

Aditya Silver Oak Institute of technology
Department of Civil Engineering

Name of the Club: Silver Maple			
Title of the Activity : The technical visit Metro rail visit			
Coordinator: Bhavana Mistry			
Venue:	RBL Casting Yard	Date:	22 th September 2018

Objective: To provide socio-economic benefits and equal opportunities in public spaces to all citizens. The ticket pricing is affordable, the journey time is reduced, and pollution is addressed by way of design, while elevated rails and platforms decongest the traffic.

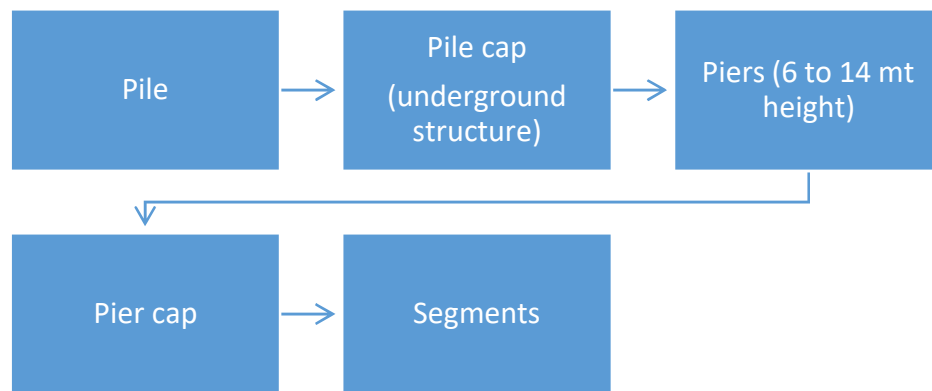
Expert or Guest Profile (In Detail): NA

No. of Participants: 40 Students from civil department

Outcome: Students delivered the technical knowledge of construction pile foundation, how gantry girder functioning on construction site.

The origin of the visit was our collage and then we reached our destination RBL Casting Yard around 11:00 AM. First of all they share some information regarding the project and how it has been done. Then we were gone on site to see the structure or metro rail.

- RBL casting yard is a local construction company which has the contract of metro rail project for the area Ranip to Motera. The length of the project for this company given by government authorities is 4.5km to 5 km.
- Estimated project cost is around 198.3 crores and the work is done under the Third Party Inspection (TPI).
- Also, they have to submit report of each and every activities as well as the checking of construction equipments at every 3 months.
- The casting of segment and parapet is done on its casting site and the piers are constructed on site.
- The hard strata below ground level was found to be at the depth of 25-30 m.
- The construction of the precast elements of the metro rail project are done in the following steps:



- Post tensioning is done. Maximum length of the span varies from 37m to 25. And the width varies from 8.5m to 9m.



Figure 1: Casting of segments

- Curing is done by sprinkling.
- Launching girders are used to lift the segments and holds it up to post tensioning. Also, grantors are used of different capacities.



Figure 2: Grantors of 58 and 10 tonnes

- For duct setting HDP pipes are used and segment profiling is done in 3 directions respectively.

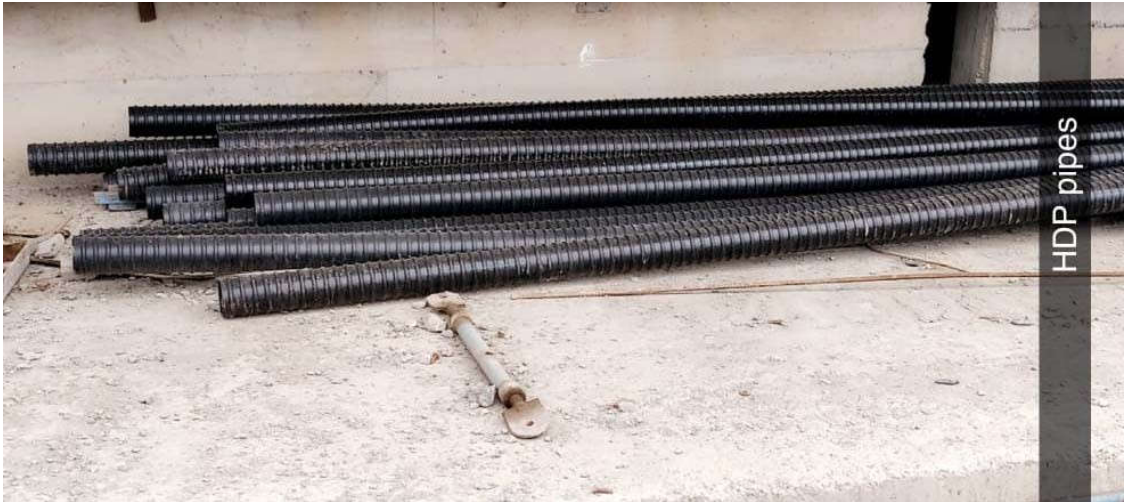


Figure 3: HDP pipes for setting duct

- Inner trolley are used for hollow section. Shuttle vibrators were used for compaction.
- Weight of 1 casted segment is maximum 47 tonnes.



Figure 4: weight of 1 casted segment

- Arrestor are provided for earthing connection. At the top of the pier shear key is provided for seismic resistance and at the corners 4 pedestals are constructed and above that PTFT bearing of rubber material are placed to resists earthquake and to absorb shocks from the rail.



Figure 5: Shear key and pedestal

- Concreting in piers are done by boom placer. Its range is 80 to 90m in diameter and time required for concreting is generally 2-3 hours.
- Mainly, they work on 4 key factors i.e., time, cost, materials and safety.
- Portal beam was used to connect straight and curve alignment and also, eccentric load is transferred. And there are 2 piers provided at each end.

Below at the surface crash barriers of thickness 400mm is constructed around its periphery.



Figure 6: Portal beam and crash barriers

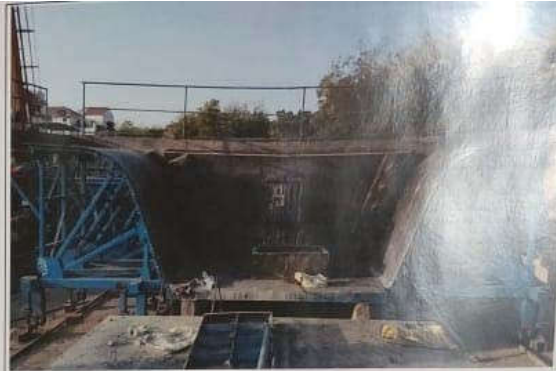
- And last the segment is rested on piers and parapet stitching is done.
- Passing through various stages the construction of metro rail elements are constructed.







SEGMENT RIENFORCEMENT WORK IN ZIG



SEGMENT SHUTTRING WORK



SEGMENT CABLE PROFILING



SEGMENT INNER TROLLEY FIXING



SEGMENT CONCRETING OF DECK SLAB



SEGMENT CONCRETING BY BOOM PLACER



SEGMENT CONCRETING OF SOFFIT



SEGMENT CONCRETING OF DECK SLAB



Figure 7: group photo at AEC Circle site