



Ajay Kumar Garg Engineering College, Ghaziabad

Department of Civil Engineering

REPORT OF INDUSTRIAL VISIT

Visit Details

- **Type of Visit** : ICI Site Visit
- **Place of Visit** : Delhi
- **Address (Place of visit)** : Construction of Elevated Road over Barapullah Nallah starting from Sarai Kale Khan to Mayur Vihar, New Delhi. (Phase-III)
- **Date of Industrial Visit** : Date : 23/02/ 2023
- **Class** : CE-III Year
- **Mode of Travel** : Bus
- **Approvals** : Director General Sir and Head of the Department
- **CE-Faculty** : Mr. Priyank Srivastava & Mr. Atri Tyagi

Dr. Rakesh Srivastava

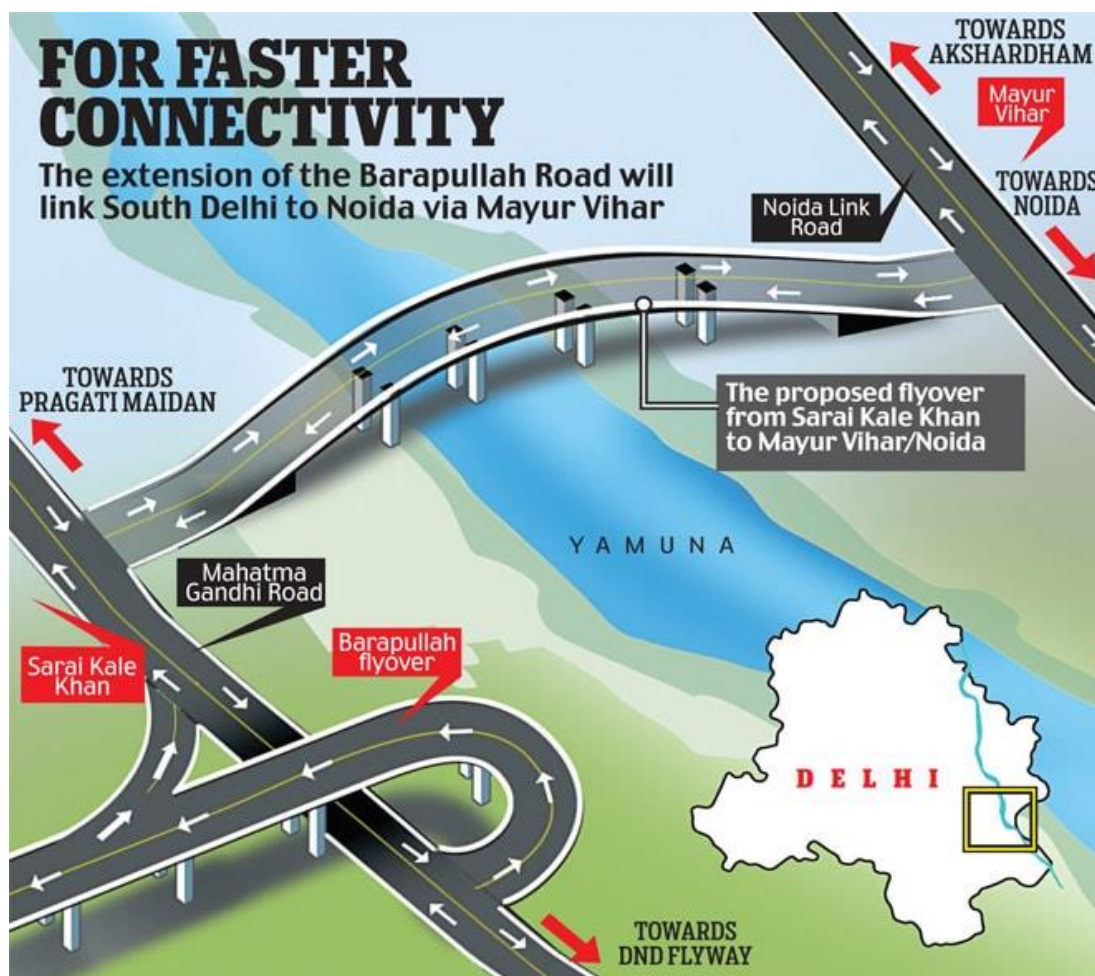
HOD, CE

INTRODUCTION

PROJECT NAME – Construction of Elevated Road over Barapullah Nallah starting from Sarai Kale Khan to Mayur Vihar, New Delhi. (Phase-III)

Total Est. Cost - 106843.22 Lacs

Contractor - M/s Larson & Toubro Limited



Visit at Casting Site

Observations at casting site-

- Preparation of segments -
 - A. Types of segments and its length –
 1. S1 - 2.1m
 2. S2 & S3 – 2.5m
 3. S4 & S5 – 3.0m
 4. S6 – 2.375m
 - B. Casting type exsitu
 - C. Type of Segments – Post Tension
 - D. Grade of Cement – M75
- Transporting of segments to site through Cranes.
- Concrete Mix was prepared from in site preparing plant installed.
- Each segment are identical so to make them distinguish every segment was been allotted Sequential and unique Number like P1,P2... etc.
- Every segment of bridge is prepared by Hydraulic Based Formwork in which Frames are controlled by hydraulic jacks and the structure of segment were formed.
- In total there are 54 Ducts at top and 6 Ducts at bottom.
- There are two Girder cranes at the casting site which help to move the prepared segments.
- The prepared segment were stacked on one another so that the utilization of space should be minimum.
- Each segment weight is around 60 tonnes.
- The capacity of each Girder Crane is about 160 tonnes.



Casting of Segments



Stacking of Segments

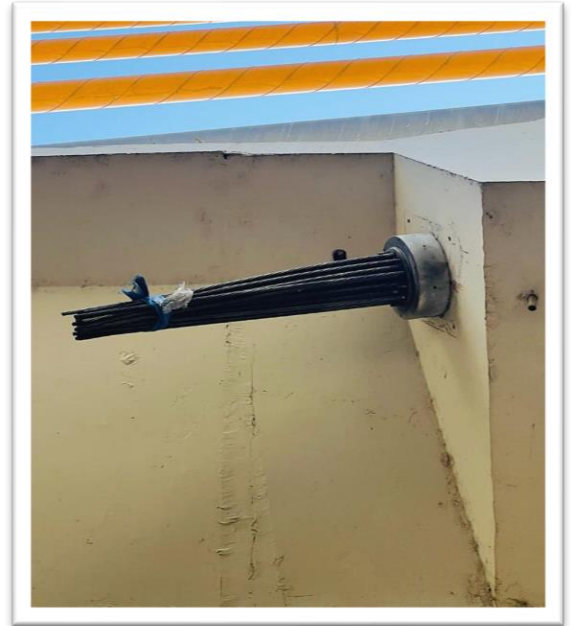
Visit at Construction Site

Observation at construction site –

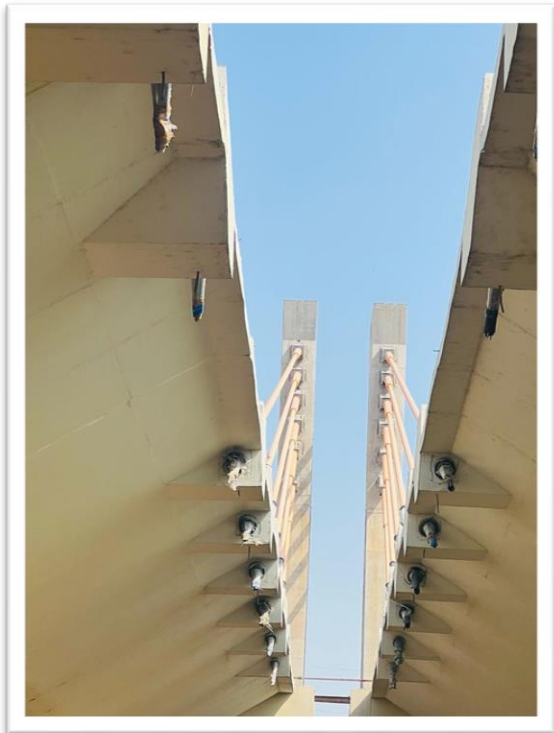
- The Width of Barahpullah Drain on which the Bridge was to be constructed is about 100-150 meter long in width.
- The bridge is of cable type Cantilever Bridge.
- The Foundation provided at the drain side is of **Well type Foundation**.
- The foundation Except at drain side is of **Pile Type Foundation**.
- There are total 2 Columns placed adjacent to each other.
- On plane surface the depth of Pile Foundation go upto 37.5 meter depth below.
- On the drain basin area the depth of Well foundation go upto 50 meter depth below.
- On site the depth of foundation was mostly measured with the help of water level pipe.
- The Bridge to be constructed at site over the drain is of Cantilever type Cable Bridge, in which the cable from the tower is passed through **BLISTER** from the segment.
- Green Cutting is done to join two segments of bridge.
- Temporary Stress is applied in between the joint of Insitu and Exsitu member and the concrete is filled up and stress is then released which later on act like Pre tension in concrete.
- Jack is used on site to match the level of two different Bridges as they are Construct individually.



Tower of Bridge for Holding Cables



Cables Attached Through Cables



Set of Cables Connected with Bridge Segments



Two Individual Cantilever Bridge



Group Picture with Site Engineers and CRRI Scientist

WELL FOUNDATION AT SITE

- At first **Coffer Dam** is created to prevent any seepage of water at the construction area.
- After Constructing Coffer Dam now, Soil is to be excavated upto design depth with the help of Clam Shell.
- The Framework is to be Sink with the help of Dead load which is about 12 Tonnes heavy concrete block. It help to induce sinking of the foundation.
- While sinking it is mandatory to notice about almost constant sinking from all the side otherwise tilting of Foundation will occur and the entire foundation will waste.

DEAD LOAD

*(help to Sink
the formwork)*



Construction of Coffer Dam

PILE FOUNDATION AT SITE

- Pile Foundation Generally contain of three main parts that are Pile cap, Pier and Pier cap.
- The pier at site are constructed on site itself.
- Each Pier pair carries 7 pairs of segment 3 on left, 3 on right and on the top of it.
- The distribution of load in Pier is in **TRAPEZOIDAL** form.
- Each pier segment is connected through **Cables** with each other.



Construction of Piles



Installing Segments on piles

Dr. Rakesh Srivastava

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