L.02	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Bridge List View Bridge	Location Data	Bridge	CountyCode

FHWA Specification and SCDOT Markups	FHWA Commentary and SCDOT Markups
Report the FIPS code for the county, parish, or borough in which the bridge is located. *[South Carolina Specific FIPS County Codes are listed on the following page.]*	Use the FIPS codes in the current version of the Census of Population and Housing - Geographic Identification Code Scheme to determine the appropriate code. County and county equivalent entity codes can be found through a link at the following web site: https://www.fhwa.dot.gov/bridge/nbi.cfm.

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
10 - Charleston	The bridge is located in Charleston County. **Code 10.**	07332	
27 - Jasper	The bridge is located on the South Carolina/Georgia Border but is maintained by SCDOT. The bridge is on the border between Jasper County (SC) and Chatham County (GA). **Code 27.**	01061	

Section 1: Bridge Identification
Subsection 1.1: Identification
Subsection 1.2: Location
B.L.01 State Code
B.L.02 County Code
B.L.03 Place Code
B.L.04 Highway Agency District
B.L.05 Latitude
B.L.06 Longitude
B.L.07 Border Bridge Number
B.L.08 Border Bridge Code
B.L.09 Border Bridge Responsibility
B.L.10 Border Bridge Lead State
B.L.11 Bridge Location
B.L.12 Metro Planning Organization
Subsection 1.3: Classification
Section 2: Bridge Material and Type
Section 3: Bridge Geometry
Section 4: Features
Section 5: Loads, Rating, and Posting
Section 6: Inspections
Section 7: Bridge Condition
Section 8: State Bridge Inventory Fields
Appendix S1: Component Condition
Appendix S2: Timber Element and Defect
Appendix S3: Element Coding
Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

County Code (continued)

Format	Frequency	Item ID Number	Item Ownership
N (3,0)	I	B.L.02	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Bridge List View Bridge	Location Data	Bridge	CountyCode

FIPS County Code, SCDOT County Codes, and County Names

FIPS Code	SCDOT County Code	County Name	FIPS Code	SCDOT County Code	County Name
1	1	Abbeville	53	27	Jasper
3	2	Aiken	55	28	Kershaw
5	3	Allendale	57	29	Lancaster
7	4	Anderson	59	30	Laurens
9	5	Bamberg	61	31	Lee
11	6	Barnwell	63	32	Lexington
13	7	Beaufort	65	33	McCormick
15	8	Berkeley	67	34	Marion
17	9	Calhoun	69	35	Marlboro
19	10	Charleston	71	36	Newberry
21	11	Cherokee	73	37	Oconee
23	12	Chester	75	38	Orangeburg
25	13	Chesterfield	77	39	Pickens
27	14	Clarendon	79	40	Richland
29	15	Colleton	81	41	Saluda
31	16	Darlington	83	42	Spartanburg
33	17	Dillon	85	43	Sumter
35	18	Dorchester	87	44	Union
37	19	Edgefield	89	45	Williamsburg
39	20	Fairfield	91	46	York
41	21	Florence			
43	22	Georgetown			
45	23	Greenville			
47	24	Greenwood			
49	25	Hampton			
51	26	Horry			

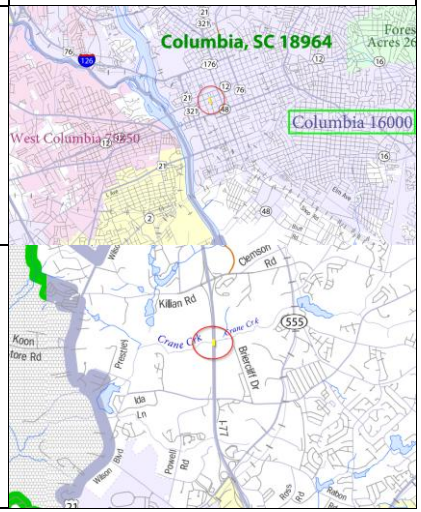
Section 1: Bridge Identification
Subsection 1.1: Identification
Subsection 1.2: Location
B.L.01 State Code
B.L.02 County Code
B.L.03 Place Code
B.L.04 Highway Agency District
B.L.05 Latitude
B.L.06 Longitude
B.L.07 Border Bridge Number
B.L.08 Border Bridge Code
B.L.09 Border Bridge Responsibility
B.L.10 Border Bridge Lead State
B.L.11 Bridge Location
B.L.12 Metro Planning Organization
Subsection 1.3: Classification
Section 2: Bridge Material and Type
Section 3: Bridge Geometry
Section 4: Features
Section 5: Loads, Rating, and Posting
Section 6: Inspections
Section 7: Bridge Condition
Section 8: State Bridge Inventory Fields
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Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Place Code

Format	Frequency	FHWA NBIS Item ID	Item Ownership
N (5,0)	I	B.L.03	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Bridge List View Bridge	Location Data	Bridge	PlaceCode

FHWA Specification and SCDOT Markups	FHWA Commentary and SCDOT Markups
Report the FIPS place code for the city, town, township, village, and other census-designated place where the bridge is located. Report 0 if there is no FIPS place code where the bridge is located.	Use the FIPS codes in the current version of the Census of Population and Housing - Geographic Identification Code Scheme to determine the city, town, township, village, or other census-designated place code, regardless of ownership. FIPS place codes can be found through a link at the following web site: https://www.fhwa.dot.gov/bridge/nbi.cfm.

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
16000 - Columbia City	The census-designated placecode for the bridge location is Columbia City. **Code 16000**	00089	
0	There is no census-designated placecode for the bridge location. **Code 0**	07403	

South Carolina Department of Transportation

Section 1: Bridge Identification
Subsection 1.1: Identification
Subsection 1.2: Location
B.L.01 State Code
B.L.02 County Code
B.L.03 Place Code
B.L.04 Highway Agency District
B.L.05 Latitude
B.L.06 Longitude
B.L.07 Border Bridge Number
B.L.08 Border Bridge Code
B.L.09 Border Bridge Responsibility
B.L.10 Border Bridge Lead State
B.L.11 Bridge Location
B.L.12 Metro Planning Organization
Subsection 1.3: Classification
Section 2: Bridge Material and Type
Section 3: Bridge Geometry
Section 4: Features
Section 5: Loads, Rating, and Posting
Section 6: Inspections
Section 7: Bridge Condition
Section 8: State Bridge Inventory Fields
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Appendix S2: Timber Element and Defect
Appendix S3: Element Coding
Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Highway Agency District

Format	Frequency	Item ID Number	Item Ownership
AN (2)	I	B.L.04	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Bridge List View Bridge	Location Data	Bridge	HighwayAgencyDistrict

FHWA Specification and SCDOT Markups	FHWA Commentary and SCDOT Markups
Report the State transportation department's district or region code where the bridge is located. Where districts or regions are identified by number, report that number. *[SCDOT has 01-07.]* Where districts or regions are identified by name, report a number based on an alphabetical or organizational listing of the districts or regions, or use an abbreviation.	Federal agencies and Tribal governments may report their district or region code where the bridge is located, or use the State transportation department's district or region code. Consult with the local FHWA division office contact for questions concerning State transportation department districts or regions. Current staff listings can be found at: https://www.fhwa.dot.gov/about/field.cfm. *[For bridges on the border between districts, the district at the midpoint of the bridge shall be used to code the district where located.]*

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
03 – District 3	The bridge is located in District 3. **Code 03**	03408	

Section 1: Bridge Identification
Subsection 1.1: Identification
Subsection 1.2: Location
B.L.01 State Code
B.L.02 County Code
B.L.03 Place Code
B.L.04 Highway Agency District
B.L.05 Latitude
B.L.06 Longitude
B.L.07 Border Bridge Number
B.L.08 Border Bridge Code
B.L.09 Border Bridge Responsibility
B.L.10 Border Bridge Lead State
B.L.11 Bridge Location
B.L.12 Metro Planning Organization
Subsection 1.3: Classification
Section 2: Bridge Material and Type
Section 3: Bridge Geometry
Section 4: Features
Section 5: Loads, Rating, and Posting
Section 6: Inspections
Section 7: Bridge Condition
Section 8: State Bridge Inventory Fields
Appendix S1: Component Condition
Appendix S2: Timber Element and Defect
Appendix S3: Element Coding
Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Highway Agency District (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (2)	I	B.L.04	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Bridge List View Bridge	Location Data	Bridge	HighwayAgencyDistrict

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
01 – District 1	The bridge is located on the border between District 7 and District 1. The midpoint of the bridge is at the District 1 side of the bridge. **Code 01**	01601	

Section 1: Bridge Identification
Subsection 1.1: Identification
Subsection 1.2: Location
B.L.01 State Code
B.L.02 County Code
B.L.03 Place Code
B.L.04 Highway Agency District
B.L.05 Latitude
B.L.06 Longitude
B.L.07 Border Bridge Number
B.L.08 Border Bridge Code
B.L.09 Border Bridge Responsibility
B.L.10 Border Bridge Lead State
B.L.11 Bridge Location
B.L.12 Metro Planning Organization
Subsection 1.3: Classification
Section 2: Bridge Material and Type
Section 3: Bridge Geometry
Section 4: Features
Section 5: Loads, Rating, and Posting
Section 6: Inspections
Section 7: Bridge Condition
Section 8: State Bridge Inventory Fields
Appendix S1: Component Condition
Appendix S2: Timber Element and Defect
Appendix S3: Element Coding
Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Latitude

Format	Frequency	Item ID Number	Item Ownership
N (9,6)	I	B.L.05	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Inventory and Condition Structure Details	AssetLocation	Latitude

FHWA Specification and SCDOT Markups	FHWA Commentary and SCDOT Markups
Report the latitude of the bridge in decimal degrees at the location of the bridge following agency procedures. Report a negative sign when the bridge is in the southern hemisphere. *[Not applicable in South Carolina.]*	Mapping of bridges by FHWA will assume that the reported value is based on World Geodetic System 1984. The format accommodates reporting a negative sign which is counted as a digit. FHWA will adjust the polarity when it is incorrectly reported. The reported value does not need to be at the same location as the LRS mile point reported in Item B.H.07 (LRS Mile Point). LRS bridge mile point locations occurring on a chorded shape file created using only roadway mile points do not always correspond with the true latitude of a bridge. *[Generally, SCDOT will report midpoint of bridge.* *Inspectors shall include trailing zeros up to six decimal points when coding Item B.L.05 (Latitude).]*

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
33.370331	The bridge's location in degrees, minutes, and seconds is 33°22'13.2"N 79°26'58.6"W or 33.370331, -79.449619 in decimal degrees. **Code 33.370331.**	10379	

Section 1: Bridge Identification
Subsection 1.1: Identification
Subsection 1.2: Location
B.L.01 State Code
B.L.02 County Code
B.L.03 Place Code
B.L.04 Highway Agency District
B.L.05 Latitude
B.L.06 Longitude
B.L.07 Border Bridge Number
B.L.08 Border Bridge Code
B.L.09 Border Bridge Responsibility
B.L.10 Border Bridge Lead State
B.L.11 Bridge Location
B.L.12 Metro Planning Organization
Subsection 1.3: Classification
Section 2: Bridge Material and Type
Section 3: Bridge Geometry
Section 4: Features
Section 5: Loads, Rating, and Posting
Section 6: Inspections
Section 7: Bridge Condition
Section 8: State Bridge Inventory Fields
Appendix S1: Component Condition
Appendix S2: Timber Element and Defect
Appendix S3: Element Coding
Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Longitude

Format	Frequency	Item ID Number	Item Ownership
N (10,6)	I	B.L.06	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Inventory and Condition Structure Details	Bridge	Longitude

FHWA Specification and SCDOT Markups	FHWA Commentary and SCDOT Markups
Report the longitude of the bridge in decimal degrees at the location of the bridge following agency procedures. Report a negative sign when the bridge is in the western hemisphere. *[Always true in South Carolina.]*	Mapping of bridges by FHWA will assume that the reported value is based on World Geodetic System 1984. The format accommodates reporting a negative sign which is counted as a digit. FHWA will adjust the polarity when it is incorrectly reported. The reported value does not need to be at the same location as the LRS mile point reported in Item B.H.07 (LRS Mile Point). LRS bridge mile point locations occurring on a chorded shape file created using only roadway mile points do not always correspond with the true longitude of a bridge. *[Generally, SCDOT will report midpoint of bridge.* *Inspectors shall include trailing zeros up to six decimal points when coding Item B.L.06 (Longitude).]*

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
-79.449619	The bridge's location in degrees, minutes, and seconds is 33°22'13.2"N 79°26'58.6"W or 33.370331, -79.449619 in decimal degrees. **Code -79.449619.**	10379	

Section 1: Bridge Identification
Subsection 1.1: Identification
Subsection 1.2: Location
B.L.01 State Code
B.L.02 County Code
B.L.03 Place Code
B.L.04 Highway Agency District
B.L.05 Latitude
B.L.06 Longitude
B.L.07 Border Bridge Number
B.L.08 Border Bridge Code
B.L.09 Border Bridge Responsibility
B.L.10 Border Bridge Lead State
B.L.11 Bridge Location
B.L.12 Metro Planning Organization
Subsection 1.3: Classification
Section 2: Bridge Material and Type
Section 3: Bridge Geometry
Section 4: Features
Section 5: Loads, Rating, and Posting
Section 6: Inspections
Section 7: Bridge Condition
Section 8: State Bridge Inventory Fields
Appendix S1: Component Condition
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Appendix S3: Element Coding
Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Border Bridge Number

Format	Frequency	Item ID Number	Item Ownership
AN (15)	I	B.L.07	BMO
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Admin Data	Location Information	Bridge	BorderBridgeNumber

FHWA Specification and SCDOT Markups	FHWA Commentary and SCDOT Markups
Report the neighboring State's exact bridge number as used in their Item B.ID.01 (Bridge Number). Report N when the bridge does not cross a border with another State or Country. Report 0 when the bordering country does not have a bridge number.	For the purposes of the NBI, only bridges that cross a State or international border are considered border bridges.

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
181-5019-0	The bridge crosses the border between Georgia and South Carolina. The George Bridge Number is 181-5019-0. **Code 181-5019-0.**	10092	
N	The bridge does not cross a border between states or countries. **Code N.**	09824	

Section 1: Bridge Identification
Subsection 1.1: Identification
Subsection 1.2: Location
B.L.01 State Code
B.L.02 County Code
B.L.03 Place Code
B.L.04 Highway Agency District
B.L.05 Latitude
B.L.06 Longitude
B.L.07 Border Bridge Number
B.L.08 Border Bridge Code
B.L.09 Border Bridge Responsibility
B.L.10 Border Bridge Lead State
B.L.11 Bridge Location
B.L.12 Metro Planning Organization
Subsection 1.3: Classification
Section 2: Bridge Material and Type
Section 3: Bridge Geometry
Section 4: Features
Section 5: Loads, Rating, and Posting
Section 6: Inspections
Section 7: Bridge Condition
Section 8: State Bridge Inventory Fields
Appendix S1: Component Condition
Appendix S2: Timber Element and Defect
Appendix S3: Element Coding
Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Border Bridge Number (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (15)	I	B.L.07	BMO
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Admin Data	Location Information	Bridge	BorderBridgeNumber

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
220013	The bridge crosses the border between North Carolina and South Carolina. The North Carolina Bridge Number is 220013. **Code 220013.**	10100	

South Carolina Department of Transportation

Section 1: Bridge Identification
Subsection 1.1: Identification
Subsection 1.2: Location
B.L.01 State Code
B.L.02 County Code
B.L.03 Place Code
B.L.04 Highway Agency District
B.L.05 Latitude
B.L.06 Longitude
B.L.07 Border Bridge Number
B.L.08 Border Bridge Code
B.L.09 Border Bridge Responsibility
B.L.10 Border Bridge Lead State
B.L.11 Bridge Location
B.L.12 Metro Planning Organization
Subsection 1.3: Classification
Section 2: Bridge Material and Type
Section 3: Bridge Geometry
Section 4: Features
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Section 6: Inspections
Section 7: Bridge Condition
Section 8: State Bridge Inventory Fields
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Appendix S2: Timber Element and Defect
Appendix S3: Element Coding
Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Border Bridge State or Country Code

Format	Frequency	Item ID Number	Item Ownership
AN (2)	I	B.L.08	BMO
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Admin Data	Location Information	Bridge	BorderStateOrCountry

FHWA Specification and SCDOT Markups	FHWA Commentary and SCDOT Markups
Report the neighboring State code using the codes listed in Item B.L.01 (State Code). Do not report this item when the bridge does not cross a border with another State or Country.	Use this item to indicate bridges crossing borders of States or countries.

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
13 - Georgia	The bridge crosses the border between Georgia and South Carolina. The state code for Georgia is 13. **Code 13.**	10092	
37 - North Carolina	The bridge crosses the border between North Carolina and South Carolina. The state code for North Carolina is 37. **Code 37.**	10099	

Section 1: Bridge Identification
Subsection 1.1: Identification
Subsection 1.2: Location
B.L.01 State Code
B.L.02 County Code
B.L.03 Place Code
B.L.04 Highway Agency District
B.L.05 Latitude
B.L.06 Longitude
B.L.07 Border Bridge Number
B.L.08 Border Bridge Code
B.L.09 Border Bridge Responsibility
B.L.10 Border Bridge Lead State
B.L.11 Bridge Location
B.L.12 Metro Planning Organization
Subsection 1.3: Classification
Section 2: Bridge Material and Type
Section 3: Bridge Geometry
Section 4: Features
Section 5: Loads, Rating, and Posting
Section 6: Inspections
Section 7: Bridge Condition
Section 8: State Bridge Inventory Fields
Appendix S1: Component Condition
Appendix S2: Timber Element and Defect
Appendix S3: Element Coding
Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Border Bridge State or Country Code (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (2)	I	B.L.08	BMO
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Admin Data	Location Information	Bridge	BorderStateOrCountry

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
N/A	The bridge is located in Charleston County and is not on a border. This item is not coded.	07332	

Section 1: Bridge Identification
Subsection 1.1: Identification
Subsection 1.2: Location
B.L.01 State Code
B.L.02 County Code
B.L.03 Place Code
B.L.04 Highway Agency District
B.L.05 Latitude
B.L.06 Longitude
B.L.07 Border Bridge Number
B.L.08 Border Bridge Code
B.L.09 Border Bridge Responsibility
B.L.10 Border Bridge Lead State
B.L.11 Bridge Location
B.L.12 Metro Planning Organization
Subsection 1.3: Classification
Section 2: Bridge Material and Type
Section 3: Bridge Geometry
Section 4: Features
Section 5: Loads, Rating, and Posting
Section 6: Inspections
Section 7: Bridge Condition
Section 8: State Bridge Inventory Fields
Appendix S1: Component Condition
Appendix S2: Timber Element and Defect
Appendix S3: Element Coding
Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Border Bridge Inspection Responsibility

Format	Frequency	Item ID Number	Item Ownership
AN (1)	I	B.L.09	BMO
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Admin Data	Location Information	Bridge	BorderInspectionResponsibility

FHWA Specification and SCDOT Markups

Report the border bridge inspection responsibility for any entity within the State geographical boundaries, regardless of ownership, using one of the following codes.

Code	Description
0	No responsibility
1	Shared responsibility with bordering State or country
2	Full responsibility

Do not report this item when the bridge does not cross a border with another State or Country.

FHWA Commentary and SCDOT Markups

The intent of this item is to capture the border bridge inspection responsibility for any entity within the State geographical boundaries, for all inspection types, regardless of ownership (Federal, State, city, county, toll authority etc.).

Agency inspection responsibility should be documented in interagency agreements or memorandums of understanding and included as part of the bridge file or record.

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
0 - No responsibility	The bridge crosses the border between Georgia and South Carolina. The Georgia Department of Transportation is responsible for inspection of this bridge per an agreement in bridge file. **Code 0.**	10092	
2 - Full responsibility	The bridge crosses the border between Georgia and South Carolina. The South Carolina Department of Transportation is responsible for inspection of this bridge per an agreement in bridge file. **Code 2.**	02288	

Section 1: Bridge Identification
Subsection 1.1: Identification
Subsection 1.2: Location
B.L.01 State Code
B.L.02 County Code
B.L.03 Place Code
B.L.04 Highway Agency District
B.L.05 Latitude
B.L.06 Longitude
B.L.07 Border Bridge Number
B.L.08 Border Bridge Code
B.L.09 Border Bridge Responsibility
B.L.10 Border Bridge Lead State
B.L.11 Bridge Location
B.L.12 Metro Planning Organization
Subsection 1.3: Classification
Section 2: Bridge Material and Type
Section 3: Bridge Geometry
Section 4: Features
Section 5: Loads, Rating, and Posting
Section 6: Inspections
Section 7: Bridge Condition
Section 8: State Bridge Inventory Fields
Appendix S1: Component Condition
Appendix S2: Timber Element and Defect
Appendix S3: Element Coding
Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Border Bridge Inspection Responsibility (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (1)	I	B.L.09	BMO
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Admin Data	Location Information	Bridge	BorderInspectionResponsibility

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
N/A	The bridge is located in Charleston County and is not on a border. This item is not coded.	07332	

Section 1: Bridge Identification
Subsection 1.1: Identification
Subsection 1.2: Location
B.L.01 State Code
B.L.02 County Code
B.L.03 Place Code
B.L.04 Highway Agency District
B.L.05 Latitude
B.L.06 Longitude
B.L.07 Border Bridge Number
B.L.08 Border Bridge Code
B.L.09 Border Bridge Responsibility
B.L.10 Border Bridge Lead State
B.L.11 Bridge Location
B.L.12 Metro Planning Organization
Subsection 1.3: Classification
Section 2: Bridge Material and Type
Section 3: Bridge Geometry
Section 4: Features
Section 5: Loads, Rating, and Posting
Section 6: Inspections
Section 7: Bridge Condition
Section 8: State Bridge Inventory Fields
Appendix S1: Component Condition
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Appendix S3: Element Coding
Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Border Bridge Designated Lead State

Format	Frequency	Item ID Number	Item Ownership
N (2,0)	I	B.L.10	BMO
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Admin Data	Location Information	Bridge	BorderDesignatedLeadState

FHWA Specification and SCDOT Markups	FHWA Commentary and SCDOT Markups
Report the State code for the State that has been determined to be the Designated Lead State for reporting the border bridge full record using one of the State codes listed in Item B.L.01 (State Code). Do not report this item when the bridge does not cross a border with another State or Country.	The intent of this item is to capture the State which has been designated by agreement between the two bordering states to report a full bridge record for the border bridge. For more information, see the Border Bridges section of this document. The Neighboring State reports this item as part of their abbreviated bridge record.

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
13 - Georgia	The bridge crosses the border between Georgia and South Carolina. Georgia is the designated lead state per an agreement in bridge file. **Code 13.**	10092	
37 - North Carolina	The bridge crosses the border between North Carolina and South Carolina. North Carolina is the designated lead state per an agreement in bridge file. **Code 37.**	10099	

Section 1: Bridge Identification
Subsection 1.1: Identification
Subsection 1.2: Location
B.L.01 State Code
B.L.02 County Code
B.L.03 Place Code
B.L.04 Highway Agency District
B.L.05 Latitude
B.L.06 Longitude
B.L.07 Border Bridge Number
B.L.08 Border Bridge Code
B.L.09 Border Bridge Responsibility
B.L.10 Border Bridge Lead State
B.L.11 Bridge Location
B.L.12 Metro Planning Organization
Subsection 1.3: Classification
Section 2: Bridge Material and Type
Section 3: Bridge Geometry
Section 4: Features
Section 5: Loads, Rating, and Posting
Section 6: Inspections
Section 7: Bridge Condition
Section 8: State Bridge Inventory Fields
Appendix S1: Component Condition
Appendix S2: Timber Element and Defect
Appendix S3: Element Coding
Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Border Bridge Designated Lead State

Format	Frequency	Item ID Number	Item Ownership
N (2,0)	I	B.L.10	BMO
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Admin Data	Location Information	Bridge	BorderDesgnatedLeadState

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
45 - South Carolina	The bridge crosses the border between Georgia and South Carolina. South Carolina is the designated lead state per an agreement in bridge file. **Code 45.**	02288	

Section 1: Bridge Identification
Subsection 1.1: Identification
Subsection 1.2: Location
B.L.01 State Code
B.L.02 County Code
B.L.03 Place Code
B.L.04 Highway Agency District
B.L.05 Latitude
B.L.06 Longitude
B.L.07 Border Bridge Number
B.L.08 Border Bridge Code
B.L.09 Border Bridge Responsibility
B.L.10 Border Bridge Lead State
B.L.11 Bridge Location
B.L.12 Metro Planning Organization
Subsection 1.3: Classification
Section 2: Bridge Material and Type
Section 3: Bridge Geometry
Section 4: Features
Section 5: Loads, Rating, and Posting
Section 6: Inspections
Section 7: Bridge Condition
Section 8: State Bridge Inventory Fields
Appendix S1: Component Condition
Appendix S2: Timber Element and Defect
Appendix S3: Element Coding
Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Bridge Location

Format	Frequency	Item ID Number	Item Ownership
AN (300)	I	B.L.11	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Bridge List View Bridge	Location Data	Bridge	BridgeLocation

FHWA Specification and SCDOT Markups	FHWA Commentary and SCDOT Markups
Report a narrative description of the bridge location.	It is preferred that the narrative describe the location and distance of the bridge from a distinguishable feature along the same route the bridge carries. Include additional information as needed to locate the bridge. Distinguishable features should be on official highway department, State, local, or Federal agency maps. *[Report a narrative description of the bridge location using geographical references such as cities/towns, county lines, and highway junctions. When using a distance from a geographical reference, the following format shall be used: "##.# MI X OF REFERENCE"; where '##.#' is the mileage from the reference, 'X' is the cardinal direction (i.e. S or NW) from the reference, and 'REFERENCE is the name of the reference without abbreviations.]*

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
6.0 MI NW OF ABBEVILLE	The bridge is not located at a geographical reference. Since Abbeville is the closest city, use Abbeville as the geographical reference and record this distance in miles and cardinal direction from the city to the bridge. **Code 6.0 MI NW OF ABBEVILLE**	01277	
TOWN OF MYRTLE BEACH	The bridge is located within the geographical reference (a town). Mileage and cardinal direction is not needed. **Code TOWN OF MYRTLE BEACH**	03330	

Section 1: Bridge Identification
Subsection 1.1: Identification
Subsection 1.2: Location
B.L.01 State Code
B.L.02 County Code
B.L.03 Place Code
B.L.04 Highway Agency District
B.L.05 Latitude
B.L.06 Longitude
B.L.07 Border Bridge Number
B.L.08 Border Bridge Code
B.L.09 Border Bridge Responsibility
B.L.10 Border Bridge Lead State
B.L.11 Bridge Location
B.L.12 Metro Planning Organization
Subsection 1.3: Classification
Section 2: Bridge Material and Type
Section 3: Bridge Geometry
Section 4: Features
Section 5: Loads, Rating, and Posting
Section 6: Inspections
Section 7: Bridge Condition
Section 8: State Bridge Inventory Fields
Appendix S1: Component Condition
Appendix S2: Timber Element and Defect
Appendix S3: Element Coding
Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Metropolitan Planning Organization

Format	Frequency	Item ID Number	Item Ownership
AN (300)	I	B.L.12	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Bridge List View Bridge	Location Data	Bridge	MetroPlanningOrg

FHWA Specification and SCDOT Markups

Report the name(s) of the Metropolitan Planning Organization(s) in which the bridge is located, regardless of bridge owner or maintenance responsibility.

Report each MPO when the bridge is located on a boundary between MPOs. Report multiple MPOs separated by pipe (|) delimiters. Report N if Bridge is not located in an MPO.

[The list of MPOs is included in the table below:

Acronym	*Entity Name*	*Location*
ACATS	*Anderson-Clemson Area Transportation Study*	*Anderson*
ARTS	*Augusta Regional Transportation Study*	*Augusta (GA) (from GDOT)*
CHATS	*Charleston Area Transportation Study*	*Charleston*
COATS	*Columbia Area Transportation Study*	*Columbia*
FLATS	*Florence Area Transportation Study*	*Florence*
GPATS	*Greenville-Pickens Area Transportation Study*	*Greenville*
GSATS	*Grand Strand Area Transportation Study*	*Georgetown*
LATS	*Lowcountry Area Transportation Study*	*Yemassee*
RFATS	*Rock Hill-Fort Mill Area Transportation Study*	*Rock Hill*
SPATS	*Spartanburg Area Transportation Study*	*Spartanburg*
SUATS	*Sumter Area Transportation Study*	*Sumter*

FHWA Commentary and SCDOT Markups

This item only needs to be reported if a highway carried by the bridge is on the National Highway System, as indicated in Item B.H.03 (NHS Designation).

If the State transportation department and its MPOs have established a numeric or alphanumeric identification system for MPOs, that identifier can be used to report this item if it is used consistently.

This item can be used to assist in calculating MPO performance measures and targets required by the National Performance Management Measures regulation.

The names of Regional Planning Organizations (RPOs) or single county planning organizations do not need to be reported for this item. The National Performance Management Measures regulation only applies to MPOs and not RPOs.

[COGs are a network of Councils of Governments. COGs, particularly those in rural areas, may not be within MPO. COGs are created by SCDOT and are not reported to FHWA.

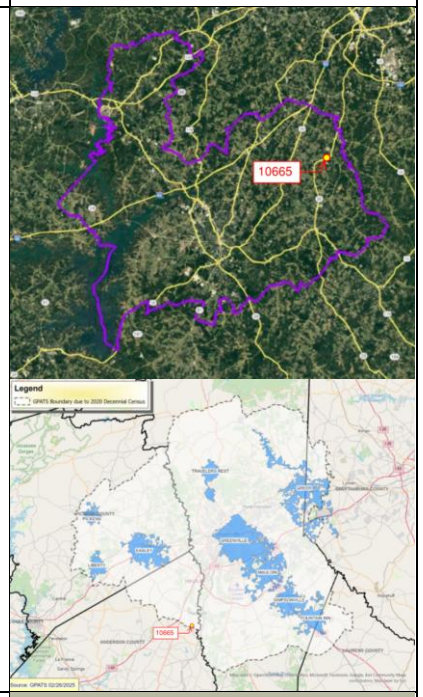
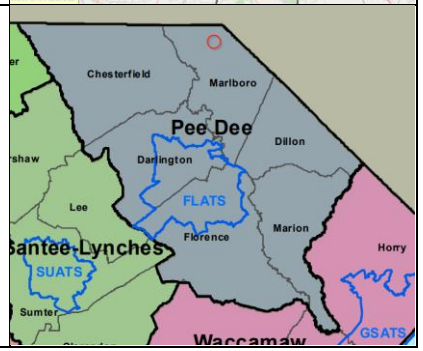
It is possible that a bridge may have two unique MPOs values.]

Section 1: Bridge Identification
Subsection 1.1: Identification
Subsection 1.2: Location
B.L.01 State Code
B.L.02 County Code
B.L.03 Place Code
B.L.04 Highway Agency District
B.L.05 Latitude
B.L.06 Longitude
B.L.07 Border Bridge Number
B.L.08 Border Bridge Code
B.L.09 Border Bridge Responsibility
B.L.10 Border Bridge Lead State
B.L.11 Bridge Location
B.L.12 Metro Planning Organization
Subsection 1.3: Classification
Section 2: Bridge Material and Type
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Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Metropolitan Planning Organization (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (300)	I	B.L.12	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Bridge List View Bridge	Location Data	Bridge	MetroPlanningOrg

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
ACATS|GPATS	The bridge is located within the borders of two MPOs, the Anderson-Clemson Area Transportation Study and the Greenville-Pickens Area Transportation Study. **Code ACATS|GPATS.**	10665	
N	The bridge is not located within any MPO. The bridge is located in the Pee Dee Council of Governments. **Code N.**	05987	

Section 1: Bridge Identification
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Owner

Format	Frequency	Item ID Number	Item Ownership
AN (4)	I	B.CL.01	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Bridge List View Bridge	Classification	Bridge	Owner

FHWA Specification and SCDOT Markups

Report the agency that has ownership of the bridge using one of the following codes.

Code	Description
S01	State transportation department
S02	State park, forest, or reservation agency
SX	Other State agency
L01	County highway agency
L02	Town or township highway agency
T	Transit agency/authority
P	Private
R	Railroad
U	Unknown
X	Other

[Only applicable codes are included above for bridges coded by SCDOT. See SNBI for a complete list.]

FHWA Commentary and SCDOT Markups

Use the hierarchy of State, Federal, county, city, railroad, and other private entity for multiple owners of a bridge.

Use code T for transit agency or authority for air, bus, light rail, and port regardless of whether the entity is considered State, local, or private.

Use code P for private owners other than railroad or transit.

Use code R for highway bridges owned by railroad entities that are not considered a transit agency or authority.

[While the terms "city" and "town" are often used interchangeably, there is no legal distinction between them in South Carolina. South Carolina Code of Laws uses the defined term as "municipality". Use code L02 for any bridge owned by a municipality (a city or town) and not owned by a county.]

Examples

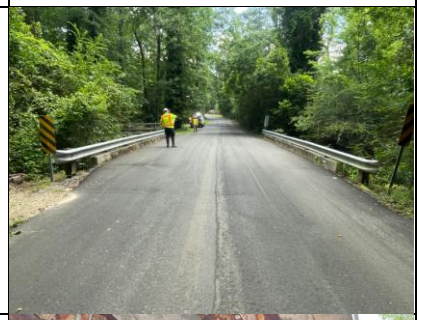
CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
S01 - State transportation department	The bridge is owned by SCDOT. **Code S01.**	00349	

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Format	Frequency	Item ID Number	Item Ownership
AN (4)	I	B.CL.01	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Bridge List View Bridge	Classification	Bridge	Owner

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
S02 - State park, forest, or reservation agency	The bridge is owned by the State of South Carolina, inside Barnwell State Park. **Code S02.**	04464	
L01 - County highway agency	This bridge is owned by Anderson County, the bridge carries Route C-4-2138. **Code L01.**	01786	
L02 - Town or township highway agency	This bridge is owned by the City of Greenville, the bridge carries Route L-23-478. **Code L02.**	02739	

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Format	Frequency	Item ID Number	Item Ownership
AN (4)	I	B.CL.01	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Bridge List View Bridge	Classification	Bridge	Owner

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
T - Transit agency/authority	This bridge is owned by the South Carolina Ports Authority, the bridge carries a truck only route between port facilities. The bridge is owned by a state authority, use 'Authority' code per the SNBI. **Code T.**	11042	
P - Private	The bridge is owned by a private company over an SCDOT roadway. The bridge is not reported to FHWA. **Code P.**	10590	

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Maintenance Responsibility

Format	Frequency	Item ID Number	Item Ownership
AN (4)	I	B.CL.02	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Bridge List View Bridge	Classification	Bridge	MaintenanceResponsibility

FHWA Specification and SCDOT Markups	FHWA Commentary and SCDOT Markups
Report the agency that has primary maintenance responsibility for the bridge using one of the codes listed in Item B.CL.01 (Owner).	Use the hierarchy of State, Federal, county, city, railroad, and other private entity for determining primary responsibility for maintenance of a bridge.

Federal or Tribal Land Access

Format	Frequency	Item ID Number	Item Ownership
AN (30)	I	B.CL.03	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Bridge List View Bridge	Classification	Bridge	LandAccess

FHWA Specification and SCDOT Markups	FHWA Commentary and SCDOT Markups
Report the Federally managed and/or Indian Tribal Government lands using one or more of the following codes, for the bridge owned by a State or local agency and carrying a highway that leads to or traverses through the Federal or Tribal lands. Code — Description N — Not applicable *[Only applicable codes are included above for bridges coded by SCDOT. See SNBI for a complete list.]*	This item is used to identify bridges owned by State or local agencies on highways that lead to and/or traverse through any Federally managed land or Tribal government property. These bridges may be eligible to receive funding from the Federal Lands Access Program under 23 U.S.C. 204. For assistance in locating Federal properties, contact Federal Lands Highway at: https://highways.dot.gov/federal-lands/about/contacts *[All bridges inspected by SCDOT shall use code N.]*

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Historic Significance

Format	Frequency	Item ID Number	Item Ownership
AN (1)	I	B.CL.04	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Bridge List View Bridge	Classification	Bridge	HIstoricalSignificance

FHWA Specification and SCDOT Markups

Report the historic significance of the bridge using one of the following codes.

Code	Description
1	Bridge is on the National Register
2	Bridge is eligible for the National Register
3	Bridge is in a historic district that is on or eligible for the National Register, and contributes to the eligibility of the district
4	Bridge is in a historic district that is on or eligible for the National Register, but does not contribute to the eligibility of the district
5	Bridge is potentially eligible for the National Register, or potentially contributes to a historic district, but has not been evaluated according to the criteria for listing
6	Bridge is on a State or local historic register, but is not eligible for the National Register
7	Historic significance of the bridge has not been determined
N	Bridge is not eligible for the National Register, and is not in a historic district eligible for the National Register

FHWA Commentary and SCDOT Markups

This item is used to report the historic significance of bridges. Bridges that are historically significant are subject to Section 106 of the National Historic Preservation Act of 1966, and 36 CFR 800 (Protection of Historic Properties). 36 CFR 800 governs the Section 106 process, and outlines how agencies are to consult with various parties, identify historic properties, and assess the effects of undertakings to properties.

Undertakings to historically significant bridges or their surroundings are also subject to Section 4(f) of the Department of Transportation Act of 1966, and 23 CFR Part 774 (Parks, Recreation Areas, Wildlife and Waterfowl Refuges, and Historic Sites). 23 CFR Part 774 governs the Section 4(f) process, considers how the property is used as a resource, and outlines the project approval process when undertakings are proposed.

36 CFR Part 70 (National Register of Historic Places) identifies the attributes that may make a property historically significant, and prescribes the evaluation criteria and procedures for listing properties on the National Register.

Determinations of eligibility are generally not made with the purpose of eventual listing on the National Register of Historic Places. Rather, the evaluation criteria for listing is used to assess historical significance with the purpose of assessing the effects of undertakings, and to fulfill the goals of 23 USC 144(g) Historic Bridges. Determinations of eligibility are normally made by the relevant federal agency, typically FHWA for highway bridges, and can change when circumstances or conditions change, such as age or bridge integrity. As such, the eligibility status and reported code can change with time.

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Historic Significance (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (1)	I	B.CL.04	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Bridge List View Bridge	Classification	Bridge	HistoricalSignificance

FHWA Specification and SCDOT Markups	FHWA Commentary and SCDOT Markups
	Use code 2 when the bridge has been determined to be eligible for listing on the National Register even though the nomination and listing process have not concluded or are not being pursued. Use code 5 when the bridge has attributes that may make it historically significant as indicated by the National Register criteria for evaluation and listing. This code may also apply when a bridge was previously evaluated but requires reevaluation because its current attributes, such as age, may make it historically significant. Use code 6 when a bridge has local historic value, but has been determined to be not eligible for the National Register. Undertakings may be subject to the Section 4(f) process, but without the same level of consultation as prescribed by Section 106. Use code N when the other codes do not apply.

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
1 - Bridge is on the National Register	The bridge is listed on the National Register. **Code 1.**	00258	

Section 1: Bridge Identification
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Historic Significance (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (1)	I	B.CL.04	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Bridge List View Bridge	Classification	Bridge	HIstoricalSignificance

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
2 - Bridge is eligible for the National Register	The bridge is eligible for the National Register. **Code 2.**	00085	
7 - Historic significance of the bridge has not been determined	Historic significance of the bridge has not been determined. **Code 7.**	00096	

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Toll

Format	Frequency	Item ID Number	Item Ownership
AN (1)	I	B.CL.05	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Bridge List View Bridge	Classification	Bridge	Toll

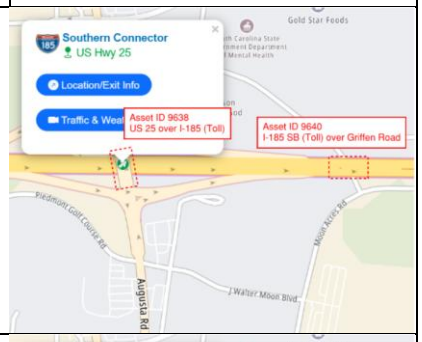
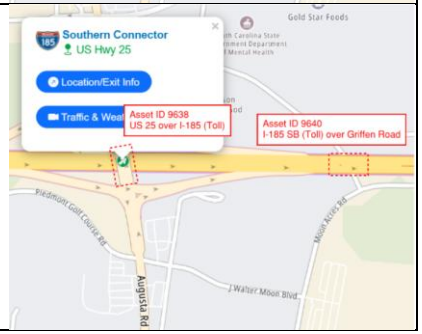
FHWA Specification and SCDOT Markups	FHWA Commentary and SCDOT Markups
Report the toll status of the bridge using one of the following codes. Code Description 1 Toll bridge not under FHWA Toll Agreement 2 Toll bridge under FHWA Toll Agreement 3 Bridge carries a toll road not under FHWA Toll Agreement 4 Bridge carries a toll road under FHWA Toll Agreement N Bridge does not carry a toll road and is not a toll bridge Report this item if only a portion of the bridge is tolled such as if an HOV Toll lane is on the same bridge as a freeway.	Use code 1 when tolls on a toll bridge are paid specifically to use the bridge and not part of a facility which requires an FHWA Toll Agreement (23 U.S.C. 129). Use code 2 when an interstate highway toll bridge is under a FHWA Toll Agreement (23 U.S.C. 129). Bridge has a separate agreement from the highway segment. Use code 3 when the tolls on a toll road are paid to use the facility, which includes the roadway and the bridge. No FHWA Toll Agreement or unknown whether a toll agreement exists. Use code 4 when the bridge is on an Interstate toll highway segment under a FHWA Toll Agreement (23 U.S.C. 129). Bridge is a part of the toll segment. More tolling program information related to 23 U.S.C. 129 can be found at: https://www.fhwa.dot.gov/ipd/tolling_and_pricing/ and in the FHWA Informational Memorandum - Federal Tolling Programs under the Moving Ahead for Progress in the 21st Century Act. *[In South Carolina, the only toll road is the Southern Connector, which is a section of I-185 near Greenville. It connects I-85 to I-385. The bridges carrying the Southern Connector are not toll bridges, but they do carry a toll road which is not under a Section 129 FHWA Toll Agreement so code these as a '3'.]*

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Appendix S6: Damage Defect Coding

Toll (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (1)	I	B.CL.05	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Bridge List View Bridge	Classification	Bridge	Toll

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
3 - Bridge carries a toll road not under FHWA Toll Agreement	The bridge carries I-185 (Southern Connector Toll Road) over Griffen Road. The Southern Connector is not under the Section 129 FHWA Toll Agreement. **Code 3.**	09640	
N - Bridge does not carry a toll road and is not a toll bridge	The bridge carries US 25 over I-185 (Southern Connector, Toll Road). Toll road is below bridge. **Code N.**	09638	

Section 1: Bridge Identification
Subsection 1.1: Identification
Subsection 1.2: Location
Subsection 1.3: Classification
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Emergency Evacuation Designation

Format	Frequency	Item ID Number	Item Ownership
AN (1)	I	B.CL.06	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Bridge List View Bridge	Classification	Bridge	EvacuationDesignation

FHWA Specification and SCDOT Markups

Report whether the route carried on the bridge is an emergency evacuation route using one of the following codes.

Code	Description
N	Not an Emergency evacuation route.
Y	Emergency evacuation route.

FHWA Commentary and SCDOT Markups

This item is used by FHWA with other items, as per 23 U.S.C. 144(b), to classify bridges according to serviceability, safety, and essentiality for public use and considers the potential impacts to emergency evacuation routes and to regional and national freight and passenger mobility if the serviceability of the bridge is restricted or diminished.

Emergency evacuation routes may be designated for various events such as hurricanes, earthquakes, tsunami, dam failure, and other hazardous events.

Refer to the State Emergency Management Agency for designated emergency evacuation routes.

[SCDOT maintains maps showing routes involved in the evacuation route.
https://www.scdot.org/travel/travel-emergencyresponse.html

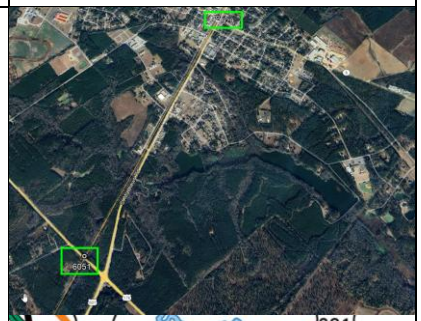
If a bridge is carrying a highway that is not an emergency evacuation route over an emergency evacuation route, use code N since the route on the bridge is not an emergency evacuation route. This is common on overpass bridges on interstates involved in the state's evacuation procedure.]

Section 1: Bridge Identification
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Emergency Evacuation Designation (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (1)	I	B.CL.06	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Bridge List View Bridge	Classification	Bridge	EvacuationDesignation

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
N - Not an emergency evacuation route	SC 6 passing through St. Matthews in Orangeburg County is not an emergency evacuation route. Asset ID 01929 carries SC 6 over RR Norfolk Southern. **Code N.**	01929	
Y - Emergency evacuation route	US 176 passing south of St. Matthews in Orangeburg County is an emergency evacuation route. Asset ID 06051 carries US 176 over RR Norfolk Southern. **Code Y.**	06051	
N - Not an emergency evacuation route	White I-26 under the bridge is an evacuation route, S-8-535|ROYLE ROAD carried on the bridge is not an evacuation route. **Code N.**	03604	

Section 1: Bridge Identification
Section 2: Bridge Material and Type
Subsection 2.1: Span Material & Type
B.SP.01 Span Configuration Design
B.SP.02 Number of Spans
B.SP.03 Number of Beam Lines
B.SP.04 Span Material
B.SP.05 Span Continuity
B.SP.06 Span Type
B.SP.07 Span Protective System
B.SP.08 Deck Interaction
B.SP.09 Deck Material & Type
B.SP.10 Wearing Surface
B.SP.11 Deck Protective System
B.SP.12 Deck Reinforcing System
B.SP.13 Deck Stay-In-Place Forms
Subsection 2.2 Substructure
Subsection 2.3: Roadside Hardware
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Span Configuration Designation

Format	Frequency	Item ID Number	Item Ownership
AN (3)	I	B.SP.01	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Superstructure	SuperSet	SpanConfiguration

FHWA Specification *[and SCDOT Markups]*

Report the assigned span configuration designation *[for each span configuration]* using one of the following codes.

[Approach spans configurations, widening configurations, and culvert extension configurations shall be used when any data item listed below is different from the other configurations:

- *Span Material (B.SP.04)*
- *Span Continuity (B.SP.05)*
- *Span Type (B.SP.06)]*

Code	Description
M##	Main
A##	Approach
C##	Culvert
V##	Culvert extension
W##	Widening

Replace the ## characters in the above codes with sequential numbers, with leading zeros, assigned to each span configuration *[starting with 01]*.

Replacing the "##" characters in the codes with a sequential number (e.g., M01, A01, A02, etc.) identifies each unique span configuration present on the bridge.

[Layout, or proximity of a span configuration does not require all members of the same span configuration to be located next to each other. Bridges that were previously two bridges and filled in or widened, can share the same span configuration.]

FHWA Commentary *[and SCDOT Markups]*

This item captures how the spans of the reported bridge configuration are classified and designated.

Except for culverts, each bridge has at least one main span. Main spans include all spans of most bridges or the major span(s) of a sizable bridge. *[It is rare to have a bridge with more than one main span.]*

A bridge may or may not have approach spans. Approach spans are typically those of a different material, type, or design *[continuity]* than the main span and are typically at one or both ends of the main span.

Consider the span(s) of vaulted abutments as an approach span.

Use code C for spans that convey water through or under a roadway embankment and are designed hydraulically to take advantage of submergence to increase water carrying capacity. *[The use of the culvert span configuration designation shall only be used if the bridge matches the definition of a culvert, see BIGD Chapter 1. Record another span configuration (i.e. M01, when coding a concrete frame or other "culvert"-like structures where there is no Waterway or Relief for Waterway Feature (B.F.01) under the bridge.]*

Use code V when a culvert is extended using dissimilar construction.

[C## and V## cannot be used for frames. M##, A##, or W## can be used for frames which have decks, superstructures, and substructures.]

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Subsection 2.1: Span Material & Type
B.SP.01 Span Configuration Design
B.SP.02 Number of Spans
B.SP.03 Number of Beam Lines
B.SP.04 Span Material
B.SP.05 Span Continuity
B.SP.06 Span Type
B.SP.07 Span Protective System
B.SP.08 Deck Interaction
B.SP.09 Deck Material & Type
B.SP.10 Wearing Surface
B.SP.11 Deck Protective System
B.SP.12 Deck Reinforcing System
B.SP.13 Deck Stay-In-Place Forms
Subsection 2.2 Substructure
Subsection 2.3: Roadside Hardware
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Span Configuration Designation (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (3)	I	B.SP.01	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Superstructure	SuperSet	SpanConfiguration

FHWA Specification *[and SCDOT Markups]*	FHWA Commentary *[and SCDOT Markups]*
	Use code W for widened portions of main or approach spans with dissimilar construction *[and when the widening occurs at a later time, separate from the construction of the main or approach span configuration.]* Widening data sets do not contribute to the calculation of the total number of spans for the bridge. *[A bridge may have multiple span configurations sets of widened portions but a single widened span configuration shall be used for widenings occurring at the same time as long as the Span Material (B.SP.04), Span Continuity (B.SP.05), and Span Type (B.SP.06) all match.]*

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
M01 – Main Span Set 01	For the main span configuration, precast AASHTO beams of the same material, same continuity, and same type. **Code M01**	09447	
M01 – Main Span Set 01	For the main span configuration, concrete frame; do not use Culvert (C) or Culvert Extension (V) since the structure does not have a waterway feature. **Code M01**	02413	

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Format	Frequency	Item ID Number	Item Ownership
AN (3)	I	B.SP.01	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Superstructure	SuperSet	SpanConfiguration

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
M01 – Main Span Set 01	For the main span configuration, the original span and widening are both reinforced concrete tee beams of the same material, same continuity, and same type**. Code M01**	00008	
M01 – Main Span Set 01	For the main span configuration, continuous center spans and continuous tail spans are both steel girders of the same material, same continuity, and same type. **Code M01**	01287	
M01 – Main Span Set 01 - A01 – Approach Span Set 01 - W01 – Widening Set 01	The main span, approach span, and the widening do not have all the same material and type. The main span configuration has steel beams. **Code M01** The approach span configuration has original tee beams. **Code A01** The widening extends both sides the approach spans with a concrete slab. **Code W01**	00356	

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Format	Frequency	Item ID Number	Item Ownership
AN (3)	I	B.SP.01	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Superstructure	SuperSet	SpanConfiguration

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
M01 – Main Span Set 01 - W01 – Widening Set 01	The main span and the widening do not have both the same material and type. The main span configuration has steel beams. **Code M01** The widening extends both sides of the main spans with a concrete slab. **Code W01**	00513	
M01 – Main Span Set 01 - A01 – Approach Span Set 01	The main span and the widening do not have both the same type. The main span configuration is a movable span (bascule). **Code M01** The approach span configuration has fixed girders. **Code A01**	02303	
M01 – Main Span Set 01 - W01 – Widening Set 01	The main span and the widening do not have both the same type. Note that the original bridge and the first "widening" were both simply supported, concrete tee beams so they are considered part of the same span set. The main span configuration has reinforced concrete tee beams for the original construction and the first "widening". **Code M01** The widening extends both sides of the main spans with a concrete slab. **Code W01**	00885	
M01 – Main Span Set 01 - W01 – Widening Set 01	The main span and the widening do not both have the same material and type. The bridge was originally two parallel reinforced concrete tee beam bridges. The two original parallel bridges were widened in the middle and on the outsides to form the current configuration. The main span configuration has reinforced concrete tee beams for the original construction, as two bridges. **Code M01** The widening extends both sides of the main spans with steel beams and fills in the space between the two original concrete structures. **Code W01**	03024	

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Format	Frequency	Item ID Number	Item Ownership
AN (3)	I	B.SP.01	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Superstructure	SuperSet	SpanConfiguration

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
C01 – Culvert Set 01	For the culvert configuration over water, concrete arch culvert of the material, same continuity, and same type. **Code C01**	00816	
C01 – Culvert Set 01	For the culvert configuration over water, concrete arch culvert of the material, same continuity, and same type. **Code C01**	10167	
C01 – Culvert Set 01 - V01 – Culvert Extension Set 01	The culvert and the culvert extension do not have both the same type. The culvert configuration over water has a concrete arch. **Code C01** The culvert extension configuration over water has a three-barrel culvert. **Code V01**	01653	

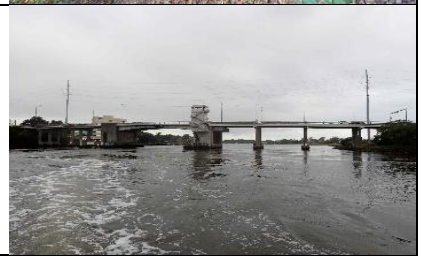
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Number of Spans

Format	Frequency	FHWA NBIS Item ID	Item Ownership
N (4,0)	I	B.SP.02	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Superstructure	SuperSet	NumberOfSpans

FHWA Specification *[and SCDOT Markups]*	FHWA Commentary *[and SCDOT Markups]*
Report the number of spans *[in the specific span configuration]*.	This item captures the number of spans of the *[span]* configuration(s) designated in item B.SP.01 (Span Configuration Designation). If the number of barrels or spans varies *[in the specific span configuration]*, report the maximum number. *[The installation of saddles, crutch beams/bents, and other supports that may move the bearing line and create short "spans" shall not be considered when determining the number of spans unless the girders/beams are replaced, or original girders/beams or bearing centerlines have been revised; this is rare.]*

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
14 (M01)	14-span prestressed concrete girder bridge. Main span configuration (M01): **Code 14**	09447	
1 (M01) - 10 (A01)	11-span bridge, 1 bascule span in the main span configuration and 10 spans in the approach span configuration Main span configuration (M01): **Code 1** Approach span configuration (A01): **Code 10**	02303	

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Format	Frequency	FHWA NBIS Item ID	Item Ownership
N (4,0)	I	B.SP.02	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Superstructure	SuperSet	NumberOfSpans

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
6 (M01) - 51 (A01) - 51 (W01)	57-span bridge, 6 spans in the main span configuration and 51 spans in the approach span configuration. Widening in approaches only. Main span configuration (M01): **Code 6** Approach span configuration (A01): **Code 51** Widening configuration (W01): **Code 51**	00356	
16 (M01) - 16 (W01)	16-span steel girder bridge with concrete slab widening (ignore short "spans" created by crutch beams). Main span configuration (M01): **Code 16** Widening configuration (W01): **Code 16**	01067	
4 (M01) - 4 (W01)	14-span bridge, 4 spans in the main span configuration, widening in main span. Main span configuration (M01): **Code 4** Widening configuration (W01): **Code 4**	03024	

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Format	Frequency	FHWA NBIS Item ID	Item Ownership
N (4,0)	I	B.SP.02	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Superstructure	SuperSet	NumberOfSpans

10 (M01) - 10 (W01)	10-span bridge, 10 spans in the main span configuration, widening in main span. Main span configuration (M01): **Code 4** Widening configuration (W01): **Code 4**	00513	

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
3 (M01)	3-span delta and K-shaped frame hybrid. Main span configuration (M01): **Code 3**	06816	
3 (C01)	Three-barrel culvert configuration (C01): **Code 3**	00247	
4 (C01)	Four-barrel pipe culvert configuration (C01): **Code 4**	05210	

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Format	Frequency	FHWA NBIS Item ID	Item Ownership
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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Superstructure	SuperSet	NumberOfSpans

1 (C01) - 3 (V01)	Original arch culvert (in background) has 1 span. Extension of culvert is three-barrel frame (in foreground) added to each side. Culvert configuration (C01): **Code 1** Culvert extension configuration (V01): **Code 3**	02895	

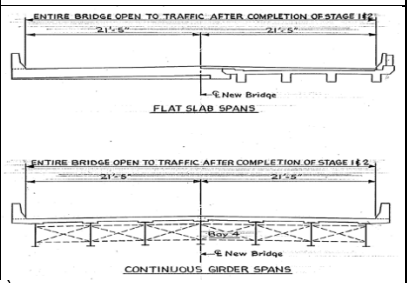
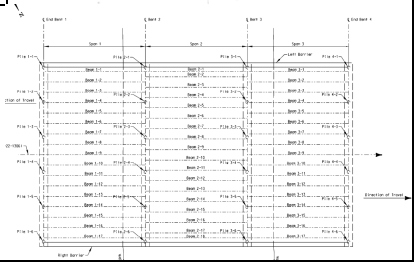
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Number of Beam Lines

Format	Frequency	Item ID Number	Item Ownership
N (3,0)	I	B.SP.03	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Superstructure	SuperSet	NumberOfBeamLines

FHWA Specification *[and SCDOT Markups]*	FHWA Commentary *[and SCDOT Markups]*
Report the number of principal beam lines *[in each span configuration]*. *[Culverts (Frames), Arches and Slab Span configurations]:* Report 1 for bridges where Item B.SP.06 *(Span Type)* is F01 *[Frame – Three-Sided]*, F02 *[Frame – Four-Sided]*, *[A01 Arch – Under fill without spandrel, A02 Arch – open spandrel, A03 Arch – Closed spandrel, A04 Arch – Through, A05 Arch – Tied,]* S01 *[Slab – Solid]*, or S02 *[Slab – Voided]*. *[Rigid or Flexible Pipe Span Sets]:* Report 0 for bridges where Item B.SP.06 *(Span Type)* is P01 *[Pipe – Rigid]* or P02 *[Pipe – Flexible]*.	Principal beam lines include the main longitudinal load-carrying members of the superstructure such as beams, girders, trusses, and arches or arch ribs, but do not include stringers of a floor beam system or spandrel walls of an arch. Use the average number of beam lines for bridges with variable number of beam lines within a span configuration, rounded down. *[Consider spans of Precast Panels (i.e. H-10, H-15, H-20 slabs) as Slab Spans, use 1 for B.SP.03. The number of precast panels across the cross section is recorded as:* • *SC.G.14 - Number of Precast Panels (Approach)* • *SC.G.15 - Number of Precast Panels (Main)]*

Examples

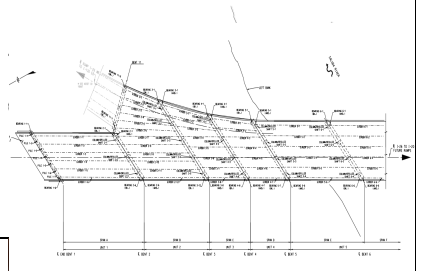
CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
7 (M01) - 4 (A01) - 1 (W01)	The main span configuration has 7 beam lines. The approach span configuration has 4 beam lines. The widening is concrete slabs, so 1 beam line. Main span configuration (M01): **Code 7** Approach span configuration (A01): **Code 4** Widening configuration (W01): **Code 1**	00356	
17 (M01)	For the main span configuration (M01), a different number of timber beams is in each of the 3 spans. Span 1 has 17 beams, Span 2 has 18 beams, and Span 3 has 17 beams. Use average number of beam lines across spans; $\frac{2(17)+(18)}{3} = 17.33$, rounded down. Main span configuration (M01): **Code 17**	10024	

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Format	Frequency	Item ID Number	Item Ownership
N (3,0)	I	B.SP.03	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Superstructure	SuperSet	NumberOfBeamLines

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
2 (M01)	The main span configuration is a steel truss (single span) and 2 truss lines. Main span configuration (M01): **Code 2**	00810	
7 (M01)	For the main span configuration (M01), the number of prestressed concrete girders in each span varies; 6 spans with 6 beams each and 3 flared spans with 7, 8 and 12 beams. Use average number of beam lines across spans; $\frac{6(6)+(7)+(8)+(12)}{9} = 7$, rounded down. Main span configuration (M01): **Code 7**	10658	
1 (M01) - 2 (W01)	The main span configuration has 1 beam line for the concrete arch. The widening is 2 reinforced concrete tee beams on each side of the arch. For the main span configuration (M01) **Code 1** For the widening configuration (W01) **Code 2**	01140	
1 (M01)	For the main span configuration (M01), the bridge has 6 adjacent precast panels. Use 1 for slabs. For the main span configuration (M01) **Code 1**	06716	

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Format	Frequency	Item ID Number	Item Ownership
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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Superstructure	SuperSet	NumberOfBeamLines

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
12 (M01)	For the main span configuration (M01), the bridge has 12 adjacent precast SCDOT hollow core slabs. Hollow core slabs are considered Prestressed Concrete Closed Girders, use 12 for beam lines. For the main span configuration (M01) **Code 12**	01978	
0 (C01)	Corrugated steel pipe culvert. Use 0 for pipes. For the culvert configuration (001) **Code 1**	08303	
1 (C01)	Four-sided concrete box culvert with three spans. Use 1 for frames. For the culvert configuration (001) **Code 1**	00157	
1 (C01)	Three-sided concrete box culvert with one span. Single span has 8 adjacent pre-cast frame segments. Use 1 for frames. For the culvert configuration (001) **Code 1**	00363	

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N (3,0)	I	B.SP.03	BI
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Inspection Data	Component Appraisal Superstructure	SuperSet	NumberOfBeamLines

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
4 (M01) - 2 (W01)	For the main span configuration (M01), the bridge has 4 steel beam lines. The widening (W01) has 2 reinforced concrete slabs. For the main span configuration (M01) **Code 4** For the widening configuration (W01) **Code 2**	00513	

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FHWA Specification *[and SCDOT Markups]*

Report the span material type using one of the following codes. *[This field is one of several that determines span configuration designation (B.SP.01). Spans with different materials will require separate span configuration designations.]*

Code	Description
A01	Aluminum
C01	Reinforced concrete – cast-in-place
C02	Reinforced concrete – precast
C03	Prestressed concrete – pre-tensioned
C04	Prestressed concrete – cast-in-place post-tensioned
C05	Prestressed concrete – precast post-tensioned
CX	Concrete – other
M01	Masonry – block
M02	Masonry – stone
P01	Plastic – polyethylene
S01	Steel – rolled shapes
S02	Steel – welded shapes
S03	Steel – bolted shapes
S04	Steel – riveted shapes
S05	Steel – bolted and riveted shapes
SX	Steel – other

FHWA Commentary *[and SCDOT Markups]*

A principal span member includes the main longitudinal load-carrying members of the span such as beams, girders, trusses, arches, or pipes, but does not include the floor system.

Use code C04 or C05, as applicable, for prestressed concrete superstructures that utilize both pre-tensioning and post-tensioning.

Use code M01 for masonry made from bricks or concrete blocks. Use code M02 for natural stone.

Use code P01 for plastics that include HDPE and PE materials typically used for pipes.

[For varying material types in the same span configuration, use the predominate material. For example, the same span configuration with exterior steel girders that are bolted shapes and with interior steel girders that are rolled shapes; use the predominate material in the span configuration.

Use code X if the material mixes parent materials evenly without a clear predominate material. Such as 8 beams, 4 steel girders and 4 timber beams. This code is rare.

If the material is unknown after a review of bridge information, contact the BMO.

This item refers specifically to the deck/superstructure for slab spans and pipes.]

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Inspection Data	Component Appraisal Superstructure	SuperSet	Span Material

FHWA Specification *[and SCDOT Markups]*	FHWA Commentary *[and SCDOT Markups]*

Code	Description
T01	Timber – glue laminated
T03	Timber – solid sawn
T04	Timber – stress laminated
TX	Timber – other
X	Other

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
A01 – Aluminum	Culvert configuration (C01) is corrugated aluminum pipe. **Code A01**	05210	
S02 – Steel Welded Shapes (M01) - C01 – Reinforced Concrete Cast-in-Place (A01) - C01 – Reinforced Concrete Cast-in-Place (W01)	Main span configuration (M01) is built-up steel girders. **Code S02** Approach span configuration (A01) is concrete tee beams. **Code C01** Widening configuration (W01) is flat concrete slabs. **Code C01**	00356	

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AN (3)	I	B.SP.04	BI
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Inspection Data	Component Appraisal Superstructure	SuperSet	Span Material

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
C01 – Reinforced Concrete Cast-in-Place (M01) - S01 – Steel Rolled Shapes (W01)	Main span configuration (M01) is cast-in-place concrete tee beam. **Code C01** Widening configuration (W01) is rolled steel beams. **Code S01**	01005	
C02 – Reinforced Concrete Precast	Main span configuration (M01) is precast panels. The panels have been strengthened with bonded FRP. Even though there are mixed materials, precast concrete is the predominate member. **Code C02**	06841	
C03 – Prestressed Concrete – Pre-Tensioned	Main span configuration (M01) is prestressed concrete beams. **Code C03**	01749	
C03 – Prestressed Concrete – Pre-Tensioned	Main span configuration (M01) is prestressed concrete; SCDOT hollow core slabs have prestressing strands but the slabs are not post-tensioned. **Code 1**	01978	

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Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
C05 – Prestressed Concrete – Precast Post-Tensioned	Main span configuration (M01) is precast post-tensioned concrete box girders. **Code C05**	08235	
M01 – Masonry – Block	Main span configuration (M01) is masonry brick arch. **Code M01**	10167	
S01 – Steel – Rolled Shapes	Main span configuration (M01) is rolled steel beams. **Code S01**	01061	
S02 – Steel – Welded Shapes	Main span configuration (M01) is welded plate steel beams. **Code S02**	10303	

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Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
C01 – Reinforced Concrete Cast-in-Place (M01) - S04 – Steel Riveted Shapes (W01)	Main span configuration (M01) is cast-in-place concrete tee beam. **Code C01** Widening configuration (W01) is riveted steel beams. **Code S04**	00136	
T01 – Timber – Glue Laminated	Main span configuration (M01) is glue laminated timber beams. **Code T01**	01400	
T03 – Timber – Solid Sawn	Main span configuration (M01) is solid sawn timber beams. **Code T03**	09445	
T04 – Timber – Stress Laminated	Main span configuration (M01) is stress laminated slab. **Code T04**	08580	

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Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
X – Other	Single span, span consists of alternating sawn timber and rolled steel beams. The bridge has had no widening, this configuration is from the original construction. Timber and steel are differing parent material types. There are four beams of each type. **Code X**	03349	

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Span Continuity

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FHWA Specification *[and SCDOT Markups]*

Report the span continuity using one of the following codes. *[This field is one of several that determines span configuration designation (B.SP.01). Spans with different continuity will require separate span configuration designations.]*

Code	Description
1	Simple or single span *[Any girder type or slab span that is not continuous over the bent.]*
2	Continuous *[Typically, steel girders or concrete beams, and typically only one row of bearings on the bent.]*
3	Continuous for live loads only *[Simple span girders or beams with a continuous deck.]*
4	Cantilever *[Seated hinge or bascule spans.]*
6	Frame *[Any frame without any fill on top.]*
7	Buried *[Any buried pipe, culvert, or frame under fill.]*

FHWA Commentary *[and SCDOT Markups]*

This item captures the continuity of the span(s) in the configuration.

[Use code 1 for slab spans and simple spans.]

Use code 2 for bridges designed continuous for permanent (dead) loads and live loads. Also, use code 2 for cable stayed and suspension bridges, and for multi-span arches.

Use code 3 for bridges designed as simple spans for permanent (dead) loads and continuous for live loads. When it is unknown if the superstructure was designed as continuous for live loads, code this item consistent with the assumption used in the load rating calculations *[or plans.]*

Use code 6 for three-sided and four-sided frames that are not buried. *[Concrete culvert-like structures, where the deck or top slab supports live load traffic over an obstruction other than water, shall be considered a rigid frame (use Code 6).]*

Use code 7 for pipe culverts and other structures that rely on soil-structure interaction to support vertical loads. *[Use code 7 for pipes and culverts (including box culverts) regardless if they are under fill or not.*

Inspectors can review assumptions in the load rating for continuity and inspectors can review bridge plans. Counting the number of bearings or rows of bearings can provide insight into span continuity. Inspectors can review the plans, load rating assumptions or bearings/beam ends to give indications on span

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FHWA Specification *[and SCDOT Markups]*	FHWA Commentary *[and SCDOT Markups]*
	continuity.]

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
2 – Continuous (M01) - 1 – Simple or Single Span (A01) - 1 – Simple or Single Span (W01)	Main span configuration (M01) is continuous steel girders. **Code 2** Approach span configuration (A01) is simply supported reinforced concrete tee beams. **Code 1** Widening configuration (W01) is simply supported reinforced concrete slabs. **Code 1**	00356	
1 – Simple or single span	Main span configuration (M01) is simply supported spans. **Code 1**	01312	
2 – Continuous (M01) - 1 – Simple or Single Span (A01)	Main span configuration (M01) is continuous. **Code 2** Approach span configuration (A01) is simply supported. **Code 1**	01287	

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Inspection Data	Component Appraisal Superstructure	SuperSet	SpanContinuity

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
2 – Continuous (M01) - 1 – Simple or Single Span (A01)	Main span configuration (M01) is continuous. **Code 2** Approach span configuration (A01) is simply supported. **Code 1**	05051	
2 – Continuous	Main span configuration (M01) is continuous. **Code 2**	02654	
2 – Continuous	Main span configuration (M01) is continuous, multi-span arches. **Code 2**	00258	
3 – Continuous for Live Loads Only	Main span configuration (M01) is prestressed precast beams, designed to be continuous for live loads only. **Code 3**	10112	

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Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
4 – Cantilever (M01) - 2 – Continuous (A01) - 1 – Simple or Single Span (A02)	Main span configuration (M01) is a cantilevered center span. **Code 4** First approach span configuration (A01) is continuous over the center piers flanking the cantilevered span. **Code 2** Second approach span configuration (A02) is simply supported. **Code 1**	08750	
6 – Frame	Main span configuration (M01) is a delta and K-frame hybrid. **Code 6**	06816	
6 – Frame	Main span configuration (M01) is an unburied four-sided frame. **Code 6**	03291	

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Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
7 – Buried	Culvert configuration (C01) is a buried culvert under approximately 1 foot of fill. **Code 7**	01451	

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FHWA Specification *[and SCDOT Markups]*

Report the span type using one of the following codes. *[This field is one of several that determines span configuration designation (B.SP.01). Spans with different types will require separate span configuration designations.]*

Code	Description
A01	Arch – under fill without spandrel
A02	Arch – open spandrel
A03	Arch – closed spandrel
A04	Arch – through
B01	Box girder/beam – single
B02	Box girder/beam – multiple adjacent
B03	Box girder/beam – multiple spread
B04	Box girder/beam – segmental
F01	Frame – three-sided
F02	Frame – four-sided
F03	Frame – K-shaped
F04	Frame – delta-shaped
G01	Girder/beam – I-shaped adjacent
G02	Girder/beam – I-shaped spread
G03	Girder/beam – tee-beam
G04	Girder/beam – inverted tee-beam
G05	Girder/beam – double-tee adjacent
G06	Girder/beam – double-tee spread
G07	Girder/beam – channel adjacent

FHWA Commentary *[and SCDOT Markups]*

Adjacent girders/beams are those sections that are placed directly next to each other and are touching or nearly touching. Spread girders/beams are those sections that are spaced so that the deck spans the space between the sections.

[Box Girder/Beam Guidance:]

- Box girder/beams include boxes/tubs/cellular structures where interior surfaces may or may not be accessible.
- Use code B04 for segmental construction and irrespective if the span type meets the description for B02, or B03.

[Frame and Box Culvert Guidance:]

- Use code F01 for three-sided rigid frames.
- Use code F02 for rigid four-sided concrete box bridges.

[Girder/Beam Guidance:]

- Use code G01 or G02, as applicable, for bulb-tee and deck bulb-tee girders/beams. *[Bulb tee beams typically have a CIP deck above them and the deck bulb tees have an integral deck like tee-beam. Deck bulb-tee beams are rare.]*
- Use code G09 for superstructures with girder and floor beam systems regardless of the girder shape.
- Use code G10 for through girder type superstructures regardless of the girder shape.

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FHWA Specification *[and SCDOT Markups]*

Code	Description
G08	Girder/beam – channel spread
G09	Girder/beam – girder & floor beam
G10	Girder/beam – through girder
L01	Cable – suspension
L02	Cable – cable-stayed
L03	Cable – extradosed
LX	Cable – other
M01	Movable – vertical lift
M02	Movable – bascule
M03	Movable – swing
MX	Movable – other
P01	Pipe - Rigid
P02	Pipe - Flexible
S01	Slab – solid
S02	Slab – voided
T01	Truss – deck
T02	Truss – through
T03	Truss – pony
X01	Other – railroad flat car
X02	Other – ferry transfer
X03	Other – floating
X	Other

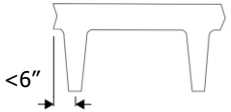
FHWA Commentary *[and SCDOT Markups]*

[Girder/Beam Guidance (continued):]

- *[Use code G05 or G06 for double-tee beams and G07 or G08 for channel beams. G05, G06 and G08 are rare. If the distance (see sketch below) is between the center of the leg and the edge of the beam is more than 6" and is two "T" shapes, the beam is double-tee beam. Channel beams are generally "C" shapes.]*



Double-Tee Beam



Channel Beam

[Pipe Guidance:]

Use code P02 for pipes that rely on the stability of surrounding soils to maintain their structural shape *[buried]*. *[If B.SP.06 is coded P01 or P02, then B.SP.07 should be coded 7. Concrete pipes are considered rigid (P01). Metal and plastic pipes are considered flexible (P02).]*

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Format	Frequency	Item ID Number	Item Ownership
AN (3)	I	B.SP.06	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Superstructure	SuperSet	SpanType

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
A02 – Arch – open spandrel	Main span configuration (M01) is an open spandrel arch. The spandrel is the area between the roadway and the arch. For an open spandrel this is not filled, vertical columns from the arch support the roadway. **Code A02**	00258	
A03 – Arch – closed spandrel	Culvert configuration (C01) is a concrete arch under fill with spandrel wall. **Code A03**	09993	
A03 – Arch – closed spandrel	Culvert configuration (C01) is an aluminum corrugated arch under fill. Corrugated aluminum headwall encloses the spandrel. **Code A03**	08764	
A03 – Arch – closed spandrel	Culvert configuration (C01) is a Closed spandrel concrete arch. For a closed spandrel the area between the roadway and the arch is filled and enclosed by structural material which supports the roadway. **Code A03**	00456	

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Format	Frequency	Item ID Number	Item Ownership
AN (3)	I	B.SP.06	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Superstructure	SuperSet	SpanType

Examples

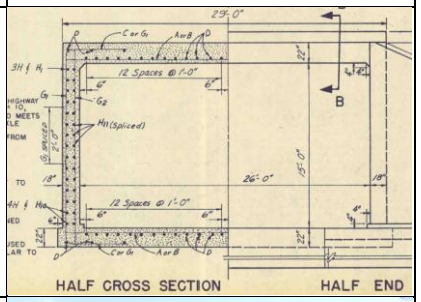
CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
B02 – Box girder/beam – multiple adjacent	Main span configuration (M01) is adjacent concrete box beams. Beams are SCDOT hollow core slabs. **Code B02**	01939	
B04 – Box girder/beam – segmental	Main span configuration (M01) is post-tensioned, segmental concrete box girders. **Code B04**	08235	
B04 – Box girder/beam – segmental	Main span configuration (M01) is a concrete segmental bridge. **Code B04**	08617	

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Format	Frequency	Item ID Number	Item Ownership
AN (3)	I	B.SP.06	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Superstructure	SuperSet	SpanType

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
F02 – Frame – four-sided	Culvert configuration (C01) is a four-sided concrete frame under fill (a culvert). **Code F02.**	04017	
F04 – Frame – delta-shaped (M01) - F03 – Frame – K-shaped (A01)	Main span configuration (M01) is a delta-shaped frame. **Code F04** Approach span configuration (A01) is K-shaped frame. **Code F03**	06816	
G02 – Girder/beam – I-shaped spread	Main span configuration (M01) is precast I-shaped beams which are spread. **Code G02**	00607	
G02 – Girder/beam – I-shaped spread	Main span configuration (M01) is I-shaped steel girders which are spread. **Code G02**	05105	

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Format	Frequency	Item ID Number	Item Ownership
AN (3)	I	B.SP.06	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Superstructure	SuperSet	SpanType

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
G03 – Girder/beam – tee-beam	Main span configuration (M01) is concrete tee beams. **Code G03**	04584	
G07 – Girder/beam – channel adjacent	Main span configuration (M01) is adjacent prestressed concrete channels. **Code G07**	03662	
G09 – Girder/beam – girder & floor beam	Main span configuration (M01) is a girder, floor beam, and stringer superstructure system. **Code G09**	01823	
GX – Girder/beam – other	Main span configuration (M01) is rectangular timber beams. Rectangular beams do not match another "girder" configuration. **Code GX**	08636	

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Format	Frequency	Item ID Number	Item Ownership
AN (3)	I	B.SP.06	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Superstructure	SuperSet	SpanType

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
L02 – Cable – cable-stayed	Main span configuration (M01) is a cable-stayed bridge. **Code L02**	09824	
M02 – Movable - bascule	Main span configuration (M01) is bascule bridge. **Code M02**	00228	
M03 – Movable – swing	Main span configuration (M01) is a swing bridge. **Code M03**	01303	
P01 – Pipe - Rigid	Culvert configuration (C01) is rigid concrete pipe. **Code P01**	11056	

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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Superstructure	SuperSet	SpanType

Examples

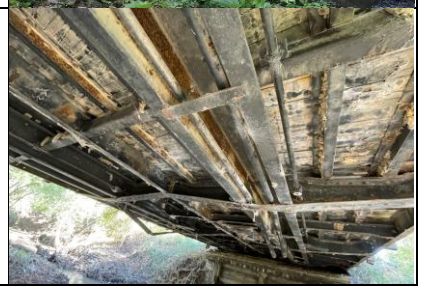
CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
P02 – Pipe - Flexible	Culvert configuration (C01) is corrugated aluminum pipe. **Code P02**	05210	
S01 – Slab – solid	Main span configuration (M01) was originally precast panels, six across each span. In Span 2, the middle four precast panels were replaced with a slab that was cast-in-place. **Code S01**	06727	
T02 – Truss – through	Main span configuration (M01) is a through truss. **Code T02**	08516	

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Format	Frequency	Item ID Number	Item Ownership
AN (3)	I	B.SP.06	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Superstructure	SuperSet	SpanType

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
T03 – Truss – pony	Main span configuration (M01) is a steel pony truss. **Code T03**	00633	
X01 – Other – railroad flat car	Main span configuration (M01) consists of two railroad flat cars. **Code X01**	07398	

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Span Protective System

Format	Frequency	FHWA NBIS Item ID	Item Ownership
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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Superstructure	SuperSet	SpanProtectiveSystem

FHWA Specification *[and SCDOT Markups]*

Report the span protective system using one of the following codes.

Code	Description
0	None
A01	Admixture – internally sealed
A02	Admixture – low permeability
A03	Admixture – polymer impregnated
A04	Admixture – corrosion inhibitor
A05	Admixture – ASR inhibitor
AX	Admixture – other
C01	Coating – paint
C02	Coating – sealer
C03	Coating – methacrylate
C04	Coating – hot dip galvanizing
C05	Coating – metalizing/thermal spray
CX	Coating – other
E01	Encasement – concrete
EX	Encasement – other
M01	Membrane – built-up
M02	Membrane – sheet
M03	Membrane – liquid applied
MU	Membrane – unknown
MX	Membrane – other

FHWA Commentary *[and SCDOT Markups]*

Code this item consistent with the material reported for Item B.SP.04 (Span Material).

In cases where the span configuration may have a combination of protective systems, use the code for the predominant protective system based on protected area. In cases where multiple systems protect the same area, use the code for the outermost protective layer. *[If a span configuration is partially protected but the majority of the span configuration is unprotected, use code 0. For example, only the exterior girders are coated and only the beam ends are painted, but greater than 50% of the span is unprotected, use code 0. However, any protective system (coatings, paint, etc.) need to be included as a child element under the applicable element regardless of what Item B.SP.07 is coded.]*

Use code 0 when the span is unprotected *[or there is no known protective system.]*

Use code 0 when unprotected steels either never were coated or currently have no signs of coating systems, and have no protective systems such as cathodic protection or weathering chemistry.

[To request additional clarification, inspectors can reach out to load raters or district construction.]

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Format	Frequency	FHWA NBIS Item ID	Item Ownership
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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Superstructure	SuperSet	SpanProtectiveSystem

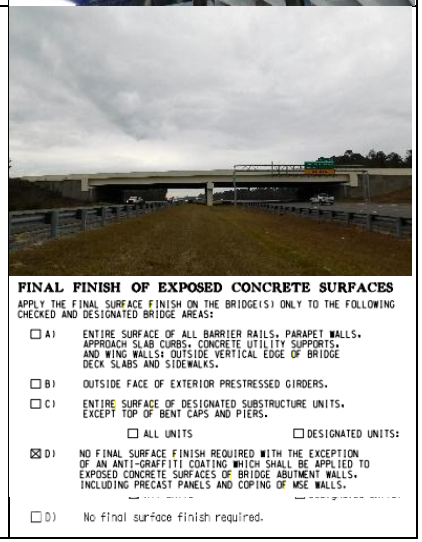
FHWA Specification *[and SCDOT Markups]*		FHWA Commentary *[and SCDOT Markups]*
P01	Patina – uncoated weathering steel	Use code C01 for steel that has been painted.
S01	Sacrificial – cathodic, passive	Use code C02 for sealers such as *[concrete coatings,]* silanes, siloxanes, linseed oils, etc. *[Use code C02 for spray-on or brush-on concrete surface final finish coatings per the current Standard Specifications or similar sections in previous Standard Specifications. The application limits of the concrete surface final finish coatings are typically included on the 'General Notes Sheet' or 'Standard Notes Sheet' of the bridge plans.]*
S02	Sacrificial – cathodic, active	
SX	Sacrificial – other	
T01	Treated – timber preservative	
U	Unknown	
X	Other	Use code P01 only for weathering grades of steel. For timber, use code T01 for oil-based or water-borne timber preservatives. *[For timber,]* use code C01 for paints and stains. Non-protective anti-graffiti and aesthetic coatings are not considered when coding this item. Use the appropriate code for span members under fill that have a protective system. *[If the protective coating type is known, include source documentation for the applicable element in the inspection report in the element description section.]*

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Format	Frequency	FHWA NBIS Item ID	Item Ownership
AN (3)	I	B.SP.07	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Superstructure	SuperSet	SpanProtectiveSystem

Examples

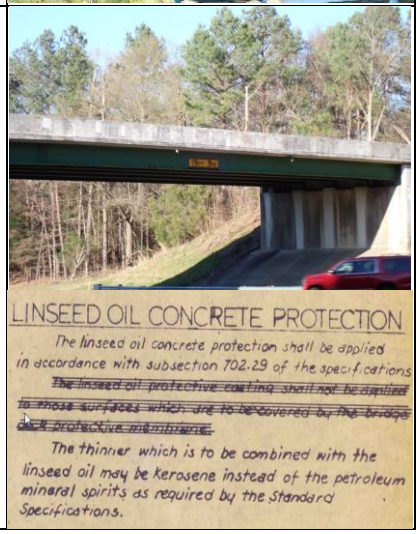
CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
0 – None	Main span configuration (M01) is uncoated concrete beams. **Code 0**	02962	
0 – None	Main span configuration (M01) has two exterior prestressed girders and exterior faces of the are sealed, but the majority of the girders in the superstructure span set are not sealed (greater than 50% of span not protected). **Code 0**	10407	

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AN (3)	I	B.SP.07	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Superstructure	SuperSet	SpanProtectiveSystem

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
C01 – Coating – paint	Main span configuration (M01) is painted steel beams. **Code C01**	01712	
C01 – Coating – paint (M01) - C02 – Coating – sealer (A01)	Main span configuration (M01) is painted steel beams. **Code C01** Approach span configuration (A01) includes reinforced concrete slabs which are protected with a linseed oil application; confirmed by reviewing 'Standard Notes Sheet' of the As-Built bridge plans. **Code C02**	07225	

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AN (3)	I	B.SP.07	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Superstructure	SuperSet	SpanProtectiveSystem

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
C04 – Coating – hot dip galvanizing	Main span configuration (M01) is hot dip galvanized steel members. **Code C04**	03618	
C05 – Coating – metalizing/thermal spray	Main span configuration (M01) is metalized steel members. **Code C05**	10324	
E01 – Encasement – concrete	Main span configuration (M01) is steel beams encased in concrete and corrugated metal. **Code E01**	00449	

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Span Protective System (continued)

Format	Frequency	FHWA NBIS Item ID	Item Ownership
AN (3)	I	B.SP.07	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Superstructure	SuperSet	SpanProtectiveSystem

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
P01 – Patina – uncoated weathering steel	Main span configuration (M01) is weathering steel beams. **Code P01**	02627	

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B.SP.05 Span Continuity
B.SP.06 Span Type
B.SP.07 Span Protective System
B.SP.08 Deck Interaction
B.SP.09 Deck Material & Type
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Deck Interaction

Format	Frequency	FHWA NBIS Item ID	Item Ownership
AN (2)	I	B.SP.08	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Superstructure	SuperSet	DeckInteraction

FHWA Specification *[and SCDOT Markups]*

Report the type of interaction between the superstructure and deck for the span configuration using one of the following codes.

Code	Description
CS	Composite – shored construction
CU	Composite – unshored construction
IM	Integral or monolithic
NC	Non-composite

Do not report this item *[(leave blank)]* when Item B.SP.09 (Deck Material and Type) is 0 *[= none]*.

[This field is to be coded by the bridge inspector. If the inspector has questions, they shall contact the load rater. The value for Item B.SP.08 shall match the assumptions used in the load rating for the bridge.]

FHWA Commentary *[and SCDOT Markups]*

This item captures the type of structural interaction that occurs between the bridge deck and superstructure, which may indicate the importance of the deck to the overall stability and capacity of the bridge.

Use code NC to indicate that the deck and the superstructure act independently.

Use code CU to indicate that the deck acts composite with the superstructure, and that the superstructure can carry its own self-weight, plus that of the deck concrete prior to curing.

Use code CS to indicate that the deck acts composite with the superstructure, but without the deck the superstructure requires shoring to carry its own self weight, the weight of the deck concrete prior to curing, or both. *[Composite – Shored Construction is rare in South Carolina.]*

Use code IM to indicate that the deck was cast or fabricated of the same material and at the same time as the superstructure and the two can be expected to act as a unit. Use code IM for slabs and orthotropic steel decks.

When the type of interaction is unknown, code this item consistent with the assumption used in the load rating calculations *[or plans.]*

[If it is unknown whether shoring was used during construction, and the deck is composite with the superstructure, assume the interaction is unshored. Code CU. If girders were shored during deck construction to maintain stability, assume the interaction is

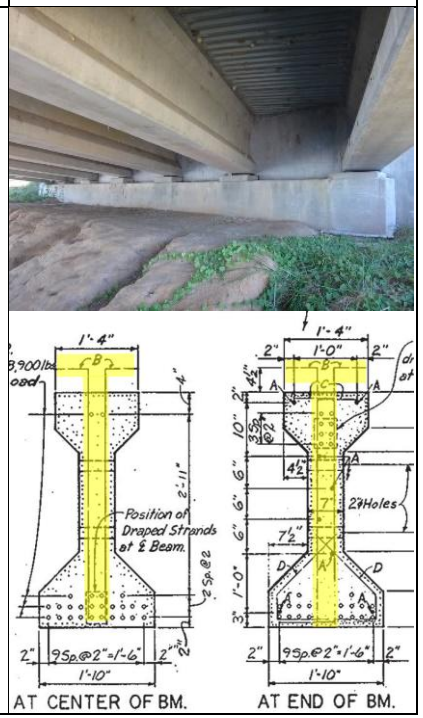
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Deck Interaction (continued)

Format	Frequency	FHWA NBIS Item ID	Item Ownership
AN (2)	I	B.SP.08	LR
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Superstructure	SuperSet	DeckInteraction

FHWA Specification *[and SCDOT Markups]*	FHWA Commentary *[and SCDOT Markups]*
	shored. Code CS.]

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
CU – Composite – unshored construction	Main span configuration (M01) has prestressed concrete I-beams connected to concrete deck with tie bars for composite action. If is not clear if shored construction was used. Since it is not clear, assume unshored construction. **Code CU**	02962	

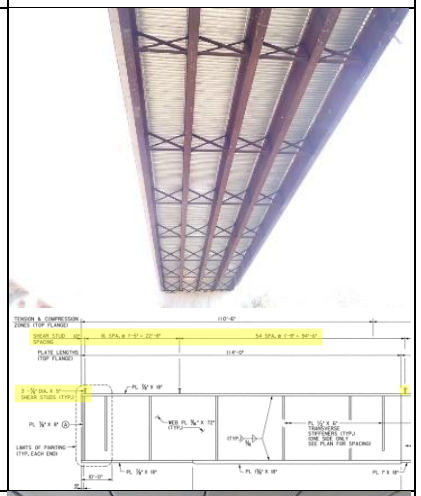
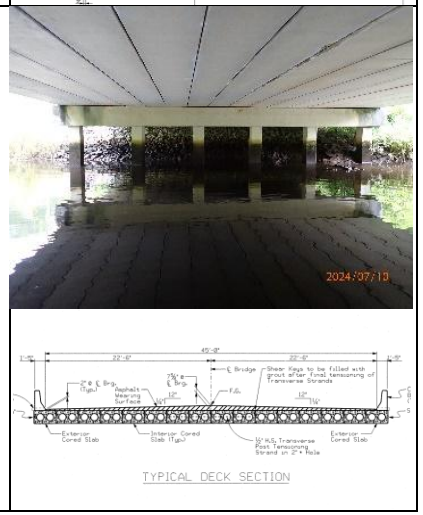
South Carolina Department of Transportation

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Deck Interaction (continued)

Format	Frequency	FHWA NBIS Item ID	Item Ownership
AN (2)	I	B.SP.08	LR
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Superstructure	SuperSet	DeckInteraction

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
CU – Composite – unshored construction	Main span configuration (M01) has steel I-beams connected to concrete deck with shear studs for composite action. It is not clear if shored construction was used. Since it is not clear, assume unshored construction. **Code CU**	00838	
IM – Integral or Monolithic	Main span configuration (M01) has prestressed concrete SCDOT hollow core slab units. **Code IM**	01009	

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AN (2)	I	B.SP.08	LR
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Superstructure	SuperSet	DeckInteraction

Examples

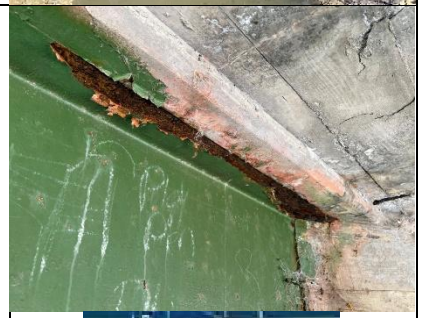
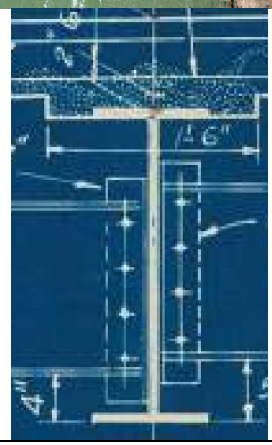
CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
IM – Integral or Monolithic	Main span configuration (M01) has concrete tee beams. Superstructure and deck are cast concurrently. **Code IM**	03304	
IM – Integral or Monolithic	Main span configuration (M01) has a concrete slab. **Code IM**	06339	
IM – Integral or Monolithic	Main span configuration (M01) has prestressed channel slabs; the joint between channel slabs is visible from top. Superstructure and deck are cast concurrently. **Code IM**	10911	

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Deck Interaction (continued)

Format	Frequency	FHWA NBIS Item ID	Item Ownership
AN (2)	I	B.SP.08	LR
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Superstructure	SuperSet	DeckInteraction

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
NC – Non-composite	Main span configuration (M01) has steel I-beams carrying timber deck, no composite action between steel I-beams and timber deck. **Code NC**	08267	
CU – Composite- unshored construction	Composite action between steel beams and concrete deck (Spiral bar welded to the top flange of the girder.) **Code CU**	01517	 

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Deck Material and Type

Format	Frequency	FHWA NBIS Item ID	Item Ownership
AN (3)	I	B.SP.09	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Superstructure	SuperSet	DeckMaterialType

FHWA Specification *[and SCDOT Markups]*

Report the deck material and type for the span configuration using one of the following codes.

Code	Description
0	None
A01	Aluminum
C01	Reinforced concrete – cast-in-place
C02	Reinforced concrete – precast
C03	Prestressed concrete – pre-tensioned
C05	Prestressed concrete – precast post-tensioned
CX	Concrete – other
F01	FRP composite – aramid fiber
F02	FRP composite – carbon fiber
F03	FRP composite – glass fiber
FX	FRP composite – other
S01	Steel – open grid
S02	Steel – filled or partially filled grid
S03	Steel – plate
S04	Steel – orthotropic
S05	Steel – corrugated
SX	Steel – other

FHWA Commentary *[and SCDOT Markups]*

In cases where the superstructure configuration may have a combination of deck materials and/or types, code the predominant deck material and type based on the deck area.

Use the applicable code for superstructure types with integral top flanges that serve as the deck, such as concrete tee-beams and box beams/girders.

For slabs, and for the slab portion of three-sided and four-sided concrete rigid frame bridges and culverts not under fill, use the same applicable material code as used in Item B.SP.04 (Span Material). *[Use code C02 for precast slab spans and precast culverts without fill.]*

Use code 0 for the following bridge and culvert types when under fill, as these do not have a deck component: slabs, arches without spandrels, closed spandrel arches, pipes, and three-sided or four-sided rigid frames.

[Use code C01 for cast-in-place deck on girders with or without partial depth structural stay-in-place forms and slab spans.]

Use code C02, C03, or C05, as applicable, for full depth precast panels only *[(slabs)]*. Use code C01 or C04, as applicable, for cast-in-place concrete on partial depth structural panels that are not just considered stay-in-place forms. *[Partial depth panels are rare in South Carolina. Use code C03 if the deck is the top flange of prestressed channel beam or cored slab. Use code C05 if the deck is the top flange of segmental box girders. Transverse post-tensioning through slabs shall not be considered post-tensioning to*

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Deck Material and Type (continued)

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AN (3)	I	B.SP.09	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Superstructure	SuperSet	DeckMaterialType

FHWA Specification *[and SCDOT Markups]*		FHWA Commentary *[and SCDOT Markups]*
T01	Timber – glue laminated	*code C05 for these bridges such as cored slabs.]*
T02	Timber – nail laminated	
T03	Timber – solid sawn	
T04	Timber – stress laminated	
TX	Timber – other	
X	Other	

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
0 – None	Main span configuration (M01) has no deck. Span configuration is a concrete arch without spandrel under fill. **Code 0**	09993	
0 – None (C01) - 0 – None (V01)	Culvert configuration (C01) has no deck. Span configuration is a concrete arch under fill. **Code 0** Culvert extension (V01) has no deck. Span configuration is a concrete four-sided frame. **Code 0**	02895	

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Deck Material and Type (continued)

Format	Frequency	FHWA NBIS Item ID	Item Ownership
AN (3)	I	B.SP.09	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Superstructure	SuperSet	DeckMaterialType

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
C01 – Reinforced concrete – cast-in-place	Main span configuration (M01) has concrete arches with open spandrels and reinforced concrete cast-in-place slab. **Code C01**	00258	
C01 – Reinforced concrete – cast-in-place	Main span configuration (M01) has a reinforced concrete cast-in-place slab. **Code C01**	08616	
C02 – Reinforced concrete – precast	Main span configuration (M01) has precast panels comprised of reinforced concrete. **Code C02.**	03466	

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Deck Material and Type (continued)

Format	Frequency	FHWA NBIS Item ID	Item Ownership
AN (3)	I	B.SP.09	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Superstructure	SuperSet	DeckMaterialType

Examples

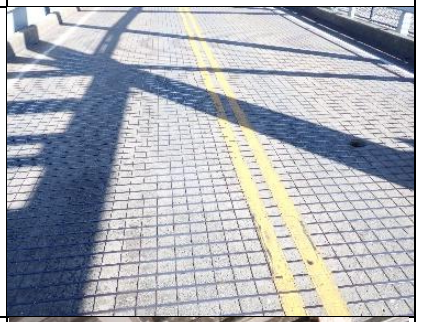
CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
C03 – Prestressed concrete – pre-tensioned	Main span configuration (M01) has prestressed channel beams, the top flanges of these beams make up the bridge deck. **Code C03.**	07163	
FX – FRP composite – other	Main span configuration (M01) has fiber reinforced polymer composite deck panels. **Code FX.**	01337	
S01 – Steel – open grid	Main span configuration (M01) has steel open grid deck. **Code S01**	00085	

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Format	Frequency	FHWA NBIS Item ID	Item Ownership
AN (3)	I	B.SP.09	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Superstructure	SuperSet	DeckMaterialType

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
S02 – Steel – filled or partially filled grid	Main span configuration (M01) has steel with concrete filled grid deck. **Code S02**	09973	
S04 – Steel – orthotropic	Main span configuration (M01) has an orthotropic steel deck. A steel orthotropic deck is a steel plate deck stiffened with ribs designed to directly carry vehicular loading longitudinally, transverse, or both. **Code S04**	07320	
S05 – Steel – corrugated	Main span configuration (M01) has a corrugated steel deck with wearing surface. A steel corrugated deck is a steel plate deck formed into a series of ridges and valleys (corrugations). the corrugations add strength and stiffness, but are not designed to solely carry vehicular loads without other load carrying members as part of the deck system. **Code S05**	07500	

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Format	Frequency	FHWA NBIS Item ID	Item Ownership
AN (3)	I	B.SP.09	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Superstructure	SuperSet	DeckMaterialType

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
T01 – Timber – glue laminated	Main span configuration (M01) has a glulam timber deck. **Code T01**	08702	
T03 – Timber – solid sawn	Main span configuration (M01) has a timber deck comprised of solid sawn timber planks. **Code T03**	09317	
T04 – Timber – stress laminated	Main span configuration (M01) has a timber stress laminated timber slab. **Code T04**	08580	

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Wearing Surface

Format	Frequency	Item ID Number	Item Ownership
AN (3)	I	B.SP.10	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Superstructure	SuperSet	WearingSurface

FHWA Specification *[and SCDOT Markups]*

Report the predominant wearing surface material type protecting the deck or slab for the span configuration using one of the following codes.

Code	Description
0	None
B01	Bituminous (asphalt)
C01	Concrete – monolithic
C02	Concrete – unmodified
C03	Concrete – latex modified
C04	Concrete – low slump
C05	Concrete – fiber reinforced
C06	Concrete – microsilica
C07	Concrete – polyester
CX	Concrete – other
CU	Concrete – unknown
E01	Earth – gravel or soil
P01	Polymer – epoxy
P02	Polymer – polyester
PX	Polymer – other
S01	Steel
T01	Timber – running planks

FHWA Commentary *[and SCDOT Markups]*

When a span configuration has a combination of wearing surface types, code the predominant wearing surface type based on the deck or slab area.

Do not consider patching materials when coding this item *[such as potholes filled with asphalt or deck spalls filled with other materials.]*

Use code 0 when no additional sacrificial concrete thickness or *[no additional]* wearing surface is included on the deck or slab.

Use codes C01 through CU for overlays that contain cement. *[Sacrificial concrete wearing surfaces are common especially on bridges built starting in the 1980's when the AASHTO Standard Specifications discussed the concept as part of durability design.]*

Use code C01 when there is an additional sacrificial thickness cast concurrently with the structural deck or slab. *[If plans or load rating show a sacrificial concrete wearing surface and the concrete mix is the same as the deck or slab and is shown to be placed at the same time as the deck or slab, code C01. This code is the most common in South Carolina.]*

Use code C02 when an additional placement of concrete of the same concrete material as the deck or slab is placed after the deck or slab has cured. *[If plans or load rating show a sacrificial concrete wearing surface and the concrete mix is the same as the deck or slab and is shown to be placed after the deck or slab, code C02].*

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B.SP.05 Span Continuity
B.SP.06 Span Type
B.SP.07 Span Protective System
B.SP.08 Deck Interaction
B.SP.09 Deck Material & Type
B.SP.10 Wearing Surface
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Format	Frequency	Item ID Number	Item Ownership
AN (3)	I	B.SP.10	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Superstructure	SuperSet	WearingSurface

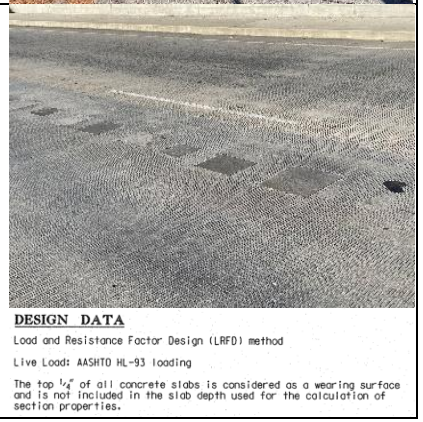
FHWA Specification *[and SCDOT Markups]*	FHWA Commentary *[and SCDOT Markups]*
X Other Do not report this item *[(leave blank)]* when Item B.SP.09 (Deck Material and Type) is 0 *[= none]*. *Design plans, rehabilitation/repair plans, and the bridge's load rating should include information on the bridge deck and its wearing surface. If available, special provisions from the structure's construction may also provide details on the wearing surface material type. Inspectors can contact district construction for more information.]*	Use code CU when *[an additional]* concrete wearing surface exists, but the specific material composition is unknown. *[If plans or load rating show a sacrificial concrete wearing surface and it is unknown if the mix is the same or it is unknown when the sacrificial concrete wearing surface was placed, code CU.* *Use code E01 when there is gravel or dirt placed on top of the deck that protects the deck or slab.]* Use code S01 when a steel grid deck is fabricated with an additional sacrificial thickness *[but not a deck comprised only of steel such as on a movable bridge]*. Code S01 is not intended for temporary steel plates. Use code T01 where running planks are added on timber decks or slabs *[but not only a timber deck without additional timber planks.]* *[With the exception of sacrificial concrete wearing surface, the following items should also be coded:* • *The depth of the wearing surface observed by an inspector shall be coded as SC.G.11.* • *The depth of the wearing surface considered by a load rater shall be coded as SC.LR.01.* *The item is to be recorded as 'None' (Code 0) unless the deck is known to have a wearing surface.* *The item is to be recorded as 'Null' (Blank) for pipes and culverts under fill since these structures have no deck.*

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Wearing Surface (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (3)	I	B.SP.10	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Superstructure	SuperSet	WearingSurface

Examples

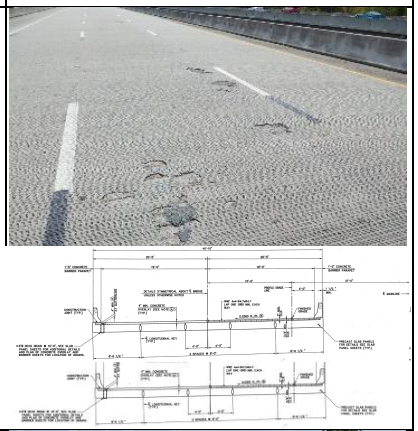
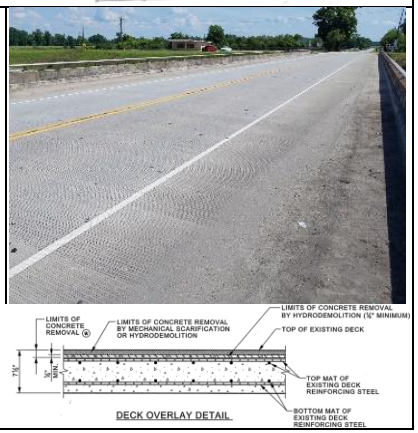
CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
0 – None	Main span configuration (M01) has precast panels; the joint between panels is visible on top of deck, no additional wearing surface. **Code 0**	10958	
B01 – Bituminous (asphalt)	Main span configuration (M01) has timber deck with asphalt overlay. **Code B01**	01317	
C01 – Concrete – monolithic	Main span configuration (M01) has a concrete deck with a monolithic 1/4" thick sacrificial concrete wearing. Plans confirm the sacrificial concrete wearing surface was placed with the deck. **Code C01**	00009	 DESIGN DATA Load and Resistance Factor Design (LRFD) method Live Load: AASHTO HL-93 loading The top ¼" of all concrete slabs is considered as a wearing surface and is not included in the slab depth used for the calculation of section properties.

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Wearing Surface (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (3)	I	B.SP.10	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Superstructure	SuperSet	WearingSurface

Examples

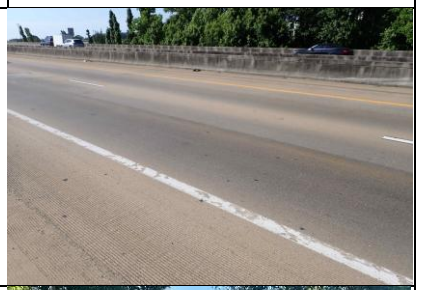
CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
C02 – Concrete – unmodified	Main span configuration (M01) has a concrete deck with an unmodified sacrificial concrete wearing. Plans confirm the sacrificial concrete wearing surface was placed on top of the precast slabs. **Code C02**	09674	
C03 – Concrete – latex modified	Main span configuration (M01) has steel girders supporting a reinforced concrete deck. The deck was hydro demolished and a latex modified concrete wearing surface was installed. **Code C03**	06160	

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Format	Frequency	Item ID Number	Item Ownership
AN (3)	I	B.SP.10	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Superstructure	SuperSet	WearingSurface

Examples

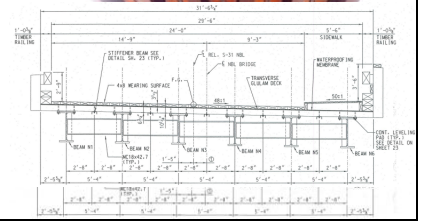
CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
C07 – Concrete – polyester	Main span configuration (M01) has segmental box beams with a precast concrete top flange. A preservation project installed a polyester polymer concrete (PPC) overlay. **Code C07**	08238	
E01 – Earth – gravel or soil	Main span configuration (M01) has channel beams with the top flange protected by gravel/earth wearing surface. **Code E01**	00632	
P01 – Polymer – epoxy	Main span configuration (M01) has reinforced concrete tee beams with the top flange protected by a 2" thick epoxy overlay wearing surface. **Code P01**	04743	

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Wearing Surface (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (3)	I	B.SP.10	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Superstructure	SuperSet	WearingSurface

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
P01 – Polymer - epoxy	Main span configuration (M01) has reinforced concrete tee beams with the top flange protected by a 2″ thick epoxy overlay wearing surface. **Code P01**	04744	
T01 – Timber – running planks	Main span configuration (M01) is a steel girder bridge with transverse timber deck with timber wearing surface and waterproofing membrane. The timber wearing surface is comprised of longitudinal 4" x 8" boards. **Code T01**	08702	  

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Deck Protective System

Format	Frequency	FHWA NBIS Item ID	Item Ownership
AN (3)	I	B.SP.11	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Superstructure	SuperSet	DeckProtectiveSystem

FHWA Specification *[and SCDOT Markups]*

Report the deck protective system for the span configuration using one of the following codes.

Code	Description
0	None
A01	Admixture – internally sealed
A02	Admixture – low permeability
A03	Admixture – polymer impregnated
A04	Admixture – corrosion inhibitor
A05	Admixture – ASR inhibitor
AX	Admixture – other
C01	Coating – paint
C02	Coating – sealer silane/siloxane
C03	Coating – methacrylate
C04	Coating – hot dip galvanizing
C05	Coating – metalizing/thermal spray
CX	Coating – other
M01	Membrane – built up
M02	Membrane – sheet
M03	Membrane – liquid applied
MU	Membrane – unknown
MX	Membrane – other
P01	Patina – uncoated weathering steel
T01	Treated – timber preservative

FHWA Commentary *[and SCDOT Markups]*

Code this item consistent with the predominant material reported in Item B.SP.09 (Deck Material and Type) *[and usually found on the plans.]*

In cases where the deck may have a combination of protective systems, use the code for the predominant protective system based on protected area. In cases where multiple systems protect the same area, use the code for the outermost protective layer. *[If a deck is partially protected but the majority of the deck is unprotected, use code 0.]*

Use code 0 when the deck is unprotected *[or there is no known protective system.]*

Use code A01 for internally sealed concrete systems that use wax beads in the concrete. After the concrete cures, it is heated to melt the wax and seal the concrete. *[Rare in SC.]*

Use code A02 when low permeability concrete is used with admixtures such as flyash, microsilica, or slag.

Use code A05 when admixtures are used to inhibit alkali-silica reactivity (ASR). *[Rare in SC.]*

[SCDOT Standard Specifications allow the use of admixtures in some concrete mix design, but they are not required and mix design is not included on most plan sets. If inspectors are unable to find information on the deck protective system but there appears to be a method of protection, code U; otherwise, most decks are unprotected. A notable example is their Class E (later Class 45) high-performance concrete (HPC) mixture which is used as a chemically enhanced concrete mix for bridge decks.

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Format	Frequency	FHWA NBIS Item ID	Item Ownership
AN (3)	I	B.SP.11	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Superstructure	SuperSet	DeckProtectiveSystem

FHWA Specification *[and SCDOT Markups]*	FHWA Commentary *[and SCDOT Markups]*
U Unknown X Other Do not report this item when Item B.SP.09 (*Deck Material and Type*) is 0 *[(none)]* *Design plans and rehabilitation/repair plans should include information on the bridge deck and its protective system. If available, special provisions from the structure's construction may also provide details on the deck protective system. Inspectors can contact district construction or load raters for more information.]*	Use code C02 for sealers such as *[concrete coatings,]* silanes, siloxanes, linseed oils, etc. *[Use code C02 for spray-on or brush-on concrete surface final finish coatings per the Standard Specifications. The application limits of the concrete surface final finish coatings are typically included on the 'General Notes Sheet' or 'Standard Notes Sheet' of the bridge plans.]* Do not use codes C02 and C03 when the material is applied for localized crack repair. Use code M01 when the membrane is built up using combined layers of liquid and preformed/sheet membranes. *[Rare in SC.]* Use code MU when a membrane exists, but the type is unknown. *[Rare in SC.]* Use code MX when a membrane type is known, but does not match the types specified for codes M01, M02, or M03. *[Rare in SC.]* *[SCDOT Standard Specifications allow the membranes for deck protection, but the type used may not be included on the plans. If inspectors are unable to find information on the deck protective system but there appears to be a membrane, code MU; otherwise, most decks are unprotected.* *If the protective coating type is known, include source documentation for the applicable element in the inspection report in the element description section.]*

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Format	Frequency	FHWA NBIS Item ID	Item Ownership
AN (3)	I	B.SP.11	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Superstructure	SuperSet	DeckProtectiveSystem

Examples

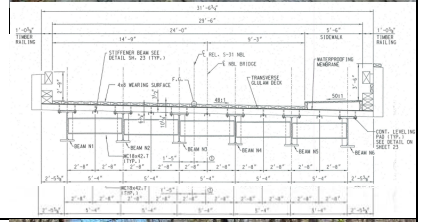
CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
0 – None	Main span configuration (M01) has steel girders supporting a cast-in-place reinforced concrete deck with no protection. **Code 0**	09119	
A02 – Admixture – low permeability	Main span configuration (M01) is a cable-stayed bridge with a concrete deck. Per the construction specifications, the Ravenel Bridge deck mixes historically included admixtures such as silica fume, corrosion inhibitors, and high-range water reducers, as part of their Class 45 (formerly Class E) High-Performance Concrete design. The internal admixtures would require the use of code A04 (Admixture – corrosion inhibitor). The silica fume (for low permeability) would require the use of code A02 (Admixture – low permeability). Since the silica fume is more dominant, use that code. **Code A04**	09824	
M01 – Membrane – built up	Main span configuration (M01) is a steel girder bridge with a concrete deck. Per construction specifications, 8.5" thick reinforced concrete deck with built up epoxy membrane and metal SIP forms. **Code M01**	09119	

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Deck Protective System (continued)

Format	Frequency	FHWA NBIS Item ID	Item Ownership
AN (3)	I	B.SP.11	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Superstructure	SuperSet	DeckProtectiveSystem

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
MU – Membrane – unknown	Main span configuration (M01) is a steel girder bridge with transverse timber deck with timber wearing surface and waterproofing membrane. Membrane is unknown. **Code MU**	08702	 
T01 – Treated – timber preservative	Main span configuration (M01) is a timber beam bridge with a timber deck. Per rehabilitation plans, the deck boards are 3” x 6” treated timber boards. **Code T01**	09317	

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Deck Reinforcing Protective System

Format	Frequency	Item ID Number	Item Ownership
AN (3)	I	B.SP.12	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Superstructure	SuperSet	DeckReinforcingSystem

FHWA Specification *[and SCDOT Markups]*

Report the type of deck reinforcing protective system for the span configuration using one of the following codes for concrete decks and slabs.

Code	Description
0	None
C01	Coating – epoxy coated
C02	Coating – galvanized
C03	Coating – metalized
CX	Coating – other
R01	Reinforcing – stainless, clad
R02	Reinforcing – stainless, solid
R03	Reinforcing – high chromium
R04	Reinforcing – FRP, aramid fiber
R05	Reinforcing – FRP, carbon fiber
R06	Reinforcing – FRP, glass fiber
R07	Reinforcing – FRP, other
RX	Reinforcing – other
S01	Sacrificial – cathodic, passive
S02	Sacrificial – cathodic, active
SX	Sacrificial – other
U	Unknown
X	Other

[Report this item only if Item B.SP.09 (Deck Material and Type) is concrete (i.e. codes C01 to CX). Leave Blank for all other cases.]

FHWA Commentary *[and SCDOT Markups]*

In cases where the span(s) may have a combination of protective systems, use the code for the predominant protective system based on protected area. In cases where multiple systems protect the same area, use the code for the outermost protective layer.

If the top and bottom mat have different protective systems, report the protective system for the top mat.

Do not consider bar chairs or other reinforcing steel supports when coding this item.

Use code 0 when steel reinforcement is unprotected, such as with black steel.

Use codes C01 to CX and R01 to RX when any (e.g., top mat only) or all the reinforcing steel in the deck is protected by the selected steel type.

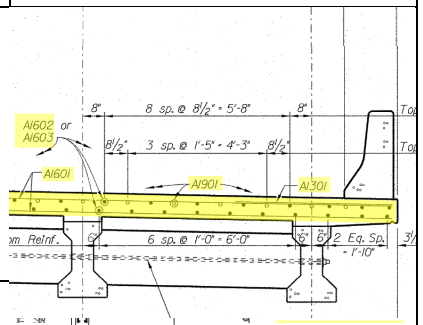
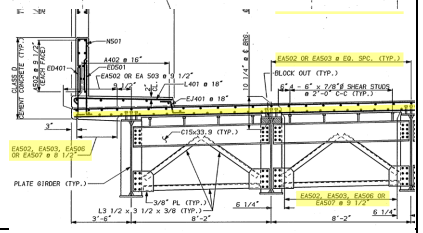
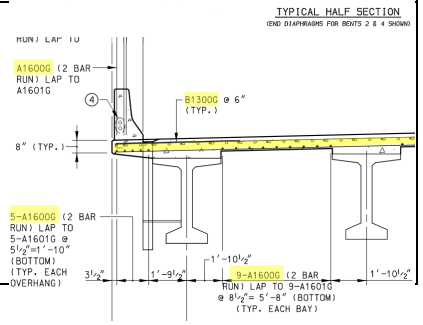
Use code S02 when impressed currents are used as the cathodic protection system.

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B.SP.02 Number of Spans
B.SP.03 Number of Beam Lines
B.SP.04 Span Material
B.SP.05 Span Continuity
B.SP.06 Span Type
B.SP.07 Span Protective System
B.SP.08 Deck Interaction
B.SP.09 Deck Material & Type
B.SP.10 Wearing Surface
B.SP.11 Deck Protective System
B.SP.12 Deck Reinforcing System
B.SP.13 Deck Stay-In-Place Forms
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Subsection 2.3: Roadside Hardware
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Deck Reinforcing Protective System (continued)

Format	Frequency	FHWA NBIS Item ID	Item Ownership
AN (3)	I	B.SP.12	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Superstructure	SuperSet	DeckReinforcingSystem

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
0 – None	Main span configuration (M01) has precast beams supporting a reinforced concrete deck. Plans show the span's deck reinforcement is black bar (A). **Code 0**	10348	
C01 – Coating – epoxy coated	Main span configuration (M01) has steel girders supporting a reinforced concrete deck. Plans show the span's deck reinforcement is epoxy coated (E). **Code C01.**	08746	
C02 – Coating – galvanized	Main span configuration (M01) has precast bulb tee beams supporting a reinforced concrete deck. Plans show the span's deck reinforcement is galvanized (G). **Code C02**	10451	

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B.SP.03 Number of Beam Lines
B.SP.04 Span Material
B.SP.05 Span Continuity
B.SP.06 Span Type
B.SP.07 Span Protective System
B.SP.08 Deck Interaction
B.SP.09 Deck Material & Type
B.SP.10 Wearing Surface
B.SP.11 Deck Protective System
B.SP.12 Deck Reinforcing System
B.SP.13 Deck Stay-In-Place Forms
Subsection 2.2 Substructure
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Format	Frequency	FHWA NBIS Item ID	Item Ownership
AN (3)	I	B.SP.12	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Superstructure	SuperSet	DeckReinforcingSystem

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
-	Buried structure, no concrete deck. B.SP.09 is not coded C01 to CX (concrete deck) so this item is not coded for this structure span configuration. **Do Not Code**	10208	
-	Timber deck, no concrete deck. B.SP.09 is not coded C01 to CX (concrete deck) so this item is not coded for this structure span configuration. **Do Not Code**	08267	
-	Aluminum deck, no concrete deck. B.SP.09 is not coded C01 to CX (concrete deck) so this item is not coded for this structure span configuration. **Do Not Code**	07500	

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B.SP.05 Span Continuity
B.SP.06 Span Type
B.SP.07 Span Protective System
B.SP.08 Deck Interaction
B.SP.09 Deck Material & Type
B.SP.10 Wearing Surface
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Deck Stay-In-Place Forms

Format	Frequency	Item ID Number	Item Ownership
AN (3)	I	B.SP.13	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Superstructure	SuperSet	DeckStayInPlace

FHWA Specification *[and SCDOT Markups]*

Report the type of deck stay-in-place form for the span configuration using one of the following codes.

Code	Description
0	None
C01	Concrete – reinforced
C02	Concrete – prestressed
F01	FRP composite
M01	Metal
T01	Timber
X	Other

Do not report this item when Item B.SP.09 (*Deck Material and Type*) is 0 *[(None)]*.

FHWA Commentary *[and SCDOT Markups]*

Use this item to identify forms used in construction that remain in place by design or owner preference.

When a span configuration has a combination of stay-in-place form types, code the predominant type based on the deck area.

Use code C01 when a precast reinforced concrete panel (partial depth) is used with a cast-in-place reinforced concrete placement on top. *[This is rare in SC.]*

Use code C02 when a precast prestressed concrete panel (partial depth) is used with a cast-in-place reinforced concrete placement on top. *[This is rare in SC.]*

This item is not intended to be used for materials installed only for debris shielding *[such as timber false decking or metal mesh screening to protect traffic below from falling concrete],* or when Item B.SP.09 (*Deck Material and Type*) is S05 (Steel – corrugated).

[Concrete, FRP, composite, timber or other types of non-metal stay-in-place forms are rare in SC.]

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
0 – None	Main span configuration (M01) has steel girders supporting a reinforced concrete deck. No stay-in-place forms. **Code 0**	03256	

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B.SP.05 Span Continuity
B.SP.06 Span Type
B.SP.07 Span Protective System
B.SP.08 Deck Interaction
B.SP.09 Deck Material & Type
B.SP.10 Wearing Surface
B.SP.11 Deck Protective System
B.SP.12 Deck Reinforcing System
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Deck Stay-In-Place Forms (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (3)	I	B.SP.13	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Superstructure	SuperSet	DeckStayInPlace

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
M01 – Metal	Main span configuration (M01) has steel girders supporting a reinforced concrete deck. Metal stay-in-place forms. **Code M01**	00866	
M01 – Metal	Main span configuration (M01) has steel girders supporting a reinforced concrete deck. Arched metal stay-in-place forms. **Code M01**	00449	
M01 – Metal	Main span configuration (M01) has precast box beams. Metal stay-in-place forms inside box girder. **Code M01**	08618	
-	Timber deck, no concrete deck. B.SP.09 is not coded C01 to CX (concrete deck) so this item is not coded for this structure span configuration. **Do Not Code**	08267	

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Substructure Configuration Designation

Format	Frequency	Item ID Number	Item Ownership
AN (3)	I	B.SB.01	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Substructure	SubSet	Substructure Configuration

FHWA Specification *[and SCDOT Markups]*

Report the substructure set designation *[for each substructure configuration]* using one of the following codes.

[Widening configurations shall be used when any data item listed below is different from the other configuration:

- *Substructure Material (B.SB.03)*
- *Substructure Type (B.SB.04)*
- *Foundation Type (B.SB.06)*

Code	Description
A##	Abutment
P##	Pier or Bent
W##	Widening

Replace the ## characters in the above codes with sequential numbers, with leading zeros, assigned to each substructure configuration *[starting with 01. The sum of A + P should correspond with the number of substructure units.]*.

Do not report this item when B.SP.06 (Span Type) is a pipe (i.e. code P01 or P02).

[If X (Other) is used for Substructure Material (B.SB.03), Substructure Type (B.SB.04) and/or Foundation Type (B.SB.06), the same span configuration may be used.

Layout, or proximity of a substructure configuration does not require all members of the same substructure configuration to be located next to each other. Bridges that were previously two bridges and filled in or widened, can share the same substructure

FHWA Commentary *[and SCDOT Markups]*

This item captures how the reported substructure configuration is designated.

The substructure is the portion of a bridge below the bearings or below the springline of an arch, which transfers loads to the foundation. This includes the walls and footings, caps, or floor slabs of three-sided and four-sided rigid frame bridges and culverts.

Replacing the "##" characters in the codes with a sequential number (e.g., A01, A02, P01, etc.) identifies each unique substructure configuration present on the bridge.

An abutment is a substructure unit located at the end of a bridge that transfers loads from the superstructure to the foundation while providing lateral support for the approach roadway embankment. Typically, a bridge has two abutments, but there may be cases (such as bifurcated structures assigned two bridge numbers) where one end of the bridge does not mate up with the approach roadway.

A multiple span bridge with cantilevered end spans that are unsupported at the extreme ends does not have abutments.

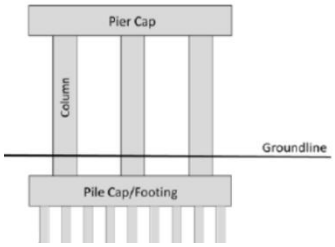
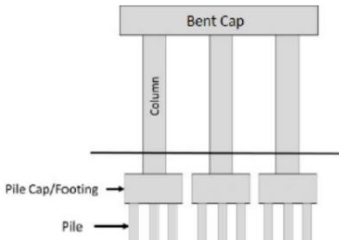
Piers and bents are substructure units that support the spans of a multi-span superstructure at intermediate location(s) between abutments.

Use code W for widened portions of abutments or piers/bents with dissimilar substructure construction. *[and when the widening occurs at a later time, separate from the construction of the*

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Substructure Configuration Designation (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (3)	I	B.SB.01	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Substructure	SubSet	SubstructureConfiguration

FHWA Specification *[and SCDOT Markups]*	FHWA Commentary *[and SCDOT Markups]*
configuration. *Additional numbering is to be used as necessary for changes in bent/pier types or special cases.* PIER  BENT  *A pier is a substructure component of a bridge with drilled shafts or with a single footing that supports the superstructure between the abutments. A bent is a substructure component that consists of piles or columns plus a cap that ties them together to support the superstructure and have several or no footings.]*	*previously built substructure. A bridge may have multiple configurations of widened portions, but a single widened span configuration shall be used for widenings occurring at the same time if all three fields match.* *Typically, the first value to be chosen corresponds to the Substructure Configuration. The second value corresponds to the sequential number assigned to each unique substructure configuration. Start with A01 and use A02, if needed.* *All single span bridges are to be recorded A and 01 if both abutments match all three fields.* *All multi-span bridges (including culvert barrels) will be recorded using a minimum of 2 Substructure Configuration Designations: A01 and P01.]*

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
A01 – Abutment	For the substructure configuration, exterior walls of single barrel box culvert. **Code A01**	10801	

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Substructure Configuration Designation (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (3)	I	B.SB.01	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Substructure	SubSet	SubstructureConfiguration

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
A01 – Abutment - P01 – Pier or Bent	For the substructure configuration at the abutments, there are concrete semi-integral abutments. **Code A01** For the substructure configuration at the intermediate piers, there are concrete piers supported by drilled shafts. **Code P01**	00279	
A01 – Abutment - P01 – Pier or Bent	Two-span buried four-sided frame. For the substructure configuration at the abutments, the exterior walls of the frame act as abutments. **Code A01** For the substructure configuration at the intermediate support, the interior wall of the frame acts as a pier. **Code P01**	03291	
A01 – Abutment	For the substructure configuration, portions of arch below springline act as abutments **Code A01**	00456	

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Substructure Configuration Designation (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (3)	I	B.SB.01	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Substructure	SubSet	SubstructureConfiguration

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
A01 – Abutment - P01 – Pier or Bent - W01 – Widening	The structure has had crutch bents installed at end and intermediate bents. Crutch bents will be captured in B.SP.01 as "S# Supported". Do not code for crutch bents. Code for the original substructure configuration. For the substructure configuration at the abutments, because they are the substructure units located at the ends of the bridge as part of the original structure **Code A01** For the substructure configuration at the intermediate bents, because there are piles supporting timber bent caps as part of the original structure **Code P01** For the substructure configuration at the widening at the abutment/bents, use a widening configuration because of change in material to concrete caps and piles. Widening is the same at all locations. **Code W01**	00515	

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Substructure Configuration Designation (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (3)	I	B.SB.01	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Substructure	SubSet	SubstructureConfiguration

Examples

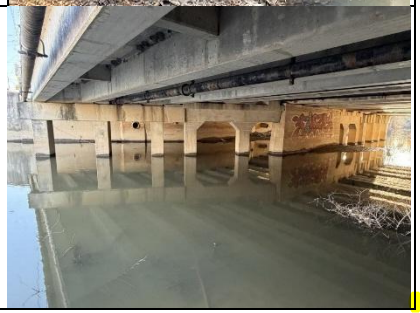
CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
P01 – Pier or Bent - W01 – Widening	For the substructure configuration, intermediate pier for the original two column pier with web wall which sits on a single footing. **Code P01** For the substructure configuration at widening, use a widening configuration because of change to a bent configuration. Two widenings are not needed because the widenings have substructure material and type and foundation type. **Code W01**	01005	
A01 – Abutment - P01 – Pier or Bent - P02 – Pier or Bent	For the substructure configuration at the abutments, there are concrete abutments. **Code A01** For the substructure configuration at the first intermediate pier, delta-shaped frame acts as pier. **Code P01** For the substructure configuration at the middle intermediate pier, K-shaped frame acts as pier if a different substructure type. **Code P02**	06816	
P01 – Pier or Bent - W01 – Widening	For the substructure configuration at the intermediate original piers, there are concrete piers supported by columns. **Code P01** For the substructure configuration at the widening, there are concrete piers supported by a single column. **Code W01**	00640	

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Substructure Configuration Designation (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (3)	I	B.SB.01	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Substructure	SubSet	SubstructureConfiguration

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
A01 – Abutment - W01 – Widening - W02 – Widening	For the substructure configuration at the original arch, portions of arch below springline act as abutments. **Code A01** For the substructure configuration at the four-sided frame widening abutments, the two exterior walls act as abutments. **Code W01** For the substructure configuration at the four-sided frame widening intermediate walls, the two intermediate walls act as piers. **Code W02**	02895	
-	B.SP.06 (Span Type) is coded as a pipe (P01 or P02) so this item is not coded for this substructure configuration. **Do Not Code**	05210	
A01 – Abutment - P01 – Pier Cap - W01 – Widening - W02 – Widening	For the substructure configuration at the abutments, there are concrete abutments. **Code A01** For the substructure configuration, intermediate original piers, there is a pier wall as part of the original structure. **Code P01** For the substructure configuration at the first widening, there are concrete piers supported by treated timber piles. **Code W01** For the substructure configuration at the second widening, there are concrete piers supported by concrete columns. **Code W02**	01123	

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Number of Substructure Units

Format	Frequency	Item ID Number	Item Ownership
N (3,0)	I	B.SB.02	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Substructure	SubSet	NumberOfUnits

FHWA Specification *[and SCDOT Markups]*	FHWA Commentary *[and SCDOT Markups]*
Report the number of substructure units *[in the specific substructure configuration, where B.SB.03, B.SB.04 and B.SB.06 match.]* Do not report this item when B.SP.06 (Span Type) is a pipe (i.e. code P01 or P02)*[, leave blank – do not code 0.]*	This item captures the number of substructure units of similar material, design, and foundation type that are being reported.

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
2 (A01)	For the substructure configuration, exterior walls of single barrel box culvert. Two walls (abutments). **Code 2** (A01)	10801	
2 (A01) - 1 (P01)	Two-span buried four-sided frame. For the substructure configuration at the abutments, the exterior walls of the frame act as abutments. Two walls (abutments). **Code 2** (A01) For the substructure configuration at the intermediate support, the interior wall of the frame acts as a pier. One wall (pier). **Code 1** (P01)	03291	

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Number of Substructure Units (continued)

Format	Frequency	Item ID Number	Item Ownership
N (3,0)	I	B.SB.02	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Substructure	SubSet	NumberOfUnits

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
1 (A01) - 1 (A02) - 7 (P01) - 2 (P02) - 11 (W01)	For the substructure configuration at the abutment with no crutch bent, abutment because it is the substructure unit located at the end of the bridge. One abutment has no crutch bent. **Code 1** (A01) For the substructure configuration at the abutment with a crutch bent, abutment because it is the substructure unit located at the end of the bridge but the material type is not the same. One abutment has a crutch bent. **Code 1** (A02) For the substructure configuration at the intermediate bent with no crutch bent, intermediate bent because there are piles supporting a timber bent cap as part of the original structure. Seven bents have no crutch bents. **Code 7** (P01) For the substructure configuration at the intermediate bent with a crutch bent, intermediate bent because there are piles supporting a timber bent cap as part of the original structure but the material type if not the same. Two bents have crutch bents. **Code 2** (P02) For the substructure configuration at the widening, use a widening configuration because of change in material to concrete caps and piles. All 11 abutments/bents are widened. **Code 11** (W01)	00515	

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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Substructure	SubSet	NumberOfUnits

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
2 (A01)	For the substructure configuration, portions of arch below springline act as abutments. Two abutments. **Code 2** (A01)	00456	
2 (P01) - 2 (W01)	For the substructure configuration, intermediate pier for the original two column pier with web wall which sits on a single footing. Two in this configuration. **Code 2** (P01) For the substructure configuration at widening, use a widening configuration because of change to a bent configuration. Two widenings are not needed because the widenings have substructure material and type and foundation type. Two in this configuration. **Code 2** (W01)	01005	
2 (A01) - 2 (P01) - 1 (P02)	For the substructure configuration at the abutments, there are concrete abutments. Two abutments. **Code 2** (A01) For the substructure configuration at the first intermediate pier, delta-shaped frame acts as pier. Two delta-shaped frames. **Code 2** (P01) For the substructure configuration at the middle intermediate pier, K-shaped frame acts as pier if a different substructure type. One K-shaped frame. **Code 1** (P02)	06816	

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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Substructure	SubSet	NumberOfUnits

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
4 (P01) - 4 (W01)	For the substructure configuration at the intermediate original piers, there are concrete piers supported by columns. Four in this configuration. **Code 4** (P01) For the substructure configuration at the widening, there are concrete piers supported by a single column. Four in this configuration. **Code 4** (W01)	00640	
2 (A01) - 2 (W01) - 2 (W02)	For the substructure configuration at the original arch, portions of arch below springline act as abutments. Two abutments. **Code 2** (A01) For the substructure configuration at the four-sided frame widening abutments, the two exterior walls act as abutments. Two exterior walls. **Code 2** (W01) For the substructure configuration at the four-sided frame widening intermediate walls, the two intermediate walls act as piers. Two intermediate walls. **Code 2** (W02)	02895	
-	B.SP.06 (Span Type) is coded as a pipe (P01 or P02) so this item is not coded for this substructure configuration. **Do Not Code**	05210	

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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
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FHWA Specification *[and SCDOT Markups]*

Report the principal substructure material type using one of the following codes.

Do not report this item when B.SP.06 (Span Type) is a pipe (i.e. code P01 or P02)*[, leave blank – do not code 0.]*

Code	Description
0	None
A01	Aluminum
C01	Reinforced concrete – cast-in-place
C02	Reinforced concrete – precast
C03	Prestressed concrete – pre-tensioned
C04	Prestressed concrete – cast-in-place post-tensioned
C05	Prestressed concrete – precast post-tensioned
CX	Concrete – other
E01	Earth – reinforced soil mass
F01	FRP composite – aramid fiber
F02	FRP composite – carbon fiber
F03	FRP composite – glass fiber
FX	FRP composite – other
I012	Iron – cast
I021	Iron – wrought
M01	Masonry – block
M02	Masonry – stone

[Continued…]

FHWA Commentary *[and SCDOT Markups]*

This item reflects the material which provides the support for the transfer of the superstructure load to the foundation. In cases where the substructure unit(s) may have a combination of materials, use the code for the predominant material that transfers load to the foundation. *[For varying material types in the same substructure set, use the predominate material if the material types are from the same parent material. Inspectors are cautioned about the difference between items considered part of the substructure data configuration and part of the foundation data configuration. The substructure data configuration is not considered part of the foundation data configuration. Piles and drilled shafts are part of the foundation (See Item B.SB.06); they are not part of the substructure coded in Item B.SB.03.]*

Use code 0 when the superstructure rests directly on the foundation (i.e. on unreinforced soil or bedding material, reinforced soil or bedding material, or rock).

[Most substructures in South Carolina are reinforced concrete, either cast-in-place or precast. Other concrete codes are rare.] Use code C04 or C05, as applicable, for prestressed concrete substructure unit(s) that utilize both pre-tensioning and post-tensioning.

Use code E01 when the superstructure rests directly on the reinforced soil mass. Code E01 is not intended to be used for MSE walls when the superstructure does not rest directly on the reinforced soil mass.

Use code M01 for masonry made from bricks or concrete blocks.
Use code M02 for natural stone.
Use code S06 for filled or unfilled steel pipe piles.

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FHWA Specification *[and SCDOT Markups]*		FHWA Commentary *[and SCDOT Markups]*
P01	Plastic – Polyethylene	Use code C01 for cased and uncased cast-in-place concrete piles, and for driven corrugated, fluted, or spiral-welded shell-cased concrete piles. *[Use code X if the material is unknown after a review of bridge information or if the substructure material is mixed.* *Inspectors are to not difference between pile bents and columns on pile caps or columns on drilled shafts.]*
PX	Plastic – other	
S01	Steel – rolled shapes	
S02	Steel – welded shapes	
S03	Steel – bolted shapes	
S04	Steel – riveted shapes	
S05	Steel – bolted and riveted shapes	
S06	Steel – pipe	
SX	Steel – other	
T01	Timber – glue laminated	
T02	Timber – nail laminated	
T03	Timber – solid sawn	
T04	Timber – stress laminated	
TX	Timber – other	
X	Other	

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
C01 – Reinforced Concrete – Cast-In-Place	Cast-in-place concrete open/spill through abutment. **Code C01**	00022	

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Inspection Data	Component Appraisal Substructure	SubSet	SubstructureMaterial

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
C01 – Reinforced Concrete – Cast-In-Place	Pile bent with timber piles, timber lagging, and reinforced concrete cap. The timber lagging does not transfer superstructure loads, so not part of the substructure. The timber piles are part of the foundation. **Code C01.**	02194	
C01 – Reinforced Concrete – Cast-In-Place (P01) - C01 – Reinforced Concrete – Cast-In-Place (W01)	For the substructure configuration at the original section, the substructure is reinforced concrete cast-in-place. The reinforced concrete pier is part of the substructure. **Code C01** (P01) For the substructure configuration at the widening, the substructure is reinforced concrete cast-in-place. The reinforced concrete pier cap is part of the substructure. **Code W01** (P01)	01005	
C02 – Reinforced Concrete – Precast	For the substructure configuration, exterior walls of single barrel box culvert. Precast box culvert. **Code C02**	10801	

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Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
T03 – Timber – Sold Sawn (A01) - S01 – Steel – Rolled Shapes (A02) - T03 – Timber – Sold Sawn (B01) - S01 – Steel – Rolled Shapes (B02) - C01 – Reinforced Concrete – Cast-In-Place (W01)	For the substructure configuration at the abutment with no crutch bent, abutment is timber piles, timber lagging, and timber cap. The timber cap is used to control the material. **Code T03** (A01) For the substructure configuration at the abutment with a crutch bent, the abutment is mixed materials, but the steel crutch bent is assumed to predominant material that transfers load to the foundation. **Code S01** (A02) For the substructure configuration at the intermediate bent with no crutch bent, bent is timber piles and timber cap. The timber cap is used to control the material. **Code T03** (B01) For the substructure configuration at the intermediate bent with a crutch bent, the intermediate bent is mixed materials, but the steel crutch bent is assumed to be the predominant material that transfers load to the foundation. **Code S01** (B02) For the substructure configuration at the widening, use a widening configuration because of change in material to concrete caps and piles. The cast-in-place cap is used to control the material. The concrete piles are considered part of the foundation and not part of the substructure. **Code C01** (W01)	00515	

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Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
C02 – Reinforced Concrete – Precast	For the substructure configuration at the intermediate bent, there is a precast concrete cap and a rotated steel rolled shape with the concrete member serving as the primary load carrying member; the steel rolled shape serves as a beam-to-column seat and to facilitate construction assuming the web is expected to corrode and the rolled shape is not required for strength post construction. The piles are considered part of foundation. **Code C02.**	09853	
M01 – Masonry – Block	For the substructure configuration at the abutment, there is a masonry block abutment wall. **Code M01**	00089	

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Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
M02 – Masonry – Stone	For the substructure configuration at the abutment, there is a masonry stone integral abutment wall. **Code M02**	10017	
S01 – Steel – Rolled Shapes (B02)	For the substructure configuration at the intermediate bent, there is a concrete hammerhead pier supported by steel crutch bents. The steel crutch bents have rolled beam cap. The steel crutch bent is assumed to be the predominant material that transfers load to the foundation. **Code S01**	05045	 

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Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
C01 – Reinforced Concrete – Cast-In-Place (A01) - S02 –Steel – Welded Shapes (P01) - S02 –Steel – Welded Shapes (P02)	For the substructure configuration at the abutments, there are concrete abutments. The abutments are cast-in-place **Code C01** (A01) For the substructure configuration at the first intermediate pier, delta-shaped frame acts as pier. Two delta-shaped frames are comprised of steel welded shapes. **Code S02** (P01) For the substructure configuration at the middle intermediate pier, K-shaped frame acts as pier if a different substructure type. One K-shaped frame is comprised of steel welded shapes. **Code S02** (P02).	06816	
T03 – Timber – Sold Sawn	For the substructure configuration at the intermediate bent, a timber bent cap with timber piles and with timber cross bracing. **Code T03**	02118	
-	B.SP.06 (Span Type) is coded as a pipe (P01 or P02) so this item is not coded for this substructure configuration. **Do Not Code**	05210	

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Substructure Type

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AN (3)	I	B.SB.04	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Substructure	SubSet	SubstructureType

FHWA Specification *[and SCDOT Markups]*

Report the abutment, pier, or bent design type using one of the following codes. *[See figure and specification in B.SB.01 for differentiation between a pier and a bent.]*

Do not report this item when B.SP.06 (Span Type) is a pipe (i.e. code P01 or P02)*[, leave blank – do not code 0.]*

Code	Description
0	None
A01	Abutment – cantilever/wall
A02	Abutment – stub
A03	Abutment – open/spill through
A04	Abutment – integral
A05	Abutment – semi-integral
A06	Abutment – gravity
A07	Abutment – counterfort or buttressed
A08	Abutment – pile bent with lagging
A09	Abutment – crib
A10	Abutment – cellular/vaulted
A11	Abutment – reinforced soil mass
A12	Abutment – footing or cap only
AX	Abutment – other
B01	Bent – column or open (and NOT pile)
B02	Bent – column with web wall
B03	Bent – pile
B04	Bent – straddle or c-shaped
BX	Bent – other

[Continued…]

FHWA Commentary *[and SCDOT Markups]*

In cases where the substructure may have a combination of designs due to retrofitting actions, use the code for the predominant design.

Both piers and bents provide the same function; however, a pier has only one footing at each substructure unit (the footing may serve as a pile cap) while a bent has several footings or no footing, as is the case with a pile bent.

Use code 0 when the superstructure rests directly on the foundation (i.e. on unreinforced soil or bedding material, reinforced soil or bedding material, or rock).

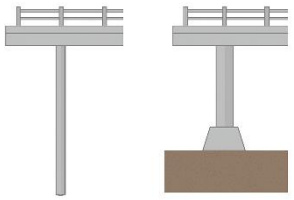
Use codes A01 to A10, as appropriate, if the superstructure load is supported by a substructure unit, which is in turn supported by piles or the reinforced soil mass. Use code A11 when the superstructure rests directly on the reinforced soil mass.

Use code A02 for partial height abutments that do not extend to near the bottom of the embankment fill. Use code A02 for abutments that are larger height than a pile cap or have features such as a backwall that exceed the purpose of a pile cap. [*Stub abutments with footings are on reinforced or compacted engineered fill, placed after embankments are completed, and typically called out as such on plans, in addition to being shorter in height than the embankment. Engineered fill embankments often have MSE walls surrounding the abutment. Stub abutments are more frequently used with pile foundations and are typically larger than a pile cap, extending to serve as the superstructure seat.*]

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FHWA Specification *[and SCDOT Markups]*		FHWA Commentary *[and SCDOT Markups]*
P01	Pier – wall	Use code A10 when the space between wingwalls, abutment stem, approach slab, and footings is hollow.
P02	Pier – single column	
P03	Pier – multiple column	
P04	Pier – multiple column with web wall	Use code A12 or P08 when the superstructure rests only on a footing, grade beam, or thrust block, or pile or shaft cap with embedded piles or shafts that are not part of a bent.
P05	Pier – straddle or c-shaped	
P06	Pier – movable bridge	
P07	Pier – tower	
P08	Pier – footing or cap only	Use code B04 when a highway or railroad passes directly beneath or through the bent.
PX	Pier – other	
U	Unknown	Use code P06 for piers that support movable bridges and the equipment needed to open and close the bridge.
X	Other	Use code P07 for towers of complex bridges such as cable-stayed and suspension bridges.
		[Use code A01 for 3- or 4-sided concrete box culverts/frames. For multiple barrels, use code P01 for walls between barrels.
		 *A pile is a deep foundation element driven or drilled into soil to transfer loads to deeper strata, while a column is a vertical structural member that transfers superstructure loads directly to a footing. A pile is on the left, a column is on the right.*
		If the pier component is 10 ft or less in length, it is coded as a

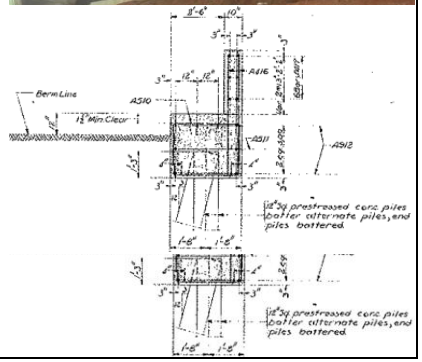
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FHWA Specification *[and SCDOT Markups]*	FHWA Commentary *[and SCDOT Markups]*
	column. If it's longer than 10 ft, it is coded as a pier wall.]

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
A01 – Abutment – cantilever/wall	For the substructure configuration at the abutment, full height cantilever reinforced cast-in-place concrete wall abutment. **Code A01**	05231	
A02 – Abutment – stub	For the substructure configuration at the abutment, stub abutment supported by hidden pilings with inside an engineered fill embankment. **Code A02**	04412	 

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Inspection Data	Component Appraisal Substructure	SubSet	SubstructureType

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
A03 – Abutment – open/spill through	For the substructure configuration at the abutment, cast-in-place concrete open/spill through abutment. **Code A03**	00022	
A04 – Abutment – Integral	For the substructure configuration at the abutment, integral abutment with MSE retaining wall. **Code A04**	10667	
A04 – Abutment –Integral	Integral abutment. Backwall is monolithic with stem and has embedded beam ends. Backwall is not part of abutment. **Code A04**	08750	

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Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
A05 – Abutment – Semi-Integral	For the substructure configuration at the abutment, semi-abutment with a portion of the bearings exposed. **Code A04**	10667	
A08 – Abutment – Pile Bent with Lagging	For the substructure configuration at the abutment, cast-in-place concrete abutment with timber lagging. Original and widened portions are a similar bent pile design. **Code A08**	01836	
A08 – Abutment – Pile Bent with Lagging	For the substructure configuration at the abutment, timber pile bent with timber lagging and reinforced concrete beam seat. **Code A08**	02194	

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Examples

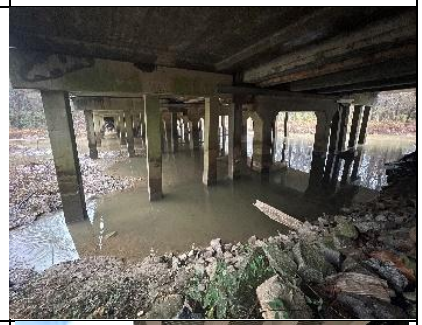
CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
AX – Abutment - Other	For the substructure configuration at the abutment, it appears that it was originally a spill through abutment, but to capture the masonry walls which were added and filled the spill through portions, the "other" option captures this abutment type.	00312	
B01 – Bent – Column or Open	For the substructure configuration at the intermediate bent, concrete bent with columns and drilled shafts. **Code B01**	10667	
B02 – Bent – Column with Web Wall	For the substructure configuration at the intermediate bent, concrete bent with piles but a collision (web) wall around the piles at one bent. The piles are not founded on a single footing. **Code B02**	02791	

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Examples

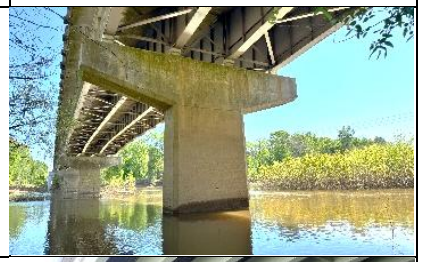
CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
B03 – Bent – Pile	For the substructure configuration at the intermediate bent, cast-in-place concrete pile bent. Original and widened portions are of similar design. **Code B03**	01836	
B04 – Bent – Straddle or C-Shaped	For the substructure configuration at the intermediate bent, steel cap and concrete drilled shaft straddle bent. **Code B04**	10667	
P01 – Pier – Wall	For the substructure configuration at the intermediate pier, reinforced concrete cast-in-place pier wall. **Code P01**	00849	

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Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
P02 – Pier – Single Column	For the substructure configuration at the intermediate pier, reinforced concrete cast-in-place hammerhead pier. **Code P02**	05045	
P03 – Pier – Multiple Column (P01) - P02 – Pier – Single Column (W01)	For the substructure configuration at the intermediate pier, original reinforced concrete cast-in-place pier with multiple columns. **Code P03** For the substructure configuration at the widening, reinforced concrete cast-in-place hammerhead pier. **Code P02**	05231	
P03 – Pier – Multiple Column	For the substructure configuration at the intermediate pier, reinforced concrete – cast-in-place pier with multiple columns. **Code P03**	05231	
P06 – Pier – Movable Bridge	For the substructure configuration at the intermediate pier, movable bridge pier. **Code P06**	00228	

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Inspection Data	Component Appraisal Substructure	SubSet	SubstructureType

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
P07 – Pier – Tower	For the substructure configuration at the intermediate pier, complex bridge tower. **Code P07**	09824	
-	B.SP.06 (Span Type) is coded as a pipe (P01 or P02) so this item is not coded for this substructure configuration. **Do Not Code**	05210	

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Substructure Protective System

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FHWA Specification *[and SCDOT Markups]*

Report the substructure protective system using one of the following codes. Do not report this item when B.SP.06 (Span Type) is a pipe (i.e. code P01 or P02)*[, leave blank – do not code 0.]*

Code	Description
0	None
A01	Admixture – internally sealed
A02	Admixture – low permeability
A03	Admixture – polymer impregnated
A04	Admixture – corrosion inhibitor
A05	Admixture – ASR inhibitor
AX	Admixture – other
C01	Coating – paint
C02	Coating – sealer
C03	Coating – methacrylate
C04	Coating – hot dip galvanizing
C05	Coating – metalizing/thermal spray
CX	Coating – other
E01	Encasement – concrete
EX	Encasement – other
P01	Patina – uncoated weathering steel

[Continued…]

FHWA Commentary *[and SCDOT Markups]*

Code this item consistent with the predominant material reported in Item B.SB.03 (Substructure Material).

In cases where the substructure may have a combination of protective systems, use the code for the predominant protective system based on protected area. In cases where multiple systems protect the same area, use the code for the outermost protective layer. *[If a substructure set is partially protected but the majority of the substructure configuration that is visible is unprotected, use code 0. For example, if only single end bent caps are coated, use code 0. However, any protective system (coatings, paint, etc.) need to be included as a child element under the applicable element regardless of what Item B.SB.05 is coded.]*

Use code 0 when the substructure is unprotected *[or there is no known protective system.]*

Use code 0 when unprotected steels either never were coated or currently have no signs of coating systems and have no protective systems, such as, cathodic protection or weathering chemistry.

[Non-protective] Anti-graffiti coatings are not considered when coding this item.

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Inspection Data	Component Appraisal Substructure	SubSet	SubstructureProtectiveSystem

FHWA Specification and SCDOT Markups	FHWA Commentary and SCDOT Markups
S01 Sacrificial – cathodic, passive S02 Sacrificial – cathodic, active SX Sacrificial – other T01 Treated – timber preservative U Unknown X Other Do not report this item when Item B.SB.04 (Substructure Type) is 0. *[To request additional clarification on protective systems applied to substructures, inspectors can reach out to district construction.]*	Use code C01 for weathering steel that has been painted. Use code C02 for sealers such as *[concrete coatings,]* silanes, siloxanes, linseed oils, etc. *[Use code C02 for spray-on or brush-on concrete surface final finish coatings per the Standard Specifications. The application limits of the concrete surface final finish coatings are typically included on the 'General Notes Sheet' or 'Standard Notes Sheet' of the bridge plans.]* Use code E01 for steel *[or other materials]* of pile bents that are encased in concrete. Use code P01 only for weathering grades of steel. For timber, use code T01 for oil-based or water-borne timber preservatives. *[For timber,]* use code C01 for paints and stains. *[If the protective coating type is known, include source documentation for the applicable element in the inspection report in the element description section.]*

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
0 –None	Uncoated concrete abutment. **Code 0**	00023	

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Inspection Data	Component Appraisal Substructure	SubSet	SubstructureProtectiveSystem

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
C01 – Coating – Paint	Steel cross-bent cap is painted. **Code C01**	09826	
C02 – Coating - Sealer	Reinforced concrete cap is sealed. **Code C02**	10658	
T02 – Treated – timber preservative	Timber bent with timber preservative treatment. **Code T01**	2118	

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Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
-	B.SP.06 (Span Type) is coded as a pipe (P01 or P02) so this item is not coded for this substructure configuration. **Do Not Code**	05210	

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FHWA Specification *[and SCDOT Markups]*

Report the foundation type using one of the following codes.

Do not report this item when B.SP.06 (Span Type) is a pipe (i.e. code P01 or P02)*[, leave blank – do not code 0.]*

Code	Description
E01	Earth – reinforced soil
E02	Earth – unreinforced soil
E03	Rock
F01	Footing – not on rock
F02	Footing – on rock
F03	Footing – on reinforced soil
P01	Pile – steel H-shape
P02	Pile – steel pipe
P03	Pile – concrete, cast-in-place
P04	Pile – prestressed concrete
P05	Pile – timber
P06	Pile – auger cast
P07	Pile – micropile
P08	Pile – composite
P09	Pile – FRP composite
PX	Pile – other

[Continued…]

FHWA Commentary *[and SCDOT Markups]*

In cases where the substructure has a combination of foundations due to retrofitting actions, use the code for the predominant foundation.

Do not consider localized repairs to original foundation types when reporting this item.

Use code E01 when the superstructure bears directly on reinforced soil, reinforced bedding material, or the reinforced soil mass. Use code E02 when the superstructure bears directly on unreinforced soil or unreinforced bedding material. Use code E03 when the superstructure bears entirely on rock. *[Use only when B.SB.06 (Foundation Type) = E03 (Rock). These codes are rare.].*

Use codes F01 to F03 for footings or when the substructure bears directly on ground at grade or below grade, e.g. grade beams, floor slabs, gravity walls, crib walls, etc.

Use code F02 only if the design plans, or subsequent subsurface investigation, indicate that the entire foundation is supported by rock.

Use code F03 if the superstructure load is supported by a substructure unit, which is in turn supported by the reinforced soil mass.

Use code P02 for filled or unfilled steel pipe piles.

Use code P03 for cased and uncased cast-in-place concrete piles, and for driven corrugated, fluted, or spiral-welded shell-cased concrete piles.

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FHWA Specification *[and SCDOT Markups]*		FHWA Commentary *[and SCDOT Markups]*
S01	Drilled shaft – single	Use code P04 for solid or hollow-core square, octagonal, or cylindrical piles. Use code P06 for piles that have concrete or grout placed by pumping through the stem of the auger pipe as the auger is withdrawn. Use code P07 for small diameter piles, typically less than 12 inches, that are drilled, then grouted. Use code P08 for piles in which the length is composed of two or more pile types or materials, excluding pile tips. Use code P09 when FRP composite piles are used for construction but not as repairs to existing piles of a different type. Use codes S01 and S02 for cased or uncased drilled shafts. Use code S03 for footings sunk into position by excavation through or beneath the caisson structure.
S02	Drilled shafts – multiple (and NOT pile or Single Drilled Shaft)	
S03	Caisson	
U	Unknown	
X	Other	

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Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
E02 – Earth – unreinforced soil	Timber mudsills sitting on unreinforced soil at the pier and the abutments. **Code E02.**	10078	
F01 – Footing – not on rock	Culvert has footings that do not bear on rock. **Code F01.**	10801	
F01 – Footing – not on rock	Corrugated panel steel arch on footing. **Code F01**	01073	

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Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
F02 – Footing – on rock	Prestressed concrete arch on rock foundation. **Code F02**	09993	
P01 – Pile – steel H-shape	Steel H-pile under the mixed material cap. **Code P01**	09853	 
P01 – Pile – steel H-shape	K-frame bears on exposed footings. Footings are supported by a pile cap that is supported by steel H-pile. A review of the as-built plans would be required since the foundation is not visible. **Code P01.**	06816	

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Inspection Data	Component Appraisal Substructure	SubSet	FoundationType

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
P05 – Pile – timber (A01) - P01 – Pile – steel H-shape (A02) - P05 – Pile – timber (B01) - P01 – Pile – steel H-shape (B02) - P04 – Pile – prestressed concrete (W01)	For the substructure configuration at the abutment with no crutch bent, the foundation type is a timber pile. **Code P05** For the substructure configuration at the abutment with a crutch bent, the foundation type is a steel H-pile because the crutch bent is assumed to be the primary load path from the superstructure to the foundation. **Code P01** For the substructure configuration at the intermediate bent with no crutch bent, the foundation type is a timber pile. **Code P05** For the substructure configuration at the intermediate bent with a crutch bent, the foundation type is a steel H-pile because the crutch bent is assumed to be the primary load path from the superstructure to the foundation. **Code P01** For the substructure configuration at the widening at the abutment/bents, prestressed concrete piles are used. **Code P04**	00515	

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B.SB.04 Substructure Type
B.SB.05 Protective System
B.SB.06 Foundation Type
B.SB.07 Foundation Protection
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Foundation Type (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (3)	I	B.SB.06	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Substructure	SubSet	FoundationType

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
P05 – Pile – timber	Timber bent with timber piles. **Code P05**	02118	
S02 – Drilled shafts – multiple	Concrete bent with columns and drilled shafts. **Code S02**	10667	
-	B.SP.06 (Span Type) is coded as a pipe (P01 or P02) so this item is not coded for this substructure configuration. **Do Not Code**	05210	

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Foundation Protective System

Format	Frequency	Item ID Number	Item Ownership
AN (3)	I	B.SB.07	TBD
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
InspectionData	Component Appraisal Substructure	SubSet	FoundationProtectiveSystem

FHWA Specification *[and SCDOT Markups]*

Report the foundation protective system using one of the following codes.

Do not report this item when B.SP.06 (Span Type) is a pipe (i.e. code P01 or P02)*[, leave blank – do not code 0.]*

Code	Description
0	None
A01	Admixture – internally sealed
A02	Admixture – low permeability
A03	Admixture – polymer impregnated
A04	Admixture – corrosion inhibitor
A05	Admixture – ASR inhibitor
AX	Admixture – other
C01	Coating – paint
C02	Coating – sealer
C03	Coating – methacrylate
C04	Coating – hot dip galvanizing
C05	Coating – metalizing/thermal spray
CX	Coating – other
E01	Encasement – concrete
EX	Encasement – other
P01	Patina – uncoated weathering steel

[Continued…]

FHWA Commentary *[and SCDOT Markups]*

Code this item consistent with the predominant material reported in Item B.SB.06 (*Foundation Type*). *[Only the exposed portion (above or below water) shall be considered when determining the protective system in place on foundation elements.]*

In cases where the foundation may have a combination of protective systems, use the code for the predominant protective system based on protected area. In cases where multiple systems protect the same area, use the code for the outermost protective layer. *[If a foundation set is partially protected but the majority of the foundation configuration is unprotected, use code 0. For example, if only the exterior pile ends are painted, but greater than 50% of the foundation set is unprotected, use code 0. However, any protective system (coatings, paint, etc.) need to be included as a child element under the applicable element regardless of what Item B.SB.07 is coded.]*

Use code 0 when the foundation is unprotected *[or there is no known protective system.]*

Use code 0 when unprotected steels either never were coated or currently have no signs of coating systems and have no protective systems, such as cathodic protection or weathering chemistry.
[Continued…]

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Foundation Protective System (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (3)	I	B.SB.07	TBD
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Substructure	SubSet	FoundationProtectiveSystem

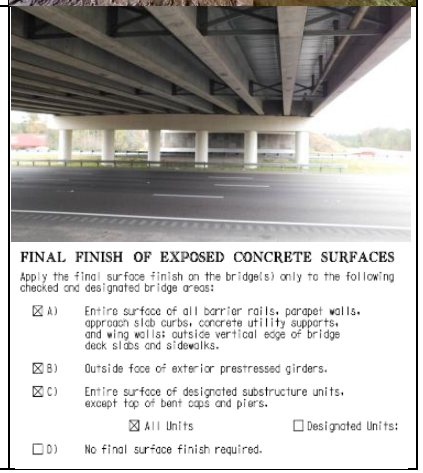
FHWA Specification *[and SCDOT Markups]*		FHWA Commentary *[and SCDOT Markups]*
S01	Sacrificial – cathodic, passive	*[Non-protective anti-]*graffiti coatings are not considered when coding this item. Use code C01 for weathering steel that has been painted. Use code C02 for sealers such as *[concrete coatings,]* silanes, siloxanes, linseed oils, etc. *[Use code C02 for spray-on or brush-on concrete surface final finish coatings per the Standard Specifications. The application limits of the concrete surface final finish coatings are typically included on the 'General Notes Sheet' or 'Standard Notes Sheet' of the bridge plans.]* Use code E01 for steel *[piles, timber piles, of other materials]* of pile bents that are encased in concrete. *[Typically, pile splices or stud-up repairs may include the encasement of piles in concrete or grout, but inspectors shall only consider a pile is encased when the majority of the total pile length is encased in concrete.]* Use code P01 only for weathering grades of steel. For timber, use code T01 for oil-based or water-borne timber preservatives. *[For timber,]* use code C01 for paints and stains. *[If the protective coating type is known, include source documentation for the applicable element in the inspection report in the element description section.]*
S02	Sacrificial – cathodic, active	
SX	Sacrificial – other	
T01	Treated – timber preservative	
U	Unknown	
X	Other	
[Inspectors are encouraged to review available bridge data to determine what protective systems are in place. To request additional clarification, inspectors can reach out district construction or the load rater.]		

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Foundation Protective System (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (3)	I	B.SB.07	TBD
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Substructure	SubSet	FoundationProtectiveSystem

Examples

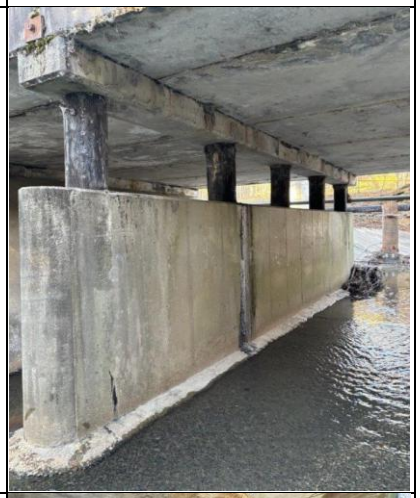
CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
0 – None	Uncoated drilled shafts. **Code 0**	05806	
C01 – Coating – Paint	Steel piles in bent are painted and a portion of the steel piles are encased in concrete. The majority of the piles are not encased in concrete and use paint as the predominate protective system for the foundation set. **Code C01**	04408	
C02 – Coating – Sealer	Drilled shafts at Bent 2 which are protected with a final finish coating application; confirmed by reviewing 'General Notes Sheet' of the As-let bridge plans. **Code C02**	10113	 FINAL FINISH OF EXPOSED CONCRETE SURFACES Apply the final surface finish on the bridge(s) only to the following checked and designated bridge areas: ☒ A) Entire surface of all barrier rails, parapet walls, approach slab curbs, concrete utility supports, and wing walls; outside vertical edge of bridge deck slabs and sidewalks. ☒ B) Outside face of exterior prestressed girders. ☒ C) Entire surface of designated substructure units, except top of bent caps and piers. ☒ All Units ☐ Designated Units: ☐ D) No final surface finish required.

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Foundation Protective System (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (3)	I	B.SB.07	TBD
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Substructure	SubSet	FoundationProtectiveSystem

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
E01 – Encasement – concrete	The majority of the exposed portions of the timber piles are encased in concrete. **Code E01**	03461	
T01 – Treated – Timber Preservative	Treated timber piles, the pile splices or stud-up repair is not considered since the majority of the timber piles are protected. **Code T01**	02551	

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Bridge Railings

Format	Frequency	Item ID Number	Item Ownership
AN (4)	I	B.RH.01	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Deck	Bridge	Railings

FHWA Specification *[and SCDOT Markups]*	FHWA Commentary *[and SCDOT Markups]*
Report the crash-test level for the bridge railings using one of the codes in Table 6. *[Shown on following page.]*	This roadside hardware includes all types and shapes of bridge railings (parapets, median barriers, or structure mounted) located on the bridge or that cross over culverts. Use the code that first applies going from the bottom (Code 0) of Table 6 to the top (MYY), if there are more than one type of bridge railing on the bridge. A list of crash-tested bridge railings may be obtained from the FHWA Office of Highway Safety website at: http://safety.fhwa.dot.gov/roadway_dept/policy_guide/road_hardware/. Prior to 1993, bridge railings were tested according to the AASHTO Guide Specifications for Bridge Railings, NCHRP Report 230, or NCHRP Report 239. Since 1993, bridge railings were crash-tested and classified according to the guidelines shown in NCHRP Report 350. In 2009 the AASHTO Manual for Assessing Safety Hardware (MASH) replaced NCHRP 350. Refer to State, Federal agency, or Tribal government policies for acceptable bridge railing standards. Use code I when no information is known about the crash test level or an agency approved standard. Also, use code I when an overlay is applied to the deck/slab and the height no longer meets the original geometry requirements of the crash-tested rail.

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Bridge Railings (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (4)	I	B.RH.01	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Deck	Bridge	Railings

FHWA Table 6 – Roadside Hardware Codes

Code	Test Level Code						Description
	1	2	3	4	5	6	
N							Not applicable – roadside hardware is not required.
	MYY1	MYY2	MYY3	MYY4	MYY5	MYY6	Roadside hardware successfully crash- tested for AASHTO MASH.
	3501	3502	3503	3504	3505	3506	Roadside hardware successfully crash- tested for NCHRP Report 350.
	2301	2302	2303				Roadside hardware successfully crash- tested for NCHRP Report 230.
	2391	2392	2393				Roadside hardware successfully crash- tested for NCHRP Report 239.
	891	892	893				Roadside hardware successfully crash- tested for 1989 AASHTO Guide Specifications for Bridge Railings.
X							Roadside hardware successfully crash- tested for other criteria.
AYY							Roadside hardware has not been crash-tested but meets AASHTO Standard Specifications for Highway Bridges.
SYY							Roadside hardware has not been crash-tested but meets approved agency standards.
I							Roadside hardware has not been crash-tested and does not meet approved agency standards.
0 (zero)							None - roadside hardware is required, but required roadside hardware is not present.

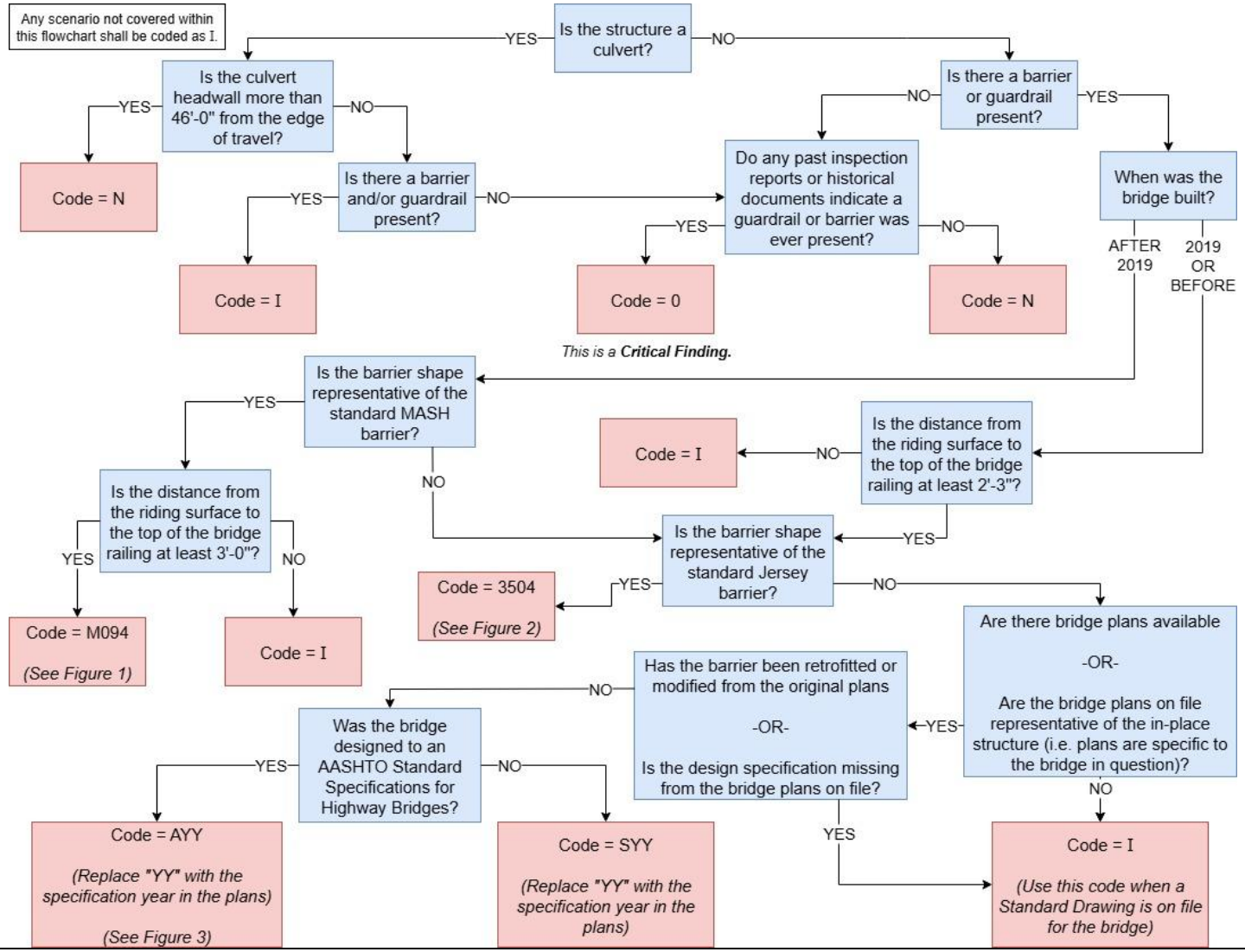
Note that YY, for codes in Table 6, represents the last two digits of the year for the crash testing publication, AASHTO Specifications, or agency approved standards.

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Bridge Railings (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (4)	I	B.RH.01	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal	Bridge	Railings

FHWA Commentary *[and SCDOT Markups]*



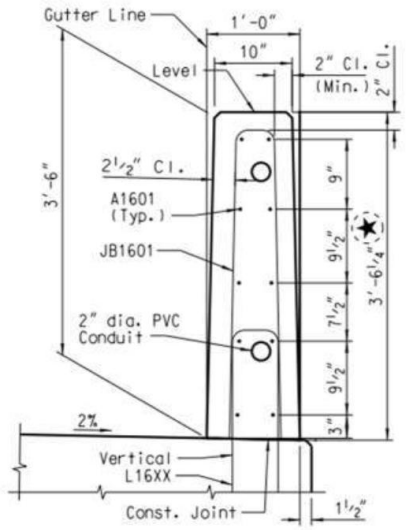
Section 1: Bridge Identification
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Bridge Railings (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (4)	I	B.RH.01	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Deck	Bridge	Railings

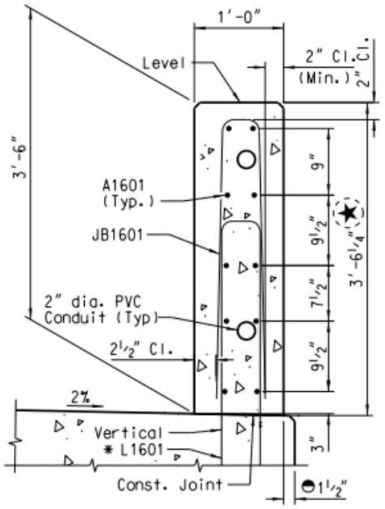
FHWA Commentary *[and SCDOT Markups]*

Slip-Formed MASH Barrier



SECTION THRU BARRIER
(Slab Reinforcing not Shown)

Hand-Formed MASH Barrier



SECTION THRU
VERTICAL BARRIER
(Slab Reinforcing and Asphalt Inlay not Shown)

Figure 1 – Code M094

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Bridge Railings (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (4)	I	B.RH.01	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Deck	Bridge	Railings

FHWA Commentary *[and SCDOT Markups]*

Example from Bridge Plans

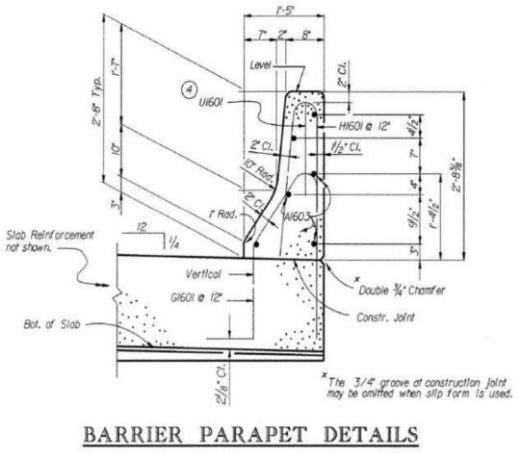


Figure 2 – Code 3504

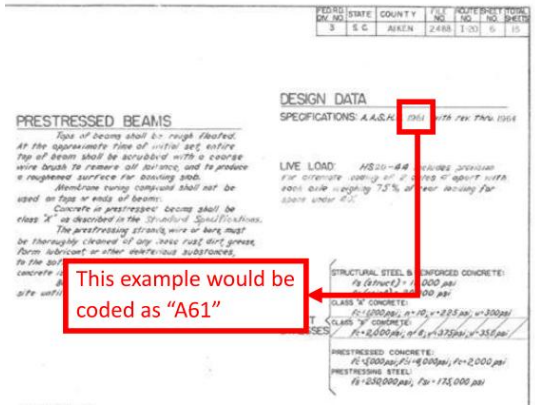


Figure 3 – Code AYY (Replace "YY" with the Specification Year in the Plans)

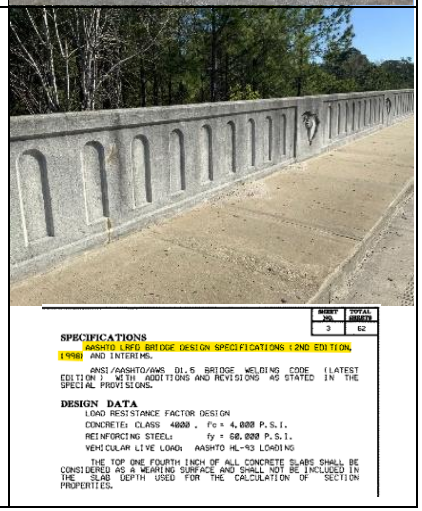
* Design specifications found on the standard notes and/or standard details sheets in the bridge plans

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Format	Frequency	Item ID Number	Item Ownership
AN (4)	I	B.RH.01	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Deck	Bridge	Railings

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
M094 - Roadside hardware successfully crash- tested for AASHTO MASH	Concrete barrier with standard MASH shape. **Code M094.**	10562	
3504 - Roadside hardware successfully crash- tested for NCHRP Report 350	32″ tall precast New Jersey shape reinforced concrete barrier parapet bolted to deck. **Code 3504**.	10958	
A98 - Roadside hardware has not been crash-tested but meets AASHTO Standard Specifications for Highway Bridges	Concrete bridge railing wall. Designed to AASHTO LRFD Design Specifications 2nd Edition 1998. **Code A98**.	00799	

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Bridge Railings (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (4)	I	B.RH.01	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Deck	Bridge	Railings

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
S21 - Roadside hardware has not been crash-tested but meets approved agency standards	Reinforced concrete bridge railing with concrete balusters. Designed to South Carolina State Highway Department, Specifications for Bridges 1921. **Code S21**.	00258	
N - Not applicable – roadside hardware is not required.	Timber curb with no qualified bridge railing and no evidence of railing ever present. **Code N.**	09317	
I - Roadside hardware has not been crash-tested and does not meet approved agency standards.	W beam with metal posts attached to top of concrete headwall. **Code I.**	00464	

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Transitions

Format	Frequency	Item ID Number	Item Ownership
AN (4)	I	B.RH.02	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Deck	Bridge	Transitions

FHWA Specification *[and SCDOT Markups]*	FHWA Commentary *[and SCDOT Markups]*
Report the crash-test level for transition railings using one of the codes in Table 6. For bridges with one-way traffic, and which a transition on the departure end of the bridge is not warranted (i.e. only a connection to develop the departure rail strength is warranted), the crash-test level of the departure end does not need to be reported when it is lower crash test level than the approach end.	This roadside hardware serves as the transition from the roadside approach railing to the bridge railing and is firmly attached and anchored to the bridge railing to provide sufficient tension in the transition rail upon impact. Use the code that first applies going from the bottom (Code 0) of Table 6 to the top (MYY), if there are more than one type of transition. A list of crash-tested transitions may be obtained from the FHWA Office of Highway Safety website at: http://safety.fhwa.dot.gov/roadway_dept/policy_guide/road_hardware/. Since 1993, transitions to bridge railings have been crash tested and classified according to the guidelines shown in NCHRP Report 350. In 2009 the AASHTO Manual for Assessing Safety Hardware (MASH) replaced NCHRP 350. Refer to State, Federal agency, or Tribal government policies for acceptable transition railing standards. Use code I when no information is known about the crash test level or an agency approved standard. Also, use code I when an overlay is applied to the deck/slab and the height no longer meets the original geometry requirements of the crash-tested transition.

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Appendix S6: Damage Defect Coding

Transitions (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (4)	I	B.RH.02	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Deck	Bridge	Transitions

FHWA Table 6 – Roadside Hardware Codes

Code	Test Level Code						Description
	1	2	3	4	5	6	
N							Not applicable – roadside hardware is not required.
	MYY1	MYY2	MYY3	MYY4	MYY5	MYY6	Roadside hardware successfully crash- tested for AASHTO MASH.
	3501	3502	3503	3504	3505	3506	Roadside hardware successfully crash- tested for NCHRP Report 350.
	2301	2302	2303				Roadside hardware successfully crash- tested for NCHRP Report 230.
	2391	2392	2393				Roadside hardware successfully crash- tested for NCHRP Report 239.
	891	892	893				Roadside hardware successfully crash- tested for 1989 AASHTO Guide Specifications for Bridge Railings.
X							Roadside hardware successfully crash- tested for other criteria.
AYY							Roadside hardware has not been crash-tested but meets AASHTO Standard Specifications for Highway Bridges.
SYY							Roadside hardware has not been crash-tested but meets approved agency standards.
I							Roadside hardware has not been crash-tested and does not meet approved agency standards.
0 (zero)							None - roadside hardware is required, but required roadside hardware is not present.

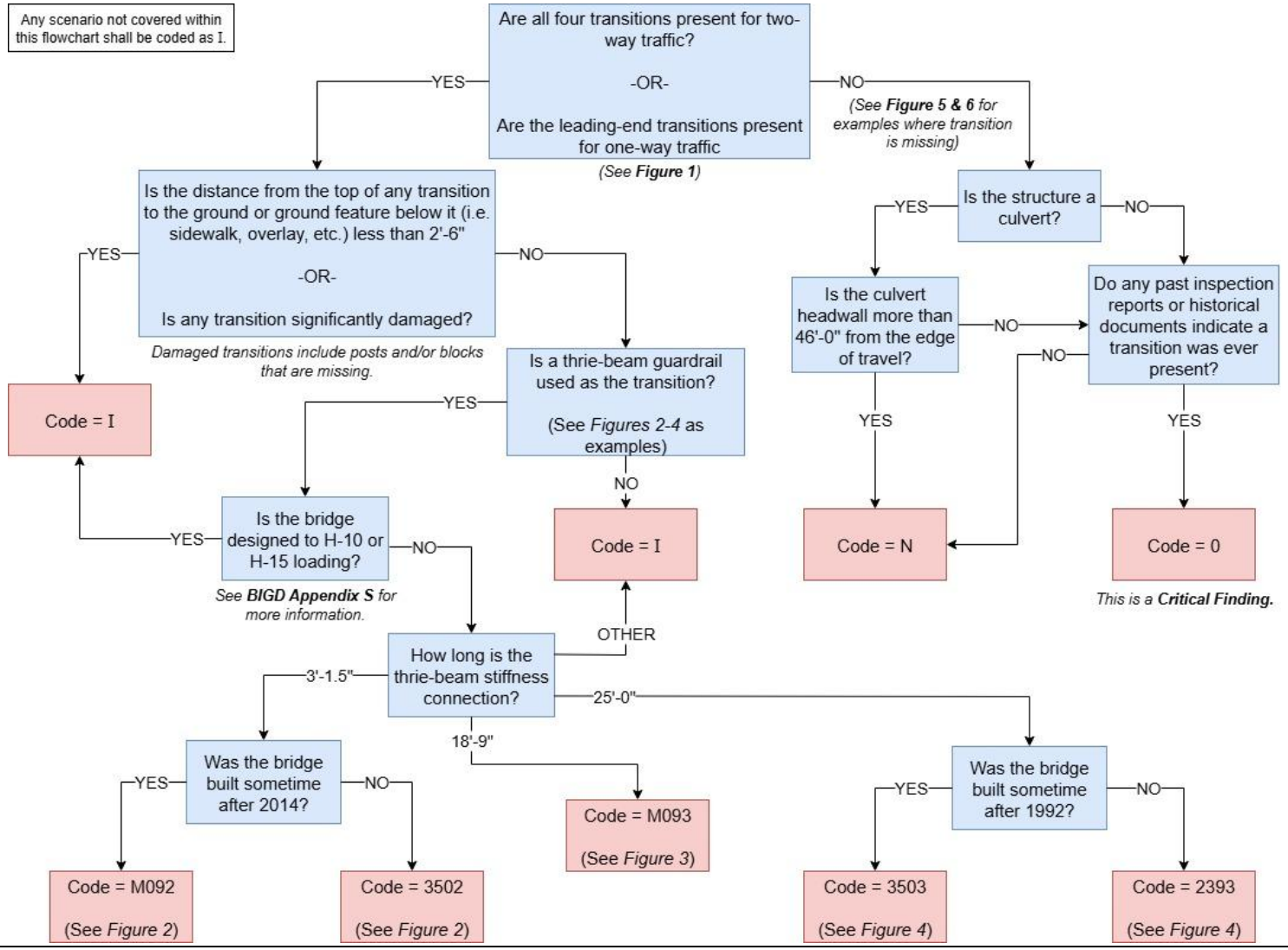
Note that YY, for codes in Table 6, represents the last two digits of the year for the crash testing publication, AASHTO Specifications, or agency approved standards.

Section 1: Bridge Identification
Section 2: Bridge Material and Type
Subsection 2.1: Span Material & Type
Subsection 2.2 Substructure
Subsection 2.3: Roadside Hardware
B.RH.01 Bridge Railings
B.RH.02 Transitions
Section 3: Bridge Geometry
Section 4: Features
Section 5: Loads, Rating, and Posting
Section 6: Inspections
Section 7: Bridge Condition
Section 8: State Bridge Inventory Fields
Appendix S1: Component Condition
Appendix S2: Timber Element and Defect
Appendix S3: Element Coding
Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Transitions (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (4)	I	B.RH.02	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Deck	Bridge	Transitions

FHWA Commentary *[and SCDOT Markups]*



South Carolina Department of Transportation

Section 1: Bridge Identification
Section 2: Bridge Material and Type
Subsection 2.1: Span Material & Type
Subsection 2.2 Substructure
Subsection 2.3: Roadside Hardware
B.RH.01 Bridge Railings
B.RH.02 Transitions
Section 3: Bridge Geometry
Section 4: Features
Section 5: Loads, Rating, and Posting
Section 6: Inspections
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Appendix S1: Component Condition
Appendix S2: Timber Element and Defect
Appendix S3: Element Coding
Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

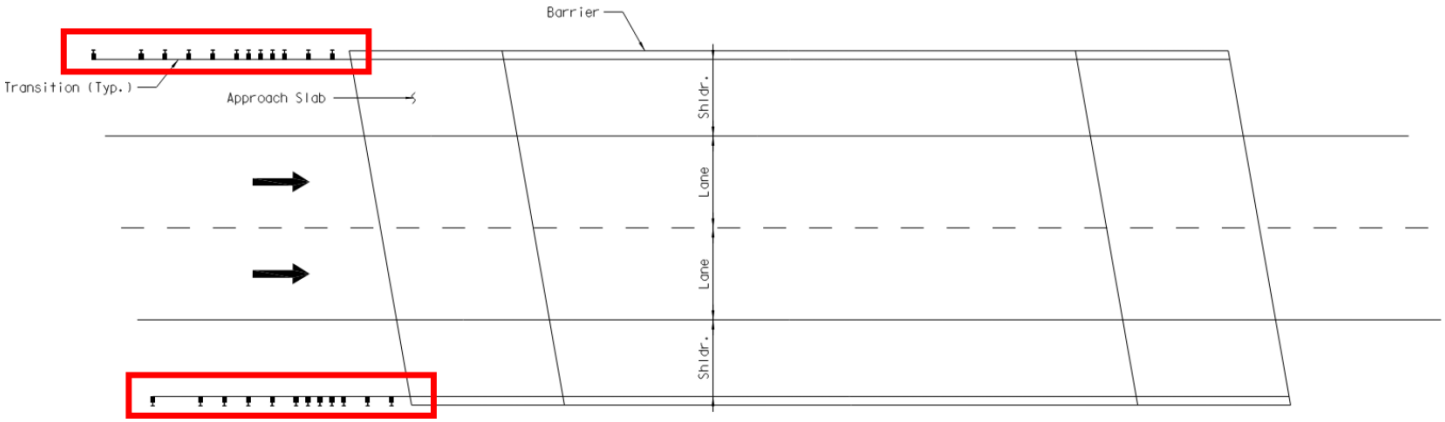
Transitions (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (4)	I	B.RH.02	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Deck	Bridge	Transitions

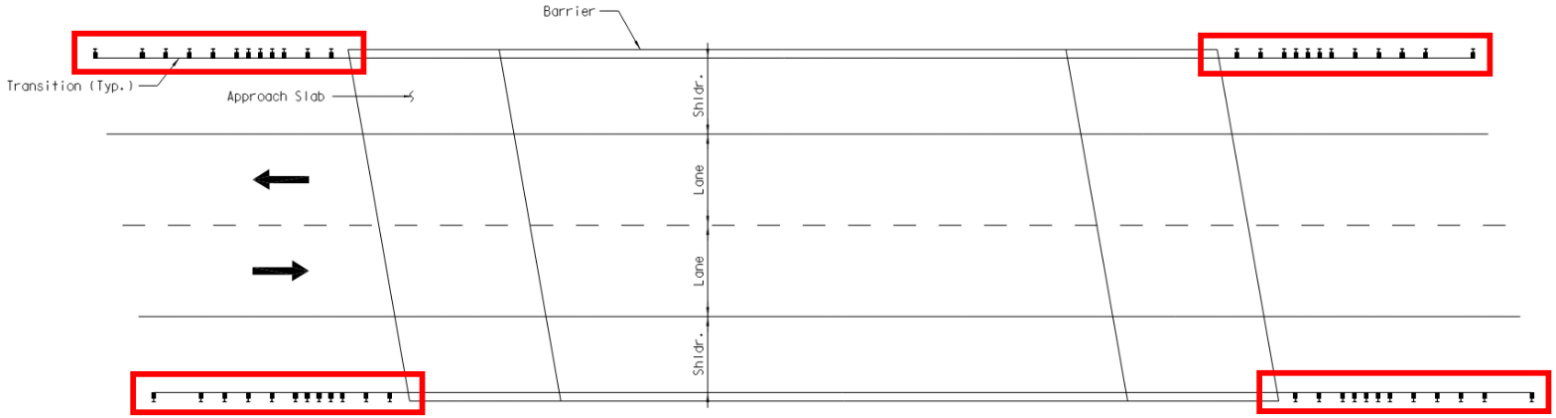
FHWA Commentary *[and SCDOT Markups]*

Figure 1 – Transitions for One-Way and Two-Way Traffic

One-Way Traffic Transitions



Two-Way Traffic Transitions



Section 1: Bridge Identification
Section 2: Bridge Material and Type
Subsection 2.1: Span Material & Type
Subsection 2.2 Substructure
Subsection 2.3: Roadside Hardware
B.RH.01 Bridge Railings
B.RH.02 Transitions
Section 3: Bridge Geometry
Section 4: Features
Section 5: Loads, Rating, and Posting
Section 6: Inspections
Section 7: Bridge Condition
Section 8: State Bridge Inventory Fields
Appendix S1: Component Condition
Appendix S2: Timber Element and Defect
Appendix S3: Element Coding
Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Transitions (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (4)	I	B.RH.02	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Deck	Bridge	Transitions

FHWA Commentary *[and SCDOT Markups]*

Figure 2 – Code M092 or 3502



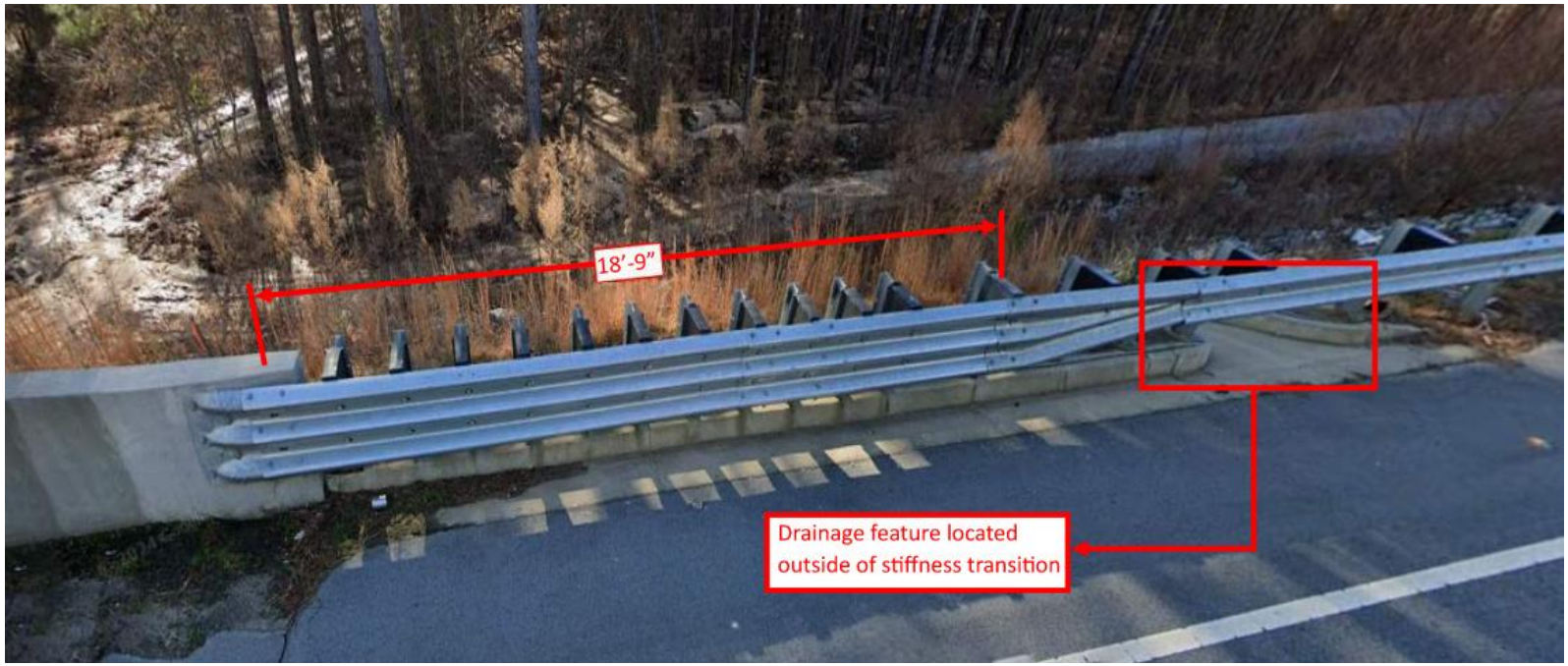
Section 1: Bridge Identification
Section 2: Bridge Material and Type
Subsection 2.1: Span Material & Type
Subsection 2.2 Substructure
Subsection 2.3: Roadside Hardware
B.RH.01 Bridge Railings
B.RH.02 Transitions
Section 3: Bridge Geometry
Section 4: Features
Section 5: Loads, Rating, and Posting
Section 6: Inspections
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Section 8: State Bridge Inventory Fields
Appendix S1: Component Condition
Appendix S2: Timber Element and Defect
Appendix S3: Element Coding
Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Transitions (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (4)	I	B.RH.02	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Deck	Bridge	Transitions

FHWA Commentary *[and SCDOT Markups]*

Figure 3 – Code M093



Section 1: Bridge Identification
Section 2: Bridge Material and Type
Subsection 2.1: Span Material & Type
Subsection 2.2 Substructure
Subsection 2.3: Roadside Hardware
B.RH.01 Bridge Railings
B.RH.02 Transitions
Section 3: Bridge Geometry
Section 4: Features
Section 5: Loads, Rating, and Posting
Section 6: Inspections
Section 7: Bridge Condition
Section 8: State Bridge Inventory Fields
Appendix S1: Component Condition
Appendix S2: Timber Element and Defect
Appendix S3: Element Coding
Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Transitions (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (4)	I	B.RH.02	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Data	Bridge	Transitions

FHWA Commentary *[and SCDOT Markups]*

Figure 4 – Code 3503 or 2393



Section 1: Bridge Identification
Section 2: Bridge Material and Type
Subsection 2.1: Span Material & Type
Subsection 2.2 Substructure
Subsection 2.3: Roadside Hardware
B.RH.01 Bridge Railings
B.RH.02 Transitions
Section 3: Bridge Geometry
Section 4: Features
Section 5: Loads, Rating, and Posting
Section 6: Inspections
Section 7: Bridge Condition
Section 8: State Bridge Inventory Fields
Appendix S1: Component Condition
Appendix S2: Timber Element and Defect
Appendix S3: Element Coding
Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Transitions (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (4)	I	B.RH.02	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Deck	Bridge	Transitions

FHWA Commentary *[and SCDOT Markups]*

Figure 5 – Code 0 or N



Section 1: Bridge Identification
Section 2: Bridge Material and Type
Subsection 2.1: Span Material & Type
Subsection 2.2 Substructure
Subsection 2.3: Roadside Hardware
B.RH.01 Bridge Railings
B.RH.02 Transitions
Section 3: Bridge Geometry
Section 4: Features
Section 5: Loads, Rating, and Posting
Section 6: Inspections
Section 7: Bridge Condition
Section 8: State Bridge Inventory Fields
Appendix S1: Component Condition
Appendix S2: Timber Element and Defect
Appendix S3: Element Coding
Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Transitions (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (4)	I	B.RH.02	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Deck	Bridge	Transitions

FHWA Commentary *[and SCDOT Markups]*

Figure 6 – Code 0 or N



Section 1: Bridge Identification
Section 2: Bridge Material and Type
Subsection 2.1: Span Material & Type
Subsection 2.2 Substructure
Subsection 2.3: Roadside Hardware
B.RH.01 Bridge Railings
B.RH.02 Transitions
Section 3: Bridge Geometry
Section 4: Features
Section 5: Loads, Rating, and Posting
Section 6: Inspections
Section 7: Bridge Condition
Section 8: State Bridge Inventory Fields
Appendix S1: Component Condition
Appendix S2: Timber Element and Defect
Appendix S3: Element Coding
Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Transitions (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (4)	I	B.RH.02	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Deck	Bridge	Transitions

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
I - Roadside hardware has not been crash-tested and does not meet approved agency standards.	W beam attached to trusses continues out as guardrail. **Code I**.	07320	
I – Roadside hardware has not been crash-tested and does not meet approved agency standards.	The W beam transitions to thrie-beam on the bridge. However, thrie-beam is not sued as the transition itself. **Code I.**	01087	
3503 - Roadside hardware successfully crash- tested for NCHRP Report 350.	25’ thrie beam attached to concrete railing. Bridge built in 2008. **Code 3503**.	04128	

Section 1: Bridge Identification
Section 2: Bridge Material and Type
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Subsection 2.2 Substructure
Subsection 2.3: Roadside Hardware
B.RH.01 Bridge Railings
B.RH.02 Transitions
Section 3: Bridge Geometry
Section 4: Features
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Section 6: Inspections
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Section 8: State Bridge Inventory Fields
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Appendix S2: Timber Element and Defect
Appendix S3: Element Coding
Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Transitions (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (4)	I	B.RH.02	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Deck	Bridge	Transitions

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
N - Not applicable – roadside hardware is not required	No transition or guardrail and no evidence of transition or guardrail ever present. **Code N**.	10958	

Section 1: Bridge Identification
Section 2: Bridge Material and Type
Section 3: Bridge Geometry
B.G.01 NBIS Bridge Length
B.G.02 Total Bridge Length
B.G.03 Maximum Span Length
B.G.04 Minimum Span Length
B.G.05 Bridge Width Out-to-Out
B.G.06 Bridge Width Curb-to-Curb
B.G.07 Left Curb/Sidewalk Width
B.G.08 Right Curb/Sidewalk Width
B.G.09 Approach Roadway Width
B.G.10 Bridge Median
B.G.11 Skew
B.G.12 Curved Bridge
B.G.13 Maximum Bridge Height
B.G.14 Sidehill Bridge
B.G.15 Irregular Deck Area
B.G.16 Calculated Deck Area
Section 4: Features
Section 5: Loads, Rating, and Posting
Section 6: Inspections
Section 7: Bridge Condition
Section 8: State Bridge Inventory Fields
Appendix S1: Component Condition
Appendix S2: Timber Element and Defect
Appendix S3: Element Coding
Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

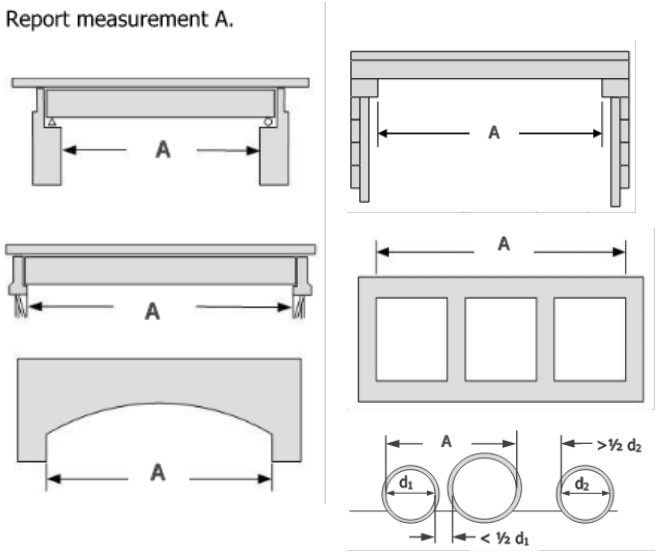
NBIS Bridge Length

Format	Frequency	Item ID Number	Item Ownership
N (7,1)	I	B.G.01	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Inventory and Condition Geometry	Bridge	NBISLength

FHWA Specification *[and SCDOT Markups]*

Report the NBIS bridge length to the nearest tenth of a foot measured along the roadway centerline.

Measure along the roadway centerline between undercopings of abutments or spring lines of arches.



For filled or closed spandrel arches, measure along the roadway centerline from inside faces of exterior spring lines.

For other bridges under fill, measure along the roadway centerline from inside faces of exterior walls; this includes multiple pipes, where the clear distance between openings is less than half of the smaller contiguous opening.

FHWA Commentary *[and SCDOT Markups]*

NBIS bridge definition: A structure, including supports, erected over a depression or an obstruction, such as water, highway, or railway, and having a track or passageway for carrying traffic or other moving loads, and having an opening measured along the center of the roadway of more than 20 feet between undercopings of abutments or spring lines of arches, or extreme ends of openings for multiple boxes; it includes multiple pipes, where the clear distance between openings is less than half of the smaller contiguous opening. (23 CFR 650.305)

Structures that meet the NBIS bridge definition, and NBIS applicability in 23 CFR 650.303, are reported to FHWA.

The roadway centerline is the physical center of the portion of the roadway for the movement of vehicles, regardless of striping, and exclusive of shoulders. The length for curved structures would be measured along the curved centerline.

When item B.G.02 (Total Bridge Length) is greater than 30.0 feet the value for this item may be estimated from plans or drawings, or estimated using the observed difference between items B.G.02 (Total Bridge Length) or B.G.03 (Maximum Span Length) and the NBIS bridge definition.

[This is the more restrictive of the two SNBI length measurements.]

Section 1: Bridge Identification
Section 2: Bridge Material and Type
Section 3: Bridge Geometry
B.G.01 NBIS Bridge Length
B.G.02 Total Bridge Length
B.G.03 Maximum Span Length
B.G.04 Minimum Span Length
B.G.05 Bridge Width Out-to-Out
B.G.06 Bridge Width Curb-to-Curb
B.G.07 Left Curb/Sidewalk Width
B.G.08 Right Curb/Sidewalk Width
B.G.09 Approach Roadway Width
B.G.10 Bridge Median
B.G.11 Skew
B.G.12 Curved Bridge
B.G.13 Maximum Bridge Height
B.G.14 Sidehill Bridge
B.G.15 Irregular Deck Area
B.G.16 Calculated Deck Area
Section 4: Features
Section 5: Loads, Rating, and Posting
Section 6: Inspections
Section 7: Bridge Condition
Section 8: State Bridge Inventory Fields
Appendix S1: Component Condition
Appendix S2: Timber Element and Defect
Appendix S3: Element Coding
Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

NBIS Bridge Length (continued)

Format	Frequency	Item ID Number	Item Ownership
N (7,1)	I	B.G.01	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Inventory and Condition Geometry	Bridge	NBISLength

FHWA Specification *[and SCDOT Markups]*	FHWA Commentary *[and SCDOT Markups]*
Vaulted abutments and enclosed spans or sections are included in the NBIS bridge length. Report the field measured *[during initial inspections]* NBIS bridge length when Item B.G.02 (Total Bridge Length) is less than 30 ft. *[When the Bridge Length is less than 30 feet, the value for this item is to be field measured rather than taken from plans.]* *[Any measurement taken between 20.0-20.1 will need to be rounded up to 20.1 when reporting this value.]*	

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
19.8	Multiple cell box culvert under fill. Measure or use value from plans along the roadway centerline from inside faces of exterior walls. Less than 30 feet: Field measurement required. **Code 19.8**. Bridge would not be reported to FHWA.	00108	
24.1	Closed spandrel arch under fill. Measure or use value from plans along the roadway centerline from inside faces of exterior walls. Less than 30 feet: Field measurement required. **Code 24.1.**	01722	

Section 1: Bridge Identification
Section 2: Bridge Material and Type
Section 3: Bridge Geometry
B.G.01 NBIS Bridge Length
B.G.02 Total Bridge Length
B.G.03 Maximum Span Length
B.G.04 Minimum Span Length
B.G.05 Bridge Width Out-to-Out
B.G.06 Bridge Width Curb-to-Curb
B.G.07 Left Curb/Sidewalk Width
B.G.08 Right Curb/Sidewalk Width
B.G.09 Approach Roadway Width
B.G.10 Bridge Median
B.G.11 Skew
B.G.12 Curved Bridge
B.G.13 Maximum Bridge Height
B.G.14 Sidehill Bridge
B.G.15 Irregular Deck Area
B.G.16 Calculated Deck Area
Section 4: Features
Section 5: Loads, Rating, and Posting
Section 6: Inspections
Section 7: Bridge Condition
Section 8: State Bridge Inventory Fields
Appendix S1: Component Condition
Appendix S2: Timber Element and Defect
Appendix S3: Element Coding
Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

NBIS Bridge Length (continued)

Format	Frequency	Item ID Number	Item Ownership
N (7,1)	I	B.G.01	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Inventory and Condition Geometry	Bridge	NBISLength

Examples

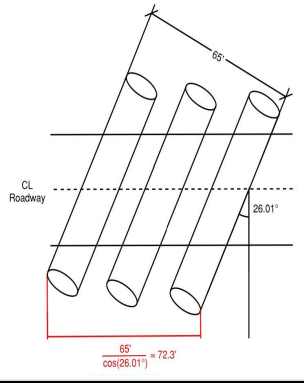
CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
96.3	Spans with cantilever/wall abutments. Measure or use value from plans along the roadway centerline between undercopings of abutments. **Code 96.3.**	00055	
48.3	Measure or use value from plans along the roadway centerline between undercopings of abutments. **Code 48.3.**	05304	
50.3	Measure or use value from plans along the roadway centerline from inside faces of exterior walls; this includes multiple pipes, where the clear distance between openings is less than half of the smaller contiguous opening. **Code 50.3.**	05210	

Section 1: Bridge Identification
Section 2: Bridge Material and Type
Section 3: Bridge Geometry
B.G.01 NBIS Bridge Length
B.G.02 Total Bridge Length
B.G.03 Maximum Span Length
B.G.04 Minimum Span Length
B.G.05 Bridge Width Out-to-Out
B.G.06 Bridge Width Curb-to-Curb
B.G.07 Left Curb/Sidewalk Width
B.G.08 Right Curb/Sidewalk Width
B.G.09 Approach Roadway Width
B.G.10 Bridge Median
B.G.11 Skew
B.G.12 Curved Bridge
B.G.13 Maximum Bridge Height
B.G.14 Sidehill Bridge
B.G.15 Irregular Deck Area
B.G.16 Calculated Deck Area
Section 4: Features
Section 5: Loads, Rating, and Posting
Section 6: Inspections
Section 7: Bridge Condition
Section 8: State Bridge Inventory Fields
Appendix S1: Component Condition
Appendix S2: Timber Element and Defect
Appendix S3: Element Coding
Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

NBIS Bridge Length (continued)

Format	Frequency	Item ID Number	Item Ownership
N (7,1)	I	B.G.01	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Inventory and Condition Geometry	Bridge	NBISLength

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
72.3	Measure or use value from plans along the roadway centerline from inside faces of exterior walls; this includes multiple pipes, where the clear distance between openings is less than half of the smaller contiguous opening. **Code 72.3.**	N/A	

Section 1: Bridge Identification
Section 2: Bridge Material and Type
Section 3: Bridge Geometry
B.G.01 NBIS Bridge Length
B.G.02 Total Bridge Length
B.G.03 Maximum Span Length
B.G.04 Minimum Span Length
B.G.05 Bridge Width Out-to-Out
B.G.06 Bridge Width Curb-to-Curb
B.G.07 Left Curb/Sidewalk Width
B.G.08 Right Curb/Sidewalk Width
B.G.09 Approach Roadway Width
B.G.10 Bridge Median
B.G.11 Skew
B.G.12 Curved Bridge
B.G.13 Maximum Bridge Height
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B.G.16 Calculated Deck Area
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Appendix S3: Element Coding
Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Total Bridge Length

Format	Frequency	Item ID Number	Item Ownership
N (7,1)	I	B.G.02	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Inventory and Condition Geometry	Bridge	TotalLength

FHWA Specification *[and SCDOT Markups]*

Report the total length of the bridge to the nearest tenth of a foot measured along the roadway centerline.

Measure along the roadway centerline from back-to-back of backwalls *[when no paving notch is present.] [When a paving notch is present at the abutment back walls,]* measure from paving notch to paving notch at abutments.

For filled or closed spandrel arches, measure along the roadway centerline from inside faces of exterior spring lines when well-defined backwalls or paving notches do not exist.

For other bridges under fill, measure along the roadway centerline from inside faces of exterior walls.

For bridges with vaulted abutments and enclosed spans or sections, measure from back-to-back of backwalls or from paving notch to paving notch inclusive of the vaulted abutments and enclosed spans.

FHWA Commentary *[and SCDOT Markups]*

The total bridge length measurement can be used with the bridge width out-to-out to calculate an estimated deck area.

The roadway centerline is the physical center of the portion of the roadway for the movement of vehicles, regardless of striping, and exclusive of shoulders. The total bridge length for curved bridges is measured along the curved centerline.

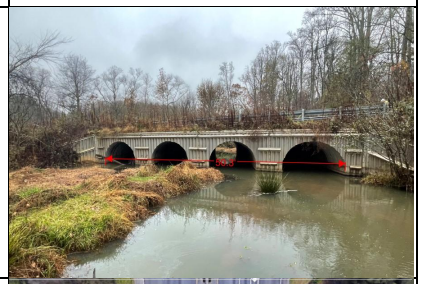
[The Total Bridge Length may match the NBIS Bridge Length (B.G.01) for pipes and culverts under fill.]

Section 1: Bridge Identification
Section 2: Bridge Material and Type
Section 3: Bridge Geometry
B.G.01 NBIS Bridge Length
B.G.02 Total Bridge Length
B.G.03 Maximum Span Length
B.G.04 Minimum Span Length
B.G.05 Bridge Width Out-to-Out
B.G.06 Bridge Width Curb-to-Curb
B.G.07 Left Curb/Sidewalk Width
B.G.08 Right Curb/Sidewalk Width
B.G.09 Approach Roadway Width
B.G.10 Bridge Median
B.G.11 Skew
B.G.12 Curved Bridge
B.G.13 Maximum Bridge Height
B.G.14 Sidehill Bridge
B.G.15 Irregular Deck Area
B.G.16 Calculated Deck Area
Section 4: Features
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Section 6: Inspections
Section 7: Bridge Condition
Section 8: State Bridge Inventory Fields
Appendix S1: Component Condition
Appendix S2: Timber Element and Defect
Appendix S3: Element Coding
Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Total Bridge Length (continued)

Format	Frequency	Item ID Number	Item Ownership
N (7,1)	I	B.G.02	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Inventory and Condition Geometry	Bridge	TotalLength

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
50.3	Multi-pipe culvert under fill. Measure or use value from plans along the roadway centerline from inside faces of exterior walls. **Code 50.3.**	05210	
285.3	Multiple span straight bridge. Measure or use value from plans along the roadway centerline from paving notch to paving notch at abutments. **Code 285.3.**	08746	
254.8	Multiple span curved bridge. The total bridge length for curved bridges is measured along the curved centerline. **Code 254.8.**	10418	
31.8	Multiple cell box culvert under fill. Measure or use value from plans along the roadway centerline from inside faces of exterior walls. **Code 31.8.**	00247	

Section 1: Bridge Identification
Section 2: Bridge Material and Type
Section 3: Bridge Geometry
B.G.01 NBIS Bridge Length
B.G.02 Total Bridge Length
B.G.03 Maximum Span Length
B.G.04 Minimum Span Length
B.G.05 Bridge Width Out-to-Out
B.G.06 Bridge Width Curb-to-Curb
B.G.07 Left Curb/Sidewalk Width
B.G.08 Right Curb/Sidewalk Width
B.G.09 Approach Roadway Width
B.G.10 Bridge Median
B.G.11 Skew
B.G.12 Curved Bridge
B.G.13 Maximum Bridge Height
B.G.14 Sidehill Bridge
B.G.15 Irregular Deck Area
B.G.16 Calculated Deck Area
Section 4: Features
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Section 8: State Bridge Inventory Fields
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Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Total Bridge Length (continued)

Format	Frequency	Item ID Number	Item Ownership
N (7,1)	I	B.G.02	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Inventory and Condition Geometry	Bridge	TotalLength

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
51.7	Single span straight bridge. Measure or use value from plans along the roadway centerline from back-to-back of backwalls. **Code 51.7.**	05304	

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Section 2: Bridge Material and Type
Section 3: Bridge Geometry
B.G.01 NBIS Bridge Length
B.G.02 Total Bridge Length
B.G.03 Maximum Span Length
B.G.04 Minimum Span Length
B.G.05 Bridge Width Out-to-Out
B.G.06 Bridge Width Curb-to-Curb
B.G.07 Left Curb/Sidewalk Width
B.G.08 Right Curb/Sidewalk Width
B.G.09 Approach Roadway Width
B.G.10 Bridge Median
B.G.11 Skew
B.G.12 Curved Bridge
B.G.13 Maximum Bridge Height
B.G.14 Sidehill Bridge
B.G.15 Irregular Deck Area
B.G.16 Calculated Deck Area
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Maximum Span Length

Format	Frequency	Item ID Number	Item Ownership
N (5,1)	I	B.G.03	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Inventory and Condition Geometry	Bridge	MaxSpanLength

FHWA Specification *[and SCDOT Markups]*	FHWA Commentary and *[SCDOT Markups]*
Report the length of the maximum span to the nearest tenth of foot, measured from centerline of bearing to centerline of bearing, along the roadway centerline.	For rigid frames, arches, pipes, integral abutments, or similar type bridges where there is not a clear centerline of bearing, use the clear open distance between piers, bents, walls, or abutments. The roadway centerline is the physical center of the portion of the roadway for the movement of vehicles, regardless of striping, and exclusive of shoulders. The length for curved bridges would be measured along the curved centerline. For bridges with in-span hinges or bearings, measure from centerline of substructure bearing to centerline of substructure bearing, or clear open distance between substructure units when there is not a clear centerline of bearing. For bridges with single spans this item has the same value as B.G.04 (Minimum Span Length).

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
40.0	Continuous or Simple Spans. Report the length of the maximum span to the nearest tenth of foot, measured from centerline of bearing to centerline of bearing. **Code 40.0.**	01173	

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B.G.02 Total Bridge Length
B.G.03 Maximum Span Length
B.G.04 Minimum Span Length
B.G.05 Bridge Width Out-to-Out
B.G.06 Bridge Width Curb-to-Curb
B.G.07 Left Curb/Sidewalk Width
B.G.08 Right Curb/Sidewalk Width
B.G.09 Approach Roadway Width
B.G.10 Bridge Median
B.G.11 Skew
B.G.12 Curved Bridge
B.G.13 Maximum Bridge Height
B.G.14 Sidehill Bridge
B.G.15 Irregular Deck Area
B.G.16 Calculated Deck Area
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Appendix S3: Element Coding
Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Maximum Span Length (continued)

Format	Frequency	Item ID Number	Item Ownership
N (5,1)	I	B.G.03	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Inventory and Condition Geometry	Bridge	MaxSpanLength

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
132.3	Curved Bridges. Report the length of the maximum span to the nearest tenth of foot, measured from centerline of bearing to centerline of bearing, along the curved centerline. **Code 132.3.**	10418	
133.5	Multiple Arch Spans. For arches where there is not a clear centerline of bearing, use the clear open distance between piers, bents, walls, or abutments. **Code 133.5.**	00258	
9.0	Pipe Culverts. For pipes where there is not a clear centerline of bearing, use the clear open distance between walls, or abutments. If all pipes are same diameter, record the typical diameter. **Code 9.0.**	05210	

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B.G.02 Total Bridge Length
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B.G.04 Minimum Span Length
B.G.05 Bridge Width Out-to-Out
B.G.06 Bridge Width Curb-to-Curb
B.G.07 Left Curb/Sidewalk Width
B.G.08 Right Curb/Sidewalk Width
B.G.09 Approach Roadway Width
B.G.10 Bridge Median
B.G.11 Skew
B.G.12 Curved Bridge
B.G.13 Maximum Bridge Height
B.G.14 Sidehill Bridge
B.G.15 Irregular Deck Area
B.G.16 Calculated Deck Area
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Maximum Span Length (continued)

Format	Frequency	Item ID Number	Item Ownership
N (5,1)	I	B.G.03	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Inventory and Condition Geometry	Bridge	MaxSpanLength

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
10.2	Multiple Span Frame Culvert. For rigid frames where there is not a clear centerline of bearing, use the clear open distance between walls. **Code 10.2.**	00047	

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Minimum Span Length

Format	Frequency	Item ID Number	Item Ownership
N (5,1)	I	B.G.04	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Inventory and Condition Geometry	Bridge	MinSpanLength

FHWA Specification *[and SCDOT Markups]*	FHWA Commentary *[and SCDOT Markups]*
Report the length of the minimum span to the nearest tenth of foot, measured from centerline of bearing to centerline of bearing, along the roadway centerline.	For rigid frames, arches, pipes, integral abutments, or similar type bridges where there is not a clear centerline of bearing, use the clear open distance between piers, bents, or abutments. The roadway centerline is the physical center of the portion of the roadway for the movement of vehicles, regardless of striping, and exclusive of shoulders. The length for curved bridges is measured along the curved centerline. For bridges with in-span hinges or bearings, measure from centerline of substructure bearing to centerline of substructure bearing, or clear open distance between substructure units when there is not a clear centerline of bearing. For bridges with single spans this item has the same value as B.G.03 (Maximum Span Length). *[See Item B.G.03 for specific examples for span length, but record minimum span length.]*

Examples

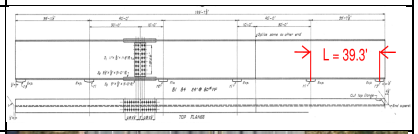
CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
132.0	Multiple Arch Spans. For arches where there is not a clear centerline of bearing, use the clear open distance between piers, bents, walls, or abutments. **Code 132.0.**	00258	

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Appendix S5: Scour Condition Coding
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Minimum Span Length (continued)

Format	Frequency	Item ID Number	Item Ownership
N (5,1)	I	B.G.04	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Inventory and Condition Geometry	Bridge	MinSpanLength

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
39.3	Continuous or Simple Spans. Report the length of the minimum span to the nearest tenth of foot, measured from centerline of bearing to centerline of bearing. **Code 39.3.**	01173	
122.5	Curved Bridges. Report the length of the minimum span to the nearest tenth of foot, measured from centerline of bearing to centerline of bearing, along the curved centerline. **Code 122.5**.	10418	
9.0	Pipe Culverts. For pipes where there is not a clear centerline of bearing, use the clear open distance between walls, or abutments. If all pipes are same diameter, record the typical diameter. **Code 9.0**.	05210	
10.1	Multiple Span Frame Culvert. For rigid frames where there is not a clear centerline of bearing, use the clear open distance between walls. **Code 10.1**.	00047	

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B.G.07 Left Curb/Sidewalk Width
B.G.08 Right Curb/Sidewalk Width
B.G.09 Approach Roadway Width
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Bridge Width Out-to-Out

Format	Frequency	Item ID Number	Item Ownership
N (4,1)	I	B.G.05	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Inventory and Condition Geometry	Bridge	WidthOutToOut

FHWA Specification *[and SCDOT Markups]*

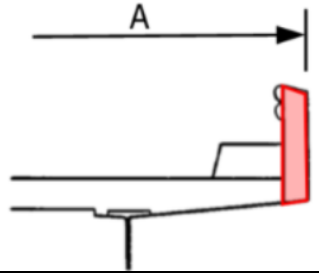
Report the minimum out-to-out width measured perpendicular to the centerline of the roadway to the nearest tenth of a foot.

For multiple (double) deck bridges that are inventoried as one bridge, measure all levels, and report the sum of the measurements to account for the total width carried on the bridge.

For bridges under fill, measure the width from out-to-out of the headwalls or barrel ends.

For bridges that carry multiple types of service, for example highway, pedestrian, and railroad, measure the out-to-out width that encompasses all service types.

[The out-to-out measurement is to the back face of extreme bridge members associated with the deck, superstructure, or rail. This excludes non-bridge members such as utilities. For bridges where the rail is mounted to the side of the bridge, the measurement will include the post thickness.]



FHWA Commentary *[and SCDOT Markups]*

For bridges under fill, the reported value can be limited to the width of the roadway section over the bridge for unusual situations where the bridge continues far beyond the roadway cross-section, and a lesser width would likely be constructed for a replacement project.

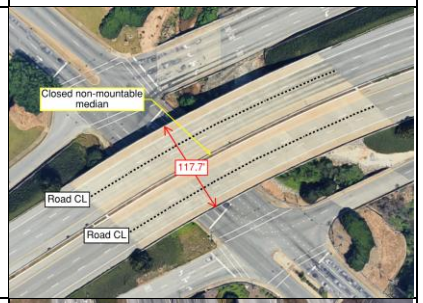
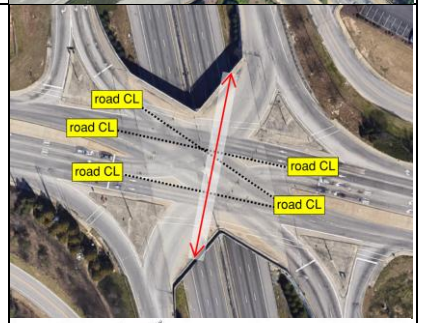
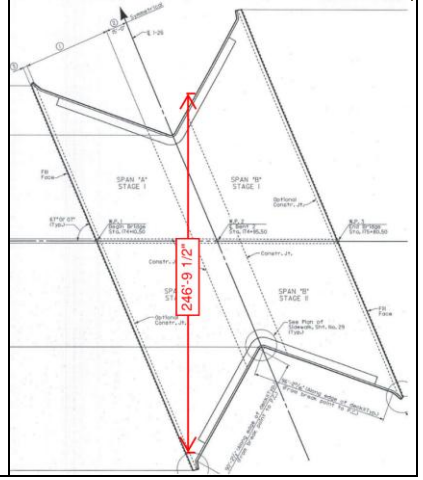
For bridges under fill, in which the features that define the out-to-out width are not parallel, report the minimum out-to-out width.

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B.G.06 Bridge Width Curb-to-Curb
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B.G.08 Right Curb/Sidewalk Width
B.G.09 Approach Roadway Width
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Bridge Width Out-to-Out (continued)

Format	Frequency	Item ID Number	Item Ownership
N (4,1)	I	B.G.05	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Inventory and Condition Geometry	Bridge	WidthOutToOut

Examples

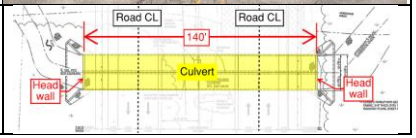
CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
117.7	Median is non-mountable. Measure the minimum width from deck exterior face to deck exterior face including the median width. **Code 117.7**	03877	
246.8	Measure the minimum out-to-out width perpendicular to the roadway centerline. **Code 246.8.**	02797	 

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Bridge Width Out-to-Out (continued)

Format	Frequency	Item ID Number	Item Ownership
N (4,1)	I	B.G.05	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Inventory and Condition Geometry	Bridge	WidthOutToOut

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
28.8	Measure the minimum measurement from back of timber rail post to back of timber rail post. **Code 28.8**	04634	
140.0	Box culvert. Measure the minimum measurement from headwall exterior face to headwall exterior face taken perpendicular to the roadway centerline. **Code 140.0.**	00600	

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B.G.04 Minimum Span Length
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B.G.06 Bridge Width Curb-to-Curb
B.G.07 Left Curb/Sidewalk Width
B.G.08 Right Curb/Sidewalk Width
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Bridge Width Curb-to-Curb

Format	Frequency	Item ID Number	Item Ownership
N (4,1)	I	B.G.06	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Inventory and Condition Geometry	Bridge	WidthCurbToCurb

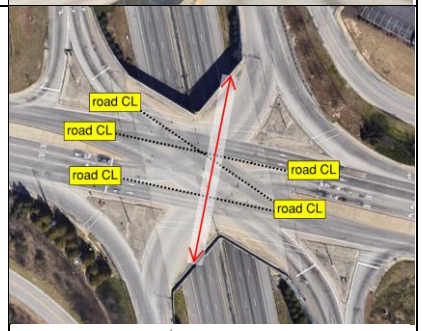
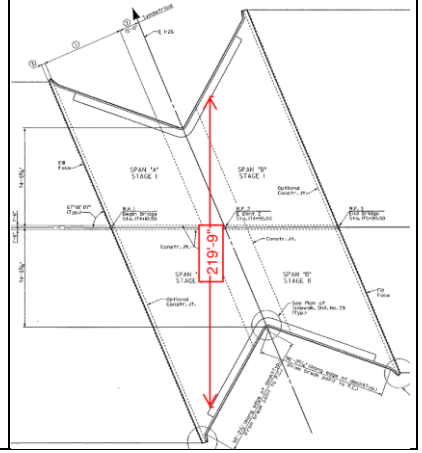
FHWA Specification *[and SCDOT Markups]*	FHWA Commentary *[and SCDOT Markups]*
Report the sum of the most restrictive minimum usable distances for all roadways carried by the bridge. Measure the distance on the bridge perpendicular to the centerline of the roadway between curbs or rails to the nearest tenth of a foot. Exclude from the usable distance measurement medians, sidewalks, structurally inadequate shoulders, and other non-mountable areas. The measurement for this item shall be compatible with the measurements used for Item B.H.08 (Lanes On Highway), Item B.G.09 (Approach Roadway Width), and Item B.H.09 (Annual Average Daily Traffic). For multiple (double) deck bridges that are inventoried as one bridge, measure all levels, and report the sum of the most restrictive minimum usable distances carried by the bridge. For sidehill bridges *[(see B.G.14)]* measure the actual full curb-to-curb roadway width. For bridges that carry multiple types of service, for example highway, pedestrian, and railroad, report the usable distance that serves the highway service as denoted by curb or barrier separation, or other delineation that separates the service types.	Usable roadway width includes the width of traffic lanes and the widths of shoulders. Shoulders must be contiguous with the traveled way and must be structurally adequate for all weather and traffic conditions consistent with the facility carried. Unstabilized grass or dirt, with no base course, flush with and beside the traffic lane is not to be considered a shoulder for this item. Refer to agency policy for when and where stabilized shoulders are used. When it is not readily known if stabilized construction details were used, the presence of rutting, heaving, water retention, or other distress may be used as indicators that the shoulder is not stabilized. *[If the inspector is unsure of the structural adequacy of the shoulder, the shoulder shall not be included.]* For bridges under fill, the usable roadway width crossing the bridge is commonly the same value reported for Item B.G.09 (Approach Roadway Width). A barrier or curb greater than 6 inches high may be considered non-mountable for these specifications *[and not included in curb-to-curb distances].*

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Bridge Width Curb-to-Curb (continued)

Format	Frequency	Item ID Number	Item Ownership
N (4,1)	I	B.G.06	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Inventory and Condition Geometry	Bridge	WidthCurbToCurb

Examples

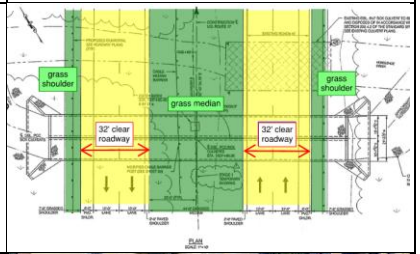
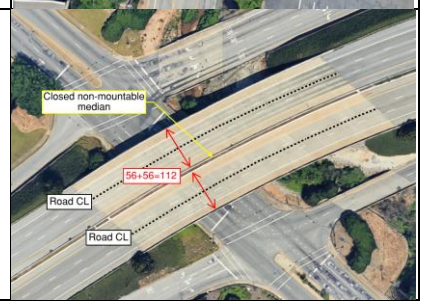
CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
88.0	Median is non-mountable. Sum the curb-to-curb widths on each side of the barrier (44.0'+44.0'). **Code 88.0.**	08516	
219.9	Measure the minimum curb-to-curb width perpendicular to the roadway centerline. **Code 219.9.**	02797	 

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Bridge Width Curb-to-Curb (continued)

Format	Frequency	Item ID Number	Item Ownership
N (4,1)	I	B.G.06	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Inventory and Condition Geometry	Bridge	WidthCurbToCurb

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
72.0	Culvert carrying traffic separated by a grass median. Sum the paved, clear roadways between the grass shoulders and grass median (36.0'+36.0'). **Code 72.0.**	00600	
56.0	Median is mountable. Sum each roadway width and mountable median width (26.0'+4.0'+26.0'). **Code 56.0.**	05066	
112.0	Median is non-mountable. Sum the curb-to-curb widths on each side of the barrier (56.0'+56.0'). **Code 112.0.**	03877	

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Left Curb or Sidewalk Width

Format	Frequency	Item ID Number	Item Ownership
N (3,1)	I	B.G.07	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Inventory and Condition Geometry	Bridge	LeftCurbWidth

FHWA Specification *[and SCDOT Markups]*	FHWA Commentary *[and SCDOT Markups]*
Report the minimum width of the left curb or sidewalk to the nearest tenth of a foot from the face of bridge rail to the face of curb. Measure the width perpendicular to the centerline of the roadway. Report 0.0 when the face of the curb does not extend beyond the face of the bridge rail. Report 0.0 when there is no left curb or sidewalk.	When a defined longitudinal joint exists between the curb and the sidewalk, such as a granite curb and concrete sidewalk, measure the width from the face of bridge rail to the face of the granite curb.

Examples

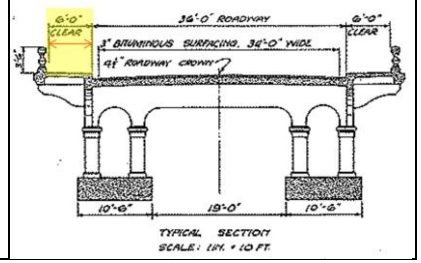
CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
0.3	Measure the minimum width of the timber wheel guard from the edge of the railing to the edge of the wheel guard perpendicular to the roadway centerline. **Code 0.3.**	00633	
0.0	Curb does not extend beyond thrie beam retrofit. **Code 0.0**	03511	

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Left Curb or Sidewalk Width (continued)

Format	Frequency	Item ID Number	Item Ownership
N (3,1)	I	B.G.07	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Inventory and Condition Geometry	Bridge	LeftCurbWidth

Examples

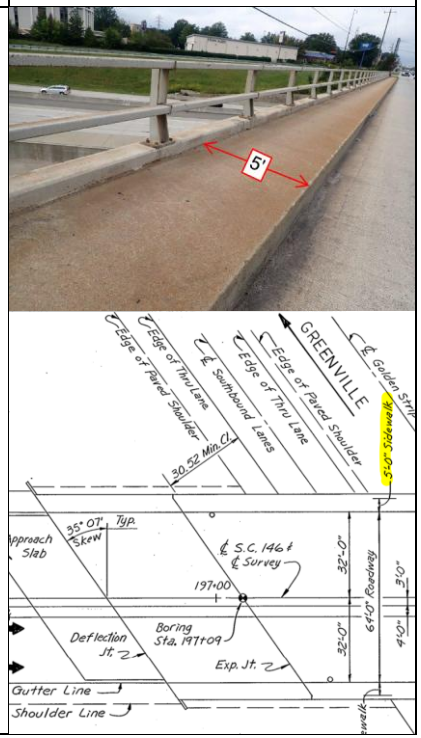
CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
6.0	Measure the minimum sidewalk width from the edge of the railing to the edge of the sidewalk perpendicular to the centerline of the roadway. **Code 6.0.**	00258	 

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Left Curb or Sidewalk Width (continued)

Format	Frequency	Item ID Number	Item Ownership
N (3,1)	I	B.G.07	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Inventory and Condition Geometry	Bridge	LeftCurbWidth

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
5.0	Measure the minimum sidewalk width from the edge of the railing to the edge of the sidewalk perpendicular to the roadway centerline. **Code 5.0.**	07463	

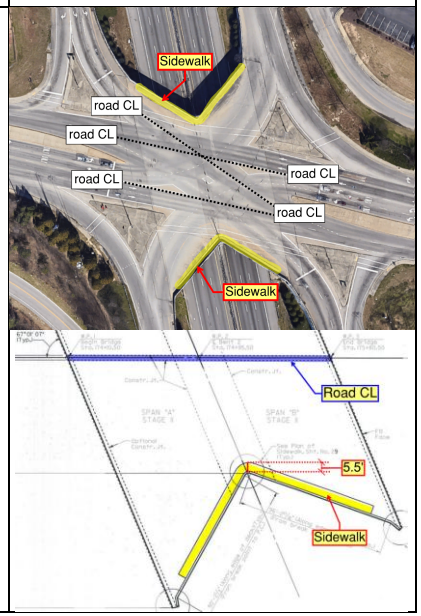
South Carolina Department of Transportation

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Format	Frequency	Item ID Number	Item Ownership
N (3,1)	I	B.G.07	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Inventory and Condition Geometry	Bridge	LeftCurbWidth

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
5.5	Measure the minimum sidewalk width measured perpendicular to the roadway centerline. **Code 5.5**	02797	

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Right Curb or Sidewalk Width

Format	Frequency	Item ID Number	Item Ownership
N (3,1)	I	B.G.08	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Inventory and Condition Geometry	Bridge	RightCurbWidth

FHWA Specification *[and SCDOT Markups]*	FHWA Commentary *[and SCDOT Markups]*
Report the minimum width of the right curb or sidewalk to the nearest tenth of a foot from the face of bridge rail to the face of curb. Measure the width perpendicular to the centerline of the roadway. Report 0.0 when the face of the curb does not extend beyond the face of the bridge rail. Report 0.0 when there is no right curb or sidewalk.	When a defined longitudinal joint exists between the curb and the sidewalk, such as a granite curb and concrete sidewalk, measure the width from the face of bridge rail to the face of the granite curb. *[See Item B.G.07 for specific sidewalk examples.]*

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Approach Roadway Width

Format	Frequency	Item ID Number	Item Ownership
N (4,1)	I	B.G.09	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Inventory and Condition Geometry	Bridge	ApproachRoadwayWidth

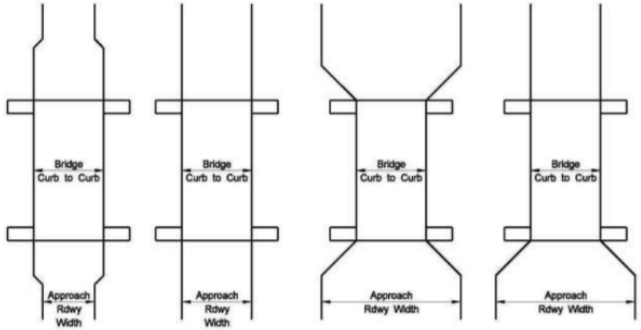
FHWA Specification *[and SCDOT Markups]*

Report the minimum usable approach roadway width measured to the nearest tenth of a foot.

Measure the distance perpendicular to the centerline of the roadway between curbs or rails that is representative of the approach roadway within 100 feet of the bridge. Exclude from the usable distance measurement: medians, sidewalks, and other protected areas with non-mountable curbs or barriers. *[Usable roadway widths shall be measured beyond the roadway transitions approaching the structure.]*

Report the lesser of the two approach roadway widths for bridges that carry two-way traffic *[or the most restrictive (considering curbs and rails) of the usable route widths at either end of the bridge.]*

Report the width at the approach end for bridges that carry one-way traffic *[not the departing end.]*



[SNBI Items B.G.09 and B.G.06 (Bridge Width, curb-to-curb) are measured and coded separately; see above figure for examples of where the items may be dissimilar.]

FHWA Commentary *[and SCDOT Markups]*

Usable roadway width includes the width of traffic lanes and the width of shoulders. Shoulders must be contiguous with the traveled way and must be structurally adequate for all weather and traffic conditions consistent with the facility carried. Unstabilized grass or dirt, with no base course, flush with and beside the traffic lane is not to be considered a shoulder for this item. When it is not readily known if stabilized construction details were used, the presence of rutting, heaving, water retention, or other distress may be used as indicators that the shoulder is not stabilized. *[If an inspector is not sure of the structural adequacy of a shoulder, the shoulder shall not be included.]*

A curb greater than 6 inches high may be considered non-mountable for these specifications.

[If a ramp is adjacent to the mainline lanes approaching the bridge, it shall be included in the approach roadway width if both roadways are carried on one bridge. If the mainline roadway and ramp are on two different bridges, record the approach roadway widths separately for each bridge; see figure below.



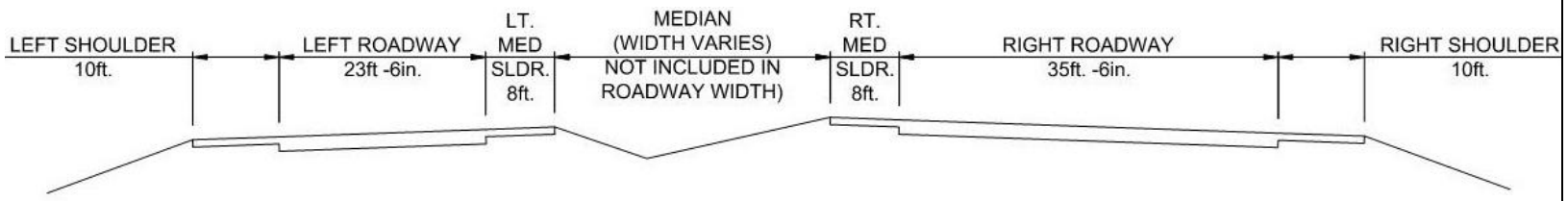
Approach Roadway Mainline and Ramp on Different Bridges = Record A and B Separately for Each Bridge. Otherwise, the item requires the reporting of the lesser of the two approach roadway widths for bridges that carry two-way traffic where differing measurements on each abutment side of the bridge with the lesser of the two being reported. The sum of A and B would be captured on each side of the bridge and the lesser value reported.

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Approach Roadway Width (continued)

Format	Frequency	Item ID Number	Item Ownership
N (4,1)	I	B.G.09	TBD
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Inventory and Condition Geometry	Bridge	ApproachRoadwayWidth

Visual Diagram



Example to Determine Approach Roadway Width (SNBI Item B.G.09):

Both directions of traffic are carried on bridge
LEFT SHOULDER = 10 feet (inspector confirmed structurally adequate)
LEFT ROADWAY = 23.5 feet
LEFT MEDIAN SHOULDER = 8 feet (inspector confirmed structurally adequate)
RIGHT MEDIAN SHOULDER = 8 feet (inspector confirmed structurally adequate)
RIGHT ROADWAY = 35.5 feet
RIGHT SHOULDER = 10 feet (inspector confirmed structurally adequate)
TOTAL 95 feet (Code 95.0)
If the same calculation at the other abutment yields a lesser value, code the lesser value.

Median is not included in SNBI Item B.G.09 (non-roadway)

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Approach Roadway Width (continued)

Format	Frequency	Item ID Number	Item Ownership
N (4,1)	I	B.G.09	TBD
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Inventory and Condition Geometry	Bridge	ApproachRoadwayWidth

Examples

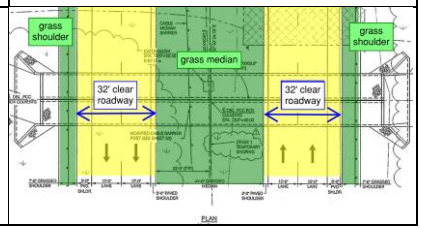
CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
42.7	The minimum approach widths measured perpendicular to the roadway centerline at the four approaches are approximately 42.7 feet, 46.5 feet, 53.0 feet, and 55.2 feet. **Code 42.7.**	02797	
56.0	Median is mountable. Sum the total clear roadway width and the mountable median width measured perpendicular to the curved roadway centerline. **Code 56.0.**	05066	
49.8	The bridge carries only northbound traffic. Measure the minimum approach width measured at the south approach. **Code 49.8.**	09402	

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Approach Roadway Width (continued)

Format	Frequency	Item ID Number	Item Ownership
N (4,1)	I	B.G.09	TBD
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Inventory and Condition Geometry	Bridge	ApproachRoadwayWidth

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
64.0	The culvert carries traffic separated by a grass median. Measuring perpendicular to the roadway centerline, the approach of each bound has a 6 foot paved shoulder, two 12 foot lanes, and a 2 foot paved shoulder totaling 32 feet of clear roadway. Shoulders are structurally adequate. **Code 64.0.**	00600	

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Bridge Median

Format	Frequency	Item ID Number	Item Ownership
AN (1)	I	B.G.10	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Inventory and Condition Geometry	Bridge	Median

FHWA Specification *[and SCDOT Markups]*

Report the type of bridge median using one of the following codes.

Code	Description
0	No median *[for a bridge which carries either one-way traffic or two-way traffic with no median (separated by a double yellow line or center turn lane).]*
1	Open median *[for twin, "sister", or parallel bridges with the same Asset ID located side by side sharing the same Asset ID where two-way traffic is physically separated by barriers (e.g. guardrail). This may apply if the two decks of a single Asset ID are physically separated by an open median. This code is rare.]*
2	Closed median (mountable *or no barrier) for an Asset ID which carries two-way traffic and the traffic is physically separated (typically by vegetation or concrete medians less than 6" tall) without permanent, non-mountable barriers.*
3	Closed median (non-mountable) *[for an Asset ID which carries two-way traffic and separated by one or more non-mountable barriers. Barriers (e.g. guardrails) shall be continuous at least one side of the median to be considered coded as "3".]*

FHWA Commentary *[and SCDOT Markups]*

A barrier or curb greater than 6 inches high *[6 inches or greater]* may be considered non-mountable for these specifications *[a barrier or curb is considered mountable if less than 6". The curb height should be measured/verified during each inspection. There may be other cases where engineering judgment by the load rater or the BITL is necessary, for instance where overlays are in place or may be placed in the future. Median vegetation (i.e. trees, shrubs, etc.) should not be considered a permanent, non-mountable barrier.*

For bridges with a longitudinal joint, use code 1 when traffic cannot safely traverse the joint width. If the joint width is safely traversable, use one of the remaining codes. Joint condition does not affect the coding of this item.

Use code 0 for bridges that do not have a median, including bridges that carry adjacent traffic lanes separated only by centerline, edge line, or channelization striping, with or without a traversable longitudinal joint.

Use code 2 for bridges with medians that are either flush or mountable, with or without a traversable longitudinal joint, including areas that are striped to designate a median.

[Engineering judgment should be used to determine if the median is capable of supporting traffic, and if not, then a repair recommendation should be made to the structure owner to add a barrier (e.g., guardrail).]

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Bridge Median (continued)

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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Inventory and Condition Geometry	Bridge	Median

Examples *[and SCDOT Markups]*

Each example represents *[the coding of a single Asset ID]*.

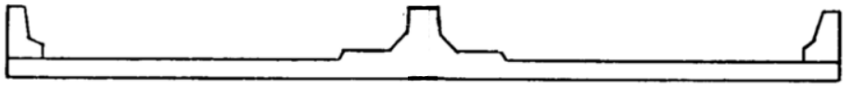
Code 1 – Cross-section view of a bridge deck with an open median:



Code 2 – Cross-section view of a bridge deck with a closed median (less than 6” and mountable):



Code 3 – Cross-section view of a bridge deck with closed median (non-mountable):



*[**Code 0** – Cross-section view of two parallel bridge decks with no medians (separate Asset IDs):]*

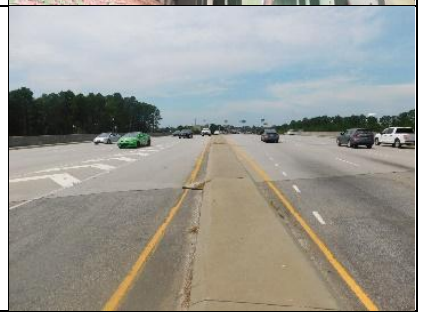


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Format	Frequency	Item ID Number	Item Ownership
AN (1)	I	B.G.10	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Inventory and Condition Geometry	Bridge	Median

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
0 - No Median	No median or longitudinal joint. **Code 0.**	03073	
1 - Open Median	Open median since there are two decks on a single Asset ID which are physically separated by an open median.	01965	
2 - Closed Median (mountable)	Single bridge with a mountable curb median. **Code 2.**	03820	

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B.G.06 Bridge Width Curb-to-Curb
B.G.07 Left Curb/Sidewalk Width
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B.G.12 Curved Bridge
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Bridge Median (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (1)	I	B.G.10	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Inventory and Condition Geometry	Bridge	Median

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
2 - Closed Median (mountable)	Single bridge with a mountable curb median. **Code 2.**	10610	
3 - Closed Median (non-mountable)	Twin bridges widened into one structure. Single bridge with a non-mountable median. **Code 3.**	04772	
3 - Closed Median (non-mountable)	Curved bridge carrying ramp traffic with center barrier. Single bridge with a non-mountable median. **Code 3.**	09882	

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Bridge Median (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (1)	I	B.G.10	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Inventory and Condition Geometry	Bridge	Median

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
3 - Closed Median (non-mountable)	Culvert below roadway with cable barrier through median. Median is no longer mountable. Single bridge with a non-mountable median. **Code 3.**	03400	

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Skew

Format	Frequency	Item ID Number	Item Ownership
N (2,0)	I	B.G.11	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Inventory and Condition Geometry	Bridge	Skew

FHWA Specification *[and SCDOT Markups]*

Report the skew angle to the nearest degree. Measure the skew angle between the centerline of a substructure unit and a line perpendicular to the roadway centerline.

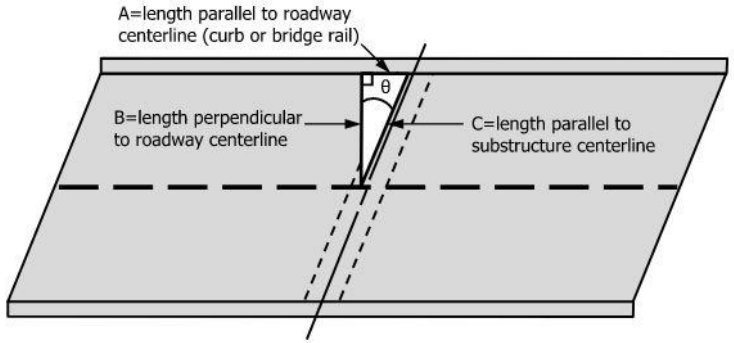
Report the maximum skew when skews vary amongst substructure units.

Report 0 if there is no skew.

FHWA Commentary *[and SCDOT Markups]*

The skew angle can be taken directly from the plans, if available, or measured in the field.

[The skew can be calculated as:
$Sin^{-1}(A/C)$,
$Cos^{-1}(B/C)$,
or $Tan^{-1}(A/B)$.*]*



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Skew (continued)

Format	Frequency	Item ID Number	Item Ownership
N (2,0)	I	B.G.11	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Inventory and Condition Geometry	Bridge	Skew

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
15	Bridge over I-26 with skew angle from plans of 15 degrees. **Code 15**	03044	
14	Bridge over I-185. Skews vary for each span, report maximum from plans of 14 degrees. **Code 14**	09635	

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Curved Bridge

Format	Frequency	Item ID Number	Item Ownership
AN (2)	I	B.G.12	TBD
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Inventory and Condition Geometry	Bridge	CurvedBridge

FHWA Specification *[and SCDOT Markups]*

Report whether the bridge is horizontally curved using one of the following codes.

Code	Description
CU	Curved girder(s)
CP	Piecewise straight girders
CK	Kinked girder(s)
N	Not curved

FHWA Commentary *[and SCDOT Markups]*

A bridge is considered horizontally curved when at least one partial or full length girder line forms a curve using either a curved girder(s), piecewise straight girders forming a segmented/chorded curve, or a kinked girder(s).

For this specification, a piecewise straight girder line is comprised of girders with a longitudinal axis that changes orientation at one or more supports. The girder line may be simply supported or continuous at supports. A kinked girder is a girder with a longitudinal axis that changes orientation at a location(s) along the girder length excluding at the supports.

Use code N for bridges that have curved deck geometry, or may be striped as curved, but the girders do not form a curve.

[For curved slab bridges (without girders), use Code CU (curved girder(s)) if the superstructure was not constructed as a chorded curve which would be CP (piecewise straight girders).]

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
CU - Curved girder(s)	Curved steel girders. **Code CU.**	07935	

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Curved Bridge (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (2)	I	B.G.12	TBD
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Inventory and Condition Geometry	Bridge	CurvedBridge

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
CU - Curved girder(s)	Curved concrete slab bridge. **Code CU.**	07428	
CP - Piecewise straight girders	Straight steel girders oriented to follow curved deck at supports. **Code CP.**	10677	
CP - Piecewise straight girders	Straight prestressed concrete girders oriented to follow curved deck at supports. **Code CP**	09402	

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Curved Bridge (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (2)	I	B.G.12	TBD
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Inventory and Condition Geometry	Bridge	CurvedBridge

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
CK - Kinked girder(s)	Steel girders with changing orientation outside supports to follow curved deck along length. **Code CK.**	06564	
N - Not curved	Straight prestressed concrete box girders. **Code N**	01940	

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Maximum Bridge Height

Format	Frequency	Item ID Number	Item Ownership
N (4,0)	I	B.G.13	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Inventory and Condition Geometry	Bridge	MaxHeight

FHWA Specification *[and SCDOT Markups]*	FHWA Commentary *[and SCDOT Markups]*
Record the maximum height from top of deck to ground line or water surface elevation, whichever yields the largest value, rounded to the nearest foot. *[Inspectors are given caution that the measurements used in the Cross Section may not be the same as the Maximum Bridge Height and they should review the coding requirements for each of the fields.]*	For double-deck bridges inventoried as one bridge, measure from top of deck of the lower deck. For double-deck bridges inventoried as two bridges, measure from the top of deck of the inventoried bridge. For bridges under fill, excluding closed spandrel arches, measure from top of slab, or top of pipe, to water surface elevation. When there is no waterway feature, measure to inside bottom of pipe, inside of floor slab, or ground line when the bottom is unexposed or the bridge is bottomless. For closed spandrel arches measure from top of roadway surface. Ground line represents dry terrain or pavement. *[Use the water surface elevation from the time this value was established for this item.]* This item may be estimated by field observation or from plans when it is not practical or is infeasible to measure, or height is more than 30 ft. This item does not need to be updated due to fluctuations in water surface elevation. *[This field is an inventory field and should seldom need an update after every inspection. It is understood that water levels may fluctuate between inspections, especially over tidal bridges and bridges downstream of dams; however, unless there has been a significant hydraulic change within the channel, the item does not need to be updated for small, expected differences inspection to inspection and is up to the discretion of the BITL.]*

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Maximum Bridge Height (continued)

Format	Frequency	Item ID Number	Item Ownership
N (4,0)	I	B.G.13	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Inventory and Condition Geometry	Bridge	MaxHeight

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
27	Maximum heights measured under the features US-521-301 CON SB, US-521-301 CON NB, SCL Railroad, and Trinity Church Rd. are 26.8, 25.8, 26.1, and 23.5 feet, respectively. **Code 27.**	05261	
26	Measure to water level at time of inspection. **Code 26.**	01335	
8	Measure from top of slab to water/ground line. **Code 8.**	00367	

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Sidehill Bridge

Format	Frequency	FHWA NBIS Item ID	Item Ownership
AN (1)	I	B.G.14	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Inventory and Condition Geometry	Bridge	SidehillBridge

FHWA Specification *[and SCDOT Markups]*

Report whether any portion of the bridge is a sidehill structure.

Code	Description
N	Not a sidehill bridge
Y	Is a sidehill bridge

FHWA Commentary *[and SCDOT Markups]*

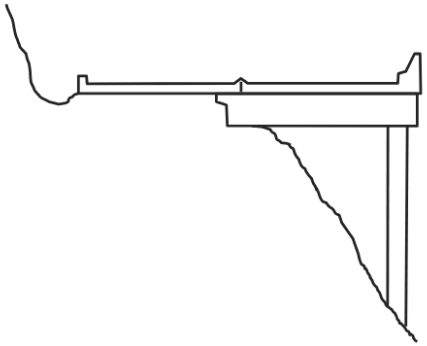
A sidehill bridge is a structure built onto the side of terrain or earth material with the roadway centerline running nearly parallel to the face of the terrain or material. The roadway is carried partially on structure and partially on terrain that has been modified by cutting or filling to form the required roadway subgrade elevation.

For sidehill bridges, Item B.G.06 (Bridge Width Curb-to-Curb) is typically larger than Item B.G.05 (Bridge Width Out-to-Out).

For sidehill bridges with irregular geometry, reporting the actual deck area in Item B.G.15 (Irregular Deck Area) provides a more accurate value than using the default calculation described for that item.

Use code N when no portion of the bridge is a sidehill structure.

[There are currently no sidehill bridges in SCDOT inventory. Contact the BMO if you feel you have discovered one.]



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Irregular Deck Area

Format	Frequency	Item ID Number	Item Ownership
N (10,1)	I	B.G.15	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Inventory and Condition Geometry	Bride	IrregularDeckArea

FHWA Specification *[and SCDOT Markups]*	FHWA Commentary *[and SCDOT Markups]*
Report the total deck area rounded to the nearest tenth of a square foot. Only report this item when the actual area is obtained from plans or measurement of bridges with irregular geometry. The limits of measurement shall be in accordance with Items B.G.05 (Bridge Width Out-to-Out) and B.G.02 (Total Bridge Length). For bridges that carry multiple types of service, for example highway and railroad, report the deck area that encompasses all service types.	Reporting the deck area calculated from plans may more accurately reflect the deck area for bridges with unusual geometry (e.g. flared, sidehill, or bifurcated structures), or through structures with cantilevered sidewalks. *[The value recorded can be calculated from field measurements or plans.]* This item can improve the accuracy of national performance measure computations, estimating cost, etc. *[This field is only required for decks with irregular geometry, otherwise leave blank.]*

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
66463.0	The bridge is curved and flared resulting in an irregular deck area. **Code 66463.0.**	10062	

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Irregular Deck Area (continued)

Format	Frequency	Item ID Number	Item Ownership
N (10,1)	I	B.G.15	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Inventory and Condition Geometry	Bridge	IrregularDeckArea

Examples

CODE - DESCRIPTION: 187855.2

NOTES:

Spans 1 through 6 are flared. Spans 7 through 13 have regular geometry. The irregular deck area is calculated below.

Code 187855.2.

	Length (ft)	Out-to-Out Width (ft) Minimum	Out-to-Out Width (ft) Maximum	Area (ft^2)
Span 1-6	375.00	79.33	110.19	35535.2
Span 7	500.00	79.33	79.33	39666.7
Span 8	500.00	79.33	79.33	39666.7
Span 9	500.00	79.33	79.33	39666.7
Span 10	220.00	79.33	79.33	17453.3
Span 11	75.00	79.33	79.33	5950.0
Span 12	74.75	79.33	79.33	5930.2
Span 13	50.25	79.33	79.33	3986.5
			Total Area:	187855.2

ASSET ID: 06898

PHOTO:



CODE - DESCRIPTION: 35594.2

NOTES:

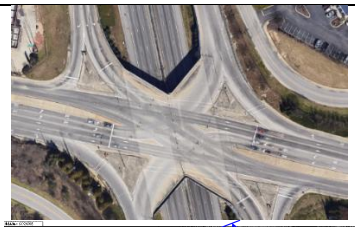
The irregular deck area is calculated below.

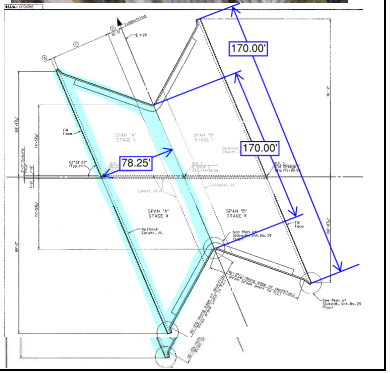
Code 35594.2.

	Length (ft)	Width (ft) Minimum	Width (ft) Maximum	Area (ft^2)
Span 1	78.25	161.72	293.14	17797.1
Span 2	78.25	161.72	293.14	17797.1
			Total Area:	35594.2

ASSET ID: 02797

PHOTO:





SCDOT
South Carolina Department of Transportation

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Calculated Deck Area

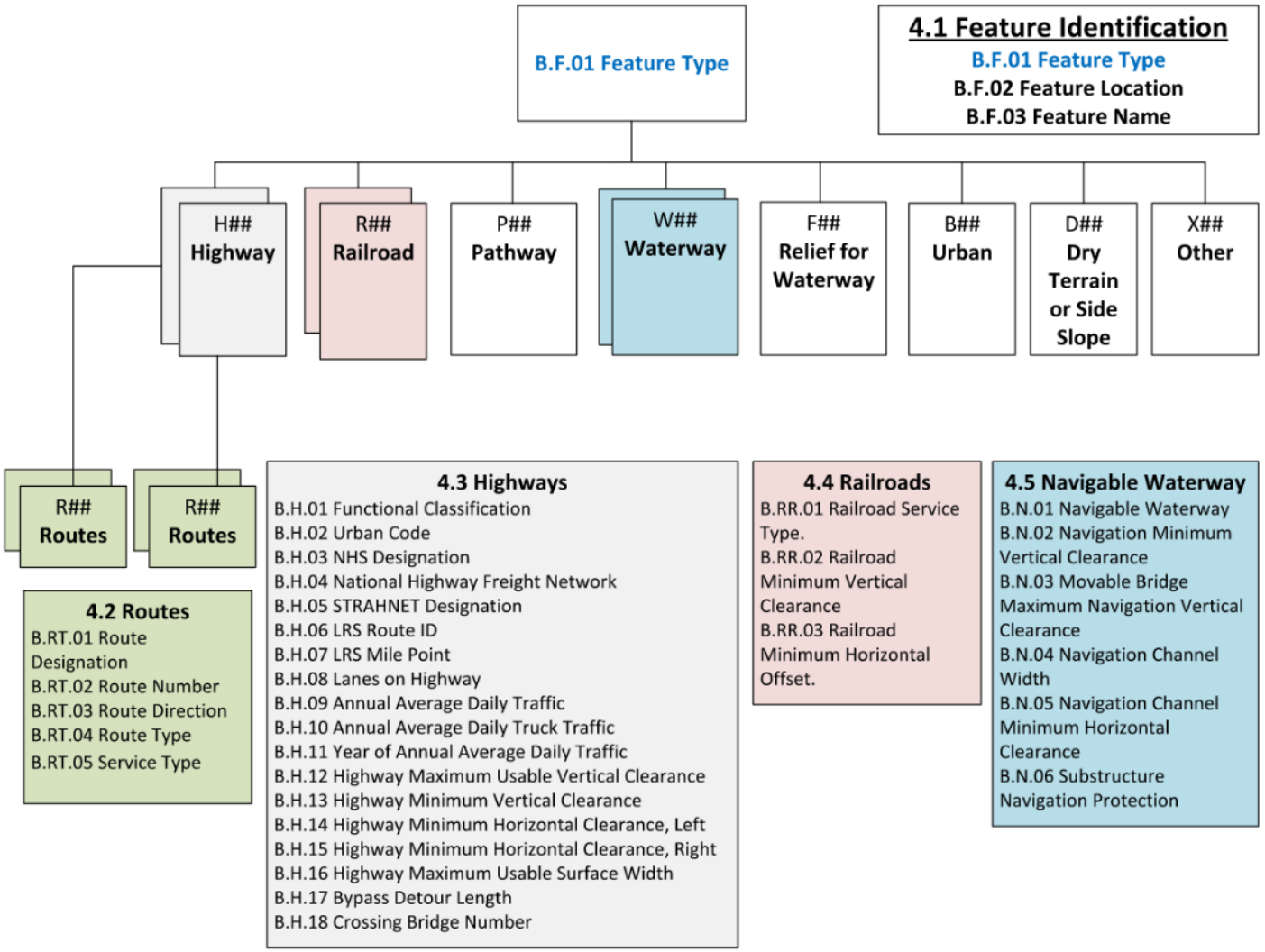
Format	Frequency	Item ID Number	Item Ownership
N (10,1)	C	B.G.16	FHWA
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Inventory and Condition Geometry	Bridge	CalculatedDeckArea

FHWA Specification *[and SCDOT Markups]*	FHWA Commentary *[and SCDOT Markups]*
Do not report this item as it is calculated by FHWA. The default calculation for bridges is the value reported in Item B.G.05 (Bridge Width Out-to-Out) multiplied by the value reported in Item B.G.02 (Total Bridge Length) rounded to the nearest tenth of a square foot.	*[Contact the BMO for issues with the FHWA calculated deck area.]*

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Features Introduction

This section has data items that have been grouped by the following five subsections: Feature Identification, Routes, Highways, Railroads, and Navigable Waterways. The data items in these subsections identify and describe the features that are above, below, and carried on bridges. Items in Section 4.0 are considered part of a data set and have a many-to-one relationship with the parent data set. The features data set has a many-to-one relationship with a bridge. See the flowchart below. There may be multiple routes associated with a single highway feature. The following features do not have any subsections: pathway, relief for waterway, urban, dry terrain or side slope, and other. Border bridge requirements are not included. Contact the BMO for questions regarding border bridge data.



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Feature Type

Format	Frequency	Item ID Number	Item Ownership
AN (3)	I	B.F.01	BI and RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Feature Details	Feature	Type

FHWA Specification *[and SCDOT Markups]*

Report the feature that is above, below, or carried on the bridge using one of the following codes.

Code	Description
H##	Highway
R##	Railroad
P##	Pathway
W##	Waterway
F##	Relief for waterway
B##	Urban feature
D##	Dry terrain or side slope
X##	Other

[Codes should represent the current configuration and condition of the bridge and should be updated when the configuration changes

Replace the ## characters in the above codes with sequential numbers, with leading zeros, assigned to each feature type.

Report a railroad feature for each separate railroad service type, as identified in Item B.RR.01 (Railroad Service Type), that is carried on or passes below the bridge. When a track carries multiple railroad service types, report only one feature. When multiple tracks carry the same railroad service type(s), report only one feature.

Report one highway feature for a highway that is designated with two or more route numbers. Report multiple highway features when the highway is divided at the bridge.

FHWA Commentary *[and SCDOT Markups]*

All bridges have at least one feature carried on the bridge and one feature below the bridge. Some bridges have several features that are above, below, or carried on the bridge.

Each feature type is numbered sequentially, starting with one (H01, R01, etc.). Highway features should be numbered beginning with the features carried on the bridge, followed by those below and above (H01, H02, H03, etc.).

This item does not include ancillary structures and utilities*[for these to be included as features on the bridge]*.

Reporting more than one urban feature or other feature is optional.

For multi-level interchanges, report highway features directly above and below the bridge.

The presence of a flush or mountable median does not in itself indicate that the highway is divided.

Use code R for each railroad service type listed in Item B.RR.01 (Railroad Service Type). *[Use code R even if the railroad is abandoned and even if the rails have been removed, but ties remain.]*

Use code P for separated pathways dedicated for pedestrian, bicycle, equestrian, or other non-highway modes of human transportation not covered in other codes.

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Format	Frequency	Item ID Number	Item Ownership
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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Features & Clearances	Feature Details	Feature	Type

FHWA Specification *[and SCDOT Markups]*	FHWA Commentary *[and SCDOT Markups]*
[Features under separate spans should be coded as separate features. For example, if there are rail lines under separate spans, code as separate features (regardless of Railroad Service Type) similar to roads under separate spans as separate features. However, ever span does not need a feature if the same feature is located under several spans. *Applicable subsections:* • *There are no subsections to complete for Feature Types P, F, B, D, and X* • *Feature Type H## includes subsections for Highways and Routes* • *Feature Type R## includes subsections for railroad service and clearances* • *Feature Type W## includes subsections for navigable waterways, clearances, and navigation protection]* *Features fields can be edited by both users in BrM and by RDS through Inventory Manager. Highway features are added, removed, and maintained by RDS. All other features are the responsibility of the bridge inspector.]*	*[There is no minimum for sidewalk widths. Consider using the pathway feature when B.G.07/B.G.08 are coded for the sidewalk when the sidewalk is dedicated and separated for human transportation. Some curbs may be too narrow and may not be considered a sidewalk.* *Report a Pathway feature only when there is an area on or under the bridge:* • *That is intended to function as a dedicated pathway. Trodden ground is generally not an intended (designed and maintained) dedicated pathway, or* • *That functions as a dedicated pathway(s). This may include shoulders or areas designated with pavement markings for these features. The pavement marking can serve as delineation.* *Report additional Pathway features when there are different areas on or under the bridge that serve different purposes, e.g., a dedicated sidewalk and a dedicated bike lane at separate location or a sidewalk on the bridge and a pathway under the bridge.]* Use code W for each unique waterway. Do not use for roadside ditches or pipes that typically only carry roadway runoff from rain events. Use code F for bridges where one or more spans provide waterway openings for flow only during flood stages to provide additional hydraulic capacity, such as relief channels. Waterway related fields (channel and channel protection, underwater, navigable waterway, etc.) will start to be required with a future errata. For now, the data cannot be reported with a validation era.

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Format	Frequency	Item ID Number	Item Ownership
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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Features & Clearances	Feature Details	Feature	Type

FHWA Specification *[and SCDOT Markups]*	FHWA Commentary *[and SCDOT Markups]*
	Use code B for urban features such as buildings, parking lots, *[parking lot entrances]*, *[driveways between parking lots]*, etc. Use code D for features such as a natural depression or sidehill slope when there is no discernable waterway channel and none of the other feature codes apply. *[Use code D where a railroad track used to run but both the ties and rails have been removed. For some bridges, the use of code D may be the only applicable feature under; if there are other features, code D is not required unless for removed railroad track.]* Use code X when no other code applies for features that exist below the bridge. *[This code is rare.]*

Examples

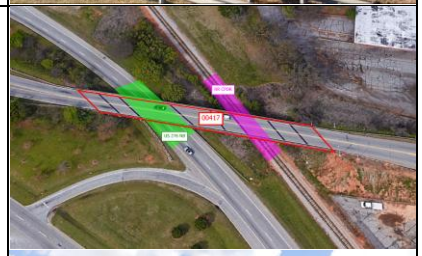
CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
H01 - (Highway 01) — H02 - (Highway 02) — H03 - (Highway 03) — H04 - (Highway 04) — H05 - (Highway 05) — H06 - (Highway 06) — P01 - (Pathway 01) — H07 - (Highway 07) — H08 - (Highway 08) — P02 - (Pathway 02) — H09 - (Highway 09) — P03 - (Pathway 03)	Structure carries R-7946|Ramp Off I-26 EB (feature carried) over multiple routes (features below). A full list of features required for this bridge is below. While the bridge does span dry terrain, code D is not required because other features are located under the bridge. I-26 is reported for both WB and EB because the highway is separated. • R-7946|Ramp Off I-26 EB (highway carried), **Code H01.** • I-26 WB (highway below), **Code H02.** • I-26 EB (highway below), **Code H03.** • US 17 NB (highway below), **Code H04.** • US 17 SB (highway below), **Code H05.** • US 52|Meeting Street (highway below), **Code H06.** • US 52 Sidewalks (pathway below), **Code P01.** • R-7944|Ramp Off I-26 WB (highway below), **Code H07.** • S-10-126|Romney Street (highway below), **Code H08.** • S-10-126|Romney Street Sidewalks (pathway below), **Code P02.** • S-10-114|Cypress Street (highway below), **Code H09.** • S-10-114|Cypress Street Sidewalks (pathway below), **Code P03.**	09826	 

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Format	Frequency	Item ID Number	Item Ownership
AN (3)	I	B.F.01	BI and RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Features & Clearances	Feature Details	Feature	Type

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
H01 - (Highway 01) — H02 - (Highway 02) — H03 - (Highway 03) — H04 - (Highway 04) — H05 - (Highway 05) — H06 - (Highway 06)	Structure carries R-5275|Ramp Off I-77 NB (feature carried) over multiple routes (features below). A full list of features required for this bridge is below. While the bridge does span dry terrain, code D is not required because other features are located under the bridge. I-20 is reported for both WB and EB because the highway is separated. Asset ID 07931 is in a multi-level interchange where it crosses R-5726|Ramp Off I-20 WB and I-77. R-5726 is not reported as a highway below because it is not directly above and below the bridge. • R-5275|Ramp Off I-77 NB (highway carried), **Code H01.** • I-20 WB (highway below), **Code H02.** • I-20 EB (highway below), **Code H03.** • I-77 NB|Charles F. Bolden Fwy (highway below), **Code H04.** • I-77 SB|Charles F. Bolden Fwy (highway below), **Code H05.** • CD-4012 (highway below), **Code H06.**	07931	 
H01 - (Highway 01) — H02 - (Highway 02) — R01 - (Railroad 01)	Structure carries SC 417 (feature carried) over US 276 NB and RR CPDR (features below). • SC 417|Main Street (highway carried), **Code H01**. • US 276 NB (highway below), **Code H02.** • RR CPDR (railroad below), **Code R01**	00417	 

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AN (3)	I	B.F.01	BI and RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Features & Clearances	Feature Details	Feature	Type

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
H01 - (Highway 01) — W01 - (Waterway 01)	Structure carries S-10-150|Chicora Avenue (feature carried) over Tidal Creek (feature below). At this location there are separate sidewalk structures on both sides. The sidewalk structures are separate structures from the roadway bridge and are not coded with this structure. • S-10-150|Chicora Avenue (highway carried), **Code H01**. • Tidal Creek (waterway below), **Code W01.**	10358	
H01 - (Highway 01) — H02 - (Highway 02) — H03 - (Highway 03) — P01 - (Pathway 01)	Structure carries US 1|Two Notch Road (feature carried) over I-77 NB and I-77 SB (features below). The structure has sidewalks at the east and west sides. • US 1|Two Notch Road (highway carried), **Code H01.** • I-77 NB (highway below), **Code H02.** • I-77 SB (highway below), **Code H03.** • US 1|Two Notch Road Sidewalks (pathway carried), **Code P01.**	07023	

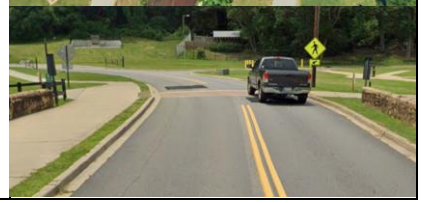
South Carolina Department of Transportation

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AN (3)	I	B.F.01	BI and RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Features & Clearances	Feature Details	Item ID Number	Type

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
H01 - (Highway 01) — R01 - (Railroad 01) — R02 - (Railroad 02) — P01 - (Pathway 01) — P02 - (Pathway 02)	Structure carries L-40-176|Greene Street (feature carried) over RR CSXT and RR NS (features below). The structure has sidewalks at the north and south sides. The structure has dedicated bike lanes (delineated with pavement markings). The RR CSXT railroad feature carries both freight and passenger service. The RR NS railroad feature carries only freight service. Because B.RR.01 is different, two railroad features are required. • for L-40-176|Greene Street (highway carried), **Code H01**. • for RR CSXT (railroad below), **Code R01.** • for RR NS (railroad below), **Code R02.** • L-40-176|Greene Street Sidewalks (pathway carried), **Code P01.** • L-40-176|Greene Street Bike Lanes (pathway carried), **Code P02.**	10806	 
H01 - (Highway 01) — W01 - (Waterway 01) — P01 - (Pathway 01)	Structure carries C-23-80|Cleveland Park Drive (feature carried) and a sidewalk (feature carried) over Richland Creek (feature below). The sidewalk is a dedicated pathway. The grass strip on the left side of the deck does not function as a dedicated pathway. • C-23-80|Cleveland Park Drive (highway carried), **Code H01**. • Richland Creek (waterway below), **Code W01.** • C-23-80|Cleveland Park Drive Sidewalk (pathway carried), **Code P01.**	01722	 

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Features & Clearances	Feature Details	Feature	Type

Examples

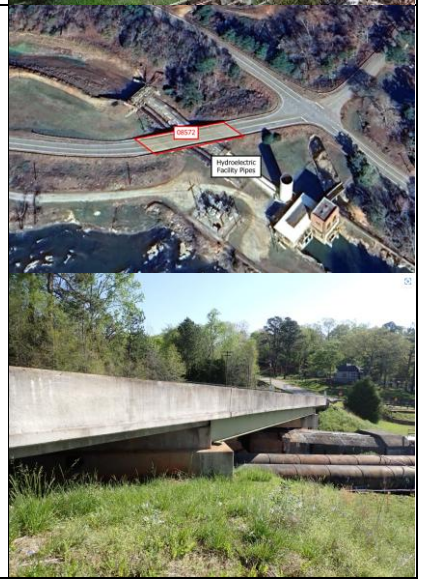
CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
H01 - (Highway 01) — H02 - (Highway 02) — W01 - (Waterway 01) — F01 - (Relief for Waterway 01)	Structure carries I-20 eastbound and westbound (features carried) over the Broad River (feature below). I-20 is separated by a barrier over the bridge, code as two separate highway features. Several spans provide additional waterway openings during flooding. • I-20 WB (highway carried), **Code H01.** • I-20 EB (highway carried), **Code H02.** • Broad River (waterway below), **Code W01.** • Spans which provide waterway openings during flooding (relief for waterway below), **Code F01**.	04636	
H01 - (Highway 01) — W01 - (Waterway 01) — B01 - (Urban Feature 01)	Structure carries SC 170 (feature carried) over the Chechessee River and other features (features below). • SC 170 (highway carried), **Code H01.** • Chechessee River (waterway below), **Code W01**. • Parking Lot Driveway (urban feature below), **Code B01**.	02298	

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AN (3)	Frequency I	Item ID Number B.F.01	Item Ownership BI and RDS
BrM Page Features & Clearances	BrM Group Box Feature Details	BrM Database Table Feature	BrM Database Column Type

Examples

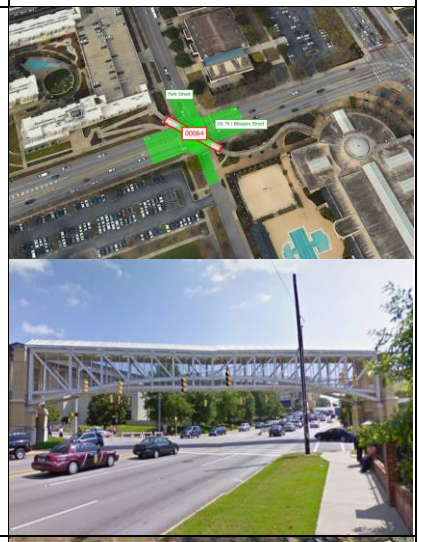
CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
H01 - (Highway 01) — D01 - (Dry Terrain 01)	Structure carries SC 20 (feature carried) over an abandoned railroad (feature below). Removed railroad below span, ties and rails have been removed. • SC 20 (highway carried), **Code H01.** • Abandoned Railroad (dry terrain below), **Code D01**.	01824	
H01 - (Highway 01) — X01 - (Other Feature 01)	Structure carries S-39-47|Power House Road (feature carried) over penstocks and power flares connected to the Ware Shoals Hydroelectric Facility (feature below). • S-39-47|Power House Road (highway carried), **Code H01.** • Hydroelectric Facility Pipes (other feature below), **Code X01**.	08572	

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AN (3)	I	B.F.01	BI and RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Features & Clearances	Feature Details	Feature	Type

Examples

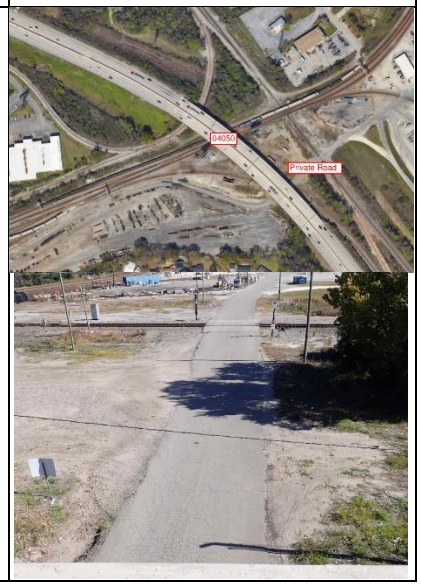
CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
H01 - (Highway 01) — H02 - (Highway 02) — P01 - (Pathway 01) — P02 - (Pathway 02) — P03 - (Pathway 03)	Structure carries University of South Carolina (USC) (feature carried) over US 76|Blossom Street and Park Street (features below). Both streets below have sidewalks. US 76 is the inventory route. • US 76|Blossom Street (highway below), **Code H01.** • Park Street (highway below), **Code H02.** • USC Walkway (pathway carried), **Code P01.** • US 76|Blossom Street Sidewalks (pathway below), **Code P02.** • Park Street Sidewalks (pathway below), **Code P03.**	00064	
H01 - (Highway 01) — H02 - (Highway 02) — H03 - (Highway 03) — P01 - (Pathway 01) — B01 - (Urban Feature 01)	Structure carries Interstate 126 westbound and eastbound, US 76 westbound and eastbound, and US 321 northbound and southbound (features carried) over S-40-1086|Wayne Street, the Vista Greenway, and a parking area (features below). The highway is separated by a barrier over the bridge, code as two separate highway features. • I-126 WB|US 76 WB|US 321 SB|Lester Bates Fwy (highway carried), **Code H01.** • I-126 EB|US 76 EB|US 321 NB|Lester Bates Fwy (highway carried), **Code H02.** • S-40-1086|Wayne Street (highway below), **Code H03.** • Vista Greenway (pathway below), **Code P01.** • Parking Area (urban feature below), **Code B01**.	03740	

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Format	Frequency	Item ID Number	Item Ownership
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Features & Clearances	Feature Details	Feature	Type

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
H01 - (Highway 01) — H02 - (Highway 02) — H03 - (Highway 03) — R01 - (Railroad 01) — X01 - (Other Feature 01)	Structure carries Interstate 126 westbound and eastbound (features carried) over CSXT Railroad, Bennet Yard Road and Hilcrest Drive (features below). The highway is separated by a barrier over the bridge, code as two separate highway features. Hilcrest Drive is a private road. • I-126 WB (highway carried), **Code H01.** • I-126 EB (highway carried), **Code H02.** • Bennet Yard Road (highway below), **Code H03.** • CSXT Railroad (railroad feature below), **Code R01.** • Hilcrest Drive (other feature below), **Code X01**	03740	

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Format	Frequency	Item ID Number	Item Ownership
AN (1)	I	B.F.02	BI and RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Features & Clearances	Feature Details	Feature	Location

FHWA Specification *[and SCDOT Markups]*	FHWA Commentary *[and SCDOT Markups]*
Report the location for the feature reported in Item B.F.01 (Feature Type) that is above, below, or carried on the bridge using one of the following codes. Code – Description C – Carried on bridge A – Above bridge B – Below bridge T – Top level *[Not Used in SC]* L – Lower level *[Not Used in SC]* *[Codes should represent the current configuration and condition of the bridge and should be updated when the configuration changes.]* *[Features fields can be edited by both users in BrM and by RDS through Inventory Manager. Highway features are added, removed, and maintained by RDS. All other features are the responsibility of the bridge inspector.]*	This item has a corresponding code for each feature reported for Item B.F.01 (Feature Type). Use code T for the top level of a double deck bridge that is inventoried using one unique bridge number. *[Not Used in SC]* Use code L for the lower level of a double deck bridge that is inventoried using one unique bridge number. *[Not Used in SC]* For border bridges, the Neighboring State reports this item for all highway features carried on or passing above the bridge, as part of their abbreviated bridge record. For more information, see the Border Bridges section of this document. *[H01 is always coded as C and reported first unless the bridge is a clearance bridge and H01 is coded as B since the inventoried route is below the bridge.]*

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Format	Frequency	Item ID Number	Item Ownership
AN (1)	I	B.F.02	BI and RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Features & Clearances	Feature Details	Feature	Location

Examples

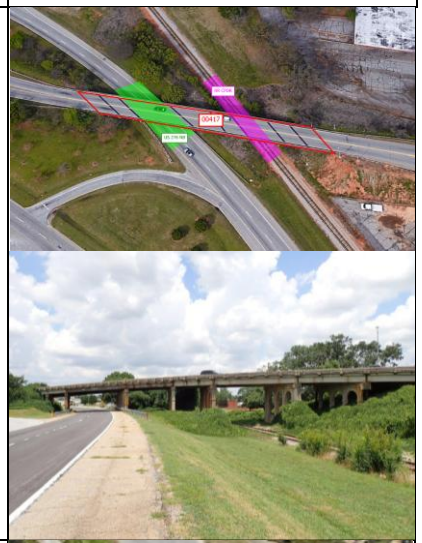
CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
C – Carried on bridge (for H01) — B – Below bridge (for H02) — B – Below bridge (for H03) — B – Below bridge (for H04) — B – Below bridge (for H05) — B – Below bridge (for H06) — B – Below bridge (for P01) — B – Below bridge (for H07) — B – Below bridge (for H08) — B – Below bridge (for P02) — B – Below bridge (for H09) — B – Below bridge (for P03)	Structure carries R-7946|Ramp Off I-26 EB (feature carried) over multiple routes (features below). A full list of features required for this bridge is below. While the bridge does span dry terrain, code D is not required because other features are located under the bridge. I-26 is reported for both WB and EB because the highway is separated. • R-7946|Ramp Off I-26 EB (highway carried), **Code C.** • I-26 WB (highway below), **Code B.** • I-26 EB (highway below), **Code B.** • US 17 NB (highway below), **Code B.** • US 17 SB (highway below), **Code B.** • US 52|Meeting Street (highway below), **Code B.** • US 52 Sidewalks (pathway below), **Code B.** • R-7944|Ramp Off I-26 WB (highway below), **Code B.** • S-10-126|Romney Street (highway below), **Code B.** • S-10-126|Romney Street Sidewalks (pathway below), **Code B.** • S-10-114|Cypress Street (highway below), **Code B.** • S-10-114|Cypress Street Sidewalks (pathway below), **Code B.**	09826	 
C – Carried on bridge (for H01) — B – Below bridge (for H02) — B – Below bridge (for H03) — B – Below bridge (for H04) — B – Below bridge (for H05) — B – Below bridge (for H06)	Structure carries R-5275|Ramp Off I-77 NB (feature carried) over multiple routes (features below). A full list of features required for this bridge is below. While the bridge does span dry terrain, code D is not required because other features are located under the bridge. I-20 is reported for both WB and EB because the highway is separated. Asset ID 07931 is in a multi-level interchange where it crosses R-5726|Ramp Off I-20 WB and I-77. R-5726 is not reported as a highway below because it is not directly above and below the bridge. • R-5275|Ramp Off I-77 NB (highway carried), **Code C.** • I-20 WB (highway below), **Code B.** • I-20 EB (highway below), **Code B.** • I-77 NB|Charles F. Bolden Fwy (highway below), **Code B.** • I-77 SB|Charles F. Bolden Fwy (highway below), **Code B.** • CD-4012 (highway below), **Code B.**	07931	 

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Format	Frequency	Item ID Number	Item Ownership
AN (1)	I	B.F.02	BI and RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
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Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
C – Carried on bridge (for H01) — B – Below bridge (for H02) — B – Below bridge (for R01)	Structure carries SC 417 (feature carried) over US 276 NB and RR CPDR (features below). • SC 417|Main Street (highway carried), **Code C.** • US 276 NB (highway below), **Code B.** • RR CPDR (railroad below), **Code B.**	00417	
C – Carried on bridge (for H01) — B – Below bridge (for W01)	Structure carries S-10-150|Chicora Avenue (feature carried) over Tidal Creek (feature below). At this location there are separate sidewalk structures on both sides. The sidewalk structures are separate structures from the roadway bridge and are not coded with this structure. • S-10-150|Chicora Avenue (highway carried), **Code C.** • Tidal Creek (waterway below), **Code B.**	10358	

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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
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Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
C – Carried on bridge (for H01) — B – Below bridge (for H02) — B – Below bridge (for H03) — C – Carried on bridge (for P01)	Structure carries US 1|Two Notch Road (feature carried) over I-77 NB and I-77 SB (features below). The structure has sidewalks at the east and west sides. • US 1|Two Notch Road (highway carried), **Code C.** • I-77 NB (highway below), **Code B.** • I-77 SB (highway below), **Code B.** • US 1|Two Notch Road Sidewalks (pathway carried), **Code C.**	07023	
C – Carried on bridge (for H01) — B – Below bridge (for R01) — B – Below bridge (for R02) — C – Carried on bridge (for P01) — C – Carried on bridge (for P02)	Structure carries L-40-176|Greene Street (feature carried) over RR CSXT and RR NS (features below). The structure has sidewalks at the north and south sides. The structure has dedicated bike lanes (delineated with pavement markings). The RR CSXT railroad feature carries both freight and passenger service. The RR NS railroad feature carries only freight service. Because B.RR.01 is different, two railroad features are required. • for L-40-176|Greene Street (highway carried), **Code C**. • for RR CSXT (railroad below), **Code B.** • for RR NS (railroad below), **Code B.** • L-40-176|Greene Street Sidewalks (pathway carried), **Code C.** L-40-176|Greene Street Bike Lanes (pathway carried), **Code C.**	10806	

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AN (1)	I	B.F.02	BI and RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Features & Clearances	Feature Details	Feature	Location

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
C – Carried on bridge (for H01) — B – Below bridge (for W01) — C – Carried on bridge (for P01)	Structure carries C-23-80|Cleveland Park Drive (feature carried) and a sidewalk (feature carried) over Richland Creek (feature below). The sidewalk is a dedicated pathway. The grass strip on the left side of the deck does not function as a dedicated pathway. • C-23-80|Cleveland Park Drive (highway carried), **Code C**. • Richland Creek (waterway below), **Code B.** • C-23-80|Cleveland Park Drive Sidewalk (pathway carried), **Code C.**	01722	
C – Carried on bridge (for H01) — C – Carried on bridge (for H02) — B – Below bridge (for W01) — B – Below bridge (for F01)	Structure carries I-20 eastbound and westbound (features carried) over the Broad River (feature below). I-20 is separated by a barrier over the bridge, code as two separate highway features. Several spans provide additional waterway openings during flooding. • I-20 WB (highway carried), **Code C.** • I-20 EB (highway carried), **Code C.** • Broad River (waterway below), **Code B.** • Spans which provide waterway openings during flooding (relief for waterway below), **Code B**.	04638	

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AN (1)	I	B.F.02	BI and RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Features & Clearances	Feature Details	Feature	Location

Examples

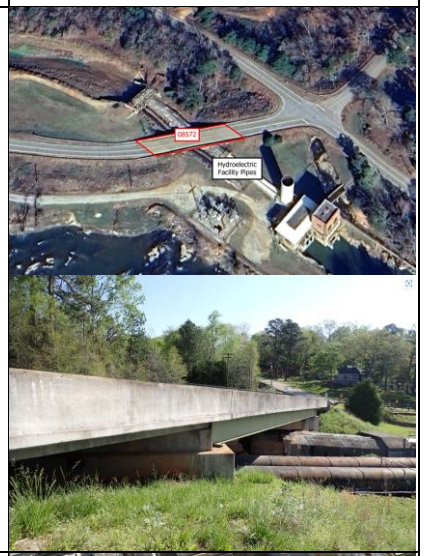
CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
C – Carried on bridge (for H01) — B – Below bridge (for W01) — B – Below bridge (for B01)	Structure carries SC 170 (feature carried) over the Chechessee River and other features (features below). • SC 170 (highway carried), **Code C.** • Chechessee River (waterway below), **Code B.** • Parking Lot Driveway (urban feature below), **Code B.**	02298	 
C – Carried on bridge (for H01) — B – Below bridge (for D01)	Structure carries SC 20 (feature carried) over an abandoned railroad (feature below). Removed railroad below span, ties and rails have been removed. • SC 20 (highway carried), **Code C.** • Abandoned Railroad (dry terrain below), **Code B**.	01824	 

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AN (1)	I	B.F.02	BI and RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Features & Clearances	Feature Details	Feature	Location

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
C – Carried on bridge (for H01) — B – Below bridge (for X01)	Structure carries S-39-47|Power House Road (feature carried) over penstocks and power flares connected to the Ware Shoals Hydroelectric Facility (feature below). • S-39-47|Power House Road (highway carried), **Code C.** • Hydroelectric Facility Pipes (other feature below), **Code B.**	08572	
B – Below bridge (for H01) — B – Below bridge (for H02) — C – Carried on bridge (for P01) — B – Below bridge (for P02) — B – Below bridge (for P03)	Structure carries University of South Carolina (USC) (feature carried) over US 76|Blossom Street and Park Street (features below). Both streets below have sidewalks. US 76 is the inventory route. • US 76|Blossom Street (highway below), **Code B.** • Park Street (highway below), **Code B.** • USC Walkway (pathway carried), **Code C.** • US 76|Blossom Street Sidewalks (pathway below), **Code B.** • Park Street Sidewalks (pathway below), **Code B.**	00064	

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AN (1)	I	B.F.02	BI and RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Features & Clearances	Feature Details	Feature	Location

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
C – Carried on bridge (for H01) — C – Carried on bridge (for H02) — B – Below bridge (for H03) — B – Below bridge (for P01) — B – Below bridge (for B01)	Structure carries Interstate 126 westbound and eastbound, US 76 westbound and eastbound, and US 321 northbound and southbound (features carried) over S-40-1086|Wayne Street, the Vista Greenway, and a parking area (features below). The highway is separated by a barrier over the bridge, code as two separate highway features. • I-126 WB|US 76 WB|US 321 SB|Lester Bates Fwy (highway carried), **Code C.** • I-126 EB|US 76 EB|US 321 NB|Lester Bates Fwy (highway carried), **Code C.** • S-40-1086|Wayne Street (highway below), **Code B.** • Vista Greenway (pathway below), **Code B.** • Parking Area (urban feature below), **Code B**.	03740	

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Feature Name

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AN (300)	I	B.F.03	BI and RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Features & Clearances	Feature Details	Feature	Name

FHWA Specification *[and SCDOT Markups]*	FHWA Commentary *[and SCDOT Markups]*
Report the commonly known name(s) for the feature reported in Item B.F.01 (Feature Type). If the feature has no commonly known name, provide a general description. *Feature name should represent the current configuration and condition of the bridge and should be updated when the configuration changes.]* For more than one name, report all names with the most common name first. When applicable, report the route number first followed by other names. *[Secondary routes shall be in the full route format (S-XX-###) where XX = county number and ### = route number.]* Report multiple names separated by pipe (|) delimiters. *[Do not include a space on either side of the pipe delimiters.* *Features fields can be edited by both users in BrM and by RDS through Inventory Manager.* *Unless space is restricted, use the full name of features without abbreviations.]*	This item has correlating data for each feature reported for Item B.F.01 (Feature Type). The owner may include directional or other descriptive information in this field. Official names and local names may be included. For border bridges, the Neighboring State reports this item for all highway features carried on or passing above the bridge, as part of their abbreviated bridge record. For more information, see the Border Bridges section of this document. *[For sidewalks on bridges being coded with B.F.01 as P##, Code B.F.03 as "Sidewalks East and West Sides". Directional names should be capitalized to show which side of the bridge the sidewalks are on. An acceptable alternative would be "Sidewalks Both Sides", or "Left Sidewalk". Sidewalks on the ground or on street level should include the roadway the sidewalks are adjacent to, if applicable. Bikeways should be coded similarly. If the pathway name is known such as a trail, the name should be used instead of "sidewalk" or "bikeway".* *Ramps only divided by striping can be included in main feature type. Ramps and collector distributors should include the ramp or collector distributor number and information on the ramp/ collector distributor connections with the order being where traffic comes from and where the traffic goes.* *Relief waterways feature names should include the name of the waterway for which they are providing relief in the format of "Relief for Waterway Name".]*

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Feature Name (continued)

Format	Frequency	FHWA NBIS Item ID	Item Ownership
AN (300)	I	B.F.03	BI and RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Features & Clearances	Feature Details	Feature	Name

Examples

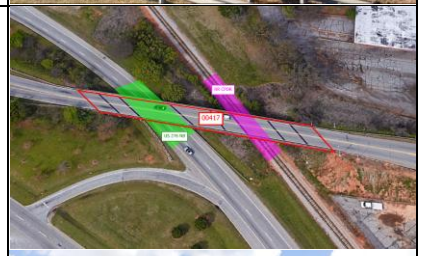
CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
R-7946|Ramp Off I-26 EB (for H01) — I-26 WB (for H02) — I-26 EB (for H03) — US 17 NB (for H04) — US 17 SB (for H05) — US 52|Meeting Street (for H06) — US 52|Meeting Street Sidewalks Both Sides (for P01) — R-7944|Ramp Off I-26 WB (for H07) — S-10-126|Romney Street (for H08) — S-10-126|Romney Street Sidewalks Both Sides (for P02) — S-10-114|Cypress Street (for H09) — S-10-114|Cypress Street Sidewalks Both Side (for P03)	Structure carries R-7946|Ramp Off I-26 EB (feature carried) over multiple routes (features below). A full list of features required for this bridge is below. While the bridge does span dry terrain, code D is not required because other features are located under the bridge. I-26 is reported for both WB and EB because the highway is separated. • R-7946|Ramp Off I-26 EB (highway carried, H01), **Code R-7946|Ramp Off I-26 EB.** • I-26 WB (highway below, H02), **Code I-26 WB.** • I-26 EB (highway below, H03), **Code I-26 EB.** • US 17 NB (highway below, H04), **Code US 17 NB.** • US 17 SB (highway below, H05), **Code US 17 SB.** • US 52|Meeting Street (highway below, H06), **Code US 52|Meeting Street.** • US 52 Sidewalks (pathway below, P01), **Code US 52|Meeting Street Sidewalks Both Sides.** • R-7944|Ramp Off I-26 WB (highway below, H07), **Code R-7944|Ramp Off I-26 WB.** • S-10-126|Romney Street (highway below, H08), **Code S-10-126|Romney Street.** • S-10-126|Romney Street Sidewalks (pathway below, P02), **S-10-126|Romney Street Sidewalks Both Sides.** • S-10-114|Cypress Street (highway below, H09), **Code S-10-114|Cypress Street.** • S-10-114|Cypress Street Sidewalks (pathway below, P03), **Code S-10-114|Cypress Street Sidewalks Both Sides.**	09826	 

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AN (300)	I	B.F.03	BI and RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Features & Clearances	Feature Details	Feature	Name

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
Ramp R-5275|Ramp Off I-77 NB (for H01) — I-20 EB (for H02) — I-20 WB (for H03) — I-77 NB|Charles F. Bolden Fwy (for H04) — I-77 SB|Charles F. Bolden Fwy (for H05) — CD-4012|Ramp Off I-20 EB and I-77 SB (for H06)	Structure carries R-5275|Ramp Off I-77 NB (feature carried) over multiple routes (features below). A full list of features required for this bridge is below. While the bridge does span dry terrain, code D is not required because other features are located under the bridge. I-20 is reported for both WB and EB because the highway is separated. Asset ID 07931 is in a multi-level interchange where it crosses R-5726|Ramp Off I-20 WB and I-77. R-5726 is not reported as a highway below because it is not directly above and below the bridge. • R-5275|Ramp Off I-77 NB (highway carried, H01), **Code R-5275|Ramp Off I-77 NB.** • I-20 WB (highway below, H02), **Code I-20 WB.** • I-20 EB (highway below, H03), **Code I-20 EB.** • I-77 NB|Charles F. Bolden Fwy (highway below, H04), **Code I-77 NB|Charles F. Bolden Fwy.** • I-77 SB|Charles F. Bolden Fwy (highway below, H05), **Code I-77 SB|Charles F. Bolden Fwy.** • CD-4012 (highway below, H06), **Code CD-4012|Ramp Off I-20 EB and I-77 SB.**	07931	 
SC 417|Main Street (for H01) — US 276 NB (for H02) — RR CPDR (for R01)	Structure carries SC 417 (feature carried) over US 276 NB and RR CPDR (features below). • SC 417|Main Street (highway carried, H01), **Code SC 417|Main Street.** • US 276 NB (highway below, H02), **Code US 276 NB.** • RR CPDR (railroad below, R01), **Code RR CPDR.**	00417	 

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Appendix S6: Damage Defect Coding

Feature Name (continued)

Format	Frequency	FHWA NBIS Item ID	Item Ownership
AN (300)	I	B.F.03	BI and RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Features & Clearances	Feature Details	Feature	Name

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
S-10-150|Chicora Avenue (for H01) — Tidal Creek (for W01)	Structure carries S-10-150|Chicora Avenue (feature carried) over Tidal Creek (feature below). At this location there are separate sidewalk structures on both sides. The sidewalk structures are separate structures from the roadway bridge and are not coded with this structure. • S-10-150|Chicora Avenue (highway carried, H01), **Code S-10-150|Chicora Avenue.** • Tidal Creek (waterway below, W01), **Code Tidal Creek.**	10358	
US 1|Two Notch Road (for H01) — I-77 NB (for H02) — I-77 SB (for H03) — US 1|Two Notch Road Sidewalks North and South Sides (for P01)	Structure carries US 1|Two Notch Road (feature carried) over I-77 NB and I-77 SB (features below). The structure has sidewalks at the east and west sides. • US 1|Two Notch Road (highway carried H01), **Code US 1|Two Notch Road.** • I-77 NB (highway below, H02), **Code I-77 NB.** • I-77 SB (highway below, H03), **Code I-77 SB.** • US 1|Two Notch Road Sidewalks (pathway carried, P01), **Code US 1|Two Notch Road Sidewalks North and South Sides.**	07023	

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Feature Name (continued)

Format	Frequency	FHWA NBIS Item ID	Item Ownership
AN (300)	I	B.F.03	BI and RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Features & Clearances	Feature Details	Feature	Name

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
L-40-176|Greene Street (for H01) — RR CSXT (for R01) — RR NS (for R02) — L-40-176|Greene Street Sidewalks Both Sides (for P01) — L-40-176|Greene Street Bike Lanes Both Sides (for P02)	Structure carries L-40-176|Greene Street (feature carried) over RR CSXT and RR NS (features below). The structure has sidewalks at the north and south sides. The structure has dedicated bike lanes (delineated with pavement markings). The RR CSXT railroad feature carries both freight and passenger service. The RR NS railroad feature carries only freight service. Because B.RR.01 is different, two railroad features are required. • L-40-176|Greene Street (highway carried, H01), **Code L-40-176|Greene Street.** • RR CSXT (railroad below, R01), **Code RR CSXT.** • RR NS (railroad below, R02), **Code RR NS.** • L-40-176|Greene Street Sidewalks (pathway carried, P01), **Code L-40-176|Greene Street Sidewalks Both Sides.** • L-40-176|Greene Street Bike Lanes (pathway carried, P02), **Code L-40-176|Greene Street Bike Lanes Both Sides.**	10806	
C-23-80|Cleveland Park Drive (for H01) — Richland Creek (for W01) — C-23-80|Cleveland Park Drive Sidewalk Right Side (for P01)	Structure carries C-23-80|Cleveland Park Drive (feature carried) and a sidewalk (feature carried) over Richland Creek (feature below). The sidewalk is a dedicated pathway. The grass strip on the left side of the deck does not function as a dedicated pathway. • C-23-80|Cleveland Park Drive (highway carried, H01), **Code C-23-80|Cleveland Park Drive.** • Richland Creek (waterway below, W01), **Code Richland Creek.** • C-23-80|Cleveland Park Drive Sidewalk (pathway carried, P01), **Code C-23-80|Cleveland Park Drive Sidewalk Right Side.**	01722	

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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Features & Clearances	Feature Details	Feature	Name

Examples

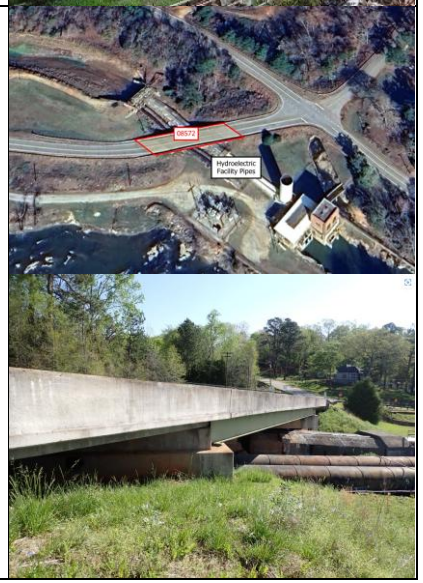
CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
I-20 WB (for H01) — I-20 EB (for H02) — Broad River (for W01) — Relief for Broad River (for F01)	Structure carries I-20 eastbound and westbound (features carried) over the Broad River (feature below). I-20 is separated by a barrier over the bridge, code as two separate highway features. Several spans provide additional waterway openings during flooding. • I-20 WB (highway carried, H01), **Code I-20 WB.** • I-20 EB (highway carried, H02), **Code I-20 EB.** • Broad River (waterway below, W01), **Code Broad River.** • Spans which provide waterway openings during flooding (relief for waterway below, F01), **Code Relief for Broad River**.	04638	
SC 170 (for H01) — Chechessee River (for W01) — Parking Lot Driveway (for B01)	Structure carries SC 170 (feature carried) over the Chechessee River and other features (features below). • SC 170 (highway carried, H01), **Code SC 170.** • Chechessee River (waterway below, W01), **Code Chechessee River.** • Parking Lot Driveway (urban feature below, B01), **Code Parking Lot Driveway.**	02298	

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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Features & Clearances	Feature Details	Feature	Name

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
SC 20 (for H01) — Abandoned Railroad (for D01)	Structure carries SC 20 (feature carried) over an abandoned railroad (feature below). Removed railroad below span, ties and rails have been removed. • SC 20 (highway carried, H01), **Code SC 20.** • Abandoned Railroad (dry terrain below, D01), **Code Abandoned Railroad.**	01824	
S-39-47|Power House Road (for H01) — Hydroelectric Facility Pipes (for X01)	Structure carries S-39-47|Power House Road (feature carried) over penstocks and power flares connected to the Ware Shoals Hydroelectric Facility (feature below). • S-39-47|Power House Road (highway carried, H01), **Code S-39-47|Power House Road.** • Hydroelectric Facility Pipes (other feature below, X01), **Code Hydroelectric Facility Pipes.**	08572	

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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Features & Clearances	Feature Details	Feature	Name

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
US 76|Blossom Street (for H01) — Park Street (for H02) — USC Walkway (for P01) — US 76|Blossom Street Sidewalks Both Sides (P02) — Park Street Sidewalks Both Sides (P03)	Structure carries University of South Carolina (USC) (feature carried) over US 76|Blossom Street and Park Street (features below). Both streets below have sidewalks. US 76 is the inventory route. • US 76|Blossom Street (highway below, H01), **Code US 76|Blossom Street.** • Park Street (highway below, H02), **Code Park Street.** • USC Walkway (pathway carried, P01), **Code USC Walkway.** • US 76|Blossom Street Sidewalks (pathway below, P02), **Code US 76|Blossom Street Sidewalks Both Sides.** • Park Street Sidewalks (pathway below, P03), **Code Park Street Sidewalks Both Sides.**	00064	
I-126 WB|US 76 WB|US 321 SB|Lester Bates Fwy (for H01) — I-126 EB|US 76 EB|US 321 NB|Lester Bates Fwy (for H02) — S-40-1086|Wayne Street (for H03) — Vista Greenway (for P01) — Parking Area (for B01)	Structure carries Interstate 126 westbound and eastbound, US 76 westbound and eastbound, and US 321 northbound and southbound (features carried) over S-40-1086|Wayne Street, the Vista Greenway, and a parking area (features below). The highway is separated by a barrier over the bridge, code as two separate highway features. • I-126 WB|US 76 WB|US 321 SB|Lester Bates Fwy (highway carried, H01), **Code I-126 WB|US 76 WB|US 321 SB|Lester Bates Fwy.** • I-126 EB|US 76 EB|US 321 NB|Lester Bates Fwy (highway carried, H02), **Code I-126 EB|US 76 EB|US 321 NB|Lester Bates Fwy.** • S-40-1086|Wayne Street (highway below, H03), **Code S-40-1086|Wayne Street.** • Vista Greenway (pathway below, P01), **Code Vista Greenway.** • Parking Area (urban feature below, B01), **Code Parking Area.**	03740	

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Route Designation

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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Route Information	RouteInfo	Designation

FHWA Specification *[and SCDOT Markups]*	FHWA Commentary *[and SCDOT Markups]*
Report the assigned route designation for the highway reported in Item B.F.01 (Feature Type) using the following code. Code — Description R## — Unique Route Designation *[Codes should represent the current configuration and condition of the bridge and should be updated when the configuration changes.]* Replace the ## characters in the above code with sequential numbers, with leading zeros, assigned to each unique route designation carried on the highway feature (e.g., R01, R02, etc.). If a highway carries multiple routes, report only those routes that have a route number. If a highway carries only routes without route numbers, report one route designation.	This item captures how routes that share the reported highway feature are designated. *[This item is a child item to Feature Type (B.F.01).]* Each highway feature has at least one route designation. Typically, the route with the highest-class route type is listed first, using the hierarchy shown in Item B.RT.04 (Route Type). An interstate is considered the highest-class route. If the highway feature is carried on a ramp bridge, report all applicable routes for the highways that are being connected. *[Ramp bridges require a minimum of two entries (one for route exiting and one for route entering). Ramp routes under a bridge need not to be reported with all applicable routes for the highways that are being connected.* *This item may not be left blank for highway features. If a highway carries only routes without route number, record one route designation.]*

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Route Designation (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (3)	I	B.RT.01	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Route Information	RouteInfo	Designation

Examples

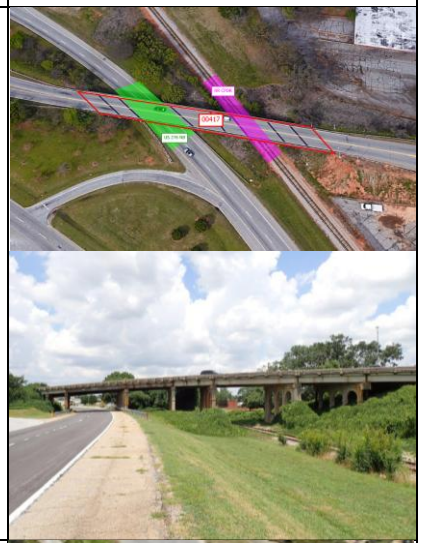
CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
R01 (for H01) — R02 (for H01) — R01 (for H02) — R01 (for H03) — R01 (for H04) — R01 (for H05) — R01 (for H06) — R01 (for H07) — R01 (for H08) — R01 (for H09)	Structure carries R-7946|Ramp Off I-26 EB (feature carried) over multiple routes (features below). The ramp bridges must be reported with the routes the ramp connects. The ramp itself can be reported as a route if the ramp is under a bridge. • R-7946|Ramp Off I-26 EB (highway carried, H01), connects I-26 EB and US 17 NB, **Code R01** and **R02**. • I-26 WB (highway below, H02), **Code R01.** • I-26 EB (highway below, H03), **Code R01.** • US 17 NB (highway below, H04), **Code R01.** • US 17 SB (highway below, H05), **Code R01.** • US 52|Meeting Street (highway below, H06), **Code R01.** • R-7944|Ramp Off I-26 WB (highway below, H07), **Code R01.** • S-10-126|Romney Street (highway below, H08), **Code R01.** • S-10-114|Cypress Street (highway below, H09), **Code R01.**	09826	 
R01 (for H01) — R02 (for H01) — R01 (for H02) — R01 (for H03) — R01 (for H04) — R01 (for H05) — R01 (for H06)	Structure carries R-5275|Ramp Off I-77 NB (feature carried) over multiple routes (features below). The ramp bridges must be reported with the routes the ramp connects. The ramp itself can be reported as a route if the ramp is under a bridge. • R-5275|Ramp Off I-77 NB (highway carried, H01), connects I-77 NB and I-20 WB, **Code R01** and **R02**. • I-20 WB (highway below, H02), **Code R01.** • I-20 EB (highway below, H03), **Code R01.** • I-77 NB|Charles F. Bolden Fwy (highway below, H04), **Code R01.** • I-77 SB|Charles F. Bolden Fwy (highway below, H05), **Code R01.** • CD-4012 (highway below, H06), **Code R01.**	07931	 

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Format	Frequency	Item ID Number	Item Ownership
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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Route Information	RouteInfo	Designation

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
R01 (for H01) — R01 (for H02)	Structure carries SC 417 (feature carried) over US 276 NB and RR CPDR (features below). • SC 417|Main Street (highway carried, H01), **Code R01.** • US 276 NB (highway below, H02), **Code R01.**	00417	
R01 (for H01)	Structure carries S-10-150|Chicora Avenue (feature carried) over Tidal Creek (feature below). • S-10-150|Chicora Avenue (highway carried, H01), **Code R01.**	10358	

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Format	Frequency	Item ID Number	Item Ownership
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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Route Information	RouteInfo	Designation

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
R01 (for H01) — R01 (for H02) — R01 (for H03)	Structure carries US 1|Two Notch Road (feature carried) over I-77 NB and I-77 SB (features below). • US 1|Two Notch Road (highway carried H01), **Code R01.** • I-77 NB (highway below, H02), **Code R01.** • I-77 SB (highway below, H03), **Code R01.**	07023	
R01 (for H01)	Structure carries L-40-176|Greene Street (feature carried) over RR CSXT and RR NS (features below). • for L-40-176|Greene Street (highway carried, H01), **Code R01.**	10806	

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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Route Information	RouteInfo	Designation

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
R01 (for H01)	Structure carries C-23-80|Cleveland Park Drive (feature carried) and a sidewalk (feature carried) over Richland Creek (feature below). • C-23-80|Cleveland Park Drive (highway carried, H01), **Code R01.**	01722	
R01 (for H01) — R01 (for H02)	Structure carries I-20 eastbound and westbound (features carried) over the Broad River (feature below). I-20 is separated by a barrier over the bridge, code as two separate highway features. Several spans provide additional waterway openings during flooding. • I-20 WB (highway carried, H01), **Code R01.** • I-20 EB (highway carried, H02), **Code R02.**	04638	

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Road Data Services	Route Information	RouteInfo	Designation

Examples

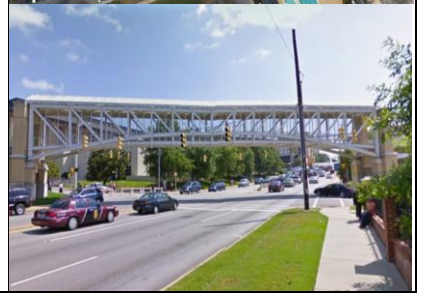
CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
R01 (for H01)	Structure carries SC 170 (feature carried) over the Chechessee River and other features (features below). • SC 170 (highway carried, H01), **Code R01.**	02298	 
R01 (for H01)	Structure carries SC 20 (feature carried) over an abandoned railroad (feature below). • SC 20 (highway carried, H01), **Code R01.**	01824	 

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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Route Information	RouteInfo	Designation

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
R01 (for H01)	Structure carries S-39-47|Power House Road (feature carried) over penstocks and power flares connected to the Ware Shoals Hydroelectric Facility (feature below). • S-39-47|Power House Road (highway carried, H01), **Code R01.**	08572	 
R01 (for H01) — R01 (for H02)	Structure carries University of South Carolina (USC) (feature carried) over US 76|Blossom Street and Park Street (features below). • US 76|Blossom Street (highway below, H01), **Code R01.** • Park Street (highway below, H02), **Code R01.**	00064	 

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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
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Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
R01 (for H01) — R02 (for H01) — R03 (for H01) — R01 (for H02) — R02 (for H02) — R03 (for H02) — R01 (for H03)	Structure carries Interstate 126 westbound and eastbound, US 76 westbound and eastbound, and US 321 northbound and southbound (features carried) over S-40-1086|Wayne Street, the Vista Greenway, and a parking area (features below). The highway features on the bridge are separated and each feature carries three routes. • I-126 WB|US 76 WB|US 321 SB|Lester Bates Fwy (highway carried, H01), **Code R01, R02** and **R03**. • I-126 EB|US 76 EB|US 321 NB|Lester Bates Fwy (highway carried, H02), **Code R01, R02** and **R03**. • S-40-1086|Wayne Street (highway below, H03), **Code R01.**	03740	

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Route Number

Format	Frequency	Item ID Number	Item Ownership
AN (15)	I	B.RT.02	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Route Information	RouteInfo	RouteNumber

FHWA Specification *[and SCDOT Markups]*	FHWA Commentary *[and SCDOT Markups]*
Report the route number for the route reported in Item B.RT.01 (*Route Designation*). Include letters that are used as part of the route numbers *[when used as the route name; does not include directional letters or letters used for type of route, such as Interstate (I), US, or state routes (SC-XX)]*. Report 0 for routes without route numbers.	For divided highways, do not report the route direction. Identify that information in Item B.RT.03 (*Route Direction*). *[This item is a child item to Feature Type (B.F.01).]* For border bridges, the Neighboring State reports this item for all highway features carried on the bridge, as part of their abbreviated bridge record. For more information, see the Border Bridges section of this document. *[All highways in South Carolina have a route number, contact SCDOT Road Data Services for specific questions. B.RT.02 should not be reported as 0 for highways in the inventory.]*

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO

26 (for H01, R01)
—
17 (for H01, R02)
—
26 (for H02, R01)
—
26 (for H03, R01)
—
17 (for H04, R01)
—
17 (for H05, R01)
—
52 (for H06, R01)
—
7944 (for H07, R01)
—
126 (for H08, R01)
—
114 (for H09, R01)
	Structure carries R-7946|Ramp Off I-26 EB (feature carried) over multiple routes (features below). The ramp bridges must be reported with the routes the ramp connects. The ramp itself can be reported as a route if the ramp is under a bridge.
	
	• R-7946|Ramp Off I-26 EB (highway carried, H01), connects I-26 EB and US 17 NB
	  ○ R01 (I-26 EB), **Code 26.**
	  ○ R02 (US 17 NB), **Code 17.**
	• I-26 WB (highway below, H02, R01), **Code 26.**
	• I-26 EB (highway below, H03, R01), **Code 26.**
	• US 17 NB (highway below, H04, R01), **Code 17.**
	• US 17 SB (highway below, H05, R01), **Code 17.**
	• US 52|Meeting Street (highway below, H06, R01), **Code 52.**
	• R-7944|Ramp Off I-26 WB (highway below, H07, R01), **Code 7944.**
	• S-10-126|Romney Street (highway below, H08, R01), **Code 126.**
	• S-10-114|Cypress Street (highway below, H09, R01), **Code 114.**
		09826	
			

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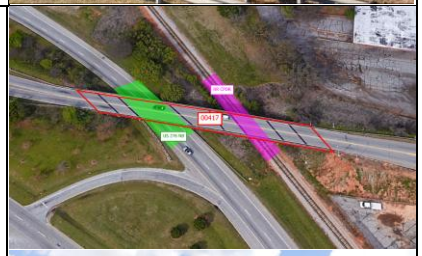
Route Number (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (15)	I	B.RT.02	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Route Information	RouteInfo	RouteNumber

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO

77 (for H01, R01)
—
20 (for H01, R02)
—
20 (for H02, R01)
—
20 (for H03, R01)
—
77 (for H04, R01)
—
77 (for H05, R01)
—
4012 (for H06, R01)
	Structure carries R-5275|Ramp Off I-77 NB (feature carried) over multiple routes (features below). The ramp bridges must be reported with the routes the ramp connects. The ramp itself can be reported as a route if the ramp is under a bridge.
	• R-5275|Ramp Off I-77 NB (highway carried, H01), connects I-77 NB and I-20 WB
	  ○ R01 (I-77 NB), **Code 77.**
	  ○ R02 (I-20 WB), **Code 20.**
	• I-20 WB (highway below, H02, R01), **Code 20.**
	• I-20 EB (highway below, H03, R01), **Code 20.**
	• I-77 NB|Charles F. Bolden Fwy (highway below, H04, R01), **Code 77.**
	• I-77 SB|Charles F. Bolden Fwy (highway below, H05, R01), **Code 77.**
	• CD-4012 (highway below, H06, R01), **Code 4012.**
		07931	
			

417 (for H01, R01) — 276 (for H02, R01)	Structure carries SC 417 (feature carried) over US 276 NB and RR CPDR (features below). • SC 417|Main Street (highway carried, H01, R01), **Code 417.** • US 276 NB (highway below, H02, R01), **Code 276.**	00417	 

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AN (15)	I	B.RT.02	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Route Information	RouteInfo	RouteNumber

Examples

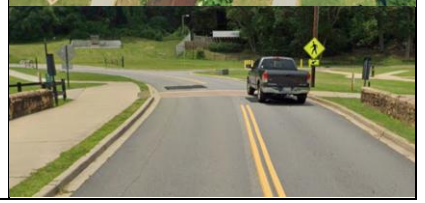
CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
150 (for H01, R01)	Structure carries S-10-150|Chicora Avenue (feature carried) over Tidal Creek (feature below). • S-10-150|Chicora Avenue (highway carried, H01, R01), **Code 150.**	10358	
1 (for H01, R01) — 77 (for H02, R01) — 77 (for H03, R01)	Structure carries US 1|Two Notch Road (feature carried) over I-77 NB and I-77 SB (features below). • US 1|Two Notch Road (highway carried H01, R01), **Code 1.** • I-77 NB (highway below, H02, R01), **Code 77.** • I-77 SB (highway below, H03, R01), **Code 77.**	07023	

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Format	Frequency	Item ID Number	Item Ownership
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Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
176 (for H01, R01)	Structure carries L-40-176|Greene Street (feature carried) over RR CSXT and RR NS (features below). • for L-40-176|Greene Street (highway carried, H01, R01), **Code 176.**	10806	 
80 (for H01, R01)	Structure carries C-23-80|Cleveland Park Drive (feature carried) and a sidewalk (feature carried) over Richland Creek (feature below). • C-23-80|Cleveland Park Drive (highway carried, H01, R01), **Code 80.**	01722	 

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Format	Frequency	Item ID Number	Item Ownership
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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Route Information	RouteInfo	RouteNumber

Examples

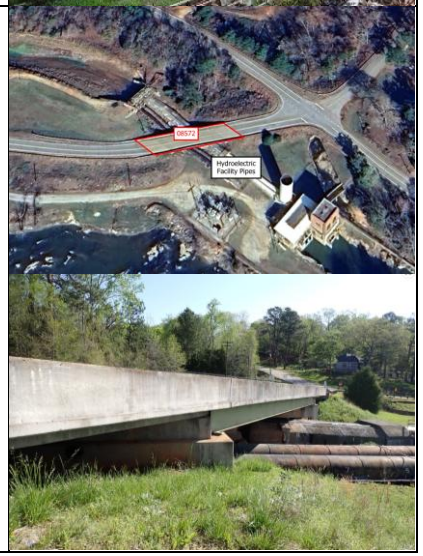
CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
20 (for H01, R01) — 20 (for H02, R01)	Structure carries I-20 eastbound and westbound (features carried) over the Broad River (feature below). I-20 is separated by a barrier over the bridge, code as two separate highway features. Several spans provide additional waterway openings during flooding. • I-20 WB (highway carried, H01, R01), **Code 20.** • I-20 EB (highway carried, H02, R01), **Code 20.**	04638	
170 (for H01, R01)	Structure carries SC 170 (feature carried) over the Chechessee River and other features (features below). • SC 170 (highway carried, H01, R01), **Code 170.**	02298	

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Format	Frequency	Item ID Number	Item Ownership
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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Route Information	RouteInfo	RouteNumber

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
20 (for H01, R01)	Structure carries SC 20 (feature carried) over an abandoned railroad (feature below). • SC 20 (highway carried, H01, R01), **Code 20.**	01824	
47 (for H01, R01)	Structure carries S-39-47|Power House Road (feature carried) over penstocks and power flares connected to the Ware Shoals Hydroelectric Facility (feature below). • S-39-47|Power House Road (highway carried, H01, R01), **Code 47.**	08572	

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Format	Frequency	Item ID Number	Item Ownership
AN (15)	I	B.RT.02	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Route Information	RouteInfo	RouteNumber

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
76 (for H01, R01) — 171 (for H02, R01)	Structure carries University of South Carolina (USC) (feature carried) over US 76|Blossom Street and Park Street (features below). • US 76|Blossom Street (highway below, H01, R01), **Code 76.** • Park Street (highway below, H02, R01), **Code 171.**	00064	
26 (for H01, R01) — 76 (for H01, R02) — 321 (for H01, R03) — 26 (for H02, R01) — 76 (for H02, R02) — 321 (for H02, R03) — 1086 (for H03, R01)	Structure carries Interstate 126 westbound and eastbound, US 76 westbound and eastbound, and US 321 northbound and southbound (features carried) over S-40-1086|Wayne Street, the Vista Greenway, and a parking area (features below). The highway features on the bridge are separated and each feature carries three routes. • I-126 WB|US 76 WB|US 321 SB|Lester Bates Fwy (highway carried, H01) ○ R01 (I-26 WB), **Code 26.** ○ R02 (US 76 WB), **Code 76.** ○ R03 (US 321 NB), **Code 321.** • I-126 EB|US 76 EB|US 321 NB|Lester Bates Fwy (highway carried, H02) ○ R01 (I-26 EB), **Code 26.** ○ R02 (US 76 EB), **Code 76.** ○ R03 (US 321 SB), **Code 321.** • S-40-1086|Wayne Street (highway below, H03, R01), **Code 1086.**	03740	

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Route Direction

Format	Frequency	Item ID Number	Item Ownership
AN (2)	I	B.RT.03	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Route Information	RouteInfo	Direction

FHWA Specification *[and SCDOT Markups]*

Report the designated route direction for the route reported in Item B.RT.01 (*Route Designation*) using one of the following codes.

Code	Description
NB	Northbound
EB	Eastbound
SB	Southbound
WB	Westbound
NS	Northbound and Southbound *[Not available.]*
EW	Eastbound and Westbound *[Not available.]*

FHWA Commentary *[and SCDOT Markups]*

[This item is a child item to Feature Type (B.F.01).]

Use code NS when the route is not divided at the bridge, and carries traffic in both north and south directions. Use code EW when the route is not divided at the bridge, and carries traffic in both east and west directions. *[Inventory Manager is unable to currently report NS and EW. Routes that carry traffic in both directions will appear to only carry traffic in one direction until the upgrade is complete for Inventory Manager. Contact Road Data Services with any questions. Guidance below reflects SNBI compliance but some coding options are not available to RDS.*

Use the designated route direction for the departure or entrance route when a bridge only carries a ramp; i.e. Item B.RT.05 (*Service Type*) is 7. *[For ramp bridges, the route direction of the departure and entrance routes is reported since both routes are reported. For instances where a ramp is under a bridge, use the route the ramp is departing from for route direction.]*

Use the most applicable code when a route does not have a designated route direction.

[As a rule of thumb, odd numbered routes run north and south, for example US 321 and even numbered routes run west and east, for example SC 12.]

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Format	Frequency	Item ID Number	Item Ownership
AN (2)	I	B.RT.03	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Route Information	RouteInfo	Direction

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
EB - Eastbound (for H01, R01) — NB - Northbound (for H01, R02) — WB - Westbound (for H02, R01) — EB - Eastbound (for H03, R01) — NB - Northbound (for H04, R01) — SB - Southbound (for H05, R01) — EW – EB and WB (for H06, R01) — WB - Westbound (for H07, R01) — EW – EB and WB (for H08, R01) — EW – EB and WB (for H09, R01)	Structure carries R-7946|Ramp Off I-26 EB (feature carried) over multiple routes (features below). The ramp bridges must be reported with the routes the ramp connects. The ramp itself can be reported as a route if the ramp is under a bridge. • R-7946|Ramp Off I-26 EB (highway carried, H01), connects I-26 EB and US 17 NB ○ R01 (I-26 EB), **Code EB.** ○ R02 (US 17 NB), **Code NB.** • I-26 WB (highway below, H02, R01), **Code WB.** • I-26 EB (highway below, H03, R01), **Code EB.** • US 17 NB (highway below, H04, R01), **Code NB.** • US 17 SB (highway below, H05, R01), **Code SB.** • US 52|Meeting Street (highway below, H06, R01), **Code EW.** • R-7944|Ramp Off I-26 WB (highway below, H07, R01), **Code WB.** • S-10-126|Romney Street (highway below, H08, R01), **Code EW.** • S-10-114|Cypress Street (highway below, H09, R01), **Code EW.**	09826	 
NB - Northbound (for H01, R01) — WB - Westbound (for H01, R02) — WB - Westbound (for H02, R01) — EB - Eastbound (for H03, R01) — NB - Northbound (for H04, R01) — SB - Southbound (for H05, R01) — EB - Eastbound (for H06, R01)	Structure carries R-5275|Ramp Off I-77 NB (feature carried) over multiple routes (features below). The ramp bridges must be reported with the routes the ramp connects. The ramp itself can be reported as a route if the ramp is under a bridge. • R-5275|Ramp Off I-77 NB (highway carried, H01), connects I-77 NB and I-20 WB ○ R01 (I-77 NB), **Code NB.** ○ R02 (I-20 WB), **Code WB.** • I-20 WB (highway below, H02, R01), **Code WB.** • I-20 EB (highway below, H03, R01), **Code EB.** • I-77 NB|Charles F. Bolden Fwy (highway below, H04, R01), **Code NB.** • I-77 SB|Charles F. Bolden Fwy (highway below, H05, R01), **Code SB.** • CD-4012 (highway below, H06, R01), **Code EB.**	07931	 

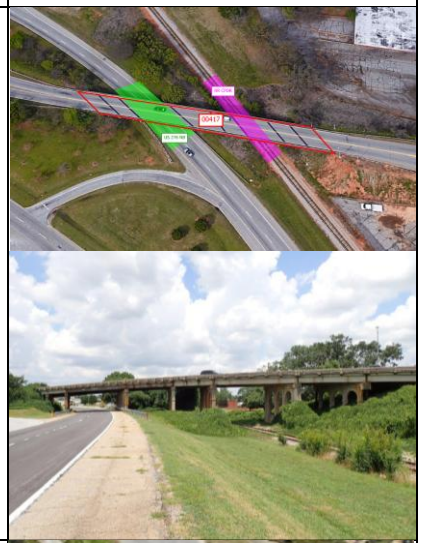
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Examples

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NS - Northbound and Southbound (for H01, R01) — NB - Northbound (for H02, R01)	Structure carries SC 417 (feature carried) over US 276 NB and RR CPDR (features below). • SC 417|Main Street (highway carried, H01, R01), **Code NS.** • US 276 NB (highway below, H02, R01), **Code NB.**	00417	
EW - Eastbound and Westbound (for H01, R01)	Structure carries S-10-150|Chicora Avenue (feature carried) over Tidal Creek (feature below). • S-10-150|Chicora Avenue (highway carried, H01, R01), **Code EW.**	10358	

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Format	Frequency	Item ID Number	Item Ownership
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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Route Information	RouteInfo	Direction

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
NS - Northbound and Southbound (for H01, R01) — NB - Northbound (for H02, R01) — SB - Southbound (for H03, R01)	Structure carries US 1|Two Notch Road (feature carried) over I-77 NB and I-77 SB (features below). • US 1|Two Notch Road (highway carried H01, R01), **Code NS.** • I-77 NB (highway below, H02, R01), **Code NB.** • I-77 SB (highway below, H03, R01), **Code SB.**	07023	
EW - Eastbound and Westbound (for H01, R01)	Structure carries L-40-176|Greene Street (feature carried) over RR CSXT and RR NS (features below). • for L-40-176|Greene Street (highway carried, H01, R01), **Code EW.**	10806	

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Format	Frequency	Item ID Number	Item Ownership
AN (2)	I	B.RT.03	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Route Information	RouteInfo	Direction

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
EW - Eastbound and Westbound (for H01, R01)	Structure carries C-23-80|Cleveland Park Drive (feature carried) and a sidewalk (feature carried) over Richland Creek (feature below). • C-23-80|Cleveland Park Drive (highway carried, H01, R01), **Code EW.**	01722	
WB - Westbound (for H01, R01) — EB - Eastbound (for H02, R01)	Structure carries I-20 eastbound and westbound (features carried) over the Broad River (feature below). I-20 is separated by a barrier over the bridge, code as two separate highway features. Several spans provide additional waterway openings during flooding. • I-20 WB (highway carried, H01, R01), **Code WB.** • I-20 EB (highway carried, H02, R01), **Code EB.**	04638	

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Format	Frequency	Item ID Number	Item Ownership
AN (2)	I	B.RT.03	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Route Information	RouteInfo	Direction

Examples

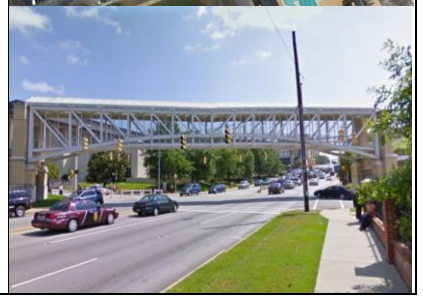
CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
EW - Eastbound and Westbound (for H01, R01)	Structure carries SC 170 (feature carried) over the Chechessee River and other features (features below). • SC 170 (highway carried, H01, R01), **Code EW.**	02298	 
EW - Eastbound and Westbound (for H01, R01)	Structure carries SC 20 (feature carried) over an abandoned railroad (feature below). • SC 20 (highway carried, H01, R01), **Code EW.**	01824	 

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Format	Frequency	Item ID Number	Item Ownership
AN (2)	I	B.RT.03	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Route Information	RouteInfo	Direction

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
NS - Northbound and Southbound (for H01, R01)	Structure carries S-39-47|Power House Road (feature carried) over penstocks and power flares connected to the Ware Shoals Hydroelectric Facility (feature below). • S-39-47|Power House Road (highway carried, H01, R01), **Code NS.**	08572	
EW - Eastbound and Westbound (for H01, R01) — NS - Northbound and Southbound (for H02, R01)	Structure carries University of South Carolina (USC) (feature carried) over US 76|Blossom Street and Park Street (features below). • US 76|Blossom Street (highway below, H01, R01), **Code EW.** • Park Street (highway below, H02, R01), **Code NS.**	00064	

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Format	Frequency	Item ID Number	Item Ownership
AN (2)	I	B.RT.03	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Route Information	RouteInfo	Direction

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
WB - Westbound (for H01, R01) — WB - Westbound (for H01, R02) — NB - Northbound (for H01, R03) — EB - Eastbound (for H02, R01) — EB - Eastbound (for H02, R02) — SB - Southbound (for H02, R03) — EW - Eastbound and Westbound (for H03, R01)	Structure carries Interstate 126 westbound and eastbound, US 76 westbound and eastbound, and US 321 northbound and southbound (features carried) over S-40-1086|Wayne Street, the Vista Greenway, and a parking area (features below). The highway features on the bridge are separated and each feature carries three routes. • I-126 WB|US 76 WB|US 321 SB|Lester Bates Fwy (highway carried, H01) ○ R01 (I-26 WB), **Code WB.** ○ R02 (US 76 WB), **Code WB.** ○ R02 (US 321 NB), **Code NB.** • I-126 EB|US 76 EB|US 321 NB|Lester Bates Fwy (highway carried, H02), Code R01, R02 and R03. ○ R01 (I-26 EB), **Code EB.** ○ R02 (US 76 EB), **Code EB.** ○ R02 (US 321 SB), **Code SB.** • S-40-1086|Wayne Street (highway below, H03, R01), **Code EW.**	03740	

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Route Type

Format	Frequency	Item ID Number	Item Ownership
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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Route Information	RouteInfo	RouteType

FHWA Specification *[and SCDOT Markups]*

Report the route type for the route reported in Item B.RT.01(Route Designation) using one of the following codes.

Code	Description
1	Interstate Route
2	U.S. Route
3	State Route *[SC and S Routes]*
4	County Route *[C Routes]*
5	City Street *[L Routes]*
6	Federal Lands Road
7	State Lands Road
X	Other

FHWA Commentary *[and SCDOT Markups]*

[This item is a child item to Feature Type (B.F.01).]

Use code 4 for parish routes or other county route equivalents.

Use code 5 for city or other municipal streets.

Use code 6 when a public highway passes through Federal lands such as national parks, national forests, or DOD facilities and does not meet the description of codes 1 through 5.

Use code 7 when a public highway passes through State lands such as State parks or State forests and does not meet the description of codes 1 through 5.

Use code X when a public highway is not designated as one of the defined route type codes.

For border bridges, the Neighboring State reports this item for all highway features carried on the bridge, as part of their abbreviated bridge record. For more information, see the Border Bridges section of this document.

[For a county owned road, the road name begins with "C". For a city owned road, the road name begins with "L". Consider locally owned roads and the entity responsible for maintaining them as it pertains to the city limits; this may provide insight into route ownership.]

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Route Type (continued)

Format	Frequency	Item ID Number	Item Ownership
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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Route Information	RouteInfo	RouteType

Examples

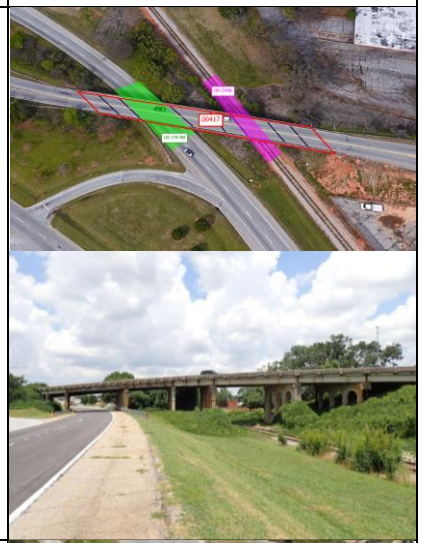
CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
1 - Interstate (for H01, R01) — 2 - US Route (for H01, R02) — 1 - Interstate (for H02, R01) — 1 - Interstate (for H03, R01) — 2 - US Route (for H04, R01) — 2 - US Route (for H05, R01) — 2 - US Route (for H06, R01) — 1 - Interstate (for H07, R01) — 3 - State Route (for H08, R01) — 3 - State Route (for H09, R01)	Structure carries R-7946|Ramp Off I-26 EB (feature carried) over multiple routes (features below). The ramp bridges must be reported with the routes the ramp connects. The ramp itself can be reported as a route if the ramp is under a bridge. • R-7946|Ramp Off I-26 EB (highway carried, H01), connects I-26 EB and US 17 NB ○ R01 (I-26 EB), **Code 1.** ○ R02 (US 17 NB), **Code 2.** • I-26 WB (highway below, H02, R01), **Code 1.** • I-26 EB (highway below, H03, R01), **Code 1.** • US 17 NB (highway below, H04, R01), **Code 2.** • US 17 SB (highway below, H05, R01), **Code 2.** • US 52|Meeting Street (highway below, H06, R01), **Code 2.** • R-7944|Ramp Off I-26 WB (highway below, H07, R01), **Code 1.** • S-10-126|Romney Street (highway below, H08, R01), **Code 3.** • S-10-114|Cypress Street (highway below, H09, R01), **Code 3.**	09826	 
1 - Interstate (for H01, R01) — 1 - Interstate (for H01, R02) — 1 - Interstate (for H02, R01) — 1 - Interstate (for H03, R01) — 1 - Interstate (for H04, R01) — 1 - Interstate (for H05, R01) — 1 - Interstate (for H06, R01)	Structure carries R-5275|Ramp Off I-77 NB (feature carried) over multiple routes (features below). The ramp bridges must be reported with the routes the ramp connects. The ramp itself can be reported as a route if the ramp is under a bridge. • R-5275|Ramp Off I-77 NB (highway carried, H01), connects I-77 NB and I-20 WB ○ R01 (I-77 NB), **Code 1.** ○ R02 (I-20 WB), **Code 1.** • I-20 WB (highway below, H02, R01), **Code 1.** • I-20 EB (highway below, H03, R01), **Code 1.** • I-77 NB|Charles F. Bolden Fwy (highway below, H04, R01), **Code 1.** • I-77 SB|Charles F. Bolden Fwy (highway below, H05, R01), **Code 1.** • CD-4012 (highway below, H06, R01), **Code 1.**	07931	 

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Format	Frequency	Item ID Number	Item Ownership
AN (1)	I	B.RT.04	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Route Information	RouteInfo	RouteType

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
3 - State Route (for H01, R01) — 2 - US Route (for H02, R01)	Structure carries SC 417 (feature carried) over US 276 NB and RR CPDR (features below). • SC 417|Main Street (highway carried, H01, R01), **Code 3.** • US 276 NB (highway below, H02, R01), **Code 2.**	00417	
3 - State Route (for H01, R01)	Structure carries S-10-150|Chicora Avenue (feature carried) over Tidal Creek (feature below). • S-10-150|Chicora Avenue (highway carried, H01, R01), **Code 3.**	10358	

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Format	Frequency	Item ID Number	Item Ownership
AN (1)	I	B.RT.04	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Route Information	RouteInfo	RouteType

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
2 - US Route (for H01, R01) — 1 - Interstate (for H02, R01) — 1 - Interstate (for H03, R01)	Structure carries US 1|Two Notch Road (feature carried) over I-77 NB and I-77 SB (features below). • US 1|Two Notch Road (highway carried H01, R01), **Code 2.** • I-77 NB (highway below, H02, R01), **Code 1.** • I-77 SB (highway below, H03, R01), **Code 1.**	07023	
5 - City Street (for H01, R01)	Structure carries L-40-176|Greene Street (feature carried) over RR CSXT and RR NS (features below). • for L-40-176|Greene Street (highway carried, H01, R01), **Code 5.**	10806	

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AN (1)	I	B.RT.04	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Route Information	RouteInfo	RouteType

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
4 - County Route (for H01, R01)	Structure carries C-23-80|Cleveland Park Drive (feature carried) and a sidewalk (feature carried) over Richland Creek (feature below). • C-23-80|Cleveland Park Drive (highway carried, H01, R01), **Code 4.**	01722	
1 - Interstate (for H01, R01) — 1 - Interstate (for H02, R01)	Structure carries I-20 eastbound and westbound (features carried) over the Broad River (feature below). I-20 is separated by a barrier over the bridge, code as two separate highway features. Several spans provide additional waterway openings during flooding. • I-20 WB (highway carried, H01, R01), **Code 1.** • I-20 EB (highway carried, H02, R01), **Code 1.**	04638	

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Format	Frequency	Item ID Number	Item Ownership
AN (1)	I	B.RT.04	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Route Information	RouteInfo	RouteType

Examples

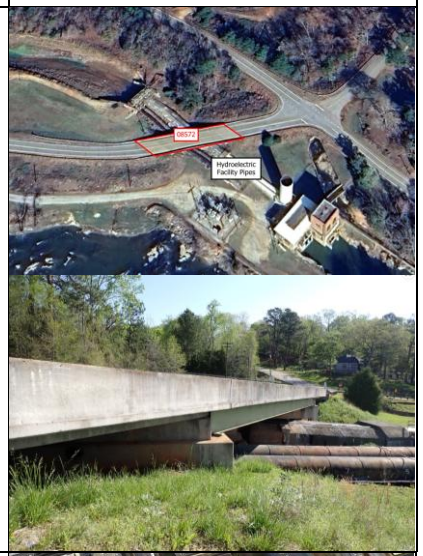
CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
3 - State Route (for H01, R01)	Structure carries SC 170 (feature carried) over the Chechessee River and other features (features below). • SC 170 (highway carried, H01, R01), **Code 3.**	02298	 
3 - State Route (for H01, R01)	Structure carries SC 20 (feature carried) over an abandoned railroad (feature below). • SC 20 (highway carried, H01, R01), **Code 3.**	01824	 

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Format	Frequency	Item ID Number	Item Ownership
AN (1)	I	B.RT.04	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Route Information	RouteInfo	RouteType

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
3 - State Route (for H01, R01)	Structure carries S-39-47|Power House Road (feature carried) over penstocks and power flares connected to the Ware Shoals Hydroelectric Facility (feature below). • S-39-47|Power House Road (highway carried, H01, R01), **Code 3.**	08572	
2 - US Route (for H01, R01) — 3 - State Route (for H02, R01)	Structure carries University of South Carolina (USC) (feature carried) over US 76|Blossom Street and Park Street (features below). • US 76|Blossom Street (highway below, H01, R01), **Code 2.** • Park Street (highway below, H02, R01), **Code 3.**	00064	

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Format	Frequency	Item ID Number	Item Ownership
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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Route Information	RouteInfo	RouteType

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
1 - Interstate (for H01, R01) — 2 - US Route (for H01, R02) — 2 - US Route (for H01, R03) — 1 - Interstate (for H02, R01) — 2 - US Route (for H02, R02) — 2 - US Route (for H02, R03) — 3 - State Route (for H03, R01)	Structure carries Interstate 126 westbound and eastbound, US 76 westbound and eastbound, and US 321 northbound and southbound (features carried) over S-40-1086|Wayne Street, the Vista Greenway, and a parking area (features below). The highway features on the bridge are separated and each feature carries three routes. • I-126 WB|US 76 WB|US 321 SB|Lester Bates Fwy (highway carried, H01) ○ R01 (I-26 WB), **Code 1.** ○ R02 (US 76 WB), **Code 2.** ○ R02 (US 321 NB), **Code 2.** • I-126 EB|US 76 EB|US 321 NB|Lester Bates Fwy (highway carried, H02), Code R01, R02 and R03. ○ R01 (I-26 EB), **Code 1.** ○ R02 (US 76 EB), **Code 2.** ○ R02 (US 321 SB), **Code 2.** • S-40-1086|Wayne Street (highway below, H03, R01), **Code 3.**	03740	
7 - State Lands Road (for H01, R01)	Structure carries a Barnwell State Park Road in the state park (feature carried) over the Toby Creek (feature below). • Barnwell State Park Road (highway carried, H01, R01), **Code 7.**	04464	

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Service Type

Format	Frequency	Item ID Number	Item Ownership
AN (1)	I	B.RT.05	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Route Information	RouteInfo	ServiceType

FHWA Specification *[and SCDOT Markups]*

Report the designated service type for the route reported in Item B.RT.01 (*Route Designation*), using one of the following codes.

Code	Description
1	Mainline
2	Alternate
3	Bypass
4	Spur
6	Business
7	Ramp, connector, etc.
8	Service or frontage road
X	Other

FHWA Commentary *[and SCDOT Markups]*

The service type designation is determined by the agency, and typically included as part of the signage for the route. *[This item is a child item to Feature Type (B.F.01).]*

Use code 7 for all types, arrangements, and sizes of turning roadways that connect two or more highways at an interchange. *[This includes Collector Distributors (CDs) which are common at some interchanges in South Carolina as longer roadways what may run parallel to highways. CDs may act as intermediates between mainlines and ramps, handling merging, diverging, and weaving traffic.]*

Use code 8 for frontage roads. These are typically parallel to the traveled way, may be provided on one or both sides of the mainline, and may or may not be continuous. A frontage road may include a U-turn lane.

For Federal agency roads, report the most logical description of the service type compared to other routes within the facility.

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B.RT.04 Route Type
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Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
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Service Type (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (1)	I	B.RT.05	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Route Information	RouteInfo	ServiceType

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO

7 - Ramp (for H01, R01)
—
7 - Ramp (for H01, R02)
—
1 - Mainline (for H02, R01)
—
1 - Mainline (for H03, R01)
—
1 - Mainline (for H04, R01)
—
1 - Mainline (for H05, R01)
—
1 - Mainline (for H06, R01)
—
7 - Ramp (for H07, R01)
—
1 - Mainline (for H08, R01)
—
1 - Mainline (for H09, R01)
	Structure carries R-7946|Ramp Off I-26 EB (feature carried) over multiple routes (features below). The ramp bridges must be reported with the routes the ramp connects. The ramp itself can be reported as a route if the ramp is under a bridge.
	• R-7946|Ramp Off I-26 EB (highway carried, H01), connects I-26 EB and US 17 NB
	  ○ R01 (I-26 EB), **Code 7.**
	  ○ R02 (US 17 NB), **Code 7.**
	• I-26 WB (highway below, H02, R01), **Code 1.**
	• I-26 EB (highway below, H03, R01), **Code 1.**
	• US 17 NB (highway below, H04, R01), **Code 1.**
	• US 17 SB (highway below, H05, R01), **Code 1.**
	• US 52|Meeting Street (highway below, H06, R01), **Code 1.**
	• R-7944|Ramp Off I-26 WB (highway below, H07, R01), **Code 7.**
	• S-10-126|Romney Street (highway below, H08, R01), **Code 1.**
	• S-10-114|Cypress Street (highway below, H09, R01), **Code 1.**
		09826	
			

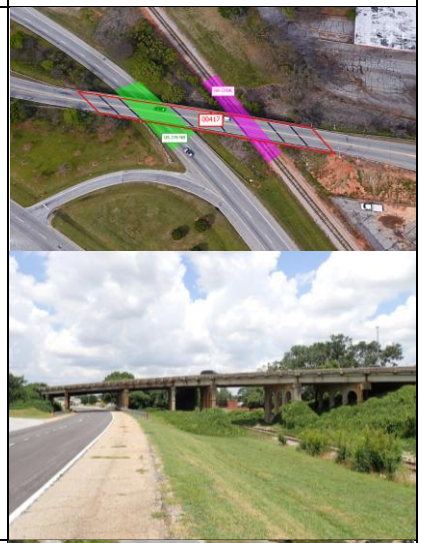
7 - Ramp (for H01, R01)
—
7 - Ramp (for H01, R02)
—
1 - Mainline (for H02, R01)
—
1 - Mainline (for H03, R01)
—
1 - Mainline (for H04, R01)
—
1 - Mainline (for H05, R01)
—
7 - Ramp (for H06, R01)
	Structure carries R-5275|Ramp Off I-77 NB (feature carried) over multiple routes (features below). The ramp bridges must be reported with the routes the ramp connects. The ramp itself can be reported as a route if the ramp is under a bridge.
	• R-5275|Ramp Off I-77 NB (highway carried, H01), connects I-77 NB and I-20 WB
	  ○ R01 (I-77 NB), **Code 7.**
	  ○ R02 (I-20 WB), **Code 7.**
	• I-20 WB (highway below, H02, R01), **Code 1.**
	• I-20 EB (highway below, H03, R01), **Code 1.**
	• I-77 NB|Charles F. Bolden Fwy (highway below, H04, R01), **Code 1.**
	• I-77 SB|Charles F. Bolden Fwy (highway below, H05, R01), **Code 1.**
	• CD-4012 (highway below, H06, R01), **Code 7.**
		07931	
			

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Format	Frequency	Item ID Number	Item Ownership
AN (1)	I	B.RT.05	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Route Information	RouteInfo	ServiceType

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
1 - Mainline (for H01, R01) — 1 - Mainline (for H02, R01)	Structure carries SC 417 (feature carried) over US 276 NB and RR CPDR (features below). • SC 417|Main Street (highway carried, H01, R01), **Code 1.** • US 276 NB (highway below, H02, R01), **Code 1.**	00417	
1 - Mainline (for H01, R01)	Structure carries S-10-150|Chicora Avenue (feature carried) over Tidal Creek (feature below). • S-10-150|Chicora Avenue (highway carried, H01, R01), **Code 1.**	10358	

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B.RT.05 Service Type
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Format	Frequency	Item ID Number	Item Ownership
AN (1)	I	B.RT.05	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Route Information	RouteInfo	ServiceType

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
1 - Mainline (for H01, R01) — 1 - Mainline (for H02, R01) — 1 - Mainline (for H03, R01)	Structure carries US 1|Two Notch Road (feature carried) over I-77 NB and I-77 SB (features below). • US 1|Two Notch Road (highway carried H01, R01), **Code 1.** • I-77 NB (highway below, H02, R01), **Code 1.** • I-77 SB (highway below, H03, R01), **Code 1.**	07023	
1 - Mainline (for H01, R01)	Structure carries L-40-176|Greene Street (feature carried) over RR CSXT and RR NS (features below). • for L-40-176|Greene Street (highway carried, H01, R01), **Code 1.**	10806	

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Format	Frequency	Item ID Number	Item Ownership
AN (1)	I	B.RT.05	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Route Information	RouteInfo	ServiceType

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
1 - Mainline (for H01, R01)	Structure carries C-23-80|Cleveland Park Drive (feature carried) and a sidewalk (feature carried) over Richland Creek (feature below). • C-23-80|Cleveland Park Drive (highway carried, H01, R01), **Code 1.**	01722	
1 - Mainline (for H01, R01) — 1 - Mainline (for H02, R01)	Structure carries I-20 eastbound and westbound (features carried) over the Broad River (feature below). I-20 is separated by a barrier over the bridge, code as two separate highway features. Several spans provide additional waterway openings during flooding. • I-20 WB (highway carried, H01, R01), **Code 1.** • I-20 EB (highway carried, H02, R01), **Code 1.**	04638	

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Appendix S4: Weathering Steel Condition
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Appendix S6: Damage Defect Coding

Service Type (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (1)	I	B.RT.05	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Route Information	RouteInfo	ServiceType

Examples

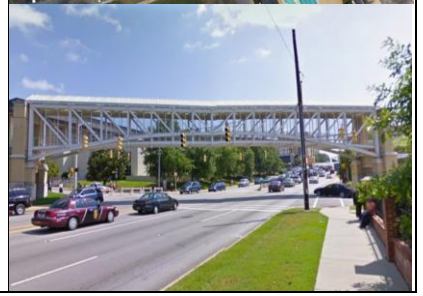
CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
1 - Mainline (for H01, R01)	Structure carries SC 170 (feature carried) over the Chechessee River and other features (features below). • SC 170 (highway carried, H01, R01), **Code 1.**	02298	 
1 - Mainline (for H01, R01)	Structure carries SC 20 (feature carried) over an abandoned railroad (feature below). • SC 20 (highway carried, H01, R01), **Code 1.**	01824	 

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Format	Frequency	Item ID Number	Item Ownership
AN (1)	I	B.RT.05	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Route Information	RouteInfo	ServiceType

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
1 - Mainline (for H01, R01)	Structure carries S-39-47|Power House Road (feature carried) over penstocks and power flares connected to the Ware Shoals Hydroelectric Facility (feature below). • S-39-47|Power House Road (highway carried, H01, R01), **Code 1.**	08572	
1 - Mainline (for H01, R01) — 1 - Mainline (for H02, R01)	Structure carries University of South Carolina (USC) (feature carried) over US 76|Blossom Street and Park Street (features below). • US 76|Blossom Street (highway below, H01, R01), **Code 1.** • Park Street (highway below, H02, R01), **Code 1.**	00064	

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Format	Frequency	Item ID Number	Item Ownership
AN (1)	I	B.RT.05	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Route Information	RouteInfo	ServiceType

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
1 - Mainline (for H01, R01) — 1 - Mainline (for H01, R02) — 1 - Mainline (for H01, R03) — 1 - Mainline (for H02, R01) — 1 - Mainline (for H02, R02) — 1 - Mainline (for H02, R03) — 1 - Mainline (for H03, R01)	Structure carries Interstate 126 westbound and eastbound, US 76 westbound and eastbound, and US 321 northbound and southbound (features carried) over S-40-1086|Wayne Street, the Vista Greenway, and a parking area (features below). The highway features on the bridge are separated and each feature carries three routes. • I-126 WB|US 76 WB|US 321 SB|Lester Bates Fwy (highway carried, H01) ○ R01 (I-26 WB), **Code 1.** ○ R02 (US 76 WB), **Code 1.** ○ R02 (US 321 NB), **Code 1.** • I-126 EB|US 76 EB|US 321 NB|Lester Bates Fwy (highway carried, H02), Code R01, R02 and R03. ○ R01 (I-26 EB), **Code 1.** ○ R02 (US 76 EB), **Code 1.** ○ R02 (US 321 SB), **Code 1.** • S-40-1086|Wayne Street (highway below, H03, R01), **Code 1.**	03740	

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B.H.09 Annual Average Daily Traffic
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B.H.11 Year of Average Daily Traffic
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B.H.13 Minimum Vertical Clearance
B.H.14 Horizontal Clearance, Left
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Functional Classification

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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Roadway Information	Highway	FunctionalClassification

FHWA Specification *[and SCDOT Markups]*

Report the functional classification for the highway feature reported in Item B.F.01 (*Feature Type*) using one of the following codes.

Code	Description
1	Interstate
2	Principal Arterial – Other Freeways and Expressways
3	Principal Arterial – Other
4	Minor Arterial
5	Major Collector
6	Minor Collector
7	Local

FHWA Commentary *[and SCDOT Markups]*

Functional classifications result from the grouping of highways by the character of service they provide. Ensure that the functional classification designated in this item is consistent with the HPMS.

When one highway feature carries multiple route types, report the code for the highest-class route following the hierarchy in the code descriptions; Interstate being the highest class. *[If a bridge carries an interstate and a US Route, report as 1-Interstate.]*

Use code 7 for State or Federal parkways and other park roads unless there is a through highway designated at a higher classification.

FHWA Highway Functional Classification Concepts, Criteria, and Procedures website: FHWA Functional Classification Link

[SCDOT has prepared a functional classification map using agency defined functional classifications. Inventory Manager converts to FHWA defined fields. The SCDOT functional classification map linked is here: SCDOT GIS Functional Class Map. For example, SCDOT uses both 'Urban – Principle Arterial – Other' or 'Rural – Principal Arterial – Other'. Code 2 if the feature resembles a freeway/expressway. Code 3 if the feature does not resemble a freeway/expressway but is still considered a Principle Arterial. Functional classification is not directly linked to roadway owner or route name/number. For example, an SCDOT-owned road can have a functional classification of '7 – Local'. If a verification is required by an inspector, the linked map above can be used but a conversion is needed to compare the SCDOT and FHWA values. See next page for conversion.

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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Roadway Information	Highway	FunctionalClassification

SCDOT Functional Classification Conversion

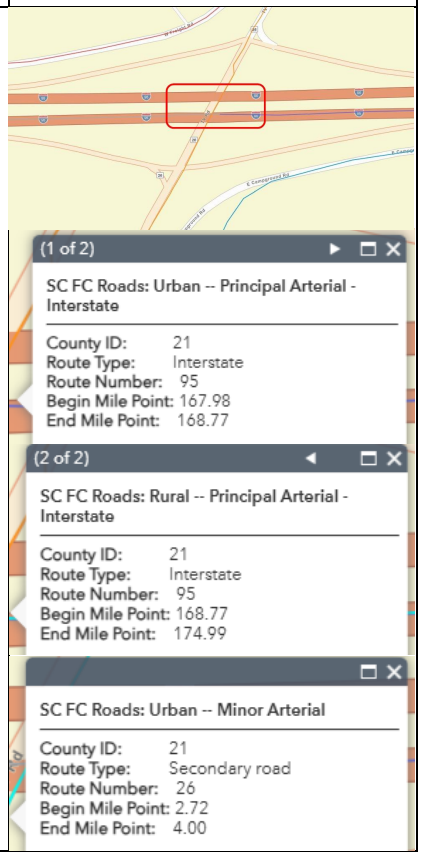
SNBI Code for FHWA	Road Data Services (RDS) Code	Functional Classification Name
1	11	Urban -- Principal Arterial - Interstate
1	1	Rural -- Principal Arterial - Interstate
2	12	Urban -- Principal Arterial - Other Freeways & Expressways
2	6	Rural -- Principal Arterial - Other Freeways & Expressways
3	13	Urban -- Principal Arterial - Other
3	2	Rural -- Principal Arterial - Other
4	14	Urban -- Minor Arterial
4	3	Rural -- Minor Arterial
5	15	Urban -- Major Collector
5	4	Rural -- Major Collector
6	16	Urban -- Minor Collector
6	5	Rural -- Minor Collector
7	18	Urban -- Local
7	9	Rural -- Local

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AN (1)	I	B.H.01	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Roadway Information	Highway	FunctionalClassification

Examples

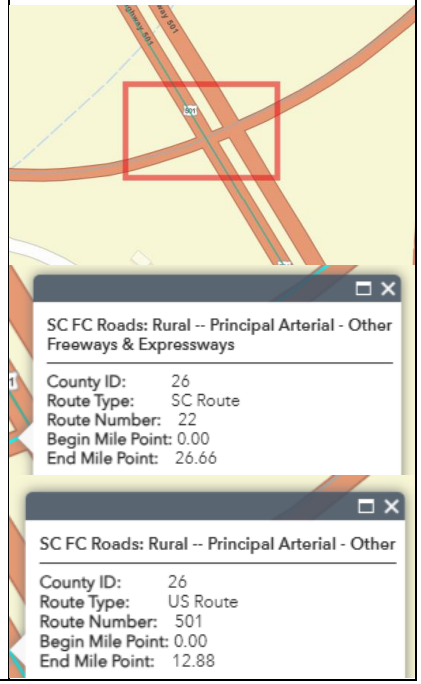
CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
1 – Interstate (for H01) — 1 – Interstate (for H02) — 4 – Minor Arterial (for H03)	Structure carries I-95 (feature carried) over S-21-26|TV Road (feature below). The SCDOT Functional Class is listed as "Principal Arterial - Interstate" for I-95 NB and I-95 SB. This can be converted to "1 - Interstate" for FHWA. The SCDOT Functional Class is listed as "Urban - Minor Arterial" S-21-26|TV Road. This can be converted to "4 - Minor Arterial" for FHWA. • For I-95 NB (H01)(Highway Carried) **Code 1.** • For I-95 SB (H02)(Highway Carried) **Code 1.** • For S-21-26|TV Road (H03)(Highway Below) **Code 4.**	04772	

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B.H.05 STRAHNET Designation
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B.H.07 LRS Mile Point
B.H.08 Lanes On Highway
B.H.09 Annual Average Daily Traffic
B.H.10 Average Daily Truck Traffic
B.H.11 Year of Average Daily Traffic
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B.H.13 Minimum Vertical Clearance
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AN (1)	I	B.H.01	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Roadway Information	Highway	FunctionalClassification

Examples

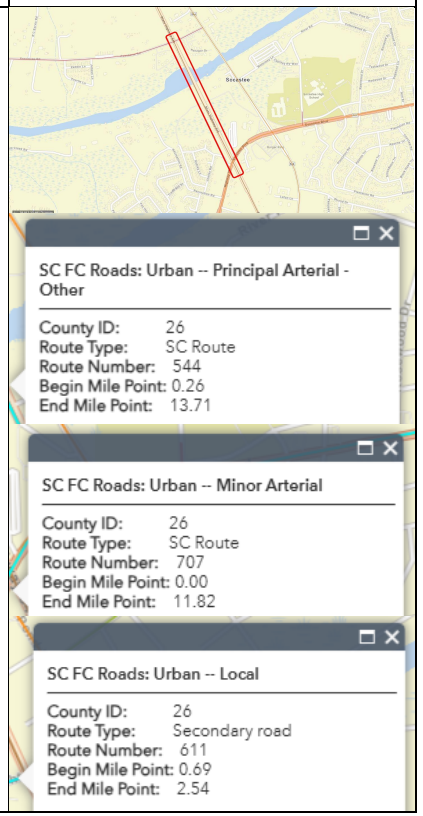
CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
2 – Principal Arterial – Other Freeways and Expressways (for H01) — 3 – Principal Arterial - Other (for H02)	Structure carries SC 22 EB (feature carried) over US 501 (feature below). The SCDOT Functional Class is listed as "Principal Arterial - Other Freeways & Expressways" for SC 22 EB as the route resembles a freeway/expressway, but it is not an interstate. SC 22 is the Conway Bypass, a divided non-interstate route with interstate characteristics (controlled access, divider barrier, etc.). This can be converted to "2 - Principal Arterial – Other Freeways and Expressways" for FHWA. The SCDOT Functional Class is listed as "Rural – Principal Arterial - Other" for US 501. This can be converted to "3 - Principal Arterial - Other" for FHWA. • For SC 22 EB (H01)(Highway Carried) **Code 2.** • For US 501 (H02)(Highway Below) **Code 3.**	09670	

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B.H.04 NH Freight Network
B.H.05 STRAHNET Designation
B.H.06 LRS Route ID
B.H.07 LRS Mile Point
B.H.08 Lanes On Highway
B.H.09 Annual Average Daily Traffic
B.H.10 Average Daily Truck Traffic
B.H.11 Year of Average Daily Traffic
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B.H.13 Minimum Vertical Clearance
B.H.14 Horizontal Clearance, Left
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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Roadway Information	Highway	FunctionalClassification

Examples

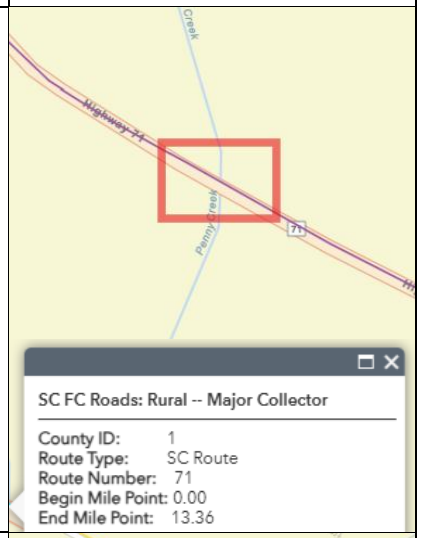
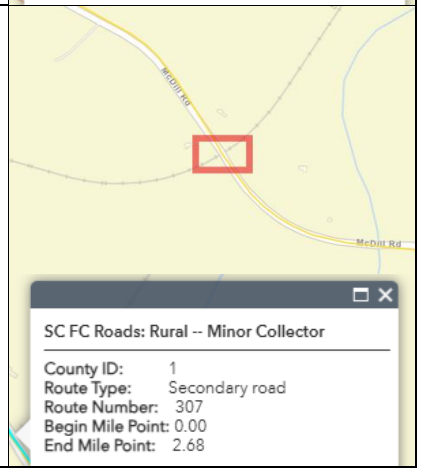
CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
3 – Principal Arterial – Other (for H01) — 4 – Minor Arterial (for H02) — 7 – Local (for H03)	Structure carries SC 544|Corporal Dennis Lyden Memorial Hwy (feature carried) over SC 707|Socastee Blvd and S-26-611|Peachtree Rd (features below). The SCDOT Functional Class is listed as "Principal Arterial - Other" for SC 22 SC 544|Corporal Dennis Lyden Memorial Hwy as the route does not resemble a freeway/expressway since it has undivided two-way traffic. This can be converted to "3-Principal Arterial – Other" for FHWA. The SCDOT Functional Class is listed as "Urban – Minor Arterial" for SC 707|Socastee Blvd. This can be converted to "4 - Minor Arterial" for FHWA. The SCDOT Functional Class is listed as "Urban – Local" for S-26-611|Peachtree Rd. This can be converted to "7 - Local" for FHWA. • For SC 544|Corporal Dennis Lyden Memorial Hwy (H01)(Highway Carried) **Code 3** • For SC 707|Socastee Blvd (H02)(Highway Below) **Code 4** • For S-26-611|Peachtree Rd (H03)(Highway Below) **Code 7**	08750	

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Functional Classification (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (1)	I	B.H.01	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Roadway Information	Highway	FunctionalClassification

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
5 – Major Collector (for H01)	Structure carries SC 71 (feature carried) over Penny Creek (feature below). The SCDOT Functional Class is listed as "Rural Major - Collector" for SC 71. This can be converted to "5-Major Collector" for FHWA. • For SC 71 (H01)(Highway Carried) **Code 5**	03142	
6 – Minor Collector (for H01)	Structure carries S-1-307|McDill Rd (feature carried) over RR CSXT (feature below). The SCDOT Functional Class is listed as "Rural Minor - Collector" for S-1-307|McDill Rd. This can be converted to "6-Minor Collector" for FHWA. • For S-1-307 (H01)(Highway Carried) **Code 6**	04686	

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Urban Code

Format	Frequency	FHWA NBIS Item ID	Item Ownership
AN (5)	I	B.H.02	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Road Data Services	Highway	UrbanCode

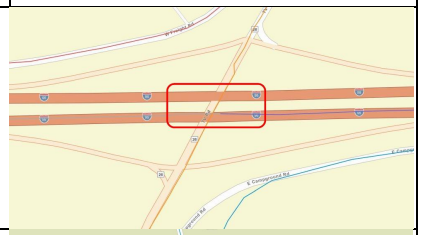
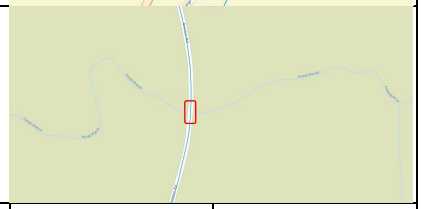
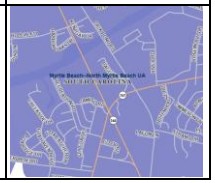
FHWA Specification *[and SCDOT Markups]*	FHWA Commentary *[and SCDOT Markups]*
Report the urbanized area code consistent with the State's HPMS urban boundaries for the highway feature reported in Item B.F.01 (*Feature Type*) at the bridge.	Urban codes can be found at: *https://www.census.gov/programs-surveys/geography/guidance/geo-areas/urban-rural.html*. For bridges outside urbanized areas, use code 99999 for rural areas with population less than 5,000 and use code 99998 for small urban areas with population 5,000 to 49,999 in accordance with the HPMS Field Manual. FHWA approves adjusted urban boundaries submitted by State DOT planning offices. State's HPMS urban boundaries are based on the FHWA-approved adjusted urban boundaries. State maps of the unadjusted U.S. Census urban boundaries with highways (map layers: Labels, Transportation, and Urban Areas checked) can be found at: *https://tigerweb.geo.census.gov*. Link: *TIGERweb* *[Utilize Census County Division (CCD) and Census County Subdivision Populations for bridges outside urbanized areas. Additional link for mapping population of counties and county subdivisions: Census Bureau Maps* *If the bridge is between two boundaries, use the urbanized area with the higher population.]*

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Urban Code (continued)

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AN (5)	I	B.H.02	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Roadway Information	Highway	UrbanCode

Examples

CODE	NOTES	ASSET ID	PHOTO
99998	Structure located on border of Florence UA and Florence CCD. The beginning of the bridge is on east side and therefore within the Florence CCD. The Florence CCD population was 40,609 in 2020 (determined from provided link above) which is greater than 5,000. **Code 99998 based on population.**	04772	
99999	Structure located in the Greenwood County Kirksey Subdivision CCD and thus not part of urban area. The Subdivision Kirksey CCD population was 1,732 in 2020 which is less than 5,000. **Code 99999 based on population.**	04554	
18964	Structure located in Columbia UA, thus use the urban area code. **Code 18964.**	08483	 
60895	Structure located in Myrtle Beach-North Myrtle Beach UA, thus use the urban area code. **Code 60895.**	08750	 

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NHS Designation

Format	Frequency	FHWA NBIS Item ID	Item Ownership
AN (1)	I	B.H.03	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Roadway Information	Highway	NHSDesignation

FHWA Specification *[and SCDOT Markups]*

Report the NHS designation for the highway feature reported in Item B.F.01 (*Feature Type*), using one of the following codes.

Code	Description
N	Non-NHS
Y	NHS

FHWA Commentary *[and SCDOT Markups]*

The National Highway System (NHS) includes the Interstate Highway System as well as other roads important to the nation's economy, defense, and mobility. The NHS was developed by the U.S. Department of Transportation (DOT) in cooperation with the states, local officials, and metropolitan planning organizations (MPOs). The NHS includes the following subsystems of highways: Interstate, other principal arterials, STRAHNET, major STRAHNET connectors, and intermodal connectors.

NHS routes and connectors are identified in the HPMS.

State maps of the NHS can be found at: *https://www.fhwa.dot.gov/planning/national_highway_system/nhs_maps/*.

[When one highway feature carries multiple route types, report if any of the routes are included on the NHS.

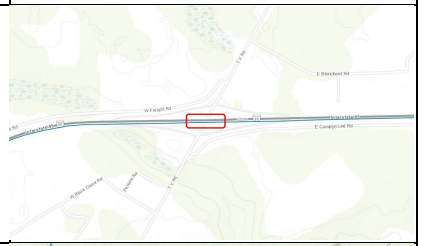
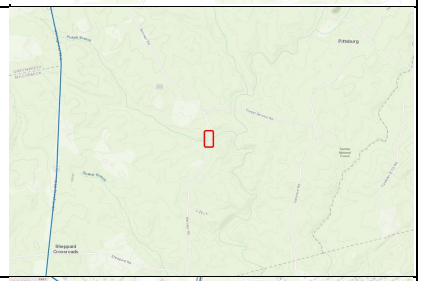
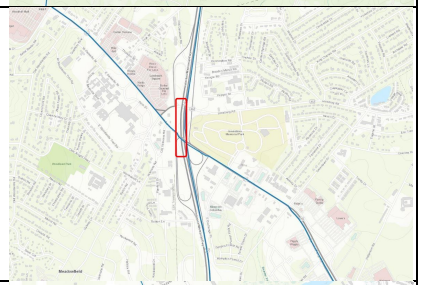
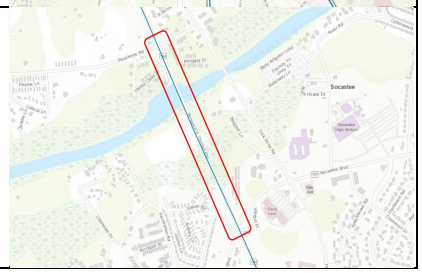
Alternate link for NHS Route Maps: National Highway System (NHS) | National Highway System (NHS) | Geospatial at the Bureau of Transportation Statistics (arcgis.com)]

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NHS Designation (continued)

Format	Frequency	FHWA NBIS Item ID	Item Ownership
AN (1)	I	B.H.03	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Roadway Information	Highway	NHSDesignation

Examples

CODE – DESCRIPTION	NOTES	ASSET ID	PHOTO
Y – NHS (for H01) — Y – NHS (for H02) — N – Non-NHS (for H03)	Structure carries I-95 (feature carried) over S-21-26|TV Road (feature below). • For I-95 NB (H01)(Highway Carried) **Code Y**. • For I-95 SB (H02)(Highway Carried) **Code Y.** • For S-21-26|TV Road (H03)(Highway below) **Code N.**	04772	
N –Non-NHS (for H01)	Structure carries S-24-382|Brocker Rd (feature carried) over Little Mountain Creek (feature below). • For S-24-382|Brocker Rd (H01)(Highway Carried) **Code N.**	04554	
Y – NHS (for H01) — Y – NHS (for H02) — N – Non-NHS (for H03)	Structure carries I-77 SB (feature carried) over US 76|US 378 and SC 262 (features below). • For I-77 SB (H01)(Highway Carried) **Code Y.** • For US 76|US 378 (H02)(Highway below) **Code Y.** • For SC 262 (H03)(Highway below) **Code N.**	08483	
Y – NHS (for H01) — N – Non-NHS (for H02) — N – Non-NHS (for H03)	Structure carries SC 544|Corporal Dennis Lyden Memorial Hwy (feature carried) over SC 707|Socastee Blvd and S-26-611|Peachtree Rd (features below). • For SC 544|Corporal Dennis Lyden Memorial Hwy (H01)(Highway Carried) **Code Y.** • For SC 707|Socastee Blvd (H02)(Highway Below) **Code N.** • For S-26-611|Peachtree Rd (H03)(Highway Below) **Code N.**	08750	

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National Highway Freight Network

Format	Frequency	FHWA NBIS Item ID	Item Ownership
AN (1)	I	B.H.04	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Roadway Information	Highway	FreightNetwork

FHWA Specification *[and SCDOT Markups]*

Report the National Highway Freight Network (NHFN) designation for the highway feature reported in Item B.F.01 (*Feature Type*), using one of the following codes.

Code	Description
1	Primary Highway Freight System *[PHFS]*
2	Interstate portions not on the Primary Highway Freight System *[Non-PHFS]*
3	Critical Rural Freight Corridor *[CUFC]*
4	Critical Urban Freight Corridor *[CRFC]*
N	Not on the NHFN

FHWA Commentary *[and SCDOT Markups]*

This item is used to identify the National Highway Freight Network and to report to Congress on the conditions and performance of the network. This item is also used with other items to classify bridges according to serviceability, safety, and essentiality for public use and considers the potential impacts to emergency evacuation routes and to regional and national freight and passenger mobility if the serviceability of the bridge is restricted or diminished.

More information can be found at: *https://ops.fhwa.dot.gov/Freight/infrastructure/nfn/index.html*.

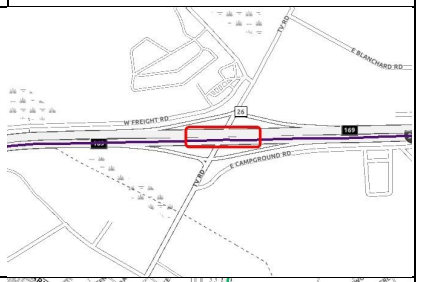
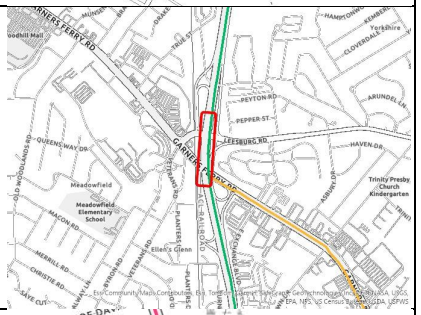
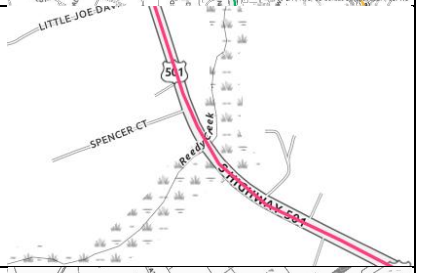
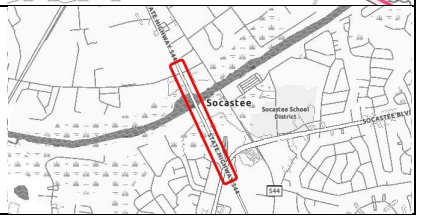
[Alternate link for National Highway Freight Network Route Maps: National Highway Freight Network Visualization Tool (arcgis.com)]

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AN (1)	I	B.H.04	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Roadway Information	Highway	FreightNetwork

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
1 – Primary Highway Freight System (for H01) 1 – Primary Highway Freight System (for H02) N – Not on the NHFN (for H03)	Structure carries I-95 (feature carried) over S-21-26|TV Road (feature below). • For I-95 NB (H01)(Highway Carried) **Code 1**. • For I-95 SB (H02)(Highway Carried) **Code 1.** • For S-21-26|TV Road (H03)(Highway Below) **Code N.**	04772	
2 –Interstate portions not on the Primary Highway Freight System (for H01) 4 –Critical Urban Freight Corridor (for H02) N – Not on the NHFN (for H03)	Structure carries I-77 SB (feature carried) over US 76|US 378 and SC 262 (features below). • For I-77 SB (H01)(Highway Carried) **Code 2.** • For US 76|US 378 (H02)(Highway Below) **Code 4.** • For SC 262 (H03)(Highway Below) **Code N.**	08483	
3 –Critical Rural Freight Corridor (for H01)	Structure carries US 501 (feature carried) over Reedy Creek (feature below). • For US 501 (H01)(Highway Carried) **Code 3.**	00047	
N – Not on the NHFN (for H01) N – Not on the NHFN (for H02) N – Not on the NHFN (for H03)	Structure carries SC 544|Corporal Dennis Lyden Memorial Hwy (feature carried) over SC 707|Socastee Blvd and S-26-611|Peachtree Rd (features below). • For SC 544|Corporal Dennis Lyden Memorial Hwy (H01)(Highway Carried) **Code N.** • For SC 707|Socastee Blvd (H02)(Highway Below) **Code N.** For S-26-611|Peachtree Rd (H03)(Highway Below) **Code N.**	08750	

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STRAHNET Designation

Format	Frequency	FHWA NBIS Item ID	Item Ownership
AN (1)	I	B.H.05	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Roadway Information	Highway	StrahnetDesignation

FHWA Specification *[and SCDOT Markups]*

Report the Strategic Highway Network (STRAHNET) designation for the highway feature reported in Item B.F.01 (*Feature Type*), using one of the following codes.

Code	Description
1	STRAHNET route
2	STRAHNET Connector route
N	Not a STRAHNET route

FHWA Commentary *[and SCDOT Markups]*

The STRAHNET is a system of Interstate and primary highways and connectors that provide access to major US military installations and strategic ports, and provides continuity and emergency capabilities for defense purposes. The STRAHNET is determined by the Surface Deployment and Distribution Command (SDDC) in coordination with FHWA.

STRAHNET routes and STRAHNET Connector routes can be found on NHS State maps at: *https://www.fhwa.dot.gov/planning/national_highway_system/nhs maps*.

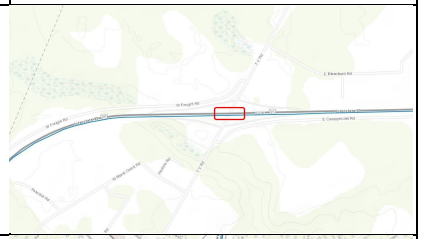
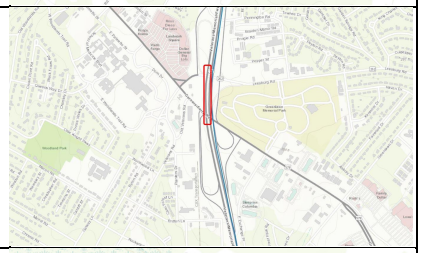
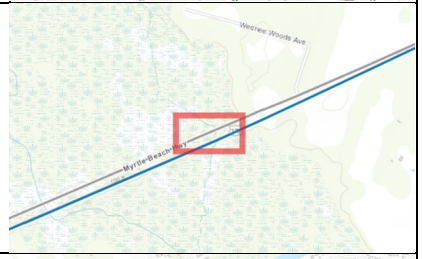
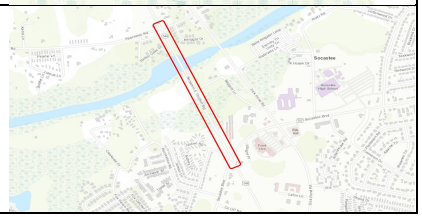
[Alternate link for National Highway Freight Network Route Maps: Strategic Highway Network (STRAHNET) (arcgis.com)]

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STRAHNET Designation (continued)

Format	Frequency	FHWA NBIS Item ID	Item Ownership
AN (1)	I	B.H.05	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Roadway Information	Highway	StrahnetDesignation

Examples

CODE – DESCRIPTION	NOTES	ASSET ID	PHOTOS
1 – STRAHNET route (for H01) 1 – STRAHNET route (for H02) N – Not a STRAHNET Route (for H03)	Structure carries I-95 (feature carried) over S-21-26|TV Road (feature below). • For I-95 NB (H01)(Highway Carried) **Code 1.** • For I-95 SB (H02)(Highway Carried) **Code 1.** • For S-21-26|TV Road (H03)(Highway Below) **Code N.**	04772	
1 – STRAHNET route (for H01) N – Not a STRAHNET Route (for H02) N – Not a STRAHNET Route (for H03)	Structure carries I-77 SB (feature carried) over US 76|US 378 and SC 262 (features below). • For I-77 SB (H01)(Highway Carried) **Code 1.** • For US 76|US 378 (H02)(Highway Below) **Code N.** • For SC 262 (H03)(Highway Celow) **Code N.**	08483	
2 – STRAHNET Connector route (for H01)	Structure carries US 378 (feature carried) over Black River (feature below). • For US 378 (H01)(Highway Carried) **Code 2.**	06192	
N – Not a STRAHNET Route (for H01) N – Not a STRAHNET Route (for H02) N – Not a STRAHNET Route (for H03)	Structure carries SC 544|Corporal Dennis Lyden Memorial Hwy (feature carried) over SC 707|Socastee Blvd and S-26-611|Peachtree Rd (features below). • For SC 544|Corporal Dennis Lyden Memorial Hwy (H01)(Highway Carried) **Code N** • For SC 707|Socastee Blvd (H02)(Highway Below) **Code N** For S-26-611|Peachtree Rd (H03)(Highway Below) **Code N**	08750	

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LRS Route ID

Format	Frequency	Item ID Number	Item Ownership
AN (120)	I	B.H.06	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Roadway Information	Highway	LRSRouteID

FHWA Specification *[and SCDOT Markups]*

Report the LRS Route ID defined by the State that is reported to the HPMS for the highway feature reported in Item B.F.01 (*Feature Type*).

The LRS Route ID must match the HPMS data exactly.

Report N if an LRS Route ID has not been assigned.

FHWA Commentary *[and SCDOT Markups]*

The LRS Route ID is not necessarily the same as the route number posted along the highway, but is a number used to uniquely identify a route within a county or a State for GIS analysis and mapping purposes. Refer to the FHWA HPMS Field Manual at *https://www.fhwa.dot.gov/policyinformation/hpms/fieldmanual/*.

Byte Number	Component
01-02	County Code
03-04	Route Type
05-09	Route Number
10-11	Auxiliary ID (Service Type)
12	Route Direction

LRS Mile Point

Format	Frequency	Item ID Number	Item Ownership
N (8,3)	I	B.H.07	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Roadway Information	Highway	MilePoint

FHWA Specification *[and SCDOT Markups]*

Report the LRS mile point for the highway feature reported in Item B.F.01 (*Feature Type*) to the nearest thousandth of a mile. The mile point must be consistent with the LRS route and mile point system for the HPMS.

For highway features that carry an LRS route, report the mile point at the beginning of the bridge.

When the LRS route passes below the bridge, report the mile point on the LRS route where the bridge is first encountered.

FHWA Commentary *[and SCDOT Markups]*

The LRS mile point is used to establish the location of the bridge along the LRS route. If the highway does not carry an LRS route, report the most appropriate mile point. Refer to the FHWA HPMS Field Manual at *https://www.fhwa.dot.gov/policyinformation/hpms/fieldmanual/*.

[For bridges on county lines, the mile posts need to be reviewed to make sure the milage in that county is used since milage will start/end at the county line on the bridge.]

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LRS Route ID and LRS Mile Point (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (120) and N (8,3)	I	B.H.06 and B.H.07	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Roadway Information	Highway	Varies

Examples

CODE	NOTES	ASSET ID	PHOTO
20020032100N — 4.550	Structure carries US 321 over Little Cedar Creek. The LRS Route ID for the bridge is 20020032100N and the mile point to the start of the bridge is 4.55 miles. • B.H.06: **Code 20020032100N** • B.H.07: **Code 4.550**	01042	
42010002600E — 16.551	Structure carries I-26 WB over RR Norfolk Southern. The LRS Route ID for the bridge is 42010002600E and the mile point to the start of the bridge is 16.551 miles. • B.H.06: **Code 42010002600E** • B.H.07: **Code 16.551**	03089	

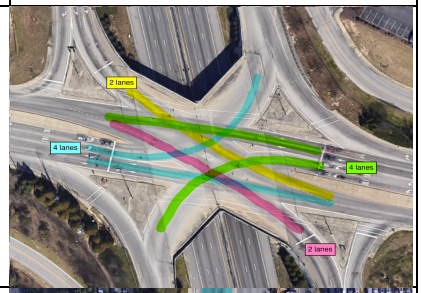
Section 1: Bridge Identification
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Lanes On Highway

Format	Frequency	Item ID Number	Item Ownership
N (2,0)	I	B.H.08	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Roadway Information	Highway	HighwayLanes

FHWA Specification *[and SCDOT Markups]*	FHWA Commentary *[and SCDOT Markups]*
Report the number of highway traffic lanes for the highway feature reported in Item B.F.01 (*Feature Type*). *[Number of lanes should represent the current configuration of the bridge and should be updated when the configuration changes]* Report 1 when a highway is signed or striped for one-lane, but carries two-way traffic. Report 1 for a highway feature carried on the bridge when Item B.G.06 (*Bridge Width Curb-to-Curb*) is less than 16 feet and the bridge is not striped for full width traffic lanes*[, at least 8 feet wide]*.	For highway features carried on the bridge, include all lanes that are striped or otherwise operated as full width highway traffic lanes, auxiliary lanes (e.g. merge lanes, ramp lanes, turn lanes), and special use lanes that run the entire length of the bridge. *[Ignore/do not count if not under the entire length of the bridge.]* For highway features below the bridge that are not carried on another bridge, include all lanes that are striped or otherwise operated as full width highway traffic lanes, auxiliary lanes (e.g. merge lanes, ramp lanes, turn lanes), and special use lanes that pass below the entire width of the bridge. *[Ignore/do not count if not under the entire length of the bridge.]*

Examples

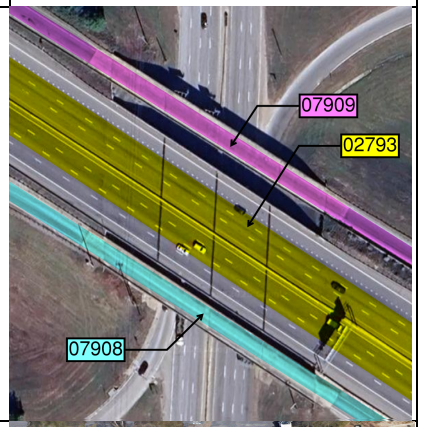
CODE – DESCRIPTION	NOTES	ASSET ID	PHOTO
12 - 12 Lanes (for H01) — 6 - 6 Lanes (for H02)	Structure carries US 378 (feature carried) over I-26 (feature below). • US 378 (H01)(Highway Carried): There are 4 striped incoming lanes from ramps. There are 4 lanes turning on the bridge towards ramps. There are 4 lanes coming from and continuing along the mainline. **Code 12.** • I-26 (H02)(Highway Below): There are 6 total striped lanes on the interstate below, 3 in each direction. **Code 6.**	02797	
1 - 1 Lane (for H01) — 1 - 1 Lane (for H02) — 8 - 8 Lanes (for H03)	Structure carries R-5366|Ramp Off I-526 (feature carried) over US 17 (feature below). Ramp On/Off I-526 is separated into two features. • Ramp On I-526 (H01) (Highway Carried): There is one lane for the ramp on to I-526. **Code 1**. • Ramp Off I-526 (H02) (Highway Carried): There is one lane for the ramp off of I-526. **Code 1**. • US 17 (H03) (Highway Below) The roadway is not physically separated, so one feature. There are 2 lanes turning onto ramps under the bridge. There are 6 lanes continuing along the mainline under the bridge. **Code 8**. There are 4 striped incoming lanes from ramps, but they do not continue full length under the bridge; do not include.	10118	

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N (2,0)	I	B.H.08	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Roadway Information	Highway	HighwayLanes

Examples

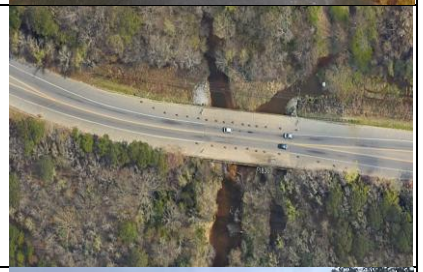
CODE – DESCRIPTION	NOTES	ASSET ID	PHOTO
8 - 8 Lanes (02793 for H01) — 1 - 1 Lane (07908 for H01) — 1 - 1 Lane (07909 for H01)	Asset ID 02793 carries I-26 (feature carried) over several features below. Asset ID 07908 carries R-7794|Ramp On I-26 EB (feature carried) over several features below. Asset ID 07909 carries R-7792|Ramp On I-26 WB (feature carried) over several features below. Reviewing only the lanes on highway features on the bridges. • 02793 - I-26 (H01) (Highway Carried): There are eight full width lanes for the feature carried. **Code 8.** • 07908 - R-7794|Ramp On I-26 EB (H01) (Highway Carried): There is one full width lane for the feature carried. **Code 1.** • 07909 - R-7794|Ramp On I-26 WB (H01) (Highway Carried): There is one full width lane for the feature carried. **Code 1.**	02793 07909 07908	
4 - 4 Lanes (for H02)	Structure carries US 17 (feature carried) over R-5030|R-5031 (feature below). The road (two ramps are not divided under the bridge) so coded as one feature and one highway. Reviewing only the lanes on highway features below the bridge. • R-5030|R-5031 (H02) (Highway Below): There are 3 lanes continuing straight and 1 turn lane. **Code 4**.	07074	
1 - 1 Lane (for H01)	Structure carries S-24-62|Bowie Rd (feature carried) over Cuffeytown Creek (feature below). • S-24-62|Bowie Rd (H01) (Highway Carried): The bridge carries two-way traffic but is signed as a one-lane bridge. The curb to curb width is 13.1 feet, which is less than 16 feet. **Code 1.**	08267	

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N (2,0)	I	B.H.08	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Roadway Information	Highway	HighwayLanes

Examples

CODE – DESCRIPTION	NOTES	ASSET ID	PHOTO
2 - 2 Lanes (for H01)	Structure carries SC 45|French Santee Rd (feature carried) over Echaw Creek (feature below). • SC 45|French Santee Rd (H01) (Highway Carried): The bridge is striped for two lanes. **Code 2.**	01679	
4 - 4 Lanes (for H01)	Structure carries US 321|Fairfield Rd (feature carried) over Crane Creek (feature below). • US 321|Fairfield Rd (H01) (Highway Carried): Roadway has been restricted from 4 lanes to 2 lanes due to a substructure condition. Lanes were not demolished despite not being used / roadway restriped for 2 lanes. With 4 lanes still on the bridge, code all 4 lanes. **Code 4**	01836	
2 - 2 Lanes (for H01)	Structure carries I-26 WB (feature carried) over Saluda River (feature below). The bridge is being built with phased construction. Inspectors need to perform an initial inspection as each phase of construction is opened to traffic, update for B.H.08 as additional lanes are opened. • I-26 WB (H01) (Highway Carried): Only has 2 lanes open to traffic and the bridge is only built to carry two lanes at this time. Bridge will carry 4 lanes in the future. With only 2 lanes striped at this current construction phase and the bridge built for this configuration, code only 2 lanes. **Code 2.**	10658	

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Annual Average Daily Traffic

Format	Frequency	Item ID Number	Item Ownership
N (8,0)	I	B.H.09	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Roadway Daily Traffic Numbers	Highway	AADT

FHWA Specification *[and SCDOT Markups]*	FHWA Commentary *[and SCDOT Markups]*
Report the annual average daily traffic (AADT) from the most recent count for the highway feature reported in Item B.F.01 (*Feature Type*). *[AADT should represent the current configuration and condition of the bridge and should be updated when the configuration changes.]* The AADT must be compatible with the other items reported for the highway feature. Report the design AADT for a newly inventoried highway feature when actual AADT information is not yet available. Report the last open AADT for a highway feature that is temporarily closed until repair or replacement can be completed.	The AADT should be updated at intervals in accordance with the standards for the HPMS and standards/policies within the State. All traffic, including trucks, is counted in the AADT. The number of trucks counted in the AADT is reported in Item B.H.10 (*Annual Average Daily Truck Traffic*). When HPMS or other planning data are not available, use a best estimate based on site familiarity or functional classification in accordance with State standards and policies. *[See combination example for B.H.09, B.H.10, and B.H.11 that follows specification and commentary.]*

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Annual Average Daily Truck Traffic

Format	Frequency	Item ID Number	Item Ownership
N (8,0)	I	B.H.10	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Roadway Daily Traffic Numbers	Highway	ADTT

FHWA Specification *[and SCDOT Markups]*	FHWA Commentary *[and SCDOT Markups]*
Report the Average Annual Daily Truck Traffic (AADTT) from the most recent count for the highway feature reported in Item B.F.01 (*Feature Type*). *[AADTT should represent the current configuration and condition of the bridge and should be updated when the configuration changes.]* The AADTT must be compatible with the other items reported for the highway feature. Report the design AADTT for a newly inventoried highway feature when actual AADTT information is not yet available. Report the last open AADTT for a highway feature that is temporarily closed until repair or replacement can be completed.	The AADTT should be updated at intervals in accordance with the standards for the HPMS and standards/policies within the State. When HPMS or other planning data are not available, use a best estimate based on site familiarity or functional classification in accordance with State standards and policies. Do not include vans, pickup trucks, and other light delivery trucks in the AADTT. The AADTT represents vehicle classes 4-13 as described in FHWA's Traffic Monitoring Guide at: *https://www.fhwa.dot.gov/policyinformation/tmguide/*. *[See combination example for B.H.09, B.H.10, and B.H.11 that follows specification and commentary.]*

Year of Annual Average Daily Traffic

Format	Frequency	Item ID Number	Item Ownership
N (4,0)	I	B.H.11	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Roadway Daily Traffic Numbers	Highway	AADTYear

FHWA Specification *[and SCDOT Markups]*	FHWA Commentary *[and SCDOT Markups]*
Report the year associated with the data reported in Item B.H.09 (*Annual Average Daily Traffic*) for the highway feature reported in Item B.F.01 (*Feature Type*). *[Year of AADT should represent the current configuration and condition of the bridge and should be updated when the configuration changes.]*	The traffic data should be updated at intervals in accordance with the standards for the HPMS and standards/policies within the State. *[See combination example for B.H.09, B.H.10, and B.H.11 that follows specification and commentary.]*

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Annual Average Daily Traffic, Annual Average Daily Truck Traffic, Year of Annual Average Daily Traffic (continued)

Format	Frequency	Item ID Number	Item Ownership
N (8,0), N (8,0), & N (4,0)	I	B.H.09, B.H.10, & B.H.11	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Roadway Daily Traffic Numbers	Highway	Varies

Examples for B.H.09, B.H.10, & B.H.11

CODE – DESCRIPTION	NOTES	ASSET ID	PHOTO
4000 – (H01) (B.H.09) 600 – (H01) (B.H.10) 2024 – (H01) (B.H.11)	Structure carries US 21 (Means Street) over Southern Railroad. • B.H.09 (H01): **Code '4000'** for "US 21" (Annual Average Daily Traffic) • B.H.10 (H01): **Code '600'** for "US 21" (Annual Average Daily Truck Traffic) • B.H.11 (H01): **Code '2024'** for "US 21" (Year of Annual Average Daily Traffic)	00784	
70150 – (H01) (B.H.09) 6314 – (H01) (B.H.10) 2024– (H01) (B.H.11) 70150 – (H02) (B.H.09) 6314 – (H02) (B.H.10) 2024 – (H02) (B.H.11) 55300 – (H03) (B.H.09) 4977 – (H03) (B.H.10) 2024 – (H03) (B.H.11) 55300 – (H04) (B.H.09) 4977 – (H04) (B.H.10) 2024 – (H04) (B.H.11)	Structure carries I-26 WB and I-26 EB as a divided highway over I-20 WB and I-20 EB as divided highway. Ramp features are not include below. For Feature Carried (H01) • B.H.09 (H01): **Code '70150'** for "I-26 WB|US 76 WB" (Annual Average Daily Traffic) • B.H.10 (H01): **Code '6314'** for "I-26 WB|US 76 WB" (Annual Average Daily Truck Traffic) • B.H.11 (H01): **Code '2024'** for "I-26 WB|US 76 WB" (Year of Annual Average Daily Traffic) For Feature Carried (H02) • B.H.09 (H02): **Code '70150'** for "I-26 EB|US 76 EB" (Annual Average Daily Traffic) • B.H.10 (H02): **Code '6314'** for "I-26 EB|US 76 EB" (Annual Average Daily Truck Traffic) • B.H.11 (H02): **Code '2024'** for "I-26 EB|US 76 EB" (Year of Annual Average Daily Traffic) For Feature Below (H03) • B.H.09 (H03): **Code '55300'** for "I-20 WB" (Annual Average Daily Traffic) • B.H.10 (H03): **Code '4977'** for "I-20 WB" (Annual Average Daily Truck Traffic) • B.H.11 (H03): **Code '2024'** for "I-20 WB" (Year of Annual Average Daily Traffic) For Feature Below (H04) • B.H.09 (H04): **Code '55300'** for "I-20 EB" (Annual Average Daily Traffic) • B.H.10 (H04): **Code '4977'** for "I-20 EB" (Annual Average Daily Truck Traffic) • B.H.11 (H04): **Code '2024'** for "I-20 EB" (Year of Annual Average Daily Traffic)	04407	

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Highway Maximum Usable Vertical Clearance

Format	Frequency	Item ID Number	Item Ownership
N (3,1)	EI	B.H.12	BMO
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Features & Clearances	Highway Clearances	Highway	MaxVerticalClearance

FHWA Specification *[and SCDOT Markups]*

Report the minimum vertical clearance for the highway feature reported in Item B.F.01 (*Feature Type*), measured over the 10-foot-wide envelope of the traveled part of the highway, that provides for the maximum usable clearance envelope, rounded down to the nearest tenth of a foot.

Measure the vertical clearance plumb from the deck or highway surface to the lowest bridge member restriction, appurtenance (signs, utilities, etc.) attached to the bridge, or other structure. *[Common vertical restrictions for the highway on the bridge are truss members, signs spanning over the roadway, and utilities. Common vertical restrictions for the highway under the bridge are the bridge itself, signs, lighting fixtures, and utilities.]*

Report 99.9 when the clearance is 100 feet or greater or no restriction exists above the highway.

[B.H.12 shall be reported for every highway on or under the bridge. Inspectors shall confirm B.H.12 during every routine inspection. This information is used to safely route vehicles with loads that exceed legal size limitations. For bridges that have been restricted on the roadway approaches, code the vertical restriction over the bridge deck, not the approach restriction. Inspectors are to watch for overlays or installation of appurtenances that may require a change in the previously reported value. Clearance should represent the current configuration and condition of the bridge and should be updated when the configuration changes.

SCDOT requires inspectors to report the clearance rounded down to the nearest hundredth of a foot, this is reported as Item SC.H.05.]

FHWA Commentary *[and SCDOT Markups]*

This item identifies the maximum height of a notional 10-foot wide vehicle that can pass on the highway feature(s) reported in Item B.F.01 (*Feature Type*). This information is sometimes used for preliminary military routing.

The data may not represent the absolute minimum clearance over the highway feature. Refer to Item B.H.13 (*Highway Minimum Vertical Clearance*) for the absolute minimum clearance.

The traveled part of the highway feature does not include shoulders. *[Even stabilized shoulders cannot be included; typically, only striped lanes are considered for B.H.12.]*

This data *[is]* different than the posted vertical clearance. This data are not sufficient for permit routing as the location of the 10-foot-wide envelope that provides the maximum usable clearance is not reported. *[B.H.12 is not used to determine the clearance sign measurement for the bridge.]*

Update field measurements when alterations are made to the bridge or highway that affect the previously measured clearance. *[Inspectors are to verify clearances at each inspection.]*

Clearances greater than 30 feet may be estimated.

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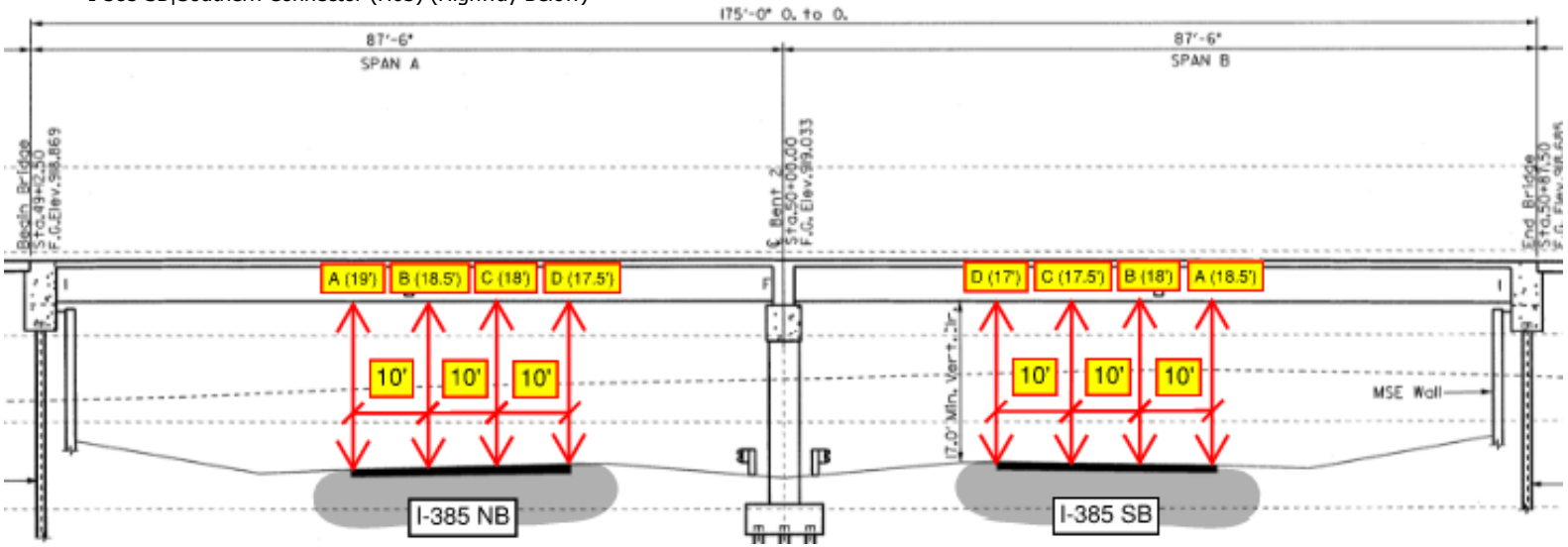
Highway Maximum Usable Vertical Clearance (continued)

Format	Frequency	Item ID Number	Item Ownership
N (3,1)	EI	B.H.12	BMO
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Features & Clearances	Highway Clearances	Highway	MaxVerticalClearance

Example Introduction

Structure carries S-23-316|Log Shoals Rd (feature carried) over I-385 NB|Southern Connector and I-385 SB|Southern Connector (features below). Each highway feature needs a value for B.H.12. The example below shows the determination of all clearances/envelopes; this is not required. If inspectors can determine the maximum usable vertical clearance and take one measurement per highway feature, that measurement can be used in reporting. The highway features on the bridge include the following:

- S-23-316|Log Shoals Rd (H01) (Highway Carried)
- I-385 NB|Southern Connector (H02) (Highway Below)
- I-385 SB|Southern Connector (H03) (Highway Below)



Examples

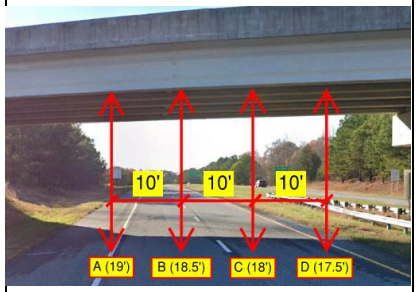
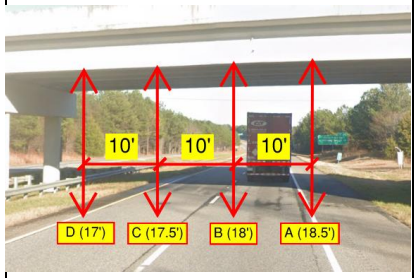
CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
99.9 (for H01)	For S-23-316|Log Shoals Rd (H01)(Highway Carried): Report 99.9, since no vertical restriction exists above the roadway carried. **Code 99.9.**	09636	

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Features & Clearances	Highway Clearances	Highway	MaxVerticalClearance

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
18.5 (for H02)	For I-385 NB|Southern Connector (H02) (Highway Below), review the minimum vertical clearances for the highway, measured over the 10-foot-wide envelope of the traveled part of the highway, that provides for the maximum usable clearance envelope. Do not consider shoulders in this envelope. Code the minimum between both sides of the bridge. • Measurement A: 19' • Measurement B: 18.5' • Measurement C: 18' • Measurement D: 17.5' Now consider the 10' usable clearance envelopes and determine the minimum of the envelope. Then, review all the envelopes and report the maximum. • Clearance Envelope A to B: 18.5' – **Code 18.5.** • Clearance Envelope B to C: 18' • Clearance Envelope C to D: 17.5'	09636	
18.0 (for H03)	For I-385 SB|Southern Connector (H03) (Highway Below), review the minimum vertical clearances for the highway, measured over the 10-foot-wide envelope of the traveled part of the highway, that provides for the maximum usable clearance envelope. Do not consider shoulders in this envelope. Code the minimum between both sides of the bridge. • Measurement A: 18.5' • Measurement B: 18' • Measurement C: 17.5' • Measurement D: 17' Now consider the 10' usable clearance envelopes and determine the minimum of the envelope. Then, review all the envelopes and report the maximum. • Clearance Envelope A to B: 18' – **Code 18.0.** • Clearance Envelope B to C: 17.5' • Clearance Envelope C to D: 17'	09636	

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Features & Clearances	Highway Clearances	Highway	MinVerticalClearance

FHWA Specification *[and SCDOT Markups]*	FHWA Commentary *[and SCDOT Markups]*
Report the minimum vertical clearance measured over the highway feature reported in Item B.F.01 (*Feature Type*), rounded down to the nearest tenth of a foot. *[B.H.13 shall be reported for every highway feature. A bridge may span across several highways features such as divided highways, acceleration/deceleration lanes as separate highway features at interchanges or intersections, or portions of a highway separated by a delineation as a separate highway feature. Clearances should represent the current configuration and condition of the bridge and should be updated when the configuration changes.]* Measure the vertical clearance plumb from the deck or highway surface (including paved or stabilized shoulders) to the lowest bridge member restriction, appurtenance (signs, utilities, etc.) attached to the bridge, or other structure. *[If highway features are adjacent to each other, the vertical clearance for that highway feature shall only be measured within that feature's traveled way.]* Report 99.9 when the clearance is 100 feet or greater or no restriction exists above the highway. *[SCDOT requires inspectors to report the clearance rounded down to the nearest hundredth of a foot, this is reported as Item SC.H.07.]*	Several measurements may need to be made to determine the minimum vertical clearance. However, only the minimum measurement is reported. Shoulders must be contiguous with the traveled way and must be structurally adequate for all weather and traffic conditions consistent with the facility carried. Unstabilized grass or dirt, with no base course, flush with and beside the traffic lane is not to be considered a shoulder for this item. When it is not readily known if stabilized construction details were used, the presence of rutting, heaving, water retention, or other distress may be used as indicators that the shoulder is not stabilized. *[Stabilized shoulders shall not be used for vertical clearance measurements in South Carolina unless the stabilized shoulder is regularly used by traffic.]* This data may be different than the posted vertical clearance due to agency vertical clearance posting policies and procedures. *[Item B.H.13 is used to determine the clearance sign measurement for the bridge.]* Update field measurements when alterations are made to the bridge or highway that affect the previously measured clearance. Clearances greater than 30 feet may be estimated. *If the roadway has a crown, the distance from the crown to the vertical restriction may be the minimum vertical clearance. Inspectors are to watch for bridges over roadways with vertical curves as they could impact controlling clearance dimensions.]*

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Format	Frequency	Item ID Number	Item Ownership
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Features & Clearances	Highway Clearances	Highway	MinVerticalClearance

[SCDOT Additional Commentary]

[To determine the minimum vertical clearance, determine the high spot on the roadway and the low spot on the superstructure (or appurtenance). If unsure, take several measurements from the travel way to the lowest restriction or appurtenance (signs, utilities, etc.) attached to the inventoried bridge.

The traveled way is defined as the portion of roadway which allows travel on a regular basis. BITLs shall use their judgment when accessing a highway feature's traveled way. For example, if a roadway has a breakdown lane which travel is permitted on a regular basis, then the clearance will need to be verified at the outer limits of the breakdown lane.

Vertical clearances shall be measured during every routine inspection or during a damage inspection following a bridge hit. However, it is understood it shall not be different unless a change has occurred.

BITLs are not expected to request traffic control to measure vertical clearance. In the event a low point is unable to be measured from the roadway under the structure, the BITL may use other methods to determine vertical clearance such as a "top down" measurement from the deck of the structure or a measurement adjacent to the low point and an adjustment for bridge slope. These methods may require the use of bridge plans to determine the vertical clearance at the low point. These other methods are acceptable to SCDOT except if the clearance is 14'-6" or less. Clearances 14'-6" or less must be taken from the roadway to the vertical restriction.

If there is no way to measure the vertical clearance, BITLs shall place a note in the inspection report that the vertical clearance was not obtained/verified, the reason why, and when the BITL will return to the bridge within 3 months to obtain the measurement.

A Critical Finding or Repair Recommendation may be required depending on the highway minimum vertical clearance measured for the feature. See Appendix E.

A photograph of existing vertical clearance signs shall be taken during every routine inspection or during a damage inspection following a bridge hit and included in the inspection report. Depending on the value obtained from the inspection for the vertical clearance and the value on the vertical clearance sign, a Critical Finding or Repair Recommendation may be required. See Appendix E.

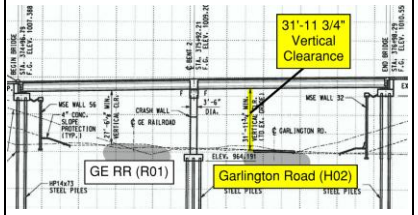
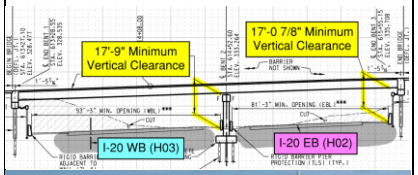
A sign shall be installed as required by Appendix E over each applicable highway feature. This may result in different vertical clearance signs over a mainline roadway and a ramp.]

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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Features & Clearances	Highway Clearances	Highway	MinVerticalClearance

Examples

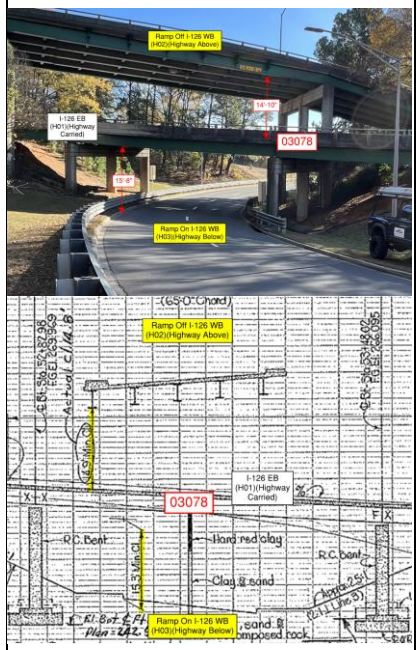
CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
99.9 (for H01) — 31.9 (for H02)	The structure carries I-385 NB (H01) (feature carried) over S-23-654|Garlington Road (H02) and a railroad (RR CPDR) (R01) (features below). There is no clearance restriction above I-385 NB. The railroad vertical clearance is not reported under Item B.H.13. Since the clearance above the H02 feature is greater than 30 feet, the minimum vertical clearance may be estimated for H02 if the inspector verifies that conditions have not changed. • I-385 NB (H01)(Highway Carried): Report 99.9, since no vertical restriction exists above the roadway carried. **Code 99.9.** • S-23-654|Garlington Road (H02)(Highway Below): Report 31.9 from the bridge plans after inspectors verified conditions have not changed. 31.9 is rounded down to the nearest tenth of a foot (31′-11¾″ = 31.979′). **Code 31.9.**	10409	
99.9 (for H01) — 17.0 (for H02) — 17.7 (for H03)	The structure carries US 176|Broad River Road (H01) (feature carried) over I-20 EB (H02) and I-20 WB (H03) (features below). There is no clearance restriction above US 176|Broad River Road. Since the clearances above the H02 and H03 feature are less than 30 feet, the minimum vertical clearance must be determined in the field. Values were found on plans but verified in the field. A lane closure was not required for this bridge inspection; the inspector chose to determine vertical clearances by a "top down" approach which is permissible since clearances are over 14′-6″. • US 176|Broad River Road (H01)(Highway Carried): Report 99.9, since no vertical restriction exists above the roadway carried. **Code 99.9.** • I-20 EB (H02)(Highway Below): The minimum field measurement from the top of the railing to the traveled way was 26′-10⅞″. The distance from the top of the railing to the bottom of the precast beams 9′-10″. Minimum vertical clearance (26′-10⅞″ – 9′-10″) is 17′-⅞″ (17.07). **Code 17.0.** • I-20 WB (H03)(Highway Below): The minimum field measurement from the top of the railing to the traveled way was 27′-7″. The distance from the top of the railing to the bottom of the precast beams 9′-10″. Minimum vertical clearance (27′-7″ – 9′-10″) is 17′-9″ (17.75). **Code 17.7.**	10738	 

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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Features & Clearances	Highway Clearances	Highway	MinVerticalClearance

Examples

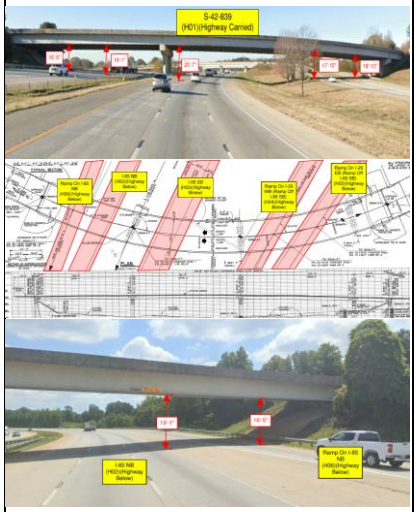
CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
14.8 (for H01) — 99.9 (for H02) — 15.6 (for H03)	The structure being inspected is the middle bridge in the three-level interchange in Columbia. Asset ID 03078 is located below Asset ID 03081 and above the ramp departing to I-126 WB. For each highway feature, code the minimum vertical clearance rounded down to the nearest tenth. The highway features that must be reported for Asset ID 03078 are: • I-126 EB (H01)(Highway Carried) • Ramp Off I-126 WB (H02)(Highway Above) • Ramp On I-126 WB (H03)(Highway Below) There is no clearance restriction above Ramp Off I-126 WB (H02). Since the clearances above the H01 and H03 features are less than 30 feet, the minimum vertical clearance must be determined in the field. A lane closure was not required for this bridge inspection, but the inspector directly obtained clearances. The high spot on the roadway and the low spot on the superstructure are clear. The clearances on the as-built plans are not accurate. • I-126 EB (H01)(Highway Carried): Minimum field measurement from roadway to bridge above was 14′-10″ (14.83). **Code 14.8.** • Ramp Off I-126 WB (H02)(Highway Above): Report 99.9, since no vertical restriction exists above the roadway carried. **Code 99.9.** • Ramp On I-126 WB (H03)(Highway Below): Minimum field measurement from roadway to bridge above was 15′-8″ (15.667). **Code 15.6.**	03078	

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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Features & Clearances	Highway Clearances	Highway	MinVerticalClearance

Examples

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99.9 (for H01) — 19.0 (for H02) — 20.5 (for H03) — 17.8 (for H04) — 18.8 (for H05) — 16.4 (for H06)	The structure carries S-42-839|International Drive (H01) (feature carried) over the following features below. • I-85 NB (H02) • I-85 SB (H03) • Ramp On I-26 WB (Ramp Off I-85 SB) (H04) • Ramp On I-26 EB (Ramp Off I-85 SB) (H05) • Ramp On I-85 NB (Ramp Off I-26 WB) (H06) These highway features under the bridge are all separated from each other. Note, I-85 NB and Ramp On I-85 NB have a delineation of a roadway gore between them. These two highway features (I-85 NB and Ramp On I-85 NB) have different vertical clearances, so it is important that they are reported as distinct features. Since the clearance above these features below are less than 30 feet, the minimum vertical clearance must be determined in the field. A lane closure was not required for this bridge inspection; the inspector chose to complete vertical clearance measurements from the roadway • S-42-839|International Drive (H01)(Highway Carried): Report 99.9, since no vertical restriction exists above the roadway carried. **Code 99.9.** • I-85 NB (H02)(Highway Below): The minimum field measurement 19’-1”. **Code 19.0.** • I-85 SB (H03)(Highway Below): The minimum field measurement 20’-7”. **Code 20.5.** • Ramp On I-26 WB (Ramp Off I-85 SB) (H04)(Highway Below): The minimum field measurement 17’-10”. **Code 17.8.** • Ramp On I-26 EB (Ramp Off I-85 SB) (H05)(Highway Below): The minimum field measurement 18’-10”. **Code 18.8.** • Ramp On I-85 NB (Ramp Off I-26 WB) (H06)(Highway Below): The minimum field measurement 16’-5”. **Code 16.4.**	08304	

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Features & Clearances	Highway Clearances	Highway	MinVerticalClearance

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
99.9 (for H01) — 19.2 (for H02)	The structure carries S-42-839|Camak Road (H01) (feature carried) over US 25 (H02) (feature below). US 25 (H02) is an undivided highway under the bridge. Since the clearance above these features below are less than 30 feet, the minimum vertical clearance must be determined in the field. A lane closure was not required for this bridge inspection; the inspector chose to complete vertical clearance measurements from the roadway • S-42-839|Camak Road (H01)(Highway Carried): Report 99.9, since no vertical restriction exists above the roadway carried. **Code 99.9.** • US 25 (H02)(Highway Below): The minimum field measurement 19'-3". **Code 19.2.**	08762	

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Highway Minimum Horizontal Clearance, Left and Right

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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Features & Clearances	Highway Clearances	Highway	Varies

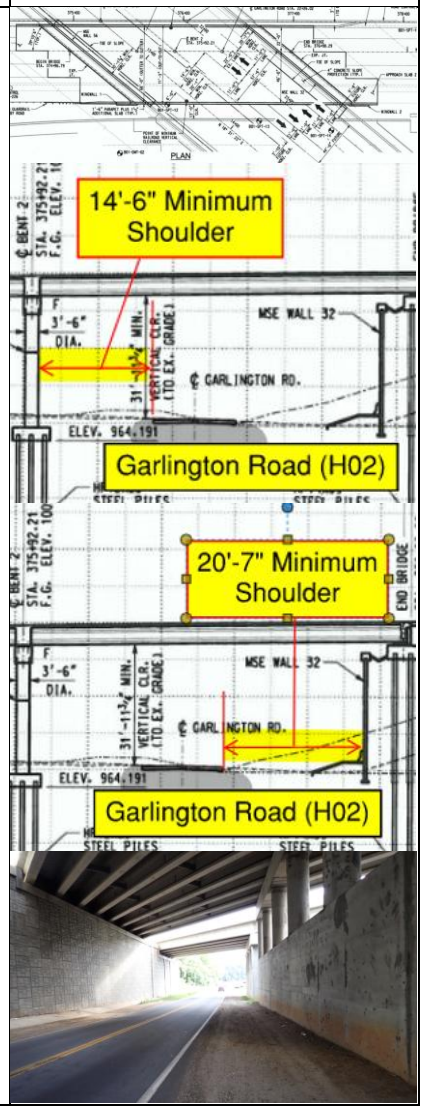
FHWA Specification *[and SCDOT Markups]*	FHWA Commentary *[and SCDOT Markups]*
Report the minimum horizontal clearance on the left and on the right, for the highway feature below the bridge reported in Item B.F.01 (*Feature Type*), rounded down to the nearest tenth of a foot. *[B.H.14 and B.H.15 shall be reported for every highway feature. A bridge may span across several highways features such as divided highways, acceleration/deceleration lanes as separate highway features at interchanges or intersections, or portions of a highway separated by a delineation as a separate highway feature. Clearances should represent the current configuration and condition of the bridge and should be updated when the configuration changes.]* Measure from the left or right edge line of the highway (excluding shoulders, turn lanes, acceleration/deceleration lanes) in the direction of travel to the nearest substructure unit, rigid barrier, oncoming traffic lane, or toe of slope that is steeper than 1 to 3 (vertical to horizontal). *[If features are adjacent to each other, such as a highway and an acceleration/deceleration lane, both horizonal clearances may be measured to the same obstruction.]* Report 99.9 when the clearance is 100 feet or greater. For B.H.14 (Left), report 0 when the highway is a two-way highway that is not divided at the bridge. Do not report this item for highway feature(s) carried on the bridge *[or above the bridge*. *SCDOT requires inspectors to report the clearance rounded down to the nearest hundredth of a foot, this is reported as Item SC.H.09 (Left) and Item SC.H.11 (Right).]*	This item provides data for the highway feature(s) reported in Item B.F.01 (*Feature Type*) that pass below the bridge. Highways undivided at the bridge are reported as 0 due to the adjacent oncoming traffic lane which provides no horizontal clearance to the left. Reinforced concrete and masonry traffic safety features are considered rigid barriers; metal and timber railings are not considered rigid barriers. Clearances greater than 30 feet may be estimated *[and rounded down to the nearest tenth of a foot.* *Horizontal clearances shall be measured during every routine inspection or during a damage inspection following a bridge hit. However, it is understood it shall not be different unless a change has occurred.* *BITLs are not expected to request traffic control to measure horizontal clearance. If there is no way to measure the horizontal clearance, BITLs shall place a note in the inspection report that the horizontal clearance was not obtained/verified, the reason why, and when the BITL will return to the bridge within 3 months to obtain the measurement.* *Values should be reported as the distance perpendicular to the roadway centerline from the edge line of the highway to the rigid structure.]*

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Features & Clearances	Highway Clearances	Highway	Varies

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
0.0 (for H02)(B.H.14) — 14.5 (for H02)(B.H.15)	The structure carries I-385 NB (H01) (feature carried) over S-23-654|Garlington Road (H02) and a railroad (RR CPDR) (R01) (features below). The railroad horizontal clearance is not reported under Item B.H.14 and B.H.15. A lane closure was not used for this inspection. Inspector noted horizontal clearances from the plans and verified in the field. For this example, only H02 is being coded. H01 does not need to be coded since it is a highway feature on the bridge. ***S-23-654|Garlington Road (H02)*** The highway feature below, S-23-654|Garlington Road, consists of two paved 11 foot lanes flanked by unpaved shoulders, the center bent with a crash wall, and an MSE wall in front of the abutment. S-23-654|Garlington Road is a two-way highway that is not divided at the bridge. B.H.14 (Highway Minimum Horizontal Clearance, Left) Report 0 since the highway feature is a two-way highway that is not divided at the bridge. **Code 0**. B.H.15 (Highway Minimum Horizontal Clearance, Right) The minimum horizontal clearance to the right will be minimum of the two horizontal clearances to the right of each direction of travel. This example shows the measurement of both horizontal clearances. This not required. The inspector only needs to measure one and report accordingly. *S-23-654|Garlington Road (H02) - Eastbound* The minimum horizontal clearance to the right in the eastbound direction was field measured as 14'-6" (14.5) from the edge of the travel lane to the crash wall. *S-23-654|Garlington Road (H02) - Westbound* The minimum horizontal clearance to the right in the westbound direction was field measured as 20'-7" (20.58) from the edge of the travel lane to the crash wall. The minimum is reported. **Code 14.5.**	10409	

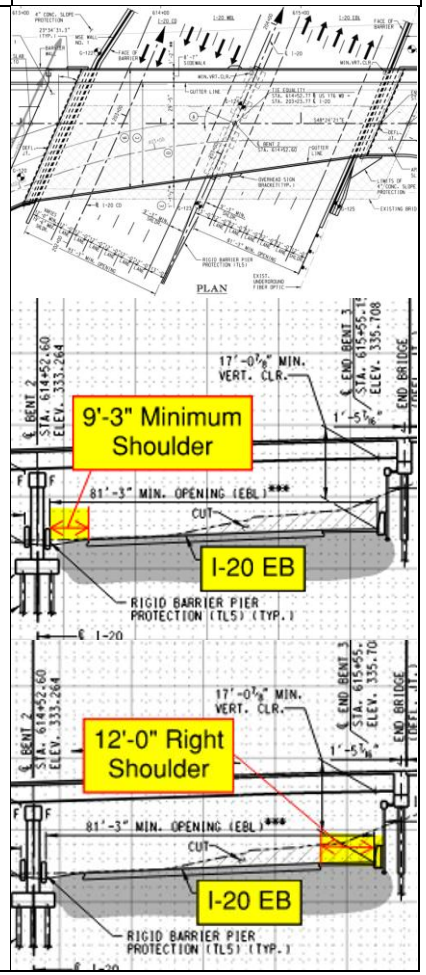
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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Features & Clearances	Highway Clearances	Highway	Varies

Examples

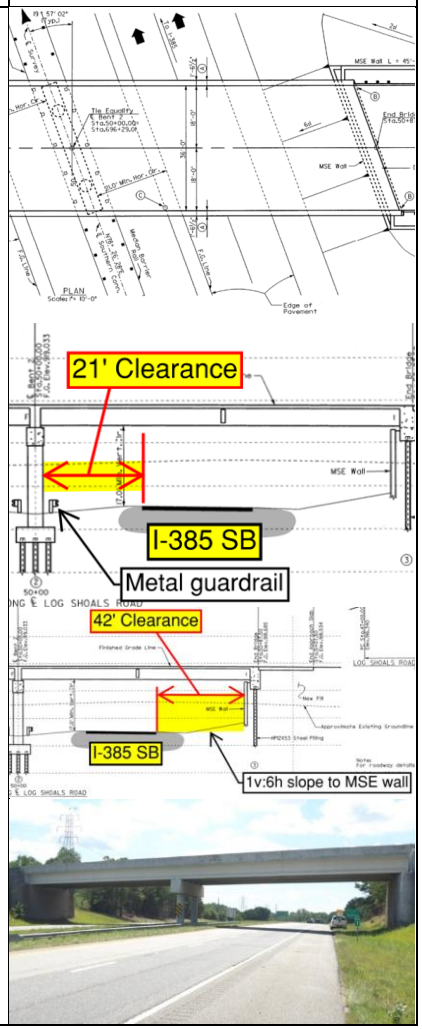
CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
9.2 (for H02)(B.H.14) — 12.0 (for H02)(B.H.15)	The structure carries US 176|Broad River Road (H01) (feature carried) over I-20 EB (H02) and I-20 WB (H03) (features below). A lane closure was not used for this inspection. Inspector noted horizontal clearances from the plans and verified in the field at night when the traffic was less. For this example, only H02 is being coded. H01 does not need to be coded since it is a highway feature on the bridge. H03 would be coded in a similar manner. Both H02 and H03 are one direction interstate routes with a left and right minimum horizontal clearance. ***I-20 EB (H02)*** The highway feature below, I-20 EB has rigid barriers in front of the pier to left and has rigid barriers in front of the MSE wall in front of the abutment to the right. B.H.14 (Highway Minimum Horizontal Clearance, Left) Report the width of the left shoulder between the rigid barrier and the edge of the leftmost travel lane. This was measured as 9'-3" (9.25'); this measurement is perpendicular to the centerline of the I-20 eastbound roadway. **Code 9.2.** B.H.15 (Highway Minimum Horizontal Clearance, Right) Report the width of the right shoulder between the rigid barrier and the edge of the rightmost travel lane. This was measured as 12'-0" (12.0'); this measurement is perpendicular to the centerline of the I-20 eastbound roadway. **Code 12.0.**	10738	

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Features & Clearances	Highway Clearances	Highway	Varies

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
21.0 (for H03)(B.H.14) — 42.0 (for H03)(B.H.15)	Structure carries S-23-316|Log Shoals Rd (feature carried) over I-385 NB|Southern Connector and I-385 SB|Southern Connector (features below). A lane closure was not used for this inspection. Inspector noted horizontal clearances from the plans and verified in the field at night when the traffic was less. For this example, only H03 is being coded. H01 does not need to be coded since it is a highway feature on the bridge. H02 would be coded in a similar manner. Both H02 and H03 are one direction interstate routes with a left and right minimum horizontal clearance. ***I-385 SB|Southern Connector (H03)*** The highway feature below, I-385 SB|Southern Connector has a flexible barrier (guardrail) barriers in front of the pier to left and has rigid barriers in front of the MSE wall in front of the abutment to the right. B.H.14 (Highway Minimum Horizontal Clearance, Left) Report the distance between from the face of the pier column (ignoring the flexible guardrail) and the edge of the leftmost lane. This was measured as 21'-0" (21.0); this measurement is perpendicular to the roadway centerline. **Code 21.0.** B.H.15 (Highway Minimum Horizontal Clearance, Right) Report the distance between the face of the MSE wall (since the slope next to the MSE wall is shallower than 1V:3H) and the edge of the rightmost lane. Since the distance is over 30 feet, it can be estimated and note measured. **Code 42.0.**	09636	

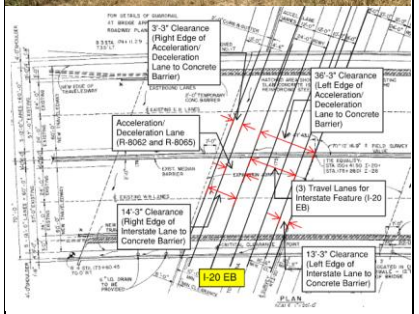
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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Features & Clearances	Highway Clearances	Highway	Varies

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
15.1 (for H03)(B.H.14) — 30.4 (for H03)(B.H.15)	Structure carries I-26 EB and I-26 WB (features carried) over I-20 EB and I-20 WB (features below). The acceleration/deceleration lanes adjacent to I-20 EB and I-20 WB are considered as unique features. A lane closure was used for this inspection, and all clearances were collected during the lane closure. For this example, only H03, H05, and H07 are being coded. H01 does not need to be coded since it is a highway feature on the bridge. Other features would be coded in a similar manner. Both H02 and H03 are one direction highway routes with a left and right minimum horizontal clearance. H04 to H07 are acceleration/deceleration lanes which are part of the interchange's ramps, treated as separate features. All highway features have concrete barriers on both the left and right sides. ***I-20 EB (H03)*** B.H.14 (Highway Minimum Horizontal Clearance, Left) Report the width of the left shoulder between the rigid barrier and the edge of the leftmost travel lane. This was field measured as 3-3" (3.2); this measurement is perpendicular to the roadway centerline. **Code 3.2.** B.H.15 (Highway Minimum Horizontal Clearance, Right) Report the distance between the edge of the travel way (third lane) and the rigid barrier on the right. Do not measure from the edge of the acceleration/deceleration lane. This was field measured as 14-3" (14.2); this measurement is perpendicular to the roadway centerline. **Code 14.2.** ***R-8062/Ramp Off I-26 EB (H05) and R-8065/Ramp Off I-20 EB (H07)*** B.H.14 (Highway Minimum Horizontal Clearance, Left) Report the distance between the edge of the travel way (left lane line of the acceleration/deceleration lane) and the rigid barrier on the left. Do not measure from the edge of the mainline lanes. This was field measured as 36-3" (36.2); this measurement is perpendicular to the roadway centerline. **Code 36.2.** B.H.15 (Highway Minimum Horizontal Clearance, Right) Report the distance between the edge of the travel way (right lane line of the acceleration/deceleration lane) and the rigid barrier on the right. This was field measured as 3-3" (3.2); this measurement is perpendicular to the roadway centerline. **Code 3.2.**	04407	  

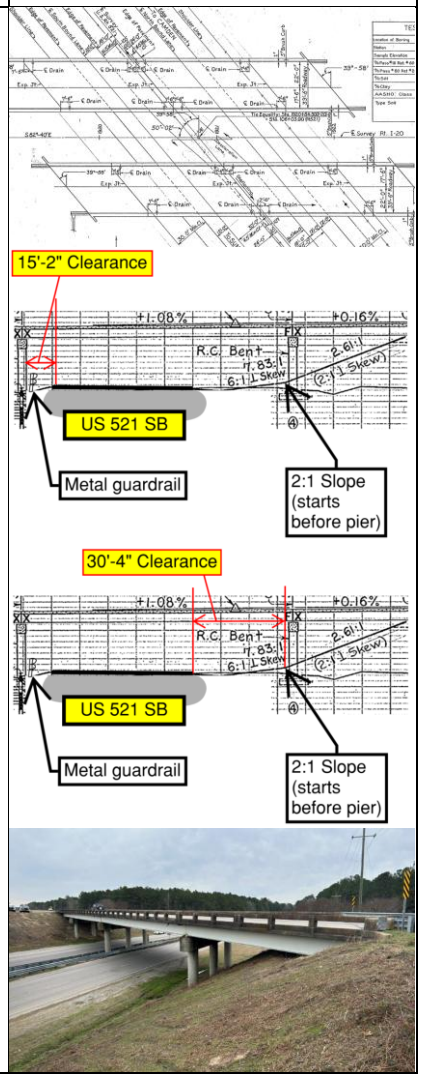
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Examples

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15.1 (for H03)(B.H.14) — 30.4 (for H03)(B.H.15)	Structure carries I-20 EB (feature carried) over US 521 (feature below). A lane closure was not used for this inspection. Inspector noted horizontal clearances from the plans and verified in the field. For this example, only H03 is being coded. H01 does not need to be coded since it is a highway feature on the bridge. H02 would be coded in a similar manner. Both H02 and H03 are one direction highway routes with a left and right minimum horizontal clearance. ***US 521 SB (H03)*** The highway feature below, US 521 SB has a flexible barrier (guardrail) barriers in front of the pier to left and has a steep slope (over 1V:3H) that starts before the pier to right. B.H.14 (Highway Minimum Horizontal Clearance, Left) Report the distance between from the face of the pier column (ignoring the flexible guardrail) and the edge of the leftmost lane. This was measured as 15-2" (15.1); this measurement is perpendicular to the roadway centerline. **Code 15.1.** B.H.15 (Highway Minimum Horizontal Clearance, Right) Report the distance between the toe of the steep slope (over 1V:3H) and the edge of the rightmost lane. This was measured as 30-4" (30.4); this measurement is perpendicular to the roadway centerline. Because it is over 30 feet, it could have been estimated. **Code 30.4.**	06123	

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Highway Maximum Usable Surface Width

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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
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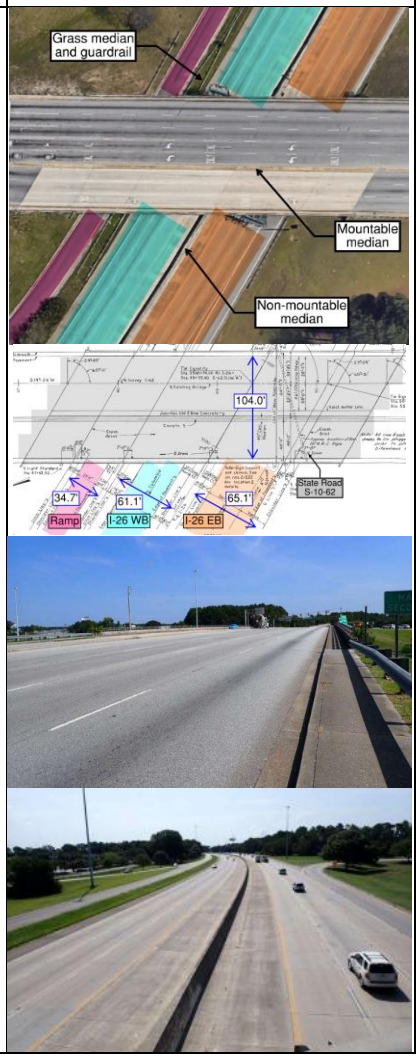
FHWA Specification *[and SCDOT Markups]*	FHWA Commentary *[and SCDOT Markups]*
Report the maximum usable surface width for the highway feature reported in Item B.F.01 (*Feature Type*) that passes below or is carried on the bridge, rounded down to the nearest tenth of a foot. *[B.H.16 shall be reported for every highway feature.* *Highway maximum usable surface width should represent the current configuration and condition of the bridge and should be updated when the configuration changes.]* Measure the width perpendicular to the centerline of the highway (including paved or stabilized shoulders). Report 99.9 when the surface width is 100 feet or greater. *[SCDOT requires inspectors to report the clearance rounded down to the nearest hundredth of a foot, this is reported as Item SC.H.13.]*	Shoulders are included when they are contiguous with the traveled way and structurally adequate for all weather and traffic conditions consistent with the facility carried. Unstabilized grass or dirt, with no base course, flush with and beside the traffic lane is not considered a shoulder for this item. Refer to agency policy for when and where stabilized shoulders are used. When it is not readily known if stabilized construction details were used, the presence of rutting, heaving, water retention, or other distress may be used as indicators that the shoulder is not stabilized. *[Stabilized shoulders shall not be used for surface width measurements in South Carolina unless the stabilized shoulder is regularly used by traffic.]* Flush (striped) and mountable medians are not considered restrictions. A curb greater than 6 inches high may be considered non-mountable for these specifications. Use the least restrictive configuration when movable rigid barriers are used to accommodate reversible lanes for non-construction-related applications. *[Surface widths greater than 30 feet may be estimated or determined from the plans and rounded down to the nearest tenth of a foot.* *BITLs are not expected to request traffic control to measure surface width. If there is no way to measure the surface width, BITLs shall place a note in the inspection report that the surface width was not obtained/verified, the reason why, and when the BITL will return to the bridge within 3 months to obtain the measurement.]*

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Highway Maximum Usable Surface Width (continued)

Format	Frequency	Item ID Number	Item Ownership
N (3,1)	I	B.H.16	BMO
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Features & Clearances	Highway Clearances	Highway	MaxSurfaceWidth

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
104.0 (for H01) — 61.1 (for H02) — 65.1 (for H03) — 34.7 (for H04)	Structure carries S-10-62|West Montague Avenue (feature carried) over I-26 WB, I-26 EB, and the Ramp Off I-26 WB to Mall Drive. The feature carried (H01) has a mountable center median. Sum the clear roadway width and the width of the mountable curb measured perpendicular to the centerline of the highway. **Code 104.0.** The three roadways below are physically divided and are coded as three separate highway features. For each feature below, report the maximum clear roadway measured perpendicular to each centerline including the paved shoulder width in front of and rails or barrier. • I-26 WB (H02), **Code 61.1.** • I-26 EB (H03), **Code 65.1.** • Ramp Off I-26 WB to Mall Drive (H04), **Code 34.7.**	04060	

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B.H.13 Minimum Vertical Clearance
B.H.14 Horizontal Clearance, Left
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Bypass Detour Length

Format	Frequency	Item ID Number	Item Ownership
N (3,0)	I	B.H.17	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Roadway Information	Highway	BypassDetourLength

FHWA Specification *[and SCDOT Markups]*	FHWA Commentary *[and SCDOT Markups]*
Report the length to the nearest mile of the total additional travel for a vehicle to bypass the bridge for the highway feature reported in Item B.F.01 (*Feature Type*), that passes below or is carried on the bridge. *[Bypass detour length should represent the current configuration and condition of the bridge and should be updated when the configuration changes.]* Report 999 where a detour does not exist. Report 0 for available ground level bypass. Report 1 when the highway feature is carried by a bridge, is not at an interchange, and a parallel bridge can be used as a temporary bypass with a reasonable amount of crossover grading.	Determine bypass detour length by evaluating the potential to move traffic, including military vehicles and trucks, around bridges. • Avoid detour routes that have load, height, or capacity limitations unacceptable for the additional traffic detoured onto them. • Consider using the parallel bridge of dual bridges or temporary culverts if emergency detours can be constructed with a reasonable amount of grading within the existing right-of-way. • Consider using ramps and/or frontage roads in interchanges. • Review plans for strategic bridge detour routes. *[This can be updated if needed outside of initial inspection.]*

Examples

CODE – DESCRIPTION	NOTES	ASSET ID	PHOTO
999 – Detour Does Not Exist	The structure carries C-26-638|Long Bay Rd (feature carried) over SC 31 (features below). Only the feature carried is considered for this example. The roadway carried terminates 1 mile after the bridge. No detour exists for the feature carried, H01. **Code 999**.	09802	

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B.H.13 Minimum Vertical Clearance
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Format	Frequency	Item ID Number	Item Ownership
N (3,0)	I	B.H.17	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Roadway Information	Highway	BypassDetourLength

Examples

CODE – DESCRIPTION	NOTES	ASSET ID	PHOTO
0 – Available Ground Level Bypass — 0 – Available Ground Level Bypass	The structures carry SC 31 NB and SC 31 SB (feature carried) over C-26-367|Firetower Rd (feature below). Only the features carried are considered for this example. The diamond interchange provides a ground level bypass. For H01 for both Asset IDs, **Code 0.**	09786 — 09787	
1 – Parallel Bridge — 1 – Parallel Bridge	The structures carry SC 31 NB and SC 31 SB (feature carried) over L-26-1390|Carolina Bays Parkway (feature below). Only the features carried are considered for this example. The parallel bridge may be used as a temporary bypass for the roadway carried, is not located at an interchange, and reasonable amount of crossover grading would be required. For H01 for both Asset IDs, **Code 1.**	09776 — 09777	

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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Roadway Information	Highway	BypassDetourLength

Examples

CODE – DESCRIPTION	NOTES	ASSET ID	PHOTO
1	The structure carries S-10-379|O'Hear Ave (feature carried) over Noisette Creek (feature below). Only the feature carried is considered for this example. Bypassing the bridge requires an additional 0.5 miles of additional travel. Round to the nearest mile. For the feature carried, H01. **Code 1**.	04064	

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Crossing Bridge Number

Format	Frequency	Item ID Number	Item Ownership
AN (15)	I	B.H.18	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Roadway Information	Highway	CrossBridgeNumber

FHWA Specification *[and SCDOT Markups]*	FHWA Commentary *[and SCDOT Markups]*
Report the exact bridge number(s) as assigned in Item B.ID.01 (*Bridge Number*) for the bridge carrying a highway feature that is located directly above or below the inventoried highway bridge. Do not report this item when the highway bridge does not pass above or below another bridge, or passes above or below a bridge that is not reportable to the NBI. *[It is rare for a Non-NBI Bridge to cross above or below a bridge reportable to FHWA.]*	The intent of this item is to capture the bridge number for bridges of a multi-level interchange, where bridges pass directly above or below other bridges. For border bridges, the Neighboring State reports this item for all highway features that pass above the bridge, as part of their abbreviated bridge record. For more information, see the Border Bridges section of this document.

Examples

CODE	NOTES	ASSET ID	PHOTO
Not Reported (for H01) — 08622 (for H02) — 08623 (for H03) — 08975 (for H04)	Structure carries SC 30 (feature carried) over several features. Not all features are included in this example. The highway feature (H01) would be SC30. The bridge numbers listed below are reported as B.H.18 for the bridge being inspected since the bridges carry a feature below Asset ID 08617. • Not Reported for H01. • For H02 (carried below, SC 30|Lockwood Drive WB), **Code 08622.** • For H03 (carried below, SC 30|Lockwood Drive EB), **Code 08623.** • For H04 (carried below, SC 61), **Code 08975.**	08617	

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Format	Frequency	Item ID Number	Item Ownership
AN (15)	I	B.H.18	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Roadway Information	Highway	CrossBridgeNumber

Examples

CODE	NOTES	ASSET ID	PHOTO
Not Reported (for H01) — 08617 (for H02)	Structure carries SC 30|Lockwood Drive EB (feature carried) over and under several features. Not all features are included in this example. The highway feature (H01) would be SC 30|Lockwood Drive EB. The bridge number listed below is reported as B.H.18 for the bridge being inspected since the bridge carries a feature above Asset ID 08623. • Not Reported for H01. • For H02 (carried above, SC 30), **Code 08617.**	08623	
Not Reported (for H01) — 03081 (for H02) — Not Reported (for H03)	The structure being inspected is the middle bridge in the three-level interchange in Columbia. Asset ID 03078 is located below Asset ID 03081 and above the ramp departing to I-126 WB. Below is a list of all highway features associated with Asset ID 03078 since this bridge is being inspected. • I-126 EB (H01)(Highway Carried) • Ramp Off I-126 WB (H02)(Highway Above) • Ramp On I-126 WB (H03)(Highway Below) The bridge number listed below is reported as B.H.18 for the bridge being inspected since the bridge carries a feature above Asset ID 03078. • Not Reported for H01. • For H02 (carried above, Ramp Off I-126 WB), **Code 03081.** • Not Reported for H03.	03078	

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AN (15)	I	B.H.18	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Roadway Information	Highway	CrossBridgeNumber

Examples

CODE	NOTES	ASSET ID	PHOTO
Not Reported (for H01) — 03078 (for H02)	The structure being inspected is the top bridge in the three-level interchange in Columbia. Asset ID 03078 is located below Asset ID 03081 and above the ramp departing to I-126 WB. Below is a list of all highway features associated with Asset ID 03081 since this bridge is being inspected. • Ramp Off I-126 WB (H01) • I-126 EB (H01)(Highway Below) The bridge number listed below is reported as B.H.18 for the bridge being inspected since the bridge carries a feature below Asset ID 03081. • Not Reported for H01. • For H02 (carried below, I-126 EB), **Code 03078.**	03081	

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Railroad Service Type

Format	Frequency	Item ID Number	Item Ownership
AN (2)	I	B.RR.01	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Features & Clearances	Railroad Details	Railroad	RailroadServiceType

FHWA Specification *[and SCDOT Markups]*

Report the designated railroad service type for the railroad feature reported in Item B.F.01 using one of the following codes.

Code	Description
F	Freight
FE	Freight - electrified *[Not Used]*
P	Passenger
PE	Passenger - electrified *[Not Used]*
M	Multiple services - not electrified
ME	Multiple services - electrified *[Not Used]*
I	Inactive

FHWA Commentary *[and SCDOT Markups]*

[Most rail lines in South Carolina are freight. While there may be other passenger service, Amtrak is the most common passenger service in South Carolina. The maps below can be used in conjunction to code B.RR.01.

USDOT Amtrak Routes: Amtrak Routes
SCDOT Railroad Map: South Carolina Statewide Railroads

If another passenger service is discovered, a note about the data source should be added to the report.]

Electrified is intended for electricity-powered rail lines and third rails, but not for battery or fuel cell powered lines. *[There are no electrified rail lines in South Carolina.]*

Use code M when multiple rail services (such as freight and passenger rail) use the same track*[s]* and both services are not electrified.

Use code ME when multiple rail services (such as freight and passenger rail) use the same track*[s]*, and at least one is electrified.

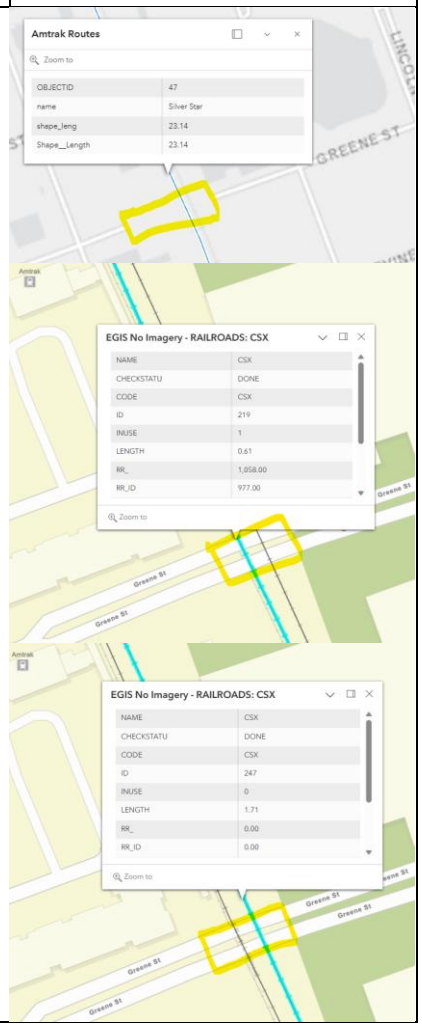
[Use code I when rail line may be abandoned but rails or ties are still in place. If there are no railroad materials in place, do not code as railroad feature.]

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Format	Frequency	Item ID Number	Item Ownership
AN (2)	I	B.RR.01	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Features & Clearances	Railroad Details	Railroad	RailroadServiceType

Examples

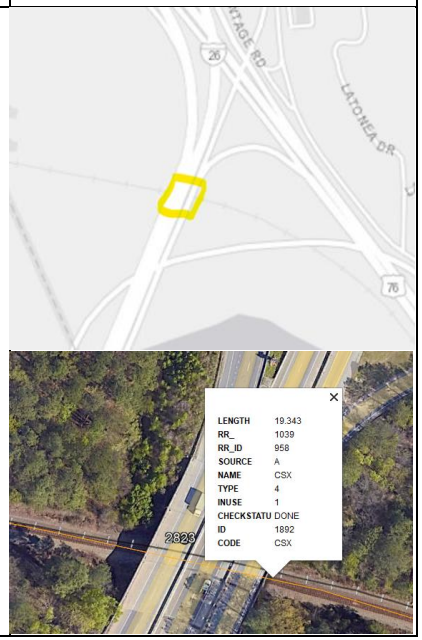
CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
M - Multiple Services - Not Electrified — F - Freight	Structure carries L-40-176|Greene Street over multiple railroad rail lines. • R01 (feature below) carries both freight traffic and passenger (not electrified). This is the south track. **Code M**. • R02 (feature below) carries only freight traffic. This is the north track. **Code M**.	10806	

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Format	Frequency	Item ID Number	Item Ownership
AN (2)	I	B.RR.01	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Features & Clearances	Railroad Details	Railroad	RailroadServiceType

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
F - Freight	Structure carries I-26 over RR CSXT. There is no passenger service on this rail corridor. **Code F**.	02823	

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Railroad Minimum Vertical Clearance

Format	Frequency	Item ID Number	Item Ownership
N (3,1)	EI	B.RR.02	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Features & Clearances	Railroad Details	Railroad	RailroadMinVerticalClearance

FHWA Specification *[and SCDOT Markups]*	FHWA Commentary *[and SCDOT Markups]*
Report the minimum vertical clearance for the railroad feature reported in Item B.F.01 *[(Feature Type is R##)]*, rounded down to the nearest tenth of a foot. Measure plumb from the top of rails to the lowest bridge restriction or appurtenance (signs, utilities, etc.) attached to the bridge. Appurtenances attached to the bridge that serve only a railroad purpose, such as catenary systems, are excluded from the measurement and do not reduce the vertical clearance measurement. *[There are no electrified railroads in South Carolina with catenaries.]* Report 99.9 when the clearance is 100 feet or greater. Report this item only when Item B.F.02 (*Feature Location*) is B *[below the bridge]*.	Several measurements may need to be made to determine the minimum vertical clearance for each railroad feature when one or more railroad tracks pass below the bridge. However, only the minimum measurement is reported. Update measurements when alterations are made to the bridge or railroad tracks that affect the previously measured clearance. Clearances greater than 30 feet may be estimated. *[Railroad flagging may be required to collect. See guidance in B.H.13 regarding vertical clearance measurements.]*

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
24.3 (for R01) — 25.3 (for R02)	This bridge spans both RR CSXT and RR NS. The RR CSXT line also supports Amtrak passenger service. A vertical clearance measurement must be taken over each set of tracks and the minimum is recorded. • R01 (RR CSXT w/ Amtrak Service): The distance from the top of the rail to the bottom of the superstructure on the south rail was 24.3 feet. **Code 24.3**. • R02 (RR NS): The distance from the top of the rail to the bottom of the superstructure on the north rail was 25.3 feet. **Code 25.3**.	09361	

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Railroad Minimum Horizontal Offset

Format	Frequency	Item ID Number	Item Ownership
N (3,1)	I	B.RR.03	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Features & Clearances	Railroad Details	Railroad	RailroadMinHorizontalOffset

FHWA Specification *[and SCDOT Markups]*

Report the minimum horizontal offset for the railroad feature reported in Item B.F.01 *[(Feature Type is R##)]*, rounded down to the nearest tenth of a foot.

Measure perpendicular from the centerline of the tracks to the nearest substructure unit or toe of slope that is steeper than 1 to 3 (vertical to horizontal).

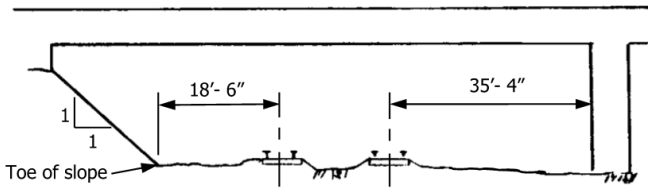
For multiple tracks with the same railroad service type, report the minimum distance after measuring the offsets in both directions from all tracks.

Report 99.9 when the minimum horizontal offset is 100 feet or greater.

Report this item only when Item B.F.02 (*Feature Location*) is B *[below the bridge]*.

FHWA Commentary *[and SCDOT Markups]*

The intent of this item is to collect the minimum distance from the centerline of the railroad track to a bridge related obstruction. *[Do not measure and report the minimum distance between two tracks if there is no bridge related obstruction, see example sketch below. The distance between to two tracks is not measured/reported.]*



Offsets greater than 30 feet may be estimated.

Section 1: Bridge Identification
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Section 3: Bridge Geometry
Section 4: Features
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Subsection 4.1 Feature Identification
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Subsection 4.3 Highways
Subsection 4.4 Railroads
B.RR.01 Railroad Service Type
B.RR.02 Minimum Vertical Clearance
B.RR.03 Minimum Horizontal Offset
Subsection 4.5 Navigable Waterways
Section 5: Loads, Rating, and Posting
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Section 7: Bridge Condition
Section 8: State Bridge Inventory Fields
Appendix S1: Component Condition
Appendix S2: Timber Element and Defect
Appendix S3: Element Coding
Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Railroad Minimum Horizontal Offset (continued)

Format	Frequency	Item ID Number	Item Ownership
N (3,1)	I	B.RR.03	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Features & Clearances	Railroad Details	Railroad	RailroadMinHorizontalOffset

FHWA Examples

CODE – DESCRIPTION	NOTES	ASSET ID	FIGURE
14 (for R01) — 18.5 (for R02)	Structure carries L-40-176|Greene Street (feature carried) over multiple rail lines. Both measurements are taken from the centerline of the track to the bridge's substructure units. • R01 (feature under) carries both freight traffic and passenger (not electrified). The minimum horizontal clearance for R01 is 14 feet. **Code 14.** • R02 (feature under) carries only freight traffic. The minimum horizontal clearance for R02 is 18.5 feet. **Code 18.5.**	10806	
15 (for R01)	Structure carries I-26 (feature carried) over RR CSX (R01)(feature under). The measurements are taken from the centerline of the track to the bridge's substructure unit. The minimum horizontal clearance for R01 is 15 feet. The distance to the other substructure unit is over 15 feet. **Code 15.**	02823	

South Carolina Department of Transportation

Section 1: Bridge Identification
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Section 4: Features
Subsection 4.0 Feature Introduction
Subsection 4.1 Feature Identification
Subsection 4.2 Routes
Subsection 4.3 Highways
Subsection 4.4 Railroads
Subsection 4.5 Navigable Waterways
B.N.01 Navigable Waterway
B.N.02 Minimum Vertical Clearance
B.N.03 Movable Bridge, Vertical
B.N.04 Movable Bridge, Horizontal
B.N.05 Horizontal Clearance
B.N.06 Navigation Protection
Section 5: Loads, Rating, and Posting
Section 6: Inspections
Section 7: Bridge Condition
Section 8: State Bridge Inventory Fields
Appendix S1: Component Condition
Appendix S2: Timber Element and Defect
Appendix S3: Element Coding
Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Navigable Waterway

Format	Frequency	Item ID Number	Item Ownership
AN (1)	I	B.N.01	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Features & Clearances	Waterway Details	Waterway	NavigableWaterway

FHWA Specification *[and SCDOT Markups]*

Report whether the waterway feature reported in Item B.F.01 *[(Feature Type is W##)]* is considered navigable waters of the United States using one of the following codes.

Code	Description
N	Not navigable waters
Y	Navigable waters
U	Navigable waters designation is undetermined *[Code U is rare.]*

[All bridges that have a Waterway Feature shall have B.N.01 coded. If Item B.F.01 is coded "N", do not code Items B.F.02 through B.F.06.]

FHWA Commentary *[and SCDOT Markups]*

This item identifies bridges over navigable waters where the United States Coast Guard may exercise jurisdiction, as defined in 33 CFR, Part 2. This information helps identify bridges at risk from vessel collision and bridges where a Coast Guard permit may be required for modifications to the structure.

Information helpful in coding this item may be found in design and construction documentation or prior correspondence with the Coast Guard.

Navigable waterways are determined by the Commandant of the United States Coast Guard per Title 33 of the Code of Federal Regulations, Section 2.36.

[Item B.N01 identifies whether navigation control (a bridge permit for navigation) is required for the applicable bridge. The presence of a bridge permit in the Bridge File would indicate such control. Inspectors can review if a bridge permit is in the Bridge File or if the waterway is deemed navigable by the U.S. Department of Transportation

USDOT Link:
U.S. Department of Transportation: ArcGIS Online - Navigable Waterway Network Lines*]*

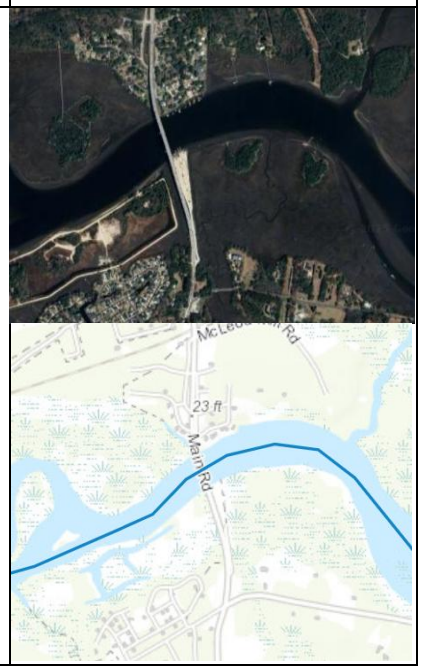
State in the inspection report what/if documentation was used to determine permit status, i.e. bridge permit in the Bridge File, USDOT map, etc.)

Section 1: Bridge Identification
Section 2: Bridge Material and Type
Section 3: Bridge Geometry
Section 4: Features
Subsection 4.0 Feature Introduction
Subsection 4.1 Feature Identification
Subsection 4.2 Routes
Subsection 4.3 Highways
Subsection 4.4 Railroads
Subsection 4.5 Navigable Waterways
B.N.01 Navigable Waterway
B.N.02 Minimum Vertical Clearance
B.N.03 Movable Bridge, Vertical
B.N.04 Movable Bridge, Horizontal
B.N.05 Horizontal Clearance
B.N.06 Navigation Protection
Section 5: Loads, Rating, and Posting
Section 6: Inspections
Section 7: Bridge Condition
Section 8: State Bridge Inventory Fields
Appendix S1: Component Condition
Appendix S2: Timber Element and Defect
Appendix S3: Element Coding
Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Navigable Waterway (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (1)	I	B.N.01	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Features & Clearances	Waterway Details	Waterway	NavigableWaterway

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
Y - Navigable Waters	Asset ID 2668 carries S-10-20|Main Road over the Stono River. The Stono River is a navigable waterway via the USDOT map, linked above. A bridge permit is not located in the Bridge File. **Code Y.**	02668	

Section 1: Bridge Identification
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Section 3: Bridge Geometry
Section 4: Features
Subsection 4.0 Feature Introduction
Subsection 4.1 Feature Identification
Subsection 4.2 Routes
Subsection 4.3 Highways
Subsection 4.4 Railroads
Subsection 4.5 Navigable Waterways
B.N.01 Navigable Waterway
B.N.02 Minimum Vertical Clearance
B.N.03 Movable Bridge, Vertical
B.N.04 Movable Bridge, Horizontal
B.N.05 Horizontal Clearance
B.N.06 Navigation Protection
Section 5: Loads, Rating, and Posting
Section 6: Inspections
Section 7: Bridge Condition
Section 8: State Bridge Inventory Fields
Appendix S1: Component Condition
Appendix S2: Timber Element and Defect
Appendix S3: Element Coding
Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Navigable Waterway (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (1)	I	B.N.01	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Features & Clearances	Waterway Details	Waterway	NavigableWaterway

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
N - Not Navigable Waters	Asset ID 454 carries US 176|Broad River Road over the Broad River. The Broad River is not a navigable waterway. All bridges over water shall have B.N.01 coded. **Code N.**	00454	

Section 1: Bridge Identification
Section 2: Bridge Material and Type
Section 3: Bridge Geometry
Section 4: Features
Subsection 4.0 Feature Introduction
Subsection 4.1 Feature Identification
Subsection 4.2 Routes
Subsection 4.3 Highways
Subsection 4.4 Railroads
Subsection 4.5 Navigable Waterways
B.N.01 Navigable Waterway
B.N.02 Minimum Vertical Clearance
B.N.03 Movable Bridge, Vertical
B.N.04 Movable Bridge, Horizontal
B.N.05 Horizontal Clearance
B.N.06 Navigation Protection
Section 5: Loads, Rating, and Posting
Section 6: Inspections
Section 7: Bridge Condition
Section 8: State Bridge Inventory Fields
Appendix S1: Component Condition
Appendix S2: Timber Element and Defect
Appendix S3: Element Coding
Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Navigation Minimum Vertical Clearance

Format	Frequency	Item ID Number	Item Ownership
N (4,1)	I	B.N.02	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Features & Clearances	Waterway Details	Waterway	NavMinVerticalClearance

FHWA Specification *[and SCDOT Markups]*

Report the minimum vertical clearance over the waterway feature reported in Item B.F.01 *[Feature Type is W##]*, rounded down to the nearest tenth of a foot.

The reported clearance is from the highest datum plane referenced in the approved permit plans to the lowest superstructure restriction or other appurtenances attached to the bridge over the designated navigation channel.

For all movable bridges, the vertical clearance reported for this item is for the bridge in the closed position (i.e., open to vehicular traffic).

Report the most restrictive clearance when there are multiple designated navigation channels.

Report this item only when Item B.N.01 (*Navigable Waterway*) is Y.

FHWA Commentary *[and SCDOT Markups]*

Reference datum, designated navigation channels, and vertical clearances can be found on permit plans approved by the United States Coast Guard.

When permit plans are not available, values can be established from field measurements obtained for known navigation channels and the most restrictive clearance recorded. Reference field measurements to the following datum:

Crossing Type	Datum
Tidal waters	Mean High Water
Non-tidal waters	Extreme High Water
River	Q50 Surface Elevation

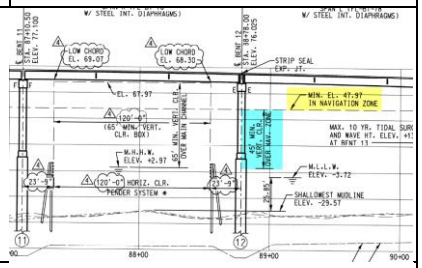
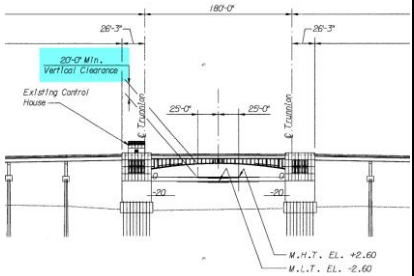
[State in the inspection report what/if documentation was used to determine permit status, i.e. bridge permit in the Bridge File, USDOT map, etc. If a bridge permit is not in the file, some bridge plans may have required clearance data.]

Section 1: Bridge Identification
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Subsection 4.4 Railroads
Subsection 4.5 Navigable Waterways
B.N.01 Navigable Waterway
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B.N.04 Movable Bridge, Horizontal
B.N.05 Horizontal Clearance
B.N.06 Navigation Protection
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Section 8: State Bridge Inventory Fields
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Appendix S3: Element Coding
Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Navigation Minimum Vertical Clearance (continued)

Format	Frequency	Item ID Number	Item Ownership
N (4,1)	I	B.N.02	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Features & Clearances	Waterway Details	Waterway	NavMinVerticalClearance

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
45.0	The minimum vertical clearance in the navigation channel is 45.0 feet. **Code 45.0**	10538	
20.0	In the closed position, the bascule bridge has a minimum vertical clearance of 20.0 feet. **Code 20.0**	00228	

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Subsection 4.1 Feature Identification
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Subsection 4.3 Highways
Subsection 4.4 Railroads
Subsection 4.5 Navigable Waterways
B.N.01 Navigable Waterway
B.N.02 Minimum Vertical Clearance
B.N.03 Movable Bridge, Vertical
B.N.04 Movable Bridge, Horizontal
B.N.05 Horizontal Clearance
B.N.06 Navigation Protection
Section 5: Loads, Rating, and Posting
Section 6: Inspections
Section 7: Bridge Condition
Section 8: State Bridge Inventory Fields
Appendix S1: Component Condition
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Appendix S3: Element Coding
Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Movable Bridge Maximum Navigation Vertical Clearance

Format	Frequency	Item ID Number	Item Ownership
N (4,1)	I	B.N.03	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Features & Clearances	Waterway Details	Waterway	MovableBridgeMaxVerticalClearance

FHWA Specification *[and SCDOT Markups]*

Report the maximum vertical clearance over the waterway feature reported in Item B.F.01 *[Feature Type is W##]*, rounded down to the nearest tenth of a foot.

The reported clearance is from the highest datum plane referenced in the approved permit plans to the lowest superstructure restriction or other appurtenances attached to the bridge over the designated navigation channel, when the movable bridge is in the open position *[ie, closed to vehicular traffic]*.

Report 999.9 when the bridge provides unlimited vertical clearance over the navigation channel in the open position.

Report this item only when Item B.N.01 (*Navigable Waterway*) is Y and Item B.SP.06 (*Span Type*) begins with M, indicating that the span type is movable. *[Otherwise, this item will be null.]*

FHWA Commentary *[and SCDOT Markups]*

The value reported for this item is particularly useful for vertical lift bridges and for bascule bridges where the leaf (or leaves) does not provide unlimited vertical clearance over the designated navigation channel in the open position.

When permit plans are not available, values can be obtained from field measurements. Reference field measurements to the following datum:

Crossing Type	Datum
Tidal waters	Mean High Water
Non-tidal waters	Extreme High Water
River	Q50 Surface Elevation

[State in the inspection report what/if documentation was used to determine permit status, i.e. bridge permit in the Bridge File, USDOT map, etc. If a bridge permit is not in the file, some bridge plans may have required clearance data.]

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
999.9	The bascule bridge provides unlimited vertical clearance in the open position. **Code 999.9**.	00228	

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Subsection 4.1 Feature Identification
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Subsection 4.3 Highways
Subsection 4.4 Railroads
Subsection 4.5 Navigable Waterways
B.N.01 Navigable Waterway
B.N.02 Minimum Vertical Clearance
B.N.03 Movable Bridge, Vertical
B.N.04 Movable Bridge, Horizontal
B.N.05 Horizontal Clearance
B.N.06 Navigation Protection
Section 5: Loads, Rating, and Posting
Section 6: Inspections
Section 7: Bridge Condition
Section 8: State Bridge Inventory Fields
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Appendix S2: Timber Element and Defect
Appendix S3: Element Coding
Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Movable Bridge Maximum Navigation Vertical Clearance (continued)

Format	Frequency	Item ID Number	Item Ownership
N (4,1)	I	B.N.03	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Features & Clearances	Waterway Details	Waterway	MovableBridgeMaxVerticalClearance

Examples

CODE	NOTES	ASSET ID	PHOTO
999.9	The swing bridge provides unlimited vertical clearance in the open position. **Code 999.9**.	01303	
N/A	The waterway is navigable, but the bridge span type is not movable. **Do not code.**	08516	

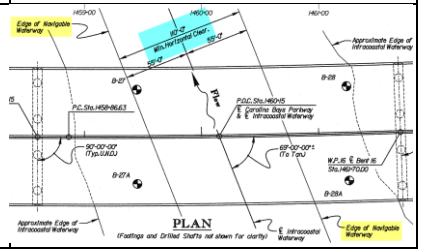
Section 1: Bridge Identification
Section 2: Bridge Material and Type
Section 3: Bridge Geometry
Section 4: Features
Subsection 4.0 Feature Introduction
Subsection 4.1 Feature Identification
Subsection 4.2 Routes
Subsection 4.3 Highways
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B.N.01 Navigable Waterway
B.N.02 Minimum Vertical Clearance
B.N.03 Movable Bridge, Vertical
B.N.04 Movable Bridge, Horizontal
B.N.05 Horizontal Clearance
B.N.06 Navigation Protection
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Section 7: Bridge Condition
Section 8: State Bridge Inventory Fields
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Appendix S3: Element Coding
Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Navigation Channel Width

Format	Frequency	Item ID Number	Item Ownership
N (5,1)	I	B.N.04	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Features & Clearances	Waterway Details	Waterway	NavChannelWidth

FHWA Specification *[and SCDOT Markups]*	FHWA Commentary *[and SCDOT Markups]*
Report the navigation channel width for the waterway feature reported in Item B.F.01 *[Feature Type is W##]*, rounded down to the nearest tenth of a foot. The width is as shown on the approved permit plans, or field measured when the navigation channel changes or is unmarked. For field measurements, measure the horizontal distance perpendicular to the centerline of the navigation channel. For marked channels measure between the markers designating the limits of the channel at the bridge. For unmarked channels, measure the minimum clear distance between fenders or piers. If multiple channels exist, report the most restrictive. Report this item only when Item B.N.01 (*Navigable Waterway*) is Y. *[Otherwise, this item will be null.]*	The width provided here should be consistent with the navigation channel used in the navigation vertical clearance items. The designated navigation channel width may be less than the distance between substructure units. *[State in the inspection report what/if documentation was used to determine permit status, i.e. bridge permit in the Bridge File, USDOT map, etc. If a bridge permit is not in the file, some bridge plans may have required clearance data.* *There are no bridges in South Carolina with more than one navigation channels.]*

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
110.0	The structure has only one navigation channel. The navigation channel width measured perpendicular to the channel centerline is 110 feet. This information was obtained from bridge plans. **Code 110.0**.	10262	

Section 1: Bridge Identification
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Section 3: Bridge Geometry
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Subsection 4.1 Feature Identification
Subsection 4.2 Routes
Subsection 4.3 Highways
Subsection 4.4 Railroads
Subsection 4.5 Navigable Waterways
B.N.01 Navigable Waterway
B.N.02 Minimum Vertical Clearance
B.N.03 Movable Bridge, Vertical
B.N.04 Movable Bridge, Horizontal
B.N.05 Horizontal Clearance
B.N.06 Navigation Protection
Section 5: Loads, Rating, and Posting
Section 6: Inspections
Section 7: Bridge Condition
Section 8: State Bridge Inventory Fields
Appendix S1: Component Condition
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Appendix S3: Element Coding
Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Navigation Channel Minimum Horizontal Clearance

Format	Frequency	Item ID Number	Item Ownership
N (5,1)	I	B.N.05	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Features & Clearances	Waterway Details	Waterway	NavChannelMinHorizontalClearance

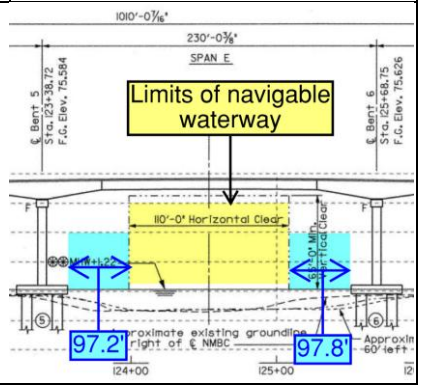
FHWA Specification *[and SCDOT Markups]*	FHWA Commentary *[and SCDOT Markups]*
Report the minimum horizontal clearance for the waterway feature reported in Item B.F.01 *[Feature Type is W##]*, rounded down to the nearest tenth of a foot. The clearance is the minimum distance from either edge of the navigation channel shown on the approved permit plans, to the face of the nearest bridge substructure unit located within the waterway. The clearance may be field measured when the placement of navigation markers at the bridge is inconsistent with the permit plans, or if the presence of navigation markers indicates a navigation channel and no permit plans are available. For field measurements, measure the horizontal distance perpendicular to the centerline of the navigation channel from the markers designating the limits of the channel at the bridge, to the face of the nearest bridge substructure unit located within the waterway. Report 0 when substructure units in the waterway are the boundaries for the navigation channel. Report 9999.9 when no substructure unit is within the waterway. Report this item only when Item B.N.01 (*Navigable Waterway*) is Y.	The intent of this item is to collect the most restrictive distance from the edge of the navigational channel to a bridge substructure to assess risk for vessel collision. The clearance provided here should be consistent with the navigation channel used in Item B.N.04 (*Navigation Channel Width*). *[State in the inspection report what/if documentation was used to determine permit status, i.e. bridge permit in the Bridge File, USDOT map, etc. If a bridge permit is not in the file, some bridge plans may have required clearance data.* *There are no bridges in South Carolina with more than one navigation channels.* *All bridges over navigational channels are from substructure unit to substructure unit. Code 0 and Code 9999.9 should not apply.]*

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Section 4: Features
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Subsection 4.3 Highways
Subsection 4.4 Railroads
Subsection 4.5 Navigable Waterways
B.N.01 Navigable Waterway
B.N.02 Minimum Vertical Clearance
B.N.03 Movable Bridge, Vertical
B.N.04 Movable Bridge, Horizontal
B.N.05 Horizontal Clearance
B.N.06 Navigation Protection
Section 5: Loads, Rating, and Posting
Section 6: Inspections
Section 7: Bridge Condition
Section 8: State Bridge Inventory Fields
Appendix S1: Component Condition
Appendix S2: Timber Element and Defect
Appendix S3: Element Coding
Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Navigation Channel Minimum Horizontal Clearance (continued)

Format	Frequency	Item ID Number	Item Ownership
N (5,1)	I	B.N.05	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Features & Clearances	Waterway Details	Waterway	NavChannelMinHorizontalClearance

Examples

CODE	NOTES	ASSET ID	PHOTO
97.2	Bents 5 and 6 are in the waterway. The horizontal clearances on each side of the navigable waterway are 97.2 ft and 97.8 ft. **Code 97.2**.	10203	

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Subsection 4.3 Highways
Subsection 4.4 Railroads
Subsection 4.5 Navigable Waterways
B.N.01 Navigable Waterway
B.N.02 Minimum Vertical Clearance
B.N.03 Movable Bridge, Vertical
B.N.04 Movable Bridge, Horizontal
B.N.05 Horizontal Clearance
B.N.06 Navigation Protection
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Section 6: Inspections
Section 7: Bridge Condition
Section 8: State Bridge Inventory Fields
Appendix S1: Component Condition
Appendix S2: Timber Element and Defect
Appendix S3: Element Coding
Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Substructure Navigation Protection

Format	Frequency	Item ID Number	Item Ownership
AN (1)	EI	B.N.06	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Features & Clearances	Waterway Details	Waterway	SubstructureNavProtection

FHWA Specification *[and SCDOT Markups]*

Report the presence and adequacy of substructure navigation protection for the waterway feature reported in Item B.F.01 *(Feature Type is W##]*, using one of the following codes.

Code	Description
0	Navigation protection not required; bridge has been designed or assessed to have adequate capacity to resist anticipated impact loads without collapse. *[Code is rare.]*
1	Navigation protection not required; assessment of navigation opening and vessel traffic has determined that there is a low probability that an errant vessel could impact the bridge. *[Code is rare.]*
2	Protective system in place and functioning.
3	Protective system in place, but damage or deterioration impacts ability to protect.
4	Protective system in place, but reevaluation of design suggested *[regardless of condition.]*
5	No protective system in place, but reevaluation of the need for a protective system is recommended.

Report this item only when Item B.N.01 (*Navigable Waterway*) is Y. *[Otherwise, this item will be null.]*

FHWA Commentary *[and SCDOT Markups]*

Substructure navigation protection systems can be fender systems, dolphins, *[concrete and rock protection islands]*, or other systems that either prevent the substructure from being impacted or adequately reduce the impact load that is transferred into the substructure.

Use codes 0 and 1 to indicate that an assessment of vessel traffic characteristics and/or bridge capacity has determined that navigation protection is not required. AASHTO's Guide Specifications and Commentary for Vessel Collision Design of Highway Bridges provides a method for assessing an existing bridge's vulnerability to vessel collision. Codes 0 and 1 should not be assigned based on field observation *[but on an assessment of the documentation in the Bridge File.]*

Use codes 4 and 5 to indicate that observed conditions necessitate a review of vessel traffic characteristics, bridge capacity, and protective system capability to determine whether the bridge is adequately protected from vessel collision. *[Depending on findings a load rating may be requested to be performed, or an in-depth inspection may be requested to be performed. Both post-inspection actions should take place within 3 months of the inspection date.]*

Section 1: Bridge Identification
Section 2: Bridge Material and Type
Section 3: Bridge Geometry
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Subsection 4.1 Feature Identification
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Subsection 4.3 Highways
Subsection 4.4 Railroads
Subsection 4.5 Navigable Waterways
B.N.01 Navigable Waterway
B.N.02 Minimum Vertical Clearance
B.N.03 Movable Bridge, Vertical
B.N.04 Movable Bridge, Horizontal
B.N.05 Horizontal Clearance
B.N.06 Navigation Protection
Section 5: Loads, Rating, and Posting
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Section 7: Bridge Condition
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Appendix S1: Component Condition
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Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Substructure Navigation Protection (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (1)	EI	B.N.06	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Features & Clearances	Waterway Details	Waterway	SubstructureNavProtection

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
2 - Protective system in place and functioning	Marine protection system in place. Around the main pylons in the are large, circular concrete and rock protection islands. **Code 2**.	09824	
2 - Protective system in place and functioning	Fender System at main channel below bridge. **Code 2**.	05061	
2 - Protective system in place and functioning	Fender System at main channel below bridge. **Code 2**.	08750	

Section 1: Bridge Identification
Section 2: Bridge Material and Type
Section 3: Bridge Geometry
Section 4: Features
Subsection 4.0 Feature Introduction
Subsection 4.1 Feature Identification
Subsection 4.2 Routes
Subsection 4.3 Highways
Subsection 4.4 Railroads
Subsection 4.5 Navigable Waterways
B.N.01 Navigable Waterway
B.N.02 Minimum Vertical Clearance
B.N.03 Movable Bridge, Vertical
B.N.04 Movable Bridge, Horizontal
B.N.05 Horizontal Clearance
B.N.06 Navigation Protection
Section 5: Loads, Rating, and Posting
Section 6: Inspections
Section 7: Bridge Condition
Section 8: State Bridge Inventory Fields
Appendix S1: Component Condition
Appendix S2: Timber Element and Defect
Appendix S3: Element Coding
Appendix S4: Weathering Steel Condition
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Appendix S6: Damage Defect Coding

Substructure Navigation Protection (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (1)	EI	B.N.06	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Features & Clearances	Waterway Details	Waterway	SubstructureNavProtection

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
3 - Protective system in place, but damage or deterioration impacts ability to protect.	Timber decay and impact damage are noted on both fenders. **Code 3**.	02303	
5 - No protective system in place, but reevaluation of the need for a protective system is recommended.	The waterway is navigable and has no protective system for nonredundant piers. **Code 5**.	01931	
N/A	The waterway is not navigable. Do not code.	01346	

Section 1: Bridge Identification
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Subsection 5.1 Loads & Load Ratings
B.LR.01 Design Load
B.LR.02 Design Method
B.LR.03 Load Rating Date
B.LR.04 Load Rating Method
B.LR.05 Inventory Rating Factor
B.LR.06 Operating Rating Factor
B.LR.07 Controlling Rating Factor
B.LR.08 Routine Permit Loads
Subsection 5.2 Load Posting Status
Subsection 5.3 Evaluation & Posting
Section 6: Inspections
Section 7: Bridge Condition
Section 8: State Bridge Inventory Fields
Appendix S1: Component Condition
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Appendix S6: Damage Defect Coding

Design Load

Format	Frequency	FHWA NBIS Item ID	Item Ownership
AN (8)	I	B.LR.01	LR
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Load Ratings	Structure Information	Bridge	DesignLoad

FHWA Specification *[and SCDOT Markups]*

Report the live load for which the bridge was designed using one of the following codes.

Code	Description
H10	H-10
H15	H-15
H20	H-20
HS15	HS-15
HS20	HS-20
HS20M	HS-20 and Military
HS20Plus	Greater than HS-20
HL93	HL-93
HL93Plus	Greater than HL-93
RR	Railroad
U	Unknown
X	Other

For widened or rehabilitated bridges, code the most restrictive design load governing any portion of the bridge.

FHWA Commentary *[and SCDOT Markups]*

Use code HS20M when the bridge is designed to accommodate both the HS-20 and the alternate military load.

Use codes HS20Plus and HL93Plus when the HS-20 or HL-93 design load configuration is increased proportionally above that specified in the AASHTO design specifications.

[The design load for the "skinny leg" channels shall be coded as H-10 loading regardless of the load included on the design plans. Precast panel bridges may have been designed for H-10, H-15, or H-20 loading but may not have design plans. The design load is typically stamped on the fascia. The height of the fascia (slab plus a 12" curb) can also be used to determine design load: H-10 slabs are typically 8.25" thick; H-15 slabs are typically 9.25" thick; H-20 slabs are typically over 10" thick and have a 12" curb. These bridges may have standard or schematic plans applicable to them. The appropriate design load shall be coded according to its characteristics, and these bridge types should not be coded "U."]

Use code U when the design plans are not available and the likely design load cannot be inferred from characteristics of agency policy at the time the bridge was built. A code other than U can be reported when design plans are not available, but the design load can be inferred from design characteristics of the bridge or agency policy at the time the bridge was built. *[Bridges with standard plans should not be coded "U". This code is rare.]*

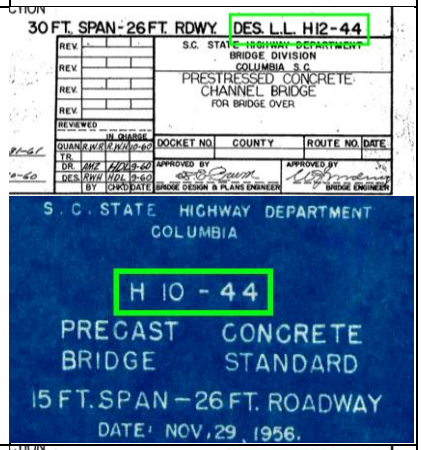
Use code X when the design load is known but is not based on any other load configurations. *[Use code X when an owner-specified vehicle governs over the AASHTO design load or when the design is not based on AASHTO load configurations. This code is rare.]*

Section 1: Bridge Identification
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B.LR.02 Design Method
B.LR.03 Load Rating Date
B.LR.04 Load Rating Method
B.LR.05 Inventory Rating Factor
B.LR.06 Operating Rating Factor
B.LR.07 Controlling Rating Factor
B.LR.08 Routine Permit Loads
Subsection 5.2 Load Posting Status
Subsection 5.3 Evaluation & Posting
Section 6: Inspections
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Section 8: State Bridge Inventory Fields
Appendix S1: Component Condition
Appendix S2: Timber Element and Defect
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Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Design Load (continued)

Format	Frequency	FHWA NBIS Item ID	Item Ownership
AN (8)	I	B.LR.01	LR
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Load Ratings	Structure Information	Bridge	DesignLoad

Examples

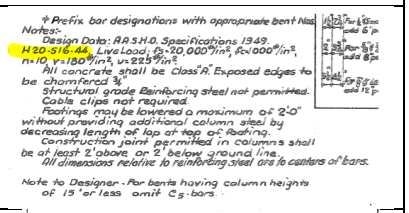
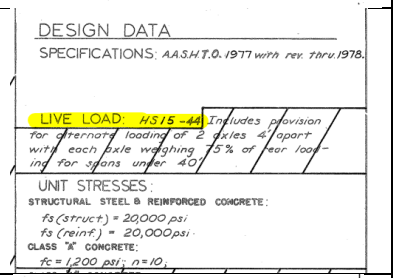
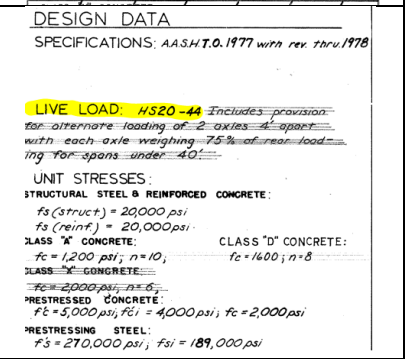
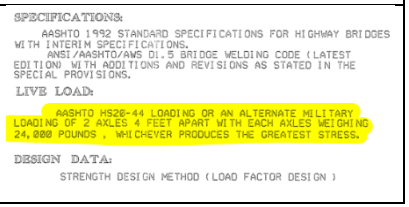
CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
H10 – H-10	The bridge design plans are not available, but the bridge was built in 1966 and DOT policy at the time was to use the H-10 design load for slabs. This can be confirmed in the field with the height of the exposed concrete slab. The design load is stamped on the exposed concrete slab, and the schematic drawing in the Bridge File. The Load Rating Summary Form states H-10 loading. Bridge also has H-12 Skinny Leg Channels. Use most restrictive design load. **Code H10**	04798	
H10 – H-10	The bridge design plans are not available, but the bridge was built in 1969 and DOT policy at the time was to use the H-12 design load for channel bridges. Bridge has H-12 Skinny Leg Channels. Since H-12 is not an available code, use more restrict code available. **Code H10**	00632	
H15 – H-15	The bridge design plans are not available, but the bridge was built in 1975 and DOT policy at the time was to use the H15 design load for slabs. This can be confirmed in the field with the height of the exposed concrete slab, the design load stamped on the exposed concrete slab, and the schematic drawing in the Bridge File. **Code H15**	06607	

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B.LR.02 Design Method
B.LR.03 Load Rating Date
B.LR.04 Load Rating Method
B.LR.05 Inventory Rating Factor
B.LR.06 Operating Rating Factor
B.LR.07 Controlling Rating Factor
B.LR.08 Routine Permit Loads
Subsection 5.2 Load Posting Status
Subsection 5.3 Evaluation & Posting
Section 6: Inspections
Section 7: Bridge Condition
Section 8: State Bridge Inventory Fields
Appendix S1: Component Condition
Appendix S2: Timber Element and Defect
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Appendix S4: Weathering Steel Condition
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Appendix S6: Damage Defect Coding

Design Load (continued)

Format	Frequency	FHWA NBIS Item ID	Item Ownership
AN (8)	I	B.LR.01	LR
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Load Ratings	Structure Information	Bridge	DesignLoad

Examples

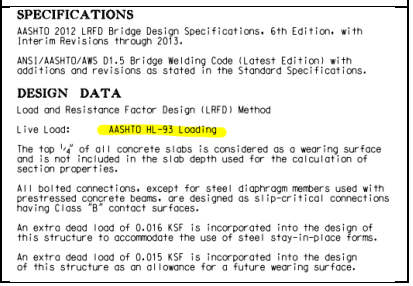
CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
H20 – H-20	Per the design plans, the bridge is designed for H20 loading. **Code H20**	02676	
HS15 – HS-15	Per the design plans, the bridge is designed for HS15 loading. **Code HS15**	07318	
HS20 – HS-20	Per the design plans, the bridge is designed for HS20 loading. **Code HS20**	07640	
HS20M – HS-20 and Military	Per the design plans, the bridge is designed for HS20 loading or an Alternate Military Loading, whichever produces the greatest stress. **Code HS20M**	00149	

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B.LR.04 Load Rating Method
B.LR.05 Inventory Rating Factor
B.LR.06 Operating Rating Factor
B.LR.07 Controlling Rating Factor
B.LR.08 Routine Permit Loads
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Appendix S3: Element Coding
Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Design Load (continued)

Format	Frequency	FHWA NBIS Item ID	Item Ownership
AN (8)	I	B.LR.01	LR
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Load Ratings	Structure Information	Bridge	DesignLoad

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
HL93 – HL-93	Per the design plans, the bridge is designed for HL-93 loading. **Code HL93**	10531	

SPECIFICATIONS

AASHTO 2012 LRFD Bridge Design Specifications, 6th Edition, with Interim Revisions through 2013.

ANSI/AASHTO/AWS D1.5 Bridge Welding Code (Latest Edition) with additions and revisions as stated in the Standard Specifications.

DESIGN DATA

Load and Resistance Factor Design (LRFD) Method

Live Load: AASHTO HL-93 Loading

The top ¼" of all concrete slabs is considered as a wearing surface and is not included in the slab depth used for the calculation of section properties.

All bolted connections, except for steel diaphragm members used with prestressed concrete beams, are designed as slip-critical connections having Class "B" contact surfaces.

An extra dead load of 0.016 KSF is incorporated into the design of this structure to accommodate the use of steel stay-in-place forms.

An extra dead load of 0.015 KSF is incorporated into the design of this structure as an allowance for a future wearing surface.

Section 1: Bridge Identification
Section 2: Bridge Material and Type
Section 3: Bridge Geometry
Section 4: Features
Section 5: Loads, Rating, and Posting
Subsection 5.1 Loads & Load Ratings
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B.LR.02 Design Method
B.LR.03 Load Rating Date
B.LR.04 Load Rating Method
B.LR.05 Inventory Rating Factor
B.LR.06 Operating Rating Factor
B.LR.07 Controlling Rating Factor
B.LR.08 Routine Permit Loads
Subsection 5.2 Load Posting Status
Subsection 5.3 Evaluation & Posting
Section 6: Inspections
Section 7: Bridge Condition
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Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Design Method

Format	Frequency	FHWA NBIS Item ID	Item Ownership
AN (4)	I	B.LR.02	LR
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Load Ratings	Structure Information	Bridge	DesignLoad

FHWA Specification *[and SCDOT Markups]*

Report the method by which the bridge was designed using one of the following codes.

Code	Description
ASD	Allowable Stress Design
LFD	Load Factor Design
LRFD	Load and Resistance Factor Design
U	Unknown
X	Other

FHWA Commentary *[and SCDOT Markups]*

The codes describe the design methods used in accordance with AASHTO design specifications.

For widened or rehabilitated bridges, code the design method associated with the code in Item B.LR.01 (*Design Load*).

Use code U when the design plans are not available and the likely design method cannot be inferred from design characteristics of the bridge or agency policy at the time the bridge was built. *[This code is rare.]* A code other than U can be reported when design plans are not available, but the design method can be inferred from design characteristics of the bridge or agency policy at the time the bridge was built.

[Use code X when the design load is known but is not based on AASHTO or railroad design load configurations. Use code X when an owner-specified special design vehicle or evaluation permit vehicle governs over the AASHTO design load or when the design is not based on AASHTO design load configurations. This code is rare.

Code this item based on available plans. If no plans are available, use inferences from the design details and the design load. The LFD Method was introduced in the early 1970s. Therefore, bridges designed prior to 1970 could be assumed to have been designed using the ASD Method. Bridges designed since 2010 are generally designed using the LRFD Method.

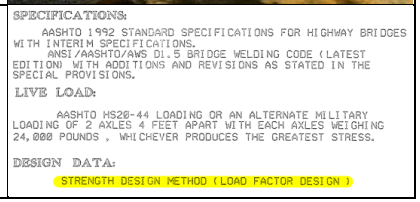
The design method and the rating method (Item B.LR.04) do not have to match.]

Section 1: Bridge Identification
Section 2: Bridge Material and Type
Section 3: Bridge Geometry
Section 4: Features
Section 5: Loads, Rating, and Posting
Subsection 5.1 Loads & Load Ratings
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B.LR.02 Design Method
B.LR.03 Load Rating Date
B.LR.04 Load Rating Method
B.LR.05 Inventory Rating Factor
B.LR.06 Operating Rating Factor
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Section 6: Inspections
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Appendix S3: Element Coding
Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Design Method (continued)

Format	Frequency	FHWA NBIS Item ID	Item Ownership
AN (8)	I	B.LR.02	LR
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Load Ratings	Structure Information	Bridge	DesignLoad

Examples

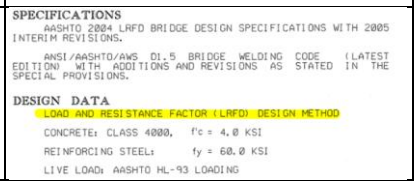
CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
ASD - Allowable Stress Design	The bridge design plans are not available, but the bridge was built in 1962 and the construction specifications or historical agency policy at the time was to adhere to ASD specifications. **Code ASD**	03772	
ASD - Allowable Stress Design	The bridge design plans are not available, but the bridge was built in 2010 and the assumed policy at the time was to adhere to ASD specifications for timber bridges. **Code ASD**	10023	
ASD - Allowable Stress Design	The bridge design plans do not indicate a design method, but the bridge was built in 1950 and the assumed policy at the time was to adhere to ASD specifications. **Code ASD**	01722	
LFD - Load Factor Design	The bridge plans identify the design specifications as Load Factor Design. **Code LFD**	00149	 SPECIFICATIONS: AASHTO 1992 STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES WITH INTERIM SPECIFICATIONS. ANSI/AASHTO/AWS D1.5 BRIDGE WELDING CODE (LATEST EDITION) WITH ADDITIONS AND REVISIONS AS STATED IN THE SPECIAL PROVISIONS. LIVE LOAD: AASHTO HS20-44 LOADING OR AN ALTERNATE MILITARY LOADING OF 2 AXLES 4 FEET APART WITH EACH AXLES WEIGHING 24,000 POUNDS, WHICHEVER PRODUCES THE GREATEST STRESS. DESIGN DATA: STRENGTH DESIGN METHOD (LOAD FACTOR DESIGN)

Section 1: Bridge Identification
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Section 4: Features
Section 5: Loads, Rating, and Posting
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B.LR.02 Design Method
B.LR.03 Load Rating Date
B.LR.04 Load Rating Method
B.LR.05 Inventory Rating Factor
B.LR.06 Operating Rating Factor
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Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Design Method (continued)

Format	Frequency	FHWA NBIS Item ID	Item Ownership
AN (8)	I	B.LR.02	LR
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Load Ratings	Structure Information	Bridge	DesignLoad

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
LRFD - Load and Resistance Factor Design	The bridge plans identify the design specifications as Load and Resistance Factor Design. **Code LRFD**	00028	

Section 1: Bridge Identification
Section 2: Bridge Material and Type
Section 3: Bridge Geometry
Section 4: Features
Section 5: Loads, Rating, and Posting
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B.LR.01 Design Load
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B.LR.07 Controlling Rating Factor
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Section 6: Inspections
Section 7: Bridge Condition
Section 8: State Bridge Inventory Fields
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Appendix S3: Element Coding
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Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Load Rating Date

Format	Frequency	FHWA NBIS Item ID	Item Ownership
YYYYMMDD	LR	B.LR.03	LR
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Load Ratings	Event Information	EventLibrary	EventDate

FHWA Specification *[and SCDOT Markups]*	FHWA Commentary *[and SCDOT Markups]*
Report the date of the most recent load rating. Do not report this item if no rating analysis or evaluation has been performed.	This item reflects the date of the most recent calculation or reevaluation of the load rating. The load rating may be performed independently and at a different date than the inspection. Defects discovered during inspections that may impact the strength or serviceability of the bridge typically require re-evaluation of the load rating. When the re-evaluation of the load rating is completed, report the date of the re-evaluation for this item. *[The following items are to match the load rating performed on the date. These items (B.LR.03 to B.LR.08) are considered part of the primary bridge data set and have a one-to-one relationship with a bridge.]* • B.LR.03 *(Load Rating Date)* • B.LR.04 (*Load Rating Method*) • B.LR.05 (*Inventory Load Rating Factor*) • B.LR.06 (*Operating Load Rating Factor*) • B.LR.07 (*Controlling Legal Load Rating Factor*) • B.LR.08 (*Routine Permit Loads*) *[The load rating date should match the date on the LRSF as the date the load rating is signed and sealed or the day of an engineering evaluation by a Professional Engineer.* *See below for a comprehensive example for the B.LR items.]*

Section 1: Bridge Identification
Section 2: Bridge Material and Type
Section 3: Bridge Geometry
Section 4: Features
Section 5: Loads, Rating, and Posting
Subsection 5.1 Loads & Load Ratings
B.LR.01 Design Load
B.LR.02 Design Method
B.LR.03 Load Rating Date
B.LR.04 Load Rating Method
Examples
B.LR.05 Inventory Rating Factor
B.LR.06 Operating Rating Factor
B.LR.07 Controlling Rating Factor
B.LR.08 Routine Permit Loads
Subsection 5.2 Load Posting Status
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Section 6: Inspections
Section 7: Bridge Condition
Section 8: State Bridge Inventory Fields
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Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Load Rating Method

Format	Frequency	FHWA NBIS Item ID	Item Ownership
AN (4)	LR	B.LR.04	LR
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Load Ratings	Controlling Information	LoadRatingEvent	Method

FHWA Specification *[and SCDOT Markups]*

Report the method used to calculate the load rating using one of the following codes.

Code	Description
LFR	Load Factor Rating
ASR	Allowable Stress Rating
LRFR	Load and Resistance Factor Rating
LT	Load Testing
AR	Assigned Rating
EJ	Field evaluation and documented engineering judgment
N	No rating analysis or evaluation has been performed

FHWA Commentary *[and SCDOT Markups]*

When different portions of a bridge are load rated using different methods, report the rating method associated with the controlling rating factor *[B.LR.07. Reference the Load Rating Guidance Document for more load rating policy and requirements]*.

[Use code LT where there has been specific load testing performed on the bridge as part of the load rating. This code should not be used when testing was performed as part of developing programmatic policy and that policy was involved in the load rating.]

For information on applicable load rating methods, refer to the October 30, 2006 FHWA memorandum at: *https://www.fhwa.dot.gov/bridge/nbis/103006.cfm*.

For information on using code AR, refer to the September 29, 2011 FHWA memorandum at: *https://www.fhwa.dot.gov/bridge/110929.cfm [This code is rare.]*

For information on using code EJ, refer to the February 2, 2011 FHWA memorandum at: *https://www.fhwa.dot.gov/bridge/110202.cfm*

[See below for a comprehensive example for the B.LR items.]

Section 1: Bridge Identification
Section 2: Bridge Material and Type
Section 3: Bridge Geometry
Section 4: Features
Section 5: Loads, Rating, and Posting
Subsection 5.1 Loads & Load Ratings
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B.LR.02 Design Method
B.LR.03 Load Rating Date
B.LR.04 Load Rating Method
B.LR.05 Inventory Rating Factor
Examples
B.LR.06 Operating Rating Factor
Examples
B.LR.07 Controlling Rating Factor
B.LR.08 Routine Permit Loads
Subsection 5.2 Load Posting Status
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Appendix S6: Damage Defect Coding

Inventory & Operating Load Rating Factors

Format	Frequency	FHWA NBIS Item ID	Item Ownership
N (4,2)	LR	B.LR.05 + 06	LR
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Load Ratings	Results of Load Rating	N/A	N/A

FHWA Specification *[and SCDOT Markups]*	FHWA Commentary *[and SCDOT Markups]*
Report the inventory load rating factor and operating load rating factor, truncated to the hundredth, for the standard AASHTO HS-20 or HL-93 loadings, whichever is applicable based on the method reported in Item B.LR.04 (*Load Rating Method*). When temporary or supported conditions exist, as indicated in Item B.PS.01 (*Load Posting Status*), report the rating factor for the bridge including the temporary or supported conditions. *[Do not report a rating factor that was calculated using reduced force effects from postings or restrictions that affect traffic operation, e.g. that limit speed, number of lanes, number of trucks, or do not allow commercial vehicles. Report the rating factor that represents an unrestricted operation. For a closed shoulder, the rating factor that represents an open shoulder would be reported. Even if a shoulder restriction is in place to reduce live load to a bridge component, the unrestricted rating factor should be reported here.]* Do not report this item when no rating analysis or evaluation has been performed.	For LRFR, this is the rating factor for the design load rating at the inventory level of reliability using the HL-93 loading considering all applicable strength and serviceability limit states. *[For LFR and ASR, this is the rating factor for the design load rating at the inventory level of reliability using the HS-20 loading.* *For bridges with restricted operations, the load rating to be reported to FHWA shall be the unrestricted condition load rating. However, the load rater shall still perform an additional load rating to show the restriction is sufficient to address the safety issue and this load rating shall be placed in the Bridge File. FHWA will review any NBI reporting errors if it is below 3 tons by a review of the load ratings in the Bridge File.]* Refer to the AASHTO Manual for Bridge Evaluation for details of HS-20 and HL-93 loadings and limit states. *[See below for a comprehensive example for the B.LR items.]*

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Controlling Legal Load Rating Factor

Format	Frequency	FHWA NBIS Item ID	Item Ownership
N (4,2)	LR	B.LR.07	LR
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Load Ratings	Results of Load Rating	N/A	N/A

FHWA Specification *[and SCDOT Markups]*	FHWA Commentary *[and SCDOT Markups]*
Report the lowest (controlling) rating factor for the AASHTO, FHWA emergency vehicle, State transportation department, Federal agency, or Tribal government defined legal loads truncated to the hundredth. Do not report a rating factor that was calculated using reduced force effects from postings or restrictions that affect traffic operation, e.g. that limit speed, number of lanes, number of trucks, or do not allow commercial vehicles. Report the rating factor that represents an unrestricted operation. *[For a closed shoulder, the rating factor that represents an open shoulder would be reported. Even if a shoulder restriction is in place to reduce live load to a bridge component, the unrestricted rating factor should be reported here.]* When temporary or supported conditions exist, as indicated in Item B.PS.01 (*Load Posting Status*), report the rating factor for the bridge including the temporary or supported conditions. Do not report this item when no rating analysis or evaluation has been performed. Do not report State, Federal, or Tribal defined configurations that represent loads which exceed legal loads (e.g. special or routine permit vehicles).	For LRFR method this would be the rating factor of "Legal Load Rating". For Allowable Stress and Load Factor rating methods this would be the operating rating factor. When all legal loads are enveloped by the design load type reported in Item B.LR.04 (*Load Rating Method*) and the corresponding rating factor reported in Item B.LR.06 (*Operating Load Rating Factor*), then the value in Item B.LR.06 can be reported for this item when rating factors for legal load configurations have not been calculated. *[This is not the case for SCDOT load ratings, since all trucks specified in the LRGD are analyzed and summarized on the Load Rating Summary Form for each load rating.]* Enveloped as used here means that the legal load rating factor or the operating rating factor for all legal loads will be greater than or equal to 1.0 when the design load legal load rating factor or operating rating factor exceeds a threshold value established by an engineering study. The value in Item B.LR.06 to be reported in this item should exceed this threshold value. This includes legal loads representing emergency vehicles with the weights and bridge locations specified in 23 U.S.C. 127(r). State legal loads are typically described in State laws (State vehicle codes). *[South Carolina legal loads are in the LRGD and the table below. Code the lowest rating factor of the AASHTO Legal Loads and State Legal Loads. Typically, the controlling factor is from the SHV-2B or EV3. Use the tables on the following page to determine which vehicles apply to a bridge. See below for a comprehensive example for the B.LR items.]*

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Controlling Legal Load Rating Factor (continued)

Format	Frequency	FHWA NBIS Item ID	Item Ownership
N (4,2)	LR	B.LR.07	LR
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Load Ratings	Results of Load Rating	N/A	N/A

AASHTO Legal Loads and South Carolina State Legal Loads

AASHTO Legal Loads

Truck Code	Description	Applicable Bridges
Modified AASHTO SC - Type 3	Single Unit	All Bridges
Modified AASHTO SC - Type 3S2	Combination	All Bridges
AASHTO - Type 3-3	Combination	All Bridges
Lane Type Loading (Neg. M Only)	Lane Loading	Negative Moment Only
Lane Type Loading (Span > 200')	Lane Loading	Bridges with Spans Over 200 feet
SU4	Single Unit	All Bridges
SU5	Single Unit	All Bridges
SU6	Single Unit	All Bridges
SU7	Single Unit	All Bridges
EV2	Emergency Vehicle	All Bridges
EV3	Emergency Vehicle	All Bridges

State Legal Loads

Truck Code	Description	Applicable Bridges
SC-SHV1A	Specialized Hauling Vehicle	Legal on Non-Interstate Only
SC-SHV1B	Specialized Hauling Vehicle	Legal on Non-Interstate Only
SC-SHV2A	Specialized Hauling Vehicle	Legal on Non-Interstate Only
SC-SHV2B	Specialized Hauling Vehicle	Legal on Non-Interstate Only
SC-SHV3A	Specialized Hauling Vehicle	Legal on Non-Interstate Only
SC-SHV3B	Specialized Hauling Vehicle	Legal on Non-Interstate Only
SC Representative School Bus	Single Unit	All Bridges
SC-SU2	Single Unit	All Bridges

For more information about AASHTO Legal Loads and State Legal Loads see the Manual for Bridge Evaluation (MBE) and the SCDOT Load Rating Guidance Document (LRGD).

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Routine Permit Loads

Format	Frequency	FHWA NBIS Item ID	Item Ownership
AN (1)	LR	B.LR.08	LR
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Load Ratings	OSOW Rating Information	Bridge	RoutinePermitLoads

FHWA Specification *[and SCDOT Markups]*

Report whether the bridge carries routine permit loads or whether routine permit loads are restricted from the bridge using one of the following codes.

Code	Description
A	Bridge carries routine permit loads. Load capacity is adequate for all routine permit loads approved for the route segment; no routine permit loads are restricted. *[Code A "Yes without restrictions" – If all the permit ratings shown in SC.LR.20 to SC.LR.22 are > 1.0 and approved for the route segment.]*
B	Bridge carries routine permit loads. Load capacity is adequate for some routine permit loads approved for the route segment, but some routine permit loads are restricted. *[Code B "Yes with restrictions" – If some the permit ratings shown in SC.LR.20 to SC.LR.22 are < 1.0 and approved for the route segment and some permit ratings > 1.0.]*
C	Bridge does not carry routine permit loads. Load capacity is inadequate for all routine permit loads approved for the route segment. Routine permit loads are restricted from the bridge. *[Code C "No Permit Loads" – If all of the permit ratings shown in SC.LR.20 to SC.LR.22 are < 1.0 and approved for the route segment.]*
N	Bridge does not carry routine permit loads. Routine permit loads are not approved for the route segment. *[Code N "Not Approved for Route" – If routine permit loads are not approved for the route segment, which includes routes not on Interstates, US Routes, and SC Routes.]*

FHWA Commentary *[and SCDOT Markups]*

This item is used to identify bridges where State routine permit loads must be considered in load rating and posting evaluations and to identify bridges where routine permit loads are restricted due to bridge load capacity limitations. *[In South Carolina, loads are considered permit for all bridges.]*

Agencies have varying policies for issuing routine permits, from not issuing routine permits to issuing various routine permits when these loads exceed State legal loads. Some agencies may utilize maps that indicate highways and bridges that are restricted to routine permit loads or that allow routine permit loads. *[Refer to the link below for the Permit Load Truck Map for additional details on permit load approved routes, which include Interstates, US Routes, and SC Routes:]*
https://www.scdot.org/business/pdf/osow/TruckRouteMap.pdf?v=2

Use code A when all routine permit loads allowed to travel the route segment are also allowed to travel on the bridge.

Use code B when not all routine permit loads allowed to travel the route segment are allowed to travel on the bridge.

Use code C when all routine permit loads allowed to travel the route segment are restricted from the bridge. *[Posted bridges cannot be coded C.]*

Use code N when the agency does not issue routine permits or routine permit loads are not approved for the route segment that is carried by the bridge.

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Appendix S6: Damage Defect Coding

Routine Permit Loads (continued)

Format	Frequency	FHWA NBIS Item ID	Item Ownership
AN (1)	LR	B.LR.08	LR
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Load Ratings	OSOW Rating Information	Bridge	RoutinePermitLoads

FHWA Specification *[and SCDOT Markups]*	FHWA Commentary *[and SCDOT Markups]*
[Another rare scenario is where there are some bridges where SC.LR.20 to SC.LR.22 are > 1.0, but not approved for route segment, even though some fields may be > 1.0. *Also, posted bridges are not allowed to be used for permits even if the posting is elected, not mandatory.]*	*[See below for a comprehensive example for the B.LR items. Coding whether the bridge carries routine permit loads or whether routine permit loads are restricted from the bridge.* *Routine Permit Loads are defined as:* • *SC.LR.20 - Operating Rate Factor 100k* • *SC.LR.21 - Operating Rate Factor 120k* • *SC.LR.22 - Operating Rate Factor 130k]*

Clarification Table for B.LR.08

Item B.LR.08 Coding	A - Yes without restrictions[1]	B - Yes with restrictions[1]	C - No Permit Loads[1]	N - Not Approved for Route
Permit Loads Approved for Route?	Yes	Yes	Yes	No
Permit Ratings > 1.0	All	Some	None	N/A
Carries Routine Permit Loads?	Yes	Yes	No	No

1- Must meet all criteria to be coded, otherwise select another code or code "N".

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Appendix S6: Damage Defect Coding

Comprehensive Examples for B.LR.03, B.LR.04, B.LR.05, B.LR.06, B.LR.07, & B.LR.08

Format	Frequency	FHWA NBIS Item ID	Item Ownership
Varies	LR	B.LR.03 to B.LR.08	LR
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Load Ratings	Varies	Varies	Varies

Load Rating Example #1 (Primary Route)
See Complete LRSF in Bridge File
Asset ID 10738 (Richland) – US 176 over I-20

- As-Built Load Rating performed in 2025 following bridge opening. Load rating date is 07/24/2025 which matches the date signed and sealed. Bridge was load rated using Load and Resistance Factor Rating (LRFR).
- With LRFR as the Load Rating Method, the Inventory Rating Factor is 1.12 for the HL-93 truck.
- With LRFR as the Load Rating Method, the Operating Rating Factor is 1.46 for the HL-93 truck.
- Eighteen (18) legal trucks are applicable, all trucks except for the Lane Type Loading (Span > 200') truck. See the table below.

Legal Truck	07/24/2024 (LRFR) ✪
Modified AASHTO SC - Type 3	2.63
Modified AASHTO SC - Type 3S2	2.07
AASHTO - Type 3-3	1.99
Lane Type Loading (Neg. M Only)	2.35
SU4	2.40
SU5	2.13
SU6	1.90
SU7	1.72
EV2	2.30
EV3	1.52
SC-SHV1A	1.96
SC-SHV1B	1.84
SC-SHV2A	1.95
SC-SHV2B	1.63
SC-SHV3A	1.76
SC-SHV3B	1.66
SC Representative School Bus	3.83
SC-SU2	3.31

✪ = Load Rating Selected for Reporting by the Load Rater (may only be one reported load rating associated with the bridge)

- See the table below for the three Routine Permit Loads. The bridge carries a US Route (US 176) which is a permit load approved route.

Routine Permit Load	Rating Factor
(425) Operating Rate Factor 100k	2.29
(426) Operating Rate Factor 120k	1.90
(427) Operating Rate Factor 130k	1.78

Based on this introduction, see the SNBI codes on the following page for Load Rating Example #1.

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Comprehensive Examples for B.LR.03, B.LR.04, B.LR.05, B.LR.06, B.LR.07, & B.LR.08

Format	Frequency	FHWA NBIS Item ID	Item Ownership
Varies	LR	B.LR.03 to B.LR.08	LR
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Load Ratings	Varies	Varies	Varies

Load Rating Example #2 (Secondary Route)
See Complete LRSF in Bridge File
Asset ID 6538 (Lexington) – S-32-168 over Congaree Creek

- Load ratings in 2020 performed with three different load rating methods (LRFR, LFR, and ASR). The load rating date for the 2020 load ratings is 11/12/2020; at that time a LRFR and LFR rating were done for the superstructure, and an ASR rating was done for the timber substructure. Deterioration during 2025 inspection required a new timber pile load rating (ASR method). The load rating date for the 2025 timber pile load rating is 7/16/2025. The superstructure rating for LRFR was also updated as part of precast panel load rating guidance. The load rating dates match the dates signed and sealed.
- The Inventory Rating Factor and Operating Rating Factor for each of the load ratings are included below.

Rating Factor	11/12/2020 (LRFR)	11/12/2020 (LFR)	11/12/2020 (ASR)	7/16/2025 (LRFR)	7/16/2025 (ASR) ✪
Inventory Rating Factor	0.66 (HL-93)	0.68 (HS-20)	1.38 (HS-20)	1.09 (HL-93)	0.71 (HS-20)
Operating Rating Factor	0.86 (HL-93)	1.14 (HS-20)	1.88 (HS-20)	1.41 (HL-93)	1.02 (HS-20)

- Seventeen (17) legal trucks are applicable, all trucks except for the Lane Type Loading (Span > 200') truck and Lane Type Loading (Neg. M Only) truck. See the table below.

Legal Truck	RFs - 11/12/2020 (LRFR)	RFs - 11/12/2020 (LFR)	RFs - 11/12/2020 (ASR)	RFs - 7/16/2020 (LRFR)	RFs - 7/16/2025 (ASR) ✪
Modified AASHTO SC - Type 3	1.39	1.42	2.02	2.27	1.14
Modified AASHTO SC - Type 3S2	1.39	1.42	2.02	2.27	1.14
AASHTO - Type 3-3	1.74	1.78	2.54	2.85	1.44
SU4	1.27	1.30	1.87	2.09	1.05
SU5	1.27	1.30	1.80	2.09	1.00
SU6	1.27	1.30	2.11	2.09	1.15
SU7	1.27	1.30	2.18	2.09	1.38
EV2	1.06	1.09	1.82	1.74	1.04
EV3	0.79	0.80	1.15	1.28	0.65
SC-SHV1A	0.97	1.00	1.42	1.59	0.80
SC-SHV1B	0.97	1.00	1.42	1.59	0.80
SC-SHV2A	1.02	1.04	1.51	1.67	0.84
SC-SHV2B	0.95	0.97	1.42	1.55	0.79
SC-SHV3A	1.28	1.31	1.87	2.10	1.06
SC-SHV3B	1.22	1.25	1.78	1.99	1.00
SC Representative School Bus	1.55	1.58	2.66	2.54	1.52
SC-SU2	1.62	1.66	2.74	2.65	1.50

✪ = Load Rating Selected for Reporting by the Load Rater (may only be one reported load rating associated with the bridge)

- The bridge carries a secondary route which is not a permit load approved route.

Based on this introduction, see the SNBI codes on the following pages for Load Rating Example #2.

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Section 2: Bridge Material and Type
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Load Rating Date

Format	Frequency	FHWA NBIS Item ID	Item Ownership
YYYYMMDD	LR	B.LR.03	LR
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Load Ratings	Event Information	EventLibrary	EventDate

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
20250724	As-Built Load Rating performed in 2025 following bridge opening. Load rating date is 07/24/2025 which matches the date signed and sealed. **Code 20250724.**	10738	N/A – See Comprehensive Example #1
20250716	Between the LRFR and ASR load ratings performed in 2025, the ASR produces a controlling rating. The ASR rating date is 07/24/2025 which matches the date signed and sealed. **Code 20250716.**	06538	N/A –See Comprehensive Example #2

Load Rating Method

Format	Frequency	FHWA NBIS Item ID	Item Ownership
AN (4)	LR	B.LR.04	LR
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Load Ratings	Controlling Member	LoadRatingEvent	Method

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
LRFR	As-Built Load Rating performed in 2025 following bridge opening. Bridge was load rated using Load and Resistance Factor Rating (LRFR). **Code LRFR.**	10738	N/A – See Comprehensive Example #1
ASR	Between the LRFR and ASR load ratings performed in 2025, the ASR produces a controlling rating. The ASR rating was done because of the need for timber substructure rating. **Code ASR.**	06538	N/A –See Comprehensive Example #2

Inventory Load Rating Factor

Format	Frequency	FHWA NBIS Item ID	Item Ownership
N (4,2)	LR	B.LR.05	LR
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Load Ratings	Results of Load Rating	N/A	N/A

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
1.12	With LRFR as the Load Rating Method, the Inventory Rating Factor is 1.12 for the HL-93 truck. **Code 1.12.**	10738	N/A – Comprehensive Example #1
0.71	With ASR as the Load Rating Method, the Inventory Rating Factor is 0.71 for the HS-20 truck. **Code 0.71.**	06538	N/A –See Comprehensive Example #2

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Operating Load Rating Factor

Format	Frequency	FHWA NBIS Item ID	Item Ownership
N (4,2)	LR	B.LR.06	LR
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Load Ratings	Results of Load Rating	N/A	N/A

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
1.46	With LRFR as the Load Rating Method, the Operating Rating Factor is 1.46 for the HL-93 truck. **Code 1.46.**	10738	N/A – Comprehensive Example #1
1.02	With ASR as the Load Rating Method, the Operating Rating Factor is 1.02 for the HS-20 truck. **Code 1.02.**	06538	N/A –See Comprehensive Example #2

Controlling Legal Load Rating Factor

Format	Frequency	FHWA NBIS Item ID	Item Ownership
N (4,2)	LR	B.LR.07	LR
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Load Ratings	Results of Load Rating	N/A	N/A

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
1.52	With LRFR as the Load Rating Method, the Controlling Legal Load Rating Factor is for the EV3 Truck. **Code 1.52.**	10738	N/A – Comprehensive Example #1
0.65	With ASR as the Load Rating Method, the Controlling Legal Load Rating Factor is for the EV3 Truck. **Code 0.65.**	06538	N/A –See Comprehensive Example #2

Routine Permit Loads

Format	Frequency	FHWA NBIS Item ID	Item Ownership
AN (1)	LR	B.LR.08	LR
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Load Ratings	OSOW Rating Information	Bridge	RoutinePermitLoads

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
A - Bridge carries routine permit loads	The bridge carries a US Route (US 176) which is a permit load approved route segment adequate for all SCDOT routine permit loads. All factors (SC.LR.20 to SC.LR.22) > 1.0. **Code A.**	10738	N/A – Comprehensive Example #1
N – Bridge does not carry routine permit loads	The bridge carries a secondary route which is not a permit load approved route. **Code N.**	06538	N/A –See Comprehensive Example #2

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Subsection 5.2 Load Posting Status
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B.PS.02 Posting Status Change Date
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Load Posting Status

Format	Frequency	FHWA NBIS Item ID	Item Ownership
AN (2)	I	B.PS.01	All
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Load Posting Status	Edit Bridge Load Posting Status	LoadPostingStatus	N/A

FHWA Specification *[and SCDOT Markups]*

Report the load posting status using one of the codes in Table 15.

Table 15. Load Posting Status Codes.

	No Restriction			Posted or Restricted				Other	
	New	Open	Needs Action	Weight	Other	Needs Reduct-ion	Missing	Closed	Prop-sed
Permanent	N	PO	PA	PP	PR	PD	PM	C	G
Temporary		TO	TA	TP	TR	TD	TM	C	G
Supported		SO	SA	SP	SR	SD	SM	C	G

[Rows in Table 15, Inspectors are to select 1 when the status is a code other than N, G, C]

Permanent (P) – Permanent bridge in place with no temporary supports.

Temporary (T) – Temporary bridge in place to carry traffic while the permanent bridge is closed and awaiting repair, rehabilitation, or replacement. *[The bridge is not intended to be long-term bridge at that location. The bridge was built with the intention of disassembly and moved to another site.]*

Supported (S) – Bridge with temporary shoring, supports, repairs, or supplemental members in place to keep the bridge open pending the completion of active or imminent repair, or replacement projects.

[Columns in Table 15]

Open (O) – Bridge is open with no restrictions.

Needs Action (A) – Bridge that is open with load posting recommended, but no posting signs in place, or a posting sign that is not legally enforceable.

Weight (P) – Bridge is posted with a weight limit sign or signs. *[A bridge carrying 2-way traffic must have a sign at each bridge end.]*

FHWA Commentary *[and SCDOT Markups]*

[For the Load Posting Status of 'New', 'Proposed', or 'Closed', select only that value as Load Posting Status. For all others, combine Permanent, Temporary, or Supported with a restriction.]

When temporary or supported conditions exist ensure that data items related to physical characteristics of the bridge (e.g. geometry, clearances, condition, and load rating) represent those characteristics of the temporary or supported bridge. *[Except for clearances where the most restrictive value must be coded.]*

When both a weight and other load restriction exist at the bridge, use the code for the weight restriction (code PP, TP, or SP).

[If the inspector or load rater is changing B.PS.01 (and B.PS.02), it should be recorded within 5 days of the needed change.

Use code 'N' if there are girders or parts of the superstructure that span over a roadway or navigable waterway even if the actual bridge opening date is unknown or over 12 months away.

Use code 'A' when a posting has been approved for a bridge that is currently not posted but needs permanent posting signs installed, if a posting rescission has been signed, or if a posting has been approved for a bridge that is currently posted but needs permanent posting signs installed at a higher value than currently posted. Use of the code 'A' is not permitted when posting values on signs are not correct.

Use code 'D' when a posting has been approved for a bridge that is currently posted but needs permanent posting signs installed at a lower value than currently posted or if values on the signs are

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Load Posting Status (continued)

Format	Frequency	FHWA NBIS Item ID	Item Ownership
AN (2)	I	B.PS.01	All
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Load Posting Status	Edit Bridge Load Posting Status	LoadPostingStatus	N/A

Other (R) – A posting sign or other traffic control device(s) at the bridge that reduces loading by reducing speed (to reduce impact), limiting the number of lanes or vehicles, or restricting commercial vehicles in general *[where the need for the restriction was caused by structural capacity.]*

Needs Reduction (D) – Bridge is posted, with posting reduction recommended but not *[yet]* implemented.

Missing (M) – Bridge has a legally enforceable load posting and was posted, but one or more required signs are missing or illegible. *[Includes at-bridge and advanced signs.]*

[Other Columns in Table 15, Select Only this Load Posting Status]

New (N) – Bridge is newly constructed and not yet open to traffic, but is expected to be open within 12 months.

Closed (C) – Bridge is closed to all traffic.

[Proposed (G) - Bridge is proposed and construction has not started or construction started but opening is over 12 months away. Has no elements currently constructed over a roadway or navigable waterway. Regardless of an opening date, bridge has elements currently constructed over a roadway or navigable waterway and the bridge is not yet open to traffic.]

incorrect and they need to be lowered.

Use code 'P' for bridges with weight posting, including if the posted values are lower than the approved posting form and the values need to be corrected.

Bridges built with phased construction that may only have a portion of the bridge open with a limited number of lanes being used shall not be considered as a bridge with Reduced Loading (R) and shall be coded as Open (O) if (R) is not based on capacity issues.

Use code 'S' if shoring, supports, or repairs are in place to keep the bridge open but were not designed to be long-term. If shoring, supports, or repairs were designed specifically for the bridge by a Professional Engineer and the design plans or other documents for the shoring, supports, or repairs are located in the Bridge File, the bridge cannot be considered supported. Engineered saddles or crutch bents are permanent repairs. Repairs installed by maintenance without a specific design for the bridge are considered temporary supported repairs.

Use code 'C' to document the closure of the bridge which is expected to last at least 30 days.

Bridges that do not carry highway traffic, should either be noted as Open (Code "PO") or Closed (Code "C").]

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Load Posting Status (continued)

Format	Frequency	FHWA NBIS Item ID	Item Ownership
AN (2)	I	B.PS.01	All
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Load Posting Status	Edit Bridge Load Posting Status	LoadPostingStatus	N/A

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
C - Closed	Bridge is newly constructed and not yet open to traffic, but is expected to be open within 12 months. With girders from SC 277 bridge over I-77, the bridge posting status must by 'C' and be coded 'C' until the bridge is opened. **Code C.**	10383	
PO - Permanent Open	Permanent bridge in place with no temporary supports. Bridge is open with no restrictions. **Code PO.**	00254	
PP - Permanent Posted	Permanent bridge in place with no temporary supports. Bridge is posted with weight limit signs. **Code PP.**	05299	

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Format	Frequency	FHWA NBIS Item ID	Item Ownership
AN (2)	I	B.PS.01	All
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Load Posting Status	Edit Bridge Load Posting Status	LoadPostingStatus	N/A

Examples

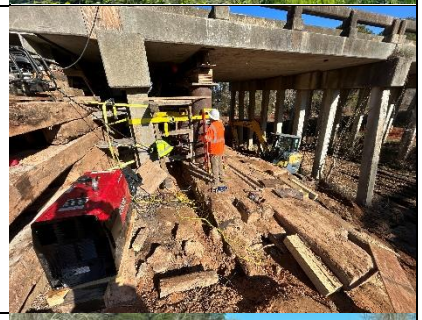
CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
PP - Permanent Posted	Permanent bridge in place with no temporary supports. Bridge is posted with a weight limit signs and has an other load restriction with traffic reduced to one direction in each direction on certain portions of the bridge. When both a weight and other load restriction (R) exist at the bridge, use the code for the weight restriction (code PP, TP, or SP). **Code PP.**	01205	
PO - Permanent Open (5779) PO - Permanent Open (10861) C – Closed (5784)	Asset ID 5779: Permanent bridge in place with no temporary supports. **Code PO.** Asset ID 10861: Permanent bridge that is being built with phased construction. Currently only two lanes are on the bridge but code as open with no reduction in loading even though only two of the six lanes are currently built. **Code PO.** Asset ID 5784: Bridge is closed to all traffic. **Code C.**	5779 10861 5784	
PO - Permanent Open	Bridge in place with permanent supports (saddles). These saddles are engineered and designed specifically for the bridge. Repair plans exist in the Bridge File. Bridge is not posted. **Code PO.**	01643	

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Format	Frequency	FHWA NBIS Item ID	Item Ownership
AN (2)	I	B.PS.01	All
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Load Posting Status	Edit Bridge Load Posting Status	LoadPostingStatus	N/A

Examples

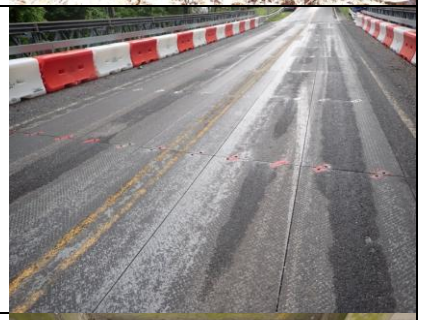
CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
PO - Permanent Open	Bridge in place with permanent supports (crutch bents). These crutch bents are engineered. Repair plans exist in the Bridge File. Bridge is not posted. **Code PO.**	05045	
PO - Permanent Open	Bridge in place with permanent supports (timber dunnage and cribbing with jacks). These supports are engineered. Repair plans exist in the Bridge File. Bridge is not posted. **Code PO.**	05786	
PR - Permanent Restriction	Permanent bridge in place with traffic control devices at the bridge that reduces loading limiting the number of lanes because of poor condition exterior piles. **Code PR.**	01836	

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Format	Frequency	FHWA NBIS Item ID	Item Ownership
AN (2)	I	B.PS.01	All
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Load Posting Status	Edit Bridge Load Posting Status	LoadPostingStatus	N/A

Examples

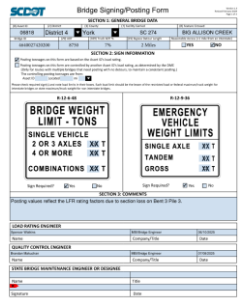
CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
TP - Temporary Posted	Temporary bridge which includes a superstructure composed of railroad flatcars. The superstructure supports were intended to be disassembled and moved to another site. Bridge is posted with a weight limit sign or signs. **Code TP.**	05840	
TP - Temporary Posted	Temporary bridge in place to carry traffic while the permanent bridge is closed and awaiting repair, rehabilitation, or replacement. Bridge is posted with a weight limit sign or signs. **Code TP.**	10961	
SP - Supported Posted	Bridge in place with temporary shoring, supports, repairs, or supplemental members (saddles). There are not engineering plans in the Bridge File for the saddles and stub saddles in place at the reinforced concrete bent caps. Bridge is posted with a weight limit signs. **Code SP.**	03000	

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Format	Frequency	FHWA NBIS Item ID	Item Ownership
AN (2)	I	B.PS.01	All
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Load Posting Status	Edit Bridge Load Posting Status	LoadPostingStatus	N/A

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
SO - Supported Open	Bridge in place with temporary shoring, supports, repairs, or supplemental members (saddles). There are not engineering plans in the Bridge File for the saddles and stub saddles in place at the reinforced concrete bent caps. Bridge is not posted. **Code SO.**	02791	
PM - Permanent Missing	Bridge is supposed to be posted with a weight limit signs but a sign has fallen on the ground. **Code PM.**	00089	
PA – Permanent Needs Action	Bridge is not currently posted but the load rating was submitted, and a posting has been approved. The posting signs need to be installed.	06818	 

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Load Posting Status (continued)

Format	Frequency	FHWA NBIS Item ID	Item Ownership
AN (2)	I	B.PS.01	All
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Load Posting Status	Edit Bridge Load Posting Status	LoadPostingStatus	N/A

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
PA – Permanent Needs Action	Bridge is currently posted but the load rating was submitted, and a posting recission has been signed. The posting signs need to be removed.	02286	
C - Closed	Bridge is closed to all traffic. **Code C.**	03269	

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Format	Frequency	FHWA NBIS Item ID	Item Ownership
AN (2)	I	B.PS.01	All
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Load Posting Status	Edit Bridge Load Posting Status	LoadPostingStatus	N/A

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
G - Proposed	Bridge is not yet built and will not be open in the next 12 months. No superstructure elements over roadway. **Code G.**	10970	

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Posting Status Change Date

Format	Frequency	FHWA NBIS Item ID	Item Ownership
YYYYMMDD	I	B.PS.02	All
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Load Posting Status	Edit Bridge Load Posting Status	LoadPostingStatus	N/A

FHWA Specification *[and SCDOT Markups]*	FHWA Commentary *[and SCDOT Markups]*
Report the date the bridge entered the status reported in Item B.PS.01 (*Load Posting Status*).	For bridges entering posted status, it is preferable that the reported date represent the date on which signs were properly installed at the bridge. The date the load posting became legally enforceable can also be used for this item when the installation date is unknown. When neither the installation nor legal enforcement date are known, the date the posting was first documented to be in place can be used for this item. *[Inspectors and load raters shall use the actual date of the change that aligns with the inspection date, the load rating date, or the date of discovery that the posting status for a bridge needs to be changed. The examples on the previous pages do not include change dates.]*

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Legal Load Configuration

Format	Frequency	Item ID Number	Item Ownership
AN (15)	I	B.EP.01	LR
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Load Posting Status	Results of Load Rating	N/A	N/A

FHWA Specification *[and SCDOT Markups]*

Report the configuration of the AASHTO, FHWA, State transportation department, Federal agency, or Tribal government defined legal load using one of the following codes.

Code	Description
3	AASHTO Type 3
3S2	AASHTO Type 3S2
3-3	AASHTO Type 3-3
SU4	AASHTO SU4 truck
SU5	AASHTO SU5 truck
SU6	AASHTO SU6 truck
SU7	AASHTO SU7 truck
NRL	AASHTO Notional Rating Load
EV2	FHWA Type EV2 emergency vehicle
EV3	FHWA Type EV3 emergency vehicle
S#	State-defined legal load
F#	Federal-defined legal load
T#	Tribal-defined legal load

Replace the # character in the S#, F#, and T# codes with as many as 14 characters that serve as a unique identifier of each legal load configuration. Use consistent codes for all bridges in a State, Federal, or Tribal jurisdiction.

Use codes for AASHTO and FHWA legal load configurations when the configuration is identical to those configurations (identical axles, axle spacings, and axle weights).

FHWA Commentary *[and SCDOT Markups]*

Refer to the AASHTO Manual for Bridge Evaluation for details of AASHTO legal load rating vehicle configurations. *[Link to LRGD Visual of Configurations]*

Some State transportation departments, Federal agencies, and Tribal governments have legal load rating vehicle configurations representing loads that exceed the 23 U.S.C. 127(a)(1) and (2) interstate weight limits or that have force effects more severe than AASHTO legal load rating vehicles. The use of codes S#, F#, and T# allows for reporting the correlated legal load configurations used for load rating evaluation, load rating factors, and postings (when present at a bridge). This is supported by the establishment of a unique code for reporting each State, Federal, or Tribal defined legal load configuration, and the consistent use of that code throughout the inventory.

Only configurations that are used to evaluate the capacity to carry legal loads and their posting requirements are reported.

For information on the load rating and load posting of emergency vehicles, refer to the November 3, 2016 FHWA memorandum at: *https://www.fhwa.dot.gov/bridge/loadrating/161103.cfm*

Do not report State, Federal, or Tribal defined configurations that represent loads which exceed legal loads (e.g. special or routine permit vehicles). *[The special and routine permit vehicles such as the 100K, 120K, and 130K permit trucks, cranes, etc. are not reported. See the next page for SCDOT list of posting vehicles for legal load combinations. See below for an example.]*

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Legal Load Configuration (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (15)	I	B.EP.01	LR
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Load Posting Status	Results of Load Rating	N/A	N/A

Clarification Table for B.EP.01

Truck Type	Axle Configuration	LRGD Vehicle Name	Legal Load Configuration (B.EP.01)
Single Unit	2 Axles	SC-SU2	SC-SU2
		SC Representative School Bus	SC-BUS
	3 Axles	SC-SHV1A (65K)	SC-SHV1A
		SC-SHV1B (70K)	SC-SHV1B
		SC-Type 3 (AASHTO Modified)	SC Type 3
	4 or More Axles	SC-SHV2A (66K)	SC-SHV2A
		SC-SHV2B (80K)	SC-SHV2B
		AASHTO SU4 Truck	SU4
		AASHTO SU5 Truck	SU5
		AASHTO SU6 Truck	SU6
		AASHTO SU7 Truck	SU7
Combination Unit	5 of More Axles	SC-SHV3A (85K)	SC-SHV3A
		SC-SHV3B (90K)	SC-SHV3B
		SC-Type 3S2 (AASHTO Modified)	SC Type 3S2
		AASHTO Type 3-3	3-3
	Lane Type Loading (Neg. M Only)	2- 0.75 AASHTO Type 3-3 + .2 klf lane	S-LANE-N
	Lane Type Loading (Span > 200 ft)	1- 0.75 AASHTO Type 3-3 + .2 klf lane	S-LANE-SPAN20
EV Vehicles	2 Axles	FHWA Type EV2 emergency vehicle	EV2
	3 Axles	FHWA Type EV3 emergency vehicle	EV3

The legal load combinations are considered for the R-12-6-48 (bridge weight limits) sign. The emergency vehicles (EV2 and EV3) are considered for posting the R-12-9-36 (emergency vehicles) sign.

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Legal Load Rating Factor

Format	Frequency	Item ID Number	Item Ownership
N (4,2)	I	B.EP.02	LR
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Load Posting Status	Results of Load Rating	N/A	N/A

FHWA Specification *[and SCDOT Markups]*	FHWA Commentary *[and SCDOT Markups]*
Report the rating factor for the legal load configuration truncated to the hundredth. Report the rating factor for the legal load configuration without consideration of reduced force effects from postings or restrictions that affect traffic operation, e.g. that limit speed, number of lanes, number of trucks, or do not allow commercial vehicles. Do not report this item when a bridge posting includes the legal load configuration, but there is not a calculated legal load rating factor for the configuration. *[Not applicable in South Carolina.]* When temporary or supported conditions exist, as indicated in Item B.PS.01 (*Load Posting Status*), report the rating factor for the bridge including the temporary or supported conditions.	For LRFR method this would be the rating factor of "Legal Load Rating". For Allowable Stress and Load Factor rating methods this would be the operating rating factor. When the legal load configuration does not have a load rating evaluation because it is enveloped by a design load type and corresponding calculated design load rating factor, a value is not reported for the legal load configuration. *[Not applicable in South Carolina.]* Enveloped as used here means that the legal load rating factor or the operating rating factor for the legal load configuration will be greater than or equal to 1.0 when the design load has a legal load rating factor or operating rating factor that exceeds a threshold value established by an engineering study. When the legal load configuration does not have a load rating evaluation because it is enveloped by a screening level legal load model, e.g. AASHTO Notional Rating Load, and corresponding calculated screening load rating factor, a value is not reported for the legal load configuration. A value is reported for the screening load. *[Not applicable in South Carolina.]* Enveloped as used here means that the legal load rating factor or the operating rating factor for the legal load configuration will be greater than or equal to 1.0 when the screening level legal load has a legal load rating factor or operating rating factor that exceeds a threshold value established by an engineering study. *[See below for an example.]*

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Legal Load Configuration and Legal Load Rating Factor

Format	Frequency	Item ID Number	Item Ownership
AN (15) and N (4,2)	I	B.EP.01 and B.EP.02	LR
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Load Posting Status	Results of Load Rating	N/A	N/A

Example for B.EP.01 and B.EP.02

Load Rating Example (Non-Posted Bridge Example)
See Complete LRSF on Bridge File
Asset ID 10738 (Richland) – US 176 over I-20

See the table below for a listing of legal trucks and the rating factor, all trucks except for the Lane Type Loading (Span > 200') truck (left blank).

Legal Truck	Legal Load Configuration (B.EP.01)	Legal Load Rating Factor (B.EP.02)
SC-SU2	SSU2	3.31
SC Representative School Bus	SBUS	3.83
SC-SHV1A	SSHV1A	1.96
SC-SHV1B	SSHV1B	1.84
Modified AASHTO SC - Type 3	S3	2.63
SC-SHV2A	SSHV2A	1.95
SC-SHV2B	SSHV2B	1.63
SU4	SU4	2.40
SU5	SU5	2.13
SU6	SU6	1.90
SU7	SU7	1.72
SC-SHV3A	SSHV3A	1.76
SC-SHV3B	SSHV3B	1.66
Modified AASHTO SC - Type 3S2	S3S2	2.07
AASHTO - Type 3-3	3-3	1.99
Lane Type Loading (Neg. M Only)	SLANENEGM	2.35
Lane Tyle Loading (Span > 200 ft)	SLANESPAN200	-
EV2	EV2	2.30
EV3	EV3	1.52

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Posting Type

Format	Frequency	Item ID Number	Item Ownership
AN (17)	I	B.EP.03	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Load Posting Status	Load Posting Status & Signs	N/A	N/A

FHWA Specification *[and SCDOT Markups]*

Report the type of posting at the bridge restricting the vehicle reported in Item B.EP.01 (Legal Load Configuration) using one or more of the following codes.

Report multiple codes in the order shown separated by pipe (|) delimiters.

Code	Description
G	Gross Load
A	Single Axle Load
D	Tandem Axle Load
T	Truck Load
C	No commercial vehicles
S	Speed reduction
L	Number of lanes restricted
V	Number of vehicles restricted
X	Other

Do not report this item if no posting sign is used for the legal load configuration. *[Do not report Code C, S, L, or V if there is no corresponding weight limit in Item B.EP.04.]*

FHWA Commentary *[and SCDOT Markups]*

This item is reported when a bridge is posted for the legal load configuration. Roadway postings are excluded. *[Items B.EP.03 and B.EP.04 are to reflect the posting at the bridge, not the recommended posting or approved posting, if the recommended/approved posting are different.]*

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Posting Value

Format	Frequency	Item ID Number	Item Ownership
AN (15)	I	B.EP.04	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Load Posting Status	Load Posting Status & Signs	N/A	N/A

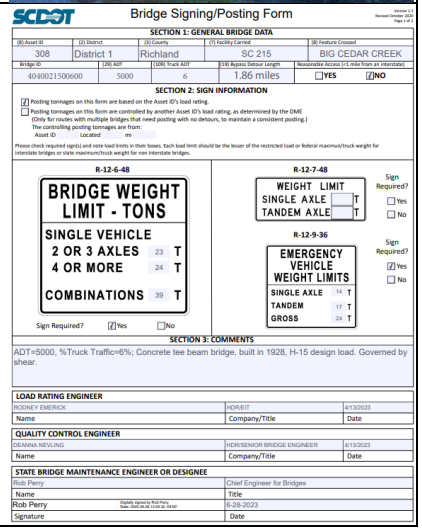
FHWA Specification *[and SCDOT Markups]*	FHWA Commentary *[and SCDOT Markups]*
Report the weight limit value(s) shown on the load posting sign for the vehicle reported in Item B.EP.02 (*Legal Load Rating Factor*) rounded down to the nearest U.S. ton. Report multiple weight limit values in the order shown in Item B.EP.01 (*Posting Type*) separated by pipe (|) delimiters. Do not report this item if no posting sign is used for the legal load configuration. Do not report this item if Item B.EP.03 (*Posting Type*) only has codes C, S, L, or V reported.	This item is reported when a bridge is posted. Roadway postings are excluded. Multiple weight limit values are reported when a posting sign has more than one weight limit that restricts the legal load configuration, e.g. a single axle and tandem axle weight limit *[such as the EV2 and EV3, see example below.]*

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Posting Type and Posting Value

Format	Frequency	Item ID Number	Item Ownership
AN (17) and AN (15)	I	B.EP.03 and B.EP.04	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Load Posting Status	Load Posting Status & Signs	N/A	N/A

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
-	The bridge is restricted because of local preference to limit trucks on certain roadways. Roadway postings are excluded, do not code.	07426	
T - Truck	The bridge has been posted with an R-12-6-48 Bridge Weight Limit sign. All values on the sign are truck posting values. **Code T.** See next page for a full breakdown/example of this bridge.	00308	
For EV2: A - Single Axle Load --- G - Gross Load	The bridge has been posted with an R-12-7-48 Emergency Vehicle Weight Limit sign. The values on the sign are single axle, tandem axle, and gross load. **Code A|G for EV2 and A|D|G for EV3.** See next page for a full breakdown/example of this bridge.		
For EV3: A - Single Axle Load --- D - Tandem Axle Load --- G - Gross Load			

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Posting Type and Posting Value (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (17) and AN (15)	I	B.EP.03 and B.EP.04	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Load Posting Status	Load Posting Status & Signs	N/A	N/A

Example for B.EP.01 and B.EP.02

Load Rating Example (Posted Bridge Example)
See Complete LRSF on Bridge File
Asset ID 308 (Richland) – SC 215 over Big Cedar Creek







Seventeen (17) legal trucks are applicable plus the two emergency vehicles, all trucks except for the Lane Type Loading (Span > 200') truck and Lane Type Loading (Neg. M Only) truck. See the table below.

Legal Truck	Legal Load Configuration (B.EP.01)	Legal Load Rating Factor (B.EP.02)	Posting Type (B.EP.03)	Posting Value (B.EP.04)
SC-SU2	SSU2	1.10	T	23
SC Representative School Bus	SBUS	1.24	T	23
SC-SHV1A	SSHV1A	0.56	T	23
SC-SHV1B	SSHV1B	0.53	T	23
Modified AASHTO SC - Type 3	S3	0.85	T	23
SC-SHV2A	SSHV2A	0.58	T	24
SC-SHV2B	SSHV2B	0.49	T	24
SU4	SU4	0.73	T	24
SU5	SU5	0.70	T	24
SU6	SU6	0.63	T	24
SU7	SU7	0.60	T	24
SC-SHV3A	SSHV3A	0.77	T	39
SC-SHV3B	SSHV3B	0.73	T	39
Modified AASHTO SC - Type 3S2	S3S2	0.91	T	39
AASHTO - Type 3-3	3-3	1.08	T	39
Lane Type Loading (Neg. M Only)	SLANENEG	-	-	-
Lane Type Loading (Span > 200 ft)	SLANESPAN200	-	-	-
EV2	EV2	0.71	A | G	14 | 24
EV3	EV3	0.43	A | D | G	14 | 17 | 24

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NSTM Inspection Required

Format	Frequency	Item ID Number	Item Ownership
AN (1)	I	B.IR.01	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
N/A	N/A	BridgeInspection	NSTMInspectionRequired

FHWA Specification *[and SCDOT Markups]*

Report whether the bridge requires an NSTM inspection using one of the following codes.

Code	Description
N	NSTM inspection not required.
Y	NSTM inspection required.
I	NSTM inspection not required – Internal Redundancy
S	NSTM inspection not required – System Redundancy

Do not report this item for bridges that do not have steel members, as indicated in Items B.SP.04 (*Span Material*) and B.SB.03 (*Substructure Material*).

FHWA Commentary *[and SCDOT Markups]*

The intent of this item is to identify bridges that require NSTM inspection for any part of the bridge, to ensure they are inspected in accordance with the NBIS.

It is the State's option to record a required NSTM inspection for any bridges meeting a state definition more rigorous than the FHWA definition of NSTM inspection. *[SCDOT does not have a more rigorous definition of an NSTM but additional guidance is included on the following page.]*

Use code N when an NSTM inspection is not required and codes I and S do not apply.

Use code I when the bridge owner has demonstrated to FHWA, through the use of nationally recognized methods, that a member without load path redundancy is internally redundant, and it is determined that the bridge does not require an NSTM inspection.

Use code S when the bridge owner has demonstrated to FHWA, through the use of nationally recognized methods, that a bridge without load path redundancy is system redundant, and it is determined that the bridge does not require an NSTM inspection.

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NSTM Inspection Required (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (1)	I	B.IR.01	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
N/A	N/A	BridgeInspection	NSTMInspectionRequired

SCDOT Guidance on NSTMs

[The table below shows a list of the types of bridges in which NSTMs may be found. A Professional Engineer may need to assess the bridge to determine the redundancy and presence of NSTM elements to assist coding Item B.IR.01.

Bridge Type	Component(s) which may be Nonredundant Steel Tension Members
Two-Beam / Two-Girder System	Simple Spans: Each beam or girder may be considered a NSTM as failure of either one could cause the bridge to collapse.
	Continuous Spans: In general, at the midpoint of the span, the bottom of the girder may be considered NSTM, and over the pier, the top of the girder may be considered NSTM.
	Cantilever-Suspended Span: In addition to the bottom of the girder at mid-span and the top of the girder over the pier, the top flange and adjacent portion of the web in the area of the cantilevered support may be considered a NSTM.
	Floor Beams: To define a floor beam as a NSTM, one or more of the following conditions may exist: • Flexible or hinged connection to support girders, • No stringers connected to the floor beams supporting the deck, or • Stringers not continuous over floor beams
Tied Arches	A tied arch transfers the horizontal reactions through a horizontal tie which connects the ends of the arch together. If the arch tie fails, the arch will lose its compression and will collapse. The tie girder which keeps the supports from spreading apart is in tension and may be considered a NSTM.
Truss Systems	Lower Chords: Lower chords of trusses are usually NSTMs. This determination is based on the fact most truss bridges are simple-span and employ only two trusses and thus are considered bridges with NSTMs.
	Truss Members (Tension): All truss members in tension may be regarded as NSTMs.
	Other Elements within Truss Bridges: • Pin-connections: Pin connections on truss bridges may be considered NSTMs. There are currently no pin and hanger supports in the SCDOT inventory. Contact the BMO if one is discovered. • Fatigue-prone details, see Item B.IR.02.
Other NSTM Bridge Details	Steel Bent Caps: The majority of steel bent caps may be considered NSTMs. In general, at the midpoint of the span between supporting columns or piles, the bottom of the bent cap may be considered a NSTM, and over the supporting columns or piles, the top of the bent cap may be considered a NSTM.
	Steel Cross Beams: At mid-span, the lower portion of the I-section or box beam is in tension and may require the overall member to be considered a NSTM. Where steel cap girders and continuous longitudinal beams are framed together, the flanges and webs may require the overall member to be considered a NSTM.
	Secondary Members: The secondary members such as diaphragms and stiffeners are rarely considered NSTMs since they are seldom used in a manner where failure would lead to a structure collapse. However, use caution in evaluating certain truss members which may appear to be secondary when, in fact, their attachment to NSTMs can provide a starting place for the main member failure. As an example, diaphragms used in horizontally curved NSTM units are almost always NSTM units. These elements are almost always classified as primary members due to the forces they are carrying, and they may be considered NSTMs.

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NSTM Inspection Required (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (1)	I	B.IR.01	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
N/A	N/A	BridgeInspection	NSTMInspectionRequired

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
N - NSTM inspection not required.	Steel multi-girder bridge. No NSTMs are present. **Code N**	00799	
Y - NSTM inspection required.	Steel through truss bridge. Steel trusses, steel floor beams, and steel gusset plates are NSTMs. **Code Y**	02295	

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Fatigue Details

Format	Frequency	Item ID Number	Item Ownership
AN (1)	I	B.IR.02	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Structure Details	BridgeInspection	FatigueDetails

FHWA Specification *[and SCDOT Markups]*

Report whether the bridge has AASHTO fatigue category E or E' details using one of the following codes.

Code	Description
N	No E/E' details
Y	E/E' details are present

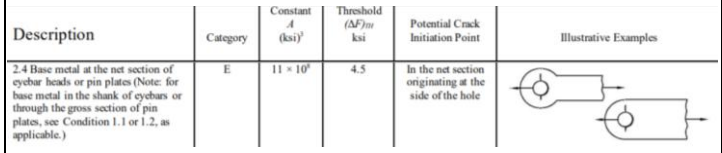
Do not report this item for bridges that do not have steel members*[, as indicated in Items B.SP.04 (Span Material) and B.SB.03 (Substructure Material)]*.

FHWA Commentary *[and SCDOT Markups]*

This item provides data to identify bridges that have details most prone to fatigue.

Refer to the BIRM or AASHTO LRFD Bridge Design Specifications for fatigue categories. *[They are also included on the following pages, after the examples.]*

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
Y - E/E' details are present	See Item 2.4 for the eyebar. The category is listed as E. **Code Y** 	00611	

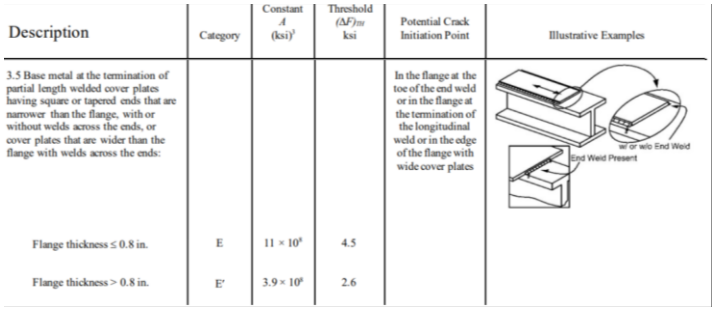
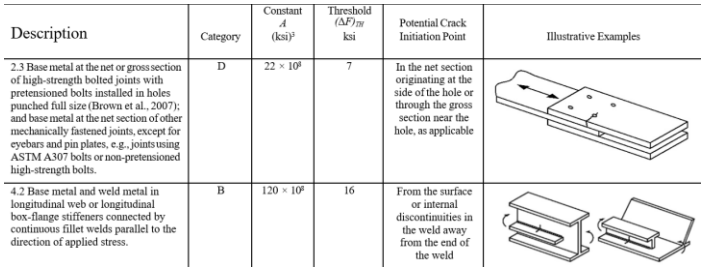
Description	Category	Constant A $(ksi)^3$	Threshold $(\Delta F)_{TH}$ ksi	Potential Crack Initiation Point	Illustrative Examples
2.4 Base metal at the net section of eyebar heads or pin plates (Note: for base metal in the shank of eyebars or through the gross section of pin plates, see Condition 1.1 or 1.2, as applicable.)	E	11×10^8	4.5	In the net section originating at the side of the hole	

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Fatigue Details (continued)

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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Structure Details	BridgeInspection	FatigueDetails

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
Y - E/E′ details are present	See Item 3.5 for the welded cover plate on the bottom flange. The field measured bottom flange thickness is over 0.8 inches. The category is listed as E′. **Code Y** 	00220	
N - No E/E′ details	See Item 2.3 for base metal mechanically fastened with rivets in the built-up girders. The category is listed as D. See Item 4.2 for the longitudinal stiffening plate welded to the web of the stringer. The category is listed as B. **Code N** 	00228	

Description	Category	Constant A (ksi)^3	Threshold $(\Delta F)_{TH}$ ksi	Potential Crack Initiation Point	Illustrative Examples
3.5 Base metal at the termination of partial length welded cover plates having square or tapered ends that are narrower than the flange, with or without welds across the ends, or cover plates that are wider than the flange with welds across the ends:				In the flange at the toe of the end weld or in the flange at the termination of the longitudinal weld or in the edge of the flange with wide cover plates	w/ or w/o End Weld; End Weld Present
Flange thickness ≤ 0.8 in.	E	11×10^8	4.5		
Flange thickness > 0.8 in.	E′	3.9×10^8	2.6		

Description	Category	Constant A (ksi)^3	Threshold $(\Delta F)_{TH}$ ksi	Potential Crack Initiation Point	Illustrative Examples
2.3 Base metal at the net or gross section of high-strength bolted joints with pretensioned bolts installed in holes punched full size (Brown et al., 2007); and base metal at the net section of other mechanically fastened joints, except for eyebars and pin plates, e.g., joints using ASTM A307 bolts or non-pretensioned high-strength bolts.	D	22×10^8	7	In the net section originating at the side of the hole or through the gross section near the hole, as applicable	
4.2 Base metal and weld metal in longitudinal web or longitudinal box-flange stiffeners connected by continuous fillet welds parallel to the direction of applied stress.	B	120×10^8	16	From the surface or internal discontinuities in the weld away from the end of the weld	

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Fatigue Details (continued)

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AN (1)	I	B.IR.02	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Structure Details	BridgeInspection	FatigueDetails

Fatigue Categories from AASHTO LRFD Bridge Design Specifications

General Condition	Detail	Detail Category	Fatigue Design Details (Note 1)
Plain Material	Base metal with rolled, extruded, drawn, or cold finished surfaces; cut or sheared surfaces with ANSI/ASME B46.1 surface roughness ≤ 1,000 μin.	A	1, 2
Built-up Members	Base metal and weld metal in members without attachments and built up of plates or shapes connected by continuous full- or partial-penetration groove welds or continuous fillet welds parallel to the direction of applied stress.	B	3, 4, 5
	Flexural stress in base metal at the toe of welds on girder webs or flanges adjacent to welded transverse stiffeners.	C	6, 21
	Base metal at the end of partial-length welded cover plates with square or tapered ends, with or without welds across the ends.	E	5
Mechanically Fastened Connections	Base metal at the gross section of slip-critical connections and at the net section of bearing connections, where the joint configuration does not result in out-of-plane bending in the connected material and the stress ratio (the ratio of minimum stress to maximum stress), R_S, is (Note 2):		
	$R_S \leq 0$	B	7
	$0 < R_S < 0.5$	D	7
	$R_S \geq 0.5$	E	7
Mechanically Fastened Connections (cont'd)	Base metal at the gross section of slip-critical connections and at the net section of bearing connections, where the joint configuration results in out-of-plane bending in connected material.	E	8

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Inspection Data	Structure Details	BridgeInspection	FatigueDetails

Fatigue Categories from AASHTO LRFD Bridge Design Specifications

General Condition	Detail	Detail Category	Fatigue Design Details (Note 1)
Fillet Welds	Base metal at intermittent fillet welds	E	
	Base metal at the junction of axially loaded members with fillet-welded end connections. Welds shall be disposed about the axis of the members so as to balance weld stresses.	E	15, 17
	Shear stress in weld metal of continuous or intermittent longitudinal or transverse fillet welds.	F	5, 15, 18
Groove Welds	Base metal and weld metal at full-penetration groove welded splices of parts of similar cross-section ground flush, with grinding in the direction of applied stress and with weld soundness established by radiographic or ultrasonic inspection.	B	9, 10
	Base metal and weld metal at full-penetration groove welded splices at transitions in width or thickness, with welds ground to slopes ≤ 1: 2.5, with grinding in the direction of applied stress, and with weld soundness established by radiographic or ultrasonic inspection.	B	11, 12
	Base metal and weld metal at full-penetration groove welded splices with or without transitions with slopes ≤ 1:2.5, when reinforcement is not removed or weld soundness is not established by radiographic or ultrasonic inspection; or both.	C	9, 10, 11, 12
	Base metal and weld metal at full-penetration groove welds with permanent backing.	E	22

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Fatigue Categories from AASHTO LRFD Bridge Design Specifications

General Condition	Detail	Detail Category	Fatigue Design Details (Note 1)
Attachments	Base metal detail of any length attached by groove welds subject to transverse or longitudinal loading, or both; with a transition radius $R \geq 2$ in., and with the weld termination ground smooth:		
	$R \geq 24$ in.	B	13
	24 in. $> R \geq 6$ in.	C	13
	6 in. $> R \geq 2$ in.	D	13
	Base metal at a detail attached by groove welds or fillet welds with a detail dimension parallel to the direction of stress $a < 2$ in.	C	19
Attachments (cont'd)	Base metal at a detail attached by groove welds or fillet welds with a detail dimension parallel to the direction of stress $a < 2$ in.	C	19
	Base metal at a detail attached by groove welds or fillet welds subject to longitudinal loading, with a transition radius, if any, < 2 in.:		
	2 in. $\leq a \leq 12b$ or 4 in.	D	14
	Base metal at a detail attached by groove welds or fillet welds with a detail dimension parallel to the direction of stress $a < 2$ in.:	C	19
	2 in. $\leq a \leq 12b$ or 4 in.	D	14
	$a > 12b$ or 4 in.	E	14, 19, 20
	Base metal at a detail of any length attached by fillet welds or partial-penetration groove welds in the direction parallel to the stress, with a transition radius $R \geq 2$ in., and the weld termination is ground smooth:		
	$R \geq 24$ in.	B	16
	24 in. $> R \geq 6$ in.	C	16
	6 in. $> R \geq 2$ in.	D	16

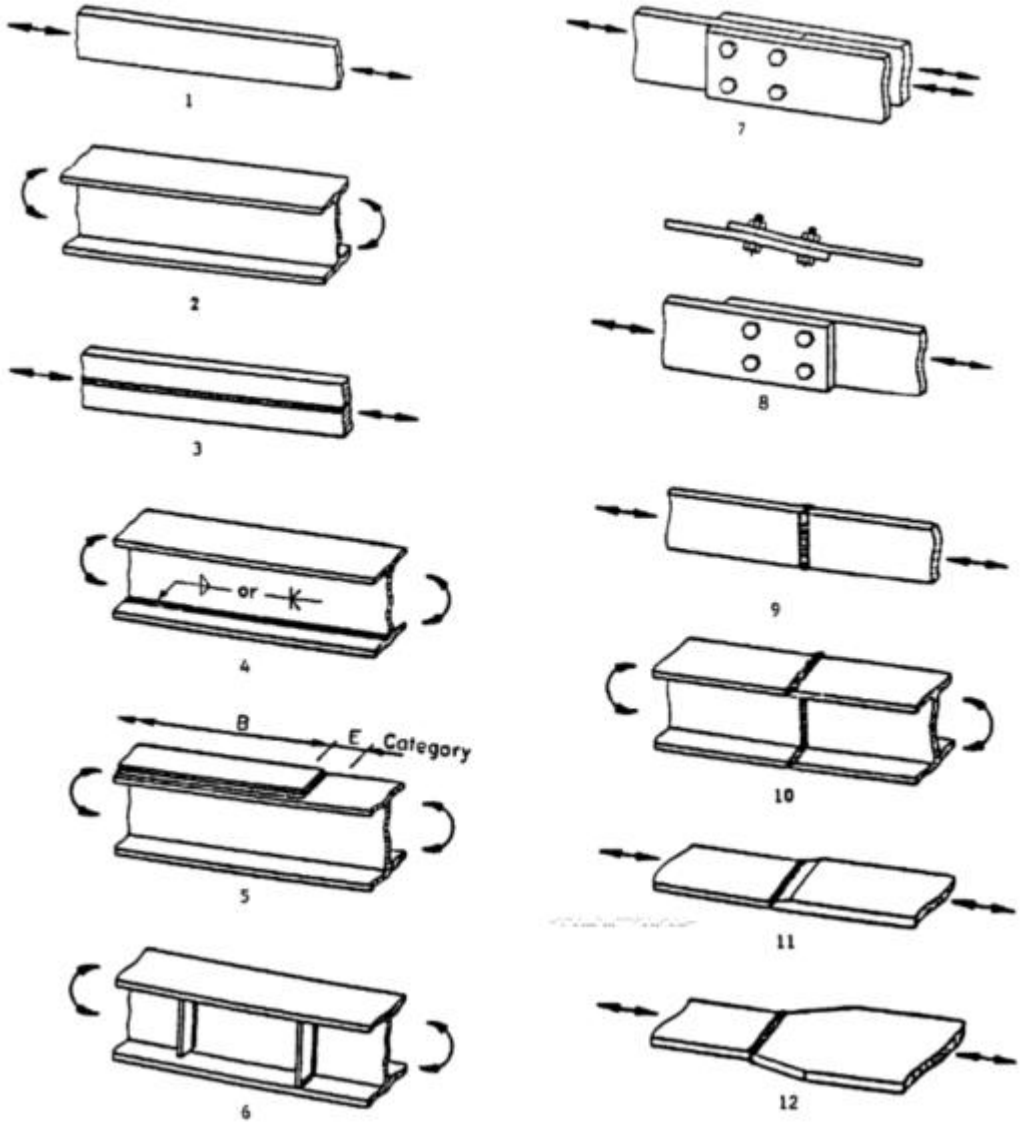
Notes:
1. See Figure 7.6.2.3-1. These examples are provided as guidelines and are not intended to exclude other similar details.
2. Tensile stresses are considered to be positive and compressive stresses are considered to be negative.

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Fatigue Categories from AASHTO LRFD Bridge Design Specifications



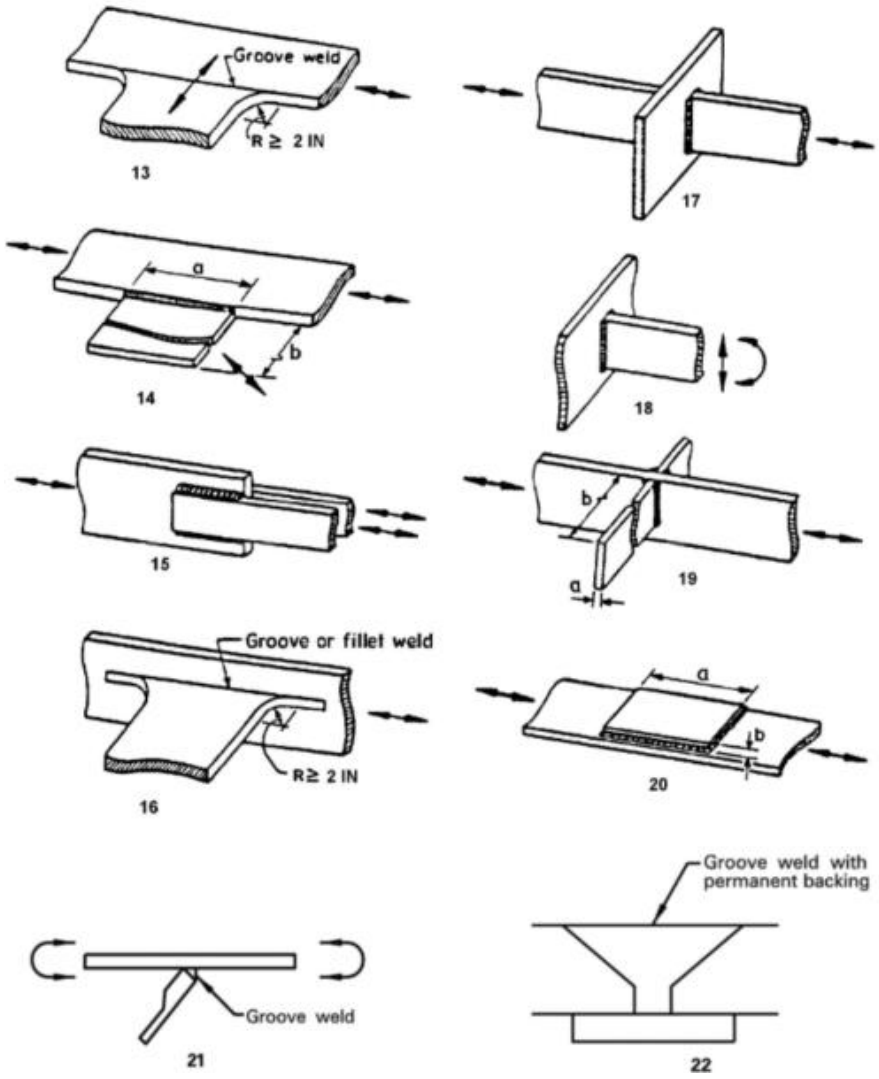
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Additional Guidance for B.IR.02

[Detail Categories E and E′ – The description of Detail Categories E and E′ are grouped together as they generally apply to the same types of details. The Detail Categories E and E′ details include weld and cover plate terminations, longitudinal stiffener terminations, lateral bracing connection plates, and miscellaneous welded attachments. Each one of these details is similar in that they are oriented parallel to the direction of primary stress in the member and are long enough and thick enough to draw stress out of the primary member with high stress concentrations at the ends of the section where the welds terminate.

Detail Categories E and E′ details also terminate abruptly, as compared to the Detail Category D details which have more gradual terminations and transitions and somewhat enhanced fatigue performance. It is this combination of high stress at the abrupt termination and the fact that the elements desire to draw load away from the primary member (due to its length and thickness) that gives rise to high local stresses and the potential for fatigue cracking as stresses rapidly reenter primary members.

In examining the AASHTO detail categories, notice that as elements grow longer, parallel to the direction of primary stress in the member, and as attachments grow thicker in dimension, the fatigue resistance diminishes. This observation is consistent with longer and thicker elements causing more severe stress concentrations in the base metal of the primary member as more stress is able to flow into these elements.

AASHTO LRFD Bridge Design Specification Table 6.6.1.2.3-1 listed nine (9) different descriptions which are Categories E or E′. It is recommended for the inspector to take pictures of details during the inspection and confirm with the plans later to take a closer look and check if the details present on the bridge are in Categories E or E′. Along with these details, inspector should also check for any rehabilitation work done on the bridge and note for any repair plates on the web and flanges.

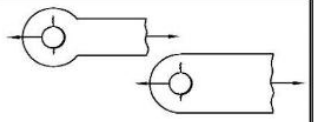
Coding of B.IR.02 will be "Y" for when these details are present or "N" for when they are not. These details can only be present on steel superstructure bridges. As an additional resource, if a steel bridge superstructure or substructure is not redundant and is already receiving an NSTM inspection, the presence of these details will be documented in the NSTM report. There is no differentiation between the details for this coding. If either are present, then the appropriate coding is "Y".]

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Additional Guidance for B.IR.02 (Eyebars)

Description	Category	Constant A $(ksi)^3$	Threshold $(\Delta F)_{TH}$ ksi	Potential Crack Initiation Point	Illustrative Examples
Section 2—Connected Material in Mechanically Fastened Joints					
2.4 Base metal at the net section of eyebar heads or pin plates (Note: for base metal in the shank of eyebars or through the gross section of pin plates, see Condition 1.1 or 1.2, as applicable.)	E	11×10^8	4.5	In the net section originating at the side of the hole	



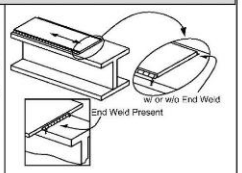
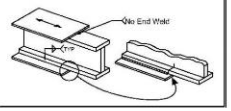
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Additional Guidance for B.IR.02 (Welded Cover Plates)

Description	Category	Constant A $(ksi)^3$	Threshold $(\Delta F)_{TH}$ ksi	Potential Crack Initiation Point	Illustrative Examples
Section 3 Welded Joints Joining Components of Built-up Members					
3.5 Base metal at the termination of partial length welded cover plates having square or tapered ends that are narrower than the flange, with or without welds across the ends, or cover plates that are wider than the flange with welds across the ends:				In the flange at the toe of the end weld or in the flange at the termination of the longitudinal weld or in the edge of the flange with wide cover plates	
Flange thickness ≤ 0.8 in.	E	11×10^8	4.5		
Flange thickness > 0.8 in.	E′	3.9×10^8	2.6		
3.7 Base metal at the termination of partial length welded cover plates that are wider than the flange and without welds across the ends.	E′	3.9×10^8	2.6	In the edge of the flange at the end of the cover plate weld	



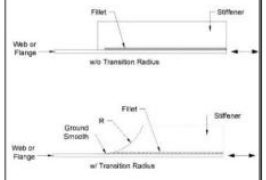
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Additional Guidance for B.IR.02 (Longitudinal Web Stiffeners)

Description	Category	Constant A $(ksi)^3$	Threshold $(\Delta F)_{TH}$ ksi	Potential Crack Initiation Point	Illustrative Examples
Section 4—Welded Stiffener Connections (continued)					
4.3 Base metal at the termination of longitudinal stiffener-to-web or longitudinal stiffener-to-box flange welds:					
With the stiffener attached by welds and with no transition radius provided at the termination:				In the primary member at the end of the weld at the weld toe	
Stiffener thickness < 1.0 in.	E	11×10^8	4.5		
Stiffener thickness ≥ 1.0 in.	E′	3.9×10^8	2.6		
With the stiffener attached by welds and with a transition radius R provided at the termination with the weld termination ground smooth:					
$R \geq 24$ in.	B	120×10^8	16	In the primary member near the point of tangency of the radius	
24 in. $> R \geq 6$ in.	C	44×10^8	10		
6 in. $> R \geq 2$ in.	D	22×10^8	7		
2 in. $> R$	E	11×10^8	4.5		



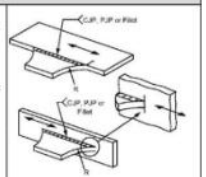
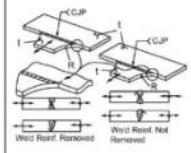
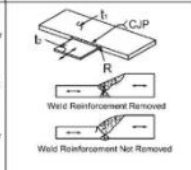
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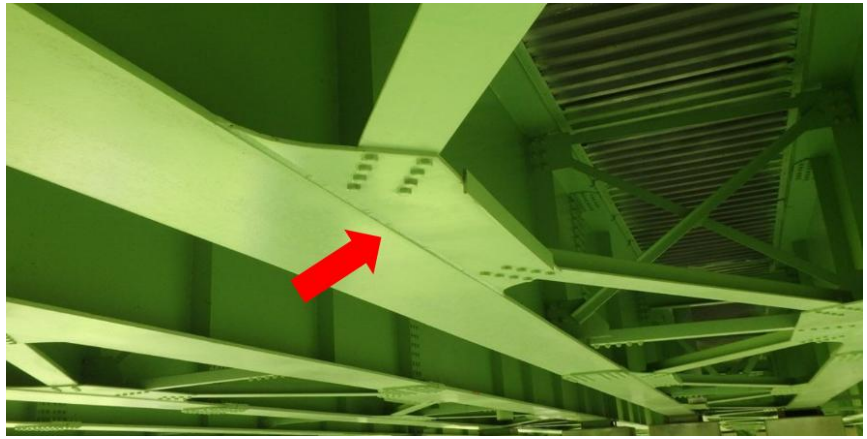
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Additional Guidance for B.IR.02 (Lateral Connection Plates (Transversely Loaded))

Description	Category	Constant A $(ksi)^3$	Threshold $(\Delta F)_{TH}$ ksi	Potential Crack Initiation Point	Illustrative Examples
Section 6—Transversely Loaded Welded Attachments					
6.1 Base metal in a longitudinally loaded component at a transversely loaded detail (e.g., a lateral connection plate) attached by a weld parallel to the direction of primary stress and incorporating a transition radius R: With the weld termination ground smooth:				Near point of tangency of the radius at the edge of the longitudinally loaded component or at the toe of the weld at the weld termination if not ground smooth	
$R \geq 24$ in.	B	120×10^8	16		
24 in. $> R \geq 6$ in.	C	44×10^8	10		
6 in. $> R \geq 2$ in.	D	22×10^8	7		
2 in. $> R$	E	11×10^8	4.5		
For any transition radius with the weld termination not ground smooth.	E	11×10^8	4.5		
(Note: Condition 6.2, 6.3 or 6.4, as applicable, shall also be checked.)					
6.2 Base metal in a transversely loaded detail (e.g., a lateral connection plate) attached to a longitudinally loaded component of equal thickness by a complete joint penetration groove weld parallel to the direction of primary stress and incorporating a transition radius R, with weld soundness established by NDT and with the weld termination ground smooth: With the weld reinforcement removed:					
$R \geq 24$ in.	B	120×10^8	16	Near points of tangency of the radius or in the weld or at the fusion boundary of the longitudinally loaded component or the transversely loaded attachment At the toe of the weld either along the edge of the longitudinally loaded component or the transversely loaded attachment	
24 in. $> R \geq 6$ in.	C	44×10^8	10		
6 in. $> R \geq 2$ in.	D	22×10^8	7		
2 in. $> R$	E	11×10^8	4.5		
With the weld reinforcement not removed:					
$R \geq 24$ in.	C	44×10^8	10		
24 in. $> R \geq 6$ in.	C	44×10^8	10		
6 in. $> R \geq 2$ in.	D	22×10^8	7		
2 in. $> R$	E	11×10^8	4.5		
(Note: Condition 6.1 shall also be checked.)					
6.3 Base metal in a transversely loaded detail (e.g., a lateral connection plate) attached to a longitudinally loaded component of unequal thickness by a complete joint penetration groove weld parallel to the direction of primary stress and incorporating a weld transition radius R, with weld soundness established by NDT and with the weld termination ground smooth: With the weld reinforcement removed:				At the toe of the weld along the edge of the thinner plate In the weld termination of small radius weld transitions At the toe of the weld along the edge of the thinner plate	
$R \geq 2$ in.	D	22×10^8	7		
$R < 2$ in.	E	11×10^8	4.5		
For any weld transition radius with the weld reinforcement not removed.	E	11×10^8	4.5		
(Note: Condition 6.1 shall also be checked.)					



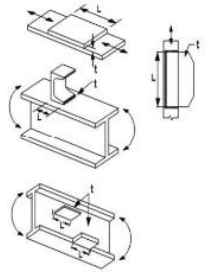
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Additional Guidance for B.IR.02 (Longitudinally Loaded Welded Attachments)

Description	Category	Constant A $(ksi)^3$	Threshold $(\Delta F)_{TH}$ ksi	Potential Crack Initiation Point	Illustrative Examples
Section 7—Longitudinally Loaded Welded Attachments					
7.1 Base metal in a longitudinally loaded component at a detail with a length L in the direction of the primary stress and a thickness t attached by groove or fillet welds parallel or transverse to the direction of primary stress where the detail incorporates no transition radius:				In the primary member at the end of the weld at the weld toe	
$L < 2$ in.	C	44×10^8	10		
2 in. $\le L \le 12t$ or 4 in.	D	22×10^8	7		
$L > 12t$ or 4 in.					
$t < 1.0$ in.	E	11×10^8	4.5		
$t \ge 1.0$ in.	E′	3.9×10^8	2.6		
(Note: see Condition 7.2 for welded angle or T-section member connections to gusset or connection plates.)					



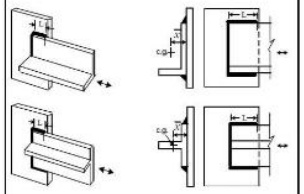
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Additional Guidance for B.IR.02 (Members Connected to a Gusset or Connection Plate)

Description	Category	Constant A $(ksi)^3$	Threshold $(\Delta F)_{TH}$ ksi	Potential Crack Initiation Point	Illustrative Examples
Section 7—Longitudinally Loaded Welded Attachments					
7.2 Base metal in angle or T-section members connected to a gusset or connection plate by longitudinal fillet welds along both sides of the connected element of the member cross section, and with or without backside welds. The fatigue stress range shall be calculated on the effective net area of the member, $A_e = UA_g$, in which $U = (1 - \bar{X}/L)$ and where A_g is the gross area of the member. $\bar{X}$ is the distance from the centroid of the member to the surface of the gusset or connection plate and L is the maximum length of the longitudinal welds. The effect of the moment due to the eccentricities in the connection shall be ignored in computing the stress range (McDonald and Frank, 2009).	E′	3.9×10^8	2.6	Toe of fillet welds in connected element	







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Underwater Inspection Required

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N/A	N/A	BridgeInspection	UnderwaterIsRequired

FHWA Specification *[and SCDOT Markups]*

Report whether an underwater inspection is required under normal flow conditions using one of the following codes.

Code	Description
N	Underwater inspection not required
Y	Underwater inspection required

Do not report this item for bridges that do not pass over water as indicated in Item B.F.01 (*Feature Type*).

FHWA Commentary *[and SCDOT Markups]*

The intent of this item is to identify bridges that require an underwater inspection per the NBIS.

Use code 'Y' when during a typical routine inspection, any portion of a bridge substructure and the surrounding channel cannot be inspected to the mudline at low water by wading or probing, generally requiring diving or other appropriate technique. *[This is generally when the water depth at a substructure unit is over 4' deep or if portions of the bridge (superstructure or culvert) are not accessible due to low freeboard.]*

Use code 'N' when during a typical routine inspection, all portions of a bridge substructure and the surrounding channel can be inspected to the mudline at low water by wading or probing.

If this item was previously reported as 'Y' because an underwater inspection is generally required, it should continue to be reported as 'Y' even for instances of unusually low flow where all portions of the substructure can be inspected by wading and probing, and an underwater inspection is not required. This applies only if the low flow condition is truly unusual and is not likely to reoccur during the next inspection interval.

The reported code for this item may change in the rare circumstance where long-term environmental conditions change for inspection access to underwater portions of the substructure.

[Code 'Y' when an underwater inspection is scheduled for the bridge, even if the underwater inspection has not yet occurred.]

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Section 5: Loads, Rating, and Posting
Section 6: Inspections
Subsection 6.1 Requirements
B.IR.01 NSTM Inspection Required
B.IR.02 Fatigue Details
B.IR.03 UW Inspection Required
B.IR.04 Complex Feature
Subsection 6.2 Inspection Events
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Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Underwater Inspection Required (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (1)	I	B.IR.03	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
N/A	N/A	BridgeInspection	UnderwaterIsRequired

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
N - Underwater inspection not required	The substructure and channel may be inspected above the mudline without an underwater inspection. The maximum water depth at the bent is 0', there is no water at the bent. **Code N**	07811	
N - Underwater inspection not required	The maximum at-bent water depth at time of inspection was 4.1'. However, due to minimal substructure units submerged greater than 4', an underwater inspection was deemed not required by the inspectors. **Code N**	02071	
Y - Underwater inspection required	The substructure cannot be inspected to the mudline by wading or probing. The maximum water depth at the bent is 10'. **Code Y**	00211	

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B.IR.01 NSTM Inspection Required
B.IR.02 Fatigue Details
B.IR.03 UW Inspection Required
B.IR.04 Complex Feature
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Underwater Inspection Required (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (1)	I	B.IR.03	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
N/A	N/A	BridgeInspection	UnderwaterIsRequired

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
Y - Underwater inspection required	Due to low freeboard (less than 2'), the routine inspection and underwater inspection are performed together. An underwater inspection is required for this bridge. The maximum water depth at the bent is 8.3'. **Code Y**	00698	
N/A	The bridge does not pass over water. Do not code.	07827	

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B.IR.01 NSTM Inspection Required
B.IR.02 Fatigue Details
B.IR.03 UW Inspection Required
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Complex Feature

Format	Frequency	Item ID Number	Item Ownership
AN (1)	I	B.IR.04	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Structure Details	BridgeInspection	ComplexFeatures

FHWA Specification *[and SCDOT Markups]*	FHWA Commentary *[and SCDOT Markups]*
Report whether the bridge has a complex feature by using one of the following codes. **Code** – **Description** N – Bridge does not have complex feature Y – Bridge has complex feature	The intent of this item is to identify bridges with complex features as defined by the NBIS. Bridges with complex features are typically identified in agency policies and procedures. *[SCDOT has identified the following structure types as complex, as defined by FHWA: Suspension, Stayed Girder, Movable – Lift, Movable – Bascule, Movable – Swing, and Segmental Box.]*

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
Y - Bridge has complex feature	Bridge is a Movable – Swing, therefore meets policy for a bridge with a complex feature. **Code Y**	03186	
Y - Bridge has complex feature	Bridge is a Segmental Box, therefore meets policy for a bridge with a complex feature. **Code Y**	08235	

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Section 4: Features
Section 5: Loads, Rating, and Posting
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B.IE.01 Inspection Type
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B.IE.02 Inspection Begin Date
B.IE.03 Inspection Completion Date
B.IE.04 Nationally Certified Inspector
B.IE.05 Inspection Interval
B.IE.06 Inspection Due Date
B.IE.07 Risk-Based Interval Method
B.IE.08 Quality Control Date
B.IE.09 Quality Assurance Date
B.IE.10 Inspection Data Update Date
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B.IE.12 Inspection Equipment
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Inspection Type

Format	Frequency	Item ID Number	Item Ownership
AN (1)	EI	B.IE.01	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Submit	Schedule Table	InspectionSchedule	InspectionTypeID

FHWA Specification *[and SCDOT Markups]*

Report the inspection type or scour monitoring performed using one of the following codes.

Code	Description
1	Initial
2	Routine
3	Underwater
4	NSTM
5	Damage
6	In-Depth
7	Special
8	Service
9	Scour Monitoring

[SCDOT has other inspection types, some of those inspections roll up to FHWA reportable inspections and some are not reported to FHWA, see the list in the BIGD.]

FHWA Commentary *[and SCDOT Markups]*

[Use code 1 for initial inspections, a bridge may have multiple initial inspections, especially if a bridge is being built with phased construction. Use code 1 to perform an initial inspection to update data assigned for initial inspections only.]

Use code 2 when all portions of a bridge substructure and the surrounding channel have been inspected to the mudline at low water visually, or by wading or probing during routine inspections.

Use code 3 when all portions of a bridge substructure reported Y for Item B.IR.03 (Underwater Inspection Required) is inspected by wading and probing in an instance of unusually low flow. If this is performed during a routine inspection, record both a routine and underwater inspection.

Use code 9 when scour monitoring is performed as required by a Scour POA for a triggering storm event. This can include periodic remote electronic readings of streambed changes when required in the POA. If multiple site visits occur for a triggering storm event, record this item once for that storm event.

Use code 8 when a service inspection is performed for a bridge with a risk-based routine inspection interval that exceeds 48 months.

[Multiple data values can be used for this item, each establishing a set of values for B.IE fields as a group for each inspection entered. A combination example is provided following the grouped inspection event items.]

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Section 3: Bridge Geometry
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B.IE.02 Inspection Begin Date
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B.IE.03 Inspection Completion Date
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B.IE.04 Nationally Certified Inspector
B.IE.05 Inspection Interval
B.IE.06 Inspection Due Date
B.IE.07 Risk-Based Interval Method
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Appendix S5: Scour Condition Coding
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Inspection Begin Date

Format	Frequency	Item ID Number	Item Ownership
AN (1)	EI	B.IE.02	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Submit	Report Summary	EventLibrary	EventDate

FHWA Specification *[and SCDOT Markups]*	FHWA Commentary *[and SCDOT Markups]*
Report the date for the inspection type performed. For multiple day inspections, record the first day that field inspection begins.	The intent of this item is to report the inspection dates for the inspection types in Item B.IE.01 (*Inspection Type*), since the previous data submittal to FHWA. If multiple site visits occur for scour monitoring inspections, for a triggering storm event, report the first site visit date for that storm event. *[Different data values can be used for each inspection type establishing a set of values for B.IE fields as a group. A combination example is provided following the grouped inspection event items.]*

Inspection Completion Date

Format	Frequency	Item ID Number	Item Ownership
AN (1)	EI	B.IE.03	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Submit	Report Summary	BridgeInspection	DateCompleted

FHWA Specification *[and SCDOT Markups]*	FHWA Commentary *[and SCDOT Markups]*
Report the completion date for the inspection type performed. For single day inspections, report the same date that field inspection begins.	The intent of this item is to report the field inspection completion dates for all inspections *[, the date must be within 30 days of the inspection begin date. A revisit after 30 days is considered another inspection. Different data values can be used for each inspection type establishing a set of values for B.IE fields as a group. A combination example is provided following the grouped inspection event items.]* If multiple site visits occur for scour monitoring inspections, for a triggering storm event, report the last site visit date for that storm event.

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Subsection 6.1 Requirements
Subsection 6.2 Inspection Events
B.IE.01 Inspection Type
B.IE.02 Inspection Begin Date
B.IE.03 Inspection Completion Date
B.IE.04 Nationally Certified Inspector
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B.IE.05 Inspection Interval
B.IE.06 Inspection Due Date
B.IE.07 Risk-Based Interval Method
B.IE.08 Quality Control Date
B.IE.09 Quality Assurance Date
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Nationally Certified Bridge Inspector

Format	Frequency	Item ID Number	Item Ownership
AN (1)	EI	B.IE.04	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Submit	Schedule Table	UserInspectorID	NationallyCertifiedBridgeInspectorID

FHWA Specification *[and SCDOT Markups]*	FHWA Commentary *[and SCDOT Markups]*
Report the unique code identifying the Nationally Certified Bridge Inspector (team leader) responsible for the inspection type performed.	The intent of this item is to indicate the Nationally Certified Bridge Inspector (team leader) present at the inspection, for each inspection type required by the NBIS. The unique identifier code is assigned by the State DOT, Federal agency, or Tribal government. Agencies may choose not to report this item for inspection types defined in the NBIS that do not require a Nationally Certified Bridge Inspector (team leader), even if one is present during the inspection. *[The identifying code for the National Certified Bridge Inspector is set when a user's account is created. An assigned code for the National Certified Bridge Inspector by itself does not indicate whether a person is certified.]*

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Subsection 6.2 Inspection Events
B.IE.01 Inspection Type
B.IE.02 Inspection Begin Date
B.IE.03 Inspection Completion Date
B.IE.04 Nationally Certified Inspector
B.IE.05 Inspection Interval
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B.IE.06 Inspection Due Date
B.IE.07 Risk-Based Interval Method
B.IE.08 Quality Control Date
B.IE.09 Quality Assurance Date
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B.IE.11 Inspection Date
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Inspection Interval

Format	Frequency	Item ID Number	Item Ownership
AN (1)	EI	B.IE.05	BI / BrM
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Submit	Schedule Table	InspectionSchedule	IntervalMonths

FHWA Specification *[and SCDOT Markups]*	FHWA Commentary *[and SCDOT Markups]*
Report the planned interval in number of months between the current and next scheduled inspection for the type associated with Items B.IE.01 (*Inspection Type*) and B.IE.03 (*Inspection Completion Date*) items. Report 0 for damage inspections, scour monitoring inspections, or when a special inspection does not have a defined inspection interval.	The intent of this item is to report the planned interval at which the bridge is to be inspected per the NBIS and agency policies and procedures. This interval should be evaluated after each inspection, and adjusted as necessary. *[The interval is to be based on condition and the BITL's assessment of the number of months between inspections. The interval shall not be changed to reflect when the "next visit" should be. Different data values can be used for each inspection type establishing a set of values for B.IE fields as a group for each inspection entered. A combination example is provided following the grouped inspection event items.]*

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Subsection 6.1 Requirements
Subsection 6.2 Inspection Events
B.IE.01 Inspection Type
B.IE.02 Inspection Begin Date
B.IE.03 Inspection Completion Date
B.IE.04 Nationally Certified Inspector
B.IE.05 Inspection Interval
B.IE.06 Inspection Due Date
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B.IE.07 Risk-Based Interval Method
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Inspection Due Date

Format	Frequency	Item ID Number	Item Ownership
AN (1)	EI	B.IE.06	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Submit	Schedule Table	InspectionSchedule	NextInspectionDate

FHWA Specification *[and SCDOT Markups]*	FHWA Commentary *[and SCDOT Markups]*
Do not report this item as it is calculated by the FHWA. The default calculation is the value reported in Item B.IE.03 (*Inspection Completion Date*) plus the value reported in Item B.IE.05 (*Inspection Interval*). *[When a UW Inspection is recommended at a 60M interval, the inspectors shall enter in a date 4 years from the last inspection date.]*	The intent of this item is to provide the inspection due date for the inspection types defined in B.IE.01 *(Inspection Type)* where applicable. This item is only calculated for inspection types which have an inspection interval. *[Value is automatically calculated by FHWA. Different data values can be used for each inspection type establishing a set of values for B.IE fields. This date is independent from the date the inspector plans to return; if the bridge has an initial inspection in May and the team wants to inspect it normally in February, this is not the next planned date but the date when the next inspection is due. A combination example is provided following the grouped inspection event items.]*

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B.IE.02 Inspection Begin Date
B.IE.03 Inspection Completion Date
B.IE.04 Nationally Certified Inspector
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B.IE.08 Quality Control Date
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Risk-Based Inspection Interval Method

Format	Frequency	Item ID Number	Item Ownership
AN (1)	EI	B.IE.07	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Submit	Schedule Table	InspectionSchedule	IntervalMethod

FHWA Specification *[and SCDOT Markups]*

Report the risk-based inspection interval method using one of the following codes.

Code	Description
N	Not applicable
1	Method 1
2	Method 2

FHWA Commentary *[and SCDOT Markups]*

The intent of this item is to report the risk-based inspection interval method, described in the NBIS, for determining the inspection interval.

Method 1, as described in the NBIS, is when inspection intervals are determined by a simplified assessment of risk to classify each bridge into one of three risk levels with an inspection interval not to exceed 12, 24, 48, or *72* months. *[SCDOT uses Method 1 (Code '1') when Item B.IE.01 is 2 [Routine], 3 [Underwater], or 4 [NSTM] unless an alternative coding has been approved by the BMO.*

Method 2, as described in the NBIS, is when inspection intervals are determined by a more rigorous assessment of risk to classify each bridge, or a group of bridges, into one of four risk levels with an inspection interval not to exceed 12, 24, 48, or 72 months. *[Method 2 is currently not used by SCDOT.]*

Use code N when Item B.IE.01 (*Inspection Type*) is 1 *[Initial]*, 5 *[Damage]*, 6 *[In-Depth]*, 7 *[Special]*, 8 *[Service]*, or 9 *[Scour Monitoring]*.

[See FHWA Memorandum – Inspection Interval Guidance: Memorandum - National Bridge Inspection Standards Inspection Interval Guidance *]*

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Subsection 6.2 Inspection Events
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B.IE.02 Inspection Begin Date
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Inspection Quality Control Date

Format	Frequency	Item ID Number	Item Ownership
AN (1)	EI	B.IE.08	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
N/A	N/A	BridgeInspection	QCDate

FHWA Specification *[and SCDOT Markups]*	FHWA Commentary *[and SCDOT Markups]*
Report the date that the QC review was completed. Do not report when a QC review was not performed.	The intent of this item is to identify inspections that have had independent QC reviews to maintain inspection quality at or above a specified level. Agency QC procedures often vary, and every inspection might not receive an independent QC review. Bridge inspections might be selected for QC reviews based on representative bridge types or other agency defined methods. *[SCDOT's QC procedures are included in the BIGD. This BIGD includes the required timeline for completing a QC review.]* *[Different data values can be used for each inspection type establishing a set of values for B.IE fields as a group for each inspection entered. A combination example is provided following the grouped inspection event items.* *Field Reviews and Independent Inspections shall not be reported as B.IE.08 if they are performed on the subject inspection. See Item SC.IE.XX and Item SC.IE.XX.]*

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B.IE.02 Inspection Begin Date
B.IE.03 Inspection Completion Date
B.IE.04 Nationally Certified Inspector
B.IE.05 Inspection Interval
B.IE.06 Inspection Due Date
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Inspection Quality Assurance Date

Format	Frequency	Item ID Number	Item Ownership
AN (1)	EI	B.IE.09	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
N/A	N/A	BridgeInspection	QCDate

FHWA Specification *[and SCDOT Markups]*	FHWA Commentary *[and SCDOT Markups]*
Report the date that the QA review was completed. Do not report when a QA review was not performed.	The intent of this item is to identify inspections that have had independent QA reviews to measure or verify the overall quality of the inspection program. Agency QA procedures often vary in the definition of a review period and number of inspections reviewed. Bridge inspections might be randomly selected for agency QA reviews or selected based on representative bridge type, region, district, or other agency defined bridge populations. *[SCDOT's QA procedures are included in the BIGD. This BIGD includes the required timeline for completing a QA review.]* *[Different data values can be used for each inspection type establishing a set of values for B.IE fields as a group for each inspection entered. A combination example is provided following the grouped inspection event items.]*

Inspection Data Update Date

Format	Frequency	Item ID Number	Item Ownership
AN (1)	EI	B.IE.10	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
N/A	N/A	BridgeInspection	DataUpdateDate

FHWA Specification *[and SCDOT Markups]*	FHWA Commentary *[and SCDOT Markups]*
Report the date that the NBI inspection data were entered or updated in the State transportation department, Federal agency, or Tribal government inventory.	The intent of this item is to verify that a complete NBI inspection data set is accepted and is entered or updated in the inventory within the timeframes required by the NBIS. *[Different data values can be used for this item, each establishing a set of values for B.IE fields as a group for each inspection entered. A combination example is provided following the grouped inspection event items.]*

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B.IE.02 Inspection Begin Date
B.IE.03 Inspection Completion Date
B.IE.04 Nationally Certified Inspector
B.IE.05 Inspection Interval
B.IE.06 Inspection Due Date
B.IE.07 Risk-Based Interval Method
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Comprehensive Example for B.IE.01 to B.IE.10

Format	Frequency	Item ID Number	Item Ownership
Varies	EI	B.IE.01 to B.IE.10	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Varies	Varies	Varies	Varies

Example of B.IE.01, B.IE.02, B.IE.03, B.IE.04, B.IE.05, B.IE.06, B.IE.07, B.IE.08, B.IE.09, and B.IE.10

The following inspections are performed on an example bridge (*not a true asset in SCDOT inventory, but used for illustrative purposes*):

- An underwater inspection is performed on April 23, 2024. It is completed on the same day. The team leader global unique identifier is 004CE954B4BA474AAEEB704898CEF646. The interval is set as 60 months. The inspection due date is 60 months from the completion date of the inspection. The consultant performing the inspection completed QC on May 6, 2024. The inspection was not selected for QA. The risk-based inspection interval method is '1' for an underwater inspection.
- A routine inspection is performed on August 17, 2024. The routine inspection was not completed until August 30, 2024 because of equipment breakdown. The team leader global unique identifier is 0096D45FFA30467FB614437D527FD502. The interval is set to 12 months. The inspection due date is 12 months from the completion date of the inspection. The district performing the inspection completed QC on August 31, 2024. The inspection was selected for QA by the BMO and it was completed on September 13, 2024. A special inspection is also added to the bridge at this point at a 6 month interval. The risk-based inspection interval method is '1' for a routine inspection.
- A special inspection is performed on February 3, 2025. It is completed on the same day. The team leader global unique identifier is 012F0FE31296433CA4A56076CFDEE9CE. The interval remained set at 6 months. The inspection due date is 6 months from the completion date of the inspection. The district performing the inspection completed QC on February 6, 2025. The inspection was not selected for QA. The risk-based inspection interval method is 'N' for a special inspection.
- A routine and special inspection is performed on August 20, 2025. It is completed on the same day. The team leader global unique identifier is 0096D45FFA30467FB614437D527FD502. The interval increased to 24 months for the routine inspection and the special inspection is no longer needed due to bridge condition. The routine inspection due date is 24 months from the completion date of the inspection. The district performing the inspections completed QC on August 26, 2025. The special inspection was selected for QA, and it was completed on September 3, 2025. The risk-based inspection interval method is '1' for a routine inspection. The risk-based inspection interval method is 'N' for a special inspection.

B.IE.01	B.IE.02	B.IE.03	B.IE.04	B.IE.05	B.IE.06	B.IE.07	B.IE.08	B.IE.09	B.IE.10
3 - Underwater	20240423	20240423	004CE954B4BA474AAEEB704898CEF646	60	20290423	1	20240506	-	20240506
2 - Routine	20240817	20240830	0096D45FFA30467FB614437D527FD502	12	20250830	1	20240831	20240913	20240913
7 - Special	20250203	20250203	012F0FE31296433CA4A56076CFDEE9CE	6	20250803	N	20250206	-	20250206
2 - Routine	20250820	20250820	0096D45FFA30467FB614437D527FD502	24	20270820	1	20250826	-	20250826
7 - Special	20250820	20250820	0096D45FFA30467FB614437D527FD502	-	-	N	20250826	20250903	20250903

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Inspection Note

Format	Frequency	Item ID Number	Item Ownership
AN (300)	EI	B.IE.11	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Submit	Schedule Table	BridgeInspection	InspectionElementsNarrative

FHWA Specification *[and SCDOT Markups]*	FHWA Commentary *[and SCDOT Markups]*
Report a brief description of the members or features inspected when limited portions of the bridge are inspected. Use consistent terms to describe similar inspections.	This item is intended to capture a brief description of the members inspected when limited portions of the bridge are inspected such as for Underwater, NSTM, In-depth, Special, and Damage inspections, or for scour monitoring. This item is also used to describe the purpose for special inspections performed following extreme events such as floods, hurricanes, and earthquakes. *[Only 300 characters are permitted, inspectors are reminded that this field is submitted to FHWA and that remarks should be accurate for only the inspection event linked to the notes field.]*

Examples

The following inspections are performed on a bridge (*not a true asset in SCDOT inventory, but used for illustrative purposes*):

- An underwater inspection is performed on April 23, 2024, with divers for piers 4-7 during a period of low water.
- A damage inspection is performed on May 8, 2025, after the bridge was struck by an over-height vehicle.
- A scour critical bridge experienced flood water elevations up to the web of the exterior girder. Per the scour POA, scour monitoring was completed by a team leader over five days during a hurricane starting on August 30, 2025.

B.IE.01	B.IE.02	B.IE.11
3 - Underwater	20240423	Inspected underwater portions of Bents 4 to 7 at low water, with deficiencies in the splash zone noted and photographed.
5 - Damage	20250508	Notified of over-height vehicle strike. Damage inspection performed at 3AM. East portal and bracing given a hands-on inspection via bucket truck; mag-particle testing used in several locations where a crack was suspected.
9 - Scour Monitoring	20250830	Bridge was visually monitored every three hours from August 30 to September 4 for damage and alignment issues during Hurricane Helene. No defects noted.

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Inspection Equipment

Format	Frequency	Item ID Number	Item Ownership
AN (120)	EI	B.IE.12	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Procedures & Planning	Equipment Used in This Inspection	EventEquipment	EquipmentID

FHWA Specification *[and SCDOT Markups]*

Report all access and inspection equipment used to perform the inspection using one or more of the following codes.

Report multiple codes separated by pipe (|) delimiters.

Do not report this item if none of the access and inspection equipment below was used.

Code	Access Description
AN	No access equipment used
A01	Ladder
A02	Bucket lift vehicle
A03	Under bridge inspection vehicle
A04	Rigging
A05	Waders
A06	Boat
A07	Snorkel
A08	SCUBA
A09	Surface supplied air
A10	Remotely Operated Vehicle (ROV)
A11	Video pole
A12	Borescope
A13	Unmanned aerial systems (UAS)
A14	Service Traveler
A15	Rope
AX	Other

FHWA Commentary *[and SCDOT Markups]*

This item is used to provide information about access and inspection equipment used in addition to standard equipment for each inspection. Refer to the BIRM for a listing of standard equipment.

[Use code A10 for] remotely operated vehicles include any remotely controlled device used to provide video access to members of a bridge via ground, water surface, or underwater. *[This does not include drones.]*

Use code AN when none of the listed access equipment codes apply for the inspection performed.

Use code A13 when unmanned aerial systems (UAS), also referred to as drones, are used to supplement inspections.

Use code IN when none of the listed inspection equipment codes apply for the inspection performed.

Use code I13 when underwater imaging technologies such as side scan sonar are used to supplement underwater inspections.

NDE and testing inspection equipment listed represent only more common or general types. Use the most closely related code, or use code IX for types not listed.

[Some equipment will roll-up using SCDOT's set translation. Only equipment linked to the specific inspection will be reported. Any and all equipment used should be coded.]

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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Procedures & Planning	Equipment Used in This Inspection	EventEquipment	EquipmentID

FHWA Specification *[and SCDOT Markups]*	FHWA Commentary *[and SCDOT Markups]*

Code	Inspection Description
IN	No inspection equipment used
I01	Ultrasonic
I02	Ground-penetrating radar
I03	Infrared thermography
I04	Radiographic testing
I05	Impact echo
I06	Electromagnetic methods
I07	Rebound & penetration methods
I08	Acoustic emissions testing
I09	Dye penetrant
I10	Magnetic particle
I11	Eddy current
I12	Boring or drilling
I13	Underwater imaging
I14	Depth finder/fathometer
I15	Stress wave timer
I16	Chain drag
IX	Other

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AN (120)	EI	B.IE.12	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Procedures & Planning	Equipment Used in This Inspection	EventEquipment	EquipmentID

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
A03 - Under bridge inspection vehicle – I03 - Ultrasonic	A routine and NSTM inspection was performed on the subject bridge. The following pieces of equipment were used. • Under bridge inspection vehicle, **Code A03.** • Ultrasonic (thickness gauge), **Code I01.**	01965	
A05 - Waders – A06 - Boat – I12 - Boring or drilling	A routine inspection was performed on the subject bridge. The following pieces of equipment were used. • Waders, **Code A05.** • Boat (kayak), **Code A06.** • Boring or drilling (timber resistance drill), **Code I12.**	06716	
A01 - Ladder	A special inspection was performed on the subject bridge. The following pieces of equipment were used. • Ladders (extension), **Code A01.**	01301	

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B.C.08 Bridge Joints Rating
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B.C.10 Channel Protection Rating
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Component Condition Rating (CCR) Introduction

The data items in the Component Condition Ratings subsection provide information about the condition of the bridge and waterway(s). These items are considered part of the Primary Data Set and have a one-to-one relationship with a bridge. The data for these items may change after each inspection. Condition ratings indicate the existing field conditions of the bridge components and waterway. A condition rating code must therefore consider the type, location, and severity of the defects; the extent to which they exist throughout the item being evaluated; and the degree to which the defects affect strength and/or performance of the bridge or component. Evaluate portions of bridge components that are supported or strengthened by temporary members also considering the condition of the temporary members. Load posting alone, for an existing bridge designed for less than current legal loads, is not considered a defect and does not affect the condition rating code.

Determine the condition rating codes for the bridge components (Items B.C.01 through B.C.07) by correlating field observations with Appendix X. *[SCDOT commentary for each CCR includes the coding descriptions provided in SNBI Table 20. SNBI Table 20 is expanded in Appendix X for use in South Carolina.]*

The remaining condition ratings (Items B.C.08 through B.C.11) can be determined using the tables embedded in the item descriptions. These tables define the condition ratings in terms of defect severity, extent, and effect on strength and/or performance of the bridge or component. The term "defect", used in these tables indicates a problem with the bridge component that may be caused by deterioration, damage, or an inherent defect.

As used in the condition rating tables, an inherent defect is not indicative of damage or deterioration, but is characteristic of the material or results from normal construction practices. A minor defect is one where damage or deterioration has initiated but is not yet considered significant. A moderate defect is one where damage or deterioration are significant, but the strength and performance of the component are not affected. A major defect affects the strength and/or performance of the component, as determined by a structural and/or hydraulic review. For joints, bearings, railings, and railing transitions, a major defect prevents the component from functioning as intended. A defect is considered widespread when it is present in many separate areas of the component, while an isolated defect occurs in one or a few concentrated locations. The term "some" is used when the defect prevalence is more than isolated and less than widespread.

[Table 7.1.A: Component Condition Ratings]

Item	Component Condition Rating	Item	Component Condition Rating	Item	Component Condition Rating
B.C.01	Deck Condition Rating	B.C.06	Bridge Railing Transitions Condition Rating	B.C.11	Scour Condition Rating
B.C.02	Superstructure Condition Rating	B.C.07	Bridge Bearings Condition Rating	B.C.12	Bridge Condition Classification
B.C.03	Substructure Condition Rating	B.C.08	Bridge Joints Condition Rating	B.C.13	Lowest Condition Rating Code
B.C.04	Culvert Condition Rating	B.C.09	Channel Condition Rating	B.C.14	NSTM Inspection Condition Rating
B.C.05	Bridge Railing Condition Rating	B.C.10	Channel Protection Condition Rating	B.C.15	Underwater Inspection Condition Rating

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Deck Condition Rating

Format	Frequency	Item ID Number	Item Ownership
AN (1)	EI	B.C.01	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Condition & Appraisal Ratings	BridgeInspection	DeckRating

FHWA Specification and SCDOT Markups

Report the deck component condition rating using one of the codes in *[SNBI] Table 20[, as updated by SCDOT in this section]*. Report N when Item B.SP.09 (*Deck Material and Type*) is 0.

[The SNBI descriptions for severity are defined in Appendix S1.]

[Only the Condition of the elements contained in Table 7.1.B shall be considered when coding B.C.01 (Deck Condition Rating)]

[Table 7.1.B: National Bridge Deck Elements]

Element Name	Deck	Slab
Reinforced Concrete Deck/Slab	*12*	*38*
Prestressed Concrete Deck/Slab	*13*	*39*
Prestressed Concrete Top Flange	*15*	
Reinforced Concrete Top Flange	*16*	
Steel Deck – Open Grid	*28*	
Steel Deck – Concrete Filled Grid	*29*	
Steel Deck – Corrugated/Orthotropic/Etc.	*30*	
Timber Deck/Slab	*31*	*54*
Other Material Deck/Slab	*60*	*65*

See Section 7.2 for other elements, including Agency Defined Elements (ADEs)

FHWA Commentary and SCDOT Markups

This item represents the condition of the deck as determined from the inspection of all deck surfaces (top, underside, and edges). Visual assessments may be supplemented with non-destructive or destructive testing results. Use destructive or non-destructive testing results or visual condition indicators of materials covering the surfaces being assessed when top, underside or both surfaces are not visible for assessment. Past inspection reports and repair records may also provide supplemental information to aid in the determination of the condition rating.

Do not consider the condition of non-monolithic wearing surfaces (i.e. overlays), stay-in-place deck forms, joint assemblies, expansion devices, bridge rails, or scuppers when determining the condition rating code for this item, except insofar as they indicate the condition of the deck itself. *[If the deck or slab consists of partial-depth or full-depth pre-tensioned components, it shall also be inspected for failures at the pretension and post-tension anchor zones, failures of grout-fill joints between panels and failures of bearing edges along supporting beams.]* Consider the condition of a joint header only when the deck serves as a joint header.

For bridges with integral decks/top flanges (e.g. rigid frames, decked girders or tee beams, voided slab beams, box girders, etc.), the deck condition may affect the superstructure condition rating; however, the superstructure condition does not affect the deck condition rating.

The deck and superstructure condition ratings are the same for solid slab bridges. *[This include cast-in-place slabs and precast slab bridges such as precast panel bridges.]*

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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Condition & Appraisal Ratings	BridgeInspection	DeckRating

SCDOT Guidance for B.C.01

[Table 7.1.C: B.C.01 (Deck Condition Rating) Coding Table.]

Condition	SNBI Description	CS2 (Minor)	CS3 (Moderate)	CS4 (Major)	Stability/Strength Impacted (Action Required[1])	Flag (CF/RR)
N NOT APPLICABLE	Component does not exist.	*Only Applicable to slabs, arches without spandrels, closed spandrel arches, pipes, and three-sided or four-sided rigid frames when under fill.*				
9 EXCELLENT	Isolated inherent defects.	*Only Applicable to new structures not yet opened to traffic with deficiencies resulting from normal construction practices.*				
8 VERY GOOD	Some inherent defects. *[or isolated minor defects]*	*Less than 10%*				
7 GOOD	Some minor defects.	*10% - 40%*				
6 SATISFACTORY	Widespread minor or isolated moderate defects.	*Greater than 40%*	*Less than 10%*			*Repair Rec C-Flag*
5 FAIR	Some moderate defects; strength and performance of the component are not affected.		*10% - 40%*			*Repair Rec B-Flag*
4 POOR	Widespread moderate or isolated major defects; strength and/or performance of the component is affected.		*Greater than 40%*	*Less than 10%*	*Action Required*	*Repair Rec A-Flag*
3 SERIOUS	Major defects; strength and/or performance of the component is seriously affected. Condition typically necessitates more frequent monitoring, load restrictions, and/or corrective actions.			*10% - 40%*	*Action Required*	*Critical Finding*
2 CRITICAL	Major defects; component is severely compromised. Condition typically necessitates frequent monitoring, significant load restrictions *[or posting due to the deck]*, and/or corrective actions in order to keep the bridge open.	*Temporary lane restriction installed due to deck deterioration until rehabilitation is completed. (Critical Finding Submitted)*			*Action Required*	*Critical Finding*
1 IMMINENT FAILURE	Bridge is closed to traffic due to component condition. Repair or rehabilitation may return the bridge to service.	*Bridge Closed due to deck failure or deterioration and requires bridge rehabilitation. (Critical Finding Submitted)*			*Action Required*	*Critical Finding*
0 FAILED	Bridge is closed due to component condition, and is beyond corrective action. Replacement is required to restore service.	*Bridge Closed due to deck failure or deterioration and requires bridge replacement. (Critical Finding Submitted)*			*Action Required*	*Critical Finding*

Action Required[1]: In-depth inspection, hydraulic analysis, or load rating request, see BIGD Chapter 7.
See Appendix S1 for additional guidance on severity and extent.

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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
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Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
N - NOT APPLICABLE	Concrete arch without spandrel under fill. The buried structure has no deck (B.SP.09 = 0). **Code N.**	09993	
8 - Some inherent defects *[or isolated minor defects.]*	Deck is comprised of 1 element: • RC Deck: 11846 SF (CS2 4%) CS2 for cracking and efflorescence. Deterioration is classified as isolated minor. **Code 8.**	02814	
8 - Some inherent defects *[or isolated minor defects.]*	Deck is comprised of 1 element: • Timber Deck: 357 SF (CS1 100%) Timber deck has only widespread inherent (CS1) deterioration. **Code 8.**	09317	
7 - Some minor defects.	Deck is comprised of 1 element: • RC Deck: 39920 SF (CS2 11%) CS2 for cracking and abrasion. Deterioration is classified as some minor. **Code 7.**	00926	

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Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
6 - Widespread minor or isolated moderate defects.	Deck is comprised of 3 elements: • RC Deck: 82236 SF (CS2 5%, CS3 1%) • Steel Deck-Open Grid: 4782 SF (CS3 2%) • Steel Deck-Conc Filled Grid: No deterioration. Combining elements and condition states classifies deterioration as isolated minor and moderate, where the isolated moderate controls the coding. **Code 6.**	00228	
6 - Widespread minor or isolated moderate defects.	Deck is comprised of 2 elements: • RC Top Flange: 3568 SF (CS3 1%) • RC Slab: 2531 SF (CS1 100%) CS3 for spalling. Deterioration is classified as isolated moderate. **Code 6.**	00257	
5 - Some moderate defects; strength and performance of the component are not affected.	Deck is comprised of 1 element: • RC Deck: 12882 SF (CS2 10%, CS3 11%) Deterioration is classified as some minor and some moderate with moderate controlling the coding. **Code 5.**	08399	
4 - Widespread moderate or isolated major defects; strength and/or performance of the component is affected.	Deck is comprised of 2 elements: • RC Deck: 5220 SF (CS2 15%, CS3 3%) • Timber Deck: 694 SF (CS2 6%) A load rating has determined that the level of deterioration affects the strength and stability of the bridge and resulted in a load posting. While deterioration is classified as some minor and isolated moderate, stability controls the coding. **Code 4.**	00097	 

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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
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Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
3 - Major defects; strength and/or performance of the component is seriously affected. Condition typically necessitates more frequent monitoring, load restrictions, and/or corrective actions.	Deck is comprised of 1 element: • RC Slab: 2098 SF (CS4 28%) Deterioration is due to severe corrosion on exposed reinforcement in the slabs and is classified as some major. A load rating has determined that the level of deterioration affects the strength and stability of the bridge and resulted in a load posting. There is a Critical Finding on the bridge and it is inspected at a reduced interval. **Code 3.**	09211	

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FHWA Specification and SCDOT Markups

Report the superstructure component condition rating using one of the codes in *[SNBI] Table 20[, as updated by SCDOT in this section]*.

Report N when M *[(Main Span Set)]*, A *[(Approach Span Set)]*, or W *[(Widening Set)]* is not reported for Item B.SP.01 (*Span Configuration Designation*).

[The SNBI descriptions for severity are defined in Appendix S1.]

FHWA Commentary and SCDOT Markups

This item represents the condition of the superstructure as determined from the inspection of all superstructure members.

Consider primary load carrying members when determining the condition rating code for this item. Consider secondary members only if they adversely impact the primary members. Visual assessments may be supplemented with non-destructive or destructive testing results.

The superstructure includes:
members above the bearings for bridges with non-integral superstructure and substructure;
girders/beams for integral superstructures;
members above the spring line for arch bridges;
slabs of concrete rigid frame bridges; and
legs, knees and girders for concrete and steel rigid K-Frame or Delta-Frame bridges.

Consider the condition of headwalls and spandrel walls that are integral with the superstructure. Consider the condition of wingwalls that are integral with the superstructure (continuation of the superstructure), to the first expansion joint.

Do not consider the condition of bearings when determining the condition rating code for this item except to the extent that the bearings are causing distress in the superstructure.

[The condition of NSTM members, if present in the superstructure, are included in the coding of this item, and for B.C.14 (NSTM Inspection Condition)]

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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Condition & Appraisal Ratings	BridgeInspection	SuperstructureRating

FHWA Specification and SCDOT Markups

[Only the Condition of the elements contained in Table 7.1.D shall be considered when coding B.C.02 (Superstructure Condition Rating)]

[Table 7.1.D: National Bridge Superstructure Elements]

Element Name	Steel	PS Concrete	RC Concrete	Timber	Masonry	Other
Girder/Beam	*107*	*109*	*110*	*111*		*112*
Closed Web/Box Girder	*102*	*104*	*105*			*106*
Stringer	*113*	*105*	*116*	*117*		*118*
Truss	*120*			*135*		*136*
Arch	*141*	*143*	*144*	*146*	*145*	*142*
Floor Beam	*152*	*154*	*155*	*156*		*157*
Cable – Primary	*147*					
Cable – Secondary	*148*					*149*
Pin, Pin and Hanger Assembly, or Both	*161*					
Gusset Plate	*162*					
Primary Cable Saddles	*164*					
Cable Anchorage Socket or Assembly	*165*					

See Section 7.2 for other elements, including Agency Defined Elements (ADEs)

[Conditions that Limit B.C.02 (Superstructure Condition Rating):

- *The CCR limits of Item B.C.02 for saddles are identified in Table 7.1.E. B.C.02 cannot be higher than those limits if saddles are present.*
- *If a superstructure exists without a substructure and scour exceeds the tolerable limit as defined in Appendix S1. Item B.C.02 shall not exceed B.C.11 (Scour Condition Rating).]*

FHWA Commentary and SCDOT Markups

Do not consider the condition of protective coating systems when determining the condition rating code for this item except to the extent that problems with the protective coating system are indicative of problems with the underlying superstructure material.

A well-formed patina on weathering steel is considered a protective coating and is not considered a defect.

Do not consider the presence of drift, debris, and soil accumulation when determining the condition rating code for this item, except to the extent that these items are causing distress in the superstructure.

Superstructure types without substructures may be affected by scour. When observed conditions are not consistent with the scour design or the assumptions used in the scour appraisal, scour is considered when reporting the code for this item. In this case, observed conditions also indicate a need to reevaluate Item B.AP.03 (Scour Vulnerability). Observed scour that is less than the tolerable limit determined in the scour appraisal does not affect this item.

For structures with integral decks/top flanges (e.g. rigid frames, decked girders or tee beams, voided slab beams, box girders, etc.), the deck condition may affect the superstructure condition rating; however, the superstructure condition does not affect the deck condition rating.

The deck and superstructure condition ratings are the same for solid slab bridges. *[This include cast-in-place slabs and precast slab bridges such as precast panel bridges.]*

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SCDOT Guidance for B.C.02

[Table 7.1.E: B.C.02 (Superstructure Condition Rating) Coding Table]

Condition	SNBI Description	CS2 (Minor)	CS3 (Moderate)	CS4 (Major)	Stability/Strength Impacted (Action Required[1])	Flag (CF/RR)
N NOT APPLICABLE	Component does not exist.	*Only applicable when the bridge is a culvert. (B.SP.01 (Span Configuration Designation) is Culvert (C), or Culvert Extension (V).)*				
9 EXCELLENT	Isolated inherent defects.	*Only applicable to new structures not yet opened to traffic with deficiencies resulting from normal construction practices.*				
8 VERY GOOD	Some inherent defects *[or isolated minor defects]*	*Less than 10%*				
7 GOOD	Some minor defects.	*10% - 40%*				
6 SATISFACTORY	Widespread minor or isolated moderate defects. *[Condition limit for at least 1 saddle with no observed movement or in CS1 or CS2 condition.]*	*Greater than 40%*	*Less than 10%*			*Repair Rec C-Flag*
5 FAIR	Some moderate defects; strength and performance of the component are not affected. *[Condition limit for at least 1 saddle with observed movement or CS3 or CS4 condition.]*		*10% - 40%*			*Repair Rec B-Flag*
4 POOR	Widespread moderate or isolated major defects; strength and/or performance of the component is affected.		*Greater than 40%*	*Less than 10%*	*Action Required*	*Repair Rec A-Flag*
3 SERIOUS	Major defects; strength and/or performance of the component is seriously affected. Condition typically necessitates more frequent monitoring, load restrictions, and/or corrective actions.			*10% - 40%*	*Action Required*	*Critical Finding*
2 CRITICAL	Major defects; component is severely compromised. Condition typically necessitates frequent monitoring, significant load restrictions *[or posting due to the superstructure]*, and/or corrective actions in order to keep the bridge open.	*Temporary lane restriction installed due to superstructure deterioration until rehabilitation is completed. (Critical Finding Submitted)*			*Action Required*	*Critical Finding*
1 IMMINENT FAILURE	Bridge is closed to traffic due to component condition. Repair or rehabilitation may return the bridge to service.	*Bridge Closed due to substructure failure or deterioration and requires bridge rehabilitation. (Critical Finding Submitted)*			*Action Required*	*Critical Finding*
0 FAILED	Bridge is closed due to component condition, and is beyond corrective action. Replacement is required to restore service.	*Bridge Closed due to substructure failure or deterioration and requires bridge replacement. (Critical Finding Submitted)*			*Action Required*	*Critical Finding*

Action Required[1]: In-depth inspection, hydraulic analysis, or load rating request, see BIGD Chapter 7.
See Appendix S1 for additional guidance on severity and extent.

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Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
8 - Some inherent defects *[or isolated minor defects.]*	Superstructure is comprised of 1 element: • PC Beams: 1040 SF (100% CS1) Precast beams have only widespread inherent (CS1) deterioration. **Code 8.**	10860	
7 - Some minor defects.	Superstructure is comprised of 1 element: • PC Beams: 1760 LF (CS2 11%) CS2 for efflorescence. Deterioration is classified as some minor. **Code 7.**	01009	
6 - Widespread minor or isolated moderate defects. *[Condition limit for at least 1 saddle with no observed movement or in CS1 or CS2 condition.]*	Superstructure is comprised of 1 element: • Steel Girder: 1890 LF (CS2 1%, CS3 3%) Rolled steel beam multi-girder superstructure due to isolated areas of moderate defects. **Code 6.**	06918	

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Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
5 - Some moderate defects; strength and performance of the component are not affected. *[Condition limit for at least 1 saddle with observed movement or CS3 or CS4 condition.]*	Superstructure is comprised of 2 elements: • RC Tee Beam: 3080 LF (CS2 1%, CS3 3%) • Steel Girder: 1760 LF (CS2 15%, CS3 1%) Saddles are installed and have corrosion with measurable section loss (CS3). The saddles and their condition control. **Code 5.**	03023	
4 - Widespread moderate or isolated major defects; strength and/or performance of the component is affected.	Superstructure is comprised of 1 element: • RC Tee Beam: 243 LF (CS3 7%, CS4 9%) Deterioration can be categorized as isolated moderate and some major, with the major controlling. A load rating shows deterioration affects the strength and stability of the structure. **Code 4**	00023	
3 - Major defects; strength and/or performance of the component is seriously affected. Condition typically necessitates more frequent monitoring, load restrictions, and/or corrective actions.	Superstructure is comprised of 1 element: • RC Slab: 2098 SF (CS4 28%) Deterioration is due to severe corrosion on exposed reinforcement in the slabs and is classified as some major. A load rating has determined that the level of deterioration affects the strength and stability of the bridge and resulted in a load posting. There is a Critical Finding on the bridge and it is inspected at a reduced interval. **Code 3.**	09211	

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Substructure Condition Rating

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FHWA Specification and SCDOT Markups	FHWA Commentary and SCDOT Markups
Report the substructure component condition rating using one of the codes in *[SNBI] Table 20[, as updated by SCDOT in this section]*. Report N when only C *[Culvert Set]* and/or V *[Culvert Extension Set]* is reported for Item B.SP.01 (*Span Configuration Designation*). *[The SNBI descriptions for severity are defined in Appendix S1.]*	This item addresses the condition of piers, abutments, piles, footings, and other substructure members. For bridges that have substructures not visible for inspection, use appropriate visual condition indicators from the superstructure or surrounding foundation materials to determine the applicable code. Visual assessments may be supplemented with non-destructive or destructive testing results. Consider the condition of integral abutment wingwalls to the first construction or expansion joint when determining the condition rating code for this item. Do not consider the condition of protective coatings, fenders and other substructure protection systems when determining the condition rating code for this item, except to the extent that these items indicate distress of the substructure, or adversely affect its condition. Do not consider the presence of drift, debris, and soil accumulation when determining the condition rating code for this item, except to the extent that these items are causing distress in the substructure.

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FHWA Specification and SCDOT Markups

[Only the Condition of the elements contained in Table 7.1.F shall be considered when coding the B.C.03 (Substructure Condition Rating)]

[Table 7.1.F: National Bridge Substructure Elements]

Element Name	Steel	PS Concrete	RC Concrete	Timber	Masonry	Other
Columns	*202*	*204*	*205*	*206*		*203*
Column Tower (Trestle)	*207*		*237*	*208*	*238*	
Pier Wall			*210*	*212*	*213*	*211*
Abutment	*219*		*215*	*216*	*217*	*218*
Pile	*225*	*226*	*227*	*228*		*229*
Pier Cap	*231*	*233*	*234*	*235*		*236*
Pile Cap/Footing			*220*			
Anchorage Chamber Walls	*222*		*221*		*223*	
Reinforced Concrete Anchorage Block			*224*			

See Section 7.2 for other elements, including Agency Defined Elements (ADEs)

FHWA Commentary and SCDOT Markups

The substructure includes: backwalls and the members below the bearings for bridges with non-integral superstructure and substructure; members below the girders for integral superstructures; thrust blocks and other members below the spring line for arch bridges; legs of concrete rigid frame bridges; abutments and footings/foundations below the leg bearings for concrete and steel rigid K-Frame or Delta-Frame bridges; and foundation piles exposed by erosion or scour.

When observed conditions are not consistent with the scour design or the assumptions used in the scour appraisal, scour is considered in the coding of this item. In this case, observed conditions also indicate a need to reevaluate Item B.AP.03 (Scour Vulnerability). Observed scour that is less than the tolerable limit determined in the scour appraisal does not affect this item.

[Conditions that Limit B.C.03 (Substructure Condition Rating):

- *The CCR limits of Item B.C.02 for saddles are identified in Table 7.1.G. B.C.02 cannot be higher than those limits if saddles are present.*
- *If scouring of a foundation element of a substructure exceeds the tolerable limit (defined in Appendix S1) and is not accounted for in the scour assessment, then the Substructure Condition Rating (B.C.03) shall not exceed the Scour Condition Rating (B.C.11).*
- *The condition of NSTM members if present in the substructure are included in the coding of this item, and for Item B.C.14 (NSTM Inspection Condition).*
- *The condition of any submerged substructure elements is included in the coding of this item, and for Item B.C.15 (Underwater Inspection Condition)]*

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SCDOT Guidance for B.C.03

[Table 7.1.G: B.C.03 (Substructure Condition Rating) Coding Table]

Condition	SNBI Description	CS2 (Minor)	CS3 (Moderate)	CS4 (Major)	Stability/Strength Impacted (Action Required[1])	Flag (CF/RR)
N NOT APPLICABLE	Component does not exist.	*Code "N" when B.SP.01 (Span Configuration Designation) is Culvert (C), or Culvert Extension (V).*				
9 EXCELLENT	Isolated inherent defects.	*Only Applicable to new structures not yet opened to traffic with deficiencies resulting from normal construction practices.*				
8 VERY GOOD	Some inherent defects. *[or isolated minor defects]*	*Less than 10%*				
7 GOOD	Some minor defects.	*10% - 40%*				
6 SATISFACTORY	Widespread minor or isolated moderate defects. *[Condition limit when least 1 pile has a spliced/stud-up repair.]*	*Greater than 40%*	*Less than 10%*			*Repair Rec C-Flag*
5 FAIR	Some moderate defects; strength and performance of the component are not affected. *[Condition limit of 5 when a maximum of 25% of piles have spliced/stud-up repairs.]*		*10% - 40%*			*Repair Rec B-Flag*
4 POOR	Widespread moderate or isolated major defects; strength and/or performance of the component is affected.*[Condition limit of 4 when more than 75% of piles have spliced/stud-up repairs.]*		*Greater than 40%*	*Less than 10%*	*Action Required*	*Repair Rec A-Flag*
3 SERIOUS	Major defects; strength and/or performance of the component is seriously affected. Condition typically necessitates more frequent monitoring, load restrictions *[with posting]*, and/or corrective actions.			*10% - 40%*	*Action Required*	*Critical Finding*
2 CRITICAL	Major defects; component is severely compromised. Condition typically necessitates frequent monitoring, significant load restrictions *[with posting]*, and/or corrective actions in order to keep the bridge open.	*Temporary lane restriction installed due to substructure deterioration until rehabilitation is completed. (Critical Finding Submitted)*			*Action Required*	*Critical Finding*
1 IMMINENT FAILURE	Bridge is closed to traffic due to component condition. Repair or rehabilitation may return the bridge to service.	*Bridge Closed due to substructure failure or deterioration and requires bridge rehabilitation. (Critical Finding Submitted)*			*Action Required*	*Critical Finding*
0 FAILED	Bridge is closed due to component condition, and is beyond corrective action. Replacement is required to restore service.	*Bridge Closed due to substructure failure or deterioration and requires bridge replacement. (Critical Finding Submitted)*			*Action Required*	*Critical Finding*

Action Required[1]: In-depth inspection, hydraulic analysis, or load rating request, see BIGD Chapter 7.
See Appendix S1 for additional guidance on severity and extent.

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Examples

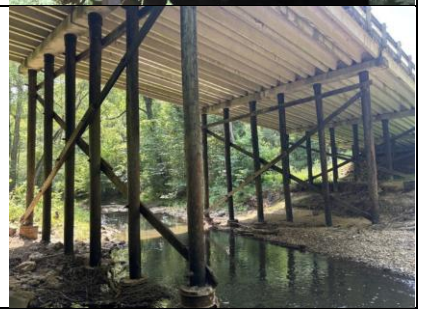
CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
N - Component does not exist.	Original arch culvert with three-barrel culvert extensions (in foreground). B.SP.01 is C01 for the original culvert and V01 for the culvert extension. **Code N.**	01653	
8 - Some inherent defects. *[or isolated minor defects]*	Substructure is comprised of 3 elements: • RC Column: 4 EA (100% CS1) • RC Pier Cap: 102 LF (100% CS1) • RC Abutment: 94 LF (100% CS1) Concrete substructure elements have only widespread inherent (CS1) deterioration. **Code 8.**	01102	
7 - Some minor defects.	Substructure is comprised of 4 elements: • Timber Pile: 33 EA (70% CS2) • Timber Piles Bent Cross Bracing: 55 LF (100% CS1) • RC Pier Cap: 110 LF (16% CS2) • RC Abutment: 55 LF (2% CS2) The percentages can be combined to be approximately 22%. The substructure deterioration is considered some minor defects. **Code 7.**	03918	

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Format	Frequency	Item ID Number	Item Ownership
AN (1)	EI	B.C.03	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Condition & Appraisal Ratings	BridgeInspection	SubstructureRating

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
6 - Widespread minor or isolated moderate defects. *[Condition limit when least 1 pile has a spliced/stud-up repair.]*	Substructure is comprised of 4 elements: • RC Column: 16 EA (6% CS2) • PS Concrete Pile 154 EA (100% CS1) • RC Pier Cap: 1219 LF (1% CS2, <1% CS3) • RC Abutment: 167 LF (6% CS2) The percentages can be combined to be approximately 2% CS2 and <1% CS3. Combining the deterioration of all elements, the substructure deterioration is considered isolated minor and isolated moderate. **Code 6.**	00174	
5 - Some moderate defects; strength and performance of the component are not affected. *[Condition limit when up to 25% of piles have spliced/stud-up repairs.]*	Substructure is comprised of 4 elements: • RC Column: 16 EA (94% CS2, 6% CS3) • Steel Pile 80 EA (25% CS2, 75% CS3) • RC Pier Cap: 616 LF (4% CS2, <1% CS3) • RC Abutment: 55 LF (100% CS1) The percentages can be combined to be approximately 30% CS2 and 20% CS3. Combining the deterioration of all elements, the substructure deterioration is considered some moderate. **Code 5.**	00004	
4 - Widespread moderate or isolated major defects; strength and/or performance of the component is affected.*[Condition limit when more than 75% of piles have spliced/stud-up repairs.]*	Substructure is comprised of 5 elements: • RC Pier Cap: 175 LF (1% CS3) • Timber Pile: 29 EA (37% CS2, 13% CS3, 10% CS4) • Stubbed/Spiced Timber Pile: 13 EA (54% CS2, 23% CS3) • Timber Piles Bent Cross Bracing: 175 LF (1% CS2, 22% CS3) • RC Abutment: 70 LF (100% CS1) The percentages can be combined to be approximately 18% CS2, 11% CS3, and 2% CS4. Combining the deterioration of all elements, the substructure deterioration is considered isolated major defects. In addition, the bridge is posted for the condition of the timbe piles, this strength and/or performance of the component is affected. **Code 4.**	07163	

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Culvert Condition Rating

Format	Frequency	Item ID Number	Item Ownership
AN (1)	EI	B.C.04	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Condition & Appraisal Ratings	BridgeInspection	CulvertRating

FHWA Specification and SCDOT Markups

Report the culvert component condition rating using one of the codes in *[SNBI] Table 20[, as updated by SCDOT in this section]*.

Report N when C *[Culvert Set]* or V *[Culvert Extension Set]* is not reported for Item B.SP.01 (*Span Configuration Designation*). *[A culvert widened slab will be coded with Item B.C.04 and not Item B.C.03.]*

[The SNBI descriptions for severity are defined in Appendix S1.]

[Only the Condition of the elements contained in Table 7.1.H shall be considered when coding the B.C.04 (Culvert Condition Rating)]

[Table 7.1.H: National Bridge Culvert Elements]

Element Name	Steel	PS Concrete	RC Concrete	Timber	Masonry	Other
Culvert	*240*	*245*	*241*	*242*	*244*	*243*

See Section 7.2 for other elements, including Agency Defined Elements (ADEs)

[The condition of any submerged culvert element is included in the coding of this item, and for B.C.15 (Underwater Inspection Condition)

[Conditions that Limit B.C.02 (Superstructure Condition Rating):

- *If Scour exceeds the tolerable limit (defined in Appendix S1) and is not accounted for in the scour assessment, then B.C.04 (Culvert Condition Rating) shall not exceed B.C.11 (Scour Condition Rating).]*

FHWA Commentary and SCDOT Markups

This item addresses the condition of culverts. The condition assessment includes footings, piles, and other foundation members when present.

For culverts that have components not visible for inspection, use appropriate visual condition indicators from the roadway or surrounding foundation materials to determine the applicable code. Visual assessments may be supplemented with non-destructive or destructive testing results.

Consider the condition of integral wingwalls and headwalls to the first construction or expansion joint when determining the condition rating code for this item.

Do not consider the condition of protective coatings and other culvert protection systems when determining the condition rating code for this item, except to the extent that these items indicate distress of the culvert, or adversely affect its condition.

Do not consider the presence of drift, debris, and soil accumulation when determining the condition rating code for this item, except to the extent that these items are causing distress in the culvert.

The culvert includes: buried pipe or box; footings below the walls of a 3-sided box; and foundation piles exposed by erosion or scour.

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Appendix S6: Damage Defect Coding

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AN (1)	EI	B.C.04	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Condition & Appraisal Ratings	BridgeInspection	CulvertRating

FHWA Specification and SCDOT Markups	FHWA Commentary and SCDOT Markups
	When observed conditions are not consistent with the scour design or the assumptions used in the scour appraisal, scour is considered in the coding of this item. In this case, observed conditions also indicate a need to reevaluate Item B.AP.03 (Scour Vulnerability). Observed scour that is less than the tolerable limit determined in the scour appraisal does not affect this item.

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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
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SCDOT Guidance for B.C.04

[Table 7.1.I: B.C.04 (Culvert Condition Rating) Coding Table]

Condition	SNBI Description	CS2 (Minor)	CS3 (Moderate)	CS4 (Major)	Stability/Strength Impacted (Action Required[1])	Flag (CF/RR)
N NOT APPLICABLE	Component does not exist.	*Code "N" when B.SP.01 (Span Configuration Designation) is Main (M), Approach (A), or Widening (W).*				
9 EXCELLENT	Isolated inherent defects.	*Only Applicable to new structures not yet opened to traffic with deficiencies resulting from normal construction practices.*				
8 VERY GOOD	Some inherent defects. *[or isolated minor defects]*	*Less than 10%*				
7 GOOD	Some minor defects.	*10% - 40%*				
6 SATISFACTORY	Widespread minor or isolated moderate defects.	*Greater than 40%*	*Less than 10%*			*Repair Rec C-Flag*
5 FAIR	Some moderate defects; strength and performance of the component are not affected.		*10% - 40%*			*Repair Rec B-Flag*
4 POOR	Widespread moderate or isolated major defects; strength and/or performance of the component is affected.		*Greater than 40%*	*Less than 10%*	*Action Required*	*Repair Rec A-Flag*
3 SERIOUS	Major defects; strength and/or performance of the component is seriously affected. Condition typically necessitates more frequent monitoring, load restrictions *[with posting]*, and/or corrective actions.			*10% - 40%*	*Action Required*	*Critical Finding*
2 CRITICAL	Major defects; component is severely compromised. Condition typically necessitates frequent monitoring, significant load restrictions *[with posting]*, and/or corrective actions in order to keep the bridge open.	*Temporary lane restriction installed due to Culvert deterioration until rehabilitation is completed. (Critical Finding Submitted)*			*Action Required*	*Critical Finding*
1 IMMINENT FAILURE	Bridge is closed to traffic due to component condition. Repair or rehabilitation may return the bridge to service.	*Culvert Closed to traffic due to failure or deterioration and requires rehabilitation. (Critical Finding Submitted)*			*Action Required*	*Critical Finding*
0 FAILED	Bridge is closed due to component condition, and is beyond corrective action. Replacement is required to restore service.	*Culvert Closed due to failure or deterioration and requires replacement. (Critical Finding Submitted)*			*Action Required*	*Critical Finding*

Action Required[1]: In-depth inspection, hydraulic analysis, or load rating request, see BIGD Chapter 7.
See Appendix S1 for additional guidance on severity and extent.

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AN (1)	EI	B.C.04	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
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Examples

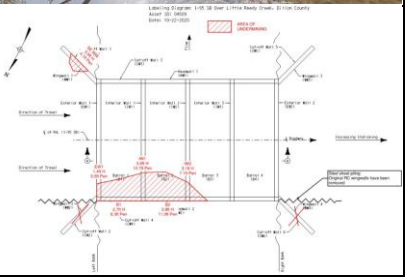
CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
8 - Some inherent defects *[or isolated minor defects.]*	Culvert is comprised of 1 element: • Precast Concrete Culvert: 82 LF (100% CS1) Two barrel culvert with only isolated areas of inherent deterioration. **Code 8.**	10801	
7 - Some minor defects.	Culvert is comprised of 1 element: • RC Culvert: 98 LF (30% CS2) Two barrel culvert with some minor defects. **Code 7.**	00177	
6 - Widespread minor or isolated moderate defects.	Culvert is comprised of 1 element: • Other Culvert: 32 LF (94% CS2, 6% CS3) Single Corrugated Metal Pipe Culvert with widespread minor (CS2) surface corrosion along all exposed surfaces. Isolated areas of moderate (CS3) corrosion with measurable section loss. The widespread minor controls. **Code 6.**	08635	

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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Condition & Appraisal Ratings	BridgeInspection	CulvertRating

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
6 - Widespread minor or isolated moderate defects.	Culvert is comprised of 1 element: • Other Culvert: 32 LF (94% CS2, 6% CS3) Single Corrugated Metal Pipe Culvert with widespread minor (CS2) surface corrosion along all exposed surfaces. Isolated areas of moderate (CS3) corrosion with measurable section loss. The widespread minor controls. **Code 6.**	08635	
5 - Some moderate defects; strength and performance of the component are not affected.	Culvert is comprised of 1 element: • RC Culvert: 957 LF (79% CS2, 21% CS3) The percentages can be combined to be approximately 79% CS2 and 21% CS3. Deterioration is considered some moderate. **Code 5.**	09648	
1 - Bridge is closed to traffic due to component condition. Repair or rehabilitation may return the bridge to service.	Culvert is comprised of 1 element: • RC Culvert: 184 LF (58% CS2, 25% CS3, 17% CS4) The percentages can be combined to be approximately 58% CS2, 25% CS3, and 17% CS4. Deterioration is major and the bridge is closed. **Code 1.**	04509	

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Bridge Railings Condition Rating

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AN (1)	EI	B.C.05	TBD
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
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FHWA Specification and SCDOT Markups

Report the bridge railing condition rating using one of the codes in *[SNBI] Table 20[, as updated by SCDOT in this section]*.

Report N when there are no bridge railings present.

[The SNBI descriptions for severity are defined in Appendix S1.]

[Only the Condition of the elements contained in Table 7.1.J shall be considered when coding the B.C.05 (Bridge Railing Condition Rating)]

[Table 7.1.J: National Bridge Railing Elements]

Element Name	Steel	PS Concrete	RC Concrete	Timber	Masonry	Other
Metal Bridge Railing	*330*					
Reinforced Concrete Bridge Railing			*331*			
Timber Bridge Railing				*332*		
Other Bridge Railing						*333*
Masonry Bridge Railing					*334*	

FHWA Commentary and SCDOT Markups

This item addresses the condition of all types and shapes of bridge railings (parapets, median barriers, or structure mounted) located on the bridge or that cross over buried structures. The condition assessment includes the portions of the railings, posts, blocking, and curbs that are part of the bridge railing system.

[This item assesses the level of deterioration between a bridge's abutments, or culvert's exterior walls only.]

Do not consider pedestrian railings when coding this item, except to the extent that the pedestrian railing is integral to the traffic barrier.

Do not consider the condition of protective coatings and other protection systems when determining the condition rating code for this item, except to the extent that problems with the protective coating system are indicative of problems with the underlying railing material.

[Missing bridge railings, or those which can no longer contain or redirect traffic require a Critical Finding. Until the Critical Finding has been addressed, Item B.C.05 (Bridge Railings Condition Rating) shall be coded as shown in Table 7.1.K.]

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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
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SCDOT Guidance for B.C.05

Table 7.1.K: B.C.05 (Bridge Railing Condition Rating) Coding Table.]

Condition	SNBI Description	CS2 (Minor)	CS3 (Moderate)	CS4 (Major)	Stability/Strength Impacted (Action Required[1])	Flag (CF/RR)
N NOT APPLICABLE	Component does not exist.	*Only applicable when no bridge railing is present and one is not required.*				
9 EXCELLENT	Isolated inherent defects.	*Only applicable to new structures not yet opened to traffic with deficiencies resulting from normal construction practices.*				
8 VERY GOOD	Some inherent defects. *[or isolated minor defects]*	*Less than 10%*				
7 GOOD	Some minor defects.	*10% - 40%*				
6 SATISFACTORY	Widespread minor or isolated moderate defects.	*Greater than 40%*	*Less than 10%*			*Repair Rec C-Flag*
5 FAIR	Some moderate defects; strength and performance of the component are not affected.		*10% - 40%*			*Repair Rec B-Flag*
4 POOR	Widespread moderate or isolated major defects; strength and/or performance of the component is affected.		*Greater than 40%*	*Less than 10%*	*Action Required*	*Repair Rec A-Flag*
3 SERIOUS	Major defects; strength and/or performance of the component is seriously affected. Condition typically necessitates more frequent monitoring, load restrictions, and/or corrective actions.			*10% - 40%*	*Action Required*	*Critical Finding*
2 CRITICAL	Major defects; component is severely compromised. Condition typically necessitates frequent monitoring, significant load restrictions, and/or corrective actions in order to keep the bridge open.	*Temporary barricades installed due to isolated railing deterioration, until railing is rehabilitated. (Critical Finding Submitted)*			*Action Required*	*Critical Finding*
1 IMMINENT FAILURE	Bridge is closed to traffic due to component condition. Repair or rehabilitation may return the bridge to service.	*Temporary lane closure or restriction due to railing failure or deterioration, until railing is rehabilitated. (Critical Finding Submitted)*			*Action Required*	*Critical Finding*
0 FAILED	Bridge is closed due to component condition, and is beyond corrective action. Replacement is required to restore service.	*Structure closed due to bridge railing failure or deterioration, replacement of entire rail required to reopen structure. (Critical Finding Submitted)*			*Action Required*	*Critical Finding*

Action Required[1]: In-depth inspection, hydraulic analysis, or load rating request, see BIGD Chapter 7.
See Appendix S1 for additional guidance on severity and extent.

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Inspection Data	Condition & Appraisal Ratings	BridgeInspection	RailingRating

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
N - Component does not exist.	Timber curb with no qualified bridge railing and no evidence of railing ever present. A bridge railing is not required. **Code N.**	09317	
8 - Some inherent defects. *[or isolated minor defects]*	42" High Reinforced Concrete Bridge Railing. The bridge railing design exceeds current safety standards (MASH). <1% of the bridge railing is in CS2. The condition of the bridge railing is isolated minor defects. **Code 8.**	10860	
7 - Some minor defects.	42" High Reinforced Concrete Bridge Railing. The bridge railing design exceeds current safety standards (MASH). 27% of the bridge railing is in CS2. The condition of the bridge railing is some minor defects. **Code 7.**	10278	

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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Condition & Appraisal Ratings	BridgeInspection	RailingRating

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
6 - Widespread minor or isolated moderate defects.	31" High Reinforced Concrete Bridge Railing. 1 LF is in CS2 due to exposed reinforcement, and 15LF is in CS3 for spalls, and section loss on exposed reinforcement. Deterioration is considered isolated minor, and isolated moderate, with moderate controlling. **Code 6**	00135	
6 - Widespread minor or isolated moderate defects.	Steel railing consisting of angles attached to truss. 98% of rail is in CS2 for corrosion, and 2% is in CS3. Deterioration is considered widespread minor, and isolated moderate. **Code 6.**	01302	
6 - Widespread minor or isolated moderate defects.	Steel 2-tube railing on top of concrete parapet barrier. 5% length of impact damage to railing, resulting in isolated moderate deterioration. **Code 6.**	00283	

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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Condition & Appraisal Ratings	BridgeInspection	RailingRating

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
5 - Some moderate defects; strength and performance of the component are not affected.	24" High Reinforced Concrete Bridge Railing. 23% of rail is in CS2 for spalling/damage, and 43% is in CS3 for exposed reinforcement and cracking. Deterioration is considered some moderate. **Code 5.**	00285	
4 - Widespread moderate or isolated major defects; strength and/or performance of the component is affected.	Reinforced concrete parapets on both sides of the culvert. A steel W-Beam Railing was installed on the outlet side of the bridge due to damage to the original concrete parapet. Strength and/or performance of the bridge rail is affected. **Code 4.**	01050	
3 - Major defects; strength and/or performance of the component is seriously affected. Condition typically necessitates more frequent monitoring, load restrictions, and/or corrective actions.	Timber bridge railing with the following defects 1% in CS2 (isolated minor), 2% in CS3 (isolated moderate), and 23% in CS4 (Some major). Major deterioration controls. **Code 3.**	01317	

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AN (1)	EI	B.C.05	TBD
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Condition & Appraisal Ratings	BridgeInspection	RailingRating

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
2 - Major defects; component is severely compromised. Condition typically necessitates frequent monitoring, significant load restrictions, and/or corrective actions in order to keep the bridge open.	Impact damage with broken metal segment of rail. Railing is loose and missing. A temporary barricade is installed due to isolated railing deterioration, until railing is rehabilitated. **Code 2.**	01965	

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AN (1)	EI	B.C.06	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Condition & Appraisal Ratings	BridgeInspection	RailingTransitionRating

FHWA Specification and SCDOT Markups	FHWA Commentary and SCDOT Markups
Report the bridge railing transitions condition rating using one of the codes in *[SNBI] Table 20[, as updated by SCDOT in this section]*. Report N when there are no bridge railing transitions present. *[The SNBI descriptions for severity are defined in Appendix S1.]* *[Conditions that Limit B.C.06 (Transition Condition Rating):* • *The railing's geometry (including height) in relation to the current crash safety standards (i.e., MASH) is not considered deterioration, but it shall limit the overall condition rating. These limits are identified as commentary to SNBIs descriptions in Table 7.1.L.*	This item addresses the condition of the transition from the bridge railing to the approach guardrail. The condition assessment includes the portions of the railings, posts, blocking, and curbs that are part of the bridge railing transitions. *[Transitions are the portions of approach railing wherein a gradual increase in cross section or a decrease in post spacing occurs leading into a bridge's abutment or culvert's exterior wall.]* Do not consider the condition of protective coatings and other protection systems when determining the condition rating code for this item, except to the extent that problems with the protective coating system are indicative of problems with the underlying railing transition material. *[Inspectors should reference The Guardrail Identification Manual (included in ED-42), the structure's As-Let plans, and Section 6.3.9 of the BIGD to differentiate between a structure's missing transitions and structures which require no transition.* *Missing approach guardrail, or those which can no longer contain or redirect traffic require a Critical Finding. Until the Critical Finding has been addressed, Item B.C.06 (Bridge Railings Transitions Condition Rating) shall be coded as shown in Table 7.1.L.]*

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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Condition & Appraisal Ratings	BridgeInspection	RailingTransitionRating

SCDOT Guidance for B.C.06

Table 7.1.L: B.C.06 (Bridge Railing Transitions Condition Rating) Coding Table.]

Condition	SNBI Description	CS2 (Minor)	CS3 (Moderate)	CS4 (Major)	Stability/Strength Impacted (Action Required[1])	Flag (CF/RR)
N NOT APPLICABLE	Component does not exist.	*Only applicable when no transitions are present and one is not required.*				
9 EXCELLENT	Isolated inherent defects.	*Only applicable to new structures not yet opened to traffic with deficiencies resulting from normal construction practices.*				
8 VERY GOOD	Some inherent defects. *[or isolated minor defects]*	*Less than 10%*				
7 GOOD	Some minor defects.	*10% - 40%*				
6 SATISFACTORY	Widespread minor or isolated moderate defects. *[Condition max limit for transition which does not meet current safety standards where Item B.RH.02 is not MYY1 or higher.]*	*Greater than 40%*	*Less than 10%*			*Repair Rec C-Flag*
5 FAIR	Some moderate defects; strength and performance of the component are not affected.		*10% - 40%*			*Repair Rec B-Flag*
4 POOR	Widespread moderate or isolated major defects; strength and/or performance of the component is affected.		*Greater than 40%*	*Less than 10%*	*Action Required*	*Repair Rec A-Flag*
3 SERIOUS	Major defects; strength and/or performance of the component is seriously affected. Condition typically necessitates more frequent monitoring, load restrictions, and/or corrective actions.			*10% - 40%*	*Action Required*	*Critical Finding*
2 CRITICAL	Major defects; component is severely compromised. Condition typically necessitates frequent monitoring, significant load restrictions, and/or corrective actions in order to keep the bridge open.	*Missing Transitions or ineffective where one was previously in place or required by the bridge plans.(Critical Finding Submitted)*			*Action Required*	*Critical Finding*
1 IMMINENT FAILURE	Bridge is closed to traffic due to component condition. Repair or rehabilitation may return the bridge to service.	*Transitions damaged or deteriorated and can no longer contain or redirect vehicles. (Critical Finding Submitted)*			*Action Required*	*Critical Finding*
0 FAILED	Bridge is closed due to component condition, and is beyond corrective action. Replacement is required to restore service.	*Structure Closed, Transitions require replacement before structure can be reopened structure. (Critical Finding Submitted)*			*Action Required*	*Critical Finding*

Action Required[1]: In-depth inspection, hydraulic analysis, or load rating request, see BIGD Chapter 7.
See Appendix S1 for additional guidance on severity and extent.

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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Condition & Appraisal Ratings	BridgeInspection	RailingTransitionRating

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
N - Component does not exist.	The bridge has no railing transitions. **Code N.**	00018	
8 - Some inherent defects. *[or isolated minor defects]*	Thrie beam retrofit bridge rail continues to approach W-beam with standard transition post spacing. No defects. **Code 8.**	00849	
7 - Some minor defects.	Thrie beam retrofit bridge rail continues to approach W-beam with standard transition post spacing. Minor defects to the top of the thrie beam and top of the posts from previous impact. **Code 7.**	08941	

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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
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Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
6 - Widespread minor or isolated moderate defects. *[Condition limit for transitions not meeting current safety standards.]*	W-beam approach guard railing to bridge railing transition. Isolated areas of minor deterioration, but transition does not meet the current safety standards. **Code 6.**	05601	
5 - Some moderate defects; strength and performance of the component are not affected.	The timber posts exhibit some splitting and decay, but the strength and performance of the approach transitions are not affected. **Code 5.**	09334	
Widespread moderate or isolated major defects; strength and/or performance of the component is affected.	The approach guardrail transition is damaged, and the strength and performance of the approach transitions are affected. **Code 4.**	09590	

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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Condition & Appraisal Ratings	BridgeInspection	RailingTransitionRating

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
1 - Bridge is closed to traffic due to component condition. Repair or rehabilitation may return the bridge to service.	Bridge span failure due to flooding event, bridge closed. W-beam guard railing transitions to bridge railing at one end of the bridge in failed condition due to loss of support. **Code 1.**	00062	

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Bridge Bearings Condition Rating

Format	Frequency	Item ID Number	Item Ownership
AN (1)	EI	B.C.07	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
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FHWA Specification and SCDOT Markups

Report the bridge bearing condition rating using one of the codes in *[SNBI] Table 20[, as updated by SCDOT in this section]*.

Report N for bridges without bearings.

[The SNBI descriptions for severity are defined in Appendix S1.]

[Only the Condition of the elements contained in Table 7.1.M shall be considered when coding the B.C.07 (Bridge Bearing Condition Rating).]

[Table 7.1.M: National Bridge Management Bearing Elements]

Element Name	All Materials
Elastomeric	*310*
Moveable	*311*
Enclosed/Concealed	*312*
Fixed	*313*
Pot	*314*
Disk	*315*
Other	*316*

See Section 7.2 for other elements, including Agency Defined Elements (ADEs)

FHWA Commentary and SCDOT Markups

This item addresses the condition of all types and shapes of bridge bearings.

Do not consider the condition of protective coatings and other protection systems when determining the condition rating code for this item, except to the extent that problems with the protective coating system are indicative of problems with the underlying bearing material.

In cases where the bearing device is not visible, the condition can be assessed based on alignment, grade across the joint, or other indirect indicators of the condition.

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SCDOT Guidance for B.C.07

Table 7.1.N: B.C. 07 (Bridge Bearing Condition Rating) Coding Table]

Condition	SNBI Description	CS2 (Minor)	CS3 (Moderate)	CS4 (Major)	Stability/Strength Impacted (Action Required[1])	Flag (CF/RR)
N NOT APPLICABLE	Component does not exist.	*Only applicable to structures without bearings.*				
9 EXCELLENT	Isolated inherent defects.	*Only applicable to new structures not yet opened to traffic with deficiencies resulting from normal construction practices.*				
8 VERY GOOD	Some inherent defects. *[or isolated minor defects]*	*Less than 10%*				
7 GOOD	Some minor defects.	*10% - 40%*				
6 SATISFACTORY	Widespread minor or isolated moderate defects.	*Greater than 40%*	*Less than 10%*			*Repair Rec C-Flag*
5 FAIR	Some moderate defects; strength and performance of the component are not affected.		*10% - 40%*			*Repair Rec B-Flag*
4 POOR	Widespread moderate or isolated major defects; strength and/or performance of the component is affected.		*Greater than 40%*	*Less than 10%*	*Action Required*	*Repair Rec A-Flag*
3 SERIOUS	Major defects; strength and/or performance of the component is seriously affected. Condition typically necessitates more frequent monitoring, load restrictions, and/or corrective actions.			*10% - 40%*	*Action Required*	*Repair Rec A-Flag*
2 CRITICAL	Major defects; component is severely compromised. Condition typically necessitates frequent monitoring, significant load restrictions, and/or corrective actions in order to keep the bridge open.	*Temporary lane restriction installed due to bearing deterioration until rehabilitation is completed. (Critical Finding Submitted)*			*Action Required*	*Critical Finding*
1 IMMINENT FAILURE	Bridge is closed to traffic due to component condition. Repair or rehabilitation may return the bridge to service.	*Bridge Closed due to bearing failure or deterioration and requires bridge rehabilitation. (Critical Finding Submitted)*			*Action Required*	*Critical Finding*
0 FAILED	Bridge is closed due to component condition, and is beyond corrective action. Replacement is required to restore service.	*Bridge Closed due to bearing failure or deterioration and requires bridge replacement. (Critical Finding Submitted)*			*Action Required*	*Critical Finding*

Action Required[1]: In-depth inspection, hydraulic analysis, or load rating request, see BIGD Chapter 7.
See Appendix X for additional guidance on severity and extent.

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Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
N - Component does not exist.	Concrete arch without spandrel under fill. No bearings on structure. **Code N.**	09993	
8 - Some inherent defects. *[or isolated minor defects]*	Fixed elastomeric bearing with no noted defects. **Code 8.**	10657	
7 - Some minor defects.	Fixed elastomeric bearing with insufficient anchor rod length, 25% CS2. **Code 7.**	10667	

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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
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Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
6 - Widespread minor or isolated moderate defects.	Fixed elastomeric bearing with CS2 corrosion at all anchor bolts and sole plates (100% CS2). Deterioration is considered widespread minor. **Code 6.**	00174	
6 - Widespread minor or isolated moderate defects.	20 pot bearings, 8 with CS3 corrosion, and 8 with CS2 damage. 420 elastomeric bearings with 4 having CS2 deterioration. Combined the bearing deterioration is considered isolated minor and isolated moderate, with the moderate controlling. **Code 6.**	08719	
5 - Some moderate defects; strength and performance of the component are not affected.	All bearings, throughout, loss of paint with rust staining and pack rust between plates (100% CS3). Strength and performance of the component are not affected. **Code 4.**	02468	

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Bridge Bearings Condition Rating (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (1)	EI	B.C.07	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Condition & Appraisal Ratings	BridgeInspection	BearingRating

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
4 - Widespread moderate or isolated major defects; strength and/or performance of the component is affected.	248 total bearings of 3 types. Combined 30 bearings are in CS2, 21 in CS3, and 4 in CS4. The bearing deterioration is considered some (12%) minor (CS2), isolated (8%) moderate (CS3), and isolated (2%) major (CS4). The major deterioration controls. **Code 4.**	05045	

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Bridge Joints Condition Rating

Format	Frequency	Item ID Number	Item Ownership
AN (1)	EI	B.C.08	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Condition & Appraisal Ratings	BridgeInspection	JointsRating

FHWA Specification and SCDOT Markups

Report the bridge deck joint condition using one of the following codes. The entire code description must be satisfied for the code to apply. *[SCDOT commentary for B.C.08 has been added to this table (shown on next page).]*

Report N for bridges without joints.

[The SNBI descriptions for severity are defined in Appendix S1.]

[Only the Condition of the elements contained in Table 7.1.O shall be considered when coding the B.C.08 (Bridge Joint Condition Rating)]

[Table 7.1.O: National Bridge Management Bearing Elements]

Element Name	All Materials
Strip Seal Joints	*300*
Pourable Joints Seal	*301*
Pour-In-Place Plug Joint System	*301A*
Compression Joint Seal	*302*
Bonded Preformed Joint Seal	*302A*
Bonded Foam Joint Seal	*302B*
Assembly Joint System	*303*
Segmental Joint System	*303A*
Modular Joint Assembly	*303B*
Open Joint	*304*
Assembly Joint without Seal	*305*

See Section 7.2 for other elements, including Agency Defined Elements (ADEs)

FHWA Commentary and SCDOT Markups

This item addresses the condition of all types and shapes of bridge deck joints. The condition assessment includes all aspects of the joints such as any seals, headers (metal or concrete), connections, and other metal members.

When a joint is designed as an open joint, leakage or lack of a seal is not considered a defect.

Do not consider the condition of protective coatings and other protection systems when determining the condition rating code for this item, except to the extent that problems with the protective coating system are indicative of problems with the underlying joint material.

In cases where the joint is not visible, the condition can be assessed based on other indirect indicators of the condition.

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Format	Frequency	Item ID Number	Item Ownership
AN (1)	EI	B.C.08	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Condition & Appraisal Ratings	BridgeInspection	JointsRating

SCDOT Guidance for B.C.08

[Table 7.1.P: B.C. 08 (Bridge Joint Condition Rating) Coding Table]

Condition	SNBI Description	CS2 (Minor)	CS3 (Moderate)	CS4 (Major)	Stability/Strength Impacted (Action Required[1])	Flag (CF/RR)
N NOT APPLICABLE	Component does not exist.	*Only applicable to structures without joints.*				
9 EXCELLENT	Isolated inherent defects.	*Only applicable to new structures not yet opened to traffic with deficiencies resulting from normal construction practices.*				
8 VERY GOOD	Some inherent defects. *[or isolated minor defects]*	*Less than 10%*				
7 GOOD	Some minor defects.	*10% - 40%*				
6 SATISFACTORY	Widespread minor or isolated moderate defects.	*Greater than 40%*	*Less than 10%*			*Repair Rec C-Flag*
5 FAIR	Some moderate defects; strength and performance of the component are not affected.		*10% - 40%*			*Repair Rec B-Flag*
4 POOR	Widespread moderate or isolated major defects; strength and/or performance of the component is affected.		*Greater than 40%*	*Less than 10%*	*Action Required*	*Repair Rec A-Flag*
3 SERIOUS	Major defects; strength and/or performance of the component is seriously affected. Condition typically necessitates more frequent monitoring, load restrictions, and/or corrective actions.			*10% - 40%*	*Action Required*	*Repair Rec A-Flag*
2 CRITICAL	Major defects; component is severely compromised. Condition typically necessitates frequent monitoring, significant load restrictions, and/or corrective actions in order to keep the bridge open.	*Temporary lane restriction installed due to safety hazard resulting from joint failure or deterioration. (Critical Finding Submitted)*			*Action Required*	*Critical Finding*
1 IMMINENT FAILURE	Bridge is closed to traffic due to component condition. Repair or rehabilitation may return the bridge to service.	*Bridge Closed due to safety hazard resulting from joint failure or deterioration requiring bridge rehabilitation. (Critical Finding Submitted)*			*Action Required*	*Critical Finding*
0 FAILED	Bridge is closed due to component condition, and is beyond corrective action. Replacement is required to restore service.	*Bridge Closed due to safety hazard resulting from joint failure or deterioration requiring bridge replacement. (Critical Finding Submitted)*			*Action Required*	*Critical Finding*

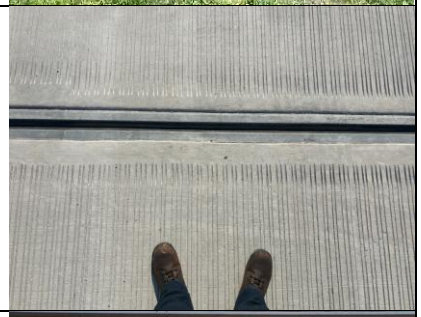
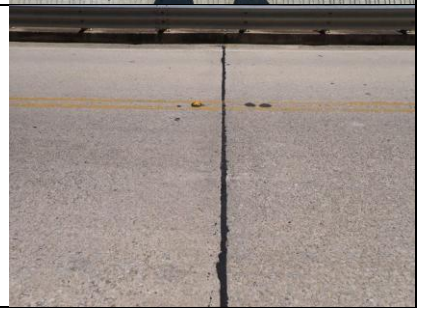
Action Required[1]: In-depth inspection, hydraulic analysis, or load rating request, see BIGD Chapter 7.
See Appendix S1 for additional guidance on severity and extent.

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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
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Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
N - Component does not exist.	Concrete arch without spandrel under fill. No joints on structure. **Code N.**	09993	
8 - Some inherent defects *[or isolated minor defects.]*	Strip seal expansion joints with no defects. **Code 8.**	10681	
7 - Some minor defects.	Pourable joint seal with partial loss of adhesion. **Code 7.**	01442	

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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
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Examples

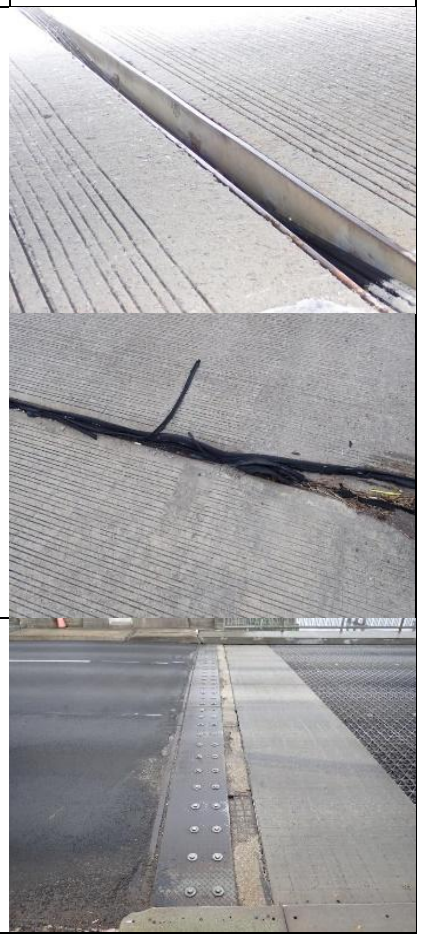
CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
6 - Widespread minor or isolated moderate defects.	72LF of sliding plate expansion joint, with 9LF in CS3 due to damage. Deterioration is classified as some (13% moderate (CS3). **Code 6.**	00183	
5 - Some moderate defects; strength and performance of the component are not affected.	220LF of pourable joint, with 80% in CS3 and 205 in CS4 but the performance of the joint is not affected. **Code 5.**	09533	

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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
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Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
4 - Widespread moderate or isolated major defects.	496LF of joints split between 2 elements. Combining the joint elements and their condition states there is 663LF of CS2, 89LF of CS3, and 108LF of CS4. Joint deterioration is considered widespread (58%) minor (CS2), isolated (8%) moderate (CS3), and some (10%) major (CS4). Major deterioration controls. **Code 4**	08719	
3 - Some major defects.	496LF of joints split between 2 elements. Combining the joint elements and their condition states there is 21LF of CS2, 97LF of CS3, and 212LF of CS4. Joint deterioration is considered isolated (4%) minor (CS2), some (20%) moderate (CS3), and widespread (43%) major (CS4). Major deterioration controls. **Code 3**	00228	

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Channel Condition Rating

Format	Frequency	Item ID Number	Item Ownership
AN (1)	EI	B.C.09	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Condition & Appraisal Ratings	BridgeInspection	ChannelRating

FHWA Specification and SCDOT Markups	FHWA Commentary and SCDOT Markups
Report the channel condition using one of the following codes. The entire code description must be satisfied for the code to apply. *[SCDOT commentary for B.C.09 has been added to this table (shown on next page).]* *[The SNBI descriptions for severity are defined in Appendix S1.]* *[Code "N" for this item when the structure does not cross a waterway. Structures which may only cross water during high-water events (i.e. overflows and floodplains) should have a numerical coding of "N".* *The following can impact Item B.C.09 (Channel Condition):* • *Bank vegetation – Vegetation protects the banks from erosion by normal water flow.* • *River control devices – Devices include spur dikes, jetties, retards, and other control systems.* • *Trees and brush restricting the channel – Trees and brush could cause a restriction accelerating the flow and the potential for stream degradation or scour.* • *Channel movement away from the as-built condition – Channel movement may encroach on the substructure or approach pavement, causing undermining and potential failure of the bridge or roadway.* • *Aquatic grasses – These natural grasses shall be treated as debris in the channel as they cause a potential for snagging floating bushes, trees, sediment, etc. that may accumulate and restrict channel flow.]*	This item is used to provide a condition rating for the channel at the bridge. Consider the channel upstream and downstream only insofar as it threatens the bridge and approach roadway. The condition of channel protection devices is addressed under a separate item. Refer to Item B.C.10 (*Channel Protection Condition Rating*). For concrete lined channels, channel defects typically do not apply, except for Aggradation and Debris. The condition of the channel lining would be addressed by Item B.C.10 (*Channel Protection Condition Rating*). *[The following items should be reviewed when assessing the Item B.C.09 (Channel Condition):* • *Presence of Bed Deposits Downstream* • *Debris in the Channel, Restricting Flow* • *Stability of Channel Upstream and Downstream* • *Changes in the Channel at the Structure* • *Stream Aggregation and Degradation* • *Lateral Movement of the Stream* • *Features (Lakes, Dams, etc.) in the Bridge Channel* *Text is required text in "Channel and Channel Protection" Text Box if Item B.C.09 (Channel Condition) is 5 or less.]*

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SCDOT Guidance for B.C.09

[Table 7.1.Q: B.C.09 (Channel Condition Rating) Coding Table]

Condition	SNBI Description	CS2 (Minor)	CS3 (Moderate)	CS4 (Major)
N NOT APPLICABLE	Bridge does not cross over water.	*Only applicable to structures not crossing a waterway or for structures that cross only an overflow or floodplain.*		
9 EXCELLENT	Isolated *[inherent]* defects.	*Only applicable to new structures not yet opened to traffic with deficiencies resulting from normal construction practices.*		
8 VERY GOOD	Some inherent defects *[or isolated minor defects.]*	*Less than 10%*		
7 GOOD	Some minor defects.	*10% - 40%*		
6 SATISFACTORY	Widespread minor or isolated moderate defects.	*Greater than 40%*	*Less than 10%*	
5 FAIR	Some moderate defects; bridge and approach roadway are not threatened.		*10% - 40%*	
4 POOR	Widespread moderate or isolated major defects; bridge and/or approach roadway is threatened.		*Greater than 40%*	*Less than 10%*
3 SERIOUS	Major defects; bridge or approach roadway is seriously threatened. Condition typically necessitates more frequent monitoring, load restrictions*[/posting]*, and/or corrective actions.			*10% - 40%*
2 CRITICAL	Major defects. Bridge or approach roadway is severely threatened. Condition typically necessitates frequent monitoring, significant load restrictions*[/posting]*, and/or corrective actions in order to keep the bridge open.	*Temporary lane restriction installed due to bank erosion or instability, requiring rehabilitation and increased monitoring. (Critical Finding Submitted)*		
1 IMMINENT FAILURE	Bridge is closed to traffic due to channel condition. Channel rehabilitation may return the bridge to service.	*Bridge Closed due to bank erosion or instability, requiring bridge rehabilitation and increased monitoring. (Critical Finding Submitted)*		
0 FAILED	Bridge is closed due to channel condition, and is beyond corrective action. Bridge location or design can no longer accommodate the channel, and bridge replacement is needed to restore service.	*Bridge Closed due to bank erosion or instability, requiring bridge replacement. (Critical Finding Submitted)*		

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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
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Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
N - NOT APPLICABLE	Bridge does not cross a waterway. **Code N.**	10279	
8 - Some inherent defects *[or isolated minor defects.]*	Channel has no defects. **Code 8.**	10860	
7 - Some minor defects.	Inherent alignment issues, with minor aggradation. No moderate or major deterioration noted. **Code 7.**	01782	

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Inspection Data	Condition & Appraisal Ratings	BridgeInspection	ChannelRating

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
6 - Widespread minor or isolated moderate defects.	Stable banks and straight alignment. Widespread minor scour at outlet. **Code 6.**	00032	
5 - Some moderate defects; bridge and approach roadway are not threatened.	The embankments are partially covered in natural rock and show signs of erosion. **Code 5.**	06673	
4 - Widespread moderate or isolated major defects; bridge and/or approach roadway is threatened.	Widespread Moderate bank erosion along both banks, and some minor degradation within channel. No debris or alignment issues noted. **Code 4.**	05529	

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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Condition & Appraisal Ratings	BridgeInspection	ChannelRating

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
1 - Bridge is closed to traffic due to channel condition. Channel rehabilitation may return the bridge to service.	Widespread major bank erosion threatening the stability of the approach roadway. Bridge closed due to stability concerns, and can be reopened after rehabilitation without replacing the structure. **Code 1**	05392	

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Channel Protection Condition Rating

Format	Frequency	Item ID Number	Item Ownership
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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Condition & Appraisal Ratings	BridgeInspection	ChannelProtectionRating

FHWA Specification and SCDOT Markups	FHWA Commentary and SCDOT Markups
Report the condition of the channel protection device(s) using one of the following codes. The entire code description must be satisfied for the code to apply. *[SCDOT commentary for B.C.10 has been added to this table (shown on the following pages).* *The SNBI descriptions for severity are defined in Appendix S1.* *For bridges where armoring countermeasures are installed at the abutments only, with no river training or armoring countermeasures at the channel's banks; these are to be considered channel protective measures.]*	This item is used to provide a condition rating for channel protection devices. Evaluate the condition and effectiveness of channel protection devices installed on banks or in the stream to mitigate channel issues that may impact the bridge. When reporting this item, consider erosion and scour, damage (unraveling, displacement, separation, and sagging), and material defects (scaling, abrasion, spalling, corrosion, cracking, splitting, and decay). Channel protection devices are considered countermeasures that control, inhibit, delay, or minimize stream instability and scour problems, including river training and armoring countermeasures. River training countermeasures may include: spurs, bendway weirs, guide banks, drop structures, and check dams. Additional river training countermeasures can be found in HEC-23 and elsewhere. Armoring countermeasures may include: rock riprap, grouted riprap, concrete slope paving, articulating concrete blocks, gabion mattresses, and grout-filled mats. Additional armoring countermeasures can be found in HEC-23 and elsewhere.

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Format	Frequency	Item ID Number	Item Ownership
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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Condition & Appraisal Ratings	BridgeInspection	ChannelProtectionRating

FHWA Specification and SCDOT Markups	FHWA Commentary and SCDOT Markups
	For bridges that have countermeasures not visible for inspection, use appropriate visual condition indicators to determine the applicable code. These may include measurements taken at the bridge face(s) during every inspection to help determine degree of degradation, aggradation, and/or channel migration. For this item, a minor defect does not limit the effectiveness of the channel protection, while a moderate defect may limit its effectiveness. A major defect indicates that the channel protection is missing or is no longer effective as determined by a hydraulic review.

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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Condition & Appraisal Ratings	BridgeInspection	ChannelProtectionRating

SCDOT Guidance for B.C.10

[Table 7.1.R: B.C.10 (Channel Protection Condition Rating) Coding Table]

Condition	SNBI Description	CS2 (Minor)	CS3 (Moderate)	CS4 (Major)
N NOT APPLICABLE	Bridge does not cross over water or channel protection devices do not exist.	*Structure does not cross water or no channel protection installed at structure.*		
9 EXCELLENT	Isolated inherent defects.	*Only applicable to new structures not yet opened to traffic with deficiencies resulting from normal construction practices.*		
8 VERY GOOD	Some inherent defects. *[or isolated minor defects]*	*Less than 10%*		
7 GOOD	Some minor defects.	*10% - 40%*		
6 SATISFACTORY	Widespread minor or isolated moderate defects.	*Greater than 40%*	*Less than 10%*	
5 FAIR	Some moderate defects; performance of the channel protection is not affected.		*10% - 40%*	
4 POOR	Widespread moderate or isolated major defects; performance of channel protection is affected.		*Greater than 40%*	*Less than 10%*
3 SERIOUS	Major defects; performance of channel protection is seriously affected. Condition typically necessitates more frequent monitoring or corrective actions.			*10% - 40%*
2 CRITICAL	Major defects; channel protection is severely compromised. Condition typically necessitates more frequent monitoring or corrective actions.	*Temporary lane restriction installed due to damaged or deteriorated channel protection, requiring rehabilitation and increased monitoring. (Critical Finding Submitted)*		
1 IMMINENT FAILURE	Channel protection has failed, but corrective action could restore it to working condition.	*Bridge Closed due to damaged or deteriorated channel protection, requiring bridge rehabilitation and increased monitoring. (Critical Finding Submitted)*		
0 FAILED	Channel protection is beyond repair and must be replaced.	*Bridge Closed due to damaged or deteriorated channel protection, requiring bridge replacement. (Critical Finding Submitted)*		

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SCDOT Guidance for B.C.10

[Table 7.1.S: B.C.10 (Channel Protection Condition Rating) Classification Table]

Defects	Minor	Moderate	Major
Material Defects	*CS2 material defects as described in Appendix S1.*	*CS3 material defects as described in Appendix S1.*	*CS3aterial defects as described in Appendix S1.*
Erosion and Scour	*Erosion and scour causing unraveling, displacement, separation, and sagging. Exists within tolerable limits: negligible to the design dimensions and placement of countermeasure.*	*Exceeds tolerable limits: impacting design dimensions and placement of countermeasure.*	*Portions of countermeasures have failed as the result of erosion and scour.*
Lateral Stability Counter-Measures	*Exists within tolerable limits or has been arrested. Countermeasures may extend upstream 10 bridge widths, historical photography review may be necessary if present.*	*Exceeds tolerable limits. Hydraulic opening is significantly blocked, increasing potential for overtopping or channel restriction.*	*Hydraulic opening is mostly blocked. May cause frequent overtopping or channel restriction.*
Damage	*Damage exists and is described by other CS2 defect.*	*Damage exists and is described by other CS3 defect.*	*Damage exists and is described by other CS4 defect.*

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Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
N - Bridge does not cross over water or channel protection devices do not exist.	Bridge does not cross a waterway. **Code N.**	10279	
N - Bridge does not cross over water or channel protection devices do not exist.	No Channel Protection at structure, with active deterioration of bank. **Code N**	05529	
8 - Some inherent defects. *[or isolated minor defects]*	Riprap in place at culvert outlet. Good condition, no defects noted. **Code 8**	10481	

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Channel Protection Condition Rating (continued)

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AN (1)	EI	B.C.10	BI
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Inspection Data	Condition & Appraisal Ratings	BridgeInspection	ChannelProtectionRating

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
7 - Some minor defects.	Some riprap is loose. **Code 7.**	03839	
5 - Some moderate defects; performance of the channel protection is not affected.	Washout at all four corners of the bridge and loose riprap but the performance of the channel protection is not affected. **Code 5.**	10132	
3 - Major defects; performance of channel protection is seriously affected. Condition typically necessitates more frequent monitoring or corrective actions.	Sloughing of banks with widespread major erosion of previously installed rip rap channel protection. **Code 3**	08143	

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Scour Condition Rating

Format	Frequency	Item ID Number	Item Ownership
AN (1)	EI	B.C.11	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Condition & Appraisal Ratings	BridgeInspection	ScourRating

FHWA Specification and SCDOT Markups	FHWA Commentary and SCDOT Markups
Report the scour condition that represents the observed or measured scour using one of the following codes. The entire code description must be satisfied for the code to apply. *[SCDOT commentary for B.C.11 has been added to this table (shown on next page).* *The SNBI descriptions for severity are defined in Appendix S1.* *See Appendix S5 for additional coding guidance on Scour Condition Rating.]*	Refer to Item B.AP.03 (*Scour Vulnerability*) to verify if the bridge has been determined to be stable or unstable for appraised scour conditions. Consider design scour depth and critical scour depth, commonly found in hydraulic designs, scour evaluations, and POAs, when determining the scour condition ratings. When observed conditions are not consistent with the scour design or the assumptions used in the scour appraisal, this indicates a need to reevaluate Item B.AP.03 (*Scour Vulnerability*).

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FHWA Specification and SCDOT Markups

[Table 7.1.T: B.C.11 (Scour Condition Rating) Coding Table]

Condition	SNBI Description	CS2 (Minor)	CS3 (Moderate)	CS4 (Major)	Stability/Strength Impacted (Action Required[1])	Flag (CF/RR)
N NOT APPLICABLE	Bridge does not *[regularly]* cross over water.	*Only applicable to structures not crossing a waterway. Not applicable for structures crossing an overflow or floodplain.*				
9 EXCELLENT	No scour. *[Not used for bridges open to traffic over water.]*	*Only applicable to new structures not yet opened to traffic with deficiencies resulting from normal construction practices.*				
8 VERY GOOD	Insignificant scour. *[or isolated minor scour]*	*Less than 10%*				
7 GOOD	Some minor scour.	*10% - 40%*				
6 SATISFACTORY	Widespread minor or isolated moderate scour.	*Greater than 40%*	*Less than 10%*			*Repair Rec C-Flag*
5 FAIR	*[Some]* Moderate scour; strength and stability of the bridge are not affected.		*10% - 40%*			*Repair Rec B-Flag*
4 POOR	Widespread moderate or isolated major scour; strength and/or stability of the bridge is affected.		*Greater than 40%*	*Less than 10%*	*Action Required*	*Repair Rec A-Flag*
3 SERIOUS	*[Some]* Major scour; strength and/or stability of the bridge is seriously affected. Condition typically necessitates more frequent monitoring, load restrictions, and/or corrective actions.			*10% - 40%*	*Action Required*	*Critical Finding*
2 CRITICAL	Major scour; strength and/or stability of the bridge is severely compromised. Condition typically necessitates frequent monitoring, significant load restrictions, and/or corrective actions to keep the bridge open.	*Temporary lane/shoulder restriction installed or load posting due to scouring of the structure's foundation, requiring rehabilitation and increased monitoring.*			*Action Required*	*Critical Finding*
1 IMMINENT FAILURE	Bridge is closed to traffic due to scour condition. Channel rehabilitation may return the bridge to service.	*Bridge closed due to scouring of the structure's foundation, requiring bridge rehabilitation and increased monitoring.*			*Action Required*	*Critical Finding*
0 FAILED	Bridge is closed due to scour condition, and is beyond corrective action. Bridge replacement is needed to restore service.	*Bridge closed due to scouring of the structure's foundation, requiring bridge replacement.*			*Action Required*	*Critical Finding*

Action Required[1]: In-depth embedment inspection[2], hydraulic analysis, or load rating request, see BIGD Chapter 7.
In-depth embedment inspection[2]:= An in-depth embedment inspection should only be requested for bridges with unknown foundations that are supported by piles.
The SNBI descriptions for severity are defined in Appendix S1. *See Appendix S5 for additional coding guidance on B.C.11.*

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SCDOT Guidance for B.C.11

*[**Units Susceptible to Scour***

For a culvert, barrels are considered individually, and the number of substructure units susceptible to scour is equal to the number of barrels the culvert contains.

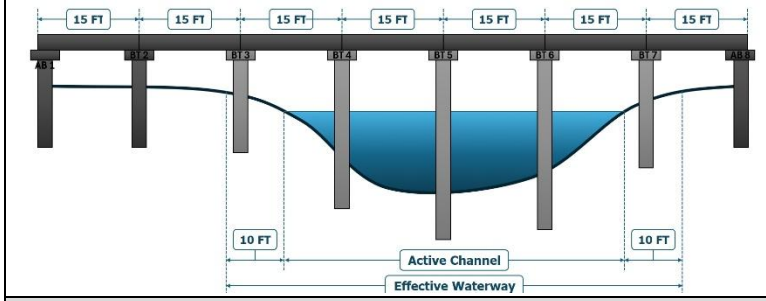
For bridges each Bent or Pier within the effective waterway is considered a single unit (regardless of layout or elements contained) susceptible to scour. The effective waterway is determined by including the floodplain or 10ft to each edge of the active waterway (see figure at right). The edges of the active waterway represent the channel boundaries during normal flow, which may be defined by an elevation change, vegetation line, or channel protection devices. Bents located outside the effective waterway may be considered if evidence of scouring is found or site conditions indicate the bent has become susceptible to scour. Otherwise, do not consider bents outside the effective waterway for coding Item B.C.11.

Severity

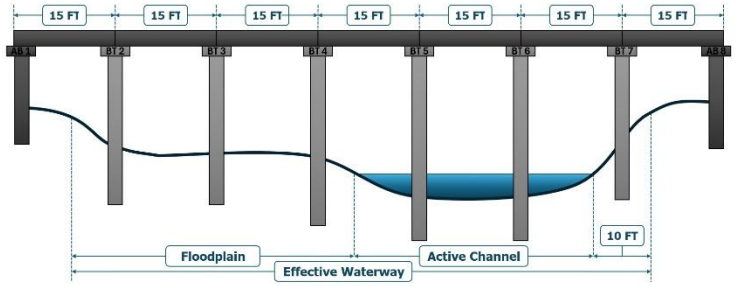
The inspector shall consider all measurable scour when assigning severity, including scour present on the elements whose individual condition state is controlled by other deterioration types. Section 7.3 of SNBI Supplemental Guide provides commentary for determining scour condition states.

Extent

Extent is only in relation to the portion of the structure susceptible to scour.]



- Bridge over Waterway (no Floodplain): Effective Waterway extends 10FT past the edges of the active channel.
- Units Susceptible to scour = 5 (Bents 3 through 7)



- Bridge over Waterway and Floodplain: Effective Waterway starts at floodplain and extends 10FT past the edge of active channel.
- Units susceptible to scour = 6 (Bents 2 through 7)

Effective Waterway Examples

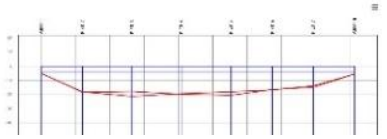
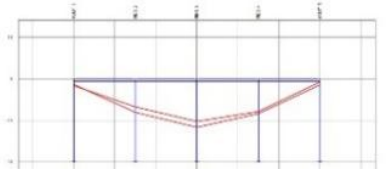
South Carolina Department of Transportation

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Examples (Bridges)

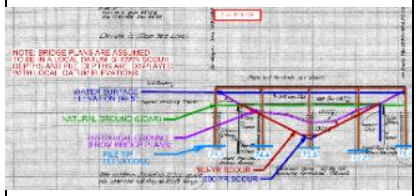
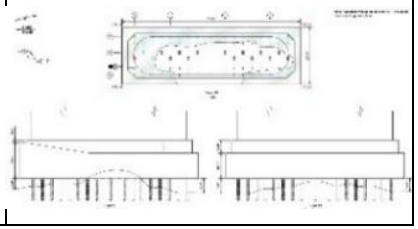
CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
N - No scour. *[Not used for bridges open to traffic over water.]*	Bridge does not cross over water, but it is in the Saluda River floodplain. • Some waterway fields may be coded but not B.C.11. **Code N.**	10667	
8 - Insignificant scour *[or isolated minor scour].*	2-Span bridge crossing 25-Mile Creek. • Both Abutments and Bent 2 within effective waterway. • Bent 2 had insignificant (CS1) local scour. **Code 8.**	09515	
7 - Some minor scour.	7-Span bridge over Pocotaligo River. • Bents 2-7 and Abutment 8 part of effective waterway. • Known embedment depths with tolerable and critical limits based on scour assessment data. • 2 Bents have scour you to 3.6′ deep, which is classified as some (29%) minor (CS2) scour. **Code 7.**	05629	
6 - Widespread minor or isolated moderate scour.	4-Span bridge over Little Beaver Creek. • All Abutments and Bents are part of effective waterway. • Unknown embedment depths, critical limit set 3′ below • original channel bottom, and tolerable limit set 1.5′ • below based on Section 7.3 of SNBI Supplemental Guide. • 3 Bents have scour up to 1.4′ deep, which is defined as widespread (60%) minor (CS2). **Code 6.**	03432	

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Scour Condition Rating (Continued)

Format	Frequency	Item ID Number	Item Ownership
AN (1)	EI	B.C.11	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Condition & Appraisal Ratings	BridgeInspection	ScourRating

Examples (Bridges)

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
5 - *[Some]* Moderate scour; strength and stability of the bridge are not affected.	12-Span bridge over Little Beaver Creek. • Bents 5-8 are part of effective waterway. • Unknown embedment depths, critical limit set using Section 7.3 of SNBI Supplemental Guide. • Scour at Bent 5 with 1.5' of footing exposure with no undermining, therefore scour is classified as some (25%) moderate (CS3). **Code 5, Submit B-Flag repair rec.**	00540	
4 - Widespread moderate or isolated major scour; strength and/or stability of the bridge is affected.	4-Span bridge over Douglas Swamp. • All Abutments and Bents included in the effective waterway. • Known embedment depth with critical limit established by the scour assessment POA documentation. • Bents 2 through 4 have exposed footings (consistent with plans), with exposed timber piles due to scour that exceeds the tolerable limit but is less than the critical limit. Scour is classified as Widespread (60%) moderate (CS3) Scour. **Code 4, Submit A-Flag Repair Rec, request load rating to assess strength/stability. Load Rating results may result in a new hydraulic analysis.**	01876	
3 - *[Some]* Major scour; strength and/or stability of the bridge is seriously affected. Condition typically necessitates more frequent monitoring, load restrictions, and/or corrective actions.	27-Span bridge over Waccamaw River. • Bents 5-24 are included in the effective waterway. • Known embedment depths with tolerable and critical limits based on scour assessment data. • 4 bents have footing and steel pile exposure that exceeds the critical limit which is classified as some (20%) major (CS4) scour. **Code 3, Report as critical finding and request load rating to assess strength/stability. Load Rating results may result in a new hydraulic analysis.**	04792	

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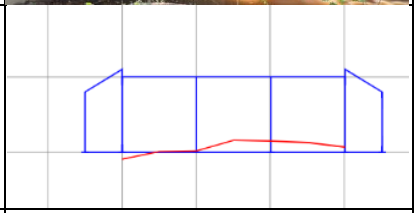
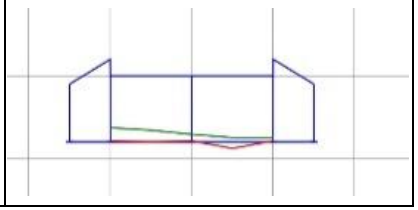
Scour Condition Rating (Continued)

Format	Frequency	Item ID Number	Item Ownership
AN (1)	EI	B.C.11	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Condition & Appraisal Ratings	BridgeInspection	ScourRating

Examples (Bridges)

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
2 - Major scour; strength and/or stability of the bridge is severely compromised. Condition typically necessitates frequent monitoring, significant load restrictions, and/or corrective actions to keep the bridge open.	6-Span bridge • Bents 2 through 6 included in the effective waterway. • Unknown embedment depths with Scour Assessment unable to establish critical limit. No plans are available, so critical limit assumed based on Section 7.3 of SNBI Supplemental Guide using historical inspection reports. • All 5 bents within the effective waterway have more than 3ft of scour compared to historical cross sections. Scour condition is defined as Widespread (100%) Major (CS4). **Code 2, Report as critical finding and request load rating to assess strength/stability. Load Rating results may result in a new hydraulic analysis.**	05392	

Examples (Culverts)

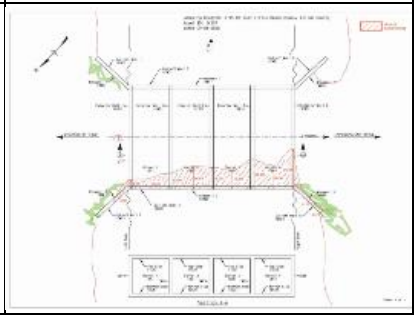
CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
8 - Insignificant scour *[or isolated minor scour]*	2-Barrel culvert over Roberts Branch. • For Culverts, each barrel is considered separately as a substructure unit within the effective waterway. • Scour at inlet and outlet of both barrels with no vertical exposure of bottom slab is defined as widespread (100%) insignificant (CS1) scour. **Code 8.**	07404	
7 - Some minor scour.	3-Barrel culvert over Log Branch. • For Culverts, each barrel is considered separately as a substructure unit within the effective waterway. • Scour at outlet of barrel 1 with vertical exposure of bottom slab and no undermining. • Scour is classified as some (33%) minor (CS2). **Code 7.**	02111	
6 - Widespread minor or isolated moderate scour.	2-Barrel culvert over Turkey Creek. • For Culverts, each barrel is considered separately as a substructure unit within the effective waterway. • Scour at inlet and outlet of 1 barrel with 1ft vertical exposure of toewall with no undermining, which based on Section 7.3 of SNBI Supplemental Guide is classified as widespread (50%) minor (CS2) scour. **Code 6.**	01584	

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Scour Condition Rating (Continued)

Format	Frequency	Item ID Number	Item Ownership
AN (1)	EI	B.C.11	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Condition & Appraisal Ratings	BridgeInspection	ScourRating

Examples (Culverts)

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
4 - Widespread moderate or isolated major scour; strength and/or stability of the bridge is affected.	4-Barrel Culvert over catfish canal. • For Culverts, each barrel is considered separately as a substructure unit within the effective waterway. • Barrels are 188’ long, with the roadway’s shoulder over 30’ from the inlet and outlet headwalls. Critical limit is set at 18.8’ from headwall based on Section 7.3 of SNBI Supplemental Guide. • Scour at the inlet of all barrels undermines the bottom slab 6.6’ which exceeds the tolerable limit but is less than the critical limit. Widespread (100%) Moderate (CS3) Scour. **Code 4, submit A-Flag Repair Rec, request load rating to assess strength/stability. Load Rating results may result in a new hydraulic analysis.**	05983	
3 - *[Some]* Major scour; strength and/or stability of the bridge is seriously affected. Condition typically necessitates more frequent monitoring, load restrictions, and/or corrective actions.	3-Barrel culvert over Black Swamp • For Culverts, each barrel is considered separately as a substructure unit within the effective waterway. • The Roadway shoulder is adjacent to the headwalls resulting in the critical limit being placed at the headwall per Section 7.3 of SNBI Supplemental Guide. • Scour at inlet of barrel 1 with 6.2’ of undermining of the bottom slab. • Scour is classified as some (33%) major (CS4). **Code 3, report as critical finding and request load rating to assess strength/stability. Load Rating results may result in a new hydraulic analysis.**	00048	
2- Major scour; strength and/or stability of the bridge is severely compromised. Condition typically necessitates frequent monitoring, significant load restrictions, and/or corrective actions to keep the bridge open.	4-Barrel Culvert over Little Reedy Creek. • For Culverts, each barrel is considered separately as a substructure unit within the effective waterway. • Barrels are 79’ long, with the critical limit set 20ft from the inlet and outlet headwalls based on Section 7.3 of SNBI Supplemental Guide and the roadway’s shoulders. Scour at inlet of all barrels undermines the bottom slab up to 25ft, extending extends 3-5ft under the roadway carried above, and is defined as Widespread (100%) Major (CS4) Scour **Code 2, report as critical finding and request load rating to assess strength/stability. Load Rating results may result in a new hydraulic analysis.**	04507	

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Bridge Condition Classification

Format	Frequency	Item ID Number	Item Ownership
AN (1)	C	B.C.12	FHWA
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
N/A	N/A	N/A	N/A

FHWA Specification and SCDOT Markups

This item is calculated by FHWA and is not required to be reported. The bridge condition classification is indicated using one of the following codes.

Code	Condition	Lowest Condition Rating
G	Good	7, 8, or 9
F	Fair	5 or 6
P	Poor	4, 3, 2, 1, or 0

FHWA Commentary and SCDOT Markups

For the purposes of national performance measures, the method of assessment to determine the classification of a bridge is the minimum (i.e. lowest) condition rating code from the following items:

B.C.01 (Deck Condition Rating),
B.C.02 (Superstructure Condition Rating),
B.C.03 (Substructure Condition Rating), and
B.C.04 (Culvert Condition Rating.

[This code is not collected by inspectors. FHWA calculates this value based on the yearly federal data submittal.]

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Lowest Condition Rating Code

Format	Frequency	Item ID Number	Item Ownership
AN (1)	C	B.C.13	FHWA
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
N/A	N/A	N/A	N/A

FHWA Specification and SCDOT Markups	FHWA Commentary and SCDOT Markups
This item is calculated by FHWA and is not required to be reported. The code for this item is the lowest condition rating code from the following items: B.C.01 (Deck Condition Rating), B.C.02 (Superstructure Condition Rating), B.C.03 (Substructure Condition Rating), and B.C.04 (Culvert Condition Rating)	*[This code is not collected by inspectors. FHWA calculates this value based on the yearly federal data submittal.]*

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NSTM Inspection Condition

Format	Frequency	Item ID Number	Item Ownership
AN (1)	EI	B.C.14	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Condition & Appraisal Ratings	BridgeInspection	NSTMInspectionCondition

FHWA Specification and SCDOT Markups	FHWA Commentary and SCDOT Markups
Report the condition rating of the Non-Redundant Steel Tension Members (NSTM) using one of the NUMERIC codes in *[SNBI] Table 20.* *[Do not report this item when the bridge has steel components that do not require an NSTM Inspection (B.IR.01 is 'N'), or when the bridge does not have steel components at all.]*	This item represents the condition of NSTM(s) identified to be inspected in the NSTM inspection procedures, and incorporated into the superstructure or substructure condition rating. *[Only the NSTM members identified in the BSIP shall be considered when coding this item:* • *The condition of NSTM superstructure elements should be assessed using the table provided in the Superstructure Condition Rating (B.C.02) commentary.* • *The condition of NSTM substructure elements should be assessed using the table provided in the Substructure Condition Rating (B.C.03) commentary.]* For a bridge with NSTM(s) in both the superstructure and substructure, report only the lower of the two condition values for the condition of the NSTM(s).

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NSTM Inspection Condition (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (1)	EI	B.C.14	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Condition & Appraisal Ratings	BridgeInspection	NSTMInspectionCondition

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
8 - Some inherent defects. *[or isolated minor defects]*	Substructure is comprised of 1 element which is NSTM: • Steel Pier Cap: 91 LF (100% CS1) Steel pier cap has no defects. **Code 8.**	10667	
7 - Some minor defects.	Superstructure is of 3 elements which are NSTM: • Steel Truss: 300 LF (CS2 15%) • Steel Floor Beam: 394 LF (CS2 15%) • Steel Gusset Plate: 104 EA (CS2 15%) CS2 for minor corrosion. Deterioration is classified as some minor. **Code 7.**	10071	
6 - Widespread minor or isolated moderate defects.	Superstructure is of 3 elements which are NSTM: • Steel Truss: 78 LF (CS2 95%, CS3 5%) • Steel Floor Beam: 394 LF (CS2 50%) • Steel Gusset Plate: 104 EA (CS2 100%) Deterioration is classified as widespread minor and isolated moderate. **Code 6.**	00633	

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Format	Frequency	Item ID Number	Item Ownership
AN (1)	EI	B.C.14	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Condition & Appraisal Ratings	BridgeInspection	NSTMInspectionCondition

Examples

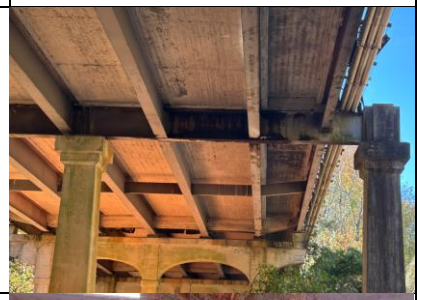
CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
5 - Some moderate defects; strength and performance of the component are not affected.	Substructure is comprised of 1 element which is NSTM: • Steel Pier Cap: 619 LF (1% CS2 and 24% CS3) Steel pier cap deterioration is considered some moderate. **Code 5.**	04050	
5 - Some moderate defects; strength and performance of the component are not affected.	Superstructure is comprised of 1 element which is NSTM: • Steel Girder: 5856 LF (61% CS2 and 33% CS3) Steel pier cap deterioration is considered some moderate. **Code 5.**	01965	

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Format	Frequency	Item ID Number	Item Ownership
AN (1)	EI	B.C.14	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Condition & Appraisal Ratings	BridgeInspection	NSTMInspectionCondition

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
4 - Widespread moderate or isolated major defects; strength and/or performance of the component is affected.	Substructure is comprised of 1 element which is NSTM: • Steel Pier Cap: 197 LF (78% CS3) Deterioration can be categorized as widespread. A load rating shows deterioration affects the strength and stability of the structure. **Code 4.**	00969	
2 - Major defects; component is severely compromised. Condition typically necessitates frequent monitoring, significant load restrictions, and/or corrective actions in order to keep the bridge open.	Superstructure is of 2 elements which are NSTM: • Steel Truss: 356 LF (CS2 12%, CS3 50%, CS4 38%) • Steel Floor Beam: 394 LF (CS3 80%, CS4 20%) Deterioration is classified as major defects. **Code 2.**	00085	

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Underwater Inspection Condition

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AN (1)	EI	B.C.15	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Condition & Appraisal Ratings	BridgeInspection	UnderwaterInspectionRating

FHWA Specification and SCDOT Markups	FHWA Commentary and SCDOT Markups
Report the condition rating of the underwater members of the substructure or culvert based on the underwater inspection using one of the codes in *Table 20*. Do not report this item when Item B.IR.03 (*Underwater Inspection Required*) is N.	This item represents the condition of underwater members identified to be inspected in the underwater inspection procedures, and incorporated into the substructure or culvert condition rating. *[Only the underwater portions of the structure identified in the BSIP shall be considered when coding this item:* • *The condition of bridge elements should be assessed using the table provided in the Substructure Condition Rating (B.C.03) commentary.* • *The condition of culvert element should be assessed using the table provided in the Culvert Condition Rating (B.C.04) commentary.]* If this item has previously been reported because an underwater inspection is generally required, it should continue to be reported even for instances of unusually low flow where all portions of the substructure can be inspected by wading and probing, and an underwater inspection is not required. This applies only if the low flow condition is truly unusual and is not likely to reoccur during the next inspection interval. *[In these cases, B.C.15 (Underwater Inspection Condition) would be equal to B.C.03 (Substructure Condition Rating).]* The requirement to report this item may change in the rare circumstance where long-term environmental conditions change for inspection access to underwater portions of the substructure or culvert. *[In these cases, this item shall be reported until the underwater inspection is removed via the process described in the BIGD.]*

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B.C.03 Substructure Rating
B.C.04 Culvert Condition Rating
B.C.05 Bridge Railings Rating
B.C.06 Bridge Railings Transitions
B.C.07 Bridge Bearings Rating
B.C.08 Bridge Joints Rating
B.C.09 Channel Condition Rating
B.C.10 Channel Protection Rating
B.C.11 Scour Condition Rating
B.C.12 Condition Classification
B.C.13 Lowest Condition Rating
B.C.14 NSTM Inspection Condition
B.C.15 UW Inspection Condition
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AN (1)	EI	B.C.15	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Condition & Appraisal Ratings	BridgeInspection	UnderwaterInspectionRating

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
N - Component does not exist.	While the bridge spans over a waterway, no underwater inspection is performed on this bridge. **Code N.**	07585	
8 - Some inherent defects. *[or isolated minor defects]*	No defects noted by the Underwater Inspection team. **Code 8.**	10861	
7 - Some minor defects.	The Underwater Inspection team noted degradation at the inlet has resulted in vertical exposure (up to 10in high) of bottom slab. The deterioration is noted as some minor defects. **Code 7.**	10904	

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B.C.06 Bridge Railings Transitions
B.C.07 Bridge Bearings Rating
B.C.08 Bridge Joints Rating
B.C.09 Channel Condition Rating
B.C.10 Channel Protection Rating
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AN (1)	EI	B.C.15	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Condition & Appraisal Ratings	BridgeInspection	UnderwaterInspectionRating

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
6 - Widespread minor or isolated moderate defects.	The Underwater Inspection team noted concrete piles and columns exhibited abrasion up to 1/8" with exposed aggregate from High water mark to the channel bottom. The deterioration is noted as widespread minor. **Code 6.**	03410	
5 - Some moderate defects; strength and performance of the component are not affected.	Considering only the defects located below the waterline and identified by the Underwater Inspection team includes moderate corrosion with section loss on steel piles. Some moderate cracking and other deterioration on RC columns. **Code 5.**	00004	
4 - Widespread moderate or isolated major defects; strength and/or performance of the component is affected.	The Underwater Inspection team noted widespread moderate scour at the prestressed piles and some moderate corrosion on the steel piles. The strength and/or performance of the prestressed piles is affected. **Code 4.**	10808	

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Element Number, Parent Number, and Total Quantity

Format	Frequency	Item ID Number	Item Ownership
N (4,0) / N (8,0)	EI	B.E.01 to B.E.03	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Elements and Inspection Notes	Element	Varies

FHWA Specification *[and SCDOT Markups]*

Report the applicable element number (EN) for each element reported for the bridge.

These data items are considered part of the Elements Data Set and have a many-to-one relationship with a bridge when applicable.

Data items for this subsection are reported for each element present on a bridge and the data for these items may change after each inspection.

Refer to the *AASHTO Manual for Bridge Element Inspection (MBEI)* for element descriptions and quantity calculations.

Elements that are entirely below ground and not accessible for inspection, such as piles and pile caps/footings, are not intended to be reported until they become exposed and visible for inspection. However, element data can be reported for elements that are not visible for inspection, or may become visible for inspection and are subsequently covered, by reporting the best available data for those elements.

Report the total element quantity to the nearest whole unit of measure for each applicable element reported for the bridge.

FHWA Commentary *[and SCDOT Markups]*

Ensure correlation between elements reported in this subsection and codes reported for items in the Bridge Material and Type section.

[The introduction pages give an element overview and the SCDOT defect hierarchy Following introduction pages, the elements are organized by major groupings. There is a detailed classification and description for each element and guidelines on how to collect the quantity of the element and units. The Condition State definitions include defect descriptions and severity with guidelines for the inspector on defect severity categorization. Appendix S3 includes guidance on some of the more specific situations to properly quantify. Appendix S5 includes guidance on how to code the Scour Defect, 6000. Appendix S6 include guidance on how to code the Damage Defect, 7000.

Use the links below to navigate to a section:

- *Element Summary Table*
- *Defect Hierarchy*
- *Environmental Factors*
- *Element Classification*
- *Element Table*
- *Condition State Tables*
- *Appendix S2 – Timber Pile Element and Defect Guidance*
- *Appendix S3 – Element Coding Specific Situations*
- *Appendix S4 – Weathering Steel Condition Guide*
- *Appendix S5 – Scour Defect (6000) Coding*
- *Appendix S6 – Damage Defect (7000) Coding]*

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Inspection Data	Elements and Inspection Notes	Element	Varies

Element Table *[SNBI Table 22]*

Element	Units	Element Number					
		Steel	PSC	RC	Timber	Masonry	Other
Deck / Slab							
Deck	ft^2		13	12	31		60
Open Grid Deck	ft^2	28					
Concrete Filled Deck	ft^2	29					
Corrugated or Orthotropic Deck	ft^2	30					
Slab	ft^2		39	38	54		65
Top Flange	ft^2		15	16			
Bridge Rail							
Bridge Rail	ft	330		331	332	334	333
Joint							
Strip Seal	ft	300					
Pourable	ft	301					
Compression	ft	302					
Assembly with Seal (Modular)	ft	303					
Open	ft	304					
Assembly without Seal	ft	305					
Other	ft	306					
Elastomeric	ft	850					
Asphaltic Plug Expansion Device	ft	851					
Modular Expansion Device	ft	852					
Finger Joints with Trough	ft	853					

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Inspection Data	Elements and Inspection Notes	Element	Varies

Element Table *[SNBI Table 22, cont'd]*

Element	Units	Element Number					
		Steel	PSC	RC	Timber	Masonry	Other
Wearing Surface and Protective Coatings							
Wearing Surface	ft	510					
Steel Protective Coating	ft	515					
Concrete Protective Coating	ft	521					
Approach Slab							
Concrete Approach Slab	ft^2		320	321			
Superstructure							
Closed Web/Box Girder	ft	102	104	105			106
Girder/Beam	ft	107	109	110	111		112
Stringer	ft	113	115	116	117		118
Truss	ft	120			135		136
Arch	ft	141	143	144	146	145	142
Main Cable	ft	147					
Secondary Cable	each	148					149
Floor Beam	ft	152	154	155	156		157
Pin	each	161					
Gusset Plate	each	162					
Beam Ends							
Beam Ends	each	826	827	828	829		

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Inspection Data	Elements and Inspection Notes	Element	Varies

Element Table *[SNBI Table 22, cont'd]*

Element	Units	Element Number					
		Steel	PSC	RC	Timber	Masonry	Other
Bearing							
Elastomeric	each	310					
Movable (roller, sliding, etc.)	each	311					
Enclosed/Concealed	each	312					
Fixed	each	313					
Pot	each	314					
Disk	each	315					
Other	each	316					
Substructure							
Abutment	ft	219		215	216	217	218
Column	each	202	204	205	206		203
Pier Wall	ft			210	212	213	211
Pier Cap	ft	231	233	234	235		236
Pier Cap (split)	ft	810		811	812		813
Pier Sub-cap	ft	814		815	816		817
Pile (except timber piles/repairs)	each	225	226	227			229
Other Substructure Elements							
Reinforced Concrete Pile Cap/Footing	ft	220					
Steel Tower	ft	207					
Timber Trestle	ft	208					
Abutment Lagging							
Abutment Lagging	ft	856 (Metal)			855		857

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Inspection Data	Elements and Inspection Notes	Element	Varies

Element Table *[SCDOT ADEs]*

Element	Units	Element Number					
		Steel	PSC	RC	Timber	Masonry	Other
Timber Pile, Cross Bracing and Repairs							
Timber Pile	each	228					
Timber Pile Cross Bracing	ft	879					
Existing Timber Pile Under Crutch	each	870					
Stubbed or Spliced Timber Pile	each	872					
Wrapped Timber Pile	each	874					
Structural Repair Reinforced (Rebar)	each	876					
Structural Repair Reinforced (FRP)	each	877					
Structural Repair Reinforced (Other)	each	878					
Culvert							
Culvert	ft	240	245	241	242	244	243
Fenders							
Fender Piles	each	831		832	830		833 (FRP) 834 (Other)
Fender System	ft	841		842	840		843 (FRP) 844 (Other)
Other Supports							
Temporary Support / Other	ft	880					
Crutch Bent	ft	881					
Crutch Beam	ft	882					
Saddle	ft	883					
Navigational Lighting							
Solar Array	each	890					
Green Light	each	891					
Red Light	each	892					

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Defect Hierarchy

Defects will often coincide, either overlapping or one next to another in the same area; a typical example of the former would be exposed rebar in a spall and the latter would be a one foot section of a girder with cracking and a spall, but the cracking does not run through the spall. In both cases this one foot area cannot be counted twice, since that would result in two feet of defects where there is only one foot of element. The hierarchy is organized by material type and may be categorized by component.

In cases where defects coincide, only one defect can be reported. The following will assist the inspector in determining which defect should be assigned to the subject area. In such areas, where there are two or more overlapping defects, the worse condition takes precedence. If the worst defect in an area is in Condition State 3, then that portion of the element is in Condition State 3, regardless of how many other Condition State 2 defects share that space.

For cases where there are multiple defects in an area with the same condition state and therefore no worse condition state, a defect hierarchy is used. SCDOT has created a hierarchy to aid inspectors in assigning a defect in such situations. This hierarchy should be viewed as a guideline in deciding which defect is the most "important" in any given situation, not as a set of hard and fast rules. Ultimately, inspectors must use their own judgment.

One thing to keep in mind in selecting a controlling defect in a "tie" is the relative extent of the defects over the element. An example would be a situation where there is a steel girder with cracking and corrosion defects, both in Condition State 3. The cracking occurs in the last foot of the element, the corrosion over the last 10 feet. The two defects occur together only in the last foot. If the inspector decides corrosion controls, then 10 feet of Condition State 3 corrosion is reported, and the cracking is not reported at all. If the inspector decides cracking controls, 9 feet of Condition State 3 corrosion and one foot of Condition State 3 cracking are reported. The second solution may be more suitable.

Elements with a unit of "Each" are handled differently. "Each" elements are viewed as a group of indivisible individuals. For example, with columns there can be one or two columns; there cannot be 1.5 columns. Each individual column is entirely in one and only one condition state. Each column can have one and only one defect assigned to the Element. If two Condition State 3 defects occur on an individual column, only one can be reported, regardless of the relative extent of the two defects. The inspector will need to decide which the bigger issue for that column is and report that defect on that column.

All of the conditions must be reported in the element section of the inspection report with no quantity assigned.

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Inspection Data	Elements and Inspection Notes	Element	Varies

Defect Hierarchy (continued)

Reinforced Concrete		
Decks	***Superstructure***	***Substructure***
1090 – Exposed Concrete Rebar	*1900 – Distortion*	*6000 – Scour*
1080 – Delam/Spall/Patched Area	*1090 – Exposed Concrete Rebar*	*4001 – Split Cap Movement*
1120 – Efflorescence/Rust Staining	*1080 – Delam/Spall/Patched Area*	*4000 – Settlement*
1130 – Cracking	*1120 – Efflorescence/Rust Staining*	*1090 – Exposed Rebar*
1190 – Abrasion/Wear	*1130 – Cracking*	*1080 – Delam/Spall/Patched Area*
		1120 – Efflorescence/Rust Staining
		1130 – Cracking
		1190 – Abrasion/Wear

Prestressed Concrete		
Decks	***Superstructure***	***Substructure***
1100 – Exposed Prestressing	*1100 – Exposed Prestressing*	*6000 – Scour*
1090 – Exposed Rebar	*1090 – Exposed Rebar*	*4000 – Settlements*
1080 – Delam/Spall/Patched Area	*1080 – Delam/Spall/Patched Area*	*1100 – Exposed Prestressing*
1120 – Efflorescence/Rust Staining	*1120 – Efflorescence/Rust Staining*	*1090 – Exposed Concrete Rebar*
1110 – Cracking	*1110 – Cracking*	*1080 – Delam/Spall/Patched Area*
1190 – Abrasion/Wear		*1120 – Efflorescence/Rust Staining*
		1110 – Cracking
		1190 – Abrasion/Wear

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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Elements and Inspection Notes	Element	Varies

Defect Hierarchy (continued)

Timber		
Decks	***Superstructure***	***Substructure***
1140 – Decay/Section Loss	*1140 – Decay/Section Loss*	*6000 – Scour*
1180 – Abrasion/Wear	*1160 – Cracks*	*4000 – Settlement*
1160 – Cracks	*1170 – Split/Delamination*	*4001 – Split Cap Movement*
1170 – Split/Delamination	*1020 – Connections*	*1140 – Decay/Section Loss*
1020 – Connections	*1150 – Check/Shake*	*9001 – Pile Misalignment*
1150 – Check/Shake	*1020 – Connections*	*9002 – Through Bolt Connection*
1170 – Split/Delamination		*9003 – Pile Bearing Defect*
		9004 – Decay at Cap
		1180 – Abrasion/Wear
		1160 – Cracks
		1170 – Split/Delamination
		1150 – Check/Shake
		1020 – Connections
Other Materials/Elements		
Steel Elements	***Joints***	***Masonry***
6000 – Scour (Substructure Only)	*2310 – Leakage*	*6000 – Scour*
4000 – Settlement (Sub Only)	*2320 – Seal Adhesion*	*4000 – Settlement*
4001 – Split Cap Movement	*2370 – Metal Deterioration/Damage*	*1640 – Masonry Displacement*
1010 – Cracking	*2330 – Seal Damage*	*1080 – Spalls/Delam/Patches*
1020 – Connection	*2340 – Seal Cracking*	*1620 – Split/Spall*
1900 – Distortion	*2360 – Adjacent Deck or Header*	*1630 – Patched Area*
1000 – Corrosion	*2350 – Debris Impact*	*1610 – Mortar Breakdown*
		1900 – Distortion
		1120 – Efflorescence/Rust Staining

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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Elements and Inspection Notes	Element	Varies

Defect Hierarchy (continued)

Other Materials/Elements		
Bearings	***Wearing Surfaces***	***All Others***
2220 – Alignment	*3230 – Effectiveness*	*6000 – Scour (Substructure Only)*
2210 – Movement	*3210 – Delam/Spall/Patch/Pothole*	*4000 – Settlement (Sub Only)*
2240 – Loss of Bearing Area	*3220 – Crack*	*1900 – Distortion*
2230 – Bulging/Splitting/Tearing		*1010 – Cracking*
4000 – Settlement		*1020 – Connection*
1020 – Connection		*1220 – Deterioration*
1000 – Corrosion		*1120 – Efflorescence/Rust Staining*
		1080 – Spalls/Delam/Patches
		1130 – Cracking
		1000 – Corrosion

AASHTO Shared Elements between Asset IDs

In the even two Asset IDs share a common element, or example an end bent or a bridge joint, element quantities and condition states for shared elements shall NOT be counted for both Asset IDs. When determining what Asset ID should include the shared element, the inspector shall use the following hierarchy to determine which Asset ID will include the shared element.

- Route Hierarchy by Service Type (Item B.RT.05)
- The longer structure in terms of the bridge length (Item B.G.01)
- Lower Route Number (Item B.RT.02)

In addition to element data, inspection notes and repair recommendations shall only be included in the inspection report for the Asset ID that includes the shared element in its element data. A note regarding the shared commons element(s) shall be included in the Inspection Note (B.IE.11) on the inspection report for both bridges sharing the element.

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Inspection Data	Elements and Inspection Notes	Element	Varies

Environmental Factors for Condition States

Elements exposed to different environmental conditions deteriorate differently. These factors include:

- *Operational activities from traffic and truck movements*
- *Exposure to water, salt and other corrosive materials*
- *Condition of protective and waterproofing systems*
- *Temperature extremes either from nature or man*

When inventorying and assessing the condition of the elements, an inspector shall consider the environment in which the element is operating. The environment designation of an element can change over time, as it would if operating policies were changed to reduce the use of road salt. By definition, the environment designation cannot change as the result of maintenance work or deterioration.

Factors which could increase the severity of the environment rating for various elements include those shown in the table below. The predominant environment shall be determined. The table below provides environmental factors to be applied for element condition states.

Elements and Example Environmental Factors	
Element	***Example Environmental Factors***
Timber Elements	*High Moisture Content* *Pest Infestation*
Steel Elements	*Distance from Salt Air* *Water Wet/Dry Cycles* *Exposure to Corrosive Soils and Liquids*
Concrete Elements	*Freeze/Thaw Cycles* *Deck Salting*
Petroleum Based Elements/Plastics	*High Temperatures*
Joints and Bearings	*Extreme Temperature Ranges*
Other	*High Traffic and/or Truck Volume*

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Environmental Factors for Condition States

Element Environmental Factors for Condition States	
Environmental Factor	***Description***
1 - Benign	*Neither environmental factors nor operating practices are likely to significantly change the condition of the element over time, or their effects have been mitigated by the presence of highly effective protective systems.*
2 - Low	*Environmental factors and/or operating practices either do not adversely influence the condition of the element, or their effects are substantially lessened by the application of effective protective systems.*
3 - Moderate	*Any change in the condition of the element is likely to be quite normal as measured against those environmental factors and/or operating practices which are considered typical by SCDOT.*
4 - Severe	*Environmental factors and/or operating practices contribute to the rapid decline in the condition of the element. Protective systems are not in place or are ineffective.*

Element Classification

National Bridge Elements (NBE)

These are the elements that represent the primary structural components of a bridge necessary to determine the overall condition and safety of the primary load carrying members. These elements and their condition state are used to describe the primary load carrying members of the structure, including decks, slabs, bridge railings, girders, columns, abutments, etc.

Bridge Maintenance Elements (BME)

These are the elements that, through inspection monitoring and maintenance activities, support the preservation of the NBEs and the overall bridge. BMEs include joints, approach slabs, wearing surfaces, and protective systems.

Agency Defined Elements (ADE)

Custom bridge elements defined by SCDOT in accordance with the MBIE. Some ADEs are subsets of the AASHTO defined elements and are included above and some ADEs are entirely independent representing features that are not included in the MBIE. The identification numbers 800 and above are used for SCDOT's ADEs.

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Inspection Data	Elements and Inspection Notes	Element	Varies

Deck

Description: *This element defines all bridge decks regardless of the wearing surface or protection systems used. Decks carry traffic and transfer loads to the superstructure. Included in the decks grouping are the secondary deck elements of girder top flange, deck fascia, joints and any false decking or maintenance sheeting.*

Quantity Calculation: *Includes the area of the deck from edge to edge and reference line to reference line, including any median areas and accounting for any flares or ramps present. Deck area shall be calculated based on the out-to-out width of the deck and the total length of the bridge (back-to-back of backwalls or end-to-end of slab).*

Element Commentary: *The deck evaluation is three dimensional in nature with the defects observed on the top surface, bottom surface, edges or all; and being captured using the defined condition states. Deck top or bottom surfaces that are not visible for inspection shall be assessed based on the available visible surface. If both top and bottom surfaces are not visible, the condition shall be assessed based on destructive and nondestructive testing or indicators in the materials covering the surfaces. Both the severity and density of spalls, delaminations, or patched areas, and severity and density of cracks and the existence of rust staining should be considered for the evaluation of the deck elements. A bridge may be composed of several deck elements i.e. Element 12 – Reinforced Concrete Deck and Element 28 - Steel Deck, Open Grid. For this example, both elements shall be coded.*

12	***Reinforced Concrete Deck***	*Condition State Table: 1*	*Classification: NBE*	***Units: SF***
Reinforced concrete bridge decks.				
13	***Prestressed Concrete Deck***	*Condition State Table: 2*	*Classification: NBE*	***Units: SF***
Prestressed concrete bridge decks.				
28	***Steel with Open Grid***	*Condition State Table: 3*	*Classification: NBE*	***Units: SF***
All open grid steel decks with no fill.				
29	***Steel with Concrete Filled Grid***	*Condition State Table: 3*	*Classification: NBE*	***Units: SF***
Steel bridge decks with concrete fill either in all of the openings or within the wheel tracks.				
30	***Steel - Corrugated/ Orthotropic/Etc.***	*Condition State Table: 3*	*Classification: NBE*	***Units: SF***
Corrugated metal filled with cement, asphaltic concrete or other riding surfaces and Orthotropic steel. Materials added for riding surface are not part of the element condition.				

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Inspection Data	Elements and Inspection Notes	Element	Varies

Deck (continued)

31	***Timber***	*Condition State Table: 4*	*Classification: NBE*	***Units: SF***
Timber Bridge Decks. Timber running planks shall be included under the wearing surface assessment.				
60	***Timber***	*Condition State Table: 4*	*Classification: NBE*	***Units: SF***
Composite materials or other materials that cannot be classified using any other defined deck element.				

Examples (Deck)

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
12 – Reinforced Concrete Deck	The structure has a reinforced concrete deck supported by steel girders. There is no protective wearing surface on the bridge. The underside of the deck is visible.	01965	

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Inspection Data	Elements and Inspection Notes	Element	Varies

Examples (Deck)

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
28 – Steel Open Grid	The structure has a steel open grid deck.	00085	
31 – Timber Deck	The structure has a solid sawn timber deck.	09317	

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Slab

Description: *This element defines all bridge slabs regardless of the wearing surface or protection systems used. Slabs carry traffic and transfer loads to the substructure. Deck Elements and Slab Elements are defined separately. Care should be taken to define these elements correctly. Slab Elements are stand-alone structures such as slab spans.*

Quantity Calculation: *Includes the area of the deck from edge to edge and reference line to reference line, including any median areas and accounting for any flares or ramps present.*

Element Commentary: *The slab evaluation is three dimensional in nature with the defects observed on the top surface, bottom surface, edges or all; and being captured using the defined condition states. Slab top or bottom surfaces that are not visible for inspection shall be assessed based on the available visible surface. If both top and bottom surfaces are not visible, the condition shall be assessed based on destructive and nondestructive testing or indicators in the materials covering the surfaces.*

38	***Reinforced Concrete Slab***	*Condition State Table: 1*	*Classification: NBE*	***Units: SF***
Reinforced concrete bridge slabs. This element shall be used for H-10/H-15/H-20 precast panels.				
39	***Prestressed Concrete Slab***	*Condition State Table: 2*	*Classification: NBE*	***Units: SF***
Prestressed concrete bridge slabs. Adjacent hollow core (voided) slabs are not to be coded using Element 39.				
54	***Timber Slab***	*Condition State Table: 4*	*Classification: NBE*	***Units: SF***
Timber bridge slabs. Timber running planks shall be included under the wearing surface assessment.				
65	***Other Slab***	*Condition State Table: 6*	*Classification: NBE*	***Units: SF***
Composite materials or other materials that cannot be classified using any other defined slab element. This element is rare.				

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Examples (Slabs)

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
38 - Reinforced Concrete Slab	The structure is a slab structure, there are no beams. The slab is precast but not prestressed.	03466	

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Joints

Description: *These elements define bridge deck, slab joints, and pavement relief joints. Does not include edge lines.*

Quantity Calculation: *Sum the lengths of all joints measured along the skew angle.*

300	***Strip Seal Expansion Joint***	*Condition State Table: 8*	*Classification: BME*	***Units: LF***
Expansion joint devices that utilize a neoprene type waterproof gland with metal extrusion or other system to anchor the gland.				
301	***Pourable Joint Seal***	*Condition State Table: 8*	*Classification: BME*	***Units: LF***
Joints filled with a pourable seal with or without a backer.				
302	***Compression Joint Seal***	*Condition State Table: 8*	*Classification: BME*	***Units: LF***
Joints filled with a preformed compression type seal. This joint does not have an anchor system to confine the seal.				
303	***Assembly Joint with Seal***	*Condition State Table: 8*	*Classification: BME*	***Units: LF***
Joints filled with an assembly mechanism that have a seal.				
304	***Open Expansion Joint***	*Condition State Table: 8*	*Classification: BME*	***Units: LF***
Joints that are open and not sealed.				
305	***Assembly Joint Without Seal***	*Condition State Table: 8*	*Classification: BME*	***Units: LF***
Joints that are open and not sealed. This element includes finger and sliding plate joints.				
850	***Elastomeric Joint***	*Condition State Table: 8*	*Classification: ADE*	***Units: LF***
Joints which are elastomeric flex-type joints or transflex joints.				
851	***Asphaltic Plug Expansion Device***	*Condition State Table: 8*	*Classification: ADE*	***Units: LF***
Joints comprised of flexible material, specially formulated asphaltic binder mixed with aggregate; it is typically used with overlays.				
852	***Modular Expansion Device***	*Condition State Table: 8*	*Classification: ADE*	***Units: LF***
Joints comprised of a series of steel shapes that are rigidly connected to a series of neoprene glands.				
853	***Finger Joints with Trough***	*Condition State Table: 8*	*Classification: ADE*	***Units: LF***
Joints with an open steel plate expansion joint system with interlocking steel fingers and a trough below the joint for runoff.				
306	***Other Joints***	*Condition State Table: 8*	*Classification: BME*	***Units: LF***
Joints that cannot be classified using any other BME/ADE joint element may include partial depth seal and block out style joints.				

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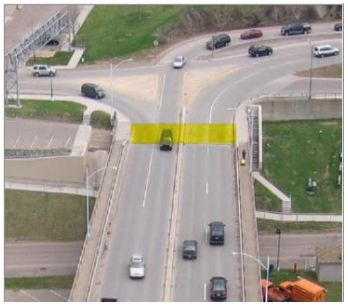
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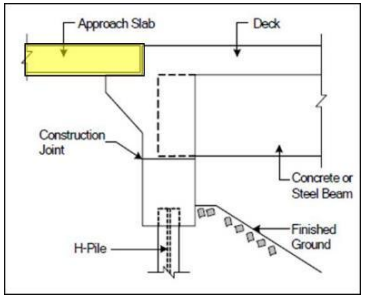
Approach Slab

Description: *These elements define structural sections, between the abutment and the approach pavement.*

Quantity Calculation: *The quantity for this element should include the area of the approach slab(s) from edge to edge including any median areas and accounting for any flares or ramps present. This includes the portion of link slabs and sleeper slabs that extend beyond the reference line.*

Element Commentary: *Not every bridge has an approach slab, and some approach slabs may be hidden. If approach slabs are hidden by a wearing surface, the element should still be added with the wearing surface added as a protective element.*





320	***Prestressed Concrete Approach Slab***	*Condition State Table: 2*	*Classification: BME*	***Units: SF***
Prestressed (post-tensioned) reinforced concrete approach slabs.				
321	***Reinforced Concrete Approach Slab***	*Condition State Table: 1*	*Classification: BME*	***Units: SF***
Mild steel reinforced concrete approach slabs.				

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Bridge Railing

Description: *These elements are for bridge rail, which may be fabricated from steel, other metal, concrete, masonry, and other materials.*

Quantity Calculation: *The quantity is the number of bridge barriers times the length of the bridge. The element quantity includes only the rail on the bridge from reference line to reference line.*

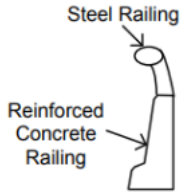
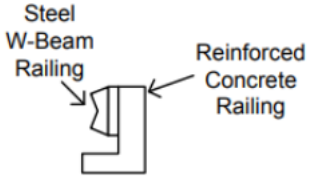
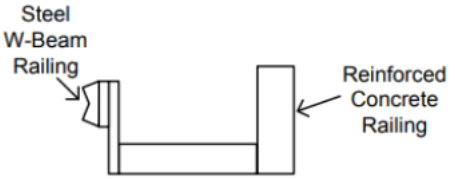
Element Commentary: *The number of rows of rail on a bridge is commonly two, one on each side of the bridge. In some cases, there may be more than two rows when you have a center median or protected pedestrian/bicycle lanes.*

Per AASHTO, every railing which is considered a redirective railing shall receive its own element quantity and applicable defects. For example, if a metal railing is placed on top of a concrete bridge railing, then there are two redirective railings. Therefore, it shall be coded using both Element #330 and Element #331; see figure below. Railings must be able to come into contact with a vehicle to be considered redirective. Curbs (non-mountable or mountable) are not considered railings and are not coded.

If a W-beam or Thrie beam metal railing is attached to the front of a concrete bridge railing, then the only redirective railing is metal. The reinforced concrete railing is not redirective. Therefore, it shall be coded as Element #330 – Metal Bridge Railing. The element quantity includes only the metal rail on the bridge; see figure below. Element #331 shall not be used.

If a metal railing is attached to posts and anchored into the deck along with a concrete parapet at the edges of the bridge but the concrete railing is not redirective, only the metal redirective railing impacting the vehicular traffic shall be coded; see figure below. Only Element #330 shall be used.

Only if a railing is not a combination of materials covered in the list above, it shall be coded as Element #333.

		
Element #330 – Metal Bridge Railing and Element #331 – Reinforced Concrete Bridge Railing	Element #330 – Metal Bridge Railing Only	Element #330 – Metal Bridge Railing Only

The MBEI considers all bridge rail elements part of the deck. Since culverts do not have a deck, element evaluation for railings present are not required for culvert. However, Item B.C.05 and B.C.06 shall still be coded for those bridges.

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Railings (continued)

330	***Metal Bridge Railing***	*Condition State Table: 3*	*Classification: NBE*	***Units: LF***

All types and shapes of metal bridge railing that is considered redirective. The railings must be constructed, at least in part, of metal (steel, aluminum, metal beam, rolled shapes, etc.) However, the other components may be constructed of different materials. Included in this element are the posts of metal, timber, concrete, masonry, blocking and curb. This includes thrie-beam retrofit.

331	***Reinforced Concrete Bridge Railing***	*Condition State Table: 1*	*Classification: NBE*	***Units: LF***

All types and shapes of reinforced concrete bridge railing that is considered redirective. All components of the railing (not including incidentals such as handrails or pedestrian fencing) must be constructed entirely of concrete.

332	***Timber Bridge Railing***	*Condition State Table: 4*	*Classification: NBE*	***Units: LF***

All types and shapes of timber bridge railing that is considered redirective. The railing must be constructed of timber. However, the other components may be constructed of different materials. Included in this element are the posts of metal, timber, concrete, masonry, blocking and curb.

333	***Other Bridge Railing***	*Condition State Table: 6*	*Classification: NBE*	***Units: LF***

All types and shapes of bridge railing that is considered redirective and that cannot be classified using any other defined railing element. The railing must be constructed of materials not otherwise defined as metal (steel, aluminum, metal beam, rolled shapes, etc.), concrete, timber, or masonry. All types and shapes of bridge railing that cannot be classified using any other defined railing element.

334	***Masonry Bridge Railing***	*Condition State Table: 5*	*Classification: NBE*	***Units: LF***

All types and shapes of masonry, stone bridge railing that is considered redirective. All elements of the railing must be masonry, stone.

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Girders

Description: *These elements are for bridge rail, which may be fabricated from steel, other metal, concrete, masonry, and other materials. The materials include steel, reinforced and prestressed concrete, and timber.*

Quantity Calculation: *The quantity for these elements is the sum of all lengths of each girder or girder section. This convention applies to all girders, channels, and box girders. The quantity is NOT dependent on the number of visible pairs of girder faces but is determined by the length of the bridge multiplied by the number of girders, beams, channels or box girders.*

Element Commentary: *The girder evaluation is three-dimensional in nature with the defects observed on all exterior and interior (if visible) surfaces.*

102	***Steel Closed Web/Box Girder***	*Condition State Table: 3*	*Classification: NBE*	***Units: LF***
Steel box girders or closed web girders.				
104	***Prestressed Concrete Closed Web/Box Girder***	*Condition State Table: 2*	*Classification: NBE*	***Units: LF***
Pretensioned or post-tensioned concrete closed web girders. When there is no deck and traffic rides directly on the girders the top flange is rated using NBE #15. Adjacent hollow core (voided) slabs are to be coded as Element 104. See Appendix S3.				
105	***Reinforced Concrete Closed Web/Box Girder***	*Condition State Table: 1*	*Classification: NBE*	***Units: LF***
Reinforced concrete box girder or closed web girders. When there is no deck and traffic rides directly on the girders, the top flange is rated using NBE #16.				
106	***Other Closed Web/Box Girder***	*Condition State Table: 6*	*Classification: NBE*	***Units: LF***
Composite material or other material box girders or closed web girders that cannot be classified using any other defined closed web/box girder element. This element is rare.				
107	***Steel Open Girder/Beam***	*Condition State Table: 3*	*Classification: NBE*	***Units: LF***
Steel open girders.				
109	***Prestressed Concrete Open Girder/Beam***	*Condition State Table: 2*	*Classification: NBE*	***Units: LF***
Pretensioned or post-tensioned concrete open web girders. When traffic rides directly on the girders, the top flange is rated using NBE #15.				

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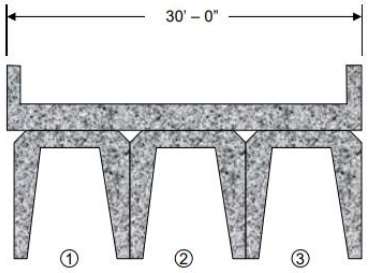
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Girders (continued)

110	***Reinforced Concrete Open Girder/Beam***	*Condition State Table: 1*	*Classification: NBE*	***Units: LF***
Mild steel reinforced open web girders. When there is no deck and traffic rides directly on the girders, the top flange is rated using NBE #16.				
111	***Timber Open Girder***	*Condition State Table: 4*	*Classification: NBE*	***Units: LF***
All timber open girders.				
112	***Other Open Girder/Beam***	*Condition State Table: 6*	*Classification: NBE*	***Units: LF***
Composite material girders and open girder/beams that cannot be classified using any other defined element. Includes concrete encased steel girders. This element is rare.				

Examples (Girders)

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
110 – Reinforced Concrete Open Girder	Three (3) channel beams, the quantity should be the length of the bridge multiplied by 3. For this example, the bridge that is 25 feet in length and 30 feet wide, the total girder quantity should be 75 feet.	-	
104 – Prestressed Closed Web/Box Girder	Segmental box girder bridge.	-	

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Floor Beams

Description: *This element defines only elements that transversely support stringers or decks, regardless of protective systems. Floor beam elements are the intermediate transverse load carrying members and can be constructed from steel, concrete and timber.*

Quantity Calculation: *The quantity for these elements is the sum of all lengths of each floor beam.*

Element Commentary: *The floor beam evaluation is three dimensional in nature with the defects observed on all exterior surfaces.*

152	***Steel Floor Beam***	*Condition State Table: 3*	*Classification: NBE*	***Units: LF***
The condition evaluation for this element includes web faces and the top and bottom flange.				
154	***Prestressed Concrete Floor Beam***	*Condition State Table: 2*	*Classification: NBE*	***Units: LF***
Only prestressed elements. This element is rare.				
155	***Reinforced Concrete Floor Beam***	*Condition State Table: 1*	*Classification: NBE*	***Units: LF***
Only mild steel reinforced concrete. This element is rare.				
156	***Timber Floor Beam***	*Condition State Table: 4*	*Classification: NBE*	***Units: LF***
Timber floor beams. This element is rare.				
157	***Other Floor Beam***	*Condition State Table: 6*	*Classification: NBE*	***Units: LF***
Composite materials, or other materials that cannot be classified using any other defined elements. This element is rare.				

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Stringers

Description: *These superstructure elements transmit loads from the deck to the floor system, such as floor beams, regardless of protective systems. These elements define members that support the deck in a stringer floor beam system.*

Quantity Calculation: *The quantity for these elements is the sum of all lengths of each stringer.*

Element Commentary: *The stringer evaluation is three dimensional in nature with the defects observed on all exterior surfaces.*

113	***Steel Stringer***	*Condition State Table: 3*	*Classification: NBE*	***Units: LF***
Steel members that support the deck in a stringer floor beam system.				
115	***Prestressed Concrete Stringer***	*Condition State Table: 2*	*Classification: NBE*	***Units: LF***
Pretensioned or post-tensioned concrete members that support the deck in a stringer floor beam system. This element is rare.				
116	***Reinforced Concrete Stringer***	*Condition State Table: 1*	*Classification: NBE*	***Units: LF***
Mild steel reinforced concrete members that support the deck in a stringer floor beam system. This element is rare.				
117	***Timber Stringer***	*Condition State Table: 4*	*Classification: NBE*	***Units: LF***
Timber members that support the deck in a stringer floor beam system. This element is rare.				
118	***Other Stringer***	*Condition State Table: 6*	*Classification: NBE*	***Units: LF***
Composite materials or other materials that cannot be classified using any other defined elements. This element is rare.				

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Trusses

Description: *This element defines all truss components, including all tension and compression members for through and deck trusses, regardless of protective system. Truss elements include materials of steel, concrete, timber and masonry; and are the main load carrying members for the span.*

Quantity Calculation: *The quantity for this element is the sum of all of the lengths of each truss panel measured longitudinal along the traveled way. Observed distress in diagonal and vertical truss members shall be reported as the projected length along the length of the truss. All deterioration is measured along the length of the bridge.*

Element Commentary: *The superstructure of a truss bridge usually consists of two parallel trusses. The quantity is determined by calculating the combined length in linear feet of the parallel trusses. Diagonals, verticals, or cross bracing are not counted as additional quantities. The overall quantity is determined by the length of the bridge multiplied by the number of trusses in each span. Note: Both Through and Deck trusses are coded using the same Element depending on the material type. Also note the bottom chords are no longer a separate element for through trusses.*

Diagonals: *Deterioration of a diagonal member is measured along the length of the bridge and not along the diagonal. The quantity of a deteriorated section in diagonals and verticals that overlap deteriorated section(s) in other parts of the truss should not be double-counted. See example below.*

Portals/Bracing: *The quantities of deterioration of portals/bracing should be counted with the truss element. The quantity of a deteriorated section in portals/bracing that overlaps a deteriorated section(s) in other parts of the truss, with which it has been associated, should not be double-counted. The darkened areas in the sketch below indicate areas of deterioration on a member.*

Through Truss (includes Pony Trusses): *Quantities of deterioration should include both the left and right side trusses. Note that the deterioration should be measured along the horizontal projection. The severity of the deterioration is indicated by using the appropriate condition state.*

120	***Steel Truss***	*Condition State Table: 3*	*Classification: NBE*	***Units: LF***
Steel truss elements. See element 162 (Gusset Plate) for additional details.				
135	***Timber Truss***	*Condition State Table: 4*	*Classification: NBE*	***Units: LF***
Timber truss elements. This element is rare.				
136	***Other Truss***	*Condition State Table: 6*	*Classification: NBE*	***Units: LF***
Composite materials or those that cannot be classified by any other defined truss element. This element is rare.				

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Examples (Trusses)

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120 – Steel Truss	Steel Through Truss bridge	08516	
120 – Steel Truss	Steel Pony Truss bridge	04260	

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Arches

Description: *This element defines arches regardless of materials type or protective system.*

Quantity Calculation: *The quantity for this element is the sum of the length of each arch horizontally between spring lines and measured longitudinal to the travel way. It is not measured along the length of the barrel. See example below. For filled arches, the arch quantity shall be measured from spring line to spring line. The length below the spring line is considered substructure.*

Element Commentary: *Observed distress in arch diagonals and vertical members (including spandrel columns) shall be reported as the projected length along the arch length. For Steel Through, Tied or Deck Arches there are no separate elements for verticals and diagonals. They shall be included in the arch element (like a truss). Also include other associated steel superstructure elements such as: girders, floor beams, stringers, cables, etc. For 'Concrete Deck Arches – Covered With Fill' see 'Slab Spans - covered with fill' at the end of this appendix.*

141	***Steel Arch***	*Condition State Table: 3*	*Classification: NBE*	***Units: LF***
Steel arches.				
142	***Other Arch***	*Condition State Table: 6*	*Classification: NBE*	***Units: LF***
Composite materials and arches, regardless of type, that cannot be classified using any other defined arch element. This element is rare.				
143	***Prestressed Concrete Arch***	*Condition State Table: 2*	*Classification: NBE*	***Units: LF***
Pretensioned or post-tensioned concrete arches.				
144	***Reinforced Concrete Arch***	*Condition State Table: 1*	*Classification: NBE*	***Units: LF***
Mild steel reinforced concrete arches.				
145	***Masonry Arch***	*Condition State Table: 5*	*Classification: NBE*	***Units: LF***
Masonry or stacked stone arches.				
146	***Timber Arch***	*Condition State Table: 4*	*Classification: NBE*	***Units: LF***
Timber Arches.				

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Cables

Description: *This element defines cables regardless of material type, regardless of protective system. These elements are rare.*

Quantity *Calculation: See descriptions above for quantity calculations specific to each.*

147	***Steel Main Cables***	*Condition State Table: 3*	*Classification: NBE*	***Units:***

Steel main suspension or cable stay cables not embedded in concrete. This element is intended for use on main cables in suspension bridges or main cable stays in cable-stayed bridges. Suspender cables or other smaller cables shall be captured using the secondary cable element. The quantity for this element is the sum of all of the lengths of each main cable measured longitudinal to the travel way.

148	***Secondary Steel Cables***	*Condition State Table: 3*	*Classification: NBE*	***Units:***

Steel suspender cables not embedded in concrete. It is for all individual or cable groups. This element is intended for use on suspender cables, other smaller cables or groups of cables in one location acting as a system to carry loads from the superstructure to the main cable/arch. The quantity for this element is the sum of the individual cable or cable groups carrying the load from the superstructure to the main cable/arch elements.

149	***Other Secondary Steel Cables***	*Condition State Table: 6*	*Classification: NBE*	***Units:***

Other material cables not embedded in concrete. It is for all individual other material cables or cable groups regardless of protective systems. The quantity for this element is the sum of the individual cable or cable groups carrying the load from the superstructure to the main cable/arch elements. The other material secondary cable is intended for cables of composite materials, or other materials that cannot be classified using any other defined cable elements.

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Miscellaneous Superstructure Elements

Description: *This element defines miscellaneous superstructure elements that cannot be categorized according to any of the previously described categories regardless of material type and protective system.*

Quantity Calculation: *See description above for quantity calculations specific to each.*

Element Commentary: *The evaluation is three dimensional in nature with the defects observed on all exterior and interior (if visible) surfaces.*

161	***Steel Pin***	*Condition State Table:* *3*	*Classification:* *NBE*	***Units:*** ***EA***
Steel pin. Distress observed on the pin should be considered in the condition assessment. Ultrasonic testing results should be taken into consideration in the condition assessment if available. The quantity for this element is the sum of the number of pins.				
162	***Steel Gusset Plate***	*Condition State Table:* *3*	*Classification:* *NBE*	***Units:*** ***EA***
Only those steel gusset plate(s) connections that connect the main truss/arch panel(s). These connections can be constructed with one or more plates that may be bolted, riveted, or welded. The quantity for this element is the sum of the number of primary load path gusset plate assemblies. For multiple plate gusset connections at a single panel point, the quantity shall be one gusset plate assembly regardless of the number of individual plates at the single connection point.				

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Wearing Surfaces

Description: *This element defines the condition wearing surface, which is the protective coating for the deck element of a structure. Types of wearing surface include flexible (asphalt), semi-rigid (epoxy, polyester), rigid (concrete, latex, micro-silica or high performance cement) and timber planks. Inspectors will use element 510 to record the condition of the wearing surface. Note that NBI Item 108 is used only to record the type of wearing surface, not the condition.*

Quantity Calculation: *See description The quantity for this element should include the entire area of wearing surface (or protective coating) for the element.*

Element Commentary: *The wearing surface evaluation should consider severity of the rutting, scaling, or wear in the wheel tracks. Also to be considered is the area of debonding of the wearing surface, such as pot holes or pan holes. For something to be called a wearing surface, it must be placed separately from the time the deck is placed. This is the first and most important test. Therefore, monolithically place concrete (the 1/4" that designers call a wearing surface) is not a wearing surface. The following are examples of wearing surfaces: asphaltic concrete overlays, cementitious overlays and epoxy overlays. There are others not mentioned here.*

510	***Wearing Surface***	*Condition State Table: 7*	*Classification: BME*	***Units: SF***
This element is for the wearing surface, the protective coating for the deck element.				

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Protective Coatings

Description: *These elements define protective coatings including paint, oxide on weathering steel, cathodic protection, topcoat corrosion inhibitor and galvanization that influence the deterioration and condition of the underlying structural element.*

Quantity Calculation: *The quantity for this element should include the entire area of protected surface for the element. The steel protective coating for superstructure elements for superstructure elements will be calculated by first determining the visible surface area of the primary structural elements (i.e. the top face of top flange is excluded) then adding 10% to account for secondary members such as diaphragms, web stiffeners, bearing stiffeners, etc.*

515	***Steel Protective Coating***	*Condition State Table: 10*	*Classification: BME*	***Units: SF***
This element is for steel elements that have a corrosion inhibiting protective coating.				
521	***Concrete Protective Coating***	*Condition State Table: 10*	*Classification: BME*	***Units: SF***
This element is for concrete elements that have a protective coating. These coatings include silane/siloxane water proofers, crack sealers such as High Molecular Weight Methacrylate (HMWM), or any topcoat that protects concrete from deterioration and reinforcing steel from corrosion.				

Examples (Protective Coatings)

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
515 Steel Protective Coating	Steel Protective Coating as the paint on the steel girders.	10657	

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Examples (Protective Coatings)

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521 Steel Protective Coating	Concrete Protective Coating as the coating on the prestressed beams and railings. Only the exterior faces of the exterior beams are coated.	10658	

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Bearings

Description: *These elements define bridge bearings.*

Quantity Calculation: *The quantity is the sum of each bearing type.*

310	***Elastomeric Bearing***	*Condition State Table: 9*	*Classification: NBE*	***Units: EA***
This element defines bridge bearings that are constructed primarily of elastomers, with or without fabric or metal reinforcement.				
311	***Moveable Bearing***	*Condition State Table: 9*	*Classification: NBE*	***Units: EA***
This element defines bridge bearings that provide for both rotation and longitudinal movement by means of roller, rocker, or sliding mechanisms.				
312	***Enclosed/Concealed Bearing***	*Condition State Table: 9*	*Classification: NBE*	***Units: EA***
This element defines bridge bearings that are enclosed so that they are not open for detailed inspection. This element should be used for box girder hinges, integral abutments, and integral bents that cannot be visually inspected. In cases where the bearing material is not visible, the inspector shall assess the condition based on alignment, grade across the joint, persistence of debris, or other indirect indicators of the condition. This element should be used for bearings that cannot be inspected.				
313	***Fixed Bearing***	*Condition State Table: 9*	*Classification: NBE*	***Units: EA***
This element defines bridge bearings that provide for rotation only (no longitudinal movement).				
314	***Pot Bearing***	*Condition State Table: 9*	*Classification: NBE*	***Units: EA***
This element defines high load bearings with confined elastomer. The bearing may be fixed against horizontal movement, guided to allow sliding in one direction, or floating to allow sliding in any direction				
315	***Disc Bearing***	*Condition State Table: 9*	*Classification: NBE*	***Units: EA***
This element defines high load bearings with a hard plastic disk. This bearing may be fixed against horizontal movement, guided to allow movement in one direction, or floating to allow sliding in any direction				
316	***Other Bearing***	*Condition State Table: 9*	*Classification: NBE*	***Units: EA***
This element defines other material bridge bearings, regardless of translation or rotation constraints, that cannot be classified by any other defined bearing element.				

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Abutment

Description: *These elements define abutments.*

Quantity Calculation: *The quantity for these elements are the sum of the width of the abutment with monolithic wingwalls and abutments extensions measured along the skew angle. Wingwalls that are not monolithic with the abutment shall not be included in the abutment or assessment of the abutment element.*

Element Commentary: *Abutments are the elements that are on the load path between the superstructure and the foundation. They also may serve as embankments to retain the bridge approaches. The abutments typically do not include lagging/sheeting, backwalls, piles, columns, etc.*

215	***Reinforced Concrete Abutment***	*Condition State Table: 1*	*Classification: NBE*	***Units: LF***
Mild steel reinforced concrete abutments including the sheet material retaining the embankment and wingwalls, abutment extensions, and any other monolithically placed concrete elements up to the first construction joint (cold joint, water stop, etc.).				
216	***Timber Abutment***	*Condition State Table: 4*	*Classification: NBE*	***Units: LF***
Timber abutments are typically the timber pile cap at the abutment that supports the superstructures and transfers the load to the piles. Timber abutments do not include the timber piles or the lagging/sheeting behind the piles.				
217	***Masonry Abutment***	*Condition State Table: 5*	*Classification: NBE*	***Units: LF***
Abutments constructed of block or stone placed with or without mortar.				
218	***Other Abutment***	*Condition State Table: 6*	*Classification: NBE*	***Units: LF***
Other material abutment systems that cannot be classified by any other defined abutment element, including the sheet material retaining the embankment and wingwalls, abutment extensions. This element is rare.				
219	***Steel Abutment***	*Condition State Table: 3*	*Classification: NBE*	***Units: LF***
Steel abutments including the sheet material retaining the embankment and wingwalls, and abutment extensions. This element is rare.				

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Column

Description: *These elements define all columns.*

Quantity Calculation: *The quantity for these elements is the sum of the number of columns. Column elements are used for widths less than 10 feet. Columns shall bear on a footing, mudsill or other generally shallow foundation; unlike piles which bear on nothing and rely on friction.*

202	***Steel Column***	*Condition State Table: 3*	*Classification: NBE*	***Units: EA***
Steel columns.				
203	***Other Column***	*Condition State Table: 6*	*Classification: NBE*	***Units: EA***
Other material columns that cannot be classified using any other defined column element. This element is rare.				
204	***Prestressed Concrete Column***	*Condition State Table: 2*	*Classification: NBE*	***Units: EA***
Prestressed concrete columns.				
205	***Reinforced Concrete Column***	*Condition State Table: 1*	*Classification: NBE*	***Units: EA***
Reinforced concrete columns.				
206	***Timber Column***	*Condition State Table: 4*	*Classification: NBE*	***Units: EA***
This is a general term that applies to a timber member resisting compressive stress and having a considerable length in compression as compared to its transverse dimensions. Do not include timber piles that may have a footing placed as part of a rehabilitation or retrofit.				

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Pier Wall

Description: *This element defines pier walls.*

Quantity Calculation: *The quantity for this element is the sum of the lengths of the pier walls measured along the skew angle. Pier Wall elements are used for widths greater than 10 feet.*

210	***Reinforced Concrete Pier Wall***	*Condition State Table: 3*	*Classification: NBE*	***Units: FT***
Mild steel reinforced concrete pier walls.				
211	***Other Pier Wall***	*Condition State Table: 6*	*Classification: NBE*	***Units: FT***
Other materials that cannot be classified by any other defined pier wall element. This element is rare.				
212	***Timber Pier Wall***	*Condition State Table: 2*	*Classification: NBE*	***Units: FT***
Timber pier walls that include pile, timber sheet material, and filler. This element is rare.				
213	***Masonry Pier Wall***	*Condition State Table: 1*	*Classification: NBE*	***Units: FT***
Block or stone placed with or without mortar. This element is rare.				

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Pier Cap

Description: *These elements identify pier caps of various materials, regardless of protective systems. A pier cap is a single horizontal member that directly supports the superstructure or bearings and transfers loads to piles or columns below. SCDOT considers split caps on timber piles and the sub cabs under a split cap on timber piles as ADEs, see the following page.*

Quantity Calculation: *The quantity for this element is the sum of the lengths of the pier caps measured along the skew angle.*

Element Commentary: *Pier caps shall include mudsills (if visible).*

231	***Steel Pier Cap***	*Condition State Table: 3*	*Classification: NBE*	***Units: FT***
Steel pier caps.				
233	***Prestressed Concrete Pier Cap***	*Condition State Table: 2*	*Classification: NBE*	***Units: FT***
Prestressed concrete pier caps.				
234	***Reinforced Concrete Pier Cap***	*Condition State Table: 1*	*Classification: NBE*	***Units: FT***
Reinforced concrete pier caps.				
235	***Timber Pier Cap***	*Condition State Table: 4*	*Classification: NBE*	***Units: FT***
Timber pier caps.				
236	***Other Material Pier Cap***	*Condition State Table: 6*	*Classification: NBE*	***Units: FT***
Other material pier caps are ones that cannot be classified using any other defined pier cap element. This element is rare.				

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Split Pier Cap on Timber Piles

Description: *These elements identify split pier caps of various materials, regardless of protective systems. If a pier cap is not continuous across the line of piers/columns beneath it, it is a "split pier cap". An additional transverse member called a "sub cap" (that supports the pier cap from below) may or may not be present. Sub caps are quantified separately and are their own ADE (see next section).*

Quantity Calculation: *The quantity for this element is the sum of the lengths of the split pier caps measured along the skew angle. The length of the sub cap (if present) is not included in the quantity for the split pier cap.*

Element Commentary: *These elements are only to be used for split pier caps that are supported by timber piles. Typically, this does not include widenings, but bridges originally built with split pier caps.*

810	***Steel Split Pier Cap on Treated Timber Piles***	*Condition State Table: 3*	*Classification: ADE*	***Units: FT***
A non-continuous steel pier cap supported by timber piles.				
811	***Reinforced Concrete Split Pier Cap on Treated Timber Piles***	*Condition State Table: 1*	*Classification: ADE*	***Units: FT***
A non-continuous reinforced concrete pier cap supported by timber piles.				
812	***Timber Split Pier Cap on Treated Timber Piles***	*Condition State Table: 4*	*Classification: ADE*	***Units: FT***
A non-continuous timber pier cap supported by timber piles.				
813	***Other Split Pier Cap***	*Condition State Table: 6*	*Classification: ADE*	***Units: FT***
Other material split pier caps are ones that cannot be classified using any other defined split pier cap element.				

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Inspection Data	Elements and Inspection Notes	Element	Varies

Split Abutment Cap on Timber Piles

Description: *These elements identify split abutment caps of various materials, regardless of protective systems. If an abutment cap is not continuous across the line of abutments/columns beneath it, it is a "split abutment cap". An additional transverse member called a "sub cap" (that supports the abutment cap from below) may or may not be present. Sub caps are quantified separately and are their own ADE (see next section).*

Quantity Calculation: *The quantity for this element is the sum of the lengths of the split abutment caps measured along the skew angle. The length of the sub cap (if present) is not included in the quantity for the split abutment cap.*

Element Commentary: *These elements are only to be used for split abutment caps that are supported by timber piles. Typically, this does not include widenings, but bridges originally built with split abutment caps.*

860	***Steel Split Abutment Cap on Treated Timber Piles***	*Condition State Table: 3*	*Classification: ADE*	***Units: FT***
A non-continuous steel abutment cap supported by timber piles.				
861	***Reinforced Concrete Split Abutment Cap on Treated Timber Piles***	*Condition State Table: 1*	*Classification: ADE*	***Units: FT***
A non-continuous reinforced concrete abutment cap supported by timber piles.				
862	***Timber Split Abutment Cap on Treated Timber Piles***	*Condition State Table: 4*	*Classification: ADE*	***Units: FT***
A non-continuous timber abutment cap supported by timber piles.				
863	***Other Split Abutment Cap***	*Condition State Table: 6*	*Classification: ADE*	***Units: FT***
Other material split abutment caps are ones that cannot be classified using any other defined split abutment cap element.				

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Sub Caps under Split Pier Caps

Description: *These elements identify sub caps of various materials, regardless of protective systems.*

Quantity Calculation: *The quantity for this element is the sum of the lengths of the sub caps measured along the skew angle.*

Element Commentary: *These elements are only to be used for sub cap under split pier caps supported by timber piles.*

814	***Steel Sub Cap under Split Pier Cap***	*Condition State Table: 3*	*Classification: ADE*	***Units: FT***
A steel sub cap under a split pier cap supported by timber piles.				
815	***Reinforced Concrete Sub Cap under Split Pier Cap***	*Condition State Table: 1*	*Classification: ADE*	***Units: FT***
A reinforced concrete sub cap under a split pier cap supported by timber piles.				
816	***Timber Sub Cap under Split Pier Cap***	*Condition State Table: 4*	*Classification: ADE*	***Units: FT***
A timber sub cap under a split pier cap supported by timber piles.				
817	***Other Material Sub Cap under Split Pier Cap***	*Condition State Table: 6*	*Classification: ADE*	***Units: FT***
A sub cap under a split pier cap supported by timber piles that is comprised of another material.				

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Sub Caps under Split Abutment Caps

Description: *These elements identify sub caps of various materials, regardless of protective systems.*

Quantity Calculation: *The quantity for this element is the sum of the lengths of the sub caps measured along the skew angle.*

Element Commentary: *These elements are only to be used for sub cap under split abutment caps supported by timber piles.*

864	***Steel Sub Cap under Split Abutment Cap***	*Condition State Table: 3*	*Classification: ADE*	***Units: FT***
A steel sub cap under a split abutment cap supported by timber piles.				
865	***Reinforced Concrete Sub Cap under Split Abutment Cap***	*Condition State Table: 1*	*Classification: ADE*	***Units: FT***
A reinforced concrete sub cap under a split abutment cap supported by timber piles.				
866	***Timber Sub Cap under Split Abutment Cap***	*Condition State Table: 4*	*Classification: ADE*	***Units: FT***
A timber sub cap under a split abutment cap supported by timber piles.				
867	***Other Material Sub Cap under Split Abutment Cap***	*Condition State Table: 6*	*Classification: ADE*	***Units: FT***
A sub cap under a split abutment cap supported by timber piles that is comprised of another material.				

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Piles

Description: *These elements define all piles.*

Quantity Calculation: *The quantity for these elements is the sum of the number of piles visible for inspection.*

Element Commentary: *Piles exposed from erosion or scour or visible during an underwater inspection are included in this element. Piles shall bear on nothing and rely on friction; unlike columns which bear on a footing, mudsill or other generally shallow foundation.*

See Next Page for Timber Pile and Repaired Timber Piles.

225	***Steel Pile***	*Condition State Table: 3*	*Classification: NBE*	***Units: EA***
Steel piles.				
226	***Prestressed Concrete Pile***	*Condition State Table: 2*	*Classification: NBE*	***Units: EA***
Prestressed concrete piles.				
227	***Reinforced Concrete Pile***	*Condition State Table: 1*	*Classification: NBE*	***Units: EA***
Reinforced concrete piles. Use this element when the pile does not rely on the steel shell for any capacity. This includes drilled shafts.				
229	***Other Pile***	*Condition State Table: 6*	*Classification: NBE*	***Units: EA***
Composite materials or piles that cannot be classified by any other defined pile element.				

Pier Caps/Footings

Description: *This element defines prestressed concrete pier caps and culverts.*

Quantity Calculation: *The quantity for these elements is the sum of the length of pile caps/footings.*

Element Commentary: *Pile Caps or Footings exposed from erosion, scour, or visible during an underwater inspection are included in this element.*

220	***Reinforced Concrete Pile Cap/Footing***	*Condition State Table: 1*	*Classification: NBE*	***Units: FT***
Reinforced concrete pile caps/footings that are visible for inspection.				

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Timber Piles, Cross Bracing, and Repaired Timber Piles

Description: *These elements define all timber piles and the repairs on the timber piles.*

Quantity Calculation: *The quantity for these elements is the sum of the number of piles visible for inspection.*

Element Commentary: *Timber piles or repaired piles exposed from erosion or scour or visible are included in this element. Piles shall bear on nothing and rely on friction; unlike columns which bear on a footing, mudsill or other generally shallow foundation.*

228	***Timber Pile***	*Condition State Table: 4*	*Classification: NBE*	***Units: EA***
Timber piles.				
879	***Timber Pile Cross Bracing***	*Condition State Table: 4*	*Classification: ADE*	***Units: LF***
Linear footage of cross bracing present on a timber pile bent. If bracing is located on both sides of the bent, the length of bracing from both sides are quantified.				
870	***Existing Timber Pile under Crutch***	*Condition State Table: 4*	*Classification: ADE*	***Units: EA***
This element defines timber piles which are in-place but there is a crutch beam, crutch bent, or other crutch support which is supporting the majority of the superstructure load. A load rating must accurately represent that the pile is abandoned.				
872	***Stubbed or Spliced Timber Pile***	*Condition State Table: 4*	*Classification: ADE*	***Units: EA***
A portion of the timber pile is encased in concrete or is spliced.				
874	***Wrapped Timber Pile***	*Condition State Table: 4*	*Classification: ADE*	***Units: EA***
A portion of the timber pile is wrapped in a material to prevent further deterioration but the repair is not structural.				
876	***Structural Repair Reinforced Pile (Rebar)***	*Condition State Table: 4*	*Classification: ADE*	***Units: EA***
A pile structurally rehabilitated with reinforcing steel.				
877	***Structural Repair Reinforced Pile (FRP)***	*Condition State Table: 4*	*Classification: ADE*	***Units: EA***
A pile structurally rehabilitated with fiber reinforced polymer.				
878	***Structural Repair Reinforced Pile (Other)***	*Condition State Table: 4*	*Classification: ADE*	***Units: EA***
A pile structurally rehabilitated with other materials (not reinforcing steel and not FRP).				

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Examples (Timber Piles, Cross Bracing, and Repaired Timber Piles)

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
870 – Timber Pile under Crutch	Steel crutches installed between pier wall and cap beam at either side of each existing timber pile.	03466	
870 – Timber Pile under Crutch	Steel crutch beam installed below concrete slabs at either side of timber pile bent.	01067	
870 – Timber Pile under Crutch	Steel crutch bent installed below existing steel beams at either side of timber pile bent.	00515	

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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Elements and Inspection Notes	Element	Varies

Towers

Description: *This element defines built up steel truss or framed tower supports, and is for all towers regardless of protective system*

Quantity Calculation: *The quantity for this element is the sum of the heights of built up or framed tower supports.*

Element Commentary: *This element is rare.*

207	***Steel Tower***	*Condition State Table: 3*	*Classification: NBE*	***Units: FT***
This element is steel built up or framed tower supports, is for all towers, and is intended to capture large supports and towers associated with suspension bridges, cable stayed bridges, moveable bridges or similar structural configurations.				

Trestles

Description: *This element defines framed timber supports, regardless of protective system.*

Quantity Calculation: *The quantity for this element is the sum of the heights of built up or framed tower supports.*

Element Commentary: *This element is rare.*

208	***Timber Trestle***	*Condition State Table: 4*	*Classification: NBE*	***Units: FT***
This element defines framed timber supports, and is intended to be used for truss-framed trestles or towers. This element is intended to capture large supports and towers associated with large deck truss bridges.				

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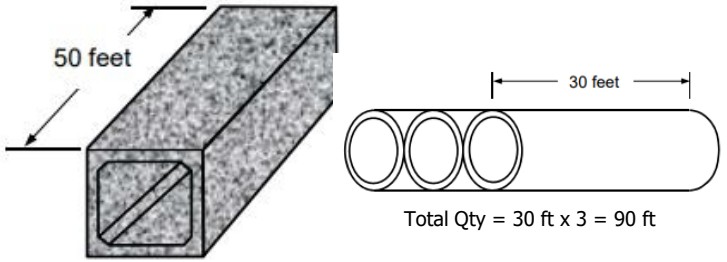
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Inspection Data	Elements and Inspection Notes	Element	Varies

Culvert

Description: *These elements define all culverts, regardless of protective system, including box, arched, round, or elliptical shapes.*

Quantity Calculation: *The quantity for these are collected in feet unless otherwise noted. The culvert element is measured along the flow line of the barrel times the number of barrels.*

Element Commentary: *The distortion defect is contingent on a number of factors such as site, wall thickness, fill depth, etc.*



240	***Steel Culvert***	*Condition State Table: 3*	*Classification: NBE*	***Units: FT***
Steel culverts, including arched, round or elliptical pipes.				
241	***Reinforced Concrete Culvert***	*Condition State Table: 1*	*Classification: NBE*	***Units: FT***
Reinforced concrete culverts, includes 4-sided boxes. This includes culverts that are precast but not prestressed.				
242	***Timber Culvert***	*Condition State Table: 4*	*Classification: NBE*	***Units: FT***
Timber culverts.				
243	***Other Culvert***	*Condition State Table: 6*	*Classification: NBE*	***Units: FT***
Other material culverts that cannot be classified using any other defined culvert element.				
244	***Masonry Culvert***	*Condition State Table: 5*	*Classification: NBE*	***Units: FT***
Masonry block or stone culverts.				
245	***Prestressed Concrete Culvert***	*Condition State Table: 2*	*Classification: NBE*	***Units: FT***
Prestressed concrete culverts.				

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Examples (Culvert)

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
240- Corrugated Metal Pipe Arch Culvert	Corrugated Metal Pipe Arch Culvert	00374	
241 - Reinforced Concrete Box Culvert	3-Sided Concrete Box Culvert	00032	
244 - Masonry Culvert	Masonry Culvert	01722	

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Inspection Data	Elements and Inspection Notes	Element	Varies

Fender Piles

Description: *These elements define the various piles which are part of fender systems.*

Quantity Calculation: *The quantity for these elements is the sum of the number of piles visible for inspection.*

Element Commentary: *Piles which are part of fender systems which are exposed from erosion or scour or visible during an underwater inspection are included in this element. The fender system itself is not quantified with this element. This element also includes dolphins which can consist of timber or steel piles or other materials.*

830	***Timber Fender Piles***	*Condition State Table: 4*	*Classification: ADE*	***Units: EA***
Timber piles part of a fender system. Timber fender piles are not subject to the same inspection requirements as timber piles which are part of the bridge's substructure.				
831	***Steel Fender Piles***	*Condition State Table: 3*	*Classification: ADE*	***Units: EA***
Steel piles part of a fender system. This can include steel H-piles or steel pipe piles.				
832	***Concrete Fender Piles***	*Condition State Table: 2*	*Classification: ADE*	***Units: EA***
Concrete piles part of a fender system.				
833	***FRP Fender Piles***	*Condition State Table: 6*	*Classification: ADE*	***Units: EA***
Fiber reinforced polymer piles part of a fender system.				
834	***Other Fender Piles***	*Condition State Table: 6*	*Classification: ADE*	***Units: EA***
Other material fender piles that cannot be classified using any other defined fender pile element.				

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Inspection Data	Elements and Inspection Notes	Element	Varies

Fender System

Description: *These elements define the fender systems (or waler).*

Quantity Calculation: *The quantity for these elements is the sum of the linear footage of the fender system (or waler) which is visible for inspection.*

Element Commentary: *The fender system which is visible during an inspection is included in this element. The piles which are part of the fender system is not quantified with this element. The condition of the overall fender system is accessed including any walkways on the fender system, the portion of the element that protects the bridge, and redirects traffic in the waterway.*

840	***Timber Fender System***	*Condition State Table: 4*	*Classification: ADE*	***Units: LF***
Timber piles part of a fender system.				
841	***Steel Fender System***	*Condition State Table: 3*	*Classification: ADE*	***Units: LF***
Steel piles part of a fender system. This can include steel H-piles or steel pipe piles.				
842	***Concrete Fender System***	*Condition State Table: 2*	*Classification: ADE*	***Units: LF***
Concrete piles part of a fender system.				
843	***FRP Fender System***	*Condition State Table: 6*	*Classification: ADE*	***Units: LF***
Fiber reinforced polymer piles part of a fender system.				
844	***Other Fender System***	*Condition State Table: 6*	*Classification: ADE*	***Units: LF***
Other material fender piles that cannot be classified using any other defined fender pile element.				

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Abutment Lagging

Description: *Lagging (or sheeting) is defined as horizontal members spanning between piles to form a wall. The actual structure of the component that is in contact with soil must be spanning horizontally to be considered lagging (or sheeting).*

Quantity Calculation: *The quantity for these elements is the sum of the linear footage of the lagging (or sheeting) which is visible for inspection. It is typically the same length of the abutment.*

Element Commentary: *The abutment's cap should be considered the abutment and the lagging (or sheeting) should be considered as the lagging.*

855	***Timber Lagging at Abutment***	*Condition State Table: 4*	*Classification: ADE*	***Units: LF***
Lagging which is comprised of timber.				
856	***Metal Sheeting at Abutment***	*Condition State Table: 3*	*Classification: ADE*	***Units: LF***
Sheeting which is comprised of metal (steel, aluminum, etc.)				
857	***Other Lagging at Abutment***	*Condition State Table: 6*	*Classification: ADE*	***Units: LF***
Other material lagging that cannot be classified using any other defined lagging element.				

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Other Supports

Description: *These elements define other supports which may transfer loads from the superstructure to the substructure or the foundation.*

Quantity Calculation: *The quantity for this element is the sum of the lengths of the supports measured along the skew angle.*

Element Commentary: *Condition evaluation for this element includes all exposed portions of the supports .*

880	***Other Temporary Support***	*Condition State Table: 6*	*Classification: ADE*	***Units: LF***
This element is used to document the condition of designated shoring systems or other temporary bridge supports.				
881	***Crutch Bent***	*Condition State Table: 6*	*Classification: ADE*	***Units: LF***
Crutch bents provide a supplemental substructure unit. Crutch bents include the crutch bent cap. The foundation element (if any) shall be quantified not using and ADE.				
882	***Crutch Beam***	*Condition State Table: 6*	*Classification: ADE*	***Units: LF***
Crutch beam provide a supplemental substructure unit and are anchored to the superstructure but do not have any of their own pile elements.				
883	***Saddle***	*Condition State Table: 6*	*Classification: ADE*	***Units: LF***
A saddle is typically used because of poor bearing, beam, or substructure condition. Saddle repairs on beam ends at bent caps are a common element inspected on bridges in South Carolina. While the saddle slightly improves the beam end, its lifespan likely remains shortened. Saddles (including stub saddles) should only be placed in Condition State 4 when there is a defect that requires a load rating or immediate repair per CS Table 6.				

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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Elements and Inspection Notes	Element	Varies

Beam Ends

Description: *This element is only to examine the last 5 feet of a beam (or girder) end.*

Quantity Calculation: *The quantity for this element is the sum of the beam ends at each abutment or bent visible for inspection. The beam end element supplements conditions documented with NBE beam elements; however, its Condition State is recorded with an "each" unit of measurement versus their linear "feet" unit of measurement.*

Element Commentary: *Condition evaluation for this element includes all exposed faces of the beam in the area described above. It shall not include the condition of end diaphragms (if any). This element is only required when the subject beam contains 1 or more linear feet in Condition State 3 or Condition State 4. Most beam ends that are supported with saddles should be placed in CS3. Beam ends should be placed in CS4 if there is an immediate repair needed or if the capacity of the structural system is impacted by the condition of the saddle.*

822	***Steel Beam Ends***	*Condition State Table: 3*	*Classification: ADE*	***Units: EA***
This element defines the area from the end of a steel beam to a point five feet from the centerline of bearings of the steel beam and is for all steel beams.				
823	***Prestressed Beam Ends***	*Condition State Table: 2*	*Classification: ADE*	***Units: EA***
This element defines the area from the end of a prestressed beam to a point five feet from the centerline of bearings of the prestressed beam and is for all prestressed beams.				
824	***Concrete Beam Ends***	*Condition State Table: 1*	*Classification: ADE*	***Units: EA***
This element defines the area from the end of a concrete beam to a point five feet from the centerline of bearings of the concrete beam and is for all concrete beams.				
825	***Timber Beam Ends***	*Condition State Table: 4*	*Classification: ADE*	***Units: EA***
This element defines the area from the end of a timber beam to a point five feet from the centerline of bearings of the timber beam and is for all timber beams.				
826	***Other Beam Ends***	*Condition State Table: 6*	*Classification: ADE*	***Units: EA***
Other beam ends that cannot be classified using any other defined beam end element.				

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Navigation Lighting

Description: *These elements define the lights used for navigation, mounted on the bridge or fender system and is not limited to lights on moveable bridges. This element includes clearance gauge lights and power system. Inspection should include the back-up power system, if one. This element may also be used on non-moveable bridges.*

Quantity Calculation: *The quantity for this element is the sum of the elements visible during the inspection.*

Element Commentary: *Inspectors may contact the DBE for any needed clarification on this element.*

890	***Navigation Light Solar Array***	*Condition State Table: 6*	*Classification: ADE*	***Units: EA***
Use this element for lights which are not green navigation lights or red navigation lights.				
891	***Green Navigation Light***	*Condition State Table: 6*	*Classification: ADE*	***Units: EA***
Green navigation lights.				
892	***Red Navigation Light***	*Condition State Table: 6*	*Classification: ADE*	***Units: EA***
Red navigation lights.				

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FHWA Specification *[and SCDOT Markups]*	FHWA Commentary *[and SCDOT Markups]*
Report the element quantity assigned to a condition state to the nearest whole unit of measure for each element reported for the bridge. Refer to the *AASHTO Manual for Bridge Element Inspection (AASHTO MBEI)* for element defect and condition state definitions.	All elements have four defined condition states. The severity of multiple distress paths or deficiencies is defined in the *AASHTO MBEI* for each condition state. The sum of the quantities recorded for items B.CS.01 (Element Quantity CS1), B.CS.02 (Element Quantity CS2), B.CS.03 (Element Quantity CS3), and B.CS.04 (Element Quantity CS4) must equal the quantity recorded in item B.E.03 (Element Total Quantity).

Condition State General Guidance

This guidance attempts to cover the majority of all conditions observed in the field, but during the course of an inspection, the inspector may find conditions that are not described. In these cases, the inspector should use the general description of the condition states to determine the appropriate condition. Overarching descriptors for the four condition states are as follows:

Condition State 1 (CS1) (Good) *– that portion of the element that has either no deterioration or the deterioration is insignificant to the management of the element, meaning that portion of the element has no condition based preventive maintenance needs or repairs. Areas of an element that have received long lasting structural repairs that restore the full capacity of the element with an expected life expectancy equal to the original element can be coded as good condition.*

Condition State 2 (CS2) (Fair) *– that portion of the element that has minor deficiencies that signifies a progression of the deterioration process. This portion of the element may need condition based preventive maintenance. Areas of the element that have received structural repairs that improve the element, but the repair is not considered equal to the original member can be coded as fair.*

Condition State 3 (CS3) (Poor) *– that portion of the element that has advanced deterioration requiring repair. The summation of the quantity of the element in poor or worse condition determines the need for repairs, rehabilitation, or replacement activities.*

Condition State 4 (CS4) (Severe) *– that portion of the element that warrants a review to determine the effect on strength or serviceability of the element or bridge; or a structural review has been completed and the defects impact strength or serviceability of the element or bridge. Elements with a portion or all the quantity in CS4 may often have capacity implications warranting a structural review. The term structural review is defined as a review by a person qualified to evaluate the field observed conditions and decide of the impacts of the conditions on the performance of the element and may include a load rating or hydraulic analysis. An in-depth inspection may also be required to further examine conditions. The element shall remain in CS4 until the examination is complete.*

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Inspection Data	Elements and Inspection Notes	Element	Varies

Condition State General Guidance

Specific definitions for AASHTO Condition State Definitions should be utilized as published by AASHTO and SCDOT. Those criteria should be used in combination with this guidance. AASHTO provides specific information on the four standard condition states: good, fair, poor, and severe. Further, AASHTO recommends the following set of actions for each condition state as noted during required inspections for elements as noted in the table below.

	Condition State 1	Condition State 2	Condition State 3	Condition State 4
	Good	Fair	Poor	Severe
Feasible Actions	Do Nothing	Do Nothing	Do Nothing	Do Nothing[1]
	Protect	Protect	Protect	Protect
		Repair	Repair	Repair
			Rehabilitate	Rehabilitate
			Replace	Replace

1 – While no field work may be required, at a minimum, a follow-up action must be required for some elements. See BIGD Chapter 7.

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Condition State Table 1 – Reinforced Concrete

Defect (2)	Condition State 1 GOOD	Condition State 2 FAIR	Condition State 3 POOR	Condition State 4 SEVERE
Spalls/ Delaminations/ Patch Areas (1080)	None.	Delaminated. Spall 1 in. or less deep or less than 6 in. diameter. Patched area is sound.	Spall greater than 1 in. deep or greater than 6 in. diameter. Patched area is unsound or showing distress. Does not warrant structural review.	The condition warrants a structural review to determine the effect on strength or serviceability of the element or bridge; OR a structural review has been completed and the defects impact strength or serviceability of the element or bridge.
Exposed Rebar (1090)	None.	Present without section loss.	Present with section loss that does not warrant structural review.	
Efflorescence/ Rust Staining (1120)	None.	Surface white without build-up or leaching without rust staining.	Heavy build-up with rust staining.	
Cracking (1) (1130)	Insignificant cracks or moderate-width cracks that have been sealed.	Unsealed moderate-width cracks or unsealed moderate pattern (map) cracking.	Wide cracks or heavy pattern (map) cracking.	
Abrasion /Wear (1190)	No Abrasion of wearing	Abrasion or wearing has exposed coarse aggregate	Coarse aggregate is loose or has popped out of the concrete matrix due to abrasion or wear.	
Distortion (Culvert) (1900)	None.	Distortion does not require mitigation or mitigated distortion.	Distortion that requires mitigation but does not require structural review.	
Settlement (Sub) (4000) (3)	None.	Exists within tolerable limits or arrested with effective actions taken to mitigate.	Exceeds tolerable limits but does not warrant structural review.	
Scour (6000)	See Appendix S5 for guidance on the use of Defect 6000 (Scour) for Substructure and Culvert Elements.			
Damage (7000)	See Appendix S6 for guidance on the use of Defect 7000 (Damage).			

(1) The crack defect description definitions describe generalized distress, but the inspector should consider width, spacing, location, orientation, and structure or nonstructural nature of the cracking. The inspector should consider exposure and environment when evaluating crack width. In general, reinforced concrete cracks less than 0.012 inches can be considered insignificant and a defect is not warranted. Cracks ranging from 0.012 to 0.05 inches can be considered moderate, and cracks greater than 0.05 inches can be considered wide.

(2) See Appendix S3 for guidance on some of the more specific situations to properly quantify such as repairs including saddles and pile repairs.

(3) Defect 4001 (Split Cap Movement) shall be used for movement/settlement detected at the interface between split caps.

Section 1: Bridge Identification
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Element Quantity Condition State (continued)

Format	Frequency	Item ID Number	Item Ownership
N (8,0)	EI	B.CS.01 to B.CS.04	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Elements and Inspection Notes	Element	Varies

Condition State Table 1 – Reinforced Concrete – Examples



Condition State 2



Condition State 3



Condition State 4



Condition State 2



Condition State 3



Condition State 4



Condition State 2



Condition State 3



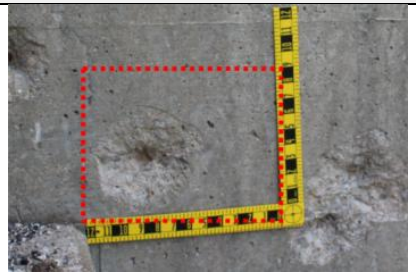
Condition State 4

Section 1: Bridge Identification
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Section 4: Features
Section 5: Loads, Rating, and Posting
Section 6: Inspections
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Element Quantity Condition State (continued)

Format	Frequency	Item ID Number	Item Ownership
N (8,0)	EI	B.CS.01 to B.CS.04	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Elements and Inspection Notes	Element	Varies

Condition State Table 1 – Reinforced Concrete – Examples (continued)



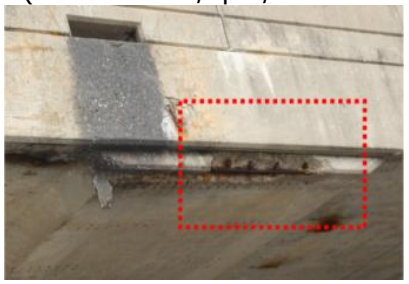
CS2 (1080 – Delam/Spall/Patched Area)



CS3 (1080 – Delam/Spall/Patched Area)



CS2 (1090 – Exposed Rebar)



CS3 (1090 – Exposed Rebar)



CS2 (1120 – Efflorescence/Rust Staining)



CS3 (1120 – Efflorescence/Rust Staining)

Section 1: Bridge Identification
Section 2: Bridge Material and Type
Section 3: Bridge Geometry
Section 4: Features
Section 5: Loads, Rating, and Posting
Section 6: Inspections
Section 7: Bridge Condition
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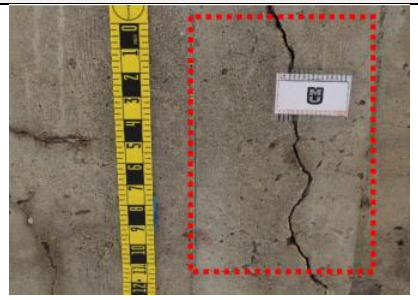
Element Quantity Condition State (continued)

Format	Frequency	Item ID Number	Item Ownership
N (8,0)	EI	B.CS.01 to B.CS.04	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Elements and Inspection Notes	Element	Varies

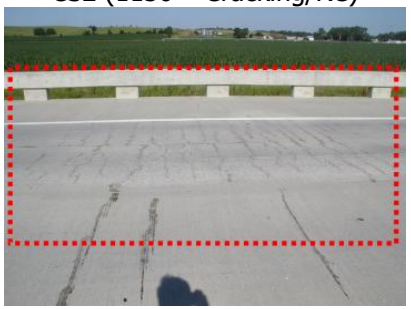
Condition State Table 1 – Reinforced Concrete – Examples (continued)



CS2 (1130 – Cracking/RC)



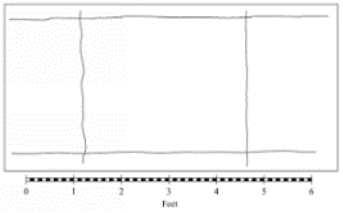
CS3 (1130 – Cracking/RC)



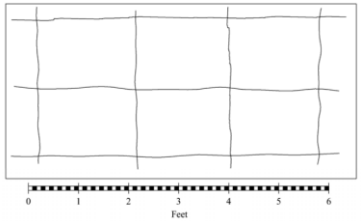
CS2 (1090 – Exposed Rebar)



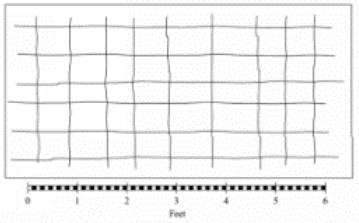
CS3 (1090 – Exposed Rebar)



(Crack Pattern Guide)
Condition State 1



(Crack Pattern Guide)
Condition State 2



(Crack Pattern Guide)
Condition State 3

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Appendix S6: Damage Defect Coding

Element Quantity Condition State (continued)

Format	Frequency	Item ID Number	Item Ownership
N (8,0)	EI	B.CS.01 to B.CS.04	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Elements and Inspection Notes	Element	Varies

Condition State Table 1 – Reinforced Concrete – Examples (continued)



CS2 (1190 – Abrasion/Wear)



CS3 (1190 – Abrasion/Wear)

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Section 3: Bridge Geometry
Section 4: Features
Section 5: Loads, Rating, and Posting
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Element Quantity Condition State (continued)

Format	Frequency	Item ID Number	Item Ownership
N (8,0)	EI	B.CS.01 to B.CS.04	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Elements and Inspection Notes	Element	Varies

Condition State Table 2 – Prestressed Concrete

Defect (2)	Condition State 1 GOOD	Condition State 2 FAIR	Condition State 3 POOR	Condition State 4 SEVERE
Spalls/ Delaminations/ Patch Areas (1080)	None.	Delaminated. Spall 1 in. or less deep or less than 6 in. diameter. Patched area is sound.	Spall greater than 1 in. deep or greater than 6 in. diameter. Patched area is unsound or showing distress. Does not warrant structural review.	The condition warrants a structural review to determine the effect on strength or serviceability of the element or bridge; OR a structural review has been completed and the defects impact strength or serviceability of the element or bridge.
Exposed Rebar (1090)	None.	Present without section loss.	Present with section loss that does not warrant structural review.	
Exposed Prestressing (1100)	None.	Present without section loss.	Present with section loss that does not warrant structural review.	
Cracking (1) PSC (1110	Insignificant cracks or moderate-width cracks that have been sealed.	Unsealed moderate-width cracks or unsealed moderate pattern (map) cracking.	Wide cracks or heavy pattern (map) cracking.	
Efflorescence / Rust Staining (1120)	None.	Surface white without build-up or leaching without rust staining.	Heavy build-up with rust staining.	
Settlement (Sub) (4000) (3)	None.	Exists within tolerable limits or arrested with effective actions taken to mitigate.	Exceeds tolerable limits but does not warrant structural review.	
Scour (6000)	See Appendix S5 for guidance on the use of Defect 6000 (Scour) for Substructure and Culvert Elements.			
Damage (7000)	See Appendix S6 for guidance on the use of Defect 7000 (Damage).			

(1) The crack defect description definitions describe generalized distress, but the inspector should consider width, spacing, location, orientation, and structure or nonstructural nature of the cracking. The inspector should consider exposure and environment when evaluating crack width. In general, prestressed concrete cracks less than 0.004 inches can be considered insignificant and a defect is not warranted. Cracks ranging from 0.004 to 0.009 inches can be considered moderate, and cracks greater than 0.009 inches can be considered wide.

(2) See Appendix S3 for guidance on some of the more specific situations to properly quantify such as repairs including saddles and pile repairs.

(3) Defect 4001 (Split Cap Movement) shall be used for movement/settlement detected at the interface between split caps.

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Element Quantity Condition State (continued)

Format	Frequency	Item ID Number	Item Ownership
N (8,0)	EI	B.CS.01 to B.CS.04	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Elements and Inspection Notes	Element	Varies

Condition State Table 2 – Prestressed Concrete – Examples



Condition State 2



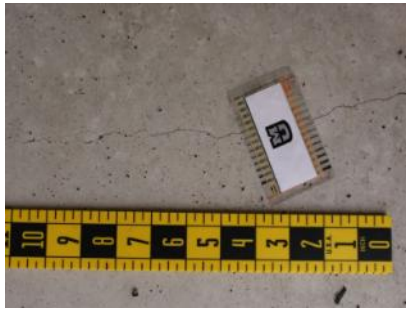
Condition State 3



Condition State 4



(1110 – Cracking/PSC)
Condition State 2



(1110 – Cracking/PSC)
Condition State 3

Section 1: Bridge Identification
Section 2: Bridge Material and Type
Section 3: Bridge Geometry
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Element Quantity Condition State (continued)

Format	Frequency	Item ID Number	Item Ownership
N (8,0)	EI	B.CS.01 to B.CS.04	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Elements and Inspection Notes	Element	Varies

Condition State Table 3 – Steel

Defect (2)	Condition State 1 GOOD	Condition State 2 FAIR	Condition State 3 POOR	Condition State 4 SEVERE
Corrosion (1000)	None.	Freckled Rust. Corrosion of the steel has initiated.	Section loss is evident or pack rust is present but does not warrant structural review.	The condition warrants a structural review to determine the effect on strength or serviceability of the element or bridge; OR a structural review has been completed and the defects impact strength or serviceability of the element or bridge.
Cracking/Fatigue (1010)	None.	Cracks that have self-arrested or have been arrested with effective arrest holes, doubling plates or similar.	Identified cracks exist that are not arrested and do not require structural review.	
Connections (1020)	Connection is in place and functioning as intended.	Loose fasteners or pack rust without distortion is present but the connection is in place and functioning as intended.	Missing bolts, rivets, broken welds, fasteners or pack rust with distortion but do not warrant a structural review.	
Distortion (1900)	None.	Distortion not requiring mitigation or mitigated distortion.	Distortion that requires mitigation but does not require structural review.	
Settlement (Sub) (4000) (2)	None.	Exists within tolerable limits or arrested with effective actions taken to mitigate.	Exceeds tolerable limits but does not warrant structural review.	
Scour (6000)	See Appendix S5 for guidance on the use of Defect 6000 (Scour) for Substructure and Culvert Elements.			
Damage (7000)	See Appendix S6 for guidance on the use of Defect 7000 (Damage).			

(1) See Appendix S3 for guidance on some of the more specific situations to properly quantify such as repairs including saddles and pile repairs.

(2) Defect 4001 (Split Cap Movement) shall be used for movement/settlement detected at the interface between split caps.

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Element Quantity Condition State (continued)

Format	Frequency	Item ID Number	Item Ownership
N (8,0)	EI	B.CS.01 to B.CS.04	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Elements and Inspection Notes	Element	Varies

Condition State Table 3 – Steel – Examples



Condition State 2



Condition State 3



Condition State 4



(1000 – Corrosion)
Condition State 4



(1000 – Corrosion)
Condition State 3



(1000 – Corrosion)
Condition State 4

Section 1: Bridge Identification
Section 2: Bridge Material and Type
Section 3: Bridge Geometry
Section 4: Features
Section 5: Loads, Rating, and Posting
Section 6: Inspections
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Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Element Quantity Condition State (continued)

Format	Frequency	Item ID Number	Item Ownership
N (8,0)	EI	B.CS.01 to B.CS.04	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Elements and Inspection Notes	Element	Varies

Condition State Table 3 – Steel – Examples (continued)



(1000 – Corrosion)
Condition State 2



(1000 – Corrosion)
Condition State 3



(1020 – Connections)
Condition State 2



(1020 – Connections)
Condition State 3



(1020 – Connections)
Condition State 4

Section 1: Bridge Identification
Section 2: Bridge Material and Type
Section 3: Bridge Geometry
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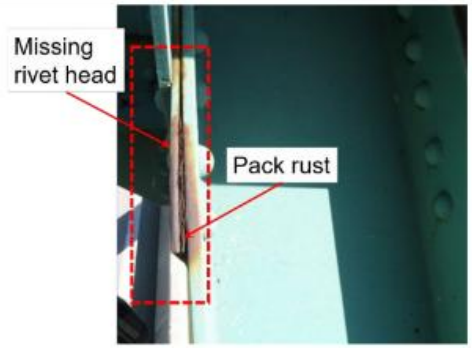
Element Quantity Condition State (continued)

Format	Frequency	Item ID Number	Item Ownership
N (8,0)	EI	B.CS.01 to B.CS.04	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Elements and Inspection Notes	Element	Varies

Condition State Table 3 – Steel – Examples (continued)



(1020 – Connections)
Condition State 2



(1020 – Connections)
Condition State 3



(1010 – Cracking)
Condition State 2



(1010 – Cracking)
Condition State 3



(1010 – Cracking)
Condition State 4

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Section 2: Bridge Material and Type
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Section 4: Features
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Appendix S6: Damage Defect Coding

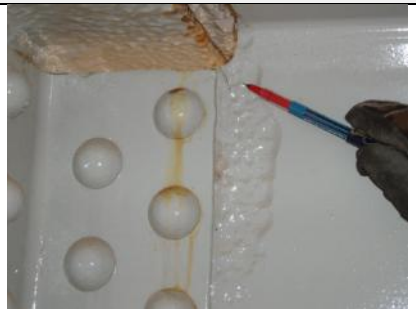
Element Quantity Condition State (continued)

Format	Frequency	Item ID Number	Item Ownership
N (8,0)	EI	B.CS.01 to B.CS.04	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Elements and Inspection Notes	Element	Varies

Condition State Table 3 – Steel – Examples (continued)



(1010 – Cracking)
Condition State 2



(1010 – Cracking)
Condition State 3

Section 1: Bridge Identification
Section 2: Bridge Material and Type
Section 3: Bridge Geometry
Section 4: Features
Section 5: Loads, Rating, and Posting
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Element Quantity Condition State (continued)

Format	Frequency	Item ID Number	Item Ownership
N (8,0)	EI	B.CS.01 to B.CS.04	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Elements and Inspection Notes	Element	Varies

Condition State Table 4 – Timber

Existing Repair or Repair Recommendations	*Only repair permitted in CS1 is a replaced pile.*	*Existing repair in sound condition.*(1)	*Repairs are recommended **OR** Existing repair unsound.* (1,2)	*Critical Finding **OR** Repairs are recommended.*(2)
Defect	**Condition State 1** GOOD	**Condition State 2** FAIR	**Condition State 3** (2) POOR	**Condition State 4** (2) SEVERE
Decay/Section Loss (1140) – Piles	See Appendix S2 for guidance on the use of Defect 1140 (Decay/Section Loss) for Timber Piles.			
Pile Bearing Defect (9003)	See Appendix S2 for guidance on the use of Defect 9003 (Pile at Cap Defect) for Timber Piles.			
Decay at Cap (9004)	See Appendix S2 for guidance on the use of Defect 9004 (Pile at Cap Defect) for Timber Piles.			
Decay/Section Loss (1140) – Non-Piles	None.	Affects less than 10% of the member section.	Affects 10% or more of the member but does not warrant structural review.	The condition warrants a structural review to determine the effect on strength or serviceability of the element or bridge; OR a structural review has been completed and the defects impact strength or serviceability of the element or bridge.
Checks/Shakes (1150)	Surface penetration less than 5% of the member thickness regardless of location.	Penetrates 5% - 50% of the thickness of the member and not in a tension zone.	Penetrates more than 50% of the thickness of the member or more than 5% of the member thickness in a tension zone.	
Cracks (1160)	None.	Cracks that have been arrested through effective measures.	Identified cracks exist that are not arrested and do not require structural review.	
Splits (1170)	None.	Length less than the member depth or arrested w/ effective actions taken to mitigate.	Length greater than the member depth and does not require structural review.	
Pile Misalignment (9001)	None	Slightly misaligned.	Significantly misaligned.	
Through Bolt Connection (9002)	Connection in-place and functioning as intended.	Loose fasteners, connection is in-place and functioning.	Missing fasteners, connection is distressed.	
Settlement (Sub) (4000) (3)	None.	Exists within tolerable limits or arrested with effective actions taken to mitigate.	Exceeds tolerable limits but does not warrant structural review.	
Scour (6000)	See Appendix S5 for guidance on the use of Defect 6000 (Scour) for Substructure and Culvert Elements.			
Damage (7000)	See Appendix S6 for guidance on the use of Defect 7000 (Damage).			

(1) Repaired timber piles are quantified using Agency Defined Elements (ADEs). Do not use Element #228 for repaired timber piles. Quantities for ADEs will be reported as Element #228 as the only National Bridge Element (NBE) for timber piles. See Appendix S2 for additional guidance.

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Appendix S4: Weathering Steel Condition
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Appendix S6: Damage Defect Coding

Element Quantity Condition State (continued)

Format	Frequency	Item ID Number	Item Ownership
N (8,0)	EI	B.CS.01 to B.CS.04	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Elements and Inspection Notes	Element	Varies

Condition State Table 4 – Timber

(2) Piles with maintenance requests should be coded in CS3 or CS4. Timber piles in CS3 should be protected or repaired, or in some cases, replaced. Timber piles in CS4 should be repaired or replaced. Any timber pile requiring a structural review to determine strength or serviceability shall be rated as CS4 in accordance with the MBEI.

(3) Defect 4001 (Split Cap Movement) shall be used for movement/settlement detected at the interface between split caps.

Condition State Table 4 – Timber – Examples



(1140 – Decay/Section Loss) (Non-Pile)
Condition State 2



(1140 – Decay/Section Loss) (Non-Pile)
Condition State 3



(1140 – Decay/Section Loss) (Non-Pile)
Condition State 4



(1170 – Splits)
Condition State 2



(1170 – Splits)
Condition State 3



(1170 – Splits)
Condition State 4

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Element Quantity Condition State (continued)

Format	Frequency	Item ID Number	Item Ownership
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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Elements and Inspection Notes	Element	Varies

Condition State Table 4 – Timber – Examples



(1150 – Checking) (Cap)
Condition State 2



(1150 – Checking) (Pile)
Condition State 2



(1150 – Checking)
Condition State 3



(1140 – Decay/Section Loss) (Pile)
Condition State 2



(1140 – Decay/Section Loss) (Pile)
Condition State 3



(1140 – Decay/Section Loss) (Pile)
Condition State 4

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Element Quantity Condition State (continued)

Format	Frequency	Item ID Number	Item Ownership
N (8,0)	EI	B.CS.01 to B.CS.04	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Elements and Inspection Notes	Element	Varies

Condition State Table 4 – Timber – Examples



(1140 – Decay/Section Loss) (Pile)
Condition State 4



(9001 – Pile Misalignment)
Condition State 4



(1140 – Decay/Section Loss) (Lagging)
Condition State 4

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Section 3: Bridge Geometry
Section 4: Features
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Section 6: Inspections
Section 7: Bridge Condition
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Element Quantity Condition State (continued)

Format	Frequency	Item ID Number	Item Ownership
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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Elements and Inspection Notes	Element	Varies

Condition State Table 5 – Masonry

Defect	Condition State 1 GOOD	Condition State 2 FAIR	Condition State 3 POOR	Condition State 4 SEVERE
Spalls/ Delaminations/ Patch Areas (1080)	None.	Delaminated. Spall 1 in. or less deep or less than 6 in. diameter. Patched area is sound.	Spall greater than 1 in. deep or greater than 6 in. diameter. Patched area is unsound or showing distress. Does not warrant structural review.	The condition warrants a structural review to determine the effect on strength or serviceability of the element or bridge; OR a structural review has been completed and the defects impact strength or serviceability of the element or bridge.
Efflorescence (1120)	None.	Surface white without build-up or leaching without rust staining.	Heavy build-up with rust staining.	
Mortar Breakdown - Masonry (1610)	None.	Cracking or voids in less than 10% of joints.	Cracking or voids in 10% or more of the joints.	
Splits or Spalls - Masonry (1620)	None.	Block or stone has split or spalled with no shifting.	Block or stone has split or spalled with shifting but does not warrant a structural review.	
Patched Areas - Masonry (1630)	None.	Sound patches.	Unsound patches.	
Masonry Displacement (1640)	None.	Block or stone has shifted slightly out of alignment.	Block or stone has shifted significantly out of alignment or is missing but does not warrant structural review.	
Scour (6000)	See Appendix S5 for guidance on the use of Defect 6000 (Scour) for Substructure and Culvert Elements.			
Damage (7000)	See Appendix S6 for guidance on the use of Defect 7000 (Damage).			

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Element Quantity Condition State (continued)

Format	Frequency	Item ID Number	Item Ownership
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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Elements and Inspection Notes	Element	Varies

Condition State Table 6 – Other Materials

Defect	Condition State 1 GOOD	Condition State 2 FAIR	Condition State 3 POOR	Condition State 4 SEVERE
Corrosion (1000)	None.	Freckled rust. Corrosion of the steel has initiated.	Section loss is evident or pack rust is present but does not warrant structural review.	The condition warrants a structural review to determine the effect on strength or serviceability of the element or bridge; OR a structural review has been completed and the defects impact strength or serviceability of the element or bridge.
Cracking/Fatigue (1010)	None.	Cracks that have self-arrested or that have been arrested with effective arrest holes, doubling plates, or similar.	Identified cracks exist that are not arrested and do not require structural review.	
Connections (1020)	Connection is in place and functioning as intended.	Loose fasteners or pack rust without distortion is present but the connection is in place and functioning as intended.	Missing bolts, rivets, broken welds, fasteners or pack rust with distortion but do not warrant a structural review.	
Spalls/ Delaminations/ Patch Areas (1080)	None.	Delaminated. Spall 1 in. or less deep or less than 6 in. diameter. Patched area is sound.	Spall greater than 1 in. deep or greater than 6 in. diameter. Patched area is unsound or showing distress. Does not warrant structural review.	
Efflorescence / Rust Staining (1120)	None.	Surface white without build-up or leaching without rust staining.	Heavy build-up with rust staining.	
Cracking [1] Reinforced Concrete and Other (1130)	Insignificant cracks or moderate-width cracks that have been sealed	Unsealed moderate-width cracks or unsealed moderate pattern (map) cracking.	Wide cracks or heavy pattern (map) cracking.	
Deterioration (Other) (1220)	None.	Initiated breakdown or deterioration.	Significant deterioration or breakdown that does not warrant structural review.	
Scour (6000)	See Appendix S5 for guidance on the use of Defect 6000 (Scour) for Substructure and Culvert Elements.			
Damage (7000)	See Appendix S6 for guidance on the use of Defect 7000 (Damage).			

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Element Quantity Condition State (continued)

Format	Frequency	Item ID Number	Item Ownership
N (8,0)	EI	B.CS.01 to B.CS.04	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Elements and Inspection Notes	Element	Varies

Condition State Table 7 – Wearing Surfaces

Defect	Condition State 1 GOOD	Condition State 2 FAIR	Condition State 3 POOR	Condition State 4 SEVERE
Spalls/ Delaminations/ Patch Areas/ Potholes (3210)	None.	Delaminations. Spalls 1 in. or less deep or less than 6 in. in diameter. Patched areas are sound. Partial depth potholes.	Spalls greater than 1 in. deep or greater than 6 in. in diameter. Patched areas are unsound or showing distress. Full depth potholes.	The wearing surface is no longer effective.
Cracks (3220)	Widths less than 0.012 in. or spacing greater than 3.0 ft.	Widths 0.012–0.05 in. or spacing of 1.0–3.0 ft.	Widths of more than 0.05 in. or spacing of less than 1.0 ft.	
Effectiveness (3230)	Fully effective. No evidence of leakage or further deterioration of the protected element.	Substantially effective. Deterioration of the protected element has slowed.	Limited effectiveness. Deterioration of the protected element has progressed.	
Damage (7000)	See Appendix S6 for guidance on the use of Defect 7000 (Damage).			

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Element Quantity Condition State (continued)

Format	Frequency	Item ID Number	Item Ownership
N (8,0)	EI	B.CS.01 to B.CS.04	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Elements and Inspection Notes	Element	Varies

Condition State Table 8 – Joints

Defect	Condition State 1	Condition State 2	Condition State 3	Condition State 4
	GOOD	FAIR	POOR	SEVERE
Leakage (2310)	None.	Minimal. Minor dripping through the joint.	Moderate. More than a drip and less than free flow of water.	Free flow of water through the joint.
Seal Adhesion – Joints with Seals Only (2320)	Fully adhered.	Adhered for more than 50% of the joint height.	Adhered 50% or less of joint height but still some adhesion.	Complete loss of adhesion.
Seal Damage – Joints with Seals Only (2330)	None.	Seal abrasion without punctures.	Punctured, ripped or partially pulled out.	Punctured completely through, pulled out, or missing.
Seal Cracking – Joints with Seals Only (2340)	None.	Surface cracks.	Cracks that partially penetrate the seal.	Cracks that fully penetrate the seal.
Debris Impaction (2350)	None.	Partially filled, but still allowing free movement.	Completely filled and impacts joint movement.	Completely filled and prevents joint movement.
Adjacent Deck or Header (2360)	Sound. No spalls, delamination or unsound patches.	Edge delamination or spall less than 1 in. deep or less than 6 in. diameter. No exposed rebar. Patched area is sound.	Spall greater than 1 in. deep or greater than 6 in. diameter. Exposed rebar. Delamination or unsound patched area that makes the joint loose.	Spall, delamination, unsound patched area or loose joint anchor that impacts joint performance.
Metal Damage (2370)	None.	Freckled rust, metal has no cracks or impact damage. Connections may be loose but functioning as intended.	Section loss, missing or broken fasteners, cracking of the metal or impact damage but joint still functioning.	Extensive metal cracking, section loss damage or connection failures impacting joint performance.
Damage (7000)	See Appendix S6 for guidance on the use of Defect 7000 (Damage).			

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Element Quantity Condition State (continued)

Format	Frequency	Item ID Number	Item Ownership
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Inspection Data	Elements and Inspection Notes	Element	Varies

Condition State Table 8 – Joints – Examples



Condition State 2



Condition State 3



Condition State 4



Condition State 2



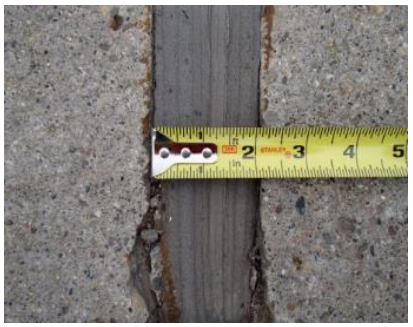
Condition State 3



Condition State 4



Condition State 2



Condition State 3



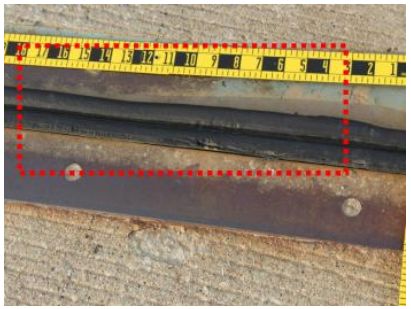
Condition State 4

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Element Quantity Condition State (continued)

Format	Frequency	Item ID Number	Item Ownership
N (8,0)	EI	B.CS.01 to B.CS.04	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Elements and Inspection Notes	Element	Varies

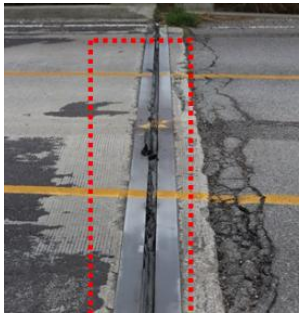
Condition State Table 8 – Joints – Examples (continued)



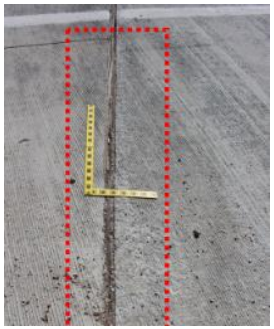
(2330 – Seal Damage)
Condition State 2



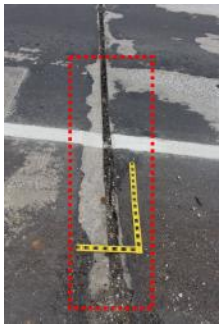
(2330 – Seal Damage)
Condition State 3



(2330 – Seal Damage)
Condition State 4



(2350 – Debris Impaction)
Condition State 2



(2350 – Debris Impaction)
Condition State 3



(2350 – Debris Impaction)
Condition State 4

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Element Quantity Condition State (continued)

Format	Frequency	Item ID Number	Item Ownership
N (8,0)	EI	B.CS.01 to B.CS.04	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Elements and Inspection Notes	Element	Varies

Condition State Table 9 – Bearings

Defect	Condition State 1	Condition State 2	Condition State 3	Condition State 4
	GOOD	FAIR	POOR	SEVERE
Corrosion (1000)	None.	Freckled rust. Corrosion of the steel has initiated.	Section loss is evident or pack rust is present but does not warrant structural review.	The condition warrants a structural review to determine the effect on strength or serviceability of the element or bridge; OR a structural review has been completed and the defects impact strength or serviceability of the element or bridge. The element has severe damage caused by vehicular or vessel impact.
Connection (1020)	Connection is in place and functioning as intended.	Loose fasteners or pack rust without distortion is present but the connection is in place and functioning as intended.	Missing bolts, rivets, or fasteners; broken welds; or pack rust with distortion but does not warrant structural review.	
Movement (2210)	Free to move.	Minor restriction.	Restricted but not warranting structural review.	
Alignment (2220)	Lateral and vertical alignment is as expected for the temperature conditions.	Tolerable lateral or vertical alignment that is inconsistent with the temperature conditions.	Approaching the limits of lateral or vertical alignment for the bearing but does not warrant a structural review.	
Bulging, Splitting or Tearing (2230)	None	Bulging less than 15% of the thickness.	Bulging 15% or more of the thickness. Splitting or tearing. Bearing's surfaces are not parallel. Does not warrant structural review.	
Loss of Bearing Area (2240)	None.	Loss of less than 10%.	Loss of 10% or more but does not warrant a structural review.	
Damage (7000)	See Appendix S6 for guidance on the use of Defect 7000 (Damage).			

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Element Quantity Condition State (continued)

Format	Frequency	Item ID Number	Item Ownership
N (8,0)	EI	B.CS.01 to B.CS.04	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Elements and Inspection Notes	Element	Varies

Condition State Table 9 – Bearings – Examples



Condition State 2



Condition State 3



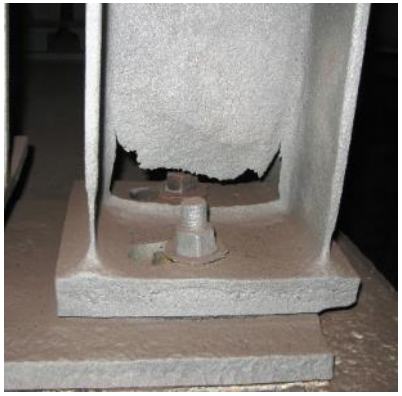
Condition State 4



Condition State 2



Condition State 3



Condition State 4

South Carolina Department of Transportation

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Element Quantity Condition State (continued)

Format	Frequency	Item ID Number	Item Ownership
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Inspection Data	Elements and Inspection Notes	Element	Varies

Condition State Table 9 – Bearings – Examples



(2220 – Alignment)
Condition State 1



(2220 – Alignment)
Condition State 2



(2220 – Alignment)
Condition State 3



(2240 – Loss of Bearing Area)
Condition State 2



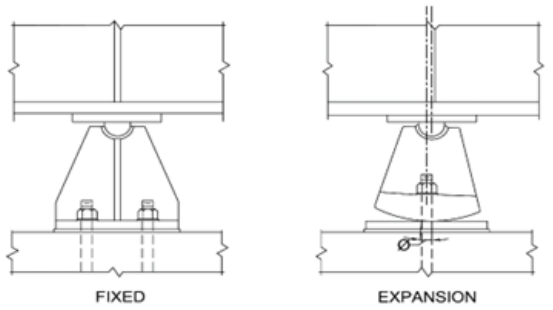
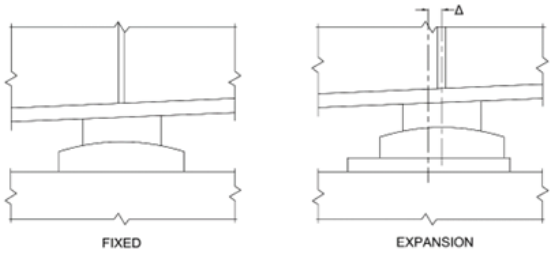
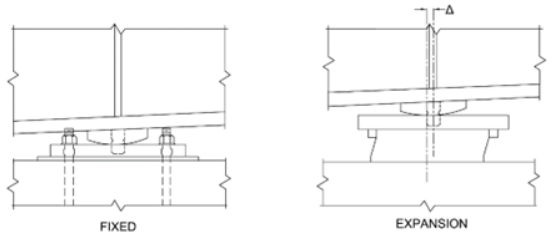
(2240 – Loss of Bearing Area)
Condition State 3

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Inspection Data	Elements and Inspection Notes	Element	Varies

Condition State Table 9 – Bearings – Typical Direction of Movement for Bearings

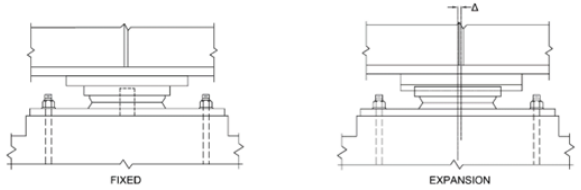
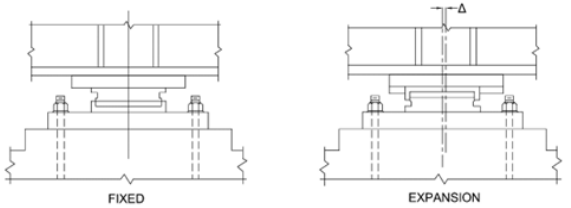
Bearing Type	Movement Type	Common Deficiencies	Sketch
Steel Fixed Bolster and Steel Rocker Bearings	Rotational (θ) – Steel rocker bearings rotate about the centerline of the bearing under the superstructure member.	Rocker (movable) bearings may exhibit excessive tilt. When temperatures are above the design temperature, rockers generally tilt away from the fixed bearing in the expanded direction. Likewise, when below the design temperature, rockers tilt toward the fixed bearing in the contracted direction.	
Steel Sliding Plate Bearings	Longitudinal or Transverse (Δ) – Plate slides in the direction of movement. Measurement from centerline of bearing in the direction of movement.	Sliding plate (movable) bearing deficiencies can have longitudinal misalignment. At the design or average temperature, the upper and lower plates are generally centered with respect to each other.	
Pintle Plate & Pintle Plate with Elastomeric Pad Bearings	Longitudinal or Transverse (Δ) – Plate or pad slides or angles in the direction of movement. Measurement from centerline of bearing in the direction of movement.	See other bearing deficiencies.	

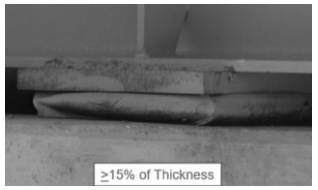
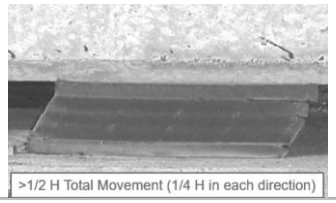
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Element Quantity Condition State (continued)

Format	Frequency	Item ID Number	Item Ownership
N (8,0)	EI	B.CS.01 to B.CS.04	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Elements and Inspection Notes	Element	Varies

Condition State Table 9 – Bearings – Typical Direction of Movement for Bearings

Bearing Type	Movement Type	Common Deficiencies	Sketch
Disc Bearings	Longitudinal or Transverse (Δ) – Superstructure moves on top of disc. Measurement from the center of bearing in the direction of movement.	Pot and disk bearings may have improper rotation and translational movement. This can lead to deficiencies in guide bars, cracks in welds, separation between the PTFE and bonded surface, and damage to elastomer sealing rings that can lead to extrusion of the elastomer from inside the cylinder or pot plate.	
Pot Bearings	Longitudinal or Transverse (Δ) – Superstructure moves on top of pot. Measurement from the center of bearing in the direction of movement.		
Elastomeric Bearings	Elastomeric bearings typically have fewer parts than steel bearings, but can have many of the same deficiencies.		

Neoprene	Laminated
Neoprene Deficiencies: Bulging, splitting or tearing, issues with the contact area ("walking bearings"), or excessive or abnormal movement. Excessive bulging is defined as greater than approximately 15 percent of the thickness. 	Laminated Deficiencies: splitting or tearing, issues with the contact area ("walking bearings"), or excessive or abnormal movement. Excessive movement is over displacement over half of the height of the bearing, quarter in each direction. 

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Element Quantity Condition State (continued)

Format	Frequency	Item ID Number	Item Ownership
N (8,0)	EI	B.CS.01 to B.CS.04	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Elements and Inspection Notes	Element	Varies

Condition State Table 10 – Protective Systems

Defect	Condition State 1	Condition State 2	Condition State 3	Condition State 4
	GOOD	FAIR	POOR	SEVERE
Effectiveness - Steel Protective System (3440)[1]	Good condition. Fully effective.	Substantially effective.	Limited effectiveness.	The protective system has failed or is no longer effective.
Effectiveness - Concrete Protective System (3540)[2]	Good condition. Fully effective.	Substantially effective.	Limited effectiveness.	The protective system has failed or is no longer effective.

(1) Defects on any steel protective system (Steel Protective Coating) shall use Defect 3440.
(2) Defects on any concrete protective system (Concrete Protective Coating or Concrete Reinforcement Protective System) shall use Defect 3540.
(3) A condition assessment of the steel protective system on wearing steel is included in Appendix S4.

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Element Quantity Condition State (continued)

Format	Frequency	Item ID Number	Item Ownership
N (8,0)	EI	B.CS.01 to B.CS.04	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Elements and Inspection Notes	Element	Varies

Condition State Table 10 – Protective Systems – Examples



Condition State 2



Condition State 3



Condition State 4



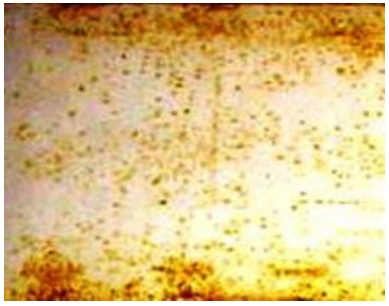
Condition State 2



Condition State 3



Condition State 4



Condition State 2



Condition State 3



Condition State 4

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Element Quantity Condition State (continued)

Format	Frequency	Item ID Number	Item Ownership
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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Elements and Inspection Notes	Element	Varies

Condition State Table 10 – Protective Systems – Examples



Condition State 2



Condition State 3



Condition State 2



Condition State 3



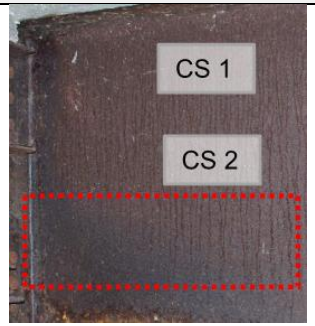
Condition State 4

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Section 2: Bridge Material and Type
Section 3: Bridge Geometry
Section 4: Features
Section 5: Loads, Rating, and Posting
Section 6: Inspections
Section 7: Bridge Condition
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Element Quantity Condition State (continued)

Format	Frequency	Item ID Number	Item Ownership
N (8,0)	EI	B.CS.01 to B.CS.04	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Elements and Inspection Notes	Element	Varies

Condition State Table 10 – Protective Systems – Examples



Condition State 2


Condition State 3


Condition State 3


Condition State 2


Condition State 3


Condition State 4

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Appendix S6: Damage Defect Coding

Approach Roadway Alignment

Format	Frequency	Item ID Number	Item Ownership
AN (1)	EI	B.AP.01	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Condition & Appraisal Ratings	Bridge	ApproachAlignment

FHWA Specification and SCDOT Markups

Report the speed reduction at the bridge using one of the following codes.

Code	Description
G	Good
F	Fair
P	Poor

FHWA Commentary and SCDOT Markups

This item identifies bridges that do not function adequately due to the horizontal or vertical alignment of the bridge and approach roadway. It is not intended that the alignment be compared to current standards, but rather to the existing roadway alignment.

The basic criterion is how the alignment of the bridge and approach roadway relates to the general highway alignment for the section of highway the bridge carries.

Do not consider speed reductions due to the bridge width or intersecting highways when reporting this item. *[A narrow bridge would be accounted for in B.H.16 (Highway Minimum Usable Surface Width) and should not be considered here.]*

The posted speed at the bridge is compared to the posted speed of the general highway segment. Operating speed at the bridge is used in place of posted speed at the bridge when a posted speed is not present at the bridge. Operating speed of the general highway segment is used in place of posted speed of the general highway segment when a posted speed is not present on the general highway segment.

Use code G when the speed is no different at the bridge than the rest of the highway segment that crosses the bridge.

Use code F when the speed is noticeably different *[Less than 10 MPH]* at the bridge than the rest of the highway segment that crosses the bridge.

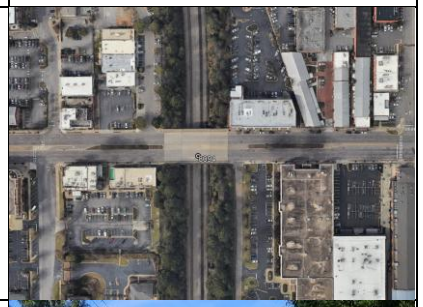
Use code P when the speed is substantially different *[10 MPH or more]* at the bridge than the rest of the highway segment that crosses the bridge.

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Approach Roadway Alignment (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (1)	EI	B.AP.01	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Condition & Appraisal Ratings	Bridge	ApproachAlignment

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
G - Good	The vertical and horizontal alignment matches the section of the highway the bridge carries. **Code G.**	08094	
F - Fair	The approaching roadway has a slightly curve with a minor reduction in speed. **Code F.**	06360	
P - Poor	The approaching roadway is 35 mph, and a recommended speed of 15 mph is posted before the curve entering the bridge. **Code P.**	03662	

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Overtopping Likelihood

Format	Frequency	Item ID Number	Item Ownership
AN (1)	EI	B.AP.02	HDSO
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
HDSO & Scour POA	Scour Coding	Bridge	OvertoppingLikelihood

FHWA Specification and SCDOT Markups

Report the likelihood of the waterway overtopping the bridge using one of the following codes.

Code	Description
0	Never
1	Remote – once every 100 years or less frequently
2	Very low – once every 51 to 99 years
3	Low – once every 26 to 50 years
4	Moderate – once every 11 to 25 years
5	High – once every 3 to 10 years
6	Very High – once every 2 years or more frequently

Do not report *[(report as null)]* this item if the bridge does not cross over a waterway as indicated in Item B.F.01 (*Feature Type*).

FHWA Commentary and SCDOT Markups

An overtopping occurrence is when the waterway overtops the riding surface carried on the bridge.

Bridge overtopping likelihood, since the year built (B.W.01), is typically determined from historical bridge inspection or maintenance records, hydraulic studies, local residents/landowners, and/or site indicators including highwater marks on the bridge or its surroundings, debris remains on bridge upper members, etc.

For newer bridges with limited historical inspection or maintenance information, hydraulic design information can be used to establish an overtopping likelihood.

This item does not apply to the likelihood of the waterway overtopping approach roadways.

[Inspectors cannot update this coding but should verify its accuracy by reviewing historical bridge inspection reports or plans, looking for evidence or notes of overtopping.

Structures that are new or have documentation for flood effects that effect the coding should receive a request for a hydraulic analysis.]

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Overtopping Likelihood (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (1)	EI	B.AP.02	HDSO
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
HDSO & Scour POA	Scour Coding	Bridge	OvertoppingLikelihood

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
NULL	The bridge does not span over a waterway.	10278	
1 - Remote – once every 100 years or less frequently	The bridge deck and roadway approaches are above the floodwater elevation. Chances of overtopping are remote. **Code 1.**	10425	
5 - High – once every 3 to 10 years	The bridge experiences occasional or frequent overtopping of the bridge deck with severe traffic delays. **Code 5.**	00009	

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Overtopping Likelihood (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (1)	EI	B.AP.02	HDSO
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
HDSO & Scour POA	Scour Coding	Bridge	OvertoppingLikelihood

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
6 - Very High – once every 2 years or more frequently	The bridge experiences often overtopping of the bridge deck with very severe traffic delays. Code 6.	06624	

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Scour Vulnerability

Format	Frequency	Item ID Number	Item Ownership
AN (1)	I	B.AP.03	HDSO
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
HDSO & Scour POA	Scour Coding	Bridge	ScourVulnerability

FHWA Specification and SCDOT Markups

Report the scour vulnerability of the bridge using one of the following codes.

Code	Description
0	Scour appraisal has not been completed.
A	Scour appraisal completed. Bridge determined to be stable for scour.
B	Scour appraisal completed. Bridge determined to be stable for scour, dependent upon designed, and functioning countermeasures.
C	Scour appraisal completed. Bridge could become unstable for scour. Temporary (not designed) countermeasure installed to mitigate scour. Bridge is scour critical.
D	Scour appraisal completed. Bridge is, or may become, unstable for scour. Bridge is scour critical.
E	Scour appraisal has not been completed. Temporary (not designed) countermeasure installed to mitigate scour.
U	Scour appraisal has not been completed due to unknown foundations.

Do not report this item if the bridge does not cross over a waterway as indicated in Item B.F.01 (*Feature Type*).

[Structures with a Code 0 or changes to the structure, scour depths, or floodplain that effect the coding should receive a request for a hydraulic analysis.]

FHWA Commentary and SCDOT Markups

The intent of this item is to report the status and vulnerability determination from scour appraisals required by the NBIS.

The codes for this item are based on the appraised scour vulnerability as described in HEC-18, Evaluating Scour at Bridges; HEC-23, Bridge Scour and Stream Instability Countermeasures; and HEC-20, Stream Stability at Highway Structures.

Scour appraisals are typically performed by a multidisciplinary team of hydraulic, geotechnical, and structural engineers (Scour Appraisal Team).

FHWA Hydraulic Technical Advisories, manuals, and software can be found at: https://www.fhwa.dot.gov/

Refer to item B.C.11 (*Scour Condition Rating*) in the Component Condition Ratings subsection to address field observed scour conditions and the effect on bridge components.

Use code B when designed, installed, and functioning countermeasures are used to address potential scour and to maintain bridge stability for new or existing bridges, or bridges with unknown foundations.

Use code B when the Scour Appraisal Team determines that the in-place, non-designed countermeasures are fully functioning and are appropriate to mitigate the risk of scour.

Use code C for bridges that could become unstable for the potential scour, and temporary countermeasures are installed that were not designed.

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Scour Vulnerability (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (1)	I	B.AP.03	HDSO
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
HDSO & Scour POA	Scour Coding	Bridge	ScourVulnerability

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
NULL	The bridge does not span over a waterway.	10278	
A - Scour appraisal completed. Bridge determined to be stable for scour.	Scour appraisal completed. Bridge determined to be stable for scour. **Code A**	10846	
D - Scour appraisal completed. Bridge is, or may become, unstable for scour. Bridge is scour critical.	Scour appraisal completed. Bridge is or may become unstable for scour. There may or may not be visible signs of scour. **Code D**	01025	

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Scour Vulnerability (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (1)	I	B.AP.03	HDSO
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
HDSO & Scour POA	Scour Coding	Bridge	ScourVulnerability

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
U - Scour appraisal has not been completed due to unknown foundations.	The existing foundations are unknown, and a scour appraisal has not been completed. **Code U**	00116	

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Scour Plan of Action

Format	Frequency	Item ID Number	Item Ownership
AN (1)	I	B.AP.04	DBIS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
HDSO & Scour POA	Scour Coding	Bridge	ScourPlan

FHWA Specification and SCDOT Markups

Report whether the bridge has a scour plan of action (POA) implemented using one of the following codes.

Code	Description
0	A scour POA is not required.
N	A scour POA is required, but not implemented.
Y	A scour POA is required and implemented.

Do not report this item if the bridge does not cross over a waterway as indicated in Item B.F.01 (*Feature Type*).

FHWA Commentary and SCDOT Markups

The NBIS requires a scour POA for bridges over water that are determined to be scour critical or have unknown foundations.

More information on scour POA can be found at the FHWA Hydraulics Engineering website: https://www.fhwa.dot.gov

Use code 0 if a bridge was considered scour critical, but now has designed, installed, and fully functional scour countermeasures.

A scour POA is a document that addresses, based on risk, a schedule for repair or installation of scour countermeasures, and/or the monitoring, inspection, closing, and opening a bridge to traffic during and after flood events to protect the traveling public.

A scour POA is implemented when those responsible for actions under the plan are aware of their responsibilities, and are exercising them when called for during or after a triggering event.

A bridge should have a scour POA when it could become unstable for scour, and temporary countermeasures are installed that were not designed.

[HDSO is responsible for confirming that a bridge has a POA (if required by the NBIS), see Item SC.HD.06, but the DBIS is responsible for confirming that the required POA is being implemented for the inventoried bridge.]

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Scour Plan of Action (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (1)	I	B.AP.04	HDSO
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
HDSO & Scour POA	Scour Coding	Bridge	ScourPlan

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
0 - A scour POA is not required.	No scour countermeasures are required or installed. **Code 0.**	09717	
N - A scour POA is required, but not implemented.	The bridge has unknown foundations. No scour plan of action is implemented. **Code N**	00116	 

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Format	Frequency	Item ID Number	Item Ownership
AN (1)	I	B.AP.04	HDSO
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
HDSO & Scour POA	Scour Coding	Bridge	ScourPlan

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
Y - A scour POA is required and implemented.	The pile depth is unknown, and the remaining embedment cannot be determined. The bridge requires a plan of action. Scour countermeasures are implemented, and the bridge is monitored as detailed in the POA. **Code Y.**	00356	

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Seismic Vulnerability

Format	Frequency	Item ID Number	Item Ownership
AN (1)	I	B.AP.05	LR
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
N/A	N/A	Bridge	SeismicVulnerability

FHWA Specification *[and SCDOT Markups]*

Report the seismic vulnerability of the bridge using one of the following codes.

Code	Description
0	Seismic evaluation not completed.
N	Bridge does not require seismic evaluation due to low anticipated ground motion or agency prioritization.
A	Seismic evaluation completed. Bridge determined to meet the agency's performance criteria established for the evaluation without need for retrofit.
B	Seismic evaluation completed. Satisfactory performance is dependent upon a designed, installed, and functioning retrofit. Retrofit is in place.
C	Seismic evaluation completed. Satisfactory performance is dependent upon a designed, installed, and functioning retrofit. Partial retrofit is in place.
D	Seismic evaluation completed. Satisfactory performance is dependent upon a designed, installed, and functioning retrofit. Retrofit is not in place.

FHWA Commentary *[and SCDOT Markups]*

This item provides available information resulting from seismic evaluation and retrofit programs that an agency may have performed of their own volition. The codes allow for a broad interpretation based on the reporting agency's methods and evaluation criteria.

In lieu of agency-developed evaluation criteria, refer to the FHWA Seismic Retrofitting Manual for Highway Structures: Part 1 – Bridges, Publication No. FHWA-HRT-06-032, January 2006, for guidance on assessing the vulnerability of highway structures to the effects of earthquakes, and implementing retrofit measures to improve performance.

Use code A when bridge is designed to meet applicable performance criteria established by the design specifications in effect at the time of construction and bridge would be expected to meet current agency established performance criteria.

Use code C when only certain portions of the bridge have been retrofitted but not all portions of the bridge have been retrofitted to meet agency performance criteria.

[Per the SCDOT's Seismic Design Specifications (SDS), bridges that are comprised of box culverts, need not be considered for seismic effects. For the purposes of Item B.AP.05, all buried structures (box culverts and any other culvert) will be coded 'N'.

Similarly for single span structures, a detailed seismic analysis is not required per the SDS. Therefore, all single span structures will be coded 'N'.]

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Format	Frequency	Item ID Number	Item Ownership
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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
N/A	N/A	Bridge	SeismicVulnerability

FHWA Commentary *[and SCDOT Markups]*

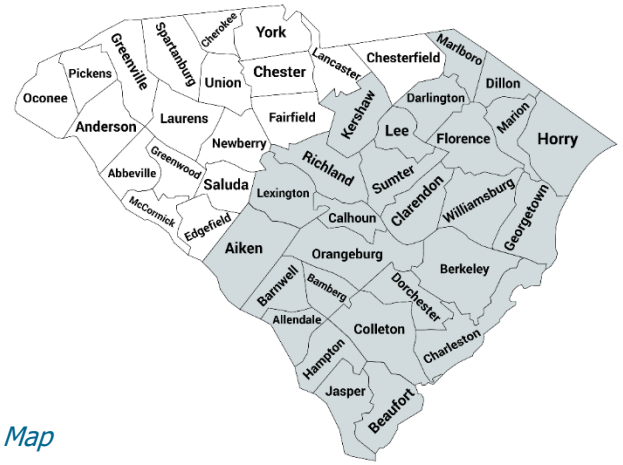
[For bridges with more than one span, a detailed seismic analysis is not required per the SDS if the Seismic Design Category (SDC) is 'A'. Therefore, all bridges with more than one span and in counties where the SDC is 'A' in the will be coded 'N'. See the map below, all bridges with more than one span in a non-seismic county will be coded 'N'.

For the remaining bridges with more than one span and in a seismic county, the following logic shall be applied:

- *Use Code A for structures built after 2002, one year after the first version of the SCDOT Displacement Based Seismic Design Specifications, with the exception of slab bridges, tee beam bridges, channel bream bridges since the design on these bridges typically did not have a seismic consideration.[1]*
- *Use Code 0 for structures built in 2002 or before.[2]*

1 = If it is discovered a slab bridge, tee beam bridge, or channel bream bridge built after 2002 did have a seismic consideration, a load rating can be requested for the coding evaluation by a Professional Engineer.
2 = Some bridges built in 2002 or before did have a seismic consideration, a coding evaluation by a Professional Engineer has already been performed and the Item has been updated. See any coding notes in Item SC.AP.01. If it is discovered that a bridge built in 2002 or before did have a seismic consideration, a load rating can be requested for the coding evaluation by a Professional Engineer.

Should future seismic retrofit evaluations be performed as part of ongoing maintenance or repair efforts, the code should be updated by a load rater based upon the results of the evaluation. If inspectors believe a bridge needs a new seismic evaluation for any reason such as a bearing issue or inadequate beam seat, they shall request a load rating for the evaluation of a Professional Engineer.



Seismic Counties Map

Seismic County, Code as 'A' or '0' as detailed above.

Not a Seismic County, Code all bridges as 'N'

** All Buried Structures (Statewide) Code as 'N'*

** All Single Span Bridges (Statewide) Code as 'N']*

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Seismic Vulnerability (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (1)	I	B.AP.05	LR
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
N/A	N/A	Bridge	SeismicVulnerability

Examples

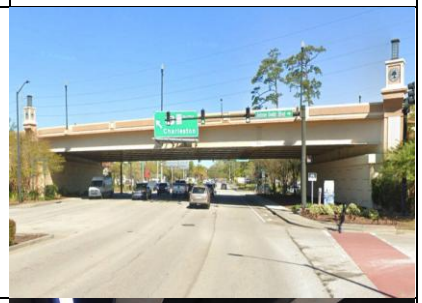
CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
0 - Seismic evaluation not completed.	Bridge is in Berkeley County, which is a seismic county. Bridge has more than one span (6). The bridge was built in 1950, before 2002. **Code 0**	01679	
N - Bridge does not require seismic evaluation due to low anticipated ground motion or agency prioritization.	Bridge is in Pickens County, which is not a seismic county. **Code N**	05600	
N - Bridge does not require seismic evaluation due to low anticipated ground motion or agency prioritization.	Bridge is in Dorchester County, which is a seismic county. Bridge is a buried structure. **Code N**	00177	

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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
N/A	N/A	Bridge	SeismicVulnerability

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
N - Bridge does not require seismic evaluation due to low anticipated ground motion or agency prioritization.	Bridge is in Charleston County, which is a seismic county. Bridge only has one span. **Code N**	10082	
A - Seismic evaluation completed. Bridge determined to meet the agency's performance criteria established for the evaluation without need for retrofit.	Bridge is in Horry County, which is a seismic county. Bridge has more than one span (3). The bridge was built in 2004, after 2002. **Code A**	10009	

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Year Built

Format	Frequency	Item ID Number	Item Ownership
N (4,0)	I	B.W.01	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Bridge List View Bridge	Construction	Bridge	YearBuilt

FHWA Specification and SCDOT Markups	FHWA Commentary and SCDOT Markups
Report the year in which original construction was completed and the bridge was able to carry traffic. For phased construction, report the year in which the first phase was completed and the bridge was able to carry traffic. *[Do not code for bridges not yet completed.]*	This date reflects the date when construction was completed, regardless of when the bridge was opened to traffic. Rehabilitation and/or widening of a bridge does not change the year built. If any portion of the bridge remains, the year built does not change. Provide a best estimate when the year built is unknown; do not assign a default value.

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
2011	The bridge was constructed and opened in 2011 and widened in 2016. **Code 2011.**	09000	
2025	The bridge is being constructed in phases with the first portion was completed in 2025. Item B.W.01 will not change as other phases are build. **Code 2025.**	10861	

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Year Work Performed

Format	Frequency	Item ID Number	Item Ownership
N (4,0)	I	B.W.02	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Maintenance & Management	Work Events	WorkEvent	YearPerformed

FHWA Specification and SCDOT Markups	FHWA Commentary and SCDOT Markups
Report the year that work was completed on a bridge. For phased construction, report the year in which the first phase was completed and the bridge was able to carry traffic. This item is reported for each year regardless of whether work was completed on a bridge in that year.	This item identifies when work was completed to improve the functionality of a bridge, prevent deterioration from occurring, preserve a bridge, or restore the strength or performance of a bridge. Work performed should be identifiable by inspectors conducting an initial inspection following bridge replacement or rehabilitation. For other work types, information can be obtained from work tracking systems. When tracking systems are not readily accessible, estimate based on knowledge, observed changes and condition improvements since the previous inspection, applied stencils or stamps, wear, etc. *[Examples for B.W.02 (Year Work Performed) are combined with the examples for B.W.03 (Work Performed)*

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Work Performed

Format	Frequency	FHWA NBIS Item ID	Item Ownership
AN (120)	I	B.W.03	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Maintenance & Management	Work Events	WorkEvent	WorkEventTypeID

FHWA Specification and SCDOT Markups

[SCDOT has reorganized SNBI Tables 29-33 based on bridge type in Tables X.X1 – X.X3 on the following pages. Work descriptions are included and based on the SNBI commentary. This section has been reduced to required information only that is needed to code this item. Additional information is included in the SNBI.]

Report all work completed on the bridge in each year, using one or more of the codes shown in the work category tables below. Report multiple codes separated by pipe (|) delimiters. Report all types of work when improvement, rehabilitation, or preservation work categories were performed in combination. Do not report bridge improvement or bridge preservation when the work resulted from replacement of a bridge (including replacement of all culvert barrels), or replacement of the deck, superstructure, or substructure. Report only major rehabilitation when both major and minor rehabilitation were completed on the same component (e.g. the deck, superstructure, substructure, or culvert).

Report 0 when no work is completed or when work is completed that does not correspond with the work included in the following work category tables.

This item is used to indicate work that was completed to improve the functionality of a bridge, prevent deterioration from occurring, preserve a bridge, or restore the strength or performance of a bridge.

Use deck, superstructure, and substructure work codes as applicable, and only when work is performed on span configurations that are not reported as culverts in Item B.SP.01 (Span Configuration Designation); i.e. *[Main Span Set, Approach Span Set, or Widening Set]* is reported. Use culvert work codes as applicable, and only when work is performed on span configurations that are reported as culverts in Item B.SP.01 (Span Configuration Designation); i.e. *[Culvert Set or Culvert Extension Set]* is reported.

Do not report routine maintenance or routine repair. Routine maintenance or routine repair work to be excluded from reporting include actions that may be performed on isolated deficiencies, may be reactive in nature, and do not add measurable service life given the small work quantity. Instead, they are intended to maintain a minimum acceptable performance level. Generally, routine maintenance or routine repair does not improve component condition ratings. Examples of routine maintenance or routine repairs that are not reported are: deck patching to correct isolated spalls or punctures that are affecting rideability or safety, sidewalk repairs to correct isolated defects that affect public safety, and repair of isolated impact damage to railings or transitions.

For other work types, information can be obtained from work tracking systems. When tracking systems are not readily accessible, estimate based on knowledge, observed changes and condition improvements between inspections, applied year stamps, wear, etc

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Work Performed (Continued)

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AN (120)	I	B.W.03	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Maintenance & Management	Work Events	WorkEvent	WorkEventTypeID

FHWA Commentary and SCDOT Markups

Table 7.5.A: Work codes applicable to all structure types (No B.SP.01 Restrictions)

Work Type / Item	Code	Code Description	Work Description
Improvement	IP1	*[Bridge or Culvert]* Widened	*Any widening of the structure.*
	IP2	Bridge Raised *[or Culvert Fill Increased]*	*Any raising of the deck elevation, or superstructure over an active roadway.*
	IP3	Bridge *[or Culvert]* Strengthened by Retrofit	*Improvement strengthens above the original design capacity, not applicable when done to restore lost capacity.*
	IP4	[Bridge or culvert] Seismic Retrofit	*Any seismic retrofit. Plans must indicate work is to address the seismic vulnerability and result in an update to B.AP.05 (Seismic Vulnerability).*
Railing or Transition	RT1	Installed or Replaced	*Intallation of new, or replacement of existing railing or transitions.*
	RT2	Repaired	*Improvement of existing railing or transitions.*
Scour Countermeasure	SC1	Installed or Replaced	*Intallation of new, or replacement of existing scour countermeasures.*
	SC2	Repaired	*Improvement of existing scour countermeasures.*
Channel Protection	CP1	Installed or Replaced	*New or replacement of existing protection devices. Code CH1 if additional channel improvements are done in conjunction.*
	CP2	Repaired	*Repairs to existing protection devices. Code CH1 if additional channel improvements are done in conjunction.*
Channel	CH1	Condition Improved	*Channel improved by means other than protection systems, or in addition to protection systems. (realignment, excavation, removal of debris)*

Table 7.5.B: Work codes applicable to only culverts (B.SP.01 is Culvert Set, or Culvert Extension Set)

Work Type / Item	Code	Code Description	Work Description
Culvert	CU2	Major Rehabilitation	*Rehabilitation exceeds 25% of one barrel or includes multiple barrels. Invert paving or encasement that restores strength or performance.*
	CU3	Minor Rehabilitation	*Rehabilitation isolated to less than 25% of one barrel. Invert paving or encasement that restores strength or performance.*
	CU4	Overlaid	*Any overlay addition. Work which exposes the top mat of barrel reinforcing is considered rehabilitation, code as CU2 / CU3 based on area.*
	CU5	Sealed	*Any sealing of culvert elements.*
	CU6	Coating (New or Replaced)	*Any new coating, or full replacement of existing coatings. Includes invert paving or encasement that does not restore strength or performance.*
	CU7	Coating (Preserved)	*Any repairs to an existing coating (existing coating not removed). Invert paving or encasement that does not restore strength or performance.*

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Format	Frequency	FHWA NBIS Item ID	Item Ownership
AN (120)	I	B.W.03	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Maintenance & Management	Work Events	WorkEvent	WorkEventTypeID

FHWA Commentary and SCDOT Markups

Table 7.5.C: Work codes Applicable to only bridges (B.SP.01 is Main Span Set, Approach Span Set, or Widening Set)

Work Type / Item	Code	Code Description	Work Description
Deck	DK1	Replaced	*The whole deck is replaced.*
	DK2	Major Rehabilitation	*Rehabilitation exceeds 25% of one span's deck or the decks of multiple spans.*
	DK3	Minor Rehabilitation	*Rehabilitation isolated to less than 25% of one span's deck.*
	DK4	Overlaid	*Any overlay addition. Work which exposes the top mat of deck reinforcing is considered rehabilitation, code as DK2 / DK3 based on area.*
	DK5	Sealed	*Any sealing of the deck.*
	DK6	Coating (New or Replaced)	*Any new or full replacement of an existing coating.*
	DK7	Coating (Preserved)	*Any repairs to an existing coating. (Existing coating not removed)*
Superstructure	SP1	Replaced	*The whole superstructure replaced.*
	SP2	Major Rehabilitation	*Rehabilitation exceeds 25% of one span's superstructure or the superstructure of multiple spans.*
	SP3	Minor Rehabilitation	*Rehabilitation isolated to less than 25% of one span's superstructure.*
	SP5	Sealed	*Any sealing of superstructure elements.*
	SP6	Coating (New or Replaced)	*Any new or full replacement of an existing coating.*
	SP7	Coating (Preserved)	*Any repairs to an existing coating. (Existing coating not removed)*
Substructure	SB1	Replaced	*The whole substructure replaced.*
	SB2	Major Rehabilitation	*Rehabilitation exceeds 25% of one abutment/bent/pier or includes multiple abutments/bents/piers.*
	SB3	Minor Rehabilitation	*Rehabilitation isolated to less than 25% of one abutment/bent/pier.*
	SB5	Sealed	*Any sealing of substructure elements.*
	SB6	Coating (New or Replaced)	*Any new or full replacement of an existing coating.*
	SB7	Coating (Preserved)	*Any repairs to an existing coating. (Existing coating not removed)*
Bearing	BG1	Installed or Replaced	*Intallation of new, or replacement of existing bearings.*
	BG2	Repaired	*Improvement of existing bearings.*
Joint	JT1	Installed or Replaced	*Intallation of new, or replacement of existing joints.*
	JT2	Repaired	*Improvement of existing joints.*

Waiting for District 2 and District 6 to provide more examples.

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Format	Frequency	FHWA NBIS Item ID	Item Ownership
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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Maintenance & Management	Work Events	WorkEvent	WorkEventTypeID

General Examples

<table>
<tr><th>CODE - DESCRIPTION</th><th>NOTES</th><th>ASSET ID</th><th>PHOTO</th></tr>
<tr><td>N/A</td><td>The bridge was widened in 2016. Code 2016.
<table><tr><th>B.W.02
(Year Work Performed)</th><th>B.W.03
(Work Performed)</th></tr><tr><td>2016</td><td>IP1</td></tr></table></td><td>09000</td><td></td></tr>
<tr><td>N/A</td><td>A bridge is replaced and assigned a new bridge number in 2012. No additional work has been completed in 2013 and 2014. Continue to code each year even if no work is completed.
<table><tr><th>B.W.02
(Year Work Performed)</th><th>B.W.03
(Work Performed)</th></tr><tr><td>2012</td><td>0</td></tr><tr><td>2013</td><td>0</td></tr><tr><td>2014</td><td>0</td></tr></table></td><td>N/A</td><td>N/A</td></tr>
<tr><td>N/A</td><td>Bridge railings and deck joints are replaced in 2012. The superstructure receives a new coating in 2016. Routine maintenance is performed in 2017. Scour countermeasures are repaired in 2018.
<table><tr><th>B.W.02
(Year Work Performed)</th><th>B.W.03
(Work Performed)</th></tr><tr><td>2012</td><td>JT1 | RT1</td></tr><tr><td>2013</td><td>0</td></tr><tr><td>2014</td><td>0</td></tr><tr><td>2015</td><td>0</td></tr><tr><td>2016</td><td>SP6</td></tr><tr><td>2017</td><td>0</td></tr><tr><td>2018</td><td>SC2</td></tr></table></td><td>N/A</td><td>N/A</td></tr>
</table>

Section 1: Bridge Identification
Section 2: Bridge Material and Type
Section 3: Bridge Geometry
Section 4: Features
Section 5: Loads, Rating, and Posting
Section 6: Inspections
Section 7: Bridge Condition
Section 8: State Bridge Inventory Fields
Subsection 8.1 Identification
SC.ID.01 Asset ID Number
SC.ID.02 Date of Asset Request
SC.ID.03 Structure Number
SC.ID.04 SCDOT Project Number
SC.ID.05 Previous Bridge Number
SC.ID.06 Asset ID Placard Location
SC.ID.07 Admin Bridge Notes
SC.ID.08 Bridge Nickname
Subsection 8.2 Location
Subsection 8.3 Classification
Subsection 8.4 Geometry
Subsection 8.5 Features & Routes
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Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Asset ID Number

Format	Frequency	Item ID Number	Item Ownership
AN (5)	I	SC.ID.01	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Admin Data	Identification and Category	Bridge	BridgeID

SCDOT Specification	SCDOT Commentary
[To maintain linking to historical 15 character bridge numbers, Item B.ID.01 shall be submitted as a 15 character bridge number. Item SC.ID.01 is maintained as a 5 character bridge number. See Item B.ID.01 for item specification.]	*[See Item B.ID.01 for item commentary.]*

Examples

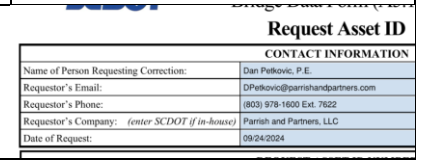
CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
10667	Asset ID 10667 will be submitted to FWHA with "000000000010667" as Item B.ID.01. Item SC.ID.01 will be coded as "10667". **Code 10667.**	10667	

Date of Asset Request

Format	Frequency	Item ID Number	Item Ownership
YYYYMMDD	I	SC.ID.02	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Identification and Category	Bridge	SC_ASSET_REQ_DATE

SCDOT Specification	SCDOT Commentary
[Road Data Services shall record the date a user requests an Asset ID on the Asset ID Request Form.]	*[The date shall be entered as the "Date of Request" on the Asset ID Request Form and not any other dates.]*

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
20240924	Asset ID 10976 was requested on 09/24/2024. For form was not processed until 10/01/2024. **Code 20240924.**	10976	

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Section 3: Bridge Geometry
Section 4: Features
Section 5: Loads, Rating, and Posting
Section 6: Inspections
Section 7: Bridge Condition
Section 8: State Bridge Inventory Fields
Subsection 8.1 Identification
SC.ID.01 Asset ID Number
SC.ID.02 Date of Asset Request
SC.ID.03 Structure Number
SC.ID.04 SCDOT Project Number
SC.ID.05 Previous Bridge Number
SC.ID.06 Asset ID Placard Location
SC.ID.07 Admin Bridge Notes
SC.ID.08 Bridge Nickname
Subsection 8.2 Location
Subsection 8.3 Classification
Subsection 8.4 Geometry
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Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Structure Number

Format	Frequency	Item ID Number	Item Ownership
AN (13)	I	SC.ID.03	DBIS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Structure Details	Bridge	SC_StructureNumber

SCDOT Specification

[Structure Numbers are no longer solely used to identify structures for the purpose of bridge inspection. These numbers are not reported to FHWA but are managed for in-state use, only. The Structure Number shall be coded as noted below.

ABCDEFGHIJKLM

AB = SCDOT County Number (see Item B.L.02)
C = SCDOT Road Type (see below)
DEFGH = Road Number
I = Road Direction (see below)
JK = Bridge Number
LM = Bridge Alternate Number (if applicable)

SCDOT Road Type (for SC.ID.03):
1 – Interstate, 2 – US Route, 4 – SC Route, 7 – Secondary Route, 8 – Undersized Bridge, 9 – County Route

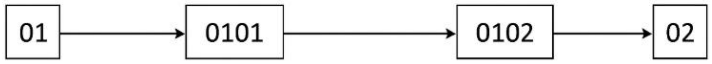
SCDOT Road Direction (for SC.ID.03):
1 – North, 2 – East, 3 – South, 4 – West,
0 – Dual Direction Road (for two lane highways)]

SCDOT Commentary

[The District Bridge Inspection Supervisor is responsible for the coding the Structure Numbers on the bridges in their district.

Bridge Numbers begin at 01 at the county line and increase along the inventoried route in the direction of inventory.

Bridge Alternate Number – only used if a bridge or bridges are built between two other bridges along the inventoried route. For example, a bridge built between Bridge 01 and Bridge 02 would be identified Bridge 0101. See diagram below for another example.



In the example above, Bridge 01 and Bridge 02 were originally inventoried. Then Bridge 0101 and Bridge 0102 were built between the originally inventoried bridges.

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
2070015200101	Asset ID 11047 has a Structure Number as determined from the data below: County = Fairfield (20) SCDOT Road Type = Secondary (7) Road Number = S-20-152 (00152) Road Direction = Dual Direction Road (0) Bridge/Bridge Alternate Number = 0101 (Bridge is built between Bridge 01 and Bridge 02) **Code 2070015200101.**	11047	N/A

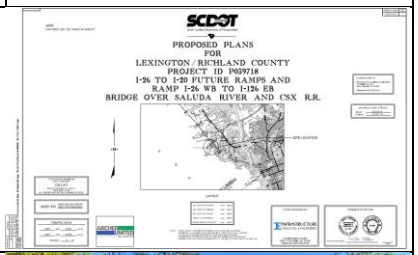
Section 1: Bridge Identification
Section 2: Bridge Material and Type
Section 3: Bridge Geometry
Section 4: Features
Section 5: Loads, Rating, and Posting
Section 6: Inspections
Section 7: Bridge Condition
Section 8: State Bridge Inventory Fields
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SC.ID.02 Date of Asset Request
SC.ID.03 Structure Number
SC.ID.04 SCDOT Project Number
SC.ID.05 Previous Bridge Number
SC.ID.06 Asset ID Placard Location
SC.ID.07 Admin Bridge Notes
SC.ID.08 Bridge Nickname
Subsection 8.2 Location
Subsection 8.3 Classification
Subsection 8.4 Geometry
Subsection 8.5 Features & Routes
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Appendix S5: Scour Condition Coding
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SCDOT Project Number

Format	Frequency	Item ID Number	Item Ownership
AN (7)	I	SC.ID.04	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Bridge Data Identification	Bridge	SC_DOT_PROJ_NUM

SCDOT Specification	SCDOT Commentary
[Road Data Services shall record the SCDOT Project Number that is related to the Asset ID Request.]	*[The requestor shall note the SCDOT Project Number that is related to the Asset ID Request. If there is no related Project Number, the field can remain blank.]*

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
P039718	Asset ID 10667 was requested in 2021. The related project was Project P039718. **Code P039718.**	10667	
N/A	Asset ID 10921 was requested in 2024. The bridge was discovered in the field, and a related project was not known. **Do Not Code.**	10921	

Section 1: Bridge Identification
Section 2: Bridge Material and Type
Section 3: Bridge Geometry
Section 4: Features
Section 5: Loads, Rating, and Posting
Section 6: Inspections
Section 7: Bridge Condition
Section 8: State Bridge Inventory Fields
Subsection 8.1 Identification
SC.ID.01 Asset ID Number
SC.ID.02 Date of Asset Request
SC.ID.03 Structure Number
SC.ID.04 SCDOT Project Number
SC.ID.05 Previous Bridge Number
SC.ID.06 Asset ID Placard Location
SC.ID.07 Admin Bridge Notes
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Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Previous Bridge Number (2nd Bridge)

Format	Frequency	Item ID Number	Item Ownership
AN (5)	I	SC.ID.05	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Bridge Data Identification	Bridge	SC_PastAssetID2

SCDOT Specification	SCDOT Commentary
[Report the Asset ID previously associated with the bridge (the 2nd bridge) that has been replaced by the inventoried bridge, when more than one bridge was replaced by the inventoried bridge. *Do not code if not appliable.]*	*[The purpose of Item B.ID.03 is to retain a link to data for previous Asset IDs associated with this bridge in the NBI.* *SCDOT also collects a second Asset ID which has been replaced as Item SC.ID.05. If two parallel bridges are being replaced with a single bridge, the lower Asset ID shall be coded as B.ID.03 and the higher Asset ID shall be coded as Item SC.ID.05.]*

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
05579	When coding Asset ID 10861, there are two bridges that are being replaced by this bridge. For B.ID.01, code 05579 and for SC.ID.05, code 05584. Use this coding because 05584 is the higher Asset ID. **Code 05584.**	10861	

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Section 6: Inspections
Section 7: Bridge Condition
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SC.ID.05 Previous Bridge Number
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Asset ID Placard Location

Format	Frequency	Item ID Number	Item Ownership
AN (1)	I	SC.ID.06	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Structure Details	BridgeInspection	SC_PLACARDBENTLOCATION

SCDOT Specification

[An Asset ID placard shall appear on all bridges. If a bridge does not have an Asset ID posted or if it has an incorrect number posted, it shall be replaced. Placards shall be located at Abutment 1 (for bridges) or at Barrel 1 (for culverts) per direction from the BMO to assist with bridge uniformity. To promote uniformity, the Asset ID placards should be placed on the right side when looking upstation.

Code	*Description*
1	*Bent 1 (SE Corner)*
2	*Bent 1 (NW Corner)*
3	*Bent 1 (NE Corner)*
4	*Bent 1 (SW Corner)*
5	*Moved to Bent 1 (SE Corner)*
6	*Moved to Bent 1 (NW Corner)*
7	*Moved to Bent 1 (NE Corner)*
8	*Moved to Bent 1 (SW Corner)*
0	*Missing/Incorrect Asset ID Placard]*

SCDOT Commentary

[Asset ID placards that are at their correct location at Abutment 1 should be coded either 1, 2, 3, or 4, depending on location of the placard.

The coded corner shall be relative to the inventory route direction first and then by cardinal direction, if needed.

Per Appendix E of the BIGD, a missing or incorrect Asset ID Placard shall be submitted as a 'C Flag' Repair Recommendation for district action.]

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
4 – Bent 1 (SW Corner)	The bridge's Asset ID Placard is located at the Southwest Corner of the bridge, at Abutment 1. **Code 4.**	04369	

Section 1: Bridge Identification
Section 2: Bridge Material and Type
Section 3: Bridge Geometry
Section 4: Features
Section 5: Loads, Rating, and Posting
Section 6: Inspections
Section 7: Bridge Condition
Section 8: State Bridge Inventory Fields
Subsection 8.1 Identification
SC.ID.01 Asset ID Number
SC.ID.02 Date of Asset Request
SC.ID.03 Structure Number
SC.ID.04 SCDOT Project Number
SC.ID.05 Previous Bridge Number
SC.ID.06 Asset ID Placard Location
SC.ID.07 Admin Bridge Notes
SC.ID.08 Bridge Nickname
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Admin Bridge Notes

Format	Frequency	Item ID Number	Item Ownership
AN (300)	I	SC.ID.07	BMO
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Admin Data	Identification and Category	Bridge	SC_admin_notes

SCDOT Specification	SCDOT Commentary
[The field can be used by the BMO to contain bridge level notes.]	*[The Admin Bridge Notes field is used by the BMO to collect bridge level notes.]*

Section 1: Bridge Identification
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SC.ID.02 Date of Asset Request
SC.ID.03 Structure Number
SC.ID.04 SCDOT Project Number
SC.ID.05 Previous Bridge Number
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Bridge Nickname

Format	Frequency	FHWA NBIS Item ID	Item Ownership
AN (300)	I	SC.ID.08	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Structure Details	Bridge	Nickname

FHWA Specification and SCDOT Markups	FHWA Commentary and SCDOT Markups
Report the commonly known nickname(s) for the bridge. For more than one name, report all names with the most common name first. Report multiple names separated by pipe (|) delimiters.	There are no national policies established for assigning unique bridge names. Therefore, each State transportation department, Federal agency, or Tribal government develops their own policy for assigning unique bridge names. If the bridge has no commonly known name, it is optional to report this item, but it is preferable to enter a general description. *[While the dedicated name is stored in B.ID.02, the common name can be entered by bridge inspectors. This field is optional for bridge inspectors to update or code.]*

Examples

CODE DESCRIPTION	NOTES	ASSET ID	PHOTO
WANDO RIVER BRIDGE	The bridge has both a dedicated name (James B. Edwards Bridge), and a commonly known bridge name (Wando River Bridge). **Code WANDO RIVER BRIDGE.**	08238	
ISLE OF PALMS CONNECTOR	The bridge does not have a dedicated name, but it does have a commonly known bridge name (ISLE OF PALMS CONNECTOR). SC 517 which is carried on the bridge has a dedicated roadway name of "Clyde Moultrie Dangerfield Highway" but the bridge does not have dedicated name. **Code ISLE OF PALMS CONNECTOR.**	08720	

Section 1: Bridge Identification
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SC.ID.03 Structure Number
SC.ID.04 SCDOT Project Number
SC.ID.05 Previous Bridge Number
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SC.ID.07 Admin Bridge Notes
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Bridge Nickname (continued)

Format	Frequency	FHWA NBIS Item ID	Item Ownership
AN (300)	I	SC.ID.08	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Structure Details	Bridge	Nickname

Examples

CODE DESCRIPTION	NOTES	ASSET ID	PHOTO
N/A	The bridge does not have a commemorative name, and the bridge does not have a commonly known bridge name. Item B.ID.02 does not need to be coded.	09134	
S-10-475|LEEDS AVENUE OVER I-526	The bridge does not have a commemorative name, and the bridge does not have a commonly known bridge name. Item B.ID.02 can be coded with a general description. **Code S-10-475|LEEDS AVENUE OVER I-526.**	07332	

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Section 7: Bridge Condition
Section 8: State Bridge Inventory Fields
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Subsection 8.2 Location
SC.L.01 Structure Orientation
SC.L.02 Stream Flow Direction
Subsection 8.3 Classification
Subsection 8.4 Geometry
Subsection 8.5 Features & Routes
Subsection 8.6 Highways
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Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Structure Orientation

Format	Frequency	Item ID Number	Item Ownership
AN (1)	I	SC.L.01	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Structure Details	Bridge	SC_BENTBARRELDIRECTION

SCDOT Specification	SCDOT Commentary
[Bridge inspectors shall note the orientation of the bent or barrel direction. The orientation shall be relative to the inventory route direction first and then by cardinal direction, if needed.	*[The orientation should only need to be updated during an initial inspection and not require an update.]*

Code	*Description*
1	*West to East*
2	*South to North*
3	*East to West*
4	*North to South]*

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
2 - South to North	The bridge carries S-32-1205 which is a south to north route. The bridge carries traffic over I-20 which is west to east route. The Asset ID Placard is at the SE Corner at Abutment 1. The bridge starts at the south end and goes to the north, a south to north bridge. **Code 2.**	05808	
2 - South to North	The bridge carries US 1 which is a south to north route. The bridge carries traffic over I-77 which is south to north route. Even though both routes are orientated in the same direction, the bridge is generally orientated in the south to north direction. The Asset ID Placard is at the SE Corner at Abutment 1. The bridge starts at the south end and goes to the north, a south to north bridge. **Code 2.**	07023	

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Section 3: Bridge Geometry
Section 4: Features
Section 5: Loads, Rating, and Posting
Section 6: Inspections
Section 7: Bridge Condition
Section 8: State Bridge Inventory Fields
Subsection 8.1 Identification
Subsection 8.2 Location
SC.L.01 Structure Orientation
SC.L.02 Stream Flow Direction
Subsection 8.3 Classification
Subsection 8.4 Geometry
Subsection 8.5 Features & Routes
Subsection 8.6 Highways
Subsection 8.7 Inspection Events
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Stream Flow Direction

Format	Frequency	Item ID Number	Item Ownership
AN (1)	I	SC.L.02	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Structure Details	Bridge	SC_STREAMDIRECTION

SCDOT Specification

[Bridge inspectors shall note the flow direction of the waterway under the bridge. The orientation shall be relative to the inventory route direction first and then by cardinal direction, if needed.

Code	*Description*
0	*N/A (Does Not Span Over a Waterway)*
1	*North to South*
2	*South to North*
3	*West to East*
4	*East to West*
5	*Tidal*
6	*Unknown]*

SCDOT Commentary

[The flow direction of the waterway should only need to be updated during an initial inspection and not require an update.

Use Code 5 when the bridge spans over a tidal waterway. A tidal waterway is any waterway affected by the ebb/flow of the tide, extending from the mean high water mark seaward. This includes coastal waters, tidelands, and coastal wetlands that are periodically inundated by saline waters.

User Code 6 when the bridge spans over a waterway but there is no stream flow or the direction of the stream flow is unknown.]

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
1 - North to South	The bridge carries traffic over the Congaree River. The bridge starts at the west end and goes to the east. The waterway flows from North to South. **Code 1.**	07913	
5 - Tidal	The bridge carries traffic over the Tidal Creek. The bridge starts at the east end and goes to the west. The waterway under the bridge is tidal. **Code 6.**	10477	

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Section 4: Features
Section 5: Loads, Rating, and Posting
Section 6: Inspections
Section 7: Bridge Condition
Section 8: State Bridge Inventory Fields
Subsection 8.1 Identification
Subsection 8.2 Location
Subsection 8.3 Classification
SC.CL.01 Bridge Status
SC.CL.02 District/Consultant
SC.CL.03 District Responsible
SC.CL.04 County Responsible
SC.CL.05 Asset Management Bridge
SC.CL.06 Critical Security Bridge
SC.CL.07 Date of Bridge Opening
SC.CL.08 Island Mobility Bridge
SC.CL.09 Routine Inspection
SC.CL.10 Underwater Inspection
SC.CL.11 NSTM Inspection
Subsection 8.4 Geometry
Subsection 8.5 Features & Routes
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Bridge Status

Format	Frequency	Item ID Number	Item Ownership
AN (1)	I	SC.CL.01	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Header	N/A	Bridge	Status

SCDOT Specification

[Bridge Status is used as a bridge classification value inside the Bridge Management System (BMS).

Code	*Description*
1	*Retired*
2	*Semi-Retired*
3	*Long Term Closed / Inactive*
4	*Clearance / Ped*
5	*Undersized*
6	*Active*
7	*Border*
8	*Proposed*
9	*Unknown]*

SCDOT Commentary

[Bridge Status controls how bridges appear for user interface in the BMS and how they appear in BMS reports

Only Active Bridges (Code 6) are submitted to FHWA.

Bridges with Code 1, Code 2, Code 3, Code 7, Code 8 and Code 9 do not appear in bridge inspection assignments.

If the inspector notices an incorrect Bridge Status, they need to review the data in the calculation requirements and determine what data needs to be corrected.]

Bridge Status Calculations

*[**(1) - Retired:** the asset is no longer being inspected/maintained. These records are kept in BrM for archival bridge history but are not reported to FHWA. The bridge may be demolished.*

- *Structure has been removed with an Asset ID Retirement Request Form, submitted to Road Data Services.*
  OR
- *Structure remains in place (not demolished) but is permanently closed to all traffic and is no longer inspected/maintained since it does not span over an SCDOT roadway and it present no risk to the public.*
  OR
- *Bridge ownership has changed to a private entity, it does not span over an SCDOT roadway, and is no longer apart from the SCDOT bridge inventory. (A private bridge connected to a public road on both ends of the bridge must be reported to FHWA per NBIS and cannot be retired.)*

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Bridge Status (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (1)	I	SC.CL.01	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Header	N/A	Bridge	Status

Bridge Status Calculations (continued)

(2) – Semi-Retired: *the bridge is removed (or permanently closed) and meant to be replaced, but the replacement bridge is either only proposed, or not yet open to traffic.*

- *Item B.PS.01 (Load Posting Status) = 'C' (Closed)*
  AND
- *Item B.ID.01 (Bridge Number) = Item B.ID.03 (Previous Bridge Number) of a different bridge, i.e. the "replacement bridge"*
  AND
- *The "replacement bridge" has Item B.PS.01 (Load Posting Status) = 'N' (New) or 'G' (Proposed)*

(3) – Long-Term Closed/Inactive: *the bridge has been closed to all traffic for 5 or more years, but the asset remains in place (not demolished) and may be periodically inspected. These records are not reported to FHWA.*

- *Structure has not been removed with an Asset ID Retirement Request Form.*
  AND
- *Item B.PS.01 (Load Posting Status) = 'C' (Closed)*
  AND
- *Item B.ID.02 (Posting Status Change Date) is more than 5 years in the past*

(4) – Clearance/Ped: *These bridges are periodically inspected but not reported to FHWA. Specific protocol for inspecting clearance/ped bridges may vary in scope from a typical bridge inspection. Bridges with this status follow two categories:*

- *Any bridge - including pedestrian bridges - that carries a non-roadway (only) over an SCDOT roadway*
  OR
- *All SCDOT-owned Pedestrian Bridges, regardless of what they cross over*

- *Clearance Bridge: a highway route is UNDER the bridge, and there is no highway route ON the bridge*
  - *Item B.F.01 (Feature Type) = 'H01' (highway)*
    AND
  - *Item B.F.02 (Feature Location) = 'B' (below bridge) for [H01]*

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Format	Frequency	Item ID Number	Item Ownership
AN (1)	I	SC.CL.01	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Header	N/A	Bridge	Status

Bridge Status Calculations (continued)

(4) – Clearance/Ped (continued)

- *Clearance Bridge: a highway route is UNDER the bridge, and there is no highway route ON the bridge*
  - *Item B.CL.01 (Owner) = S01 (Bridge Owner is SCDOT)*
    AND
  - *Item B.F.01 (Feature Type) = 'P01 (pathway)*
    AND
  - *Item B.F.02 (Feature Location) = 'C (carried on bridge) for [P01]*
    AND
  - *There are no highway features, carried on the bridge (Item B.F.01 and Item B.F.02)*

(5) – Undersized: *the bridge length (NBIS) is less than 20 ft, but it is still regularly inspected/maintained by SCDOT or its consultants. These records are not reported to FHWA.*

- *Item B.PS.01 (Load Posting Status) ≠ 'G' (Proposed)*
  AND
- *Item B.G.01 (NBIS Bridge Length) is less than 20 feet*

(6) – Active: *The asset is regularly inspected/maintained by SCDOT or its consultants and its data is reported to FHWA. Its bridge length (NBIS) is 20ft or greater. Bridges with this status follow three general categories:*

- *Bridges under construction that have superstructure/culverts elements in place or the bridge is less than 12 months from opening but construction has not yet started*
  OR
- *Bridges open to traffic with or without restrictions*
  OR
- *Bridges that have been closed to all traffic for less than 5 years*

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Bridge Status (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (1)	I	SC.CL.01	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Header	N/A	Bridge	Status

Bridge Status Calculations (continued)

(6) – Active (continued)

- *Item B.PS.01 (Load Posting Status) ≠ 'G' (Proposed)*
  AND
- *Item B.G.01 (NBIS Bridge Length) is 20 feet or more*
  AND
- *Item B.L.09 (Border Bridge Inspection Responsibility) ≠ '0'*

(7) – Undersized: *the bridge length (NBIS) is less than 20 ft, but it is still regularly inspected/maintained by SCDOT or its consultants. These records are not reported to FHWA.*

- *Item B.L.09 (Border Bridge Inspection Responsibility) = '0'*

(8) – Proposed: *The bridge has been assigned an Asset ID but only has preliminary/as-let data. These records are not reported to FHWA. Bridges with this status is for future projects that have not yet begun construction and will not open in the next 12 months. Bridges with this status cannot have members over an SCDOT roadway.*

- *Item B.PS.01 (Load Posting Status) = 'G' (Proposed)*

(9) – Unknown: *For rare instances when a bridge not previously in the inventory is found and needs data. The bridge status should never be NULL.*

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District/Consultant Responsible for Routine Inspection

Format	Frequency	Item ID Number	Item Ownership
AN (1)	I	SC.CL.02	DBIS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Admin Data	Responsibility Information	Bridge	SC_Consultant

SCDOT Specification

[Report the code identifying the prime consultant or district responsible for the routine inspection for the bridge.

Code	*Description*
0	*Not Required*
1	*District 1*
2	*District 2*
3	*District 3*
4	*District 4*
5	*District 5*
6	*District 6*
7	*District 7*
A to Z	*Consultant Firms*

SCDOT Commentary

[While responsibility for different inspection types may fluctuate between districts and consultants, the responsibility for the routine inspection is assigned to either the district or consultant. For example, a district may perform a routine inspection on a bridge, but the consultant may perform an in-depth or an underwater inspection.

If the district or consultant change routine inspection responsibility, this data field shall be revised by the DBIS.

This field is used to determine responsibility for inspection data that may be used for submittal to FHWA and for use in the state.

At the start of the consultant inspection contract, the BMO will determine the letter values for each prime consultant.]

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
4 – District 4	The bridge is inspected by District 4. **Code 4.**	00349	

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District Responsible for Maintenance

Format	Frequency	Item ID Number	Item Ownership
AN (2)	I	SC.CL.03	DBIS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Admin Data	Responsibility Information	Bridge	SC_INSPECTIONDISTRICT

SCDOT Specification	SCDOT Commentary
[Report the code for the district responsible for assigning maintenance and completing maintenance on the bridge. *Use the same codes as Item B.L.04 (Highway Agency District)]*	*[For most bridges, the value will be the same as Item B.L.04 (Highway Agency District). However, some bridges may be located in a district according to the FWHA requirements for coding Item B.L.04 but another district is responsible for assigning maintenance and completing maintenance on the bridge.]*

County Responsible for Maintenance

Format	Frequency	Item ID Number	Item Ownership
AN (2)	I	SC.CL.04	DBIS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Admin Data	Responsibility Information	Bridge	SC_MAINTENANCECOUNTY

SCDOT Specification	SCDOT Commentary
[Report the code for the county maintenance shed responsible for completing maintenance on the bridge. *Use the same SCDOT County Code as Item B.L.02 (County Code) with the additional code below to represent an additional maintenance shed in Orangeburg County.* *Code — Description* *49 — Holly Hill (49)]*	*[For most bridges, the value will be the same as Item B.L.02 (County Code). However, some bridges may be located in a county according to the FWHA requirements for coding Item B.L.02 but another county maintenance shed is responsible for completing maintenance on the bridge.]*

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Asset Management Bridge

Format	Frequency	Item ID Number	Item Ownership
AN (1)	I	SC.CL.05	BMO
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Admin Data	Responsibility Information	Bridge	SC_ASSETMANAGEMENT

SCDOT Specification	SCDOT Commentary
[Report whether the bridge is maintained under SCDOT Bridge Asset Management Services contract. *Code — Description* *N — Not an Asset Management Bridge* *Y — Is an Asset Management Bridge]*	*[Under SCDOT Bridge Asset Management Services contract, another entity provides in-service bridge engineering services necessary for the management, maintenance, operation and warranty protection, of select fixed and moveable span coastal bridges.]*

Critical Security Bridge

Format	Frequency	Item ID Number	Item Ownership
AN (1)	I	SC.CL.06	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Location	Bridge	SC_CRIT_SEC_BRDG

SCDOT Specification	SCDOT Commentary
[Report whether the bridge is considered a Critical Security Bridge according to SCDOT Policy. *Code — Description* *N — Not a Critical Security Bridge* *Y — Is a Critical Security Bridge]*	*[A Critical Security Bridge (CSB) is a bridge considered to be security-sensitive or vulnerable to a potential terrorist attack. The SCDOT uses this designation to apply special protections to bridges that are vital to the state's transportation infrastructure, in line with national security efforts from the Department of Homeland Security.* *Key aspects of a critical security bridge designation include:* • *Restricted access to information: Access to the structural plans and other detailed information for a CSB is tightly controlled.* • *Security-sensitive information: The designation acknowledges that information about potential vulnerabilities in critical transportation infrastructure is sensitive security information.* • *Specialized storage: Bridge plans for CSBs are stored in a restricted Bridge File system, not in the more widely accessible Plans Library on the SCDOT intranet.]*

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Estimated Date of Bridge Opening to Traffic

Format	Frequency	Item ID Number	Item Ownership
YYYYMMDD	I	SC.CL.07	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Admin Data	Identification and Category	Bridge	SC_EST_OPEN_DATE

SCDOT Specification	SCDOT Commentary
[Road Data Services shall record the date a user provides an Asset ID on the Asset ID Request Form as the approximate date of when a bridge may open to traffic. *If the year is known but the date in a year is unknown, code as YYYY0101 where the month and day are coded to January 1.* *If the month and year are known but the day is unknown, code as YYYYMM01 where the day is coded as the first of the month.]*	*[The date is an approximation and is used to determine any bridges there Item B.PS.01 may need to be coded "N" (New) for bridges that may be opening in the next 12 months are reported to FHWA.* *If the date may need to be revised as a bridge moves through design and construction.]*

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Island Mobility Bridge

Format	Frequency	Item ID Number	Item Ownership
AN (1)	I	SC.CL.08	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Structure Details	Bridge	SC_ISL_MOB_BRDG

SCDOT Specification

[Report whether the bridge is considered an Island Mobility Bridge according to SCDOT Policy.

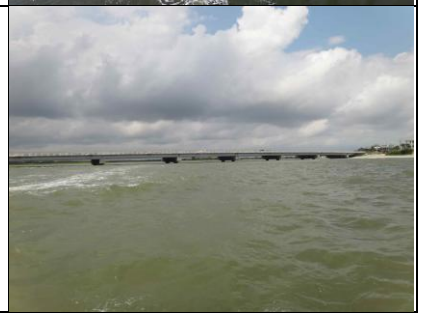
Code	*Description*
N	*Not an Island Mobility Bridge*
Y	*Is an Island Mobility Bridge]*

SCDOT Commentary

[An Island Mobility Bridge is a structure that provides critical vehicular access between the mainland and a coastal or barrier island, such that it meets all of the following criteria:

- *supports daily mobility for island residents, visitors, businesses, and emergency operations;*
- *may serve or be designated as part of hurricane/evacuation routes or other continuity-of-access functions;*
- *is subject to unique environmental, tide, storm surge, and salt-water exposure conditions typical of island environments.]*

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
Y – Is an Island Mobility Bridge	The bridge meets all requirements as an Island Mobility Bridge. The bridge connects a barrier island (Sullivan's Island) and the mainland. **Code Y.**	01303	
N – Not an Island Mobility Bridge	The bridge does not meet all requirements as an Island Mobility Bridge. The bridge connects a barrier island (Sullivan's Island) and a barrier island (Isle of Palms). **Code N.**	02305	

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South Carolina Department of Transportation

Inspection Categories

Format	Frequency	Item ID Number	Item Ownership
AN (3)	I	SC.CL.09, SC.CL.10, & SC.CL.11	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Admin Data	Responsibility Information	Bridge	Varies

SCDOT Specification	SCDOT Commentary
[Report the applicable inspection category related to the bridge. The categories are summarized below and by the codes on this page. The inspection category can be used to determine the unit cost of the inspection. • *Item SC.CL.09 – Routine Inspection (Topside)* • *Item SC.CL.10 – Underwater Inspection* • *Item SC.CL.11 – NSTM Inspection* *Use Code QPB for any bridge that does not meet any of the requirements for inspections "Quoted Per Bridge".]*	*[The BMO will annually update inspection categories based on updated bridge data.* ***Feature Crossed (Routine Topside)*** *SA – bridges over a waterway less than 4ft deep, walkable ground* *SB – bridges over a waterway greater than or equal to 4ft deep* *SC – bridges over railroad (with or without waterway)* *SD – bridges over a non-controlled access roadway* *SE – bridges over a controlled access highway* ***Feature Crossed (NSTM)*** ***(Trusses, Floor Beam Systems, Cross Girders)*** *FA – bridges over a waterway less than 4ft deep, walkable ground* *FB – bridges over a waterway greater than or equal to 4ft deep* *FC – bridges over railroad (with or without waterway)* *FD – bridges over a non-controlled access roadway* *FE – bridges over a controlled access highway* ***Culverts (Routine Topside)*** *CA – single cell/barrel* *CB – double cell/barrel* *CC – 3 to 5 cells/barrels* *CD – 6 or greater cells/barrels* ***Deck Area (Square Feet)*** *1 – 0 to 3,000* *2 – 3,001 to 6,000* *3 – 6,001 to 12,000* *4 – 12,001 to 18,000* *5 – 18,001 to 27,000* *6 – 27,001 – 36,000* *7 – > 36,000]*

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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Admin Data	Responsibility Information	Bridge	Varies

SCDOT Specification	SCDOT Commentary
	*[**Bridge (UW) – Maximum Water Depth (feet)*** *UA – 4 to 15* *UB – 16 to 39* *UC – 40 to 79* *UD – 80 to 99* *UE – > 99* ***Bridge (UW) – Number of Piles/Piers*** *1 – Fresh, 1 to 5 Pile / Drilled Shaft Bents* *2 – Fresh, 6 to 25 Pile / Drilled Shaft Bents* *3 – Fresh, 26+ Pile / Drilled Shaft Bents* *4 – Fresh, 1 to 3 Piers* *5 – Fresh, 4 to 8 Piers* *6 – Fresh, 9+ Piers* *7 – Salt/Tidal, 1 to 5 Pile / Drilled Shaft Bents* *8 – Salt/Tidal, 6 to 25 Pile / Drilled Shaft Bents* *9 – Salt/Tidal, 26+ Pile / Drilled Shaft Bents* *10 – Salt/Tidal, 1 to 3 Piers* *11 – Salt/Tidal, 4 to 8 Piers* *12 – Salt/Tidal, 9+ Piers* ***Culverts (UW) – Number of Cells/Barrels*** *UF – Single Cell/Barrel* *UG – Double Cell/Barrel* *UH – 3 to 5 Cells/Barrels* *UI – 6 or Greater Cells/Barrels* ***Culvert Area (Square Feet)*** *1 – <1,000* *2 – 1,001 to 3,000* *3 – 3,001 to 5,000* *4 – 5,001 to 7,000* *5 – >7,000]*

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SC.CL.03 District Responsible
SC.CL.04 County Responsible
SC.CL.05 Asset Management Bridge
SC.CL.06 Critical Security Bridge
SC.CL.07 Date of Bridge Opening
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Inspection Categories (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (3)	I	SC.CL.09, SC.CL.10, & SC.CL.11	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Admin Data	Responsibility Information	Bridge	Varies

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
SA1	The bridge is over Toby Creek (1.4ft max water depth) with a deck area of 1,071SF. **Code SA1.**	04464	
SE4	This bridge is over I-26 (which is a controlled access highway) with a deck area of 14,100SF. **Code SE4.**	10278	
UA3	The bridge has 91 piles and is over Pee Dee Swamp with a max depth of 4.3ft. The bridge receives an underwater inspection. **Code UA3.**	06544	

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SC.G.03 Curb Reveal End Left
SC.G.04 Curb Reveal Begin Right
SC.G.05 Curb Reveal End Right
SC.G.06 Maximum Fill Above Culvert
SC.G.07 Culvert Inlet
SC.G.08 Edge of Roadway, Inlet
SC.G.09 Edge of Roadway, Outlet
SC.G.10 Culvert Outlet
SC.G.11 Wearing Surface Depth
SC.G.12 Weathering Steel, Approach
SC.G.13 Weathering Steel, Main
SC.G.14 Precast Panels, Approach
SC.G.15 Precast Panels, Main
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Curb Type

Format	Frequency	Item ID Number	Item Ownership
AN (1)	I	SC.G.01	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Deck	BridgeInspection	SC_curb_type

SCDOT Specification

[Determining the curb type (mountable or non-mountable) is an important data point that is required for load distribution calculations that may be part of a load rating analysis. The classification of a mountable curb versus a non-mountable is determined based off the curb's reveal which is defined as the vertical face or vertical portion of the curb measured from the top of deck or wearing surface to the top of the curb. Inspectors shall indicate the type of curb on a structure using the following definitions for each category.

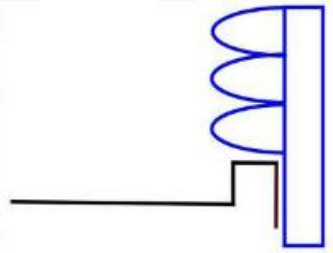
Code	*Description*
1	*No Curb on Bridge*
2	*Hidden/Overhung Curb*
3	*Mountable Curb*
4	*Non-Mountable Curb*

A curb should be considered 12" high or less. A barrier railing/parapet is not considered a curb.]

SCDOT Commentary

[Use Code 2 when a structure has either a mountable or non-mountable curb, and an overhanging bridge rail. A curb cannot be classified as hidden/overhung if the structure has a width coded for sidewalk (B.G.07 or B.G.08). See the image below for an overhung curb, the thrie-beam guardrail extends beyond the bridge curb.





Use Code 3 when a structure has an exposed curb with a reveal 6" or less.

Use Code 4 when a structure has an exposed curb with a reveal greater than 6".]

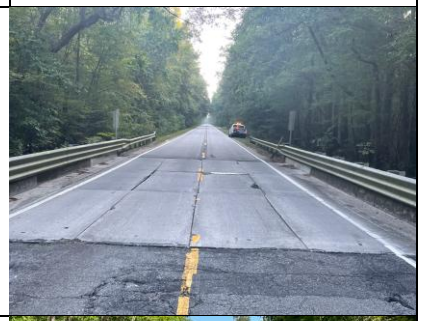
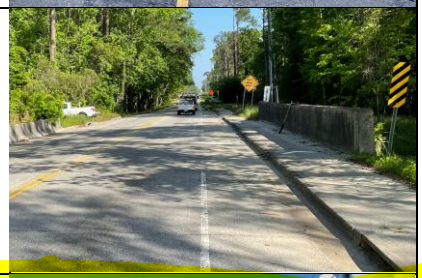
Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
1 – No Curb on Bridge	The bridge has no curb. **Code 1.**	02844	

Curb Type (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (1)	I	SC.G.01	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Deck	BridgeInspection	SC_curb_type

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
2 – Hidden/Overhung Curb	The bridge has a curb but it his overhung by the thrie-beam guardrail above it. Vehicular traffic cannot interact with the curb. **Code 2.**	04709	
3 – Mountable Curb	The bridge has a mountable curb on one side. **Code 3.**	09424	
4 – Non-Mountable Curb	The bridge has a non-mountable curb. **Code 4.**	10356	

Curb Type (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (1)	I	SC.G.01	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Deck	BridgeInspection	SC_curb_type

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
3 – Mountable Curb	The bridge has a mountable curb on one side and a non-mountable curb on the other. Mountable is the controlling feature. **Code 3**	01123	

Curb Reveal

Format	Frequency	Item ID Number	Item Ownership
N (3,1)	I	SC.G.02 to SC.G.05	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Deck	BridgeInspection	Varies

SCDOT Specification	SCDOT Commentary
[If inspectors indicate the bridge has a mountable or non-mountable curb, the inspectors shall review previous measurements or measure the curb reveal at each corner of the structure and include the measurements in the inspection report. This measurement only needs to be measured at most once and can be visually confirmed during subsequent inspections with no other required updates unless a change is noted. The curb reveals shall be reported as the four items below: • *Item SC.G.02 – Curb Reveal Beginning Left (in)* • *Item SC.G.03 – Curb Reveal End Left (in)* • *Item SC.G.04 – Curb Reveal Beginning Right (in)* • *Item SC.G.05 – Curb Reveal End Right (in)* *The curb reveals shall be reported as inches. The curb's reveal is defined as the vertical portion of the curb measured from top of deck or wearing surface to the top of the curb.]*	*[Curb reveal measurements shall be retaken if conditions on the bridge change such as overlay is placed, barrier is replaced, or other bridge modifications that impact the previously documented measurements.]*

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
12.0 (Item SC.G.02) - 12.0 (Item SC.G.03) - 12.0 (Item SC.G.04) - 12.0 (Item SC.G.05)	The bridge has a non-mountable curb at both sides of the bridge. The curb reveal was measured to be 12 inches at all four corners. **Code 12.0.**	00885	

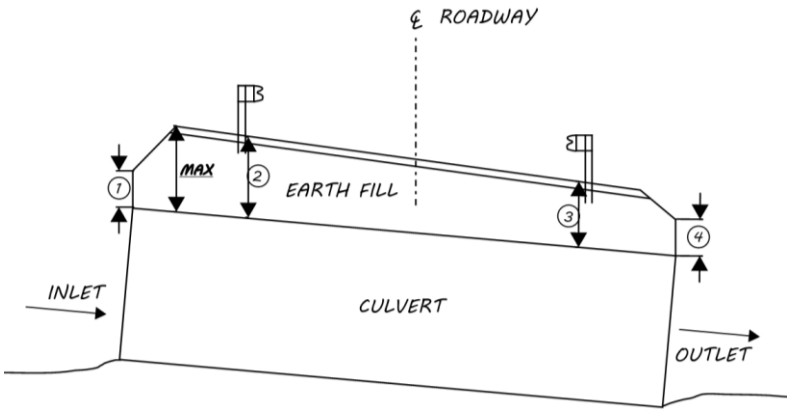
Culvert Fill

Format	Frequency	Item ID Number	Item Ownership
N (3,1)	I	SC.G.06 to SC.G.10	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Culvert	BridgeInspection	Varies

SCDOT Specification

[Inspectors shall note the maximum fill above the culvert as Item SC.G.06. The maximum fill may be the same measurement as one of the four measurements noted below.

The fill depth at different locations along the length of a culvert must be measured for all culvert types during initial inspections and confirmed during all other inspections. Measurements are to be taken at the following locations.



- *Item SC.G.07 – Culvert Inlet (only if within 15 feet of the edge of the roadway)*
- *Item SC.G.08 – Edge of Roadway on Inlet Side of Roadway*
- *Item SC.G.09 – Edge of Roadway on Outlet Side of Roadway*
- *Item SC.G.10 – Culvert Outlet (only if within 15 feet of the edge of the roadway)]*

SCDOT Commentary

[This information is needed for both live and dead load calculations used for the load rating.

Depending on the level of fill, and the cross-section of the roadway, fill depths may be the same across the different locations to be measured; not all depth measurements (Item SC.G.07 to Item SC.G.10) are required to be recorded for this reason. However, Item SC.G.06 is required for all culverts.

If the fill on top of a culvert is 8 feet or more, the fill depth can be estimated by the inspector. At this depth, there is less live load impact on the culvert.]

Wearing Surface Depth

Format	Frequency	Item ID Number	Item Ownership
N (3,1)	I	SC.G.11	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Superstructure	BridgeInspection	SC_DECKOVERBURDENDEPTH

SCDOT Specification	SCDOT Commentary
[If there is a wearing surface, the thickness shall be measured. The wearing surface thickness shall be clearly recorded for comparison to previous load rating assumptions and for future inspections. Common techniques of measuring the wearing surface are to be used as appropriate.]	*[Methods for determining wearing surface depth:* • *Direct Measurement (with Boring) – The preferred and most accurate method for determining the wearing surface thickness is to drill a hole in locations as needed, measure the drill bit penetration to concrete, then plug the hole with adequate sealant. The hole should only be large enough to probe and measure the length of the probe. This method allows the inspector to visually identify variances or tapers in the wearing surface and perform targeted borings to measure and record Item SC.G.11.* • *Direct Measurement (without Boring) – When the wearing surface does not span the entire deck and areas of the deck are exposed, a direct thickness measurement should be taken from the top of the wearing surface to the exposed deck. Similar, the thickness of the wearing surface may be measurable at drains or joints. Several measurements should be taken on the bridge. Inspectors shall then compare the thickness measurements with any observed crowns or tapers to estimate Item SC.G.11.* • *Reval Measurement (Plans Required) – When the wearing surface spans the entire deck and the deck is not exposed, inspectors can determine the maximum wearing surface thickness by measuring the vertical reveal from the top of curb or railing to the top of the wearing surface. The plans must provide a curb/railing height over the deck. A wearing surface thickness is calculated by subtracting the thickness of the measured reveal from the plan value. Inspectors shall calculate a wearing surface thickness at all corners of the structure and combine with any observed crowns or tapers to estimate Item SC.G.11.]*

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Uncoated Weathering Steel

Format	Frequency	Item ID Number	Item Ownership
N (3,1)	I	SC.G.12 and SC.G.13	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Superstructure	Bridge	Varies

SCDOT Specification	SCDOT Commentary
[Item SC.G.12 (Approach Span) and Item SC.G.13 (Main Span) identify if uncoated weathering steel is present in the approach span or main span of the bridge. If present, Item SC.G.12 and Item SC.G.13 identify if the uncoated weathering steel is in the superstructure, the substructure, or both. Coding requirements are below. *Code — Description* *0 — No Uncoated Weathering Steel on Bridge* *1 — Uncoated Weathering Steel in Superstructure Only* *2 — Uncoated Weathering Steel in Substructure Only* *3 — Uncoated Weathering Steel in Superstructure and Substructure]*	*[Uncoated Weathering Steel (UWS) is a high-strength, low-alloy structural steel designed to develop a protective oxide film, or patina, that minimizes corrosion and reduces the need for painting or coating systems. When properly detailed and exposed to environments that allow regular wet–dry cycles, UWS provides durable, low-maintenance performance for bridge applications. However, its effectiveness depends on appropriate site and design conditions: adequate drainage, good air circulation, and the absence of debris or moisture-trapping details are essential. In areas where salt exposure, continuous dampness, or poor drainage occur, corrosion can accelerate, and section loss may develop. Inspectors should note the color and uniformity of the patina, evidence of persistent moisture or flaking rust, and any staining of substructure elements from runoff. When performing as intended, UWS offers a reliable, cost-effective alternative to coated steel systems with reduced long-term maintenance needs.* *Inspectors shall note if UWS is present anywhere on the bridge in the approach span and in the main span.]*

Number of Precast Panels

Format	Frequency	Item ID Number	Item Ownership
N (2,0)	I	SC.G.14 and SC.G.15	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Superstructure	Bridge	Varies

SCDOT Specification	SCDOT Commentary
[Report the number of precast panels across the cross section is recorded as: • *Item SC.G.14 - Number of Precast Panels (Approach)* • *Item SC.G.15 - Number of Precast Panels (Main)]* *Spans of Precast Panels (i.e. H-10, H-15, H-20 slabs) as Slab Spans, will use "1" for Item B.SP.03 (Number of Beam Lines).]*	*[Precast panel beam lines include the main longitudinal load-carrying members of the superstructure.* *Include any curb panels in the count across the section.]*

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
6	The bridge has 6 adjacent precast panels. Use 1 for Item B.SP.03. For this item: **Code 6.**	06716	

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SC.G.03 Curb Reveal End Left
SC.G.04 Curb Reveal Begin Right
SC.G.05 Curb Reveal End Right
SC.G.06 Maximum Fill Above Culvert
SC.G.07 Culvert Inlet
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Parallel Structure Designation

Format	Frequency	Item ID Number	Item Ownership
AN (1)	I	SC.G.16	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Structure Details	Bridge	PARALSTRUC

SCDOT Specification

[Code this item to indicate situations where separate structures carry the inventory route in opposite directions of travel over the same feature. One of the following codes shall be used:

Code	*Description*
R	*The right structure of parallel bridges carrying the roadway in the direction of the inventory.*
L	*The left structure of parallel bridges carrying the roadway in the direction of the inventory.*
N	*No parallel structure exists.]*

SCDOT Commentary

[The lateral distance between structures has no bearing on the coding of this item.]

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
L – Left of Parallel Bridge	The inventory route (Interstate 20) is inventoried from west to east. Asset ID 05781 carries the inventory route in the direction of travel. Asset ID 05786 is the bridge on the left. **Code L.**	05786	

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Skinny Leg Channel Bridge

Format	Frequency	Item ID Number	Item Ownership
AN (1)	I	SC.G.17	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Superstructure	Bridge	SC_skinny_leg_ch

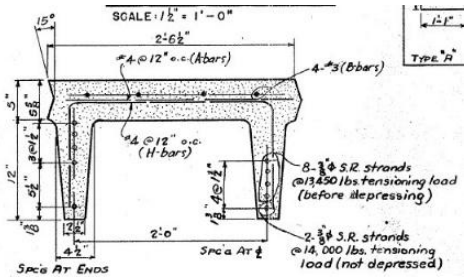
SCDOT Specification

[Report whether the bridge has any spans that have a skinny leg channel configuration.

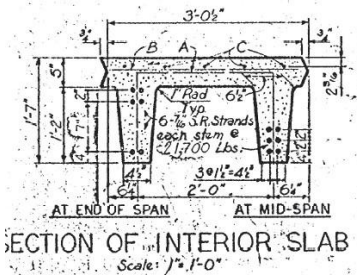
Code	*Description*
N	*Not Skinny Leg Channel Bridge*
Y	*Skinny Leg Channel Bridge]*

SCDOT Commentary

[Inspectors are to understand the difference between "skinny leg" channels and "wide leg" channels; "wide leg" channels most likely have design load of H-15. The "skinny leg" channels only have a single vertical row of prestressing strands in the channel legs, whereas the "wide leg" channels have double rows. See figures below include cross sketches showing "skinny leg" channels and "wide leg" channels.



"Skinny Leg" Channel Section



"Wide Leg" Channel Section]

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Signs/Utilities Attached

Format	Frequency	Item ID Number	Item Ownership
AN (1)	I	SC.G.18	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Structure Details	BridgeInspection	SC_SIGN_UTIL_ATTACH

SCDOT Specification

[The Item for Signs/Utilities Attached identifies whether signs and/or utilities are attached to the bridge. Only signs and/or utilities that would be used on a load rating should be considered. However, all utilities should be reported.

Code	*Description*
N	*Nothing Attached.*
U	*Utilities Attached.*
S	*Signs Attached.*
M	*Utilities and Signs Attached.]*

SCDOT Commentary

[Asset ID placards, Structure Number placards, and other small signs should not be considered signs.]

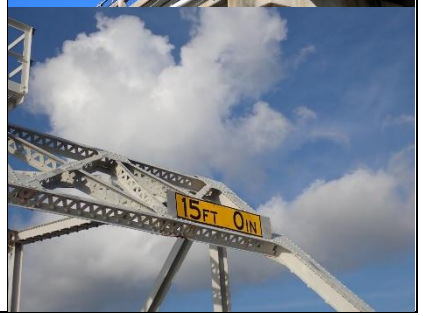
Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
U – Utilities attached	The bridge has a metal conduit along South fascia. **Code U.**	06298	

Signs/Utilities Attached (continued)

Format	Frequency	Item ID Number	Item Ownership
AN (1)	I	SC.G.18	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Structure Details	BridgeInspection	SC_SIGN_UTIL_ATTACH

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
S – Signs Attached	The bridge has a mile marker sign on North fascia. **Code S.**	08332	
M – Utl & Signs Attached	This bridge has a light pole at West fascia and a clearance sign at South portal fascia. **Code M.**	03186	 

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Feature Intersected

Format	Frequency	Item ID Number	Item Ownership
AN (300)	I	SC.F.01	RIMS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Header	N/A	Bridge	FeatureIntersected

SCDOT Specification	SCDOT Commentary
[SCDOT Roadway Information Management System will update Item SC.F.01 based on the features under a bridge. This field can be used to combine many features into a single text field.]	*[While the field is controlled by RDS, users can request the data field to be updated.]*

Facility Carried

Format	Frequency	Item ID Number	Item Ownership
AN (300)	I	SC.F.02	RIMS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Header	N/A	Bridge	FeatureIntersected

SCDOT Specification	SCDOT Commentary
[SCDOT Roadway Information Management System will update Item SC.F.02 based on the features under a bridge. This field can be used to combine many features into a single text field.]	*[While the field is controlled by RDS, users can request the data field to be updated.]*

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SC.F.01 Feature Intersected
SC.F.02 Facility Carried
SC.RT.01 SCDOT Route Type
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Appendix S2: Timber Element and Defect
Appendix S3: Element Coding
Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

SCDOT Route Type

Format	Frequency	Item ID Number	Item Ownership
AN (2)	I	SC.RT.01	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
N/A	N/A	Highway	SC_RTE_TYPE

SCDOT Specification

[Item B.RT.04 (Route Type) is reported to FHWA for each route on or under a bridge. SCDOT maintains different parameters for route type for internal use.

Code	*Description*
1	*Interstate*
2	*US Route*
4	*SC Route*
5	*Ramp*
6	*Ramp Spur*
7	*Secondary Road*
9	*Local Road (County or Municipality Owned)*
10	*State Park*
11	*State Institution*
12	*National Park*
13	*Forest Service Road*
14	*Collector Distributor*
15	*Railroad (RR) Crossing*
16	*Private Road]*

SCDOT Commentary

[SCDOT differentiates between SC Routes and Secondaries in the parameters included in Item SC.RT.01. These route types are not differentiated in Item B.RT.04.]

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SC.H.03 Speed Limit
SC.H.04 Clearance Notes
SC.H.05 Maximum Vertical Clearance
SC.H.06 Control Member, Max Vert
SC.H.07 Minimum Vertical Clearance
SC.H.08 Control Member, Min Vert
SC.H.09 Min Horizontal Clearance, L
SC.H.10 Control Member, Min Hor, L
SC.H.11 Min Horizontal Clearance, R
SC.H.12 Control Member, Min Hor, R
SC.H.13 Maximum Surface Width
SC.H.14 Control Member, Max SW
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Future Annual Average Daily Traffic

Format	Frequency	Item ID Number	Item Ownership
N (8,0)	I	SC.H.01	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Roadway Daily Traffic Numbers	Highway	FurtureAADT

SCDOT Specification	SCDOT Commentary
[Report the future annual average daily traffic from year identified in Item SC.H.02 for the highway feature reported. *Future Annual Average Daily Traffic should represent the current configuration and condition of the bridge and should be updated when the configuration changes.]*	*[The Future Annual Average Daily Traffic should be updated at intervals in accordance with the standards for standards/policies within the State.* *All traffic, including trucks, is counted in the Future Annual Average Daily Traffic.]*

Year of Future Annual Average Daily Traffic

Format	Frequency	Item ID Number	Item Ownership
N (4,0)	I	SC.H.02	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Roadway Daily Traffic Numbers	Highway	FutureYear

SCDOT Specification	SCDOT Commentary
Report the year associated with the data reported in Item SC.H.01 (Future Annual Average Daily Traffic) for the highway feature reported. *Year of Future Annual Average Daily Traffic should represent the current configuration and condition of the bridge and should be updated when the configuration changes.]*	*[The Future Annual Average Daily Traffic should be updated at intervals in accordance with the standards for standards/policies within the State.* *All traffic, including trucks, is counted in the Future Annual Average Daily Traffic.]*

Speed Limit

Format	Frequency	Item ID Number	Item Ownership
N (2,0)	I	SC.H.03	RDS
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Road Data Services	Roadway Information	Highway	RouteSpeed

SCDOT Specification	SCDOT Commentary
[Report the speed limit in miles per hour for the highway feature reported.]	*[The speed limit should be updated at intervals in accordance with the standards for standards/policies within the State. The speed limit may not be reported for all highway features.]*

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SC.H.04 Clearance Notes
SC.H.05 Maximum Vertical Clearance
SC.H.06 Control Member, Max Vert
SC.H.07 Minimum Vertical Clearance
SC.H.08 Control Member, Min Vert
SC.H.09 Min Horizontal Clearance, L
SC.H.10 Control Member, Min Hor, L
SC.H.11 Min Horizontal Clearance, R
SC.H.12 Control Member, Min Hor, R
SC.H.13 Maximum Surface Width
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Clearance Notes

Format	Frequency	Item ID Number	Item Ownership
AN (300)	I	SC.H.04	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Features & Clearances	Highway Clearances	Highway	SC_ClearanceText

SCDOT Specification	SCDOT Commentary
[The field can be used by the inspector to contain notes related to the clearances noted for the highway feature reported.]	*[Separate notes can be included for each highway feature reported. This field is optional.]*

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SC.H.04 Clearance Notes
SC.H.05 Maximum Vertical Clearance
SC.H.06 Control Member, Max Vert
SC.H.07 Minimum Vertical Clearance
SC.H.08 Control Member, Min Vert
SC.H.09 Min Horizontal Clearance, L
SC.H.10 Control Member, Min Hor, L
SC.H.11 Min Horizontal Clearance, R
SC.H.12 Control Member, Min Hor, R
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Highway Clearances

Format	Frequency	Item ID Number	Item Ownership
N (3,2)	EI	SC.H.05 to SC.H.14	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Features & Clearances	Highway Clearances	Highway	Varies

SCDOT Specification

[See specification guidance included in the applicable SNBI Item. SCDOT Oversize Overweight (OSOW) requires clearances rounded down to the nearest hundredths of a foot. See table below.

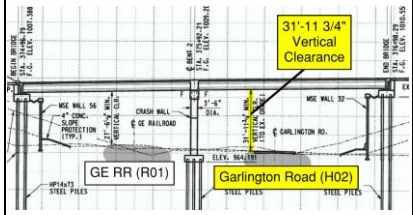
SNBI Item (XXX.X feet)	*SBI Item (XXX.XX feet)*
Item B.H.12 (Highway Maximum Usable Vertical Clearance)	*Item SC.H.05*
Item B.H.13 (Highway Minimum Vertical Clearance)	*Item SC.H.07*
Item B.H.14 (Highway Minimum Horizontal Clearance, Left)	*Item SC.H.09*
Item B.H.15 (Highway Minimum Horizontal Clearance, Right)	*Item SC.H.11*
Item B.H.16 (Highway Maximum Usable Surface Width)	*Item SC.H.13*

Inspectors are not required to the nearest tenth of a foot. SCDOT BMO will report clearances rounded down to the nearest tenth of a foot to FHWA.]

SCDOT Commentary

[A single example is included for Highway Minimum Vertical Clearance (Item SC.H.07). All clearances shall be coded in a similar manner.]

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
99.99 (for H01) — 31.97 (for H02)	The structure carries I-385 NB (H01) (feature carried) over S-23-654|Garlington Road (H02) and a railroad (RR CPDR) (R01) (features below). There is no clearance restriction above I-385 NB. The railroad vertical clearance is not reported under Item B.H.13. Since the clearance above the H02 feature is greater than 30 feet, the minimum vertical clearance may be estimated for H02 if the inspector verifies that conditions have not changed. • I-385 NB (H01)(Highway Carried): Report 99.9, since no vertical restriction exists above the roadway carried. **Code 99.99.** • S-23-654|Garlington Road (H02)(Highway Below): Report 31.9 from the bridge plans after inspectors verified conditions have not changed. 31.9 is rounded down to the nearest hundredth of a foot (31'-11¾"). **Code 31.97.**	10406	

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SC.H.06 Control Member, Max Vert
SC.H.07 Minimum Vertical Clearance
SC.H.08 Control Member, Min Vert
SC.H.09 Min Horizontal Clearance, L
SC.H.10 Control Member, Min Hor, L
SC.H.11 Min Horizontal Clearance, R
SC.H.12 Control Member, Min Hor, R
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Highway Clearances - Controlling Member

Format	Frequency	Item ID Number	Item Ownership
AN (99)	EI	SC.H.06 to SC.H.14	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Features & Clearances	Highway Clearances	Highway	Varies

SCDOT Specification

[Inspectors can note which member on the bridge controls the clearance and/or inspectors can note the location of the clearance measurement. See table below.

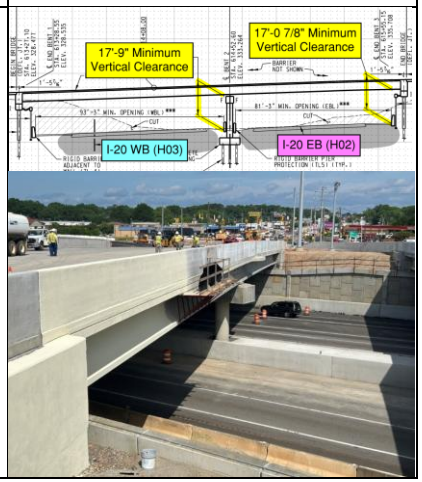
SBI Item (Clearance Value)	*SBI Item (Controlling Member of Location)*
Item SC.H.05	*Item SC.H.06 (Highway Maximum Usable Vertical Clearance)*
Item SC.H.07	*Item SC.H.08 (Highway Minimum Vertical Clearance)*
Item SC.H.09	*Item SC.H.10 (Highway Minimum Horizontal Clearance, Left)*
Item SC.H.11	*Item SC.H.12 (Highway Minimum Horizontal Clearance, Right)*
Item SC.H.13	*Item SC.H.14 (Highway Maximum Usable Surface Width)*

]

SCDOT Commentary

[This field is optional. This field can show which members control clearance values and/or can show which location the clearance was measured. This field can help illustrate how clearances were measured. This field can also help future inspectors. This field is a text field, and inspectors can add their own text. A single example is included for Highway Minimum Horizontal Clearance, Left (Item SC.H.10). All clearance controlling member text inputs can be coded in a similar manner.]

Examples

CODE - DESCRIPTION	NOTES	ASSET ID	PHOTO
Left Concrete Barrier (for SC.H.XX)	The structure carries US 176|Broad River Road (H01) (feature carried) over I-20 EB (H02) and I-20 WB (H03) (features below). A lane closure was not used for this inspection. Inspector noted horizontal clearances from the plans and verified in the field at night when the traffic was less. For this example, only H02 is being coded. H01 does not need to be coded since it is a highway feature on the bridge. H03 would be coded in a similar manner. Both H02 and H03 are one direction interstate routes with a left and right minimum horizontal clearance. The highway feature below has rigid barriers in front of the pier to left and has rigid barriers in front of the MSE wall in front of the abutment to the right. SC.H.10 (Highway Minimum Horizontal Clearance, Left - Controlling Member) Distance from between the rigid barrier and the edge of the leftmost travel lane was reported. The inspector could enter this for this field. **Code Left Concrete Barrier.**	10738	

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SC.IE.05 Tide During Inspection
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SC.IE.07 Water Depth 4ft or More
SC.IE.08-18 Inspection Notes
SC.IE.19 Debris Buildup
SC.IE.20 Scour Noted at Bridge
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SC.IE.22 Status of Repair Recs
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Time of Inspection

Format	Frequency	Item ID Number	Item Ownership
YYYYMMDD HH:MM:SS	IE	SC.IE.01	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Submit	Schedule Table	InspectionSchedule	IntervalMethod

SCDOT Specification	SCDOT Commentary
[Record the time (local time) when measurements over the waterway are taken, including depth, clearance, or scour observations. Only required for inspections of bridges over tidal waterways. For non-tidal waterways, this field may be left blank.]	*[Document the time at which inspection activities and waterway-related measurements are performed, ensuring data consistency with tidal conditions.]*

Inspection Weather

Format	Frequency	Item ID Number	Item Ownership
AN (1)	IE	SC.IE.02	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Submit	Report Summary	BridgeInspection	SCINSPECTION_WEATHER

SCDOT Specification	SCDOT Commentary
[Record weather conditions observed during the majority of the inspection. For changing weather conditions or inspections over a period of days with changing conditions, use the lowest applicable parameter on the list below. *Code — Description* *1 — Sunny* *2 — Cloudy* *3 — Rain* *4 — Snow* *5 — Wind* *6 — Fog]*	*[For drastically different conditions, use a notes field to discuss inspection weather, as needed.]*

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Inspection Temperature

Format	Frequency	Item ID Number	Item Ownership
N(3,0)	IE	SC.IE.03	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Submit	Report Summary	BridgeInspection	SC_INSPECTION_TEMP

SCDOT Specification	SCDOT Commentary
[Record the temperature (in Fahrenheit degrees) observed during the majority of the inspection. For changing temperature or inspections over a period of days with changing temperature, use the temperature observed during the inspection of bridge joints and/or bridge bearings.]	*[For drastically different conditions, use a notes field to discuss inspection temperature, as needed.]*

Inspection Team Members

Format	Frequency	Item ID Number	Item Ownership
AN (99)	EI	SC.IE.04	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Submit	Inspection Team	BridgeInspection	SC_ASSISTANT_INSPECTOR

SCDOT Specification	SCDOT Commentary
[Inspectors can note team members included in the field inspection. The Bridge Inspection Team Leader does not need to be included in Item SC.IE.04.]	*[This field can be blank for inspection events that do not have any applicable team members.]*

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Tide Status During Inspection

Format	Frequency	Item ID Number	Item Ownership
AN (1)	IE	SC.IE.05	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Submit	Schedule Table	InspectionSchedule	IntervalMethod

SCDOT Specification	SCDOT Commentary
[Record the tide status when the substructure is inspected and measurements over the waterway are taken, including depth, clearance, or scour observations. Only required for inspections of bridges over tidal waterways. *Code — Description* *1 — Slack Tide* *2 — Falling Tide* *3 — Flooding* *4 — Low Tide* *5 — Rising Tide* *6 — High Tide]*	*[Document the tide status at which inspection activities and waterway-related measurements are performed, ensuring data consistency with tidal conditions.]*

Maximum Water Depth at Bent

Format	Frequency	Item ID Number	Item Ownership
N (3,1)	IE	SC.IE.06	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Substructure	BridgeInspection	SC_MAX_WATER_DEPTH_BENT

SCDOT Specification	SCDOT Commentary
[Record the maximum water depth at a bent (or abutment). Do not record the water depth in the middle of a channel if there is no substructure unit there. If the water depth at a bent is approximately 4 feet or more, an underwater inspection may be required. See Item SC.IE.07.]	*[For depths over 10 feet, the depth can be approximated to the nearest foot.* *For a culvert, the maximum water depth at any wall shall be reported.]*

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Water Depth 4 Feet or More, but UW Inspection Not Needed

Format	Frequency	Item ID Number	Item Ownership
AN (1)	IE	SC.IE.07	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Substructure	BridgeInspection	SC_water4ft_noUW

SCDOT Specification	SCDOT Commentary
[Based on Item SC.IE.06, SCDOT may consider the bridge needing an Underwater Inspection because the water depth at a bent is approximately 4 feet or more. If, for some reason, the inspector does not want to request an Underwater Inspection, this field shall be used to indicate this intention. *Code — Description* *N — Not Applicable* *Y — Water Depth 4 Feet or More, but UW Not Needed]*	*[If SC.IE.07 is marked "Y", a note needs to be added to Item SC.IE.18 (Inspection Notes: Waterway Channel and Scour) as to why the inspector does not want to request an Underwater Inspection.]*

Inspection Notes

Format	Frequency	Item ID Number	Item Ownership
AN (300)	I	SC.IE.08 to SC.IE.18	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Non-Element Inspection Notes	BridgeInspection	Varies

SCDOT Specification	SCDOT Commentary
[These fields are used to collect inspection notes for items that are not covered by other element level inspection notes.] • *Item SC.IE.08 – Miscellaneous Note* • *Item SC.IE.09 – Under Bridge Railings/Barriers* • *Item SC.IE.10 – Encroachments* • *Item SC.IE.11 – Waterway Channel and Scour* • *Item SC.IE.12 – Traffic Signs* • *Item SC.IE.13 – Approach Roadway Condition* • *Item SC.IE.14 – Curbs and Sidewalks* • *Item SC.IE.15 – Median and Other Barriers* • *Item SC.IE.16 – Wingwalls* • *Item SC.IE.17 – Diaphragms* • *Item SC.IE.18 – Drainage System]*	*[Based on some conditions observed, some of these fields may be required. On most bridges, these note fields are optional.* *If the note field is not needed, it shall be filled with "N/A".* *These fields cannot be left blank.]*

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Debris Buildup

Format	Frequency	Item ID Number	Item Ownership
AN (1)	IE	SC.IE.19	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal Substructure	BridgeInspection	SC_DEBRISBUILDUP

SCDOT Specification	SCDOT Commentary
[Note if there is debris noted in the channel. *Code — Description* *N — No Debris* *Y — Debris in the Channel]*	*[This field is not used to make repair recommendations. If an inspector recommends the debris to be removed, a repair recommendation is still required.]*

Scour Noted at Bridge

Format	Frequency	Item ID Number	Item Ownership
AN (1)	IE	SC.IE.20	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Inspection Data	Component Appraisal (Varies)	BridgeInspection	Varies

SCDOT Specification	SCDOT Commentary
[The fields listed below are five sub fields that can be used to track any scour noted at the bridge. • *Item SC.IE.20A – Footing Exposed* • *Item SC.IE.20B – Scour Holes at Bents* • *Item SC.IE.20C – Scour at Culvert Inlet* • *Item SC.IE.20D – Scour at Culvert Outlet* • *Item SC.IE.20E – Scour Holes at Abutments* *Code — Description* *N — No Scour Noted* *Y — Scour Noted]*	*[This field is not used to make repair recommendations or request additional scour analysis. If an inspector recommends the scour be corrected, a repair recommendation is still required. If an inspector recommends a scour analysis, a Hydraulic Analysis shall be requested.]*

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Section 7: Bridge Condition
Section 8: State Bridge Inventory Fields
Subsection 8.1 Identification
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Subsection 8.5 Features & Routes
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Subsection 8.7 Inspection Events
SC.IE.01 Time of Inspection
SC.IE.02 Inspection Weather
SC.IE.03 Inspection Temperature
SC.IE.04 Inspection Team Members
SC.IE.05 Tide During Inspection
SC.IE.06 Max Water Depth at Bent
SC.IE.07 Water Depth 4ft or More
SC.IE.08-18 Inspection Notes
SC.IE.19 Debris Buildup
SC.IE.20 Scour Noted at Bridge
SC.IE.21 Scour Plan of Action
SC.IE.22 Inspection with Follow-up
Subsection 8.8 Underwater Fields
Subsection 8.9 Inspection Procedures
Subsection 8.10 Appraisal
Subsection 8.11 HDSO
Appendices

Scour Plan of Action Followed

Format	Frequency	Item ID Number	Item Ownership
AN (1)	IE	SC.IE.21	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
HDSO & Scour POA	Component Appraisal (Varies)	BridgeInspection	Varies

SCDOT Specification	SCDOT Commentary
[For bridges where a Scour POA is required, the inspector shall note if the Scour POA was followed. *Code — Description* *N — Not Followed* *Y — Scour POA Followed]*	*[The NBIS requires a Scour POA for bridges over water that are determined to be scour critical or have unknown foundations. Item B.AP.04 is used to determine whether the bridge has a Scour Plan of Action (POA).* *This field is only required for bridges with a Scour Plan of Action. The field is blank for bridges where Item B.AP.04 is 0.]*

Inspection with Follow-up Action

Format	Frequency	Item ID Number	Item Ownership
AN (1)	IE	SC.IE.22	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Submit	Schedule Table	BridgeInspection	FollowUpActions

SCDOT Specification	SCDOT Commentary
[This field is used to document the if the inspection being performed has a follow-up action and requires an expediated report submittal and review timeline. *Code — Description* *Y — Inspection has Follow-up Action* *N — Inspection does not have Follow-up Action]*	*[This field shall be updated for every inspection event. Users shall take caution to make sure the value is reviewed before submitting, it may require updating from the previously reported value. A follow-up action can include:* • *A Flag Repair Recommendation* • *Critical Finding* • *Request for a Load Rating* • *Request for a Hydraulic Analysis* • *Request for Testing (In-Depth Inspection)* *Request for Other Inspections)]*

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Section 2: Bridge Material and Type
Section 3: Bridge Geometry
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Section 6: Inspections
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Subsection 8.4 Geometry
Subsection 8.5 Features & Routes
Subsection 8.6 Highways
Subsection 8.7 Inspection Events
Subsection 8.8 Underwater Fields
SC.UW.01 Substructure Inspected
SC.UW.02 ADCI Supervisor
SC.UW.03 ADCI Tender/Driver
SC.UW.04 Water Temperature
SC.UW.05 Water Visibility
SC.UW.06 Water Velocity
Subsection 8.9 Inspection Procedures
Subsection 8.10 Appraisal
Subsection 8.11 HDSO
Appendix S1: Component Condition
Appendix S2: Timber Element and Defect
Appendix S3: Element Coding
Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Substructure Units Inspected

Format	Frequency	Item ID Number	Item Ownership
AN (300)	I	SC.UW.01	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
BSIP, NSTM, & UW	UW Inspection Information	BridgeInspection	SC_UW_SSU

SCDOT Specification	SCDOT Commentary
[The field can be used by the inspector to contain notes related to the Substructure Units (SSUs) inspected during an underwater inspection.]	*[This field is required for underwater inspections.* *This field can help determine which members are typically inspected by topside inspections and by underwater inspections.]*

ADCI Team Members

Format	Frequency	Item ID Number	Item Ownership
AN (300)	I	SC.UW.02 and SC.UW.03	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
BSIP, NSTM, & UW	UW Inspection Information	BridgeInspection	Varies

SCDOT Specification	SCDOT Commentary
[The ADCI Team Members involved in an underwater inspection shall be noted in the following fields. • *Item SC.UW.02 – ADCI Supervisor* • *Item SC.UW.03 – ADCI Tender/Diver]*	*[This field is required for underwater inspections.* *ADCI requirements for members of the dive team are included in Chapter 3 of the BIGD.]*

Water Temperature

Format	Frequency	Item ID Number	Item Ownership
N(3,0)	IE	SC.UW.04	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
BSIP, NSTM, & UW	UW Inspection Information	BridgeInspection	SC_WATER_TEMP

SCDOT Specification	SCDOT Commentary
[Record the water temperature (in Fahrenheit degrees) observed during the majority of the inspection.]	*[For drastically different conditions, use a notes field to discuss water temperature, as needed.]*

Section 1: Bridge Identification
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Section 3: Bridge Geometry
Section 4: Features
Section 5: Loads, Rating, and Posting
Section 6: Inspections
Section 7: Bridge Condition
Section 8: State Bridge Inventory Fields
Subsection 8.1 Identification
Subsection 8.2 Location
Subsection 8.3 Classification
Subsection 8.4 Geometry
Subsection 8.5 Features & Routes
Subsection 8.6 Highways
Subsection 8.7 Inspection Events
Subsection 8.8 Underwater Fields
SC.UW.01 Substructure Inspected
SC.UW.02 ADCI Supervisor
SC.UW.03 ADCI Tender/Driver
SC.UW.04 Water Temperature
SC.UW.05 Water Visibility
SC.UW.06 Water Velocity
Subsection 8.9 Inspection Procedures
Subsection 8.10 Appraisal
Subsection 8.11 HDSO
Appendix S1: Component Condition
Appendix S2: Timber Element and Defect
Appendix S3: Element Coding
Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Water Visibility

Format	Frequency	Item ID Number	Item Ownership
N(2,1)	IE	SC.UW.05	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
BSIP, NSTM, & UW	UW Inspection Information	BridgeInspection	SC_UW_VISIBILITY

SCDOT Specification	SCDOT Commentary
[Record water visibility at the time of inspection. Visibility shall be recorded to the nearest tenth of a foot *The value reported will indicate whether water clarity allows for direct visual observation of the channel bed, footing, or lower portions of substructure elements.]*	*[To ensure accurate and consistent evaluation of bridge elements located in or near waterways, inspectors must document the water visibility conditions at the time of inspection. Water visibility affects the ability to observe substructure elements, scour, debris accumulation, and channel conditions.]*

Water Velocity

Format	Frequency	Item ID Number	Item Ownership
N(3,1)	IE	SC.UW.06	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
BSIP, NSTM, & UW	UW Inspection Information	BridgeInspection	SC_WATERVELOCITY

SCDOT Specification	SCDOT Commentary
[Water velocities (measured in feet per second) are required to be taken for bridges over a non-tidal waterway where an underwater inspection is being conducted and if any of the following criteria are met: • *Water velocity is required to be measured according to the bridge's POA or scour assessment,* • *Item B.C.09 or Item B.C.10 (Channel and Channel Protection) is less than 5,* • *Item B.C.11 (Scour Condition Rating) is less than 5,* • *Item B.AP.03 (Scour Vulnerability) is not A or B, or* • *If recommended by the underwater inspection BITL.]*	*[If required, water velocities shall be taken at the center of each span within the channel. In each span, the measurements are taken along the water column at 20 percent of the water depth, 60 percent of the water depth and 80 percent of the water depth.* *If not required, the approximate water velocity shall be recorded. Tidal waterways have varying velocities during the tide cycle. The maximum water velocity during a tide cycle should be approximated by the BITL. Other non-tidal waterways which receive an underwater inspection but do not require water velocity measurement per the criteria above should have the approximate water velocity determined by the BITL.]*

Section 1: Bridge Identification
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Section 3: Bridge Geometry
Section 4: Features
Section 5: Loads, Rating, and Posting
Section 6: Inspections
Section 7: Bridge Condition
Section 8: State Bridge Inventory Fields
Subsection 8.1 Identification
Subsection 8.2 Location
Subsection 8.3 Classification
Subsection 8.4 Geometry
Subsection 8.5 Features & Routes
Subsection 8.6 Highways
Subsection 8.7 Inspection Events
Subsection 8.8 Underwater Fields
Subsection 8.9 Inspection Procedures
SC.IP.01-09 General Risk Factors
SC.IP.10-15 NSTM Risk Factors
SC.IP.16-26 UW Risk Factors
Subsection 8.10 Appraisal
Subsection 8.11 HDSO
Appendix S1: Component Condition
Appendix S2: Timber Element and Defect
Appendix S3: Element Coding
Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Inspection Risk Factors

Format	Frequency	Item ID Number	Item Ownership
AN (300)	IE	SC.IP.01 to SC.IP.26	BI
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
BSIP, NSTM, & UW	Varies	Bridge	Varies

SCDOT Specification	SCDOT Commentary
[Based on bridge type, inspection type, and other considerations, an inspection risk factor may need to record per the NBIS, the BIGD, or the BSIP.]	*[Inspectors should review inspection risk factors prior to and during an inspection. The inspection risk factors should be updated after the inspection for review during future inspections.* *Inspections requiring penetration dives shall be planned, and performed following the ADCI consensus standards defined in the BIGD. Additionally, all members of the dive team shall successfully completed OSHA confined space training. Any related topside operations performed from/in confined spaces shall conform to appropriate regulatory requirements.]*

SCDOT Inspection Risk Factors

General Inspection Risk Factors		NSTM Inspection Risk Factors		UW Inspection Risk Factors	
SC.IP.01	*(S)NBI Items to Review*	*SC.IP.10*	*Fatigue Prone Details (FPD)*	*SC.IP.16*	*Confined Space Dive*
SC.IP.02	*Complex Structural Response*	*SC.IP.11*	*Previous Cracking and Cause*	*SC.IP.17*	*Constricted Waterway Openings*
SC.IP.03	*Difficult to Access*	*SC.IP.12*	*Previous Repairs*	*SC.IP.18*	*Deteriorated UW Elements*
SC.IP.04	*Frequent Vessel Impacts*	*SC.IP.13*	*Problematic Materials*	*SC.IP.19*	*Evidence of Movement*
SC.IP.05	*History of Past Problems*	*SC.IP.14*	*Removal of Debris*	*SC.IP.20*	*High Risk Scour*
SC.IP.06	*Low Redundancy Elements Not Considered NSTMs*	*SC.IP.15*	*Weld Issues or Poor Welding Techniques*	*SC.IP.21*	*Meandering Channels*
SC.IP.07	*Other Bridge Inspection Risk Factors*			*SC.IP.22*	*Penetration Dives (Undermining)*
SC.IP.08	*Potential Out-of-Plane (OOP) Distortion Details*			*SC.IP.23*	*Rapid Stream Flows*
SC.IP.09	*Potential Overloads or Impacts*			*SC.IP.24*	*Scour Characteristics*
				SC.IP.25	*Significant Debris Accumulation*
				SC.IP.26	*Soft or Unstable Streambeds*

Section 1: Bridge Identification
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Section 7: Bridge Condition
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SC.AP.01 Seismic Vulnerability Notes
Subsection 8.11 HDSO
Appendix S1: Component Condition
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Appendix S3: Element Coding
Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Seismic Vulnerability Notes

Format	Frequency	Item ID Number	Item Ownership
AN (300)	IE	SC.AP.01	BMO / LR
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
Admin Data	Identification and Category	Bridge	Seismic Vulnerability Notes

SCDOT Specification	SCDOT Commentary
Report whether the bridge has a scour plan of action (POA) implemented using one of the following codes. *Code — Description* *0 — A scour POA is not required.* *N — A scour POA is required, but not implemented.* *Y — A scour POA is required and implemented.* *Do not report this item if the bridge does not cross over a waterway as indicated in Item B.F.01 (Feature Type).*	*[The field can be used to contain notes related to Seismic Vulnerability coding.]*

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Section 3: Bridge Geometry
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Section 7: Bridge Condition
Section 8: State Bridge Inventory Fields
Subsection 8.1 Identification
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Subsection 8.4 Geometry
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Subsection 8.7 Inspection Events
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Subsection 8.11 HDSO
SC.HD.01 Scour Risk Bin
SC.HD.02 Monitoring/Scour Risk Bin
SC.HD.03 Low Chord Elevation
SC.HD.04 Low Chord Data Source
SC.HD.05 Contextual Risk Type
SC.HD.06 Scour POA Required
SC.HD.07 Scour POA Category
SC.HD.08 Scour Critical Piedmont
Appendix S1: Component Condition
Appendix S2: Timber Element and Defect
Appendix S3: Element Coding
Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Scour Risk Bin

Format	Frequency	FHWA NBIS Item ID	Item Ownership
AN (1)	I	SC.HD.01	HDSO
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
HDSO & Scour POA	HDSO Scour Coding	Bridge	SC_MONITORSCOURINSPRISKBIN

FHWA Specification and SCDOT Markups

Report the scour risk potential over any structure that crosses a waterway.

Code	Description
0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10

Do not report this item if the bridge does not cross over a waterway or floodplain as indicated in Item B.F.01 (*Feature Type*).

FHWA Commentary and SCDOT Markups

Item SC.HD.01 is a measure of scour risk without consideration of importance of monitoring requirements. See Item SC.HD.02 (*Monitoring/Scour Risk Bin*) for scour risk with monitoring requirements.

Section 1: Bridge Identification
Section 2: Bridge Material and Type
Section 3: Bridge Geometry
Section 4: Features
Section 5: Loads, Rating, and Posting
Section 6: Inspections
Section 7: Bridge Condition
Section 8: State Bridge Inventory Fields
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Subsection 8.3 Classification
Subsection 8.4 Geometry
Subsection 8.5 Features & Routes
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Subsection 8.7 Inspection Events
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Subsection 8.9 Inspection Procedures
Subsection 8.10 Appraisal
Subsection 8.11 HDSO
SC.HD.01 Scour Risk Bin
SC.HD.02 Monitoring/Scour Risk Bin
SC.HD.03 Low Chord Elevation
SC.HD.04 Low Chord Data Source
SC.HD.05 Contextual Risk Type
SC.HD.06 Scour POA Required
SC.HD.07 Scour POA Category
SC.HD.08 Scour Critical Piedmont
Appendix S1: Component Condition
Appendix S2: Timber Element and Defect
Appendix S3: Element Coding
Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Monitoring/Scour Risk Bin

Format	Frequency	FHWA NBIS Item ID	Item Ownership
AN (1)	I	SC.HD.02	HDSO
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
HDSO & Scour POA	HDSO Scour Coding	Bridge	SC_MONITORSCOURINSPRISKBIN

FHWA Specification and SCDOT Markups

Report the potential for scour damage and monitoring importance over any structure that crosses a waterway.

Code	Description
0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10

Do not report this item if the bridge does not cross over a waterway or floodplain as indicated in Item B.F.01 (*Feature Type*).

FHWA Commentary and SCDOT Markups

Item SC.HD.02 is a measure of scour risk with consideration of importance of structure. See Item SC.HD.01 (*Scour Risk Bin*) for scour risk without monitoring consideration.

Section 1: Bridge Identification
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Section 3: Bridge Geometry
Section 4: Features
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Subsection 8.4 Geometry
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Subsection 8.7 Inspection Events
Subsection 8.8 Underwater Fields
Subsection 8.9 Inspection Procedures
Subsection 8.10 Appraisal
Subsection 8.11 HDSO
SC.HD.01 Scour Risk Bin
SC.HD.02 Monitoring/Scour Risk Bin
SC.HD.03 Low Chord Elevation
SC.HD.04 Low Chord Data Source
SC.HD.05 Contextual Risk Type
SC.HD.06 Scour POA Required
SC.HD.07 Scour POA Category
SC.HD.08 Scour Critical Piedmont
Appendix S1: Component Condition
Appendix S2: Timber Element and Defect
Appendix S3: Element Coding
Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Low Chord Elevation

Format	Frequency	FHWA NBIS Item ID	Item Ownership
N (4,2)	I	SC.HD.03	HDSO
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
HDSO & Scour POA	HDSO Scour Coding	Bridge	SC_LOW_CHORD_ELEVATION

FHWA Specification and SCDOT Markups	FHWA Commentary and SCDOT Markups
Report the lowest point of the bridge's superstructure over the waterway or floodplain. Do not report this item if the bridge does not cross over a waterway or floodplain as indicated in Item B.F.01 (*Feature Type*).	A negative is only possible for locations below or near mean sea level. The elevation may be obtained from a survey or plans (As-Built or As-Let Plans). The low chord elevation data source can be reported in Item SC.HD.04 (*Low Chord Elevation Data Source*).

Low Chord Elevation Data Source

Format	Frequency	FHWA NBIS Item ID	Item Ownership
AN (6)	I	SC.HD.04	HDSO
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
HDSO & Scour POA	HDSO Scour Coding	Bridge	SC_LOW_CHORD_DATA_SOURCE

FHWA Specification and SCDOT Markups	FHWA Commentary and SCDOT Markups
Report the source that Item SC.HD.03 (*Low Chord Elevation*) was obtained from. Code — Description Survey — Obtained from survey Plans — Obtained from As-Let or As-Built Plans	

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Subsection 8.1 Identification
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Subsection 8.10 Appraisal
Subsection 8.11 HDSO
SC.HD.01 Scour Risk Bin
SC.HD.02 Monitoring/Scour Risk Bin
SC.HD.03 Low Chord Elevation
SC.HD.04 Low Chord Data Source
SC.HD.05 Contextual Risk Type
SC.HD.06 Scour POA Required
SC.HD.07 Scour POA Category
SC.HD.08 Scour Critical Piedmont
Appendix S1: Component Condition
Appendix S2: Timber Element and Defect
Appendix S3: Element Coding
Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Contextual Risk Type

Format	Frequency	FHWA NBIS Item ID	Item Ownership
AN (17)	I	SC.HD.05	HDSO
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
HDSO & Scour POA	HDSO Scour Coding	BridgeInspection	SC_FLEXIBILITY

FHWA Specification and SCDOT Markups

The Hydraulic Contextual Risk (HCR) process' purpose is to provide the ability to assess contextual risk for roads and bridges from a hydraulic perspective.

Code	Description
Type 1	Type 1 (HCR Type)
Type 2	Type 2 (HDR Type)

Do not report this item if the bridge does not cross over a waterway or floodplain as indicated in Item B.F.01 (*Feature Type*).

FHWA Commentary and SCDOT Markups

HCR is into the POA framework to address bridge specific hydraulic conditions. This risk-based approach allows for flexible monitoring and inspection schedules at lower-risk structures.

- Type 1 Locations: High priority sites (e.g., Interstates, US Routes, SC Routes, multilane Secondary Roads, evacuation routes) where flood monitoring cannot be delayed.
- Type 2 Locations: Lower risk, sites where monitoring or inspections may be deferred based on event-specific risk assessments.

Pre-determined detour routes are necessary for bridges that are Type 1 locations. These detours can be adjusted as needed. Detours are not required in the POAs at Type 2 locations and are determined by the District at the time of the bridge closure.

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Section 3: Bridge Geometry
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Section 5: Loads, Rating, and Posting
Section 6: Inspections
Section 7: Bridge Condition
Section 8: State Bridge Inventory Fields
Subsection 8.1 Identification
Subsection 8.2 Location
Subsection 8.3 Classification
Subsection 8.4 Geometry
Subsection 8.5 Features & Routes
Subsection 8.6 Highways
Subsection 8.7 Inspection Events
Subsection 8.8 Underwater Fields
Subsection 8.9 Inspection Procedures
Subsection 8.10 Appraisal
Subsection 8.11 HDSO
SC.HD.01 Scour Risk Bin
SC.HD.02 Monitoring/Scour Risk Bin
SC.HD.03 Low Chord Elevation
SC.HD.04 Low Chord Data Source
SC.HD.05 Contextual Risk Type
SC.HD.06 Scour POA Required
SC.HD.07 Scour POA Category
SC.HD.08 Scour Critical Piedmont
Appendix S1: Component Condition
Appendix S2: Timber Element and Defect
Appendix S3: Element Coding
Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Scour POA Required

Format	Frequency	FHWA NBIS Item ID	Item Ownership
AN (9)	I	SC.HD.06	HDSO
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
HDSO & Scour POA	HDSO Scour Coding	Bridge	SC_POACATEGORY1

FHWA Specification and SCDOT Markups

Code	Description
0	No POA
1	Needs POA
2	Has POA

Do not report this item if the bridge does not cross over a waterway or floodplain as indicated in Item B.F.01 (*Feature Type*).

FHWA Commentary and SCDOT Markups

The NBIS requires a scour POA for bridges over water that are determined to be scour critical or have unknown foundations. See Item B.AP.04 for additional requirements for scour POA's.

HDSO will record if the bridge has a POA or does not have a POA. If the bridge is marked as "Needs POA" then it has been determined one is required and would be in development by SCDOT.

Scour POA Category

Format	Frequency	FHWA NBIS Item ID	Item Ownership
AN (1)	I	SC.HD.07	HDSO
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
HDSO & Scour POA	HDSO Scour Coding	Bridge	SC_POACATEGORY2

FHWA Specification and SCDOT Markups

Code	Description
N/A or None	
A	Category A
B	Category B
C	Category C

Do not report this item if the bridge does not cross over a waterway or floodplain as indicated in Item B.F.01 (*Feature Type*).

FHWA Commentary and SCDOT Markups

POA Category A is for bridges that are vital to the transportation network.

POA Category B is for bridges that have moderate to high fragility (vulnerability to failure due to scour) and a lower consequence of failure compared to Category A bridges. Bridges with unknown foundations in the Piedmont are typically coded Category B.

Category C is for bridges with the risk and economic significance in the event of closure or failure is less than for Category A and B bridges. Bridges with unknown foundations on the coastal plain are typically coded Category C.

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Section 2: Bridge Material and Type
Section 3: Bridge Geometry
Section 4: Features
Section 5: Loads, Rating, and Posting
Section 6: Inspections
Section 7: Bridge Condition
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Subsection 8.1 Identification
Subsection 8.2 Location
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Subsection 8.5 Features & Routes
Subsection 8.6 Highways
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Subsection 8.9 Inspection Procedures
Subsection 8.10 Appraisal
Subsection 8.11 HDSO
SC.HD.01 Scour Risk Bin
SC.HD.02 Monitoring/Scour Risk Bin
SC.HD.03 Low Chord Elevation
SC.HD.04 Low Chord Data Source
SC.HD.05 Contextual Risk Type
SC.HD.06 Scour POA Required
SC.HD.07 Scour POA Category
SC.HD.08 Scour Critical Piedmont
Appendix S1: Component Condition
Appendix S2: Timber Element and Defect
Appendix S3: Element Coding
Appendix S4: Weathering Steel Condition
Appendix S5: Scour Condition Coding
Appendix S6: Damage Defect Coding

Scour Critical Piedmont Bridge

Format	Frequency	FHWA NBIS Item ID	Item Ownership
AN (1)	I	SC.HD.08	HDSO
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
HDSO & Scour POA	HDSO Scour Coding	Bridge	SC_SCOURCRIT_PIEDMONT

FHWA Specification and SCDOT Markups	FHWA Commentary and SCDOT Markups
Bridges in the Piedmont region with unknown foundations can be coded as scour critical because of the presumed presence of rock layer for the piles to be driven to during construction. Do not report this item if the bridge does not cross over a waterway or floodplain as indicated in Item B.F.01 (*Feature Type*).	Though bridge plans or pile logs may not be available, SCDOT had determined that piles on bridges in the Piedmont are typically driven to a high rock layer. Instead of coding the foundations as unknown, they are marked as scour critical.

Section 1: Bridge Identification
Section 2: Bridge Material and Type
Section 3: Bridge Geometry
Section 4: Features
Section 5: Loads, Rating, and Posting
Section 6: Inspections
Section 7: Bridge Condition
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Appendix S1: Component Condition
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Appendix S3: Element Coding
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Appendix S5: Scour Condition Coding
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Appendix S1: Component Condition Rating Guidance

Format	Frequency	Item ID Number	Item Ownership
N/A	N/A	N/A	N/A
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
N/A	*N/A*	*N/A*	*N/A*

Appendix S1 is SCDOT Supplemental Guidance to existing guidance in the SNBI. This Appendix can be used by inspector to assist with the coding of Component Condition Ratings (CCR). Table 20 from the SNBI is presented in this Appendix S1 as Table S3 (Expanded SNBI with SCDOT Commentary).

The Bridge Inspection Team Leader is ultimately responsible for the coding of the Component Condition Ratings used during each inspection event. There are three items listed below that might assist with the Team Leaders's interpretation of policy. They are encouraged to contact the Bridge Inspection Quality Engineer for assistance.

Defect Interpretation and Potential Agency Flexibility:

1. "**Strength**… of the component is affected" or "Major" or "4-Poor". Defects that affect strength are those of type, location, severity, and extent that reduce component load capacity below a threshold that affects how the bridge is managed e.g., change in posting status, desired notification from inspectors to load raters to initiate a rerating, common or known failure mechanisms in the agency, or below a rating factor threshold that affects special or routine permit routes.
2. "**Performance**… of the component is affected" or 4-Poor. Defects that affect performance are those of type, location, severity, and extent that affect shoulder or lane closures, traffic safety, substructure or culvert stability, or serviceability. They may include defects caused by exceedance or tolerable limits (e.g., bearing alignment, scour, relative settlement of substructure units, etc.), cracking (e.g., fatigue cracking that does not affect component strength, plastic deformation, deflection, settlement, concrete cracking, etc.), or defects that present a public safety risk (e.g., significant potholing, deep deck rutting, loose concrete at risk of causing injury or damage, fatigue cracking, excessive deck joint opening, or settlement). These example are not all-inclusive.
3. "**Location**". Defects located in high-stress zones of primary members will affect the condition rating. Defects in low-stress zones or secondary members will not always affect the component condition rating.

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N/A	N/A	N/A	N/A
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
N/A	*N/A*	*N/A*	*N/A*

Defect Severity Guidance Tables	*Applicable Component Condition Rating SNBI Items*												
	B.C.01 (Deck)	*B.C.02 (Superstructure)*	*B.C.03 (Substructure)*	*B.C.04 (Culvert)*	*B.C.05 (Bridge Railing)*	*B.C.06 (Railing Transition)*	*B.C.07 (Bearings)*	*B.C.08 (Joints)*	*B.C.09 (Channel)*	*B.C.10 (Channel Protection)*	*B.C.11 (Scour)*	*B.C.14 (NSTM)*	*B.C.15 (Underwater)*
Table S1. Severities	X	X	X	X	X	X	X	X	X	X	X	X	X
Table S2. Extents	X	X	X	X	X	X	X	X	X	X	X	X	X
Table S3. Expanded Table 20	X	X	X	X	X	X	X					X	X
Table 46. All Materials	X	X	X	X	X	X				X	X	X	X
Table 47. Concrete	X	X	X	X	X	X							X
Table 48. Steel	X	X	X	X	X	X						X	X
Table 49. Masonry	X	X	X	X	X	X							X
Table 50. Timber	X	X	X	X	X	X							X
Table 51. Other Materials	X	X	X	X	X	X							X
Table 52. Bearings							X						
Table 53. Bridge Joints								X					
Table 54. Channel									X				

Table S1: Defect Severity (SNBI Section 7.1 Definitions)

Severity	Description
Inherent *[CS1 – Good]*	Not indicative of damage or deterioration but is characteristic of the material or results from normal construction practices. *[Or no defects.]*

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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
N/A	*N/A*	*N/A*	*N/A*

Table S1: Defect Severity (SNBI Section 7.1 Definitions)

Severity	Description
Inherent *[CS1 – Good]*	Not indicative of damage or deterioration but is characteristic of the material or results from normal construction practices. *[Or no defects.]*
Minor *[CS2 – Fair]*	Damage or deterioration has initiated but is not yet considered significant.
Moderate *[CS3 – Poor]*	Damage or deterioration are significant but the strength and performance of the component are not affected
Major *[CS4 – Severe]*	Affects the strength and/or performance of the component, as determined by a structural and/or hydraulic review. For joints, bearings, railings, and railing transitions, defect prevents the component from functioning as intended.

Note: These Descriptions are not to be considered prescriptive but provide general ranges to compare Element Level data to the Condition Rating.

Table S2: Defect Extent (SNBI Section 7.1 Definitions)

Severity	Description
Isolated *[Less than 10%]*	Occurs in one or a few concentrated locations.
Some *[10% - 40%]*	Prevalence is more than isolated and less than widespread.
Widespread *[Greater than 40%]*	Present in many separate areas of or throughout the component.

Note: These Descriptions are not to be considered prescriptive but provide general ranges to compare Element Level data to the Condition Rating.

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BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
N/A	*N/A*	*N/A*	*N/A*

Table S3: Expanded SNBI Table 20 with SCDOT Commentary

SNBI Table 20		Defect Severity & Extent for Element Level Condition States				Description	
	Rating/Code (Condition)	Inherent (CS1)	Minor (CS2)	Moderate (CS3)	Major (CS4)	Strength and/or Performance	Other
NA	N (NOT APPLICABLE)	*Component does not exist.*					
Good	9 (EXCELLENT)	*Isolated < 10%*				*Not Affected*	*Only Applicable to structures not yet open to traffic.*
	8 (VERY GOOD)	*Some 10% - 40%*	*Isolated < 10%*			*Not Affected*	
	7 (GOOD)	*Widespread > 40%*	*Some 10% - 40%*			*Not Affected*	
Fair	6 (SATISFACTORY)		*Widespread > 40%*	*Isolated < 10%*		*Not Affected*	
	5 (FAIR)			*Some 10% - 40%*		*Not Affected*	
Poor	4 (POOR)			*Widespread > 40%*	*Isolated < 10%*	*Affected*	*Condition typically necessitates more frequent monitoring and/or new load rating. Repair Recommendation Submitted.*
	3 (SERIOUS)				*Isolated to Widespread 0% - 100%*	*Seriously Affected*	*Condition typically necessitates more frequent monitoring, load restrictions, and/or corrective actions. Critical Finding.*
	2 (CRITICAL)				*Isolated to Widespread 0% - 100%*	*Severely Compromised*	*Condition typically necessitates frequent monitoring, significant load restrictions, and/or corrective actions to keep the bridge open. Critical Finding.*
	1 (IMMINENT FAILURE)	*Bridge is closed to traffic due to component condition. Repair or rehabilitation may return the bridge to service.*					
	0 (FAILED)	*Bridge is closed due to component condition, and is beyond corrective action. Replacement is required to restore service.*					

Notes:
1. *The semi colon (;) reads as an "and" on the SNBI Tables in Section 7.*
2. *The table is applicable to Items B.C.01 to B.C.07, Item B.C.14, and Item B.C.15.*

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N/A	N/A	N/A	N/A
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
N/A	*N/A*	*N/A*	*N/A*

Table S46: All Materials - defect severity guidance for component condition ratings.

Defect	*Inherent*	Minor	Moderate	*Major*
Distortion	*None.*	Distortion that has been mitigated or does not require mitigation.	Distortion that requires mitigation but has not been addressed.	*The condition warrants a structural review to determine the effect on strength or serviceability of the element or bridge; OR a structural review has been completed and the defects impact strength or serviceability of the element or bridge.*
Settlement	*None.*	Exists within tolerable limits or arrested with no observed structural distress.	Exceeds tolerable limits.	
Scour	*None.*	Exists within tolerable limits established for the bridge.	Exceeds tolerable limits, but is less than the critical limits established for the bridge.	

The Settlement defect applies to substructure components, pipes, and other components that may be directly affected by settlement. Superstructure and deck components that indirectly show the effects of settlement are evaluated by the resulting defects. Tolerable settlement can be considered as uniform or differential settlement that is not causing other bridge defects or increased impact on the bridge.

The critical limit for scour is the scour depth at which the bridge becomes unstable.

Appendix S1: Component Condition Rating Guidance

Format	Frequency	Item ID Number	Item Ownership
N/A	N/A	N/A	N/A
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
N/A	*N/A*	*N/A*	*N/A*

Table S47: Concrete - defect severity guidance for component condition ratings.

Defect	*Inherent*	Minor	Moderate	*Major*
Delamination, Spalling, Patched Area	*None.*	Delamination, small spall, or patched area that is sound.	Large spall or patched area that is unsound or showing distress.	*The condition warrants a structural review to determine the effect on strength or serviceability of the element or bridge; OR a structural review has been completed and the defects impact strength or serviceability of the element or bridge.*
Exposed Rebar	*None.*	Present without measurable section loss.	Present with measurable section loss.	
Exposed Prestressing	*None.*	Present without section loss.	Present with section loss.	
Cracking	*Insignificant cracks or moderate-width cracks that have been sealed.*	Unsealed medium width cracks or unsealed medium pattern (map) cracking.	Wide cracks or heavy pattern (map) cracking.	
Abrasion, Wear, Scaling	*No abrasion or wearing.*	Exposed coarse aggregate, but the aggregate remains secure in the concrete.	Coarse aggregate is loose or has popped out of the concrete matrix.	
Efflorescence, Rust Staining	*None.*	Surface white or leaching with little or no build-up. No rust staining present.	Rust staining or heavy build-up of efflorescence.	

The concrete crack defect description definitions describe generalized distress, but the width, spacing, location, orientation, and structural or non-structural nature of the cracking should also be considered.

In general, cracks can be considered:

- Insignificant – crack width less than 0.004 inches (prestressed) or 0.012 inches (reinforced), or medium width cracks that have been sealed.
- Medium – crack width ranging from 0.004 – 0.009 inches (prestressed) or 0.012 to 0.05 inches (reinforced).
- Wide – crack width wider than 0.009 inches (prestressed) or 0.05 inches (reinforced).
- Medium pattern (map) – crack spacing of 1 ft. to 3 ft.
- Heavy pattern (map) – crack spacing less than 1 ft.

Table S47: Concrete - defect severity guidance for component condition ratings (continued)

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Format	Frequency	Item ID Number	Item Ownership
N/A	N/A	N/A	N/A
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
N/A	*N/A*	*N/A*	*N/A*

In general, spall size can be considered:

- Small spall - 1 inch or less deep or 6 inches or less in diameter.
- Large spall - greater than 1 inch deep or greater than 6 inches in diameter.

The rust staining defect applies only to reinforcing steel.

Table S48: Steel - defect severity guidance for component condition ratings.

Defect	*Inherent*	Minor	Moderate	*Major*
Corrosion	*None.*	Freckled rust; corrosion has initiated.	Section loss is evident *[or pack rust is present but does not warrant structural review.]*	*The condition warrants a structural review to determine the effect on strength or serviceability of the element or bridge; OR a structural review has been completed and the defects impact strength or serviceability of the element or bridge.*
Cracking	*None.*	Crack that has been effectively arrested	Crack that has not been arrested *but does not warrant structural review.]*	
Connection	*Connection is in place and functioning as intended.*	Loose fasteners, or pack rust without distortion; connection is in place and functioning as intended	Missing bolts, rivets, or fasteners; broken welds; or pack rust with distortion	

A well-formed patina on weathering steel is considered a protective coating and is not considered a defect.

The Connection defect applies to any members of a component that are fastened by bolts, rivets, or welds.

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Format	Frequency	Item ID Number	Item Ownership
N/A	N/A	N/A	N/A
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
N/A	*N/A*	*N/A*	*N/A*

Table S49: Masonry - defect severity guidance for component condition ratings.

Defect	*Inherent*	Minor	Moderate	*Major*
Efflorescence, Rust Staining	*None.*	Surface white or leaching with little or no build-up. No rust staining present.	Rust staining or heavy build-up of efflorescence.	*The condition warrants a structural review to determine the effect on strength or serviceability of the element or bridge; OR a structural review has been completed and the defects impact strength or serviceability of the element or bridge.*
Mortar Breakdown	*None.*	Crack that has been effectively arrested	Full depth voids.	
Splits, Spalls	*None.*	Block or stone has split or spalled with no shifting.	Block or stone has split or spalled with shifting.	
Patched Area	*None.*	Sound patch.	Unsound patch.	
Displacement	*None.*	Block or stone has shifted slightly out of alignment.	Block or stone has shifted significantly out of alignment or is missing.	

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Format	Frequency	Item ID Number	Item Ownership
N/A	N/A	N/A	N/A
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
N/A	*N/A*	*N/A*	*N/A*

Table S50: Timber - defect severity guidance for component condition ratings.

Defect	*Inherent*	Minor	Moderate	*Major*
Cracking	*None.*	Crack that has been effectively arrested	Crack that has not been arrested	*The condition warrants a structural review to determine the effect on strength or serviceability of the element or bridge; OR a structural review has been completed and the defects impact strength or serviceability of the element or bridge.*
Connection	*Connection is in place and functioning as intended.*	Loose fasteners, or pack rust without distortion; connection is in place and functioning as intended	Missing bolts, rivets, or fasteners; broken welds; or pack rust with distortion	
Decay, Section Loss	*None.*	Affects up to 10% of the member section	Affects 10% to 50% of the member section	
Checks, Shakes	*Surface penetration less than 5% of the member thickness regardless of location.*	Penetrates 5% to 50% of the thickness of the member; not in a high stress zone	Penetrates more than 50% of the member thickness and length equal to or greater than the member depth, or penetrates more than 5% of the member thickness in a high-stress zone	
Splits, Delamination	*None.*	Length less than the member depth or arrested with effective actions taken to mitigate	Length equal to or greater than the member depth	
Abrasion, Wear	*None or no measurable section loss.*	Affects up to 10% of the member section	Affects more than 10% of the member section	

In general, checks and shakes can be considered insignificant when there is surface penetration less than 5% of the member thickness regardless of location.

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Format	Frequency	Item ID Number	Item Ownership
N/A	N/A	N/A	N/A
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
N/A	*N/A*	*N/A*	*N/A*

Table S51: Other Materials - defect severity guidance for component condition ratings.

Defect	*Inherent*	Minor	Moderate	*Major*
Deterioration	*None.*	Breakdown or deterioration has initiated.	Significant deterioration or breakdown.	*The condition warrants a structural review to determine the effect on strength or serviceability of the element or bridge; OR a structural review has been completed and the defects impact strength or serviceability of the element or bridge.*

For "Other Materials" the deterioration defect or other applicable defects shown within this table may apply. "Other Materials" include FRP, iron, aluminum, or materials other than concrete, steel, timber, or masonry. The "Other" category can also be considered when FRP is used as a repair material and is the predominant material type visible for inspection.

The following types of deterioration are common for FRP members:

- Blistering, discoloration, or wrinkling (Deterioration)
- Delaminations or voids (Delamination)
- Fiber exposure (Spall or Cracking)
- Scratches or cracks (Cracking)
- Creep or shrinkage (Distortion)

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N/A	N/A	N/A	N/A
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
N/A	*N/A*	*N/A*	*N/A*

Table S52: Bearings - defect severity guidance for component condition ratings.

Defect	*Inherent*	Minor	Moderate	*Major*
Movement	*Free to move.*	Minor restriction	Restricted	*The condition warrants a structural review to determine the effect on strength or serviceability of the element or bridge; OR a structural review has been completed and the defects impact strength or serviceability of the element or bridge.*
Alignment	*Lateral and vertical alignment is as expected for the temperature conditions.*	Lateral or vertical alignment that is inconsistent with temperature conditions, but is tolerable	Approaching limits of lateral or vertical alignment of bearing	
Bulging, Splitting, Tearing	*None.*	Bulging less than 15% of bearing thickness	Bulging 15% or more of bearing thickness; splitting or tearing; bearing's surfaces are not parallel	
Loss of Bearing Area	*None.*	Up to 10%	More than 10%	
Corrosion	*None.*	Freckled rust; corrosion *[of the steel]* has initiated.	Section loss is evident *[or pack rust is present but does not warrant structural review.]*	
Connection	*Connection is in place and functioning as intended.*	Loose fasteners, or pack rust without distortion; connection is in place and functioning as intended	Missing bolts, rivets, or fasteners; broken welds; or pack rust with distortion	

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N/A	N/A	N/A	N/A
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
N/A	*N/A*	*N/A*	*N/A*

Table S53: Bridge Joints - defect severity guidance for component condition ratings.

Defect	*Inherent*	Minor	Moderate	Major
Leakage	*None.*	Minimal. Minor dripping through the joint.	Moderate. More than a drip and less than free flow of water.	Free flow of water through the joint.
Seal Adhesion	*None.*	Adhered for more than 50% of the joint height.	Adhered 50% or less of joint height but still some adhesion.	Complete loss of adhesion.
Seal Cracking	*None.*	Surface crack.	Crack that partially penetrates the seal.	Crack that fully penetrates the seal.
Seal Damage	*None.*	Seal abrasion without punctures.	Punctured, torn, or partially pulled out.	Punctured completely through, pulled out, or missing.
Debris Impaction	*None.*	Partially filled with hardpacked material, but still allowing free movement.	Completely filled; impacts joint movement.	Completely filled; prevents joint movement.
Adjacent Deck or Header	*None.*	Edge delamination or spall 1” or less deep or 6” or less in diameter. No exposed rebar. Patched area that is sound.	Spall greater than 1” deep or greater than 6” diameter. Exposed rebar. Delamination or unsound patched area that makes the joint loose.	Spall, delamination, unsound patched area, or loose joint anchor that prevents the joint from functioning as intended.
Metal Deterioration or Damage	*None.*	Freckled rust. Metal has no cracks or impact damage. Connection may be loose but functioning as intended.	Section loss, missing or broken fasteners, cracking of the metal, or impact damage. Joint still functioning.	Section loss, cracking of the metal, damage, or connection failure that prevents the joint from functioning as intended.

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N/A	N/A	N/A	N/A
BrM Page	**BrM Group Box**	**BrM Database Table**	**BrM Database Column**
N/A	*N/A*	*N/A*	*N/A*

Table S54: Channel - defect severity guidance for component condition ratings.

Defect	*Inherent*	Minor	Moderate	Major
Alignment	*Flow angle of attack less than 15 degrees with respect to the bridge substructure, or 5 degrees with respect to wall piers.*	Flow angle of attack 15-30 degrees with respect to the bridge substructure, or 5-15 degrees with respect to wall piers	Flow angle of attack 30-45 degrees with respect to the bridge substructure, or 15-30 degrees with respect to wall piers	Flow angle of attack more than 45 degrees with respect to the bridge substructure, or more than 30 degrees with respect to wall piers
Migration	*None.*	Thalweg has moved from its baseline location, but movement has arrested or does not threaten the bridge or approach roadway	Thalweg movement has not arrested and impacts embankment stability	Thalweg movement has begun to undermine approach roadway
Degradation	*None.*	Exists within tolerable limits or has arrested	Sloughing of banks, resulting in vertical embankments on both sides of the channel; bridge is not yet impacted	Sloughing of banks, resulting in vertical embankments on both sides of the channel; bridge is impacted
Aggradation	*None.*	Exists within tolerable limits or has arrested	Exceeds tolerable limits; hydraulic opening is significantly blocked, increasing potential for overtopping or channel restriction	Hydraulic opening is mostly blocked, may cause frequent overtopping or channel restriction
Debris	*No debris, or minimal debris that does not restrict the channel.*	Restricts channel slightly, or is prone to build-up	Large deposits exist and restrict the channel, causing increased water velocities, redirecting stream flow, or eroding banks	Hydraulic opening is mostly blocked, significantly redirecting stream flow or impacting waterway capacity
Bank Erosion / Instability	*None.*	Erosion / instability that does not impact the bridge or approach roadway	Significant erosion / instability that is progressing toward the bridge or approach roadway	Stability of the approach roadway embankment is impacted

APPENDIX S2: TIMBER ELEMENT AND DEFECT GUIDANCE

Appendix Title

Timber Element and Defect Guidance

Appendix Revision and Year

Version 1.0, 2025

Appendix Introduction and Discussion

The purpose of this guidance is to help promote understanding of materials, inspection techniques, tools, and best practices for inspecting timber bridges. The purpose is also to provide clear guidance and best practices for selecting the correct timber pile element based on any repairs and the condition state that should be applied, once selected.

Appendix Description

This guidance can apply to timber decks and superstructures, but it is generally intended for timber piles where most defects are found on bridges in South Carolina. See BIGD Chapter 6 for inspection guidance for timber substructures.

The information presented in this Appendix is not meant to replace, but rather to supplement the guidance, procedures, and protocols specified in the BIGD. In the event of a conflict, this Appendix shall supersede previous guidance and be considered the updated SCDOT timber pile inspection guidance.

1.0 Overview

Wood is a natural engineering material that is prone to deterioration caused by decay, fungi, insect attack, and through mechanical damage. Mechanical damage might include broken or damaged wood members or mechanical fasteners. This results in localized deterioration, such as areas of high moisture content, decay of pile caps, and piles. The application of a preservative treatment may enhance the durability of timber bridge components.

2.0 Typical Timber Defects

2.1 Decay

It is important to assess the presence of decay to determine the actual cross-section and location of both sound and deteriorated material. Decay or other deterioration in timber substructures can potentially control the load rating of the bridge. Because of the variability of timber substructures, such as cap dimensions, pile diameter, and pile spacing, decay or other deterioration can have a large impact on the capacity of the bridge. Other items to consider are whether it occurs in an exterior or interior pile, the pile cap, or any combination therein. Special attention should be focused on any steel connections (such as through bolts for cross bracing connections) and looking for evidence of decay in timber adjacent to the connections.



Figure S2.1 - Failed timber pile due to internal decay at a cross-frame through bolt.

2.2 Fruiting Bodies

Although they do not indicate the amount or extent of decay, fruiting bodies provide a positive indication of fungal attack. Some fungi produce fruiting bodies after small amounts of decay have occurred while others develop only after decay is extensive. The presence of fruiting bodies indicates the possibility of a serious decay problem and that the member has a high moisture content. If the BITL requires moisture content testing, it can be requested as an in-depth inspection.



Figure S2.2 - Fruiting body on the surface and visual evidence of decay.

2.3 Sunken Faces of Localized Collapse

Sunken faces or localized surface depressions can indicate underlying decay. Decay voids or pockets may develop close to the surface of the member, leaving a relatively thin, depressed layer of intact or partially intact wood at the surface. Crushed wood can also be an indicator of decay.



Figure S2.3 - Localized collapse of a timber bent cap.

2.4 Staining or Discoloration

Staining or discoloration indicates that the wood has been subjected to water and potentially has high moisture content, making it susceptible to decay. Rust stains from connection hardware are also an indication of areas of moisture exposure.



Figure S2.4 - Water staining and discoloration caused by water that infiltrated through the deck.

2.5 Insect or Animal Activity

Insect activity is often identified by the presence of holes and frass. For wood boring insects like carpenter bees, powderpost beetles, and carpenter ants, frass is defined as the mix of insect excrement and excavated wood material from timber members where they are active. The presence of insects may also indicate decay, as they often create tunnels and nests in decay cavities. Deposit sawdust in gallery openings, trapping moisture and increasing the rate of decay. In addition to insects, birds often nest under bridge decks, where the nests may trap moisture against a timber element and potentially increase the moisture content, resulting in localized decay.

2.6 Plant or Moss Growth

Plant or moss growth in splits and cracks, or soil accumulation on the structure, indicates that adjacent wood has been at a relatively high moisture content for a sustained period and may be susceptible to the growth of decay.

2.7 Shakes, Checks, and Splits

Timber members are susceptible to drying and weathering, which often result in surface and deep surface checks, ring shake, end checks, and through splits. Checks and splits in members can indicate a weakened member and create an entry for moisture to enter the element. If a check or split develops to a sufficient depth, the inner untreated wood is susceptible to moisture and decay. This will create conditions that can result in severe decay and premature deterioration of a timber bridge element.



Figure S2.5 - Timber members showing various types of deterioration. Top left shows ring shake. Top right shows severe through split. Bottom left shows long horizontal split (opportunity for moisture to enter the cap). Bottom right is checking in the top of the pile at the concrete cap.

2.8 Weathering or Impact Damage

Frequently, weathering and aging of bridge elements has an impact on the performance and durability of materials, like bituminous or other wearing courses. Deterioration and cracking frequently occur above timber end bents where the approach roadway meets the bridge panels, which are supported by the end bent.

Other natural weathering damage occurs to timber piles exposed to water and materials flowing down the river or stream. This can affect the structural performance both through loss of cross-section and the removal of the preservative treatment.

Additional damage can be caused by impact from vehicle or boat traffic. Flotsam such as trees and logs can also damage substructures during high flow rates associated with heavy rain events or seasons.



Figure S2.6 - Shell damage to timber piling at or near the water line and at the pile cap, often caused by construction damage (left photo) or debris floating down the waterway (right photo).

2.9 Miscellaneous Conditions

During inspections of timber bridge elements, there are other conditions that need to be further explored using the full combination of inspection and assessment techniques. These conditions can include the rotation or misalignment of timber bents caused by the loss of fill behind the backwall or by some other mechanism. A second significant condition is the build-up of road materials like gravel or sand that hold moisture in contact with structural timber elements.



Figure S2.7 - Severe misalignment of the timber pile and cap.

3.0 Resistance Drilling

The resistance drill was originally developed in the 1980s for use by arborists and tree care professionals to assess tree rings, evaluate the condition of trees and locate voids and decay. This technology is now being utilized to identify and quantify decay, voids, and termite galleries in wood beams, columns, poles, and piles. This technique is now the preferred drilling and coring technique for timber elements.

The resistance drill equipment measures the resistance of wood members to a drill bit that passes through them. This drill bit travels through the member at a defined movement rate and generates information that allows an inspector to determine the exact location and extent of the damaged area. While the unit is usually drilled into a member in a perpendicular direction to the surface, it is also possible to drill into members at an angle.

Resistance drills collect the data electronically or produce a printout showing the relative resistance over its drilling path.

3.1 Drill Settings

Areas of sound wood have varying levels of resistance depending on the density of the species (hardwood vs. softwood) and voids show no resistance. The BITL shall confirm that the resistance drill used for bridge inspections is appropriate for the drilling required. Most timber substructures consist of southern yellow pine that has been treated.

Inspectors are to start with manufacturer's recommended standards, then use other settings as needed for refined analysis. The common feed speed with sharp drilling needs for southern pile should be approximately 59 inches per minute and the needle speed should be approximately 3,000 RPM. Inspectors are to look to achieve a maximum drilling amplitude between 30% and 60%. See the maximum drilling amplitude in Figure 8 that averages approximately at 30% and produces acceptable results. Maximum drilling amplitude is shown in Figure 9. Recommended settings for feed and speed are in Figure 8.

Most drill manufacturers offer support if troubleshooting. Inspectors shall also follow requirements for re-calibration, which may be annual.

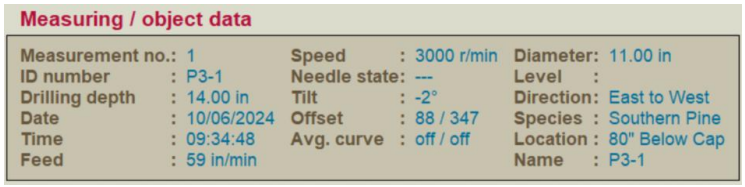


Figure S2.8 - Digital Resistance Drill Inputs (59 in/min and 3000 rpm).

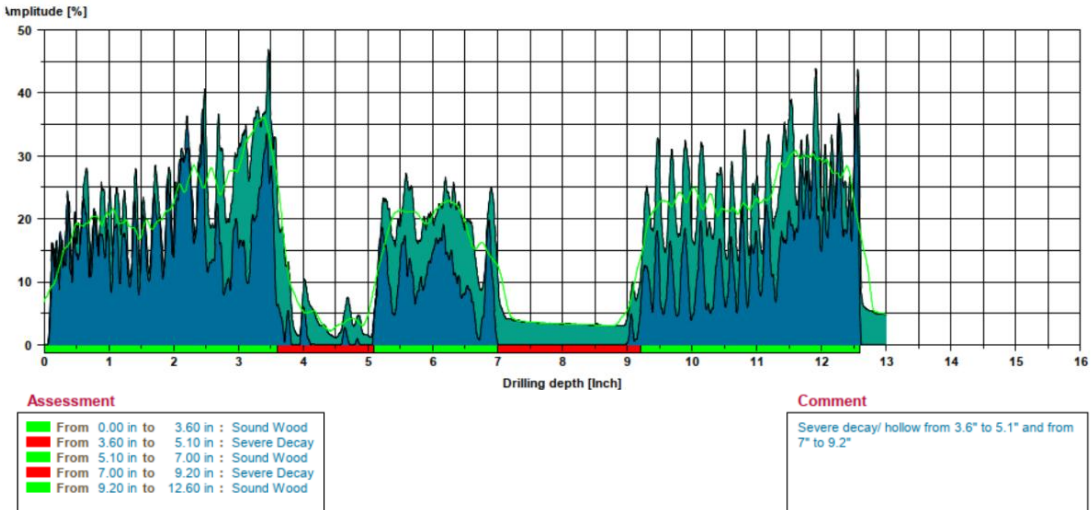


Figure S2.9 - Digital Resistance Drill Record with Average Maximum Drilling Amplitude of 30%.

3.2 Interpreting Resistance Drill Data Charts

Review of the drill data shall be conducted in the field and notes taken to ensure understanding of the testing location. It is recommended that notes be taken on a graphical data chart. Photos shall be taken of the core location on the timber member (general photo and close up photo) and of the charts or printouts as a form of backup. Care should be exercised to ensure that low profiles from intact but soft, low-density wood (such as conifers), not necessarily be misinterpreted as decay. It is also known that the very center of softwood species near the pith will have low resistance and lack the defined growth rings visible in the outer sections. Additionally, it is important to understand the type of wood that is being drilled. Sound wood from many hardwood species may have high levels of resistance over 50%, while sound wood from softwood conifers may have low levels of resistance in the range of 15-50+%, depending on its inherent density. It is important to evaluate the levels of decay across the full dimension, as some species have low resistance values, but are not decayed. Further, each piece of commercial equipment provides different scales and may have different resistance levels. Table S2.1 shows a general assessment rating index for southern pine that can provide support for the bridge inspector in evaluating the resistance data collected during testing.

Table S2.1 – General Assessment of Resistance Drilling Data (Southern Pine)

Drilling Resistance	Decay Level	Assumed Capacity	Comments
0%	Severe Decay	0%	Decay resulting in an internal void
5-15%	Moderate Decay	50%	Often adjacent to the internal void areas.
20+%	Sound Wood	100%	Sound material will have resistance that is consistent across the full width.

Note: This data must be carefully interpreted by the BITL since there are differences between commercial equipment.

When using resistance drilling to determine pile decay (or section loss from fire or damage), inspectors shall drill across the diameter of the pile and consider sound wood along with both moderate and severe decay when determining the percent remaining as illustrated in the formula below. Bridge inspectors should attempt to determine the minimum timber cross section area remaining as it will control condition coding and load rating. Measured area of decay can be used to determine the percent remaining in lieu of drilling, if determined appropriate by the BITL for defects that can be inspected visually.

$$Percent\ Remaining = \frac{(Length\ of\ Sound\ Wood\ \times 100\%) + (Length\ of\ Moderate\ Decay\ \times 50\%) + (Length\ of\ Severe\ Decay\ \times 0\%)}{Pile\ Diameter}$$

Figure S2.10 – Percent Remaining Formula for Timber Piles

Load rating engineers (per the LRGD) and other maintenance engineers may use a refined or cross section approach or engineering judgement to more accurately determine the remaining pile capacity when performing a load rating or determining the capacity of a timber member.

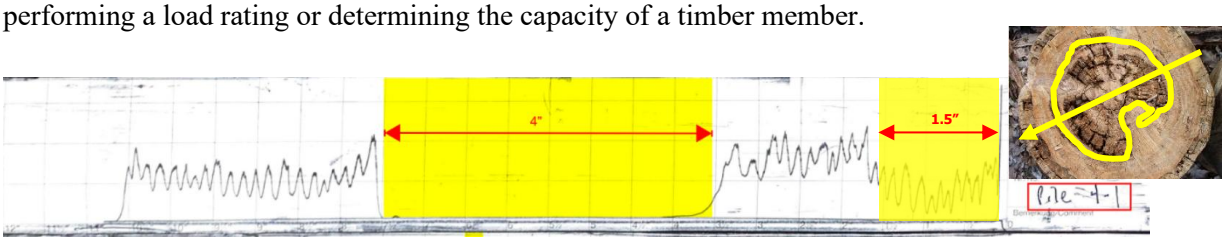


Figure S2.11 – Paper copy (quiver tool) view of a southern yellow pine timber piling.
Severe decay pocket between 3.5 and 7.5 inches and moderate decay pocket between 0 and 1.5 inches.

$$Percent\ Remaining = \frac{(10"\ \times 100\%) + (1.5"\times 50\%) + (4"\ \times 0\%)}{12"} = 60\%$$

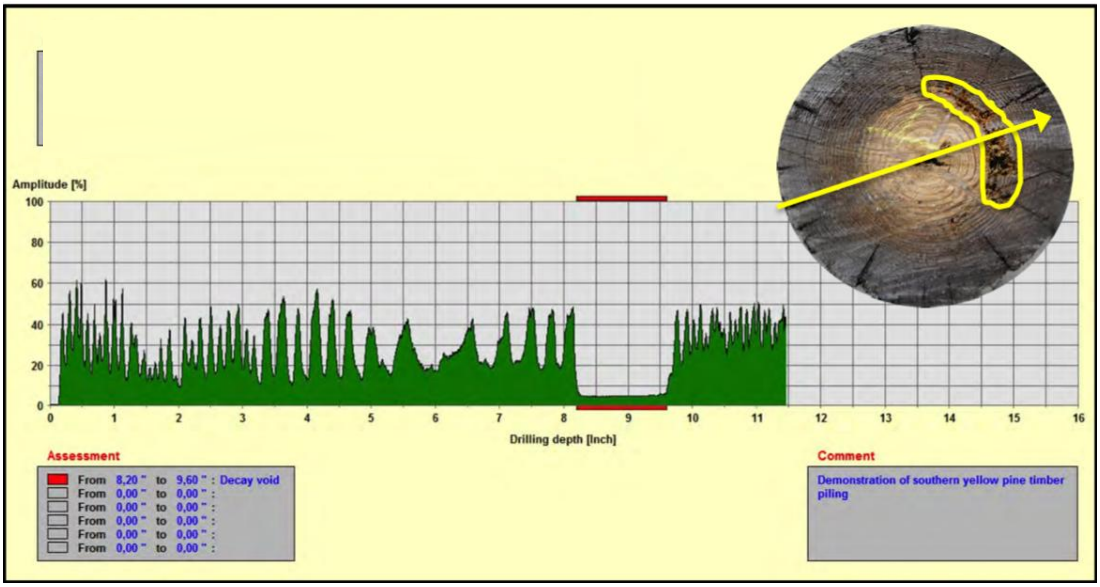


Figure S2.12 – Electronic view of a southern yellow pine timber piling.
Severe decay pocket between 8 and 10 inches.

$$Percent\ Remaining = \frac{(10" \times 100\%) + (0" \times 50\%) + (2" \times 0\%)}{12"} = 83\%$$

4.0 Decay on Timber Piles

The field determined decay shall be reported for each timber pile inspected. Unless the pile has been repaired, the minimum timber cross section area remaining shall be used to report decay as noted in the table below.

Table S2.2 – Decay Defect on Timber Piles.

Existing Repair or Repair Recommendations	*Only repair permitted in CS1 is a replaced pile.*	*Existing repair in sound condition.*	*Repairs are recommended **OR** Existing repair unsound.*	*Critical Finding **OR** Repairs are recommended.*
Defect	**Condition State 1**	**Condition State 2**	**Condition State 3**	**Condition State 4**
	GOOD	FAIR	POOR	SEVERE
Decay/Section Loss* (1140) – Piles	None.	91% to 100% Percent Remaining	50% to 90% Percent Remaining **OR** Structural Review (Load Rating and/or Hydraulic Analysis) Not Needed, Structure Review has determined capacity is not compromised.	< 50% Percent Remaining **OR** Structural Review (Load Rating and/or Hydraulic Analysis) Needed, or Structure Review has determined capacity is compromised.

*Per Section 5.2, common structural pile repairs (pile splices) likely have shortened lifespan and should be coded as CS2 for "1140 – Decay" at a minimum, even if decay is not currently present.

5.0 Repairs on Timber Piles

SCDOT requires the use of an Agency Defined Element (ADE) for most timber pile repairs. See the list in Section 7.2 of the SNBI Supplemental Guide. These Agency Defined Elements roll up to Element #228 (Timber Pile) when reported to FHWA.

5.1 Condition State 1

If the pile is under a crutch, it shall be coded as CS1, regardless of the condition of pile being crutched. Element #870 Timber Pile under defines timber piles which are in-place but there is a helper pile, crutch

beam, crutch bent, or other crutch support which is supporting the majority of the superstructure load. A load rating must accurately represent that the pile is abandoned. Element #870 is not reported to FHWA.

If a pile has been replaced or if a pile has received a repair equal to the original pile, then it shall be coded as CS1. This is rare. The repair should be a permanent fix, with capacity fully restored. An example of a CS1 repair is a structural jacket where the capacity of the pile has increased.

5.2 Condition State 2

If a pile has received a repair and if the inspector determines the pile repair is not considered equal to the original member and can be coded as fair, then it shall be coded as CS2. The repairs may include pile splices or stud-up repairs. While the capacity may have been improved or remained the same, its lifespan likely remains shortened. This is a common repair.

5.3 Condition State 3 or Condition State 4

If the repairs are poorly performed or the repair has its own defects (misalignment, corrosion, missing hardware, cracking, etc.), the pile shall be coded as CS3 or CS4 departing on the degree of deterioration. Repairs in CS3 or CS4 provide little benefit to the pile and may have short lifespans.

6.0 Cap Defects

Use only Defect #9003 (Pile at Cap Defect) for all defects in the top 6" or less of the piles. This includes piles out of alignment only in the top 6" or less that need shims, piles with bearing issues (i.e. pile is not cut flush with cap but still has bearing), piles with decay at the top, or piles with other defects. Defect #9003 may require repair recommendations, but no follow-up actions may not be needed these piles such as resistance drilling or a load rating unless determined by the BITL but should be considered if less than 20% bearing remaining. Load ratings may still be required at the discretion of the BITL. If repairs are not immediately practical and if the load capacity of the pile or the pile cap may be affected, a load rating may be required. Inspectors are encouraged to coordinate repairs with the bridge's load rater and owner.

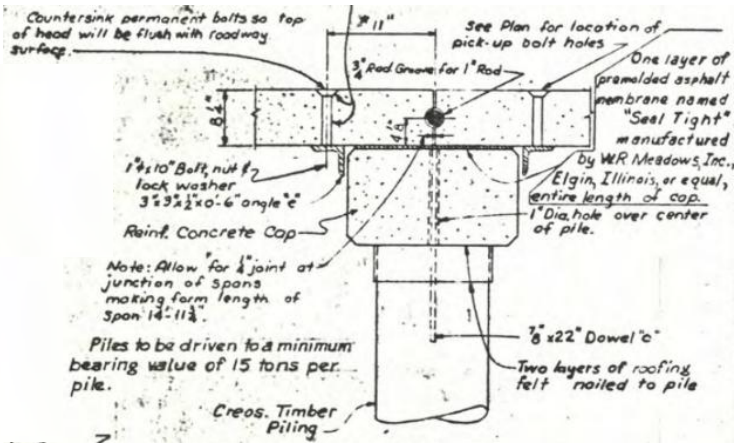


Figure S2.13 – Cross Section of Bent Cap at Pile Top.

7.0 Trimmed Piles

During construction, the top of some timber piles may be trimmed in the field. This process cuts around the perimeter of the top of the pile to accommodate the gravity hammer used for installation. A defect note is not needed where there has been trimming or shaving of the timber at the top of the piles.



Figure S2.14 – Trimmed Pile.

8.0 Piles with Footers

If sufficient bearing is not reached during pile driving or if pile driving is not practical due to shallow end bearing such as rock or weathered stone, some piles are cast in concrete footers at the groundline. These piles shall not be reported as spliced or stubbed.



Figure S2.15 – Timber Piles with Footers.

9.0 Pile Misalignment

If the pile is misaligned with the cap (parallel with the centerline of bridge), there may be additional load/demand on the bridge elements from the created additional eccentricity. Use of Defect 9001 (Pile Misalignment) in Condition State 4 (CS4) would require a load rating request such as the pile is no longer fully beneath the cap or if extreme eccentricity has been created. Defect 9001 should not be used for bearing related issues at the cap but misalignment along the full length of the pile.

APPENDIX S3: ELEMENT CODING SPECIFIC SITUATIONS

Appendix Title

Element Coding Specific Situations

Appendix Revision and Year

Version 1.0, 2025

Appendix Introduction and Discussion

This appendix provides guidance on coding bridge elements in special or non-standard inspection scenarios. It is intended to supplement the general element coding procedures by addressing unique conditions, complex assemblies, or atypical bridge configurations that may require additional clarification. Consistent application of these coding conventions ensures uniform data collection, supports accurate condition assessments, and facilitates effective maintenance and preservation decisions.

Appendix Description

The guidance outlines how to apply element codes when bridge components deviate from typical designs or exhibit unusual conditions. This includes coding for multi-component assemblies, variable materials, or elements affected by unique environmental or operational factors. Inspectors are instructed to reference the most specific applicable element code, note any deviations or special circumstances in the inspection narrative, and, when necessary, use multiple codes to fully capture the condition of complex or non-standard elements. Clear documentation ensures that these special situations are properly represented in the inspection database and considered in subsequent evaluation and maintenance planning.

1.0 Abutment with Abutment Element, Piles, and Lagging

Abutment elements on piles support the superstructure and transfer the load to the piles. Timber abutments do not include the timber piles or the lagging behind the piles. The two examples below are for a reinforced concrete abutment and a timber abutment. The abutments on both bridges are 28 feet long.



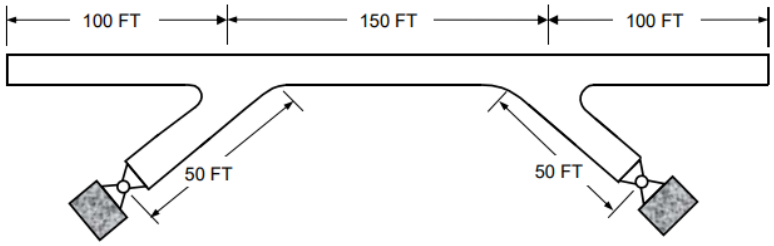
Reinforced Concrete Abutment (Element #215) = 28 LF
Timber Lagging at Abutment (Element #855) = 28 LF
Timber Pile (Element #228) = 5 EA



Timber Abutment (Element #216) = 28 LF
Timber Lagging at Abutment (Element #215) = 28 LF
Timber Pile (Element #228) = 8 EA

2.0 Steel Frame

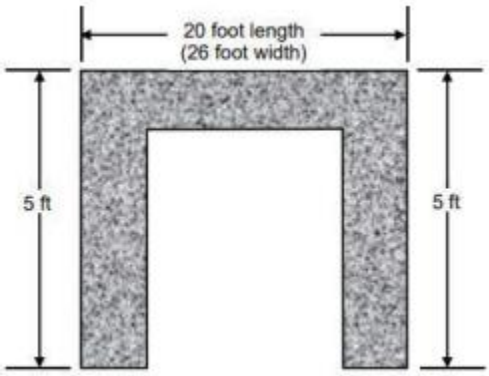
A steel frame shall be coded using Element 107 (Steel Open Girder/Beam). The legs of the steel frame in this example are included in the overall length of the element 'Steel Open Girder/Beam'. Any elements located above the bearings are part of the superstructure. The girder evaluation is three dimensional in nature with the defects observed on all exterior and interior (if visible) surfaces.



Steel Open Girder/ Beam (Element 107)
Quantity = 450LF (per girder line)

3.0 Concrete Frame

A concrete frame shall be coded using Element 38 (Reinforced Concrete Slab) and Element 215 (Reinforced Concrete Abutment). Concrete frames should be coded using the elements for reinforced concrete abutment and reinforced concrete slabs. The abutment is calculated in linear feet, and the slab is calculated in square feet. The quantity for abutment portion of the element is the sum of the width of the abutment with monolithic wingwalls, and abutments extensions measured along the skew angle. The slab evaluation is three dimensional in nature with the defects observed on the top surface, bottom surface, edges or all; and captured using the defined condition states. Slab top or bottom surfaces that are not visible for inspection shall be assessed based on the available visible surface. If both top and bottom surfaces are not visible, the condition shall be assessed based on destructive and nondestructive testing or indicators in the materials covering the surfaces. Both the severity and density of spalls, delaminations, or patched areas, severity and density of cracks and the existence of rust staining should be considered for the evaluation of the slab elements.

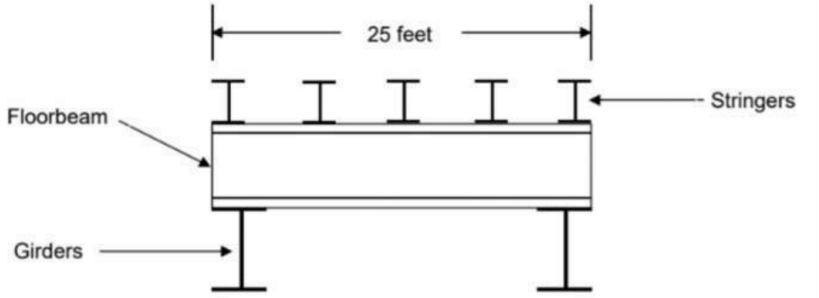


Reinforced Concrete Slab (Element 38)
Quantity = 20 FT x 26 FT = 520 SF

Reinforced Concrete Abutment (Element 215)
Quantity = 2 x 26 FT = 52 FT

4.0 Girders, Stringers, and Floor Beams

The figure below shows a two-girder bridge that is 50 feet long with three floorbeams that are 25 feet long each and five stringers.



Element #	Element Name	Quantity
107	Steel Open Girder/Beam	100 LF (2 x 50)
113	Steel Stringer	250 LF (5 x 50)
152	Steel Floor Beam	75 LF (3 x 25)

5.0 Trusses

Determining Quantities

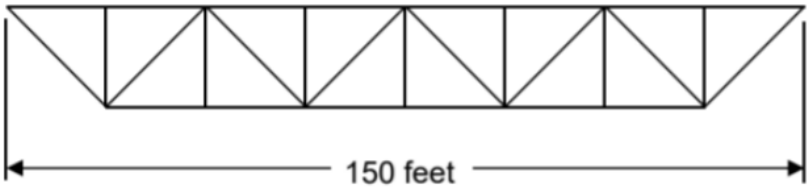
The superstructure of a truss bridge usually consists of two parallel trusses. The quantity is determined by calculating the combined length in linear feet of the parallel trusses. Diagonals, verticals, or cross bracing are not counted as additional quantities.

Total Length

The overall quantity is determined by the length of the bridge multiplied by the number of trusses in each span. See example below.

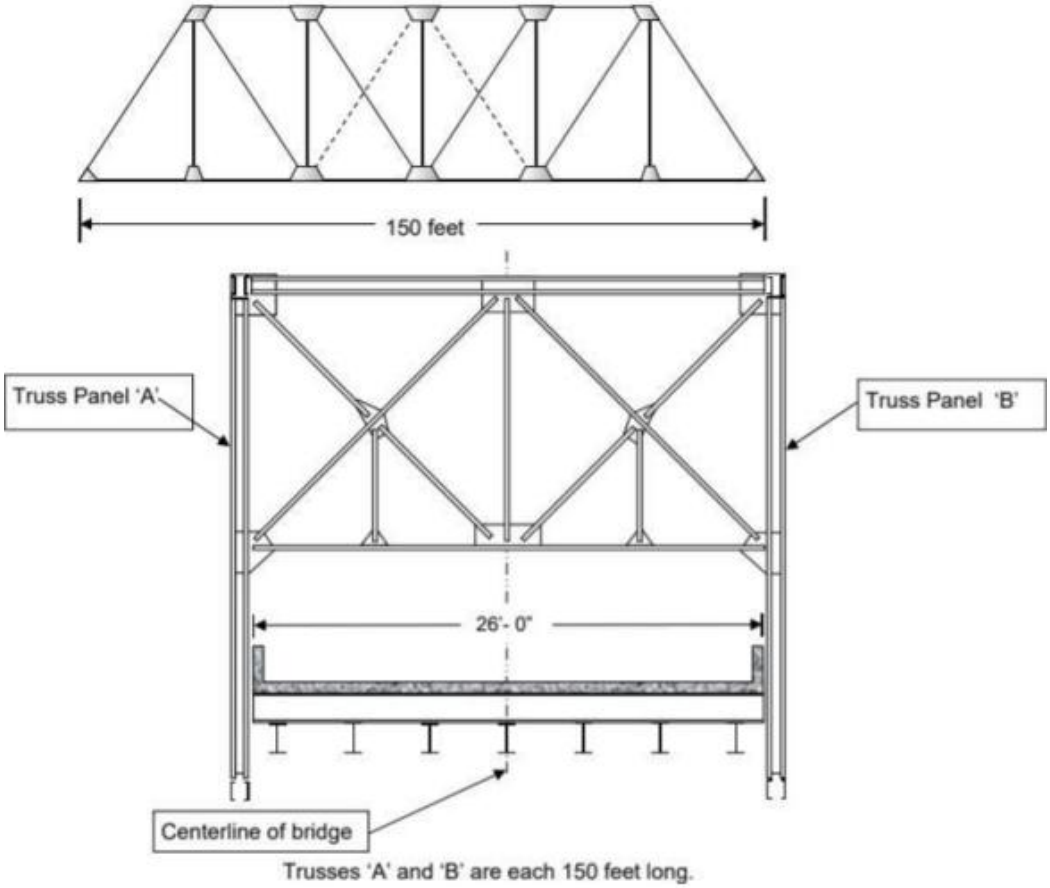
Deck Truss

Note: Both Through and Deck trusses are coded using the same Element depending on the material type. The following example is a steel deck truss. Also note the bottom chords are no longer a separate element for through trusses.



Element #	Element Name	Quantity
120	Steel Truss (Regardless of type and protective system/paint)	300 LF (2 x 150)

Through Truss (includes Pony Trusses)
The following example is for a steel through truss. Note the bottom chords are no longer a separate element for through trusses.



Trusses 'A' and 'B' are each 150 feet long.

Element #	Element Name	Quantity
12	Reinforced Concrete Deck	3900 LF (150 x 26)
113	Steel Stringer	1050 LF (7 x 150)
120	Steel Truss	300 LF (2 x 150)
162	Steel Gusset Plate	24 EA (2 x 12)
152	Steel Floorbeam	182 LF (7 x 26)

The length of the floor beam shown in this example is for illustration purposes only. The actual length of the floor beam should be measured in the field or determined from the plans. The above is not meant to signify all the Elements required for the structure above.

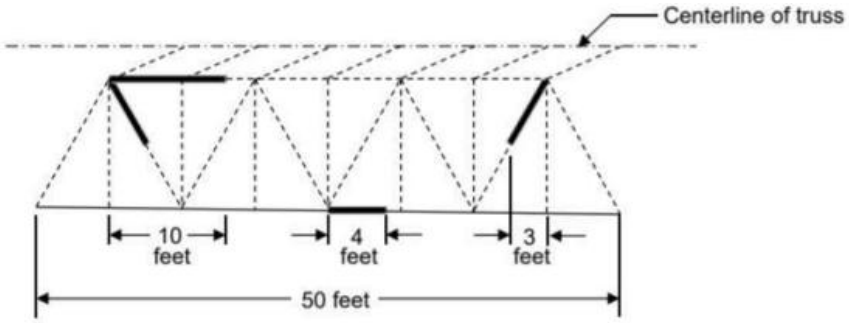
Deterioration
All deterioration is measured along the length of the bridge.

Diagonals
Deterioration of a diagonal member is measured along the length of the bridge and not along the diagonal. The quantity of a deteriorated section in diagonals and verticals that overlap deteriorated section(s) in other parts of the truss should not be double-counted. See example below.

Portals/Bracing
The quantities of deterioration of portals/bracing should be counted with the truss element. The quantity of a deteriorated section in portals/bracing that overlaps a deteriorated section(s) in other parts of the

truss, with which it has been associated, should not be double-counted. The darkened areas in the sketch below indicate areas of deterioration on a member.

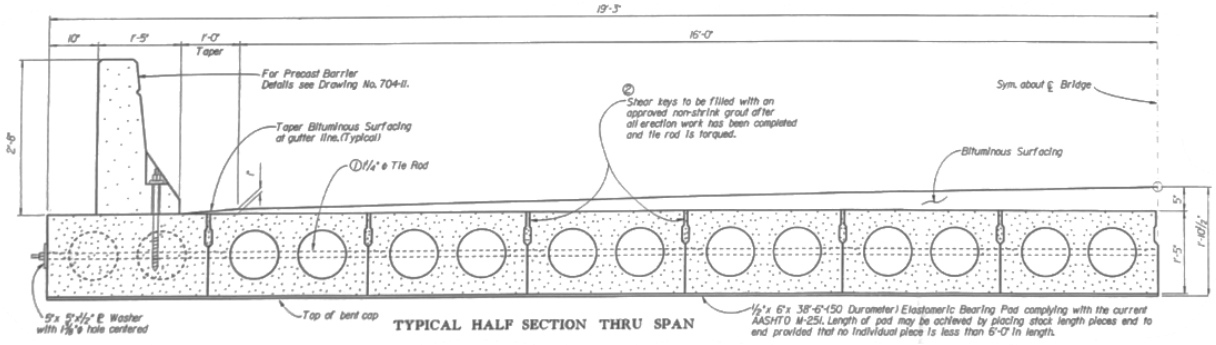
Through Truss (includes Pony Trusses)
The following example is a steel through truss. Quantities of deterioration should include both the left and right side trusses. Note that the deterioration should be measured along the horizontal projection. The severity of the deterioration is indicated by using the appropriate condition state. The quantities listed are the deteriorated portions of the truss.



Element #	Element Name	Quantity	Deterioration
120	Steel Truss	100 LF (2 x 50)	17 LF (10 + 4 + 3)

6.0 Adjacent Hollow Core Slabs

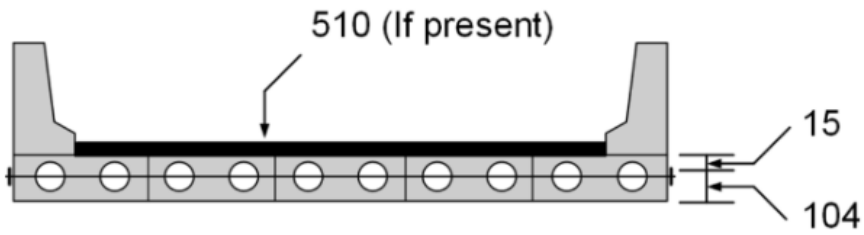
Element 104 should be used for voided and unvoided box girders/beams, this includes SCDOT's Hollow Core Slab bridges. See the screenshot below from the SCDOT standard plans. Element 39 (Precast Slab) shall not be used.



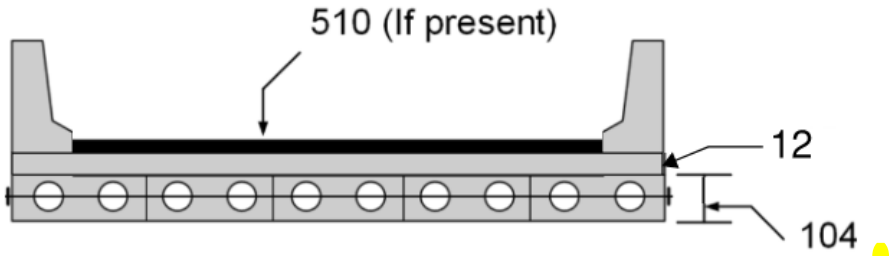
When determining the top flange or deck element, the following determination shall be used.

- When a reinforced concrete deck is present on top of the precast box girders/beams, Element 12 (RC Deck) shall be used.
- When a deck is not present on top of the precast box girders/beams, Element 15 (Prestressed Top Flange) shall be used when the traffic is carried on the precast members.

Regardless of Element 12 or Element 15, the bridge maintenance element of Wearing Surface (Element 515) can be applied if an asphalt wearing surface is present.



- Element 104 - Prestressed Concrete Closed Web/Box Girder (LF)
- Element 15 - Prestressed Top Flange (SF)
- Element 510 - Wearing Surface (if present) (SF)



- Element 104 - Prestressed Concrete Closed Web/Box Girder (LF)
- Element 12 – Reinforced Concrete Deck (SF)
- Element 510 - Wearing Surface (if present) (SF)

APPENDIX S4: WEATHERING STEEL CONDITION GUIDE

Appendix Title

Weathering Steel Condition Guide

Appendix Revision and Year

Version 1.0, 2025

Appendix Introduction and Discussion

Properly performing steel protective coatings shall be free of chalking, pitting, rust, or rust staining. The overall steel protective condition shall be assessed based on the condition of the majority of the surface, not just localized areas of rusting. Some bridges in South Carolina contain weathering steel.

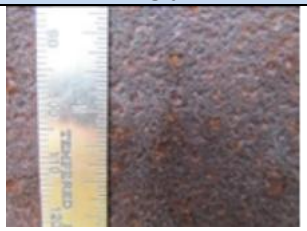
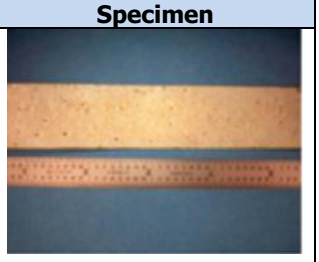
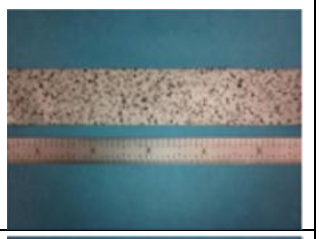
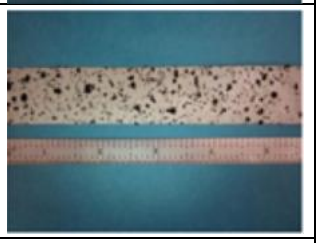
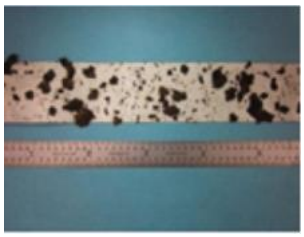
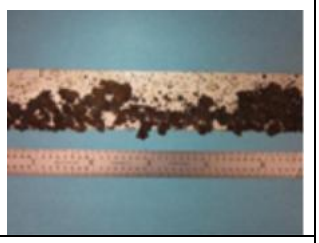
Appendix Description

This appendix provides detailed guidance on coding inspection findings specific to weathering steel elements. It defines the relevant condition states, explains how to distinguish acceptable patina from active corrosion, and outlines reporting requirements (e.g. limits on section loss, pattern of rust bleed, or differential aging). It also offers examples and best practices to help inspectors correctly document deterioration on weathering steel members, ensuring consistent data collection and reliable condition assessments across applicable bridges.

For weathering steel members, the typical oxide colors that can be expected for properly performing weathering steel include a yellow-orange color for new steel or a purple-brown color for members in service for many years. Weathering steel members exhibiting a black or yellow color could indicate a failed condition of the protective oxide and may show small flakes (approximately ¼ inch in diameter) or laminar sheets of loose oxide film. When inspectors are checking for section loss due to corrosion, the member shall be scraped to remove rust scale and the member thickness shall be measured to determine the section remaining. The overall condition of the weathering steel shall be rated according to the scale shown in Table S6.1.

The weathering steel patina rating shall be documented in the inspection report. An additional reference is *SSPC-VIS 2, Standard Method of Evaluating Degree of Rusting on Painted Steel Surface*. Any tape test strips shall be photographed and included in the documentation of the inspection.

Table S6.1 – Coding Guidance for Weathering Steel

Patina Condition	Condition Description	Example Condition in Field	Example Tape Test Specimen
GOOD Condition State 1 (CS1)	Uniform color pattern, generally dark brown with some lighter reddish-brown, metallic, and purple-brown tones. The surface may range from having few visible rust product clusters that are difficult to distinguish, to showing individual clusters that are more readily identifiable across the steel surface. Texture is dimpled or rough but uniform in pattern. The patina layer is thin, dense, and adherent, indicating good to very good protective properties. Tape testing may remove only very small flakes (<1 mm), reflecting superior adherence of the protective layer.	 	 
FAIR Condition State 2 (CS2)	Dark brown coloration but begins to show minor variation. 1-5 mm flakes loose on surface, easily removed with tape test. Underlying layer adherent, still relatively dense, thin and protective. Texture more granular and loose flakes may be less protective, holding water and salts.		
POOR Condition State 3 (CS3)	Dark brown coloration with some variation, including black or blotchy areas and occasional rusty or salty stains. Surface flakes range from minor (1–5 mm) to medium (5–25 mm) and are easily removed with a tape test. The underlying layer is generally denser and more adherent but may be increasingly granular, permeable, or beginning to pit, reducing its protective properties. Loose flakes can retain water and salt, further affecting durability. Chalky or poultice layers may be present, occasionally contributing to flaking, though their impact on overall performance varies. Overall, the patina remains partially protective, but areas with extensive flaking or permeability indicate reduced effectiveness.	 	 
SEVERE Condition State 4 (CS4)	Blackish, stained and blotchy appearance. Formation of laminar sheets with deeply pitted semi-adherent layers beneath; chunks and sheets of rust product removable by hand. Aggressive advancement of pitting and section loss; can be up to 50%. Complete failure of patina to protect base steel.		

APPENDIX S5: SCOUR CONDITION CODING REFERENCE

Appendix Title

Scour Condition Coding Reference

Appendix Revision and Year

Version 1.0, 2025

Appendix Introduction and Discussion

FHWA defines scour as erosion or removal of streambed or bank material around substructure or foundation elements due to water flow. Since waterways are dynamic and constantly changing, scour can appear or progress rapidly. Bridge inspectors must understand waterway characteristics and behavior in order to recognize the conditions associated with unstable streams or scour formation that threaten the stability of the bridge.

Appendix Description

The appendix provides guidance on how to code for Defect 6000 (Scour). It outlines the procedures for identifying, documenting, and assessing scour-related conditions during bridge inspections. The guidance ensures consistency in reporting and helps inspectors apply uniform criteria when evaluating the severity and extent of scour.

1.0 Types of Scour

Inspectors look at what is known as total scour when they are quantifying a scour defect to an element or when determining the structure's overall Scour Condition Rating (B.C.11). While total scour is the amount of sediment removed from the channel bottom since construction, it is the combination of three different types of scour. Common indications and contributing conditions for the three components of total scour are summarized in the following subsections. This information is provided to help inspectors understand which components of total scour are present and document the contributing factors in the report. This may be useful for maintenance crews to address the issue.

1.1 Long Term Degradation and Aggradation

Degradation is a long-term bed elevation change characterized by the general lowering of the streambed caused by the loss of sediment and channel bottom material by natural or man-made methods. This lowering can be seen by plotting a streambed profile and comparing this data to historic streambed profiles. Degradation is typically caused by an increase in flow velocity due to a change in the channel characteristics farther upstream or downstream of the structure. Degradation of the channel will typically occur along a length of the waterway and will generally extend both upstream and downstream of the bridge structure.

Aggradation is a long-term bed elevation change characterized by the general increase of sediment along the streambed. Aggradation is typically caused by a decrease in flow velocity due to a change in the channel characteristics farther upstream or downstream of the structure. Like degradation, it can be identified and monitored by plotting and comparing streambed elevations and can be natural or manmade. Unlike degradation, aggradation is not a component of total scour, though when present it may cause the formation of other scour types.

1.2 Contraction Scour

Contraction scour is a short-term bed elevation change which is characterized by channel flow exceeding the structure's hydraulic opening. It typically occurs during a flood event, where the increase in water volume is constricted by a structure's hydraulic opening resulting in an increase in flow velocity. Contraction scouring due to a flood event may be hard to identify once the volume of water returns to normal as the erosion in the channel will generally re-fill with sediment over time. Contraction scour can occur outside of a flood event if changes in the channel immediately upstream of the structure cause a reduction in flow area. Some possible evidence of contraction scour includes:

- A narrow hydraulic opening at a bridge, caused by the abutments or roadway approach embankments projecting into the channel or overbank flow area with a wide channel or wide lowland floodplain upstream.
- Significant sediment aggradation or debris blockage under a portion of the bridge, which restricts and narrows the waterway near the bridge.

1.3 Local Scour

Local scour is characterized by the erosion of streambed material adjacent to a structure's foundation caused by turbulence introduced by flow redirecting around an obstruction. Bed material, structure geometry, flow angle (angle of attack) and flow velocity are important factors in the formation of local scour. These factors may have been considered during the structure's design to limit any inherent local scour caused by disruption of the channel's flow.

A natural or manmade change in the structure or channel, such as the examples provided below, may cause an increase to turbulence and formation of local scour:

- Bed Material: Contraction or degradation exposes a softer bed material more susceptible to local scour.

- Structure Geometry: Exposure of a footing, accumulation of debris along a bent, or the installation of a crutch bent all increase resistance to the water flow.
- Flow Angle: A meandering channel causes the stream to approach the structure from a different angle than before.
- Flow Velocity: A flood event, aggradation scour, or contraction scour, which causes an increase in flow velocity.

2.0 Coding Scour Condition State

The FHWA (SNBI) and AASHTO (MBEI) differentiate the severity of scour into condition states by comparing the total scour (observed/measured in the field) to a tolerable and critical scour limit. A load rating or scour assessment showing the current total scour does not affect the stability of the structure, or the presence of effective scour countermeasures can decrease the severity (condition state) of scour that has crossed one of these controlling limits. The table below provides the MBEI definitions for each condition state, as well as supplemental SCDOT-specific commentary inspectors should use when assigning scour severities. Guidance to determine the critical and tolerable limit elevations, and the definition of effective countermeasures are discussed in the following subsections.

Table S5.1: Scour Condition State Table

SNBI/MBEI Condition State Definitions		*Scour Depth*	*SCDOT Commentary*
CS1	None.	*1 FT or less*	*Minor inherent scour. Example: Local scour resulting in less than 1 foot of erosion using original channel elevation as a benchmark.*
CS2	Exists within tolerable limits or has been arrested with effective countermeasures.	*Less than Tolerable Limit*	*Total scour depth is less than the tolerable limit.*
			Total scour exceeds the tolerable limit, is arrested by effective countermeasures, and does not exceed the critical limit depth.
CS3	Exceeds tolerable limits but is less than the critical limits determined by *[in-depth embedment inspection[1], hydraulic analysis, or load rating]* and does not warrant *[additional]* review.	*Between Tolerable and Critical Limit*	*Total scour exceeds the tolerable limit depth but is less than the critical limit depth. May have installed countermeasures that are ineffective.*
			Total scour depth exceeds the critical limit depth but is less than or equal to previously reported measurements at this location and a load rating has shown that the loss of embedment does not affect the capacity of the structure. A new hydraulic analysis is needed to update the critical limit based on load rating results.
CS4	The condition warrants a *[in-depth embedment inspection[1], hydraulic analysis, or load rating]* to determine the effect on strength or serviceability of the element or bridge OR a review has been completed and the defects impact strength or serviceability of the element or bridge.	*Beyond Critical Limit*	*Total scour depth exceeds the critical limit depth. A new in-depth embedment inspection[1], hydraulic analysis, or load rating is needed to determine effects on strength or serviceability.*
			Total scour depth exceeds the critical scour depth but is equal to or less than previously reported measurements at this location and a in-depth embedment inspection [1], hydraulic analysis, or load rating has shown that the loss of embedment does affect the stability, strength and/or performance of the structure.

In-depth embedment inspection [1] = An in-depth embedment inspection should only be requested for bridges with unknown foundations that are supported by piles. Structures in the Piedmont and Blue Ridge regions with foundation on shallow rock do not require embedment inspections.

3.0 Tolerable and Critical Limits for Bridges

The critical limit for scour is the depth at which scour causes the bridge to become unstable. For structures where embedment depth is known, the Scour Assessment or Plan of Action (POA) will identify the critical limit elevation using critical tape down measurements. Inspectors should note what benchmark is used for the critical tape down measurements and apply a correction factor to ensure their measured scour depth and the critical limit are based on a shared datum. Critical tape down measurements are only applicable to the locations documented in the Scour Assessment or POA. If scour is being quantified at a substructure unit

where the Scour Assessment or POA does not provide a critical tape down for the structure, inspectors should use an approximate critical limit derived using Figures S5.1-S5.4.

Within South Carolina, there are a portion of structures where the Scour Assessment was unable to provide critical tape down measurements. Commonly, these are structures where no foundation type or embedment depth could be determined and received a scour coding for B.AP.03 of "unknown foundation". A subset of these structures, located in the Piedmont and Blue Ridge regions, are coded as scour critical due to shallow rock formations that limit the possible embedment depths. If the Scour Assessment does not provide critical tape down measurements for the structure, inspectors should use an approximate critical limit derived using Figures S5.1-S5.4.

The tolerable limit is the depth in which scouring of the foundation element begins to cause deterioration in surrounding elements or increased impact on the bridge. Since the tolerable limit is based on inspection findings and varies based on structure geometry, its elevation is not commonly provided in the Scour Assessment documentation. To identify and address scour issues before it can impact the surrounding elements, SCDOT has defined the tolerable limit based on foundation type and critical limit elevation. Where the original channel bottom elevations are needed, inspectors should use the following resources, in descending order or precedence:

1. Scour Assessment or POA documentation (may reference original or historical channel elevations)
2. As-Built Plans containing channel elevations.
3. Historical Inspection Report channel cross section data. (Inspectors should reference the oldest available information)

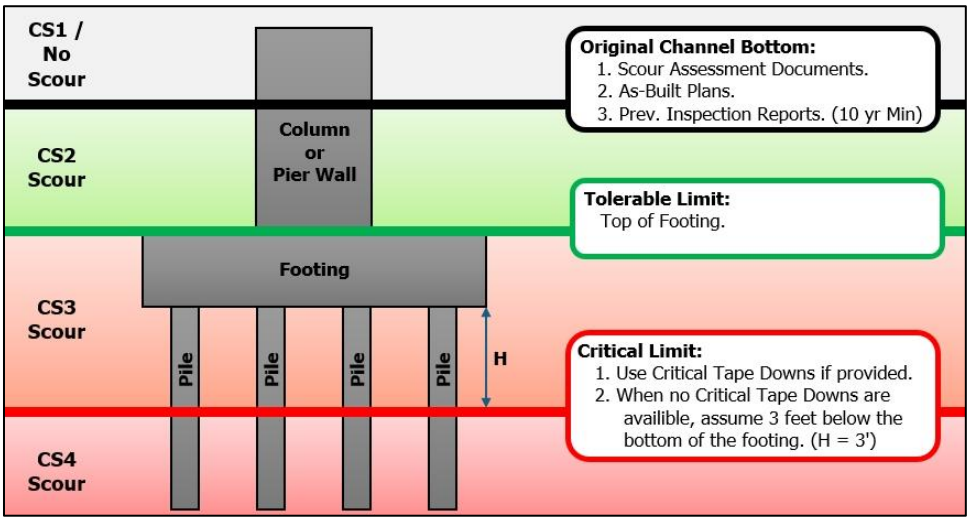


Figure S5.1: Pier with Pile Supported Pile Cap

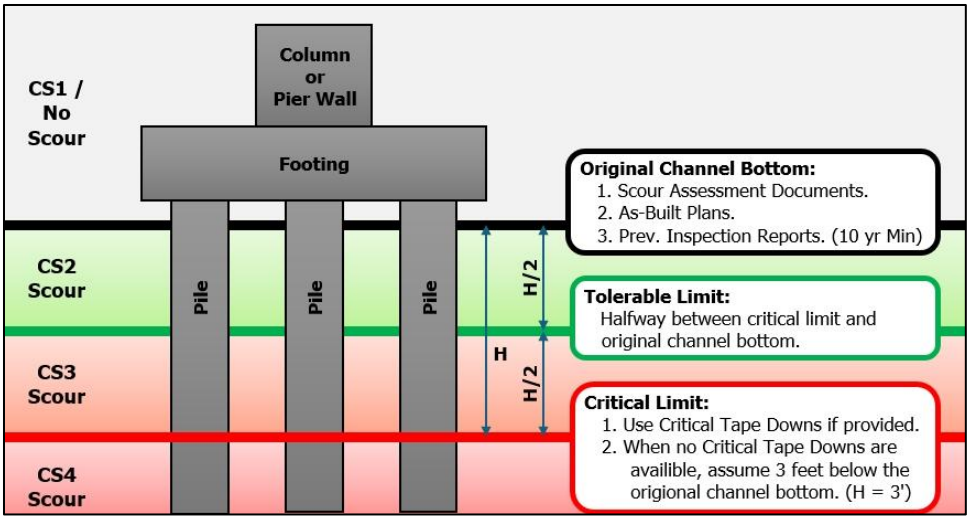


Figure S5.2: Pier with Drilled Shaft Supported Footing

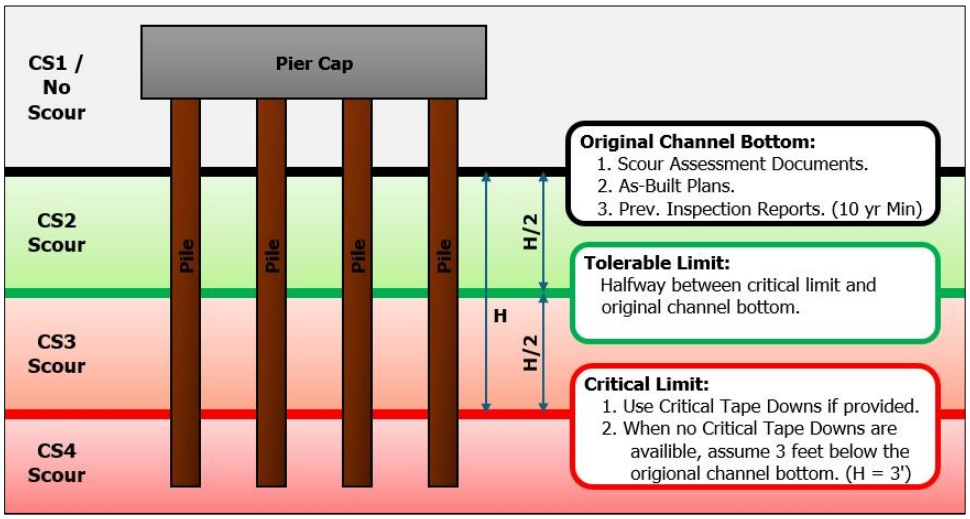


Figure S5.3: Bent Supported by Piles

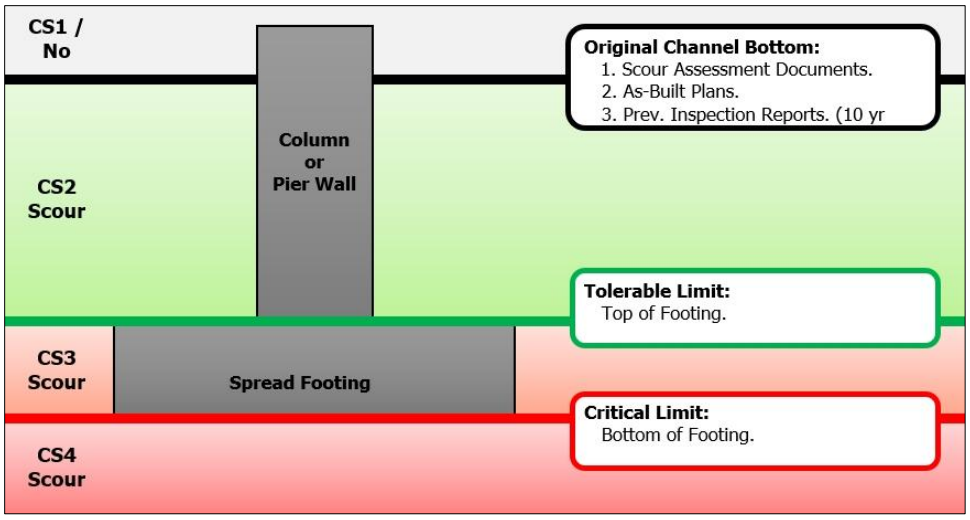


Figure S5.4: Pier Supported by Spread Footing

4.0 Tolerable and Critical Limits for Culverts

The following guidelines are applicable to box culverts. Bottomless and flexible culverts shall have tolerable and critical limits defined similarly to bridges using either critical tapedown measurements provided by the Scour Assessment, or by selecting the appropriate foundation configuration in Figures S5.1-S5.4. South Carolina Scour Assessments and POA documentation do not provide the tolerable or critical limits for box culverts, therefore inspectors should apply the following guidance to establish their location on the structure.

While the tolerable and critical limits for bridges and bottomless culverts are set vertically at depths related to the foundation type, and original embedment depth, SCDOT defines the tolerable and critical limits on a box culvert horizontally along the barrel length, wherein the severity of scour directly relates to the amount of undermining of the bottom slab, and the stability of the structure. Figures S5.5 below provides a cross-section view of a box culvert and details the locations for tolerable and critical limits.

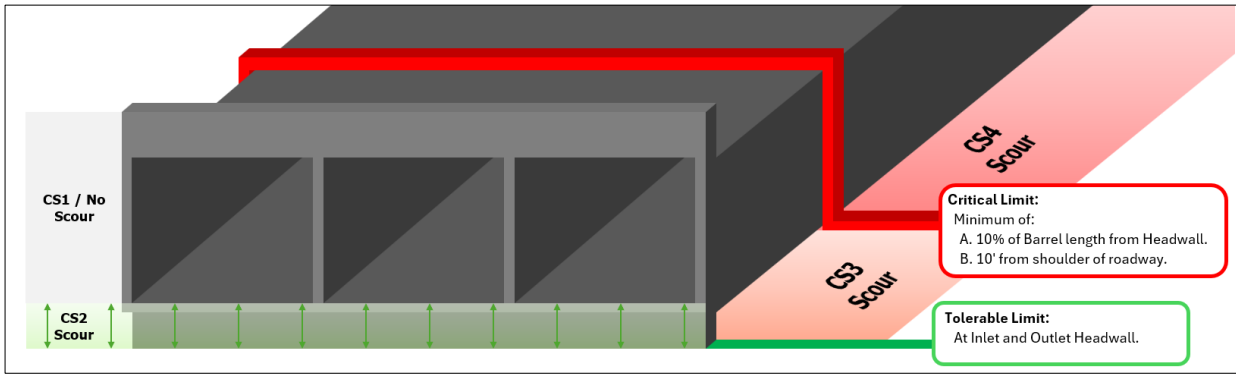


Figure S5.5: Box Culvert

The figure above provides a graphical representation of the tolerable and critical limits, each of which are defined in more detail below. While the figure only represents one side of the culvert, inspectors shall set the critical and tolerable limit at both the inlet and outlet of the box culvert.

- Tolerable Limits: Located at the exterior faces of the bottom slab or toe wall if present.
    - Exposure of the bottom slab or toe wall, if present, represents scour less than the tolerable limit.
    - Undermining of the bottom slab or toe wall, if present, does exceed the tolerable limit.
- Critical limits: Located the lesser of a distance equal to 10% of a single barrel's length from the headwall or 10 ft from the edge of roadway, measured perpendicular from roadway centerline, and shall include any paved shoulders.
    - Only two critical limits shall be assigned to the structure, regardless if multi-directional traffic is separated by large open median.
    - Undermining extending more than 10% of the barrel's length or within 10 ft of the edge of roadway/paved shoulder exceeds the critical limit.

5.0 Scour Countermeasure Effectiveness

Channel protection devices are used to arrest and prevent future scour, but do not typically replace lost embedment. For this reason, scour which passes the scour critical depth cannot be remedied by adding channel protection devices alone. Scour, which exceeds the tolerable limit but does not exceed the critical limit can be addressed using channel protection, provided the devices used remain effective. All the following criteria must be met for scour countermeasures to be considered effective:

- Must be accounted for in a Scour Assessment or POA and deemed effective by the hydraulic engineer.
- Scour has not advanced in severity since the installation of countermeasure (verified using historical inspection events).
- The overall condition of Channel Protection devices (B.C.10) must be 5 or greater.

APPENDIX S6: DAMAGE DEFECT CODING REFERENCE

Appendix Title

Damage Defect Coding Reference

Appendix Revision and Year

Version 1.0, 2025

Appendix Introduction and Discussion

Defect 7000 (Damage) is used to standardize the reporting of physical harm or distress observed on bridge elements. This defect captures conditions resulting from impact, overloading, environmental effects, or other external forces that compromise the integrity or functionality of a structure. Consistent use of Defect 7000 ensures uniform documentation and facilitates analysis of bridge condition data, supporting effective maintenance and preservation decisions.

Appendix Description

The appendix provides guidance on how to code for Defect 7000 (Damage). It describes the methods for identifying, classifying, and documenting various types of structural damage observed during bridge inspections. The guidance promotes consistency in evaluation and reporting to ensure uniform application of inspection criteria across all bridge elements.

Defect 7000 (Damage) is used to document physical or impact-related harm to bridge elements, such as vehicle strikes, collision damage, or localized deformation resulting from external forces. The damage defect shall not be used for normal bridge deterioration from common wear and tear.

This defect should rarely be used alone. When damage results in observable deterioration that can be described by a material-specific defect (e.g., cracking, section loss, corrosion, misalignment), both Defect 7000 and the applicable defect or condition state should be coded to accurately represent the condition. This is the most common application of Defect 7000.

Defect 7000 should only be used by itself when no other defect appropriately characterizes the observed condition, such as when an element is missing or visibly deformed without associated material deterioration. When scour-related damage is present, Defect 6000 (Scour) must be coded for the affected substructure units, and Defect 7000 should only be applied if separate structural damage is evident.

Inspectors should include a concise narrative describing the type, location, and extent of the damage to ensure clear documentation and support maintenance and evaluation decisions.

If known, the damage defect should attempt to differentiate different types causes of bridge damage, i.e. vehicle, boat, natural, etc. If known, the damage defect should attempt to note in the damage is new, unchanged, existing but worse, or if it has been repaired. The damage defect stays documented even if the damaged element is repaired.

The Condition State (CS1-CS4) of the element is determined by the material defect(s), not simply the damage defect, see Table S6.1.

Table S6.1 – Damage Defect

Defect	Condition State 1	Condition State 2	Condition State 3	Condition State 4
	GOOD	FAIR	POOR	SEVERE
Damage (7000)	Repaired to Original Condition (This condition is rare.)	The element has impact damage. The specific damage caused by the impact has been captured in Condition State 2 under the appropriate material defect entry.	The element has impact damage. The specific damage caused by the impact has been captured in Condition State 3 under the appropriate material defect entry.	The element has impact damage. The specific damage caused by the impact has been captured in Condition State 4 under the appropriate material defect entry.

The damage deterioration quantities would be included, but the inspector shall also quantify the applicable damage type. For example, if a bridge was struck and caused 2 LF of CS2 spall to a beam, the inspector would have identical quantities in both the spall defect (in addition to any other spalls) and the damage defect. Below is an example table where the superstructure item sustained damage.

Element/ Str. Unit No.	Element/Structure Unit Description	Total Qty	Units	Condition State Quantity			
				CS 1	CS 2	CS 3	CS 4
1	Span(s) - All						
SUPERSTRUCTURE							
109	PSC Open Girder/Beam	2160	ft.	2150	2	8	
1080	Delamination/Spall/Patch				2	8	
7000	Damage				2		