

**Name of the Project** : Visual Inspection of ROB No. 250

**Location** : Near Godavari Railway station

**Location Co-ordinates** : 17°00'66.01"N, 81°77'29.06"E

**Date of Inspection** : 2<sup>nd</sup> December, 2019



**Summary:**

- a) Spalling and Reinforcement exposure is observed at the bottom of slab & Abutment-1
- b) Patch work has observed at Pier and deck slab.
- c) Grouting is observed at piers
- d) Structural Cracks are observed at pier and pier cap.
- e) Vegetation is observed at Railing of Bridge.

**Tests to be conducted:**

- a) Rebound Hammer test to measure surface strength of the concrete.
- b) Ultrasonic Pulse Velocity (UPV) Test to determine the Quality of concrete, such as uniformity and homogeneity of concrete, location of internal defects in concrete, porosity.
- c) Profometer Test for the concrete cover and diameter of rebar.
- d) Half-cell Potential Meter to measure the probability of corrosion.
- e) Micrometer/card comparator is to determine the Crack width and depth.
- g) Tests for Carbonation, pH and Chloride Content to determine the extent of chemical attack on concrete

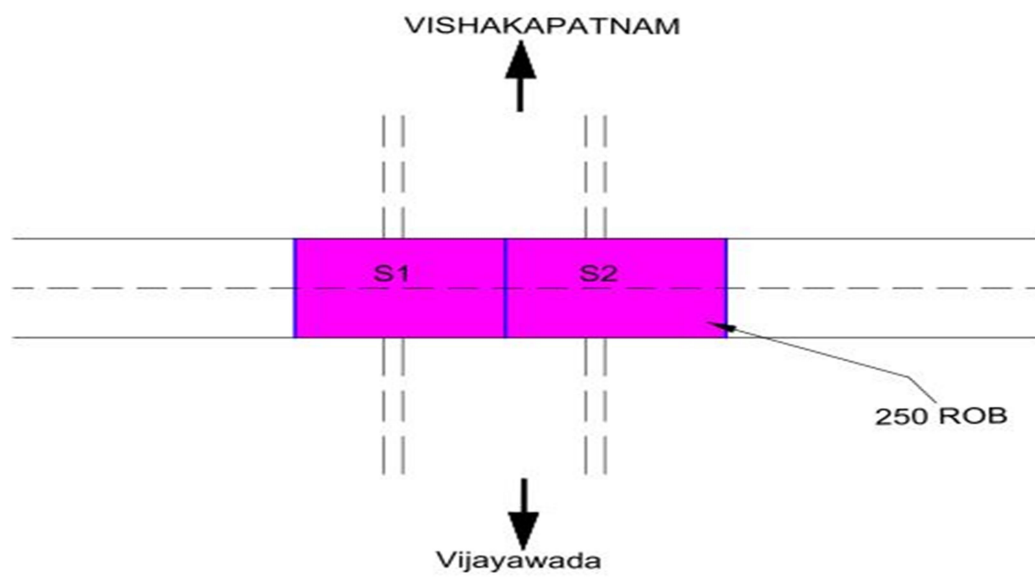
### **VISUAL INSPECTION OF ROAD OVER BRIDGE**

|                     |                                 |
|---------------------|---------------------------------|
| Name of the Project | Visual inspection of ROB No 250 |
| Location            | Near Godavari Railway station   |
| Date of Inspection  | 2 <sup>nd</sup> December 2019.  |

#### **PART 1 GENERAL INFORMATION AND OBSERVATION**

|      |                                                     |                                                               |
|------|-----------------------------------------------------|---------------------------------------------------------------|
| 1.1  | Name of the Bridge                                  | ROB No 250                                                    |
| 1.2  | Location<br>Location co-ordinates                   | Near Godavari Railway station<br>17°00'66.01"N, 81°77'29.06"E |
| 1.3  | Type of Bridge                                      | RCC Slab Bridge                                               |
| 1.4  | Year of Construction                                | Data Not Available                                            |
| 1.5  | Grade of Concrete (Slab)                            | Data Not Available                                            |
| 1.6  | Design Load                                         | Data Not Available                                            |
| 1.7  | Carriageway Width                                   | 6.6 m                                                         |
| 1.8  | Overall Deck Width                                  | 10.16 m                                                       |
| 1.9  | Average Skew                                        | Bridge not in skew                                            |
| 1.10 | Span arrangement (no x Span in meters)              | 2 x 5.15 m                                                    |
| 1.11 | No of Railway Lines Crossings                       | 2 tracks                                                      |
| 1.12 | Vertical Clearance (from rail top to girder bottom) | 5.45 m                                                        |
| 1.13 | Horizontal Clearance (Pole to Rail track)           | 1.53 m                                                        |
| 1.14 | History of Repair/ Maintenance                      | Yes, Patch work observed                                      |
| 1.15 | Original Structural Drawings                        | Not available                                                 |

## 1.16 Key Plan



| PART 2 STRUCTURAL SYSTEM OF THE BRIDGE |                                                                                                                                       |                  |                                                                                                      |
|----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|------------------|------------------------------------------------------------------------------------------------------|
|                                        |                                                                                                                                       |                  | Notes                                                                                                |
| 2.1                                    | <b>Foundation details</b>                                                                                                             |                  | Not visible at site                                                                                  |
|                                        | Type of foundation                                                                                                                    |                  |                                                                                                      |
|                                        | Foundation Details (if available...)                                                                                                  |                  |                                                                                                      |
|                                        | Foundation Status<br>(Check Settlement, abnormal Scour and Tilting, if any etc...)                                                    |                  |                                                                                                      |
|                                        | Type Of Damage (Check cracking, disintegration, decay, erosion, Cavitation's etc.,)                                                   |                  |                                                                                                      |
| 2.2                                    | <b>Abutment (A1 &amp; A2)</b>                                                                                                         |                  |                                                                                                      |
|                                        | Type                                                                                                                                  | Wall             |                                                                                                      |
|                                        | Maximum height of Abutment from Ground level                                                                                          | 5.8m             |                                                                                                      |
|                                        | Abutment width along the Track                                                                                                        | 10.9m            |                                                                                                      |
|                                        | Abutment thickness                                                                                                                    | 1m               |                                                                                                      |
|                                        | Condition (Crack, Settlement, Scour, Tilting, Steel Corrosion, Strains and other damages etc...)                                      | Distresses found | Leaching, Cracks, Spalling and Reinforcement exposure are observed (Refer <b>Fig:4, 7</b> )          |
|                                        | Efficiency of drainage of backfill behind Abutments (Check functioning of weep holes, evidence of moisture on Abutment faces, etc.)   | Good             | Proper functioning of weep holes observed, evidences of moisture is also observed on abutment faces. |
| 2.3                                    | <b>Pier</b>                                                                                                                           |                  |                                                                                                      |
|                                        | Type (Shape)                                                                                                                          | Wall             | Patch work, Spalling and Cracks observed on Piers and Pier cap                                       |
|                                        | Material                                                                                                                              | RCC              |                                                                                                      |
|                                        | No. of Piers in a row/column                                                                                                          | 1                |                                                                                                      |
|                                        | Maximum Height of Pier                                                                                                                | 5.62             |                                                                                                      |
|                                        | Pier Diameter/Dimension                                                                                                               | 8.65             |                                                                                                      |
|                                        | Pier Cap Material                                                                                                                     | RCC              |                                                                                                      |
|                                        | Pier Cap Condition                                                                                                                    | Distresses found |                                                                                                      |
|                                        | Pier Condition (Crack, Settlement, Scour, Tilting, Steel Corrosion, Strains and other damages etc...)                                 | Distresses found |                                                                                                      |
|                                        | Efficiency of drainage of backfill behind Abutments (Check functioning of weep holes, evidence of moisture on Abutment faces, etc...) | -NA-             |                                                                                                      |

|     |                                                                                                                                      |                  |                                                               |
|-----|--------------------------------------------------------------------------------------------------------------------------------------|------------------|---------------------------------------------------------------|
| 2.4 | <b>Bearing &amp; Pedestal</b>                                                                                                        |                  |                                                               |
|     | Type of Bearings                                                                                                                     | Not applicable   | No bearings are observed                                      |
|     | General condition<br>(Check Corrosion, cleanliness, seizing of plates silting, accumulations of dirt in case of submersible bridges) |                  |                                                               |
|     | Type/ shape of Pedestal                                                                                                              |                  |                                                               |
|     | General condition (Check Corrosion, cleanliness, seizing of plates silting)                                                          |                  |                                                               |
| 2.5 | <b>Super Structure (Concrete Girder)</b>                                                                                             | Not applicable   | Slab                                                          |
|     | Type/Shape of Girder (I-beam, box-Girder etc.)                                                                                       |                  |                                                               |
|     | Material of Girder                                                                                                                   |                  |                                                               |
|     | No of Girder                                                                                                                         |                  |                                                               |
|     | Dimensions of Girder                                                                                                                 |                  |                                                               |
|     | Structural System of Girder                                                                                                          |                  |                                                               |
|     | Condition of Girder                                                                                                                  |                  |                                                               |
|     | Type/Shape of Secondary Girder                                                                                                       |                  |                                                               |
|     | Material of Secondary Girder                                                                                                         |                  |                                                               |
|     | No of Secondary Girders                                                                                                              |                  |                                                               |
|     | Condition of Secondary Girder                                                                                                        |                  |                                                               |
| 2.6 | <b>Slab</b>                                                                                                                          |                  |                                                               |
|     | Material of Slab                                                                                                                     | RCC              |                                                               |
|     | Thickness of Slab                                                                                                                    | Not accessible   |                                                               |
|     | Condition of Slab from Bottom                                                                                                        | Distresses Found | Spalling & Reinforcement exposure Observed. (Refer Fig: 4, 7) |
|     | Condition of Slab from Top                                                                                                           |                  | Not visible, as covered with wearing coat                     |
|     | Condition of Flooring/Wearing Coat                                                                                                   | Good             |                                                               |
|     |                                                                                                                                      |                  |                                                               |
|     | <b>Parapet wall/Railing</b>                                                                                                          |                  |                                                               |
|     | Type of Parapet wall/Railing                                                                                                         | Parapet wall     | Brick Masonry wall is observed                                |
|     | Height                                                                                                                               | 1.67 m           |                                                               |
|     | Condition of Wall/Railing                                                                                                            | Cracks observed  |                                                               |

| PART 4 SURVEY OF SIGNS OF DISTRESS, DEFORMATION IN BRIDGES |                 |                                                                           |
|------------------------------------------------------------|-----------------|---------------------------------------------------------------------------|
| Defects                                                    | Location        | Notes                                                                     |
| Cracking in RCC components                                 | Slab            | cracks are observed at Pier, pier cap & Abutment ( <i>Refer Fig:5,7</i> ) |
| Water seepage                                              |                 | water seepage is observed at abutments                                    |
| Spalling                                                   | Slab & Abutment | Spalling is observed in Slab & Abutment. ( <i>Refer Fig:4 and Fig:7</i> ) |
| Reinforcement Exposure                                     | Slab            | Reinforcement Exposure is observed in Slab ( <i>Refer Fig:4</i> )         |



**Fig: 1** View of ROB



**Fig: 2** Abutments



**Fig: 3** Bottom view of Slab

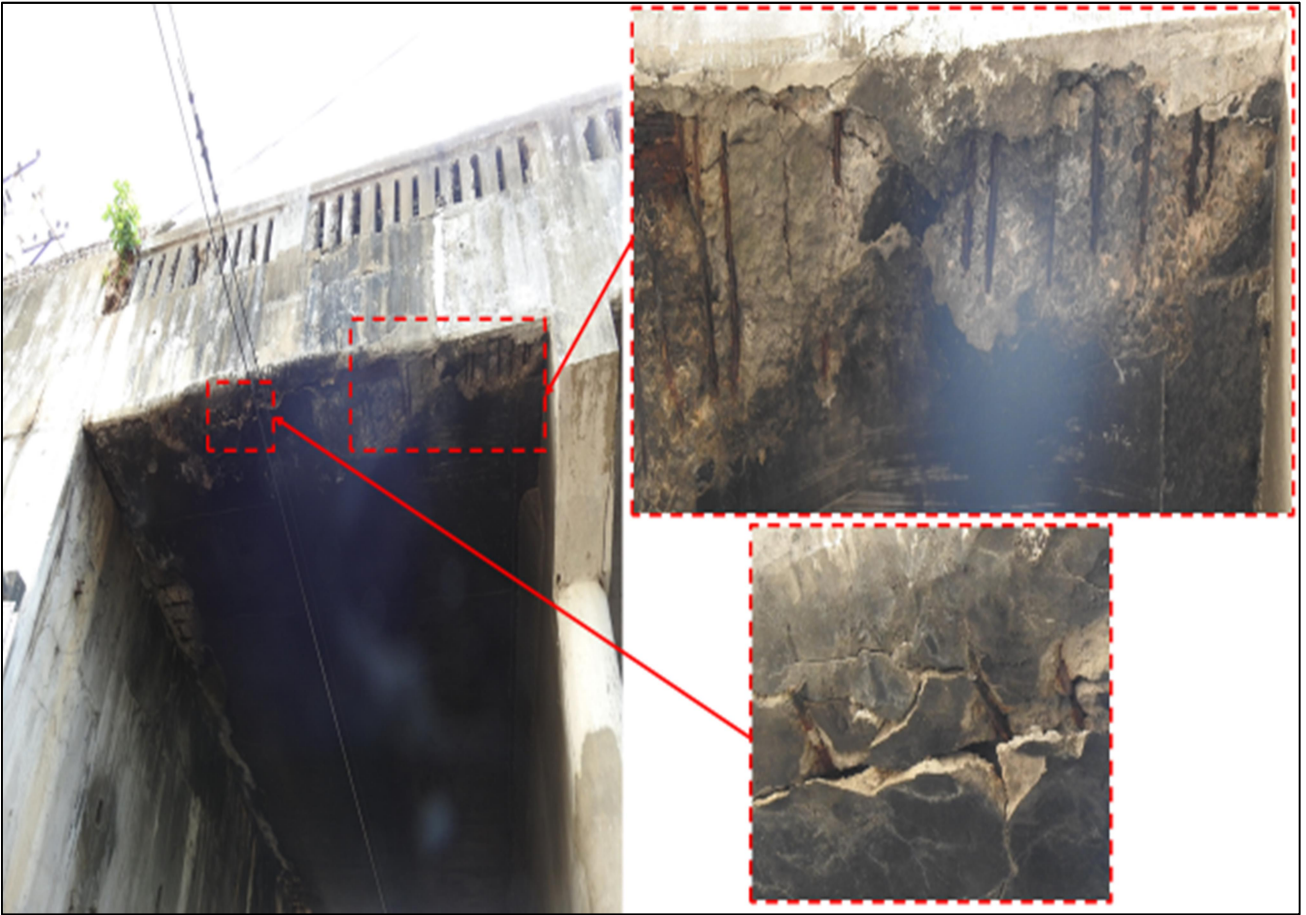




Fig: 4 Reinforcement exposure and Spalling observed at Span-1



Fig: 5 Cracks & Patch repair work observed at Pier



Fig: 6 Grouting observed at Pier



Fig: 7 Spalling, Cracks & Leaching observed at Abutment-1



Fig: 8 Vegetation growth observed at Railing of ROB



Fig: 9 Patch repair work observed at Span-2



Fig: 10 Weep holes at Abutments



Fig: 11 Railing and Wearing coat