

BRIEF NOTE

Name of Work: Work of Water Supply Distribution Network Improvement with house service connections for Non Revenue Water reduction and continuous water supply and providing Sewer Network with house connections, construction of Sewage Treatment Plant & allied works and Operation Services of the entire system for 10 years at Tonk

A&F sanction no.:- RUSDP/PMU/A&F/2015/01 dated 18.03.2015 for Rs. 477.50 Crores

T.S sanction no.:- 1st meeting of TC dated 20.03.15 for Rs. 477.50 Crores

- **Bid Status:**

Bid for complete works has published on E-Proc website and scheduled date of receiving the bid is 29.05.2015. Technical bid will be opened on 05.06.2015.

- **General Background of the Tonk Town**

Tonk, District HQ, about 100 Kms from Jaipur is situated on a flat land with general elevation of about 289 m above sea level with rocky but rugged hills. Tonk is surrounded by river Banas & Central Aravali region on the northern side.

- **Water Demand Assessment**

As per CPHEEO norms, per capita daily demand of 135 litres with a UFW of 15% has been considered for design of proposed continuous water supply scheme to Tonk Town. Population projection for 2046 year is about 282443. Total water demand (for design year 2046) is 46.54 MLD.

(A) Water Supply Sector:

Existing Water Supply system:

Tonk city gets 10 mld of drinking water from Nathri headworks, where water from Bisalpur dam is tapped from Nathri Headworks, apart from this another 5.25 mld is extracted from 42 nos. of tube wells and 24 nos. of open wells totalling 15.25 mld. The water from bore wells is distributed without treatment except chlorination. The supply arrangements include a total storage capacity of 5.35 ML, with distribution network of 253 km and 17000 nos. of house service connections. At present the water supply in Tonk is neither continuous nor adequate. The supply is intermittent, once every two days for duration of 60-90 minutes. Presently per capita supply is about 92 lpcd.

Water Supply scheme under execution by PHED:

- Bulk water will be made available by the PHED at Dhaulakheda Headworks under Bisalpur water supply scheme.
- PHED will execute works from Dhaulakheda head works to bring water to the city through one head works to be constructed by PHED in Housing Board colony.
- Whole city is divided in 18 zones for water supply purpose. Therefore 8 additional ESR are required. PHED will construct 4 ESR (Veterinary hospital, Jail Headworks, Baggi Khana, Park Plaza) within municipal limit and remaining 4 ESRs will be constructed by RUIDP under the project.
- PHED will install the pumps for 4 nos. feeder main and will lay 4 nos. feeder main to feed 7 nos. existing ESR/ GLSR and 4 nos. proposed ESR (to be constructed by PHED). PHED also will lay urgently needed distribution system.

Works proposed under RUIDP:

As proposed by City Level Committee (CLC), WFC approved to include following works under the project:

- Construction of 4 ESRs (Annapurna Doongri, Ramdwara, Bisalpur colony, Solangpura.
- Supply and Installation of pumps for Two (2) nos. feeder main at proposed RHB Headworks.
- Supply, Laying, Jointing and commissioning of transmission mains of DI pipeline in about 11kms length
- Distribution Network Improvement works on DMA basis for reduction of NRW up to 12% in entire city. This includes replacement of existing old worn-out/ undersized, AC/ PVC pipeline and extension of distribution system to uncovered areas using HDPE / DI K-7 pipes (approx. length 425 Km).
- Metered House service connections for all consumers to cover 100% population (about 28,000)
- Instrumentation and control system with SCADA system for efficient operation of the entire water supply system including control of PHED installations.

(B) Sewerage Sector:

At present, there is no underground sewerage facility to Tonk Town. Some of the houses are provided with individual septic tanks and there are a few public toilets. Sewage flows into the septic tanks and its supernatant overflows cause's odour nuisance. It is necessary therefore to provide a sewage system to collect and treat sewage collected till the design ultimate year 2046.

Proposed Coverage:

- Tonk is divided in to four sewerage zones 1,2,3,4 and two sub zones 1A & 2A. Under this project two zones namely zone 1 & zone 2 covered.
- Sewage Pumping Station is proposed at Bikapura to collect Sewage from Zone 1. The sewage from this wet well has to be further conveyed through a pumping main to the proposed STP at Molaipura.
- The area lying under Zones 2 can be drained to proposed STP at Soran.
- In Zone 1A, 2A, 3 & 4, the residential layouts are spatially distributed, with less density of population; hence it has not been considered under this proposal.
- 100% coverage is achieved in most of the densely populated wards. Around 75-80% of the total population will be covered under this proposal.
- It is estimated that proposed sewerage scheme will serve in 2046 a population of 2 lakhs (approx) people.
- Sewage Generation for 2046 will be 32 MLD.

Works proposed under Sewerage Sector:

- sewerage collection network in approximate length of 250 Km in city area. This will cover 75-80 % population of the city. Areas wherever the residential layouts are scarcely distributed with low density of population are not considered.
- Providing House Sewer Connections up to property chamber (about 24,000 numbers).
- Construction of one Intermediate Sewage pumping station (SPS) for zone 1 at Bikapura (IHSDP scheme).
- Sewage pumping main of 700 mm dia DI-K9 pipe in about 4.2 Kms length from Intermediate SPS to STP zone 1.

- Construction of 2 nos. STP (Sewage Treatment Plant), one for zone 1 of capacity 16 MLD at Molaipura and another for zone 2 of capacity 4 MLD at Soran to cater 2031 requirement.
- Provision of 7.0 Km DI K-7 pipes (400 mm-2.5 Km, 700mm- 4.50 Km) for disposal of treated effluent to potential user/ in River/ adjoining nallaha.
- It is proposed that the sewer network at depth more than 3.0 m will be laid through trenchless technology. Around 25 km (10% of total length) of sewer network of different dia will be covered under trenchless technology.

Permission for National Highway Crossing: It is proposed to cross the National Highway at two locations namely NH Crossing (Near Dhaulakheda Jn) and NH Crossing (Near Sawai Mahapur Road Jn) under water supply sector and at one location namely NH Crossing (Near Dhaulakheda Jn) under sewerage sector.

Operation and Maintenance services for 10 years:


Contract will have provision of long term (10 years) Operation and maintenance services. Provision is kept for sectional completion. Sections on completion will be put to service as soon as they are commissioned. Scope will include O&M of system on sectional completion basis and on completion of Design Build works.

Under water Supply Sector, O&M scope will be from Dhaulakheda CWR to consumer meters. It will include operation of pumps from Dhaulakheda CWR; RHB CWR; all the transmission and distribution pipelines; meter reading, billing and revenue collection, grievance redressal, house service connections and disconnection etc. In Sewerage Sector, O & M scope will include entire sewerage network, STP & SPS, pumping main, effluent pipe etc (assets constructed under this project), grievance redressal, house service connections and disconnection etc.

Contract will be a performance based management contract. 30% of operation fees will be linked to the fulfilment of performance indicators.

ABSTRACT OF COSTS FOR COMPLETE WORKS

S.N.	Work Description	Estimated to Rs. in Crores
1.0	Water Supply	
	Supply and Installation of pumps; Water transmission Mains with DI k-9 pipe for a length of about 11 kms; Replacement/ Extension of Distribution Network in a length of about 425 kms; and Metered House Service Connections about 31,000	112.00
2.0	Sewerage system	
	Providing sewerage network in a approximate length of 250 Kms; Construction of one sewage pumping station (SPS); Construction of 2 Sewage Treatment Plant (STPs) of capacity 16 MLD and 4 MLD and House Sewer Connections to connect about 24000 houses.	240.00
3.0	Operation and Maintenance services	
	Operation and Maintenance of entire system from date of sectional takeover till 10 years of Design Build completion period	63.00
	Total contract value	415.00
4.0	Add @15% for costs of tender premium; physical and price contingency; and price adjustment during construction period	62.50
	Grand Total	477.50


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