



ಕರ್ನಾಟಕ ನೀರಾವರಿ ನಿಗಮ ನಿಯಮಿತ

(ಕರ್ನಾಟಕ ಸರ್ಕಾರದ ಉದ್ಯಮ)

KARNATAKA NEERAVARI NIGAM LIMITED

(A Government of Karnataka Enterprise)

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REPORT ON ALTERNATIVE STUDIES FOR PIPELINE ALIGNMENT

1.00 Introduction

1.01 **Project:** Godachinamalki Lift Irrigation Scheme stage-II is proposed to irrigate 1537.91 Ha of land (As per DPR) in Gokak taluk of Belagavi district by lifting the required quantity of water from Markandeya river D/S of its confluence with Bellary nala near Sigiholi village, in Gokak taluk. The beneficiary villages are in Gokak taluk.

1.02 Three numbers of 1582 HP capacity pumps with one standby (3+1) are proposed to lift water over a head of 203 m (including losses) through a raising main of 860mm diameter M.S pipe of about 1.941km and further bifurcates to two raising main RM-1 and RM-2. The RM-1 of length about 10.4km length with Dia 610mm will deliver water to DC-2 and further to DC-3 and DC-4. The RM-2 of about 824m length with 610mm Dia will deliver water into a delivery chamber DC-1. From these 4 DC's the Godachinamalki lift canals will take off.

1.03 **Location :** The Head works (Pump house) is located at longitude 74° 42' 14.9" E and latitude 16° 05' 46.87 N. The nearest village is Sigiholi, Gokak taluk and the nearest town is Gokak, which is well connected by all-weather roads from all towns and cities of the district. The nearest railway station is Pachhapur on Belgaum- Kholapur line on South Western Railway (SWR). The nearest Airport is Belgaum.

1.04 The head works like pump house, rising main, delivery chambers DC-1 to DC-4 are under implementation and the work is **under completion**.

1.01 The Proposal

1.01.1 The project envisages irrigating command areas which are located as disjoint and isolated pockets unlike a typical canal irrigation scheme. These pockets of cultivated area are surrounded by Forest area as can be seen from the command area map attached.

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- 1.01.2 A major portion of this command area (Falling under Rajankatti, Khanagaon, Garh etc.,) is separated from the lift point (Pump house) by a patch of forest area which has to be crossed to access this area. Hence the forest land requirement for Rising Main could not be minimized let alone reduced.
- 1.01.3 Alternatives for reducing the forest land requirement for the Gravity Main connecting the Garh command area (GM-2) was also not available as the forest area runs perpendicularly to the gravity main and crossing it is necessary. Other alternative of aligning the gravity main directly from the rising main (ALT-2) along the Nala was technically not achievable due to insufficiency in the driving head of the pump owing to additional friction losses and secondly due to unsuitable sub stratum conditions along the Nala (Nala usually runs along lineaments which is not the ideal founding medium for structures). Hence ALT-1 was finalized.
- 1.01.4 Alternatives were also investigated for GM from Rajankatti and Khangaon (GM-1) which is marked as ALT-2. The reduction in forest area is marginal but at the cost of additional friction losses owing to increased length which would hamper the flow conditions. It shall be noted that the Delivery Chambers are located (usually near the edge of command area) to critically service the command area requirement. Moving them to a lower elevation would reduce the command area served while increasing the elevation would unnecessarily increase the cost without adding command area. Due to these technical advantages and cost-effective designs, ALT-1 was finalized.
- 1.01.5 Considering the advantages and disadvantages of both alternatives, ALT-1 is recommended for implementation due to reasons mentioned above. The revised proposal for the same extent of forest land is thus prepared and submitted for approval.



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A Concern for Water

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