



SITE VISIT FOR 1ST YEAR B.TECH STUDENTS
OF IITRAM ON 17TH FEBRUARY, 2018

On 17th February, 2018, a site visit was organized for 1st year B. Tech students of IITRAM to Sabarmati Canal Syphon and Escape structures at Karai, Gandhinagar. This site visit was organised as a part of the course taught to 1st year B. Tech students titled 'Introduction to Infrastructure'. Total 169 students were present for the site visit. The site visit was conducted in two batches, wherein the first batch consisted of 93 students and the second batch consisted of 76 students. Dr. Abhisheik Rawat, Dr. Mahesh Mungule, Dr. Trudeep Dave, Dr. Veerbhadra Rotte, Dr. Krupa Shah, Dr. Abhisheik Kumar, Dr. Raghvendra Bhalerao, Dr. Saurav Kumar Yadav and Dr. Kannan Iyer (Faculty members from IITRAM) were also present during the site visit.

Technical Details of Site Visit to Sabarmati Canal Syphon and
Escape Structures at Karai, Gandhinagar

The Sabarmati Canal Syphon is a cross regulator structure constructed on Narmada Main Canal and is one of the largest Canal Syphon in the world. It is located at about 229.92 km distance downstream from the Sardar Sarovar dam. The total length of the Canal Syphon is 614 m and is constructed to cross the Narmada Main Canal across the Sabarmati river. Out of the total length of the Syphon, 335m is in the river bed, 72.75m on left bank (upstream side) at slope of 1V : 3H and 93.84m on the right bank (downstream side) at slope of 1V : 4H. The discharge capacity of the Canal Syphon is about 881.6 cumecs (m^3/s) discharging water through 9 reinforced concrete barrels of 6.25m x 6.5m opening size. There are radial gates provided in each barrel of size 6.25m x 8.3m to regulate the flow through the Canal Syphon. The level difference between the bed level of Narmada Main Canal at entry and exit points of the Canal Syphon is about 0.8m which accounts for head loss during the water flow through the Canal Syphon. The Canal Syphon was constructed from 1994 to 2001. The project required about 8.05 lac m^3 of excavation, 1.987 lac m^3 of concrete and 22,355 tonnes of steelwork.

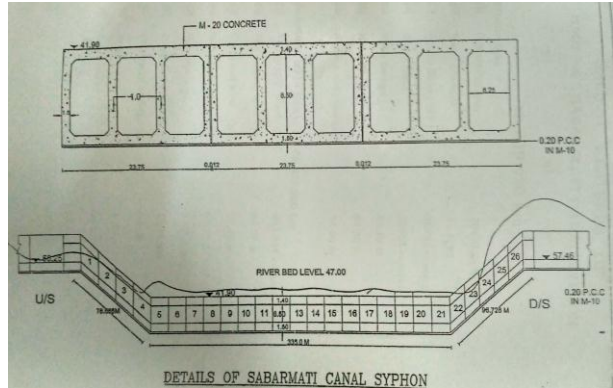
The Sabarmati Escape Structure is constructed at about 229.34 km downstream of Sardar Sarovar Dam. The structure is constructed to release water from Narmada main canal to Sabarmati river to meet the requirements of irrigation, domestic and industrial water requirements mainly in Ahmedabad area. The water carried from the Escape Structure through a Tail Canal of bottom width 70m and is discharged into Sabarmati river at about 610m from the Escape Structure. About 430m of the Tail Canal is lined and remaining



180m is unlined. Total three falls are provided in the Escape Structure, 1st fall having depth of 8.0m and 35m length, the 2nd fall having depth of 6.0m and 30m length and the 3rd fall having depth of 6.0m and 25m length. The entry of all three fall locations are provided with radial gates of size 7.0m x 8.3m. The Escape Structure has a maximum discharge capacity of 450 cumecs (m^3/s).



View of Sabarmati Canal Syphon from Upstream Side



Cross Section of Sabarmati Canal Syphon



Water entering Sabarmati Canal Syphon



Motors installed for controlling Gate operation at Sabarmati Canal Syphon



Sabarmati Escape Structure with 3 nos of Radial Gates



Energy Dissipators at Downstream side of Sabarmati Escape Structure



Tail Canal at Downstream side of Sabarmati Escape Structure



Narmada Main Canal



On the way to Sabarmati Canal Syphon and Escape Structure Sites



On Access Road parallel to Narmada Main Canal



Upstream side of Sabarmati Escape Structure



Downstream side of Sabarmati Escape Structure



At Canal Syphon Site



With Engineers from Water Resources Department, Government of Gujarat



Acknowledgement:

IITRAM family extends sincere thanks Mr. Vivek Kapadia, Chief Engineer, Water Resources Department, Government of Gujarat for facilitating the site visit. We also thank Mr. Hitesh Bhagat, Mr. Rathod and Mr. Nand Lal Patel (Site incharge at Karai, Gandhinagar) for their support and valuable time in explaining technical aspects of the site to our students. We also sincerely thank all Faculty members who joined for the site visit and shared their valuable technical insights with the students. We extend our thanks to Prof. Shiva Prasad, Director General, IITRAM; Prof. A. U. Digraskar, Director, IITRAM; Dr. N. N. Bhuptani, Registrar, IITRAM; Prof. Shanti Prassana, Dean, IITRAM and Department Coordinators Dr. Yogesh Shah, Dr. Dipankar Deb and Dr. Navneet Khanna for their support. Thanks are also extended to Prof. Manisha Mehta and other members of IITRAM office for their support and assistance in organizing the site visit. We also thank all 1st year B. Tech students of IITRAM for their good conduct and enthusiasm for technical learning during the site visit.

Site Visit Coordinators:

Dr. Kannan Iyer, Dr. Abhisheik Rawat and Dr. Pramod Bingle.

Newsletter Edited by: Dr. Kannan Iyer