# REQUEST FOR QUOTATION

## BALOCHISTAN INTEGRATED WATER RESOURCES MANAGEMENT AND DEVELOPMENT PROJECT (BIWRMDP)

## PROCUREMENT OF GOODS FOR SUPPLY AND INSTALLATION OF HDPE PIPES AND VALVES FOR NIMMI GUNDACHA WATER SUPPLY SCHEME DISTRICT LESBELA

**PK-PMU-BIWRMDP-309844-GO-RFQ**

**(AUGUST - 2022)**

BIWRMDP office 18-B, Jinnah Town, Quetta.

**BALOCHISTAN INTEGRATED WATER RESOURCES MANAGEMENT AND DEVELOPMENT PROJECT (BIWRMDP)**

**Section 1**

**REQUEST FOR QUOTATION (RFQ)**

**No. PK-PMU-BIWRMDP-309844-GO-RFQ**
Date: 20th August, 2022
No of Pages: 47

**To:**

**Name:** _____

**Address:** _____

**Subject:** **Request for Quotations for Supply and Installation of HDPE Pipes and Valves for Nimmi Gundacha Water Supply Scheme District Lesbela.**

1. The Government of Balochistan has obtained a loan No. 5885-PAK from the World Bank for Water Resource Management & Development in the province and intends to apply part of the proceeds of this credit to eligible payments under the contract for which this Request for Quotations is issued. This procurement process will be conducted in accordance with the **Shopping** method of procurement contained in the World Bank Guidelines: Procurement of Goods, Works and Non-Consulting Services under IBRD Loans and IDA Credits and Grants by World Bank Borrowers, dated: January 2011, revised July 2014 and the procedures described herein.

2. The Implementing Agency Balochistan Integrated Water Resources Management and Development Project invites your quotation for **Supply and Installation of HDPE Pipes and Valves** described in Section III, Specifications. For the purposes of any resulting Contract the Implementing Agency or their named representative shall be the Purchaser.

3. You are invited to submit your price quotation(s) as per specifications mentioned in Section III. Offerers shall submit quotations for all items and for 100% quantities. The Contract will be awarded to the firm offering the lowest evaluated total cost.

4. Your quotation(s) must be marked **"Procurement of Goods for Supply and Installation of HDPE Pipes and Valves for Nimmi Gundacha Water Supply Scheme, District Lesbela"** and submitted to: Project Director, Balochistan Integrated Water Resources Management and Development Project, 18-B, Jinnah Town, Samungli Road Quetta.

5. If applicable, your quotation should be accompanied by adequate technical documentation, catalogue(s) and other printed material or pertinent information for each item quoted.

6. Your quotation must reach at the address indicated in Para-4 above 12:00 Hours of 21st September 2022. Evaluation of quotations shall follow after the cut-off date for submission.

7. Your quotation(s) should be submitted as per the instructions contained in the Quotation Documents.

**Prices:** The prices should be quoted in Pak Rupees and should be inclusive of all supply charges and admissible taxes.

**Evaluation and Award of Purchase Order/Contract**: Offers determined to be substantially responsive to the technical specifications will be evaluated by comparison of their prices, in addition to the eligibility requirements outlined in the Section-II of Quotation Documents. The Purchase Order will be awarded to the firm offering the lowest evaluated price and that meets the eligibility criteria.

**Validity of the Offer**: Your quotation(s) should be valid for a period of **30 days** from the date for receipt of quotation(s) indicated in Paragraph 6 above.

## Section II
## Instructions for Preparing Quotations

1. **Scope of Procurement:**

   BIWRMDP invites price quotations for procurement of HDPE Pipes and Valves as described in the Technical Specifications given in Section III. The successful supplier will be expected to complete the delivery within the stipulated completion time.

2. **Eligibility to Quote:** You are required to meet the following criteria to be eligible to quote:

   a) Should have at least three years experience in supplying of goods for pipelines.
   b) Should be registered with Income Tax and Sales Tax authorities.

   Following documents shall be required to be submitted to establish eligibility:

   a) Proof of registration with Income Tax Department and Sales Tax Department
   b) Company's profile containing list of clients supplied with similar goods.

   A supplier may only submit one Quotation, either individually, or as a partner in a joint venture. All Quotations submitted in violation of this rule shall be rejected. Partners in a joint venture shall be jointly and severally liable for the execution of the Contract.

3. **Contents of Quotation Documents**: The set of proposal documents comprises the documents listed below:

   | | |
   |---|---|
   | Section I | Invitation to Quote |
   | Section II | Instruction for Preparing Quotations |
   | Section III | Specifications |
   | Section IV | Form of Quotation |
   | Section V | Form of Contract Agreement |
   | Section VI | Conditions of Contract |

4. **Documents Comprising the Proposal**: The Quotation submitted by the Supplier shall comprise the following documents:

   (i) Form of Quotation (as per sample attached)
   (ii) Eligibility and Experience Information (Profile)
   (iii) Copies of taxation documents

5. **Price Quotation**: The Contract shall be for the whole supplies and shall be based on the unit and total price for fixed unit rate contract. Prices shall be quoted entirely in Pak Rupees. The Supplier shall fill in the rates and prices for all items of the Supplies described in the specifications. All duties, taxes and other levies payable by the Supplier under the Contract, shall be included in the rates, prices, and total price Quotation submitted by the Supplier. The rates and prices quoted by the Supplier shall be fixed for the duration of the Contract and shall not be subject to any adjustment on any account.

6. **Item-by-Item Commentary on the Technical Requirements:** The Offerers must provide an item-by-item commentary on the Implementing Entity's Technical Requirements, demonstrating the substantial responsiveness of the overall design offered to those Requirements.

7. **Validity of Quotations.** The price quotation shall remain valid for the period of thirty (40) calendar days counted from the date of submission of Quotation. The Purchaser may request the Suppliers to extend the period of validity for a specified additional period. The Purchaser's request and the Suppliers" responses shall be made in writing or by fax or electronic mail. A Supplier may refuse the request for extension of Quotation validity in which case it may withdraw its Quotation without any penalty. A Supplier agreeing to the request for extension of Quotation will not be required or permitted to otherwise modify its Quotation.

8. **Language of the Quotation**: All documents relating to the Quotation and contract shall be in the English language.

9. **Preparation of Quotations**: The Supplier shall prepare one original of the documents comprising the Price Quotation as described in Clause 5 above, with the Form of Quotation, and clearly marked **"Original".** In addition, the Supplier shall also submit one copy which shall be clearly marked as **"COPY".** In the event of discrepancy between them the original shall prevail. The original and the copy of the Price Quotation shall be signed by a person or persons duly authorized to sign on behalf of the Supplier. All the pages of the Quotation (Price Quotation) where entries or amendments or corrections have been made shall be initialed by the person or persons signing the Price Quotation.

10. **Place and Deadline for Submission of Price Quotations:** The Price Quotations shall be delivered to the Purchaser at the address given in Paragraph 4 of the Invitation to Quote**.** Whereas the supplies are to be supplied to the mentioned scheme areas at Lesbela.

11. **Process to be Confidential:** Information relating to examination, clarification, evaluation and comparison of quotations and recommendation for the PO/contract award shall not be disclosed until the award to successful Supplier has been announced.

12. **Evaluation and Comparison of Quotations:** The Purchaser will award the Contract to the Supplier whose Quotation has been determined to be substantially responsive to the proposal documents and who has offered the lowest evaluated price quotation. In evaluating the quotations, the Purchaser will determine for each proposal the evaluated price quotation by adjusting the price quotation by making any correction for any arithmetic errors as follows:

    (a) Where there is a discrepancy between amounts in figures and in words, the amount in words will govern;

    (b) Where there is a discrepancy between the unit rate and the line item total resulting from multiplying the unit rate by the quantity, the unit rate as quoted will govern;

    (c) If a Supplier refuses to accept the correction, his Quotation will be rejected.

13. **Purchaser's Right to Accept Any Quotation and to Reject any or all Quotations:** The Purchaser reserves the right to accept or reject any quotation, and to cancel the process of competition and reject any or all quotations, at any time prior to the award of Contract, without thereby incurring any liability to affected Supplier(s).

14. **Purchaser's Right to Increase or Decrease Quantities**: The Purchaser, reserves the right to increase or decrease quantities of supplies.

15. **Notification of Award and Signing of Contract:** Results of evaluation would be known in a reasonable time, Suppliers are instructed not to approach the Purchaser after opening of quotations until the finalization of award. The Supplier whose Quotation has been accepted will be notified of the award by the Purchaser prior to expiration of validity period of

Quotation, by registered letter. This letter will state the sum that the Purchaser will pay the Supplier in consideration of the supply, installation, and commissioning of the Supplies by the Supplier as prescribed by the Contract. The written notification of award will constitute the formation of Contract.

16. **Interpretation**: The purchaser is not responsible for any wrong interpretation of any clause of this document.

## Section III
## Specifications

1. **Technical Proposal**

   This part of the RFQ contains the detailed Technical Specifications for required supplies.

2. **Payment Criteria**
   Payment shall be made in the Pakistani currency (Rupees) upon successful delivery and installation of HDPE pipes and Valves and related work (if any) carried out. The invoice will be subject to Govt. taxes as applicable and set by the Govt. of Pakistan. Submission of sales tax invoice is mandatory provided the cost of items includes the same.

3. **Project Completion Timeline**
   The supplier is required to complete the supply and fixing within **182 days** of issuance of Procurement Order or signed contract.

4. **Warranty**
   The Supplier should warrant that the products supplied under Contract are new, unused, un-altered and they fully conform to the specifications given in this section. The supplier should further warrant that all pipes and valves supplied under this Contract shall have no defect, arising from design, materials, or workmanship or from any act or omission of the Supplier that may develop under normal use of the supplied pipes and valves at the place of delivery.

   This warranty shall remain valid for one year and the supplier will provide full support and replace all defective pipes, specials and valves free of cost during the warranty period.

## SCHEDULE OF REQUIREMENTS

The delivery schedule expressed as days stipulates hereafter a delivery date, which is the date of delivery required.

| S. No | Description | Required Delivery Schedule from the Date of Notification of Award | Delivery Site |
|---|---|---|---|
| 01 | Procurement of Goods for Supply and installation of HDPE pipes, specials and valves for Nimmi Gundacha Water Supply Scheme at Lesbela | Within 182 days after Signing of Contract/Issuance of Purchase Order | Village Gundacha and Nimmi at District Lesbela, Balochistan |

# TECHNICAL SPECIFICATION

# HDPE PIPELINE AND APPURTENANCES

## 1 GENERAL

### 1.1 Scope

The Supplier shall deliver at Site (s) all the pipes, specials and valves and complete related services for the installation and fixing of pipelines, specials and valves according to the specification as shown in Drawings and included herein under the Contract. The Works related to the excavation & refilling of pipeline trenches as well as the construction of chambers for installation of valves shall be executed by the Contractor for Civil Works.

### 1.2 Storage

All material provided by the Supplier have to be stored in a proper storage area to the approval of the Purchaser.

The Supplier shall construct a fenced, lockable compound in which all pipes, valves and fittings, whether purchased abroad or manufactured locally, are to be delivered.

The Supplier shall be responsible for cleaning, leveling and enclosing the site storage area to be provided by the Supplier and shall provide all the necessary security. He shall also provide shelters of sufficient size and capacity to store the materials and protect them from the effects of weather.

Valves shall be stored under cover until being required for installation, care being taken to protect any mechanical parts and accessories. Pipes and fittings in storage shall be laid on timber bearers so as to at least 75 mm above the ground. Care shall be taken not to damage any protective coatings or paint work. Straight pipes shall not be stacked more than three meters high without the approval of the Purchaser. Fittings and valves shall not be stacked.

Upon completion of the works, the Supplier shall collect from the Site any surplus pipes, fittings and valves which have been provided.

### 1.3 Inspection

All pipes and fittings to be supplied under the Contract shall be inspected by the PURCHASER at the Supplier’s premises or at the places of manufacture if manufactured at other premises.

The Supplier shall provide such office facilities, assistance, labour, materials, electricity supply, fuel, stores, apparatus and instruments ultrasonic thickness indicators and high voltage holiday detectors as may be necessary to allow a thorough and extensive inspection to be carried out.

The PURCHASER shall be entitled at all times during manufacture to inspect, examine and test on the Supplier's premises or at the places of manufacture if manufactured at other premises, the materials and workmanship of the pipes and fittings. Such inspection, examination or testing including the inspection by the PURCHASER shall not relieve the Supplier from any of his obligations under the Contract.

### 1.4 Markings of Pipes and Fittings

Each standard length of pipe, pipe specials and truly circular pipes shall have the following information painted outside: -

- The word S.I.T.E (50mm high) in capital letter
- The diameter, length and consecutive number and Bill of Quantities item number.
- The weight in kilogram.
- The item number and its consecutive number if more than one in the item
- Diameter of branch in the case of tees and angle in the case of bends and angle branches.

Truly circular pipes shall be marked with two longitudinal parallel bands throughout their whole length.

The diameter and its consecutive number of standard length pipes shall be repeated on the lining just inside on both ends of the pipes.

The item number and diameter of branch in the case of tees and the angle in degrees in case of bends shall similarly be repeated on the lining.

### 1.5 Quantities of Goods

The quantities set out in the Price Schedule are provisional only and they are not to be taken as the actual, limiting and correct quantities of the pipes and fittings to be supplied by the Supplier in fulfillment of his obligations under the Contract. For the purpose of this clause, pipes shall be measured and paid in effective length. The effective length shall mean the net length of the pipe as laid, i.e. after deduction of the length of overlap at any spigot and socket joint to be made with the pipe. Plain ended pipes shall be measured and paid by the gross length and pipe specials shall be measured by numbers. All pipes and specials shall only be measured for payment after they have been laid, tested, accepted and incorporated

in the works. Any excess pipes and specials supplied to the Site shall not be measured for payment.

The cost of all works testing and all other requirements of the Specification including lining, coating, wrapping, etc, involved in the manufacture and delivery of the HDPE pipes shall be deemed to be included in the Contract Rates.

## 2 HDPE Pipes and Specials

### 2.1 Definition

The following terms shall have the meanings hereby assigned to them except where the context clearly renders these meanings inapplicable.

“Pipes” means straight pipes, whether whole or in cut lengths.

“Fittings or pipe specials” means tees, bends, tapers, collars, flange adapters, blank flanges, expansion joints, mechanical joints, ring girders and similar accessories.

### 2.2 Standards and Codes of Practice

The following Standards and Codes of Practice are referred to in this section of the Specification. The Standard or Codes shall be the latest edition current at the time of its preparation unless otherwise specified for particular application.

DIN & PS Standards

- DIN 8074 Polyethylene (PE) - Pipes PE 80, PE 100 - Dimensions
- DIN 8075 Polyethylene (PE) pipes - PE 80, PE 100 -Testing
- PS 3580 Polyethylene pipes for water supply

ANSI/AWWA

- ANSI/AWWA C901 Polyethylene (PE) Pressure Pipe and Tubing, ½ In. (13 mm) Through 3 In. (76 mm) for Water Service
- ANSI/AWWA C906 Polyethylene (PE) Pressure Pipe and Fittings, 4 In. (100 mm) Through 63 In. (1,600 mm), for Water Distribution and Transmission
- ANSI/AWWA C651 Standard for Disinfecting Water Mains • AWWA M55 Manual of Water Supply Practices, PE Pipe–Design and Installation

Plastics Pipe Institute, PPI

- PPI Handbook of Polyethylene Pipe – 2009 (2ndEdition)
- PPI Municipal Advisory Board (MAB) Generic Electrofusion Procedure for Field Joining of 12 Inch and Smaller Polyethylene (PE) Pipe
- PPI Material Handling Guide for HDPE Pipe and Fittings • PPI TR-33 Generic

Butt Fusion Joining Procedure for Polyethylene Gas Pipe

- PPI TR-34 Disinfection of Newly Constructed Polyethylene Water Mains • PPI TR-38 Bolt Torque for Polyethylene Flanged Joints
- PPI TN-42 Recommended Minimum Training Guidelines for PE Pipe Butt Fusion Joining Operators for Municipal and Industrial Project
- PPI TR-46 Guidelines for Use of Mini-Horizontal Directional Drilling for Placement of High-Density Polyethylene Pipe

ASTM

- ASTM F 585 Standard Guide for Insertion of Flexible Polyethylene Pipe into Existing Sewers
- ASTM F 714 Standard Specification for Polyethylene (PE) Plastic Pipe (SDR-PR) Based on Outside Diameter
- ASTM F 905 Standard Practice for Qualification of Polyethylene Saddle-Fused Joints
- ASTM F 1055 Standard Specification for Electrofusion Type Polyethylene Fittings for Outside Diameter Controlled Polyethylene and Crosslinked Polyethylene (PEX) Pipe and ASTM F 1290 Standard Practice for Electrofusion Joining Polyolefin Pipe and Fittings
- ASTM F 1962 Standard Guide for Use of Maxi-Horizontal Directional Drilling for Placement of Polyethylene Pipe or Conduit under Obstacles, Including River Crossings
- ASTM F 2164 Standard Practice for Field Leak Testing of Polyethylene (PE) Pressure Piping Systems Using Hydrostatic Pressure
- ASTM F2206 Standard Specification for Fabricated Fittings of Butt-Fused Polyethylene (PE) Plastic Pipe, Fittings, Sheet Stock, Plate Stock, or Block Stock
- ASTM D 2321 Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications
- ASTM F 2620 Standard Practice for Heat Fusion Joining of Polyethylene Pipe and Fittings ASTM D 2683 Standard Specification for Socket-Type Polyethylene Fittings for Outside Diameter Controlled Polyethylene Pipe and Tubing
- ASTM D 2737 Standard Specification for Polyethylene (PE) Plastic Tubing • ASTM D 2774 Standard Practice for Underground Installation of Thermoplastic Pressure Piping
- ASTM F 2880 Standard Specification for Lap-Joint Type Flange Adapters for Polyethylene Pressure Pipe in Nominal Pipe Sizes 3⁄4 in. to 65 in.
- ASTM F 3124 Standard Practice for Data Recording the Procedure Used to Produce Heat Butt Fusion Joints
- ASTM D 3261 Standard Specification for Butt Heat Fusion Polyethylene (PE) Plastic Fittings for Polyethylene (PE) Plastic Pipe and Tubing
- ASTM D 3035 Standard Specification for Polyethylene (PE) Plastic Pipe (DR-PR) Based on Controlled Outside Diameter

- ASTM D 3350 Standard Specification for Polyethylene Plastics Pipe and Fittings Materials

## 2.3 Submissions

The Supplier shall provide drawings, calculations and data in respect of the following product data to the Purchaser for review for all pipe and appurtenances.

- Furnish in duplicate to the Purchaser confirmation that product shipped meets or exceeds the standards set forth in the price schedule and this specification. This shall be in the form of a written document from the manufacturer attesting to the manufacturing process meeting the standards.

- Provide a statement that personnel responsible for fusing the pipe have been trained and qualified.

Supplier shall also submit the following to the Purchaser for approval:

- Certified dimensional as-built drawings/profile of all pipe, specials and fittings.

- Details of fittings and specials such as elbows, wyes, tees, outlets, connections, test bulkheads, bosses and nozzles or other specials where shown on the Construction Drawings, which indicate amount and position of reinforcement. All fittings and specials shall be properly reinforced to withstand the internal pressure both circumferential and longitudinal, and the external loading conditions as indicated in the Contract Documents. Shop Drawings shall clearly detail all pertinent dimensions

## 2.4 PRODUCTS

### 2.4.1 HIGH DENSITY POLYETHYLENE MATERIALS

#### A. Resin and Material Requirements

1. All material shall be manufactured from a PE 4710 resin listed with the Plastic Pipe Institute (PPI) as TR-4. The resin material shall meet the specifications of ASTM D 3350 with a minimum cell classification of 445474C. HDPE pipe and fittings shall contain no recycled compounds except that generated in the manufacturer's own plant from resin of the same specification from the same raw material. HDPE products shall be homogeneous throughout and free of visible cracks, holes, foreign inclusions, voids, or other injurious defects.

**B. HDPE Pipe**

1. Pipe shall be made of HDPE material with a minimum material designation code of PE4710 and with a minimum Cell Classification as noted in 2.01.A. The polyethylene compound shall be suitably protected against degradation by ultraviolet light by means of carbon black content of not less than 2 percent. The manufacture of the HDPE resin shall certify the cell classification indicated.

2. Pipe sizes 3" and large shall have a manufacturing standard of ASTM F 714, while pipe smaller than 3" shall be manufactured to the dimensional requirements listed in ASTM D 3035. Dimension Ratio (DR) and Outside Diameter (IPS/DIPS) shall be as specified on plans.

2. Pipe shall meet AWWA C901 (1/2" to 3") or AWWA C906 (4" to 63"), and shall be listed as meeting NSF-61.

3. Pipe shall also meet the requirements of Din 8074, Din 8075 and PS 3580.

4. When required by the owner, pipe shall be color coded for the intended service. The color coding shall be permanently co-extruded stripes on the pipe outside surface as part of the pipe's manufacturing process. Color coding shall be as follows:
   a. Sewer – green
   b. Water – blue
   c. Reclaim – purple

**C. HDPE Fittings**

1. Butt Fusion Fittings- Fittings shall be made of HDPE material with a minimum material designation code of PE4710 and with a minimum Cell Classification as noted in 2.01.A. Fittings shall have a minimum pressure rating equal to or greater than the pipe to which they are joined unless otherwise specified on the plans or accepted by owner/Purchaser. All fittings shall meet the requirements of AWWA C901 or C906.

   a. Molded fittings shall comply with the requirements of ASTM D 3261.

   b. All fabricated elbows, tees, reducing tees and end caps shall be produced and meet the requirements of ASTM F 2206, as manufactured by ISCO Industries, Inc or other approved manufacturer holding an ISO 9001 quality system certificate. Each fitting will be marked per ASTM F 2206 section 10 including the nominal size and fitting EDR, which will meet or exceed the pipe DR identified for the project. Fabricated fittings shall be manufactured using a McElroy DataLogger to record fusion pressure and temperature, and shall be

stamped with unique joint number that corresponds to the joint report. A graphic representation of the temperature and pressure data for all fusion joints made producing fittings shall be maintained for a minimum of 5 years as part of the quality control and will be available upon request of owner. Test results to validate ASTM F 2206 section 7.3 and 9 shall be provided to owner or owner's representative upon request.

c. Socket fittings shall meet ASTM D 2683.

2. Electrofusion Fittings - Fittings shall be made of HDPE material with a minimum material designation code of PE 4710 and with a minimum Cell Classification as noted in 2.01.A. Electrofusion Fittings shall have a manufacturing standard of ASTM F1055. Fittings shall have a minimum pressure rating equal to or greater than the pipe to which they are joined unless otherwise specified on the plans. For potable water systems, all electrofusion fittings shall have AWWA approval.

3. Bolted Connections- Flanges and MJ Adapters shall be fused onto the pipe and have a minimum pressure rating equal to or greater than the pipe unless otherwise specified on the plans.
   a. Metallic back-up rings (Van-Stone style lap joint flanges), shall have a radius on the inside diameter of the bore so as to be compatible with HDPE Flanges. Back up rings shall have bolt pattern that will mate with AWWA C207 Class D (generically known as 150-pound patterns).

   b. Where shown on the drawings, 4" and larger transitions to mechanical joint fittings and valves shall be accomplished using a MJ Adapter with kit. The D.I./HDPE mechanical joint adaptor shall consist of an HDPE mechanical joint transition fitting, rubber gasket, a mechanical joint backup drive ring, and Corten mechanical joint tee bolts

4. Mechanical Fittings: The use of mechanical coupling and saddles shall be approved by the owner or Purchaser prior to installation. Mechanical Fittings shall be designed for use and compatible with HDPE pipe, including SS stiffeners when required by manufacturer. Mechanical fittings shall have a pressure rating equal to or greater than the pipe

**D. Fusion Equipment Requirements**

1. Butt fusion equipment must be in satisfactory working order and the hydraulic system must be leak free. Heater plates shall be free from scrapes, gouges, and have a consistent clean coated surface. The pressure gage and thermometer should be checked for accuracy. When requested by the owner, records showing a maintenance service/inspection within 3 months prior to use for this project shall be provided.

2. Rental Fusion Equipment must be maintained by an Authorized Service and Repair Center.

3. Electrofusion Processors shall be maintained and calibrated per manufacturer's requirements and recommendations.

**E. Approved Suppliers**

1. All Pipe, Fittings, and Fusion Equipment shall be provided from an approved manufacturer as decided by the Purchaser.

### 2.4.2 PIPELINE LOCATING MATERIALS

A. Detectable Marker Tape- Plastic marker tape shall be 5 mil minimum thickness with a solid aluminum core of 0.35mil minimum thickness and a minimum width of 2". The background of the tape shall be colored based on pipe service with black lettering continuously printed. Marker tape shall have a minimum 35 lbs./inch tensile strength. The installation of the tape shall be at 18 inches below finish grade.

B. Tracer Wire- All HDPE pipe 4" and greater shall be installed with an extra high-strength, copper clad steel tracer wire including 45 mil HDPE jacket that has a minimum average break load of at least 1150 lbs. The jacket shall be colored based on pipe service, with blue for potable water or green for sewer. Tracer wire gauge shall be 12 AWG, 10 AWG, or 8 AWG depending upon application and installation procedure. This wire shall to be continuous and brought up in the valve boxes at the ends of each line segment with splices made only by methods per the equipment manufacturer's recommendation. All miscellaneous splicing components shall be furnished and installed by the Supplier.

## 3 EXECUTIONS

### 3.1 GENERAL

A. All HDPE pipe and fittings shall be cut, joined, and installed in accordance with the manufacturer's recommendations. Joining, laying, and pulling of polyethylene pipe shall be accomplished by personnel experienced in working with polyethylene pipe systems.

### 3.2 TRANSPORTATION, UNLOADING, AND STORAGE

A. The transportation carriers shall use appropriate methods and intermittent checks to ensure the pipe is properly supported, stacked and restrained during

transportation such that the pipe is not nicked, gouged, or physically damaged. The transportation carrier shall provide tarpaulins to cover any potable water pipe subject to exposure to diesel exhaust or smoke.

B. During loading, transportation, and unloading, every precaution should be taken to prevent damage to the pipe.

C. Pipe shall not be stacked higher than the limits recommended by the manufacturer. The bottom tiers shall be kept off the ground on timbers, rails, or concrete. Pipe shall not be stored close to heat sources.

C. The open ends of all sections of joined and/or installed pipe (not in service) shall be plugged to prevent animals or foreign material from entering the pipe line. All sealing surfaces of mating components (i.e., flange faces) shall be kept free from dirt or debris at all times

## 3.3 PIPE INSPECTION

A. All pipe and fittings shall be subjected to visual inspection at time of delivery and before they are installed or lowered into the trench to be laid. Defective, damaged, or unsound pipe will be rejected. Cuts, punctures, or gouges that penetrate or reduce the wall thickness by 10% or more are not acceptable and must be removed and discarded.

## 3.4 HANDLING PIPE

A. The handling of the pipeline shall be in such a manner that the pipe is not damaged by dragging it over sharp and cutting objects. Sections of the pipes with cuts and gouges exceeding 10 percent of the pipe wall thickness or kinked sections shall be removed and the ends rejoined.

B. Refer to the PPI Material Handling Guide for HDPE Pipe and Fittings for recommendations, guidelines and instructions regarding the handling, lifting, loading, storing and installing polyethylene pipe and fittings.

## 3.5 PIPE JOINING AND INSTALLATION

### A. Direct Burial

1. Buried HDPE pipe and fittings shall be installed in accordance with ASTM D 2321 or ASTM D 2774 for pressure systems and AWWA Manual of Practice M55 Chapter 8. The Design Window identified in AWWA M55 Chapter 5 (page 65 of 2006 version) shall be considered acceptable design and installation conditions.

2. Unless required by the owner's Purchaser, no thrust blocks shall be placed in the HDPE pipe system since the fused system is fully restrained.

**B. Trenchless Installation Methods**

1. Installation of HDPE Pipe by Directional Boring shall follow the guidelines for ASTM F 1962 or PPI TR-46.

2. Installation of HDPE Pipe by slip lining shall follow the guidelines outlined in ASTM F 585.

2. Installation of HDPE Pipe by pipe bursting shall be performed by a company who is a member or the International Pipe Bursting Association (IPBA) and shall offer an installation plan that meets the IPBA Guidelines for Pipe Bursting

**C. Fusion Joining Requirements**

1. All HDPE pipe shall be joined to itself by the heat fusion process which produces homogeneous, seal, leak tight joints. Tie-ins between sections of HDPE pipe shall be made by butt fusion whenever possible.

2. Butt Fusion: The pipe shall be joined by the butt fusion procedure outlined in ASTM F 2620 or PPI TR-33. A record or certificate of training for the fusion operator must be provided that documents training to the fundamentals of ASTM F 2620. Considerations should be given to and provisions made for adverse weather conditions, such as temperatures below freezing, precipitation, or wind, which is accepted by the owner/Purchaser.

3. Electrofusion: Electrofusion joining shall be done in accordance with the manufacturers recommended procedure. Other sources of electrofusion joining information are ASTM F 1290, PPI TN 34, and PPI Municipal Advisory Board (MAB) Generic Electrofusion Procedure for Field Joining of 12 Inch and Smaller Polyethylene (PE) Pipe. The electrofusion processor must be capable of reading and storing the input parameters and the fusion results for later download to a record file. Qualification of the fusion technician shall be demonstrated by evidence electrofusion training within the past year on the equipment to be utilized for this project.

**D. Fusion Operators**

1. The employer of the fusion machine operator is responsible for the fusion joint quality of the fusion weld made by that individual. The employer is responsible for documenting all qualification and training records of that individual.

2. All HDPE fusion equipment operators shall be qualified to the procedure used to perform pipe joining. Fusion equipment operators shall have current, formal training on all fusion equipment employed on the project. Training received more than two years prior to operation with no evidence of activity within the past 6 months shall not be considered current.

3. For Projects with at least 5,000 feet or with pipe larger than 24 inches, operators or their supervisor must have a current Fusion Training Certificate for the equipment to be used on the project.

**E. Butt Fusion Equipment:**

1. For 6" and larger pipe sizes, the pipe butt fusion machine shall be a hydraulic fusion machine capable of butt fusing HDPE pipe. The carriage must be removable from the chassis for in-ditch use. The machine must be compatible with an electronic data recording device, Data Logger or equal. Accessories will include all butt fusion inserts for the specified range of pipe sizes, a pyrometer kit for checking the surface temperature of the heater, extension cord (25' minimum), and hydraulic extension hoses (minimum of four). The butt fusion machine will be approved by the supplier/ manufacturer.

## 3.6 FLUSHING, CLEANING, AND DISINFECTING

A. All mains shall be cleaned and flushed to remove all foreign matter.

B. Disinfection:

1. Cleaning and disinfecting of potable water systems shall be in accordance with AWWA C651 and AWWA Manual of Practice M55 Chapter 9, and PPI Handbook of Polyethylene Pipe Chapter 2 (2nd Edition). The disinfection chemicals should be limited to less than 12% active chlorine. The duration of the disinfection should not exceed 24 hours. Upon completion, the system should be thoroughly flushed with fresh water, and sampled to verify the disinfectant chlorine level has been reduced to potable drinking water concentrations in all service water tubing and branch lateral pipes.

## 3.7 TESTING AND LEAKAGE

A. The Supplier shall restrain pipe, components, and test equipment as required to ensure testing can be accomplished in a safe manner, including protection of personnel, equipment, and public in the event of a failure during testing.

B. Pressure Pipelines-Pressure testing shall be conducted in accordance with requirements and recommendations of ASTM F 2164 (Field Leak Testing of Polyethylene Pressure Piping Systems Using Hydrostatic Pressure), AWWA

Manual of Practice M55 Chapter 9, and PPI Handbook of Polyethylene Pipe Chapter 2 (2nd Edition). Pneumatic (compressed air) leakage testing of HDPE pressure piping is prohibited for safety reasons.

1. The section of pipe to be tested shall be filled with potable or generally clean water (uncontaminated river/lake water) approved by the Owner/Purchaser. While the system is being filled with water, air shall be carefully and completely exhausted. If permanent air vents are not located at all high points, the Supplier shall install fittings and valves at such points so the air can be expelled as the pipe system is slowly filled with water.

2. If the Supplier elects to perform hydrostatic testing against valves in an existing distribution system, it does so at his own risk and will bear the cost of any damages to the existing valve, piping system, private or public property, or the new pipeline under test.

3. The test procedure for HDPE pipe consists of two steps: 1) the initial phase or expansion phase and 2) the test phase. During the initial/expansion phase, sufficient make-up water shall be added hourly for 3 hours to return to the test pressure. During the test phase, the expansion phase pressure is reduced by 10 psi to test phase pressure and monitored for at least one hour (3 hours maximum).

4. Under no circumstances shall the total time under test exceed eight (8) hours. If the test is not completed due to leakage, equipment failure or any other reason, depressurize the test section and permit the system to "relax" for eight (8) hours prior to the next testing sequence.

5. The test pressure should be related to the lowest point in elevation along the test section's vertical pipeline profile.

6. The test pressure shall be 1.5 times the operating pressure at the lowest point in the system. In accordance with section 9.8 of ASTM F 2164, the pipe shall pass if the final pressure is within 5% of the test phase pressure for the testing period (3 hours maximum). If the test section fails this test, the Supplier shall repair or replace all defective materials and/or workmanship at no additional cost to the Purchaser.

### 3.8 Records

The Supplier shall keep full and detailed records including item numbers, size of each, and location of all pipes and specials which are:

- delivered to Site

- declared to be defective
- used in the Works
- cut, broken or removed from Site

The Supplier shall keep such records continuously up to date, and shall have them available for inspection by the PURCHASER at any reasonable time.

### 3.9 Valve Chambers

The operation of all valves including scour and air valves shall be checked by the Supplier and any necessary adjustments made to ensure correct operation. Valve chambers shall be constructed by the Contractor for Civil Works.

The Supplier shall first obtain from the manufacturers the minimum required size of the chambers. The Purchaser's approval shall be sought should there be any variation. The Supplier shall pay all subsequent costs due to any such variations.
Drainage from valve chambers to suitable outfalls shall be provided as directed by the PURCHASER.

## 4 Pipeline Appurtenances

### 4.1 General

The Supplier shall supply and install gate valve, sluice valve, non return valves, etc. at location as shown on drawings and directed by the Purchaser.

### 4.2 Gate Valves

Gate valves shall comply with BS 5150. All valves shall be suitable for use with potable water. Valves complying with BS 5163 are acceptable provided that they also comply with BS 5150.

Specific Clauses of BS 5150 are amplified as follows:

Clause 3 Type of Valves

Solid with non-rising main

Clause 4 Normal sizes

All valves shall be flanged end PN designated non-clamp type valves. Sizes a specified or indicated on the Drawings.

Clause 5 Normal Pressure

PN 16 unless otherwise specified or indicated on the Drawings, where a pressure in excess of PN 25 is specified, valves shall be constructed generally as above but modified as necessary for the higher-pressure rating.

Clause 8 General

Flanged and drilled to BS 4505.

Clause 8 Bypass

Valves DN 400 and over shall be fitted with integral bypasses.

Bypass valves and pipe sizes shall be:

DN 400 valve — DN 50 bypass

DN 450 to 600 valve — DN 80 bypass

DN 650 to 1000 valve — 100 DN bypass.

Clause 9 Body Tapping

As specified to BS 21 (ISOIR7) fitted with bronze or gunmetal plug.

Clause 14 Operation

The direction of operation shall be clockwise to close the valve

Hand wheels shall require a force not greater than 20 kg on the outer rim to operate with a balanced pressure across the valve.

Tee keys shall require a force not greater than 12 kg applied at the opposite ends of a standard key from the closed position.

Clause 15 Indicators
Indicators showing both open and shut positions shall be supplied and when specified, provisions shall be made for initiating the operation of remote indicator lights in the fully OPEN and CLOSED position.

Clause 16.17 Choice of Materials

Brass shall not contain more than 5% zinc gunmetal to BS 1400 Grade LG3; aluminum

bronze or nickel copper alloy may be employed for internal components. Body and wedge shall be of spherical or cast grey iron.

Clause 19 test Certificates

The Supplier shall provide a Test Certificate confirming that the valves have been tested in accordance with BS 5150 and stating the actual pressures and medium used in the test. In addition, the Supplier shall ensure that the Purchaser has access to the manufacturer's works at all reasonable times for the purpose of inspecting the assembled valves and witness testing.

### 4.3 Gate Valves (High Pressure Type)

Gate valves shall be wedge type complying with BS 1414, Class 900. The pressure/temperature rating shall be in accordance with Table PE-1 of BS 1560: Part 2.

The wedge shall be plain solid wedge type. Shell materials shall be selected from those listed in Table PE-1 of BS 1560: Part 2

Trim materials, except the stem, shall be bronze to BS 1499 — LG2 as listed in Table 2 of BS 1414. The stem shall be stainless steel 18-8 Ti as listed in Table 2 of BS 1414.

Flanged ends shall be Class 900 raised face type complying with ANSI B 16.25 or Table PB-I of BS 1560: Part 2.

Butt welded ends shall be in accordance with Clause 8.7 of BS 1414. Operation shall be by hand wheel or square head and tee key as shown on the Drawings.

One body tapping shall be provided in the bottom of the valve in accordance with Clause 8.9 of BS 1414 for drainage. Tapping shall be provided with plugs. A valved by-pass shall be provided in accordance with Clause 17.2 of BS 1414. The materials of the by-pass shall be at least of the same standard as those specified for the main valve.

### 4.4 Check Valves (High Pressure Type)

Check valves shall be piston type horizontal flow valves complying with BS 1868, Claus, 900. They shall be designed for rapid closing, without slamming, on cessation of forward, flow. The pressure/temperature rating shall be in accordance with Table PB-i in BS 1560: Part 2.
Shell materials shall be from those listed in Table PB-i of BS 1560: Part 2 and the trim material shall be bronze to BS 1400—LG2 of BS 1868.

Flanged ends shall Class 900, raised face type complying with ANSI B 16.25 or Table PE 1 of BS 1560: Part 2.

Butt welded ends shall be in accordance with Section 8 of BS 1868.

The valves shall be provided with an equaliser. One body tapping shall be provided in the bottom of the valve in accordance with Clause 8.10 of BS 1868 for drainage.
Tapping shall be provided with plugs.

### 4.5 Automatic Air Relief Valves (High Pressure Type)

Automatic air relief valves shall be designated to meet the following conditions:

(a) Discharge air during charging of the pipeline
(b) Admit air during emptying of the pipe
(c) Discharge air accumulated at local peaks along the pipeline under normal operating conditions.

Conditions (a) and (b) shall be met by the employment of a large orifice capable of handling large volumes of air at a high flow rate, and condition (c) by a small orifice capable of discharging small quantities of air as they accumulate.

Valves with air intake or exhaust facilities shall have approved screening arrangements to prevent the ingress of air borne sand.

### 4.6 Types of Air Valves (High Pressure Type)

#### (i) Double Acting Air Valves

These shall combine both large and small orifices within one valve. The large orifice shall be sealed by a buoyant rigid ball and the chamber housing shall be designed to avoid premature closing of the valve by the air whilst being discharged. The small orifice shall be sealed by a buoyant ball at all pressures above atmospheric except when air accumulates in the valve chamber.

#### (ii) Single Air Valves

These include a small orifice only, operating in a manner identical with the small orifice in a double acting valve.

The nominal pressure rating shall be PN 100 or as indicated on Drawings.
Flanges shall be Class 900 raised face type complying with ANSI B 16.25 or Table PE-1 of BS 1560 Part 2.

The materials for the valves shall be as follows:

| | | |
|---|---|---|
| Body cover and cowl | - | Ductile iron |

| | | |
|---|---|---|
| Small Orifice | - | Brass with Rubber seat |
| Small Orifice Ball | - | Rubber covered or stainless steel or other approved |
| Large Orifice | - | Brass with Rubber seat |
| Large Orifice Ball | - | Vulcanite covered or stainless steel or other approved. |

### 4.7 Automatic Air Relief Valves (Low Pressure Type)

Shall be designed to meet the following conditions:

(a) Discharge air during charging of the pipeline
(b) Admit air during emptying of the pipeline
(c) Discharge air accumulating at local peaks along the pipeline under normal operating conditions.

Conditions (a) and (b) shall be met by the employment of a large orifice capable of handling large volumes of air at a high flow rate and condition (c) by a small orifice capable of discharging small quantities of air as they accumulate.

Valves with air intake or exhaust facilities shall have approved screening arrangements to prevent the ingress of air borne sand.

### 4.8 Types of Air Valves (Low Pressure Type)

#### (i) Double Acting Air Valves

These shall combine both large and small orifices within one valve. The large orifice shall be sealed by a buoyant rigid ball and the chamber housing shall be designed to avoid premature closing of the valve by the air whilst being discharged. The small orifice shall be sealed by a buoyant ball at all pressures above atmospheric except when air accumulates in the valve chamber.

#### (ii) Single Air Valves

These include a small orifice only, operating in a manner identical with the small orifice in a double acting valve.

The nominal pressure rating shall be PN 16 or as indicated on Drawings.

Body ends shall be flanged with raised faces and drilled to BS 4504 for the nominal pressure

specified or indicated on the Drawings or shall be screwed 25 mm BSPTC male as indicated on the Drawings.

The materials for the valves shall be as follows:

| | | |
|---|---|---|
| Body cover and cowl | - | Cast iron |
| Small Orifice | - | Cast iron with gunmetal seat |
| Small Orifice | - | Ball Rubber covered or other approved |
| Large Orifice | - | Cast iron with rubber seat |
| Large Ball | - | Vulcanite covered or other approved |

Each valve shall be provided with its own isolating gate valve or cock, which will permit the removal of the entire valve whilst the pipeline is 'live'.

Valves shall be factory finished with a two-pack epoxy paint system to the approval of the Purchaser.
The Bidding Documents includes *the following* drawings

## 5 INSPECTIONS AND TESTS OF PIPELINES

### 5.1 Pipe Inspection, Testing & Marking

#### a) Metallurgical Tests

Metallurgical Tests confirm that the chemical requirements of pipe are as per the material standard.

- Metallurgical Tests are normally known as Micro and Macro pipe inspection & testing.
- Micro Analysis or Chemical Analysis of
  - Raw material
  - Product
  - And Weld ensures that all the alloying elements are within the range as specified in the material standard
- Macro Analysis for Weld will check proper fusion of weld material with pipe material.

There are some Special pipe inspection tests also carried out on the material when it is going to be used in aggressive environments. These tests will ensure that pipe material is able to withstand in such aggressive environments also. Some of the tests are

- Grain size (AS & SS)
- IGC- Inter granular Corrosion Test (SS)
- Ferrite (SS)
- HIC- Hydrogen-induced Cracking
- SSC- Sulfide Stress Corrosion Cracking

**b) Destructive test**

The mechanical / Destructive test type of pipe inspection confirms the mechanical requirements of pipe are as per the material standard.

In Destructive Testing- a sample from the pipe is cut to performed tests

- The tensile test is done to check yield and ultimate tensile of the pipe. If required by the purchaser or by standard high or low-temperature tensile test are also performed.
- Bend test / Guided bend test are used to check integrity of weld joint
- Flattening test examines ability of plastic deformation in pipe
- Impact test / Charpy V-Notch Test, check the ability of material to withstand under low-temperature conditions
- Creep test is done to check long term effect of temperature under constant load.

**c) Pipe Inspection – Hydro Test, NDT, Visual and Dimension**

To ensure product quality, during and after the production certain pipe inspection and non-destructive testing are performed on the body & weld of the pipe. These pipe inspections will check whether any physical defects are present in the pipe/weld, which may affect its performance during the service. These testing are

- Flux leakage examination or Magnetic flaw detection
- Eddy current
- Ultrasonic – can be done on full body or only for weld seam
- Radiography (Only for Weld)
- Magnetic particle test for pipe ends & weld seam
- And Positive Material Identification.

## 5.2 Hydrotest of Pipe

Hydrostatic Test or Hydrotest of pipe is carried out to

- Ensure that pipe is 100% leak proof
- It also ensures the ability of pipe to withstand under pressure
- Hydro test pressure is calculated based on equation given in ASTM A530,

$P = 2St/D$ or $S = PD/2t$

- P = hydrostatic test pressure in psi or Mpa,
- S = pipe wall stress in psi or Mpa,
- t = specified nominal wall thickness, nominal wall thickness corresponding to specified ANSI schedule number, or 1.143 times the specified minimal wall thickness, in. [mm], and
- D = specified outside diameter, outside diameter corresponding to specified ANSI pipe size, or outside diameter calculated by adding 2t (as defined above) to the specified inside diameter, in. [mm].

Holding time for the hydro test is minimum 5 sec as per ASTM A530. Pressure is monitored by the computerizing system. For welded pipe inspection, the test pressure should be held

for a time, sufficient to permit the inspector to examine the entire length of the welded seam. Hydrostatic test can be waived under certain conditions as set in the ASTM standard

### 5.3 Pipe Visual Inspection

- Visual Inspection is one of the most effective inspection method used to check overall product quality. During the visual inspection, you will check for overall product finish. You will check for surface imperfections such as mechanical marks, lamination, tears or any other visual imperfections and also check weld defects such as porosity, undercuts, uneven weld bead, and excess or under fill of weld material. Acceptance of these imperfections is as per applicable ASTM standard.

### 5.4 Pipe Dimension Inspection

- Dimension inspection of the pipe is carried out based on the Dimension Standard, final dimension of the pipe must confirm to the standard as specified in the Specifications.
- During dimensional inspection, following to be confirmed with standard

  - ✓ Diameter
  - ✓ Length
  - ✓ Thickness
  - ✓ Straightness
  - ✓ Quality &
  - ✓ Weight

Permissible Variations depends on manufacturing standard.

### 5.5 Pipe Marking Inspection

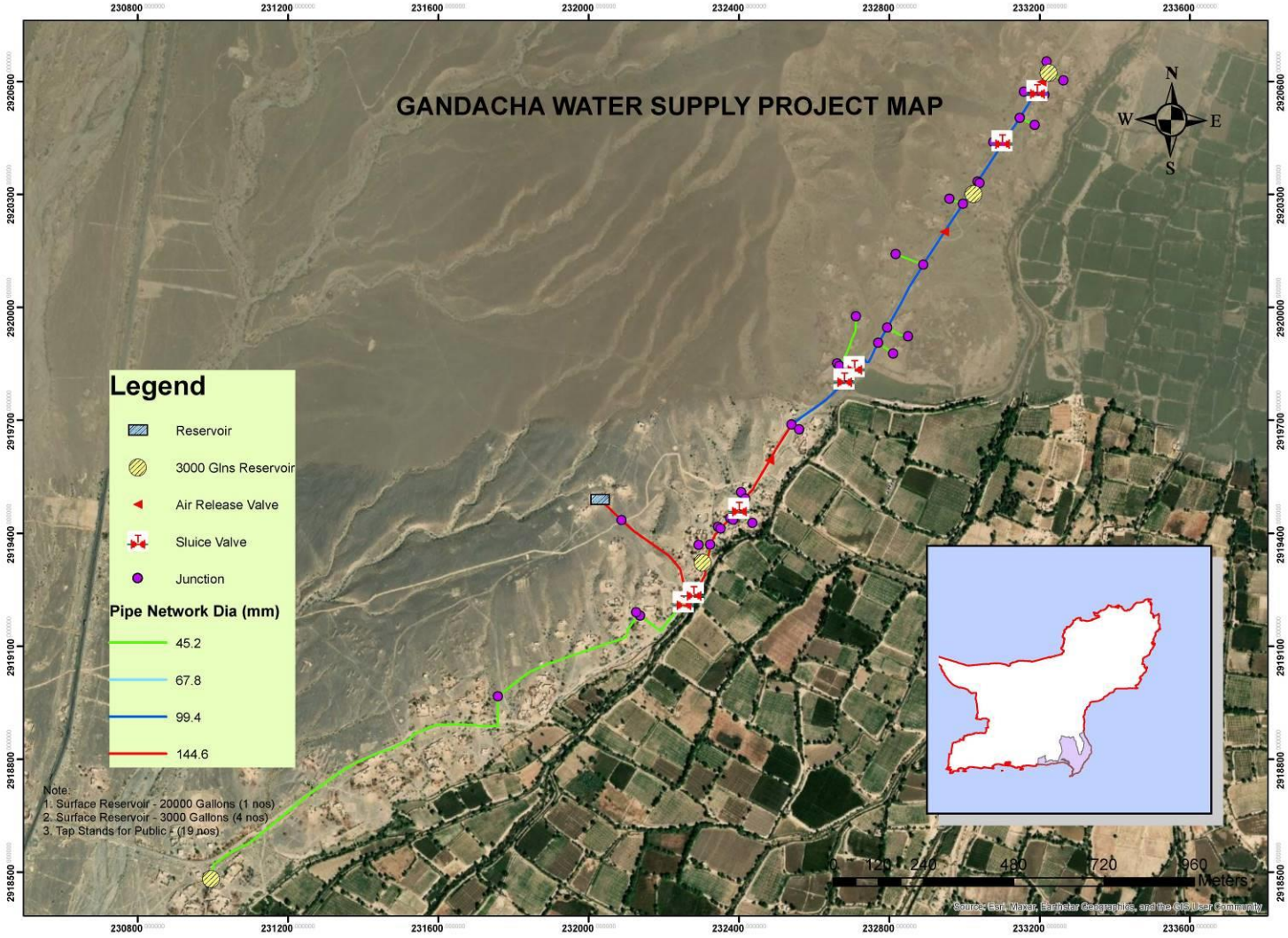
Once the pipe is cleared all test and inspection, it is marked as per the standard requirements

- Following shall be marked on pipe
  - Manufacturer logo
  - ASTM material code
  - Material Grade
  - Size
  - Thickness- schedule no.
  - Length
  - Heat No
  - Special marking WR for weld repair or NH for the non-hydro tested pipe.
  - These Marking can be done by paint or by Hard punching

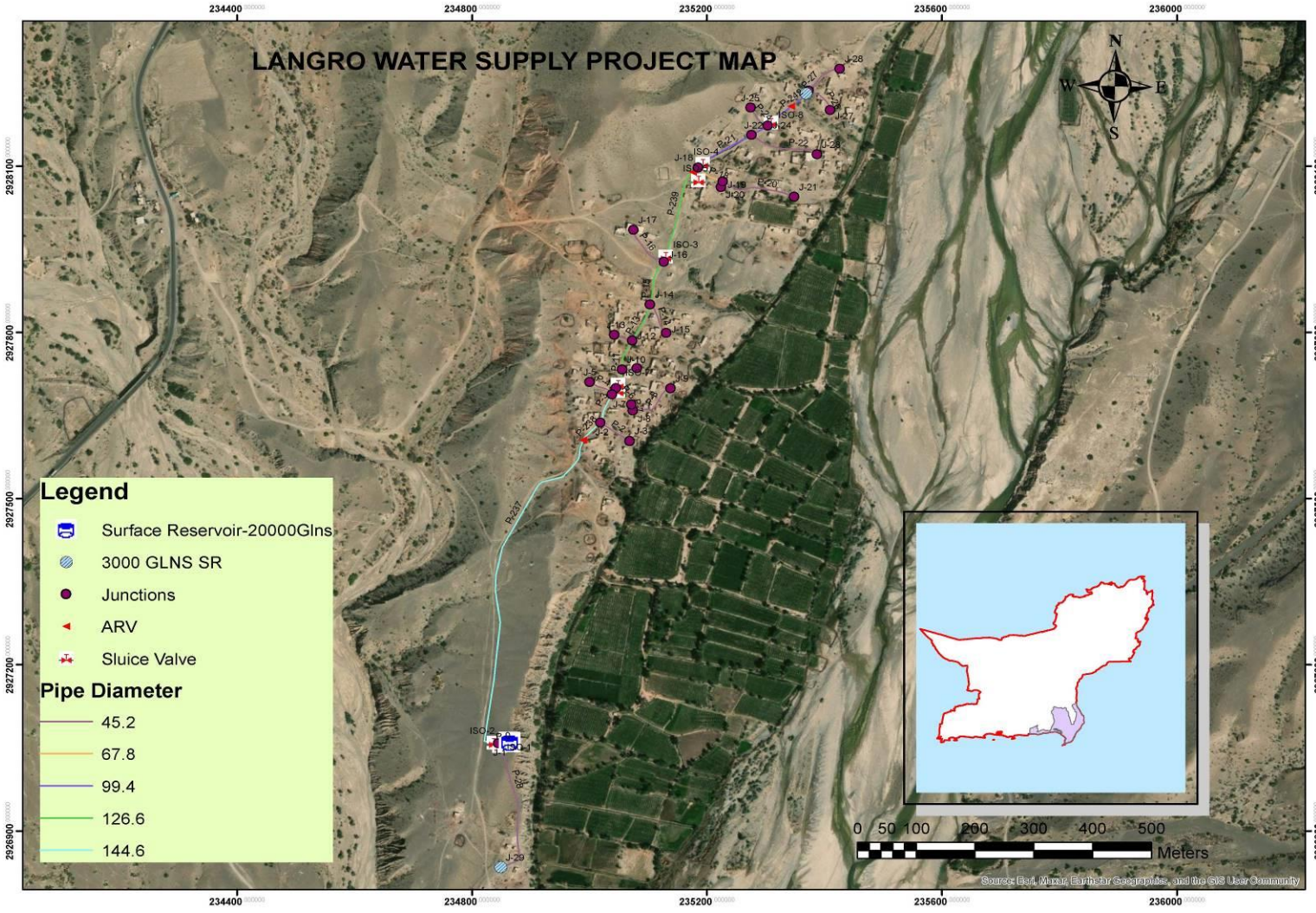
# Drawings

The Quotation includes the following drawings:

| Drawing No. | Description and Purpose |
|---|---|
| Drawing No. 1 | Location and Layout Plan – Gandacha |
| Drawing No. 2 | Location and Layout Plan – Langro |




**Drawing No. 1 – Location and Layout Plan– Gandacha**




**Drawing No. 2 – Location and Layout Plan– Langro**

# PRICE SCHEDULES

**PROCUREMENT OF GOODS FOR SUPPLY AND INSTALLATION OF HDPE PIPES AND VALVES FOR NIMMI GUNDACHA WATER SUPPLY SCHEME DISTRICT LESBELA**

**PK-PMU-BIWRMDP-309844-GO-RFQ**

**GENERAL ABSTRACT OF COST**

| Sr. No. | DESCRIPTION | Amount (Pak Rs) |
|---|---|---|
| 1 | Total Price of Goods | |
| 2 | Total Price of Related Services | |
| | **Grand Total (Carried Forward to Form of Quotation)** | |

## 1. PRICE SCHEDULE – GOODS

| Item No. | Description | Quantity | Unit | Unit Rate (Pak Rs) | Amount (Pak Rs) |
|---|---|---|---|---|---|
| | **Gundacha Village Water Supply Scheme** | | | | |
| 1.1 | Supply of HDPE Pipes density 700 – 960 kg/cu.m and carbon black contents > 2 % with DIN -8074, 8075 or PS 3580: 1997 (rev) ISO 9001-2000 pressure classification of PE -100 (black) for water PN-8 including special and valves, etc, ready and complete with all accessories for installation in all respects. | | | | |
| A | HDPE-100 pipe-PN-8 160mm | 941 | RM | | |
| B | HDPE-100 pipe-PN-8-110mm | 1,195 | RM | | |
| C | HDPE-100 pipe-PN-8-75mm | 63 | RM | | |
| D | HDPE-100 pipe-PN-8-50mm | 2,717 | RM | | |
| 1.2 | Supply of Specials HDPE-PN-8 such as bends, collars, tees, cross reducers End caps, sockets, taper, angle bends and plugs stacking for HDPE pipe etc, ready and complete with all accessories for installation in all respects. | | | | |
| **A** | **Tees** | | | | |
| I | 160x160X160mm | 12 | Each | | |
| II | 110x110X110mm | 9 | Each | | |
| III | 75x75x75mm | 9 | Each | | |
| **B** | **Adaptor** | | | | |
| I | MTA75MM | 1 | Each | | |
| II | FTA75MM | 1 | Each | | |
| **C** | **Elbow 90°** | | | | |
| I | 160mm | 6 | Each | | |
| II | 110mm | 4 | Each | | |
| III | 75mm | 4 | Each | | |
| **D** | **Reducers** | | | | |
| I | 160x110 mm | 3 | Each | | |
| II | 160x75 mm | 1 | Each | | |
| III | 160x50 mm | 10 | Each | | |
| IV | 110x75 mm | 3 | Each | | |
| V | 110x50 mm | 10 | Each | | |
| VI | 75x50 mm | 9 | Each | | |
| VII | 160x90 mm | 1 | Each | | |
| **E** | **Elbow ( 45˚)** | | | | |
| I | 160mm | 2 | Each | | |
| II | 110mm | 2 | Each | | |
| III | 75 mm | 2 | Each | | |
| **F** | **Mild Steel Blind Flange** | | | | |
| I | 160mm | 4 | Each | | |

## 1. PRICE SCHEDULE – GOODS

| Item No. | Description | Quantity | Unit | Unit Rate (Pak Rs) | Amount (Pak Rs) |
|---|---|---|---|---|---|
| II | 110mm | 4 | Each | | |
| III | 75mm | 4 | Each | | |
| **G** | **Mild Steel Air Valve Clamp** | | | | |
| I | 160mm | 1 | Each | | |
| II | 110mm | 1 | Each | | |
| III | 75mm | 1 | Each | | |
| **H** | **Long Bends** | | | | |
| I | LB 50MM, 30 Degree | 4 | Each | | |
| II | LB 75MM, 30 Degree | 2 | Each | | |
| III | LB 110MM, 30 Degree | 3 | Each | | |
| **I** | **Socket** | | | | |
| I | 160 mm | 60 | Each | | |
| II | 110 mm | 40 | Each | | |
| III | 75 mm | 15 | Each | | |
| IV | 50 mm | 175 | Each | | |
| **J** | **Any other specials if required for installation** | - | PS | 100,000 | 100,000 |
| 1.3 | Supply of C.I. sluice valve of BSS quality and weight Class B for HDPE pipe line including cost of jointing material etc, ready and complete with all accessories for installation in all respects. | | | | |
| A | S / Valve Dia (160mm) | 2 | Each | | |
| B | S / Valve Dia (110mm) | 2 | Each | | |
| C | S / Valve Dia (75mm) | 2 | Each | | |
| 1.4 | Supply, installation and testing of HDPE Flange Adaptor PN-10/16 | | | | |
| A | 160mm, PN-10/16, Flange Adaptor | 4 | Each | | |
| B | 110mm, PN-10/16, Flange Adapt | 4 | Each | | |
| C | 75mm, PN-10/16, Flange Adaptor | 4 | Each | | |
| 1.5 | Supply of Metallic Double Action Air Valve of BSS quality and weight for HDPE pipeline including cost of jointing material etc, ready and complete with all accessories for installation in all respects. | | | | |
| A | A / Valve (160mm) | 1 | Each | | |
| B | A/ Valve (110mm) | 1 | Each | | |
| C | A/ Valve (75mm) | 1 | Each | | |
| | **Langro Village Water Supply Scheme** | | | | |
| 1.6 | Supply of HDPE Pipes density 700 – 960 kg/cu.m and carbon black contents > 2 % with DIN -8074, 8075 or PS 3580: 1997 (rev) ISO 9001-2000 pressure classification of PE -100 (black) for water PN-8 including special and valves, etc, ready and complete with all accessories for installation in all respects. | | | | |
| A | HDPE -100 pipe-PN-8 160mm | 834 | RM | | |
| B | HDPE -100 pipe-PN-8 140mm | 474 | RM | | |

## 1. PRICE SCHEDULE – GOODS

| Item No. | Description | Quantity | Unit | Unit Rate (Pak Rs) | Amount (Pak Rs) |
|---|---|---|---|---|---|
| C | HDPE-100 pipe-PN-8-110mm | 260 | RM | | |
| D | HDPE-100 pipe-PN-08-75mm | 99 | RM | | |
| E | HDPE-100 pipe-PN-08-50mm | 1,195 | RM | | |
| 1.7 | Supply of Specials HDPE-PN-8 such as bends, collars, tees, cross reducers End caps, sockets, taper, angle bends and plugs stacking for HDPE pipe etc, ready and complete with all accessories for installation in all respects. | | | | |
| **A** | **Tees** | | | | |
| I | 160x160X160mm | 7 | Each | | |
| II | 140x140X140mm | 6 | Each | | |
| III | 110x110X110mm | 4 | Each | | |
| IV | 75x75mmx75mm | 3 | Each | | |
| **B** | **Elbow 90°** | | | | |
| I | 160mm | 10 | Each | | |
| II | 50mm | 22 | Each | | |
| **C** | **Long Bends** | | | | |
| I | 140MM, 30 Degree | 8 | Each | | |
| II | 160MM, 30 Degree | 8 | Each | | |
| III | 160MM, 60 Degree | 1 | Each | | |
| IV | 50MM, 30 Degree | 22 | Each | | |
| V | 50MM, 45 Degree | 1 | Each | | |
| VI | 50MM, 60 Degree | 1 | Each | | |
| **D** | **Reducers** | | | | |
| I | 160x140 mm | 1 | Each | | |
| II | 160x75 mm | 3 | Each | | |
| III | 160x50 mm | 4 | Each | | |
| IV | 140x110mm | 1 | Each | | |
| V | 140x50 mm | 5 | Each | | |
| VI | 140x75mm | 1 | Each | | |
| VII | 110x50 mm | 5 | Each | | |
| VIII | 75x50 mm | 3 | Each | | |
| **E** | **Adaptor** | | | | |
| I | MTA75MM | 1 | Each | | |
| II | FTA75MM | 1 | Each | | |
| **F** | **Socket** | | | | |
| I | 160 mm | 56 | Each | | |
| II | 140 mm | 32 | Each | | |
| III | 110 mm | 17 | Each | | |
| IV | 75 mm | 10 | Each | | |
| V | 50 mm | 80 | Each | | |
| **G** | **Mild Steel Blind Flange** | | | | |
| I | 160mm | 2 | Each | | |
| II | 140mm | 4 | Each | | |

## 1. PRICE SCHEDULE – GOODS

| Item No. | Description | Quantity | Unit | Unit Rate (Pak Rs) | Amount (Pak Rs) |
|---|---|---|---|---|---|
| III | 110mm | 4 | Each | | |
| IV | 75mm | 4 | Each | | |
| V | 50mm | 2 | Each | | |
| **H** | **Mild Steel Air Valve Clamp** | | | | |
| I | 160mm | 1 | Each | | |
| II | 140mm | 1 | Each | | |
| III | 110mm | 1 | Each | | |
| **I** | **Any other specials if required for installation** | - | PS | 100,000 | 100,000 |
| 1.8 | Supply of C.I. sluice valve of BSS quality and weight Class B for HDPE pipe line including cost of jointing material etc, ready and complete with all accessories for installation in all respects. | | | | |
| A | S / Valve Dia (160mm) | 1 | Each | | |
| B | S / Valve Dia (140mm) | 2 | Each | | |
| C | S/ Valve (110mm) | 2 | Each | | |
| D | S/ Valve (75mm) | 2 | Each | | |
| E | S/ Valve (50mm) | 1 | Each | | |
| 1.9 | Supply of Metallic Double Action Air Valve of BSS quality and weight for HDPE pipeline including cost of jointing material etc, ready and complete with all accessories for installation in all respects. | | | | |
| A | A / Valve (160mm) | 1 | Each | | |
| B | A/ Valve (140mm) | 1 | Each | | |
| C | A/ Valve (110mm) | 1 | Each | | |
| 1.10 | Supply, installation and testing of HDPE Flange Adaptor PN-10/16 | | | | |
| A | 160mm, PN-16, Flange Adaptor | 2 | Each | | |
| B | 140mm, PN-16, Flange Adaptor | 4 | Each | | |
| C | 110mm, PN-16, Flange Adaptor | 4 | Each | | |
| D | 75mm, PN-16, Flange Adaptor | 4 | Each | | |
| E | 50mm, PN-16, Flange Adaptor | 2 | Each | | |
| | **Total Price of Goods - (Carried Forward to General Abstract)** | | | | |

Delivery Time: _____days Validity: _____days

## 2. PRICE AND COMPLETION SCHEDULE - RELATED SERVICES

| Item No. | Description | Quantity | Unit | Unit Rate (Pak Rs) | Amount (Pak Rs) |
|---|---|---|---|---|---|
| | **Gundacha Village Water Supply Scheme** | | | | |
| 2.1 | Laying, cutting, jointing, testing and disinfecting HDPE pipes density 700 – 960 kg/cu.m and carbon black contents > 2 % with DIN -8074, 8075 or PS 3580: 1997 (rev) ISO 9001-2000 pressure classification of PE -100 (black) for water PN-8, including cost of jointing material, and complete with all accessories for installation in all respects. | | | | |
| A | HDPE-100 pipe-PN-8-160mm | 941 | RM | | |
| B | HDPE-100 pipe-PN-8-110mm | 1,195 | RM | | |
| C | HDPE-100 pipe-PN-8-75mm | 63 | RM | | |
| D | HDPE-100 pipe-PN-8-50mm | 2,717 | RM | | |
| 2.2 | Fixing of specials HDPE-PN-8 such as bends, collars, tees, cross reducers End caps, sockets, taper, angle bends and plugs for HDPE pipeline including cost of jointing material, testing and complete with all accessories for installation in all respects. | | | | |
| **A** | **Tees** | | | | |
| I | 160x160X160mm | 12 | Each | | |
| II | 110x110X110mm | 9 | Each | | |
| III | 75x75x75mm | 9 | Each | | |
| **B** | **Adaptor** | | | | |
| I | MTA75MM | 1 | Each | | |
| II | FTA75MM | 1 | Each | | |
| **C** | **Elbow 90°** | | | | |
| I | 160mm | 6 | Each | | |
| II | 110mm | 4 | Each | | |
| III | 75mm | 4 | Each | | |
| **D** | **Reducers** | | | | |
| I | 160x110 mm | 3 | Each | | |
| II | 160x75mm | 1 | Each | | |
| III | 160x50 mm | 10 | Each | | |
| IV | 110x75 mm | 3 | Each | | |
| V | 110x50 mm | 10 | Each | | |
| VI | 75x50 mm | 9 | Each | | |
| VII | 160x90mm | 1 | Each | | |
| **E** | **Elbow ( 45˚)** | | | | |
| I | 160mm | 2 | Each | | |

## 2. PRICE AND COMPLETION SCHEDULE - RELATED SERVICES

| Item No. | Description | Quantity | Unit | Unit Rate (Pak Rs) | Amount (Pak Rs) |
|---|---|---|---|---|---|
| II | 110mm | 2 | Each | | |
| III | 75 mm | 2 | Each | | |
| **F** | **Mild Steel Blind Flange** | | | | |
| I | 160mm | 4 | Each | | |
| II | 110mm | 4 | Each | | |
| III | 75mm | 4 | Each | | |
| **G** | **Mild Steel Air Valve Clamp** | | | | |
| I | 160mm | 1 | Each | | |
| II | 110mm | 1 | Each | | |
| III | 75mm | 1 | Each | | |
| **H** | **Long Bends** | | | | |
| I | LB 50MM, 30 Degree | 4 | Each | | |
| II | LB 75MM, 30 Degree | 2 | Each | | |
| III | LB 110MM, 30 Degree | 3 | Each | | |
| **I** | **Socket** | | | | |
| I | 160 mm | 60 | Each | | |
| II | 110 mm | 40 | Each | | |
| III | 75 mm | 15 | Each | | |
| IV | 50 mm | 175 | Each | | |
| **J** | **Any other specials if required for installation** | - | LS | | |
| 2.3 | Fixing C.I. sluice valve of BSS quality and weight Class B for HDPE pipe, including cost of jointing material, testing and complete with all accessories for installation in all respects. | | | | |
| A | S / Valve Dia (160mm) | 2 | Each | | |
| B | S/ Valve (110mm) | 2 | Each | | |
| C | S/ Valve (75mm) | 2 | Each | | |
| 2.4 | Fixing, installation and testing of HDPE Flange Adaptor PN-10/16 | | | | |
| A | 160mm, PN-16, Flange Adaptor | 4 | Each | | |
| B | 110mm, PN-16, Flange Adaptor | 4 | Each | | |
| C | 75mm, PN-16, Flange Adaptor | 4 | Each | | |
| 2.5 | Fixing metallic double action air release valve of BSS quality and weight for HDPE pipeline, including cost of jointing material, testing and complete with all accessories for installation in all respects. | | | | |
| A | A / Valve (160mm) | 1 | Each | | |
| B | A/ Valve (110mm) | 1 | Each | | |
| C | A/ Valve (75mm) | 1 | Each | | |

## 2. PRICE AND COMPLETION SCHEDULE - RELATED SERVICES

| Item No. | Description | Quantity | Unit | Unit Rate (Pak Rs) | Amount (Pak Rs) |
|---|---|---|---|---|---|
| | **Langro Village Water Supply Scheme** | | | | |
| 2.6 | Laying, cutting, jointing, testing and disinfecting HDPE pipes density 700 – 960 kg/cu.m and carbon black contents > 2 % with DIN -8074, 8075 or PS 3580: 1997 (rev) ISO 9001-2000 pressure classification of PE -100 (black) for water PN-8, including cost of jointing material, and complete with all accessories for installation in all respects. | | | | |
| A | HDPE-100 pipe-PN-8-160mm | 834 | RM | | |
| B | HDPE-100 pipe-PN-8-140mm | 474 | RM | | |
| C | HDPE-100 pipe-PN-8-110mm | 260 | RM | | |
| D | HDPE-100 pipe-PN-08-75mm | 99 | RM | | |
| E | HDPE-100 pipe-PN-08-50mm | 1,195 | RM | | |
| 2.7 | Fixing of specials HDPE-PN-8 such as bends, collars, tees, cross reducers End caps, sockets, taper, angle bends and plugs for HDPE pipeline including cost of jointing material, testing and complete with all accessories for installation in all respects. | | | | |
| **A** | **Tees** | | | | |
| I | 160x160X160mm | 7 | Each | | |
| II | 140x140X140mm | 6 | Each | | |
| III | 110x110X110mm | 4 | Each | | |
| IV | 75x75x75mm | 3 | Each | | |
| **B** | **Elbow 90°** | | | | |
| I | 160mm | 10 | Each | | |
| II | 50mm | 22 | Each | | |
| **C** | **Long Bends** | | | | |
| I | 140MM, 30 Degree | 8 | Each | | |
| II | 160MM, 30 Degree | 8 | Each | | |
| III | 160MM, 60 Degree | 1 | Each | | |
| IV | 50MM, 30 Degree | 22 | Each | | |
| V | 50MM, 45 Degree | 1 | Each | | |
| VI | 50MM, 60 Degree | 1 | Each | | |
| **D** | **Reducers** | | | | |
| I | 160x140 mm | 1 | Each | | |
| II | 160x75mm | 3 | Each | | |
| III | 160x50 mm | 4 | Each | | |
| IV | 140x110mm | 1 | Each | | |
| V | 140x50 mm | 5 | Each | | |
| VI | 140x75mm | 1 | Each | | |

## 2. PRICE AND COMPLETION SCHEDULE - RELATED SERVICES

| Item No. | Description | Quantity | Unit | Unit Rate (Pak Rs) | Amount (Pak Rs) |
|---|---|---|---|---|---|
| VII | 110x50mm | 5 | Each | | |
| VIII | 75x50 mm | 3 | Each | | |
| **E** | **Adaptor** | | | | |
| I | MTA75MM | 1 | Each | | |
| II | FTA75MM | 1 | Each | | |
| **F** | **Socket** | | | | |
| I | 160 mm | 56 | Each | | |
| II | 140 mm | 32 | Each | | |
| III | 110 mm | 17 | Each | | |
| IV | 75 mm | 10 | Each | | |
| V | 50 mm | 80 | Each | | |
| **G** | **Mild Steel Blind Flange** | | | | |
| I | 160mm | 2 | Each | | |
| II | 140mm | 4 | Each | | |
| III | 110mm | 4 | Each | | |
| IV | 75mm | 4 | Each | | |
| V | 50mm | 2 | Each | | |
| **H** | **Mild Steel Air Valve Clamp** | | | | |
| I | 160mm | 1 | Each | | |
| II | 140mm | 1 | Each | | |
| III | 110mm | 1 | Each | | |
| **I** | **Any other specials if required for installation** | - | LS | | |
| 2.8 | Fixing C.I. sluice valve of BSS quality and weight Class B for HDPE pipe, including cost of jointing material, testing and complete with all accessories for installation in all respects. | | | | |
| A | S / Valve Dia (160mm) | 1 | Each | | |
| B | S / Valve Dia (140mm) | 2 | Each | | |
| C | S/ Valve (110mm) | 2 | Each | | |
| D | S/ Valve (75mm) | 2 | Each | | |
| E | S/ Valve (50mm) | 1 | Each | | |
| 2.9 | Fixing metallic double action air release valve of BSS quality and weight for HDPE pipe including cost of jointing material and testing, complete with all accessories for installation in all respects. | | | | |
| A | A / Valve (160mm) | 1 | Each | | |
| B | A/ Valve (140mm) | 1 | Each | | |
| C | A/ Valve (110mm) | 1 | Each | | |
| 2.10 | Fixing, installation and testing of HDPE Flange Adaptor PN-10/16 | | | | |
| A | 160mm, PN-10/16, Flange Adaptor | 2 | Each | | |

## 2. PRICE AND COMPLETION SCHEDULE - RELATED SERVICES

| Item No. | Description | Quantity | Unit | Unit Rate (Pak Rs) | Amount (Pak Rs) |
|---|---|---|---|---|---|
| B | 140mm, PN-10/16, Flange Adaptor | 4 | Each | | |
| C | 110mm, PN-10/16, Flange Adaptor | 4 | Each | | |
| D | 75mm, PN-10/16, Flange Adaptor | 4 | Each | | |
| E | 50mm, PN-10/16, Flange Adaptor | 2 | Each | | |
| | **Total Price of Related Services - (Carried Forward to General Abstract)** | | | | |

**Section IV**
**Form of Quotation**

Date: _____/_____/2022

To:

The Project Director,
Balochistan Integrated Water Resources Management and Development Project,
House No. 18-B, Jinnah Town, Samungli Road Quetta.

We offer to execute the supply as per Specifications in accordance with the Conditions of Contract accompanying this Quotation for the Contract Price of _____(amount in words and numbers) (_____ ).

We propose to complete the Supplies described in the Contract within a period of _____ (words and number)_____calendar days from the Start Date.

This Quotation and your written acceptance will constitute a binding Contract between us. We understand that you are not bound to accept the lowest or any Quotation you receive.

We hereby confirm that this Quotation complies with the Validity of the Quotation required by the proposal documents.

Authorized Signature: _____

Name and Title of Signatory: _____

Name of Supplier: _____

Address: _____

_____

Phone Number: _____

Fax Number, if any: _____

## Section V – Form of Contract Agreement

### AGREEMENT

This Agreement, made the _____ day of Nov, 2022, by and between

The **Project Director**,

Hereinafter called "The **Purchaser**" and

_____

_____

(Name and address of Supplier hereinafter called "**The Supplier**") of the other part.

**Whereas** the Purchaser is desirous that the Supplier executes supplies as per specifications and prices given in Section III to this agreement and the Purchaser has accepted the Quotation/Quotation submitted by the Supplier for the installation and commissioning of such Supplies and the remedying of any defects therein over a period of one year as offered by the manufacturer.

**Now this Agreement witnessed as follows:**

1. In this Agreement, words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract hereafter referred to, and they shall be deemed to form and be read and construed as part of this Agreement.

2. In consideration of the payments to be made by the Purchaser to the Supplier as hereinafter mentioned, the Supplier hereby covenants with the Purchaser to execute and complete the Supplies and remedy any defects therein in conformity in all respects with the provisions of the Contract.

3. The Purchaser hereby covenants to pay the Supplier in consideration of the supply, installation and commissioning of the Supplies and the remedying of defects wherein the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

**In Witness** whereof the parties thereto have caused this Agreement to be executed the days and year first before written

_____

_____

Was hereunto affixed in the presence of:

Signed, and Delivered by the
Said

_____

In the presence of:

Signature of the **Purchaser**: _____

Signature of the **Supplier**: _____

## Section-VI
## Conditions of Contract (CC)

**1. Definitions**: Boldface type is used to identify the defined terms

(a) **The Contract** is the Contract between the Purchaser and the Supplier to execute, complete, and maintain the Supplies as specified in the specifications or in other sections of the Contract. The name and identification number of the Contract is given in the Invitation to Quote.

(b) **The Supplier** is a person or corporate body who's Quotation to carry out the Supplies has been accepted by the Purchaser.

(c) **The Supplier's Price Quotation** is the completed document (Invitation to Quote together with attachments) submitted by the Supplier to the Purchaser.

(d) **The Contract Price** is the price stated in the **Letter of Acceptance** and thereafter as adjusted in accordance with the provisions of the Contract.

(e) **Days** are calendar days; **months** are calendar months.

(f) **A Defect** is any part of the Supplies not completed in accordance with the Contract.

(g) **The Required Completion Date** is the date on which it is required that the Supplier shall complete the Supplies. The Required Completion Date may be revised only by the Purchaser by issuing an extension time or an acceleration order in writing.

(h) **Specification** means the Specification of the Supplies included in the RFQ/PO/Contract and any modification or addition made or approved by the Purchaser.

2. **Language and Law.** The Contract shall be in the English language. The law governing the Contract shall be the applicable law(s) of the Government of Islamic Republic of Pakistan.

3. **Communications.** Communications between parties that are referred to in these Conditions shall be effective only when made in writing. A notice shall be effective only when it is delivered.

4. **Supplier's Risks.** The risks of personal injury, death, and loss or damage to property and adjacent property (including, without limitation, the Supplies, materials and equipment) are Supplier's risks.

5. **Supplies to be completed by the Completion Date.** The Supplier shall commence execution of the Supplies on the Start Date and shall carry out the Supplies in accordance with the **work schedule** agreed between Supplier and Purchaser, as updated with the approval of the Project Supervisor, and complete them by the Required Completion Date.

6. **Defects.** The Purchaser shall give notice to the Supplier of any violation of Terms and Condition in PO or RFQ for Defects before the end of the Warranty Period, which begins at completion of supplies. The Warranty Period shall be extended for as long as Defects remain uncorrected. Every time notice of a Defect is given, the Supplier shall correct the notified Defect within the length of time specified by the Purchaser. If the Supplier has not corrected a Defect within the time specified Purchaser will assess the cost of having the Defect corrected, and the Supplier will pay this amount, or the Purchaser shall recover these amounts by deduction from the amounts due to the Supplier.

7. **Payments.** The Purchaser shall pay the Supplier the amounts as per following schedule:

**A - Payment for Supply Goods:**

(i) **On Delivery:** Fifty (50) percent of the Contract Price of Goods shall be paid on receipt of Goods at respective installation sites as per agreement schedule with the Purchaser and upon submission of Manufacturer's or supplier warranty certificate, manufacturer inspection certificate issued by manufacturer, delivery inspection certificate and commercial invoice.

(ii) **On Installation:** Twenty-five (25) percent of the Contract Price of Goods shall be paid to the Supplier on Installation of the equipment at respective sites.

(iii) **On Acceptance:** Fifteen (15) percent of the Contract Price of Goods shall be paid to the Supplier within thirty (30) days after the date of the acceptance certificate for the respective delivery issued by the Purchaser.

(iv) **On Completion of Warranty Period**: Remaining Ten (10) percent of the Contract Price of Goods shall be paid to the Supplier within 30 days after the expiry date of completion of the one year Warranty Period.

All applicable taxes shall be deducted at source as per applicable taxation laws, while making the payments.

**B- Payment for Related Services:**
Payment for Related Services shall be made in Pak Rupees as per following schedule:

(i) **On Delivery:** Ninety percent (90%) payment of Contract Price of Related Services shall be paid on successful installation, testing and commissioning of the supplied goods after issuance of joint inspection certificate by the inspection committee constituted by the Purchaser.

(ii) **On Acceptance:** Remaining Ten (10) percent of the Contract Price of Related Services shall be paid to the Supplier within 30 days after the expiry date of completion of the one year Warranty Period.

All applicable taxes shall be deducted at source as per applicable taxation laws, while making the payments.

8. **Taxes.** The Supplier is responsible for all taxes in accordance with the laws of Islamic Republic of Pakistan. In case of tax exemption, valid tax exemption certificate shall be furnished with documents.

9. **Force Majeure:** Either party may terminate the Contract by giving a thirty (30) days notice to the other for events beyond that party's control, such as Wars, earthquakes, floods, fires, etc.

10. **Resolution of Disputes:** The Purchaser and the Supplier shall make every effort to resolve amicably by direct negotiations any disagreement or dispute arising between them under or in connection with the Contract. In case of further disagreement either party can take the matter to arbitration in accordance with the Arbitration Act of 1940.

Signature of the **Purchaser**: _____

Signature of the **Supplier**: _____