

Name of the Project	:	VISUAL INSPECTION OF FOB AT MUSTABADA RAILWAY STATION
Location	:	MUSTABADA RAILWAY STATION
Location Co-ordinates	:	16°32'48.7"N 80°43'53.6"E
Date of Inspection	:	20th OCTOBER, 2019



Summary:

- a) Corrosion is observed at Floor beams of all Spans.
- b) Rusting is observed in all the Spans of FOB.
- c) Truss Column bottom connection failure has been observed at Trestle 2
- d) Deformations observed at Diagonal bracing of truss and bottom bracing of Span-2
- e) Corrosion is observed at Staircase Landings & Column joints.

Tests to be conducted:

- a) Ultrasonic Thickness gauge to measures local thickness of a solid element.

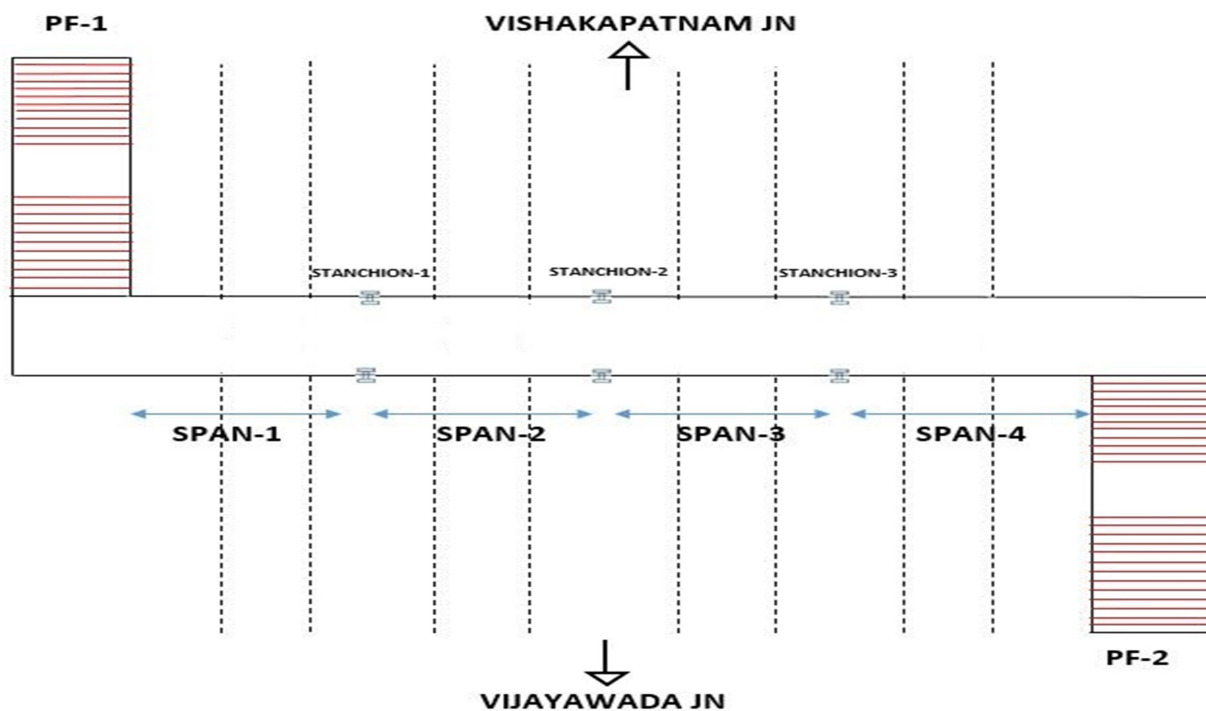
- b) Elcometer (Coating thickness Gauge) to measures dry film thickness on steel surfaces.
- c) Ultrasonic Flaw detector to detect hidden cracks, voids, porosity, and other internal discontinuities in metals.
- d) Fillet weld gauge to measures the size of the weld.
- e) Profometer Test for concrete cover and diameter of rebar.
- f) Rebound Hammer test surface strength of concrete (For Pre-cast slab panels and staircase)

VISUAL INSPECTION OF STEEL FOOT OVER BRIDGE

Name of the Project	Visual inspection of FOB at Mustabada Railway Station
Location	Mustabada Railway Station
Date of Inspection	20-10-2019

PART 1 GENERAL INFORMATION AND OBSERVATION		
1.1	Name of the Bridge	FOB
1.2	Location Location co-ordinates	Mustabada Railway Station 16°32'48.7"N 80°43'53.6"E
1.3	Type of truss Structure	Warren Truss Type (Span - 1, 3 & 4) Lattice Truss (Span - 2)
1.4	Year of Construction	Not available
1.5	Description of the main use of the bridge	Pedestrians Crossing
1.6	Major Materials used in different parts of bridge	a. NG Rail, Structural Steel (Truss, frame), b. In Situ - cast RCC Slab panels (Floor slab, Staircase)
1.7	Width of the Pathway (m)	1.8 m
1.8	Length of the Pathway (m)	34.5 m
1.9	No of Railway Lines Crossings	4 No. of tracks Span 1 = 1 Span 2 = 1 Span 3 = 1 Span 4 = 1
1.10	Span arrangement (no x Span in meters)	1 x 8 m + 1 x 7.3 m + 1 x 6.5 m + 1 x 7.9 m = 29.7 m
1.11	Vertical Clearance (from rail top to girder bottom)	5.918 m
1.12	Head Room	Open to Sky
1.13	Damages due to accidental hitting, Grazing Marks	No Visible signs appear
1.14	History of Repair/ Maintenance	Not available
1.15	Existing Structural Drawings	Not available

1.16 Key Plan



PART 2 IDENTIFICATION OF LOADS ON BRIDGE

		Yes/No	Notes
	Dead Loads at Roof level		
2.1	a) Pipeline - Utilities	No	Not observed in site
	b) Cables	No	Not observed in site
	c) Roof Truss	No	
	d) Roof Sheet	No	
	e) load of advertising hoarding	No	
	f) load of train/coach display boards	No	No train coach display boards are provided
	g) Additional load of overhead electrical equipment (OHE), Signal, Light Post	No	No electrical equipment and signal are provided
2.2	Dead Loads at Floor level		
	a) Additional wearing coat on Floor	No	Only RCC Cast In-situ Slab used for Flooring
	b) Provision of protective screen for passengers	Yes	Fence made of galvanized wire of 2 mm gauge and 2 mm galvanized sheet is used above OHE Line on both side of pathway is used for passengers Protection. (Refer fig :2)
	c) Type of Material used for mesh	GI wire mesh	

PART 3 STRUCTURAL SYSTEM OF THE BRIDGE

		Notes
3.1	Foundation details	Not visible at site
3.2	Pedestals	Not visible at site

	Trestles Connection Details		
	No. of Bolts and size		
	Thickness of Base Plate	Not visible at site	
3.3	Roof Truss		
	Element of roof truss section		No roof truss is provided.
	Size of roof truss		
	Connection of Roof elements		
3.4	Steel Truss		
	Type /Shape of Truss Section	Warren Type (Span-1,3,4), Diamond Mesh (Span-2)	Span – 1, 3 & 4: a) Top and bottom Chord members are 45 x 90 x 90mm (Head x Height x Base) Rail sections. (Refer fig : 4) b) 45 x 90 x 90mm Rail sections are used as Diagonal & Knee bracing members. c) 45 x 90 x 90mm Rail sections are used as Floor beams supported with Knee bracings 45 x 90 x 90mm rail sections d) Bottom Bracings 45 x 90 x 90mm Rail section in Zig-zag pattern are used Span – 2: a) Top and bottom Chord members are 75 x 100 x 12mm Double Angle Sections (Refer fig : 1) b) 50x10 mm MS Flat Sections are used as Inclined bracing members. c) ISMC 150 Double Channel sections are used as Floor beams connected with Knee bracings 65x65X8 Angle sections
	Height of Girder/Truss (H)	1.68 m, 1.3 m	
	Truss Support Condition	Rigid connection	
	Type/Shape of Floor beam /Bracings	Rail section, Double Channel Section	
	No of Floor beams/bracings	Span 1 = 3 No's Span 2 = 3 No's Span 3 = 3 No's Span 2 = 3 No's	
	Arrangement of Bracings	Zig-Zag bracing	
	Type of Beam-Column Joint (shape of gusset plate if any)	Gusset plate	
3.5	COLUMN		
	Type/Shape of Column section	I- Section Railing	a. FOB is supported on vertical column of ISMB 400, with bracings of 75 x 75 x 12 mm angle section. b. Trestles 1 and 5 have 4 columns whereas Trestles 2, 3 and 4 (Stanchions) have only 2 columns. (Refer fig: 3). c. Stanchion - 1 has ISMB 200 column section, Stanchion - 2 has ISMB 600 column section and Stanchion 3 2 has ISMB 150 column section. d. Staircase landing is supported by ISMB 150, with bracings of 75 x 75 x 12 mm angle section (Refer fig :6)
	No of Columns/ support	4, 2	
	Dimensions of Column	140 x 200 mm	
	BEAM-Column joint (bolted, welded, riveted)	Cleat Angle	

3.6	Floor of the Pathway		
	Material of Slab	RCC	a. Cast-in-situ Reinforced concrete slab used for floor of 150 mm thick, RCC slab supported on Floor beams b. Cement concrete layer is used for flooring. (Refer fig : 2)
	Thickness of Slab	150 mm	
	Condition of Slab from Bottom	RCC slab is covered with Sacrificial Plate	
	Condition of Slab from Top	Good (No Additional Wearing Coat Is Observed)	
3.7	Staircase Details		
	Number of Staircase	2 No's	Staircase is observed as Cast-In situ RCC steps supported on 55 x 110 x 110mm Rail Stringer beam and 45 x 90 x 90mm Rail bracings and on both sides of stair case. (Refer fig : 5)
	Number of Steps from PF – 1	40 No's	
	Number of Steps from PF – 2	39 No's	
	Material used for steps	Cast In-Situ	
3.8	Staircase Railing		
	Type of Parapet Railing	Steel Railing	Staircase is provided with railing on both sides using 55 x 110 x 110 rail section and 50 x 12 mm M.S flats are used at landing only. (Refer fig : 6)
	Height of Railing	1.07 m	

PART 4 SURVEY OF SIGNS OF DISTRESS, DEFORMATION IN BRIDGES

4.1

✓ Rusting is observed at all the Spans of FOB & Corrosion is observed in floor Beams



a) Rusting and Corrosion At Span-1



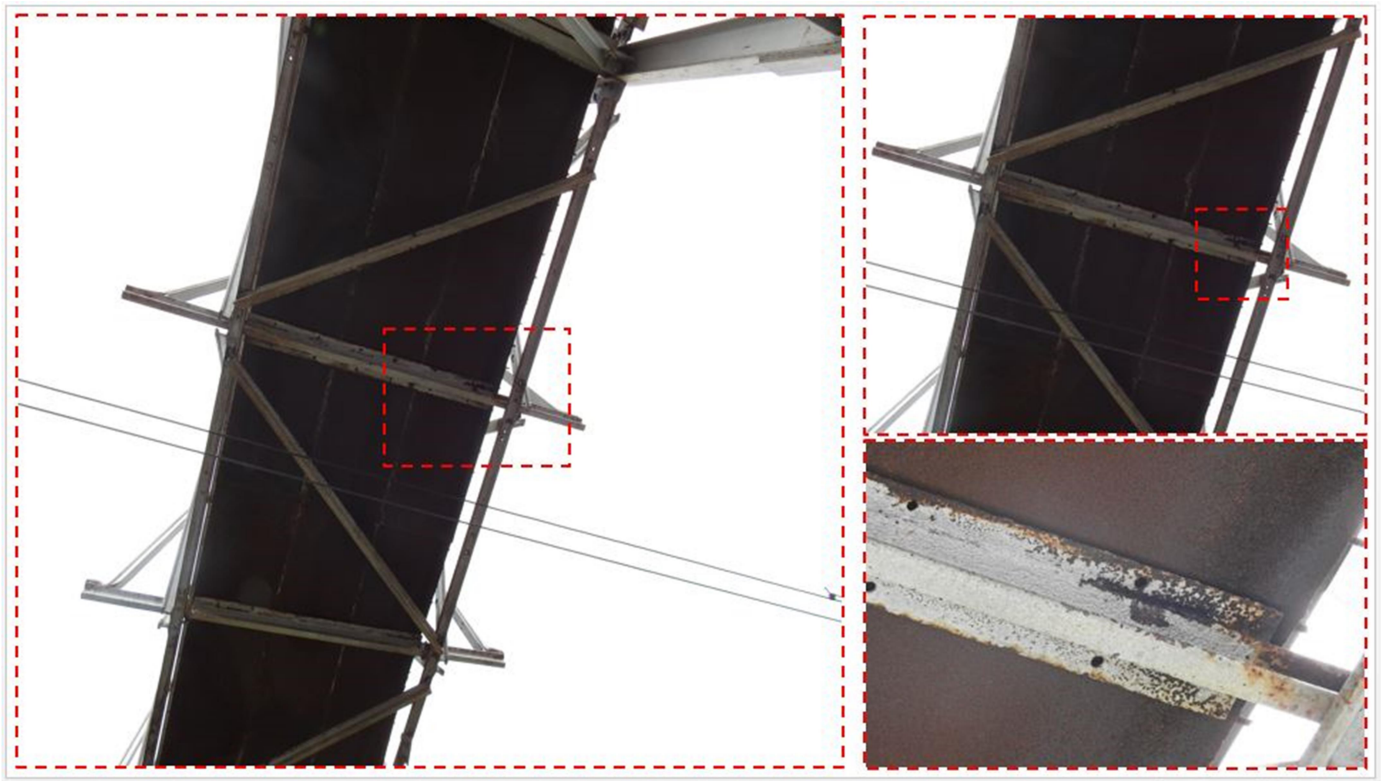
b) Rusting And corrosion At Span-2



c) Rusting and Corrosion At Span-3



d) Rusting and Corrosion at Span-4



e) Corrosion Observed at Joints



f) Corrosion at connections and Floor Beam

4.2	✓ Truss, Column joint connection failure is observed at span 4.
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3 Bolts missing and gap of 2" formed in connection between Truss and Trestle-2

4.3	✓ Deformation observed at Diagonal member and Bottom bracing.
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Deformation in Diagonal members and Bottom bracing

PART 4 SURVEY OF SIGNS OF DISTRESS, DEFORMATION IN BRIDGES			
	Defects	Location	Notes
	Cracking in Steel Members		No cracks are observed in Steel during visual inspection
	Cracking in RCC components		No Cracks are observed, as the Slab bottom is covered with Sacrificial Plate.
	Water seepage		No visual signs appear.
	Spalling		No Spalling is observed.
	Corrosion	Floor level	Corrosion is observed at floor beams of all the Spans of FOB (Refer Part 4.1)
	Rust straining		Rusting is observed in Gusset plates (Refer Part 4.1)
	Corrosion at steel-Concrete joint		Slight Rusting is observed at steel-concrete joint. (Refer Part 4.1)



Fig 1: Front view of FOB



Fig 2: Pathway, Protective screen

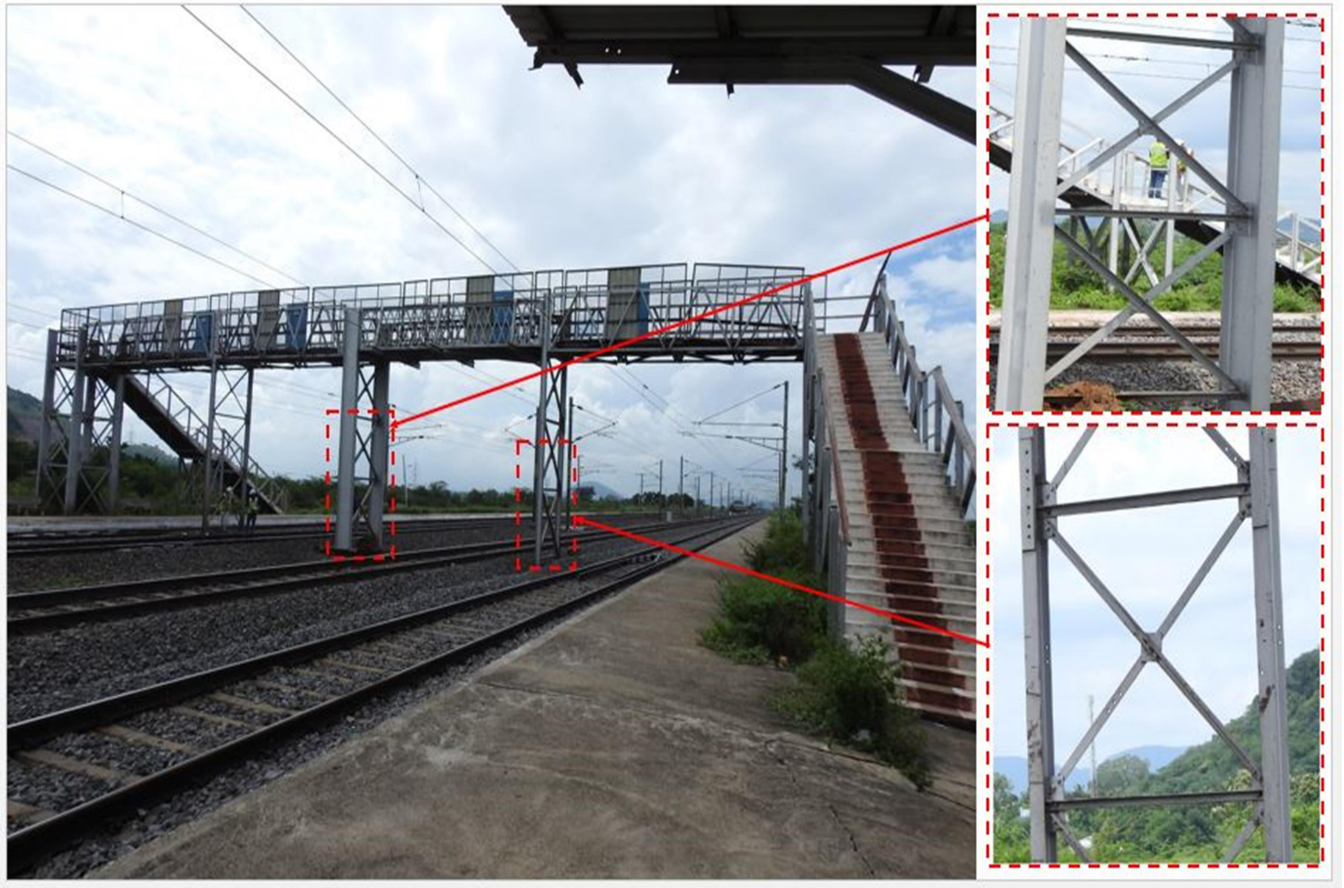


Fig 3: Stanchion details



Fig 4: Bottom view of FOB



Fig 5: Stair Case