# WSDOT Local Programs

## Federal Local Bridge Program

## Project Application

| Skagit County | 4/26/2022 |
|---|---|
| AGENCY | DATE |

| Forrest Jones | |
|---|---|
| AGENCY CONTACT | |
| 360-416-1422 | forrestj@co.skagit.wa.us |
| PHONE | EMAIL |

| Torey Nelson | |
|---|---|
| BRIDGE CONTACT | |
| 360-416-1425 | toreyn@co.skagit.wa.us |
| PHONE | EMAIL |

### Project Type *Check all that apply.*

- ☐ Replacement Candidate
- ■ Rehabilitation Candidate
- ☐ Preventative Maintenance
  - ☐ Scour Mitigation
  - ☐ Seismic Retrofit
  - ☐ Painting
  - ☐ Deck Repair
  - ☐ Other *(applicable for Bundled Projects only)*
- ☐ Bundled Project

☐ Construction Ready Project

### Project Description

*Provide structure identifcation information. For bundled projects, list all structures included.*

| STRUCTURE ID | BRIDGE NUMBER | BRIDGE NAME |
|---|---|---|
| 08228800 | 40070 | SKAGIT RIVER MARBLEMOUNT |
| | | |
| | | |
| | | |
| | | |
| | | |

*Provide a brief project description, including bridge replacement type if applicable.*

The project consists of rehabilitating deficient elements of the 92 year old structure, including gusset plate replacement, cleaning and painting of the bridge, sealing and caulking of pack rust, expansion joint replacement, bearing repair, structural steel repair, and approach railing replacement.

*Provide additional applicable details for replacement or full deck rehabilitation project.*

| PROPOSED LENGTH | PROPOSED CURB TO CURB WIDTH |
|---|---|

*Will this project…check all that apply and provide description*

- [x] Mitigate current bridge posting

  The load rating calls for posting of all legal loads due to the deficiencies of structural steel elements. Rehabilitation will mitigate the current posting requirements and allow for the crossing of legal loads.

- [ ] Remove scour critical coding

- [x] Mitigate other bridge restriction

  Bridge is restricted to a 1-lane, 2-way operation. Rehabilitation will restore 2-lane, 2-way operation.

- [ ] Require in-water construction work

- [ ] Require stormwater drainage

## Project Cost

### Replacement, Rehabilitation, Seismic Paint, or Scour projects

| | |
|---|---|
| PE Costs (approximately 25% of total) | $ 3,718,573 |
| *Soils, environmental, design documents, plans preparation, etc.* | |
| Right of Way Costs | |
| *Purchases, relocation and construction easement* | |
| Construction Costs | |
| *Environmental mitigation, approach costs (15%), structure costs, etc.* | $ 9,705,900 |
| Construction Engineering *(18%)* | $ 1,747,062 |
| Contingency *(15%)* | $ 1,455,885 |
| Mobilization *(10%)* | $ 970,590 |
| Inflation Cost *(5% per year, based on projected ad date)* | $ 994,855 |
| **TOTAL COST** | $ 18,592,865 |

**Other Preventative Maintenance projects**

**TOTAL COST** _____

*If a Rehabilitation project, what would be the Replacement cost for that same structure, including PE, right of way, and construction?*

Similar Replacement Cost $ 23,500,000

**Local Agency Match Funds**

- [x] Agency is prepared to match funds
- [ ] Other funding sources have been secured
- [ ] Match funding is not secured
- [ ] Match funding is not required

## Project Milestones

| | MM/YY | | MM/YY |
|---|---|---|---|
| Project Added to Local Agency TIP | 12/20 | Right of Way Start | |
| Project Added to Regional TIP | 01/23 | Right of Way Complete | |
| Project Added to STIP | 02/23 | Geomtric/30% Design Complete | 09/23 |
| Project Definition Begin PE | 02/23 | General Plan/60% Design Complete | 03/24 |
| NEPA Kick Off | 04/23 | Advertisement | 09/24 |
| Environmental Docs Approved | 10/24 | Contract Awarded | 11/24 |
| | | Open to Traffic | 10/25 |

## Comments or Additional Relevant Information

The SKAGIT RIVER MARBLEMOUNT bridge is a 1100 foot long structure constructed in 1930 consisting of three steel truss main spans (160':280':160') and 500 feet of reinforced concrete t-beam approach spans.

The bridge serves as a direct link to the N Cascades Hwy (SR 20) and is the one of the few crossings of the Skagit River available in the vicinity with the nearest downstream crossing approximately 9 road miles away and the nearest upstream crossing approximately 14 road miles away. The structure, in conjunction with the CASCADE RIVER BRIDGE, also serves as a link to the Washington State Department of Fish and Wildlife's Fisheries Department. In addition, this bridge also serves as a needed detour route for SR 20, as was evident during the extreme weather event that occurred in November of 2021 and a landslide that closed SR 20. The only available detour is to use the Marblemount Bridge to access the alternate route.

The structure currently has numerous deficient elements, including:
- Gusset plates in need of repair/replacement
- Bearings in need of repair
- Steel stringers and floor beams in need of repair
- Areas of rock rust in need of sealing and caulking

## Application Checklist

- [x] Completed Application
- [x] Bridge SI&A Sheet
- [x] Current Inspection Report(s)
- [x] Electronic Photos

*If applicable for project type:*

- [x] Load Rating Summary Sheet
- [x] Scour Analysis
- [ ] Seismic Evaluation

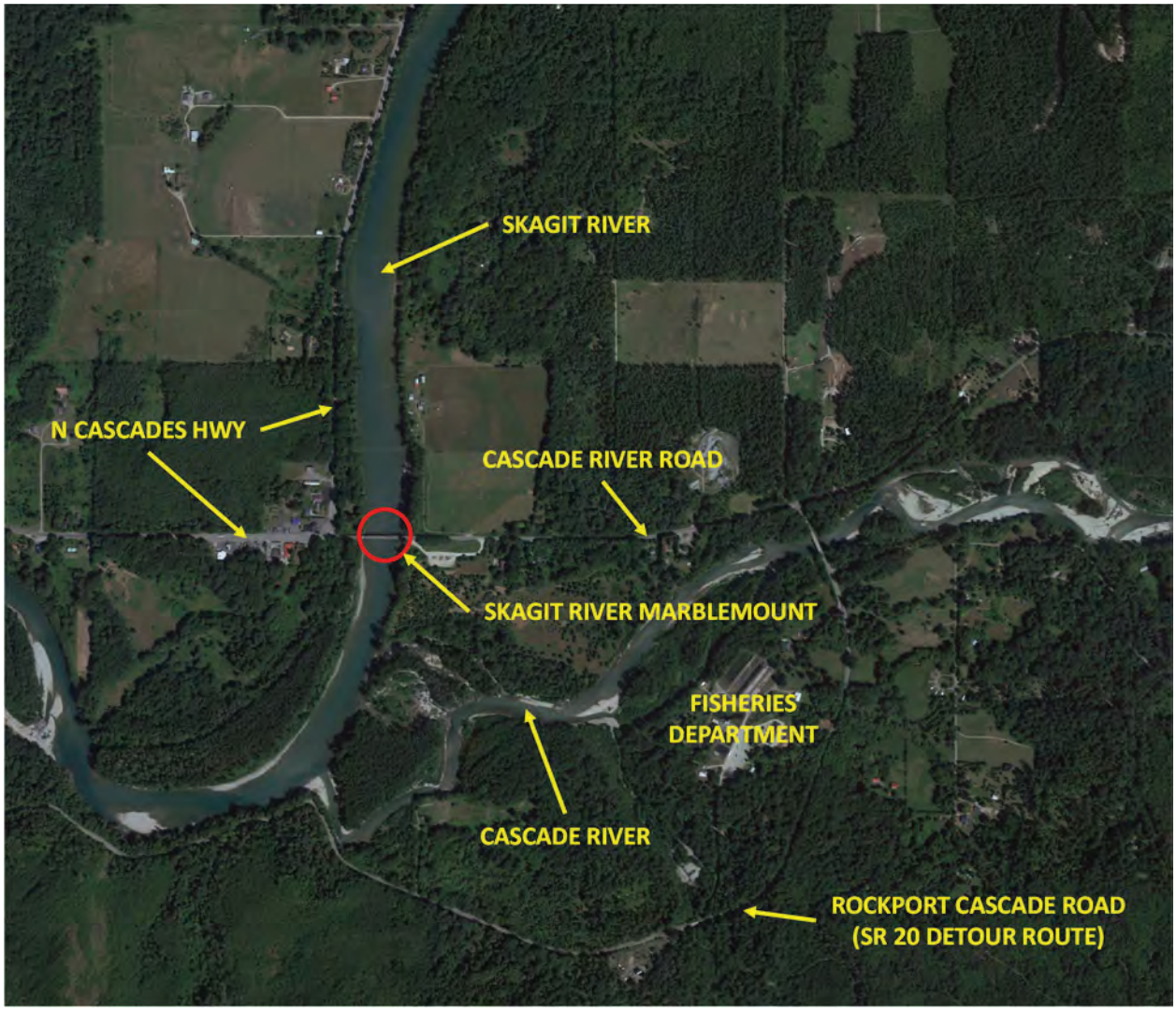
# Table of Contents

# Appendix A – Site Map

VICINITY MAP

SKAGIT RIVER MARBLEMOUNT

#40070



# Appendix B – Bridge Inventory Data

WASHINGTON STATE DEPARTMENT OF TRANSPORTATION
NBI STRUCTURE INVENTORY AND APPRAISAL REPORT
(ENGLISH UNITS)

CD Date: 3/22/2022 Printed on: 4/26/2022
CD Guid: 089e8183-e033-44d8-a7f8-30898ae839c1

## IDENTIFICATION

| | | |
|---|---|---|
| (1) | STATE NAME - WASHINGTON | 530 |
| (8) | STRUCTURE NUMBER | # 082288000000000 |
| (5) | INVENTORY ROUTE (ON/UNDER) - On | 1 4 1 97950 |
| | STATE ROUTE MILEPOST | 0.03 |
| (2) | HIGHWAY AGENCY DISTRICT - NW Region | 01 |
| (3) | COUNTY CODE 57 - Skagit County | (4) PLACE CODE 99057 |
| (6) | FEATURES INTERSECTED | SKAGIT RIVER |
| (7) | FACILITY CARRIED | CASCADE RIVER RD |
| (9) | LOCATION | 0.03 E JCT SR 20 |
| (12) | BASE HIGHWAY NETWORK - Not part of network | 0 |
| (13) | LRS INV ROUTE AND SUB ROUTE | |
| (11) | LRS MILEPOST | |
| (16) | LATITUDE | 48 Deg 31 Min 36.00 Sec |
| (17) | LONGITUDE | 121 Deg 25 Min 48.00 Sec |
| (98A) | BORDER BR. - Not a border bridge (98B) | (99) BORDER BR. SID - Not a border bridge |

## STRUCTURE TYPE AND MATERIAL

| | | |
|---|---|---|
| (43) | STRUCTURE TYPE MAIN: MATERIAL - Steel | |
| | DESIGN - Truss - Thru | 310 |
| (44) | STRUCTURE TYPE APPR: MATERIAL - Concrete | |
| | DESIGN - Channel beam | 122 |
| (45) | NO. OF SPANS IN MAIN UNIT | 3 |
| (46) | NO. OF APPROACH SPANS | 2 |
| (107) | DECK STRUCTURE TYPE - Conc. CIP | 1 |
| (108) | WEARING SURFACE / PROTECTIVE SYSTEM: | |
| (A) | TYPE OF WEARING SURFACE - Monolithic concrete | 1 |
| (B) | TYPE OF MEMBRANE - None | 0 |
| (C) | TYPE OF DECK PROTECTION - None | 0 |

## AGE AND SERVICE

| | | |
|---|---|---|
| (27) | YEAR BUILT | 1930 |
| (106) | YEAR RECONSTRUCTED | 0000 |
| (42) | TYPE OF SERVICE ON - Highway | 1 |
| | UNDER - Waterway | 5 |
| (28) | LANES: ON STRUCTURE 1 | UNDER STRUCTURE 0 |
| (29) | AVERAGE DAILY TRAFFIC | 608 |
| (30) | YEAR OF ADT 2020 | (109) TRUCK ADT 11% |
| (19) | BYPASS, DETOUR LENGTH | 20 mi |

## GEOMETRIC DATA

| | | |
|---|---|---|
| (48) | LENGTH OF MAXIMUM SPAN | 280 ft |
| (49) | STRUCTURE LENGTH | 662 ft |
| (50) | CURB OR SIDEWALK: LEFT 0.0 ft | RIGHT 0.0 ft |
| (51) | BRIDGE ROADWAY WIDTH CURB TO CURB | 14.0 ft |
| (52) | DECK WIDTH OUT TO OUT | 22.0 ft |
| (32) | APPROACH ROADWAY WIDTH (W/SHOULDERS) | 20 ft |
| (33) | BRIDGE MEDIAN - No median | 0 |
| (34) | SKEW 0 Deg | (35) STRUCTURE FLARED No 0 |
| (10) | INVENTORY ROUTE MIN VERT CLEAR | 17 ft 09 in |
| (47) | INVENTORY ROUTE TOTAL HORIZ CLEAR | 20 ft 00 in |
| (53) | MIN VERT CLEAR OVER BRIDGE RDW | 17 ft 09 in |
| (54) | MIN VERT UNDERCLEAR | 0 ft 00 in N |
| (55) | MIN LAT UNDERCLEAR RT | 0.0 ft N |
| (56) | MIN LAT UNDERCLEAR LT | 0.0 ft |

## NAVIGATION DATA

| | | |
|---|---|---|
| (38) | NAVIGATION CONTROL - No nav control | 0 |
| (111) | PIER PROTECTION - Not Applicable | |
| (39) | NAVIGATION VERTICAL CLEARANCE | 000 ft |
| (116) | VERT-LIFT BRIDGE NAV MIN VERT CLR | |
| (40) | NAVIGATION HORIZONTAL CLR | 0000 ft |

## WSBIS DATA

| | |
|---|---|
| BRIDGE NUMBER | 40070 |
| BRIDGE NAME | SKAGIT RIVER MARBLEMOUNT |
| CUSTODIAN | Skagit County |
| CROSSING DESC | SKAGIT RIVER MARBLEMOUNT |
| MAIN LISTING FLAG | M |
| SUFFICIENCY RATING | 32.38 SD |

## CLASSIFICATION

| | | |
|---|---|---|
| (112) | NBIS BRIDGE LENGTH | Y |
| (104) | HIGHWAY SYSTEM - Not on the NHS | 0 |
| (26) | FUNCTIONAL CLASS - Minor Collector | 08 |
| (100) | DEFENSE HIGHWAY - Not a STRAHNET route | 0 |
| (101) | PARALLEL STRUCTURE - Not a parallel bridge | N |
| (102) | DIRECTION OF TRAFFIC - 2-way traffic | 3 |
| (103) | TEMPORARY STRUCTURE - Not Applicable | |
| (105) | FEDERAL LANDS HIGHWAY - Forest Highway (FH) | 2 |
| (110) | DESIGNATED NATIONAL NETWORK - Not part of network | 0 |
| (20) | TOLL - Non-toll structure | 3 |
| (21) | MAINTENANCE - Highway Agency | 02 |
| (22) | OWNER - County Highway Agency | 2 |
| (37) | HISTORICAL SIGNIFICANCE - Not eligible | 5 |

## CONDITION

| | | |
|---|---|---|
| (58) | DECK | 6 |
| (59) | SUPERSTRUCTURE | 6 |
| (60) | SUBSTRUCTURE | 7 |
| (61) | CHANNEL AND CHANNEL PROTECTION | 6 |
| (62) | CULVERTS | N |

## LOAD RATING AND POSTING

| | | |
|---|---|---|
| (31) | DESIGN LOAD - H 15 | 2 |
| (63) | OPER RATING METHOD - Load and Resistance Factor (LRFR), tons | 3 |
| (64) | OPERATING RATING | 12 T |
| (65) | INV RATING METHOD - Load and Resistance Factor (LRFR), tons | 3 |
| (66) | INVENTORY RATING | 8 T |
| (70) | BRIDGE POSTING - 30.0 - 39.9% below legal load | 1 |
| (41) | STRUCT OPEN, POSTED, CLOSED - Posted for cap restrictions | R |

## APPRAISAL

| | | |
|---|---|---|
| (67) | STRUCTURAL EVALUATION | 2 |
| (68) | DECK GEOMETRY | 2 |
| (69) | UNDERCLEARANCES, VERTICAL & HORIZONTAL | N |
| (71) | WATERWAY ADEQUACY | 7 |
| (72) | APPROACH ROADWAY ALIGNMENT | 6 |
| (36) | TRAFFIC SAFETY FEATURES | 1111 |
| (113) | SCOUR CRITICAL BRIDGE | 8 |

## PROPOSED IMPROVEMENTS

| | | |
|---|---|---|
| (75) | TYPE OF WORK - | 311 |
| (76) | LENGTH OF STRUCTURE IMPROVEMENT | 672 ft |
| (94) | BRIDGE IMPROVEMENT COST | $8,299,000 |
| (95) | ROADWAY IMPROVEMENT COST | $1,660,000 |
| (96) | TOTAL PROJECT COST | $16,598,000 |
| (97) | YEAR OF IMPROVEMENT COST ESTIMATE | 2022 |
| (114) | FUTURE ADT | 742 |
| (115) | YEAR OF FUTURE ADT | 2040 |

## INSPECTIONS

| | | | |
|---|---|---|---|
| (90) | INSPECTION DATE 03/22 | (91) FREQUENCY 24 MO | |
| (92) | CRITICAL FEATURE INSPECTION: | | (93) CFI DATE |
| | (A) FRACTURE CRIT DETAIL - YES - | 24 Month | (A) 03/22 |
| | (B) UNDERWATER INSP - NO - | Month | (B) __/__ |
| | (C) OTHER SPECIAL INSP - NO - | Month | (C) __/__ |

# BRIDGE INSPECTION REPORT

Status: Work | Printed On: 4/26/2022 | Agency: Skagit County

CD Guid: 089e8183-e033-44d8-a7f8-30898ae839c1 | Release Date: | Program Mgr: Sonia L. Lowry

**Br. No.** 40070 **SID** 08228800 **Br. Name** SKAGIT RIVER MARBLEMOUNT

**Carrying** CASCADE RIVER RD **Route On** 97950 **Mile Post** 0.03

**Intersecting** SKAGIT RIVER **Route Under** **Mile Post**

Inspector's Signature TKK Cert # G1303 Cert Exp Date 1/31/2027 Co-Inspector's Signature PFK

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2 | | Structural Eval | (1657) | 12 | | Operating Tons | (1552) | 0 | | No Utilities | (2675) |
| 2 | | Deck Geometry | (1658) | 0.32 | | Op RF | (1553) | 1 | | Bridge Rails | (1684) |
| 9 | | Underclearance | (1659) | 8 | | Inventory Tons | (1555) | 1 | | Transition | (1685) |
| 6 | | Alignment | (1661) | 0.22 | | Inv RF | (1556) | 1 | | Guardrails | (1686) |
| 6 | | Deck Overall | (1663) | 1 | | Operating Level | (1660) | 1 | | Terminals | (1687) |
| 6 | | Superstructure | (1671) | R | | Open/Closed | (1293) | 0.00 | | Asphalt Depth | (2610) |
| 7 | | Substructure | (1676) | 7 | | Waterway | (1662) | | | Design Curb Ht | (2611) |
| 9 | | Culvert | (1678) | 8 | | Scour | (1680) | | | Bridge Rail Ht | (2612) |
| 6 | | Chan/Protection | (1677) | | | Soundings Flag | (2693) | 1930 | | Year Built | (1332) |
| N | | Pier/Abut/Prot | (1679) | | | Revise Rating | (2688) | 0 | | Year Rebuilt | (1336) |
| 7 | | Drain Cond | (7664) | | | Photos Flag | (2691) | Y | | Subj to NBIS | (2614) |
| 1 | | Drain Status | (7665) | | | Measure Clrnc | (2694) | | | | |
| M | | Deck Scaling | (7666) | 9 | | Sdwk Cond | (7673) | | | | |
| 1 | | Scaling Pct | (7667) | 5 | | Paint Cond | (7674) | | | | |
| 7 | | Deck Rutting | (7669) | 6 | | Approach Cond | (7681) | | | | |
| 8 | | Exposed Rebar | (7670) | 9 | | Retaining Wall | (7682) | | | | |
| 9 | | Curb Cond | (7672) | 9 | | Pier Prot | (7683) | | | | |

| | |
|---|---|
| Alpha Span Type: | STrus |
| Sufficiency Rating: | 32.38 |
| Status: | SD |
| Routine Risk Category: | High Risk |
| Underwater Risk Category: | No Risk Category |

**Inspections Performed:**

| Freq | Hrs | Date | Rep Type |
|---|---|---|---|
| 24 | 1.0 | 3/22/2022 | Routine |
| 24 | 12.0 | 3/22/2022 | Fract Crit |
| | | | UW |
| | | | Special |
| | | | Interim |
| | | | UWI |
| | | | Damage |
| | | | PRM Safety |
| | | | SEC Safety |
| | | | Condition |
| | | | Short Span |
| | | | In Depth |
| | | | Geometric |

## BMS Elements

| Element | Element Description | Total | Units | State 1 | State 2 | State 3 | State 4 |
|---|---|---|---|---|---|---|---|
| 12 | Concrete Deck | 11040 | SF | 11012 | 28 | 0 | 0 |
| 13 | Bridge Deck Surface | 1100 | SF | 1081 | 18 | 1 | 0 |
| 35 | Concrete Deck Soffit | 11040 | SF | 11036 | 1 | 3 | 0 |
| 113 | Steel Stringer | 3864 | LF | 3853 | 0 | 11 | 0 |
| 114 | Concrete Multiple Web Girder Unit | 220 | LF | 218 | 0 | 2 | 0 |
| 126 | Steel Thru Truss | 1200 | LF | 1000 | 20 | 180 | 0 |
| 133 | Truss Gusset Plates | 112 | EA | 109 | 0 | 3 | 0 |
| 152 | Steel Floor Beam | 525 | LF | 523 | 0 | 2 | 0 |
| 162 | Steel Pin | 8 | EA | 8 | 0 | 0 | 0 |
| 200 | Abutment Fill | 2 | EA | 2 | 0 | 0 | 0 |
| 210 | Concrete Pier Wall | 40 | LF | 40 | 0 | 0 | 0 |
| 214 | Concrete Web Wall between Columns | 40 | LF | 40 | 0 | 0 | 0 |
| 215 | Concrete Abutment | 56 | LF | 56 | 0 | 0 | 0 |
| 227 | Concrete Submerged Pile/Column | 4 | EA | 4 | 0 | 0 | 0 |

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**Br. No.** 40070 **SID** 08228800 **Br. Name** SKAGIT RIVER MARBLEMOUNT

**Carrying** CASCADE RIVER RD **Route On** 97950 **Mile Post** 0.03

**Intersecting** SKAGIT RIVER **Route Under** **Mile Post**

## BMS Elements (Continued)

| Element | Element Description | Total | Units | State 1 | State 2 | State 3 | State 4 |
|---|---|---|---|---|---|---|---|
| 234 | Concrete Pier Cap/Crossbeam | 88 | LF | 88 | 0 | 0 | 0 |
| 311 | Moveable Bearing (roller, sliding, etc) | 14 | EA | 10 | 0 | 4 | 0 |
| 313 | Fixed Bearing | 10 | EA | 7 | 0 | 3 | 0 |
| 322 | Approach Roadway Impact | 2 | EA | 1 | 0 | 1 | 0 |
| 330 | Metal Bridge Railing | 1324 | LF | 1324 | 0 | 0 | 0 |
| 331 | Concrete Bridge Railing | 124 | LF | 59 | 0 | 65 | 0 |
| 355 | Damaged Bolts or Rivets | 18 | EA | 0 | 4 | 14 | 0 |
| 357 | Pack Rust | 7 | EA | 7 | 0 | 0 | 0 |
| 361 | Scour | 2 | EA | 0 | 2 | 0 | 0 |
| 400 | Asphalt Butt Joint Seal | 40 | LF | 0 | 0 | 40 | 0 |
| 402 | Open Concrete Joint | 580 | LF | 240 | 140 | 200 | 0 |
| 408 | Steel Sliding Plate | 40 | LF | 20 | 0 | 20 | 0 |
| 904 | Organic Zinc/Urethane Paint System | 100000 | SF | 78000 | 0 | 20000 | 2000 |

## Notes

0 Bridge is oriented west to east with the west end closest to Marblemount.

11 The load rating update calls for posting of all legal loads (see Summary Sheet1 in Records/Load Rating tab). Rather than posting load restrictions, traffic modifications have been made to restrict the bridge to a 1-lane, 2-way operation. This allows for legal loads to cross one at a time while traveling in the center of the bridge (see Summary Sheet2 in the Records/Load Rating tab). Field 1293 has been coded R.

12 Concrete deck (located in the main spans) has medium scaling with mud ball voids.
Panel 1 has a 1 ft. x 3 ft. patch in the eastbound lane and a 6'" diameter patch in the westbound lane.
Panel 3 has two 6" diameter patches.
Panel 4 has four patches for 4 sq. ft. total in the westbound lane along the centerline.
Panel 5 has an 18" diameter patch in the westbound lane.
Panel 8 has a 6" diameter patch in the westbound lane.
Panel 11 has an 8" x 12" patch in the westbound lane near Panel Point 11.
Panel 13 has a 1 sq. ft. patch in eastbound lane. Panel Point 13 south curb has a 6" x 6" x 2" deep spall.
Panel 17 has two 6" diameter patches in the westbound lane.
Panel 18 has a 9" x 4" patch in the eastbound lane.
Panel 20 has a 6" diameter patch in the eastbound lane.
Panel 23 has a 3 sq. ft. patch in eastbound lane.
Panel 24 has a 10" diameter patch in the eastbound lane and a 4" diameter patch in the westbound lane.
Panel 27 has 3 ft. x 6'', and 6" x 6" patches in the westbound lane and a 10" diameter patch in the eastbound lane.
Panel 30 has a 10" diameter patch and a 12" diameter patch in the westbound lane.

13 Deck surface over the approach spans is worn in the wheel lines.
Span 1 has a 5 ft. x 20" patch near midspan and a 6" x 12" spall near Pier 2. See photos #37 and #38. REPAIR #12708.
Span 5 has an 8 sq. ft. patch in the eastbound lane.

35 Soffit has a few transverse hairline cracks scattered throughout with some rust staining, and several areas of shallow delamination and spalling at the floor beams exposing rusty flanges. See photo #5 (typical).
Panel 5, between Stringers A and B, there is a 1 ft. diameter patch and a 16" diameter spall around patch near Floorbeam 5.
Panel 7, near Floor Beam 7, there is a spall 6" x 10" x 3" deep between Stringers E and F.
Panel 18, there are rock pockets with exposed rebar between Stringers C and D.

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**Carrying** CASCADE RIVER RD **Route On** 97950 **Mile Post** 0.03

**Intersecting** SKAGIT RIVER **Route Under** **Mile Post**

## Notes (Continued)

| | |
|---|---|
| 113 | Steel stringers have scattered small rust blooms on flange edges of the exterior stringers and pack rust up to 1/4" in several of the erection angle seats.<br>Stringer 10G top flange (at Floorbeam 9) and Stringer 11G top flange (at Floorbeam 10) each have a 6" diameter rust scallop. REPAIR #12714.<br>Stringer 13G bottom flange (at Floorbeam 13) has laminar rust with approximately 10% section loss at erection angle seat. See photo #44. REPAIR #12714.<br>Stringer 14G bottom flange (at Floorbeam 13) and Stringer 15G bottom flange (at Floorbeam 14) each are bent up 1" over a 12" length near the floorbeam connections.<br>Stringer 24G bottom flange (near Floorbeam 23) has laminar rust over 12" with approximately 10% section loss. See photo #45. REPAIR #12714.<br>Stringer 28C bottom flange near Floorbeam 28, is bent upward 1". |
| 114 | Concrete multiweb girders, in Spans 1 and 5, have vertical hairline cracks in the webs and water leakage between the girder segments.<br>Girder 5B north web over Bearing 5C has a 16" x 2" x 3" delamination. |
| 126 | Steel thru truss, at the end posts, is reinforced by 6" x 3/4" plates welded on both sides of each channel.<br>Both trusses have minor traffic impact damage present in a few vertical members.<br><br>Bottom chords of both north and south trusses have a few areas of debris that inhibits inspection (areas are primarily over land at ends of truss spans). See photos #42 and #43. REPAIR #12711.<br><br>See "Visual Fracture Critical Report" attached to the files tab for more information. |
| 133 | Gusset plates with misdrilled holes, broken or missing rivets, and minor corosion are detailed in the "Visual Fracture Critical Report" attached to the files tab. |
| 152 | Steel floor beams have top flange rust in several locations and minor section loss with shallow pitting.<br>Floor Beam 1, below Stringer 1G at the west face, has an 8" x 6" area of pitting up to 1/16" deep.<br>Floor Beam 28, the bottom flange is gouged and bent 3/4" over a 12" length from a high load hit. See photo #4. |
| 162 | Steel pins are in the top chords.<br>All pins have minor rust blooms and pitting. Pins were UT'd in 2020 with no indications noted. See the "UT Inspection Report."<br>For additional specific information and call outs, see "Visual Fracture Critical Report" and the "Pin Inspection Schedule and Summary Sheet.". |
| 210 | Concrete pier walls are located at Piers 2 and 5. |
| 214 | Web walls, at Piers 3 and 4, have vertical and diagonal hairline cracks and are abraded at the water line. |
| 215 | Concrete abutments have sloughing approach fills with erosion voids up to 10" high over most of their length. |
| 227 | Concrete submerged Columns at Piers 3 and 4, have vertical hairline leaching cracks in the top. |
| 234 | Concrete pier caps have a few vertical hairline leaching cracks and small shallow popouts scattered throughout. |
| 311 | Rocker bearings for concrete girder units are at Pier 2 and Pier 5.<br>In several locations lock nuts at the masonry plates have laminar rust blossoms with up to 1/16" section loss, most notable at Bearings 2A and 2C.<br>Truss span Bearing 2A is missing a nut at the southwest corner for the masonry plate and has a loose nut at the southeast corner. See photo #33. REPAIR #12715. |
| 313 | Fixed Bearings are at Piers 1, 3 and 6. The deficiencies listed below have been painted over and have existed for a while without any detrimental affects.<br>Bearing 1A has a loose nut at the bottom SE corner.<br>Bearing 1C has a missing nut the top SE corner. See photo #34 (typical).<br>Bearing 1D has a missing nut at the top NE corner and bottom NW corner. |
| 322 | East approach has approximately 1/2" of settlement. |

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**Intersecting** SKAGIT RIVER **Route Under** **Mile Post**

## Notes (Continued)

| | |
|---|---|
| 330 | Metal bridge rail consists of thrie-beam rail retrofitted to the original concrete baluster rail. |
| 331 | Concrete bridge rails over the approach spans are covered with moss.<br>The top rails are cracked, exfoliated and spalled up to 3" deep. The posts are cracked and delaminating. The heaviest deterioration is in the north rails. See photo #36. |
| 355 | Damaged, broken and missing rivets are present in the truss members. See element 126. |
| 357 | Pack rust in stringers. See element 113. |
| 361 | Skagit River flows north to south below Spans 2, 3 and 4.<br>Tops of footings at Piers 3 and 4 have been exposed in the past.<br>Pier 4 is beginning to re-accumulate debris. See photo #41. REPAIR #12705. |
| 400 | Asphalt butt joints at abutments are not sawcut and sealed.<br>East abutment joint has approximately 4 ft. of total patches and a 2 ft. x 8" x 1" deep pothole in the eastbound lane. See photo #46. REPAIR #12712. |
| 402 | Open concrete joints over the truss panel points have poured rubber filler.<br>Panel Point 1 has a 6 ft. x 9" patch in the westbound lane and centerline.<br>Panel Point 2 has 2 ft. x 10" patch in the westbound lane and 10" x 6" patch in the eastbound lane.<br>Panel Point 3 has an 18 ft. patch up to 24" wide.<br>Panel Point 4 is patched full width.<br>Panel Point 5 is patched full width.<br>Panel Point 6 has an 9 ft. x 24" patch in the westbound lane and a 24" x 12" patch in the eastbound lane.<br>Panel Point 7 has a 10 ft. x up to 18" patch in the eastbound lane.<br>Panel Point 9 has a 4 ft. x 6" patch in the eastbound lane.<br>Panel Point 11 has a 24" x 6" patch in the westbound lane.<br>Panel Point 13 has a 4 ft. x 6" patch in westbound and a 6 ft. x 12" patch in the eastbound lane.<br>Panel Point 16 has a 4 ft. x 9" patch in the westbound lane and a 4 ft. x 1 ft. patch in the eastbound lane.<br>Panel Point 17 has a 2 ft. x 6" patch in the westbound lane.<br>Panel Point 19 has a 2 sq. ft. patch in the eastbound lane.<br>Panel Point 20 has a 4 ft. x 18" patch at the centerline.<br>Panel Point 23 has a 6 ft. x 9" patch at the centerline and eastbound lane.<br>Panel Point 24 has a 3 ft. x 12" patch in the eastbound lane.<br>Panel Point 25 has a 6 ft. x 12" patch in the westbound lane. |
| 408 | Steel sliding plate joints are full of debris.<br>West joint has a 6" crack in the east steel header at centerline. See photo #47.<br><br>Joints are measured just north of centerline (due to west joint offset at centerline). See photo #47.<br>Year West Joint East Joint Temp (F) Time<br>2020 1-1/2" 1-1/2" 40 ° 11:00<br>2018 1-1/2" 1-7/8" 40 ° 11:00<br>2016 1-1/2" 1-5/8" 47 ° 10:00 |
| 904 | Paint system is chalky with wide spread cracking, areas of heavy peeling and exposed primer.<br>There is rust staining in some locations that is associated with areas of cracked and bubbled paint that is exposing metal substrate, heaviest on the south face of members. See photos #28 and #29. |
| 1660 | Rating factor of 0.61 for AASHTO 3, therefore, coding set at 1 |
| 1677 | Channel banks are well vegetated upstream and downstream with some sloughing. See photos #39 and #40. |
| 1680 | Piers are supported by timber piles. |
| 1685 | Northeast transition has minor impact damage and a split spacer block. See photo #19. REPAIR #12703. |
| 1686 | Guardrail has minor traffic damage at the southwest corner.<br>Northwest guardrail has traffic impact over a 20 ft. length. See photo #35. REPAIR #12707. |

Status: Work | Printed On: 4/26/2022 | Agency: Skagit County

CD Guid: 089e8183-e033-44d8-a7f8-30898ae839c1 | Release Date: | Program Mgr: Sonia L. Lowry

**Br. No.** 40070 **SID** 08228800 **Br. Name** SKAGIT RIVER MARBLEMOUNT

**Carrying** CASCADE RIVER RD **Route On** 97950 **Mile Post** 0.03

**Intersecting** SKAGIT RIVER **Route Under** **Mile Post**

## Notes (Continued)

7664 Drains are open and working properly.

## Repairs

| Repair No | Pr | R | Repair Descriptions | Noted | Maint | Verified |
|---|---|---|---|---|---|---|
| **12703** | 0 | J | Replace split spacer block at northeast corner. | 3/17/2010 | | |
| **12705** | 1 | B | Remove debris from upstream face of Pier 4.<br>(This is a recurrent problem, consider the installation of a shark or debris deflector). | 3/14/2012 | | |
| **12707** | 1 | J | Repair or replace the 20 ft. length of damaged guardrail at the northwest corner. | 3/25/2014 | | |
| **12708** | 1 | B | Remove loose or spalled concrete from the spalled deck surface over Span 1. Clean and paint any exposed rebar and patch with an approved material. | 3/25/2014 | | |
| **12711** | 1 | B | Bottom chords of both north and south trusses have a few areas of debris that inhibits inspection (areas are primarily over land at ends of truss spans).<br><br>Clean debris from bottom chords prior to next scheduled UBIT inspection in 3/2022 (majority of debris can be seen and maybe accessed from deck). | 3/4/2020 | | |
| **12712** | 1 | J | Remove loose ACP and patch pothole at east abument joint in the eastbound lane. | 3/4/2020 | | |
| **12714** | 2 | B | Remove rust, appy rust inhibitor and touch-up paint the stringers at the folowing locations:<br><br>Stringer 10G top flange (at Floorbeam 9).<br>Stringer 11G top flange (at Floorbeam 10).<br>Stringer 13G bottom flange (at Floorbeam 13) at erection angle seat.<br>Stringer 24G bottom flange (near Floorbeam 23). | 3/4/2020 | | |
| **12715** | 2 | B | Replace missing nut at Truss span Bearing 2A at the southwest corner for the masonry plate and tighten loose nut at the southeast corner. | 3/4/2020 | | |
| **12716** | 1 | J | Install signage for Load Restrictions | 10/13/2020 | | |

## Inspections Performed and Resources Required

| Report Type | Date | Freq | Hrs | Insp | CertNo | Coinsp | Note |
|---|---|---|---|---|---|---|---|
| **Routine** | 3/22/2022 | 24 | 1.0 | TKK | G1303 | PFK | |

| Resources | Hours | Min | Pref | Max | Freq | Date | Need Date | Override | Notes |
|---|---|---|---|---|---|---|---|---|---|
| SNDG | | | | | 72 | 3/4/2020 | 3/4/2026 | | CAUTION: Watch out for boats! |

| Report Type | Date | Freq | Hrs | Insp | CertNo | Coinsp | Note |
|---|---|---|---|---|---|---|---|
| **Fracture Critical** | 3/22/2022 | 24 | 12.0 | TKK | G1303 | PFK | Extra time needed due to using UB-30 (see UBIT resource below). |

| Resources | Hours | Min | Pref | Max | Freq | Date | Need Date | Override | Notes |
|---|---|---|---|---|---|---|---|---|---|

Status: Work | Printed On: 4/26/2022 | Agency: Skagit County

CD Guid: 089e8183-e033-44d8-a7f8-30898ae839c1 | Release Date: | Program Mgr: Sonia L. Lowry

**Br. No.** 40070 **SID** 08228800 **Br. Name** SKAGIT RIVER MARBLEMOUNT

**Carrying** CASCADE RIVER RD **Route On** 97950 **Mile Post** 0.03

**Intersecting** SKAGIT RIVER **Route Under** **Mile Post**

## Inspections Performed and Resources Required (Continued)

| Report Type | | Date | Freq | Hrs | Insp | CertNo | Coinsp | Note |
|---|---|---|---|---|---|---|---|---|
| UBIT | 9.00 | 30 | 30 | 30 | 24 | 3/22/2022 | 3/22/2024 | Unable to deploy off north side due to power lines.<br><br>UB-30 used in 2020 and 2022 due to load rating values being well below weight of UB-52 and UB-62 (Load Rating had not been done since 1985 and values in Load Rating tab were updated prior to 2020 inspection to match/reflect 1985 Load Rating). It was decided to be safe, to use UB-30. Re-evaluate next inspection if a current load rating has been completed and if UB-52 or UB-62 would work.<br><br>Note: UB-30 requires deploying through truss within every other panel at minimum (deployment through every panel would be ideal if time permits). |
| Bucket | 3.00 | BK | BK | BK | 24 | 3/22/2022 | 3/22/2024 | In 2022, Skagit County bucket truck was used to inspect upper members of both trusses. Used their large "Forestry" bucket truck and it worked well (despite its size). |
| Flagging | 13.00 | LA | LA | LA | | | | Contact Skagit County for scheduling inspections and traffic control:<br>Torey Nelson = (360) 416-1425 / toreyn@co.skagit.wa.us<br>Forrest Jones = (360) 416-1400 / forrestj@co.skagit.wa.us |
| Special Equipment | 2.00 | UT | UT | UT | | | | UT eight pins total in top chord of both trusses on a 72 month frequency (use 2.25Mhz/0.75 transducer).<br>See 'Pin Inspection Schedule' for details. Last completed in 2020. Next due in 2026. |

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**Carrying** CASCADE RIVER RD **Route On** 97950 **Mile Post** 0.03

**Intersecting** SKAGIT RIVER **Route Under** **Mile Post**

**SI-25**

0 Orientation

Photo Type: D - Deck

Orientation: E

Date: 3/25/2014

Repairs:

Deck looking east.


**SI-26**

0 Orientation

Photo Type: E - Elevation

Orientation: NW

Date: 3/25/2014

Repairs:

Elevation looking northwest.

Status: Work | Printed On: 4/26/2022 | Agency: Skagit County

CD Guid: 089e8183-e033-44d8-a7f8-30898ae839c1 | Release Date: | Program Mgr: Sonia L. Lowry

**Br. No.** 40070 **SID** 08228800 **Br. Name** SKAGIT RIVER MARBLEMOUNT

**Carrying** CASCADE RIVER RD **Route On** 97950 **Mile Post** 0.03

**Intersecting** SKAGIT RIVER **Route Under** **Mile Post**

**SI-48**

Traffic Revision

Photo Type: C - Completed

Orientation: W

Date: 10/13/2020

Repairs:

Traffic Revision - 1 Lane, 2-Way

**SI-49**

Traffic Revision

Photo Type: C - Completed

Orientation: E

Date: 10/13/2020

Repairs:

Traffic Revision - 1 Lane, 2-Way

Status: Work | Printed On: 4/26/2022 | Agency: Skagit County

CD Guid: 089e8183-e033-44d8-a7f8-30898ae839c1 | Release Date: | Program Mgr: Sonia L. Lowry

**Br. No.** 40070 **SID** 08228800 **Br. Name** SKAGIT RIVER MARBLEMOUNT

**Carrying** CASCADE RIVER RD **Route On** 97950 **Mile Post** 0.03

**Intersecting** SKAGIT RIVER **Route Under** **Mile Post**

**SI-50**

Traffic Revision

Photo Type: C - Completed

Orientation: E

Date: 10/13/2020

Repairs:

Traffic Revision - 1 Lane, 2-Way

**SI-51**

Traffic Revision

Photo Type: C - Completed

Orientation: E

Date: 10/13/2020

Repairs:

Traffic Revision - 1 Lane, 2-Way

Status: Work | Printed On: 4/26/2022 | Agency: Skagit County

CD Guid: 089e8183-e033-44d8-a7f8-30898ae839c1 | Release Date: | Program Mgr: Sonia L. Lowry

**Br. No.** 40070 **SID** 08228800 **Br. Name** SKAGIT RIVER MARBLEMOUNT

**Carrying** CASCADE RIVER RD **Route On** 97950 **Mile Post** 0.03

**Intersecting** SKAGIT RIVER **Route Under** **Mile Post**

**SI-37**

13 Bridge Deck Surface

Photo Type: G - General

Orientation: SE

Date: 3/25/2014

Repairs:

Span 1 has a 5 ft. patch at the centerline.

**SI-38**

13 Bridge Deck Surface

Photo Type: R - Repair

Orientation: S

Date: 3/25/2014

Repairs: 12708

Span 1 spall near Pier 2.

Status: Work | Printed On: 4/26/2022 | Agency: Skagit County

CD Guid: 089e8183-e033-44d8-a7f8-30898ae839c1 | Release Date: | Program Mgr: Sonia L. Lowry

**Br. No.** 40070 **SID** 08228800 **Br. Name** SKAGIT RIVER MARBLEMOUNT

**Carrying** CASCADE RIVER RD **Route On** 97950 **Mile Post** 0.03

**Intersecting** SKAGIT RIVER **Route Under** **Mile Post**

**SI-5**

35 Soffit

Photo Type: G - General

Orientation: UP

Date: 4/17/2002

Repairs:

Span 3 Floorbeam 16 corrosion between Stringers E and F.


**SI-44**

113 Steel Stringer

Photo Type: G - General

Orientation: SE

Date: 3/4/2020

Repairs: 12714

Stringer 13G bottom flange (at Floorbeam 13) has laminar rust at erection angle seat.

Status: Work | Printed On: 4/26/2022 | Agency: Skagit County

CD Guid: 089e8183-e033-44d8-a7f8-30898ae839c1 | Release Date: | Program Mgr: Sonia L. Lowry

**Br. No.** 40070 **SID** 08228800 **Br. Name** SKAGIT RIVER MARBLEMOUNT

**Carrying** CASCADE RIVER RD **Route On** 97950 **Mile Post** 0.03

**Intersecting** SKAGIT RIVER **Route Under** **Mile Post**

**SI-45**

113 Steel Stringer

Photo Type: G - General

Orientation: NW

Date: 3/4/2020

Repairs: 12714

Stringer 24G bottom flange (near Floorbeam 23) has laminar rust.

**SI-42**

126 Steel Thru Truss

Photo Type: R - Repair

Orientation: W

Date: 3/4/2020

Repairs: 12711

Debris on bottom chord at L26 to L27 south truss at panel point L26S.

Status: Work | Printed On: 4/26/2022 | Agency: Skagit County

CD Guid: 089e8183-e033-44d8-a7f8-30898ae839c1 | Release Date: | Program Mgr: Sonia L. Lowry

**Br. No.** 40070 **SID** 08228800 **Br. Name** SKAGIT RIVER MARBLEMOUNT

**Carrying** CASCADE RIVER RD **Route On** 97950 **Mile Post** 0.03

**Intersecting** SKAGIT RIVER **Route Under** **Mile Post**

**SI-43**

126 Steel Thru Truss

Photo Type: R - Repair

Orientation: DN

Date: 3/4/2020

Repairs: 12711

Debris on bottom chord at L25 to L26 south truss at panel point L26S.

**SI-30**

126 Steel Thru Truss

Photo Type: G - General

Orientation: E

Date: 3/25/2014

Repairs:

L20 South bottom edge of interior gusst plate is corroded to a knife edge.

Status: Work | Printed On: 4/26/2022 | Agency: Skagit County

CD Guid: 089e8183-e033-44d8-a7f8-30898ae839c1 | Release Date: | Program Mgr: Sonia L. Lowry

**Br. No.** 40070 **SID** 08228800 **Br. Name** SKAGIT RIVER MARBLEMOUNT

**Carrying** CASCADE RIVER RD **Route On** 97950 **Mile Post** 0.03

**Intersecting** SKAGIT RIVER **Route Under** **Mile Post**

**MI-4**

152 Steel Floorbeam

Photo Type: G - General

Orientation: E

Date: 4/17/2002

Repairs:

Damaged Floorbeam 28.


**SI-33**

311 Moveable Bearing (roller, sliding, etc)

Photo Type: G - General

Orientation: NW

Date: 3/25/2014

Repairs: 12715

Bearing 2A for the truss span has a missing nut at the SW corner and the nut is not engaged at the SE corner.

Status: Work | Printed On: 4/26/2022 | Agency: Skagit County

CD Guid: 089e8183-e033-44d8-a7f8-30898ae839c1 | Release Date: | Program Mgr: Sonia L. Lowry

**Br. No.** 40070 **SID** 08228800 **Br. Name** SKAGIT RIVER MARBLEMOUNT

**Carrying** CASCADE RIVER RD **Route On** 97950 **Mile Post** 0.03

**Intersecting** SKAGIT RIVER **Route Under** **Mile Post**

**SI-34**

313 Fixed Bearing

Photo Type: G - General

Orientation: NW

Date: 3/25/2014

Repairs:

Bearing 1C is missing a nut at the top southeast corner.

**SI-36**

331 Concrete Bridge Railing

Photo Type: G - General

Orientation: N

Date: 3/25/2014

Repairs:

Concrete bridge rails are cracked, exfoliated and spalled in areas. Northwest rail is shown.

Status: Work | Printed On: 4/26/2022 | Agency: Skagit County

CD Guid: 089e8183-e033-44d8-a7f8-30898ae839c1 | Release Date: | Program Mgr: Sonia L. Lowry

**Br. No.** 40070 **SID** 08228800 **Br. Name** SKAGIT RIVER MARBLEMOUNT

**Carrying** CASCADE RIVER RD **Route On** 97950 **Mile Post** 0.03

**Intersecting** SKAGIT RIVER **Route Under** **Mile Post**

**SI-41**

361 Scour

Photo Type: R - Repair

Orientation: E

Date: 3/4/2020

Repairs: 12705

Pier 4 upstream nose is accumulating debris.

**SI-46**

400 Asphalt Butt Joint Seal

Photo Type: J - Reg Road Maint

Orientation: E

Date: 3/4/2020

Repairs: 12712

East abutment joint has a pothole in the eastbound lane.

Status: Work | Printed On: 4/26/2022 | Agency: Skagit County

CD Guid: 089e8183-e033-44d8-a7f8-30898ae839c1 | Release Date: | Program Mgr: Sonia L. Lowry

**Br. No.** 40070 **SID** 08228800 **Br. Name** SKAGIT RIVER MARBLEMOUNT

**Carrying** CASCADE RIVER RD **Route On** 97950 **Mile Post** 0.03

**Intersecting** SKAGIT RIVER **Route Under** **Mile Post**

**SI-47**

408 Steel Sliding Plate

Photo Type: G - General

Orientation: N

Date: 3/4/2020

Repairs:

West joint has a 6" crack in the east steel header at centerline. Note: offset of joint at centerline for joint measurements.

**SI-29**

904 Paint

Photo Type: G - General

Orientation: N

Date: 3/25/2014

Repairs:

Wide spread paint cracking with heavy rust staining.

Status: Work | Printed On: 4/26/2022 | Agency: Skagit County

CD Guid: 089e8183-e033-44d8-a7f8-30898ae839c1 | Release Date: | Program Mgr: Sonia L. Lowry

**Br. No.** 40070 **SID** 08228800 **Br. Name** SKAGIT RIVER MARBLEMOUNT

**Carrying** CASCADE RIVER RD **Route On** 97950 **Mile Post** 0.03

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**SI-28**

904 Paint

Photo Type: G - General

Orientation: N

Date: 3/25/2014

Repairs:

Peeling paint with surface rust and wide spread rust staining.


**SI-39**

1677 Channel Protection

Photo Type: S - Scour

Orientation: N

Date: 3/4/2020

Repairs:

Upstream channel.

Status: Work | Printed On: 4/26/2022 | Agency: Skagit County

CD Guid: 089e8183-e033-44d8-a7f8-30898ae839c1 | Release Date: | Program Mgr: Sonia L. Lowry

**Br. No.** 40070 **SID** 08228800 **Br. Name** SKAGIT RIVER MARBLEMOUNT

**Carrying** CASCADE RIVER RD **Route On** 97950 **Mile Post** 0.03

**Intersecting** SKAGIT RIVER **Route Under** **Mile Post**

**SI-40**

1677 Channel Protection

Photo Type: S - Scour

Orientation: S

Date: 3/4/2020

Repairs:

Downstream channel.

**SI-19**

1685 Transitions

Photo Type: J - Reg Road Maint

Orientation: E

Date: 3/17/2010

Repairs: 12703

Split spacer block at northeast corner.

Status: Work | Printed On: 4/26/2022 | Agency: Skagit County

CD Guid: 089e8183-e033-44d8-a7f8-30898ae839c1 | Release Date: | Program Mgr: Sonia L. Lowry

**Br. No.** 40070 **SID** 08228800 **Br. Name** SKAGIT RIVER MARBLEMOUNT

**Carrying** CASCADE RIVER RD **Route On** 97950 **Mile Post** 0.03

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**SI-35**

1686 Guardrails

Photo Type: J - Reg Road Maint

Orientation: W

Date: 3/25/2014

Repairs: 12707

Guardrail at the northwest corner has traffic impact damage over a 20 ft.

Status: Work | Printed On: 4/26/2022 | Agency: Skagit County

CD Guid: 089e8183-e033-44d8-a7f8-30898ae839c1 | Release Date: | Program Mgr: Sonia L. Lowry

**Br. No.** 40070 **SID** 08228800 **Br. Name** SKAGIT RIVER MARBLEMOUNT

**Carrying** CASCADE RIVER RD **Route On** 97950 **Mile Post** 0.03

**Intersecting** SKAGIT RIVER **Route Under** **Mile Post**

**Washington State Department of Transportation**

# WSBIS Local Agency Inventory Report

## Bridge ID

| 1001 Structure ID | 2009 Bridge Number | 2132 Bridge Name | 1019 Owner | 1286 Cust | 1021 County | 2023 City | 1156 Location | 2181 Section | 2183 Twnshp | 2185 Range | 1188 Latitude | 1196 Longitude |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 08228800 | 40070 | SKAGIT RIVER MARBLEMOUNT | 02 | 02 | 29 | 0000 | 0.03 E JCT SR 20 | 18 | 35 | 11E | 48° 31' 36.00" | 121° 25' 48.00" |
| | | | | | | | | | | | | |

## Facilities

| 1232 Feature Intersected | 1256 Facilities Carried | 1274 Region | 7281 Leg1 | 7283 Leg2 | 1276 FIPS | 1285 Toll | 1288 Para | 1289 Temp | 1293 OPC | 1292 NRHP | 2295 HAER | 7296 LRHP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SKAGIT RIVER | CASCADE RIVER RD | NW | 39 | 0 | 99057 | 3 | N | | R | 5 | | |
| | | | | | | | | | | | | |

| Printed Date | |
|---|---|
| **4/26/2022** | |

| | |
|---|---|
| Sufficiency Rating: | 32.38 |
| Status: | SD |
| Routine Risk Category: | High Risk |
| Underwater Risk Category: | |

## Layout

| 1332 Year Built | 1336 Year Rebuilt | 1340 Bridge Length | 2346 Screening Length | 1348 Maximum Span Length | 1352 Lanes On | 1356 Curb to Curb Deck Width | 1360 Out to Out Deck Width | 1364 Sidewalk Left | 1367 Sidewalk Right | 1310 Skew | 1312 Flared | 1370 Min Vert Over Deck | 1374 Min Vert Under | 1378 Vert Code | 1379 Min Lat Under Right | 1382 Lat Code | 1383 Min Lat Under Left | 1386 Nav Ctl Code | 1387 Nav Vert Clear | 1390 Nav Horiz Clear | 1394 Nav Vert Lift Clear | 1291 Median | 1397 Appr Rdwy |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1930 | 0 | 662 | | 280 | 1 | 14.0 | 22.0 | 0.0 | 0.0 | 0 | N | 17' 09" | 00' 00" | N | 0.0 | N | 0.0 | 0 | 0 | 0 | | 0 | 20 |
| | | | | | | | | | | | | | | | | | | | | | | | |

## Crossing

| 1432 On Under | 1433 Hwy Class | 1434 Service Level | 1435 Route Number | 2440 Milepost | 1445 ADT | 1451 Truck % | 1453 Year of ADT | 1457 Future ADT | 1463 Future ADT Year | 1467 Linear Referencing System | 2410 NBI Bridge | 7479 Fed Aid Route # | 1483 NHS | 1484 BHS | 1485 STRAH | 1486 FLH | 1487 Funct. Class | 1489 NTN | 1490 Lane Use Direction | 1354 Lanes Under | 1491 Horizontal Clearance Route Dir | 1495 Horizontal Clearance Reverse Dir | 1499 Max Vert Clearance Route | 1413 Detour | 2441 Speed Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 4 | 1 | 97950 | 0.03 | 608 | 11 | 2020 | 742 | 2040 | | Y | 0000 | 0 | 0 | 0 | 2 | 08 | N | 5 | 0 | 20' 00" | | *17' 09"* | 20 | 25 |
| | | | | | | | | | | | | | | | | | | | | | | | | | |

## Design

| 1532 Main Span Material | 1533 Main Span Design | 1535 Appr Span Material | 1536 Appr Span Design | 1538 Number Main Spans | 1541 Number Appr Spans | 1544 Service On | 1545 Service Under | 1546 Deck Type | 1547 Wearing Surface | 1548 Membrane | 1549 Deck Protect | 1550 Design Load Code | 1551 Oper Rating Method | 1552 Oper Rating Tons | 1553 Oper Rating Factor | 1554 Inv Rating Method | 1555 Inv Rating Tons | 1556 Inv Rating Factor | 1585 Border State Cd | 1588 Border Pct | 1590 Border Structure ID | 7565 Fed Aid Project No | 7557 Design Exemption |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | 10 | 1 | 22 | 3 | 2 | 1 | 5 | 1 | 1 | 0 | 0 | 2 | 3 | 12 | 0.32 | 3 | 8 | 0.22 | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | |

## Load Rating

| 2587 Type 3 | 2588 Type 3S2 | 2589 Type 3-3 | 2590 NRL | 2591 SHV 4 | 2592 SHV 5 | 2593 SHV 6 | 2594 SHV 7 | 2597 EV 2 | 2598 EV 3 | 2595 OL 1 | 2596 OL 2 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.95 | 0.69 | 0.61 | 0.60 | 0.87 | 0.76 | 0.69 | 0.62 | 0.82 | 0.55 | 0.70 | 0.36 |
| | | | | | | | | | | | |

## Waterway/ Prop Imp

| 7832 Water Type | 7833 Flood Pln Intr | 7834 Flood Control | 7835 Scour Hist | 7836 Strmbd Matrl | 7837 Substr Stability | 7838 Wtrwy Obstr | 7839 Strmbd Stablty | 7840 Strmbd Analysm | 7841 Piers In Wat | 1844 Type Work | 1846 Work Meth | 1847 Stru Imp Length | 2853 Roadway Width | 2860 Cost Per SF | 1867 Struct Cost | 1873 Rdwy Cost | 2870 Engr Cost | 1861 Total Cost | 1879 Estmt Year | 2883 Prop Imp Cost Calc |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| F | C | U | C | 3 | 4 | A | D | N | 2 | 31 | 1 | 672 | 26 | 800 | 6989 | 1398 | 5591 | 13978 | 2014 | Y |
| | | | | | | | | | | | | | | **950** | **8299** | **1660** | **6639** | **16598** | **2022** | |

## Inspection Report Types

| 2920 Inspection | 1990 Date | 2646 Inspector | 2649 Cert No | 2654 Co-Inspector |
|---|---|---|---|---|
| Routine | 3/22/2022 | TKK | G1303 | PFK |
| Fracture Critical | 3/22/2022 | TKK | G1303 | PFK |
| Special Feature | | | | |
| Underwater | | | | |
| UW Interim | | | | |

| Inspection | Date | Inspector | Cert No | Co-Inspector |
|---|---|---|---|---|
| Interim | | | | |
| In Depth | | | | |
| Damage | | | | |
| PRM Safety | | | | |
| SEC Safety | | | | |

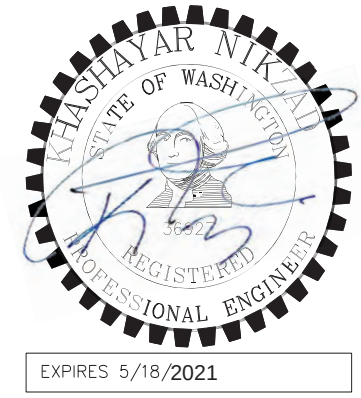
| Inspection | Date | Inspector | Cert No | Co-Inspector |
|---|---|---|---|---|
| Condition | | | | |
| Short Span | | | | |
| Geometric | | | | |
| Info | | | | |
| Inventory | | | | |

Control Data Date: 3/22/2022

Control Data Guid: 089e8183-e033-44d8-a7f8-30898ae839c1

# Appendix C – Bridge Load Rating

# BRIDGE RATING SUMMARY




| | |
|---|---|
| Bridge Name: | SKAGIT RIVER MARBLEMOUNT |
| Bridge Number: | 40070 |
| SID Number: | 08228800 |
| Span Types: | Continuous Steel Truss |
| Bridge Length: | 662-feet |
| Design Load: | 20 Ton Truck |
| Rated By: | Arzhang Alimoradi |
| Checked By: | Pai-hsin Wu |
| Date: | 9/29/2020 |

| | | | |
|---|---|---|---|
| Inspection Report Date | 3/26/2018 | Superstructure Condition | 6 |
| Overlay Thickness | 0.0" | Substructure Condition | 7 |
| Rating Method | LRFR | Deck Condition | 6 |

| Truck | RF (INV) | RF (OPR) | Controlling Point |
|---|---|---|---|
| AASHTO-1 | 0.57 | 0.95 | Gusset Plate L10 Connecting to U11 |
| AASHTO-2 | 0.41 | 0.69 | Gusset Plate L10 Connecting to U11 |
| AASHTO-3 | 0.37 | 0.61 | Gusset Plate L10 Connecting to U11 |
| NRL | 0.36 | 0.60 | Gusset Plate L10 Connecting to U11 |
| EV2 | 0.49 | 0.82 | Gusset Plate L10 Connecting to U11 |
| EV3 | 0.33 | 0.55 | Gusset Plate L10 Connecting to U11 |
| OL-1 | 0.42 | 0.70 | Gusset Plate L10 Connecting to U11 |
| OL-2 | 0.22 | 0.36 | Gusset Plate L10 Connecting to U11 |

| NBI Rating | RF | Ton (US) | Controlling Point |
|---|---|---|---|
| Inventory (HL-93) | 0.22 | 7.92 | Gusset Plate L10 Connecting to U11 |
| Operating (HL-93) | 0.32 | 11.52 | Gusset Plate L10 Connecting to U11 |

| SHV Rating | RF (OPR) | Ton (US) | Controlling Point |
|---|---|---|---|
| SU4 (GVW = 54K) | 0.87 | 23.49 | Gusset Plate L10 Connecting to U11 |
| SU5 (GVW = 62K) | 0.76 | 23.56 | Gusset Plate L10 Connecting to U11 |
| SU6 (GVW = 69.5K) | 0.69 | 23.98 | Gusset Plate L10 Connecting to U11 |
| SU7 (GVW = 77.5K) | 0.62 | 24.03 | Gusset Plate L10 Connecting to U11 |

**Remarks:** This bridge needs to be posted for all legal AASHTO and SU trucks.

# Appendix D – In-Depth Inspections

Washington State Department of Transportation

# VISUAL FRACTURE CRITICAL INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Bridge Name:** | SKAGIT RIVER MARBLEMOUNT | **Date:** | 3/4/2020 |
| **Bridge No:** | 40070 | **Hours:** | 10.0 |
| **Structure ID:** | 08228800 | **Inspector ID #:** | G1303 |
| **Structure Type:** | STRUS PCMWG | **Lead Inspector Initials:** | TKK |
| **Agency:** | SKAGIT COUNTY | **Co-Inspector Initials:** | WAW |
| **Milepost:** | 0.03 | | |
| | | **Lead Inspector Signature:** | |
| **Inspected items:** | Truss Tension Members/Pins | **Co-Inspector Signature:** | |

**Procedures:**

**Riveted Truss**

**1.** As required, use mirrors or other equipment to check inside surfaces of FCM's.
**2.** Check for loose or unevenly loaded member sub-elements.
**3.** Check all rivets at connection plates, with emphasis on first row. The first row is the row closest to the edge of the connection or gusset plate.
**4**. Check for any welds, including plug, tack, or repair welds. Record location of welds, regardless of condition, and document weld type and category.
**5.** Check FC members and associated connection or gusset plates for areas of heavy or pitted corrosion, nicks, gouges, sharp bends, and collision damage. Record location of all these conditions and estimated section loss, if applicable.
**6.** Check all heat straightened or repaired areas. Record location of these areas, regardless of condition.

**Pins and Anchor Bolts**

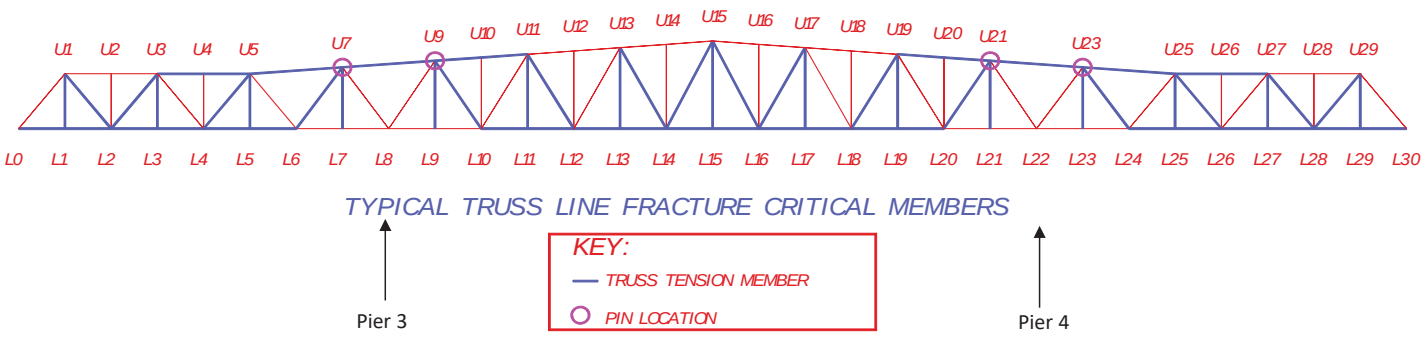
**1.** As required, use mirrors or other equipment to check inside surfaces of FCM's.
**2.** Check for pitting, laminar rust, surface deformation, and pack rust. It is important to check the pin, pin nuts, and all members surrounding the pin for this kind of steel deterioration.
**3.** Check for mobility and noise of pin and surrounding members. If the pin is physically “frozen” it is important to note this because the added stress can affect other members in the structure.
**4.** Observe and record abnormalities like; alignment, pin wear, loose pin nuts, and amount of nut engagement. It’s important to note that full nut engagement is when the nut is flush with the pin or the pin is extending past the nut.
**5.** Check for paint system failure on pin nuts, pin, and surrounding members.

| FCM Location | FCM Type | FCM Per Truss Line | BEIST Server Plans | | |
|---|---|---|---|---|---|
| | | | Sh. No. | Contr. | Sh. Name |
| North and South Trusses | Tension Members | 65 | | | |
| | Pins | | | | |
| | | | | | |
| | | | | | |

Note: FCM = Fracture Critical Member

Washington State Department of Transportation

# VISUAL FRACTURE CRITICAL INSPECTION REPORT




| Truss Line | Span | Location | FC | Feature Inspected | Detail Description | Remarks |
|---|---|---|---|---|---|---|
| **General Note:** Truss member have heavy rust staining with areas of surface and seam rust (staining is heaviest on the south truss face). Many of the bottom lateral gusset plates have edge rust. | | | | | | |
| South | 2 | L0-L1 | Y | Bottom Chord | Built up angles w/ tie plates | No significant defects noted. |
| South | 2 | U1-L1 | Y | Vertical | Double angles w/ tie plates | No significant defects noted. |
| South | 2 | U1-L2 | Y | Diagonal | Built up angles w/ lattice web | No significant defects noted. |
| South | 2 | L1-L2 | Y | Bottom Chord | Built up angles w/ tie plates | No significant defects noted. |
| South | 2 | L2-L3 | Y | Bottom Chord | Built up angles w/ lattice web | No significant defects noted. |
| South | 2 | L2-U3 | Y | Diagonal | Double channels w/ lattice web | No significant defects noted. |
| South | 2 | U3-L3 | Y | Vertical | Double angles w/ lattice web | No significant defects noted. |
| South | 2 | U3-U4 | Y | Top Chord | Channels w/ lattice web and tie plates | No significant defects noted. |
| South | 2 | U4-U5 | Y | Top Chord | Channels w/ lattice web and tie plates | No significant defects noted. |
| South | 2 | L3-L4 | Y | Bottom Chord | Built up angles w/ lattice web | No significant defects noted. |
| South | 2 | L4-U5 | Y | Diagonal | Double channels w/ tie plates | No significant defects noted. |
| South | 2 | U5-L5 | Y | Vertical | Double angles w/ lattice web | No significant defects noted. |
| South | 2 | L4-L5 | Y | Bottom Chord | Double channels w/ lattice web | No significant defects noted. |
| South | 2 | L5-L6 | Y | Bottom Chord | Double channels w/ lattice web | No significant defects noted. |
| South | 2 | L6-L7 | N | Bottom Chord | Channels w/ lattice web and tie plates | Near L6, there is a missing rivet. |
| South | 2 | U5-U7 | Y | Top Chord | Channels w/ lattice web and tie plates | No significant defects noted. |

Washington State Department of Transportation

# VISUAL FRACTURE CRITICAL INSPECTION REPORT

| Truss Line | Span | Location | FC | Feature Inspected | Detail Description | Remarks |
|---|---|---|---|---|---|---|
| South | 2 | L6-U7 | Y | Diagonal | Double channels w/ tie plates | No significant defects noted. |
| South | 2 | U7-L7 | Y | Vertical | Double angles w/ lattice web | At L7 there are 3/4" and 1/2" mis-drilled holes in top of the gusset plate. |
| South | 2 | U7 | Y | Pin | 18-3/4" x 5-3/4" dia. Shldr 17" | Pin has minor surface rust blooms. |
| | | | | | | |
| South | 2/3 | U7-U9 | Y | TC Eyebar | Solid Bar Stock | At U9 there is minor surface rust around the pin. |
| | | | | | | |
| South | 3 | U9 | Y | Pin | 18-3/4" x 5-3/4" dia. Shldr 17" | Pin has minor surface rust blooms. |
| South | 3 | L9-U9 | Y | Vertical | Double angles w/ lattice web | No significant defects noted. |
| South | 3 | U9-L10 | Y | Diagonal | Channels w/ tie and reinforcing plates | Near L10, the cover plate has a missing rivet (approximately 7 ft. above deck). |
| South | 3 | U9-U10 | Y | Top Chord | Double channels w/ lattice web | No significant defects noted. |
| South | 3 | U10-U11 | Y | Top Chord | Double channels w/ lattice web | No significant defects noted. |
| South | 3 | U11L10 | N | Diagonal | Channels w/ tie and reinforcing plates | Near the top of the member, there is a missing rivet in a bottom lattice bar connection. |
| South | 3 | L10-L11 | Y | Bottom Chord | Built up angles w/ lattice web | At L10, the gusset plate has four bolts replacing missing rivets. L10 bottom lateral gusset is reinforced with an angle iron, secured with a total of 12 bolts. There is rust and pitting in the gusset plate up to 1/8" deep along the top edge of the angle iron. |
| South | 3 | L11-U11 | Y | Vertical | Double angles w/ lattice web | Vertical is pulled inward up to 1" at the old sway connection. |
| South | 3 | U11-L12 | Y | Diagonal | Double channels w/ tie plates | At L12 there is surface rust on a members next to edge of exterior gusset plate. |
| South | 3 | L11-L12 | Y | Bottom Chord | Built up angles w/ lattice web | No significant defects noted. |
| South | 3 | L12-L13 | Y | Bottom Chord | Double channels w/ tie plates | Channel flanges are slightly bent in two locations near L12. |
| South | 3 | L13-U13 | Y | Vertical | Double angles w/ lattice web | At U13 the gusset plate has minor rust pitting. |
| South | 3 | U13-L14 | Y | Diagonal | Double channels w/ lattice web | No significant defects noted. |
| South | 3 | L13-L14 | Y | Bottom Chord | Double channels w/ tie plates | No significant defects noted. |
| South | 3 | L14-U15 | Y | Diagonal | Double channels w/ lattice web | No significant defects noted. |
| South | 3 | L14-L15 | Y | Bottom Chord | Channls w/ tie and reinf. plates | No significant defects noted. |
| South | 3 | L15-U15 | Y | Vertical | Double angles w/ lattice web | No significant defects noted. |
| South | 3 | L15-L16 | Y | Bottom Chord | Channels w/ tie and reinforcing plates | No significant defects noted. |

Washington State Department of Transportation

# VISUAL FRACTURE CRITICAL INSPECTION REPORT

| Truss Line | Span | Location | FC | Feature Inspected | Detail Description | Remarks |
|---|---|---|---|---|---|---|
| South | 3 | U15-L16 | Y | Diagonal | Double channels w/ lattice web | Near the top, there is a missing rivet in a lacing bar connection. At U15, the north gusset plate interior face has minor rust pitting along the bottom edge up to 1/16" deep. |
| South | 3 | L16-U17 | Y | Diagonal | Double channels w/ tie plates | No significant defects noted. |
| South | 3 | L16-L17 | Y | Bottom Chord | Double channels w/ tie plates | No significant defects noted. |
| South | 3 | L17-U17 | Y | Vertical | Double angles w/ lattice web | No significant defects noted. |
| South | 3 | L17-L18 | Y | Bottom Chord | Double channels w/ tie plates | No significant defects noted. |
| South | 3 | L18-U19 | Y | Diagonal | Double channels w/ tie plates | At L18 the south gusset plate has a misdrilled hole. |
| South | 3 | L18-L19 | Y | Bottom Chord | Built up angles w/ lattice web | No significant defects noted. |
| South | 3 | L19-L20 | Y | Bottom Chord | Built up angles w/ lattice web | At L20, the north gusset plate interior face at the bottom edge is corroded down to a knife edge over a 1-1/2" length. See photo #30. |
| South | 3 | L19-U19 | Y | Vertical | Double angles w/ lattice web | Vertical member has a slight twist with the north flange bent up to 1" to the west at mid height. |
| South | 3 | U19-U20 | Y | Top Chord | Channels w/ tie and reinforcing plates | No significant defects noted. |
| South | 3 | U20-U21 | Y | Top Chord | Channels w/ tie and reinforcing plates | No significant defects noted. |
| South | 3 | L20-U21 | Y | Diagonal | Channels w/ tie and reinforcing plates | No significant defects noted. |
| South | 3 | L21-U21 | Y | Vertical | Double angles w/ lattice web | No significant defects noted. |
| South | 3 | U21 | Y | Pin | 18-3/4" x 5-3/4" dia. Shldr 17" | Pin has minor surface rust blooms. |
| | | | | | | |
| South | 3/4 | U21-U23 | Y | TC Eyebar | Solid Bar Stock | No significant defects noted. |
| | | | | | | |
| South | 4 | U23 | Y | Pin | 18-3/4" x 5-3/4" dia. Shldr 17" | Pin has minor surface rust blooms. |
| South | 4 | U23-L23 | Y | Vertical | Double angles w/ lattice web | No significant defects noted. |
| South | 4 | U23-L24 | Y | Diagonal | Double channels w/ tie plates | No significant defects noted. |
| South | 4 | U23-U25 | Y | Top Chord | Channels w/ lattice web and tie plates | No significant defects noted. |
| South | 4 | L24-L25 | Y | Bottom Chord | Double channels w/ lattice web | No significant defects noted. |
| South | 4 | L25-L26 | Y | Bottom Chord | Double channels w/ lattice web | No significant defects noted. |
| South | 4 | L25-U25 | Y | Vertical | Double angles w/ lattice web | No significant defects noted. |
| South | 4 | U25-L26 | Y | Diagonal | Double channels w/ tie plates | No significant defects noted. |
| South | 4 | U25-U26 | Y | Top Chord | Channels w/ lattice web and tie plates | No significant defects noted. |
| South | 4 | L26-L27 | Y | Bottom Chord | Built up angles w/ lattice web | At L26 there is seam rust along the inside splice plate. |
| South | 4 | L26-U27 | N | Diagonal | Double channels w/ tie plates | Near L26 there is a missing rivet in a top lattice bar connection. |
| South | 4 | L27-U27 | Y | Vertical | Double angles w/ lattice web | Vertical member is bent up to 1" to the west and 1" to the north at the old sway connection. |

Washington State Department of Transportation

# VISUAL FRACTURE CRITICAL INSPECTION REPORT

| Truss Line | Span | Location | FC | Feature Inspected | Detail Description | Remarks |
|---|---|---|---|---|---|---|
| South | 4 | U26-U27 | Y | Top Chord | Channels w/ lattice web and tie plates | No significant defects noted. |
| South | 4 | U27-L28 | Y | Diagonal | Double channels w/ lattice web | No significant defects noted. |
| South | 4 | L27-L28 | Y | Bottom Chord | Built up angles w/ lattice web | No significant defects noted. |
| South | 4 | L28-U29 | Y | Diagonal | Built up angles w/ lattice web | No significant defects noted. |
| South | 4 | L28-L29 | Y | Bottom Chord | Built up angles with tie plates | No significant defects noted. |
| South | 4 | L29-U29 | Y | Vertical | Double angles with tie plates | No significant defects noted. |
| South | 4 | L29-L30 | Y | Bottom Chord | Built up angles with tie plates | No significant defects noted. |

Washington State Department of Transportation

# VISUAL FRACTURE CRITICAL INSPECTION REPORT

| Truss Line | Span | Location | FC | Feature Inspected | Detail Description | Remarks |
|---|---|---|---|---|---|---|
| North | 2 | L0-L1 | Y | Bottom Chord | Built up angles w/ tie plates | No significant defects noted. |
| North | 2 | U1-L1 | Y | Vertical | Double angles w/ tie plates | No significant defects noted. |
| North | 2 | U1-L2 | Y | Diagonal | Built up angles w/ lattice web | No significant defects noted. |
| North | 2 | L1-L2 | Y | Bottom Chord | Built up angles w/ tie plates | No significant defects noted. |
| North | 2 | L2-L3 | Y | Bottom Chord | Built up angles w/ lattice web | No significant defects noted. |
| North | 2 | L2-U3 | Y | Diagonal | Double channels w/ lattice web | No significant defects noted. |
| North | 2 | U3-L3 | Y | Vertical | Double angles w/ lattice web | No significant defects noted. |
| North | 2 | U3-U4 | Y | Top Chord | Channels w/ lattice web and tie plates | No significant defects noted. |
| North | 2 | U4-U5 | Y | Top Chord | Channels w/ lattice web and tie plates | No significant defects noted. |
| North | 2 | L3-L4 | Y | Bottom Chord | Built up angles w/ lattice web | At L4, the bottom lateral gusset plate has rust pitting on the top surface. |
| North | 2 | L4-U5 | Y | Diagonal | Double channels w/ tie plates | No significant defects noted. |
| North | 2 | U5-L5 | Y | Vertical | Double angles w/ lattice web | No significant defects noted. |
| North | 2 | L4-L5 | Y | Bottom Chord | Double channels w/ lattice web | No significant defects noted. |
| North | 2 | L5-L6 | Y | Bottom Chord | Double channels w/ lattice web | No significant defects noted. |
| North | 2 | U5-U7 | Y | Top Chord | Channels w/ tie and reinforcing plates | No significant defects noted. |
| North | 2 | L6-U7 | Y | Diagonal | Double channels w/ tie plates | No significant defects noted. |
| North | 2 | U7-L7 | Y | Vertical | Double angles w/ lattice web | No significant defects noted. |
| North | 2 | U7 | Y | Pin | 18-3/4" x 5-3/4" dia. Shldr 17" | Pin has minor surface rust blooms. |
| North | 2/3 | U7-U9 | Y | TC Eyebar | Solid Bar Stock | At U7 and U9 there is minor surface rust blooms around the pins. |
| North | 3 | U9 | Y | Pin | 18-3/4" x 5-3/4" dia. Shldr 17" | Pin has minor surface rust blooms. |
| North | 3 | L9-U9 | Y | Vertical | Double angles w/ lattice web | No significant defects noted. |
| North | 3 | U9-L10 | Y | Diagonal | Channels w/ lattice web and tie plates | At L10 the interior gusset plate has seam rust. |
| North | 3 | U9-U10 | Y | Top Chord | Double channels w/ lattice web | No significant defects noted. |
| North | 3 | U10-U11 | Y | Top Chord | Double channels w/ lattice web | No significant defects noted. |
| North | 3 | L10-L11 | Y | Bottom Chord | Built up angles w/ lattice web | At L11 the interior face of the south gusset plate has minor rust pitting up to 1/16" deep. |
| North | 3 | L11-U11 | Y | Vertical | Double angles w/ lattice web | No significant defects noted. |
| North | 3 | U11-L12 | Y | Diagonal | Double channels w/ tie plates | No significant defects noted. |
| North | 3 | L11-L12 | Y | Bottom Chord | Built up angles w/ lattice web | No significant defects noted. |
| North | 3 | L12-L13 | Y | Bottom Chord | Double channels w/ tie plates | No significant defects noted. |
| North | 3 | L13-U13 | Y | Vertical | Double angles w/ lattice web | No significant defects noted. |
| North | 3 | U13-L14 | Y | Diagonal | Double channels w/ lattice web | No significant defects noted. |
| North | 3 | L13-L14 | Y | Bottom Chord | Double channels w/ tie plates | No significant defects noted. |
| North | 3 | L14-U15 | Y | Diagonal | Double channels w/ lattice web | No significant defects noted. |
| North | 3 | L14-L15 | Y | Bottom Chord | Channels w/ tie and reinforcing plates | Splice plate at L14 is pitted. |

Washington State Department of Transportation

# VISUAL FRACTURE CRITICAL INSPECTION REPORT

| Truss Line | Span | Location | FC | Feature Inspected | Detail Description | Remarks |
|---|---|---|---|---|---|---|
| North | 3 | L15-U15 | Y | Vertical | Double angles w/ lattice web | Both angles have been repaired by welding splice plates to both legs. One angle is repaired at the rail and the other 3 ft. above the rail. |
| North | 3 | L15-L16 | Y | Bottom Chord | Channels w/ tie and reinforcing plates | No significant defects noted. |
| North | 3 | U15-L16 | Y | Diagonal | Double channels w/ lattice web | No significant defects noted. |
| North | 3 | L16-U17 | Y | Diagonal | Double channels w/ tie plates | No significant defects noted. |
| North | 3 | L16-L17 | Y | Bottom Chord | Double channels w/ tie plates | No significant defects noted. |
| North | 3 | L17-U17 | Y | Vertical | Double angles w/ lattice web | There is a mis-drilled hole just above the sway frame connection. |
| North | 3 | L17-L18 | Y | Bottom Chord | Double channels w/ tie plates | No significant defects noted. |
| North | 3 | L18-U19 | Y | Diagonal | Double channels w/ tie plates | No significant defects noted. |
| North | 3 | L18-L19 | Y | Bottom Chord | Built up angles w/ lattice web | No significant defects noted. |
| North | 3 | L19-L20 | Y | Bottom Chord | Built up angles w/ lattice web | At L20 there is a missing rivet. |
| North | 3 | L19-U19 | Y | Vertical | Double angles w/ lattice web | Vertical member is pulled to the west approximately 1" near mid-height. |
| North | 3 | U19-U20 | Y | Top Chord | Channels w/ tie and reinforcing plates | No significant defects noted. |
| North | 3 | U20-U21 | Y | Top Chord | Channels w/ tie and reinforcing plates | No significant defects noted. |
| North | 3 | L20-U21 | Y | Diagonal | Channels w/ tie and reinforcing plates | Near mid height, the exterior coverplate is bent outward 1/4" over a 12" length on the bottom edge and the adjacent rivet head is missing. |
| North | 3 | L21-U21 | Y | Vertical | Double angles w/ lattice web | No significant defects noted. |
| North | 3 | U21 | Y | Pin | 18-3/4" x 5-3/4" dia. Shldr 17" | Pin has minor surface rust blooms. |
| North | 3/4 | U21-U23 | Y | TC Eyebar | Solid Bar Stock | No significant defects noted. |
| North | 4 | U23 | Y | Pin | 18-3/4" x 5-3/4" dia. Shldr 17" | Pin has minor surface rust blooms. |
| North | 4 | U23-L23 | Y | Vertical | Double angles w/ lattice web | No significant defects noted. |
| North | 4 | U23-L24 | Y | Diagonal | Double channels w/ tie plates | No significant defects noted. |
| North | 4 | U23-U25 | Y | Top Chord | Channels w/ lattice web and tie plates | No significant defects noted. |
| North | 4 | L24-L25 | Y | Bottom Chord | Double channels w/ lattice web | No significant defects noted. |
| North | 4 | L25-L26 | Y | Bottom Chord | Double channels w/ lattice web | No significant defects noted. |
| North | 4 | L25-U25 | Y | Vertical | Double angles w/ lattice web | No significant defects noted. |
| North | 4 | U25-L26 | Y | Diagonal | Double channels w/ tie plates | No significant defects noted. |
| North | 4 | U25-U26 | Y | Top Chord | Channels w/ lattice web and tie plates | No significant defects noted. |
| North | 4 | L26-L27 | Y | Bottom Chord | Built up angles w/ lattice web | At L26 there is seam rust along the inside splice plate. |

Washington State Department of Transportation

# VISUAL FRACTURE CRITICAL INSPECTION REPORT

| Truss Line | Span | Location | FC | Feature Inspected | Detail Description | Remarks |
|---|---|---|---|---|---|---|
| North | 4 | L27-U27 | Y | Vertical | Double angles w/ lattice web | Vertical member is pulled 1" to the west and south at the old sway brace connection with several buckled lacing bars due to previous traffic impact. Approximately 2 ft. below the sway, tie plate is missing 8 rivets and tie plate is now welded. |
| North | 4 | U26-U27 | Y | Top Chord | Channels w/ lattice web and tie plates | No significant defects noted. |
| North | 4 | U27-L28 | Y | Diagonal | Double channels w/ lattice web | No significant defects noted. |
| North | 4 | L27-L28 | Y | Bottom Chord | Built up angles w/ lattice web | No significant defects noted. |
| North | 4 | L28-U29 | Y | Diagonal | Built up angles w/ lattice web | Near mid height there is a missing rivet in a lattice bar connection. |
| North | 4 | L28-L29 | Y | Bottom Chord | Built up angles with tie plates | No significant defects noted. |
| North | 4 | L29-U29 | Y | Vertical | Double angles with tie plates | No significant defects noted. |
| North | 4 | L29-L30 | Y | Bottom Chord | Built up angles with tie plates | No significant defects noted. |

Washington State Department of Transportation

# UT INSPECTION REPORT for PINS

| | | | |
|---|---|---|---|
| Bridge Name: | SKAGIT R MARBLEMOUNT | Date: | 3/4/2020 |
| Bridge No: | 40070 | Hours: | 2.0 |
| Structure ID: | 08228800 | Inspector ID #: | G1303 |
| Structure Type: | STRus PCMWG | Lead Inspector Initials: | TKK |
| Agency: | SKAGIT COUNTY | Co-Inspector Initials: | WAW |
| Milepost: | 0.03 | | |

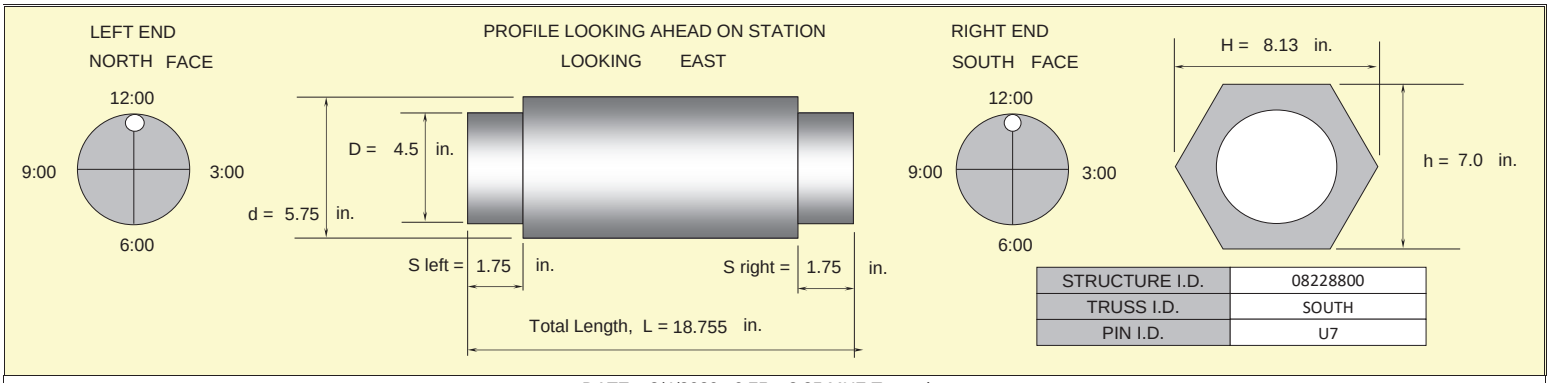
Inspected items: Pins

Procedures:

1. When possible, test from both ends of pins.
2. Verify pin length shown on back reflection with plans. If back reflection does not match the plans, conduct manual length measurement and document correct pin length.
3. Start test with transducer at or near pin center for back reflection check, then run transducer around full perimeter of pin, searching for indications or significant loss of back reflection.
4. Whenever the test suggests that there is a defect in a pin, store and print out the indication with all associated equipment and settings documented. The location of the transducer shall also be documented using a clock hand convention (1 O'clock to 12 O'clock).

| UTM Location | UTM Type | UTM Per Truss Line | BEIST Server Plans | | |
|---|---|---|---|---|---|
| | | | Sh. No. | Contract | Sh. Name |
| U7, U9, U21, U23 of the North and South Trusses | Pins | 4 | | | |
| | | | | | |
| | | | | | |

Note: UTM = Ultrasonic Tested Member




DATE 3/4/2020 0.75 x 2.25 MHZ Transducer

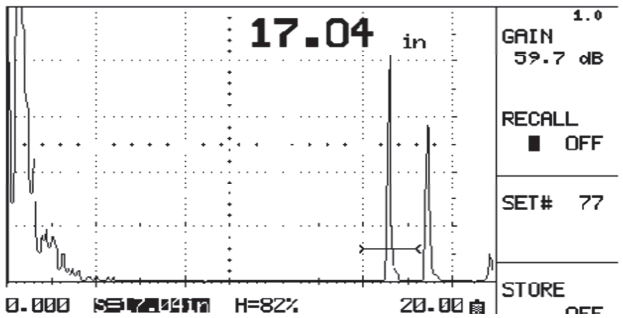
| <<<<<<<< LEFT END >>>>>>>> | <<<<<<<< RIGHT END >>>>>>>> |
|---|---|
| COMMENTS: | COMMENTS: |
| No Indications Noted | No Indications Noted |

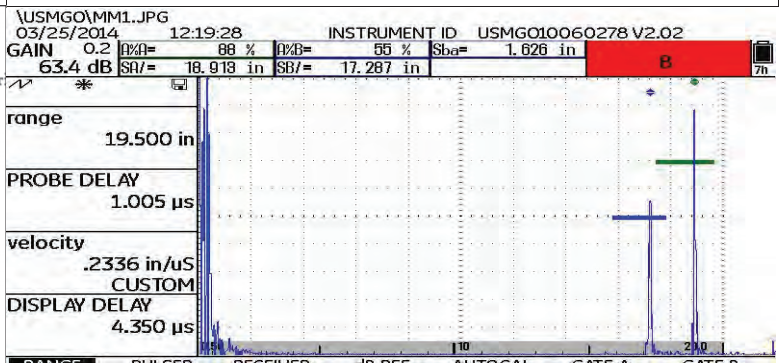
WASHINGTON STATE DEPARTMENT OF TRANSPORTATION BRIDGE PRESERVATION

BRIDGE NAME: SKAGIT RIVER MARBLEMOUNT
BRIDGE NO: 40070
LEAD INSPECTOR: JOHN H LABRANCH
CO-INSPECTOR SEAN M TANNER
UT MODEL: KK USN 52L
UT SERIAL NO.: 29C69009
DATE: 03/29/2006
STRUCTURE ID: 08228800
INSPECTOR NUMBER: A1044
TRANSDUCER USED: 0.75in.
TRANSDUCER MODEL: PANAMET
TRANSDUCER SERIAL NO.: XXXXX

| | | | | | |
|---|---|---|---|---|---|
| GAIN: | 59.7 dB | DAC/TCG: | OFF | DAC ECHO: | 0 |
| RANGE: | 20.00 in | MTL VEL: | .2301/us | DELAY: | 0.000 us |
| FREQ.: | .3-4 MHz | REP-RATE: | LOW | DAMPING: | 1000 OHM |
| AUTO CAL: | OFF | S-REF1: | 1.000 in | S-REP2: | 4.000 in |
| PULSER: | SINGLE | MEASURE: | 0 TO 1st | a-THRESH: | 12 % |
| REJECT: | 0 % | TOF: | FLANK | a-START: | 16.04 in |
| RECTIF.: | FULL | ASCAN: | HOLLOW | a-WIDTH: | 2.404 in |
| b-THRESH: | 30 % | ZERO: | 0.300 us | DATA SET: | 77 |
| b-START: | 10 % | ANGLE: | OFF | X-VALUE: | 0.000 in |

THICKNESS: 0.500 in
AMPLITUDE: % SCREEN HT
FREEZE MODE: FREEZE ALL
VELOCITY #1: .2320/us

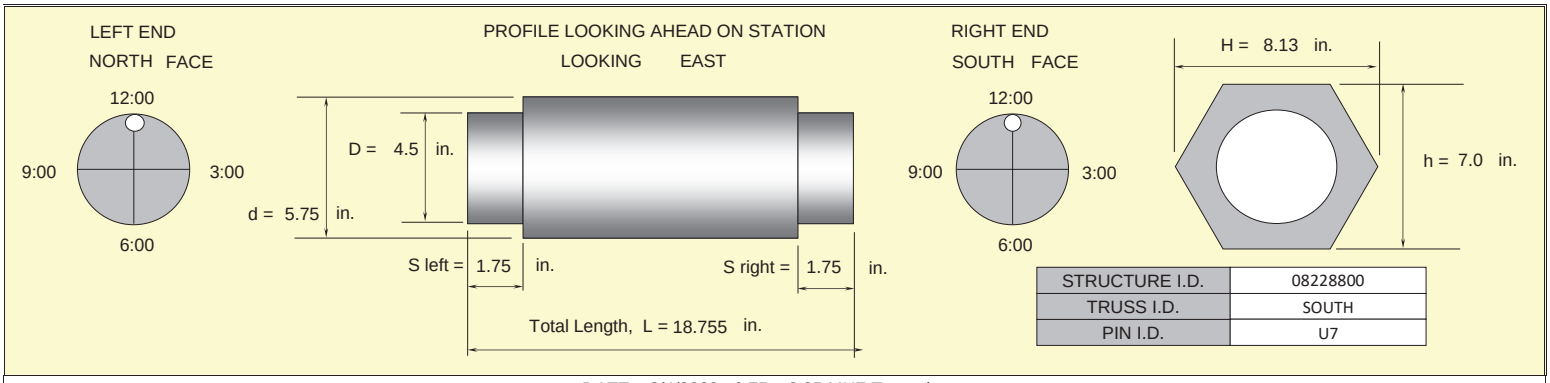



RANGE | PULSER | RECEIVER | dB REF | AUTOCAL | GATE A | GATE B

CV Parameter Table

| | | | | |
|---|---|---|---|---|
| RANGE | RANGE | PROBE DELAY | VELOCITY | DISPLAY DELAY |
| | 19.500 in | 1.005 µs | .2336 in/uS | 4.350 µs |
| PULSER | VOLTAGE | | DAMPING | |
| | HIGH | | 50 OHM | |
| RECV | FREQUENCY | RECTIFY | DUAL | REJECT |
| | 2.25 MHz | NEG HALFWAVE | OFF | 0% |
| PRF | PRF MODE | PRF VALUE | | |
| | AUTO HIGH | 1500 Hz | | |
| GATES | GATE A START | GATE A WIDTH | GATE A TRSH | TOF MODE |
| | 17.500 in | 2.116 in | 70% | FLANK |
| | GATE B START | GATE B WIDTH | GATE B TRSH | TOF MODE |
| | 15.911 in | 1.903 in | 50% | FLANK |
| TRIG | PROBE ANGLE | THICKNESS | X VALUE | O-DIAMETER |
| | OFF | 1.969 in | 0.000 in | FLAT |
| GAIN | GAIN | REF GAIN | TRANSFER CORR. | |
| | 63.4 dB | 0.0 dB | 0.0 dB | |
| FILE | LAST DATASET LOADED | | | |




| | |
|---|---|
| STRUCTURE I.D. | 08228800 |
| TRUSS I.D. | SOUTH |
| PIN I.D. | U7 |

DATE 3/4/2020 0.75 x 2.25 MHZ Transducer

<<<<<<<< LEFT END >>>>>>>>

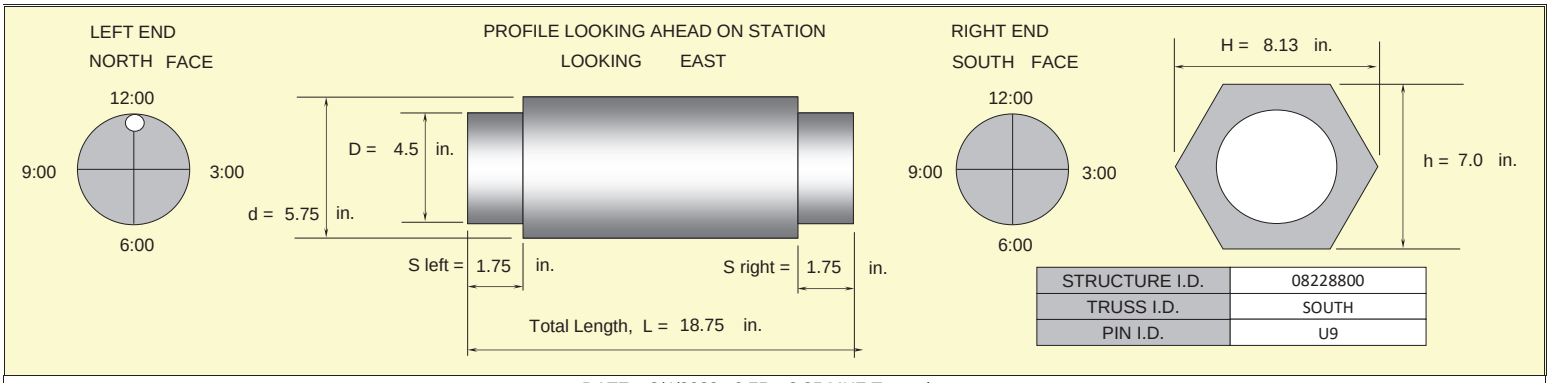
COMMENTS:

BASIC RCVR PULS GATE S-CAL MEM TCG

<<<<<<<< RIGHT END >>>>>>>>

COMMENTS:

| | | |
|---|---|---|
| | 5 | |
| dB REF | MODE | REFERENCE |
| | OFF | (NO REF) |




DATE 3/4/2020 0.75 x 2.25 MHZ Transducer

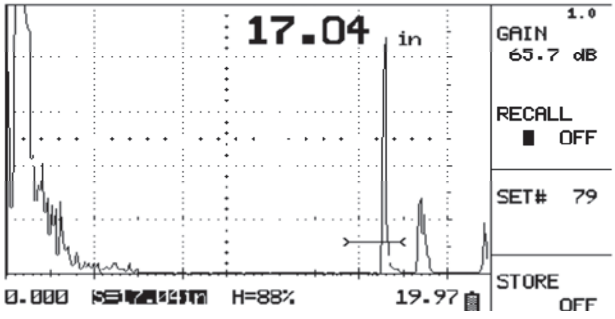
| <<<<<<<< LEFT END >>>>>>>> | <<<<<<<< RIGHT END >>>>>>>> |
|---|---|
| COMMENTS: | COMMENTS: |
| No Indications Noted | No Indications Noted |

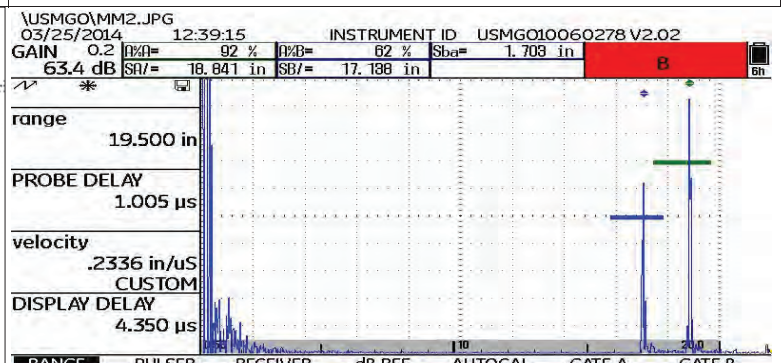
WASHINGTON STATE DEPARTMENT OF TRANSPORTATION BRIDGE PRESERVATION

BRIDGE NAME: SKAGIT RIVER MARBLEMOUNT
BRIDGE NO: 40070
LEAD INSPECTOR: JOHN H LABRANCH
CO-INSPECTOR SEAN M TANNER
UT MODEL: KK USN 52L
UT SERIAL NO.: 29C69009
DATE: 03/29/2006
STRUCTURE ID: 08228800
INSPECTOR NUMBER: A1044
TRANSDUCER USED: 0.75in.
TRANSDUCER MODEL: PANAMET
TRANSDUCER SERIAL NO.: XXXXX

| | | | | | |
|---|---|---|---|---|---|
| GAIN: | 65.7 dB | DAC/TCG: | OFF | DAC ECHO: | 0 |
| RANGE: | 19.97 in | MTL VEL: | .2300/us | DELAY: | 0.000 us |
| FREQ.: | .3-4 MHz | REP-RATE: | LOW | DAMPING: | 1000 OHM |
| AUTO CAL: | OFF | S-REF1: | 1.000 in | S-REF2: | 4.000 in |
| PULSER: | SINGLE | MEASURE: | 0 TO 1st | a-THRESH: | 12 % |
| REJECT: | 0 % | TCP: | FLANK | a-START: | 15.50 in |
| RECTIF.: | FULL | ASCAN: | HOLLOW | a-WIDTH: | 2.404 in |
| b-THRESH: | 30 % | ZERO: | 0.300 us | DATA SET: | 79 |
| b-START: | 10 % | ANGLE: | OFF | X-VALUE: | 0.000 in |

THICKNESS: 0.500 in
AMPLITUDE: % SCREEN HT
FREEZE MODE: FREEZE ALL
VELOCITY #1: .2320/us

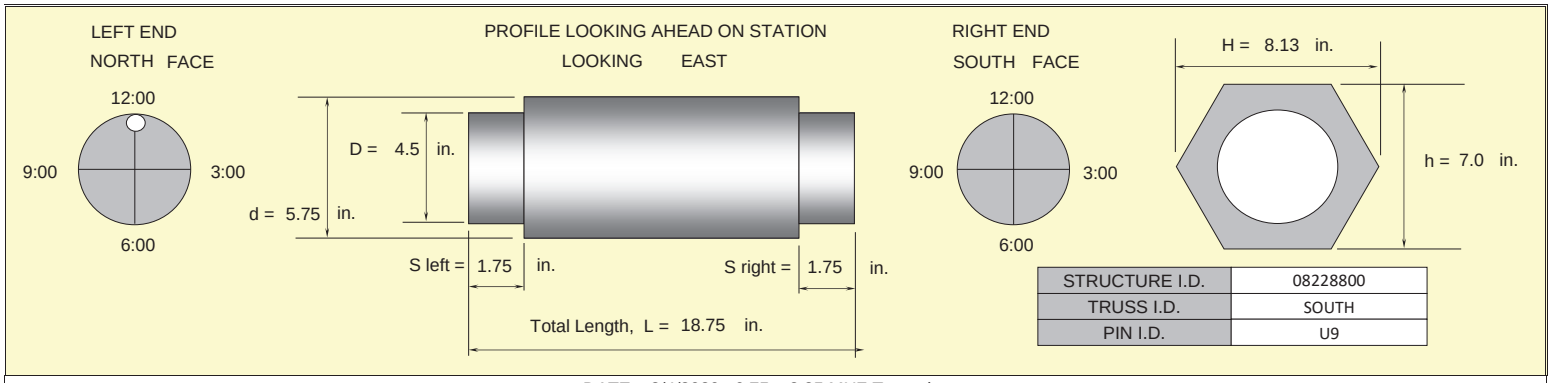



RANGE | PULSER | RECEIVER | dB REF | AUTOCAL | GATE A | GATE B

**CV Parameter Table**

| | | | | |
|---|---|---|---|---|
| RANGE | RANGE | PROBE DELAY | VELOCITY | DISPLAY DELAY |
| | 19.500 in | 1.005 µs | .2336 in/uS | 4.350 µs |
| PULSER | VOLTAGE | | DAMPING | |
| | HIGH | | 50 OHM | |
| RECV | FREQUENCY | RECTIFY | DUAL | REJECT |
| | 2.25 MHz | NEG HALFWAVE | OFF | 0% |
| PRF | PRF MODE | PRF VALUE | | |
| | AUTO HIGH | 1500 Hz | | |
| GATES | GATE A START | GATE A WIDTH | GATE A TRSH | TOF MODE |
| | 17.500 in | 2.116 in | 70% | FLANK |
| | GATE B START | GATE B WIDTH | GATE B TRSH | TOF MODE |
| | 15.911 in | 1.903 in | 50% | FLANK |
| TRIG | PROBE ANGLE | THICKNESS | X VALUE | O-DIAMETER |
| | OFF | 1.969 in | 0.000 in | FLAT |
| GAIN | GAIN | REF GAIN | TRANSFER CORR. | |
| | 63.4 dB | 0.0 dB | 0.0 dB | |
| FILE | LAST DATASET LOADED | | | |




| | |
|---|---|
| STRUCTURE I.D. | 08228800 |
| TRUSS I.D. | SOUTH |
| PIN I.D. | U9 |

DATE 3/4/2020 0.75 x 2.25 MHZ Transducer

<<<<<<<< LEFT END >>>>>>>>

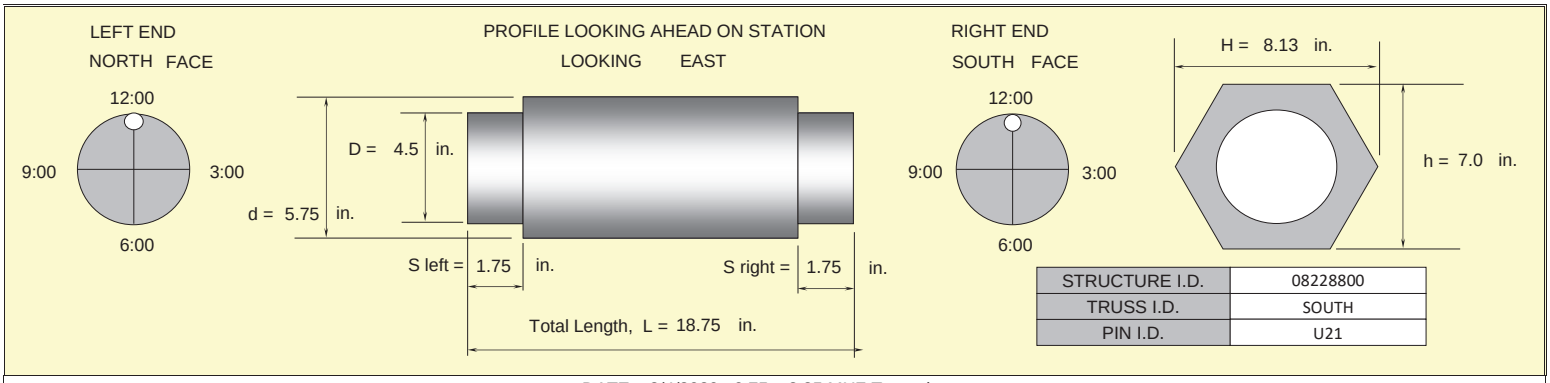
COMMENTS:

BASIC RCVR PULS GATE S-CAL MEM TCG

<<<<<<<< RIGHT END >>>>>>>>

COMMENTS:

| dB REF | MODE | REFERENCE |
|---|---|---|
| | OFF | (NO REF) |




DATE 3/4/2020 0.75 x 2.25 MHZ Transducer

<<<<<<<< LEFT END >>>>>>>>

COMMENTS:

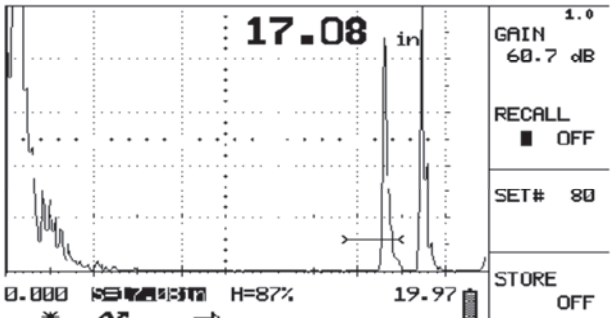
No Indications Noted

WASHINGTON STATE DEPARTMENT OF TRANSPORTATION BRIDGE PRESERVATION

BRIDGE NAME: SKAGIT RIVER MARBLEMOUNT
BRIDGE NO: 40070
LEAD INSPECTOR: JOHN H LABRANCH
CO-INSPECTOR SEAN M TANNER
UT MODEL: KK USN 52L
UT SERIAL NO.: 29C69009
DATE: 03/29/2006
STRUCTURE ID: 08228800
INSPECTOR NUMBER: A1044
TRANSDUCER USED: 0.75in.
TRANSDUCER MODEL: PANAMET
TRANSDUCER SERIAL NO.: XXXXX

| | | | | | |
|---|---|---|---|---|---|
| GAIN: | 60.7 dB | DAC/TCG: | OFF | DAC ECHO: | 0 |
| RANGE: | 19.97 in | MTL VEL: | .2300/us | DELAY: | 0.000 us |
| FREQ.: | .3-4 MHz | REP-RATE: | LOW | DAMPING: | 1000 OHM |
| AUTO CAL: | OFF | S-REF1: | 1.000 in | S-REF2: | 4.000 in |
| PULSER: | SINGLE | MEASURE: | 0 TO 1st | a-THRESH: | 12 % |
| REJECT: | 0 % | TOF: | FLANK | a-START: | 15.50 in |
| RECTIF.: | FULL | ASCAN: | HOLLOW | a-WIDTH: | 2.404 in |
| b-THRESH: | 30 % | ZERO: | 0.300 us | DATA SET: | 80 |
| b-START: | 10 % | ANGLE: | OFF | X-VALUE: | 0.000 in |

THICKNESS: 0.500 in
AMPLITUDE: % SCREEN HT
FREEZE MODE: FREEZE ALL
VELOCITY #1: .2320/us




<<<<<<<< RIGHT END >>>>>>>>

COMMENTS:

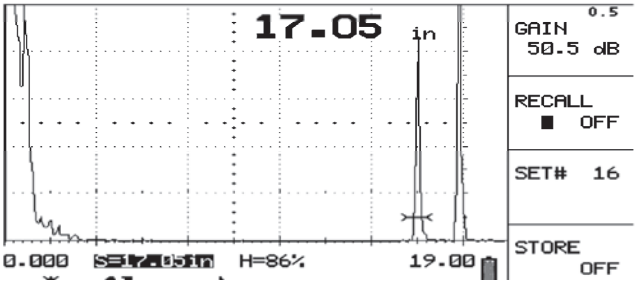
No Indications Noted

WASHINGTON STATE DEPARTMENT of TRANSPORTATION BRIDGE PRESERVATION

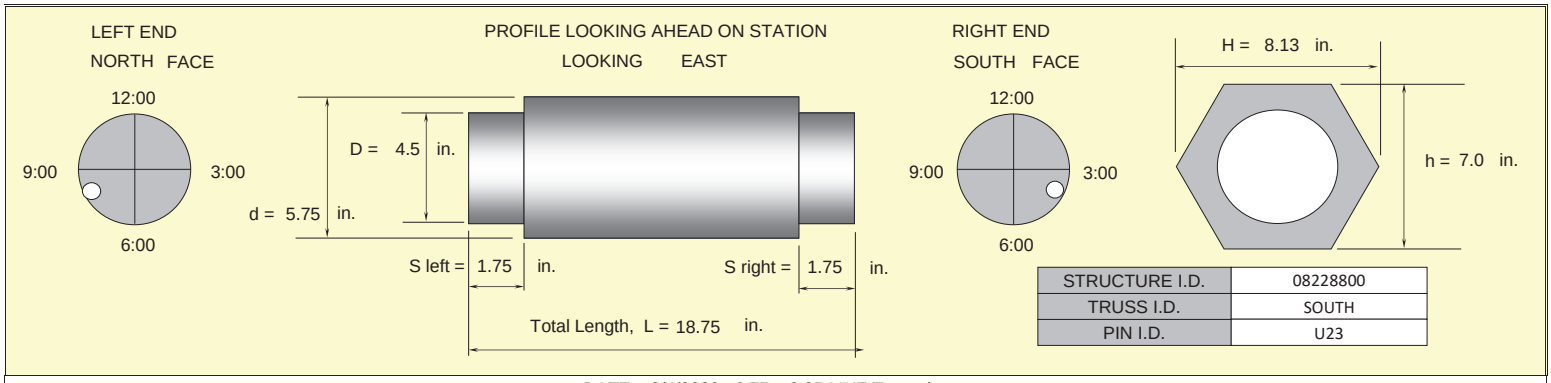
BRIDGE NAME: SKAGIT RIVER BR.
BRIDGE NUMBER: 40070
LEAD INSPECTOR: Hubert Ritter
CO-INSPECTOR: Ward Wegner
UT MODEL: USN 52L
UT SERIAL #: 29C69010
DATE: 3/19/2008
STRUCTURE ID: 08228800
INSPECTOR #: G0004
TRANSDUCER USED: 0.75" x 2.25 Mhz
TRANDUCER MODEL: Panametrics

| | | | | | |
|---|---|---|---|---|---|
| GAIN: | 50.5 dB | DAC/TCG: | OFF | DAC ECHO: | 0 |
| RANGE: | 19.00 in | MTL VEL: | .2309/us | DELAY: | 0.000 us |
| FREQ.: | .3-4 MHz | REP-RATE: | LOW | DAMPING: | 1000 OHM |
| AUTO CAL: | OFF | S-REF1: | 1.000 in | S-REF2: | 4.000 in |
| PULSER: | SINGLE | MEASURE: | 0 TO 1st | a-THRESH: | 10 % |
| REJECT: | 0 % | TOF: | FLANK | a-START: | 16.63 in |
| RECTIF.: | FULL | ASCAN: | HOLLOW | a-WIDTH: | 0.923 in |
| b-THRESH: | 30 % | ZERO: | 0.311 us | DATA SET: | 16 |
| b-START: | 10 % | ANGLE: | OFF | X-VALUE: | 0.000 in |

THICKNESS: 0.500 in
AMPLITUDE: % SCREEN HT
FREEZE MODE: FREEZE ALL
VELOCITY #1: .2320/us



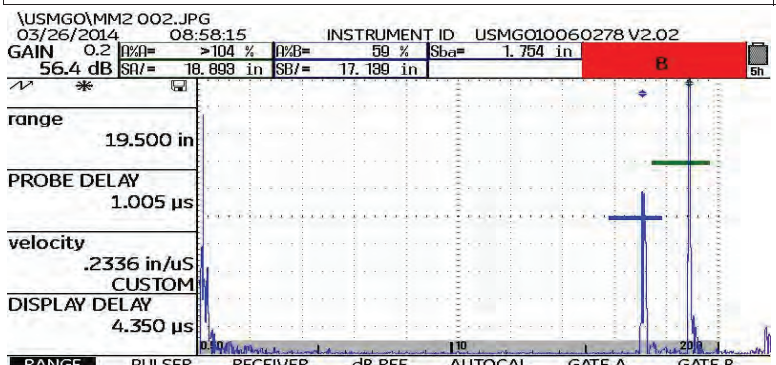
| DATE 3/4/2020 0.75 x 2.25 MHZ Transducer | |
|---|---|
| <<<<<<<< LEFT END >>>>>>>> | <<<<<<<< RIGHT END >>>>>>>> |
| COMMENTS: | COMMENTS: |


| | |
|---|---|
| STRUCTURE I.D. | 08228800 |
| TRUSS I.D. | SOUTH |
| PIN I.D. | U23 |

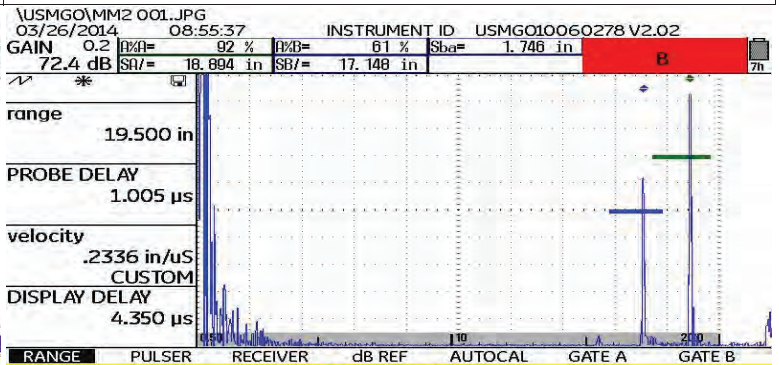
DATE 3/4/2020 0.75 x 2.25 MHZ Transducer

| <<<<<<<< LEFT END >>>>>>>> | <<<<<<<< RIGHT END >>>>>>>> |
|---|---|
| COMMENTS: | COMMENTS: |
| No Indications Noted | No Indications Noted |



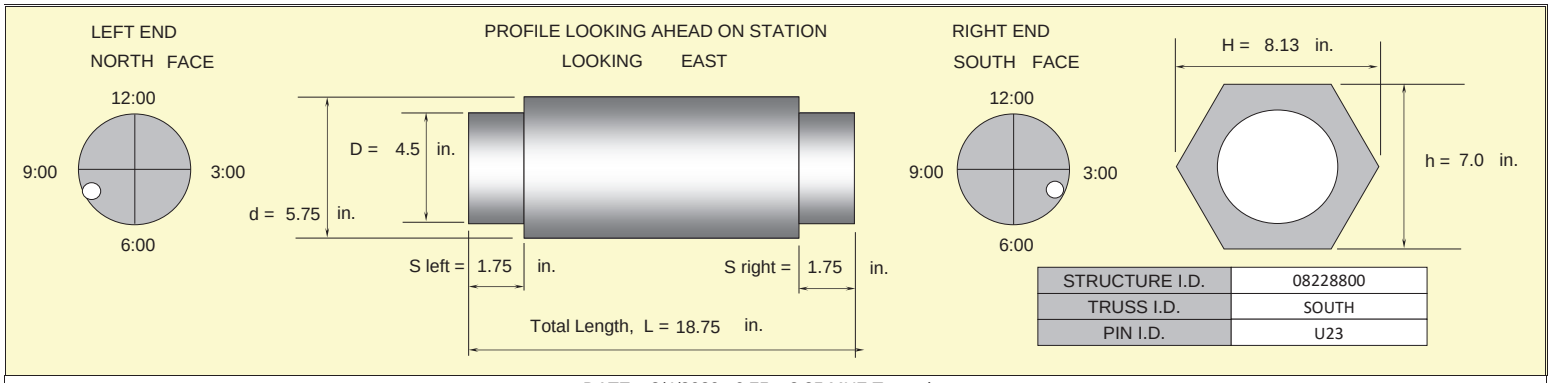

CV Parameter Table

| | | | | |
|---|---|---|---|---|
| RANGE | RANGE | PROBE DELAY | VELOCITY | DISPLAY DELAY |
| | 19.500 in | 1.005 µs | .2336 in/uS | 4.350 µs |
| PULSER | VOLTAGE | | DAMPING | |
| | HIGH | | 50 OHM | |
| RECV | FREQUENCY | RECTIFY | DUAL | REJECT |
| | 2.25 MHz | NEG HALFWAVE | OFF | 0% |
| PRF | PRF MODE | PRF VALUE | | |
| | AUTO HIGH | 1500 Hz | | |
| GATES | GATE A START | GATE A WIDTH | GATE A TRSH | TOF MODE |
| | 17.500 in | 2.116 in | 70% | FLANK |
| | GATE B START | GATE B WIDTH | GATE B TRSH | TOF MODE |
| | 15.911 in | 1.903 in | 50% | FLANK |
| TRIG | PROBE ANGLE | THICKNESS | X VALUE | O-DIAMETER |
| | OFF | 1.969 in | 0.000 in | FLAT |
| GAIN | GAIN | REF GAIN | TRANSFER CORR. | |
| | 56.4 dB | 0.0 dB | 0.0 dB | |
| FILE | LAST DATASET LOADED | | | |



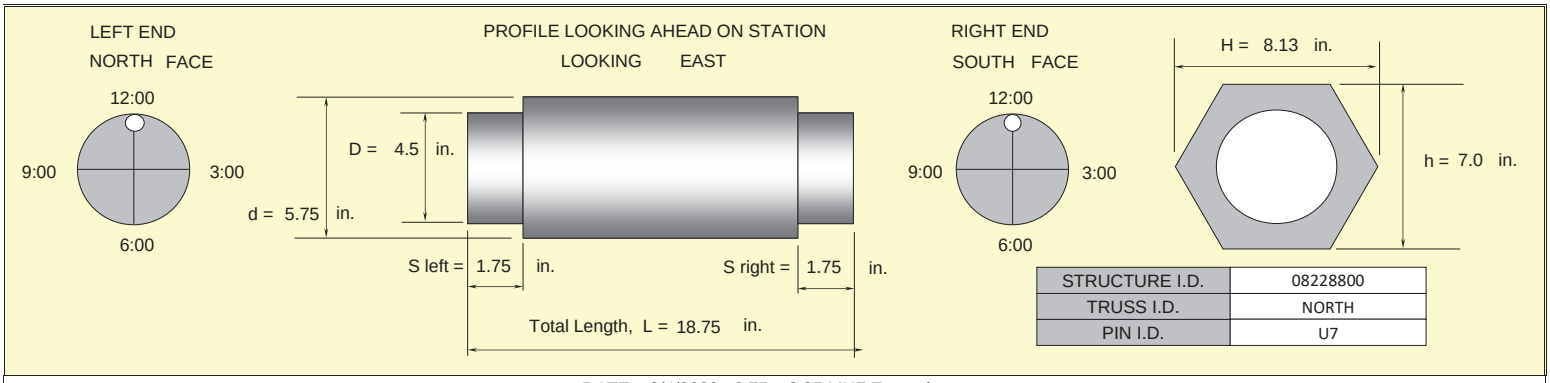

CV Parameter Table

| | | | | |
|---|---|---|---|---|
| RANGE | RANGE | PROBE DELAY | VELOCITY | DISPLAY DELAY |
| | 19.500 in | 1.005 µs | .2336 in/uS | 4.350 µs |
| PULSER | VOLTAGE | | DAMPING | |
| | HIGH | | 50 OHM | |
| RECV | FREQUENCY | RECTIFY | DUAL | REJECT |
| | 2.25 MHz | NEG HALFWAVE | OFF | 0% |
| PRF | PRF MODE | PRF VALUE | | |
| | AUTO HIGH | 1500 Hz | | |
| GATES | GATE A START | GATE A WIDTH | GATE A TRSH | TOF MODE |
| | 17.500 in | 2.116 in | 70% | FLANK |
| | GATE B START | GATE B WIDTH | GATE B TRSH | TOF MODE |
| | 15.911 in | 1.903 in | 50% | FLANK |
| TRIG | PROBE ANGLE | THICKNESS | X VALUE | O-DIAMETER |
| | OFF | 1.969 in | 0.000 in | FLAT |
| GAIN | GAIN | REF GAIN | TRANSFER CORR. | |
| | 72.4 dB | 0.0 dB | 0.0 dB | |
| FILE | LAST DATASET LOADED | | | |




DATE 3/4/2020 0.75 x 2.25 MHZ Transducer

| <<<<<<<< LEFT END >>>>>>>> | | | <<<<<<<< RIGHT END >>>>>>>> | | |
|---|---|---|---|---|---|
| COMMENTS: | | | COMMENTS: | | |
| dB REF | MODE<br>OFF | REFERENCE<br>(NO REF) | dB REF | MODE<br>OFF | REFERENCE<br>(NO REF) |




| | |
|---|---|
| STRUCTURE I.D. | 08228800 |
| TRUSS I.D. | NORTH |
| PIN I.D. | U7 |

DATE 3/4/2020 0.75 x 2.25 MHZ Transducer

<<<<<<<< LEFT END >>>>>>>>

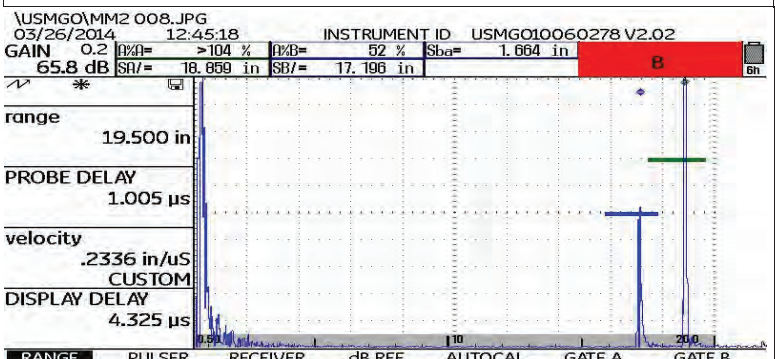
COMMENTS:

No Indications Noted

<<<<<<<< RIGHT END >>>>>>>>

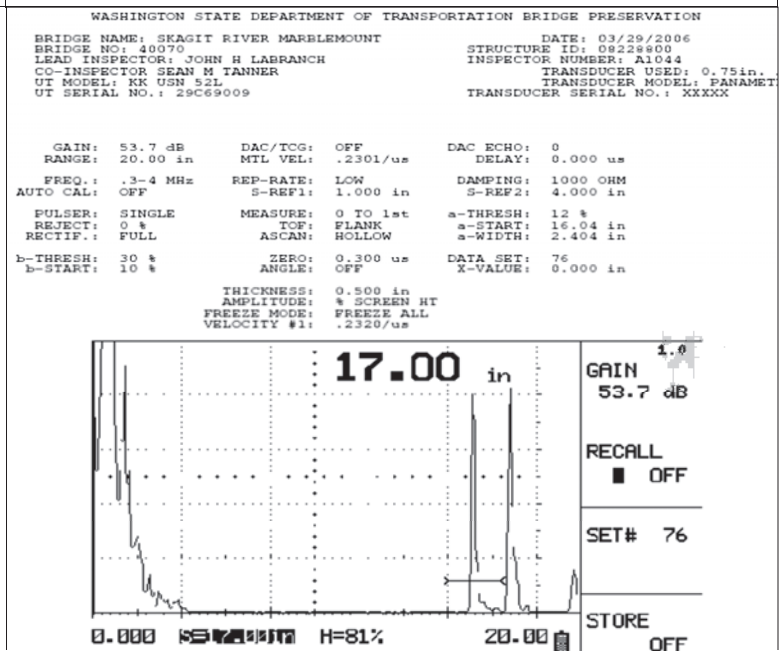
COMMENTS:

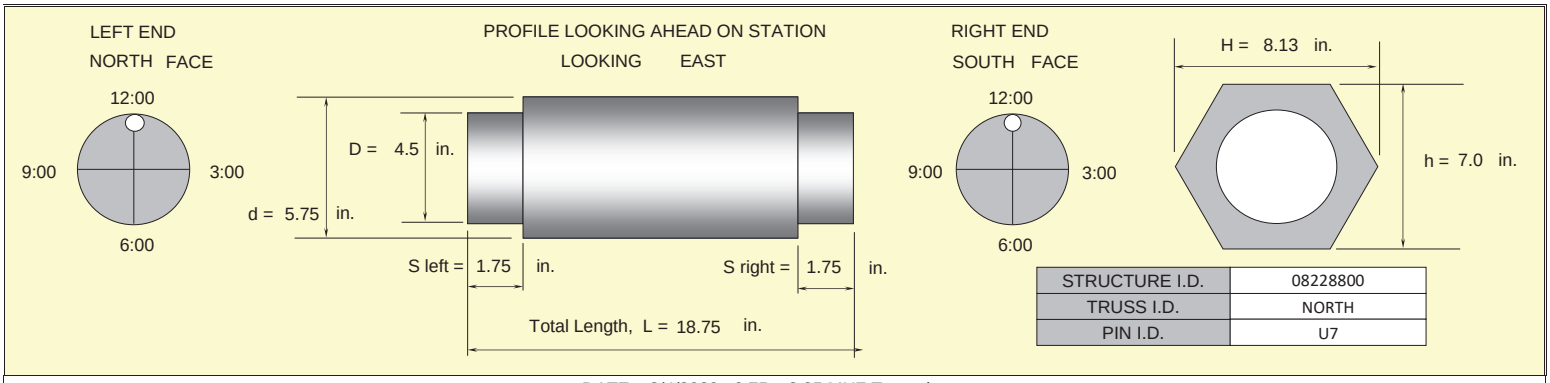
No Indications Noted




CV Parameter Table

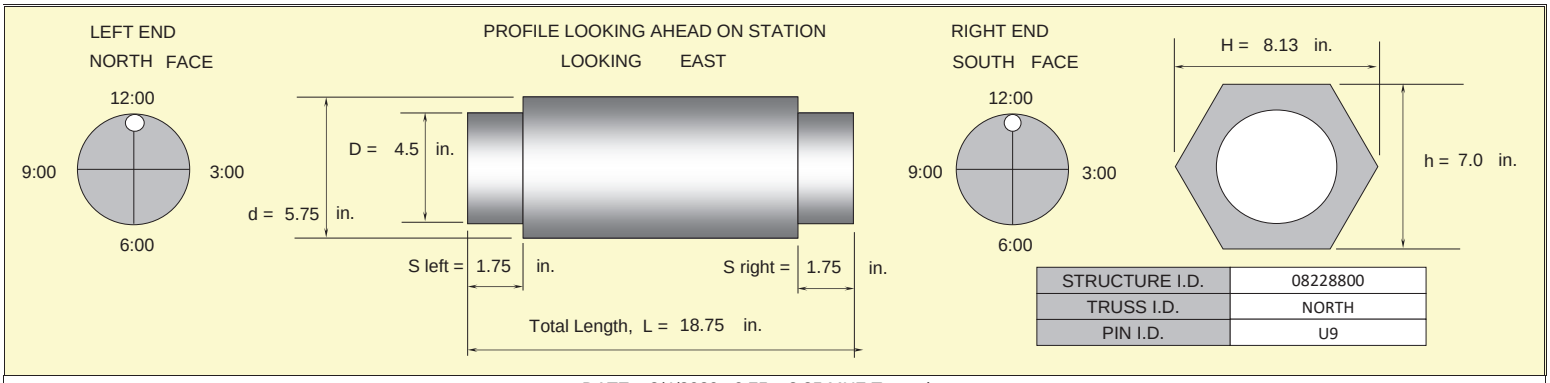
| | | | | |
|---|---|---|---|---|
| RANGE | RANGE | PROBE DELAY | VELOCITY | DISPLAY DELAY |
| | 19.500 in | 1.005 µs | .2336 in/uS | 4.325 µs |
| PULSER | VOLTAGE | | DAMPING | |
| | HIGH | | 50 OHM | |
| RECV | FREQUENCY | RECTIFY | DUAL | REJECT |
| | 2.25 MHz | NEG HALFWAVE | OFF | 0% |
| PRF | PRF MODE | PRF VALUE | | |
| | AUTO HIGH | 1500 Hz | | |
| GATES | GATE A START | GATE A WIDTH | GATE A TRSH | TOF MODE |
| | 17.500 in | 2.116 in | 70% | FLANK |
| | GATE B START | GATE B WIDTH | GATE B TRSH | TOF MODE |
| | 15.911 in | 1.903 in | 50% | FLANK |
| TRIG | PROBE ANGLE | THICKNESS | X VALUE | O-DIAMETER |
| | OFF | 1.969 in | 0.000 in | FLAT |
| GAIN | GAIN | REF GAIN | TRANSFER CORR. | |
| | 65.8 dB | 0.0 dB | 0.0 dB | |
| FILE | LAST DATASET LOADED | | | |
| | 5 | | | |





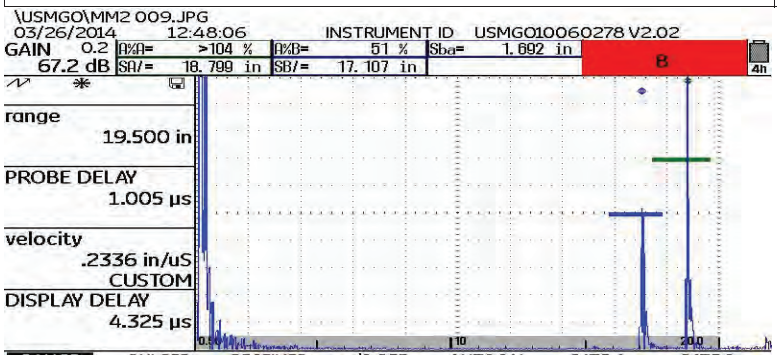

DATE 3/4/2020 0.75 x 2.25 MHZ Transducer

| <<<<<<<< LEFT END >>>>>>>> | <<<<<<<< RIGHT END >>>>>>>> |
|---|---|
| COMMENTS: | COMMENTS: |
| dB REF MODE OFF REFERENCE (NO REF) | BASIC RCVR PULS GATE S-CAL DET TCG |




DATE 3/4/2020 0.75 x 2.25 MHZ Transducer

| <<<<<<<< LEFT END >>>>>>>> | <<<<<<<< RIGHT END >>>>>>>> |
|---|---|
| COMMENTS: | COMMENTS: |
| No Indications Noted | No Indications Noted |




CV Parameter Table

| | | | | |
|---|---|---|---|---|
| RANGE | RANGE | PROBE DELAY | VELOCITY | DISPLAY DELAY |
| | 19.500 in | 1.005 µs | .2336 in/uS | 4.325 µs |
| PULSER | VOLTAGE | | DAMPING | |
| | HIGH | | 50 OHM | |
| RECV | FREQUENCY | RECTIFY | DUAL | REJECT |
| | 2.25 MHz | NEG HALFWAVE | OFF | 0% |
| PRF | PRF MODE | PRF VALUE | | |
| | AUTO HIGH | 1500 Hz | | |
| GATES | GATE A START | GATE A WIDTH | GATE A TRSH | TOF MODE |
| | 17.500 in | 2.116 in | 70% | FLANK |
| | GATE B START | GATE B WIDTH | GATE B TRSH | TOF MODE |
| | 15.911 in | 1.903 in | 50% | FLANK |
| TRIG | PROBE ANGLE | THICKNESS | X VALUE | O-DIAMETER |
| | OFF | 1.969 in | 0.000 in | FLAT |
| GAIN | GAIN | REF GAIN | TRANSFER CORR. | |
| | 67.2 dB | 0.0 dB | 0.0 dB | |
| FILE | LAST DATASET LOADED | | | |

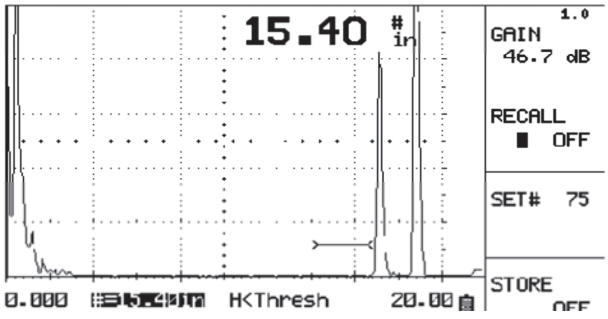
WASHINGTON STATE DEPARTMENT OF TRANSPORTATION BRIDGE PRESERVATION

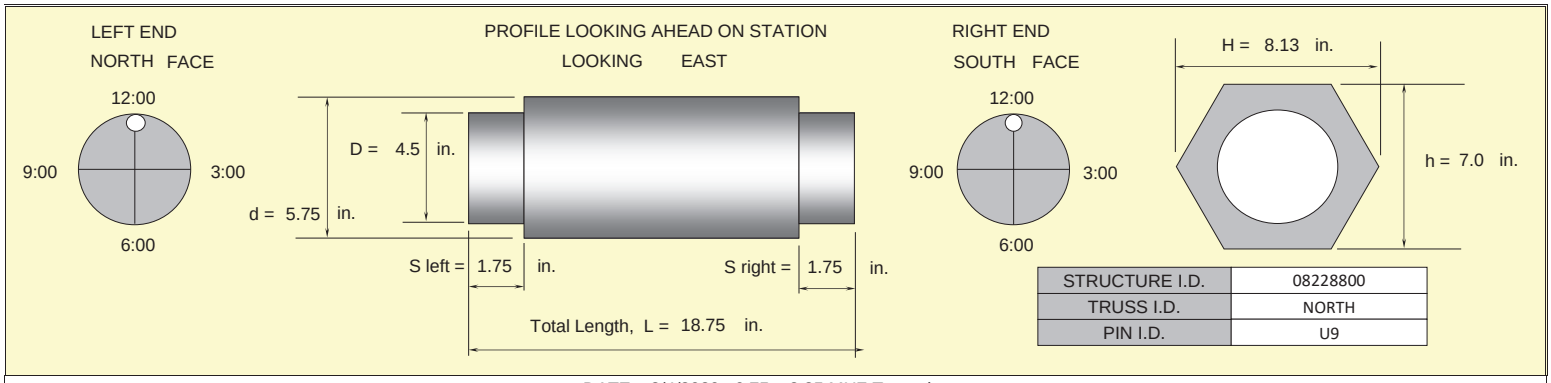
BRIDGE NAME: SKAGIT RIVER MARBLEMOUNT
BRIDGE NO: 40070
LEAD INSPECTOR: JOHN H LABRANCH
CO-INSPECTOR SEAN M TANNER
UT MODEL: KK USN 52L
UT SERIAL NO.: 29C69009

DATE: 03/29/2006
STRUCTURE ID: 08228800
INSPECTOR NUMBER: A1044
TRANSDUCER USED: 0.75in.
TRANSDUCER MODEL: PANAMET
TRANSDUCER SERIAL NO.: XXXXX

| | | | | | |
|---|---|---|---|---|---|
| GAIN: | 46.7 dB | DAC/TCG: | OFF | DAC ECHO: | 0 |
| RANGE: | 20.00 in | MTL VEL: | .2301/us | DELAY: | 0.000 us |
| FREQ.: | .3-4 MHz | REP-RATE: | LOW | DAMPING: | 1000 OHM |
| AUTO CAL: | OFF | S-REF1: | 1.000 in | S-REF2: | 4.000 in |
| PULSER: | SINGLE | MEASURE: | 0 TO 1st | a-THRESH: | 12 % |
| REJECT: | 0 % | TOF: | FLANK | a-START: | 14.26 in |
| RECTIF.: | FULL | ASCAN: | HOLLOW | a-WIDTH: | 2.404 in |
| b-THRESH: | 30 % | ZERO: | 0.300 us | DATA SET: | 75 |
| b-START: | 10 % | ANGLE: | OFF | X-VALUE: | 0.000 in |

THICKNESS: 0.500 in
AMPLITUDE: % SCREEN HT
FREEZE MODE: FREEZE ALL
VELOCITY #1: .2320/us



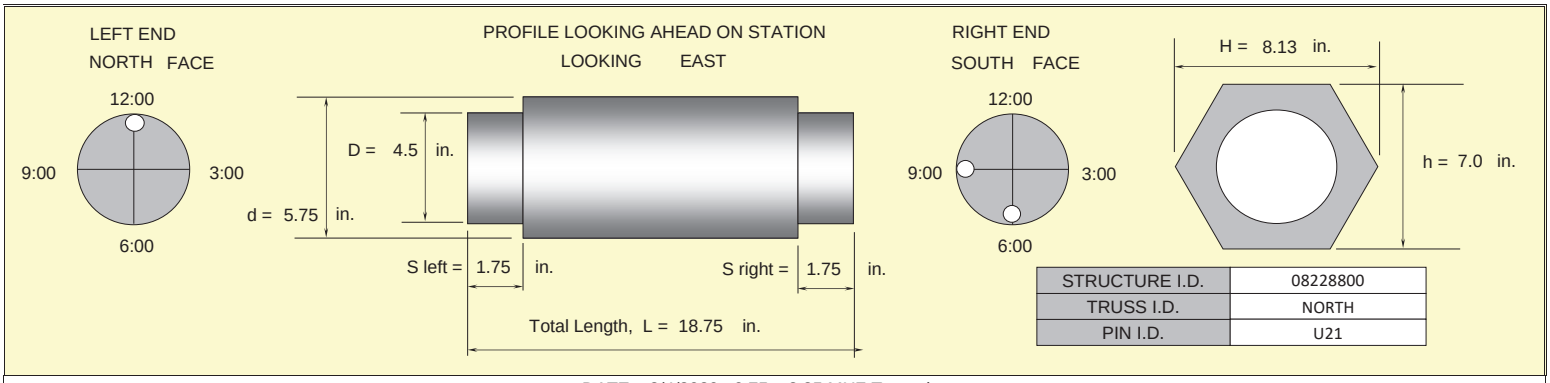



DATE 3/4/2020 0.75 x 2.25 MHZ Transducer

| <<<<<<<< LEFT END >>>>>>>> | <<<<<<<< RIGHT END >>>>>>>> |
|---|---|
| COMMENTS: | COMMENTS: |

| dB REF | MODE | REFERENCE |
|---|---|---|
| | OFF | (NO REF) |

BASIC RCVR PULS GATE S-CAL MEM TCG




DATE 3/4/2020 0.75 x 2.25 MHZ Transducer

<<<<<<<< LEFT END >>>>>>>>

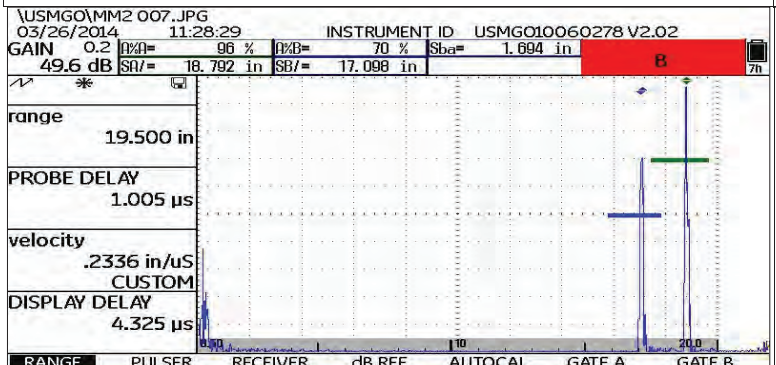
COMMENTS:

No Indications Noted

<<<<<<<< RIGHT END >>>>>>>>

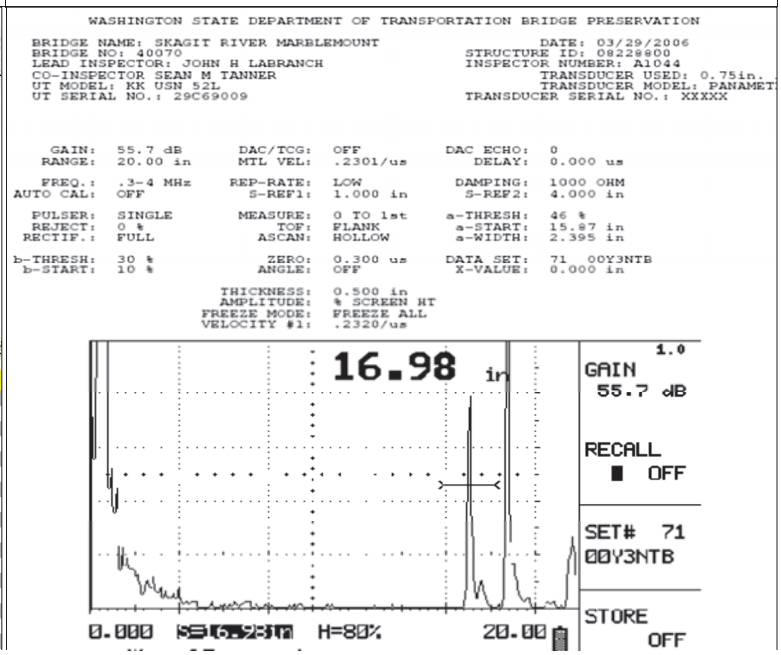
COMMENTS:

No Indications Noted



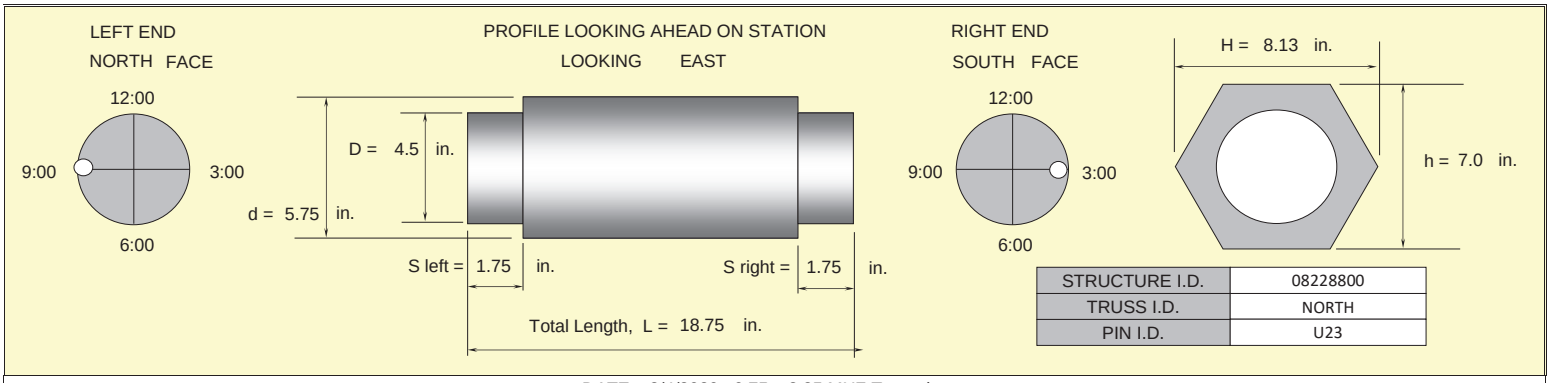

CV Parameter Table

| | | | | |
|---|---|---|---|---|
| RANGE | RANGE | PROBE DELAY | VELOCITY | DISPLAY DELAY |
| | 19.500 in | 1.005 µs | .2336 in/uS | 4.325 µs |
| PULSER | VOLTAGE | | DAMPING | |
| | HIGH | | 50 OHM | |
| RECV | FREQUENCY | RECTIFY | DUAL | REJECT |
| | 2.25 MHz | NEG HALFWAVE | OFF | 0% |
| PRF | PRF MODE | PRF VALUE | | |
| | AUTO HIGH | 1500 Hz | | |
| GATES | GATE A START | GATE A WIDTH | GATE A TRSH | TOF MODE |
| | 17.500 in | 2.116 in | 70% | FLANK |
| | GATE B START | GATE B WIDTH | GATE B TRSH | TOF MODE |
| | 15.911 in | 1.903 in | 50% | FLANK |
| TRIG | PROBE ANGLE | THICKNESS | X VALUE | O-DIAMETER |
| | OFF | 1.969 in | 0.000 in | FLAT |
| GAIN | GAIN | REF GAIN | TRANSFER CORR. | |
| | 49.6 dB | 0.0 dB | 0.0 dB | |
| FILE | LAST DATASET LOADED | | | |



DATE 3/4/2020 0.75 x 2.25 MHZ Transducer

| <<<<<<<< LEFT END >>>>>>>> | <<<<<<<< RIGHT END >>>>>>>> |
|---|---|
| COMMENTS: | COMMENTS: |


| | |
|---|---|
| STRUCTURE I.D. | 08228800 |
| TRUSS I.D. | NORTH |
| PIN I.D. | U23 |

DATE 3/4/2020 0.75 x 2.25 MHZ Transducer

<<<<<<<< LEFT END >>>>>>>>

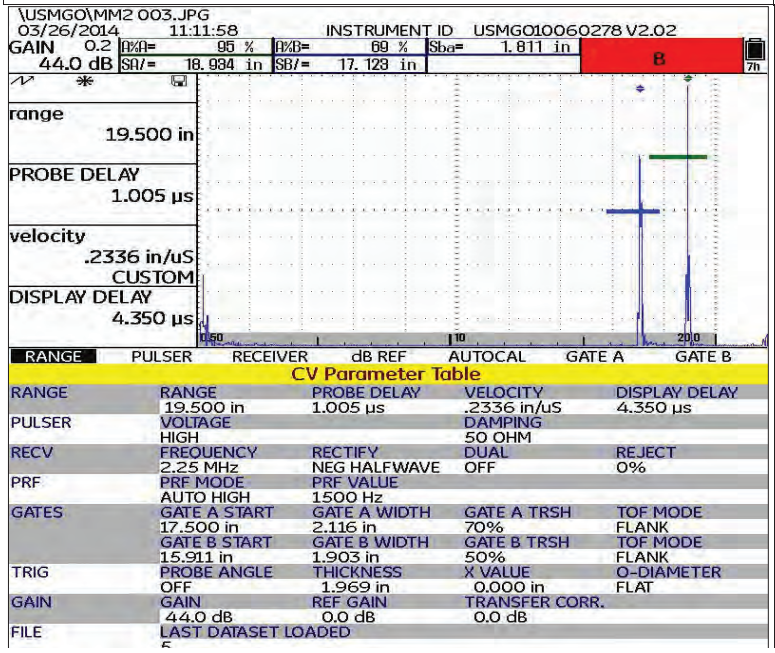
COMMENTS:

No Indications Noted

<<<<<<<< RIGHT END >>>>>>>>

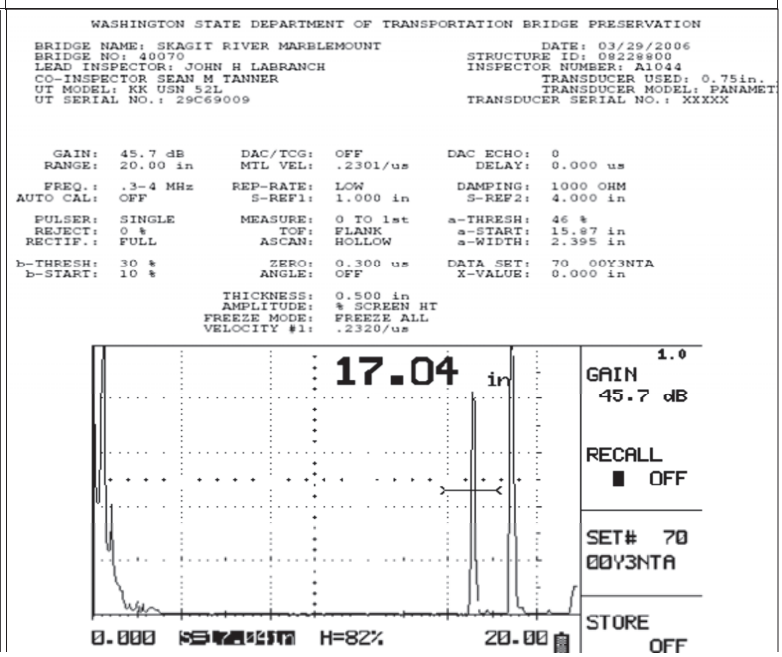
COMMENTS:

No Indications Noted




CV Parameter Table

| | | | | |
|---|---|---|---|---|
| RANGE | RANGE | PROBE DELAY | VELOCITY | DISPLAY DELAY |
| | 19.500 in | 1.005 µs | .2336 in/uS | 4.350 µs |
| PULSER | VOLTAGE | | DAMPING | |
| | HIGH | | 50 OHM | |
| RECV | FREQUENCY | RECTIFY | DUAL | REJECT |
| | 2.25 MHz | NEG HALFWAVE | OFF | 0% |
| PRF | PRF MODE | PRF VALUE | | |
| | AUTO HIGH | 1500 Hz | | |
| GATES | GATE A START | GATE A WIDTH | GATE A TRSH | TOF MODE |
| | 17.500 in | 2.116 in | 70% | FLANK |
| | GATE B START | GATE B WIDTH | GATE B TRSH | TOF MODE |
| | 15.911 in | 1.903 in | 50% | FLANK |
| TRIG | PROBE ANGLE | THICKNESS | X VALUE | O-DIAMETER |
| | OFF | 1.969 in | 0.000 in | FLAT |
| GAIN | GAIN | REF GAIN | TRANSFER CORR. | |
| | 44.0 dB | 0.0 dB | 0.0 dB | |
| FILE | LAST DATASET LOADED | | | |



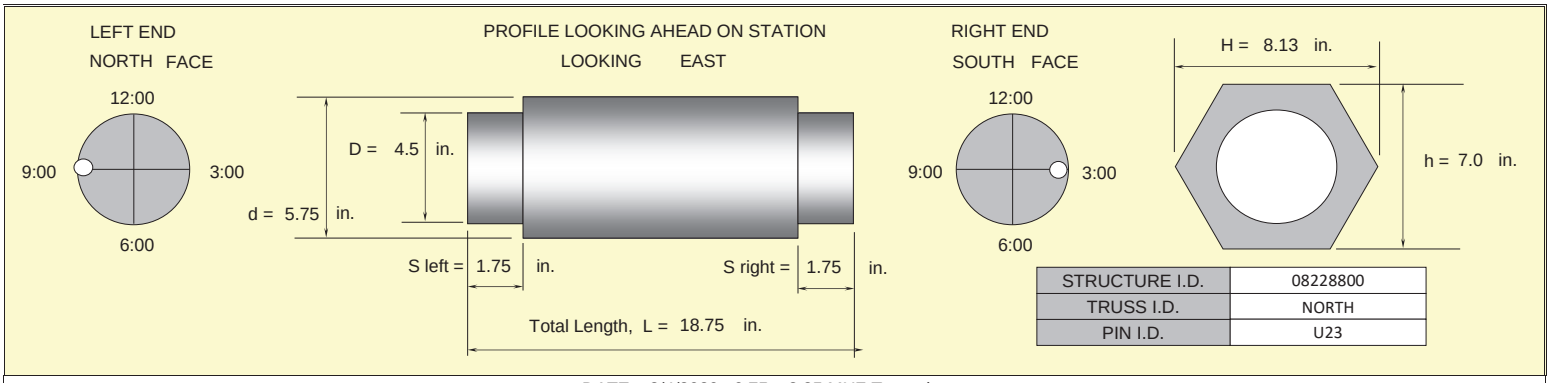
WASHINGTON STATE DEPARTMENT OF TRANSPORTATION BRIDGE PRESERVATION

BRIDGE NAME: SKAGIT RIVER MARBLEMOUNT
BRIDGE NO: 40070
LEAD INSPECTOR: JOHN H LABRANCH
CO-INSPECTOR SEAN M TANNER
UT MODEL: KK USN 52L
UT SERIAL NO.: 29C69009

DATE: 03/29/2006
STRUCTURE ID: 08228800
INSPECTOR NUMBER: A1044
TRANSDUCER USED: 0.75in.
TRANSDUCER MODEL: PANAMET
TRANSDUCER SERIAL NO.: XXXXX

| | | | | | |
|---|---|---|---|---|---|
| GAIN: | 45.7 dB | DAC/TCG: | OFF | DAC ECHO: | 0 |
| RANGE: | 20.00 in | MTL VEL: | .2301/us | DELAY: | 0.000 us |
| FREQ.: | .3-4 MHz | REP-RATE: | LOW | DAMPING: | 1000 OHM |
| AUTO CAL: | OFF | S-REF1: | 1.000 in | S-REF2: | 4.000 in |
| PULSER: | SINGLE | MEASURE: | 0 TO 1st | a-THRESH: | 46 % |
| REJECT: | 0 % | TOF: | FLANK | a-START: | 15.87 in |
| RECTIF.: | FULL | ASCAN: | HOLLOW | a-WIDTH: | 2.395 in |
| b-THRESH: | 30 % | ZERO: | 0.300 us | DATA SET: | 70 00Y3NTA |
| b-START: | 10 % | ANGLE: | OFF | X-VALUE: | 0.000 in |

THICKNESS: 0.500 in
AMPLITUDE: % SCREEN HT
FREEZE MODE: FREEZE ALL
VELOCITY #1: .2320/us




DATE 3/4/2020 0.75 x 2.25 MHZ Transducer

| <<<<<<<< LEFT END >>>>>>>> | <<<<<<<< RIGHT END >>>>>>>> |
|---|---|
| COMMENTS: | COMMENTS: |

| dB REF | MODE | REFERENCE |
|---|---|---|
| | OFF | (NO REF) |

BASIC RCVR PULS GATE S-CAL MET TCG

Washington State Department of Transportation

# PIN SUMMAR SHEET

| | | | |
|---|---|---|---|
| Bridge Name: | SKAGIT R MARBLEMOUNT | Date: | 3/4/2020 |
| Bridge No.: | 40070 | Hours: | 2.0 |
| Structure ID: | 08228800 | Inspector ID #: | G1303 |
| Structure Type: | STRus PCMWB | Lead Inspector: | TKK |
| Agency: | SKAGIT COUNTY | Co-Inspector: | WAW |
| Milepost: | 0.03 | | |

| Truss Line | Span | Location | Detail Description | Condition State (worst case) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 200 | 200 | 20 0 | 20 2 | 20 4 | 20 | 20 | 2020 |
| South | 2 | U7 | 18-3/4 long 5-3/4 dia. Shoulder at 17 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 |
| South | 3 | U9 | 18-3/4 long 5-3/4 dia. Shoulder at 17 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 |
| South | 3 | U21 | 18-3/4 long 5-3/4 dia. Shoulder at 17 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 |
| South | 4 | U23 | 18-3/4 long 5-3/4 dia. Shoulder at 17 | 3 | 2 | 2 | 2 | 1 | 1 | 1 | 1 |
| | | | | | | | | | | | |
| North | 2 | U7 | 18-3/4 long 5-3/4 dia. Shoulder at 17 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 |
| North | 3 | U9 | 18-3/4 long 5-3/4 dia. Shoulder at 17 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 |
| North | 3 | U21 | 18-3/4 long 5-3/4 dia. Shoulder at 17 | 3 | 2 | 2 | 2 | 1 | 1 | 1 | 1 |
| North | 4 | U23 | 18-3/4 long 5-3/4 dia. Shoulder at 17 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 |

Printed 4/26/2022

# Appendix E – Scour Evaluation

**Washington State Department of Transportation**

# Scour Field E aluation

| Bridge Number | Bridge Name | Structure ID |
|---|---|---|
| 40070 | Skagit River Marblemount | 08228800 |

| Date | Lead Inspector | Co-Inspector |
|---|---|---|
| 3/4/2020 | TKK | WAW |

- ☐ Heavy Growth Along Banks
- ☑ Ice/Debris in Channel
- ☐ Channel/Embankments are Eroding/Sloughing
- ☐ Damage to Riprap/Abutments/Piers
- ☐ Scour Holes Near Piers/Abutments
- ☐ Riprap in Place at Piers/Abutments
- ☐ Boat Required
- ☐ Divers Required
- ☐ UBIT Required
- ☐ Winter Inspection
- ☑ Repair Required
- ☐ Monitoring Required

Soundings
Ta en from top of t e up stream ridge rail

| Location | Measurement ft |
|---|---|
| Panel Point 0 (Pier 2) | 18.0 |
| Panel Point 1 | 18.0 |
| Panel Point 2 | 19.0 |
| Panel Point 3 | 18.5 |
| Panel Point 4 | 20.0 |
| Panel Point 5 | 20.2 |
| Panel Point 6 | 20.8 |
| Panel Point 7 (West Bank) | 26.0 |
| Panel Point 8 (Pier 3) | 31.0 |
| Panel Point 9 | 30.0 |
| Panel Point 10 | 30.0 |
| Panel Point 11 | 31.0 |
| Panel Point 12 | 31.0 |
| Panel Point 13 | 31.0 |
| Panel Point 14 | 32.0 |
| Panel Point 15 | 32.0 |
| Panel Point 16 | 32.0 |
| Panel Point 17 | 33.0 |
| Panel Point 18 | 34.0 |
| Panel Point 19 | 36.0 |
| Panel Point 20 | 34.0 |
| Panel Point 21 | 34.0 |
| Panel Point 22 (Pier 4) | 32.0 |
| Panel Point 23 | 30.0 |
| Panel Point 24 (East Bank) | 25.0 |
| Panel Point 25 | 21.0 |
| Panel Point 26 | 20.2 |
| Panel Point 27 | 20.0 |
| Panel Point 28 | 20.0 |
| Panel Point 29 | 17.0 |
| Panel Point 30 (Pier 5) | 17.0 |
| | |

| | |
|---|---|
| Thalweg (ft): | 36.0 |
| Distance to thalweg (ft): | 0.0 |
| Distance was measured from: | Panel Point 19 |
| Rail Height from Deck (ft): | 39.0" |

Inspector s Remarks:

Rail measured to 39 over the top of the deck.

Repairs Warranted:

Remove debris accumulation from Pier 4.

Washington State Department of Transportation

# Bridge Scour Evaluation

| Date | Agency |
|---|---|
| 7/9/2019 | Skagit County |
| **Bridge Number** 40070 | **Bridge Name** SKAGIT RIVER MARBLEMOUNT - SID 08228800 |
| **Evaluated By** Grant Griffin | |
| **Superstructure Type** Steel Through Truss | **Superstructure Continuity?** ☐ Yes ☒ No |
| | **Any Spread Footings?** ☐ Yes ☒ No |

## Evaluation

☒ Yes ☐ No
Estimated from Records

**Evaluation**: Are foundation elevations known? If not, consider the bridge scour critical (using engineering judgment and any other information available).

☐ Yes ☒ No

**Evaluation**: Does the thalweg (the deepest portion of the stream; the main channel) meander back and forth across the floodplain? If so, the potential for a scour critical condition is increased.

☐ Yes ☒ No

**Evaluation**: For a spread footing, is the bottom of the seal (or footing, if the seal is not used) above the thalweg? If so, the bridge is scour critical; no need to proceed further.

☐ Yes ☒ No

**Evaluation**: For a pile supported footing, is the pile tip elevation 10 feet or less below the thalweg? If so the bridge is scour critical; no need to proceed further.

**Bridge Is Scour Critical ☐ Yes ☒ No**

## Evaluation Criteria

- Foundation elevations are (or are not) known and available.
- The thalweg meanders back and forth across the floodplain.
- Pier scour is always measured from the thalweg, even if the pier is in the overbank.
- For a spread footing, if the calculated depth of scour is below the footing, the bridge is scour critical.
- For a pile supported footing, if calculated depth of scour is 10' or less above pile tip elevation, the bridge is scour critical.
- Scour should be calculated for 100 year flood. If not shown on bridge plan layout, check FEMA map. If not mapped by FEMA, use high water shown on layout or the USGS Regression equations found in the WSDOT Hydraulics Manual (M23-03).

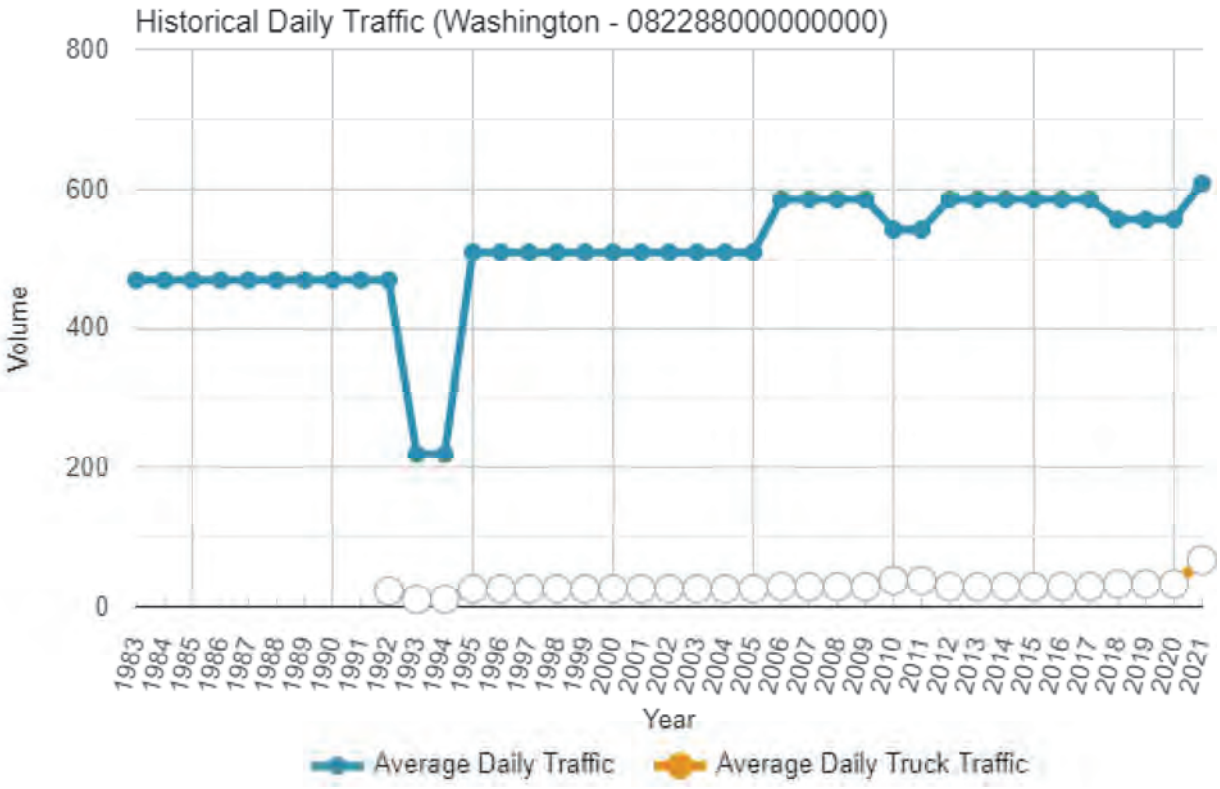
## Evaluate End Abutments for Scour

- Adequate and practical formulae for determining anticipated local scour due to an end abutment do not exist; each bridge must be evaluated individually.
- Existing riprap should be evaluated by the bridge inspector.
- If there is no riprap in place, **or** if existing riprap appears to be in place, and **can be bypassed** by migration of the stream at the upstream end of the riprap, treat the end abutment like an interior pier.
- If existing riprap appears to be in place, and **cannot be bypassed** by migration of the stream at the upstream end of the riprap, the bridge **is not** scour critical.

**Bridge Is Scour Critical** ☐ **Yes** ☒ **No**

Bridge No. 40070, the Marblemount Bridge over the Skagit River, is a 662-foot-long steel through truss supported on piers with footings supported by driven timber piles. High flows are being controlled by the dams on the river and the County has a response plan for predicted storm events to control the flow and manage high volume events. Piers 2 and 3 are in the flow of the river but close enough to the shore to inspect the footings and check for scour. Inspection notes indicate some footing exposure that is usually followed by aggregation of any scouring. Debris build-up can be a problem and the County Maintenance forces work to keep the debris clear. **By this assessment, field 1680 is coded "8" consistent with a scour evaluation dated 1996 and the scour inspection history at the bridge.**

# Appendix F – Traffic Data


Historical Daily Traffic (Washington - 082288000000000)
800
600
400
200
0
Volume
1983
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
Year
Average Daily Traffic
Average Daily Truck Traffic

# Appendix G – Bridge Rehabilitation Cost Estimate

TRANTECH Engineering LLC

# Skagit River Marblemount Bridge Opinion of Cost

## Painting, Gusset Plate Replacement, and Expansion Joint Replacement

| ITEM DESCRIPTION | QUANTITY | MEAS. UNIT | UNIT PRICE | COST |
|---|---|---|---|---|
| SPOT ABRASIVE BLASTING | 10,000 | SF | $ 2 | $ 20,000 |
| CLEANING AND PAINTING | 100,000 | SF | $ 40 | $ 4,000,000 |
| WORK PLATFORM | 1 | LS | $ 1,000,000 | $ 1,000,000 |
| CONTAINMENT OF ABRASIVES | 52,800 | SF | $ 5 | $ 264,000 |
| TESTING AND DISPOSAL OF CONTAINMENT WASTE | 1 | LS | $ 20,000 | $ 20,000 |
| CLEANING SEALING AND CAULKING PACK RUST | 10,000 | LF | $ 10 | $ 100,000 |
| HEALTH AND SAFETY PLAN | 1 | LS | $ 15,000 | $ 15,000 |
| WILDLIFE MANAGEMENT | 1 | LS | $ 25,000 | $ 25,000 |
| BEARING REPAIR | 4 | EA | $ 5,000 | $ 20,000 |
| GUSSET PLATE REPAIR | 112 | EA | $ 16,000 | $ 1,792,000 |
| ENGINEER DIRECTED REPAIRS | 1 | FA | $ 250,000 | $ 250,000 |
| STRUCTURAL STEEL REPAIR | 10,000 | LBS | $ 15 | $ 150,000 |
| EXPANSION JOINT REPLACEMENT | 88 | LF | $ 1,000 | $ 88,000 |
| SEALING JOINTS | 264 | LF | $ 20 | $ 5,280 |
| TRAFFIC ONTROL | 1 | LS | $ 250,000 | $ 250,000 |
| TESC | 1 | LS | $ 25,000 | $ 25,000 |
| SWPPP | 1 | LS | $ 5,000 | $ 5,000 |
| SPCC | 1 | LS | $ 25,000 | $ 25,000 |
| APPROACH RAILING REPLACEMENT | 100 | LF | $ 150 | $ 15,000 |
| | | | | |
| **CORE CONSTRUCTION COST** | | | | **$ 8,070,000** |
| | | | | |
| MOBILIZATION (10%) | 1 | LS | | $ 807,000.00 |
| CONTINGENCIES (15%) | 1 | LS | | $ 1,211,000.00 |
| ENGINEERING (25%) | 1 | LS | | $ 3,093,000.00 |
| CONSTRUCTION ENGINEERING (18%) | 1 | LS | | $ 1,453,000.00 |
| INFLATION @ 5% FOR 2 YEARS | 1 | LS | | $ 828,000.00 |
| **TOTAL** | | | | **$ 15,462,000** |