

2-DIST
04

B.I.N.
2M4

**UNDERWATER OPERATIONS TEAM
ROUTINE UNDERWATER INSPECTION REPORT**

BR. DEPT. NO.
L-15-088

CITY/TOWN LOWELL		8-STRUCTURE NO. L15088-2M4-DOT-NBI		LEVEL OF INSPECTION II		93B-DATE INSPECTED SEP 30, 2021	
07-FACILITY CARRIED HWY WOOD ST EXT		ACCESS TO BRIDGE WHALER		UNDERWATER OPERATIONS ENGINEER WILLIAM J. COLLERAN			
06-FEATURES INTERSECTED COMB BMRR & MERRIMACK R		DEPTH 5 m	VISIBILITY 1.5 m	TEAM LEADER (DIVE MASTER) BRIAN FITZGERALD		Report submitted by:	
BOTTOM CONDITION SAND, SILT, TREE DEBRIS		CURRENT SLIGHT		TEAM MEMBERS W. J. COLLERAN, E. HOGAN			

ITEM 60		6
SUBSTRUCTURE		DEF
1. Abutments	N	
a. Pedestals	N	-
b. Bridge Seats	N	-
c. Backwalls	N	-
d. Breastwalls	N	-
e. Wingwalls	N	-
f. Slope Paving/Rip-Rap	N	-
g. Pointing	N	-
h. Footings	N	-
i. Piles	N	-
j. Scour	N	-
k. Settlement	N	-
l.	N	-
2. Piers or Bents	N	
a. Pedestals	N	-
b. Caps	N	-
c. Columns	N	-
d. Stems/Webs/Pierwalls	N	-
e. Pointing	N	-
f. Footing	N	-
g. Piles	N	-
h. Scour	N	-
i. Settlement	N	-
j.	N	-
k.	N	-
3. Pile Bents	6	
a. Pile Caps	N	-
b. Piles	6	-
c. Diagonal Bracing	N	-
d. Horizontal Bracing	N	-
e. Fasteners	N	-
UNDERMINING (Y/N)		N

ITEM 61		6
CHANNEL & CHANNEL PROTECTION		DEF
1. Channel Scour	7	-
2. Embankment Erosion	5	-
3. Debris	6	-
4. Vegetation	7	-
5. Utilities	N	-
6. Rip-Rap/Slope Protection	5	-
7. Aggradation	8	-
8. Fender System	5	-
a. Piles	N	-
b. Vertical Bracing	6	-
c. Horizontal Bracing	N	-
d. Wales	5	-
e. Fasteners	5	-
f. Ladders	N	-
9.	N	-
ITEM 59 SUPERSTRUCTURE		DEF
	N	-
	N	-
	N	-

ITEM 62		N
CULVERTS		DEF
1. Roof	N	-
2. Floor	N	-
3. Walls	N	-
4. Headwall	N	-
5. Wingwall	N	-
6. Pipe	N	-
7. Protective Coating	N	-
8. Embankment	N	-
9. Wearing Surface	N	-
10. Railing	N	-
11. Sidewalks	N	-
12. Utilities	N	-
13. Member Alignment	N	-
14. Deformation	N	-
15. Scour	N	-
16. Settlement	N	-
17.	N	-
18.	N	-
UNDERMINING (Y/N)		N

DEFICIENCY REPORTING GUIDE

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

CATEGORIES OF DEFICIENCIES:

M= Minor 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 scouring, 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 corroding rebars, Deteriorated timber piles, Considerable settlement, Considerable scouring or undermining, 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: Any part of piles or fender system which are projecting outward and may become a safety hazard for the navigational traffic, 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

CITY/TOWN LOWELL	B.I.N. 2M4	BR. DEPT. NO. L-15-088	8.-STRUCTURE NO. L15088-2M4-DOT-NBI	INSPECTION DATE SEP 30, 2021
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REMARKS

GENERAL REMARKS

The bridge is a nine span structure. Both concrete abutments and the two adjacent piers are in the dry and were not inspected. Six pile bents are in the water. The pile bents in the water have steel piles with concrete filler and a concrete bent cap above water.

Orientation:

The abutments are labeled left and right, looking downstream. The bents are numbered from right to left. Bents #2, 3, 5, 6, and 7 are each supported by 10 piles. Bent #4 is supported by 24 piles.

Diver Note:

Each bent in the water has a timber fender system surrounding the bent. Some timber wales have heavy creosote, mostly above the waterline. There is a steel cable attached to the downstream pile of Bent #3.

ITEM 60 - SUBSTRUCTURE

Item 60.3 - Pile Bents

Item 60.3.b - Piles

The pipe piles have moderate rusting from the concrete caps to the mudline. The maximum thickness of the scaling rust is approximately 3/4". No perforations through the steel were observed.

ITEM 61 - CHANNEL AND CHANNEL PROTECTION

Item 61.2 - Embankment Erosion

There is some slope erosion at the right embankment where the granite block riprap has slumped.

Item 61.3 - Debris

All bents in the water have extensive accumulated debris at the upstream ends and along the sides, consisting of trees, branches and other debris.

Item 61.6 - Rip-Rap/Slope Protection

There is some slope erosion at the right embankment where the granite block riprap has slumped.

Item 61.8 - Fender System

Each bent has its own fender system around the entire bent. The fender system has vertical members that attach to pile caps above the water and extend below the water.

Vertical members are steel at the upstream ends and timber along the sides and downstream ends.

There are seven rows of horizontal timber whales attached to the vertical members.

Item 61.8.b - Vertical Bracing

The lower ends of the timber vertical bracing at each of the bents have extensive ice damage and section loss.

The steel vertical bracing has moderate rust at the upstream ends.

Item 61.8.d - Wales

There are seven horizontal rows of timber wales. The lower three wales have extensive ice and tree impact damage at all bents with up to 100% section loss.

Bent #3

Row 6 has a missing whale on the upstream left side.

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REMARKS**Item 61.8.e - Fasteners**

Fasteners have moderate rust in the bottom two rows of wales.

Sketch Log

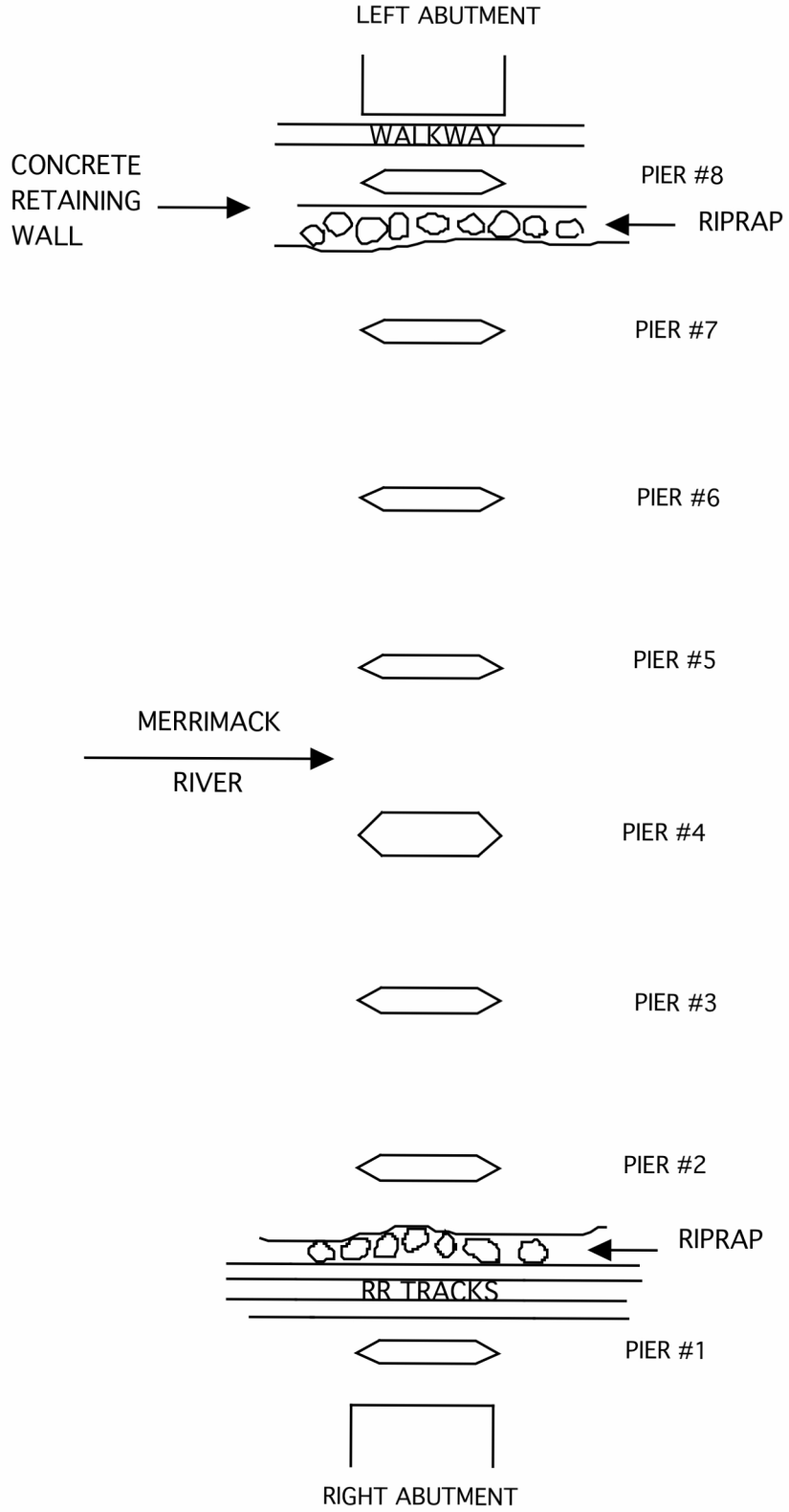
Sketch 1 : PLAN VIEW - NOT TO SCALE

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SKETCHES

NOTES:

1. BENTS # 2,3,5,6,7 ARE EACH SUPPORTED BY 10 STEEL PIPE PILES WITH CONCRETE FILLER.
2. BENT #4 IS SUPPORTED BY 24 STEEL PIPE PILES WITH CONCRETE FILLER.
3. PIERS #1 & 8 AND BOTH ABUTMENTS ARE IN THE DRY.
4. PLANS REFER TO BENTS #2,3,5,6 AND 7 AS PIERS.
5. FENDER SYSTEM IS NOT SHOWN.



Sketch 1: PLAN VIEW - NOT TO SCALE