

PROJECT TITLE:

**INSTALLATION OF 300mmØ STEEL TRANSMISSION PIPELINES AND OTHER APPURTENANCES.**

LOCATION:

**NATIONAL HIGHWAY, FROM BRGY. KATANGAWAN TO BRGY LAGAO, GENERAL SANTOS CITY**

OWNER:

**GENERAL SANTOS CITY WATER DISTRICT**

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## SPECIFICATIONS

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### I. SCOPE OF WORK

The work consists of furnishing of materials, fittings, labor, equipment, supervision, pipelaying and installation of valves up to interconnection for the completion of the proposed project as shown in the plan and technical drawings specified in the scope of work herein.

1. Perform hauling & handling of steel pipes from the stacking area provided by the GSCWD to the actual working site.
2. Perform excavation on any type of soil and backfilling using suitable materials and disposal of undesirable surplus materials where directed.
3. Install pipes, valves, fittings, closure pieces, supports, bolts, nuts, gaskets, jointing materials and appurtenances as shown and specified, and as required for a complete and workable piping system.
4. Install stub-out assembly including lateral thrust blocks and filling as specified and as shown in the drawing.
5. Furnish labor, tools and equipment necessary to demolish pavement including the hauling of discard materials to approved dump site.
6. Furnish materials, labor, tools and equipment necessary to construct pavement and restore structure as specified.
7. Furnish materials, labor, tools and equipment necessary to construct all pipe crossings.
8. Flushing, hydro testing, disinfection of the laid pipes.
9. Newly installed pipelines will be interconnected with the GSCWD Engineer's approval and supervision.
10. All steel pipes and valves shall be supplied by the District.

## II. BIDDERS QUALIFICATION

### A. Bidders/Contractors Qualification

Bidders/Contractors who are fully experienced and reputable in the field of construction.

### B. Bidders/Contractors Competence & Experience

Bidder/Contractors should have at least Two (2) years' experience in civil works/welding/steel works and had completed at least One (1) related construction project in any Government or Private Institutions from the date of submission and receipt of bids.

## III. GENERAL CONDITIONS

### A. DEFINITIONS

1. OWNER  
The word "Owner" refers to the General Santos City Water District.
2. ENGINEER  
The word "Engineer" refers to the individual or firm authorized by the Owner to oversee the execution of the Contract.
3. CONTRACTOR  
The word "Contractor" refers to the party entering into the contract for the performance of the work required.
4. CONTRACT  
The word "Contract" refers to the contract documents and shall include the basic contract entered into by the owner and the contractor for the performance of the work.
5. SPECIFICATION  
The word "Specification" refers to the General Conditions, Special Provisions and Technical Specifications of the contract together with all addenda and change orders issued with respect thereto.
6. DRAWINGS  
The word "Drawing" or "Contract Drawing" refers to those drawings accompanying the Specification and subsequent approved drawings, which show the location, nature, extent and form of the work together with applicable detail.
7. WORK  
The word "Work" refers to the labor, material, equipment, transportation and all incidental costs necessary to complete the Contract.

8. SITE

The word "Site" refers to the lands and other places on, under, in or through which the work is to be executed or carried out and any other lands or places provided by the Owner for the purpose of the Contract.

9. APPROVAL

The word "Approval" refers to concurrence in writing, including subsequent written confirmation of the previous verbal approval.

10. WORKING / CALENDAR DAY

The term "Working Day" refers to working days in the government service.

The term "Calendar Day" refers to the days in a week including Saturdays, Sundays and Holidays.

Whenever the word "Day" is issued, it shall refer to calendar day.

**B. SPECIFICATION, DRAWING AND RELATED AREAS**

**1. SPECIFICATION, DRAWINGS AND DISCREPANCIES**

The intent of the Specifications and Drawings is that the contractor shall furnish all the required plant, labor, materials, equipment and services, unless otherwise specified provided.

The Specifications and Drawings are complementary and what is called for in one shall be as binding as if called for in both.

Any discrepancies, errors or omission found in the Specifications or Drawings shall be reported in writing within three (3) days from the discovery to the Engineer who will issue the correction in writing within the same period. The contractor shall not take advantage of any such discrepancies, errors or omissions but shall comply with the corrective measures regarding the same as prescribed by the Engineer.

In case of conflict between the Specifications and the Drawings, the Specifications shall govern over the Drawings.

**2. SHOP DRAWINGS**

Whenever called for in these Specifications or on the Drawings, or where required by the Engineer, the Contractor shall furnish the Owner for review two (2) prints of each shop drawing.

The term "Shop Drawing" as used herein shall be understood to include detail design calculations, fabrications and installations, drawings, lists, graphs, operating instructions. Shop drawing shall be submitted to the Engineer for

review and approval within fifteen (15) calendar days from receipt of the Notice of Award.

All shop drawings submittal shall be accompanied by transmittal form.

## **C. OWNER – ENGINEER – CONTRACTOR RELATIONS**

### **1. ENGINEER AUTHORITY**

The Engineer, acting as the authorized representative of the Owner, will decide such questions which may arise as to the quality and acceptability of materials and equipment furnished, work performed, rate of progress of work, interpretation of Specifications and Drawings, and those relating to the acceptability in fulfillment of the Contract by the Contractor.

The Engineer will, subject to verification and / or approval by the Owner, certify the estimates of the value of the work completed and the materials utilized.

### **2. CONTRACTOR'S EMPLOYEES**

The employees of the Contractor are not employees of the Owner. Hence, the Owner shall not be liable or responsible for any personal injury or damage including death caused by any of the employees of the contractor during the lawful performances of their duties

The contractor shall, at all times, stand solely liable and/or responsible for the enforcement of and compliance with all existing laws, rules and regulations applicable, and the contractor hereby agrees and binds itself to save and hold the Owner free and harmless from any or all liabilities in respect thereto and/or arising therefrom.

Attach organizational structure and subject for checking during post qualification.

### **3. CONTRACTOR'S SUPERINTENDENCE**

A qualified superintendent shall be present in the work and shall provide competent supervision of the work, until its completion. The superintendent shall have full authority to act in behalf of the contractor, and all directions given by the Owner to the superintendent shall be considered given to the contractor.

### **4. SUSPENSION OF WORK**

The Engineer, acting on behalf of the Owner may by written notice to the Contractor, suspend the work in whole or in part for such period or periods as he

may deem necessary, owing to such factors as delay in delivery of Owner furnished equipment or materials, or such other conditions as are considered unfavorable for prosecuting the work, or failure on the part of the Contractor to carry out the provisions of the Contract or to provide materials or workmanship meeting the requirements of the Specification.

#### **D. PROGRESS AND PAYMENT**

##### **1. MONTHLY PROGRESS REPORT**

The Contractor is required to submit to the Owner two (2) copies of Monthly Progress Report which shall include the following;

- a) Items of work accomplished for the month;
- b) Cumulative summary of work accomplished to date;
- c) Items of work scheduled for the following month.
- d) Project photos for the month.

The first Monthly Progress Report will cover the time from the date when the Notice to Proceed is issued until the end of the following month. Subsequently, monthly reports shall be submitted monthly thereafter until provisional acceptance of the project.

If the Contractor fails to submit Monthly Progress Report, the Owner may withhold approval of progress payment until the reports are received.

##### **2. MONTHLY COORDINATION MEETING**

There will be a monthly coordination meeting be conducted every first Friday of the month to discuss issues and concerns of the project.

The signatory to the Omnibus Sworn Statement who is the duly authorized representative of the winning bidder shall be required to attend the monthly coordination meeting; otherwise, the attendee/representative present during the meeting shall be acknowledged only upon presentation of a duly notarized Special Power of Attorney.

##### **3. CONTRACT DURATION**

Contract duration is **ONE HUNDRED TWENTY (120) Calendar Days** and shall commence Five (5) Days after the receipt of Notice to proceed.

## **E. BONDS, INSURANCE, LEGAL RESPONSIBILITY AND PUBLIC SAFETY**

### **1. INSPECTION OF PROJECT SITE**

The Contractor shall inspect the site of the work in order to satisfy themselves by personal examination and/or by such other means as they may prefer, of the location of the proposed work and the actual visualization of the work to be done. He should be aware of the conditions which might affect the execution of this contract and has made provisions therefore in his bid.

The Contractor must submit Certificate of Site Inspection upon submission of bid proposal.

### **2. PERMIT AND LICENSES**

The procurement and payment of all permits such as excavation, demolition, etc. before and during the project implementation shall be responsibility of the Owner.

However, during the project implementation any coordination or compliance required to the concerned agencies shall be the sole responsibility of the Contractor. The Owner shall provide all assistance whenever necessary.

### **3. ROUTE CLEARING**

Routes of the proposed pipelines in roads are shown in the plans. Clearing of said routes shall be the responsibility of the Contractor. All affected and or adjoining landowners/establishment/utility facilities that may cause service clashes are to be advised via a letter drop prior to excavation/pipe laying including the settlement of claims, damages and complaints shall be the responsibility of the Contractor.

### **4. LAWS AND REGULATIONS**

The Contractor shall observe and comply all National, Provincial and Local laws, ordinances, and regulations which on the manner affect those engaged or employed on the work, the material used in the work, or in the conduct of the work. The Contractor shall indemnify and save harmless the Owner against all claims or liabilities arising from violation of any such laws, ordinance, order, or regulation, whether by itself or by its employees.

### **5. PUBLIC SAFETY AND HEALTH REGULATIONS**

The Contractor shall comply with safe working practices and all health and safety regulations of the state and local health regulations of the state and local health

regulatory agency. Furnish protective and lifesaving equipment for persons working at the site and provide a **Contractor's All Risk Insurance** for all his workers.

The Contractor shall provide and maintain such sanitary accommodation for the use of its employees as may be necessary to comply with all application national and local laws and ordinances, regulations, customs and practices.

Coordination with the local police department and agencies concerned with traffic problems shall be the responsibility of the contractor.

In compliance to RA 11058, the following items shall be provided by the contractor. All cost of these requirements will be shouldered by the winning contractor.

**1. Personal Protective Equipment (PPE)**

PPE shall be provided to the workers working in the area such as but not limited to hard hats, safety boots, safety shoes, reflectorized vest, safety gloves, other PPEs necessary to protect workers in executing the project.

**2. Safety Signages**

Safety Signages shall be installed before or approaching the construction site in south and north bound. "Caution Road Work Ahead", "Excavation Works Ahead", "Slow Down", "Safety First" "Unauthorized Person Keep Out" are the examples of signages that be installed in the work sites.

**3. Machine Guards and Related Equipment**

**Guarding and Equipment** shall be installed to isolate or separate the workers from by goers/ bystanders to prevent accident and not disturbing the ongoing works/projects. Traffic cones, topper cones, caution tapes, barricades, beacon lights (flashing lights) and other necessary equipment shall be installed in the worksites.

**4. Traffic/Flag Mans** shall be provided to control the traffic flow in the area of construction/worksites.

**5. Safety and Health Personnel** such as Safety Officer, First Aider and Rescuers/Responders shall be provided and present always during works to provide monitoring, implementation of Safety and Health Programs and accident/incident reporting and responds during emergency situations.

These are necessary to prevent accidents and avoid damage or injury to the public.

The Contractor shall be liable to all claims and/or liabilities arising during the public implementation.

Should the Contractor fail to faithfully observe the Safety Provisions herein specified, the Owner may exercise remedial rights as stipulated under this Contract.

## 6. THIRD PARTY LIABILITY

The Owner shall in no case be held civilly or criminally liable due to the act or omission of the Contractor during the duration of the contract period. Any liability that may arise to the third party shall be the sole responsibility of the contractor.

## GENERAL TECHNICAL SPECIFICATIONS

### LOCATION

The steel transmission pipeline located at National Highway, from Brgy. Katangawan to Brgy. Lagao, GSC. (See Detailed Plan)

### HANDLING AND HAULING

All pipes and fittings shall be handled and installed in manner that will prevent physical or structural damages to pipes, coatings and linings e.g.

Scored pipe surfaces, crack cement lining etc. Regardless of which mode of transportation is used. Utmost care should be observed during transit and apply necessary equipment and accessories like slings etc. during hauling of pipes. Contractor will be held responsible in all damages occurred in such.

### EARTHWORKS

Pipeline Trench Excavation and backfilling

Pipe trench shall have a minimum of **One (1) meter from property line**. Line of trench shall be staked out at least one week before scheduled start of excavation works. Excavation shall be open cut trenches. Bottom of trench should be uniformly level. Maximum length of open trench permitted at any time shall be 300m. or the length necessary to **accommodate the number of pipes installed in a single day**. All newly laid pipes shall be backfilled immediately with good extracted soil free from rocks larger than 100mm. in diameter at the top. No open trench shall be left unfilled or uncovered after each day's work to prevent any accident or inconveniences to the commuters and travelling public. **A warning tape as approved by the district is to be laid 30 cm. below ground level with markings "Water Line Buried Below"**. Pipes shall have a minimum backfill cover of 1.20m. The Contractor shall remove and dispose all excess excavated material at his own expense in a proper manner. Trees shall be protected from injury during excavation/pipe laying operation and no tree is to be removed without written permission from DENR/GSCWD.



### Shoring Support/Protection

For trench excavation with a depth greater than 1.0 m, adequate support must be installed in a timely manner and ahead of excavation as far as is practicable.

Contractor must observe good practices on shoring support for trench excavations in order to enhance the safety of the people who may be affected by the excavation works or their collapses. Before a trench is excavated, the trench support system and associated precautionary measures should be required to serve two purposes:

- a) stability of the trench itself, and
- b) avoidance of any adverse effect on the stability of adjacent slopes and in turn the safety of the public and adjacent property.

These measures are particularly important to ensure the stability of any man-made or natural slope located below and in the vicinity of the trench excavation works and when the trench is open during any part of the season.

### PIPELAYING

Transmission steel pipes shall be supplied by the district while the remaining other materials shall be furnished by the contractor such as warning tapes, flanges, hot dip galvanized bolts and nuts, straps, etc. as required to provide to complete and workable installation. Pipes shall be examined for possible defects before lowering. Care shall be observed as not to damage the cement mortar lining of the pipes and the cement mortar coating. Damage lining/coating shall be repaired prior to laying. At all times when the installation of the pipe is not in progress, all openings into the pipeline shall be kept tightly closed to prevent entrance of animals and foreign materials. Trenches shall be in reasonably dry condition when the pipe is laid. Necessary facilities including slings, rollers etc. shall be provided for lowering and properly placing the pipe section in the trench without damage. Pipes shall be laid to the required line and grade and be jointed closely to form a smooth flow line. Interior side of the pipe shall be cleaned properly before installation with the swabbing device to remove unnecessary sediments inside the pipes.

### PIPE JOINTING

Before the spigot is inserted into the bell, the bell shall be daubed with mortar containing one part cement to one part graded sand. The spigot end shall then be forced to the bottom of the bell and excess mortar on the inside of joint shall be swabbed.

Welded joints are either lap joint or butt strap joint. Field welding of pipe joints shall conform to the requirements of the "AWWA Standards for Field Welding of Steel Pipe Joints" (AWWA C206). Such joints shall be inspected before any protective coating is place around the outside of the joint. Pipe larger than 600mm (24") is almost always assembled in the trench. Smaller pipes are sometimes assembled above the trench and lowered into it means of chain hoists. This allows progressive lowering of assembled pipe without more than a degree or two deflections at any one joint during the laying process. Not more than 20m. Should be welded together above ground.

The contractor shall take all necessary precautions to prevent the pipe from floating due to water entering the trench from any source, shall assume full responsibility for any damage due to this cause, and shall at his own expense restore and replace the pipe to its specified condition and grade if it be displaced due to floating.

### **PIPE JOINTS REPAIR**

After the pipe has been jointed and laid, the outside annular space between pipe sections shall be repaired in accordance with the pipe's original coatings.

For cement mortar coatings, remove all loose cement coating materials and debris on the welded joint by using chipping hammer or other means. (Care must be observed during the removal of this loose material to prevent unnecessary damage to the adjacent coating). The prepared area must be wetted with cement slurry (cement water mix) to provide bonding between surface of the pipe and new mortar mix. The grout shall be poured in such a manner that all exposed portions of metals joints be completely protected with cement grout. The grout shall be one part cement to one part graded sand by weight and shall be sufficiently fluid to permit it to be poured into the joint space. Application of cement mortar coating must be done by means of patching by hand or towel using newly mixed mortar with little water just enough to moisten the mixture (Dry Mix Type). The finished coating must not be less than 25mm thick. The appearance and thickness of the finished coating must be comparatively uniform all along the pipe surface.

Primer paint coating should be applied to the steel pipes prior the application of cement mortar coating.

### **INSTALLATION OF VALVES, FITTINGS AND STUB-OUTS**

A frequent cause of leaks in flanges is poor alignment or dirt on the flange face. Valves and fittings shall be installed properly and bolts evenly tighten in correct sequence. One method is "round and round" and another "criss-cross". Either method is satisfactory.

Inspect pipe flange for warping. If bolts are tightened against a warped flange, there is danger of cracking the cast iron valve or fitting flange. Inspect rubber gasket for defects and foreign substance.

Fittings are defined as bends, reducers, wyes, tees, crosses, outlets and manifolds. Fabrication of such shall conform with the "AWWA Standard for Steel Water Pipe 6" and larger" (AWWA C-200). Stub-out outlets shall be welded to the steel cylinder of the pipe. Flanges shall conform to ANSI B16.5 2.0 MPA (300 psi). Flanges shall have flat or raised faces. Flanges shall be attached with bolts straddling the vertical axis of the pipe. Where flange is to be blinded/end plug, thickness of plate shall be at least 20mm.

All valves shall be AVK Brand (supplied by the Owner)

Stub-outs shall be fabricated as shown and installed on designated area. Trust blocks shall be installed where there is a change in direction or pressure to avoid pipe movement.

#### **DEMOLITION AND RESTORATION**

Removal of existing pavement and restoration of damaged surface and property shall commence upon approval of parties having jurisdiction thereof. The contractor shall restore at his own expense all property removed or destroyed by his operation at least equal to conditions/to its original configuration and design strength prior to work under this contract or to the satisfaction of **either public and private** properties owner.

The Base and sub-base of pavements shall be compacted with vibratory roller/compactor to conform to DPWH standards specification. No pavement restoration shall be allowed unless actual Field Density Test (FDT) has been taken at random by the utility agency in the presence of DPWH representative, and test taken have passed the required density. In all cases, new base course materials shall be used in restoration works.

Curing period for concrete, use seven (7) days for national roads, attaining flexural strength of 550 psi and comprehensive strength of 3,500 psi as shown in test results.

The working area shall be kept neat, safe and clean at all times. All traffic safety devices will be removed once the restoration works of the said road section have been accepted by the DPWH.

## **PIPE CROSSING**

Cross-over pipe for canals shall be steel pipes fabricated to suit actual field condition. It shall be painted in accordance with "Unprimed Ferrous Metal". An **air release valve (supplied by owner)** shall be installed on top of the pipe crossing.

## **HYDROTESTING**

After the pipes, stub-outs, valves and fittings have been installed and all thrust blocks cast and set the pipelines system shall be tested for leakages. Cap and brace all pipe end to prevent movement. Make provisions to relieve air from high points and pipe ends. Compressed entrapped air causes difficulty in pumping up to the required pressure. A pipeline may leak compressed air when it is not actually watertight and may show erroneous results during test.

Locate pump and pressure gauge at low point of line if possible. Test by sections, so repairs shall be repaired immediately and backfill can be completed as the work progress. The contractor shall furnish the required volume of water. Fill slowly from the point in the line if possible. This helps expel trapped air. After water filling, pipe must stand for 48 hours. Under slight pressure for linings to get soaked. Pressure in the pipeline shall then be brought to 150 psi test pressure and maintained. Pipeline pressure shall not be allowed to drop more than 5 psi. Pressure at the end of the test period should be same as the beginning. Allowable water leakage limit is computed as 1.85 l/mm. of dia. /length in km/24hr.

## **DISINFECTION**

Prior to putting the system to operation, the pipeline shall be disinfected to eliminate impurities that possibly enter the pipeline during the construction process by means of chlorination. The pipes shall be filled with 50 PPM chlorine solution for 24 hours and after that flushing will follow to cleanse the pipeline.

## **SPECIAL PROVISIONS**

### **PROJECT TURNOVER**

During project's turn-over, Contractor is required to submit as-built plan. The contractor's deliverables are 100 percent accomplished either on each part and the site restored as is prior to construction.

## LOGBOOK

A logbook shall be maintained by the Contractor and Engineer at all times in the project site reflecting the daily work activity, visitors, time extension, work suspension, change/extra work orders and circumstances affecting the program of work to be signed by both the Engineer and Contractor.

## PROJECT SIGNS / COA SIGNBOARD

The Contractor shall furnish, erect and maintain one (1) project sign and one (1) COA signboard in accordance with the Standard Drawings. The location for the erection of these signs by the Contractor shall be as directed by the Engineer.

## RESIDENT ENGINEER'S OFFICE

The Contractor shall provide temporary office or "Payag" in the field for use by the Resident Engineer.

## EQUIPMENT

Contractor shall provide equipment for the project's completion but not limited to:

<i>Quantity</i>	<i>Description</i>
1	Backhoe
1	Concrete Cutter
1	Engine Driven Welding Machine
1	Jack Hammer
1	Boom truck
1	Hauling truck
1	Water truck
1	Hydrotesting Equipment
2	Oxy-acetylene cutting outfit
2	Power Brush/Grinder
2	Blinker Warning Light
1	Tamping Rammer
1	Concrete vibrator

The Contractor shall be required to include the list of their equipment in the technical documents and specify whether the same is leased or owned. If leased, the Contractor shall provide a Memorandum of Agreement.

During post-qualification, GSCWD shall conduct inspection to verify the availability of the listed equipment. Absence of any one of the required equipment is ground for disqualification.

#### LIST OF MANPOWER REQUIREMENTS

Quantity	Description
1	Project Engineer
1	Safety Officer
1	Foreman
2	Welder
4	Skilled Worker
6	Laborer/Helper

#### INSPECTION AND TESTING

All materials furnished and all work performed under the Contract shall be subject to inspection by the Owner. The Contractor shall be held strictly to the true intent of the Specifications and Drawing in regard to quality of materials, workmanship and diligent execution of the Contract.

Work done in the absence of prescribed inspection may be required to be removed and replaced under the proper inspection; and the entire cost of removal and replacement, including the cost of all materials which may be used in the work shall be borne by the Contractor.

#### LIQUIDATED DAMAGES

The Contractor shall pay liquidated damages to the Owner if he fails to complete the work within the time agreed upon. It is understood that said payment is not a penalty but a fixed sum representing the liquidated damages for each calendar day of delay.


Computation of the said liquidated damages shall conform to the provision of RA 9184.

#### PLANS AND SPECIFICATIONS

All works, that may be called for in the specifications and not shown in the plans or vice versa, shall be executed and finished as if described in both. Should any work required which is not denoted on either plans and specifications either directly or indirectly, it is understood that same shall be implied and required and shall be performed and furnished such materials and layout as fully as if it has been so described.

TECHNICAL WORKING GROUP FOR INFRASTRUCTURE

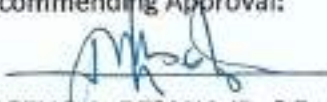
  
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