



SKAPS INDUSTRIES

SKAPS HYDROTEX

CASE STUDY ON SBC CANAL



The Saurashtra Branch Canal (SBC) is the largest branch of Narmada Project Canal System, which off takes from Narmada Main Canal at Ch. 263.20 km near Kadi District - Mehsana and has a length of 104.46 km, and it tails in Bhogavo - II Irrigation Scheme (Dholi Dhaja dam) near Surendranagar.

The Saurashtra Branch Canal is quite a large system and in addition the system is complex and unique in nature that involves the passage of canal through a constantly falling ground in more than half of its initial reach and rising ground in the subsequent reach to Bhogavo - II Irrigation Scheme where it tails.

The canal is in banking from chainage 54120 m. to chainage 63540 m. Due to irrigation and drinking water supply to Saurashtra and Kutch region, this canal is being operated as perennial canal. Stoppage of water supply for regular maintenance is almost impossible considering the drinking water supply services being rendered by this canal system.





Site Specific Issues and Challenges:

The canal is in full banking in about 9 to 10 Km. length. The existing canal is having brick/tile lining, constructed about 15 years back. The efficacy of the brick/tile lining is to be re-examined. It was also observed that there are few stretches, particularly in the reaches of high banking, vulnerable to slippage, resulting into severe leakages and this can ultimately lead to breaches. SBC is a perennial canal and in absence of any comprehensive inspection and assessment of canal slopes and beds, it is very difficult to take precautions to prevent the damage.



As the flow in the canal is not to be reduced or stopped, conventional strengthening measures in the vulnerable stretches cannot be applied. Any repairing or strengthening activity, particularly for the section below water level needs to be carried out under flowing water condition.

Proposal of fabric form concrete mattresses:

Considering the above site specific challenges, it is proposed to provide under water canal lining system. A uniform form fabric section which has been successfully tried at various sites, across the world is proposed to be used.

As the canal is already having brick/ clay tile lining, no additional supporting base would be required. However, the damaged portion was backfilled with geobags filled with sand, before laying the form fabric. It is also proposed to use non-woven geofabric-textile beneath the form fabric liner.

As the canal is in operation since years and record of the present condition about silting along the bed is not available, it is proposed to carry out under water inspection and also to have the bed profiling done through appropriate equipment's. Debris, stones, vegetation and siltation was cleared and removed before laying the nonwoven geotextile and uniform section form fabric.



After the canal slopes and bed are cleaned, dressed and leveled, non-woven geotextile and uniform form fabric section was laid with the help of divers. Panels was connected by zipper and hand-held stitching machine. Anchoring was needed prior to filling the concrete grout in to the fabric form to prevent the sliding of panels into canal.



Once Panel was laid properly, pumpable fine aggregate concrete was transported from RMC to the project site by transit mixer. Filling was done into the fabric by concrete pump at appropriate pressure. Prior to removing the filling pipe from the current concrete lining section and proceeding to the fine aggregate concrete filling of the adjacent lining section, the thickness of the current lining section was measured by inserting a length of stiff wire through the lining at several locations from the crest to the toe of the slope. After the fine aggregate concrete has set, all anchor, flank and toe trenches was backfilled and compacted flush with the top of the concrete lining.

Fabric form mattresses after completion of filling process of grout:

