

# **Bridge Inspection Report**

US 51

over

TILDA BOGUE CREEK
MADISON County

- INSPECTION DATE 04/12/2022
- STRUCTURE NUMBER 210005104512470
- BRIDGE ID 13013



Suffiency Rating: 45.9

Health Index:

0

Status: OK Inspected By: Team Leader Jeff McGee

Taylor Coker, Jeff McGee, Bryan Nutt,

Inspection Type(s): Routine

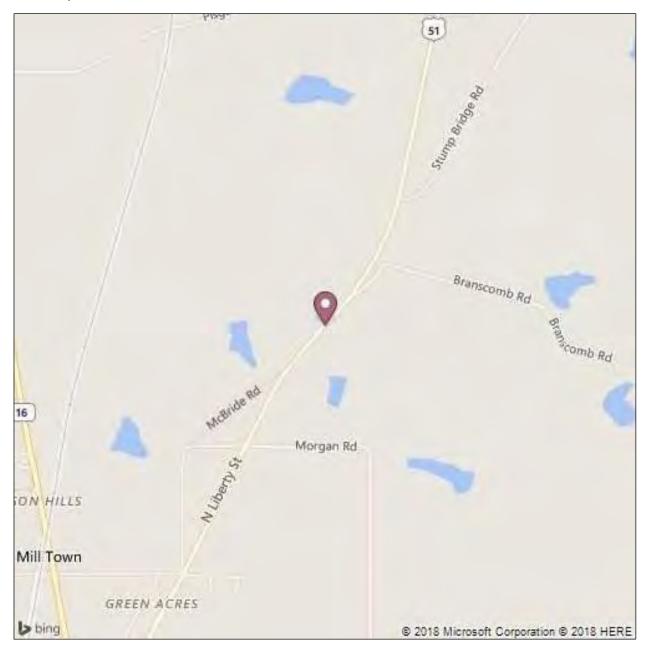
Inspection Performed By: State

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# Location Map



Latitude: 32.654654 Longitude: -90.014985

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#### **Executive Summary**

2022:

SUB:

- 1.3 VC'S AT ABUTMENT WALL AT BENT 1.
- 2.SPALL AT TO OF ABUTMENT WALL UNDER BEAM 5. 2' X 2' B-1.
- 3.TOP OF WING DAMAGED AT SE CORNER, HANGING IN PLACE.
- 4.CAP SPALLED AT BENT 2, SPAN 1, 2'X 1'UNDER BEAM 1, EXP REBAR.
- 5.EXP. REINF AT ALL 5 PILES AT BENT 2.
- 6.DELAM AT CAP UNDER BEAMS 3 AND 4, SPALL IN FACE OF CAP BETWEEN PILES 3 AND 4,
- 3' X 1'AT B-2, SPAN 2 DUE TO EXPANSION.
- 7.CAP SPALLED AT BENT 3, SPAN 2, 5' TOTAL.
- 8.CAP SPALLED AT BENT 3, SPAN 3 UNDER BEAMS 1,3,5, 3' X 1'.
- 9.SPALL TO PILE 2 AT BENT 3, EXP. REINF, LIGHT CRACKS TO PILE 3.
- 10.BENT 5, SPAN 4 DELAMS UNDER BEAMS 1,2,3,4,5 WITH EXP. REBAR AT FACE OF CAP
- 11.BENT 5. SPAN 5. SPALL AT FACE OF CAP UNDER BEAMS 3.4.5.
- 12.4' CRACK AT TOP OF WING WALL AT NE CORNER AT TOP AND BOTTOM.
- 13.3 VC'S AT ABUTMENT WALL AT BENT 6, 2 ARE HEAVY
- 14.SPALL AT FACE OF CAP UNDER BEAMS 1 AND 3 AT BENT 4, SPAN 4, 3'.
- 15.EXP. REBAR AT FACE OF CAP AT BENT 4, SPAN 3, 3' X 4'.

#### **SUPER**

- 1.BEAM 3 AT BENT 3, SPAN 3 LIGHT SPALL AT BEAM END.
- 2.B-3 SPAN 3 BEAM 3 EXP REBAR AT BEAM ENDS.
- 3.DIA. SPALLED AT BAYS 2,3,4 AT BENT 5, SPAN 5.
- 4.REBAR EXP AT BOTTOM OF BEAM 1 AT 3 LOCATIONS AT BENT 4, SPAN 4.
- 5.REINF EXP. AT BEAM 3, AT BENT 5, SPAN 5, 10'
- 6.DIA 1 AT BENT 6, SPALLED AT BAYS 1 AND 4. 3' X 2'.
- 7.LIGHT VC'S AT ALL GIRDERS.
- 8.DIA. AT BENT 1 SPALLED AT BAYS 1 THRU 4.
- 9 B-5 SPAN 5 BEAMS 2AND 3 HAVE 1'X1' SPALL UNDER BEAM 5.

#### **CHANNEL**

1.RIP RAP STABLE AT BANKS AT BENTS 4 AND 5 LOCAL SCOUR SPAN 1,HEAVY SCOUR TO CHANNEL BANKS UP AND DOWNSTREAM.

#### DECK

1.VARIOUS PLACES AT SOFFIT THERE ARE SMALL AREAS OF EXP. REBAR AND LIGHT DELAMS.

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2.LIGHT DECK SCALING AT ALL SPANS.

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# National Bridge Inventory

National Bridge in	ventory							
IDENTIFICATION				INSPECTIONS				
(1) STATE CODE	284 - Mississippi				(90) INSPECTION DATE	04/12/2022		
(8) STRUCTURE NUMBER	210005104512470				(91) DESIGNATED INSPECTIO	N FREQUENCY 24		
(5) INV. ROUTE (ON/UNDER)	1 2	1	00051	0	(92) CRITICAL FEATURE INSP	PECTION	(93) CFI DATE	
(2) HIGHWAY AGENCY 05	(3) COUNTY CODE	089			A. FRACTURE CRITICAL D	ETAIL N		
(4) PLACE CODE	90405				B. UNDERWATER INSPEC	TION N		
(6) FEATURES INTERSECTED	TILDA BOGUE CREE	K			C. OTHER SPECIAL	N		
(7) FACILITY CARRIED	US 51					CONDITION		
(9) LOCATION	3.2 MI N SR 22				(58) DECK	5		
(44) AU EDONIT (					()	(00) 011007011071	IDE .	

(12) BASE HIGHWAY NETWORK 0 (11) MILEPOINT 19.353

(13A) LRS INVENTORY ROUTE 000000051P (13B) SUBROUTE NUMBER 01

(16) LATITUDE 32.654654 (17) LONGITUDE -90.014985

(98A) BORDER BRIDGE CODE

PERCENT RESPONSIBILITY (99) BORDER BRIDGE STRUCT

#### STRUCTURE TYPE AND MATERIAL

(43) STRUCTURE TYPE, MAIN

A) KIND OF MATERIAL/DESIGN: 1 - Concrete B) TYPE OF DESIGN/CONSTR: 04 - Tee Beam (44) STRUCTURE TYPE, APPROACH SPANS

A) KIND OF MATERIAL/DESIGN: B) TYPE OF DESIGN/CONSTR:

(45) NUMBER OF SPANS IN MAIN 5 (46) NUMBER OF APPROACH 0 (107) DECK STRUCTURE TYPE 1 (108A) WEARING SURFACE 0 (108B) DECK MEMBRANE (108C) DECK PROTECTION 0

AGE OF SERVICE

(27) YEAR BUILT 1929 (106) YEAR RECONSTRUCTED 1934

(42) TYPE OF SERVICE ON 1 UNDER 5 (28) LANES ON 02 UNDER 00

(29) AVERAGE DAILY TRAFFIC 2200 (19) BYPASS DETOUR LENGTH 19

(30) YEAR OF AVERAGE DAILY TRAFFIC 2020 (109) AVERAGE DAILY TRUCK TRAFFIC 11

#### GEOMETRIC DATA

(48) LENGTH OF MAX SPAN (ft.) 25.9 (49) STRUCTURE LENGTH (ft.) 142.1 RIGHT .7 (50) CURB/SIDEWALK WIDTHS (ft.) LEFT .7 (51) BRDG RDWY WIDTH CURB-TO-CURB (ft.) 24 (52) DECK WIDTH, OUT-TO-OUT (ft.) 26.2 (32) APPROACH ROADWAY WIDTH (ft.) 29 9 (33) BRIDGE MEDIAN 0 (34) SKEW (DEG.) 0 (35) STRUCTURE FLARED 0 (10) INV RTE, MIN VERT CLEAR (ft.) 99.99 (47) TOTAL HORIZONTAL CLEARANCE (ft.) (53) VERTICAL CLEARANCE OVER BRIDGE ROADWAY (ft.) (54) VERTICAL UNDER CLEARANCE (ft.) 0 Ν (55) LATERAL UNDER CLEARANCE RIGHT (ft.) Ν 0 (56) MIN LATERAL UNDER CLEARANCE (ft.)

#### PROPOSED IMPROVEMENTS

(75A) TYPE OF WORK PROPOSED 31 (75B) WORK DONE BY 1

(76) LENGTH OF STRUCTURE IMPROVEMENT (ft.) 183.7 (94) BRIDGE IMPROVEMENT COST (\$) 49000 (95) ROADWAY IMPROVEMENT COST (\$) (96) TOTAL PROJECT COST 1425000 (97) YEAR OF IMPROVEMENT COST ESTIMATE

(115) YEAR OF FUTURE ADT 2040 (114) FUTURE ADT 2200

(59) SUPERSTRUCTURE 5 (60) SUBSTRUCTURE 4

(61) CHANNEL & CHANNEL PROTECTION 7 (62) CULVERT N

#### LOAD RATING AND POSTING

(31) DESIGN LOAD 2

(63) METHOD USED TO DETERMINE OPERATING RATING 1

(64) OPERATING RATING 723

(65) METHOD USED TO DETERMINE INVENTORY RATING 1

(66) INVENTORY RATING 43.3 (70) BRIDGE POSTING 5

(41) STRUCTURE OPEN/POSTED/CLOSED A

#### <u>APP</u>RAISAL

(67) STRUCTURAL EVALUATION 4

(68) DECK GEOMETRY

(69) UNDERCLEARANCES, VERTICAL & HORIZONTAL N

(71) WATERWAY ADEQUACY 8

(72) APPROACH ROADWAY ALIGNMENT 8

(36) TRAFFIC SAFETY FEATURE

36A) BRIDGE RAILINGS: 0 36B) TRANSITIONS: n 36C) APPROACH GUARDRAIL: 0 36D) APPROACH GUARDRAIL ENDS: 0 (113) SCOUR CRITICAL BRIDGES

SUFFICIENCY RATING 45.9 STATUS 1

#### CLASSIFICATION

(112) NBIS BRIDGE LENGTH

(104) HIGHWAY SYSTEM OF THE INVENTORY ROUTE 0 (26) FUNCTIONAL CLASSIFICATION OF INVENTORY ROUTE 07

(100) STRAHNET HIGHWAY DESIGNATION (101) PARALLEL STRUCTURE DESIGNATION N

(102) DIRECTION OF TRAFFIC 2

(103) TEMP STRUCTURE

(105) FEDERAL LANDS HIGHWAYS 0 (110) DESIGNATED NATIONAL NETWORK 0

(20) TOLL

(21) MAINTENANCE RESPONSIBILITY 01 (22) OWNER

(37) HISTORICAL 5

#### **NAVIGATION DATA**

(38) NAVIGATION CONTROL (111) PIER OR ABUTMENT PROTECTION

(39) NAV VERT CLEARANCE (ft.) 0

(116) MIN NAVIGATION VERT CLEARANCE, VERT LIFT BRIDGE (ft.)

01

(40) NAV HORIZONTAL CLEARANCE (ft.) 0

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# **Element Inspection**

	Environment	Total Quantity	Units	Condition State 1	Condition State 2	Condition State 3	Condition State 4
16 - Reinforced Concrete Top Flange	Ben.	3729	sq. ft.	0	3729	0	0
1190 - Abrasion/Wear (PSC/RC)		3729		0	3729	0	0
110 - Reinforced Concrete Open Girder/Beam	Ben.	700	ft.	0	700	0	0
1080 - Delamination/Spall/Patched Area		1		0	1	0	0
1090 - Exposed Rebar		13		0	13	0	0
1130 - Cracking (RC and Other)		686		0	686	0	0
205 - Reinforced Concrete Column	Ben.	14	each	3	10	1	0
1090 - Exposed Rebar		10		0	9	1	0
1130 - Cracking (RC and Other)		1		0	1	0	0
215 - Reinforced Concrete Abutment	Ben.	70	ft.	48	20	2	0
1080 - Delamination/Spall/Patched Area		12		0	12	0	0
1130 - Cracking (RC and Other)		10		0	8	2	0
234 - Reinforced Concrete Pier Cap	Ben.	100	ft.	82	14	4	0
1080 - Delamination/Spall/Patched Area		14		0	14	0	0
1090 - Exposed Rebar		4		0	0	4	0
301 - Pourable Joint Seal	Ben.	96	ft.	0	0	0	96
2350 - Debris Impaction		96		0	0	0	96
331 - Reinforced Concrete Bridge Railing	Ben.	284	ft.	284	0	0	0

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# **ADMINISTRATION**

Structure Assessment							
Structural/Functional Classific	ation: OK		Health Index:		0		
Suffiency Rating:	45.9		Replacement	Index:	65.5		
	Propose	d Improv	rements				
75A Type of Work Proposed:	94 Bridge Impro	ovement Co	ost:	494000	\$		
75B Work Done By:	95 Roadway Improvement Cost: 49000						
76 Length Of Structure Impro	96 Total Project Cost: 1425000						
Project Notes: 1425087.1975	5871651		97 Year Of Imp	rovement C	Cost Es	stimate: 2011	I
	Origina	al Constr	uction				
Project Number: NRH-72C	Plans Available: Unknown						
Station: 124+46.6							
	Site	Condition	ons				
Snooper Required: No		Site	e Vegetation:	None			
Traffic control required: None							
Utility Attachments:							
□Water	Sewer		Telecom				
□Gas	☐ Electric		Other				
Overhead Appurtenances:							
☐Sign Truss	□Signal		Lighting				
☐ Utility Line			Other				

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#### Approach Report

# (36B) TRANSITIONS 0 - Does not meet acceptable standards/safety feature is required (36C) APPROACH GUARDRAIL 0 - Does not meet acceptable standards/safety feature is required (36D) APPROACH GUARDRAIL ENDS 0 - Does not meet acceptable standards/safety feature is required

(72) APPROACH ROADWAY ALIGNMENT 8 - Equal to present desirable criteria

	Signage	
End Of Bridge Markers	Good	
Vertical Clearance Signing	NA	
Posting Sign - Rear	NA	
Posting Sign - Forward	NA	
Posting Values Correct	NA	
Valid Posting Limits		

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#### **DECK**

#### **NBI** Info

(58) DECK 5 - Fair Condition (minor section loss)

(036A) BRIDGE RAIL 0 - Does not meet acceptable standards/safety feature is required

(108A) WEARING SURFACE 0 - None

LEFT SHOULDER WIDTH FT.
RIGHT SHOULDER WIDTH FT.

ASBESTOS DRAINS U

DECK AREA 3723 SQ FT.

### Full Bridge

<u>Condition</u> <u>Notes</u>

Structure: Fair
Wearing Surface: Good
Curbs: NA
Median: NA
Sidewalk: NA
Joints: Good
Railing: Good

Drainage: Good

Lighting: NA

Utilities: NA

Overlay Thickness: in

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#### SUPERSTRUCTURE

#### **NBI** Info

(59) SUPERSTRUCTURE

5 - Fair Condition (minor section loss)

NUMBER OF BRIDGE PINS

FRACTURE CRITICAL DETAILS

# Full Bridge

#### **CONDITION**

<u>Condition</u> <u>Notes</u>

Girders: Fair

Floor Beams: NA

Stringers: NA

Steel Risers: NA

Bearings: NA

Hinge Pins/Hangers: NA

Diaphragms/Cross Frames: NA

Paint: NA

Collision Damage: NA

Deflection/Vibration: Good

Cap/Girder Debris: NA

Navigation Lighting: NA

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#### **SUBSTRUCTURE**

#### **NBI** Info

(60) SUBSTRUCTURE 4 - Poor Condition (advanced deterioration)

(111) PIER PROTECTION

# Abutments

<u>Condition</u> <u>Notes</u>

Backwall: Fair

Bulkhead: NA

Wing Walls: Fair

Cap: Fair

Footings: NA

Piles: NA

Embankment: Good

Slope Paving: NA

#### Full Bridge

<u>Condition</u> <u>Notes</u>

Cap: Good

Risers: NA

Columns/Piles: Poor

Footings: Good

Web Walls: NA

Bracing: NA

Pier Protection-Navigation: NA

Pier Protection Lighting: NA

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Hydraulics Report

SCOUR NOTES

			NBI	Info				
(C4) CHANNEL 9 CHANNEL	DDOTECT	ION 7 Deal						
(61) CHANNEL & CHANNEL PROTECTION 7 - Bank protection needs minor repairs								
(113) SCOUR CRITICAL BRIDGES 7 - Countermeasures installed to correct scour problem								
(71) WATERWAY ADEQUAC	Υ	8 - Bridg		ve Approach	nes			
			Hydra					
DESIGN MAIN CHANNEL SPAN 2 CURRENT MAIN CHANNEL SPAN 2								
BANK CONDITION-UPSTRE	AM	Fair						
BANK CONDITION-SITE		Good						
BANK CONDITION-DOWNS	ΓREAM	Fair						
SCOUR COUNTERMEASUR	ES	Good			ANKS ONLY, WIT FAIR COND.	HIN L	IMITS OF BRIDGE, REST	
SPURS	BENDW	AY WEIRS		DROP STR	UCTURES	HA	ARDPOINTS	
JACKS	LONGIT	UDINAL DIKES		GUIDE BAN	NKS	<b>✓</b> RII	PRAP	
GABIONS	GABIONS CRUTCH BENTS/UNDERPINNING			CROSS BRACING		SHEET PILE/COFFERDAM		
DEBRIS DEFLECTORS VISUAL SCOUR MONITORING FIXED SCOUR MONITORING INSTRUMENTATION								
STREAMBED MATERIAL								
COBBLE/BOULDER	GRAVEL	<b>✓</b> SAN	ID		SILT		SILT-CLAY	
UNKNOWN FOUNDATION								
SCOUR EVALUATION DONE	≣							
USGS GAGING STATION					1			
OBSERVED STREAM VELO	CITY				Low			
STREAMBED AGGRADATIO	N EVIDEN	IT			None			
STREAMBED DEGRADATION EVIDENT					Moderate			
ABUTMENTS ENCROACH INTO CHANNEL					Yes			
INDICATIONS OF SCOUR					Yes			
EVIDENCE OF ABUTMENT UNDERMINING					No			
EVIDENCE OF PIER UNDERMINING					NA			
INDICATIONS THAT FLOODWATERS OVERTOP BRIDGE No								
INDICATIONS THAT FLOODWATERS OVERTOP APPROACHES					No			

RIP RAP STABLE AT BENTS 4 AND 5.

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# **Pictures**



PHOTO 1 General

Description ELEV E

# **Pictures**



PHOTO 2 General

Description CL NB

Facility Carried: County: MADISON Structure Number: 210005104512470 US 51

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# **Pictures**



РНОТО 3 General Description ELEV W

#### **Pictures**



PHOTO 4 General

LIGHT DECK SCALING Description

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# **Pictures**



PHOTO 5 General

Description CL SB

# **Pictures**



PHOTO 6 General

Description US

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# **Pictures**



PHOTO 7 General

Description BENT 5SPAN 5 SPALL TO FACE OF CAP UNDER BEAMS 3,4,5

#### **Pictures**



PHOTO 8 General

Description BENT 5 SPAN 4 DELAMS FACE OF CAP

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# **Pictures**



РНОТО 9 General

Description VC'S IN ABUTMENT WALL

#### **Pictures**



PHOTO 10 General

B-3 BEAM 3 SPAN 3 EXP REBAR IN BEAM END Description

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# **Pictures**



PHOTO 11 General

Description BEAM SPALLED BENT 3

#### **Pictures**



PHOTO 12 General

Description CAP SPALLED UNDER BEAMS 1 AND 3 BENT 4

Facility Carried: County: MADISON Structure Number: 210005104512470 US 51

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# **Pictures**



PHOTO 13 General

Description CAP SPALL BENT 4 BEAM 1

# **Pictures**



PHOTO 14 General DS Description

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# **Pictures**



PHOTO 15 General

Description SPALL TOP OF ABUNTMENT WALL UNDER BEAM 5 2'X2' B-1

#### **Pictures**



PHOTO 16 General

Description WINGWALL BROKE HANGING IN PLACE

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# **Pictures**



PHOTO 17 General

Description CAP SPALLED AT BENT 2 SPAN 1 2'X1' UNDER BEAM 1

#### **Pictures**



PHOTO 18 General

Description EXP REINFORCEMENT AT ALL PILES BENT 2

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# **Pictures**



PHOTO 19 General

Description DELAM ON CAP UNDER BEAMS 3 AND 4 BENT 2

#### **Pictures**



PHOTO 20 General

Description CAP SPALLED AT BENT 3 SPAN 2

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# **Pictures**



PHOTO 21 General

Description CAP SPALLED AT BENT 3 SPAN 4

#### **Pictures**



PHOTO 22 General

Description BEAM 3 SPAN 3 EXP REBAR

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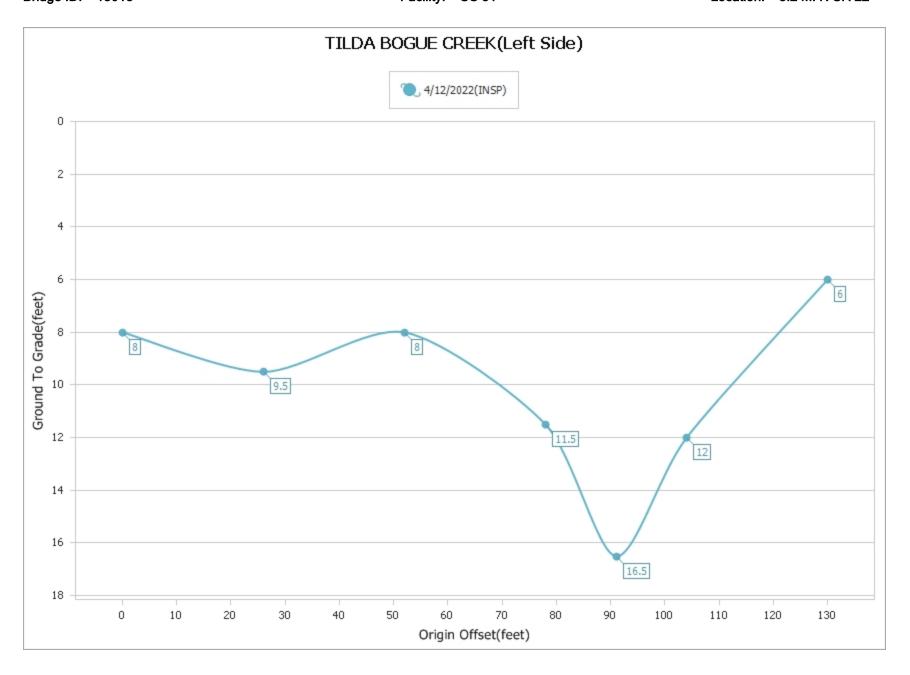
# **Pictures**



PHOTO 23 General

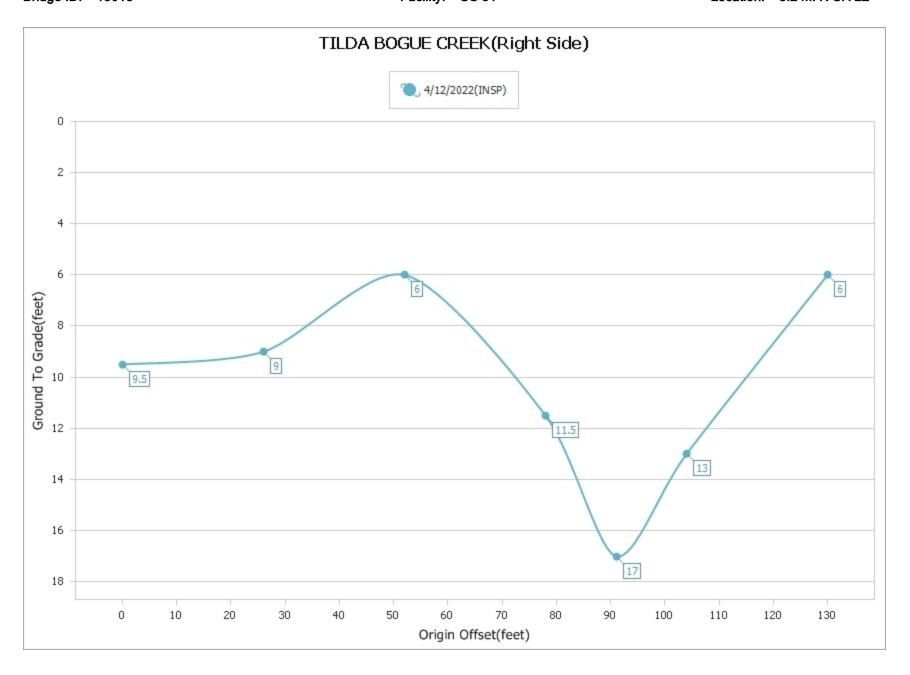
Description EXP REBAR FACE OF CAP BENT 4

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