BUREAU OF RECLAMATION

Technical Report No. ENV-2025-073

Bridge Scour Screening Guidelines 2nd Edition

Dam Safety and Infrastructure
Asset Management Office

U.S. Department of the Interior **December 2025**

Mission Statements

The U.S. Department of the Interior protects and manages the Nation's natural resources and cultural heritage; provides scientific and other information about those resources; honors its trust responsibilities or special commitments to American Indians, Alaska Natives, Native Hawaiians, and affiliated Island Communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

Cover Image – Bridge over a canal with the inset photo showing scour beginning to undercut the right abutment (Gary Grassel/Bureau of Reclamation).

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Bureau of Reclamation
Technical Service Center
Denver, Colorado

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Peer Review Certification

This Technical Report has been reviewed and is believed to be in accordance with the service agreement and standards of the profession.

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Acronyms and Abbreviations

FHWA	Federal Highway Administration
HEC	Hydraulic Engineering Circular
NHI	National Highway Institute
NBIS	National Bridge Inspection Standards
POA	plan of action
SNBI	Specifications for the National Bridge Inventory

Symbols

≤	less than or equal to
%	percent

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Introduction

The most common cause of bridge failures is the scouring of bed material from around bridge foundations (FHWA Hydraulic Engineering Circular 18 [HEC-18] 2012a). The term 'scour' refers to the general erosion (removal) of stream bed and bank material due to flowing water. For bridges, this is usually a localized phenomenon occurring around the bridge foundation (piers and abutments). Federal requirements for bridge inspection are set forth by the Federal Highway Administration (FHWA) in the National Bridge Inspection Standards (NBIS) that require bridge owners to maintain a bridge inspection program that includes procedures for bridge scour screening and plans of action for bridges deemed scour critical. A scour critical bridge is defined as a bridge with a foundation member that is unstable, or may become unstable, as determined by the scour screening (FHWA-2017-0047). The primary purpose of the NBIS is to identify and assess existing bridge deficiencies to help ensure public safety.

New bridges typically follow comprehensive scour analysis procedures that account for potential scour in the design and construction. However, channel conditions, scour depths, and the effects of scour often change through time. Therefore, every existing Type 1 bridge (any Bureau of Reclamation [Reclamation]-owned bridge located on a public road) that does not have a fully documented (quantitative) scour analysis is required to be assessed for its scour vulnerability through a (qualitative) scour screening to determine the prudent measures to be taken. Assessing scour vulnerability on a Type 2 bridge (any Reclamation-owned bridge not located on a public road) is optional depending on whether the inspector has scour concerns. If a scour screening is deemed necessary for a Type 2 bridge, the same guidelines described herein would apply because the only difference between the two bridge types relates to their accessibility. In 2019, Reclamation released Bridge Scour Screening Guidelines (Greimann et al. 2019) with the goal of establishing a systematic and consistent methodology to ultimately determine if the bridge being assessed is considered scour critical.

In 2022, FHWA updated the NBIS (FHWA-2017-0047), superseding the 2004 version on which the 2019 Reclamation guidelines were based. Among one of the more prominent updates was to incorporate a revised version of the Specifications for the National Bridge Inventory (SNBI; FHWA-HIF-22-017) for the first time to replace the 1995 Recording and Coding Guide (FHWA-PD-96-001). The revised guidelines presented herein supersede the 2019 Bridge Scour Screening Guidelines and are based on the coding requirements contained in the 2022 SNBI, focusing on several items (table 1).

Table 1.—SNBI items that inform the Bridge Scour Screening Guidelines

SNBI Item ID	SNBI Item Title	Description
B.AP.03	Scour Vulnerability	Reports the status and vulnerability determination from the scour screening
B.AP.04	Scour Plan of Action	Reports if the bridge needs a scour plan of action and if it has been implemented
B.C.09	Channel Condition Rating	Reports on the current channel condition upstream and downstream of the bridge
B.C.10	Channel Protection Condition Rating	Reports on the current channel protection (countermeasure) condition where applicable
B.C.11	Scour Condition Rating	Reports on the current observed or measured scour condition that informs the scour vulnerability (B.AP.03)

Factors Impacting Scour Vulnerability

Scour screening is a qualitative and data-driven evaluation designed to determine the scour vulnerability of a bridge over a waterway. The scour screening considers all relevant documents on the structure including plans, inspection reports, and maintenance history. This ultimately results in determination of the bridge's scour vulnerability code rating. Typical items evaluated when assigning a scour code include channel characteristics and history, bridge substructure elements, scour countermeasures, and any previous inspection documentation regarding scour observations. Follow-up field visits should be conducted when the screener is unable to determine the scour vulnerability with the documentation available.

Rivers are natural, dynamic systems, responding to a variety of ever-changing variables. Canals are less active because the inflows are mostly controlled and the channel perimeter may be lined, but canals are still subject to the processes of erosion and deposition. When evaluating the stability of bridges crossing these features it is important to account for the channel morphology and how it relates to channel stability. A study of the plan and profile of a stream is useful in understanding stream morphology. The channel planform, which is the pattern and location of a stream when viewed on a map or aerial image, is also important for bridge stability. Planform characteristics such as valley setting, floodplains, point bars, lateral migration, sinuosity, and width variability all influence the channel stability near the bridge. Having a better understanding of the lateral and vertical channel stability in combination with the current bridge foundation stability helps to further inform the scour code rating. Repeat channel cross sections or longitudinal profiles are also helpful for assessing long-term channel conditions but may not show the full extent of the local scour that occurs during a flood. Sediment deposition on the receding limb of a hydrograph may hide the maximum scour that occurred during the peak flow.

Understanding the channel history and geomorphic trends provides important context for assessing the current conditions. This includes looking at the flood, alignment, land development, maintenance, and scour history of nearby bridges. Upstream dams that control water and sediment may have complex effects on channel adjustment. Dams often reduce

sediment load, which causes the channel bed to lower thereby exposing more of the bridge foundation. Dams may also coarsen the downstream bed material and reduce the magnitude and frequency of peak floods, which would reduce the scour depth. Watershed development can increase storm runoff, while a change to canal operations would alter the flow regime in the canal. River corridor design projects upstream or downstream of the bridge can affect channel hydraulics and subsequently channel aggradation or degradation.

The bridge foundation type and depth are an important factor in assessing the vulnerability to scour damage and subsequently assigning a scour code. Foundations consist of abutments and piers or piles. Contraction scour depends on how much the bridge foundation narrows the channel, while local scour depends on the shape and orientation of the piers or piles. Although scour can undermine any foundation type, deep foundations such as long piles (typically greater than 15 to 20 feet), drilled shafts, or foundations built upon competent bedrock are generally considered to have a low vulnerability to scour, while shallow foundations such as spread footings, short piles (typically less than 15 to 20 feet), sills, or cribs are generally considered as having a high vulnerability to scour depending on the bed material or channel lining.

Another factor that influences scour severity are countermeasures. In general, a countermeasure is an action that is intended to prevent, delay, or reduce the severity of hydraulic problems. Specific to bridge scour, countermeasures are defined as measures incorporated into a bridge crossing that monitor, control, inhibit, change, delay or minimize channel instability and scour problems (HEC-23). Countermeasures can be organized into four main groups based on their functionality: hydraulic, structural, bioengineering, and monitoring. Hydraulic countermeasures are those designed to modify the flow to resist erosive forces and largely consist of various types of river training structures and bank armoring. Structural countermeasures involve modification to the bridge structure, typically through foundation strengthening or pier geometry modifications, to increase bridge stability and prevent failure from scour. Bioengineering utilizes vegetation to control erosion that can be applied independently or in combination with structural countermeasures. Finally, monitoring either visually or through instrumentation can be used to survey the scour progress and is considered another type of countermeasure.

Scour Screening Team Qualifications

Due to the amount of judgement that is inherent with understanding scour vulnerability and assigning scour codes, all scour screenings must be completed by qualified personnel. Therefore, the scour screener shall be a qualified Bridge Inspection Team Leader or a licensed Professional Engineer and must have completed the National Highway Institute (NHI) 3-day class entitled ‘Stream Stability and Scour at Highway Bridges’, course number 135046. This course covers the prevention of hydraulic-related bridge failures, with course participants receiving training in conducting a stream stability classification and qualitative analysis of stream response as well as making estimates of scour at a bridge opening. Most of the material in this class comes from a

suite of inter-related Hydraulic Engineering Circulars (HEC) that details a comprehensive and quantitative scour analysis and stream stability evaluation that the screener should have familiarity with. The HEC manuals are:

- HEC-18: Evaluating Scour at Bridges,
- HEC-20: Stream Stability at Highway Structures, and
- HEC-23: Bridge Scour and Stream Instability Countermeasures.

The review process needs to follow internal review policies, which may differ for each office. For all scour screenings, the reviewer shall be a Bridge Inspection Team Leader or a licensed Professional Engineer. However, the NHI training is not required for the reviewer. Familiarity with the bridge is important. If both the screener and reviewer are not familiar with the bridge, local personnel should be consulted prior to finalizing the scour screening report.

Scour Vulnerability Rating

Reclamation's scour vulnerability codes retain the descriptions from FHWA except for replacing the term 'appraisal' with 'screening' to avoid confusion with the Appraisal stage in Reclamation's planning process. The following scour codes should be used for evaluating SNBI Item B.AP.03: Scour Vulnerability. It's important to note that the coding guidance provided herein is intended to help provide consistency when applying engineering judgement during the screening process. Every scour screening is primarily informed by field inspection reports that are routinely completed every 2 to 4 years.

Scour Vulnerability Code Descriptions

0: Scour screening has not been completed.

A: Scour screening completed. Bridge determined to be stable for scour.

B: Scour screening completed. Bridge determined to be stable for scour, but dependent upon designed and properly functioning countermeasures.

C: Scour screening completed. Bridge could become unstable for scour. Temporary (not designed) countermeasures installed to mitigate scour. **Bridge is scour critical.**

D: Scour screening completed. Bridge is, or may become, unstable for scour. There are either no countermeasures installed or there are designed countermeasures that are no longer functioning. **Bridge is scour critical.**

E: Scour screening has not been completed, but temporary (not designed) countermeasures have been installed to mitigate scour.

U: Scour screening has not been completed due to unknown foundations.

Scour Vulnerability Coding Guidance

A bridge can be considered stable for scour if:

- The bridge foundation elements bear on dry land well above flood water elevations (above the 100-year flood),
- The bridge foundations are stable for measured or observed scour. Foundations extend below the scour depth, which may be deep in scour susceptible material or shallow in scour resistant material,
- The bridge crosses a concrete lined channel that is in fair to good condition, or
- The bridge has an established history of a stable streambed with minimal to moderate scour and stable foundation system (less than 5 percent undercutting) even though action may be required (through countermeasures) to protect exposed foundations from future erosion.

If the bridge is considered stable without the presence of countermeasures, the bridge should be assigned scour code A. The most common type of bridge in the Reclamation bridge inventory crosses over a canal and has a shallow foundation that could be susceptible to scour. However, the controlled nature of canal flow is one reason that these bridges can have a scour code A rating even with shallow foundations. If the bridge has countermeasures in place and the bridge is considered stable for scour, scour code B should be used. The condition and effectiveness of the countermeasures should be assessed during routine and underwater bridge inspections.

If the bridge cannot be considered stable for scour, it is considered scour critical. If temporary countermeasures are installed, assign scour code C. If no temporary countermeasures are installed, assign scour code D.

Codes 0, E, or U are assigned to bridges that have not had a scour screening performed. These codes are meant to be temporary designations and indicate that more information is needed. Once gathered, ideally within 6 months of the original rating, the scour screening should be performed and code reassigned. Code 0 will be used for bridges with a known foundation and no temporary countermeasures. Code E will be used for bridges with known foundations and temporary countermeasures. Code U will be used for bridges with unknown foundations. Bridges with unknown foundations may still be evaluated for scour and assigned a code of A if the bridge can be determined to be stable assuming the worst-case foundation system. Shallow footings would typically be assumed for the worst-case foundation.

Condition Ratings Affecting Scour Vulnerability

The office screening used for assigning a scour vulnerability rating (SNBI Item B.AP.03) incorporates desktop research and information from field inspection reports. There are three component condition ratings that contribute to a bridge's scour vulnerability rating. Scour condition (SNBI Item B.C.11) represents the observed or measured scour at the bridge. The inspector considers the design and critical scour depths from design documents and scour assessments when assigning a scour condition rating. Channel condition (SNBI Item B.C.09) rates the channel condition upstream and downstream of the bridge as it threatens the bridge or approach roadway. Channel protection condition (SNBI Item B.C.10) rates the condition of any channel protection devices (countermeasures) at the bridge. B.C.09, B.C.10, and B.C11 are evaluated independently. These three condition ratings are reassessed during each routine and underwater inspection. The bridge inspector should compare the scour, channel, and channel protection condition with the assumptions made in the current scour screening report to determine, based on judgement, if there is a significant enough change in conditions that would require a new screening. If the inspector determines that a new scour screening is needed, the inspector should fill out the field "Scour Screening Needed?" as 'Yes' in the bridge management system. Based on the NBIS and Reclamation's Inspection Interval Policy, whenever B.C.11 is rated ≤ 3 (major scour that affects bridge stability, table 2), the inspection interval for routine inspections must be reduced to 12 months. As a general guideline, whenever B.C.09, B.C.10, or B.C.11 are lowered to ≤ 4 (poor conditions or worse), this is a good indicator that the scour screening may need to be revised. These items are rated on a scale of 0 to 9, where higher numbers indicate stable conditions and lower numbers indicate unstable or failed conditions.

Table 2.—Definition of condition rating codes (SNBI; FHWA-HIF-22-017, 2022a)

Code	Condition	Channel Description (B.C.09)	Channel Protection Description (B.C.10)	Scour Description (B.C.11)
N	Not applicable	Bridge does not cross over water.	Bridge does not cross over water or channel protection devices do not exist.	Bridge does not cross over water.
9	Excellent	No defects.	Isolated inherent defects.	No scour.
8	Very good	Inherent defects only.	Some inherent defects	Insignificant scour.
7	Good	Some minor defects.	Some minor defects.	Some minor scour.
6	Satisfactory	Widespread minor or isolated moderate defects.	Widespread minor or isolated moderate defects.	Widespread minor or isolated moderate scour.

Code	Condition	Channel Description (B.C.09)	Channel Protection Description (B.C.10)	Scour Description (B.C.11)
5	Fair	Moderate defects; bridge and approach roadway are not threatened.	Some moderate defects; performance of the channel protection is not affected.	Moderate scour; strength and stability of the bridge are not affected.
4	Poor	Widespread moderate or isolated major defects; bridge and/or approach roadway is threatened.	Widespread moderate or isolated major defects; performance of channel protection is affected.	Widespread moderate or isolated major scour; strength and/or stability of the bridge is affected.
3	Serious	Major defects; bridge or approach roadway is seriously threatened. Condition typically necessitates more frequent monitoring, load restrictions, and/or corrective actions.	Major defects; performance of channel protection is seriously affected. Condition typically necessitates more frequent monitoring or corrective actions.	Major scour; strength and/or stability of the bridge is seriously affected. Condition typically necessitates more frequent monitoring, load restrictions, and/or corrective actions.
2	Critical	Major defects. Bridge or approach roadway is severely threatened. Condition typically necessitates frequent monitoring, significant load restrictions, and/or corrective actions in order to keep the bridge open.	Major defects; channel protection is severely compromised. Condition typically necessitates more frequent monitoring or corrective actions.	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.
1	Imminent failure	Bridge is closed to traffic due to channel condition. Channel rehabilitation may return the bridge to service.	Channel protection has failed, but corrective action could restore it to working condition.	Bridge is closed to traffic due to scour condition. Channel rehabilitation may return the bridge to service.
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.	Channel protection is beyond repair and must be replaced.	Bridge is closed due to scour condition, and is beyond corrective action. Bridge replacement is needed to restore service.

Scour Plan of Action

Bridges deemed scour critical (Code C or D) have a higher probability of failure and a scour plan of action (POA) will need to be developed within 90 days. Each POA documents what should be done to address the scour problem. Typical actions include monitoring, repairing, or replacing the bridge. POAs are site specific, individually developed, commiserate to the level of risk, and serve two primary purposes:

1. Establishes a systematic process of monitoring and closing bridges to ensure public safety and criteria for inspection type and frequency and re-opening.
2. Assists bridge owners to program and prioritize the design and installation of scour countermeasures to protect scour critical bridges from future damage.

A POA is used to mitigate risks of bridge failure. Risk is a product of the likelihood and consequence of the failure. Likelihood is inherently incorporated into the scour vulnerability rating. Therefore, one way to incorporate risk concepts into the POA is through (qualitatively) looking at the consequence of failure, which could be low or high and used to guide the comprehensiveness level of the POA that gets implemented. One way to distinguish between a low and high consequence rating would be to assess the significance the bridge has on the environment, transportation, and public safety. Looking at a suite of operational characteristics specific to the bridge and surrounding facilities can help when determining bridge importance. These characteristics could include such things as functional classification, average daily traffic counts, emergency service needs, community connectivity, economic significance, etc., and may rely on local input from field office staff who are knowledgeable about the area and bridge. The following questions are examples that should be considered to determine the consequence rating:

- Does the bridge provide access to significant Reclamation infrastructure (high hazard dam, power plant, pumping plant, etc.)?
- Does the bridge provide sole access to any private property/residences?
- Does the bridge provide recreation opportunities?
- Is the bridge used as a trucking route?
- Is the average daily traffic count across the bridge greater than 50?
- Is there a significant economic cost to the public if the bridge failed?
- Are there any threatened or endangered species that could be adversely affected by the bridge failing? Is there a significant environmental cost associated with the bridge failing?
- Does the bridge have historical significance?

If the answer to any of the above questions is yes, the bridge should be considered as having a high consequence of failure, otherwise a low consequence can be assumed.

A scour critical bridge with a low consequence of failure (low risk) would not need as much mitigation and would indicate a simplified POA. This type of POA typically recommends and implements a monitoring program for the bridge through increased site visits every 6 or 12 months without the need for direct interference such as installation of countermeasures and could also be a viable alternative to bridge replacement. However, if a cost:benefit analysis shows that a bridge failure would cost more than the proposed countermeasure, then countermeasure installation could be included. A simplified POA should include information with regards to physical site identification, hydrologic and hydraulic characteristics, persons responsible for decision making and communication, trigger mechanisms for closure to traffic, and show detour routes. Monitoring is not a long-term solution and does not change the bridge rating code considering a direct action is not being taken.

Conversely, a scour critical bridge with a high consequence of failure (high risk) would require more mitigation and should have a comprehensive POA. This type of POA typically recommends long term actions such as repair through the installation of countermeasures, or even bridge replacement. If countermeasures are specified, another scour screening should be performed after their installation. A POA does not include countermeasure design. A scour critical bridge can be upgraded in code rating only if appropriate scour countermeasures are in place and functioning as designed. Countermeasures should be inspected during all subsequent routine bridge inspections to confirm they are functioning appropriately. A comprehensive POA for a scour critical bridge would also likely include the recommendation of performing a comprehensive scour analysis, which is typically part of countermeasure design.

Developing a POA for a scour critical bridge involves more than establishing an inspection schedule and installation of countermeasures. Bridge management and inspection strategies also need to be considered. Reclamation's Asset Management Office is developing templates for simplified and comprehensive POAs to provide additional resources. FHWA also has more information available in HEC-23.

Item B.AP.04 from the SNBI reports whether the bridge has a scour POA implemented using codes 0, N, or Y based on the requirement and implementation status. Code 0 is used when a scour POA is not required. Code N is used when a scour POA is required but has not been implemented. Code Y is used when a scour POA is required and implemented.

Scour Code Crosswalk

Almost all Type 1 bridges had a scour screening completed using the 2019 guidelines. The scour codes from these scour screenings will be migrated to the new SNBI Item B.AP.03-Scour Vulnerability codes based on the crosswalk in Appendix A. This crosswalk shows that a direct conversion between the two is possible for all non-scour critical bridges. For bridges previously

rated as scour critical or inconclusive, the updated scour vulnerability code will depend on the unique features and conditions of each bridge. Updating the screening codes based on the table in Appendix A does not require a new scour screening for each bridge. A new scour screening is only needed if field conditions have changed significantly, as discussed previously in the "Condition Ratings Affecting Scour Vulnerability" section.

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Appendix A

Crosswalk between 2019 Item 113 and 2025 Item B.AP.03 Codes

2019 Item 113 Code and Description	2025 Item B.AP.03 Crosswalk Code and Description	Notes
N: Bridge does not cross a defined waterway.	Do not report this item if the bridge does not cross over a waterway as indicated in Item B.F.01 (Feature Type).	
9: Bridge foundation elements bearing on dry land well above flood water stage (above 100-year flood water surface elevation).	A: Scour screening completed. Bridge determined to be stable for scour.	
8: Bridge foundation determined to be stable either by design depth or the material type it is anchored into. A stable bridge foundation can be deep in scour susceptible material, or shallow in scour resistant material (i.e. concrete or bedrock). Any observed existing scour is considered minimal, and well above the top of the footings/piles. This will be a typical code assigned to bridges in fair-to-good condition over concrete-lined canals.	A: Scour screening completed. Bridge determined to be stable for scour.	
7: Sufficient scour countermeasures have been successfully implemented (through a plan of action) to reduce the probability of bridge failure during a flood. Countermeasures need to be evaluated during each inspection to ensure continued functionality.	B: Scour screening completed. Bridge determined to be stable for scour, but dependent upon designed and properly functioning countermeasures.	
6: The presence/absence of scour at the bridge has not been documented, or the extent of scour relative to the foundation depth is inconclusive. More information should be gathered to make a scour status determination. If the foundation type is unknown, it should conservatively be assumed to be a shallow foundation. **A code rating of 6 is meant to be a temporary designation. Enough information should be gathered to re-assess the scour coding within 6 months of the original screening.**	0: Scour screening has not been completed. OR E: Scour screening has not been completed, but temporary (not designed) countermeasure have been installed to mitigate scour. OR U: Scour screening has not been completed due to unknown foundations.	Dependent on if foundation type is known and the presence or absence of scour countermeasures.

2019 Item 113 Code and Description	2025 Item B.AP.03 Crosswalk Code and Description	Notes
5: Bridge foundation determined to be stable either by design depth, the material type it is anchored into, or repeat cross section surveys. A stable bridge foundation can be deep in scour susceptible material, or shallow in scour resistant material (i.e. bedrock). Any observed existing scour is considered minimal, and within the limits of the footings/piles. Even if the bridge has an unknown (assumed shallow) foundation but has repeat cross section surveys that have not significantly changed from the as-built conditions, or channel conditions that are not susceptible to scour, it could be assumed that the foundation is stable and be assigned this code.	A: Scour screening completed. Bridge determined to be stable for scour.	
4: A field inspection or repeat cross section surveys reveals moderate scour occurring at the bridge, but the (known) foundation is still considered stable with minimal (less than 5%) undermining. Action may be required to protect any exposed foundations. If moderate scour occurred after a small flood, concern about future scour potential should be noted, whereas if moderate scour occurred after a large flood, then only monitoring may be needed. This code relies heavily on engineering judgement in order to deem what is considered to be a moderate level of scour, which can be different for deep versus shallow foundations.	A: Scour screening completed. Bridge determined to be stable for scour.	Scour observed during routine inspections will be documented in B.C.11 Scour Condition Rating.

2019 Item 113 Code and Description	2025 Item B.AP.03 Crosswalk Code and Description	Notes
3: A field inspection or repeat cross section surveys reveals scour resulting in minor (5–20%) undermining of the (known) foundation that could lead to instability. This code should also be assigned to a bridge with an unknown foundation if the documented scour at the bridge would have the potential to undermine a shallow foundation. The bridge can later be re-coded to non-scour critical if a deep foundation is discovered for which the undermining from the scour would be considered minimal (less than 5%).	C: Scour screening completed. Bridge could become unstable for scour. Temporary (not designed) countermeasure installed to mitigate scour. **Bridge is scour critical.** OR D: Scour screening completed. Bridge is, or may become, unstable for scour. There are either no countermeasures installed or there are designed countermeasures that are no longer functioning. **Bridge is scour critical.**	Dependent on the presence or absence of scour countermeasures.
2: A field inspection or repeat cross section surveys reveals extensive scour resulting in active (greater than 20%) undermining of the (known) foundation to the point that the bridge foundation is considered unstable even though bridge failure does not yet appear imminent.	C: Scour screening completed. Bridge could become unstable for scour. Temporary (not designed) countermeasures installed to mitigate scour. **Bridge is scour critical.** OR D: Scour screening completed. Bridge is, or may become, unstable for scour. There are either no countermeasures installed or there are designed countermeasures that are no longer functioning. **Bridge is scour critical.**	Dependent on the presence or absence of scour countermeasures.
1: A field inspection or repeat cross section surveys reveals serious undermining of the (known) foundation to the point that bridge failure appears imminent. Bridges coded 1 must be closed immediately.	C: Scour screening completed. Bridge could become unstable for scour. Temporary (not designed) countermeasures installed to mitigate scour. **Bridge is scour critical.** OR D: Scour screening completed. Bridge is, or may become, unstable for scour. There are either no countermeasures installed or there are designed countermeasures that are no longer functioning. **Bridge is scour critical.**	Dependent on the presence or absence of scour countermeasures.
0: Bridge has failed due to scour.	N/A	