Name of the Project	:	VISUAL INSPECTION OF FOB/ PF-1 - PF-2 AT SIRPUR TOWN RAILWAY STATION
Location	:	SIRPUR TOWN RAILWAY STATION
Location Co-ordinates	:	**19°28'43.6"N 79°33'38.2"E**
Date of Inspection	:	23rd September 2019

Summary:

a) Spalling and reinforcement exposed observed in bottom of slab panels of staircase and deck of FOB.
b) Corrosion is observed in Plate connecting Floor beams and bottom main chord member and slight rusting is observed at bottom of main chord double angle section along the length of FOB.
c) Cracks are observed in RCC slab panels at bottom of staircase.

Tests to be conducted:

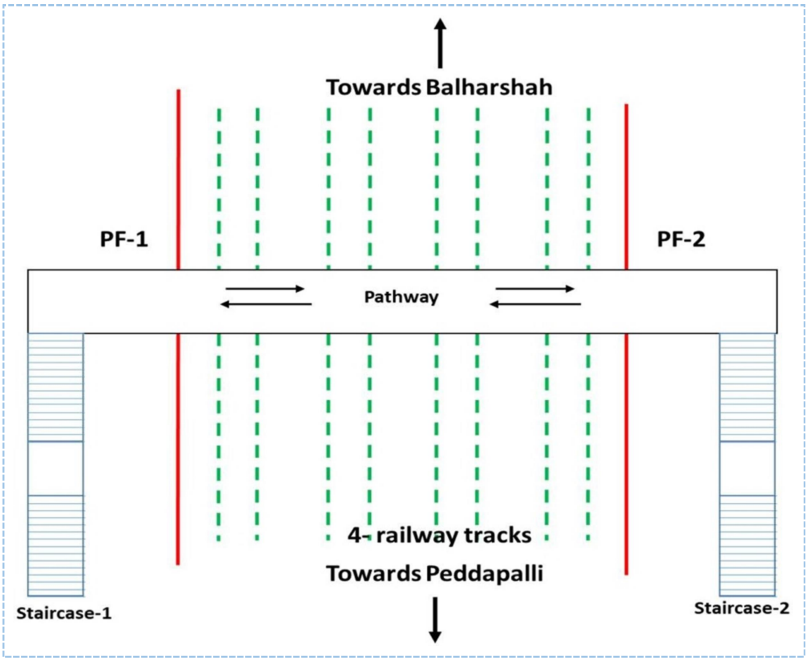
a) Ultrasonic Thickness gauge to measures local thickness of a solid element.
b) Elcometer (Coating thickness Gauge) to measures dry film thickness on steel surfaces.
c) Ultrasonic Flaw detector to detect hidden cracks, voids, porosity, and other internal discontinuities in metals.
d) Fillet weld gauge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

FORMAT FOR VISUAL INSPECTION (VI) OF STEEL FOOT OVER BRIDGE

Name of the Project	Visual inspection of FOB/ PF-1 - PF-2 at Sirpur Town Railway Station
Location	Sirpur Town Railway Station
Date of Inspection	23rd September 2019

PART 1 GENERAL INFORMATION AND OBSERVATION		
1.1	Name of the Bridge	FOB/ PF-1 - PF-2
1.2	Location Location co-ordinates	Sirpur Town Railway Station 19°28'43.6"N 79°33'38.2"E
1.3	Type of truss Structure	Camel Back Truss.
1.4	Year of Construction, Maintenance History	Not available
1.5	Description of the main use of the bridge	Pedestrians Crossing
1.6	Type of Materials used in different parts of bridge	Structural Steel, RCC Slab
1.7	Width of the Pathway (m)	1.55 m
1.8	Length of the Pathway (m)	29.1 m
1.9	No of Railway Lines Crossings	4 no's tracks
1.10	Span arrangement (no x Span in meters)	1x25.35 m = 25.35 m **(Clear span)**
1.11	Vertical Clearance (from rail top to girder bottom)	6.72 m
1.12	Head Room	2.78 m at mid span, 2.58 m at supports
1.13	Damages due to accidental hitting, Grazing Marks	No Visible signs appear
1.14	History of Repair (if any...)	No Patch work are observed
1.15	Original Structural Drawings	Not available

1.16 Key Plan



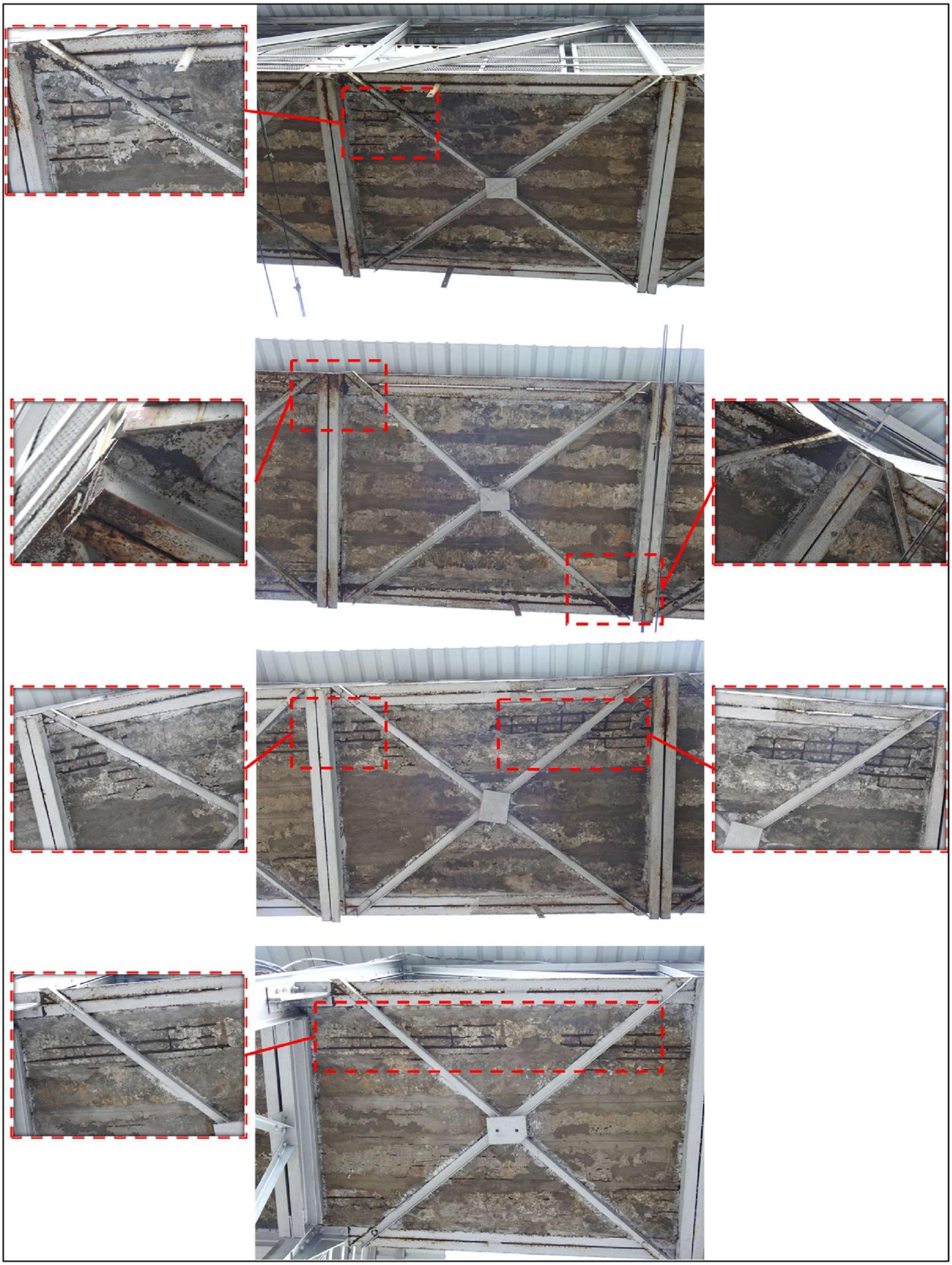
PART 2 IDENTIFICATION OF LOADS ON BRIDGE			
		Yes/No	**Photo ID**
	Dead Loads at Roof level		
2.1	a) Pipeline - Utilities	No	Not observed in site
	b) Cables	Yes	Cables are protected with 1-inch HDPE pipe and five 2-inch Galvanized pipes (Refer ***fig :1)***
	c) Roof Truss	Yes	King post truss with 65 x 65 x 6 mm angles are used (Refer ***fig: 1).***
	d) Roof Sheet	Yes	Metal sheet is used for roof (Refer ***fig: 1).***
	e) load of advertising hoarding	No	No advertising boards are provided.
	f) load of train/coach display boards	No	No train display boards are provided
	g) Additional load of overhead electrical equipment (OHE), Signal	No	No Additional load of overhead electrical equipment (OHE), Signal
2.2	**Dead Loads at Floor level**		
	a) Additional wearing coat on Floor	Yes	Plain concrete, no chequered tiles are used for flooring.
	b) Provision of protective screen for passengers	Yes	Chain link fence made of galvanized wire of 2 mm gauge and 2mm galvanized sheet is used above OHE line on both side of gangway is used for protection. (Refer ***fig :1)***
	c) Type of Material used for mesh	Galvanized wire mesh	

	PART 3 STRUCTURAL SYSTEM OF THE BRIDGE		
			Photo ID
3.1	**Foundation details**		Not visible at site
3.2	**Pedestals**		
	Trestles Connection Details		Trapezoidal Concrete encasement is observed at vertical supports bottom (Refer ***fig :2)***
	No of Bolts and size	Not visible, filled with concrete	
	Thickness of Base Plate	Not visible, filled with concrete	
	Roof Truss		
3.3	Element of roof truss section	Angle sections	Roof truss is made with 65 x 65 x 6 mm angles and supported on 80 x 80 x 8 mm main top chord members. (Refer ***fig :1)***
	Size of roof truss	1.5 X 0.6 m	
	Connection of Roof elements	Bolted	
	Steel Truss		
3.4	Type/Shape of Girder Section	Double angle sections	
	Height of Girder/ Truss (H)	2.78 m at mid span, 2.58 m at supports	a. Top and bottom chord members 80 x80 x8 mm of double angle sections. b. 65 x 65 x 10 mm double angle sections are used as bracing members
	Truss Support Condition	Rigid Connection	

	Type/Shape of Floor beams /Bracings	Double Channel sections and angle sections	c. 10 mm thick gusset plate is used for welded joint. d. Two ISMC 150 Channels are used as Floor beams (Refer ***fig :3***)
	No of Floor beams/bracings for span	9 no's	
	Arrangement of Bracings	Diagonal	
	Type of Beam-Column Joint (shape of gusset plate if any)	Cleat angles	
	COLUMN		
3.5	Type/Shape of Column section	I – Section	
	No of Columns per support	4	FOB is supported on vertical column of Four - ISMB 300. (Refer ***fig :2***)
	Dimensions of Column	300x150 mm	
	BEAM-Column joint (bolted, welded, riveted)	Bolted	
	Floor of the Gangway		
3.6	Material of Slab	Precast RCC Slab panels	Precast RCC slab panels is used for floor slab of 125 mm thick, RCC slab panels is supported with Floor beams and bracings from bottom
	Thickness of Slab	125 mm	
	Condition of Slab from Bottom	Reinforcement exposed	
	Condition of Slab from Top	Cracks are observed	
	Staircase Details		
3.7	Number of staircases	2 No's	
	Number of steps from PF – 1	39 no's	Staircase steps are observed as RCC slab panels of size 300 x 100 mm used. Steps are on ISMC 250 channel Stringer beam using cleat angle. Staircase landing of 1.8 m wide is supported on vertical and horizontal channels members. Roof of staircase is made with 75 x 75x 6 mm double angle sections. (Refer ***fig :4***)
	Number of steps from PF – 2	39 no's	
	Material used for steps	RCC slab panels	
	Staircase Railing		
3.8	Type of Parapet Railing	Steel railing	Staircase is provided with railing on both sides of one-meter height using 65 x 65 x 6 mm angle sections and 50 x 6 mm M.S flats are used. (Refer ***fig :4***)
	Height of Railing	1 m	

PART 4 SURVEY OF SIGNS OF DISTRESS, DEFORMATION IN BRIDGES

4.1	✓ Reinforcement exposure of RCC slab panels and corrosion observed along the span of FOB



Reinforcement exposure and corrosion	
4.2	✓ Corrosion is observed in joints of Floor beams and bottom main chord member and slight rusting is observed at bottom of main bottom double angle sections along the length of FOB

Corrosion observed in Floor beams joints

PART 4 SURVEY OF SIGNS OF DISTRESS, DEFORMATION IN BRIDGES			
	Defects	**Location**	
	Cracking in steel members		No cracks are observed in Steel during visual inspection
	Cracking in RCC components	RCC slab panels of staircase	cracks are observed in bottom of staircase slabs (Refer ***fig: 4***)
	Water seepage		No water seepage is observed
	Spalling	Bottom of RCC slab panels and bottom slab panels of staircase	Major spalling and exposed reinforcement is observed at the bottom of slab panels of staircase and pathway. (Refer ***Part 4 - 4.1 and fig: 4***)
	Rust straining	Bottom main chord members	Rusting is observed at all over the bottom chord members of FOB. (Refer ***Part 4 - 4.2***)
	Extent Of Corrosion	Gusset plate connecting Floor beams and bottom main chord member	a. Spacers in between Floor beams are distressed. b. Major corrosion is observed at gusset plate connecting Floor beams and bottom chord (Refer ***Part 4 - 4.2***)

***Rust:** Rust is a part of corrosion and is a chemical process which results in the formation of red or orange coating on the surface of metals.

***Corrosion:** it is the process of deterioration of materials as a result of chemical, electrochemical or other reactions.

***Fig 1**:* Cables, Roof truss, Flooring and Protective screen

***Fig 2**:* Trestles details

***Fig 3**:* Top and bottom chord members, bracings and Floor beams

***Fig 4**:* Staircase details, cracks and reinforcement exposure