2018 Yankton County Bridge Inspections County Road Structures

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CLARK ENGINEERING

Inspection Overview

- 40 bridges on county roads (this includes the 4 James River Bridges)
- Sufficiency Ratings:
  - 100 – 60 (Good Condition) – 31 bridges (78%)
  - 60-40 (Fair Condition) – 7 bridge (17%)
  - < 40 (Poor Condition) – 2 bridges (5%)
- Posted Structures
  - 19 Posted Structures
  - 21 Legal Load Structures

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68-070-158

- 36.0' Single Span Steel Girder
- Built in 1940
- 2.8 miles south of Utica, SD
- Sufficiency Rating = 30.6
- Structure is nearing the end of its useful life and should be programmed for replacement.

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68-070-158

Profile Facing West

Alignment Facing South

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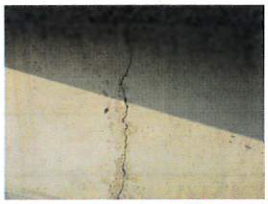
68-070-158



Typical Wide Vertical Crack on Backwalls

Typical Map Cracking with Efflorescence on Underside of Deck

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Typical Minor Section Loss Top Flange of Girders

Weight Limit Sign

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68-070-158

Repair Recommendations:

- Structure is nearing the end of its useful life and should be programmed for replacement.
- Upgrade the bridge railing to meet current standards.
- Install approach guardrail on each approach.
- Open the deck drains.
- Continue to post the structure at Single Unit: 17 Tons, Combinations: 29 Tons.

CLARK ENGINEERING

68-137-088

- 39.0' Single Span Steel Girder
- Built in 1930
- 2.8 miles south and 10.3 miles west of Irene, SD
- Sufficiency Rating = 43.3

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68-137-088

Profile Facing West

Alignment Facing South

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68-137-088

Typical Underside of the Deck and the Girders

Jacket on Abutment 1

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68-137-088

Jacket on Abutment 2

Weight Limit Sign

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68-137-088

Repair Recommendations:

- Upgrade the bridge railing to meet current standards.
- Replace the Type 3 object markers with Type 2 object markers.
- Continue to post the structure at Single Unit: 11 Tons, Combinations: 18 Tons.

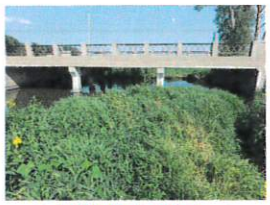
CLARK ENGINEERING

68-180-133

- 53.6'Three Span Reinforced Concrete Slab
- Built in 1941
- 1.7 miles north and 5.0 miles west of Volin, SD
- Sufficiency Rating = 45.8
- Structure is nearing the end of its useful life and should be programmed for replacement.

CLARK ENGINEERING

68-180-133



Profile Facing East

Alignment Facing North

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68-180-133

Heavy Efflorescence and Stalactites at the East end of Span 1 (Typical to the West End)

Abutment 1

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68-180-133

Heavy Efflorescence on the East End of Bent 2 (Typical to the West End of Bent 2)

Weight Limit Sign

CLARK ENGINEERING

68-180-133

Repair Recommendations:

- Structure is nearing the end of its useful life and should be programmed for replacement.
- Install approach guardrail with appropriate signing.
- Upgrade the bridge railing to meet current standards.
- Continue to post the structure at Single Unit: 18 Tons, Combinations: 30 Tons.

CLARK ENGINEERING

68-140-015

- 31.0' Single Span Steel Girder
- Built in 1930
- 4.5 miles north and 10.0 miles west of Irene, SD
- Sufficiency Rating = 47.0
- This structure is nearing the end of its useful life and should be programmed for replacement.

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68-140-015

Profile Facing East

Alignment Facing North

CLARK ENGINEERING

68-140-015

General Layout of the Underside of the Deck and Girders

North Backwall

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68-140-015

South Backwall

Weight Limit Sign

CLARK ENGINEERING

68-140-015

Repair Recommendations:

- This structure is nearing the end of its useful life and should be programmed for replacement.
- Upgrade the bridge railing to meet current standards.
- Continue to post the structure at Single Unit: 20 Tons, Combinations: 33 Tons.

CLARK ENGINEERING

68-043-023

- 40.5' Single Span Prestressed Concrete Double Tee
- Built in 1975
- 6.7 miles north and 2.3 miles east of Lesterville, SD
- Sufficiency Rating = 55.8

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68-043-023

Profile Facing South

Alignment Facing East

CLARK ENGINEERING

68-043-023

Spall on the North Leg of Unit 7 over Abutment 1

Typical Deterioration of Piles at the Ground line

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Undermining at the North End of the East Backwall

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68-043-023

Repair Recommendations:

- Replace the timber abutments.
- Repair undermining at Abutment 2 and riprap.
- Post the structure at Single Unit: 18 Tons, Combinations: 30 Tons (75% of Legal Loads) due to the condition of the piles.

CLARK ENGINEERING

68-024-008

- 29.1'Two Span Steel Girder
- Built in 1950 / 1997
- 8.2 miles north and 0.4 miles east of Lesterville, SD
- Sufficiency Rating = 56.3
- This structure is nearing the end of its useful life and should be programmed for replacement.

CLARK ENGINEERING

68-024-008

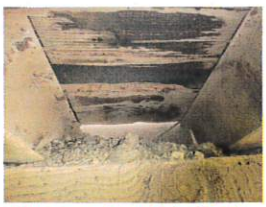
Profile Facing North

Alignment Facing West

CLARK ENGINEERING

68-024-008

General Layout of Underside of Deck and Girders



Damage to West End of Deck

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68-024-008

Weight Limit Sign

CLARK ENGINEERING

68-024-008

Repair Recommendations:

- Complete replacement of this structure in 2019.

CLARK ENGINEERING

68-200-016

- 36.5' Single Span Steel Girder
- Built in 1940
- 1.6 miles south of Center Point, SD
- Sufficiency Rating = 57.1

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68-200-016

Profile Facing West

Alignment Facing North

CLARK ENGINEERING

68-200-016

General Layout of the Underside of the Deck and Girders

Weight Limit Sign

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68-200-016

Repair Recommendations:

- Upgrade the bridge railing to meet current standards.
- Arrest scour at southeast corner under the structure with riprap.
- Post the structure at Single Unit: 21 Tons, Combinations: 36 Tons.

CLARK ENGINEERING

68-209-030

- 31.0' Single Span Steel Girder
- Built in 1940
- 3.0 miles north and 3.1 miles west of Irene, SD
- Sufficiency Rating = 60.0

CLARK ENGINEERING

68-209-030

Profile Facing South

Alignment Facing East

CLARK ENGINEERING

68-209-030

General Layout of the Underside of the Deck and Girders

Concrete Deterioration at the North End of the East Backwall

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68-209-030

Weight Limit Sign

CLARK ENGINEERING

68-209-030

Repair Recommendations:

- Upgrade the bridge railing to meet current standards.
- Continue to post the structure at Single Unit: 20 Tons, Combinations: 34 Tons.

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68-230-159

- 50.0' Single Span Prestressed Concrete Double Tee
- Built in 1974
- 1.0 mile south of Volin, SD
- Sufficiency Rating = 61.2

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68-230-159

Profile Facing East

Alignment Facing North

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68-230-159

Pile 1 of Abutment 1

Pile 3 of Abutment 1

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68-230-159

Undermining at the East End of the South Backwall

Weight Limit Sign

CLARK ENGINEERING

68-230-159

Repair Recommendations:

- Install concrete diaphragms at the abutments and at midspan.
- Replace both timber abutments with concrete abutments.
- Install approach guardrail with appropriate signing at the northeast and southwest approaches.
- Repair damaged and loose guardrail supports
- Repair undermining of Abutment 1.
- Continue to post the structure at Single Unit: 21 Tons, Combinations: 36 Tons.

CLARK ENGINEERING

68-050-159

- 26.0' Single Span Steel Girder
- Built in 1940
- 2.8 miles south and 2.0 miles west of Utica, SD
- Sufficiency Rating = 65.5

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68-050-159

Profile Facing East

Alignment Facing North

CLARK ENGINEERING

68-050-159

General Condition of Underside of Deck and Girders

Weight Limit Sign

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68-050-159

Repair Recommendations:

- This structure is nearing the end of its useful life and should be programmed for replacement.
- Upgrade the bridge railing to meet current standards.
- Install approach guardrail on each approach.
- Continue to post the structure at Single Unit: 19 Tons, Combinations: 32 Tons.

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68-070-113

- 140.0' Five Span Reinforced Concrete Slab
- Built in 1956
- 1.7 miles north of Utica, SD
- Sufficiency Rating = 68.5

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68-070-113

Profile Facing East

Alignment Facing South

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68-070-113

Exposed Rebar in Southeast Corner and Typical Scaling of Deck

Weight Limit Sign

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68-070-113

Repair Recommendations:

- Consider installing a polymer chip seal.
- Install approach guardrail with appropriate signing.
- Upgrade the bridge railing to meet current standards.
- Remove the trees growing under the structure.
- Continue to post the structure at Single Unit: 21 Tons, Combinations: 36 Tons.

CLARK ENGINEERING

68-019-015

- 36.4' Single Span Steel Girder
- Built in 1938
- 7.5 miles north and 0.1 miles west of Lesterville, SD
- Sufficiency Rating = 71.0

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68-019-015

Profile Facing North

Alignment Facing West

CLARK ENGINEERING

68-019-015

General Layout of Underside of Deck and Girders

Concrete Deterioration in North Exterior Bay

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68-019-015

Typical Efflorescence and Stalactites on the underside of the Deck

Typical Section Loss on Top Flanges of Girders

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68-019-015

Cracking and Deterioration on North End of East Backwall

Weight Limit Sign

CLARK ENGINEERING

68-019-015

Repair Recommendations:

- Upgrade the bridge railing to meet current standards.
- Move fence back to ROW on north side of structure.
- Continue to post the structure at Single Unit: 19 Tons, Combinations: 32 Tons.

CLARK ENGINEERING

68-043-014

- 81.8'Two Span Steel Girder
- Built in 1940
- 7.6 miles north and 2.3 miles east of Lesterville, SD
- Sufficiency Rating = 73.2

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68-043-014

Profile Facing North

Alignment Facing West

CLARK ENGINEERING

68-043-014

Concrete Deterioration with Exposed Rebar on the South Edge of the Deck over Bent 2

Typical Section Loss on the Bottom Flange of Girders 2-9 at Abutment 1

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68-043-014

Concrete Deterioration at the South End of Bent Cap 2

Weight Limit Sign

CLARK ENGINEERING

68-043-014

Repair Recommendations:

- This structure is programmed for replacement in 2020.
- Upgrade the bridge railing to meet current standards.
- Remove the tree debris at Bent 2.
- Continue to post the structure at Single Unit: 19 Tons, Combinations: 32 Tons.

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68-061-022

- 31.6' Single Span Steel Girder
- Built in 1935
- 10.8 miles north and 0.8 miles west of Utica, SD
- Sufficiency Rating = 75.2

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68-061-022

Profile Facing South

Alignment Facing West

CLARK ENGINEERING

68-061-022

General Layout of the Underside of the Deck and the Girders

Cracking on the South End of the West Backwall

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68-061-022

Weight Limit Sign

CLARK ENGINEERING

68-061-022

Repair Recommendations:

- This structure is nearing the end of its useful life and should be programmed for replacement.
- Upgrade the bridge railing to meet current standards.
- Monitor the bowing of the girders.
- Continue to post the structure at Single Unit: 20 Tons, Combinations: 34 Tons.

CLARK ENGINEERING

68-050-105

- 128.8' Five Span Reinforced Concrete Slab
- Built in 1963
- 2.0 miles west and 2.5 miles north of Utica, SD
- Sufficiency Rating = 89.1

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68-050-105

Profile Facing West

Alignment Facing South

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68-050-105

Poor Consolidation of Column 1 Bent 4

Weight Limit Sign

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68-050-105

Repair Recommendations:

- Patch areas of poor consolidation on the columns.
- Upgrade the bridge railing to meet current standards.
- Remove the trees from under the structure.
- Continue to post the structure at Single Unit: 21 Tons, Combinations: 36 Tons.

CLARK ENGINEERING

68-200-103

- 93.0'Three Span Reinforced Concrete Slab
- Built in 1996
- 3.0 miles west and 4.5 miles north of Volin, SD
- Sufficiency Rating = 99.9

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68-200-103

Profile Facing West

Alignment Facing South

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68-200-103

Repair Recommendations:

- Consider installing an epoxy deal seal.

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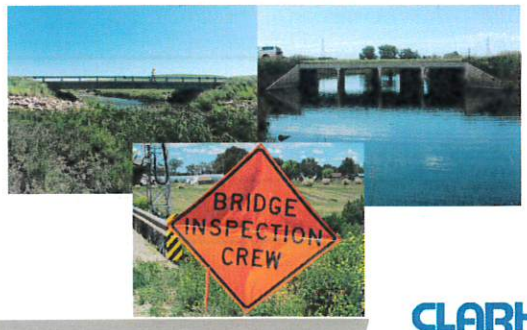
Questions?



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Thank you for your time!

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