

ಕಾವೇರಿ ನೀರಾವರಿ ನಿಗಮ ನಿಯಮಿತ

(ಕರ್ನಾಟಕ ಸರ್ಕಾರದ ಉದ್ಯಮ)

ಅಧೀಕ್ಷಕ ಇಂಜಿನಿಯರ್‌ರವರ ಕಛೇರಿ, ವಿನ್ಯಾಸ, ಗುಣ
ನಿಯಂತ್ರಣ ಮತ್ತು ತಾಂತ್ರಿಕ ಜಾಗೃತಿ ಶಾಖೆ,
ಸಾರ್ವಜನಿಕ ಕಛೇರಿಗಳ ಕಟ್ಟಡ, ಹೊಸ ಸಯ್ಯಾಜಿ ರಾವ್ ರಸ್ತೆ,
ಮೈಸೂರು - 570 004



CAUVERYNEERAVARINIGAMLIMITED

(A Govt. of Karnataka Enterprises)

Office of the Superintending Engineer, Designs,
Quality control and Technical vigilance Wing,
Public Offices Buildings, New Sayajirao Road,
Mysore - 570 004

ಸಂಖ್ಯೆ:ಕಾನೀನಿನಿ/ ಅಅವಿ /ತಾಂ.ಸ.ವಿ.-2/ ಸ.ಇಂ.ವಿ.-1/HRBC Div / Dudda LIS /2018-19

ಇವರಿಗೆ,

ಮುಖ್ಯ ಇಂಜಿನಿಯರ್,
ಹೇಮಾವತಿ ಯೋಜನಾ ವಲಯ
ಗೊರೂರು.

ಮಾನ್ಯರೆ,

ವಿಷಯ:- D.P.R. to Lift water from Hemavathy river near Mavinakere village
of Holenarasipura Taluk to fill dry tanks in Dudda & Shanthigrama
Hobli in Hassan taluk and Halkote hobli of Holenarasipura Taluk in
Hassan district,

ಉಲ್ಲೇಖ:- ನಿಮ್ಮ ಕಛೇರಿ ಪತ್ರ ಸಂಖ್ಯೆ: ಇಲ್ಲ ದಿನಾಂಕ: 06-09-2018.

ಮೇಲ್ಕಂಡ ವಿಷಯಕ್ಕೆ ಸಂಬಂಧಿಸಿದಂತೆ, ಉಲ್ಲೇಖಿತ ಪತ್ರದಲ್ಲಿ ಸದರಿ ಯೋಜನೆಯ
ರೂ. 330 ಕೋಟಿ ಮೊತ್ತದ ವಿಸ್ತೃತ ಯೋಜನಾ ವರದಿಯ ಪುಸ್ತಕವನ್ನು ಕಳುಹಿಸಿ ಸದರಿ
ಯೋಜನೆಯ ವಿನ್ಯಾಸ ಮತ್ತು ನಕ್ಷೆಗಳನ್ನು ಪರಿಶೀಲಿಸಿ ವಿನ್ಯಾಸ ಶಾಖೆಯ ಅಭಿಪ್ರಾಯದೊಂದಿಗೆ
ತರವುಗೊಳಿಸಲು ಕೋರಲಾಗಿದೆ. ಪ್ರಸ್ತಾವನೆಯಲ್ಲಿನ ವಿವರಗಳನ್ನು ಪರಿಶೀಲಿಸಿ ದಿನಾಂಕ: 06-09-2018
ರಂದು ಕಾರ್ಯಪಾಲಕ ಇಂಜಿನಿಯರ್, ಹೆಚ್.ಆರ್.ಬಿ.ಸಿ. ವಿಭಾಗ, ಹೊಳೆನರಸೀಪುರ ಇವರೊಂದಿಗೆ
ಚರ್ಚಿಸಿ ಕೆಳಕಂಡ ಅಂಶಗಳನ್ನು ಪಟ್ಟಿ ಮಾಡಲಾಗಿದೆ:

- The scheme envisages lifting 88 cusecs of water from Hemavthy river in two stages to fill tanks in Hassan and Holenarasipura taluk.
- 1st stage: It is proposed to lift 88 cusecs of water from Hemavathy river near Mavinakere village to a height of 94.20 mts (including all losses) in a period of 120 days using 3+1standby vertical turbine pumps with a capacity of 1400 HP each through single row of 1500 mm dia MS pipe rising main of thickness 12 mm. The levels to be negotiated are from low water level of 837.00 m to delivery level of 920.50 m in a length of 10.60 Km. From here it is proposed to carry through gravity main of length 0.36 Km up to the Markuli tank.

- **2nd stage:** It is proposed to lift 87.24 cusecs of water from Markauli tank to a height of 87.24 mts (including all losses) in a period of 120 days using 3+1standby vertical turbine pumps with a capacity of 1300 HP each through single row of 1500 mm dia MS pipe rising main of thickness 12 mm. The levels to be negotiated are from low water level of 912.00 m to delivery level of 993.360 m in a length of 4.825 Km. From here it is proposed to carry through gravity main to all the tanks.
- Distribution system is by gravity main adopting MS pipe from 350 mm to 1300 mm diameter and HDPE pipes below 315 mm upto 90 mm. The total length of MS and HDPE pipes are 108.810 Km and 112.680 Km respectively totaling to 221.490 Km.

Water Planning

- In the report and salient features, it is mentioned that there is an allocation of 63.83 TMC of water for MI tanks which includes the filling of MI tanks now proposed. A letter from competent authority regarding the allocation of 63.83 TMC and sharing of 0.906 TMC is to be enclosed to the report.
- A table showing reservoir inflow and outflow from 2005-06 to 2015-16 is enclosed and an abstract of balance water available by deducting the downstream requirement from the out flow from spillway & river sluices has been enclosed for the month of July, August and September.
- It is noted that the scheme is contemplated for 120 days whereas water availability is shown for 90 days which needs to be verified once again.
- The total capacity of 160 tanks and 10 small kattes is 1132 Mcft out of which 70 % is being filled at 792.40 Mcft and other 30 % is considered as rainfall contribution. In the designs enclosed the seepage losses is taken as nil as piped distribution network is adopted. Considering an evaporation loss of 10%, the total quantity of water to be pumped would be 905.70 Mcft. Further, considering 24 hours pumping the required discharge works out to 88 cusecs.

- A table showing the population of villages benefitted has been enclosed to the proposal. However, actual water required for drinking water for a projected population considering per capita requirement of 85 LPCD and 30 LPCD for live stock needs to be prepared and enclosed to the proposal.

Rising main and Gravity main

- Diameter of rising main is decided as 1500 mm for both stages based on economical diameter analysis. Electro mechanical components, rising main diameter and thickness is based on the surge analysis for both stages which is vetted by Sri. K.R.Narayana Iyengar. Provisions have been made for 440 micron thick Epoxy painting for inside lining and 25 mm thick outer guniting. It may be examined whether the "PYPKote" can be adopted for outer protection instead of guniting in consultation with the LIS consultant to Nigama. Further, it is appears that in the surge analysis, the inside lining considered is 12 mm thick CC lining instead of epoxy painting which may be got confirmed from the LIS consultant to Nigama.

Further, provisions for surge protection may be made in the DPR based on the recommendations made by the LIS consultant in his report.

- In the gravity pipe line design table, the type of material adopted has been mentioned as MS and DI whereas in the estimate it is MS and HDPE. The design table showing losses, pressures, residual head etc., is vetted from Sri K.R. Narayana Iyengar, LIS consultant to Nigama.

With regard to gravity main provision for MS pipe from 1300 mm to 350 mm and HDPE pipe below 350 mm has been made in the proposal. The cost of DI pipe as against the HDPE pipes may also be considered and economical material may be adopted.

Other points

- Provision for sump cum pump house has been made in the DPR for both the stages. An inventory of the sizes of raft, side walls, columns, beams and slabs made in the DPR has been tabulated in the drawing and provision for steel at

130 Kg / cum of concrete has been made which can adopted for DPR purpose. A detailed civil designs and drawings pertaining to above structures may be prepared and necessary approval may be obtained from the competent authority before execution.

- In the proposal provision for 110.59 acres land acquisition has been made out of which 98.85 acres is required for gravity main. Reducing the land acquisition by taking the gravity main within the nala jurisdiction may be examined.

ಸದರಿ ಕಾಮಗಾರಿಯ ಬಗ್ಗೆ ವಿನ್ಯಾಸ ಶಾಖೆಯ ಅಭಿಪ್ರಾಯವನ್ನು ಸಲ್ಲಿಸುತ್ತಾ, ಮೇಲೆ ತಿಳಿಸಿರುವ ಅಂಶಗಳನ್ನು ಗಣನೆಗೆ ತೆಗೆದುಕೊಂಡು ಡಿ.ಪಿ.ಆರ್. ಅನ್ನು ಅಂತಿಮಗೊಳಿಸಿ ಇ.ಆರ್.ಸಿ. ಸಭೆಯ ಮುಂದೆ ಮಂಡಿಸಿ ಅಲ್ಲಿ ನೀಡುವ ನಿರ್ದೇಶನದಂತೆ ಮುಂದಿನ ಕ್ರಮ ಕೈಗೊಳ್ಳಲು ಕೋರಲಾಗಿದೆ.

ತಮ್ಮ ವಿಶ್ವಾಸಿ,

ಸಹಿ/-

ಅಧೀಕ್ಷಕ ಇಂಜಿನಿಯರ್,
ವಿನ್ಯಾಸ, ಗುಣ ನಿಯಂತ್ರಣ ಮತ್ತು ತಾಂತ್ರಿಕ
ಜಾಗೃತಿ ಶಾಖೆ, ಕಾನೀನಿನಿ, ಮೈಸೂರು.

1. ಪ್ರತಿಯನ್ನು ಅಧೀಕ್ಷಕ ಇಂಜಿನಿಯರ್, ಹೇಮಾವತಿ ಯೋಜನಾ ವೃತ್ತ, ಗೋರೂರು ಇವರಿಗೆ ಮಾಹಿತಿಗಾಗಿ ಹಾಗೂ ಮುಂದಿನ ಕ್ರಮಕ್ಕಾಗಿ ಕಳುಹಿಸಲಾಗಿದೆ.
2. ಪ್ರತಿಯನ್ನು ಕಾರ್ಯಪಾಲಕ ಇಂಜಿನಿಯರ್, ಹೇಮಾವತಿ ಬಲದಂಡೆ ನಾಲಾ ವಿಭಾಗ, ಹೊಳೆನರಸೀಪುರ ಇವರಿಗೆ ಮಾಹಿತಿಗಾಗಿ ಹಾಗೂ ಮುಂದಿನ ಕ್ರಮಕ್ಕಾಗಿ ಕಳುಹಿಸಿದೆ.

ಶೃಂಗಿ/-

ಅಧೀಕ್ಷಕ ಇಂಜಿನಿಯರ್,
ವಿನ್ಯಾಸ, ಗುಣ ನಿಯಂತ್ರಣ ಮತ್ತು ತಾಂತ್ರಿಕ
ಜಾಗೃತಿ ಶಾಖೆ, ಕಾನೀನಿನಿ, ಮೈಸೂರು.

**REPORT ON WATER PLANNING FOR THE SCHEME TO LIFT WATER FROM
HEMAVATHY RIVER NEAR MAVINAKERE VILLAGE OF HOLENARASIPURA TALUK
TO FILL 160 TANKS AND 10 KATTES OF DUDDA AND SHANTHIGRAMA HOBLI OF
HASSAN TALUK FOR DRINKING PURPOSE. (SCHEME TO LIFT WATER FROM
HEAMVATHY RIVER NEAR MAVINAKERE VILLAGE OF HOLENARASIPURA TALUK
TO FILL DRY TANKS IN DUDDA HOBLI AND SHANTHIGRAMA HOBLI OF HASSAN
TALUK AND HALEKOTE HOBLI OF HOLENARASIPURA TALUK IN HASSAN
DISTRICT).**

In Karnataka state, partial area of Dudda Hobli & Shanthigrama Hobli of Hassan Taluk & Halekote hobli of Holenarasipura taluk are draught prone area. In which, about **112 villages** are facing shortage of water for drinking purposes. As per the records obtained from the rain gauge stations in Holenarasipura, Hassan & Channarayapatna taluk of these area, due to scanty & scattered rainfall, it is found that the rainfall is below the average level. The Government has dug so many borewells & are not yielding water due to depletion of ground water levels. In many of the bore wells that have been drilled for a depth of about 450 to 500 ft for the purpose of drinking water. In this regard the Elected representatives & Local farmers of this area had represented the Government to provide water facilities to fill dry tanks.

Under the circumstances, in order to improve environmental and ecological condition of these villages, it is proposed to fill 160 Tanks & 10 small kattes in the above drought prone areas by lifting water from Hemavathy river near Mavinakere village of Holenarasipura taluk during monsoon period. This will not only be beneficial to the villagers but will also be helpful in the replenishing the ground water and also to supplement drinking water supply to 112 villages.

Sl No	Name of Taluk	Name of the Tank	Tank Capacity in Mcft	Feeder Canal Length (In Km)
	Holenarasipura, Hassan & C.R. Patna	160 tanks & 10 small kattes	1132.00	67.94

Due to the meager rainfall in the area, none of the above tanks have received water to full extent in last 20 years. Also, in these areas, where there are very few bore wells yielding water, the yield has drastically reduced due to depletion of ground water table. On account of this, the men and live stock of this region are facing shortage of drinking water. Even the garden crops viz., Coconut & Banana (which is the mainstay of the people) which is also mainly dependent on bore wells are facing shortage of water. The Coconut crops are affected with 'NUSI ROGA' resulting in dwindling of the yield and eventually affecting the livelihood of the people. If this situation continues, in a few years these lands may become barren and cause migration of people to other places in search of jobs to survive.

In order to mitigate the problems of this area, it is now proposed to provide a scheme to lift water from Hemavathy river near Mavinakere village of Holenarasipura taluk to fill water to the above mentioned **160 tanks & 10 kattes of Dudda Hobli & Shanthigramahobli of Hassan Taluk & Halekote Hobli of Holenarasipura Taluk.** Under this scheme, it is proposed to lift **905.70 Mcft (88.00 cusecs)** of water for a period of **120 days** from July to October in **Two stage**.

Availability of water:

As per the CWDT award, there is an allocation of 33.33 Tmc of water for MI tanks (Upper region of KR Sagara). The proposed filling MI tanks are included in the above & at present, these are in dry condition. Hence, now proposed to fill the tanks one time @ 70% of the capacity (considering rain fall contribution of 30%) by lifting water from Hemavathy river.

The main features of the proposed lift scheme are as follows:

- a) **First Stage:** Water is proposed to be lifted from Hemavathy River near Mavinakere Village of Holenarasipura Taluk to the delivery chamber point at ch: **10.600 km.** & then gravity main for a length of **0.360 km.** upto delivery point of Markuli tank. The water will be lifted to a total head of **94.20 Mtr** (including all losses) & **88 cusecs** using 3+1 standby numbers of vertical turbine

pumpsets with a capacity of **1400 HP** each, capable of pumping **0.831 Cumecs** of water, which will be carried through a Rising Main/gravity main of single row of **1500 mm dia** M.S. Pipes of thickness **12mm**. including epoxy inner paint & PYP Kote Bitumen based pipe coating tapes of 4mm thick for outer protection. In this stage it is proposed to fill **1 tanks** in Hassan taluk.

- b) **Second Stage** :Water is proposed to be lifted from Markuli tank near Markuli Village of Hassan Taluk to the delivery chamber point at ch: **4.825 km**. The water will be lifted to a total head of **87.24 Mtr** (including all losses)& **87 cusecs** using 3+1 standby numbers of vertical turbine pumpsets with a capacity of **1300 HP** each, capable of pumping **0.821 Cumecs** of water, which will be carried through a Rising Main of single row of **1500 mm dia** M.S. Pipes of thickness **12mm**. including epoxy inner paint & PYP Kote Bitumen based pipe coating tapes of 4mm thick for outer protection. In this stage it is proposed to fill **159 tanks & 10 small kattes** in Holenarasipura, Hassan & Channarayana taluk.

- c) **Power Supply**: The total power capacity of the motor for **Ist stage** is 3x1400 HP (i.e., 3133KW). A power supply is proposed at the pumping station (lifting point) at Hemavathy River near Mavinakere village. This work includes drawing of the power supply line from nearest Sub-Station at Hangarahalli village for Ist stage (for a length of 3 kms) and it is proposed to install a suitable power transformer to feed all the motors.

The power capacity of motors for **IInd stage** is 3x1300HP (2910 KW). A power supply is proposed at the pumping station (lifting point) @ Markuli tank. This work includes drawing of the power supply line from nearest Sub-Station at Malali village for IInd stage (for a length of 5 Kms) and it is proposed to install a suitable power transformer to feed all the motors.

This Electrical estimate has been prepared to establish **1X5 MVA, 66/6.6KV substation** at proposed pump house near **Mavinakere village** to lift the water for drinking purpose from Hemavathy river along with 66KV line on double circuit tower tapping from 66KV line from Hangarahalli village KPTCL substation for **Ist stage&1X5 MVA, 66/6.6KV substation** at proposed pump house to lift the water for drinking purpose from **Markuli tank** along with 66KV line on double circuit tower tapping from 66KV line Malali village KPTCL substation for **IInd stage**.

The total cost of the electrical estimate comprising of detailed estimate, cost of substation along with civil works like excavation, concreting etc with line works. The provision is made in an estimate to control the 3 continuous rating motors and a standby motor for with necessary incoming and control panels.

Benefits: From this scheme, the population of the villages surrounding the tanks will benefitted due to better living conditions and also will be helpful in recharging the ground water table in these regions. Filling up of these tanks will provide drinking water facilities to cattle and other domestic animals of the area.

The detailed survey of raising main, Pump-house area, Cistern Area & Gravity Mains of scheme is done by using Total-Station instrument. The necessary drawing of raising main alignment & Gravity main alignment, Topo map showing network of the scheme, Design of water requirement, raising main, pumps etc., are enclosed.

The following provisions are made in the estimate.

- i) **Pump house:** Provision towards construction two pump house near lifting points is made. An amount of **Rs. 840.54 lakhs** is earmarked for this item.
- ii) **Construction of Road:** Provision towards construction of road around pump house is made. An amount of **Rs. 162.58 lakhs** is earmarked for this item.

- iii) **Chain Link Fencing** : Provision for providing Chain link fencing around pump house is made. An amount of **Rs. 34.91 lakhs** is earmarked for this item.
- iv) **Gate for pump house yard** : Provision towards construction of gate & column arrangements for pump house is made. An amount of **Rs.2.04 lakhs** is earmarked for this item.
- v) **Rising Main** : Provision for providing & laying **MS raising main** with all accessories is made. An amount of **Rs. 25355.67 lakhs** is earmarked for this item.
- vi) **Electro-Mechanical works** : Provision for Electrical works in pump house, out-door sub station, pumping macharies & deposit towards supervision charges for CHESCOM & KPTCL is made. An amount of **Rs. 4033.57 lakhs** is earmarked for this item.
- vii) **Land Acquisition**: Provision for acquisition of land for pump house, raising main & gravity mains are made. An amount of **Rs. 2622.45 lakhs** is earmarked for this item.
- viii) **Other allied items** : Provision for Crop compensation, shifting of water supply line, power supply line, electrical pole etc., along the raising main, Improvements to Markuli tank & crop compensation, etc. is made. An amount of **Rs.248.22 lakhs** is earmarked for this item.

The Estimate of the scheme is prepared by considering **KUWS & DB SR for 2015-16, WRD SR 2016-17 & PWD Bengaluru South zone SR for 2016-17 & continued for 2017-18, PWD Electrical SR for year 2014-15, Ele MW SR-2016-17 & CHESCOM SR for 2016-17**. For the Items for which rates are not available in any of the above SR, the prevailing market rates have been considered. The Total cost of the scheme works out to **Rs. 33300.00 lakhs**.

A grant of **Rs. 11100.00 Lakhs** has been allotted for the above work for the current year. This work is included in the AWP for the year 2018-19 under the Head of Account: - Other works - Drinking water/Tank filling Scheme.

As such, the proposal to lift water from Hemavathy river near Mavinakere village of Holenarasipura taluk to fill 160 dry tanks & 10 kattes in Dudda Hobli & Shanthigrama Hobli of Hassan Taluk & Halekote Hobli of Holenarasipura Taluk for drinking water purpose amounting to **Rs. 33300.00 Lakhs** is submitted herewith for approval and sanction.

Assistant Executive Engineer
Cauvery Neeravari Nigama Limited,
No. 3, HRBC Sub-Division
Holenarasipura.

Superintending Engineer,
CNNL, Hemavathy Project Circle,
Gorur.

Executive Engineer
Cauvery Neeravari Nigama Limited,
HRBC Division,
Holenarasipura.

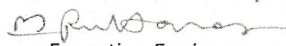
Chief Engineer,
CNNL, Hemavathy Project Zone,
Gorur.


SCHEME TO LIFT WATER FROM HEMAVATHY RIVER NEAR MAVINAKERE VILLAGE OF HOLENARASIPURA TALUK TO FILL 160 TANKS AND 10 KATTES OF DUDDA AND SHANTHIGRAMA HOBLI OF HASSAN TALUK FOR DRINKING PURPOSE. (SCHEME TO LIFT WATER FROM HEAMVATHY RIVER NEAR MAVINAKERE VILLAGE OF HOLENARASIPURA TALUK TO FILL DRY TANKS IN DUDDA HOBLI AND SHANTHIGRAMA HOBLI OF HASSAN TALUK AND HALEKOTE HOBLI OF HOLENARASIPURA TALUK IN HASSAN DISTRICT).

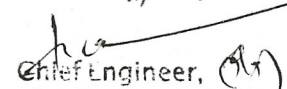
GENERAL ABSTRACT ESTIMATE

Sl. No.	NAME OF WORK	AMOUNT (in Rs.)
1	I ST STAGE	8600000000
2	2 ND STAGE	24700000000
	TOTAL	Rs. 33300000000
	OR	Rs. 333.00 Crores

Assistant Executive Engineer
No.3, HRBC Sub Division,
Holenarasipura


Executive Engineer
HRBC Division,
Holenarasipura


Superintending Engineer,
Hemavathy Project Circle,
Gorur

C.E.R No...	218/2018-19	Date:	11/10/2018
Technically Sanctioned/Approved/Scrutinised for Rs. 333.00 Crores			
(Rupees Three hundred thirty three crores only)			
Subject to the compliance of Tech note appended here with.			
Under Head of Account	4701 Tank filling		
Drinking water scheme CoBodiff 250.871370			
 Chief Engineer, (A) Hemavathy Reservoir Project, ENNL, Gorur			