

1. VISUAL INSPECTION REPORT

Name of the Project	: VISUAL INSPECTION OF FOB AT MALKAJGIRI RAILWAY STATION
Location	: MALKAJGIRI RAILWAY STATION
Location Co-ordinates	: 17°26'54.0"N 78°31'45.7"E
Date of Inspection	: 4 th March 2020.



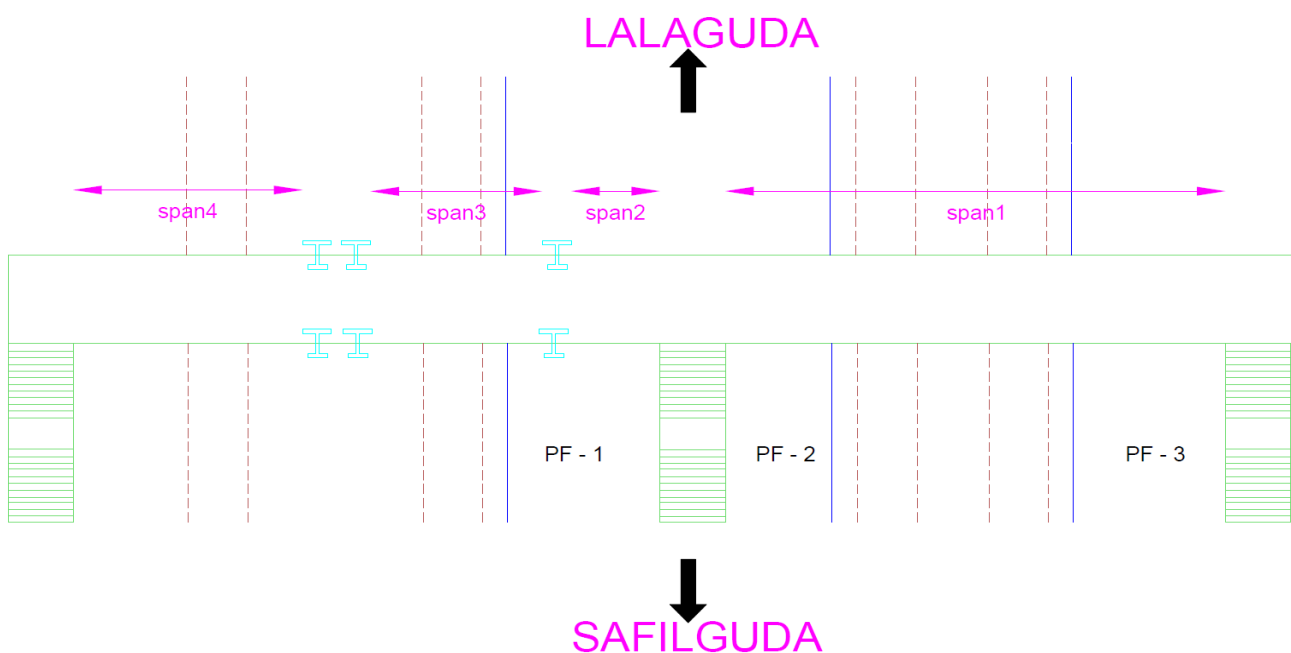
Summary:

- a) Spalling and reinforcement exposure is observed at floor slab of span 3 and at floor slab and steel joint along the 1st span
- b) Spalling is also observed at Staircase 2 and 3
- c) Slight corrosion is observed at bottom chord members.

PART 1.1 GENERAL INFORMATION AND OBSERVATION

a.	Name of the Bridge	Malkajgiri FOB
b.	Location of Bridge	Malkajgiri Railway Station
c.	Type of truss Structure	N-Truss and Warren Truss with verticals.
d.	Year of Construction	Not available
e.	Description of the main use of the bridge	Pedestrians Crossing
f.	Major Materials used in different parts of bridge	Structural Steel, RCC Slab
g.	Width of the pathway (m)	1.7 m
h.	Length of the pathway (m)	61.4 m
i.	No of Railway Lines Crossings	4 no's tracks Span 1 = 2 Span 2 = - Span 3 = 1 Span 4 = 1
j.	Span arrangement (no x Span in meters)	1x24.7 + 1x7.2 + 1x8.65 + 1x10.9m = 51.45 m (Clear span)
k.	Vertical Clearance (from rail top to girder bottom)	6.775 m
l.	Head Room	2.6 m
m.	Damages due to accidental hitting, Grazing Marks	No Visible signs appear
n.	History of Repair/ maintenance	Patch work observed
o.	Existing structural drawings	Not available

Key Plan



PART 1.2 IDENTIFICATION OF LOADS ON BRIDGE			
		Yes/No	Photo ID
a.	Dead Loads at Roof level		
	a) Pipeline - Utilities	No	Not observed at site
	b) Cables	Yes	Cables are protected with 1-inch dia HDPE pipe of 2 nos. and 1-inch PVC pipes of 5 nos. (Refer fig :1) King post roof supported with 65 x 65 x 8 mm angles are used (Refer fig: 1). Steel Metal Sheet is used for Roof (Refer fig :1)
	c) Roof Truss	Yes	
	d) Roof Sheet	Yes	
	e) load of advertising hoarding	No	No Advertising boards are provided
	f) load of train/coach display boards	No	No train coach display boards are provided
	g) Electrical equipment (OHE), signal	No	No electrical equipment and signal are provided
b.	Dead Loads at Floor level		
	a) Additional wearing coat on Floor	Yes	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 1.3 STRUCTURAL SYSTEM OF THE BRIDGE			
			Photo ID
a.	Foundation Details		Not visible at site
b.	Trestles details		
	Trestles Connection Details		Size of base plate is 400 x 400 x 18mm
	a) No of Bolts and size	4 no of 18 dia. bolts	
	b) Thickness of Base Plate	18mm	
c.	Roof Truss		
	Element of roof truss section	Angle sections	Span of roof truss is supported with 65 x 65 x 8 mm double angle sections which are rested on Top chord members. (Refer fig :1)
	Size of roof truss	1.9 X 0.6m	
	Connection of Roof elements	Bolted	
d.	Steel Truss		
	Shape of Truss Section	Double angle sections and Rail sections	Span 1: a. Top and bottom chord members 100 x100 x10mm of double angle sections. b. 65 x 65 x 8 mm double angle sections are used as bracing members c. 100 x100 x10mm of double angle sections are used as Floor beams supported by 65 x 65 x 8 mm angle sections to transfer load from slab to roof truss.(Refer fig :3) Span 2,3,4: a. Top and bottom chord members, Floor beams, bracings are of 50 x 110 x 110 mm (Head x Height x Base) Rail sections
	Height of Truss (H)	1.5 m	
	Girder/Truss Support Condition	Ridged connection	
	Type/Shape of Secondary Girder /Bracings	Double Channel sections and angle sections	
	No of Secondary Girders/bracings for span	15, 11, 11, 9 no's	
	Arrangement of Bracings	Zig zag	
	Type of Beam-Column Joint (shape of gusset plate if any)	Cleat angles	
e.	COLUMN		
	Type/Shape of Column section	I – Section, Rail section	Span 1: FOB is supported on vertical column of ISMB 300 with bracings of 65 x 65 x 8mm double angle sections. (Refer fig :2) Span 2,3,4: FOB is supported on vertical column of Built up rail section of 130x130 mm with 2 Rail sections of 60 x 130 x 60 mm (Head x Height x Base) with bracings of 65 x 65 x 8mm angle sections (Refer fig :2)
	No of Columns/support	4, 2	
	Dimensions of Column	300x150 mm, 130x130mm	
	BEAM-Column joint (bolted, welded, riveted)	Bolted connection	

f.	FLOOR SLAB OF THE PATHWAY		
	Material of Slab	pre cast panels, RCC slab	Span 1: Pre cast RCC slab panels are used for floor slab of 125 mm thick, RCC slab panels is supported with Floor beams and bracings from bottom Span 2,3,5: RCC slab 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	Spalling observed	
	Condition of Slab from Top	Not visible as covered with chequered tiles	
g.	Staircase Details		
	Number of Staircase	3 no's	Staircase steps are observed as RCC slab, Steps are supported on stringer beams of ISMB 250 section, horizontal members of ISMB 150 and diagonal bracings with 65 x 65 x 8mm angle sections. (Refer fig :7)
	Number of Steps from PF – 1	36 no's	
	Number of Steps from PF – 3	38 no's	
	Number of Steps from CA	50 no's	
	Material used for steps	RCC	
h.	Staircase Railing		
	Type of Parapet Railing	Steel railing	Staircase is provided with railing on both sides of 1.2m height using 75 x 75 x 8 mm double angle sections and 50 x 6 mm MS flats are used. (Refer fig :7)
	Height of Railing	1.2 m	

PART 1.4 SURVEY OF SIGNS OF DISTRESS, DEFORMATION IN BRIDGES

- a. ✓ Spalling and Reinforcement exposure of RCC slab observed along the 1st span of FOB



Spalling and reinforcement exposure in span 1



Spalling at bottom chord and slab panels connecting joint



Spalling at stair case 3

b. ✓ Slight Corrosion is observed floor beams of span 2



Slight Corrosion of Floor beams

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	Floor slab	cracks are observed at slab panels Refer Part 1.4 – 1.4(a)
	Spalling	Floor slab and staircase slab	spalling and exposed reinforcement is observed at the bottom of slab in span 1,3 and at stair case 2,3 slab. (Refer Part 1.4 – 1.4(a))
	Rust straining		Slight rusting is observed at bottom chord members and joints
	Extent of Corrosion	Floor beams	Slight corrosion is observed at floor beams of span 2 (Refer Part 1.4 – 1.4(b))

***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

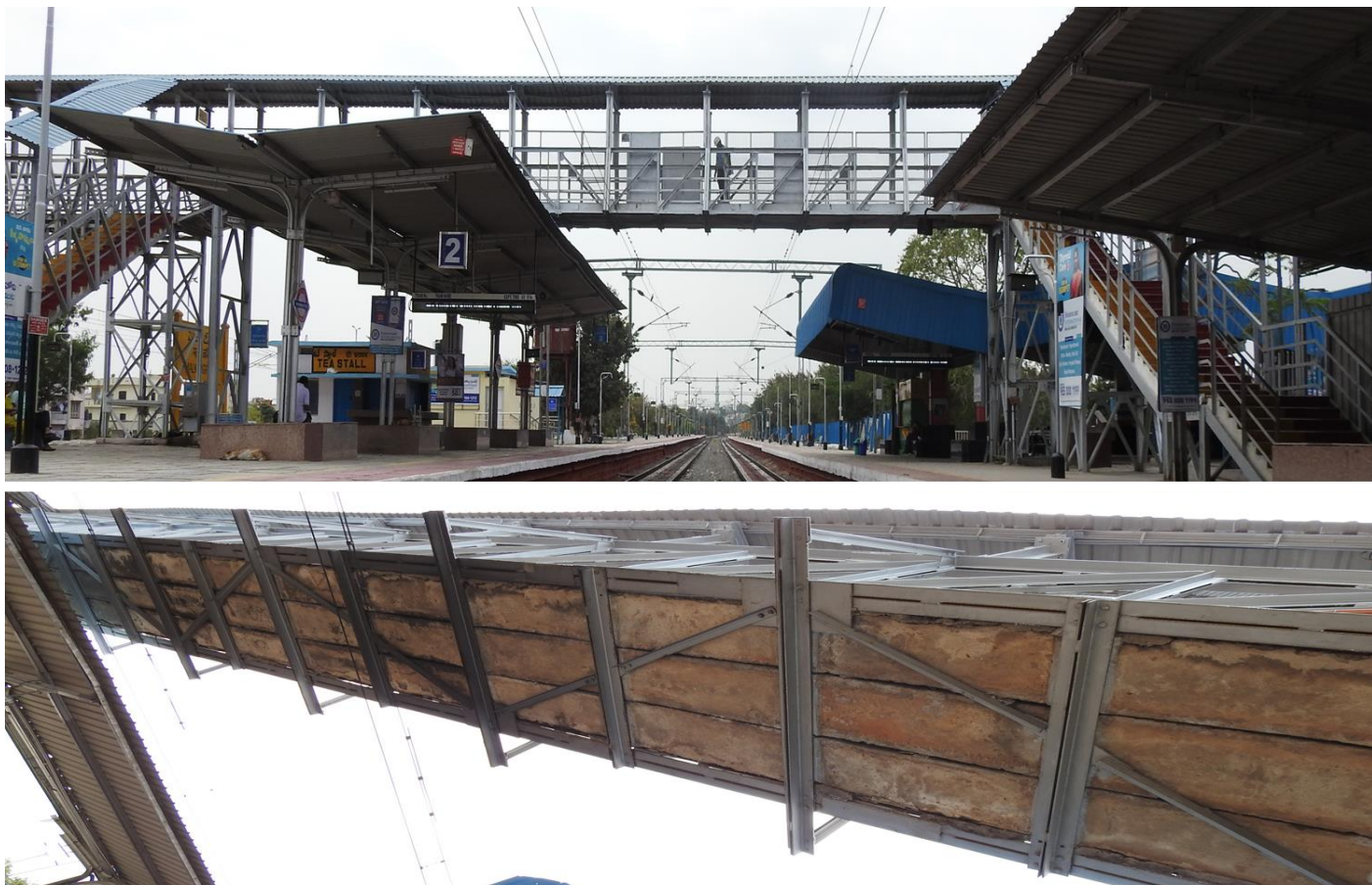


Fig 3: Front view and bottom view of span 1



Fig 4: Front view and bottom view of span 2



Fig 5: Front view and bottom view of span 3



Fig 6: Front view and bottom view of span 4



Fig 7: Staircase details



Fig 8: Deformation of bracings at trestle 4



Fig 9: Patch work observed at staircase 2