# VOLUME- II

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# VOLUME- IIA

# EXTENT OF WORK

## Content

# EXTENT OF WORKS

**1.0 GENERAL:**

The Scope of Work under this Contract includes the Design, Engineering, Manufacture, Supply, Inspection and testing at works, Packing and forwarding, Delivery to site, Unloading, Handling, Safe Storage, Insurance, Erection, Installation, Testing, Trial Run, Commissioning and Demonstration of Performance Guarantee Parameters, Handing over, Training of Owner's personnel, preparing "Operation & Maintenance Manual " and "As Built drawings". As specified in different sections of this specification. The scope broadly comprises the work specified in different sections of this Tender Specifications.

Any item of work, for erection of material / equipment which have not been specifically mentioned in the specification but are necessary for safe and trouble-free operation and guaranteed performance of the entire system, plant and equipment offered shall be deemed to be included within scope of this specifications and shall be provided by the bidder without any extra price and time implication to the employer.

The successful bidder shall have to undertake site surveys, route surveys for ascertaining the terrain for planning and designing of the schemes in consultation with Engineer-in-charge, as Structure as to conduct geotechnical investigations for designing of foundation system of various structures. The bidders shall submit actual path of laying of transmission network based on actual site condition and shall submit hydraulic design of transmission network to Employer/Consultant for review/approval and thereafter as per approved hydraulic design pipelines should be laid.

Civil, Mechanical, electrical & Instrumentation works shall include design, manufacture, performance testing at manufacturer's works, painting, supply, delivery at site, storage at site, installation / erection, testing and commissioning at site, final painting and handing over followed by Operation and maintenance for 5 years.

The scope of work shall also include obtaining necessary statutory approvals for the components as required. The statutory approvals shall include but not limited to Load Sanction from GEB/Load Release from GEB/ No Objection Certificates from Gujarat Electricity Board (GEB) / Electrical Inspector / relevant government agencies / any other statutory authority as applicable. The same shall be in the scope of contractor.

GWSSB will be responsible to get all other statutory permissions and clearances from the concerned central / state or local statutory authorities. However, the contractor shall have to manage the day-to-day co-ordination and follow up activities based on these clearances on site.

In the work of construction of structures, if the following condition like ground situation, SBC reports, type of strata encountered in foundation, natural rainfall drain patterns, Ground water table of locations, etc. occurs and the engineer in charge feels the necessity of consideration of ground water table, the structural design shall be incorporate necessary water uplift pressure. The decision of engineer-in-charge shall be binding to the bidder. Bidders are advised to quote the rate keeping in view this point as no extra payment shall be given for this. In case of any ambiguity, the decision of Superintending Engineer shall be final and binding to the bidder.

Before starting the actual work, the contractor has to provide and fix necessary DISPLAY BOARDS at all works site as per design, details, including writing with paints necessary details as directed by Engineer-in-charge at Contractor's own cost. No extra payment shall be made for this work. These shall be property of GWSSB / Client after completion of works.

## 2.0 DETAILS OF PROPOSED SCHEME

### 2.1 SCOPE:

The proposed scheme includes following components:

1. Pipe Line work
2. Pump House (at MHW/SHW)
3. Electromechanical Items (at MHW/Intakewell)
4. Approach Road. ( At SHW)

### 2.2 CIVIL WORKS

#### 2.2.1 Civil Works for Gravity Main / Pumping main:

The schematic diagram for pipeline is as shown in the bid drawings. This is only for reference and the selected bidder have to prepare the route map after carrying out necessary survey and fix the alignment in consultation with the Engineer in Charge.

- The scope of works comprises the following:
- Hydraulic design shall be prepared and submitted to GWSSB for approval.
- Route Survey.
- Geotechnical survey along the pipe route.
- Excavation of pipe trenches. Constructing pedestals/column support/saddles/ steel bridge, Raising the pipe
- Supplying and Laying of DI – K7 Pipe, MS pipe & PVC pipe of design diameters with all specials along the route as per the route map (to be surveyed and prepared by the selected bidder).
- Transportation of pipes and materials to fabrication/erections including loading and unloading.

- Contractor shall plan and accordingly phase the supply of items according to his requirement to best utilize the available storage space at site.
- Providing coating/ lining/painting as specified in this tender specification.
- Providing and fixing sluice valves, Scour valves and Air Valves on pipeline, as specified in relevant data sheets, detailed technical specifications, particular technical specifications
- Providing tapings as required.
- Providing pipe bedding as per the requirements.
- Backfilling of pipe trench with selected soil immediately after erection of pipe excluding pipe joints.
- Encasing of pipelines as per specifications.
- Hydro testing of pipeline in segments.
- Back filling of pipe trench at pipe joints.
- Providing and fixing electro-magnetic flow meter on Existing and New pipelines at specified locations.
- Construction of RCC Sluice / ZVV / Butterfly/ Flow meter Valve Chambers as per design and drawing.
- Supplying, fixing construction of riser pipe for air valves as per design and drawings.
- Connection of newly laid pipes with existing pipes.
- Construction of RCC Thrust blocks, Saddles, Anchor blocks & cross drainage works etc. A typical drawing is enclosed for reference.
- Demolishing old structures in the route of pipeline, if required.
- Construction of culverts/ saddles for pipe laying in Nalliah Portion if required.
- Flushing of entire pipeline with clean water at least for 24hours.
- Testing and commissioning all the laid Rising main.
- Preparation of as-built drawings.

Summary of transmission pipelines, along-with the pipe materials, diameter and lengths are mentioned below.

**Summary of pipeline:**

**Rising main**

As per BOQ.

**Gravity Main**

As per BOQ.

**Valve chambers:**

Contractor shall carry out the construction of valves chambers in consultation with the engineer in charge.

**Anchor/Thrust Block**

Anchor/thrust blocks shall be provided wherever necessary in consultation with engineer in charge. Contractor shall carry out the design and submit the same for review and approval before execution.

All civil works required for electrical equipment / structure such as: equipment foundations, indoor & outdoor trenches, equipment support structures, electrical switchgear rooms, oil pits, all excavation works including those for earthing, cabling etc, de-tanking area, soak pits, burnt oil pits etc.

Complete fence and gate work.

Access roads for Switchyard and Switchgear room

**2.2.2 DESIGN AND CONTRUCTION OF CIVIL STRUCTURES (PUMP House):**

Soil Investigation and Designing of Structures for their stability for all Civil Structures.

Submission and Approval of All drawings in minimum 6 copies original for all civil Structures.

Detailed sub-soil investigations to assess the safe bearing capacity and other design parameters.

Developing designs, structural design (including reinforcement) and detailed construction drawings and obtaining approval for the same from the proof consultant and the client.

The general arrangements given in the specification is indicative, the contractor to develop detailed drawings to suit process level requirements, capacity specified in specification and available plot area.

**The scope of work shall include but not limited to:**

- Detailed sub-soil investigations to assess the safe bearing capacity and other design parameters.
- Developing designs, structural design (including reinforcement) and detailed construction drawings and obtaining approval for the same from the proof consultant and the client.
- The general arrangements given in the specification is indicative, the contractor to develop detailed drawings to suit process level requirements, capacity specified in specification and available plot area.
- Construction of sump as per approved design and specifications.
- Preparation of as-built drawings.
- The work also includes the construction of valve chamber and valves for inlet and Outlet pipe outside sump.

| Sr. No. | Description | Quantity |
|---|---|---|
| 1 | Construction of Pump House at HW, SHW & Villages | As per BOQ |
| 2 | Construction of Approach Road at Various HW and SHW | As per BOQ |

1. Topographical survey of the proposed location.
2. Geotechnical Investigation at the proposed location.
3. Detailed structural design of the Underground Sump.
4. Excavation of Foundation in soil, soft rock, hard rock including dewatering.
5. Construction of Underground Reservoir as per approved drawings.
6. Transportation of pipes and materials to fabrication/ erection site including loading and unloading.
7. Contractor shall plan and accordingly phase the supply of items according to his requirement to best utilize the available storage space at site.
8. Providing coating/ lining/ painting as specified in this tender specification.
9. Constructing, Testing and commissioning.
10. Preparation of as-built drawings

**Pump Houses:**

- The Scope includes detailed design, civil general arrangement drawings, structural drawings (including reinforcement) / construction drawing so fall civil works for Pumping Stations, building services, water supply, storm water drainage, sewerage, and waste water system and detailed design and drawings of all mechanical, electrical and instrumentation system and equipment on the basis of the approved design, layout and general arrangement.
- The pump house shall be design so that pumps be easily install and maintenance can be done easily.

**MECHANICAL WORKS:**

The scope includes design, engineering, supply, installation, testing and commissioning of Suitable Pumping machinery as specified in the price-bid with required electrical & mechanical accessories, including comprehensive operation & maintenance at various pumping stations of clear water included in the scope of the tender.

a) SITC of Suitable Pumping Machinery as specified in price-bid for Various head works for raw/Treated water transmission.
b) Design & supply associated piping, Valves, instrumentation & accessories as specified in price bid.
c) Installation, testing & commissioning of the above equipment & accessories.

d) Submission of data sheets, QAP, GA drawing, cross section drawing, layout drawings of all equipment and to get approval of same.

e) Operating Units for effective running of pumping machinery, operating staff is required to stay at HW site; hence provision is made for operating units at HW Site.

**Summary of pumping machinery shall be installed as per the BOQ and Site requirement.**

**ELECTRICAL AND INSTRUMENTATION WORKS:**

Scope of Work includes the Design, detailed engineering, preparation of construction drawings, manufacture, acceptance testing and inspection at places of manufacturer, painting, supply, packing, forwarding, and delivery to site including transit insurance, storage at site, installation/erection, final painting, testing and commissioning of the electrical & instrumentation equipment's adhering to the standards, regulatory requirements & best engineering practices.

a) SITC of Suitable Allied Electrical Items and Instrumentation Items as specified in price-bid for Various head works.

b) Design & supply associated Electrical Items And instrumentation & accessories as specified in price bid.

c) Installation, testing & commissioning of the above equipment & accessories.

d) Submission of data sheets, QAP, GA drawing, cross section drawing, layout drawings of all equipment and to get approval of same.

**Special Attention**

The Contractor has to manage following register and Record in each project site.

All Register will be maintained properly by contractor with signature of engineer in charge.

| Sr. No. | Name of Register |
|---|---|
| 1 | Concrete Pour Card |
| 2 | Cube Testing Register |
| 3 | Steel Testing Register |
| 4 | Cement Consumption Register |
| 5 | Daily Progress Register |
| 6 | Site Visit Register |
| 7 | Pipeline Laying Register |
| 8 | Drawing Register |

| | |
|---|---|
| 9 | Steel Purchase Register |
| 10 | Steel Consumption Register |
| 11 | Daily log Register |
| 12 | Level Register |
| 13 | Hydraulic Testing Pipeline, Sump, ESR |
| 14 | Work Order Register |

**O & M Works:**

**O&M works shall be carried out for proposed scheme.**

| Sr. No. | Descriptions |
|---|---|
| **A** | **M & R Charges for Electro Mechanical Works For All Items As per BOQ** |
| **B** | **M & R Charges for Civil Works** |
| 1 | RCC Frame Structure Pump House |
| 2 | Pipeline Network |
| 3 | Approach Road at Various HW and SHW |

O & M Works includes Below mention Villages

| No | Name of Village | District | T aluka |
|---|---|---|---|
| 1 | Bhatha | Surat | Chorasi |
| 2 | Ichchhapor | Surat | Chorasi |
| 3 | Bhatpor | Surat | Chorasi |
| 4 | Kawas | Surat | Chorasi |
| 5 | Limla | Surat | Chorasi |
| 6 | Damka | Surat | Chorasi |
| 7 | Vansva | Surat | Chorasi |
| 8 | Bhatlai | Surat | Chorasi |
| 9 | Rajgiri | Surat | Chorasi |
| 10 | Mora | Surat | Chorasi |
| 11 | Sunwali | Surat | Chorasi |
| 12 | Junagam | Surat | Chorasi |
| 13 | Hajira | Surat | Chorasi |
| 14 | Talangpor | Surat | Chorasi |
| 15 | Malgama | Surat | Chorasi |

| | | | |
|---|---|---|---|
| 16 | Barbodhan | Surat | Olpad |
| 17 | Sithana | Surat | Olpad |
| 18 | SegvaChhama | Surat | Olpad |
| 19 | Kukni | Surat | Olpad |
| 20 | Ariyana | Surat | Olpad |
| 21 | Ambheta | Surat | Olpad |
| 22 | Dandi | Surat | Olpad |
| 23 | Admor | Surat | Olpad |
| 24 | Lavachha | Surat | Olpad |
| 25 | Bhandut | Surat | Olpad |
| 26 | Selut | Surat | Olpad |
| 27 | Veluk | Surat | Olpad |
| 28 | Kashlakhurd | Surat | Olpad |
| 29 | Kashlabujrang | Surat | Olpad |
| 30 | Sarol | Surat | Olpad |
| 31 | Narthan | Surat | Olpad |
| 32 | Dihen | Surat | Olpad |
| 33 | Pinjrat | Surat | Olpad |
| 34 | Tena | Surat | Olpad |
| **And all Approved Private Connection** | | | |

Note : Water Supply to all the villages and other beneficiary as per instruction given by Engineer- in Charge

**Date: Signature of contractor**

**Executive Engineer**
**P. H. Works Dn., G.W.S.S.B**
**Surat**