

MICHIGAN DEPARTMENT OF TRANSPORTATION

STR 11995

BRIDGE SAFETY INSPECTION REPORT

Facility STOEFLER ROAD	Latitude / Longitude 42.0904 / -83.1931	MDOT Structure ID 824263600006B03	Structure Condition Fair Condition(5)
Feature W GIBRALTAR WATERWAY	Length / Width / Spans 26.9 / 37.7 / 1	Owner City: GIBRALTAR(2636)	
Location GIBRALTAR E/S GIBRALTAR	Built / Recon. / Paint / Ovly. 1992 / / /	TSC Taylor(25)	Operational Status A Open, no restriction(A)
Region / County Metro(7) / Wayne(82)	Material / Design 5 Prestressed Concrete / 05 Box Bm/Gird- Multiple	Last NBI Inspection 08/02/2023 / 1J4U	Scour Evaluation 5 Stable w/in footing



NBI INSPECTION

1J4U

Inspector Name	Agency / Company Name	Insp. Freq.	Insp. Date
Joel Thorne	Great Lakes Engineering Group	24	08/02/2023

GENERAL NOTES

Apply for CPM work

DECK

	08/19	08/21	08/23	
1. Surface (SIA-58A)	7	5	5	Concrete surface. Along centerline, 12"-18" wide HMA patch full length of bridge. 4'x2' HMA patch in WB. 4' x 2" at eat reference line. (08/23) Concrete surface. Along centerline, 12"-18" wide HMA patch full length of bridge. 4'x2' HMA patch in WB. (08/21) Spalls 2 to 6 in wide x 2 in deep with asphalt patch along centerline (08/19)
2. Expansion Joints	N	N	N	(08/23) (08/21) (08/19)
3. Other Joints	7	5	5	End joints covered with HMA patching. (08/23) End joints covered with HMA patching. (08/21) Asphalt patches between approach pavement and concrete deck. (08/19)
4. Railings	7	7	7	Solid concrete parapet with 2 tubes. Hairline vertical cracks on both parapets. (08/23) Hairline vertical cracks on both parapets. (08/21) Hairline vertical cracks on both parapets. (08/19)
5. Sidewalks or Curbs	6	6	6	Area of spalling on the north curb at the West Abutment (48 in x 6 in x 3 in pen). Area of cracking and spalling at the NE curb (36 in x 6 in x 1.5 in pen). Incipient spall in corner of SW sidewalk. (08/23) Area of spalling on the north curb at the West Abutment (24 in x 6 in x 3 in pen). Area of cracking and spalling at the NE curb (36 in x 6 in x 1.5 in pen). (08/21) Area of spalling on the north curb at the West Abutment (12 in x 6 in x 3 in pen). NE end of sidewalk/drainage swale completely separated from rest of structure with a 3 in gap. Area of cracking and spalling at the NE curb (18 in x 6 in x 1.5 in pen). Settlement at all 4 corners of sidewalks/drainage swales as follows: NE - 1.5 in; NW - 1.0 in; SE - 1.5 in; SW - 1.5 in. (08/19)
6. Deck Bottom Surface (SIA-58B)	N	N	N	Side by side box beams. Leakage with efflorescence along joint 6S. (08/23) Side by side box beams (08/21) (08/19)
7. Deck (SIA-58)	7	5	5	Deck surface: Concrete surface. Along centerline, 12"-18" wide HMA patch full length of bridge. 4'x2' HMA patch in WB. 4' x 2" at eat reference line. Deck bottom: Side by side box beams. Leakage with efflorescence along joint 6S. (08/23) Surface: Concrete surface. Along centerline, 12"-18" wide HMA patch full length of bridge. 4'x2' HMA patch in WB. (08/21) Patched spalls along centerline. (08/19)
8. Drainage				(08/23) (08/21) See Item 5 for notes on sidewalks/drainage swales at corners of bridge. (08/19)

SUPERSTRUCTURE

08/19 08/21 08/23

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9. Stringer (SIA-59)	7	6	6	12 (EA) Side by side box beams. Joint between beams 6S and 7S is leaking with efflorescence. Beam 7S has hairline longitudinal leaching cracks along full length of beam. Efflorescence noted at PT pocket in north fascia, east end. (08/23) Side by side box beams. Joint between beams 6S and 7S is leaking with efflorescence. Beam 7S has hairline longitudinal leaching cracks along full length of beam. (08/21) Longitudinal joint between box beams 6 and 7 from the north exhibited light water staining and efflorescence for the whole span length. The longitudinal joints between the beams had concrete patches along the entire span length with random areas of chipping and concrete loss over 10% of the total area. (08/19)
10. Paint (SIA-59A)	N	N	N	(08/23) (08/21) (08/19)
11. Section Loss	N	N	3	Longitudinal crack in beam 7S, no rust. (08/23) (08/21) (08/19)
12. Bearings	7	7	7	Damaged and displaced pad under beams 4 and 5 at west abutment. (08/23) Damaged and displaced pad under beams 4 and 5 at west abutment. (08/21) Damaged and displaced pad under beams 4 and 5 at west abutment. (08/19)


SUBSTRUCTURE

08/19 08/21 08/23

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13. Abutments (SIA-60)	6	6	6	<p>Rust on all steel sheet pile wingwalls near the ground line. Concrete surfaces of the abutments have shallow 6" STS.</p> <p>West - Crack in top face of SW wingwall cap at east end measuring 3/4 in. wide by 12 in. long with failed epoxy repair. (8) vertical hairline to 1/16 in. cracks with rust staining were observed extending from the waterline through the abutment cap. (2) vertical hairline to 1/16 in cracks with rust staining were observed extending from the bottom of the abutment cap to the waterline, with one extending to streambed.</p> <p>East - Two cracks in the top face of the NE wingwall cap at the west end measuring 15 in. long by 1/8 in wide. (3) vertical hairline to 1/16 in cracks with rust staining were observed at the 1/4 and mid points of the bridge extending from the channel bottom through the abutment cap. (2) voids near the north end: 2' Long x 2" High x 2" Deep and 1.5' Long x 1' High x 1" Deep. (08/23)</p> <p>Rust on all steel sheet pile wingwalls near the ground line. Concrete surfaces of the abutments have shallow 6" STS.</p> <p>West - Crack in top face of SW wingwall cap at east end measuring 3/4 in. wide by 12 in. long with failed epoxy repair. (8) vertical hairline to 1/16 in. cracks with rust staining were observed extending from the waterline through the abutment cap. (2) vertical hairline to 1/16 in cracks with rust staining were observed extending from the bottom of the abutment cap to the waterline, with one extending to streambed.</p> <p>East - Two cracks in the top face of the NE wingwall cap at the west end measuring 15 in. long by 1/8 in wide. (3) vertical hairline to 1/16 in cracks with rust staining were observed at the 1/4 and mid points of the bridge extending from the channel bottom through the abutment cap. (2) voids near the north end: 2' Long x 2" High x 2" Deep and 1.5' Long x 1' High x 1" Deep. (08/21)</p> <p>Minor to moderate corrosion and delamination of all steel sheet pile wingwalls near the ground line with up to 1/4 in. pen. Concrete surfaces of the abutments below water were typically rough but sound and were smooth and sound above water with random areas up to 6 in. diameter of insufficient concrete cover and exposed reinforcing steel. The channel bottom in the vicinity of the abutments consisted of sand, gravel, and concrete debris up to 24 in. diameter with 1 in. probe rod pen.</p> <p>West - Crack in top face of SW wingwall cap at east end measuring 3/4 in. wide by 12 in. long with failed epoxy repair; indicative of steel sheet pile wingwall deflecting outward. (8) vertical hairline to 1/16 in. cracks with rust staining were observed extending from the waterline through the abutment cap. (2) vertical hairline to 1/16 in cracks with rust staining were observed extending from the bottom of the abutment cap to the waterline, with one extending to streambed.</p> <p>East - Two cracks in the top face of the NE wingwall cap at the west end measuring 15 in. long by 1/8 in wide; indicative of steel sheet pile wingwall deflecting outward. (3) vertical hairline to 1/16 in cracks with rust staining were observed at the 1/4 and mid points of the bridge extending from the channel bottom through the abutment cap. (2) voids near the north end: 2' Long x 2" High x 2" Deep and 1.5' Long x 1' High x 1" Deep. (08/19)</p>
14. Piers (SIA-60)	N	N	N	(08/23) (08/21) (08/19)
15. Slope Protection	N	N	N	(08/23) (08/21) Not used as structure crosses waterway. (08/19)
16. Channel (SIA-61)	8	8	7	Flow north to south. Waterway is open. Steel sheet piles walls of private property dockage. Bridge is significantly smaller than channel (08/23) Waterway is open. Steel sheet piles walls of private property dockage. (08/21) Waterway is open. Steel sheet piles walls of private property dockage. (08/19)
17. Scour Inspection	7	7	7	UW inspection completed in 2019. No scour noted. (08/23) See 2019 UW inspection. (08/21) Scuba diving. No scour observed. (08/19)

APPROACH

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08/19 08/21 08/23

18. Approach Pavement	6	6	6	HMA with ruts in wheel lines. Sealed cracks in both approaches. Estimate 1/2" of settlement in approaches. (08/23) HMA with ruts in wheel lines. Sealed cracks in both approaches. Estimate 1/2" to 1" of settlement in approaches. (08/21) Minor transverse and longitudinal cracks, 90% are sealed. (08/19)
19. Approach Shoulders Sidewalks	7	7	7	Newer concrete approach sidewalk slabs in NE, SE, and SW. Approx 18' of approach sidewalk in each quad. (08/23) Newer concrete approach sidewalk in NE, SE, and SW. Approx 18' of approach sidewalk in each quad. (08/21) Sidewalks are in good condition. For settlement notes, see Item 5. (08/19)
20. Approach Slopes				Slopes are stable. Broken concrete in all quadrants. (08/23) Slopes are stable. (08/21) Slopes are stable. (08/19)
21. Utilities				Power lines are above the south fascia. (08/23) Power lines are above the south fascia. (08/21) Power lines are above the south fascia. (08/19)
22. Drainage Culverts				(08/23) (08/21) (08/19)

MISCELLANEOUS

Guard Rail

Item	Rating
36A. Bridge Railings	1
36B. Transitions	1
36C. Approach Guardrail	1
36D. Approach Guardrail Ends	0

Other Items

Item	Rating
71. Water Adequacy	7
72. Approach Alignment	8
Temporary Support	0 No Temporary Supports
High Load Hit (M)	No
Special Insp. Equipment	1
Underwater Insp. Method	3

False Decking (Timber) Removed to Complete Inspection

N/A - No False Decking

Critical Feature Inspections (SIA-92)

	Freq	Date
92A. Fracture Critical		
92B. Underwater	60	08/15/2019
92C. Other Special		
92D. Fatigue Sensitive		

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SUPPORTING IMAGES

1J4U 08/02/2023



Document Name: IMG_4544.JPG
 Category: Elevation
 Span Number:
 Comments: South elevation



Document Name: IMG_4550.JPG
 Category: Elevation
 Span Number:
 Comments: North elevation



Document Name: IMG_4531.JPG
 Category: Approach
 Span Number:
 Comments: Looking east through structure




Document Name: IMG_4532.JPG
 Category: Approach
 Span Number:
 Comments: West approach

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Document Name: IMG_4536.JPG
 Category: Approach
 Span Number:
 Comments: East approach



Document Name: IMG_4538.JPG
 Category: Railing
 Span Number:
 Comments: South rail



Document Name: IMG_4541.JPG
 Category: Railing
 Span Number:
 Comments: North rail



Document Name: IMG_4534.JPG
 Category: Deck
 Span Number:
 Comments: Deck surface

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Document Name: IMG_4537.JPG
 Category: Deck
 Span Number:
 Comments: South sidewalk



Document Name: IMG_4540.JPG
 Category: Deck
 Span Number:
 Comments: North sidewalk



Document Name: IMG_4543.JPG
 Category: Deck
 Span Number:
 Comments: Incipient spall, SW sidewalk corner




Document Name: IMG_4533.JPG
 Category: Joints
 Span Number:
 Comments: West reference line

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Document Name: IMG_4535.JPG
 Category: Joints
 Span Number:
 Comments: East reference line



Document Name: IMG_4547.JPG
 Category: Superstructure
 Span Number:
 Comments: Beams



Document Name: IMG_4548.JPG
 Category: Superstructure
 Span Number:
 Comments: Leaching crack, beam 7s




Document Name: IMG_4545.JPG
 Category: Substructure
 Span Number:
 Comments: West abutment

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Document Name: IMG_4546.JPG
 Category: Substructure
 Span Number:
 Comments: East abutment



Document Name: IMG_4549.JPG
 Category: Substructure
 Span Number:
 Comments: Vertical crack in abutment, typical



Document Name: IMG_4539.JPG
 Category: Channel
 Span Number:
 Comments: South channel



Document Name: IMG_4542.JPG
 Category: Channel
 Span Number:
 Comments: North channel