

STRUCTURES INSPECTION FIELD REPORT

2-DIST
04

B.I.N.
8AM

SPECIAL MEMBER INSPECTION

BR. DEPT. NO.
M-02-001

CITY/TOWN MANCHESTER	8-STRUCTURE NO. M02001-8AM-MUN-BRI	11-Kilo. POINT 000.000	90-ROUTINE INSP. DATE Nov 29, 2022	93*-SPEC. MEMB. INSP. DATE Nov 6, 2023
07-FACILITY CARRIED ST127 CENTRAL ST	MEMORIAL NAME/LOCAL NAME	27-YR BUILT 1850	106-YR REBUILT 1900	*YR REHAB'D (NON 106) 0000
06-FEATURES INTERSECTED WATER SAW MILL BROOK	26-FUNCTIONAL CLASS Urban Minor Arterial	DIST. BRIDGE INSPECTION ENGINEER J. Dideo		
43-STRUCTURE TYPE 811 : Masonry Arch - Deck	22-OWNER Town Agency	21-MAINTAINER Town Agency	TEAM LEADER R. Orlando	
107-DECK TYPE N : Not applicable	WEATHER Cloudy	TEMP. (air) 8°C	TEAM MEMBERS B. RAJBHANDARI	

WEIGHT POSTING	Not Applicable	X	At bridge	Advance	PLANS (Y/N):
Actual Posting	H 3 3S2 Single		E W	E W	N
Recommended Posting					(V.C.R.) (Y/N):
Waived Date: 00/00/0000	EJDMT Date: 00/00/0000	Signs In Place (Y=Yes, N=No, NR=Not Required)			N
		Legibility/Visibility			TAPE#:

RATING

Rating Report (Y/N): **N** Date: ---- Recommend for Rating or Rerating (Y/N): **N**

If YES please give priority: HIGH () MEDIUM () LOW ()

Inspection data at time of existing rating
I 58: - I 59: - I 60: - I 62: - Date : 00/00/0000

REASON:

SPECIAL MEMBER(S):

	MEMBER	CRACK (Y/N):	WELD'S CONDITION (0-9)	LOCATION OF CORROSION, SECTION LOSS (%), CRACKS, COLLISION DAMAGE, STRESS CONCENTRATION, ETC.	CONDITION		INV. RATING OF MEMBER FROM RATING ANALYSIS			Deficiencies
					PREVIOUS (0-9)	PRESENT (0-9)	H-20	3	3S2	
A	Item 59.1 - Arch/ Arch Ring	N		See remarks in comments section.	4	4	Not Rated			S-A
B	Item 59.2 - Keystone Area	N		See remarks in comments section.	4	4	Not Rated			S-A
C										
D										
E										

List of field tests performed:

	I-58	I-59	I-60	I-62
(Overall Previous Condition)	-	4	7	-
(Overall Current Condition)	-	4	7	-

DEFICIENCY: A defect in a structure that requires corrective action.

CATEGORIES OF DEFICIENCIES:

M= Minor Deficiency Deficiencies which are minor in nature, generally do not impact the structural integrity of the bridge and could easily be repaired. Examples include but are not limited to: Spalled concrete, Minor pot holes, Minor corrosion of steel, Minor scouring, Clogged drainage, etc.

S= Severe/Major Deficiency Deficiencies which are more extensive in nature and need more planning and effort to repair. Examples include but are not limited to: Moderate to major deterioration in concrete, Exposed and corroded rebars, Considerable settlement, Considerable scouring or undermining, Moderate to extensive corrosion to structural steel with measurable loss of section, etc.

C-S= Critical Structural Deficiency A deficiency in a structural element of a bridge that poses an extreme unsafe condition due to the failure or imminent failure of the element which will affect the structural integrity of the bridge.

C-H= Critical Hazard Deficiency A deficiency in a component or element of a bridge that poses an extreme hazard or unsafe condition to the public, but does not impair the structural integrity of the bridge. Examples include but are not limited to: Loose concrete hanging down over traffic or pedestrians, A hole in a sidewalk that may cause injuries to pedestrians, Missing section of bridge railing, etc.

URGENCY OF REPAIR:

I = Immediate- [Inspector(s) immediately contact District Bridge Inspection Engineer (DBIE) to report the Deficiency and to receive further instruction from him/her].

A = ASAP- [Action/Repair should be initiated by District Maintenance Engineer or the Responsible Party (if not a State owned bridge) upon receipt of the Inspection Report].

P = Prioritize- [Shall be prioritized by District Maintenance Engineer or the Responsible Party (if not a State owned bridge) and repairs made when funds and/or manpower is available].

X=UNKNOWN N=NOT APPLICABLE H=HIDDEN/INACCESSIBLE R=REMOVED

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REMARKS

BRIDGE ORIENTATION

Bridge M-02-001 (8AM) carries ST-127 (Central Street) over Saw Mill Brook in the town of Manchester, MA. The approaches are east and west and the elevations are south and north. Saw Mill Brook is tidal beneath the bridge, but the brook flows from north to south (**See Sketches 1 and 2**).

GENERAL REMARKS

The structure consists of a dry laid stone masonry arch supported by stone masonry breastwalls. There is a concrete slab section supporting the south sidewalk. The north (upstream) wingwalls consist of dry laid masonry and the south (downstream) wingwalls are reinforced concrete extending to a tide gate downstream of the bridge. The south side of the bridge has a cast in place concrete rail base supporting the chain link fence bridge railing.

ACCESS REMARKS

The bridge was inspected at low tide using waders. The underside was accessed by climbing down the northeast embankment wall approximately 50 yards upstream and walking down to the bridge.

ITEM 59 - SUPERSTRUCTURE

Item 59.1 - Arch/Arch Ring

The majority of the arch is coated in shotcrete, which has scattered hairline cracks with efflorescence, moisture staining, areas of delamination and areas that have spalled off. Several random stones that are not covered with shotcrete have hairline vertical cracks. Specific deficiencies and locations are as follows:

- 14' in from the north fascia: 6" wide x 12" high x 2'-8" deep void located 3' above the west spring line.
- 18' in from the north fascia: 10" diameter x 5' deep void located 3-1/2' above the west spring line (**See Photo 1**).
- 7' in from the south fascia: Full arch length x up to 1/2" wide crack in the shotcrete along arch section interface (**See Photo 2**). At the west spring line, the shotcrete ends resulting in exposed stone masonry with a void between the stones up to 4" wide x 2'-8" deep between the north and south arch section (**See Photo 3**).

See Item 59.2 - Keystone Area for additional comments.

Item 59.2 - Keystone Area

The keystone area, which is covered in shotcrete, has numerous random voids and areas that are uneven, apparently due to broken off and/or missing stones (**See Photo 4**). There has been no change in the appearance of the shotcrete since the previous inspection, indicating no shifting of the keystones. Specific deficiencies are as follows:

- 2'-6" from north fascia: 2' long x 9" wide x 6" deep void.
- 7' from north fascia: 3' long x 9" wide x 6" deep void.
- 14' from north fascia: 12" long x 9" wide x 6" deep triangular shaped void. Stones surrounding void settled up to 6" (**See Photo 5**).
- 18' from north fascia: 6" long x 12" wide x 9" deep void.
- 22' from north fascia: 5' long x 12" wide x 6" deep void.

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REMARKS

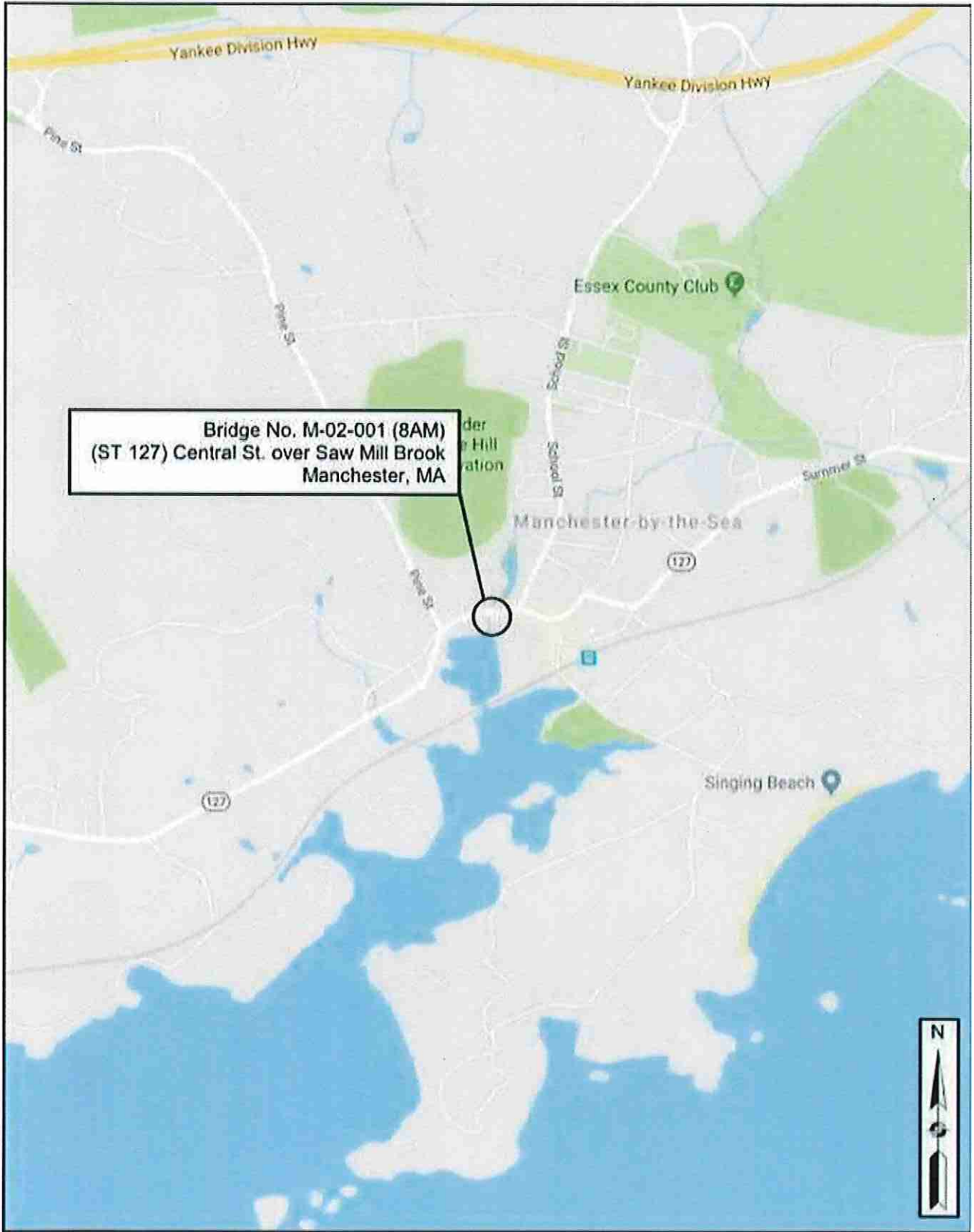
- 7' to 9' from south fascia: Two 7" long x 11" wide x 8" deep voids (See Photo 2).

Sketch / Photo Log

- Sketch 1 : Location Map
- Sketch 2 : Upstream Channel Profile.
- Photo 1 : Void in the arch at 18' in from the north fascia, 3-1/2' above the west spring line.
- Photo 2 : Full length crack in the arch at 7' in from the south fascia and voids in the keystone area.
- Photo 3 : Void above the west spring line at 7' in from the south fascia.
- Photo 4 : Typical voids and unevenness throughout the keystone area.
- Photo 5 : Triangular shaped void in the keystone area at 14' in from the north fascia.

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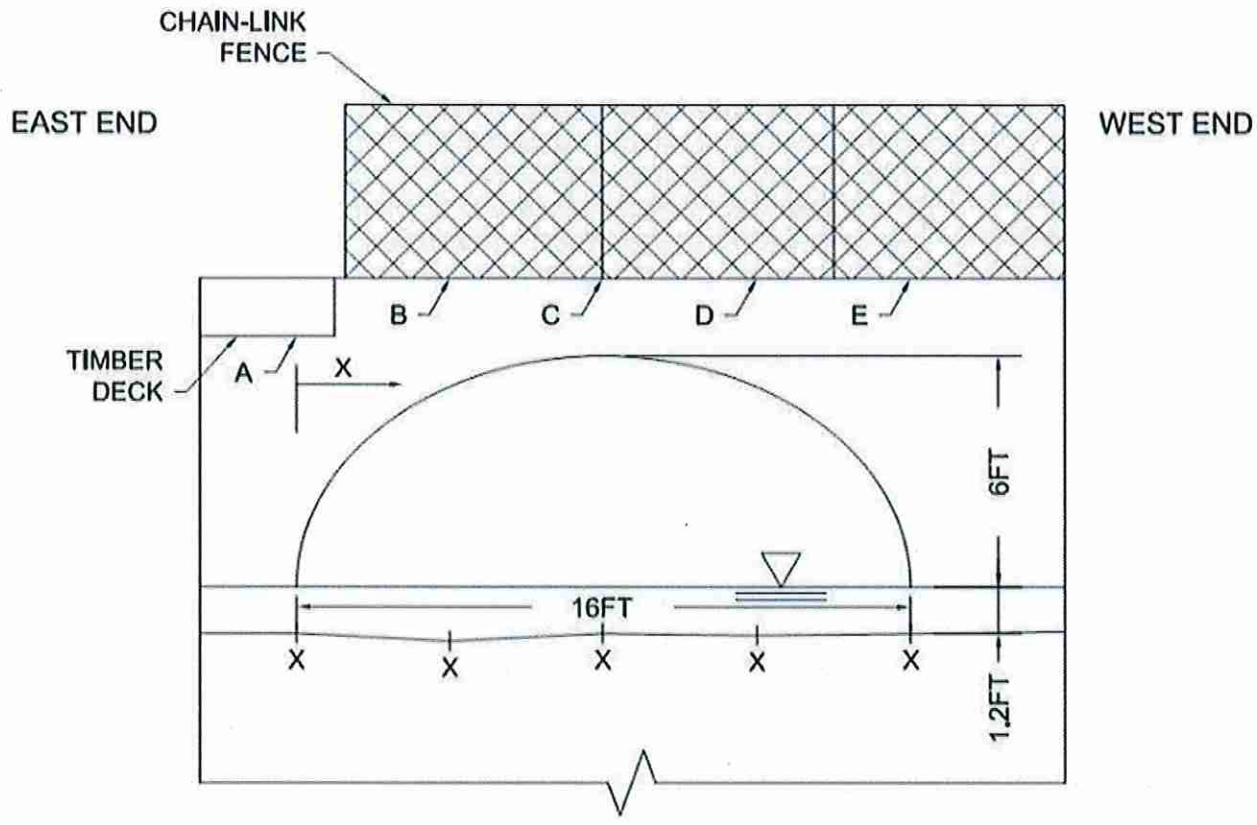
SKETCHES



Sketch 1: Location Map

CITY/TOWN MANCHESTER	B.I.N. 8AM	BR. DEPT. NO. M-02-001	8.-STRUCTURE NO. M02001-8AM-MUN-BRI	INSPECTION DATE NOV 6, 2023
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SKETCHES



NORTH ELEVATION

UPSTREAM CHANNEL PROFILE		
LOCATION	DISTANCE X (% SPAN)	VERTICAL MEASUREMENT *
A	NE FACE (0%)	9.67FT
B	4FT-0IN (25%)	11.0FT
C	8FT-0IN (50%)	11.0FT
D	12FT-0IN (75%)	11.0FT
E	NW FACE (100%)	11.08FT

* ALL MEASUREMENTS ARE 0" to 6" LESS THAN PREVIOUS INSPECTION. THUS, NO SCOUR AND UP TO 6" OF AGGRADATION SINCE PREVIOUS INSPECTION.

NOTE: VERTICAL MEASUREMENTS MADE FROM TOP OF HEADWALL TO STREAMBED. NORTHEAST FACE MEASUREMENT MADE FROM BOTOM OF TIMBER DECK TO STREAMBED (RIVER BED APPROXIMATELY LEVEL.

Sketch 2: Upstream Channel Profile.

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PHOTOS

Photo 1: Void in the arch at 18' in from the north fascia, 3-1/2' above the west spring line.



Photo 2: Full length crack in the arch at 7' in from the south fascia and voids in the keystone area.

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PHOTOS

Photo 3: Void above the west spring line at 7' in from the south fascia.



Photo 4: Typical voids and unevenness throughout the keystone area.

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PHOTOS

Photo 5: Triangular shaped void in the keystone area at 14' in from the north fascia.

Report Date: November 6, 2023

State Information				Classification	Code				
BDEPT#= M02001	Agency Br.No.	(112) NBIS Bridge Length			N				
Town= Manchester	L.O.	(104) Highway System			N				
B.I.N= 8AM	AASHTO= 022.0	(26) Functional Class -	Urban Minor Arterial		16				
RANK= 0 H.I.= NA	FHWA Select List= N (6/21/2017)	(100) Defense Highway			1				
(8) Structure Number	M020018AMMUNBRI	(101) Parallel Structure			N				
(5) Inventory Route	131001270	(102) Direction of Traffic -	2-way traffic		2				
(2) State Highway Department District	04	(103) Temporary Structure			N				
(3) County Code 009 (4) Place code	37945	(105) Federal Lands Highways			0				
(6) Features Intersected	WATER SAW MILL BROOK	(110) Designated National Network			N				
(7) Facility Carried	ST127 CENTRAL ST	(20) Toll -	On free road		3				
(9) Location	1.2 MI S OF ST-128	(21) Maintain -	Town Agency		03				
(11) Kilometerpoint	0000.000	(22) Owner -	Town Agency		03				
(12) Base Highway Network	N	(37) Historical Significance	undetermined						
(13) LRS Inventory Route & Subroute	000000000000	Condition			Code				
(16) Latitude	42DEG 34MIN 30.91 SEC	(58) Deck			N				
(17) Longitude	70DEG 46MIN 22.36 SEC	(59) Superstructure			4				
(98) Border Bridge State Code	Share %	(60) Substructure			7				
(99) Border Bridge Structure No. #		(61) Channel & Channel Protection			7				
		(62) Culverts			N				
Structure Type and Material				Load Rating and Posting	Code				
(43) Structure Type Main:	Masonry	Code	811	(31) Design Load -	Unknown	0			
Arch - Deck	Jointless bridge type:	Not applicable		(63) Operating Rating Method -	Allowable Stress (AS)	2			
(44) Structure Type Appr:	Other	Code	000	(64) Operating Rating		00.0			
(45) Number of spans in main unit			001	(65) Inventory Rating Method -	Allowable Stress (AS)	2			
(46) Number of approach spans			0000	(66) Inventory Rating		00.0			
(107) Deck Structure Type -	Not applicable	Code	N	(70) Bridge Posting		0			
(108) Wearing Surface / Protective System:				(41) Structure -	Open	A			
A) Type of wearing surface -	Bituminous	Code	6	Appraisal		Code			
B) Type of membrane -	Not applicable=no deck	Code	N	(67) Structural Evaluation		2			
C) Type of deck protection -	Not applicable=no deck	Code	N	(68) Deck Geometry		4			
Age and Service				(69) Underclearances, vert. and horiz.		N			
(27) Year Built			1850	(71) Waterway adequacy		5			
(106) Year Reconstructed			1900	(72) Approach Roadway Alignment		8			
(42) Type of Service: On -	Highway-Ped.			(36) Traffic Safety Features	0 0 0 0				
Under -	Waterway	Code	55	(113) Scour Critical Bridges		6			
(28) Lanes: On Structure	02	Under structure	00	Inspections					
(29) Average Daily Traffic			013600	(90) Inspection Date	11/29/22	(91) Frequency	12 MO		
(30) Year of ADT	2018 (109) Truck ADT		08 %	(92) Critical Feature Inspection:		(93) CFI DATE			
(19) Bypass, detour length			003 KM	(A) Fracture Critical Detail	N 00 MO A)	00/00/00			
Geometric Data				(B) Underwater Inspection	N 00 MO B)	00/00/00			
(48) Length of maximum span			0004.9M	(C) Other Special Inspection	Y 12 MO C)	11/29/22	11/6/23		
(49) Structure Length			00004.9 M	(*) Other Inspection ()	N 00 MO *)	11/09/16			
(50) Curb or sidewalk:	Left 01.8 M Right 01.8 M			(*) Closed Bridge	N 00 MO *)	00/00/00			
(51) Bridge Roadway Width Curb to Curb			011.0M	(*) UW Special Inspection	N 00 MO *)	00/00/00			
(52) Deck Width Out to Out			014.6 M	(*) Damage Inspection	MO *)	00/00/00			
(32) Approach Roadway Width (w/shoulders)			014.6 M	Rating Loads					
(33) Bridge Median -	No median	Code	0	Report Date	00/00/00	H20	Type 3	Type 3S2	Type HS
(34) Skew	00 DEG (35) Structure Flared		N	Operating	0.0	0.0	0.0	0.0	
(10) Inventory Route MIN Vert Clear			99.99 M	Inventory	0.0	0.0	0.0	0.0	
(47) Inventory Route Total Horiz Clear			11.0M	Field Posting					
(53) Min Vert Clear Over Bridge Rdwy			99.99 M	Status		Posting Date	00/00/00		
(54) Min Vert Underclear ref	N		00.00 M	Actual	2 Axle	3 Axle	5 Axle	Single	
(55) Min Lat Underclear RT ref	N		00.00 M	Recommended					
(56) Min Lat Underclear LT			00.00 M	Missing Signs	N				
Navigation Data				Misc.					
(38) Navigation Control -	No navigation control on waterway	Code	0	Bridge Name	N Anti-missile fence	N Acrow Panel	N Jointless Bridge		
(111) Pier Protection		Code		Freeze/Thaw	N : Not Applicable				
(39) Navigation Vertical Clearance			000.0 M	# Stairs On/Adjacent	0	Stair Owner(s)			
(116) Vert-lift Bridge Nav Min Vert Clear			M	Accessibility (Needed/Used)					
(40) Navigation Horizontal Clearance			0000.0M	N / N	Liftbucket	N / N	Rigging	Y / Y	Other
				P / N	Ladder	N / N	Staging	LOWTIDE	
				N / N	Boat	N / N	Traffic Control		
				Y / Y	Wader	N / N	RR Flagperson	Inspection	
				N / N	Inspector 50	N / N	Police	Hours:	040

State Information				Classification				Code					
BDEPT#	M02001	Agency Br.No.		(112) NBIS Bridge Length				N					
Town	Manchester	L.O.		(104) Highway System				N					
B.I.N	8AM	AASHTO	022.0	(26) Functional Class -	Urban Minor Arterial			16					
RANK	0	H.I.	NA	(100) Defense Highway				1					
Identification				FHWA Select List= N (6/21/2017)									
(8) Structure Number	M020018AMMUNBRI			(101) Parallel Structure				N					
(5) Inventory Route	131001270			(102) Direction of Traffic -	2-way traffic			2					
(2) State Highway Department District	04			(103) Temporary Structure				N					
(3) County Code	009	(4) Place code	37945	(105) Federal Lands Highways				0					
(6) Features Intersected	WATER SAW MILL BROOK			(110) Designated National Network				N					
(7) Facility Carried	ST127 CENTRAL ST			(20) Toll -	On free road			3					
(9) Location	1.2 MI S OF ST-128			(21) Maintain -	Town Agency			03					
(11) Kilometerpoint	0000.000			(22) Owner -	Town Agency			03					
(12) Base Highway Network	N			(37) Historical Significance	undetermined								
(13) LRS Inventory Route & Subroute	000000000000			Condition				Code					
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(17) Longitude	70 DEG 46 MIN 22.36 SEC			(59) Superstructure				4					
(98) Border Bridge State Code	Share %			(60) Substructure				7					
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Structure Type and Material				Load Rating and Posting				Code					
(43) Structure Type Main:	Masonry	Code	811	(31) Design Load -	Unknown			0					
Arch - Deck	Jointless bridge type:	Not applicable		(63) Operating Rating Method -	Allowable Stress (AS)			2					
(44) Structure Type Appr:	Other	Code	000	(64) Operating Rating				00.0					
(45) Number of spans in main unit	001			(65) Inventory Rating Method -	Allowable Stress (AS)			2					
(46) Number of approach spans	0000			(66) Inventory Rating				00.0					
(107) Deck Structure Type -	Not applicable	Code	N	(70) Bridge Posting				0					
(108) Wearing Surface / Protective System:				(41) Structure -	Open			A					
A) Type of wearing surface -	Bituminous	Code	6	Appraisal				Code					
B) Type of membrane -	Not applicable=no deck	Code	N	(67) Structural Evaluation				2					
C) Type of deck protection -	Not applicable=no deck	Code	N	(68) Deck Geometry				4					
Age and Service				(69) Underclearances, vert. and horiz.				N					
(27) Year Built	1850			(71) Waterway adequacy				5					
(106) Year Reconstructed	1900			(72) Approach Roadway Alignment				8					
(42) Type of Service: On -	Highway-Ped			(36) Traffic Safety Features				0 0 0 0					
Under -	Waterway	Code	55	(113) Scour Critical Bridges				6					
(28) Lanes: On Structure	02	Under structure	00	Inspections									
(29) Average Daily Traffic	013600			(90) Inspection Date	11/29/22	(91) Frequency	12	MO					
(30) Year of ADT	2018	(109) Truck ADT	08 %	(92) Critical Feature Inspection:		(93) CFI DATE							
(19) Bypass, detour length	003 KM			(A) Fracture Critical Detail	N	00	MO A)	00/00/00					
Geometric Data				(B) Underwater Inspection	N	00	MO B)	00/00/00					
(48) Length of maximum span	0004.9 M			(C) Other Special Inspection	Y	12	MO C)	11/06/23					
(49) Structure Length	00004.9 M			(*) Other Inspection ()	N	00	MO *)	11/09/16					
(50) Curb or sidewalk:	Left	01.8 M	Right	(*) Closed Bridge	N	00	MO *)	00/00/00					
(51) Bridge Roadway Width Curb to Curb	011.0 M			(*) UW Special Inspection	N	00	MO *)	00/00/00					
(52) Deck Width Out to Out	014.6 M			(*) Damage Inspection	N	00	MO *)	00/00/00					
(32) Approach Roadway Width (w/shoulders)	014.6 M			Rating Loads									
(33) Bridge Median -	No median	Code	0	Report Date	00/00/00	H20	Type 3	Type 3S2	Type HS				
(34) Skew	00 DEG	(35) Structure Flared	N	Operating	0.0	0.0	0.0	0.0	0.0				
(10) Inventory Route MIN Vert Clear	99.99 M			Inventory	0.0	0.0	0.0	0.0	0.0				
(47) Inventory Route Total Horiz Clear	11.0 M			Field Posting									
(53) Min Vert Clear Over Bridge Rdwy	99.99 M			Status		Posting Date	00/00/00						
(54) Min Vert Underclear ref	N	00.00 M		Actual	2 Axle	3 Axle	5 Axle	Single					
(55) Min Lat Underclear RT ref	N	00.00 M		Recommended									
(56) Min Lat Underclear LT	00.00 M			Missing Signs	N								
Navigation Data				Misc.									
(38) Navigation Control -	No navigation control on waterway	Code	0	Bridge Name	N Anti-missile fence	N Acrow Panel	N Jointless Bridge						
(111) Pier Protection	Code			Freeze/Thaw	N : Not Applicable								
(39) Navigation Vertical Clearance	000.0 M			# Stairs On/Adjacent	0	Stair Owner(s)							
(116) Vert-lift Bridge Nav Min Vert Clear	M			Accessibility (Needed/Used)									
(40) Navigation Horizontal Clearance	0000.0 M			N / N	Liftbucket	N / N	Rigging	Y / Y	Other				
				P / N	Ladder	N / N	Staging	LOWTIDE					
				N / N	Boat	N / N	Traffic Control						
				Y / Y	Wader	N / N	RR Flagperson	Inspection					
				N / N	Inspector 50	N / N	Police	Hours:	040				