



Latitude:46.42128, Longitude:-101.83901

Route:00049 Log:37.669

District 61, Grant County

Owner: 1-State Highway Agency

Place Code: MINNIE TOWNSHIP

Team Leader: Jake Mertz

Approved By: Travis McCloud

1 NORTH OF ND 21



46.42128, -101.83901

IDENTIFICATION	
(1) State Names	North Dakota
(8) Structure Number	0049-037.677
(5) Inventory Route	00049
(2) Highway Agency District	61
(3) County Code	Grant, North Dakota
(4) Place Code	53300
(6) Features Intersected	CREEK
(7) Facility Carried	ND HIGHWAY 49
(9) Location	1 NORTH OF ND 21
(11) Mile Point	37.669 mi
(12) Base Highway Network	Yes
(13) LRS Inventory Rte	0000000000
(16) Latitude	46.42128
(17) Longitude	-101.83901
GPS X	281847.8
GPS Y	5144773
(98) Border Bridge State Code	-1
(99) Border Bridge Struct. No.	-2
STRUCTURE TYPE AND MATERIAL	
(43) Main Structure Type	319
Material	3-Steel
Type	19-Culvert
(44) Approach Structure Type	00
Material	0-Other
Type	0-Other
(45) No. of Spans in Main Unit	1
(46) No. of Approach Spans	0
Culvert	SINGLE, 12X7X89' SPP WITH HEADWALLS
(107) Deck Structure Type	N-Not applicable
(108) Wearing Surface/Protective System	
Type of Wearing Surface	N-Not applicable (applies only to structur
Type of Membrane	N-Not applicable (applies only to structur
Type of Deck Protection	N-Not applicable (applies only to structur
Deck overburden	N
AGE AND SERVICE	
(27) Year Built	1956
(106) Year Reconstructed	1985
(42) Type of Service	15
On	1-Highway
Under	5-Waterway
(28) Lane	
On	2
Under	0
(29) Average Daily Traffic	710
(30) Year of ADT	2019
(109) Truck ADT	11 %
(19) Bypass, Detour Length	50 mi
(114) Future ADT	789
GEOMETRIC DATA	
(48) Length of Maximum Span	12.1 ft
(49) Structure Length	12.1 ft
(50) Curb or Sidewalk Width	
Left	0 ft
Right	0 ft
(51) Bridge Roadway Width Curb to Curb	0 ft
(52) Deck Width Out to Out	0 ft
(32) Approach Roadway Width (W/Shoulders)	29.9 ft
(33) Bridge Median	0-No median
(34) Skew	0 Deg
(35) Structure Flared	No flare
(10) Inventory Route Min Vert Clear	99.99 ft
(47) Inventory Route Total Horiz Clear	29.9 ft
(53) Min Vert Clear Over Bridge Rdwy	99.99 ft
(54) Min Vert Underclear	0 ft
Ref:	
(55) Min Lat Underclear RT	99.9 ft
Ref:	
(56) Min Lat Underclear LT	0 ft

CLASSIFICATION	
(A-7) Agency Admin Area	1
(112) NBIS Bridge Length	N
(104) Highway System	Non-NHS
(26) Functional Class	6-Rural Minor Arterial
(100) Defense Highway	0-The inventory route is not a S
(A16) TE Route	
(101) Parallel Structure	N-No parallel structure exists.
(102) Direction of Traffic	2 - way traffic
(103) Temporary Structure	
(105) Federal Lands Highways	0-N/A
(110) Designated National Network	0-The inventory route is not part of
(20) Toll	3-On free road. The structure is toll-
(21) Maintain	1-State Highway Agency
(22) Owner	1-State Highway Agency
(37) Historical Significance	5-Bridge is not eligible for the NRHP
CONDITION	
(58) Deck	N
(59) Superstructure	N
(60) Substructure	N
(61) Channel & Channel Protection	7
(62) Culverts	3
LOAD RATING AND POSTING	
(31) Design Load	5-MS 18 / HS 20
(63) Operating Rating Method	1
(64) Operating Rating	59.5
(65) Inventory Rating Method	1-Load Factor(LF)
(66) Inventory Rating	35.7
(70) Bridge Posting	5-Equal to or above legal loads
(41) Structure Open/Posted/Closed	A-Open, no restriction
APPRAISAL	
(67) Structural Evaluation	6
(68) Deck Geometry	N
(69) Clearances, Vertical/Horizontal	N
(71) Waterway Adequacy	6
(72) Approach Roadway Alignment	8
(36) Traffic Safety Features	NN00
A) Bridge Railings	N-Not applicable or a safety feature
B) Transitions	N-Not applicable or a safety feature
C) Approach Guardrail	0-Inspected feature does not meet cur
D) Approach Guardrail Ends	0-Inspected feature does not meet cur
(113) Scour Critical Bridges	8-Bridge foundations determined to be
APPROVED INSPECTIONS	
(90) Inspection Date	05/2021
(91) Frequency	24 Months
(92) Critical Feature Inspection	Req Freq. (Mon) Date
A: Fracture Critical Detail	No
B: Underwater Inspection	No
C: Other Special Inspection	Yes 0 12/2020
NAVIGATION DATA	
(38) Navigation Control	0-No navigation control on water
(111) Pier Protection	-
(39) Navigation Vertical Clearance	0 ft
(116) Vert-Lift Bridge Nav Min Vert Clr	ft
(40) Navigation Horizontal Clearance	0 ft
AGENCY ITEMS	
(A-21) Fedaid Project no.	HES-9-999(68) C#1
(A-14) Chaining Date	
(A-15) Delamination Pct	
(A-2) Rating Date	1/1/1900 12:00:00 AM
Bridge Health Index	54.18

Inspection Team Lead: Jake Mertz

ELEM	DESCRIPTION	UNITS	TOTAL	CS1	CS2	CS3	CS4
240	Steel Culvert	LF	89	39	0	0	50
1900	Distortion	LF	50	0	0	0	50
515	Steel Protective Coating	SF	100	100	0	0	0
(240-1900)							
Unable to get pictures due to water in the pipe - 4/10/2019							
The floor of the pipe has heaved approximately 1-2 feet beginning 20 feet from the West end and ending 20 feet from the East end. There is concrete on the floor this has broken up and the seam for the steel plates is visible. 12May2021							
8402	Headwalls	EA	2	0	2	0	0
1080	Delamination/Spall/Patched Area	EA	2	0	2	0	0
(8402-1080)							
Both headwalls have a spall. These spalls measure approximately 6 inches by 6 inches in size. 12May2021							

Inspection Comments

04/18/2017 NBI Remarks: Concrete floor moderately cracked. Floor of pipe is starting to rust.

Roadway has a 2 to 3 foot dip over pipe. - 4/10/2019

Alert code 1 - Floor of pipe appears to be heaving in center throughout length of pipe. - 4/10/2019

Significant Findings

The floor of the pipe has heaved approximately 1-2 feet beginning 20 feet from the West end and ending 20 feet from the East end. There is concrete on the floor this has broken up and the seam for the steel plates is visible. 12May2021



East end looking NW

SPP MEASUREMENT LOG
 North Dakota Department of Transportation, Bridge
 SFN 52137 (7-2016)



Structure Number: **0049-037.677**
 Barrel Number: **1** Barrel Length: **89**

Measurements to be taken in direction of inventory, so and west to east. If more than one pipe, the first pipe direction shall be number one and second number two

Use one sheet per pipe.

Location Number	Distance From Inlet of
W 1	6
2	15
3	28
E 4	62
5	83

-All steel pipe are to have internal measurements that are to be taken at intervals throughout the pipe.
 -Locations should be marked by paint spots that can aid in future identification.
 -Bold heads may be spray painted for location points.

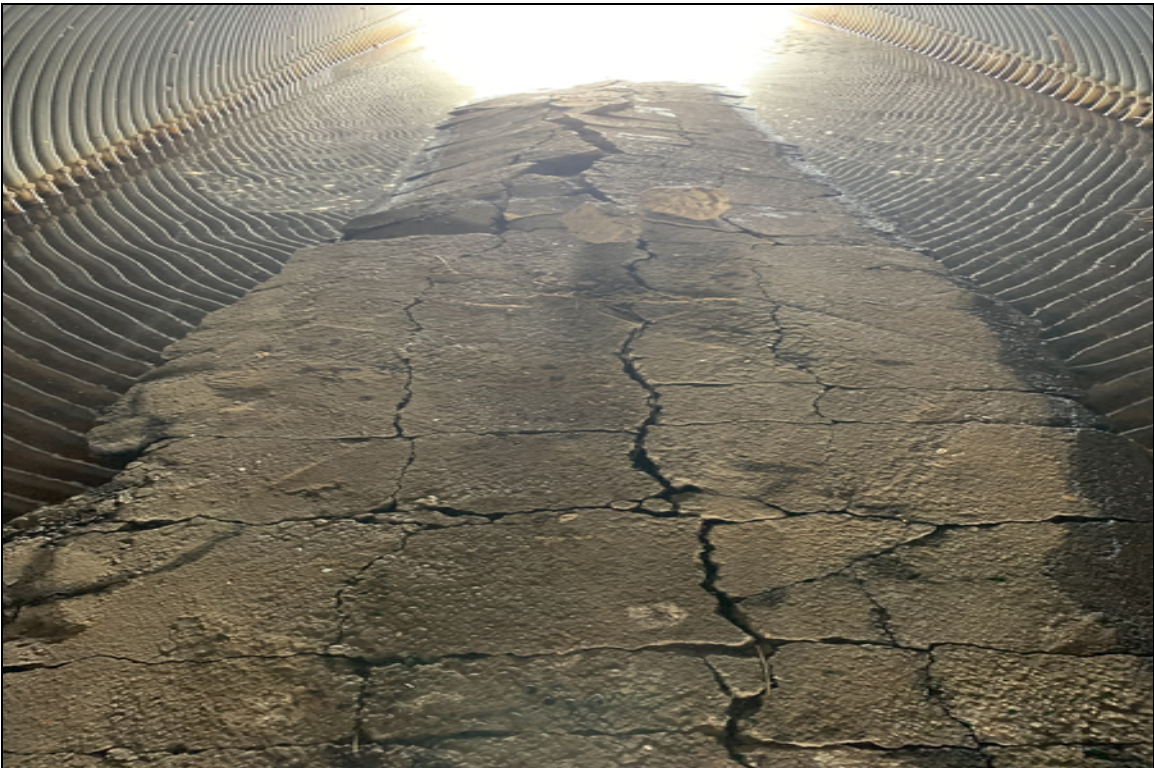



YEAR	LOCATION	DIMENSIONS			
		A	B	C	D
5/2021	1	5.89	7.31	5.89	5.89
	2	5.00	7.42	5.31	5.73
	3	4.17	-	-	-
	4	4.75	-	-	-
	5	6.14	9.23	6.48	5.87

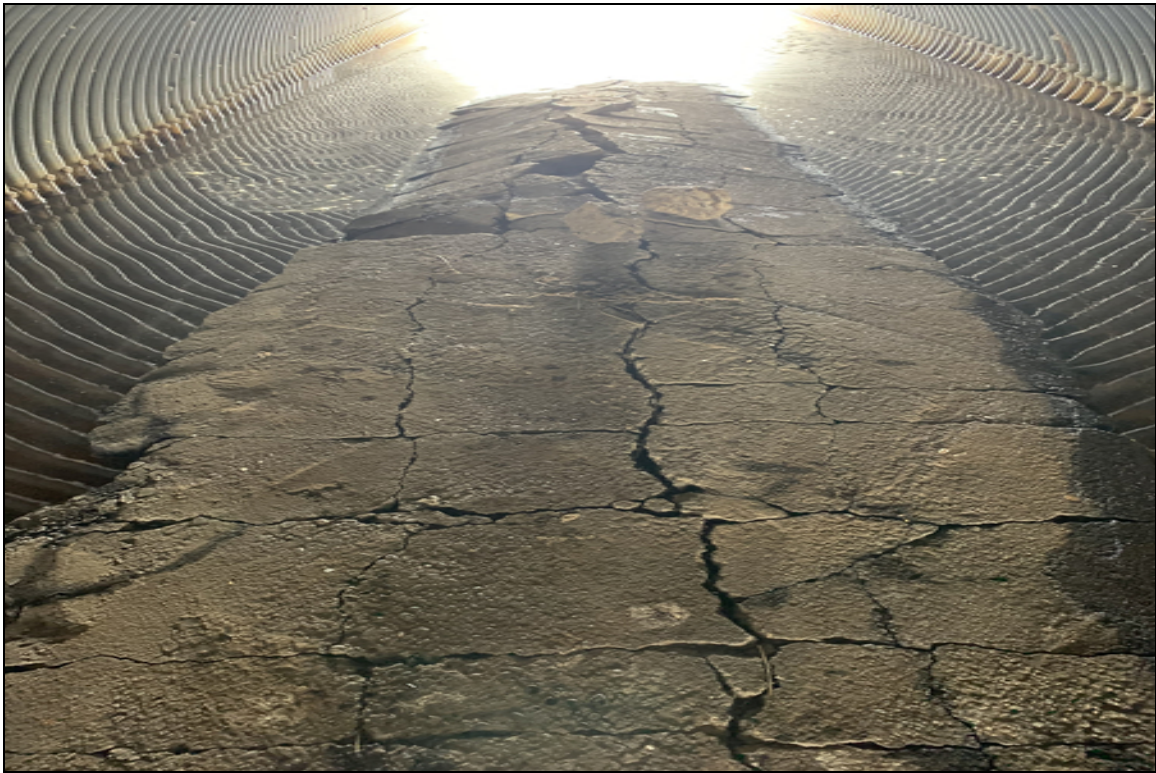
Sppa measurement



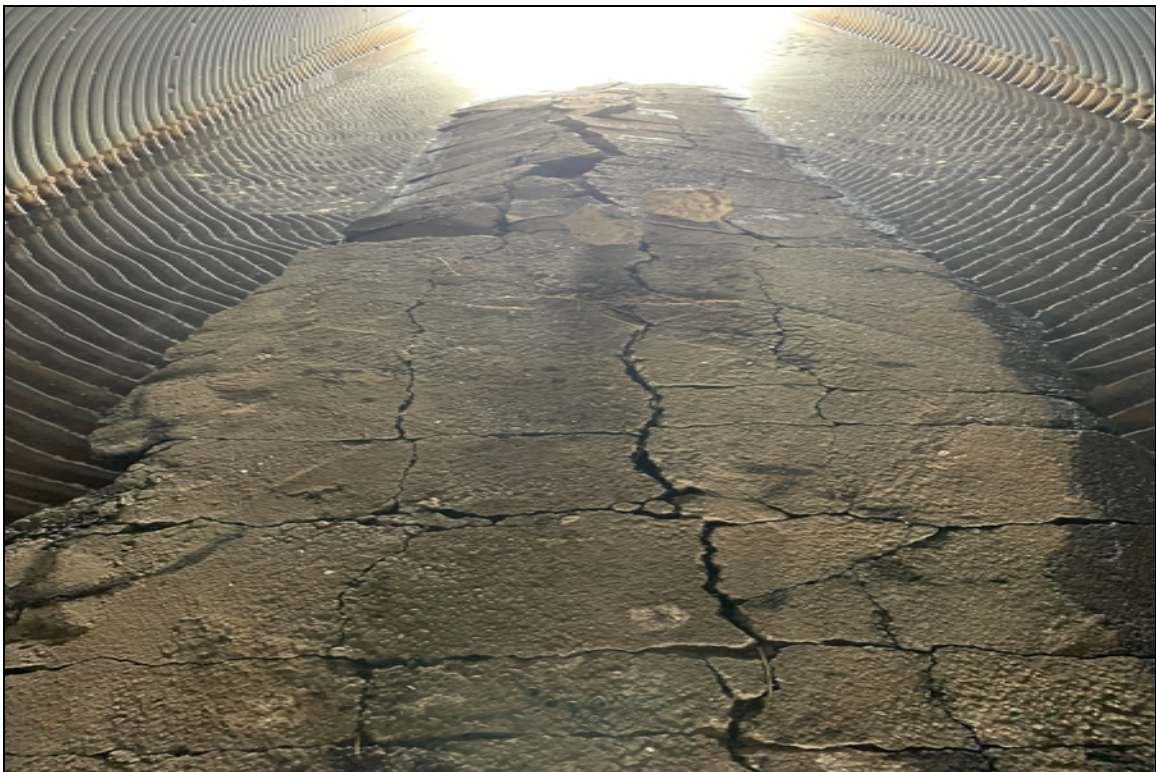
West headwall crack



Floor heave



Floor heeve



Floor heeve



Floor heave



Top road settlement



Top road settlement



Can see bottom of floor bolts thru conc



Looking west



Looking east



Looking south



Looking north



Road settlement