SC

Checklist for Bidders

Enquiry #: 13508 Opening Date: _____ Time: _____

M/s, _____ Phone No: _____

Please Ensure before submitting the bid, that following information/ Documents have been submitted / providing along you bid Check ( ) appropriate box.

S. No.	Details of required information / documents	Yes	No
1.	Fixed Bid Bond as specified in Tender Document		
2.	Original Technical literature is enclosed, if any		
3.	Any change in your current address, Phone Fax no & Email etc intimated		
4.	Bid Validity as specified is mentioned		
5.	Delivery / Completion period has been specified.		
6.	All corrections/cutting/overwriting are singed & stamped		
7.	Sample (if necessary) is enclosed		
8.	Form- X Duly Signed & Stamped		
9.	Each & Every Page of the bidding documents shall be signed and stamped by the bidder.		
10.	Original Bid + One Copy is Submitted		

Note:

Non-Availability of the above information/documents, or incomplete/incorrect statement on this checklist may result in rejection of the bid at / after the bid opening.

As per SRO296(I)/2023 dated 08th March 2023 "E-Pak Procurement Regulations, 2023" all bidders are advised to register in e-Pak Acquisition and Disposal System (EPADS).

Southern Gas Co. Ltd. Procurement Dept. H.O. Gulshan-e-Iqbal

_____

Bidders Authorized Representative

Sui Southern Gas Company Limited

Ref. No. SSGC / SC / 13508
Date : November - 05, 2024

M/s. _____

_____

SELF SUPPORTED ANTENA TOWER AT SITE RS-THARIRI DADU SINDH

Supplier must be active in FBR Active Taxpayer List (ATL)

Under Single Stage Two Envelope Bidding Procedure

Tender Enquiry No. SSGC / SC / PT / 13508

SECTION - I

Invitation to Bid

Sui Southern Gas Company Limited (SSGC) intends to carry out the work related to *Civil Electrical Construction & Installation of 76m Self Support Tower at SITE RS-Thariri Dadu Sindh & 76m GF Tower at SITE RS-1, Shikarpur Sindh Self Supported Antenna Towers (As per BOQ/T&C/Criteria) (Having Valid PEC Certificate Category C-5 or above with Specialization Codes EE07 (Telecommunication Installation) or EE08 (External Telecommunication Works.), EE11(vi) (General Electrical Works Only),CE10(i)(General Civil Engineering Works) & ME07(v) (General Mechanical Works Only).(Under Single Stage Two Envelope Bidding Procedure) (On Complete Package Basis)*

The Company invites you to submit Technical Proposal and Financial Proposal in two separate sealed envelopes **"Under Single Stage Two Envelope Bidding Procedure"** i.e. Sealed Technical offer & Sealed Financial offers shall be submitted in separate envelopes. Technical offers will be opened and evaluated first. Financial offers of only technically compliant bidders will be opened on later intimated date in presence of bidder's representative.

The priced bids shall be submitted along with FIXED Bid Bond Rs.550,000 (Five Hundred Fifty Thousand Rupees Only) in the form of Pay order / Demand Draft in favor of Sui Southern Gas Company Limited. No bid shall be entertained without bid bond / earnest money.

The Company reserves the right to add, delete from or amend any part of these tender documents during the bidding period and bidders shall be informed accordingly.
Bids not conforming to the terms and conditions or a part thereof; stipulated in these tender documents may be rejected.

The Tender documents comprise the following:

Technical Proposal

Section – I	Invitation to Bid
Section – II	Instructions to Bidders
Section – III	Special Terms & Conditions /General Requirement/Technical Evaluation with Form of Bid/with Forms
Section – IV	Special Conditions of Tender Document

Sui Southern Gas Co. Ltd. Procurement Deptt. H.O. Gulshan-e-Iqbal

Section – V	General Terms & Conditions
	Financial Proposal
Section – VI	Bill of Quantity With Drawings
Section – VII	Bid Form
Section – VIII	Bid Bond Format/Performance Bond /Format of Declaration/Contract Form/Form X/Annexure I/ Form of Bid Securing Declaration
Section – IX/X	Blacklisting Mechanism/HSE Manual/SSTW-05

Application for technical and financial proposals will be received at:

Procurement Department,
Sui Southern Gas Company Limited,
Tender Room (Ground Floor of CRD Building)
SSGC House, Sir Shah Suleman Road,
Block-14, Gulshan-e-Iqbal,
Karachi.
Tel # 99021238, 99021279.

On or before **22-11-2024** at **1000 hrs.** The bids will be publicly opened at **1030** hours on same day at the above address, in the presence of bidders and / or their authorized agents who may wish to attend. All bids are to be delivered on or before closing time after which all bids submitted after the time prescribed shall not be entertained and will be returned without being opened. In case bid is sent through courier, the same shall be delivered at least half an hour before scheduled opening time.

Tenders shall be enclosed in plain sealed envelope marked as:

"**STRICTLY CONFIDENTIAL**"
SELF SUPPORTED ANTENA TOWER
sEnquiry # SSGC/SC/13508

06/11/24

For **General Manager (Procurement)**

Sui Southern Gas Co. Ltd. Procurement Dept. H.O. Gulshan-e-Iqbal

Note: Tender document is also available online on SSGC website for view only. Bidder is eligible to participate in bidding process only after purchasing the tender documents from Tender Room SSGC Head Office as per the procedure mentioned in the Press Publication / SSGC website. It is mandatory for bidders to attach original Token Slip in front of the Sealed Envelope (issued at the time of Purchasing) as an evidence that supplier has purchased the Tender documents. Further, any Corrigendum/Clarifications/Addendums/Extensions issued to be notified to only those bidders who have purchased Tender documents.

TECHNICAL PROPOSAL

SECTION - II

INSTRUCTIONS TO BIDDERS

Sui Southern Gas Co. Ltd.
Procurement Dept.
H.O. Gulshan-e-Iqbal

SECTION – II

Instructions to Bidders

1. All rates quoted in the prescribed SOR / BOQ shall be firm, irrevocable and not subject to change or escalation on any account what so ever. No modification, alteration or deletion in the bid will be accepted after the bid opening time.
2. Sealed Bids shall be received at Company's Head Office, ST-4/B, Block - 14, Sir Shah Suleman Road, Gulshan-e-Iqbal, Karachi, up to specified time & date and will be opened publicly at specified time & date, in the presence of Bidders or their authorized representative who choose to attend. In case the bid opening date falls on a holiday or due to some unavoidable circumstances, it is not possible to open on scheduled date, it will be opened on next working day at the same time.
3. All original bid documents accompanied with the bid bond shall be submitted by the Bidder in the envelope provided with tender documents. The sealed Bids must be submitted at the address stated above in person or by courier or by any other means but it shall be the Bidder's responsibility to ensure that Bids so submitted are delivered to the above address before the specified Bid opening date and time. The Company shall not be held responsible in any way for late receipt of Bids or their confidentiality. Bids received after the Bid closing time shall not be considered, and will be returned to the Bidder unopened.
4. In Case of single stage two envelop bidding system (if mentioned in press advertisement & Tender document), sealed technical offer & sealed bid shall be submitted in separate envelops (bid bond will be enclosed with "Financial" bid unless and until specified separately in tender terms). "Technical" and "Financial" is to be mentioned on the top of the envelop. Technical offers will be opened and evaluated first. Financial offer of only technically complaint bidders will be opened at a later intimated date in presence of bidder's representative. Financial offers of technically non-complaint bidders will be returned un-opened along with their bid bond.
5. The Bid should be signed by a person having the authority for this purpose. In case of a bid submitted by a corporate entity, the same shall bear its seal and be duly signed by its secretary.
6. Bids shall be submitted strictly in accordance with the requirements of the Tender Documents and as per specifications.
7. Bid shall remain valid for acceptance for a period of (120) days from the date of public opening of the bids.
8. The Company shall not reimburse any expenses incurred in preparation of Bids.
9. The Bid and all subsequent correspondence shall be in the English language.
10. Payment for the Contracted Work / Services will be made in Pakistani Rupees only. The rates quoted by the Bidder shall therefore, be in Pakistani Rupees.
11. In case of any queries / clarification with regard to this Tender, the same may be forwarded to Procurement Department upto 5 days before the bid opening date, thereafter the request will not be considered.
12. The Company reserves the right to reject any or all Bids without assigning any reason and cancel the bidding process. Company also reserves the right to accept the whole or a part of Bid and does not bind itself to accept the lowest or any particular Bid.
13. In case of any conflict between the Special Terms & Conditions and elsewhere in the tender documents the Special Term & Conditions, will supersede & prevail.
14. Each and every page of the bid documents being submitted by the bidders shall be singed and stamped failing which the bid may be liable for rejection.
15. All documentary evidence required for evaluation of bid should be submitted along with the bid in absence of any documentary evidence no marks will be awarded in accordance to the evaluation criteria.
16. In order to maintain cordial business relation and as per ethical business approach, please provide the justification in case of your non participation on our Fax # 99231583 & Email. mmte@ssgc.com.pk.
17. Conditional Bid will not be accepted and liable to be rejected.
18. The quoted unit price and corresponding total amount shall be inclusive of all duties and Taxes and excluding provincial Sales Tax as per provincial laws.
19. Sealed bids shall be mailed/submitted/dropped in tender box placed at Tender Room, CRD Building, SSGC Head Office. Bids are to be delivered on or before closing time after which bid will not be entertained. In case bid is sent through courier, the same shall be delivered at least half an hour before scheduled opening time.
20. Price given in the Bid Form/BOQ is firm which shall take into account all relevant factors including discount, if any. Discount / escalation given separately at the time of bid opening will not be considered.
21. The bidders are required to fill form SSTW-05 (if deemed required) and submit with the bid.

Sui Southern Gas Co. Ltd. Procurement Dept. H.O. Gulshan-e-Iqbal

SPECIAL TERMS & CONDITIONS

1 Bidder should have experience in the relevant field for minimum 5 Years.

2 Bidder should have executed minimum 5 projects of similar nature and category for ≥100feet towers in past 5 to 10 years.

3 Bidder should be enrolled in **PEC-C5** or above category with specialization codes **EE07** (Telecommunication Installation) / **EE08** (External Telecommunication Works), **EE11(vi)** (General Electrical Works Only), **CE10(i)** (General Civil Engineering Works) & **ME07(v)** (General Mechanical Works only).

4 Bidder should provide letter of association or partnership certificate with manufacturing facility in case bidder engages 3rd party manufacturing facility for project.

5 Bidder shall arrange tower manufacturing facility visit of SSGC engineers and consultant. Transport and lodging / boarding shall be arranged by bidder during course of visit.

6 Bidder shall inform SSGC, Tower fabrication design, drawings, scheduled execution plan & work progress.

7 Bidder should intimate Tower fabrication completion and before initiating galvanizing process, SSGC engineers and Consultant shall inspect the fabricated tower and approve for galvanising.

8 Bidder shall arrange transportation /unloading and properly stacking of tower material at sites.

9 Bidder should fil all attached forms required in the course of bid evaluation.

Sui Southern Gas Co. Ltd. Services Dept. Head Office, Karachi

Sui Southern Gas Co. Ltd. Procurement Dept. H.O. Gulshan-e-Iqbal

SECTION - 0100

GENERAL REQUIREMENTS

1. GENERAL

1.1 The General Conditions of Contract Part-I & Part-II shall form an integral part of these General Requirements.

1.2 The Contractor shall notify all sub-contractors of the provisions of the General Conditions of Contract Part I & Part II and the General Requirements of these Specifications.

2. CODES, STANDARDS, CERTIFICATES

2.1 The Contractor shall supply and have his site office:

2.1.1 Copies of all latest editions of codes and standards referred to in these Specification or equivalent codes and standards as approved by the Engineer.

2.1.2 Catalogues and published recommendations from manufacturers supplying products and materials for the projects.

2.2 The Contractor shall provide manufacturer's or supplier's certificates to the Engineer for all products and materials which must meet the requirements of a specific code or standard as stated in these Specifications.

3. MANUFACTURER'S RECOMMENDATIONS

Installation of manufactured items shall be in accordance with procedures recommended by the manufacturer or as approved by the Engineer.

4. UNITS OF MEASUREMENTS

The International System of units (SI) shall be used throughout the Project.

5. PLANT, EQUIPMENT AND TOOLS

The Contractor shall provide at his cost modern plant, equipment and tools, adequate and befitting to the nature, magnitude and size of this Contract, in strict compliance with the requirements of the General Conditions of Contract.

6. STORAGE & HANDLING FACILITIES

The Contractor shall make his own arrangements for providing the necessary space for the storage of plant, equipment and materials and for Contractors' temporary office, in and around the site of works, during the currency of the Contract.

7. TEST LABORATORY AND TESTING

7.1 Testing, except as otherwise specified herein, shall be performed by an approved testing agency as proposed by the Contractor and at no extra cost to the Employer. The Engineer may require all testing to be carried out under his supervision only.

7.2 The quality control testing shall be performed by the Contractor's competent personnel in accordance with a site testing and quality control programme to be established by the Contractor and approved by the Engineer.

The Contractor shall keep a complete record of all quality tests performed on site.

All quality control and tests shall be carried out in accordance with applicable standards and codes.

Sui Southern Gas Co. Ltd. Procurement Dept. H.O. Gulshan-e-Iqbal
ENGINEERING DESIGN BUREAU LAHORE

7.3 The Contractor, after the approval by the Engineer for the source of the cement and steel, shall make available at the site sufficient stock of the materials in advance in order to allow sample testing to prove quality before they are used.

8. BAR BENDING SCHEDULE

Bar bending (reinforcement bars) schedule of all drawings shall be prepared by the Contractor and submitted in triplicate to the Engineer for approval.

9. SHOP DRAWINGS

9.1 The Contractor shall submit with sufficient promptness as to cause no delay in the Works, copies of all shop or setting drawings and schedules required for the Works or which have been specifically requested by the Engineer. The Engineer will check and approve with reasonable promptness such schedules and drawings for conformity with the provisions, with the design concept of the Works and compliance with the provisions of the Contract Documents. The Contractor shall make any corrections in the schedules and drawings as required by the Engineer and resubmit further sepias and prints thereof until approved by the Engineer. The Engineer will arrange to issue such copies of the approved shop drawings and schedules as may be required by any nominated sub-contractor or other contractor, but the Contractor will be responsible for making all copies necessary for his own use and the use of his sub-contractor.

9.2 Where adjoining work requires shop drawings the Contractor shall prepare and submit composite shop drawings which shall show and define the work under all affected trades. If the Contractor installs work before coordinating with other trades so as to cause interference with work of those trades, he shall make changes necessary to correct the conditions without extra cost to the Employer.

9.3 No changes shall be made by the Contractor in the resubmitted shop drawings in excess of the corrections spelled out by the engineer and in a separate note on the shop drawings.

9.4 No work in the shop be stated and no material or equipment ordered until the Engineer has approved the shop drawings. It shall be the responsibility of the Contractor to submit the shop drawings on a schedule that allows reasonable time for checking and approval and subsequent fabrication. Failure to submit shop drawings in ample time for checking, correcting, and rechecking will not justify a delay in time for completion of work.

10. AS BUILT DRAWINGS

The Contractor shall at all times, keep on site a separate set of prints on which shall be noted neatly, accurately and promptly as the work progresses all significant changes between the work shown on the drawings and that which is actually constructed.
At the completion of the works, the Contractor shall at his expense, supply the Engineer which six copies and one reproducible copy of these drawings amended to comply with work "As Built".

11. PROTECTION OF THE WORKS

The Contractor shall whenever necessary cover up and protect the works from weather and damage by his own or other workmen performing subsequent operation. He shall provide all necessary dust sheets, barriers and guard rails and clear away the same at completion.

12. RESTORATION AND CLEANING

Upon completion of the works the Contractor shall restore all items covered by the Contract to the satisfaction of the Engineer.

The Contractor shall do regular cleaning and clean away all rubbish and excess materials that may accumulate from time to time on completion and before handing over. Upon completion of the works he shall obliterate all signs of temporary construction facilities such as work areas, structures, foundations of temporary structures, stock piles of excess or waste

materials, or any other vestiges of construction, as directed by the Engineer. All site shall be left in a clean and satisfactory state for immediate use and occupation. Care shall be taken not to use any cleaning materials which may cause damage to the surface to be cleaned.

The Contractor shall also take all necessary precautions to keep the works and site free from vermin during construction and he shall leave the works vermin free on completion. Application of pest control agents shall not commence until the specific product, name, method and extent of application have been submitted to and approved by the Engineer.

13. SAMPLES

13.1 The Contractor shall furnish for approval of the Engineer with reasonable promptness all samples as directed by the Engineer or specifically called for in these Specifications. The Engineer shall check and approve such samples with reasonable promptness only for conformance with the design concept of the Works and for compliance with the information given in the Contract Documents. All work shall be in accordance with approved samples.

13.2 Samples shall be furnished so as not to delay fabrication, allowing the Engineer reasonable time for consideration of the sample submitted.

13.3 Each sample shall be properly labeled with the name and quality of the material, manufacturer's name, name of the project, the Contractor's name and the date of submission, and the Specifications Article number to which the sample refers.

13.4 The manufacturer's installation directions shall be provided with each sample. The Contractor shall pay all transportation costs and deliver samples to the Engineer's office, Site or testing laboratory as directed by the Engineer.

13.5 In order to permit coordinated selection of colors and finishes, the Contractor shall deliver samples of all items of interior finish to the Engineer at one time. Samples of such materials will not be approved until all related samples have been submitted.

14. QUALITY OF MATERIAL

14.1 All materials and supplies furnished under the Contract Documents shall be new and of standard first grade quality and of best workmanship and design. No inferior or low grade materials supplies or articles will be either approved or accepted and all works of construction shall be made in neat, first class and workmanlike manner.

14.2 Prior to procurement, the Contractor shall furnish to Engineer for his approval, the names of the manufacturers of all equipment and materials which he contemplates incorporating in the Works. Samples of material shall be submitted to the Engineer for approval. Equipment, material supplies and articles installed or used without the Engineer's approval shall be at the risk of subsequent rejection.

15. INSPECTION & TESTS REPORTS

15.1 All equipment and materials furnished under these specifications and all work performed in connection therewith will be subject to rigid inspection by the Engineer. Acceptance of equipment and material or the waiving off inspection thereof shall no way relieve the Contractor of his responsibility for meeting the requirements of the Contract.

15.2 The Contractor shall furnish to the Engineer's Representative four certified true copies of reports of the tests of all materials used in the manufacture and fabrication of all equipment and material including but not limited to structural steel and metal work etc. The result of these tests shall be in such form as to shown compliance with the applicable specifications, standards and codes for the material used.

16. TEMPORARY FACILITIES

The Contractor shall provide, erect or install, maintain alter as necessary and remove on completion or when directed by the Engineer all temporary facilities and services including

Sui Southern Gas Co. Ltd. Procurement Dept. H.O. Gulshan-e-Iqbal

ENGINEERING DESIGN BUREAU LAHORE

access roads as described hereinafter and/or the Contract Documents and/or instructed and approved by the Engineer.

16.1 Temporary Roads

The Contractor shall prepare and maintain such temporary roads as may be necessary, from the site to the nearest road and also within the plot. Such roads shall be positioned strictly in accordance with the Engineer's instruction and the Contractor shall reduce or control any dust nuisance by spraying with water as directed.

16.2 Temporary Services

16.2.1 Temporary Water Supply

The Contractor shall supply in sufficient quantity all necessary potable and other water for construction purposes for all trades at point within a reasonable distance of site of work. He shall make arrangements and pay charges for water service installation, maintenance and removal thereof, and pay the costs of water for all trades.

When the permanent water supply and distribution system has been installed, it may be used as the source of water for construction proposes provided that the Contractor obtains the written approval of the Engineer and the Employer and assumes full responsibility for the entire water distribution and maintenance of the system.

At completion of the work or at such time as the Contractor makes use of the permanent water supply installation, the temporary water services equipment and piping shall be removed by the Contractor at his own expense.

16.1.2 Temporary Electricity

The Contractor shall make all the necessary arrangement for a temporary electricity service, pay all expense in connection with the installation, operation and removal thereof and pay the costs of electricity consumed by all trades.

In the event that the site can not be connected to a local electricity network or where the available power is insufficient the Contractor has to make his own temporary provision and maintain such temporary installation until the permanent supply is effected.

A temporary lighting system shall be furnished, installed and maintained by the Contractor as required to satisfy the minimum requirements for safety and security and to the satisfaction of the Engineer.

When the permanent electrical power and lighting systems are in an operating condition, they may be used for temporary power and lighting for construction purposes provided that the Contractor obtains the written approval of the Engineer and the Employer and assumes full responsibility for the entire power and lighting system and pays all costs for operation and maintenance of the system.

At completion of construction work, or at such time as the Contractor makes use of permanent electrical equipment and devices, temporary electricity services shall be removed by the contractor at his own expense.

16.1.3 Water Disposal

The Contractor shall make such temporary provisions as may be required in order to dispose off any chemicals, waste and soil water and the like without causing pollution to either the site or the environment. Disposal of any materials, wastes, effluents, garbage, oil, grease, chemicals and the like shall be in areas specified by the concerned local authority proposed by the Contractor and subject to the approval of the engineer. If any waste material is dumped in unauthorized areas the Contractor shall remove the material and restore the area to the condition of the adjacent undisturbed area. If necessary, contaminated ground shall be excavated, disposed off as directed by the Engineer and replaced with suitable fill material, compacted and finished with topsoil all at the expense of the Contractor.

Sui Southern Gas Co. Ltd. Procurement Dept. Gulshan-e-Iqbal
ENGINEERING DESIGN BUREAU LAHORE

16.1.4 Fire Protection

The Contractor shall provide and maintain adequate fire protection in the form of barrels of water with buckets, fire bucket tanks, fire extinguishers, or other effective means ready for instant use, distributed around the project and in and about temporary inflammable structure during construction of the works.

Gasoline and other flammable liquids shall be stored in and dispensed from safety containers approved by the Engineer and storage shall not be within building.

Torch-cutting and welding operations performed by the Contractor shall have the approval of the Engineer before such work is started and a chemical extinguisher is to be available at the location where such work is in progress.

The Contractor shall follow the instructions and specifications of the Civil Defense Department.

16.1.5 Sign Board

The Contractor shall provide an adequate sign board to be fixed in a position to be approved by the Engineer. The Contractor shall paint on this Sign Board the name of the work, the names of the Contractor, the Employer and the Engineer.

17. CONSTRUCTION SCHEDULE

17.1 A Construction schedule shall be maintained in accordance with the provisions of the General Conditions of Contract.

17.2 The schedule shall be accompanied with sufficient data and information including all necessary particulars of constructional plant, equipment, machinery, temporary Works, arrival of plant, equipment at site and their installation, method of operation, work forces employed, etc, for all activities of the Works.

17.3 Should the Engineer consider any alteration or addition in the Programme and time schedule, the Contractor shall conform thereof without any cost to the Employer.

17.4 Whenever necessary and wherever the progress of the actual works shows departure, the programme and time schedule shall be updated and submitted to the Engineer for his approval.

18. CONSTRUCTION PROCEDURES

The Contractor shall advise the Engineer of proposed construction procedures in accordance with the General Conditions of Contract.

If the Engineer shall see that the work progress is slow in such a way that the work will not be complete in the time specified, then he shall order the Contractor to work overtime or in more shifts and the Contractor shall obey these orders free from additional payments and without any objections or request for compensation.

19. NOTIFICATION TO ENGINEER

The Engineer shall be notified in writing of the nature and location of the Works the Contractor intends to perform the next 15 days so as to enable necessary inspection and measurement to be carried out. The Engineer may, if necessary, direct that longer notice be given of certain operations.

20. NIGHT WORK

When work is done at night the Contractor shall maintain from sunset to sunrise such lights on or about his work and plant as the Engineer may deem necessary for the proper observations of the work and the efficient execution thereof.

21. WEATHER

No work is to be undertaken when, in the opinion of the Engineer, the weather is so unsuitable that proper protection of the work cannot be ensured.

22. SUBMISSION REQUIREMENTS

22.1 Schedule submission at least thirty days before the dates when reviewed submittals will be needed.

22.2 Submit one print of Shop Drawings and number of copies of Product Data which Contractor requires for distribution plus four copies which will be retained by the Engineer.

22.3 Submit three samples unless otherwise specified.

23. CO-ORDINATION WITH OTHER CONTRACTORS

It shall be the responsibility of the Contractor to co-ordinate and keep-up good relations with other Contractors employed on site by the Employer.

24. ACCIDENT PREVENTION, PROTECTIVE EQUIPMENT

The Contractor shall comply and enforce compliance by all his sub-contractors with the highest standards of safety and accident prevention in accordance with international standards and in compliance with all applicable laws, ordinances and statutory provisions.

All requisite barriers, fences, warning signs, lights and other safety precautions as required for the protection of persons and property on or adjacent to the site shall be provided at the Contractor's cost.

All flasework, scaffolding and hand rails shall be well constructed and secured at all times. Where overhead work is being carried out warning signs shall be installed at ground level clearly warning of the overhead work.

All warning signs shall be in two languages, English and Urdu and shall at all times be maintained in a clean and legible conditions, to the satisfaction of the Engineer.

Trash shall be removed at frequent intervals to the satisfaction of the Engineer.

25. SURVEY INSTRUMENT

The Contractor shall maintain on site the requisite surveying instruments in perfect working conditions to enable the Engineer to check levels and lines of the work at all times.

26. SETTING OUT

26.1 Setting out shall be done in accordance with the drawings and instructions of the Engineer.

26.2 The Engineer will establish bench marks and/or reference lines as shown on the Drawings. All other work shall be laid out from these marks and/or lines.

26.3 Temporary piles and other marks used in setting out shall be removed after completion of the required work.

27. PAYMENT OF WORK

No payment shall be made for the works involved within the scope of this section of Specification. The cost thereof shall be deemed to have been included in the quoted unit rate of other items of the Bills of Quantities.

SECTION - 0120

CONTRACTOR'S CAMP

1. SCOPE

The work to be done under this item consists of construction, erection, installation and maintenance of the Contractor's Project Site Offices or main camp and the Contractor's sub-camps or temporary camps, if any and shall include all offices, shops, warehouses and other operational buildings; all housing and related facilities including accommodations for the Contractor's personnel.

The location of the Contractor's camps, including all buildings, utilities and facilities therefore and of the camps or establishments of all persons/parties in the vicinity operating or associated with the Contractor, shall be subject to approval of the Engineer.

The work to be done under this item will terminate upon the actual Completion Date. However, if directed by the Engineer or the Employer, the Contractor shall continue such work to the extent required by the Contractor's personnel during the period of maintenance. No compensation shall be paid for the continued operation and maintenance of the Contractor's Camps during the period of maintenance.

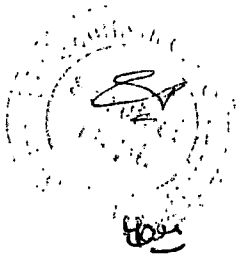
Upon completion of the Work, or at such time within the period of maintenance as directed by the Engineer, the Contractor shall remove all buildings utilities and other facilities from the Site and restore all camp areas to a neat and clean condition.

The construction, operation and maintenance of all camps of the Contractor shall comply with all applicable provisions of current Pakistan Labour Camp Rules.

Adequately equipped and properly staffed portable first aid stations or dispensaries shall be provided by the Contractor at camps and other strategic locations to administer first aid treatment at any time required and free of charge to all person on the Site, including employees of the Engineer and the Employer.

2. PAYMENT OF WORK

No payment shall be made for the works involved within the scope of this section of Specifications. The cost thereof shall be deemed to have been included in the quoted unit rate of other items of the Bills of Quantities.



SECTION - 0130

STAKE-OUT SURVEY

1. SCOPE

Under this section the Contractor shall make the stake-out survey for construction purposes with competent staff consistent with the current practices.

2. MATERIAL AND EQUIPMENT

All instruments, equipment, stakes and other material necessary to perform all work shall be provided by the Contractor. These instruments and equipment shall be available to Engineer at all times for the purpose of checking the work of the Contract.

All stakes used shall be of a type approved by the Engineer, clearly and permanently marked so as to be legible at all times. It shall be the Contractor's responsibility to maintain these stakes in their proper position and location at all times.

3. EXECUTION

The work shall proceed immediately upon the award of the Contract and shall be expeditiously progressed to completion in a manner and at a rate satisfactory to the Engineer. The Contractor shall keep the Engineer fully informed as to the progress of the stake-out survey.

The Contractor shall trim trees, bushes and other interfering objects, not consistent with the plan, from survey lines in advance of all survey to permit accurate and unimpeded work by his stake-out survey crews and the Engineer's survey crews. The exact position of all work shall be established from control points which are shown on the plans or modified by the Engineer. Any error, apparent discrepancy in or absence of data shown or required for accurately accomplishing the stake-out survey shall be referred to the Engineer for interpretation or furnishing when such is observed or required.

The Contractor shall be responsible for the accuracy of his work and shall maintain all reference points, stakes, etc. throughout the life of the contract. Damaged, destroyed or inaccessible reference points, bench marks or stake shall be replaced by the Contractor. Any existing or new control points or markers defining property lines and survey monuments which may be disturbed during construction shall be properly tied into fixed reference point before being disturbed and accurately reset in their proper position upon completion of the work. All stake-out survey work shall be referenced to the centre lines shown on the Plans. All computations necessary to establish the exact position of the work from control points shall be made and preserved by the Contractor. All computations, survey notes and other records necessary to accomplish the work shall be kept neatly and made available to the Engineer upon request and furnished to the Employer upon Contract completion.

The Engineer may check all or any portion of the stake-out survey work or notes made by the Contractor and any necessary correction to the work shall be immediately made. Such checking by the Engineer shall not relieve the Contractor of any of is responsibilities for the accuracy or completeness of his work.

Reference points, base lines, stakes and bench marks for borrow pits shall be established by the Contractor.

All required right-of-way and easement limits shall be established, staked and referenced by the Contractor concurrent with the construction stake-out survey.

The Contractor shall place at least two offset stakes or references at each centre line station and at such intermediate stations as the Engineer may direct. From computations and measurements made by the Contractor these stakes shall be clearly marked with the correct centre line, station number, offset and cut or fill so as to permit the establishment of the true centre line location during construction. He shall locate and place all cut, fill, slope, line grade

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Sui Southern Gas Co. Ltd. Procurement Dept. H.O. Gulshan-e-Iqbal
ENGINEERING DESIGN BUREAU LAHORE

or other stakes and points as the Engineer may direct to be necessary for the proper progress of the work.

4. PAYMENT OF WORK

No payment shall be made for the Works involved within the scope of this section of Specifications. The cost thereof shall be deemed to have been included in the quoted unit rate of other items of the Bills of Quantities.

Sui Southern Gas Co. Ltd. Procurement Dept. H.O. Gulshan-e-Iqbal

ENGINEERING DESIGN BUREAU LAHORE

SECTION - 0150

CLEARING AND GRUBBING

1. SCOPE

The clearing and grubbing shall consist of clearing the designate area of all trees, down timber, snags, bush, other vegetation, rubbish and all other objectionable material and shall include grubbing stumps, roots, and matted roots, and disposal of all spoil material resulting from the clearing and grubbing. It shall also include the removal and disposal of structures that protrude, encroach upon, or otherwise obstruct the work, except when otherwise provided for on the plans or directed by the Engineer to be saved.

2. LIMIT OF AREA

The Engineer shall define the limits of areas where clearing and grubbing is to be done. Normally it shall consists of all land within the contract area and all other construction area including ditches, detours, and other areas shown on the plans or as specified or as directed by the Engineer. The Engineer will designate the fences, structures, debris, trees and bushes to be cleared where grubbing is not required. It shall not include clearing and grubbing of borrow or other pit areas from which material is secured. It shall include the leveling or removal of all bunds or mounds within the contract area unless otherwise specified.

3. EXECUTION

3.1 Grubbing and Cutting

All roots and stumps within the limits of contract area shall be grubbed and excavated to its full depth unless otherwise specified.

3.2 Disposal

The Contractor shall be responsible for disposal of any materials not required at site within specified time after cutting and filling unless otherwise approved. No tree trunks stumps or other objectionable material shall be left within the site unless otherwise approved in writing by the Engineer. The location of disposal areas shall be within or outside the limit of contract area as approved in writing by the Engineer. The Contractor shall make all necessary arrangements for obtaining suitable disposal locations and the cost involved shall be at the Contractor's expense. All materials whatsoever designated as reuseable shall be stockpiled or stored safely by the contractor at approved locations and shall remain the property of the Employer.

3.3 Protection and Restoration

The Contractor shall prevent all damage to pipes, conduits, wires, cables or structures above or below ground. No land monuments, property markers, or official datum points shall be damaged or removed until the Engineer has witnessed or otherwise referred their location and approved their removal. The contractor shall control his operations so as to prevent damage to trees and shrubs which are to be preserved. Protection may include fences and boards lashed to fences to prevent damage from machine operations. The existing covered or open bench marks should be relocated as directed by the Engineer. In the event that anything specified herein to be saved and protected is damaged by the Contractor; such damages shall within a specified time be repaired or replaced by the Contractor at his own cost. All areas cleared and grubbed must be approved by the Engineer or Engineer's Representative.

4. PAYMENT OF WORK

No payment shall made for the Works involved within the scope of this Section of Specifications. The cost thereof shall be deemed to have been included in the quoted unit rates of other items of the Bills of Quantities.

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Engineering Design Bureau Lahore

SECTION - 1100

EARTHWORK

1. SCOPE OF WORK

The work under this section of the specifications consists of furnishing all plant, labor, equipment, appliances and materials and in performing all operations in connection with earthwork of all underground services and structural units, roads and temporary drainage, stock piling of suitable excavated material, disposal of unsuitable and surplus excavated material in accordance with this section of specifications, the applicable drawings and subject to terms and conditions of the Contract.

2. SUBMITTALS

The Contractor shall perform a joint survey with the Engineer's Representative, of the area where earthwork is required, plot the ground levels on the drawings and obtain approval from the Engineer before starting the earthwork.

3. EXPLOSIVES

No explosives are permitted to be used for excavation or any other purpose.

4. EXECUTION

The Contractor shall be deemed to have made local and independent inquires as to, and shall take the whole risk of, the nature of the ground subsoil or material to be excavated or penetrated and the Contractor shall not be entitled to receive an extra or additional payment nor to be relieved from any of his obligations by reasons of the nature of such ground subsoil or material.

All excavations, cuts and fills shall be constructed to the lines, levels, slopes and gradients specified with any necessary allowance for consolidation, settlement and drainage so that at the end of the Defects Liability Period the ground shall remain or reverted to the required lines, levels and gradients. During the course of the Contract and during the Defects Liability Period any damage or defects in cuts and fills, in structures and other works or rolling of stones/boulders caused by any reason or otherwise, slips, falls of wash-ins or any other ground movement due to the Contractor's negligence shall be made good by the Contractor at his own cost.

4.1 EXCAVATION SUPPORT

4.1.1 Prior to Commencing any structural excavation work which is 5 feet or greater in depth, the Contractor shall design an excavation support system.

4.1.2 Details of the excavation support system shall be submitted to the Engineer for review and approval at least one week before any excavation work commences. Details of the excavation support system shall be complete with, but not limited to, the following:

(a) drawings of the structural support members showing materials, sizes and spacing,

(b) calculations showing the maximum theoretical deflection of the support member.

The Contractor shall make a detailed inspection of all adjoining structures and prepare a report on the pre-construction condition of all structures that may be affected during construction of the Works. The report will include photographs, drawings and sketches with levels and dimensions fully illustrating the structure's condition. In particular, it shall note any existing damage or structural inadequacy. Deficiencies and damages which are to be suitably marked on the

structure in a way that it is not permanently defaced. This report shall be submitted along with excavation support system.

4.1.3 The system is to be designed so that no members extend through surfaces exposed in the finished construction, and no shoring or bracing is placed under permanent structures.

4.1.4 The Contractor shall submit to the Engineer calculations of lateral earth pressure for the full excavation depths, surcharge loads of any description, equipment loads, forces at various stages of support during excavation, the maximum design loads to be carried by various members of the support system and strut pre-load forces.

4.1.5 If the structure support system proposed includes tieback anchors, the Contractor's submitted details shall include drawings that show the profile of the soil in which each anchor is to be installed.

4.1.6 Tieback anchors that project beyond the vertical limits of the Site boundary on to adjoining property shall only be permitted if permission to do so is given by the owner of the property in writing. Copies of such written permission shall be submitted to the Engineer along with excavation support system proposals.

4.2 SITE PREPARATION

4.2.1 The Contractor shall set out the work and shall be responsible for true and perfect setting out of the same and for correctness of the positions, levels, dimensions and alignments of all parts thereof. If at any time any error in this respect shall appear during the progress of the work, the Contractor shall at his own expense rectify such error, to the satisfaction of the Engineer/Engineer's Representative.

4.2.2 The Contractor shall construct and maintain accurate bench marks so that the Lines and Levels can be easily checked by the Engineer/Engineer's representative.

4.3 EXCAVATIONS

4.3.1 Excavation shall include the removal of all material of every name and nature.

4.3.2 The major portion of excavations shall be carried out by mechanical excavators and excavated materials disposed off to stock on spoil as directed by the Engineer. The excavation may be done by normal means. Unless otherwise specified by the Engineer, leveling, trimming and finishing to the required levels and dimensions shall be done manually. The material suitable for fill and backfill if approved by the Engineer shall be stockpiled within the limits of the Project Site at locations designated and approved by the Engineer.

Excavated material unsuitable for use as fill and backfill shall be disposed off by the Contractor any where within the limits of Union Council.

4.3.3 The Contractor shall give reasonable notice that he intends to commence any excavation and shall submit to the Engineer full details of his proposals. The Engineer's approval shall not relieve the Contractor of his responsibility with respect to such work.

4.3.4 The Contractor shall preserve the completed excavation from damage due to slips and earth movements, ingress of water from any source whatsoever and deterioration by exposure to the sun and the effects of the weather.

All excavations shall be kept free of water and shall be maintained dry to the satisfaction of the Engineer. The Contractor shall prevent surface water and sub-surface water from flowing into the excavation and flooding the project site and surroundings.

Will not allow water to accumulate in excavations, remove water from excavations to prevent softening of foundation bottoms, under cutting footings and soil changes detrimental to the stability of sub-grades and foundations. Provide discharge lines necessary to convey the water away from the excavations. Convey water, removed from excavation and rain water, to outside the limits in manner that no damages are caused to the surrounding services properties.

4.3.5 No blasting will be permitted for excavation or for any other purpose.

4.3.6 Excavation for pits, cable, trenches, equipment-foundations and other structures shall be taken out to the levels and dimensions shown on Drawings or such other levels and dimensions as the Engineer may direct.

4.3.7 Excavation shall extend to adequate distance from walls and footings to allow for placing and removal of forms, installations of services and for inspection, except where the concrete for walls and footings is authorized to be deposited directly against excavated surfaces. Undercutting will not be permitted. The additional excavation for placing and removal of forms, installation of services, for inspection and generally for working area on slopes for stability shall not be measured for payment and shall be deemed to be included in the rates for excavation as measured net.

4.3.8 All excavations in foundations shall be taken to 6 inch above the final excavation elevations shown on the drawings and the last 6-inch shall be trimmed carefully to a smooth and level surface. Immediately after trimming to the final elevation, a layer of blinding concrete shall be placed to the thickness shown on the drawings. All excavations for foundations which have been trimmed and disturbed shall be compacted and covered by lean concrete by the end of the day.

4.3.9 No excavation shall be refilled nor any permanent work commenced until the foundation has been inspected by the Engineer and his permission to proceed is given.

4.3.10 If excavation for sub-structures are carried below the required level, as shown on the Drawings or as directed by the Engineer, the surplus depth shall be filled in with concrete of same grade as of blinding concrete at the sole cost of the Contractor.

4.3.11 The placing of blinding concrete, placing of reinforcement and casting of the permanent works in the excavation shall be carried out in the dry condition.

4.3.12 Shoring, where required during excavation, shall be installed to protect workmen and the bank, adjacent paving, structures and utilities. The term shoring shall also be deemed to cover whatever methods the Contractor elects to adopt, with prior approval of the Engineer, for holding the sides of excavation and also for planking and strutting to excavation against the side of roadways and adjoining properties in existing hardcore of any other material. The Contractor will be held responsible for upholding the sides of all excavations and no claim for additional excavation, concrete or other material shall be considered in this respect.

4.3.13 Existing utility lines that are shown on the drawings or the locations of which are made known to the Contractor prior to excavation and that are to be retained, as well as utility lines constructed during excavation and backfilling and if damaged, shall be repaired by the Contractor at his own expense. Any existing utility lines which are not known to the Contractor in sufficient time to avoid damage, if inadvertently damaged during excavation, shall be repaired

ENGINEERING DESIGN BUREAU LAHORE
Southern Gas Co. Ltd. Procurement Dept. H.O. Gulshan-e-Iqbal

by the Contractor and adjustment in payment will be made as approved by the Engineer. When utility lines which are to be removed, are encountered within the area of operations the Contractor shall notify the Engineer in ample time for the necessary measures to be taken to prevent interruption of the service.

4.3.14 Where applicable the excavation work shall include the excavation above water table and excavation below water table. The Contractor shall provide all plant, equipment, pumps, sheeting, well points as required to keep the water table 3.0 feet below the deepest foundation as shown on the drawings till the completion of foundation works.

4.3.15 Before starting the excavation for pipelines, the Contractor shall ensure the correct alignment of the pipeline on the ground the depth and width of excavation of the trench, all in accordance with the Drawings and instructions of the Engineer. The Contractor shall make profile with cement concrete pillars.

Excavation shall be carried out true to lines, levels, grades and widths as shown on the drawings or as directed by the Engineer ensuring proper laying of the pipe line, the bedding fill, construction of chambers for appurtenances and any other structures. The trench bottom shall be graded to provide even and substantial bearing over the specified bedding and of the structure.

Without the written permission of the Engineer, not more than 600 feet of the trench shall be opened in advance of the completed pipeline.

4.3.16 The Engineer may require the Contractor to excavate below the elevations shown on the drawings or may order him to stop above the elevations shown depending upon the suitable foundation material encountered.

4.3.17 If for any reason, the levels, grades or profiles of the excavations are changed in adversely by the Contractor, the Contractor shall at his own cost, be liable to bring the excavations to the required levels and profiles as shown on the drawings or as directed by the Engineer.

4.4 EXCAVATION TOLERANCES

All slopes, lines and grades shall be true, correct and accurate to those shown in the plans or otherwise directed and approved by the Engineer. The sub-grade in cuts shall be accurate to the authorized profile grade for the sub-grade to ± one inch (1"). Where discrepancies are found in the work the Contractor shall make the necessary corrections.

4.5 FILL AND BACKFILL

4.5.1 The backfilling shall include filling under the floors, around the foundation trenches, pipes, conduits, ducts and channels.

The backfilling shall include loading, unloading, transporting, placing, stacking, spreading of earth, watering, rolling, ramming and compacting, etc., complete as specified herein.

4.5.2 Backfill shall be either using granular backfill material or common backfill as directed and approved by the Engineer. Granular backfill materials shall meet the following requirements.

a) Grading Requirements

Mm	Inch	A	B
25	1"	100	100
19	3/4"	60 – 100	75 – 100
4.75	No. 4	50 – 85	55 – 100
2.0	No. 10	40 – 70	40 – 100
0.425	No. 40	25 – 45	20 – 50
0.075	No. 200	0 – 15	5 – 15

b) Material satisfying the requirements of coarse sand falling under soil classification A–3 (AASHTO). In case coarse sand is utilized for granular fill it shall be ensured that the same is confined properly with approved material.

c) The material shall have a plasticity index of not more than six (6) as determined by AASHTO T – 89 and T – 90.

4.5.3 The excavated material if found suitable shall be stockpiled within the free haulage limit of the Project Boundary. This material shall be used for filling/back-filling if approved by the Engineer and shall be transported by the Contractor anywhere required for the purpose of filling/back-filling work in this Contract.

4.5.4 The Contractor shall provide the approved quality of backfill and fill material required to complete the fill and back- filling work from the places as designated by the Engineer.

Deep filling shall be predominantly granular material and free from slurry mud, organic or other unsuitable matter and capable of compaction by ordinary means.

4.5.5 Material for backfilling shall be as approved by the Engineer and shall be placed in layers not exceeding six (06) inches measured as compacted material with sufficient water and compacted to produce in-situ density not less than 95% of the maximum dry density at optimum moisture content.

Depending on the depth of fill the Engineer may instruct increased thickness of successive layers to be placed.

The filling shall be compacted by mechanical means as approved by the Engineer.

4.5.6 Filling around pipes and cables shall be carefully placed with fine material to cover the pipe or cable completely before the normal fill is placed.

4.5.7 Backfilling of trenches/foundations shall be carried out only after the pipe line/structural works within the excavations have been inspected, tested and approved by the Engineer.

4.5.8 Fill shall not be placed against foundation walls prior to approval by the Engineer. Fill shall be brought up evenly on each side of the walls as far as practicable. Heavy equipment for spreading and compacting the fill shall not be operated closer to the wall than a distance equal to the height of the fill above the top of footing.

4.5.9 Before the start of fill and backfill, the Contractor shall satisfy himself as to the levels and slopes of the fills and backfill shown on the Drawings, the requirements of compaction, the possibility of settlement & all other particulars whatsoever in connection with the filling works.

4.5.10 All filled areas shall be left neat, smooth and well compacted, the top surface consisting of the normal site surface soil, unless otherwise directed.

4.6 TOLERANCES

The stabilization of compacted backfill/fill surface shall be smooth and even and shall not vary more than 3/8 inch in 10 feet from true profile and shall not be more than 1/2 inch from true elevation.

4.7 DISPOSAL OF SURPLUS EXCAVATED MATERIAL

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ENGINEERING DESIGN BUREAU LAHORE

4.7.1 The rejected unsuitable material and surplus excavated material shall be disposed off anywhere as directed by the Engineer. No compensation of any lead/lift is admissible and rates quoted shall be deemed to include the same. The surplus excavated material shall be so placed that it will present a neat appearance and not offer any danger to abutting properties.

4.7.2 The material shall be declared unsuitable if the soaked CBR (96 hours) is less than five (5) percent or if falls under A-6 or A-7 of AASHTO soil classification.

4.7.3 The disposal of surplus/unsuitable excavated material shall include loading, unloading, transporting, stacking, spreading and leveling as directed by the Engineer.

5. MEASUREMENT AND PAYMENT

5.1 General

Except otherwise specified herein or else where in the Contract Documents, no measurement and payment will be made for the under mentioned works related to the relevant BOQ items. The cost thereof shall be deemed to have been included in the quoted unit rate of the respective items of the Bill of Quantities.

5.1.1 Designing of excavation support system and all measures required as per the approved excavation support system, including but not limited to, timber shoring, planking, strutting, anchoring, providing slope for upholding the sides of excavations, etc.

5.1.2 Any fill with approved material necessitated by over excavation due to fault or convenience of the Contractor except under structural members.

5.1.3 Stockpiling the excavated material at approved location within free haulage limit and transporting back suitable material to places requiring fill or backfill.

5.1.4 Specified foundation bed preparation.

5.1.5 Excavation involved in providing adequate working space around sides of foundation and service line trenches.

5.1.6 Providing approved quality fill/backfill material obtained from excavated material or from an approved/specified source.

5.1.7 Rolling, leveling, watering & compacting the fill and backfill to required density.

5.1.8 All laboratory and field tests stipulated in these specifications.

5.1.9 Disposal of rejected surplus and unsuitable excavated material anywhere as directed by the Engineer. No compensation of any lead/lift is admissible and rates quoted shall be deemed to include the same.

5.1.10 De-watering to keep the foundations dry during construction.

5.2 Excavation

5.2.1 Measurement

Quantities of excavation shall be calculated / measured from the pre-work levels of ground taken jointly by the Contractor and the Engineer before commencement of the work.

The quantities set out for excavation and its subsequent disposal shall be deemed to be the bulk quantity before excavating and no allowance shall be made for any subsequent variations in bulk or for any extra excavation.

Unless otherwise shown on the Drawings quantities of excavation shall be measured of acceptably completed works on the basis of vertical excavations required in accordance with lines of concrete.

Quantities of excavation for laying service line trenches shall be measured for payment on the basis of vertical excavation faces for the specified width for the trench as shown on the drawings.

Measurement for acceptably completed excavation works shall be made on the basis of number of cubic feet of material excavated for foundation and service trenches as shown on the Drawings or as directed by the Engineer.

5.2.2 Payment

Payment will be made for acceptably measured quantity of excavation on the basis of unit rate per cubic feet quoted in the Bills of Quantities and shall constitute full compensation for all the works related to the item, including but not limiting to back filling.

5.3 Backfill/ Fills

5.3.1 Measurement

Measurement for acceptably completed backfill/fill works will be made on the basis of number of cubic feet of compacted backfill/fill in position in accordance with the lines, levels and grade as shown on Drawings or as directed by the Engineer.

5.3.2 Payment

Payment will be made for acceptably measured quantity of backfill/fill on the basis of unit rate per cubic feet quoted in the Bills of Quantities and shall constitute full compensation for all the works related to the item.

Sui Southern Gas Co. Ltd. Procurement Dept. H.O. Gulshan-e-Iqbal

Engineering Design Bureau Lahore

SECTION - 2200

REINFORCEMENT

1. SCOPE

The work under this section of the specifications consists of furnishing, cutting, fabrication, bending and placing steel reinforcement and welded wire fabric in concrete structures or elsewhere at any elevation as shown on the drawings or/and as directed by the Engineer for a complete job.

2. APPLICABLE CODES AND STANDARDS

Latest editions of the following ACI Codes and ASTM Standards, and other codes and standards referred to therein, are applicable to these specifications.

ACI Codes

ACI 315 Details and Detailing of Concrete Reinforcement (ACI publication SP-66).

ACI 318 Building Code Requirements for Reinforced Concrete.

ASTM Standards

A 82 Cold - Drawn steel wire for concrete reinforcement.

A 305 Minimum requirement for the deformations of deformed steel bars for concrete reinforcement.

A 615 Deformed and plain billet - steel bars for concrete reinforcement.

3. MATERIALS

3.1 Reinforcing bars shall conform to the requirements of ASTM A 615 Gr. 40 and ACI 318 for seismic zone 3. Actual yield strength of the bars, based on mill tests, shall not exceed 400 MPa (58000 psi), and the ratio of the actual ultimate tensile strength to the actual tensile yield strength shall not be less than 1.25.

3.2 Reinforcement shall be free from all loose or flaky rust and mill scale, or coating, including Ice, and any other substance that would reduce or destroy the bond. Reduced section steel reinforcement shall not be used.

4. COMPLIANCE WITH SPECIFICATIONS

The Contractor shall submit certificates of compliance from the manufacturer stating that the supplied reinforcement conforms to the specifications. In addition, wherever and as directed by the Engineer conformance of the supplied reinforcing bars with the specifications shall be demonstrated by the Contractor through laboratory tests, in accordance with the relevant standards.

5. DELIVERY & STORAGE

5.1 Delivery

Steel reinforcement bars shall be kept in bundles firmly secured and tagged. Each bar or bundle of bars shall be identified by marks as per relevant ASTM standard.

5.2 Storage

Sui Southern Gas Co. Ltd. Procurement Dept. H.O. Gulshan-e-Iqbal

ENGINEERING DESIGN BUREAU LAHORE

The method of storage shall be approved by the Engineer. Reinforcement bars shall be stored in racks or platforms above the surface of ground and shall be protected against scaling, rusting, oiling, coatings, damage, contamination and structural defects prior to placement in works. Bars of different diameters and grades shall be so labeled and kept separately.

6. BAR BENDING SCHEDULE

The Contractor shall prepare bar bending schedule of all reinforcing steel bars and these bar bending schedules shall be submitted to the Engineer for his approval. The Contractor shall obtain approval of the bar bending schedule before starting actual bar bending works.

7. FABRICATING, BENDING & PLACING

7.1 All metal for reinforcement shall be free from loose mill scale, loose rust, mud, oil, grease, ice or other harmful matter immediately before the concrete is placed.

7.2 Reinforcement shall be accurately placed as shown in the drawings, and secured against displacement by using 16 gauge G.I wire ties or suitable clips at intersections and supported from the formwork by using concrete, metal or plastic chairs and spacers or hangers of an approved pattern. Where concrete blocks are used for ensuring the cover, they shall be made of mortar not leaner than 1 part of cement 2 parts of sand.

Where the concrete surface will be exposed to the weather in the finished structure, the portions of all accessories in contact with the form work shall be galvanized or shall be made of plastic.

7.3 Bars used for concrete reinforcement shall be fabricated in accordance with the dimensions shown in the bar bending schedule approved by the Engineer.

7.4 The cutting tolerance for all bars shall be ± 25 mm.

7.5 Fabrication tolerances shall be as per ACI - 315.

7.6 Placing tolerances shall be as ACI - 318.

7.7 Bars may be moved as necessary to avoid interference with other reinforcing steel, conduits, or embedded items. If bars are moved more than one bar diameter or enough to exceed the above tolerances, the resulting arrangement of bars shall be subject to approval of Engineer.

7.8 Vertical bars in columns and piers shall be offset at least one bar diameter at lapped splices. To ensure proper placement, templates shall be furnished for all column and pier dowels.

7.9 Reinforcement shall not be bent or straightened in a manner that will injure the material.

No bars shall be bent twice in the same place, nor shall they be straightened after bending.

Unless permitted by Engineer, reinforcement shall not be bent after being partially embedded in hardened concrete.

7.10 No splice of reinforcement shall be made except as approved by the Engineer.

7.11 No concrete is to be carried out until the reinforcement has been checked and approved by the Engineer.

7.12 All detailing shall be done as per ACI standards ACI - 315 and ACI - 318.

8. Concrete clear cover for reinforcing steel shall be as follows-

	Structural Members	**Minimum Cover, MM**
a)	Concrete cast against and permanently exposed to earth	75

Southern Gas Co. Ltd. Procurement Dept. ENGINEERING BUREAU LAHORE

b) Concrete exposed to earth or weather:

BAR DIA > 20 MM	50
BAR DIA < 16 MM	40

9. MEASUREMENT & PAYMENT

9.1 General

Except otherwise specified herein or elsewhere in the Contract Documents, no measurement and payment will be made for the under mentioned specified works related to the relevant items of the Bills of Quantities. The cost thereof shall be deemed to have been included in the quoted unit rate of the respective items of the Bills of Quantities.

9.1.1 Providing and installing chairs, supports, hooks, spacers, binding wires, corrosion protection and laps not shown on Drawings including wastage and rolling margin.

9.1.2 Tests on reinforcing bars.

9.1.3 Preparing bar bending schedules.

9.2 Reinforcing Bars and Welded Wire Fabric

9.2.1 Measurement

Measurement for acceptably completed works of reinforcement according to bar bending schedules approved by the Engineer shall be made by weight.

9.2.2 Payment

Payment will be made for acceptable measured quantity of reinforcement on the basis of unit rate per ton quoted in the Bills of Quantities and shall constitute full compensation for all the works related to the item at any elevation.

Sui Southern Gas Co. Ltd. Procurement Dept. H.O. Gulshan-e-Iqbal

ENGINEERING DESIGN BUREAU LAHORE

SECTION - 2300

PLAIN AND REINFORCED CONCRETE

1. SCOPE

The work under this section of the specifications consists of furnishing all plant, labor, equipment appliances and materials and in performing all operations in connection with the supply and installation of plain and reinforced concrete work complete, in strict accordance with this section of the specifications and the applicable drawings, and subject to the terms and conditions of the Contract.

2. GENERAL

2.1 Full co-operation shall be given to trades like electrical, measurement and other services.

2.2 Suitable templates or instructions or both shall be provided for setting out items not placed in the forms. Embedded items and other materials for electrical operations shall have been completed, inspected, tested and approved before concrete is placed.

2.3 For special concrete finish and for special methods of construction formwork shop drawings shall be designed and prepared by the Contractor, at his own cost. Approval of shop drawings as well as that of actual samples of concrete finish shall be obtained before work is commenced.

3. APPLICABLE STANDARDS

3.1 Pakistan Standards

P S 232 Portland Cement (ordinary & rapid hardening)

P S 243 Natural aggregates for concrete

P S 279 Abrasion of coarse aggregates by the use of Los Angeles machine

P S 280 Determination of aggregates crushing value

P S 281 Organic impurities in sand for concrete aggregate

P S 282 Material finer than No. 200 B.S. test sieve in aggregates

P S 283 Soundness test for aggregates by the use of sodium sulphate or magnesium sulphate

P S 284 Sampling aggregates for concrete

P S 285 Sieve or screen analysis of fine and coarse aggregates

P S 286 Description and classification of mineral aggregates

P S 421 Sampling fresh concrete

P S 422 Slump test for concrete

P S 560 Making and curing concrete compression test specimen in the field

P S 612 Sulphate - resistant Portland cement type 'A' and sampling fresh concrete in the laboratory

P S 716 Mixing and sampling fresh concrete in the laboratory

P S 717 Compacting factor test for concrete

P S 746 Definitions and terminology of cements

Sui Southern Gas Co. Ltd. Procurement Dept. H.O. Gulshan-e-Iqbal

Engineering Bureau Lahore

P S 849 Making and curing concrete compression test cubes

Latest editions of the following Pakistan, British, ACI and ASTM Standards are relevant to these specifications wherever applicable:

3.2 **ASTM (American Society for Testing and Materials)**

C 33 Concrete Aggregates.

C 40 Organic impurities in sand for concrete

C 88 Soundness of aggregates

C 94 Ready mixed Concrete.

C 117 Material finer than No. 200 (0.075 mm) sieve

C 123 Light weight pieces in aggregates

C 125 Concrete and concrete aggregates

C 127 Specific gravity and absorption of coarse aggregate

C 128 Specific gravity and absorption of fine aggregate

C 131 Resistance to abrasion of small size coarse aggregate

C 136 Sieve or screen analysis of fine and coarse aggregate

C 142 Clay lumps and friable particles in aggregates

C 143 Slump of Portland cement Concrete

C 150 Portland cement

C 156 Water retention by concrete curing material

C 171 Sheet material for curing concrete

C 172 Fresh concrete sampling

C 289 Potential reactivity of aggregate

C 309 Liquid membrane forming compounds for curing concrete

C 535 Resistance to abrasion of large size coarse aggregates

C 685 Concrete made by volumetric batching and continuous mixing

D 75 Aggregate sampling

CE CRD C400 Requirements for water for use in mixing and curing concrete

3.3 **British Standards**

B.S 12 Portland cement, ordinary and rapid hardening

B.S 410 Test Sieves

B.S 812 Method for the sampling and testing of mineral aggregates, sand fillers

B.S 882 Concrete aggregates from natural sources

B.S 1881 Methods of testing concrete

B.S 3148 Tests for water for making concrete

B.S 4027 Sulphate - resisting Portland cement

B.S 8110 Structural use of concrete

3.4 **ACI (American Concrete Institute)**

117 Standard tolerances for concrete construction and materials

201.2 Guide to durable concrete

211 Recommended practice for selecting proportions for normal and heavy weight concrete

214 Recommended practice for evaluation of strength test results of concrete

301 Specifications for structural concrete for building

304 Recommended practice for measuring, mixing, transporting and placing concrete

305 Hot weather concreting

308 Recommended practice for curing concrete

309 Recommended practice for consolidation of concrete

318 Building code requirement of reinforced concrete

347 Recommended practice for concrete formwork

4. **MATERIALS**

4.1 Aggregates

4.1.1 The sources of supply of all fine and coarse aggregates shall be subject to the approval of the Engineer.

4.1.2 All fine and coarse aggregate shall be clean and free from clay, loam, silt and other deleterious matter. If required, the Engineer reserves the right to have them washed by the Contractor at no additional expense. Coarse and fine aggregates shall be delivered and stored separately at site. Aggregates shall not be stored on muddy ground or where they are likely to become dirty or contaminated.

4.1.3 Sulphate content of aggregates shall not exceed 0.40 percent by weight for each individual source of coarse and fine aggregate. Chloride content of aggregates shall not exceed 0.05 percent by weight for each source of coarse and fine aggregate. Total sulphate (SO3) content of concrete shall not exceed 4.0 percent by weight of the cement. Total chloride content of concrete shall not exceed 0.15 percent by weight of the cement.

Sui Southern Gas Co. Ltd. Procurement Dept. H.O. Gulshan-e-Iqbal

4.1.4 Fine aggregate shall be hard coarse sand, crushed stone or gravel screenings and shall conform to requirements of PS 243 and/or BS 882 and/or ASTM C-33.

4.1.5 Coarse aggregate shall be gravel of crush stone of hard, durable material free from laminated structure and conforming to PS 243 and/or BS 882 and/or ASTM C-33 size number 467 as follows for use in foundations:

Total Passing Sieve	Percent by Weight
50.00 mm (2 in)	100

ENGINEERING DESIGN BUREAU LAHORE

37.50 mm (1.5 in)	:	95-100
19.00 mm (0.75 in)	:	35-70
9.50 mm (0.38 in)	:	10-30
4.75 mm (0.19 in)	:	0-5

Coarse aggregate for all cast-in-place concrete other than foundations shall conform to ASTM C-33 size number 6, as follows:

Total Passing Sieve		Percent by Weight
25.00 mm (1.0 in)	:	100
19.00 mm (0.75 in)	:	90-100
12.50 mm (0.05 in)	:	20-55
9.50 mm (0.38 in)	:	0-15
4.75 mm (0.19 in)	:	0-5

4.1.6 Wherever feasible, the nominal maximum size of aggregate for cast-in-place reinforced concrete slabs and other members, shall be 19 mm. If there are difficulties in placing such a concrete the maximum size may be restricted to 12 mm provided the requirements for strength are satisfied.

4.1.7 Except where it can be shown to the satisfaction of the Engineer that a supply of properly graded aggregate of uniform quality can be maintained over the period of the work, the grading of the aggregates shall be controlled by obtaining the 19 mm maximum nominal size, the different sizes being stocked in separate stock piles and recombined in the correct proportion for each batch at the batching plant. the materials shall be stock-piled for a period before use so as to drain nearly to constant moisture content (as long as site and other conditions permit, preferably for at least a day). The grading of the coarse and fine aggregates shall be tested at least once for every 100 tons supplied, to ensure that the grading is uniform and same as that of the samples used in the preliminary tests.

4.2 Cement

4.2.1 Cement shall be fresh and of approved origin and manufacture. It shall be one of the following as may be specified by the Engineer.

- Ordinary or Rapid Hardening Portland cement complying with t requirements of PS 232 or BS 12 or ASTM C-150.
- Sulphate Resisting Portland Cement complying with the requirements of PS 612 or BS 4027 or ASTM C-150.

4.2.2 Unless otherwise specified, ordinary Portland Cement complying with the requirements of BS 12 or ASTM C-150 type-1 shall be used.

4.2.3 For all fair faced concrete an approved cement, with a view to obtain a light shade concrete as approved by the Engineer, shall be used.

4.2.4 The Contractor shall supply to the Engineer at fortnightly intervals, reports of tests for conformance with the relevant specified standard in respect of the samples of cement from the work-site. These tests shall be carried out in a laboratory approved by the Engineer.

4.2.5 Only one brand of each type of cement shall be used for concrete in any individual member of the structure. Cement shall be used in the sequence of receipt of shipment, unless otherwise directed.

4.2.6 There shall be sufficient cement at site to ensure that each section of work is completed without interruption.

Sui Southern Gas Co. Ltd. Procurement Dept. H.O. Gulshan-e-Iqbal
ENGINEERING DESIGN BUREAU LAHORE

4.2.7 Cement reclaimed from cleaning of bags or from leaky containers shall not be used.

4.2.8 The Contractor shall provide and erect (at his cost) in a suitable plain, dry, well ventilated, weather-proof and water proof shed of sufficient capacity to store the cement.

4.2.9 The cement shall be used as soon as possible after delivery and cement which the Engineer considers has become stale or unsuitable through absorption moisture from the atmosphere or otherwise shall be rejected and removed immediately from the site at the Contractor's expense. Any cement in containers damaged so as to allow the contents to spill or permitting access of the atmosphere prior to opening of the container at the time of concrete mixing shall be rejected and removed immediately from the site at the Contractor's expense.

4.2.10 Mixing together of different types of cement shall not be permitted.

4.3 Water

Only clean water from the city supply, tube well installed at the site or from other sources approved by the Engineer shall be used. The Contractor shall supply sufficient water for all purposes, including mixing the concrete, curing and cleaning plant and tools. Where doubt exists as to the suitability of the water, it shall be tested in accordance with B.S 3148 or CE CRD C 400. Where water can be shown to contain any sugar or an excess of acid, alkali or salt, the Engineer may refuse to permit its use.

In case of doubt, the Engineer may require that concrete mixed with water proposed to be used should be tested to have a compressive strength not lower than 90 percent of the strength of concrete mixed with distilled water.

4.4 Additives

All additives shall be from manufacturer approved by the Engineer.

Air Entraining Admixtures shall conform to ASTM C-260. Other Admixtures shall conform to ASTM C-494.

5. NOMINAL CONCRETE MIXES

5.1 Proportions of Mix

5.1.1 Cement and aggregates:
The cement, fine aggregate and the coarse aggregate shall be weighed separately. The proportions of cement to fine aggregate and coarse aggregate shall be adjusted so as to provide the concrete of the required crushing strength when tested as set out in Table-1.

5.1.2 The Contractor shall regulate and arrange mixing of the ingredients for the designed mix of the concrete by weight-batching. The cost of designing the mix shall be borne by the Contractor.

5.1.3 Water/Cement ratio:

The quantity of water used shall be just sufficient to produce a dense concrete of the specified strength. For all exterior exposed work and foundations the water/cement ratio for concrete except lean concrete, shall not exceed 0.50, allowance being made for any water in the fine and coarse aggregates.

5.1.4 Workability: Admixtures may be used where necessary to achieve required workability, with the Engineer's approval. 'Workability' shall be determined by either the slump or compaction factor tests as directed by the Engineer and these shall be performed in accordance with the methods given in PS 422 and PS 177 or ASTM - 143. The slump or compaction factor for each grade of concrete shall be determined during the preliminary Test mixes and the value obtained shall not be modified without the written consent of the Engineer. Unless otherwise permitted or specified, the concrete shall be proportioned and produced to have a slump of 75 mm or less if consolidation is to be by vibration, and 125 mm or less if consolidation is to be

Sui Southern Gas Co. Ltd. Procurement Dept. Gulshan
ENGINEERING DESIGN BUREAU LAHORE

by methods other than vibration. A tolerance of upto 25 mm above the indicated maximum shall be allowed for individual batches provided the average for all batches or the most recent 10 batches tests, which ever is fewer, does not exceed the maximum limit. Concrete of lower than usual slump may be used provided it is properly placed and consolidated.

5.2 Strength Requirements for Concrete

5.2.1 Portland cement concrete when aggregates comply with B.S. 882.

5.2.2 Concrete made with Portland cement shall comply with the strength requirements of Table 1, columns 4 & 6 (Works Test). Minimum cement content of concrete Class B shall be 310 kg of cement per cubic meter of concrete.

Table 1 : Strength requirements for portland cement concrete with aggregates complying with B.S. 882.

Class of Concrete	Cube strength at 28 days after mixing & pouring (MPa)		Alternative cube Strength at 7 days after mixing & pouring (MPa)	
	Preliminary test	Works test	Preliminary test	Works test
1	2	3	4	5
A	40	30	26.7	20
B	34	26	22.7	17
C	28	21	18.7	14
D	14	11	9.3	7
E	–	7	–	–

5.2.3 The strength given in Table 1 are based on the assumption that average temperature is 20 degree C. Where accurate records of temperature are kept, allowance may be made for change of temperature or the cubes may be tested at the equivalent maturity.

5.2.4 The Contractor shall submit mix design by weight for each grade of concrete. Manufacture 12 Nos. test cubes 150 mm x 150 mm in accordance with the Mix design batching by weight and test 3 cubes each at 3, 7, 14 & 28 days intervals in the presence of the Engineer, and submit all relevant data and results of tests for approval of the Engineer. The Contractor shall obtain approval from the Engineer in writing for each Mix design before producing the actual concrete for the Works.

No payments shall be made for producing the Mix design, manufacture of test cubes and testing. The Contractor shall include this cost in the relevant item of concrete.

5.3 BATCHING

5.3.1 All cement, including cement supplied in bulk, shall be batched by weight. A bag of cement may be taken as 50 kg. with the prior approval of the Engineer.

5.3.2 Aggregates shall be batched by weight, due allowance being made for water content. Aggregate may be batched by volume only with the prior permission of the Engineer. the apparatus for weight-batching may be an integral part of the mixer or a separate unit of a type approved by the Engineer. It shall be accurate within 2% and shall be checked for accuracy at least once a week.

The quantity of additives shall be as prescribed by the manufacturer or as directed by the Engineer.

Sui Southern Gas Co. Ltd. Procurement Dept. H.O. Gulshan-e-Iqbal

ENGINEERING DESIGN BUREAU LAHORE

5.3.4 Where the batching plant is of the type in which cement and aggregates are weighed in the same compartment, the cement shall be introduced into the compartment between two sizes of aggregates.

5.3.5 Each batch shall be so charged into the mixer that some water will enter in advance of the cement and aggregates. Water shall continue to flow for a period which may extend to the end of the first 25 percent of the specified mixing time. Controls shall be provided to prevent batched ingredients from entering the mixer before the previous batch has been completely discharged.

5.4 Mixing

5.4.1 The concrete shall be mixed in an approved batch mixer. It shall be fitted with the manufacturer's plate stating the rates, capacity and the recommended number of revolutions per minute and shall be operated in accordance therewith. It shall be equipped with a suitable charging mechanism and an accurate water measuring device.

5.4.2 Mixing shall continue for the period recommended by the mixer manufacturer or until there is apparently a uniform distribution of the materials and the mass is uniform in colour, whichever period is longer. If it is desired to use a mixing period of less than 1-1/2 minute, the Engineer's approval shall be obtained in writing.

5.4.3 Controls shall be provided to ensure that the batch cannot be discharged until the required mixing time has elapsed. At least three quarters of the required mixing time shall take place after the last of the mixing water has been added.

5.4.4 The interior of the mixer shall be free of accumulations that will interfere with mixing action. Mixing blades shall be replaced when they have lost 10 percent of their original height.

5.4.5 Concrete shall be mixed only in quantities for immediate use. Concrete which has set shall not be re-tempered, but shall be discarded.

5.5 Transporting

5.5.1 The concrete shall be transported from the place of mixing to the place of final deposit as rapidly as practicable by means which will prevent segregation or loss of or addition to ingredients. It shall be deposited as nearly as practicable in its final position so as to avoid rehandling or flowing. All skips, vehicles, or containers used for transporting the concrete shall be thoroughly clean.

5.5.2 During hot or cold weather, concrete shall be transported in deep containers, on account of their lower ratios of surface area to mass, which reduces the rate of loss of water by evaporation during hot weather and loss of heat during cold weather.

5.6 Placing

5.6.1 Before placing of concrete, formwork shall have been completed; water shall have been removed; reinforcement shall have been secured in place; expansion joint material, anchors and other embedded items shall have ben kept in position; and the entire preparation shall have been approved.

No concrete shall be placed into the foundation pits and trenches until the ground to receive the same has been examined and approved by the Engineer for this purpose.

5.6.2 Concrete shall be deposited continuously, or in layer of such thickness that no concrete will be deposited on concrete which has hardened sufficiently to case the formation of seams or planes of weakness within the section. If a section cannot be placed continuously, construction joints shall be located as shown in the Contract Documents or as approved by the Engineer. Placing shall be carried out at such a rate that the concrete which is being integrated with fresh concrete is still plastic. Concrete which has partially hardened shall not be deposited. Temporary spreaders in forms shall be removed when the concrete placing has reached an elevation rendering their services unnecessary. They may remain embedded in the concrete only if made of metal or concrete and if prior approval has been obtained.

Sui Southern Gas Co. Ltd. Procurement Dept. H.O. Gulshan-e-Iqbal
ENGINEERING DESIGN BUREAU LAHORE

5.6.3 The actual sequence of construction proposed by the Contractor shall be subject to the Engineer's approval before construction starts on any part of the structure, and this sequence shall not be varied without the Engineer's approval.

5.6.4 The concrete shall be placed as soon after it has been mixed as is practicable. Once the concrete has left the mixer, no more water shall be added, although the concrete may be mixed or agitated to help maintain workability. The concrete shall not be used if, through any cause, the workability of the mix at the time of placing is too low for it to be compacted fully and to an acceptable finish by whatever means available.

The time between mixing and placing should be reduced if the mix is richer or the initial workability of the mix is lower than normal, if a rapid hardening cement or an accelerator is used, or if the work is carried out at a high temperature or exposed to a drying atmosphere.

The Contractor shall ensure that the delay between mixing and placing does not exceed 45 minutes under any circumstances. Any concrete which does not satisfy this requirement shall be discarded.

The concrete shall be deposited as nearly as possible in its final position to avoid rehandling. In no circumstances may concrete be railed or made to flow along the forms by the use of vibrators. Concreting shall be carried on as a continuous operation using methods which shall prevent segregation or loss of ingredients.

The free fall of concrete shall not be allowed to exceed two meters and where it is necessary for the concrete to be lowered more than this depth; it shall not be dropped into its final position, but shall be placed through pipes fed by a hopper. When a pipe is used for placing concrete the lower end shall be kept inside, or close to the freshly deposited concrete. The diameter of the pipe shall not be less than 225 mm.

5.6.7 The workmen carrying concrete to the site, and all other workmen, shall move only along runways or planks placed for the purpose and no person shall be allowed to walk on the reinforcement.

5.7 Consolidation

5.7.1 All concrete shall be consolidated by vibration, spading, rodding or forking so that the concrete is thoroughly worked around the reinforcement, around embedded items, and into corners of forms, eliminating all air or stone pockets which may cause honeycombing, pitting, or planes of weakness. Vibrators shall be operated by competent workmen. Use of vibrators to transport within forms shall not be allowed.

Vibrators shall be inserted and withdrawn at points approximately 450 mm apart. At each insertion, the duration shall be sufficient to consolidate the concrete but not excessive so as to cause segregation, generally from 5 to 15 sec. A spare Vibrator shall be kept on the job site during all concrete placing operations. Where the concrete is to have an as-cast finish, a full surface of mortar shall be brought against the form by the vibration process, supplemented, if necessary, by spading to work the coarse aggregate back from the formed surface.

5.7.2 If there is any tendency for the mix to segregate during consolidation, particularly if the produces excessive laitance, the mix proportions shall be modified to effect an improvement in the quality of the concrete to the satisfaction of the Engineer and in conformity with the provisions of Clause 5.

5.7.3 Vibrator shall not be allowed to contact the form work for exposed concrete surfaces.

5.7.4 Mechanical vibrators shall be of a type approved by the Engineer to suit particular conditions.

5.7.5 Over-vibration or vibration of very wet mixes shall be avoided.

5.8 Curing And Protection

5.8.1 Beginning immediately after placement, concrete shall be protected from premature drying, excessively hot or cold temperatures and mechanical injury, and shall be maintained with

minimum moisture loss at a relative constant temperature for the period necessary for hydration of the cement and hardening of the concrete. The materials and methods of curing shall be subject to approval of the Engineer.

5.8.2 For concrete surfaces not in contact with forms one of the following procedures shall be applied immediately after completion of placement and finishing:

- Pounding or continuous sprinkling.
- Application of absorptive mats or fabric kept continuously wet.
- Application of waterproof sheet materials approved by the Engineer.
- Application of other moisture - retaining covering as approved.
- Application of a curing compound conforming to ASTM C 309. The compound shall be applied in accordance with the recommendations of the manufacturers immediately after any water sheet which may develop after finishing has disappeared from the concrete surface. It shall not be used on any surface against which additional concrete or other material is to be bonded unless it is proved that the curing compound will not prevent bond, or unless positive measures are taken to remove it completely from areas to receive bonded applications.

5.8.3 Moisture loss from surface placed against wooden forms or metal forms exposed to heating by the sun shall be minimized by keeping the forms wet until they can be safely removed. After form removal, the concrete shall be cured until the end of the time prescribed as follows by one of the methods specified above.

5.8.4 Curing in accordance with sub-clauses above shall be continued for at least 10 days in the case of all concrete except concrete with rapid-hardening Portland Cement for which the period shall be at least 3 days. Alternatively, if tests are made of cubes kept adjacent to the structure and cured by the same methods and to the same intensity, moisture retention measures may be terminated when the average compressive strength has reached 70 percent of the minimum specified works curing strength. If one of the first four curing procedures specified above is used initially, it may be replaced by one of the other specified procedures any time after the concrete is one day old provided the concrete is not permitted to become surface dry during the transition.

5.8.5 When the mean daily outdoor temperature is less tan 5 degree C (41 ^{o}F) then temperature of the concrete shall be maintained between 10 and 20 degrees C (50^{o}F-68^{o}F) for the required curing period specified above.

When necessary, arrangements for heating, covering insulation or housing the concrete work shall be made in advance of placement and shall be adequate to maintain the required temperature with measures to avoid concentration of heat. Combustion heaters shall not be used during the first 24 hours unless precautions are taken to prevent exposure of the concrete to exhaust gasses which contain carbon dioxide.

5.8.6 When necessary, provision for wind-breaks, shading, spraying, sprinkling, poinding or wet covering with a light colored material shall be made in advance of placement, and such protective measures shall be taken as quickly as concrete hardening and finishing operation will allow.

5.8.7 Changes in temperature of the air immediately adjacent to the concrete during and immediately following the curing period shall be kept as uniform as possible and shall not exceed 3 degree C (37^{o}F) in any one hour or 10 degree C (50^{o}F) in any 24 hour period.

5.8.8 During the curing period, the concrete shall be protected from damaging mechanical disturbances, such as load stresses, heavy shock and excessive vibrations. All finished concrete surface shall be protected from damage by construction equipment, materials or methods by application of curing procedures, and by rain or running water. Self supporting structures shall not be loaded in such a way as to overstress the concrete.

5.9 Works in Extreme Weather

Suf Southern Gas Co. Ltd. Procurement Dept. H.O. Gulshan
ENGINEERING DESIGN BUREAU LAHORE

5.9.1 Unless adequate protection is provided and approval is obtained, concrete shall not be placed during rain.

Rain water shall not be allowed to increase the mixing water nor to damage the surface finish.

5.9.2 When the temperature of the surrounding air is expected to be below $5^{o}C$ during placing or within 24 hours thereafter, the temperature of the plastic concrete, as placed, shall be no lower than $13^{o}C$ degree for sections less than 300 mm in any dimensions nor $10^{o}C$ for any other sections.

When necessary, concrete material should be heated before mixing and carefully protected after placing. In general, heating of mixing water alone to about $60^{o}C$ may be sufficient for this purpose. Dependence should not be placed on slat or other chemicals. Calcium chloride upto 1-1/2 percent of the weight of cement may be used to accelerate the rate of hardening only with prior written permission of the Engineer. Use of calcium chloride in excess of 1-1/2 percent is harmful. No frozen material of concrete damaged by frost shall be removed. It is recommended that concrete exposed to the action of freezing weather should have entrained air and the water content of the mix should not exceed 25 liters per bag of cement.

If water of aggregate is heated above $38^{o}C$, the water shall be combined with the aggregate in the mixer before cement is added. Cement shall not be mixed with water or with mixtures of water and aggregate having a temperature greater than $38^{o}C$.

5.9.3 During hot weather, the temperature of the concrete as placed shall not be so high as to cause difficulty from loss of slump, flash set, or cold joints and should not exceed $32^{o}C$. For massive concrete, this temperature should not exceed $21^{o}C$. When the temperature of the concrete exceeds $32^{o}C$, precautionary measures approved by the Engineer shall be put into effect. When the temperature of the steel is greater than $50^{o}C$, steel forms and reinforcement shall be sprayed with water just prior to placing the concrete. The ingredients shall be cooled before mixing, or falked ice or well crushed mixing may be substituted for all part of the mixing water if, due to high temperature, low slump, flash set or cold joints are encountered.

Other precautions recommended by ACI Standard 305 shall also be adopted.

5.10 Construction Joints

5.10.1 Concreting shall be carried out continuously upto construction joints, the position and arrangement of which shall be approved by the Engineer.

5.10.2 Joints not shown on the drawings shall be so made and located as to least impair the strength of the structures and shall need prior approval of the Engineer. In general, they shall be located near the middle of the spans of slabs and beams unless a secondary beam intersects a main beam at this point, in which case the joint in the main beam shall be offset a distance equal to twice the width of the secondary beam. Joints in walls and columns shall be at the underside of floor slabs or beams, and at the top of footings or floor slabs. Beams, brackets, column, capitals, haunches and drop panels shall be placed at the same time as slabs. Joints shall be perpendicular to the main reinforcement.

5.10.3 All reinforcing steel shall be continued across the joints. Key and inclined dowels shall be provided and where directed by the Engineer. Longitudinal keys at least 40 mm deep shall be provided in all joints in walls and between walls and slabs or footings.

5.10.4 When the work has to be resumed on a surface which has hardened, such surface shall be roughened in an approved manner which will expose the aggregate uniformly and will not leave laitance, loosened particles of aggregate or damaged concrete at the surface.

5.10.5 The hardened concrete of construction joints and of joints between footings and walls or columns, between walls or columns and beams or floors they support, joints in un-exposed walls and all others not mentioned herein shall be dampened (but not saturated) immediately prior to placing of fresh concrete.

Sui Southern Gas Co. Ltd. Proc. Dept. H.O. Gulshan
ENGINEERING DESIGN BUREAU LAHORE

5.10.6 The hardened concrete of joints in exposed work, joints in the middle of beams and slabs; and joints in work designed to contain liquids shall be dampened (but not saturated) and then thoroughly covered with a coat of cement grout similar in proportions to the mortar in the concrete. The grout shall be as thick as possible on vertical surfaces and at least 12 mm thick on horizontal surfaces. The fresh concrete shall be placed before the grout has attained initial set.

5.10.7 Where the concrete has not fully hardened, all laitance shall be removed by scrubbing the wet surface with wire or bristle, and brushed, care being taken to avoid dislodgement of particles of aggregate. The surface shall then be coated with neat cement grout. The first layer of concrete to be placed on this surface shall not exceed 150 mm in thickness, and shall be well rammed against old work, particular attention being paid to corners and closed spots.

5.10.8 Stop ends for movement joints or construction joints shall be made by splitting them along the lines of reinforcement passing through them, so that each portion can be positioned and removed separately without disturbance or shock to the reinforcement or the concrete. Stop ends made of expanded metal or similar material may only be left permanently in the concrete with prior written approval of the Engineer. Where such stop ends are used, no metal may be left permanently in the concrete closer to the surface of the concrete than the specified cover to the reinforcement. Wood strips inserted for architectural treatment shall be key fed to permit swelling without pressure on the concrete.

5.11 Embedded Items

5.11.1 The material, design and location of water stops in joints shall be as indicated in the Contract Documents. Each piece of premolded water stop shall be of maximum practicable length in order that the number of end joints will be held to a minimum.

Joints at intersections and at ends of pieces shall be made in the manner most appropriate to the material being used. Joints shall develop effective water-tightness fully equal to that of the continuous water stop material, shall permanently develop mechanical strength not less than that of the parent section, and shall permanently retain their flexibility.

5.11.2 Electric conduits and other pipes which are planned to be embedded shall not, with their fittings, displace more than four percent of the area of the cross section of a column on which stress is calculated or which is required for fire protection. Sleeves, conduits, or other pipes passing through floors, walls, or beams shall be of such size or in such location as not to impair unduly the strength of the construction; such sleeves, conduits, or pipes may be considered as replacing structurally in compression the displaced concrete, provided that they are not exposed to rusting or other deterioration, are of uncoated or galvanized iron or steel not thinner than standard steel pipe, have a nominal inside diameter not over 50 mm and are spaced not less than three diameters on centers. Except when plans of conduits and pipes are approved by the Engineer, embedded pipes and conduits other than those merely passing through, shall not be larger in outside diameter than one third the thickness of the slab, wall, or beams in which they are embedded nor so located as to impair unduly the strength of the construction. Sleeve pipes, or conduits of any material not harmful to concrete and within the limitations of this section may be embedded in concrete with the approval of the Engineer provided they are not considered to replace the displaced concrete.

5.11.3 All sleeves, inserts, anchors, and embedded items required for adjoining work or for its support shall be placed prior to concreting.

All Contractors whose work is related to the concrete or must be supported by it shall be given ample notice and opportunity to introduce and/or furnish embedded items before the concrete is placed.

5.11.4 All embedded items shall be positioned accurately and supported against displacement. Voids in sleeves, inserts, and anchor slots shall be filled temporarily with approved readily removable material to prevent the entry of concrete into the voids.

6. TEST OF CONCRETE QUALITY

6.1 Sampling of concrete for testing shall be done as per relevant, PS or ASTM standards and at the Engineer's direction. Making and curing of test specimens shall be in accordance with PS

Sui Southern Gas Co. Ltd. Procurement Dept. P.O. Gulshan
ENGINEERING DESIGN BUREAU LAHORE

560 and PS 849 with ASTM C31. A competent person shall be employed by the Contractor whose first duty shall be to supervise all stages in the preparation and placing of the concrete. All test specimens shall be made and site tests carried out under his direct supervision.

6.2 Preliminary 5 cube/cylinder tests and PS 560 & PS 849 or works cube/cylinder test shall be performed in accordance with ASTM C39 and as directed by the Engineer.

6.3 The usual test for concrete with maximum size of aggregate upto 40 mm is the 150 mm cube tested in compression. Details of making and curing compression test cubes are given in PS 560, PS 849 and B.S. 1881 and details of the testing are given in Part 8 of B.S. 1881.

6.4 For all grades of concrete, preliminary cube strength test with the mixes and materials to be used shall be performed in accordance with PS 560, PS 849 and B.S. 1881 before the work is begun and subsequently whenever any change is to be made in the materials or in the proportions of materials to be used, or as required by the Engineer, The strengths shall comply with the standard of quality specified in accordance with Table 1 for preliminary tests. The cost of such testing shall be borne by the Contractor.

6.5 Test sample shall be taken at the mixer or as directed by the Engineer. The test specimens shall be cured in accordance with P.S. 560, P S. 849 and B.S. 1881.

Records shall be kept of all test cubes identifying the mix used, the section of work for which the concrete was used and the date poured.

6.6 For all classes of concrete, strength tests with the intended mixes and materials shall be performed in accordance with PS 560, PS 849 and BS 1881 before the work is begun and subsequently whenever any change is to be made in the materials or in their proportions or as required by the Engineer. The strength shall comply with the standard of quality specified in accordance with Table – 1 for preliminary tests. Cost of all such testing shall be borne by the Contractor.

6.7 Records shall be kept of all test cubes identifying the mix used, the section of work for which the concrete was used and the date poured.

6.8 The tests shall be carried out in a laboratory approved by the Engineer. The laboratory shall be an independent organization, or such other undertakings approved by the Engineer. Original test reports received from the laboratory shall be submitted to the Engineer.

6.9 The five test cubes are to be tested for compressive strength as specified in B.S. 1881. These tests shall be carried out at site or in a laboratory approved by the Engineer. Two cubes shall be tested at the age of seven days and three at 28 days and the strengths determined are to comply with the standard of quality specified. The laboratory tests shall be carried out by an independent organization, such as Government Testing Laboratory or such other undertakings approved by the Engineer. The original test reports received from the above authorities should be submitted to the Engineer.

6.10 For all grades of concrete, the appropriate strength requirement shall be considered to be satisfied if none of the strengths of the cubes is below the specified cube strength or if the average strength of the three cubes is not less than the specified cube strength and the difference between the greatest and the least strength is not more than 20% of the average.

6.11 When the results of works cube tests show that the strength of any concrete is below that specified, the Engineer may give instructions for the whole or part of the work concerned to be removed and replaced at the expense of the Contractor. The Contractor shall bear the cost of any other part of his, or any other contractor's work, which has to be removed and replaced as a result of the defective concrete. If any mix proportion is held to have failed by the works cube test, the Engineer may order the proportion to be changed in order to provide the specified strength.

7. REPAIR OF DEFECTS

7.1 General

7.1.1 Any concrete failing to meet the specified strength or not formed as shown on drawings, concrete out of alignment, concrete with surfaces beyond required tolerances or with

defective surfaces which cannot be properly repaired or patches in the opinion of the Engineer shall be removed at Contractor's cost. The Engineer may reject any defective concrete and order it to be cut out in part or in whole and replace at the Contractor's expense.

7.1.2 All ties and bolt hole and all repairable defective areas shall be patched immediately after form removal.

7.2 Repair of Defective Areas

7.2.1 All defective and honeycombed concrete shall be removed down to sound concrete. The area to be patched and an area at least 150 mm wide surrounding it shall be damped to prevent absorption of water from the patching mortar. A bonding grout shall be prepared using a mix of approximately 1 part cement to 1 part fine sand passing No. 25 BS Sieve and shall then be well brushed into the surface.

7.2.2 The patching mixture shall be made of the same material and of approximately the same proportions as used for the concrete, except that the coarse aggregate shall be omitted and the mortar shall consist of not less than 1 part cement to 2-1/2 parts sand by weight. White Portland cement shall be substituted for a part of the grey Portland cement on exposed concrete in order to produce a color matching the color of the surrounding concrete, as determined by a trial patch.

7.2.3 The quantity of mixing water shall be no more than necessary for handling and placing. The patching mortar shall be mixed in advance and allowed to stand with frequent manipulation with a trowel, without addition of water, until it has reached the stiffest consistency that will permit placing.

7.2.4 After surface water has evaporated from the area to be patched, the bond coat shall be well brushed into the surface. When the bond coat begins to loose the water seen, the premixed patching mortar shall be applied. The mortar shall be thoroughly consolidated into place and struck off so as to leave the patch slightly higher than the surrounding surface to permit initial shrinkage; it shall be left undisturbed for at least 1 hour before being finally finished. The patched area shall be kept damp for at least 7 days. Metal tools shall not be used in finishing a patch in a formed wall which will be exposed.

7.2.5 Whereas cast finishes are specified, the quantity of patched area shall be strictly limited. The combined total of patched areas in as-cast surfaces shall not exceed 0.2 square meter in each 100 square meters of as-cast surface. This is in addition to form tie patches, if the project design permits ties to fall within as-cast areas.

7.2.6 Any patches in as-cast architectural concrete shall be indistinguishable from surrounding surfaces. The mix formula for patching mortar shall be determined by trial to obtain a good colour match with the concrete when both patch and concrete are cured and dry. After initial set, surfaces of patches shall be dressed manually to obtain the same texture as surrounding surfaces.

7.2.7 Patches in architectural concrete surface shall be cured for at least 7 days. Patches shall be protected from premature drying to the same extent as the body of the concrete.

7.3 Tie and Bolt Holes

After being cleaned and thoroughly dampened, the tie and bolt holes shall be filled solid with patching mortar. If architectural appearance requires, these holes may be filled partially creating the desired round clear holes pattern on surfaces exposed to view.

7.4 Proprietary Materials

If permitted or required by the Engineer, proprietary compounds for adhesion or as patching ingredients may be used in lieu of or in addition to the foregoing patching procedures. Such compounds shall be used in accordance with the manufacturer's recommendations with prior approval of the Engineer.

8. CONCRETE CONSTRUCTION TOLERANCES

Sui Southern Gas Co. Ltd. Procurement Dept. H.O. Gulshan
ENGINEERING DESIGN BUREAU LAHORE

All tolerances shall be as per ACI 117.

Where tolerances are not stated in the specifications or drawings for any individual structure or feature thereof, maximum permissible deviations from established lines, grades and dimensions shall conform to the following. The Contractor is expected to set and maintain concrete forms so as to ensure complete work within tolerance limits. These allowable tolerances shall not relieve the Contractor of his responsibility for correct fitting of indicated materials and components. These tolerances are not cumulative.

8.1 Allowable variation from the plumb (or the specified batter for inclined walls).

8.1.1 In the lines and surfaces of columns, piers, walls and in arises.

In any 3 meters of length or height	6 mm
In any storey or 6 meters maximum	10 mm
Maximum for the entire length or height	25 mm

8.2 Variation of the linear building lines from established position in plan and related position of columns, walls and partitions.

In any bay or 6 meters	± 13 mm
Maximum for the entire length	± 25 mm

8.3 Footings

8.3.1 Variation in dimensions in plan

Minus	13 mm
Plus for formed finish (plus variation applied to concrete only, not to reinforcing bars or dowels).	50 mm

8.3.2 Misplacement or eccentricity

2 percent of the footing width in the direction of misplacement but not more than (applies to concrete only, not to reinforcing bars or dowels).	± 50 mm

8.3.3 Reduction in thickness

Minus 5 percent of specified thickness

9. ACCEPTANCE OF STRUCTURE

9.1 General

9.1.1 Complete concrete work which meets all applicable requirements will be accepted subject to the other terms of the Contract Documents.

9.1.2 Completed concrete work which fails to meet one or more of the requirements and which has been repaired to bring it into compliance will be accepted subject to the other terms of the Contract Documents.

9.1.3 Completed concrete work which fails to meet one or more of the requirements and which cannot be brought into compliance may be accepted or rejected as provided in these Specifications or in the Contract Documents. In this event, modifications may be required to assure that remaining work complies with the requirements.

9.2 Dimensional Tolerances

9.2.1 Formed surface resulting in concrete outlines smaller than permitted by the tolerances of clause 8 shall be considered potentially deficient in strength and subject to the provisions of sub clause 9.4.

9.2.2 Formed surfaces resulting in concrete outlines larger than permitted by the tolerances of clause 8 may be rejected and the excess material shall be subject to removal. If removal of the excess material is permitted, it shall be accomplished in such a manner as to maintain the strength of the section and to meet all other applicable requirements of function and appearance. Permission is required if excess material is to be removed in accordance with this clause.

9.2.3 Concrete members cast in the wrong location may be rejected if the strength, appearance or function of the structure is adversely affected as decided by the Engineer or if misplaced items interfere with other construction.

9.2.4 Inaccurately formed concrete surfaces exceeding the limits of Clause 8 or Clause 6.5 of Section 'Formwork' shall be removed and replaced, and those that are exposed to view, may be rejected, or shall be repaired, or removed and replaced, as directed by the Engineer.

9.3 Appearance

9.3.1 Concrete exposed to view with defects which adversely affect the appearance of the specified finish may be repaired only by approved methods.

9.3.2 Concrete not exposed to view is not subject to rejection for reason of defective appearance.

9.4 Strength of Structure

9.4.1 Strength of the structure in place will be considered potentially deficient if it fails to comply with any requirements which is relevant to the strength of the structure, including but not necessarily limited to the following conditions:

- Concrete strength requirements not considered to be satisfied in accordance with Clause 6 hereof.
- Reinforcing steel size, quantity, strength, position or arrangement at variance with the requirements as specified under section 'Reinforcement' or in the Contract Documents.
- Concrete which differs from the required dimensions or location in such a manner as to reduce the strength.
- Curing less that specified.
- Inadequate protection of concrete from extremes of temperature during early stages of hardening and strength development.
- Mechanical injury, construction fires, premature removal of formwork likely to result in deficient strength.
- Poor workmanship likely to result in deficient strength.

9.4.2 Structural computation and/or additional testing may be required when the strength of the structure is considered potentially deficient.

9.4.3 Core tests may be required when the strength of the concrete in place is considered potentially deficient.

9.4.4 If core tests are inconclusive or impractical to obtain or if structural computations do not confirm the safety of the structure, load tests may be required and their results evaluated, in accordance with ACI Standard 318.

Sui Southern Gas Co. Ltd. Procurement Dept. H.O. Gulshan-e-Iqbal

ENGINEERING DESIGN BUREAU LAHORE

9.4.5 Concrete work judged inadequate by structural computations or by results of a load test shall be reinforced with additional construction if so directed by the Engineer or shall be replaced, at the Contractor's expense.

9.4.6 The Contractor shall bear all costs incurred in providing the additional testing and/or computations required by this section.

10. MEASUREMENT AND PAYMENT

10.1 General

Except otherwise specified herein or elsewhere in the Contract Documents, no measurement and payment will be made for the under mentioned specified works related to the relevant items of the Bills of Quantities. The cost thereof shall be deemed to have been included in the quoted unit rate of the respective items of the Bills of Quantities.

10.1.1 Providing, placing & fixing of anchor bolts or any other embedded parts.

10.1.2 Providing and installing all type of joints in concrete structure.

10.2 Plain and Reinforced Concrete

10.2.1 Measurement

Concrete shall be measured as executed but no deduction shall be made to the following:

- Volume of any steel embedded in the concrete.
- Volume occupied by water pipes, conduits etc. not exceeding 4 sq. inch each in cross sectional area.
- Voids not exceeding 1 sq. feet in work given in square feet. If any void exceeds 1 sq. feet, total void shall deducted.
- Voids, which are not to be deducted as specified above, refer only to openings or vents which are wholly within the boundaries of measure areas. Openings or vents which are at the boundaries of measured areas shall always be subject to deductions irrespective of size.
- Concrete work shall be classified and measured separately as listed under items of Bills of Quantities.
- Junction between straight and curved works shall in all cases be deemed to be included with the work in which they occur.
- Columns shall be measured from the top of footing/footing beams or floor surfaces to the underside of beams or slabs as the case may be. Where the width of beams is less than the width of columns, the extra width at the junction shall be included in the beams.
- The depth of the beams shall be measured from bottom of the slab to the bottom of the beams except in case of inverted beams where it shall be measured from top of slab to the top of beam. The cross section of beam shall be the actual cross section below or above the slab.
- Measurement of acceptably completed works of plain and reinforced cement concrete will be made on the basis of number of cubic metre concrete placed and compacted in position within the neat lines of the structure as shown on the Drawings or as directed by the Engineer.

10.2.2 Payment

Payment will be made for the acceptable measured quantity of plain and reinforced cement concrete on the basis of unit rate per cubic metre quoted in the Bills of Quantities and shall constitute full compensation for all the works related to the item.

Southern Gas Co. Ltd. Procurement Dept. H.O. Gulshan-e-Iqbal
ENGINEERING DESIGN BUREAU LAHORE

SECTION - 3000

STRUCTURAL STEEL WORKS

1. SCOPE

The work under this section consists of furnishing all material, labour, plant, equipment and appliances, fabricating, erecting, installing, painting and all other items incidental to steel work as shown on the drawings, as specified herein and/or as directed by the Engineer, for a complete job.

2. APPLICABLE CODES AND STANDARDS

Latest edition of the following codes and standards are applicable to the work of this section:

AISC	Specifications for the design, fabrication and erection of structural steel
AISC	Manual of steel construction
AISC	Code of Standard Practice
AISC	Specification for structure joints using ASTM A 307 or A 325 bolts
AISC	Guide to shop painting of Structural Steel
ASTM A 6	General Requirements for Rolled Steel Plates, Shapes, Steel Piling, and Bars for Structural use
ASTM A 36	Structural Steel
ASTM A 242	Tower legs (HL) ASTM A242 / A588
ASTM A 53	Pipe, Steel, Black and Hot-Dipped, Zinc coated welded and seamless
ASTM A 307	Carbon Steel externally and internally threaded standard fasteners
ASTM A 325	High strength bolts for structural steel joints including suitable nuts and plain hardened washers
ASTM E 109	Dry power magnetic particle inspection
AWS D 1.1	Specification for welding of steel structures
ANSI	
B 18.2.2.1	Plain washers
SSPC - SP6	Steel structures painting council - surface preparation specifications.
ASCE	Guide for Design of Steel Transmission Towers.

Sui Southern Gas Co. Ltd. Procurement Dept. H.O. Gulshan-e-Iqbal
ENGINEERING DESIGN BUREAU LAHORE

3. MATERIALS

Except otherwise stated on the drawings, all materials shall conform to the following. Wherever necessary the Contractor may use equivalent alternative material subject to approval of the Engineer.

3.1 Structural Steel

- Structural steel for tower legs (HL) ASTM A242 / A588, Base plate & wing plate ASTM A242 / A588 and other members ladders and platforms shall conform to the requirements of ASTM A-36.

- Steel pipes shall conform to the requirements of ASTM A-53, type E or S, Grade B or ASTM A-501.

3.2 Bolts, Nuts and Washers

All connections except as noted herein or on the drawings, shall be made with High Strength Bolts in friction type connections. High strength bolts, heavy hexagonal nuts and hardened washers shall conform to the requirements of ASTM A-325.

High strength bolts and nuts loosened after tightening, not be reused, and shall be discarded immediately.

Bolts and nuts for ladders and platforms may conform to the requirements of ASTM A-307.

All bolts, nuts and washers shall be hot dip galvanized.

3.3 Welding Electrodes

Welding electrodes shall match the base metal and shall conform to the requirements of AWS D1.1 specifications.

4. CONNECTIONS

Detailing of all connections shall be as shown on the drawings.

5. SHOP DRAWINGS

5.1 Shop drawings shall be prepared and submitted by the Contractor for approval in accordance with the requirements of the Contract Documents.

5.2 Shop drawings shall conform to the best standards of the construction industry. The Contractor shall employ competent engineering personnel for preparation of the shop drawings and their supervision. Prior to submittal, the Contractor shall ensure compliance of each shop drawing with requirement of the Contract Documents and shall affix his signature and stamp on each drawing to this effect, before submission.

5.3 Shop drawings shall include plans, elevations, section and complete details to describe clearly, at an ample scale, all work to be done. Drawings shall be accurately, amply and clearly dimensioned and noted.

5.4 The shop drawings shall include

i. An erection scheme in suitable size having the following information.

- Location of erection elements in respect of axis and Marks as well as picking points of these elements with respect to each other or with the existing steel or reinforced concrete structures.

- Joints showing holes and bolts diameter and numbers, and sizes and lengths of welding, if any.

Procurement Dept. H.O. Gujrat
ENGINEERING DESIGN BUREAU LAHORE

- Chart showing list of assembling marks having columns such as Mark, Description, Quantity, Weight of each Mark, Total weight and Remarks with grand total on the end.
- Chart showing List of Bolts, nuts and Washers in tabulated form, detailing information such as size, quantity, weight and their grand totals.
- Quality of materials.
- Quality and type of welding electrodes.
- Measures to be adopted against unscrewing of bolts.
- Instructions for surface preparation and painting.
- Erection sequence.
- References to relevant drawings.
- Except in special cases all scheme drawings shall be made in single fairly thick lines.
- The recommended scale of erection scheme is 1:50, 1:10, 1:200, and for joints 1:5, 1:10 or 1:20.

ii. Fabrication drawings in suitable size shall contain the following information:

- Each Shop Assembly (Mark) shall be drawn separately showing necessary lines, elevations, sections with reference to axis, centre lines, location of holes, plates, etc. fully dimensioned with part numbers.
- Bolts and holes sizes.
- Welding symbols and welded joints requirements, in accordance with AISC manual of steel construction and AWS specifications.
- Geometrical Setting out dimensions necessary for the assembly of an element. Location and details of joints as calculated by the Contractor.
- Instruction for welding, dimensions of weld, edge preparations, methods of welding, and methods for control of distortions.
- List of symbols for bolts and holes used.
- List of symbols for welds used.
- Edge and end distances.
- Welding sizes and lengths.
- Standards and quality of materials.
- Type and quality of welding electrodes.
- Tests for welding.
- Reference to related erection scheme drawings.
- Reference to design drawings.
- Part list.
- Instructions for surface preparation, painting, primer and finish coats.

Sui Southern Gas Co. Ltd. Procurement Dept. H.O. Gulshan-e-Iqbal

ENGINEERING BUREAU LAHORE

- Recommended scales for fabrication drawings are 1:10, 1:20, and for joints and details 1:1, 1:2 or 1:5.

6. FABRICATION

The Contractor shall notify the Engineer about any problems or doubts/ambiguities felt in the drawings for clarification/rectification well in time to prevent any fabrication errors. Fabrication shall not be commenced until approval has been obtained from the Engineer.

6.1 Straightening of Material

Rolled material, before being worked upon shall be straightened within tolerances as per ASTM specifications A6. Straightening, necessarily shall be done by mechanical means or by the application of a limited amount of localised heat. The temperature of heated areas, as measured by approved methods, shall not exceed 650^{o}C.

6.2 Cutting

As far as practicable cutting shall be done by shearing, Oxygen cutting shall be done where shear cutting is not practicable and shall preferably be done by machine. All edges shall be free from notches or burs. If necessary the same shall be removed by grinding.

6.3 Holes Punching/Drilling

Holes shall be punched where thickness of the material is not greater than the diameter of blot + 3mm. Where the thickness of the material is greater the holes shall either be drilled of sub-punched and reamed to size. The die for all sub-punched holes and the drill to all sub-drilled holes shall be at least 2mm smaller than the nominal diameter of the bolt.

Alignment of holes in connected members, shall be ensured by drilling them together, with the members positioned as per shop drawings.

Holes for bolts, shall not be greater than the bolt diameter by more than 1.6 mm (1/16 inch).
Members with oversized holes shall not be used.
No holes, except those specified or approved by the Engineer, shall be made in any member.

Members with oversized or un-approved holes will be rejected.

6.4 Welding

6.4.1 All execution and inspection of welding shall be done in accordance with the provisions of the American Welding society specifications. No welding (e.g. for piping/electrical supports) shall be made without approval.

Field welding of members, carrying loads, will not be permitted.

6.4.2 Maximum and minimum size and lengths of fillet welds shall be in accordance with AISC specifications.

6.4.3 Surface to be welded shall be free from loose scale, slag, rust, grease, paint or any other foreign matter.

6.4.4 Butt welds shall be pre-qualified full penetration welds, unless otherwise specified and permitted.

6.4.5 All welding shall be done by certified welders.

6.5 Tolerances

Tolerances shall be as per ASCE Guide for Design of Steel Transmission Tower, or AISC Manual of Steel Construction, whichever is more stringent.

The actual position of any punched or drilled hole on a member shall not vary more than 0.75 mm (1/32 inch) from its specified position.

Vertical axis of the tower shall not be out of plumb by more than 25 mm for every 12 m of height.

Tolerances are not cumulative.

7. TEST ASSEMBLY

7.1 After fabrication and before surface preparation, shop trial assembly of complete tower shall be done to ensure alignment and matching of all members and their connection holes.

7.2 Test assembly work and procedure should be planned during fabrication process.

7.3 Each test assembly shall be got inspected from the Engineer and shall be dismantled only after his approval in writing.

8. GALVANIZATION

8.1 General

Prior to painting, all components of tower shall be hot dip galvanized. Galvanizing shall be done in a manner and of a thickness and quality conforming to the requirements of ASTM A 123 standard. Minimum thickness of galvanization shall be 90 microns.

8.2 Procedure

Components shall be galvanized i.e. zinc coated after complete fabrication i.e. welding, drilling etc. The process shall consist of removal of rust and mill scale by pickling in hydrochloric acid or sulphuric acid followed by water wash and pre-fluxing in tanks containing zinc ammonium chloride and then fluxing with ammonium chloride. The fluxed components shall then be passed through a drying oven prior to immersion in a bath of virtually pure molten zinc. Zinc coating, damaged prior to painting, shall be touched up with approved zinc paint.

9. SURFACE PREPARATION/PAINTING

9.1 Surface Preparation

All steel shall be cleaned by means of approved means as recommended by the manufacturer of paint.

9.2 Painting

a) The type of primer and paints to be applied shall be as specified in section 9.2.1. The Contractor shall use the best quality of the type of paint specified (ICI, Berger or Buxl... and shall get the same approved by the Engineer.

b) All painting shall be in accordance with the paint manufacturer's specification.

c) Steel work/Surface not to be painted

i) Steel work to be encased/embedded in concrete or surface in contact with concrete shall not be painted.

Sui Southern Gas Co. Ltd. Procurement Dept. H.O. Gulshan

ENGINEERING DESIGN BUREAU LAHORE

ii) Bolt and nuts threads shall be protected by greasing till they are tightened and painted.

iii) Contact surface of connections using high strength bolts in friction type connections shall not be painted. Such surfaces of all components after fabrication shall be cleaned free of all foreign matters, grease, burrs, slag by means of sand blasting. No coating whatsoever then shall be applied to such surface. The surface roughness for high strength friction grip bolts is a very important factor therefore components shall not be erected unless approved by the Engineer.

9.2.1 Primer and Paint

All structural steel components shall be painted with 1 (one) coat of wash primer / etch primer, 2 (two) coats of epoxy primer and 2 (two) coats of epoxy finish paint in specified colours in the fabrication shop. One (final) coat of epoxy finish paint in specified colour shall be applied after complete erection, alignment / leveling and torque tightening of the bolts. While applying final coat all areas where the galvanized surface is exposed shall be applied with the required 2 (two) coats of epoxy primer and 2 (two) coats of epoxy finish paint. All gaps, crevices, notches, bolts, bolt heads, nuts, washers, etc. shall be sealed and covered with paint.

Dry film thickness for each coat of primer shall be 25 microns (average) and for each coat of enamel shall be 50 microns. The epoxy finish coats shall be in 2 (two) shades, red and white applied alternately, as directed by the Engineer or as shown on the drawing

10. ERECTION

10.1 Alignment

No permanent bolting or welding shall be done at site during erection until as much of the structure as will be stiffened thereby has been properly aligned and approved by the Engineer.

10.2 Joints Using High Strength Bolts

All structural joints using high strength bolts shall be executed and inspected in accordance with "AISC Specification for structural joints using ASTM A 325 or A 490 bolts". High strength bolts and nuts, if loosened after tightening, shall be discarded and replaced with unused bolts and nuts.

10.3 Temporary Supports

Until all bolts have been tightened and inspected, the Contractor shall remain responsible for safety and stability of the tower against all loads, and shall ensure the same by adequate number of proper supports.

11. INSPECTION AND TESTS

11.1 Manufacturers' Test Certificate for all material used shall be furnished by the Contractor for Engineer's scrutiny and approval.

11.2 Rolling tolerance of all shapes and profiles shall be in accordance with the provision of ASTM A6 specifications. These shall be checked by the Contractor before commencing work. Material shall be rejected if found not within limits.

11.3 Materials shall be tested for conformance with the specified standards at an approved testing laboratory as and when directed by the Engineer.

11.4 Contact surface of connections using high strength bolts in friction type connections shall be got inspected and approved from the Engineer before bolting.

Sui Southern Gas Co. Ltd. Procurement Dept. H.O. Gulshan

ENGINEERING DESIGN BUREAU LAHORE

11.5 All bolted connections shall be got inspected and approved from the Engineer for type, size, number or bolts and installation including tightening. Size, spacing, ends and edge distances of bolts holes shall also be got inspected.

11.6 Inspection and Testing - Welding

11.6.1 General

Welding shall be inspected and tested by an approved testing laboratory during fabrication of structural steel.
The testing laboratory shall be responsible for conducting and interpreting the tests. It shall state in each report whether or not the test specimens conform to the requirements of the specified standards and shall specifically note any deviations therefrom.

Welding shall be done by certified welders. All welds shall be subjected to 100 percent visual inspection and tests as follows. Type and locations of all defects found in the welding work, alongwith measures required and performed to correct such defects shall be recorded.

In addition to the requirements of AWS D 1.1, paragraph 8.15, each weld shall be visually free of slag, inclusions and porosity.

Magnetic particle, ultra-sonic and radiographic inspection shall be made of all welds as specified below. Magnetic particles tests shall be made on the root pass and finished weld.

The method of magnetic particle test shall be in accordance with ASTM E 109. Any type of crack or zone of incomplete fusion or penetration shall not be acceptable.

Radiographic testing technique and standards of acceptance shall be in accordance with AWS
D 1.1.

Ultra-sonic testing shall be performed in accordance with AWS D 1.1.

Welding inspection and test reports showing evidence of quality of welding shall be submitted by the Contractor. For each section of weld inspected and tested, a report shall be furnished which clearly identifies the work, the welder's identification, the areas of inspections and tests, the acceptability of the welds, and signature of the inspector or laboratory incharge. Each report shall be completed at the time of inspection or test. For radiographic examination, a complete set of radiographs shall be furnished in addition to the report. All inspection and testing shall be carried out in the presence of the Engineer or his representative.

11.6.2 Test Methods

Test methods, as per descending order in the following list, shall be used. When a particular test method, specified for a joint, is impracticable, the next practicable method in the list shall be used after approval. NDE procedures and techniques shall be in accordance with AWS D 1.1, section 6.7.

a) Radiographic Method: In addition to the requirements of AWS D 1.1, compliance with ASTM E 94 shall be made.

b) Ultrasonic method.

c) Magnetic particle method.

d) Liquid Penetration Method Visible-dye, solvent removal method only.

11.6.3 Requirement for ten percent Examination

a) A 300 mm section of weld shall be examined in each 3 m increment of each welder's work as directed by the Engineer. If the examination meets the acceptance standards of AWS D 1.1, the 3 m of weld represented will be accepted.

b) If the examination fails to meet the acceptance standards, two additional 300 mm sections shall be examined in the 3 m increment as directed by the Engineer. If both of these examinations meet the acceptances standards, the 3 m weld represented will be accepted. The defects detected in the first examination shall be repaired and re-examined.

c) If one or both of the examinations fail to meet the acceptance standards, the remaining weld of the 3 m increment shall be examined. Areas that do not meet the acceptance standards shall be repaired and re-examined.

11.6.4 Repair and Re-Testing of Welds

All defective welds shall be repaired in accordance with AWS D 1.1, or replaced. Repaired and replaced welds shall be re-tested by the same method and acceptance standard used to examine the original weld. In addition, when defective welds are found, the testing laboratory shall determine the cause of the defective welding and institute immediate corrective action.

All defective welding shall be repaired or replaced at the Contractor's expense.

11.7 Rejection

Neither the fact that the materials have been tested nor that the manufacturers' test certificates have been furnished shall effect the liberty of the Engineer to reject material found not according to these specifications.

Materials or workmanship not in reasonable conformance with the provisions of these specifications shall be rejected at any time, after delivery or during the progress of the work or the fabrication and erection at site.

12. MISCELLANEOUS STEEL WORK

12.1 General

The following items are also covered by this section of specifications and all clauses of this section are applicable to these items as well.

- Steel Ladders.
- Platforms.
- Handrails.
- Chequered plate.

12.2 Steel Ladders

Steel ladder shall be of welded assemblies fabricated in accordance with the drawings.

12.3 Handrails

Handrails consisting of posts, top rail, knee rails and toe rail shall be fabrication in suitable units having two posts or three posts in one unit with erection joints between top rails and knee rails. Top rail, knee rail and toe rail may be brought at site in stock length then the same be cut and welded at site.

12.4 Chequered Plate

Material for these shall conform to the requirements of ASTM A-36.
All cuts in chequered plates shall be reinforced and stiffened as per Engineer's approval.

13. MEASUREMENT AND PAYMENT

13.1 General

Except otherwise specified herein or elsewhere in the Contract Documents, the Contractor's bid amount against each item (as given below) of Bill of Quantities shall include all works specified herein and/or shown on the Tender Drawings related to the item.

13.2 Structural Steel Works for Tower and Related Items

13.2.1 Measurement

Measurement of acceptably completed works of structural steel, will be made on the basis of weight in tonnes (1000 kg), according to approved shop drawings, after verification at site to the satisfaction of the Engineer that the items fabricated, supplied and erected in position conform with the contract and approved shop drawings.

No measurement and payment will be made for the under mentioned specified works related to the relevant items of the Bill of Quantities. The cost there of shall be deemed to have been included in the quoted unit rate of the respective items of the Bills of Quantities.

- Weld metal and welding rods.
- Testing of materials and weld, and repair of defects.
- All metal embedded parts except those specified on the contract drawings.
- Shop trial assembly.
- Hot dip galvanization
- Temporary supports during tower erection.

13.2.2 Payment

Payment will be made for acceptable measured quantity of structural steel works on the basis of unit rate per tonne quoted in the Bill of Quantities and shall constitute full compensation for all the works related to the item.

13.3 Painting

13.3.1 Measurement

Measurement of acceptably completed works of painting will be made on the basis of weight in tones (1000 kg), according to approved painting procedures after verification at site to the satisfaction of the Engineer that the items conform with the contract and approved shop drawings.

No measurement and payment will be made for the under mentioned specified works related to the relevant items of the Bill of Quantities. The cost there of shall be deemed to have been included in the quoted unit rate of the respective items of the Bills of Quantities.

- Surface preparation including cleaning.

13.3.2 Payment

Payment will be made for painting on the basis of unit rate per ton quoted in the Bill of Quantities and shall constitute full compensation for all the works related to the item.

13.4 Shop Drawings / Fabrication Details and As Built Drawings

13.4.1 Measurement and Payment

Sui Southern Gas Co. Ltd. Procurement Dept. H.O Gulshan-e-Iqbal

ENGINEERING DESIGN BUREAU

No separate measurement and payment will be made for shop drawings / fabrication details and as built drawings. The cost there of shall be deemed to have been included in the quoted unit rate of the respective items of the Bills of Quantities.

Sui Southern Gas Co. Ltd. Procurement Dept. H.O. Gulshan-e-Iqbal

ENGINEERING DESIGN BUREAU LAHORE

SECTION - 6411

INSULATION, DAMP PROOFING/ WATER PROOFING & BUILT-UP ROOFING SCOPE

The work under this section of the Specifications consists of furnishing all plant, labour, equipment, appliances and materials and in performing all operations in connection with installation of insulation, water-proofing and built-up roofing, including water proofing treatment to foundations, toilets floor and walls complete in strict accordance with this section of the specifications and the applicable drawings and subject to the terms and Conditions of the Contract.

1 CODES AND STANDARDS

The work shall conform to the requirements of the following Codes and Standards, unless otherwise specified:

PS 208	Common building clay bricks.
ASTM C67-81	Standard method for sampling and testing brick and structural clay tile.
BS 8102	Primer for use with asphalt in damp proofing and water proofing.
ASTM D2103-81	Polyethylene film and sheeting.
ASTM D 140-70	Standard methods of sampling bituminous (1981) materials.
DOE 77	Bitumen used in damp proofing and water proofing Specifications for roofing felt.
BS 1521-72	Water proof building papers.
BS 2972-75	Methods of test for inorganic thermal insulating (1984) materials.
BS 4016-72	Building paper (breather type).

3 SUBMITTAL

3.1 **Shop Drawings:**

Shop drawings shall be submitted showing layout and all the details for construction.

3.2 **Samples:**

Samples of all materials proposed for use under this section, shall be submitted to the Engineer for approval.

4 MATERIALS

4.1 **POLYSTYRENE**

4.1.1 Expanded polystyrene (thermopore) shall be of the type as approved by the Engineer for insulating the roof and shall conform to BS 7972. The adhesive for expanded polystyrene shall be as specified by the manufacturer or as approved by the Engineer.

4.1.2 Extruded polystyrene for insulating the roof shall be of following properties:

Density 32-38 Kg/m³	BS 4370 (Method 2)
Termal Conductivity 0.18 BTU in/ft² hr °F	ASTM C-518
Compressive strength 300-400 kPa	ASTM D 1621

4.2 **BITUMEN**

Special industrial asphalt shall be of 10/20 penetration, or any other approved by the Engineer conforming to the following limits:

Specific gravity	1.01/ at 25°C

Sui Southern Gas Co. Ltd. Procurement Dept. H.O. Gulshan

Penetration, 100 gm	10/20 at 25°C
Working temperature	+5oC /55°C

Primer shall be bitumen of 10/20 penetration of approved manufacturer or any other approved by the Engineer conforming to B.S 8102.

4.3 **FELT**

The felt shall be an asphalt impregnated type 1C fiber base as per BS 747. The number of ply shall be as specified in the Drawings. The felt shall be smooth and stout building paper having water proofing qualities conforming to BS 4016. Weight of 3 ply standard roll of 20 x 1 metre should not be less than 54 Kilograms.

4.4 **THERMOFOAM**

Thermofoam/Insulite shall be as manufactured by Taunsa Gypsum (PVT) limited or as approved equivalent.

4.5 **WATER PROOFING POLYMER (CONTITE FCW)**

It shall be 2- part acrylic polymer (Polyacrylate Styrene) modified highly flexible cementitious membrane as manufactured by Cormix International or approved equivalent with following characteristics:

Elongation	> 200%
Density	1.5 Kg/l
Resistance to Water	No water penetration (DIN 1048 pt 5:199)
Coverage	approximately 1.5 Kg/m²/mm

4.6 **COLD APPLIED BITUMEN (DECK GUARD)**

It shall be fully bonded elastomeric liquid applied water proofing membrane as manufactured by Cormix Intrnational or approved equivalent.

The application shall be in 2- coats @ 1.5kg/m²/coat over a primer coat @ 0.75 kg/m².

4.7 **EARTH**

Clay shall be plastic and obtained from sources approved by the Engineer and shall have fine sand in the range of 20% to 30%. It shall not contain more than 0.50% soluble salts, more than 0.2% sulphate, more than 4% organic contents and shall not contain any gravel, coarse sand, roots of grass and plants.

4.8 **BRICK TILES**

Brick tiles shall be either hard mould or machine moulded having a nominal size of 230 x 115 x 37 mm, without frog on any side and weighing 1.6 Kg to 2.0 Kg. The tiles shall conform to PS 208 or ASTM C 67 and shall have same qualities as of bricks specified in Section "Brick Masonry".

4.9 **CLASS "E" CONCRETE**

Class "E" cement concrete shall be in accordance with specification for "Plain & Reinforced Concrete".

4.10 **ISOLATION MEMBRANE/POLYETHYLENE SHEET**

Isolation membrane shall be polyethylene sheet 500 gauge thick conforming to ASTM D 2103.

4.11 **TERRA COTTA TILES (Kaphrail) FOR SLOPING ROOF**

The terra cotta tiles for sloping roof shall be as shown on the drawing or as approved by the Engineer.

Sui Southern Gas Co. Ltd. Procurement Dept. H.O. Gulshan-e-Iqbal

ENGINEERING DEPT. LAHORE

4.12 CEMENT PLASTER

Cement Plaster shall be in accordance with specification for cement plaster.

5 PREPARATORY WORK

All scuppers and roof drains shall be placed and metal flashing flanges etc. shall be provided in time to be installed alongwith the roofing assembly.

All surfaces, to be treated shall be dust free and dry. Application of roof finishes shall not start unless the preparatory work has been inspected and approved by the Engineer.

6 INSTALLATION

6.1 GENERAL

The selection and combination of various water proofing and damp- proofing materials for different locations shall be as shown on the Drawings or as directed by the Engineer. Unless otherwise directed or approved by the Engineer, the procedures given in this sub-section shell be adopted.

A priming coat of asphalt primer shall be applied to all parts of surfaces to be damp/water proofed before the application of coating.

6.1.1 Master Seal 420 for built-up roof coating shall be applied water proofing @ 1Kg / Sq. m per coat.

6.1.2 Roof coating shall not be applied during rain or while surfaces are damp; it shall be applied only to surfaces that are clean and dry.

6.1.3 Method of laying the different layers of built-up roofing shall be strictly in accordance with the instructions of the Engineer.

6.1.4 Entire deck surface and parapet walls shall be painted with Master seal 420 primer and allowed to dry thoroughly. Primer shall be kept several centimeters back from joints of pre-cast panels.

6.1.5 Bond coats of Master seal 420 shall be at the rate of 2 Kg per 10 Sft. (one square metre) each coat. At no point shall felt touch the underlying concrete and the rate of application shall be such that the asphalt mopping shall not be more than one metre ahead of the roll of felt. All asphalt shall be applied with mops except that the hot surfacing application shall be poured from a dipper.

6.1.6 Felt shall be laid with each sheet lapping the preceding one. Each sheet shall be lapped with an exposed lap of 12 inch. All end laps shall be 4 inch minimum. The laying of felt shall, in general, be started at low points working upwards to high points of the surface. The roofing felt shall be rolled while mopping, rubbing and pressing the felt sheets as it spreads on to the surface, so as to ensure thorough sticking and a smooth firm surface, free from wrinkles or bubbles. Roofing felt shall be extended to points and position as shown on the Drawings.

6.2 EARTH AND TILE ROOFING (FLAT ROOF)

- Primer coat @ 2 Lbs. of 80/100 grade bitumen mixed in one gallon kerosene oil per 100 Sft.
- 2-coats of 10/20 grade hot bitumen, Each coat is @ 40 lbs / 100 Sft.
- 1st layer of 500 gauge polyethylene sheet, lapped and joints are sealed properly
- Thermal insulation with 2" thick polystyrene (Thermopore sheet) of 2.12 Lbs/Cft density.
- 2nd layer of 500 gauge polyethylene sheet, lapped and joints are sealed properly
- 4" thick average earth fill laid in slope

Sui Southern Gas Co. Ltd. Procurement Dept. P.O. Shahra-e-Iqbal
ENGINEERING DESIGN BUREAU LAHORE

- 9"x4½"x1½" thick brick tiles laid over 3/4" thick 1:4 cement sand bedding mortor and grouted with 1:2 cement sand.
- Tiles, after laying, grouting and flush pointing, shall be kept wet throughout for 7 days.
- The Contractor shall take care to maintain the slopes, levels and protect the work from any damage during the construction and maintenance period.The Contractor shall have to remove, replace and rectify all damaged work.

6.3 R.C.C RETAINING WALL

- Wall surface shall be painted with asphalt primer at the rate of 10 Lbs per 100 sft.
- One uniform mopping coat of 10/20 grade hot bitumen @ 20Lbs/%Sft shall be applied.
- One layer of Polyethylene sheet 500 gauge which shall be applied with 6" side laps and 8" end laps staggered with layers bonded together with asphalt. The surface shall be broomed to ensure that it is free of wrinkles.

6.4 WATER PROOFING TREATMENT IN FOUNDATION RAFT & TOILET FLOOR SUB- STRUCTURES

One uniform mopping coat of 10/20 grade hot bitumen shall be applied @ 20 Lbs/100 Sft. with sand blinded over primer coat over blinding concrete of foundation.

6.5 WATER PROOFING OF FLOWER TROUGH

One uniform mopping coat of 10/20 grade hot bitumen shall be applied @ 20 Lbs/100 Sft. over primer coat.

6.6 WATER PROOFING OF WATER TANK

The water tank's floors and walls will be water proofed with ½" thick terrazzo skirting using grey cement mixed with approved water proofing chemical @ one liter /50 kg cement bag or approved equvilant water proofing materials in accordance with manufactures written recommendations, over 1:3 cement sand plaster.

7 MEASUREMENT AND PAYMENT

7.1 General

Except otherwise specified herein or elsewhere in the Contract Documents, no measurement and payment will be made for the under mentioned specified works related to the relevant items of the Bill of Quantities. The cost thereof shall be deemed to have been included in the quoted unit rate of the respective items of the Bills of Quantities.

7.1.1 All preparatory work, scrapping, cleaning and primer coat.

7.1.2 Formwork.

7.1.3 Terrazzo tile in roof treatment.

7.1.4 Coats of bitumen.

7.1.5 Cement sand mortor for sloping roof.

7.1.6 Polyethylene sheet.

7.1.7 Cement sand plaster 1:3 on R.C.C wall.

7.1.8 All Sealent any type (Master Seal, Rheomac etc.)

7.1.9 Polyetyrene sheet

Sui Southern Gas Co. Ltd. Procurement Dept. H.O. Gulshan-e-Iqbal
ENGINEERING DESIGN BUREAU LAHORE

7.2 Water Proofing/Damp proofing of Foundation Raft, Retaining walls, Toilets floor, Flower trough and water tank's Floor and Walls

7.2.1 Measurement

Measurement of acceptably completed works of Water Proofing/Damp proofing of Foundation Raft, Retaining walls, Toilets floors, flower trough, water tank's floor and walls will be made on the basis of net actual area in square feet as shown on the Drawings or as directed by the Engineer.

7.2.2 Payment

Payment will be made for acceptable measured quantity of Water Proofing/Damp proofing of Foundation Raft, Retaining walls, Toilets floor, flower trough and water tank's floor and walls on the basis of unit rate per square feet quoted in the Bills of Quantities and shall constitute full compensation for all the works related to the item.

Dept.

SECTION - 8001

ELECTRICAL WORK

1. SCOPE

The works related to the electrical system which are included in the scope of this Contract are shown on the drawings, stated in the Bill of Quantities and explained in these specifications. The works under this section consist of supplying, installing, testing and commissioning of the following items with all accessories:-

- Aircraft Warning Lights
- Wiring & Conduiting
- Lightning Protection System

The Contractor shall discuss the electrical layout with the Engineer and Coordinate at Site for exact positioning of these items to be installed with the tower. The Contractor shall also be responsible to supply any other equipment not specifically mentioned in these Documents but which is necessary for proper operation of the works/system included in the scope of this Contract. The Contractor shall be solely responsible for ensuring proper functional requirements of various equipments and shall be responsible for furnishing any additional piece of equipment and for making modification in the equipment as desired and/or approved by the Engineer to achieve proper co-ordination with various equipments offered in the bid and also with those installed by others.

2. RULES & REGULATIONS

The entire electrical installation/work shall be carried out by licensed Contractor, authorized to undertake such work under the provisions of the Electricity Act 1910 and the Electricity Rules 1937 as adopted and modified upto date by the Government of Pakistan.

All works shall be carried out in accordance with the latest edition of the Regulations of the Electrical Equipment of Buildings issued by the Institute of Electrical Engineers, London, the Contract Documents, the Electricity Rules 1937 and by-laws that are in force from time to time.

Any discrepancy between these specifications and the standards regulations shall be brought to the notice of Engineer for his instructions and decision of the Engineer shall be final and conclusive.

The Contractor shall be responsible for completing all formalities and submitting the test certificates as per prevailing rules and regulations, and shall have the installation passed by the Government Electric Inspector of that region. All requirements of the Electrical Inspector and the WAPDA shall be complied with.

3. AMBIENT CONDITIONS

All material and equipment supplied and installed shall be designed, manufactured and tested to meet the following ambient conditions unless specifically stated otherwise for any materials/equipment.

Max. outdoor temp.	=	55°C
Min. outdoor temp.	=	-10°C
Max. Rel. Humidity	=	90 %
Min. Rel. Humidity	=	10 %

Sui Southern Gas Co. Ltd. Procurement Deptt. H.O. Gulshan-e-Iqbal
ENGINEERING DESIGN BUREAU LAHORE

4. SYSTEM DATA

Unless otherwise specified elsewhere, all equipment and material shall be designed to operate satisfactorily with the following minimum requirements with the specified tolerance without any derating.

- Voltage rating of equipment 23OV, Single Phase ± 10 %
- Frequency 50 Hz ± 2 Hz

5. APPLICBLE STANDARDS/CODES

The latest standards/codes of reputable organization shall be applicable for the material and equipment specified herein and for installation work. Such organizations to be British Standard institution (BS), International Electro-technical Commission (IEC), Pakistan Standard Institution (PSI) and International Civil Aviation Organization (ICAO).

6. GUARANTEE

In addition to the Contractor's guarantee and liabilities for satisfactory operation of the works, wherever advised by Engineer, the Contractor shall also furnish written guarantee of the manufacturer or supplier with respect to satisfactory performance of each equipment. Guarantee shall be given for replacement and repair of part or whole of the equipment which may be found defective in material or workmanship. The guarantee shall as a minimum cover the duration of Maintenance Period as defined in the Conditions of Contract. This guarantee shall not relieve the Contractor of his obligations and he will be fully responsible for the repair or replacement of any defective material in time, so as not to cause any undue delay in carrying out the repairs and/or replacements.

7. ASSOCIATED CIVIL WORKS

The cost of all civil works which are associated with any BOQ item of electrical works, such as excavation, backfilling of earth, compaction of the earth, concrete work, foundation pads, grouting, chiseling, making openings, etc. are deemed to have been included in this respective items of Bill of Quantities unless specifically stated otherwise. Such works will also include repair of any damage to civil works caused by the Contractor during electrical installation.

8. AIRCRAFT WARNING LIGHT FIXTURE

8.1 Material

the details of light fixture is given on the drawings and all relevant material are described in this section. The determination of quality is based on certified photo-metric data covering the coefficient of utilization, light distribution curves, construction material, shape, finish operation etc.

The Contractor shall submit sample of the light fixture specified for approval of the Engineer.

The aircraft warning light fixture shall conform to the relevant regulations and ICAO recommendations. The aircraft warning light fixture shall be of cast aluminum alloy, aviation yellow finish, symmetric and topped by red omnidirectional refractors made of thermal shock resistant glass lens. The reflector shall be aviation-red according to ICAO recommendations. The light fixture shall have vibration proof B-22 bayonet base and appropriate 60 W incandescent lamp with all fixture shall be of weather proof type with protection class IP-45 and of international standards and quality.

8.2 Installation

The aircraft warning light fixture shall be installed on the steel member of the tower by means of galvanized steel screws, nuts and bolts as per details shown on the drawings. All material i.e: pipe, clamp, angle iron frame work, welding rods, steel plates, etc. necessary to install the fixture in position shall be included in the price of the light fixture.

Sui Southern Gas Co. Ltd. Procurement Dept. H.O. Gulshan-e-Iqbal

ENGINEERING DESIGN BUREAU LAHORE

9. LOW TENSION CABLE

9.1 Material

The single core sheathed cables for light circuits, operating upto 250 volts shall be 300/500 volts grade and unsheathed cables shall be of 450/750 volt grade. The lighting cables shall be furnished and installed in accordance with the details shown on the drawings.

All cables/wires in conduits shall be PVC insulated, single core or multicore with PVC sheathing unless specifically shown on tender drawings, or given in BOQ.

Single phase circuits shall have insulation of red color for phase/line, black color for neutral and green color for earth conductor.

All accessories shall be provided for the complete cabling and wiring systems. These shall include but not limited to items such as saddles, clamps, fixing channels, connectors.

Cable manufactured by M/s. Pakistan Cable Ltd., M/s. Pioneer Cable Ltd., M/s. AGE Cable or approved equivalent shall be used. The L.T. Cable shall be manufactured as per BS 6004, BS 6746 and BS 6360.

9.2 Installation

The wiring through conduit or G.I. pipe shall be started only after the conduit system is completely installed and all outlet boxes, pull boxes and junction boxes, etc., are fixed in position.

The wires shall be pulled in conduit with care, preferably without the use of any lubricant. Where necessary and after approval of Engineer, the cable manufacturer's recommended lubricant shall be used. Use of any kind of oil or soap will not be permitted. Where several wires are to be installed in the same conduit, they shall be pulled together alongwith the earth conductor. All wires of same circuit shall be run in one conduit.

The wires shall not be bent to a radius less than ten times the overall diameter of the wire, or more if otherwise recommended by the manufacturer.

The wiring shall be continuous between terminations and looping-in system shall be followed throughout. Any joint wires shall not be allowed. The use of connectors shall only be allowed at locations where looping-in is rendered difficult. The consent of the Engineer shall be required for using connectors. The connector shall be of suitable rating having porcelain body, sunk-in screw terminals. The connector shall be wrapped with PVC insulation tape after its installation. A minimum of 150 mm extra length of cable/wire shall be provided at each termination to facilitate repairs in future.

10. CONDUITS/ PIPES

10.1 Material

The extent of works shown on the drawing does not indicate the exact position of conduits and pipes. The Contractor shall ensure exact location and route of conduit/pipes in coordination with other services as per site requirements and as directed by the Engineer. The G.I. pipes and accessories shall be manufactured as per BS 1378.
The GI pipes shall be of MS galvanized inside and outside by hot-dip galvanizing process. The pipes shall be free from stains, burrs or any other defect. The accessories for G.I. Pipes such as sockets, bends, etc. shall be also galvanized inside and outside and of same quality and specifications as the pipes.

These pipes shall be installed for cabling to light fixture on the tower and at entry into generator room at Block 'B;. The pipes and accessories shall be provided with one thick coat of bituminous paints on the outer surface prior to installation. All pipes shall be secured in position by means of galvanized clamp, supports, etc.

G.I. pipes as manufactured by Karachi Pipe Mills Ltd. or approved equivalent shall be provided.

Southern Gas Co. Ltd. Procurement Deptt. H.O. Gulshan-e-Iqbal
ENGINEERING DESIGN BUREAU LAHORE

10.2 Installation

The G.I. pipes installed on towers shall be clamped every one metre to the tower by means of the galvanized clamps as approved by the Engineer. Proper size pull boxes shall be provided at every 15 metres or less as per site requirement according the standards/codes. The cost of galvanized pull boxes is deemed to have been included in the price of conduit/pipe.

The galvanized iron (G.I.) pipe shall be laid underground at a minimum depth of 1 metre measured from the top of pipes to finished ground level. The pipe shall be laid and checked for soundness before completion of civil work. At all joints the pipe shall be firmly screwed using teflon tape to make the joints.

At each termination, the pipe end shall have threads and socket screwed on thread for installing soft metal bush. The soft metal bush shall be of approved quality and shall be male type.
The installation of pipes shall be complete in all respects including its fixing at terminations before the work is started. All sharp edges and burrs shall be removed by using reamer or any approved device. The pipe shall be checked before installation of cables and pipe ends shall be plugged to prevent entry of water, rodents etc.

11. LIGHTNING PROTECTION SYSTEM

The Contractor shall install the lightning protection system as specified herein and in accordance with the referred standard. The extent of work specified or shown on the drawings is schematic and does not indicate the exact position of testing terminals, conductor connections, etc. However, the Contractor shall ensure that the system is complete in all respect as intended by the specifications. The earthing resistance of lightning protection system at any point in the system shall not exceed **0.5 ohm.** The number of earth electrodes shown on the drawing is minimum & tentative and the Contractor shall install as many electrodes as necessary to bring down the earth resistance to **0.5 ohm,** with the approval of the Engineer.

Materials as offered by Furse-UK or equivalent would be acceptable. Latest editions of BS-6651 & CP-326 shall be applicable for the material specified within the scope of this section.

11.1 Material

11.1.1 Lightning Arrestor/Air-Termination

The lightning arrestor/air-termination rod shall be made of solid copper of extremely good corrosion resistance quality. The minimum diameter of rod shall be 10 mm and the terminal base shall be of cast gun metal, mechanically strong and with low electrical resistance.

11.1.2 Down Conductors

The down conductors for lightning protection system shall be PVC insulated copper conductor cables of sizes as shown on the drawings. All accessories for fixing of the down conductor to steel members of tower shall be approved by the Engineer.

11.1.3 Testing Terminals

For each down conductor, a testing point shall be provided. It shall be installed 1.5 meters above the finished ground level or as convenient for testing purposes and as directed by the Engineer. The testing terminals shall have removable connections.

The testing terminals shall be bolted type and made in accordance with the specifications for straight bolted joints. The connecting earth lead from testing terminals to earth electrodes shall be continuous without any joint.

11.1.4 Earth Electrode

The earth electrode for lightning protection system shall comprise a 600 x 600 x 3 mm electrolytic copper plate. The plate shall have four terminals for connecting the earthing leads. Nuts, bolts and washers shall be either of brass or tinned copper. A 50 mm dia. G.I.

Sui Southern Gas Co. Ltd. Procurement Dept. H.O. Gulshan-e-Iqbal
ENGINEERING DESIGN BUREAU LAHORE

pipe shall be provided from inspection chamber to earth plate for watering purpose. This pipe shall have 10 mm dia. holes at 500 mm centre to centre all along the length.

At the ground level an inspection chamber with cast iron cover shall be constructed having dimensions as shown on the drawings. The C.I cover of the duty as specified on the drawings shall be supported on the 50x50x5mm angle iron frame fixed to the inspection chamber. The cover shall be hinged type, as approved by the Engineer and shall finish flush with the final ground level.

The earthing lead shall connect the earth electrode to earth connecting point or equipment in the building. All thimbles, lugs, sockets, nuts, washers, earth connecting points and other accessories necessary for complete installation of earth electrode and earthing lead shall be provided by the Contractor without any extra cost The cost of earthing lead deemed to have been included in the price of earth electrode and no separate payment shall be made for it.

11.2 Installation

11.2.1 Lightning Arrestor/Air-Termination

The **Lightning Arrestor/Air-Termination** shall be installed on the tower as shown on the drawing. The base of the arrestor shall be firmly secured to the steel member of the tower by means of copper/brass nuts and bolts or any other arrangement as approved by the Engineer.

11.2.2 **Down Conductors**

The down conductor shall be installed along the shortest possible route from top of the tower to earth electrode. It shall be secured to the tower by means of suitable clamps as approved by the Engineer at a maximum interval of 1000 mm.

In general, bends shall be avoided along the routes of down conductor and maximum possible bending radius will be provided at turns. All joints between conductors shall be electrically and mechanically strong and effective. Straight joints in the down conductor shall be bolted. The joint shall be given a coat of anti corrosive paint after connection. All accessories such as nuts, bolts, washers, solder, paint etc. shall be furnished by the Contractor.

11.2.3 **Testing Terminal**

For each conductor a removable terminal shall be provided for testing purpose at approximately 1.5 meter height from finished ground level. The location of testing terminals are not shown on the drawings. The Contractor must ensure that testing terminals are installed so as to facilitate testing.

11.2.4 **Earth Electrode**

The tinned copper plate of the earth electrode shall be installed at a minimum depth specified on the drawings from finished ground level so as to reach the permanent water/moisture level. The

Engineer may ask the Contractor to increase or decrease the depth of the electrode, keeping in view the soil conditions at site. The Contractor shall be responsible to take such measures to obtain a maximum earth resistance of 0.5 ohm or less without any additional cost. The minimum horizontal distance between earth electrodes shall be 3 metres.

Proper mixture of lime and charcoal shall be made and buried along with the copper plate in the ground to increase the soil conductivity. The electrode shall be installed as per details shown on the drawings. The inspection chambers shall be constructed at locations approved by the Engineer. The specifications for civil work shall be referred in this respect.

At any joint or terminations, the earthing leads shall be connected using proper accessories. No connection shall be made by twisting of earth conductors.

Sui Southern Gas Co. Ltd. Procurement Dept. H.O. Gulshan
ENGINEERING DESIGN BUREAU LAHORE

12. TESTING

12.1 General

Upon completion of the installation, the Contractor shall perform field tests on all equipment, materials and systems. All tests shall be conducted in the presence of the Engineer for the purpose of demonstrating equipment or system compliance with Specifications. The Contractor shall submit for engineer's approval complete details of tests to be performed describing the procedure test observations and expected results.

The Contractor shall finish all tools, instruments, test equipment, materials, etc., and all qualified personnel required for the testing, setting and adjustment of all electrical equipment and material including putting the same into operation.

All tests shall be made with proper regard for the protection of the personnel and equipment and the Contractor shall be responsible for adequate protection of all personnel and equipment during such tests. The cost of any damages or rectification work due to any accident during the tests shall be the sole responsibility of Contractor.

The Contractor shall record all test values of the tests made by him on all equipment. Four (4) copies of all data and results certified by the Engineer shall be given to the Engineer for record purposes. These shall also include details of testing method, testing equipment, diagram, etc.

The witnessing of any tests by the Engineer does not relieve the Contractor of his guarantees for materials, equipment and workmanship, or as any other obligations of contract.

12.2 Insulation Resistance Test

Before making connections at the ends of each cable run the insulation resistance test shall be made. Each conductor shall be tested individually with each of the other conductor of the group and also with earth. If insulation resistance test readings are found to be less than the specified minimum in any conductor, the entire cable shall be replaced and tests repeated on new cable.

If the insulation resistance of the circuit under test is less than specified value, the cause of the low reading shall be determined and removed.

12.3 Earth Resistance Test

Earth resistance tests shall be made by the Contractor on the lightning protection system, separating and reconnecting each earth connection. If it is indicated that soil treatment or other corrective measures are required to lower the ground resistance values, the Engineer will determine the extent of such corrective measures.

Earth resistance test shall be performed as per Electrical Inspector's equipments. Where more than one earth electrodes are installed, the earth resistance test of each electrode shall be measured.

The complete lightning protection system shall be tested for continuity and earth resistance. The combined earth resistance at any point in the lightning protection system shall not exceed 0.5 ohms.

12.4 Completed Tests

After any equipment has been tested, checked for operation etc., and is accepted by the Engineer; the Contractor shall be responsible for the proper protection of that equipment so that subsequent testing of other equipment do not cause any damage to the already tested equipment.

13. MEASUREMENT AND PAYMENT

13.1 General

Southern Gas Co. Ltd. Procurement Dept. H.O. Gulshan-e-Iqbal

Engineering Design Bureau Lahore

The Contractor's bid amount against each item (as given below) of Bill of Quantities shall include supply, installation, testing, commissioning and completion of all works specified herein and/or shown on the Tender Drawings related to the item.

13.2 Aircraft Warning Light Fixture

13.2.1 Measurement

Measurement shall be made for the number of aircraft warning light fixtures including all accessories acceptably supplied and installed by the Contractor as a complete unit.

13.2.2 Payment

Payment shall be made for the number of units measured, as provided above, at the Contract unit price and shall constitute full compensation for supplying, installation, connecting, testing and completion of each light fixture including all accessories such as pipe, clamps, angle iron, units, bolts, steel plates, bushes, etc. as required for complete installation of the light fixture.

13.3 LT Cables

13.3.1 Measurement

Measurement shall be made for the number of running metres for each size and type of LT cable acceptably supplied and installed by the Contractor.

13.3.2 Payment

Payment shall be made for the number of running metres of each size and type of cable measured, as provided above, at the Contract unit price per metre and shall constitute full compensation price per metre and shall constitute full compensation for supplying, installing, connecting, testing and commissioning of the LT cables including all accessories.

13.4 Conduits and Pipes

13.4.1 Measurement

Measurement shall be made for the number of running metres of each type and size of conduits/pipes acceptably supplied and installed by the Contractor.

13.4.2 Payment

Payment shall be made for the total number of running metre of each type and size of conduits/pipes measured, as provided above, at the Contract unit price and shall constitute full compensation for supplying & installing the conduits and pipes including all accessories such as clamps, screws, pull boxes, bushes, etc. excavation and backfilling of ground for underground pipe installation.

13.5 Lightning Arrestor/Air-Termination

13.5.1 Measurement

Measurement shall be made for the number of air-terminations acceptably supplied, installed and tested by the Contractor as a complete unit.

13.5.2 Payment

Payment shall be made for the total number of units measured, as provided above, at the Contract unit price and shall constitute full compensation for supplying, installing, testing, commissioning and completion of air-termination including terminal base and other accessories etc.

Southern Gas Co. Ltd. Procurement Dept. H.O. Gulshan
ENGINEERING DESIGN BUREAU LAHORE

13.6 Down Conductors

13.6.1 Measurement

Measurement shall be made for the number of running metres for specified size of down conductors acceptably supplied and installed by the Contractor.

13.6.2 Payment

Payment shall be made for the number of running metres of specified size of down conductors measured, as provided above, at the Contract unit price and shall constitute full compensation for supply, installation, testing and completion of the down conductors from air termination upto testing terminal including all accessories, such as sockets, thimbles, lugs, bolts, nuts, brazing etc.

13.7 Testing Terminal

13.7.1 Measurement

Measurement shall be made for the number of testing terminals including all accessories acceptably supplied and installed by the Contractor as a complete unit.

13.7.2 Payment

Payment shall be made for the number of units measured, as provided above, at the Contract unit price each and shall constitute full compensation for supplying, installing, connecting, testing and completion of each testing terminal including all accessories such as nuts, bolts, washers etc. as required for complete installation.

13.8 Earth Electrodes

13.8.1 Measurement

Measurement shall be made for the number of earth electrodes acceptably supplied, installed and tested by the Contractor as a complete unit.

13.8.2 Payment

Payment shall be made for the total number of units measured, as provided above, at the Contract unit price and shall constitute full compensation for supplying, installing, testing, commissioning and completion of earth electrodes including 600x600x3mm thick copper, plate with nuts, bolts, lugs and washers, earthing leads from testing terminals to earth electrodes, excavation, backfilling, mixture of lime, charcoal and salt, civil works such as concreting and plaster for inspection chamber with light duty C.I. cover, G.I. pipe for earthing leads, etc. etc.

Annexure-I

Marking Criteria for the Evaluation of Prospective Bidders
For Fabrication & Installation of Self Support Tower at RS-1 & RS-Thariri

S.NO.	CRITERION	STANDARD	POINTS (MAX)	POINTS OBTAINED
1	**Mandatory Requirements:** Registration of PEC-C5 or above category with specialized codes EE07 or EE08, EE11(vi), CE10(i) & ME07(v).	Mandatory		
2	**Nos. of Years Company Established in Pakistan: (Form-I)** (i) ≥ 10 Years (ii) ≥ 5 Years < 10 Years	 20 10	20	
3	**Maximum Financial Value of Similar Nature Project Completed: (Form-II)** (i) Rs. > 40 millions (ii) Rs. >30 ≤40 millions (iii) Rs. ≤30 million	 15 12 10	15	
4	**Similar Nature Completed Projects in Last 10 Years: (Form-II)** (i) ≥ 08 Projects (ii) 06 or 07 Projects (iii) 05 Projects	 20 15 10	20	
5	**Personal Capabilities: (Form-III)** **(a) Engineers Registered with PEC having valid licenses:** (i) Project Manager ≥ Ten (10) years Experience 1(Person) (iii) Mechanical Engineer ≥ Five (05) years Experience 1(Person) (iv) Civil Engineer ≥ Five (05) years Experience 1(Person) **(b) DAE in Employment of the Company:** (i) Electrical Supervisor with ≥ 3 years experience 1 (Persons) (ii) Mechanical Supervisor with ≥ 3 years experience 1 (Persons)	 09 06 06 02 02	25	
6	**Financial position of the Comapany:(Form-IV)** **(a) Turn Over for last financial year** (i) Rs. > 10 Million (ii) Rs. > 05 ≤ 10 Million (ii) Rs. ≤ 05 Million **(b) Cash in hand / OD** (i) Rs. > 04 Million (ii) Rs. > 03 ≤ 04 Million (ii) Rs. ≥ 02 ≤ 03 Million	 10 7 5 10 7 5	20	
Total Points			**100**	

Note:

65 marks, Special terms & conditions and Registration with PEC are the minimum requirement.

Documentary Evidence against each field is mandatory requirement, without which no marks will be awarded.

Sui Southern Gas Co. Ltd. Procurement Dept. H.O. Gulshan-e-Iqbal

Sui Southern Gas Co. Ltd. Services Dept. Head Office, Karachi

FORM I: GENERAL INFORMATION

Company Name: _____

Head Office Address: _____

_____

_____

Telephone No.: _____

Fax No. : _____

Office Address: _____

Telephone No. : _____

Fax No. : _____

Year Incorporated: _____

Attach copy of certificate of registration and ownership documents.

* All the information provided shall be supported with documentary evidence; otherwise no marks will be awarded.

Sui Southern Gas Co. Ltd. Procurement Dept. H.O. Gulshan-e-Iqbal

Sui Southern Gas Co. Ltd. Services Dept. Head Office, Karachi

FORM II: LIST OF COMPLETED PROJECTS*

Name of Work: _____

Scope of Work: _____

_____

Value of Contract: _____

Name of Client: _____

Address of Client: _____

_____

Telephone of Client: _____

Date of Award of Work: _____

Start Date: _____

Scheduled Completion Date: _____

Actual Completion Date: _____

* All the information provided shall be supported with documentary evidence; otherwise no marks will be awarded.
* Separate form should be submitted against each client

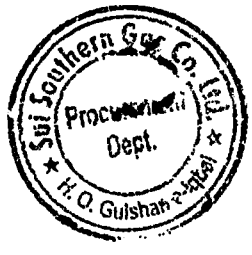
Sui Southern Gas Co. Ltd. Procurement Dept. H.O. Gulshan-e-Iqbal

Sui Southern Gas Co. Ltd. Services Dept. Head Office, Karachi

FORM III: DETAIL OF PERMANENT STAFF
(Engineers, Technical and other Supporting Staff)

Name	Designation	Educational Qualification	Year of Experience	Relevant Experience

Note: Resume along with registration with PEC (in case of Engineer)/certificate from Board of technical education (in case of DAE) shall be enclosed, otherwise no credit/points will be given.



FORM IV: FINANCIAL DATA

Firm applying for technical proposal shall submit the following certificates/ registration/ statements.

A. Income Tax

Income Tax assessment for the assessment year 2022-23 or income tax clearance certificate (2022-23).

B. GST Registration Certificate

Prove of valid GST Registration Certificate, if applicable.

C. Provincial Sales Certificate(PST)

Prove of valid PST Registration Certificate, if applicable.

D. Proof of turnover for last annum

E. Proof of Cash in Hand / OD

* All the information provided shall be supported with documentary evidence; otherwise no marks will be awarded.

Sui Southern Gas Co. Ltd. Services Dept. Head Office, Karachi

Sui Southern Gas Co. Ltd. Procurement Dept. H.O. Gulshan-e-Iqbal

Section - IV

Special Conditions of Tender Document

Tender Enquiry No. SSGC/SC/

Note: In case of any conflict between special conditions of Tender Document and any other terms & conditions, the Special Conditions of Tender Document will govern / prevail.

1- Contractor to submit the following within 15 days after issuance of Letter of Intent (LOI).
   a. Performance Bank Guarantee
   b. Stamp Papers
   c. Insurance Policy
   d. Any other Document as mentioned in the LOI

2- Formal contract will be made on Non-Judicial stamp paper of value @ Rs 0.35 per hundred rupees of contract value, as per prevailing rate by Government of Sindh & Balochistan. The stamp duty will be borne by the contractor and also submit the copy of challan of stamp paper. **Further as per Government of Sindh Board of Revenue notification NO.CIS/SWB/BOR/R&T-17/2022-808 dated 08-06-2022 all judicial and non-judicial stamp paper of the denomination of rupee five hundred and above shall be exclusively on e-stamp.**

3- All kinds of Government Taxes, Duties and Levies against any item of the contract, shall entirely be the responsibility of the Contractor. Income Tax will be deducted as per applicable Law under the prevailing Government Rules. Rate of Income Tax deduction in relation to submission of Income Tax certificate from the Contractor should also be stipulated.

4- Bank Guarantee (Bid Bond Guarantee/Performance Bank Guarantee) will be made on Non-Judicial stamp paper at the prevailing rate as specified by the respective Provinces. Further the bidder/contractor submitting the Bid Bond guarantee/Performance Bank guarantee being prepared by the State Bank's schedule banks should ensure that there should be no deletion/insertion/alteration/modification of any terms in the Bid Bond/PBG guarantee format as given in the tender document or else bid will be liable for rejection.

5- If the letter to proceed (LTP)by user deptt. is not issued within six months after issuance of letter of intent (LOI), both the parties are at liberty to terminate/revoke the LOI without any claim of loss or damage to the other party.

6- The completion period of the said work shall start with effect from the issuance of Letter to Proceed, which in case of work exigencies could be issued prior to signing of formal agreement.

7- In case of services and works tenders:
Bids determined to be substantially responsive will be checked by the Procuring Agency for an arithmetic error. Errors will be corrected by the Procuring Agency as follows;

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

   b. Where there is a discrepancy between the unit rate and the line item total resulting from multiplying the unit rate by the quality, the unit rates as quoted will govern, unless in the opinion of the Procuring Agency there is an obviously gross misplacement of the decimal point in the unit rate, in which case the line item total as quoted will govern and the unit rate will be corrected.

8- The bidder shall fill in rates and prices for all items of the works / services described in the BOQ. Item against which no rate or price is entered by a bidder will not be paid for by the Procuring Agency when executed and shall be deemed covered by rates and prices for other items in the BOQ. **Any Bidder who change / amend the BOQ or Price Schedule (description, Quantity, UOM etc.) will render the bid as conditional bid and will be liable for rejection.**

9- **Method For Submission of Bid Bond (Under Single Stage Two Envelope Bidding Procedure):**
In case of Single Stage Two Envelope Tenders the fixed bid bond as per clause#09 of General Terms & Conditions to be placed in the Technical Proposal. However, if the bid bond is placed in the financial proposal will also be considered. Without submission of bid bond (either in Technical proposal or financial proposal) the bid will be rejected.

10- Bid bond submission (2%) of the bid amount as mentioned in the clause 9 of General Terms & Conditions, to be treated as null & void, however other contents of clause 9 will remain unchanged. The submission of fixed amount of Bid security is appearing in the Schedule of Requirement/Bid Form.

Sui Southern Gas Co. Ltd. Procurement Dept. H.O. Gulshan-e-Iqbal

a) All the bidders are advised to furnish fixed bid security amount appearing in Schedule of Requirement/Bid
Form, failing which their bid will be rejected.
b) The submission of fixed amount of bid security is also mandatory for all the bids valuing Rs.500,000/- or less.
c) The word lowest bidder or the lowest evaluated bid has been substituted to read as **most advantageous bid.**

11- Bid shall remain valid for acceptance for period of (120) days from the date of public opening of the bids & Bid Bond validity is for 150 days.

12- In case the local agent requires to offer bid form more than one Principal / Manufacturer, it is mandatory to purchase separate tender document for each Principal / Manufacturer, failing which the bid submitted with the original tender document will only be accepted and the bid with photocopy of tender document will be rejected.

13- ***Blacklisting Mechanism of Suppliers and Contractors and their Local Agent:***
Black listing mechanism is attached separately in the tender documents which will become an integral part of Tender Documents and now be followed / enforced in true letter & sprit and **supersede the Black listing terms as mentioned in the General Terms & Conditions.**

14- Original counter slip of token which is issued with tender document to be attached on the TOP of envelope at the time of bid submission"

15- The **Successful** Contractor(s) / Supplier(s) / Consultant(s) shall submit a copy of Professional Tax Certificate with their Invoices / Bills failing which the payment will not be released.

16- ***Contracts of Contractors***
In the event the contractor is not willing to extend the CONTRACT for further term(s) / Period(s) under the same terms & conditions and the quoted price as defined in the bid documents, the contractor is liable to intimate in writing to SSGC at-least 3 (Three) months in advance prior to completion of the existing contract term / period, failing which, action will be taken as per tender terms.

17- **Insurance**
In addition to the Clause 22 –**Insurance,** of General Term and Condition, when The **Successful** Contractor(s) / Supplier(s) will submit Insurance Policy to SSGC, the Insurance Company (policy issuer) should be registered with SECP, otherwise the insurance policy will not be considered / rejected at contractor's risk and cost. The insurance coverage period will be according to the work completion period as mentioned in the contract / tender documents.

18- ***Fixed Bid Security – Alternative Bid***
A bidder cannot submit two bids/offers with a single fixed bid security/pay order. However, the alternative bids/offers with separate fixed bid security/pay order can be accepted, failing which the bids will be liable for rejection.

19- ***Bid Bond & PBG (Performance Bank Guarantee) for Proprietary Tenders***
In case of proprietary Tenders, the Bid Bond & Performance Bank Guarantee (PBG) are not required / Applicable.

20- SSGC will not pay invoices if they are turned in after 6 months of work completion / material delivered.

21- It is mandatory for the bidders to follow all the terms and conditions given in the tender documents without any addition / deletion / amendment and submit the bid accordingly. Therefore, in this context, the bidders are requested not to give their own terms and conditions as it tantamount towards the conditional bid. Otherwise their terms and conditions will not be considered and the Purchase Order / Contract will be awarded based on only as per SSGC tender terms and conditions.

22- The bidders/contractors are required to provide their only one Bank Account number (IBAN number) on the 'FORM-X' attached duly signed & stamped as one time information, which shall be firm (not changeable) for all the future payment transactions.

23- **Payment:**
The supplier after delivery of goods and its acceptance shall submit invoice to Finance Department of the Company, containing following information i.e.

(a) Purchase order No. & date
(b) Items
(c) Quantity
(d) Price
(e) Invoice value
(f) Point of delivery
(g) Delivery challan indicating delivery date, etc.

Sui Southern Gas Co. Ltd. Procurement Dept. H.O. Gulshan-e-Iqbal

(h) Supplier(s) are required to submit signed and stamp acknowledgement slip, Sales Tax return, Annex "C" & Annex "I" (whichever applicable) in which Sales Tax (of relevant Sales Tax invoice) is paid.

Payment will be made within 30 days of completion of stated requirements.

23. In case the insurance policy submitted by the contractor is expired during the execution of job, it is the responsibility of the user department to coordinate with the contractor to get it renewed/updated till the period the job is completed/commissioned.

    In case the job is not completed within the given time as per tender terms and the insurance policy submitted by the contractor expires, the contractor is liable to get this insurance policy renewed / updated immediately till the period of the job is completed / commissioned as per tender terms failing which the contractor will be responsible for any loss to SSGC.

24. Bidders can quote their rates on both i.e. Schedule of Requirement/Bid Form as well as Bill of Quantity (BoQ)
25. Subsequent to the issuance of LOI, successful bidder has to submit 10% Performance Bank Guarantee of the contract value unless and until specified in the tender document.
26. Company reserve the right to award the Purchase Order /LOI to most advantageous bidder.
27. As per SRO 592(I)/2022 of PPRA Regulations, for Procurement Contracts/Purchase Orders worth of Rs. 50 million and above, bidders/contractors are required to submit the Beneficial Owner's Information for Public Procurement Contracts/Purchase Orders (Annexure-I).
28. Bidder will be blacklisted and henceforth cross debarred for participating in respective category of Public Procurement proceedings for a period of (not more than) six months, if fail to abide with a bid securing declaration (which is an integral part of tender document), however, without indulging in corrupt and fraudulent practices, if in breach of obligation(s) under the Bid conditions:
    a) The bidder have withdrawn or modified their bid during the period of bid validity as specified in the tender terms.
    b) Having been notified of the acceptance of bid by procuring agency during the period of bid validity (i) failure to sign the contract or accept purchase order (ii) fail or refuse to furnish the performance security or to comply with any other condition as mentioned in the tender document.
29. Wherever the "Rate Only" is mentioned (either on BOQ or anywhere in tender documents) the same shall only be applicable not exceeding 15% of the original procurement for the same items as given in the BOQ for package basis. In case the requirement is on item wise basis (not package basis) then not exceeding 15% of the original Procurement for the same items (on item wise basis) as given in the BOQ.
30. **Lots:** In case when the tender is floated on LOT basis, following clauses to be applied:
    a) The bidder(s) are essentially / mandatorily required to submit fixed bid bond as mentioned in the bid form/BOQ/Invitation to Bid. Separate fixed bid bond to be submitted against each individual LOT and its validity to be 150 days at the time of opening of technical proposal.
    b) Evaluation for each LOT will be carried out separately. Each LOT will be awarded separately.
31. For open competitive bidding if the most advantageous bidder is new local manufacturer, 10% trial order will be placed and remaining 90% order will be awarded to the next most advantageous bidder at their own quoted rates.
32. Redressal of Grievances And Settlement of Disputes:
    - Any bidder feeling aggrieved by any act of the procuring agency after the submission of his bid may lodge a written complaint concerning his grievances within seven days of announcement of the technical evaluation report and five days after issuance of final evaluation report.
    - In case, the complaint is filed against the technical evaluation report, the GRC shall suspend the procurement proceedings.
    - In case, the complaint is filed after the issuance of final evaluation report, the complainant cannot raise any objection on technical evaluation of the report. Provided that the complainant may raise the objection on any part of the final evaluation report in case where single stage single envelope bidding procedure is adopted.

Sui Southern Gas Co. Ltd. Procurement Dept. H.O Gulshan

SECTION – V

General Terms & Conditions

1. Definitions and Interpretation:

1.1 In these tender documents (as hereinafter defined) the following words and expressions shall have the meaning hereby assigned to them except where the Tender requires otherwise.

a) **Company** means the Sui Southern Gas Company Limited; a Company registered under statutes of Pakistan and includes any successors-in-interest or assignees.

b) **Engineer** means the Engineer(s) nominated by the Company to look after and supervise the Work.

c) **Representative of the Company** means a duly authorized person appointed by the Company or as specified in the "Special Conditions of the Contract" to perform the assigned duties.

d) **Bidder** means any person or persons, firm or company bidding for the Work.

e) **Contractor** means the persons, firm or company whose Tender (as hereinafter defined) has been accepted by the Company and includes the Contractor's representatives, sub-Contractors, successors and permitted assignees (Prior to the execution of the Contract the word "Contractor" also means a Tenderer or Bidder submitting a proposal in accordance with the Tender Documents).

f) **Agent or Representative** means person(s) appointed by the Contractor to perform duties as set forth in the Contract.

g) **Laborers/Workmen** means such laborers/workmen and staff as may be employed by the Contractor for purpose of carrying out the Work.

h) **Sub Contractor** means any firm or person having a direct Contract with the Contractor. Nothing contained herein however, shall be deemed or be construed to impose upon the Company, any obligation, liability or duty to a sub-contractor or to create any contractual relation between any sub-contractor and the Company.

i) **Work** means whole of the Works / Services or part thereof to be executed in accordance with Tender / Contract documents, whether temporary or permanent and whether original, altered substituted or additional.

j) **Contract Documents** shall consist of duly executed Articles of Agreement, the Tender Documents and the Tender submitted by the successful Bidder including modifications thereto incorporated in the documents before and after the execution of the Contract.

k) **Contract Price/Value** means the sum named in Schedule of (SOR) / BOQ subject to additions thereto or deductions there from as may be made under the provisions hereinafter contained.

l) **Plant** means all machineries, equipment, materials, appliances or things of whatsoever nature required in or about the execution, completion or maintenance of the Work, but does not include such equipment, materials, appliances or things intended to form part of the permanent Work.

m) **Temporary Works** means all temporary works of every kind required in or about the execution, completion or maintenance of the Work.

n) **Drawings** means the drawings referred to in the Contract documents and any modification of such drawings.

o) **Location** means the land and other places on, under in or through which the Work is to be executed or carried out and other lands or places provided by the Company for the purpose of the Contract.

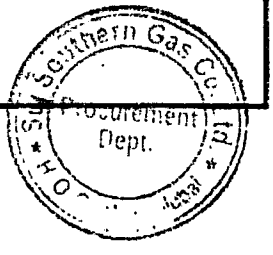
p) **Approved/Approval** means approved/approval in writing by Company's representative or as specified in "Special Conditions of Contract".

q) **Tender/Bid** means the offer tendered by the Bidder for the Work governed by the Contract.

r) When the terms Acceptable, Satisfactory, Proper, or other such general qualifying terms are used in the Contract, it shall be understood that reference is made to be sole ruling and the sole judgment of the Company.

s) The Word Equivalent or Equal where used in these documents in the general sense shall not mean Similar but shall mean "Conforming to, Like, of Kind/Quality and Function". "Proprietary Items" and "Trade Names" are used for the purposes of establishing a standard of "Kind, Quality and Function" and "Equipment" items, articles, things or materials will be approved, if held to be "Equivalent" by the Company.

t) **Approved Banker** wherever occurring in this Contract shall mean a Scheduled Commercial Bank operating in Karachi and acceptable to the Company.



u) **Specification(s)** means the standard codes of practice and other specifications issued with the Tender and any notification such as specifications approved in writing by the Company and other specifications as may from time to time be furnished or approved in writing by the Company.

v) **Month** means calendar month of the Christian era.

w) **Time Schedule** is a graphical illustration of the time span of various Work activities defining starting and completion dates.

x) **Bonds** mean Bid Bond, Performance Bond or Bank Guarantee and other instruments of security furnished by the Bidder of his surety in accordance with the Tender/Contract.

y) **Completion Date** means the date on which the Work has been completed in accordance with the Contract so that it can be utilized for intended purpose.

z) **Day** means a day of 24 hours mid night to mid night.

aa) **Completion Period** means the time allowed for the execution of the Work.

1.2 Words importing the singular only also include the plural and vice-versa where the Contract so requires.

1.3 The marginal headings or notes in these Conditions of Contract shall not be deemed to be part thereof or be taken into consideration in the interpretation or construction thereof or of the Contract.

1.4 If there is any conflict between the Special Conditions and the General Conditions, the Special Conditions shall modify, supplement and supersede the General Conditions.

2. **Examination:**
Bidders shall visit/inspect/examine the Work & Location and shall fully acquaint themselves with the nature and requirements of Work/Services, access to Work/Location, availability of materials, weather, law and order and local conditions etc. before submitting their Bids. Submission of the Bid shall be prima facie evidence that the Bidders have fulfilled this requirement and shall be binding upon him.

3. **Conflict between Drawings/Specifications/SOR:**
In case of any conflict between drawings/specifications, SOW/TOR and SOR/BOQ, with regard to the quality of any item, the Contractor / Consultant shall base his quotation for the better quality. In case of any deficiency in the drawings/details, the Contractor / Consultants shall seek clarification from the Company. Submission of Bids/rates on the basis of incomplete drawings/details shall be Contractor / Consultant's sole responsibility.

4. **Additions, Deletions:**
The Company reserves the right to make addition (Upto 15 %) and delete the quantity from the Work defined in SOW/TOR/SOR/BOQ as deemed necessary before or after the execution of the Contract. All such additions and deletions shall only be authorized in writing by the Company.

5. **Schedule of Requirement:**
The quantities specified in the SOR/BOQ are estimated and are intended to serve only as a guide to the Bidders. Payments shall be made on the basis of actual Work quantum done as measured. No claims or adjustments shall be entertained/allowed on account of increase or decrease in the Scope of Work which has not been duly authorized by the Company through the issue of change orders as stipulated in the relevant provision.

6. **Rate:**
The Bidder shall quote all item rates and lump sum prices as shown in the "SOR/BOQ". Bidders shall fill in the rate / price for each item in the SOR/BOQ. In case of any discrepancy between item rate and the amount, the quoted item rate will prevail. The quantities given in the SOR/BOQ are estimated ones and are subject to variations. That is, there could be increase or decrease. Nevertheless, the item rates quoted by the Bidder shall remain fixed and no escalation whatsoever shall be permissible. The rates / prices quoted by the Bidder shall be workable. The Bidder shall be required to furnish a complete rate analysis of any item in the SOR/BOQ as considered necessary, by the Company.

7. **Escalation:**
It may be clearly understood that this tender does not contain a price variation clause and therefore, all unit prices quoted shall be firm, irrevocable fixed and valid until completion of the Contract and will not be subject to variation on any account.

8. **Validity:**
Bids shall remain valid for acceptance for a period of (120) days from the date of bid opening. If the last date falls on a holiday, the validity will be extended to the first Company working day thereafter.

9. **Bid Bond (Earnest Money):**
The Bidder is required to furnish Bid Bond strictly in accordance with the prescribed format, in the form of a Pay Order, Demand Draft or Bank Guarantee issued only by a scheduled commercial bank operating in Karachi, for an amount fixed bid bond as specified of tendered Work / Services quoted by the Bidder in favor of Sui Southern Gas Company Limited. No Bid shall be considered without a Bid Bond and no cash or cheque or a guarantee issued by an insurance company shall be accepted.

The Bid Bond shall remain valid for a period of 150 days from the date of Bid opening. Bid Bonds of the unsuccessful Bidders shall be returned as soon as practicable, The successful Bidder's Bid Bond sphall be retained by Company until execution of a Contract for the Work / Services defined in these documents and the submission of a Performance Bond prior to the execution of Contract.

In the event that the successful Bidder refuses or fails to provide (PBG) and Stamp papers for contract within fifteen (15) days of the issuance of a Letter of Intent, Company shall be at liberty to forfeit the Bid Bond.

In the event of the bid bond validity falling short of the prescribed period of 150 days as the case may be either (i) due to extension in the bid submission date or (ii) where so required by the procuring agency, than in such an event it shall be mandatory on the bidder to extend the bid bond validity up to 150 days within 30 days of the opening of technical proposal / bid, and / or where so required by the procuring agency.

In case when bidder submit alternate bids a separate bid bond for each bid is required otherwise bid will be liable for rejection. In case of Single Stage Two Envelope bidding system (bid bond will be enclosed with "Financial" bid, unless and until specified separately in Tender terms).

The bid bond may be forfeited if a bidder withdraws the bid during validity period specified by the bidder or if successful bidder fails to:

- Accept purchases order/LOI,
- Furnish performance guarantee in accordance with clause 10 of General Terms & Conditions,
- Extend Services as per requirement and completion Period.

10. Performance Bond:

The Bidder shall furnish a Performance Bond strictly (if the bid increases to Rs. 500,000/-) in accordance with the prescribed format in the form of a bank guarantee issued by a scheduled commercial bank operating in Karachi for an amount equivalent to TEN (10) percent of the Contract value. Failure to furnish the performance Bond before execution of the Contract will entitle the Company to consider the Bidder as having abandoned the Contract and the forfeit the Bid Bond. The Performance Bond shall remain valid till after three (03) month of completion of the work.

The Company's right to recover damages from the Bidder for breach of Contract shall not be limited to the value of the Performance Bond. In the event of the Bidder failing to execute a formal Contract or to submit the Performance Bond in the manner aforesaid and in the period specified, the Company shall be entitled to appropriate the earnest money submitted by the Bidder with his tender without prejudice to its right to claim any further loss or damage which may result to it by reason of the aforesaid default of the Bidder as if Contract is actually executed for the purpose of such claims.

The Bidder shall extend the validity period of the Performance Bond for such period(s) as required for the Contract performance.

The performance bond of the successful bidder will be released after successful completion of work.

11. Retention Money:

The amount to be retained from payments shall be equal to the specified percent of certified value of Work which would be released after the maintenance period.

12. Completion Period:

Subject to any requirements as to completion of any portion of the Work before the completion of the whole of Work, the Work shall be completed within the specified completion period. The Work shall not be considered as completed until the Company has certified in writing that it has been completed. Should extra, altered or additional Work of any kind, or any other cause of delay, which in the opinion of the Company could not have been foreseen by the Contractor / Consultant requires extension in completion time, then on the written request of the Contractor / Consultant, the completion period as provided in the Contract shall be extended by the Company. All such extensions shall be allowed in writing by the Company's representative.

13. Signing / Execution of Contract / Agreement:

Formal signing / execution of Contract / Agreement shall be completed within fifteen (15) days of receipt of "Letter to Proceed". The Company shall prepare the Contract in accordance with the prescribed format (Contract Form, and Articles of Agreement) for the purpose and the successful Bidder shall be communicated the date and time by the Company for the execution of Contract.

The successful Bidder shall provide the stamp paper, of value at the rate of thirty five (35) paisa per every hundred Rupees or part thereof of the amount of the Contract, or at the prevailing rate as specified by the Government of Pakistan.

Sui Southern Gas Co. Ltd. Procurement Dept. Iqbal

In case the agreement is executed for services i.e Janitorial, Canteen, Landscaping, Maintenance Contract etc.... will be for One year extendable for further Two terms of one year each unless specified in Special Term & conditions.

14. **Award / Evaluation Criteria:**

Company reserves the right to settle the final award of job to the technically compliant and lowest evaluated and commercially responsive bidder.

Evaluation may be carried out both on item or on group of items/single or multiple package basis depending upon the nature of requirement exclusively at the discretion of the company to ensure economic procurement.

15. **Commencement & Execution of Work:**

Notwithstanding any delay in the preparation / execution of the Contract the successful Bidder shall commence mobilization / preparations and under take the Work within (15) days after receipt of the Letter to Proceed.

The Contractor / Consultant shall prior to commencement of Work, obtain the written authority and instructions of the Company.

16. **Change in Orders:**

The Company may at any time, by a written notice to the Contractor / Consultant, make changes within the general Scope of Work of the Contract.

Upon notification by the Company of such change, the Contractor / Consultant shall submit to the Company an estimate of costs for the proposed change (hereinafter referred to as a change) within ten (10) calendar days of receipt of notice of the change, and shall include an estimate of the impact (if any) of the change on the completion date (s) under the Contract, as well as detailed schedule for the execution of the change, if applicable.

The Contractor / Consultant shall not perform changes in accordance with above, until the Company has authorized a Change Order in writing on the basis of the estimate provided by the Contractor / Consultant.

Changes mutually agreed upon as a change shall constitute a part of the Work under this Contract, and the provisions and conditions of the Contract shall apply to said change.

17. **Assignment:**

The Contractor / Consultant shall not assign, in whole or in part, its obligations to perform under the Contract except with the Company's prior written consent.

18. **Termination of Contract:**

The Company may decide to terminate the Contract in one of the following situations:

(i) **Termination for Default:**

The Company may, without prejudice to any other remedy for breach of Contract, by written notice of default sent to the Contractor / Consultant, terminate the Contract in whole or in part.

(a) If the Contractor / Consultant fails to complete the contracted Works / Services within the time period(s) specified in the Contract or any extension thereof granted by the Company.

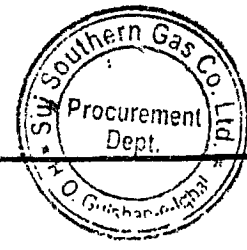
(b) If the Contractor / Consultant fails to perform any other obligation(s) under the Contract.

(c) If the Company during the completion period of the Contract has reason to believe that the Contractor / Consultant will not be able to fulfill the obligations under the Contract.

Prior to the exercising of any right by the Company to terminate the Contract, the Company shall issue notice to the Contractor / Consultant specifying the default(s) and the Contractor / Consultant shall submit an explanation within seven (07) days of receipt of such notice. If such explanation is not furnished within the stipulated time or if so furnished, is found to be unsatisfactory and / or the default(s) continues, the Contract may be terminated by the Company.

(ii) **Termination for Insolvency:**

The Company may at any time terminate the Contract by giving written notice to the Contractor / Consultant, without compensation to the Contractor / Consultant, if the Contractor / Consultant becomes bankrupt or otherwise insolvent. Notwithstanding the above such termination will not prejudice or affect any right of action or remedy which as accrued or will occur thereafter to the Company.



(iii) **Termination for Convenience:**

a. The Company may by written notice sent to the Contractor / Consultant, terminate the Contract, in whole or in part, at any time for its convenience. The notice of termination shall specify that termination is for the company's convenience, the extent to which performance of work under the Contract is terminated and the date upon which such termination becomes effective.

b. The Works that are complete and ready for Commissioning within thirty (30) days after the Contractor / Consultant's receipt of notice of termination shall be at the Contract prices and on the existing Contract terms. For the remaining Works, the Company can also opt to have any portion thereof completed and commissioned at the contract prices and on the other contract terms.

19. Liquidated Damages:

If the Contractor / Consultant fails to complete the Work or perform the Services specified in the Contract within the stipulated period / scheduled time specified in the Contract, the Company, without prejudice to any other remedies, shall deduct from the bills or any other due payments / guarantees, as liquidated damages, a sum equivalent to 0.1 % per day of the value the Contract, until actual completion of the Work or performance of the Services. However if delay of over 100 days takes place (i.e. equal to 10%), the Company reserves the right to terminate the Contract at the risk and cost of Contractor / Consultant. The liquidated damages shall also be applicable for the Works / Services terminated under Clause 16.

The payment of liquidated damages shall not relieve the Contractor / Consultant from performing and fulfilling all its obligations under the Contract and nor shall the rights and entitlements of the Company be affected or reduced in any manner.

20. Force Majeure:

The parties will not be considered to be in default in the execution of their contractual obligations or any of them to the extent that the execution of such obligations or any of them is delayed or omitted by cause of Force Majeure. Each party will advise the other party by written notice within 07 days of the occurrence of any such case of Force Majeure. The term Force Majeure employed herein shall mean acts of public enemy, wars (whether declared or not) invasion, hostilities, revolution, epidemics, riots (other than among the Contractor / Consultant's own employees) fires, floods, earth quake, commotion, disorder and other causes similar in kind to those herein mentioned, not under the control of either party, which makes the performance of this agreement unfeasible and which by the exercise of due diligence the party seeking excuse from performance is unable to over come.

The Company shall not be liable to the Contractor / Consultant for any damage or loss caused by Force Majeure directly or indirectly.

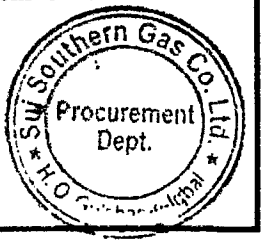
21. Safety of Employees and Works:

The Contractor / Consultant shall be responsible to take all necessary precautions for the safety of employees on or off the Work, and shall comply with all applicable safety laws and codes to prevent accidents or injury to persons on about or adjacent to the places where the Work is being performed. All statutory rules, orders, regulation from time to time in force relating to taking and observance of all safety precaution governing or which might be deemed to be given during the execution and performance of the Work. The Contractor / Consultant shall comply with any and all personnel safety regulations. Any person of the Contractor / Consultant violating the safety rules shall be removed by the Contractor / Consultant from site and replaced without delay.

22. Insurance:

The Contractor / Consultant shall be responsible for obtaining a Contractor / Consultant's All Risk Policy (CAR) against risks to the Works and shall make good at his own cost, all losses or damages whether to the Works or to the lives, persons, whether under the workmen's compensation Act or Third Party Risk, or property of others from whatsoever cause arising out of or in connection with the works either during the progress of the works or during the period of maintenance provided by this Contract.

The Contractor / Consultant shall arrange insurance approved by the Company fully to cover workmen compensation and other claims arising out of sickness, injury or death of his personnel working at site and also to cover theft, loss of or damage to the Company's material in his possession and to indemnity the Company for third party claims for damage done or said to have been done to those persons or their property as a result of the Contractor / Consultant's activities on and off the site.



Insurance will be required where ever applicable:

Company's Address:

GENERAL MANAGER (PROCUREMENT)
SUI SOUTHERN GAS COMPANY LIMITED,
2ND FLOOR, HEAD OFFICE, ST-4/B, B-14,
SIR SHAH SULEMAN ROAD,
GULSHAN-E- IQBAL,
KARACHI –PAKISTAN.

Contractor / Consultant's Address:

_____
_____
_____

23. **Dispute Resolution:**

If any dispute shall arise as to the interpretation of this Contract or any matter or thing arising there from, the same shall be settled as far as possible by way of amicable resolution. Failing such settlement, the dispute may be referred for arbitration to two Arbitrators, one to be nominated by each Party. The appointed Arbitrators shall before proceeding on the reference appoint an Umpire. The Award given by the Arbitrators or the Umpire as the case may be shall be final and binding on the Parties. The proceedings shall be governed by the Pakistan Arbitration Act, 1940 and any statutory modification thereof. The venue of arbitration shall be Karachi.

All costs of Arbitration shall be borne by the Parties themselves, unless otherwise ordered by the Arbitrator. Notwithstanding the existence of any difference or dispute, or the commencement or continuance of any arbitration proceedings, Works to be done or Services to be provided under this Contract shall not be suspended or discontinued by the Contractor / Consultant nor shall any payment be withheld by the Company except the difference of the amount in dispute, which is the subject matter of such proceedings.

24. **Income Tax and Duties:**

All kinds of Government Taxes and Duties (income tax, custom duties, etc.) also the provincial sales tax as per provincial law, against any item of the contract, shall be entirely the responsibility of the Contractor / Consultant. Income Tax will be deducted as applicable under the prevailing Government Rules. Rate of Income Tax deduction in relation to submission of Income Tax certificate from the Contractor / Consultant should also be stipulated.

All Foreign Service providers are required to obtain Advance Ruling from the Federal Board of Revenue (FBR) under Section 206A of the Income Tax Ordinance 2001 (Pakistan's Income Tax Law). The advance Ruling issued by FBR covers application of Income Tax Ordinance 2001 to Transaction proposed or entered in to Foreign Service Provider".

25. **Payments:**

Payment will be made within 30 days after completion of works.

The Contractor / Consultant shall submit to the Company during the execution of the Work on-account bills along with a statement / details of executed Work.

The rates and prices in such on-account bills and statement of Work shall be in accordance with those in the SOR/BOQ so far as such rates and prices are applicable and on the approved rates and prices for other items of Work. All payments against on-account bills shall be treated as provisional payments and will be subject to final adjustment.

The Company may withhold payment or on-account of subsequently discovered evidence, nullify the whole or part of any certificate to such extent as may be necessary to protect itself from loss on-account of:

(a) Defective Work not remedied.
(b) Claims filed or reasonable evidence indicating probable filling of claim.
(c) Failure of the Contractor / Consultant to make payments properly to Sub-Contractor / Consultants.
(d) Damage to another Contractor / Consultant.

When the grounds are removed payment shall be made for amounts withheld because of them.

Payments in respect of extra / additional Work will be made on the basis of the original Contract rates and the Contractor / Consultant will not be entitled to any extra compensation / payment including idle charges because of such delays.

Sui Southern Gas Co. Ltd. Procurement Dept. H.O. Gulshan-e-Iqbal

Sui Southern Gas Co. Ltd. Procurement Dept. H.O. Karachi

The making and acceptance of the final payment after successful completion of Work shall constitute a waiver of all claims by the Company other than those arising from faulty Work appearing after final payment and of all claims by the Contractor / Consultant, except those previously made and still unsettled.

Supplier (s) are required to submit signed and stamped acknowledgement slip, Sale Tax return, Annex "C" & Annex "I" (whichever applicable) in which Sales Tax (of relevant Sales Tax invoice) is paid.

26. Blacklisting of Suppliers and Contractor / Consultants:

The company shall permanently blacklist or temporarily debar (at least for 6-months from participating in SSGC's tender proceeding) if, a supplier or Contractor / Consultant who either constantly fails to perform satisfactorily or found to be indulged in corrupt and fraudulent practices as defined blow:

26.1 Corrupt and fraudulent practices" includes the offering, giving, receiving, or soliciting of anything of value to influence the action of an official/company.

26.2 If the supplier/Contractor / Consultant found responsible for the detriment of the company during proceedings of procurement/contract, process or its execution.

26.3 Misrepresentation of facts (by providing fake documents, concealing / mis- reporting facts pertaining to the bid) in order to influence the procurement process or the execution of the purchase order/contract.

26.4 Collusive practices among bidders (prior to or after bid submission) designed to establish bid prices at artificial, non-competitive levels and to deprive the company of the benefits of free and open competitive.

Please follow the Attached Blacklisting Mechanism

Please follow the Attached Black Listing Mechanism

27. GOP's Obligation:

The contract shall be governed by the Law of Pakistan. The Contractor / Consultant is obligated to comply with all regulations and ordinance in force or to be passed by the Government of Pakistan in connection with Labor legislation during the course of the work to be performed. Any additional financial charges on account of revision in minimum wages by GOP will be company's responsibility while the contract is in operation.

This contract embodies the entire understanding of the parties hereto on this subject and there are no commitment, terms, conditions or obligations, oral or written, express or implied, other than those contained herein.

28. Late Bid:

Sealed bids shall be mailed/submitted/dropped in tender box placed at Tender Room, CRD Building, and SSGC Head Office, In accordance to the time specified in invitation to bid & tender notice (which ever applicable), Bids are to be delivered on or before closing time after which all bids submitted after the time prescribed shall not be entertained and will be returned without being opened. In case bid is sent through courier, the same shall be delivered at least half an hour before scheduled opening time.

29. Rebate / Discount:

Unit rate (s) given in the Bill of Quantities shall take into account all relevant factors including discount if any. Discount given separately at the time of bid opening will not be considered.

30. Joint Ventures:

In the event that the bidder is bidding as a Joint Venture, the Company will require the joint venture agreement duly executed by the parties to the Joint Venture to be submitted with the bid. The joint venture parties shall also furnish an undertaking to be jointly and severally liable for all liabilities arising out of obligation under the Purchase Order / Contract. The, Joint Venture agreement of the parties must specify share of each partner and name of the lead partner along with their registration with the FBR, SST and BST as the case may be failure to specify these two narrations the joint venture agreement will not be entertained.

31. Correction / Amendments in Quoted Price:

Any overwriting in BOQ / SOR is not allowed. In case of type of any amendment / correction required in unit price / total amount the same has to be strikeout and re-written with corrected figures, properly signed & stamped out, in order to avoid an ambiguous bid.

Sui Southern Gas Co. Ltd. Procurement Dept. HO

FINANCIAL PROPOSAL

SSGC | Sui Southern Gas Company Limited

CONSTRUCTION OF 76M GF TOWER AT SITE RS-THARIRI DADU SINDH & 76M GF TOWER AT SITE RS-1, SHIKARPU SINDH SELF SUPPORTED ANTENNA TOWERS

TENDER DOCUMENT

BILL OF QUANTITIES
TENDER DRAWINGS

Sui Southern Gas Co. Ltd. ★ Procurement Dept. ★ H.O. Gulshan-e-Iqbal

NOVEMBER 2023

CONSULTANT :

ENGINEERING DESIGN BUREAU
271-M, MODEL TOWN EXT,
LAHORE.

ENGINEERING DESIGN BUREAU ★ LAHORE ★

SECTION-VI

SUI SOUTHERN GAS COMPANY LIMITED

CONSTRUCTION OF 76M GF TOWER AT SITE RS-THARIRI DADU SINDH AND 76M GF TOWER AT SITE RS-1, SHIKARPU SINDH SELF SUPPORTED ANTENNA TOWERS

BILL OF QUANTITIES

TABLE OF CONTENTS

Sui Southern Gas Co. Ltd. Procurement Dept. H.O. Gulshan-e-Jamal

ENGINEERING DESIGN BUREAU LAHORE

BILLS OF QUANTITIES

1. PREAMBLE

1.1 The items mentioned in Bills of Quantities consist of furnishing all plant, labour, equipment, machinery appliances, materials, fittings, fixtures and fabrication, erection, installation required for completing the items/works and the work shall be done in accordance with Bills of Quantities, Specifications and Drawings complete in all respect.

1.2 "Ref Sec.No." indicates the specification section number which as a whole or part (depending upon Engineer's discretion) of these specifications are to be followed during execution of item of work in accordance with applicable drawings.

1.3 Complete description of items of work in Bills of Quantities, general directions, conditions and limitation of work, location and place of work, applicable methods, means to be adopted, type and quality of materials, use of tools, plant, and machinery are not necessarily mentioned in the description column of Bills of Quantities. These shall be referred to in accordance with specifications and drawings.

1.4 The Tenderer may ensure himself for the correctness of quantities and application of the individual items for works as per Drawings Specifications and Contract Documents.

1.5 The Quantities contained in the Bills of Quantities are approximate estimated quantities and liable to be changed (increase/decrease) or omitted when the work will be actually executed. The Engineer is authorized to delete any item of work or vary quantities of any item of Bills of Quantities. The Engineer is also authorized to include any number of new items in accordance with contract conditions. No claim for the payment will be admissible on account of anticipated profit or variation in overhead expenditures for the works not actually performed nor will any adjustment in the unit rate set forth in the Bills of Quantities be made because of any increase or any decrease in the Quantities indicated therein.

1.6 The prices and rates to be quoted in the Bills of Quantities are to be full inclusive value of the Works described under specified items including all cost and expenses which may be required in and for the construction of the Works described together with all risks, liabilities and obligations set forth and implied in all the documents referred to on which the tender is based.

1.7 Unless otherwise stated in the text of the Bills of Quantities, the quantities have to be measured and paid in accordance with measurement and payment of works clauses given in the relevant specifications or in accordance with implied meaning of the specifications. Any special method of measurement used as stated in text of Bills of Quantities is limited to the concerned items only.

1.8 Unit rate is to be entered both in figures and words against each item in the Bills of Quantities whether quantities are entered or not. Items against which no price or rate is quoted in the Bills of Quantities shall be deemed to have been covered by rates or prices quoted in the other BOQ items.

1.9 The Contractor should quote his good faith prices for each of work.

1.10 The tendency of any Contractor to inflate the rate of certain item or to quote a very low rate for certain other item will liable him for rejection of his tender.

1.11 The Contractor must go through and read carefully the paras regarding measurement and payment given at the end of each chapter in technical specifications before quoting his rate for that item of work.

1.12 The contractor should not make any alteration, addition or note, such tender shall be liable for rejection.

2. SUMMARY OF TENDER COST

S.NO.	DESCRIPTION	AMOUNT IN PAK. RUPEES
2.1	76M GF TOWER AT SITE RS-THARIRI, DADU SINDH	
i)	Fabrication, Supply & Installation of Tower	
ii)	Civil Works	
iii)	Electrical Works	
iv)	Shifting of Antennas	
	Total :	
2.2	76M GF TOWER AT SITE RS-1, SHIKARPU SINDH	
i)	Fabrication, Supply & Installation of Tower	
ii)	Civil Works	
iii)	Electrical Works	
iv)	Shifting of Antennas	
	Total :	
	Grand Total :	

Sui Southern Gas Co. Ltd. Services Dept. Head Office, Karachi

Sui Southern Gas Co. Ltd. Procurement Dept. H.O. Gulshan-e-Iqbal

LAHORE

A BILL OF QUANTITIES
CONSTRUCTION OF 76M GF TOWER AT SITE RS-THARIRI DADU SINDH
& 76M GF TOWER AT SITE RS-1, SHIKARPU SINDH
SELF SUPPORTED ANTENNA TOWER):

1 76M GF TOWER AT SITE RS-THARIRI DADU SINDH
1.2 CIVIL WORKS:

Sr. No.	Description	Quantity	Unit	Rate (Pak Rs.)	Amount (Pak Rs.)
1.2.1	**EXCAVATION & BACKFILLING:** *Spec. Ref. Section 1100*				
1.2.1.1	Excavation in all kinds of sub-surface material upto the required depth including disposal of purchase /rejected executed material	523	m^3		
1.2.2	**REINFORCEMENT:** *Spec. Ref. Section 2200*				
1.2.2.1	Hot rolled, deformed bars, grade 60	12.536	ton		
1.2.3	**REINFORCED CONCRETE:** *Spec. Ref. Section 2300*				
1.2.3.1	Class 'E' plain concrete using OPC in foundation of ladder	17.4	m^3		
1.2.3.2	Class 'A' reinforced concrete (1:1.5:3) in foundation of tower	110.31	m^3		
1.2.4	**WATER PROOFING TREATMENT:** *Spec. Ref. Section 6411*				
1.2.4.1	Two coats of hot special industrial bitumen paint (10/20 grade) @ 2.50 lit/ sq.m per coat to all structural concrete surfaces permanently in contact with earth	200	m^2		
1.2.5	**STRUCTURAL STEEL:** *Spec. Ref. Section 3000*				
1.2.5.1	Supply, fabrication and erection of 76 meter. Antenna tower comprising all structural steel items with all necessary bolts, nuts and washers, holding bown bolts, gusset and base plates etc. including painting as required complete in all respect as specified and as shown on drawings	22.92	ton		
1.2.5.2	Tower Template weight	495	Kg		
1.2.5.3	GSM Antenna Support Leg Mount	54	Kg		
1.2.5.4	MW Support	168	Kg		
1.2.6	**FALL ARRESTOR SYSTEM**				
1.2.6.1	Supply of FAS (Fall Arrestor System) with all accessories	76	Per meter		
1.2.6.2	Transportation and installation of FAS (Fall Arrestor System) with all accessories	76	Per meter		
1.2.6.3	Dismantling of Existing angular Tower Structure with all accessories and transportation to wearhouse	76	Per meter		
1.2.7	**ANTENNA SHIFTING:**				
1.2.7.1	Shifting of Antennas from old tower to new tower with antenna cables	6	No.		

Sui Southern Gas Co. Ltd. Services Dept. Head Office, Karachi

Sui Southern Gas Co. Ltd. Procurement Dept. H.O. Gulshan-e-Iqbal

LAHORE

1.3 ELECTRICAL & EARTHING WORKS:

1.3.1	**LIGHT FIXTURE:** ***Ref. Spec. Sec. 8001*** ***(SEE DRG: TWR300-04)***				
1.3.1.1	Aircraft warning/ obstruction light Philips type PS-14 with aviation red glass lens, vibration proof B-22 bayonet base and 60W GLS lamp or approved equivalent with all accessories and installation material as approved by the Engineer	4	No.		
1.3.2	**LT CABLES:** ***Ref. Spec. Sec. 8001*** ***(SEE DRG: TWR300-04)***				
1.3.2.1	Four core 4 Sq.mm 600/1000 volt grade, PVC insulated, PVC sheathed cable in already installed conduit/pipe	105 (variable length)	m		
1.3.3	**CONDUITS AND PIPES:** ***Ref. Spec. Sec. 8001*** ***(SEE DRG: TWR300-04)***				
1.3.3.1	20 mm dia light duty G.I. pipe with all accessories laid on surface/underground	105 (variable length)	m		
1.3.4	**LIGHTNING PROTECTION SYSTEM:** ***Ref. Spec. Sec. 8001*** ***(SEE DRG: TWR300-03)***				
1.3.4.1	Lightning arrestor/air termination of solid copper, corrosion resistant with gun metal base and all accessories	2	No.		
1.3.4.2	1 core 35 sq.mm PVC cable as down conductor installed on surface of tower/along ladder or laid underground including mounting clamps and all accessories	165	m		
1.3.4.3	Testing terminal for down conductor including all accessories	1	No.		
1.3.4.4	Earth electrode, plate type including earthing lead from testing terminal to earth electrode, excavation, backfilling, protective pipe and inspection chamber with cover etc. as per details given on drawing	4	No.		

Total Cost (carried to Form of Tender) =

Sui Southern Gas Co. Ltd. Procurement Dept. H.O. Gulshan-e-Iqbal

Sui Southern Gas Co. Ltd. Services Dept. Head Office, Karachi

LAHORE

A BILL OF QUANTITIES

CONSTRUCTION OF 76M GF TOWER AT SITE RS-THARIRI DADU SINDH
& 76M GF TOWER AT SITE RS-1, SHIKARPU SINDH
SELF SUPPORTED ANTENNA TOWER):

2 76M GF TOWER AT SITE RS-1, SHIKARPU SINDH

2.1 CIVIL WORKS:

Sr. No.	Description	Quantity	Unit	Rate (Pak Rs.)	Amount (Pak Rs.)
2.2.1	**EXCAVATION & BACKFILLING:** *Spec. Ref. Section 1100*				
2.2.1.1	Excavation in all kinds of sub-surface material upto the required depth including disposal of purchase /rejected executed material	507	m^3		
2.2.2	**REINFORCEMENT:** *Spec. Ref. Section 2200*				
2.2.2.1	Hot rolled, deformed bars, grade 60	11.9777	ton		
2.2.3	**REINFORCED CONCRETE:** *Spec. Ref. Section 2300*				
2.2.3.1	Class 'E' plain concrete using OPC in foundation of ladder	16.9	m^3		
2.2.3.2	Class 'A' reinforced concrete (1:1.5:3) in foundation of tower	107.21	m^3		
2.2.4	**WATER PROOFING TREATMENT:** *Spec. Ref. Section 6411*				
2.2.4.1	Two coats of hot special industrial bitumen paint (10/20 grade) @ 2.50 lit/ sq.m per coat to all structural concrete surfaces permanently in contact with earth	195	m^2		
2.2.5	**STRUCTURAL STEEL:** *Spec. Ref. Section 3000*				
2.2.5.1	Supply, fabrication and erection of 76 meter. Antenna tower comprising all structural steel items with all necessary bolts, nuts and washers, holding bown bolts, gusset and base plates etc. including painting as required complete in all respect as specified and as shown on drawings	22.92	ton		
2.2.5.2	Tower Template weight	495	Kg		
2.2.5.3	GSM Antenna Support Leg Mount	54	Kg		
2.2.5.4	MW Support	180	Kg		
2.2.6	**FALL ARRESTOR SYSTEM**				
2.2.6.1	Supply of FAS (Fall Arrestor System) with all accessories	76	Per meter		
2.2.6.2	Transportation and installation of FAS (Fall Arrestor System) with all accessories	76	Per meter		
2.2.6.3	Dismantling of Existing Guymast Tower Structure with all accessories and transportation to wearhouse	76	Per meter		
2.2.7	**ANTENNA SHIFTING:**				
2.2.7.1	Shifting of Antennas from old tower to new tower with antenna cables	6	No.		

Sui Southern Gas Co. Ltd. Services Dept. Head Office, Karachi

Sui Southern Gas Co. Ltd. Procurement Dept. H.O. Gulshan-e-Iqbal

2.3 ELECTRICAL & EARTHING WORKS:

2.3.1	**LIGHT FIXTURE:** ***Ref. Spec. Sec. 8001*** ***(SEE DRG: TWR300-04)***				
2.3.1.1	Aircraft warning/ obstruction light Philips type PS-14 with aviation red glass lens, vibration proof B-22 bayonet base and 60W GLS lamp or approved equivalent with all accessories and installation material as approved by the Engineer	4	No.		
2.3.2	**LT CABLES:** ***Ref. Spec. Sec. 8001*** ***(SEE DRG: TWR300-04)***				
2.3.2.1	Four core 4 Sq.mm 600/1000 volt grade, PVC insulated, PVC sheathed cable in already installed conduit/pipe	105 (variable length)	m		
2.3.3	**CONDUITS AND PIPES:** ***Ref. Spec. Sec. 8001*** ***(SEE DRG: TWR300-04)***				
2.3.3.1	20 mm dia light duty G.I. pipe with all accessories laid on surface/underground	105 (variable length)	m		
2.3.4	**LIGHTNING PROTECTION SYSTEM:** ***Ref. Spec. Sec. 8001*** ***(SEE DRG: TWR300-03)***				
2.3.4.1	Lightning arrestor/air termination of solid copper, corrosion resistant with gun metal base and all accessories	2	No.		
2.3.4.2	1 core 35 sq.mm PVC cable as down conductor installed on surface of tower/along ladder or laid underground including mounting clamps and all accessories	165	m		
2.3.4.3	Testing terminal for down conductor including all accessories	1	No.		
2.3.4.4	Earth electrode, plate type including earthing lead from testing terminal to earth electrode, excavation, backfilling, protective pipe and inspection chamber with cover etc. as per details given on drawing	4	No.		

Total Cost (carried to Form of Tender) =

Sui Southern Gas Co. Ltd. Procurement Dept. H.O. Sukkur

Sui Southern Gas Co. Ltd. Services Dept. Head Office, Karachi

LAHORE

Report Run by : DESKTOP-D30VR27

Enquiry No. SSGC/SC/13508

TENDER ENQUIRY NO. SSGC/SC/13508 SECTION-VI

SCHEDULE OF REQUIREMENT

AND

BID FORM

Sr. NO.	DESCRIPTION OF ITEMS / PART NOS. (1)	QUNATITY (3)	UOM (4)	TOTAL AMOUNT
1	CIVIL CONSTRUCTION WORKS FOR EXCAVATION & BACKFILLING, REINFORCEMENT, RCC & WATER PROOFING TREATMENT FOR 76M OF SELF SUPPORTED ANTENA TOWER AT SITE RS-THARIRI DADU SINDH (AS PER BOQ) [1] SC012302 **Delivery Schedule:**	1.00	Job	
2	ELECTRICAL & EARTHING WORKS FOR LIGHT FIXTURE, LT CABLES, CONDUITS AND PIPES, LIGHTINING PROTECTION SYSTEM FOR 76M OF SELF SUPPORTED ANTENA TOWER AT SITE RS-THARIRI DADU SINDH (AS PER BOQ) [2] SC012303 **Delivery Schedule:**	1.00	Job	
3	CIVIL CONSTRUCTION WORKS FOR EXCAVATION & BACKFILLING, REINFORCEMENT, RCC & WATER PROOFING FOR 76M OF SELF SUPPORTED ANTENA TOWER AT SITE RS-1, SHIKARPUR SINDH (AS PER BOQ) [3] SC012304 **Delivery Schedule:**	1.00	Job	
4	ELECTRICAL & EARTHING WORKS FOR LIGHT FIXTURE, LT CABLES, CONDUITS AND PIPES, LIGHTINING PROTECTION SYSTEM FOR 76M OF SELF SUPPORTED ANTENA TOWER AT SITE RS-1 SHIKARPUR SINDH (AS PER BOQ) [4] SC012305 **Delivery Schedule:**	1.00	Job	
	SUPPLY & INSTALLATION OF 76M SELF SUPPORTED ANTENA TOWER WITH FALL ARRESTOR SYSTEM AT SITE RS-1, SHIKARPUR SINDH (AS PER BOQ)			

Sui Southern Gas Co. Ltd. Procurement Dept. H.O. Gulshan-e-Jobal

Report Run by : DESKTOP-D30VR27

Enquiry No. SSGC/SC/13508

5	SUPPLY & INSTALLATION OF 76M SELF SUPPORTED ANTENA TOWER WITH FALL ARRESTOR SYSTEM AT SITE RS-1, SHIKARPUR SINDH (AS PER BOQ) [5] SC012306 **Delivery Schedule:**	1.00	Job	
6	SUPPLY & INSTALLATION OF 76M SELF SUPPORTED ANTENA TOWER WITH FALL ARRESTOR SYSTEM AT SITE RS THARIRI HQ DADU SINDH (AS PER BOQ) [6] SC012307 **Delivery Schedule:**	1.00	Job	
7	SHIFTING OF ANTENNAS FROM OLD TOWER TO NEW TOWER OF 76M SELF SUPPORTED ANTENA TOWER AT SITE RS THARIRI HQ DADU SINDH (AS PER BOQ) [7] SC012308 **Delivery Schedule:**	1.00	Job	
8	SHIFTING OF ANTENNAS FROM OLD TOWER TO NEW TOWER OF 76M SELF SUPPORTED ANTENA TOWER AT SITE RS -1, HQ SHIKARPUR SINDH (AS PER BOQ) [8] SC012309 **Delivery Schedule:**	1.00	Job	

Fix Bid Bond Amount in PKR: 550,000

NOTE :

(i) The quoted unit price and corresponding total amount shall be inclusive of all duties & Taxes, excluding Sales Tax as per provincial laws.

(ii) Incase of supply of material alongwith services GST will be exclusive of quoted rate of material.

(iii) Bidders are essentially required for quote their rates on bid form / BoQ.

(iv) Prices given in the bid form and BOQ shall take into account all relevant factors including discounts, if any. Discount given separately at the time of bid opening will not be considered.

(v) Any Bidder who change/amend the BOQ or Price Schedule (description, quantity, uom etc.) will be render the bid as conditional bid and will be liable for rejection.

SIGNAUTRE OF BIDDER:_____

NAME.....: _____

NAME OF BIDDER....: _____

STAMP.....: _____

DATE..... _____

Sui Southern Gas Co. Ltd. Procurement Dept. H.O. Gulshan-e-Iqbal

Oracle Financial Generated

Report Run by : DESKTOP-D30VR27

Enquiry No. SSGC/SC/13508

STAMP.....: _____

DATE.....: _____

Oracle Financial Generated

TENDER DRAWINGS

5. LIST OF TENDER DRAWINGS

Listed below are the Tender Drawings included in these documents as VOLUME-IV. Remaining Drawings will be issued to the successful Tenderer only. Attached Drawings show the general layout plan, elevations, sections details of various features of the Works and tower GA, foundation, and electrical details.

These Drawings may be supplemented by additional drawings including working drawings. All the drawings included in these Documents and any and all supplementary drawings form a part of the Contract Documents, the work shall be done in accordance therewith. The Contractor shall carefully check all drawings and seek the advice of the Engineer regarding any errors or omissions, before commencing the work.

SR. NO.	TITLE	DRAWING NO.
1.	76M GF TOWER AT SITE RS-THARIRI DADU SINDH	
	Tower General Arrangement	SSGCL-EDB-TWR76-01
	Electrical Details	SSGCL-EDB-TWR76-29
	Earthing Details 1	SSGCL-EDB-TWR76-30
	Earthing Details 2	SSGCL-EDB-TWR76-31
	Foundation Details	SSGCL-EDB-TWR76-FD01
2.	76M GF TOWER AT SITE RS-1, SHIKARPU SINDH	
	Tower General Arrangement	SSGCL-EDB-TWR76-01
	Electrical Details	SSGCL-EDB-TWR76-29
	Earthing Details 1	SSGCL-EDB-TWR76-30
	Earthing Details 2	SSGCL-EDB-TWR76-31
	Foundation Details	SSGCL-EDB-TWR76-FD01

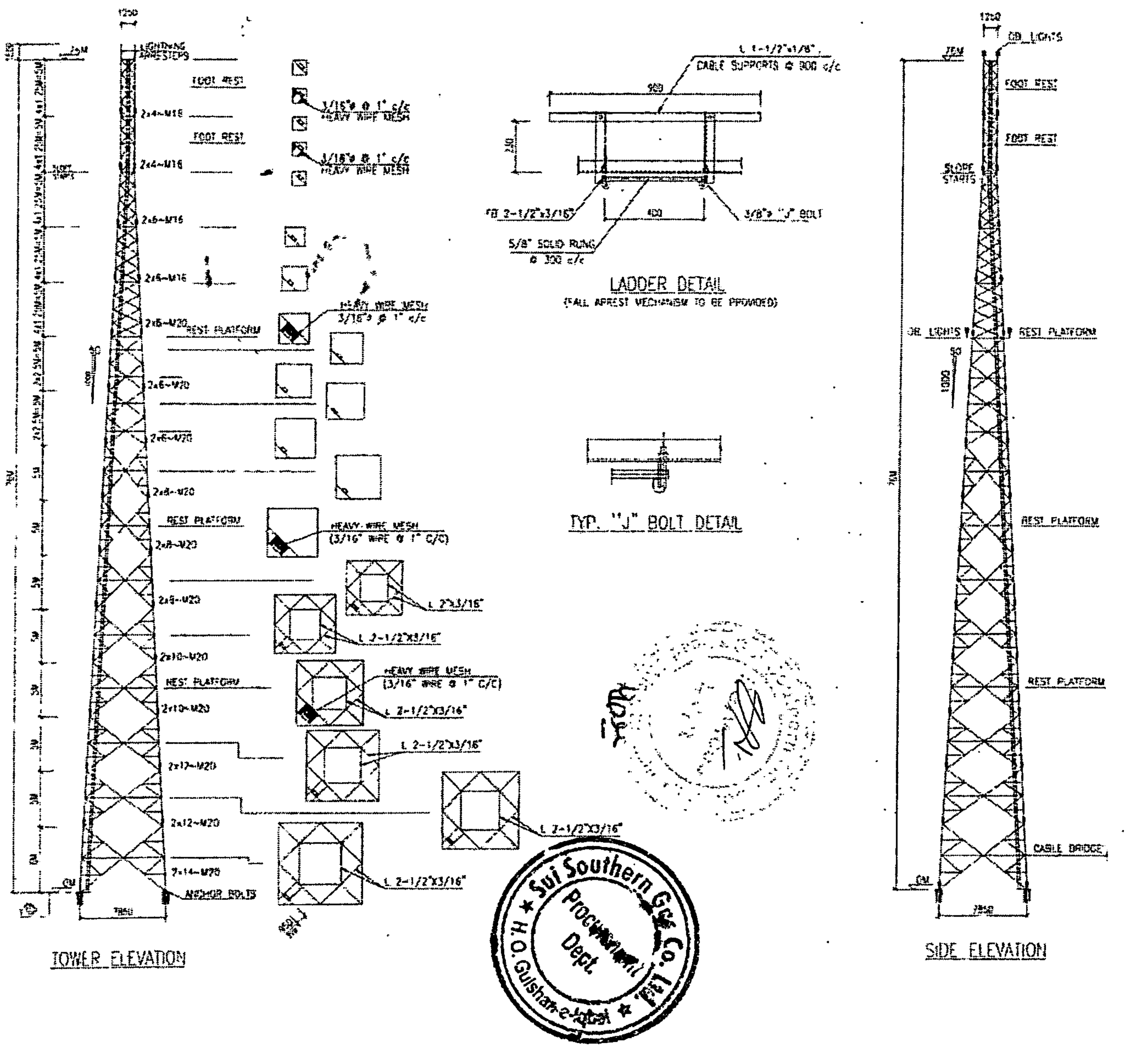
Sui Southern Gas Co. Ltd. Procurement Deptt. H.O. Gulshan-e-Iqbal

ENGINEERING DESIGN BUREAU LAHORE

TENDER DRAWINGS
76M GF TOWER AT SITE RS-1, SHIKARPU SINDH

Sui Southern Gas Co. Ltd. Procurement Dept. H.O. Gulshan-e-Iqbal

ENGINEERING DESIGN BUREAU LAHORE



PAINTING	LIGHTING	LEGS	DIAGONALS	HORIZONTALS	BLOCKS
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

NOTES

1 DESIGN CRITERIA

1.1 DESIGN WIND SPEED : 180 KPH (3 SEC GUST) SURVIVAL WIND SPEED = 200 KPH

1.2 WIND LOADS AS PER ANSI/TIA 2..
- EXPOSURE CATEGORY C
- TOPOGRAPHIC CATEGORY 1
- STRUCTURE CLASSIFICATION, CLASS I

1.4 TOWER HAS BEEN DESIGNED FOR FOLLOWING ANTENNA DATA..
1~WHIP ANTENNA @ TOP
1~1.8M DIA RADOME @ 60M
1~1.2M DIA RADOME @ 35M
1~1.2M DIA RADOME @ 31M
1~0.6M DIA RADOME @ 19M

2. FABRICATION, GALVANIZING, ERECTION AND PAINTING

2.1 FABRICATION, GALVANIZING, ERECTION AND PAINTING TO BE IN ACCORDANCE WITH AISC SPECIFICATIONS

2.2 AFTER FABRICATION AND BEFORE GALVANIZING THE TRIAL ASSEMBLY OF COMPLETE TOWER STRUCTURE SHALL BE DONE

2.3 ALL COMPONENTS TO BE HOT DIP GALVANIZED IN ACCORDANCE WITH ASTM A123 GALVANIZATION THICKNESS SHALL NOT BE LESS THAN 90 MICRONS

2.4 ALL COMPONENTS SHALL BE PAINTED WITH 1 (ONE) COAT OF WASH PRIMER, 1 (ONE) COAT OF EPOXY PRIMER AND 2 (TWO) COATS OF EPOXY FINISH PAINT IN SPECIFIED COLOUR. THICKNESS OF WASH PRIMER AND EPOXY PRIMER SHALL BE AS PER MANUFACTURERS RECOMMENDATION. THICKNESS OF EACH COAT OF EPOXY FINISH PAINT SHALL BE 50 MICRONS

2.5 TOWER ANCHOR BOLTS SHALL BE EMBEDDED TRULY ALIGNED AND LEVELED WITH THE HELP OF BASE SETTING TEMPLATE

3 MATERIAL

3.1 TOWER STRUCTURE SHALL BE AS FOLLOWS -

TOWER LEGS (HL)	ASTM A242	(FY-50KSI)
OTHER TOWER MEMBERS (L)	ASTM A36	(FY-36KSI)
BASE PLATE & WING PLATE	ASTM A242	(FY=46KSI)

CONNECTION BOLTS (GALVANIZED) SHALL BE ISO 898-1, GRADE 8.8 OR EQUIVALENT
NUTS (GALVANIZED) SHALL BE ISO 898-2, GRADE 8 OR EQUIVALENT
PLAIN WASHERS (GALVANIZED) SHALL BE ISO 7089, GRADE A, CLASS 200, OR EQUIVALENT. ALL BOLTS SHALL BE FIXED WITH ONE PLAIN WASHER.
HD BOLTS (GALVANIZED) SHALL BE G60 BARS

3.2 WELDING ELECTRODES SHALL BE E 70 XX

ENGINEERING DESIGN BUREAU LAHORE
CONSTRUCTION DRAWING

Sui Southern Gas Co. Ltd. Procurement Dept. H.O. Gulshan-e-Iqbal

DESCRIPTION	BY	DATE	REV

CLIENT: SUI SOUTHERN GAS COMPANY LIMITED, KARACHI

CONTRACTOR:

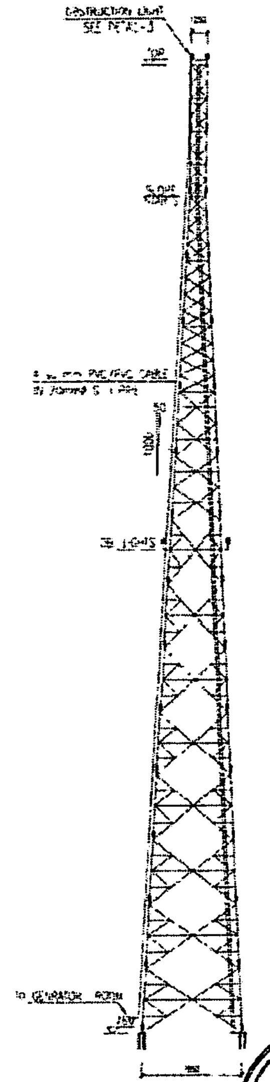
CONSULTANT: edb ENGINEERING DESIGN BUREAU, LAHORE

PROJECT: 76M GREEN FIELD SELF SUPPORTED TOWER AT SITE RS-1

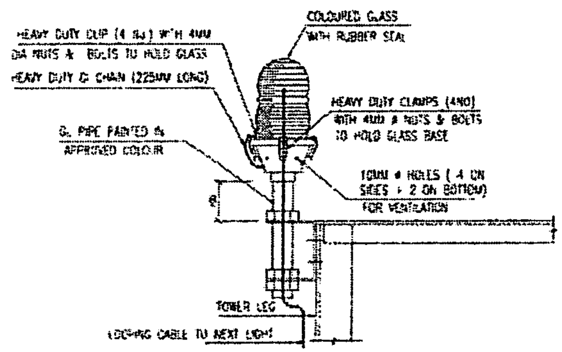
TITLE: GENERAL ARRANGEMENT

SCALE	DRAWN	DESIGNED	CHECKED	APPROVED	DATE
N.T.S	A.HAMEED	I. Z. I	ARBAB	I. Z	OCT. 2021

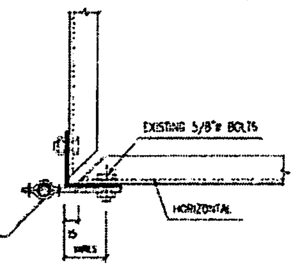
DRG NO: SSGCL-EDB-TWR76-01 REVISION:



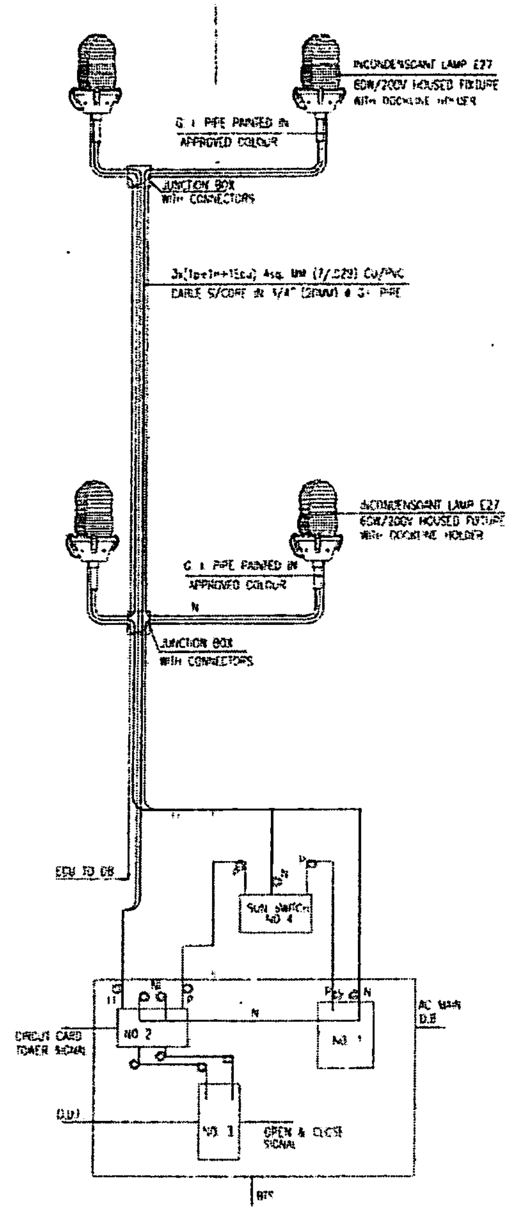
TOWER ELECTRICAL DETAILS



DETAIL - 3
OBSTRUCTION LIGHT



TYP. G.I. PIPE CLAMPING DETAIL



CIRCUIT AND SIGNAL DIAGRAM OF ACW LIGHTS

NOTES

1. ALL MATERIALS TO BE OF APPROVED QUALITY
2. OB LIGHTS SHALL BE PLACED ALONG DIAGONAL ...
3. PHOTOELECTRIC ... SHALL BE PROVIDED AT ... LOCATION
4. COLOUR CODE FOR WIRING TO BE AS FOLLOWS:
   - LIVE - RED
   - NEUTRAL - BLACK
   - EARTH - GREEN

LEGEND

SYMBOL	DESCRIPTION
⊡	OBSTRUCTION LIGHT
———	WIRING FOR LIGHTING ... MAKE
L	PHASE (LIVE)
N	NEUTRAL (NEGATIVE)
E	EARTH
1	AC MAIN DB
2	CIRCUIT CARD TOWER
3	ODF
4	SUN SWITCH

CONSTRUCTION DRAWING

DESCRIPTION	BY	DATE	REV

CLIENT: SUI SOUTHERN GAS COMPANY LIMITED, KARACHI

CONTRACTOR:

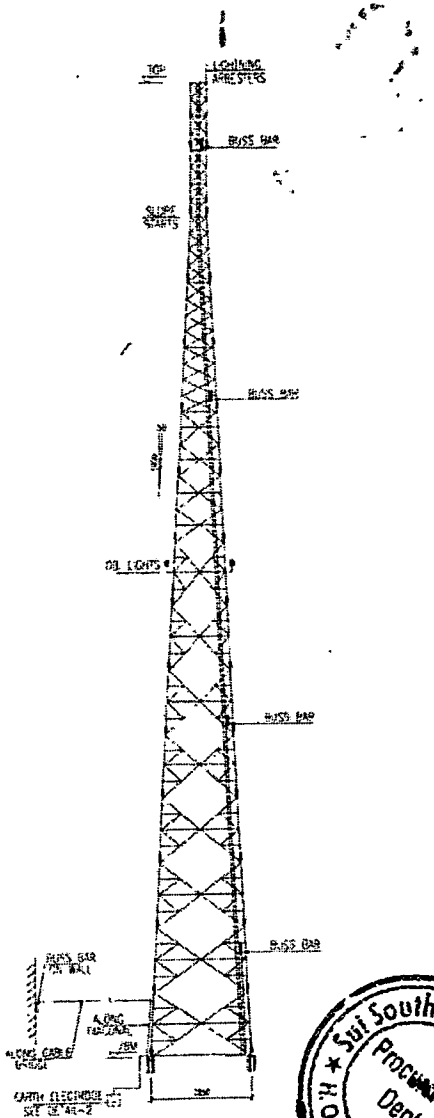
CONSULTANT: edb ENGINEERING DESIGN BUREAU, LAHORE

PROJECT: 76M GREEN FIELD SELF SUPPORTED TOWER AT SITE RS-1

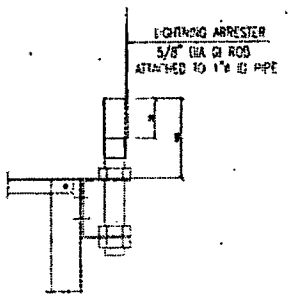
TITLE: ELECTRICAL DETAILS

SCALE	DRAWN	DESIGNED	CHECKED	APPROVED	DATE
N.T.S	A.HAMEED		ANNAN		

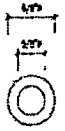
DRG NO: SSGCL EDR-TWR76-29



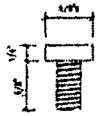
TOWER EARTHING DETAIL



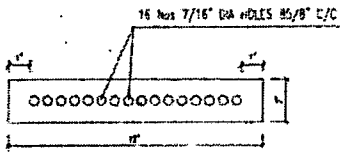
DETAIL - 1
LIGHTNING ARRESTER



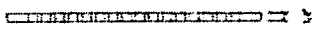
COPPER WASHER
1/16" TH



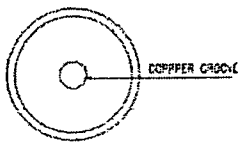
COPPER NUT
EARTHING BUSS BAR



PLAN



ELEVATION
EARTHING BUSS BAR



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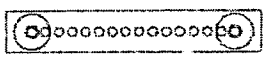

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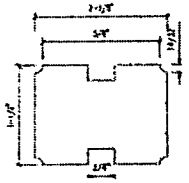
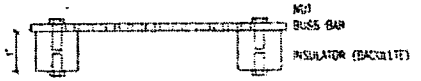
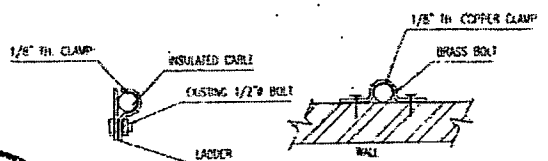


ASSEMBLED EARTHING BAR
INSULATOR (BACULITE)



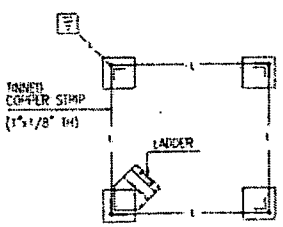
ASSEMBLED EARTHING BAR



WITH LADDER

WITH WALL

INSULATED CABLE CLAMPING DETAIL



EARTHING LAY-OUT PLAN

NOTES

1. ALL FOUR LEGS AND STEEL LADDER OF THE TOWER SHALL BE INTERCONNECTED AND CONNECTED TO EARTH ELECTRODE WITH 7/16" COPPER STRAND
2. ALL MATERIALS TO BE OF APPROVED QUALITY

LEGEND

SYMBOL	DESCRIPTION
	TESTING TERMINAL
	LIGHTNING CONDUCTOR
	EARTH ELECTRODE

ENGINEERING DESIGN BUREAU LAHORE

CONSTRUCTION DRAWING

DESCRIPTION	BY	DATE	REV

CLIENT: SUI SOUTHERN GAS COMPANY LIMITED, KARACHI

CONTRACTOR:

CONSULTANT: edb ENGINEERING DESIGN BUREAU LAHORE

PROJECT: 76M GREEN FIELD SELF SUPPORTED TOWER AT SITE RS-1

TITLE: EARTHING DETAILS (SH 1 OF 2)

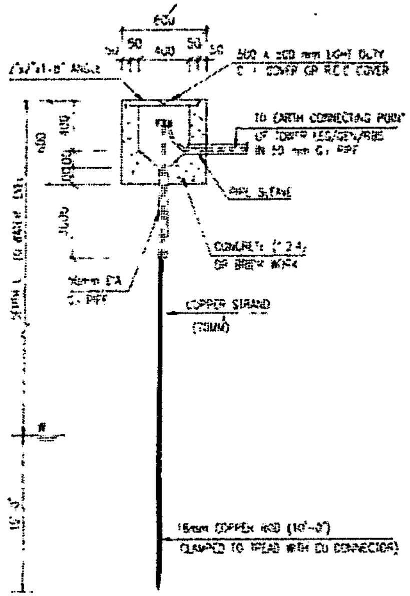
SCALE	DRAWN	DESIGNED	CHECKED	APPROVED	DATE
N.T.S	A.HAMEED	I. Z	AMNAH	I. Z	OCT, 2023

DRG NO: SSGCL/EDB-TWR76/30 REVISION:

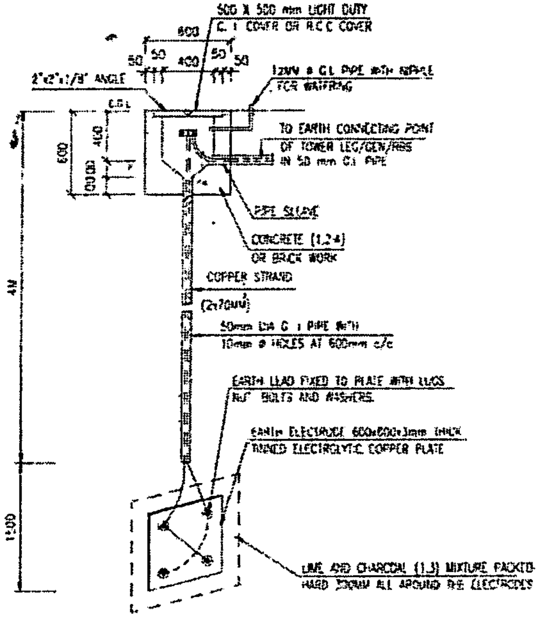
Sui Southern Gas Co. Ltd. Procurement Dept. H.O. Gulshan-e-Iqbal

NOTES

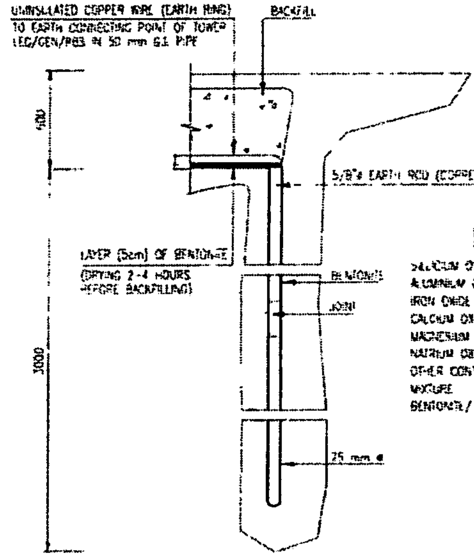
1. FOR NOTES REFER SH 1 OF 2
2. TYPE EARTHING TO BE ADOPTED AT ANY SITE ... CONDITION AND WILL BE APPROVED BY CLIENT
3. ...



DETAIL -2 (ALTERNATE 1)
ROD TYPE EARTH ELECTRODE



DETAIL -2 (ALTERNATE-2)
PLATE TYPE EARTH ELECTRODE



BENTONITE

SILICON OXIDE	56%
ALUMINIUM OXIDE	20%
IRON OXIDE	05%
CALCIUM OXIDE	03%
MAGNESIUM OXIDE	04%
NATRIUM OXIDE	02%
OTHER CONTENTS	10%
MIXTURE	
BENTONITE / WATER RATIO	1:10

DETAIL -2 (ALTERNATE-3)
CHEMICAL EARTH ELECTRODE

ENGINEERING DESIGN BUREAU LAHORE

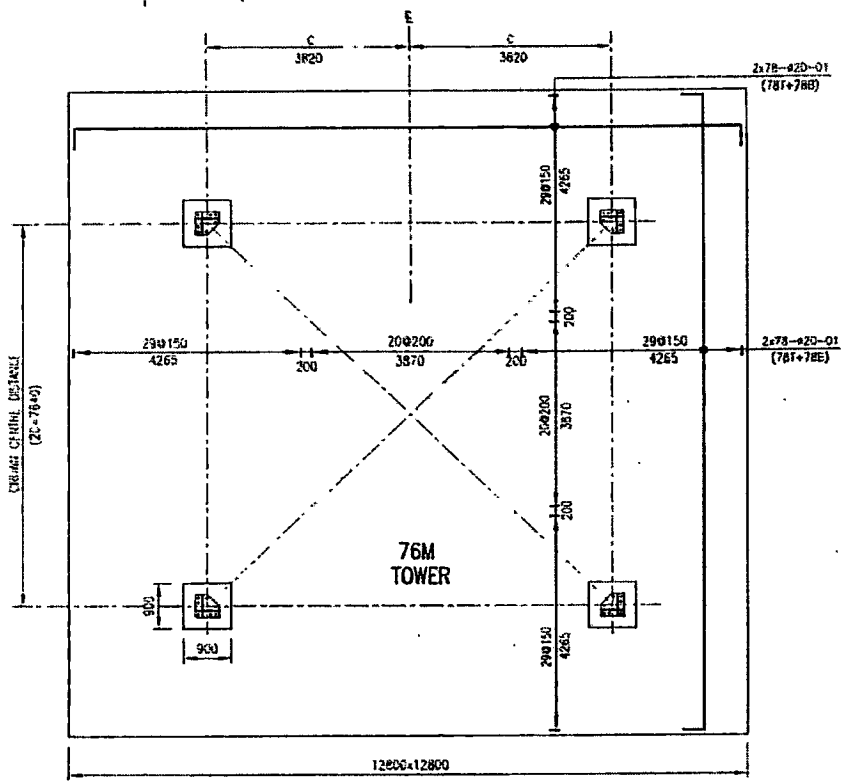
CONSTRUCTION DRAWING

DESCRIPTION	BY / DATE
CLIENT	SUI SOUTHERN GAS COMPANY LTD, KARACHI
CONTRACTOR	
CONSULTANT	edb ENGINEERING DESIGN BUREAU, LAHORE
PROJECT	76M GREEN FIELD SELF SUPPORTED TOWER AT SITE RS-1
TITLE	EARTHING DETAILS (SH 2 OF 2)

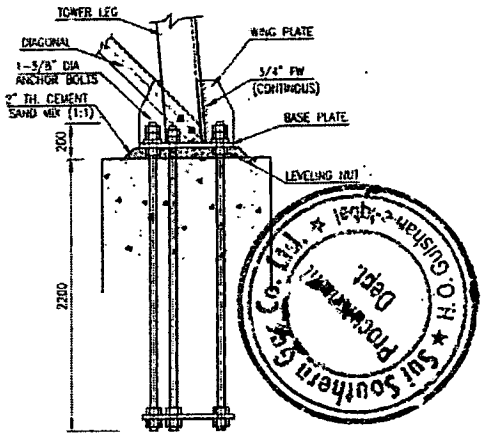
SCALE	DRAWN	DESIGNED	CHECKED	APPROVED	DATE
N.T.S	A.HAMEED		ASMAH		

DRG NO: SSGCL-EDB-TWR76-31

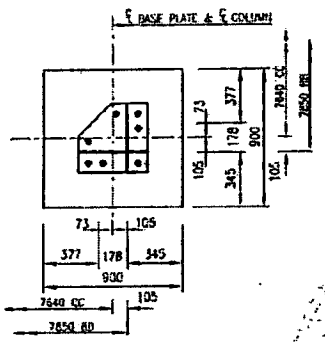
Sui Southern Gas Co. Ltd. Procurement Dept. H.O. Gulshan-e-Iqbal



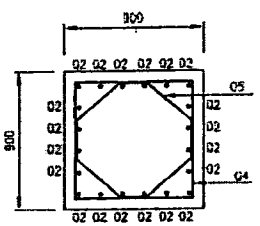
PLAN



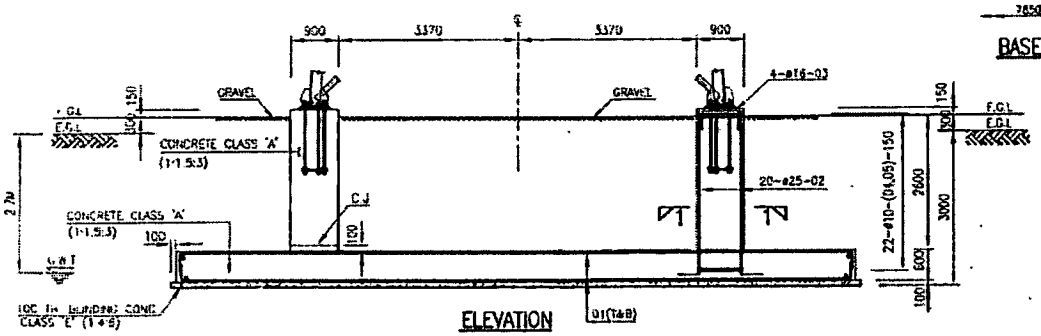
ANCHOR BOLT DETAILS



BASE PLATE DETAIL



SECTION 1-1



ELEVATION

NOTE:
DEWATERING WILL BE REQUIRED. DEWATERING SHOULD BE DONE WITH PROPERLY DESIGNED WELL POINTS. NO EXCAVATION SHALL START UNLESS WATER TABLE IS LOWERED TO 2'-0" BELOW EXCAVATION LEVELA CONTINUOUS DEWATERING SHALL BE DONE UNTILL CONSTRUCTION IS COMPLETE.

NOTES

1. FOR GENERAL NOTES REFER TOWER G. A. DRAWING
2. NET BEARING CAPACITY AT RS-I, SHI[illegible] SINDH. SITE = 65 KPA
3. FOLLOWING CONCRETE GRADE SHALL BE USED:
   CHIMNEY & PAD - CLASS A (1:1.5:3)
   BLINDING - CLASS E (1:4:8)
4. MAXIMUM AGGREGATE SIZE SHALL BE 40 MM. GRADATION SHALL BE IN ACCORDANCE WITH ASTM C33.
5. CLEAR CONC. COVER = 50mm
6. OPC SHALL BE USED FOR ALL CONCRETE WORK UNLESS NOTED OTHERWISE
7. ALL CONCRETE SURFACES IN CONTACT WITH SOIL SHALL BE COATED WITH TWO COATS OF BITUMEN.
8. REINFORCEMENT SHALL BE GRADE 60 IN ACCORDANCE WITH ASTM A615
   REINFORCEMENT HAS BEEN CALLED UP THUS :

   78 # 20 01 150
   - 78 — NUMBER OF BARS
   - # — REINFORCEMENT (GRADE 60)
   - 20 — BAR DIAMETER (MM)
   - 01 — BAR MARK
   - 150 — SPACING

9. BACKFILL SHALL BE DONE IN LAYERS NOT EXCEEDING 200MM MEASURED AS COMPACTED MATERIAL AND SATURATED WITH SUFFICIENT WATER AND COMPACTED TO PRODUCE IN-SITU DENSITY NOT LESS THAN 95% OF THE MAX. MODIFIED DRY AASHTO DENSITY CONFORMING TO T-180 OF AASHTO
10. QUANTITIES FOR FOUNDATIONS ARE AS UNDER :

		UNIT	QUANTITY
i)	NET EXCAVATION	CM	507
ii)	NET BACKFILL	CM	384
iii)	CONCRETE CLASS A (1:1.5:3)	CM	107.21
iv)	CONCRETE CLASS E (1:4:8)	CM	18.9
v)	REINFL. GRADE 60	KG	11977

BAR BENDING SCHEDULE

MK	SIZE (MM)	NO	CUT LENGTH (MM)	SHAPE	WEIGHT (KG)
01	ø 20	312	13500	450 12700 450	10387
02	ø 25	60	3550	350 3200	1093
03	ø 16	16	1350	300 750 300	34
04	ø 10	88	3400	800 800	184
05	ø 10	88	2760	180	150
06	ø 20	30	1740	420 300 420	129
					11977

ENGINEERING DESIGN BUREAU LAHORE

DESCRIPTION	BY	DATE	REV.

CLIENT: SUI SOUTHERN GAS COMPANY LIMITED (SSGC) KARACHI

CONTRACTOR:

CONSULTANT: ENGINEERING DESIGN BUREAU LAHORE

PROJECT: PROJECT NO: G04-1180-1221

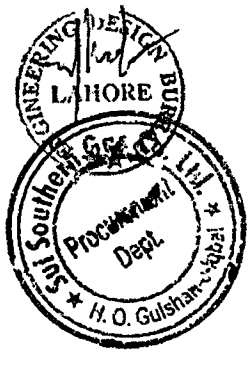
SITE ID: 76M GREEN FIELD SELF SUPPORTED TOWER AT SITE RS-I, SHIKARPUR SINDH.

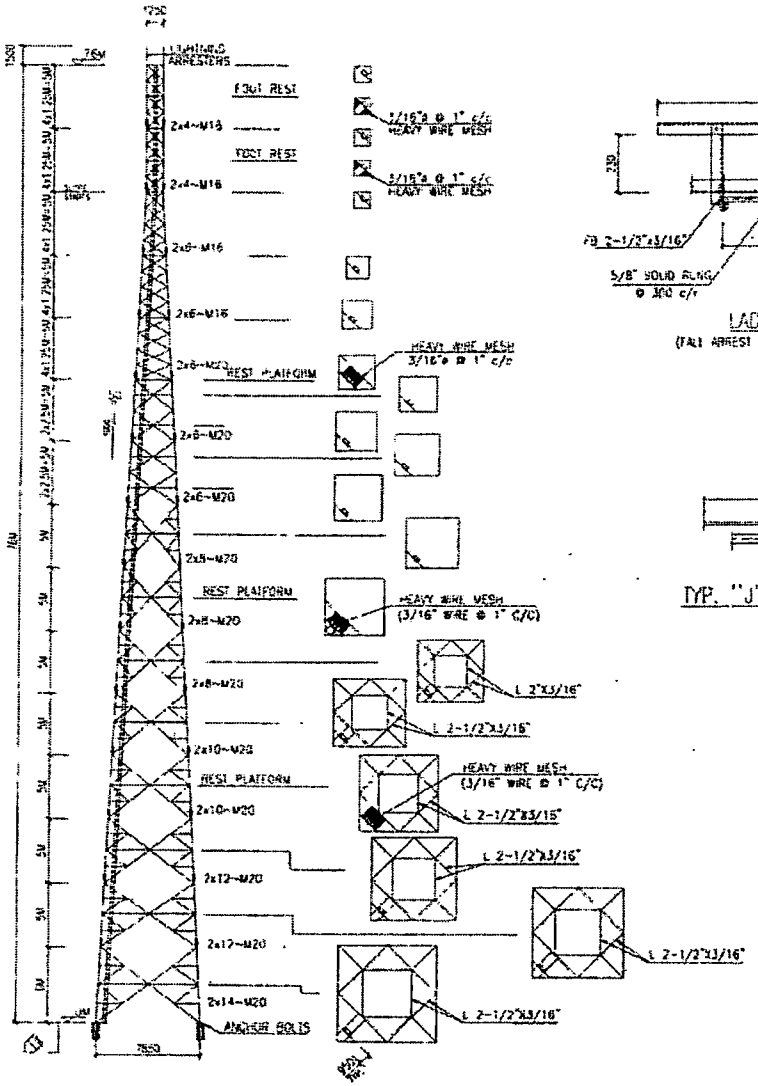
TITLE: RAFT FOUNDATION DETAILS

SCALE	DRAWN	DESIGNED	CHECKED	APPROVED	DATE
N.T.S	SIDRA	KAMRAN	KAMRAN	I. Z.	NOV, 2023

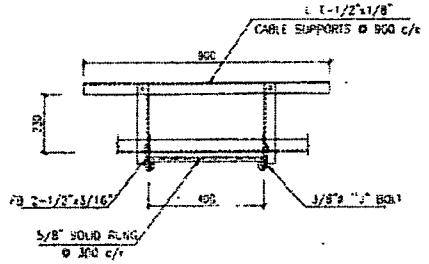
DRG. NO. SSGCL-EDB-TWR76-FD01 REVISION

TENDER DRAWINGS
76M GF TOWER AT SITE RS-THARIRI DADU SINDH





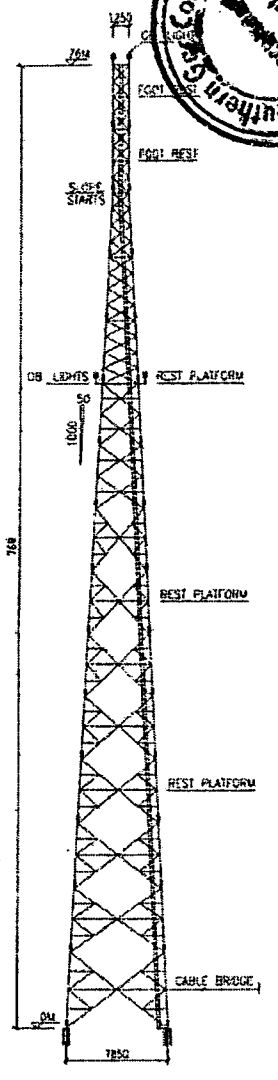
TOWER ELEVATION



LADDER DETAIL

(FALL ARREST MECHANISM TO BE PROVIDED)

TYP. "J" BOLT DETAIL



SIDE ELEVATION

NOTES

1. DESIGN CRITERIA
   - DESIGN WIND SPEED = 150 KPH (3 SEC GUST)
   - SURVIVAL WIND SPEED = 200 KPH
   - WIND LOADS AS PER ANSI/TIA-222-G
   - EXPOSURE CATEGORY C
   - TOPOGRAPHIC CATEGORY 1
   - STRUCTURE CLASSIFICATION, CLASS II
   - TOWER HAS BEEN DESIGNED FOR FOLLOWING ANTENNA LOADING
   - 4ø@ ANTENNA @ TOP
   - 1~1.8M DIA RADOME @ 75M
   - 1~1.8M DIA RADOME @ 66M
   - 1~1.2M DIA RADOME @ 55M
   - 1~1.2M DIA RADOME @ 38M
2. FABRICATION, GALVANIZING, ERECTION AND PAINTING
   - 2.1 FABRICATION, GALVANIZING, ERECTION AND PAINTING TO BE IN ACCORDANCE WITH AISC SPECIFICATIONS.
   - 2.2 AFTER FABRICATION AND BEFORE GALVANIZING THE TRIAL ASSEMBLY OF COMPLETE TOWER STRUCTURE SHALL BE DONE
   - 2.3 ALL COMPONENTS TO BE HOT DIP GALVANIZED IN ACCORDANCE WITH ASTM A123. GALVANIZATION THICKNESS SHALL NOT BE LESS THAN 90 MICRONS.
   - 2.4 ALL COMPONENTS SHALL BE PAINTED WITH 1 (ONE) COAT OF WASH PRIMER, 1 (ONE) COAT OF EPOXY PRIMER AND 2 (TWO) COATS OF EPOXY FINISH PAINT IN SPECIFIED COLOUR. THICKNESS OF WASH PRIMER AND EPOXY PRIMER SHALL BE AS PER MANUFACTURERS RECOMMENDATION. THICKNESS OF EACH COAT OF EPOXY FINISH PAINT SHALL BE 50 MICRONS
   - 2.5 TOWER ANCHOR BOLTS SHALL BE EMBEDDED TRULY ALIGNED AND LEVELED WITH THE HELP OF BASE SETTING TEMPLATE
3. MATERIAL
   - 3.1 TOWER STRUCTURE SHALL BE AS FOLLOWS:
     - TOWER LEGS (HL) ASTM A242 (FY=50KSI)
     - OTHER TOWER MEMBERS (L) ASTM A36 (FY=36KSI)
     - BASE PLATE & WING PLATE ASTM A242 (FY=40KSI)
     - CONNECTION BOLTS (GALVANIZED) SHALL BE ISO 898-1, GRADE 8.8 OR EQUIVALENT
     - NUTS (GALVANIZED) SHALL BE ISO 898-2, GRADE 8 OR EQUIVALENT
     - PLAIN WASHERS (GALVANIZED) SHALL BE ISO 7089, GRADE A, CLASS 200, OR EQUIVALENT. ALL BOLTS SHALL BE FIXED WITH ONE PLAIN WASHER.
     - HD BOLTS (GALVANIZED) SHALL BE GR8 BARS
   - 3.2 WELDING ELECTRODES SHALL BE E 70 XX.

PAINTING
LEGS
DIAGONALS
HORIZONTALS
BLOCKS

FOR CONSTRUCTION DRAWING

DESCRIPTION	BY	DATE	REV.

CLIENT: SUI SOUTHERN GAS COMPANY LIMITED, KARACHI

CONTRACTOR:

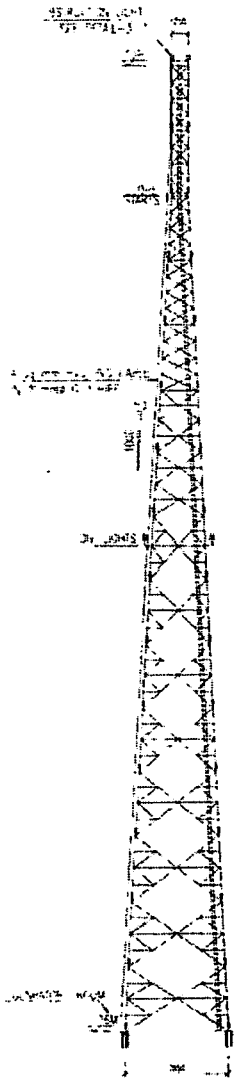
CONSULTANT: edb ENGINEERING DESIGN BUREAU, LAHORE

PROJECT: 76M GREEN FIELD, SELF SUPPORTED TOWER AT SITE RS-THARRI

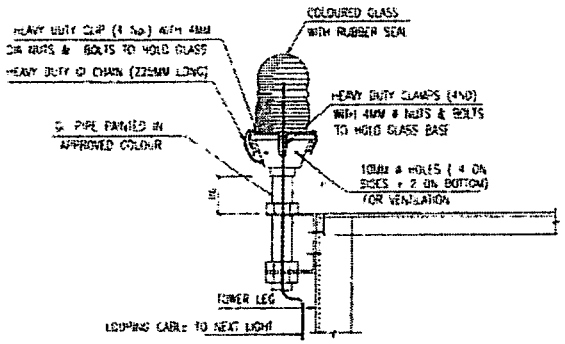
TITLE: GENERAL ARRANGEMENT

SCALE	DRAWN	DESIGNED	CHECKED	APPROVED	DATE
N.T.S.	A.HAMEED	I. Z	AMIR	I. Z	OCT, 2023

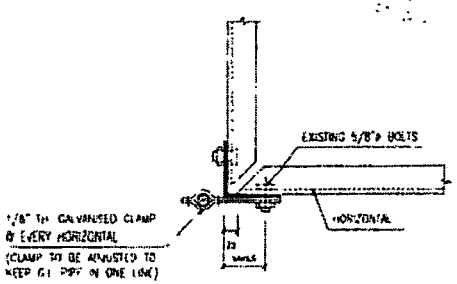
DRG NO. SSGCL-EDB-TWR76-01 REVISION



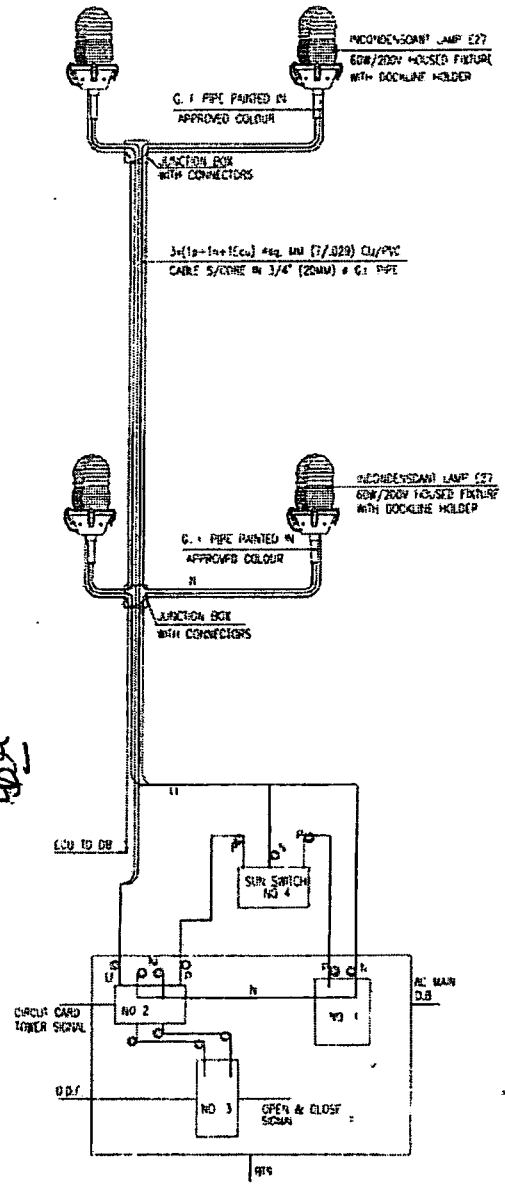
TOWER ELECTRICAL DETAILS



DETAIL-3
OBSTRUCTION LIGHT



TYP. G.I. PIPE CLAMPING DETAIL



CIRCUIT AND SIGNAL DIAGRAM OF ACW LIGHTS

NOTES

1 ALL MATERIALS TO BE OF [illegible]
2 OB LIGHTS SHALL BE [illegible] ALONG EDGES [illegible]
3 PHOTOELECTRIC (6 [illegible] SHALL BE PROVIDED APPROVED LOCATION
4 COLOUR CODE [illegible]
LIVE -
NEUTRAL -
EARTH -

SYMBOL	DESCRIPTION
	OBSTRUCTION LIGHT
	WIRING FOR LIGHTING (APPROVED MAKE)
P	PHASE (LIVE)
N	NEUTRAL (NEGATIVE)
E	EARTH
1	AC MAIN D.B
2	CIRCUIT CARD TOWER
3	D.D.F
4	SUN SWITCH

CONSTRUCTION DRAWING

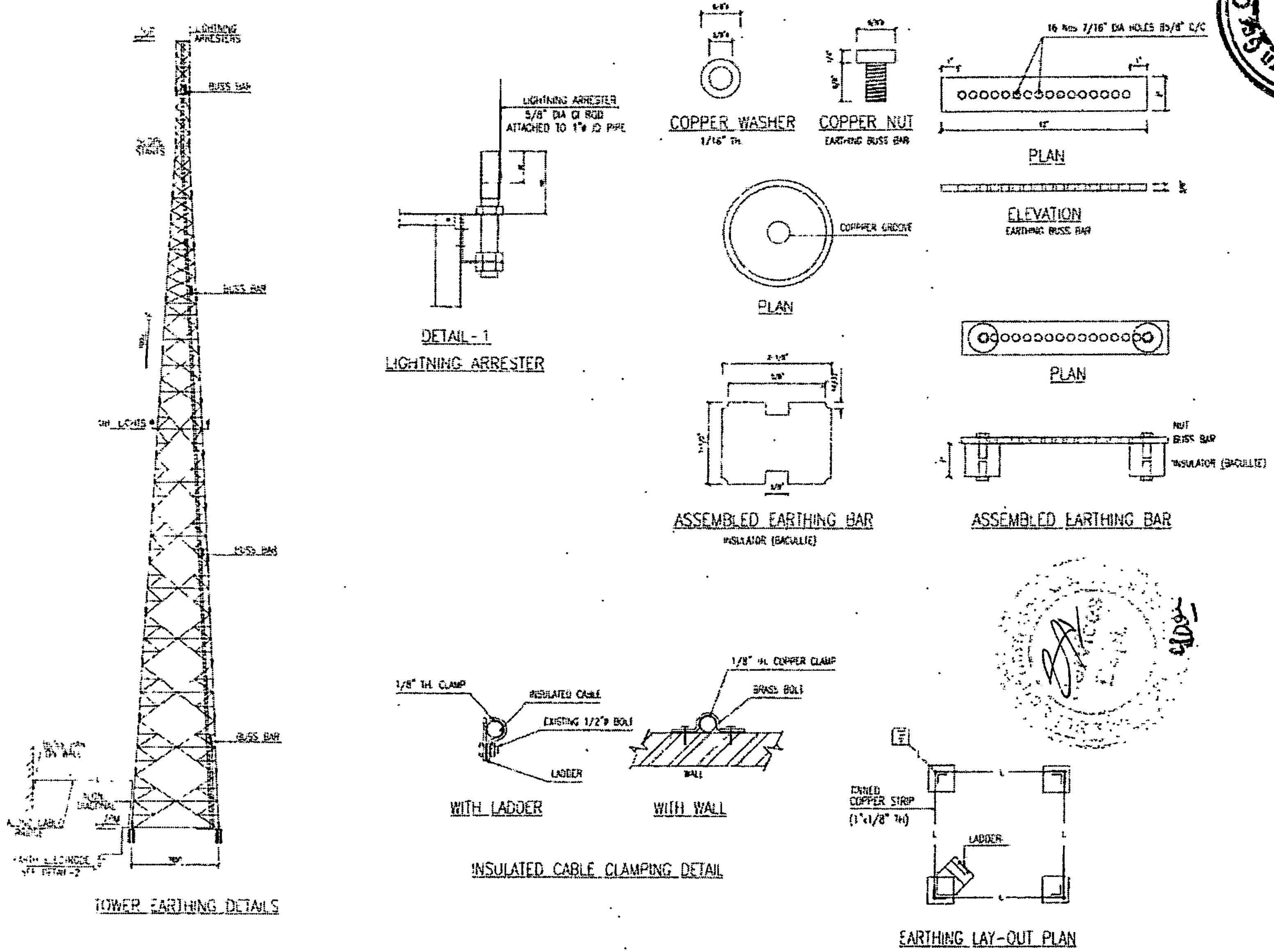
DESCRIPTION	BY	DATE	REV

CLIENT: SUI SOUTHERN GAS COMPANY LIMITED, KARACHI
CONTRACTOR:
CONSULTANT: edb ENGINEERING DESIGN BUREAU, LAHORE
PROJECT: 76M GREEN FIELD SELF SUPPORTED TOWER AT SITE RS-THARIRI
TITLE: ELECTRICAL DETAILS

SCALE	DRAWN	DESIGNED	CHECKED	APPROVED	DATE
N.T.S	A.HAMEED	I. Z	AMRAN	I. Z	OCT. 2023

DRG NO: SSGCL-EDB-TWR76-29
REVISION:

1. ALL [illegible] AND STEEL LADDER OF THE TOWER SHALL BE INTERCONNECTED AND CONNECTED TO EARTH ELECTRODES WITH [illegible] COPPER STRAND.
[illegible] MATERIAL [illegible] OF APPROVED QUALITY.



LEGEND

SYMBOL	DESCRIPTION
[symbol]	TESTING TERMINAL
— L — L —	LIGHTNING CONDUCTOR
[symbol]	EARTH ELECTRODE

CONSTRUCTION DRAWING

DESCRIPTION	BY	DATE	REV

CLIENT: SUI SOUTHERN GAS COMPANY LIMITED, KARACHI

CONTRACTOR:

CONSULTANT: edb ENGINEERING DESIGN BUREAU, LAHORE

PROJECT: 76M GREEN FIELD SELF SUPPORTED TOWER AT SITE RS-THARIRI

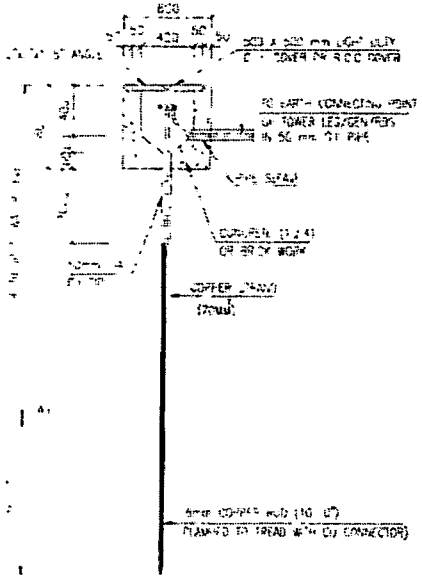
TITLE: EARTHING DETAILS (SH 1 OF 2)

SCALE	DRAWN	DESIGNED	CHECKED	APPROVED	DATE
N.T.S	A.HAMEED	I. Z.	AMHAH	I. Z.	OCT, 2023

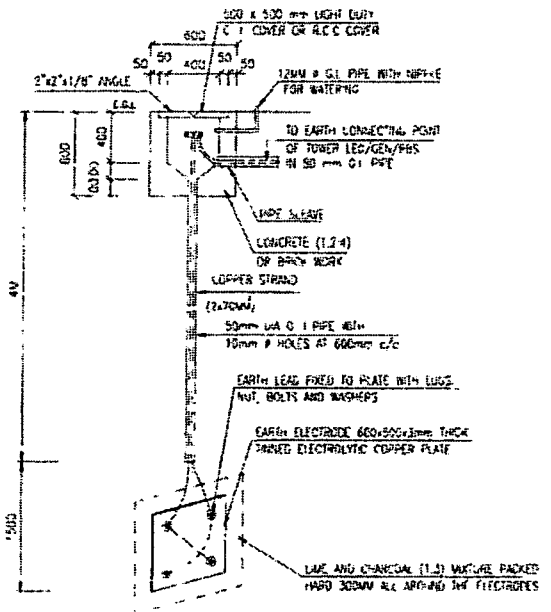
DRG. NO: SSGCL-EDB-TWR76-30 — REVISION:

NOTES

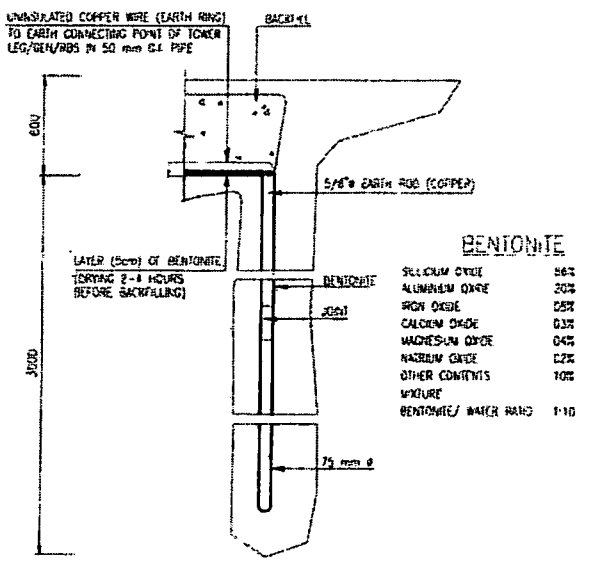
1. FOR NOTES REFER SH 1 OF 2
2. TYPE OF EARTHING TO BE ADOPTED AT ANY SITE WILL DEPEND ON SOIL CONDITION AND WILL BE APPROVED BY CLIENT
3. EARTHING ALTERNATES HAVE BEEN SHOWN IN ORDER OF PREFERENCE



DETAIL-1 (ALTERNATE-1)
ROD TYPE EARTH ELECTRODE



DETAIL-2 (ALTERNATE-2)
PLATE TYPE EARTH ELECTRODE



BENTONITE

SILICIUM OXIDE	56%
ALUMINIUM OXIDE	20%
IRON OXIDE	05%
CALCIUM OXIDE	03%
MAGNESIUM OXIDE	04%
NATRIUM OXIDE	02%
OTHER CONTENTS	10%
MIXTURE	
BENTONITE/ WATER RATIO	1:10

DETAIL -2 (ALTERNATE-3)
CHEMICAL EARTH ELECTRODE

Sui Southern Gas Co. Ltd. H.O. Gulshan-e-Iqbal Doc. Control Dept.

ENGINEERING DESIGN BUREAU LAHORE

CONSTRUCTION DRAWING

DESCRIPTION	BY	DATE	REV

CLIENT: SUI SOUTHERN GAS COMPANY LIMITED, KARACHI

CONTRACTOR:

CONSULTANT: ENGINEERING DESIGN BUREAU, LAHORE

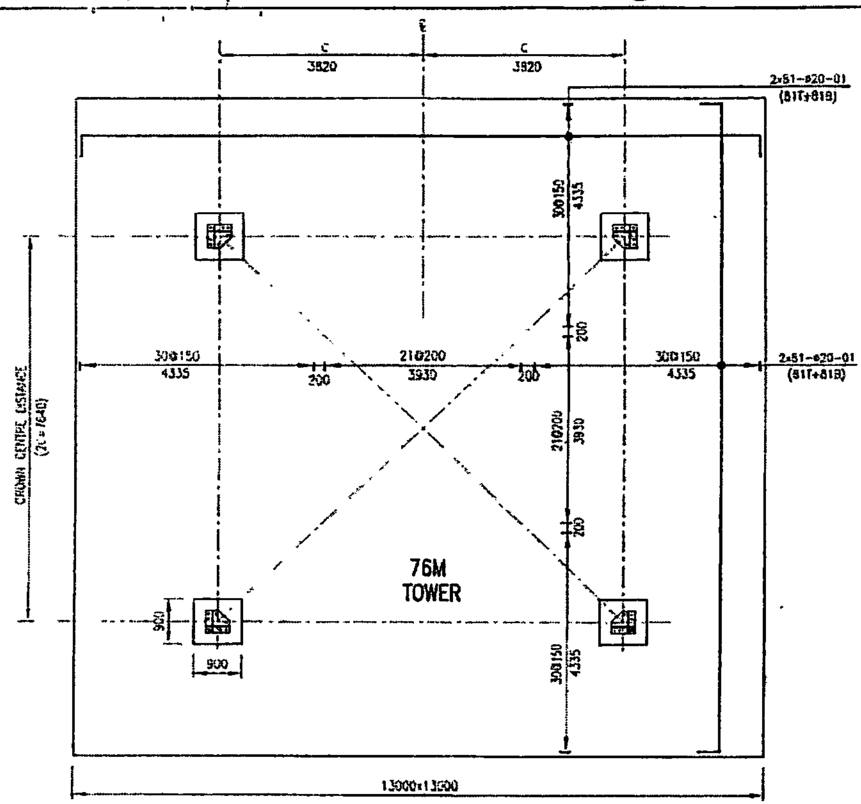
PROJECT: 76M GREEN FIELD SELF SUPPORTED TOWER AT SITE RS-THARIRI

TITLE: EARTHING DETAILS (Sh 2 OF 2)

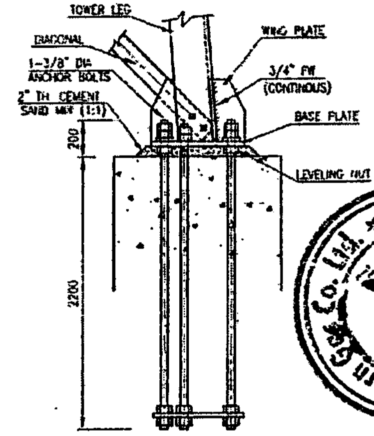
SCALE	DRAWN	DESIGNED	CHECKED	APPROVED	DATE
N.T.S	A.HAMEED	A.Z	AMNAH	A.Z	OCT, 2023

DRG NO: SSGCL-EDB-TWR76-31

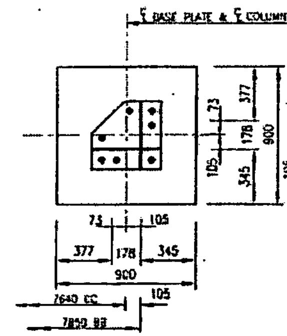
REVISION:



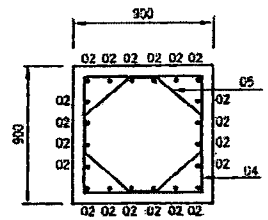
PLAN



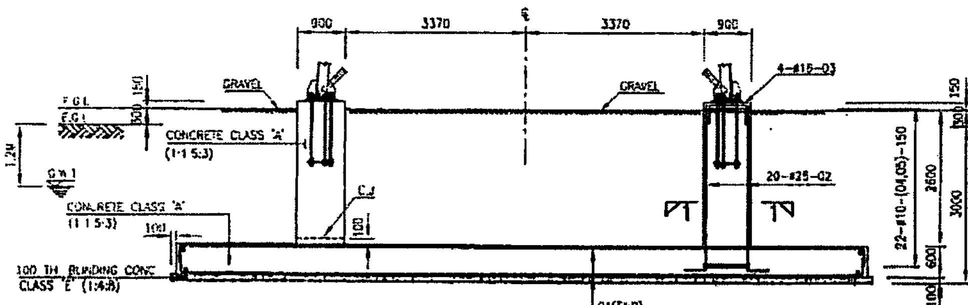
ANCHOR BOLT DETAILS



BASE PLATE DETAIL



SECTION 1-1



ELEVATION

NOTE:
DEWATERING WILL BE REQUIRED. DEWATERING SHOULD BE DONE WITH PROPERLY DESIGNED WELL POINTS. NO EXCAVATION SHALL START UNLESS WATER TABLE IS LOWERED TO 2'-0" BELOW EXCAVATION LEVEL.A CONTINUOUS DEWATERING SHALL BE DONE UNTILL CONSTRUCTION IS COMPLETE.

NOTES

1. FOR GENERAL NOTES REFER TOWER G. A. DRAWING.
2. NET BEARING CAPACITY AT RS-THARIRI DADU SINDH. SITE 103 KPA
3. FOLLOWING CONCRETE GRADE SHALL BE USED:
   CHIMNEY & PAD – CLASS A (1:1.5:3)
   BLINDING – CLASS E (1:4:8)
4. MAXIMUM AGGREGATE SIZE SHALL BE 40 MM. GRADATION SHALL BE IN ACCORDANCE WITH ASTM C33.
5. CLEAR CONC. COVER = 50mm
6. OPC SHALL BE USED FOR ALL CONCRETE WORK UNLESS NOTED OTHERWISE.
7. ALL CONCRETE SURFACES IN CONTACT WITH SOIL SHALL BE COATED WITH TWO COATS OF BITUMEN.
8. REINFORCEMENT SHALL BE GRADE 60 IN ACCORDANCE WITH ASTM A615
   REINFORCEMENT HAS BEEN CALLED UP THUS :
   81 # 20 01 150
   - 150 — SPACING
   - 01 — BAR MARK
   - 20 — BAR DIAMETER (MM)
   - # — REINFORCEMENT (GRADE 60)
   - 81 — NUMBER OF BARS
9. BACKFILL SHALL BE DONE IN LAYERS NOT EXCEEDING 200MM MEASURED AS COMPACTED MATERIAL AND SATURATED WITH SUFFICIENT WATER AND COMPACTED TO PRODUCE IN-SITU DENSITY NOT LESS THAN 95% OF THE MAX. MODIFIED DRY AASHTO DENSITY CONFORMING TO T-180 OF AASHTO
10. QUANTITIES FOR FOUNDATIONS ARE AS UNDER

	UNIT	QUANTITY
i) NET EXCAVATION	CM	523
ii) NET BACKFILL	CM	396
iii) CONCRETE CLASS A (1:1.5:3)	CM	110.31
iv) CONCRETE CLASS E (1:4:8)	CM	17.4
v) REINF. GRADE 60	KG	12536

BAR BENDING SCHEDULE

MK	SIZE (MM)	NO	CUT LENGTH (MM)	SHAPE	WEIGHT (KG)
01	ø 20	324	13700	400 / 12900 / 400	10946
02	ø 25	80	3550	350 / 3200	1093
03	ø 16	16	1350	300 / 250 / 300	34
04	ø 10	68	3400	800 / 800	184
05	ø 10	88	2760	180	150
05	ø 20	30	1740	420 / 100 / 420	129
					12536

DESCRIPTION	BY	DATE	REV.

CLIENT: SUI SOUTHERN GAS COMPANY LIMITED, KARACHI (SSGC)

CONTRACTOR:

CONSULTANT: ENGINEERING DESIGN BUREAU, LAHORE

PROJECT: PROJECT NO: G04-1180-1221

SITE ID: 76M GREEN FIELD SELF SUPPORTED TOWER AT SITE RS-THARIRI DADU SINDH.

TITLE: RAFT FOUNDATION DETAILS

SCALE	DRAWN	DESIGNED	CHECKED	APPROVED	DATE
N.T.S	SIDRA	KAMRAN	KAMRAN	I. Z	NOV, 2023

DRG. NO. SSGCL-EDB-TWR76-FD01 | REVISION

Sui Southern Gas Co. Ltd. ★ H.O. Gulshan-e-Iqbal ★ Procurement Dept.

ENGINEERING DESIGN BUREAU ★★ LAHORE

SECTION-VIII

(On Stamp Paper @ Rs.100 for first Rs.100, 000 and Rs.50 per subsequent Rs.100, 000 of Guarantee Value)

BID BOND FORMAT

Sui Southern Gas Company Limited,
ST-4/B, Sir Shah Muhammad Suleman Road,
Block 14, Gulshan-e-Iqbal,
Karachi.

Tender Enquiry No SSGC / SC /

Dear Sirs,

In consideration of Messrs _____ hereinafter called "The Bidder" having submitted the accompanying bid and in consideration of value received from _____ we hereby agree to undertake as follows:

1. To make un-conditional payment of Rupees _____ upon your return demand without further recourse, question or reference to the Bidder or any other person, in the event of the with drawl of the aforesaid Bid by the Bidder before the end of the period specified in the Bid after the opening of the same for the validity thereof, or if no such period to be specified within 120 days after said opening and or in the event that the Bidder within the period specified thereof, or if no period be specified with 15 days after prescribed forms are presented to the Bidder of signature the Bidder shall fail to execute such further contractual documents if any as may be required by the Company, or on the Bidders' failure to give the requisite Performance Bond as may be required for the fulfillment or resulting Contract with 10 days of the acceptance of the Bid.

2. To accept written intimation(s) from you as sufficient evidence of the existence of default or non compliance as aforesaid on the part of the Bidder and to make payment immediately upon receipt of the written intimation.

3. No grant of time or other indulgence to, or composition, or arrangement with the Bidder in respect of the aforesaid Bid with or without notice to us shall in any manner discharge or otherwise, however, affect this guarantee and our liabilities and commitments hereunder.

4. The guarantee shall be binding on us and our successors in interest and shall be irrevocable.

5. This guarantee shall remain valid upto _____.

Yours faithfully,

Note: Any extensions / amendments (in all guarantees/bonds) if required shall be made on stamp papers of Rs.50

Sui Southern Gas Co. Ltd. Procurement Dept. H.O. Gulshan-e-Iqbal

(On Stamp Paper @ Rs.100 for first Rs.100, 000 and Rs.50 per subsequent Rs.100, 000 of Guarantee Value)

PERFORMANCE BOND FORMAT

Sui Southern Gas Company Limited,
ST-4/B, Sir Shah Muhammad Suleman Road,
Block 14, Gulshan-e-Iqbal,
Karachi.

Bank Guarantee # .....
Date of Issue : .....
Date of Expiry : .....
Amount : .....

Tender Enquiry No SSGC / SC /

Dear Sirs,

In consideration of your entering/having entered into Contract No._____ with M/s. _____ hereinafter called "The Contractor" and in consideration of value received from the Contractor, we hereby agree and undertake as follows:-

1. To make un-conditional payment of Rupees _____ and un-conditional payment in such amount as you may require from time to time as and when called upon by you to do so, not exceeding in the aggregate payment of Rupees _____, being the amount covering liquidated damaged and security for the due fulfillment by the Contractor of all liabilities, obligations, commitments and total and faithful performance of the above Contract by the Contractor as specified in the above mentioned Contract upon your written demand(s) without further recourse, question or reference to the Contractor or any other person in the event of the Contractor's default in compliance with its obligations, liabilities and faithful performance arising under and in pursuance of the Work committed by it in the above mentioned agreement of which you shall be the sole judge.

2. To accept written intimation(s) from you as sufficient evidence of the existence of default or non compliance as aforesaid on the part of the Contractor and to make payment immediately upon receipt of the written intimation.

3. To keep this guarantee in full force from the date of this guarantee till the Contractor's obligations as specified in the above referred Contract and all other obligations of the Contractor as are contained in the above contract are duly fulfilled by the Contractor to the satisfaction of the Company.

4. No grant of time or other indulgence to, or composition, or arrangement with the Contractor in respect of the performance of its obligations under and in pursuance of the said agreement or any clause thereof, with or without notice to us shall in any manner discharge or otherwise howsoever effect this guarantee and our liabilities and commitment there under.

5. The guarantee shall be binding on us and our successors in interest and shall be irrevocable.

6. This guarantee shall not be affected by any change in the constitution of the guarantor bank or the constitution of _____.

6. This guarantee shall remain valid upto _____.

Sui Southern Gas Co. Ltd. Procurement Dept. H.O. Gulshan-e-Iqbal

DECLARATION FORM

(FORMAT OF DECLARATION)

M/s. _____ [the Seller/Supplier] hereby declares its intention not to obtain or induce theprocurement of any contract, right, interest, privilege or other obligation or benefit from Sui Southern GasCompany Limited or any administrative subdivision or agency thereof or any other entity owned or controlledby Sui Southern Gas Company Limited (SSGCL) through any corrupt business practice.

Without limiting the generality of the foregoing, [the Seller/Supplier] represents and warrants that it has fullydeclared the brokerage, commission, fees, etc., paid or payable to anyone and not given or agreed to give andshall not give or agree to give to anyone within or outside Pakistan either directly or indirectly through anynatural or juridical person, including its affiliate, agent, associate, broker, consultant, director, promoter,shareholder, sponsor or subsidiary, any commission, gratification, bribe, finder's fee or kickback, whetherdescribed as consultation fee or otherwise, with the object of obtaining or inducing the procurement of acontract, right, interest, privilege or other obligation or benefit in whatsoever form from SSGCL, except thatwhich has been expressly declared pursuant hereto.

[The Seller/Supplier] certifies that it has made and will make full disclosure of all agreements andarrangements with all persons in respect of or related to the transaction with SSGCL and has not taken anyaction or will not take any action to circumvent the above declaration, representation or warranty.

[The Seller/Supplier] accepts full responsibility and strict liability for making any false declaration, notmaking full disclosure, misrepresenting facts or taking any action likely to defeat the purpose of thisdeclaration, representation and warranty. It agrees that any contract, right, interest, privilege or otherobligation or benefit obtained or procured as aforesaid shall, without prejudice to any other rights andremedies available to SSGCL under any law, contract or other instrument, be voidable at the option ofSSGCL.

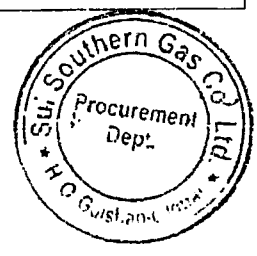
Notwithstanding any rights and remedies exercised by SSGCL in this regard, [the Seller/Supplier] agrees toindemnify SSGCL for any loss or damage incurred by it on account of its corrupt business practices andfurther pay compensation to SSGCL in an amount equivalent to ten times the sum of any commission,gratification, bribe, finder's fee or kickback given by [the Seller/Supplier] as aforesaid for the purpose ofobtaining or inducing the procurement of any contract, right, interest, privilege or other obligation or benefitin whatsoever form of SSGCL.

_____

SIGNATURE & STAMP

NOTE

1. The above declaration is to be furnished along with the bid on letter head, for bid(s)amounting to total bid value of Rs. 10,000,000/- (Ten million) or above.
2. Please note that submitting the declaration is a mandatory requirement.



CONTRACT FORM

Contract No. SSGC/SC/

ARTICLES OF AGREEMENT

THIS AGREEMENT, made and entered into this _____ day of _____, 2018 by and between Sui Southern Gas Company Limited, having its office at ST-4/B, Sir Shah Muhammad Suleman Road, Block 14, Gulshan-e-Iqbal, Karachi, hereinafter referred to as the "Company" of the one part and **M/s.** _____ _____ hereinafter referred to as the "Contractor", (which expression shall include the successors, of the said firm, heirs, executives, administrators and assigns of the Partners of the said firm individually or severally) of the other part.

WITNESSETH:

WHEREAS, under the procedures, bids have heretofore been received by the Company for carrying out "_____" work and the tender of the Contractor for the said work has been accepted by the Company.

NOW THEREFORE, for and in consideration of the promises, negotiations, covenants and agreements hereunder contained and to be performed by the parties hereto, the said parties hereby covenant and agree as follows:-

Article-1 Work and Cost of the Work:

i) In consideration of the covenants and agreements to be kept and performed by the contractor and for the faithful performance of this Contract and the completion of the work embraced therein according to the specifications and conditions herein contained and referred to or agreed to in course of subsequent negotiations and in accordance with the Contract, the Company shall pay and the Contractor shall receive and accept as full compensation for everything furnish and done by the contractor under this agreement as sum of approximately **Rs.**_____ (_____), or such other sums as may be ascertained in accordance with the conditions of Contract, etc. and at rates quoted against each item of work and agreed to and accepted by the parties as one instrument, and at the times and in the manner prescribed by the conditions of the Contract.

ii) The Contractor at his own proper cost and expense shall do all work and furnish all labour, materials, tools, supplies, machinery and other equipment and plant that may be necessary for the satisfactory completion of all the works as set forth in the contract documents.

Article-2 - Time:

The maintenance of a rate of progress in the works at a rate which will result in its completion within the specified time, is of the essence of the contract and the Contractor agrees to proceed with all the due diligence and care at all times to take all precautions to ensure the timely completion as defined herein; time being deemed to be essence of the Contract of part of the Contractor.

The said work shall be started on the Contractor's receipt from the Company of a written order to proceed, and the Contractor shall have the work called for duly and fully complete in total _____. **months {including** _____ (___) **weeks** mobilization period} from the date of issuance of such order.

Article-3 - Contract Documents:

It is understood and agreed that the contract documents which comprise this Contract are attached hereto and made a part hereof and consist of the following :-

a) The Article of Agreement.

Sui Southern Gas Co. Ltd. Procurement Dept. H.O Gulshan-e-Iqbal

b) Bid ((submitted vide letter No._____ _____, dated _____ comprising Letter of Invitation, Instructions to bidders, Scope of Work, Special and General Conditions of Contract, Tender Form, Bill of Quantities, Drawings, etc.).

c) **Company letter No._____, dated _____.**

Contractor letter No._____, dated _____.

d) **Notice of Award (Letter of Intent (LOI) No.SSGC/MAT/S&C/_____, dated _____.**

e) **Acceptance by the Contractor on the copy of LOI.**

f) **Letter to Proceed No.SSGC/PROC/S&C/_____, dated ___ _____.**

g) **Performance Bank Guarantee No._____, dated _____, amounting to Rs._____ issued by M/s. _____.**

It is agreed by the parties to the contract that this contract shall be executed in two counterparts; one copy to be retained in the office of the Sui Southern Gas Company Limited and one given to the Contractor.

IN WITNESS WHEREOF the parties hereto have executed this Contract at Karachi in two counterparts by their duly authorized representatives as of the day and year herein above set forth.

Signed for and on behalf of
M/s. Sui Southern Gas Company Limited
_____.

Signed for and on behalf of
M/s. _____ Karachi

Signature : _____

Name : _____

Signature : _____

Name : _____

In the presence of :

Signature : _____

Name : _____

Signature : _____

Name : _____

Signature : _____

Name : _____

Sui Southern Gas Co. Ltd. Procurement Dept. H.O. Gulshan-e-Iqbal

Supplier code: _____

FORM-X

Bank account details form for all Beneficiaries

(Mandatory requirement for Digital Online Banking)

As per FBR Regulations ref # C.No.4 (24) IT-Budget/2021-142150-R dated 23rd Sept'2021 to make the payment online w.e.f. 01-11-2021. All beneficiaries are required to fill in the below details, which is mandatory:

Name of Firm: _____

Address of Firm: _____

_____

CNIC #: _____

NTN #: _____

Bank Name: _____

Bank A/C Title name: _____

Branch code: _____

Bank A/c #: _____ (16 Digits)

Bank IBAN #: _____ (24 Digits)

☐ Information already submitted.

Note: Please be attached copy of Cheque / Account Maintenance Certificate.(Mandatory)

Sui Southern Gas Co. Ltd. ★ H.O. Gulshan-e-Iqbal ★ Procurement Dept.

_____

Authorized Sign & Stamp

Date:_____

Note: All payments transactions will be made on above mentioned Account details. This is only a one time information to be provided by the all beneficiaries. Incase if the above detail has already submitted, please tick the box above "Information already submitted" and also ensure Form-X is duly signed & stamped.

ANNEXURE: I

Declaration of Ultimate Beneficial Owners Information for Public Procurement Contracts.

1. **Name**
2. **Father's Name/Spouse's Name**
3. **CNIC / NICOP/Passport No.**
4. **Nationality**
5. **Residential address**
6. **Email address**
7. **Date on which shareholding, control or interest acquired in the business.**
8. **In case of indirect shareholding, control or interest being exercised through intermediary companies, entries or other legal persons or legal arrangements in the chain of ownership or control, following additional particulars to be provided:**

1	2	3	4	5	6	7	8	9	10
Name	Legal form (Company/Limited Liability Partnership /Association of Persons/Single Member Company/Partnership Firm/Trusted/Any other Individual, Body Corporate (to be Specified)	Date of Incorporation / Registration	Name of Registering Authority	Business Address	Country	Email Address	Percentage of shareholding control or interest of BO in the Legal Person or Legal Arrangement	Percentage of shareholding, Control or Interest of Legal Person or Legal Arrangement in the Company	Identity of Natural Person who Ultimately owns or Controls the Legal Person or Arrangement

9. **Information about the Board of Directors (details shall be provided regarding number of shares in the capital of the company as set opposite respective names).**

1	2	3	4	5	6	7	8
Name and surname (in block Latter's)	CNIC no (in case of foreigner Passport No)	Father's / Husband's Name in Full	Current Nationally	Any other Nationality lies)	Occupation	Residentially address in full of the registered / principle office address for a subscribers other that natural Person	Numbers of shares taken by cash subscribers (in figures and words
			Total numbers of shares taken (in figures and words)				

10. Any other information incidental to or relevant to beneficial owner(s).

Name and signature
(Person authorized to issue notice on behalf of the company)

Form of Bid-Securing Declaration

[The Bidder shall fill in this Form in accordance with the instructions indicated.]

Date: *[date (as day, month and year)]*
No.: *[number of Bidding process]*
Alternative No.: *[insert identification No if this is a Bid for an alternative]*

To: *[complete name of Procuring Agency]*

We, the undersigned, declare that:

We understand that, according to your conditions, Bids must be supported by a Bid-Securing Declaration.

We accept that we will be blacklisted and henceforth cross debarred for participating in respective category of public procurement proceedings for a period of (not more than) six months, if fail to abide with a bid securing declaration, however without indulging in corrupt and fraudulent practices, if we are in breach of our obligation(s) under the Bid conditions, because we:

(a) have withdrawn our Bid during the period of Bid validity specified in the Letter of Bid; or

(b) having been notified of the acceptance of our Bid by the Procuring Agency during the period of Bid validity, (i) fail or refuse to sign the Contract; or (ii) fail or refuse to furnish the Performance Security (or guarantee), if required, in accordance with the ITB.

We understand this Bid Securing Declaration shall expire if we are not the successful Bidder, upon the earlier of (i) our receipt of your notification to us of the name of the successful Bidder; or (ii) twenty-eight days after the expiration of our Bid.

Name of the Bidder:* _____

Name of the person duly authorized to sign the Bid on behalf of the Bidder** _____

Title of the person signing the Bid _____

Signature of the person named above _____

Date signed _____ day of _____, _____

*: In the case of the Bid submitted by joint venture specify the name of the Joint Venture as Bidder

**: Person signing the Bid shall have the power of attorney given by the Bidder attached to the Bid

[Note: In case of a Joint Venture, the Bid-Securing Declaration must be in the name of all members to the Joint Venture that submits the Bid.]

Sui Southern Gas Co. Ltd. Procurement Dept. H.O. Gulshan-e-Iqbal

SECTION-IX/X

SUI SOUTHERN GAS COMPANY LIMITED
PROCUREMENT DEPARTMENT

BLACKLISTING MECHANISM
(REVISION-1)

1 BACKGROUND

In pursuance of Rule-19 of Public Procurement Rules, 2004 read with Rule-2(f) (fa) and the criteria for Blacklisting of Suppliers and Contractors / Consultants doing business with the SSGCs is reiterated hereafter to eliminate unfair trade practices.

2 SCOPE

The procedure shall be applicable and remain in force, along with any amendments thereto, within Sui Southern Gas Company Limited ("SSGC") until any clear instructions or guidelines are impacted by the Government through Public Procurement Regulation Authority (PPRA), Pakistan Engineering Council (PEC) , or any other competent forum. The procedure shall also be applicable on the pre-qualified firms. The procedure shall be applicable on any "Person(s) / Firm(s)", which for the purposes of this Mechanism shall inter alia include suppliers, bidders, contractors, consultants, firms, individuals, and organizations transacting business with SSGC. Wherever any provision of this Mechanism shall be in conflict with provisions of any applicable guidelines of donor agencies, or any other applicable Statute / Law or Rule enforced at the time in Pakistan, the provisions of such applicable guidelines, laws, or rules shall prevail. This SOP shall become a part of the future Bidding Documents.

3 DEFINITION OF TERMS

3.1 "Appellate Authority" - Authority to Appeal against issuance of Blacklisting Order.
3.2 "Appeal" - Right of firm/individual to lodge protest against the issuance of Blacklisting Order.
3.3 "Procuring Agency" - Any department/division/factory/project exercising general and/or administrative control over the unit.
3.4 "Blacklisting Order" - An administrative penalty disqualifying a firm/individual from participating in procurement for a given period..
3.5 "Suspension" - The administrative penalty imposed for infractions committed during the competitive bidding stage, whereby such firms/individuals are prohibited from further participation in the bidding process of Procuring Agency.
3.6 "Contract Implementation" - A process of undertaking a project or contract in accordance with the contract documents.
3.7 "Termination of Contract" - Extinction of contract by reason or resolution or rescission under applicable rules/regulations/laws arising from the default of the firms/individuals.
3.8 "Delist" - Removal of supplier/contractor from blacklisting.
3.9 "PA-Project Authority -" – A three-member committee comprising of User, HSE&QA & Procurement Deptt. to address the issue.
3.10 RPC-SSG's Rights Protection Committee – To examine the justification of PC.

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4. REASONS FOR BLACKLISTING

4.1 The following shall comprise the broad multilateral guidelines for blacklisting:

4.1. I "Corrupt Practice" means the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence the action of a public official in the procurement process or in contract execution;

4.1.2 "Fraudulent Practice" means a misrepresentation or omission of facts in order to influence a procurement process or the execution of a contract;

4.1.3 "Collusive Practice" means a scheme or arrangement between two or more bidders, with or without the knowledge of the Purchaser, designed to establish bid price at artificial, non-competitive levels, and

4.1.4 "Coercive Practice" means harming or threatening to harm. directly or indirectly, Person(s) / Firm(s) or their property to influence their participation in the procurement process or affect the execution of a contract.

4.2 In addition to above, blacklisting of firms/individuals may be resorted to when the charges are of serious nature, which include but are not limited to the following:

4.2. I Competitive Bidding Stage

During the competitive bidding stage, the Procuring Agency shall impose on bidders or prospective bidders the penalty of Suspension from participating in the public bidding process, without prejudice to the imposition of additional administrative sanctions as the internal rules of the agency may provide and/or further criminal prosecution. as provided by applicable laws, for violations committed which include but are not limited to the following:

i. Submission of eligibility requirements containing false information or falsified documents.
ii. Submission of bids that contain false information or falsified documents, or the concealment of such information in the bids in order to influence the outcome of eligibility screening or any other stage of the public bidding.
iii. Submission of unauthorized or fake documents for pre-qualification/ tendering i.e. without specific authorization from the principals/ manufacturers etc.
iv. Failure of the firm to provide authentic Warranty Undertaking and Performa Invoice of the manufacturers / Principal / Trading house.
v. Failure of the firm to submit specific authority letter of the Original Equipment Manufacturer (OEM) for participation in a particular tender;
vi. Unauthorized use of one's name, or using the name of the name of another for purpose of public bidding.
vii. Deviations from specifications and terms & conditions of the purchase order/contract.
viii. Withdrawal of a bid, or refusal to accept an award or refusal to perform the job or enter into contract with the government without justifiable cause, after he had been adjudged as having submitted the Lowest Calculated Responsive Bid or Highest Rated Responsive Bid.
ix. Refusal or failure to post the required performance security within the prescribed time.
x. Refusal to clarify or validate in writing its Bid during post qualification within a period of seven (7) working days, or as may be specifically prescribed, from receipt of the request for clarification.

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xi. Any documented unsolicited attempt by a bidder to unduly influence the outcome of the bidding in his favor.

xii. Any attempt to give illegal gratification to any representative of the purchaser to influence the process of procurement.

In addition to the penalty of suspension, the bid security posted by the concerned bidder or prospective bidder could also be forfeited / encashed.

4.2.2 Purchase Order / Contract Implementation Stage

During the Purchase Order / Contract implementation stage, the procuring entity shall impose on contractors after the termination of the contract the penalty of suspension from participating in the public bidding process, without prejudice to the imposition of additional administrative sanctions as the internal rules of the agency may provide and/or further criminal prosecution, as provided by applicable laws, for violations committed which include but are not limited to the following:

i. Failure of the contractor, due solely to his fault or negligence, to mobilize and start work or performance within the specified period in the Letter to Proceed.

ii. Failure by the contractor to fully and faithfully comply with its contractual obligations without valid cause, or failure by the contractor to comply with any written lawful instruction of the Procuring Agency or its representative(s) pursuant to the implementation of the contract. For the procurement of infrastructure projects or consultancy contracts, lawful instructions include but are not limited to the following:
   a. Employment of competent technical Person(s) / Firm(s)nel, competent engineers and/or work supervisors;
   b. Provision of warning signs and barricades in accordance with approved plans and specifications and contract provisions;
   c. Stockpiling in proper places of all materials and removal from the project site of waste and excess materials, including broken pavement and excavated debris in accordance with approved plans and specifications and contract provisions;
   d. Deployment of committed equipment, facilities, support staff and manpower; and
   e. Renewal of the effectivity dates of the performance security after its expiration during the course of contract implementation.
   f. Non-Performance of the supplier in respect of tender terms & conditions and the delivery / supply of material.

iii. Assignment and subcontracting of the contract or any part thereof or substitution of key Person(s) / Firm(s)nel named in the proposal without prior written approval by the Procuring Agency.

iv. For the procurement of goods, unsatisfactory progress in the delivery of the goods by the manufacturer, supplier or distributor arising from his fault or negligence and/or unsatisfactory or inferior quality of goods, as may be provided in the contract.

v. For the procurement of consulting services, poor performance by the consultant of his services arising from his fault or negligence, any of the following acts by the consultant shall be construed as poor performance:
   a. Defective design resulting in substantial corrective works in design and/or construction;
   b. Failure to deliver critical outputs due to. consultant's fault or negligence;
   c. Specifying materials which are inappropriate, substandard or way above acceptable standards;

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d. Allowing defective workmanship or works by the contractor being supervised by the consultant; and
e. Submitting CV's of key Person(s) / Firm(s)nel in the prequalifying process or bid documents of professionals that are not in actual employment of the bidder.

vi. For the procurement of infrastructure projects, poor performance by the contractor or unsatisfactory quality and/or progress of works arising from his fault or negligence.
vii. Willful or deliberate abandonment or non-performance of the project or contract by the contractor resulting to substantial breach thereof without lawful and/or just cause.

In addition to the penalty of suspension, the performance security posted by the contractor could also be forfeited.

4.2.3 In addition to above, other grounds for blacklisting of firms/individuals include but are not limited to the following:

i. Obtaining fraudulent payments;
ii. Obtaining contracts by misleading the purchaser:
iii. Refusal to pay SSGC dues etc.;
iv. Failure to fulfill contractual obligations;
v. Changes in the status of firm's ownership/partnership etc. causing dissolution of the firm which existed at the time of inspection / bidding prior to original registration of the firm;
vi. Registration of a firm with a new name by the Proprietor or family or a nominee thereof of a firm that has been already blacklisted;
vii. Consequential operational damages caused to SSGC equipment or infrastructure as a result of equipment or parts thereof supplied on trial basis or due to failure of such equipment;
viii. Contractors who have negotiated Plea Bargain under the National Accountability Ordinance 1999, or contractors involved with any other criminal proceedings conducted by any investigation agency where default has been proved specifically in relation to supplies made to or contracts concluded with SSGC.
ix. Involved in litigation or needless petitioning to influence or obstruct the procurement process either on his own behalf or at the behest of any other vested interest;
x. A firm may be disqualified for a period extendable to two years in case a decision by a court is awarded against the said firm after litigation, or where the firm is involved in litigation at least three times during two financial years, or where a firm has on account of litigation caused substantial financial losses to SSGC;
xi. Blacklisted by other Federal and Provincial Government Ministries / Divisions / Departments and organizations / autonomous bodies subordinate thereto; and
xii. Blacklisting in case of Joint Venture firms will also result in termination of the concerned Joint Ventures Partners.

5. SYSTEM OF PENALTIES

For the purpose of uniformity, following system of penalties shall be adopted for procurement of goods, works and services:

5.1 Blacklisted and henceforth cross debarred for participation in any public procurement or disposal proceedings for the period of not more than ten years, if corrupt and fraudulent

Sui Southern Gas Co. Ltd. Procurement Dept. H.O. Gulshan-e-Iqbal

practice as defined in these rules is established against the bidder or the bidders in pursuance of blacklisting proceedings;

5.2 blacklisted and henceforth cross debarred for participation in respective category of public procurement or disposal proceedings for a period of not more than three years, if the bidder fails to perform his contractual obligations during the execution of contract or breaches the contract due to his capacity and capability to perform or otherwise. However, procuring agency shall initiate such blacklisting or debarment proceedings after exhausting the forum of arbitration, provided that such provision exists in the conditions of contract, and if such failure or breach is covered in the respective dispute settlement clauses of the contract, and

5.3 blacklisted and henceforth cross debarred for participation in respective category of public procurement or disposal proceedings for a period of not more than six months, if the bidder fails to abide with a bid securing declaration, however without being indulged in any corrupt and fraudulent practice.

6. SUSPENSION AND BLACKLISTING PROCEDURE

1. The supplier or contractor who is to be blacklisted for a specified period is given adequate opportunity of being heard.

2. The supplier or contractor who is to be blacklisted for a specified period is called for meeting by providing adequate time, so as to given him adequate opportunity of being heard before taking any action.

3. In case the supplier or contractor does not attend the meeting on the given date and time a final notice is served to him / her to attend the meeting on the revised date and time. Despite the final notice, if the supplier or contractor does not attend the meeting as per schedule, automatically be considered at fault. Action will be taken as per below clauses 5 to 9.

4. A three-member committee will form comprising of User, Procurement and HSE&QA departments to address the issues in the meeting with the supplier or contractor. Members of committee may not below of grade IV.

5. In case the supplier or contractor is found at default based on the fact of the case as well as the tender terms and conditions, and do not justify the grounds of his default as per the tender terms and conditions, the approval is sought from the management for their temporary or permeant blacklisting alongwith encashment of bid bond or PBG as the case may be.

6. The decision of the management is communicated to the defaulted supplier or contractor through a formal letter.

7. A copy of the letter of the defaulted supplier / contractor alongwith covering letter with pertinent documents is / also forwarded to the Authority (PPRA) for uploading on PPRA website.

8. The blacklisting information of the supplier / contractor is uploaded on the websites.

9. Any bidder not satisfied with the decision of the procuring agency, may lodge an appeal in the relevant court of jurisdiction.

10. After coming into force the procurement contracts, the dispute between the parties to the contract shall be settled by arbitration.

7. STATUS OF BLACKLISTED FIRM/INDIVIDUAL

Blacklisting of a firm/individual will not affect other ongoing contracts/works/supply orders. However, such blacklisted firm shall stand barred from all future tender processes/participation and Standing Security, if any, could be confiscated until recovery of financial damages ascertained by the authority while issuing Blacklisting Order.

8. DELISTING

A temporary blacklisted firm / individual shall be automatically restored after the period for the penalty has elapsed, unless the procuring agency wants to maintain the blacklisted status of firm / individual due to justifiable reasons with the prior approval of Appellate Authority. In the latter case, the temporary blacklisted firm / individual shall be restored.

9. AMENDMENTS

9.1 In the implementation of Blacklisting Mechanism, the modifications may be introduced thereto through the amendment of its specific provisions as the need arises.

9.2 Any amendment to this Blacklisting Mechanism shall be applicable to tenders advertised for bid after the effectivity of the said amendment.

10. EFFECTIVITY

The Blacklisting Mechanism or any amendments thereof shall take effect immediately and from the date of its issuance. All future tender documents must be governed by these instructions. However, these cannot override the provisions of Public Procurement Rules, 2004.

11. The Steps to be Followed are As Under

The causes and reasons to be taken into consideration for Debarment / Blacklisting of any Person(s) / Firm(s) are given as under:

1. PRE-AWARD STAGE:

The following shall be considered, inter alia, the events / reasons for initiating proceedings under this Mechanism at the Pre-Award Stage:

i Indulging in Corrupt: Fraudulent as well as Collusive practices.

ii Submission of false and spurious documents, making false statements, making frivolous complaints and allegations to gain undue advantage.

Sui Southern Gas Co. Ltd. ★ Procurement Dept. ★ H.O. Gulshan-e-Iqbal

iii Commission of embezzlement, criminal breach of trust, theft, cheating, forgery, bribery, falsification or destruction of records, receiving stolen property, false use of trademark, securing fraudulent registration, giving false evidence, furnishing of false information of serious nature.

iv Submission of false bid security or infringement of documents to get undue monetary or any other benefit.

v Breach of confidentiality of evaluation process based on illegal access or in any way to get undue benefit or to provide benefit or to frustrate the bidding/evaluation process. This will also include attempts to sabotage the bidding process directly or indirectly.

2. POST- AWARD STAGE:

The following shall be considered, interalia, the events / reasons for initiating proceedings under this Mechanism at the Post-Award Stage:-

i. Extraordinary delay in signing or refusal to accept the Notification of Award and/or the contract without any cogent reason.

ii. Misconduct, i.e., failure to proceed with the signed contract, withdrawal of commitments, quoting an unreasonably and unfairly low financial offer and subsequently withdrawing such an offer, frustrating the evaluation/bidding process and not responding to written communication in a reasonable time.

iii. Causes mentioned in Sub-Clauses i, ii and iii above.

iv. Submission of fake / frivolous or mutilated Performance Guarantee or Advance Payment Guarantee etc.

v. Non-satisfactory performance during the execution of the contract / purchase order.

vi. Non-performance or Breach of provisions / clauses of the contract agreements/tender terms.

vii. Notwithstanding the warranty/defect liability period, any defect in a product, equipment, plant, facility or services rendered that may subsequently surface during field operations within 5 years of its commissioning.

viii. Failure to honour obligations within warranty period or defect liability period as defined in the contract.

3. OTHER CAUSES :

i. The Person(s) / Firm(s) is blacklisted by any Government department in Pakistan, or it is established that the firm is involved in any kind of corruption or corrupt practices anywhere in the world.

ii. Violations of provisions / instructions set down in the Bidding Documents.

Sui Southern Gas Co. Ltd. Procurement Dept. H.O. Gulshan-e-Iqbal

iii. Any attempt / activity to malign or bring SSGC into disrepute and harm its interest(s).

iv. Person(s) / Firm(s)(s) blacklisted by International Financial Institutions (donor agencies) will be liable to be blacklisted after receipt of confirmation from the donor agencies without any further proceeding.

v. Any other cause deemed just and appropriate by CPPA in the given circumstances.

Note: (1) If above mentioned causes occur either on part of the principal bidder or the local agent, both shall be considered for blacklisting / debarment.

(2) The authorization of the foreign bidder to local agent shall contain his complete particulars including the name of the company, name of the owner, National Tax number (NTN), CNIC (Computerized National Identity Card) No. etc. In case, the said information is found to be missing, even after calling for the same within a reasonable time, the authority letter shall not be accepted.

(3) The Bidding Documents shall be issued against original authority letter or in case of scanned copy, the email of the foreign bidder shall be enclosed. However, at the time of bidding, the original authority letter shall be attached with the bid. In the absence of the same, the bid shall be rejected.

4. FORMULATION of SSGC's Rights Protection Committee: A permanent Committee namely "SSGC's Rights Protection Committee (RPC or Committee)" shall examine the justification of the reasons given by the Project Authority prior to blacklisting. Member of RPC must be one grade up from the members of PA.

5. PROCEDURE FOR BLACKLISTING

Upon receipt of or obtaining information and/or knowledge that any Person(s) / Firm(s)(s) is involved in practices mentioned in hereinabove under the heading of Pre-Award Stage; Post-Award Stage and Other Causes, the concerned Project Authority / formation shall promptly formulate its recommendations and submit through the Managing Director, SSGC to SSGC's RPC / Committee along with its findings, details of charges and documentary evidences to initiate proceedings under this Mechanism.

6. INITIATION OF AN ACTION

(i) Within a period of 15 days after receiving the recommendations of Blacklisting / Debarment from the concerned Project Authority, the Convener of the Committee shall issue a Show Cause Notice ("Notice") thereby informing the Person(s) / Firm(s) about the alleged charges and shall provide an opportunity to the defend said charges within a time period of 15 (fifteen) days.

(ii) The Person(s) / Firm(s)(s) shall be accorded adequate opportunity of hearing in order to defend the charges within the given timelines.

(iii) The Notice to the Person(s) / Firm(s) shall be sent at the mailing/postal address as provided under the Contract or any other address provided by way of subsequent written communication by the Person(s) / Firm(s) The non-receipt of the Notice due to incorrect / change in mailing address without any written communication shall not be attributable to

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SSGC. In case of non-receipt of any reply from the accused Person(s) / Firm(s) within the formulated time, but not less than the time given in (i) above, the Committee shall have the right to proceed on Ex-parte basis.

7. DECISION

The committee shall hold an independent inquiry/investigation as the case may be, and, which may include site visits and interviews with the parties concerned. The Committee shall complete the entire inquiry/investigation, preferably within a period of 30 days after receipt of response from the Person(s) / Firm(s) against whom proceedings under this Mechanism has been initiated and shall present the report to the Managing Director, SSGC. If required, the Committee may report the case to an appropriate law enforcement agency depending upon the nature of the case for detailed investigations with the prior approval of Managing Director, SSGC. iii. The Person(s) / Firm(s) against whom proceedings have been initiated under this Mechanism shall not proceed for arbitration/litigation during the proceedings for blacklisting.

8. COMMUNICATION OF DECISION

After recommendation for temporary & permanent blacklisting by "SSGC's Rights Protection Committee (RPC)", the Person(s) / Firm(s) concerned shall be informed within 10 days of such decision. The decision of the Committee will be notified on SSGC 's and PPRA's websites and shall also be conveyed to Pakistan Engineering Council.

The temporary Blacklisting on the grounds and reasons specified herein above shall be for a reasonable specified period of time and as a general rule of prudence, the period may not exceed three years, except in cases where debarment/blacklisting has been done by any other government department or an International Financial Institution (Donor Agency), In case the Person(s) / Firm(s) has been blacklisted by the government department or the International Financial

Institution (donor agency), the period of temporary blacklisting/debarment shall be for a maximum period of 3 years or the time period for which the concerned government department/International Financial Institution (Donor Agency) debarred the contractor (whichever is higher). However the permanent blacklisting cannot be revived.

Action after the Person(s) / Firm(s) are placed on Blacklisting List:

i. The decision of blacklisting will be immediately circulated to all concerned as mentioned herein above under the heading Communication of Decision.

ii. In case of a contract already awarded to a Person(s) / Firm(s) which has been blacklisted and termination is either not possible or not feasible, the concerned Project Authority may proceed in this case to complete the contract with the approval of Competent Authority. (iii)The blacklisted Person(s) / Firm(s) shall stand disqualified from bidding from the date of decision against them. Any pending bids shall also stand rejected. If a contract has already been awarded to Person(s) / Firm(s), it shall be voidable at the option of SSGC. (iv) A separate register or data base will be maintained for blacklisted firms indicating reasons and period.

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9. Effectiveness

This Mechanism or any amendments thereof shall take effect immediately with the approval from Managing Director of Sui Southern Gas Company Limited.

Sui Southern Gas Co. Ltd.
Procurement Dept.
H.O Gulshan-e-Iqbal

SSGC | Sui Southern Gas Company Limited

Health, Safety, Environment & Quality Assurance

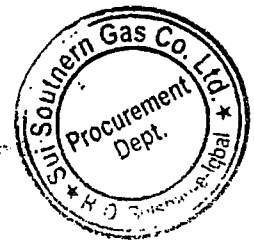
HSE&QA AWARENESS FOR SUPPLIERS AND CONTRACTORS (Revised in 2023)

Always be proactive about safety!

Report Hazard before it results in an Accident

If it's UNSAFE!

- ✓ Report it
- ✓ Remove it
- ✓ Replace it



Sui Southern Gas Company Limited

HSE & QA-IMS POLICY

SSGC is committed to the Health and Safety of all its Employees & Stakeholders, preservation of Environment and achieving Operational excellence by improving Quality of products / services along with efforts to promote Safety Culture in the Company. Continual improvement of HSE and QA performance by reducing potential hazards to prevent injuries and illness is our key priority. It also includes communication, consultation and participation on HSE and QA objectives and targets with stakeholders, conserving resources and adhering to applicable Laws and Regulations in all activities / processes related to th Transmission and Distribution of natural gas within its franchise area.

Managing Director
August, 2021

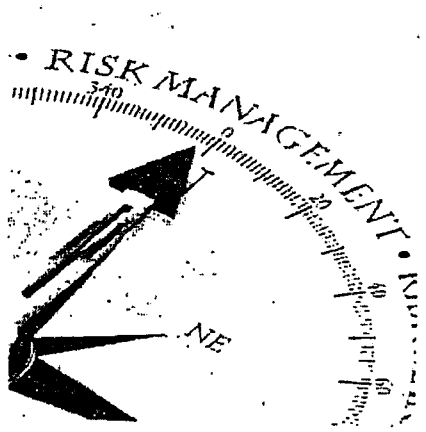
Sui Southern Gas Co. Ltd. Procurement Dept. H. O. Gulshan-e-Iqbal

MR

1. PURPOSE

The purpose of this procedure is to identify the context of the organization, assess the risks and opportunities and establish controls associated with all the activities undertaken by the company to address risks and opportunities for:

a. SSGC existing facilities/installations.
b. Any routine/non-routine activity, performed within permanent locations or outside permanent locations of SSGC, that requires prior permit/safety analysis to identify and mitigate safety risks.
c. Any new project.
d. Covering all the activities performed by SSGC taking into consideration of compliance, obligations, risks & opportunities within the scope, external and internal issues related to scope of operations, requirements, information, needs and expectations of relevant interested parties.
e. Providing guidance to employees in relation to hazard identification, risk assessment and risk control in respective areas.
f. Identification, control, monitoring and management of environmental aspects and assessment of its impacts.



2. SCOPE

This procedure is applicable to the identification of occupational health and safety hazards and associated risks, environmental aspects and impacts associated with activities, processes and equipment related to SSGC existing facilities/installations, any new project or any routine/non-routine activity, performed within permanent locations or outside permanent locations of SSGC, that requires prior permit/safety analysis to identify and mitigate occupational health and safety risk.

3. DEFINITIONS & ACRONYMS

a. **HAZARD:** Source or situation with a potential for harm in terms of injury or ill health, damage to property, damage to workplace environment, or a combination of these.
b. **RISK:** Combination of probability of occurrence of a hazardous event or exposure and the resulting consquences.
c. **OPPORTUNITY:** Opportunities can arise as a result of a situation favorable to achieving an intended result, for example, a set of circumstances that allow the organization to attract customers, develop new products and services, reduce waste or improve productivity. Actions to address opportunities can also include consideration of associated risks.
d. **SWOT:** Strength, Weakness, Opportunity & Threat.
e. **RISK MANAGEMENT:** The set of control measures used to reduce or eliminate specific risk.
f. **RISK ASSESSMENT:** Risk Assessment is a systematic approach to hazard identification. This is the overall process of estimating the priority of risk and deciding significance of risk.
g. **RISK ASSESSMENT METHODOLOGY:** Risk priority shall be defined by the risk assessment matrix. Hazards related to applicable legal requirements will fall in the high risk category.
h. **HIRA:** Hazard Identification and Risk Assessment.
i. **EAIA:** Environmental Aspect and Impact Assessment.
j. **IEE:** Initial Environment Examination.
k. **EIA:** Environment Impact Assessment.
l. **ILL HEALTH:** Identifiable, adverse physical or mental condition arising from and/or made worse by a work activity and /or work related situation.
m. **OHS&E:** Occupational Health, Safety & Environment.
n. **PTW:** Permit to Work.
o. **MOC:** Management of Change.
p. **MOC Owner:** The employee who initiates the MOC.
q. **JSA:** Job Safety Analysis.
r. **EXECUTING DEPARTMENT:** It refers to the department performing the work or is responsible to get the work done through contractor.

MR

Sui Southern Gas Co. Ltd. Procurement Dept. H.O. Gulshan-e-Iqbal

4. RESPONSIBILITIES

4.1 Corporate HSE&QA In-charge

a. Managing OHS&E risks and their controls.
b. Reporting to Senior Management on OHS&E related issues.
c. Providing support to corporate HSE&QA team and zonal representatives.
d. Liaise with zonal HSE team leaders/HSE&QA representatives for implementation of this procedure.

4.2 Zonal HSE team leaders

a. Carrying out HIRA, providing and utilizing resources to identify and review OHS&E risks and implementing their controls in consultation with corporate HSE&QA team.
b. Ensuring that employees, contractors and visitors have sufficient knowledge related to OHS&E.
c. Maintaining records of the OHS&E with the help of local HSE&QA team.
d. Implementing this procedure. Liaise with corporate HSE&QA team if required.

4.3 Zonal HSE&QA representative

a. Coordinating with Zonal HSE team leader for carrying out HIRA and EAIA in their zones.
b. Liaise with corporate HSE&QA team and zonal HSE team leader for OHS&E.
c. Reviewing/monitoring HIRA and EAIA in their zones and providing input on any changes.

4.4 Departmental Head of Executing Department

Acquiring PTW for any activity that requires prior permit to identify and mitigate safety risks.
Ensure implementation of JSA for job/activity performed outside SSGC permanent locations.

4.5 Employees

Participating in the identification and assessment of OHS&E risks when required by either Zonal HSE team leader or HSE&QA representative.

4.6 Visitors & Contractors

Identifying and reporting any risk or hazard at any location of SSGC. This also includes the worksites and SSGC temporary locations during project executions.

5. DECISION MATRIX

Type of Risk/Hazard Assessment	Methodology	Responsibility
HIRA	Periodic risk assessment of SSGC's existing facilities/installations such as Head office, Headquarters, Regional offices etc.	Zonal HSE team leader
PTW	On-site Risk assessment (for Permanent Locations) for any routine/non-routine activity that requires prior permit to identify and mitigate safety risks.	Departmental head/Contractor executing the task/activity requiring PTW
JSA	On-site Risk assessment (for Field Locations) for any routine/non-routine activity.	Departmental head/Contractor executing the field activity

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MOC	Risk assessments for new Projects, major changes or modifications in existing designs and infrastructure.	MOC owner

Risk Assessment and Management Procedure is divided into five sections based on the type of risk assessment needed:

- Section 1: Context of the Organization.
- Section 2: Hazard Identification and Risk Assessment.
- Section 3: Permit to Work.
- Section 4: Job Safety Analysis.
- Section 5: Management of Change.

6. PROCEDURE

Section 1
Context of the Organization

6.1. Context of the Organization

i. Management defines scope of the company services and its boundaries considering the internal and external issues of the organization.

ii. In consultation with HSE&QA, Management & Zonal Heads identify external & internal interested parties and maintain its list with needs & expectations. Interested parties are those stakeholders who receive company services, who may be impacted by them, or those parties who may otherwise have a significant interest in the company. Interested parties may include:

Interested Parties	Requirements
Board of Directors	Good financial performance, legal compliance/avoidance of fines.
Law Enforcers/Regulators	Identification of applicable statutory and regulatory requirements for the products and services provided and understanding of the requirements.
Customers	Value for money, quality service, facilitation and quick response.
Bank/Finance	Good Financial Performance.
Employees	Professional development, prompt payment, health and safety, work/life balance, employment security.
Insurance	No claims/prompt payment/risk management.
Community	No complaint relating to: noise, parking, health and safety, pollution, waste.
External providers (Vendors/Suppliers)	Prompt payment as per agreed terms, health and safety, long-term working relationship.
Trade Unions	Compliance of local labor laws.

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iii. By using SWOT analysis or any other tool, identify external and internal issues that are relevant to company operations and its strategic direction and that may affect the ability to achieve the intended result(s) of integrated management system. Internal and external issues can be positive or negative that can affect the OH&S management system.

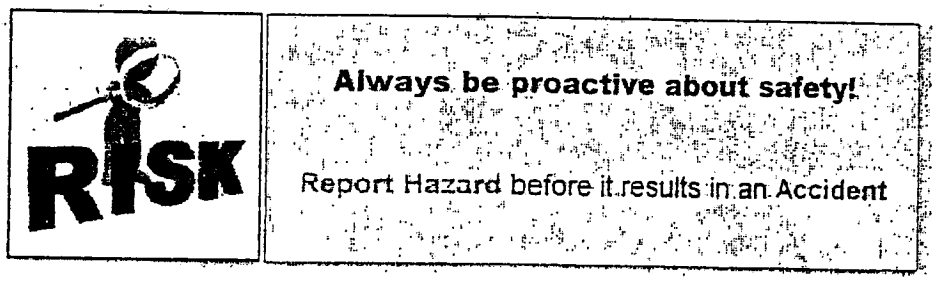
6.1.1. Internal issues could include in risk & opportunity assessments, but are not limited to:

a. Operations spread in two provinces.
b. Complex transmission and distribution network.
c. Succession planning.
d. Contractual relationships.
e. Availability of reliable, qualified and competent workforce.
f. Staff retention..
g. Impact of unionization.

6.1.2. External issues could include in risk & opportunity assessments, but are not limited to:

a. **Political:** Government policies, political stability, international trade agreements etc.
b. **Economic:** Fuel/utility prices, cash flow, credit availability, exchange rates, tariffs and inflation, general taxation issues etc.
c. **Social:** Consumer buying pattern, education level, advertising and publicity, ethical & religious issues, demographics etc.
d. **Technological:** Intellectual property issues, software changes, internet, technology legislation, associated/dependent technology, renewable energy etc.
e. **Legal and regulatory:** Consumer protection, industry-specific regulation and permits, trade union regulations, employment law, international legislation, human rights/ethical issues etc.
f. **Environment:** Customer demographics and environmental issues.
g. **Government:** The directives from Prime Minister, Ministry of Petroleum (energy division), regulatory bodies like OGRA, SEPA & BEPA etc.

d. Ensuring the policy and objectives are established for the integrated management system and are compatible with the context and strategic direction of the organization.
e. The management shall monitor and review information about these external and internal issues during the management review meetings.



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Section 2
Hazard Identification and Risk Assessment

i. Hazard Identification and Risk Assessment

The Zonal HSE team leader in consultation with local HSE&QA representatives plan and initiate the HIRA and EAIA process. The assigned team must be competent and have enough knowledge of the entire process. Cross functional teams are recommended for such activity to cover all aspects during assessment. The record of OHS&E risk assessment is maintained in Hazard Identification & Risk Assessment Form (SSGC-IMS/CRM-F-01). The identification/assessment process shall take into account:

a. Routine & non routine activities, any emergency situations.
b. Activities of all persons having access to the SSGC permanent and temporary locations.
c. Human behavior, capabilities and other human factors.
d. Designing of work processes.
e. Material in use.
f. Infrastructure, equipment and materials at the workplace or project site, whether provided by organization or others.
g. Changes or proposed changes in the organization, its activities or materials.
h. Fabrication, installation & commissioning.
i. Handling & disposal of waste material.
j. Purchase of goods & services.
k. Any applicable legal obligations that is related to risk assessment and implementation of necessary controls.
l. Before commencement of any new operation/activity.
m. Periodic Review for updating the existing hazard identification and risk assessment information.

At SSGC, we adapt five steps of risk assessment:

- Step 1: Identify the hazards.
- Step 2: Decide who might be harmed and how.
- Step 3: Evaluate the risks and decide on precautions.
- Step 4: Record your findings and implement them.
- Step 5: Review your risk assessment and update if necessary.

ii. Risk Assessment Matrix

Risk assessment should be carried out as per assessment matrix below:

Risk Priority →		Probability			
		Very Likely	Likely	Unlikely	Very Unlikely
Consequences	Catastrophic				Medium
	Significant			Medium	Medium
	Harmful		Medium	Medium	
	Negligible	Medium	Medium		

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HAZARD CONSEQUENCE RATING TABLE	
Catastrophic	Hazard may cause death or total loss of one or more bodily functions. In case of failure a huge financial loss will occur.
Significant	Hazard may cause severe injury, illness or permanent or partial loss of one or more bodily functions (e.g. prolong exposure to asbestos resulting in Asbestosis or prolong exposure to paint fumes resulting in Chronic Lung Disorder), or serious property damage, loss that may result in disruption of SSGC core activities.
Harmful	Hazard may cause a reportable incident i.e. an incident that results in the employee being unable to undertake their normal duties and may need medical treatment, or property damage, loss that result in partial disruption of SSGC core activities.
Negligible	Hazard may cause minor injury, illness or property damage, first aid treatment is required only, very low financial loss.

PROBABILITY RATING TABLE	
Very Likely	Exposure to hazard likely to occur frequently. Similar incidents reported more than once in SSGC during last 10 years.
Likely	Exposure to hazard likely to occur but not frequently. Similar incidents reported once in last 5 years in SSGC.
Unlikely	Exposure to hazard unlikely to occur.
Highly Unlikely	Exposure to hazard so unlikely that it can be assumed that it will not happen.

RISK PRIORITY TABLE	
Risk Priority	Definitions of Priority
	Situation is considered critical, stop work immediately or consider cessation of this operation/task. Must be fixed ASAP, Zonal HSE team leader should take immediate actions.
Medium	Is very important, must be fixed within two weeks, Zonal HSE team leader considers short term and/or long term actions.
Low	Is still important but can be dealt with through scheduled maintenance or similar type of action However, if solution is quick and easy then fix it immediately. Review and/or manage by routine procedures.

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Section 2
Hazard Identification and Risk Assessment

iii. Risk/Impact Assessment Outputs

The output of risk/impact assessment may include the following:

a. Identified operations of all hazards/aspects and risks/impacts associated with company activities/system etc.
b. Classification of risk/impact.
c. Description or reference to control the risks/impacts.
d. Description or reference to monitor the risks/impacts.
e. Identified competency and or training requirements.
f. Input for setting improvement objectives and programs for its achievement.

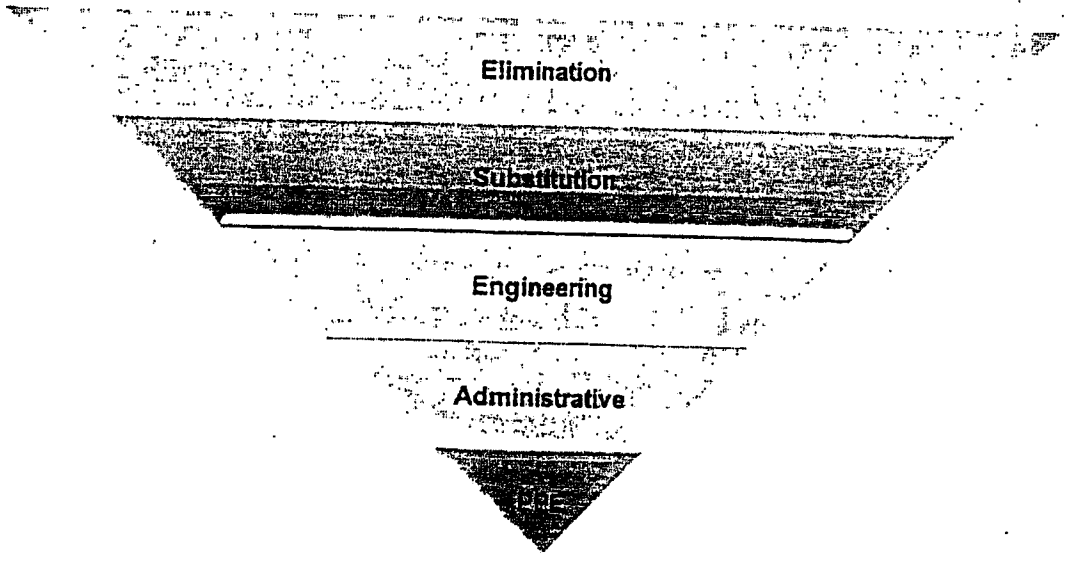
The risk/impact measures identified shall include controls such as termination/elimination, treatment of the risk/impact and substitution of risk by suitable means and where required tolerated as long as it meets local laws/legislation.

Use output of risk/impact assessments as input for the following:

a. Setting objectives and targets.
b. Training needs identification.
c. Terminating the risk/impact if it is practical.
d. Facility engineering control.
e. Emergency Preparedness.
f. Administrative controls.
g. Insurance.

The ultimate requirement is to reduce the risk/impact to a level as low as reasonably practical (ALARP) i.e. where the trouble, difficulty and cost for further reduction becomes unreasonably inconsistent to the additional risk reduction obtained.

iv. Risk Control



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The hazards and risks are controlled through 'operational controls' by considering the following hierarchy.

a. **Elimination:** The best way to control a hazard is to eliminate it. This can be achieved by making changes to the work process so that the task is no longer carried out, or by physically removing the hazard altogether. Elimination is the most effective way to control hazards and should be used whenever possible.

b. **Substitution:** Substitution is the second most effective method for controlling hazards and risks. It is similar to elimination but involves the substitution of one higher priority risk by another lower priority risk.

c. **Engineering:** Engineering controls are implemented by making changes to the design of an equipment or process to minimize its hazard. Engineering controls are based on the concept of "Doing it right the first time". Departments shall incorporate this concept during planning phase of any project/process and must seek out for best possible solution in terms of OHS&E.

d. **Administrative:** Administrative controls involve making changes to the way in which people work and promoting safe work practices via education and training. Administrative controls may involve\ training employees in operating procedures, good housekeeping practices, emergency response in the event of incidents such as fire or employee injury, and personal hygiene practices.

e. **Personal Protective Equipment (PPE):** Use of PPE will kick-off where no other controls stated above are possible. PPE should be properly identified for specific process/job.

System & work area Hazards	Likely Consequences
Access / Egress Obstructions	Minor injury, trips and falls
Asphyxiate Gas (CO_2 fire suppression)	Possible death by asphyxiation
Buried Cables	Exposure to buried cables – major / minor injury
Electricity (HV/LV)	Fatality by electric shock or serious burn injuries
Falling Loads / Objects	Serious head and / or body injury
Flammable Vapors / Gases / liquids	Explosion or fire
Flammable Materials	Potential for fire
Hot / Humid Work Environment	Heat stress, disorientation, loss of consciousness
Moving Parts	Entrapment, major or minor injury
Noise	Long term hearing loss, tinnitus
Openings in Floor / Walkways	Falls from height, major injury possible fatality
Flammable Materials / Gases	Creation of hazardous area, fire, explosion
Heat, sparks and naked flames	Burns to exposed skin
High intensity light (welding)	Arc flash, short term discomfort, long term loss of vision
Housekeeping poor	Slip, trip, fall, fire hazards, blocking fire escapes
Lifting Operations	Falling or moving loads - serious head and / or body injury
Live Electrical Work	Fatality by electric shock or serious burn injuries
Lone Working	No emergency response if injured
Long Working Hours	Major / minor accident due to fatigue
Manual Handling	Muscular / skeletal injuries
New Task / Operation	Major / minor injury resulting from mistakes

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Oxygen deficiency	Death of asphyxiation
Poor Lighting / Visibility	Minor / major injury, fall or impact injury
Slipping / Tripping Hazards	Minor injury, trips and falls
Spillages (Oil and chemicals)	Land contamination
Substances hazardous to health	Chemical burns, toxic, poisoning , irritants, pollutant
Repetitive Task / Operation	Muscular / skeletal injuries
Rotating / Moving Part	Major injury, potential for fatality
Sharp Edges / Cutting Surface	Amputation and cuts, predominantly to hands
Smoke / Fume	Unconsciousness, respiratory problems
Trailing Cables and Hoses	Tripping hazard causing major / minor accident
Use of Hand Tools	Minor laceration and impact injuries
Use of Hazardous Substances	Burns to skin, eyes, and respiratory system. Environment Hazards
Use of Power Tools	Impact injury, hand / arm vibration - loss of sensation over time
Use of Workshop Equipment	Major / minor injuries - entrapment, cutting tools
Vibration	Hand / arm vibration - loss of sensation over time
Work at Height	Major / minor injury

v. Environmental Aspect Identification & Impact Assessment

a. Environmental Aspects:

An Environmental aspect is any element of SSGC business operation that negatively affect the Environment. While conducting environmental assessment, following aspects are usually considered:

"REDUCE CARBON FOOTPRINT"

What we can do:

- Recycle: what you can
- Reduce: avoid unnecessary consumption of resources
- Reuse: Buy items that are reusable and reuse them
- Unplug electrical devices that are not in use
- Avoid unnecessary driving
- Use LED bulbs
- Plant a tree

Emissions to air	Water Discharges
Solid non-hazardous waste	Solid Hazardous Waste
Consumption of natural resources/ Energy	Noise
Heat	Odor
Dust	Vibration
Effect on visual / aesthetics	Use of Ozone depleting substances
Use of radioactive / nuclear material	Spillage of chemicals

For identification of environmental aspects and impact, each process/activity/equipment is assessed for its inputs and outputs. The inputs can be raw materials, utilities, energy etc. The output can be atmospheric emissions, liquid effluents, noise, hazardous/non-hazardous wastes, vibration etc.

The inputs, outputs, environmental aspects, their associated impact and controls are recorded on Environmental Aspect & Impact Assessment Form (SSGC-IMS/CRM-F-02).

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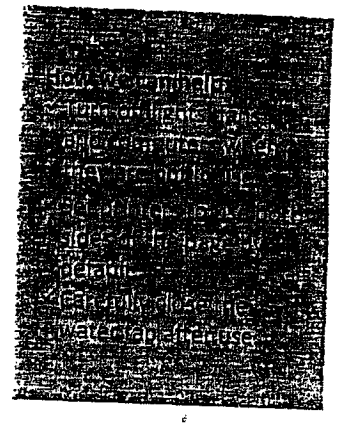
b. Control of Aspects having Significant Environmental Impact:

The significant environmental risks require control measures to eliminate or reduce the impact to a tolerable level either by establishing objective or through application of controls by considering the 4R methodology i.e. Reduce, Reuse, Recover and Recycle.

Some of the suggested operational controls are listed below:

a. Design of environmental friendly processes/operations.
b. Isolation or enclosure of hazardous material storage, process or noisy equipment.
c. Mechanical exhaust systems/booths for controlling toxic materials.
d. Replacement of potentially unsafe equipment or machinery with new equipment/machines that meet environmental standards.
e. Electrical or mechanical safety interlock, guards, indicators.
f. Safety devices (Relieve valves, NRVs, indicators etc.), measuring or monitoring devices/gauges, computerized feedback monitoring and control systems.
g. Environmental friendly disposal or treatment systems etc.
h. Fire prevention/suppression systems.
i. Containment walls.
j. Scrubbers.
k. Dust Collectors.
l. Other controls: Training, SOP.



The record of operational controls on significant environmental risks is maintained on 'Environmental Aspect & Impact Assessment Form (SSGC-IMS/CRM-F-02).

After identification of aspects and assessment of impacts, it is sent to HSE&QA Department for reviewing adequacy and correctness. Where required, In-charge HSE&QA suggests necessary changes or improvement in risk assessment to concerned Zonal HSE Team Leader.

c. Aspect & Impact Assessment Review & Monitoring:

Zonal HSE Team Leader ensures that environmental aspects and impacts related to the activities/processes/equipment are kept current by conducting the same assessment:

a. Once every six months to update the information, and identify new environmental aspects. (Use SSGC-IMS/CRM-F-02 for recording new hazards and aspects)
b. Carry out assessment, for new or changes in activities/processes/equipment.
c. When there is a change in laws & regulations.

d. IEE (Initial Environment Examination) / EIA (Environment Impact Assessment):

In addition to all of above assessments, SSGC will carry out IEE / EIA as required by regulatory requirements for new projects. It is the responsibility of corporate HSE&QA head/DMD/MD to ensure the compliance for all new projects.

When combusted;

- One liter of Diesel produces 2.68 kg of CO_2
- One liter of Petrol produces 2.31 kg of CO_2
- One MMBTU of Natural Gas produces 53.07 kg of CO_2

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Section 3
Permit to Work

I. Permit to Work (PTW)

A Permit to Work (SSGC-IMS/CRM-F-03) is needed for any routine/non routine activity (Conducted within permanent locations of SSGC) where the work could expose persons to specific hazards. PTW should be acquired and maintained in the zones where job/activity is carried out. Normally following activities require PTW:

a. Task based Hot Work operation such as welding, brazing, cutting, grinding.
b. Confined space working. (tank cleaning etc.)
c. Maintenance Work on High Voltage electrical equipment.
d. Any janitorial service involving Safety Risks such as work at height.
e. Any Maintenance activity by any department/contractor which compromises critical safety system.
f. Work involving interaction with asbestos.
g. Work in areas where there is a risk of exposure to hazardous chemicals or microorganisms.
h. Any job/task/activity that requires additional precautions.
i. Any specific activity performed during development, modification and up gradation of SSGC's Vital Installations including SMS/Valve Assembly/TBS/PRS etc.

II. Exclusion

Following activities are not under the scope of PTW management, however the risk assessment, JSA and or process SOPs are implemented to control the associated risks for the following:

a. Providing Gas connections to new customers
b. Emergency Response to Consumer calls (1199)
c. Planned enhancement of Distribution network
d. Work on live pipelines like hot tapping, installing Service Tee etc.
e. Any major/minor rehabilitation/reinforcement work

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III. Responsibilities

S No.	Functions	Details	Responsibility
1	Executing Authority	The department intends to carry out the task / activity that requires PTW. Situation may arise where Executing Authority is same as Area Authority (e.g. HQs).	Fill out the PTW form. Ensures that task/activity is carried out according to the SOP and controls are implemented to ensure safe operations. Immediately report any incident happened during execution of job to In-charge HSE&QA.
2	Area Authority	Area/Facility where the task/activity is carried out.	Authorize PTW and verify the compliance during the execution of task/activity. Authorized to stop work in case of noncompliance to PTW requirements.
3	Contractor	The Individual/organization carrying out the Task/Activity on behalf of the executing department.	Liaise with executing department to ensure the controls are implemented as per requirement identified in PTW.
4	HSE&QA	HSE&QA will identify the risk/hazards associated with the activity/task and propose controls. In Zones where HSE&QA representatives are not present, Zonal HSE team leader will officiate for HSE&QA responsibilities.	If required, Monitor the task/activity during execution and identify any gaps related to proposed controls. Responsible to close the PTW and maintains records. Authorized to stop work in case of noncompliance to PTW requirements.

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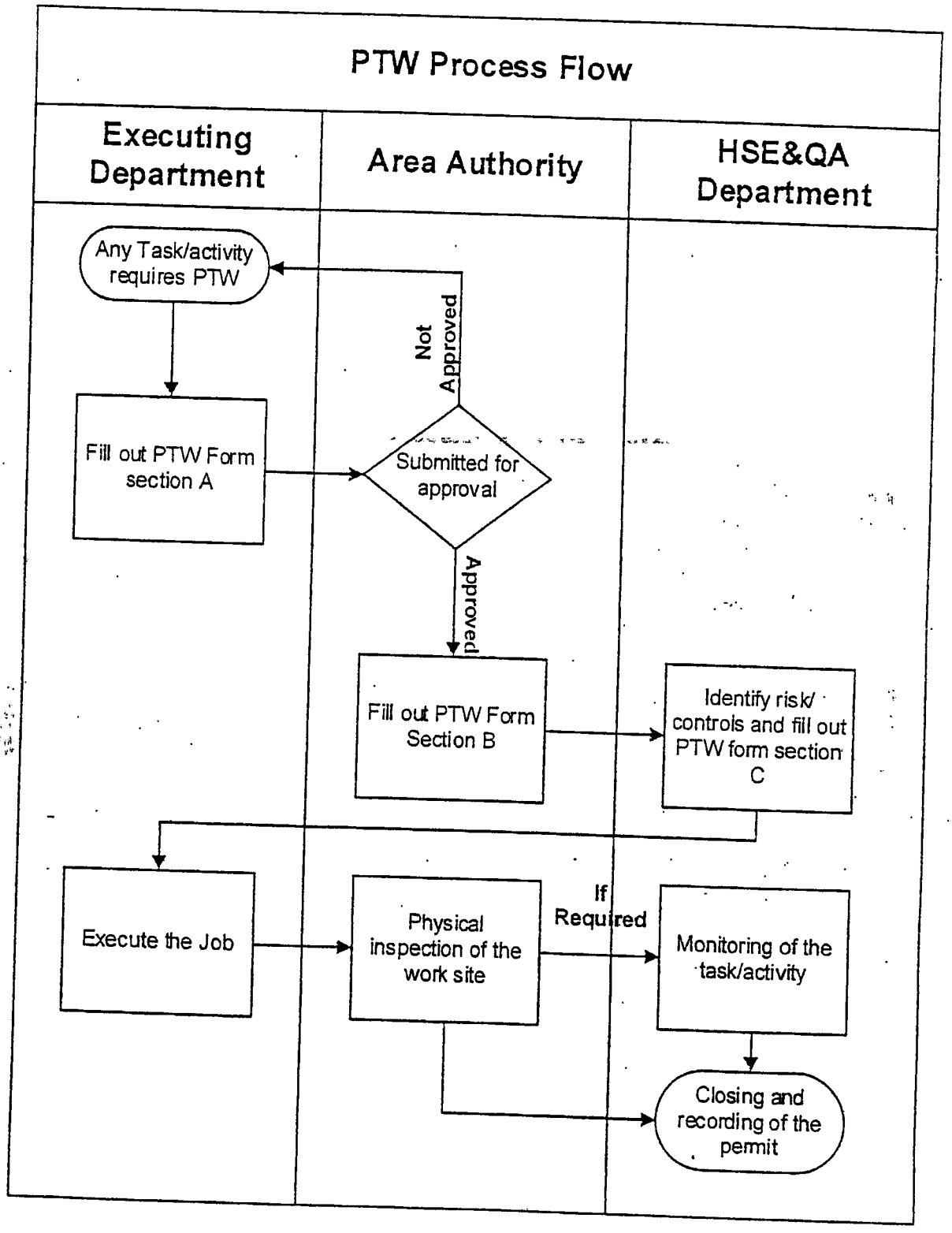
IV. PTW Process Flow



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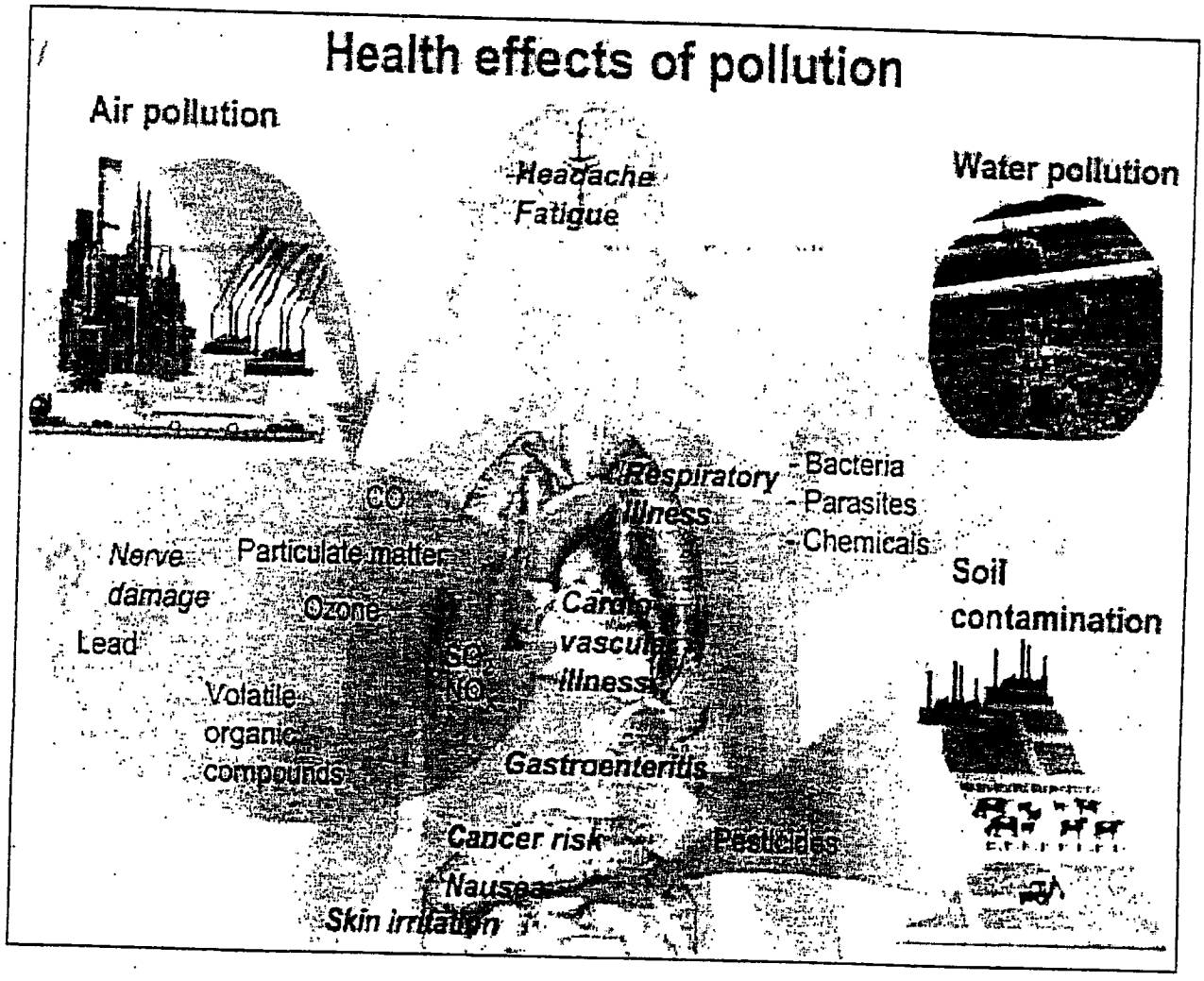
V. Permit Display

Copy of the permit to work should be clearly displayed at the work site or in a location close to where the work activity is being undertaken. Executing department/contractors are also required to ensure that a copy of the permit to work is kept and made available upon request by Area Authority/ HSE&QA.

VI. PTW Closure

Once the task/activity is completed the PTW form is returned back to HSE&QA/Zonal HSE team leader for closing and updating the records. A new PTW is required if the task/activity is not completed within stipulated time frame mentioned on PTW.



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Section 4
Job Safety Analysis

I. Job Safety Analysis (JSA)

Job safety analysis is needed for any routine/non-routine activity (Conducted outside permanent locations of SSGC i.e. Field Locations) where the work could expose persons to specific hazards. Normally following activities require JSA (SSGC-IMS/CRM-F-04):

a. Work on live pipelines like hot tapping.
b. Any major/minor rehabilitation/reinforcement/maintenance work on existing distribution/transmission network.
c. Installing service connection for new schemes. (Blanket JSA may be carried out for each scheme).
d. Any Emergency maintenance work.
e. Any particular job/activity requiring JSA as necessitated by HSE&QA.

II. Responsibilities

S No.	Functions	Details	Responsibilities
1	**Activity In-charge/ Supervisor**	Individual who is assigned to carry out the task/activity requiring JSA.	• List down the activities step wise and identify hazards and their controls • Ensure that task/activity is carried with proposed controls • Ensure the team/equipment involved are competent and safe • Report any untoward situation
2	**Head Of Executing Department**	Head of the department who is authorizing the task/activity requiring JSA.	• Authorize JSA • Ensure Adequate resources are provided to carry out the task/activity in safe manner • Select competent team and team leader for the activity/task. • Submit a copy of JSA prior to job execution to HSE&QA/Zonal HSE Team Leader.
3	**Contractor**	The Individual / organization carrying out the Task/Activity on behalf of the executing department.	Liaise with executing department to ensure the controls are implemented as per requirement identified in JSA

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Section 5
Management of Change

I. Management of Change (MOC)

The purpose of this document is to provide all SSGC employees with instructions on Management of Change (MOC) process. Any changes that may affect quality, operations, safety, or the environment will be adequately assessed and must be approved by management or a designated representative of management prior to implementation.

Risk Assessment for any new project, major modification in existing design /facility/ installation will be carried out using MOC methodology.

II. Scope

This procedure is intended to address those changes which may have a direct impact on SSGC's Integrated Management System, or the subsequent delivery of services.

To make sure that changes are assessed and documented in a consistent manner so that:

a. Unnecessary or counterproductive changes are prevented.
b. Changes do not adversely affect safety, the environment, quality, operations, or the level of service to the client.
c. No changes are made by individuals without knowledge and/or agreement of all relevant parties.
d. A record of the assessment rationale and change assessment process is produced.
e. To make sure proper change out of employees during operations is addressed.

III. Responsibility

a. **MOC Owner:** MOC owner is responsible to fill out the designated section of the MOC form (SSGC-IMS/CRM-F-05) which briefly describe the details/scope of the project.

b. **Area Authority:** Area authority is responsible to identify the possible impacts of the change that is taking place. Generally geographical head/zonal HSE team leader is considered the area authority.

c. **HSE&QA Department:** HSE&QA Department is responsible to authorize the change after assessing the risk and their controls.

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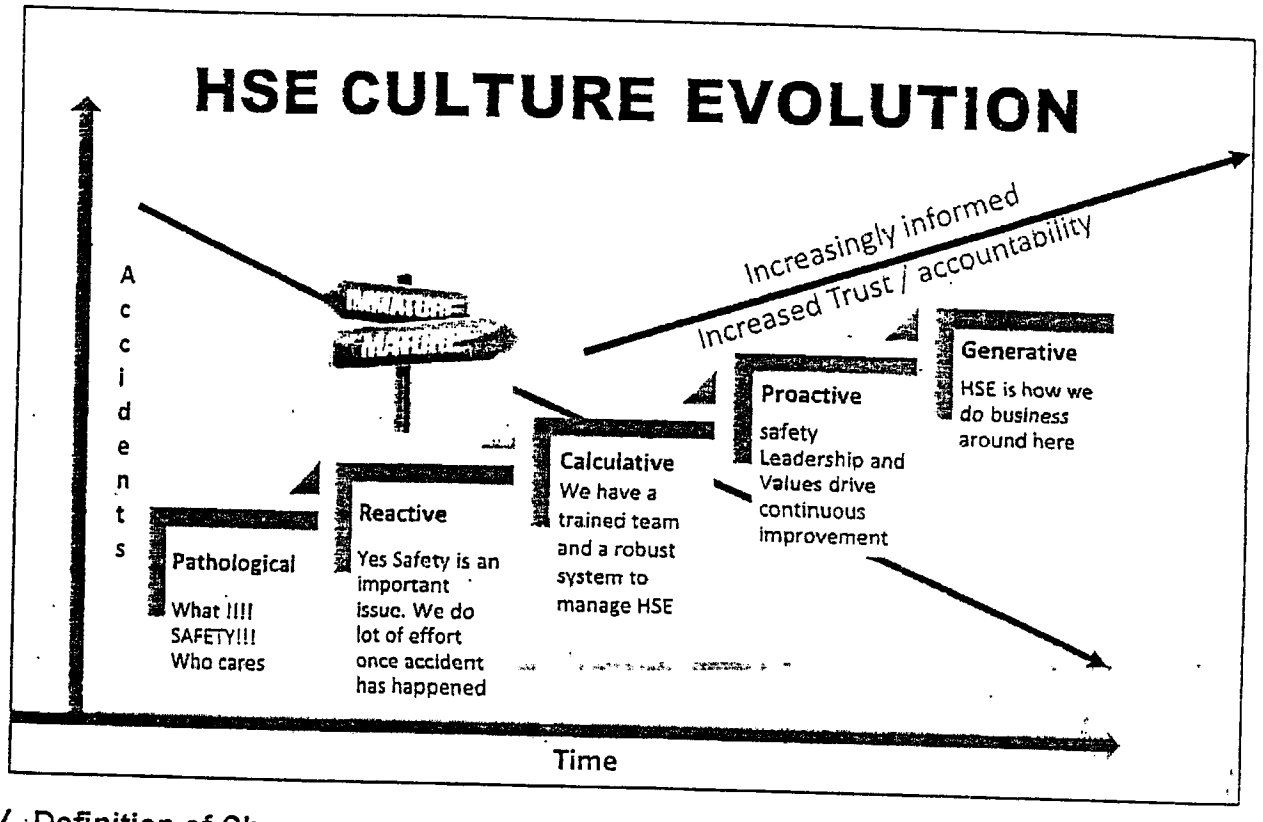

IV. Definition of Change

For the purpose of this procedure a "change" is an alteration to Processes;

a. Documented information maintained by this IMS.
b. Equipment, hardware, software, infrastructure.
c. Personnel assignments and training.
d. Vendor selection and management.

Other types of changes not listed above can be related to any element of the process, such as inputs, resources, persons, activities, controls, measurements, outputs, etc.

Note: Not all alterations to a system require the Management of Change Process (MOC) (e.g. changing employees, editorial changes to HSE & QA procedures and forms, etc.)

V. Levels of Change

Level 1

a. Change which has limited or no effect on deliverables, operations, safety, work environment, etc.

Level 2

b. Changes to equipment, procedures and employee assignments that have a moderate impact on deliverables, operations, safety, or work environment.

Level 3

c. Changes to equipment, procedures and employee assignments that have a major impact on deliverables, operations, safety or work environment.

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VI. Change Procedure

Step 1 – Initiation of Change

Any employee or contractor that becomes aware of a need for change can initiate the MOC process. The originator will notify their immediate Supervisor/Manager, detailing the proposed change on the MOC form (SSGC-IMS/CRM-F-05). With concurrence by their Supervisor / Manager, the MOC form shall then be forwarded to In-charge HSE&QA for review.

Step 2 – Review by in-charge HSE&QA

In-charge HSE&QA will review the MOC request for potential operational impact, cost/benefit analysis, and associated risk, with input from the appropriate process owners (Moderate Impact) and/or SSGC top management (Major Impact), as appropriate to the change under consideration. Changes that have negligible impact may be processed by the Management Representative directly.

If the request is accepted, In-charge HSE&QA will detail any actions deemed necessary to control the impact of the change and forward the request to the appropriate process owner for implementation.

Step 3 – Implementation of Actions

The process owner will be responsible for implementing and coordinating the actions required for the proposed change. If it is determined that further assessment is required during the course of implementing the change, these assessments will be documented and submitted for review prior to completing the change process. Only after all assessments have been reviewed shall the MOC process be continued and monitored through completion.

VII. Closing out the MOC

The In-charge HSE&QA will review the satisfactory implementation of the proposed change, and effectiveness of any corresponding control measures.

VIII. Record Keeping

The In-charge HSE&QA will retain a log showing each MOC (Control Number of Log) and file the initial MOC request (SSGC-IMS/CRM-F-05) with all information supporting the actions taken throughout the MOC process. These records shall be maintained for a minimum of 3 years.

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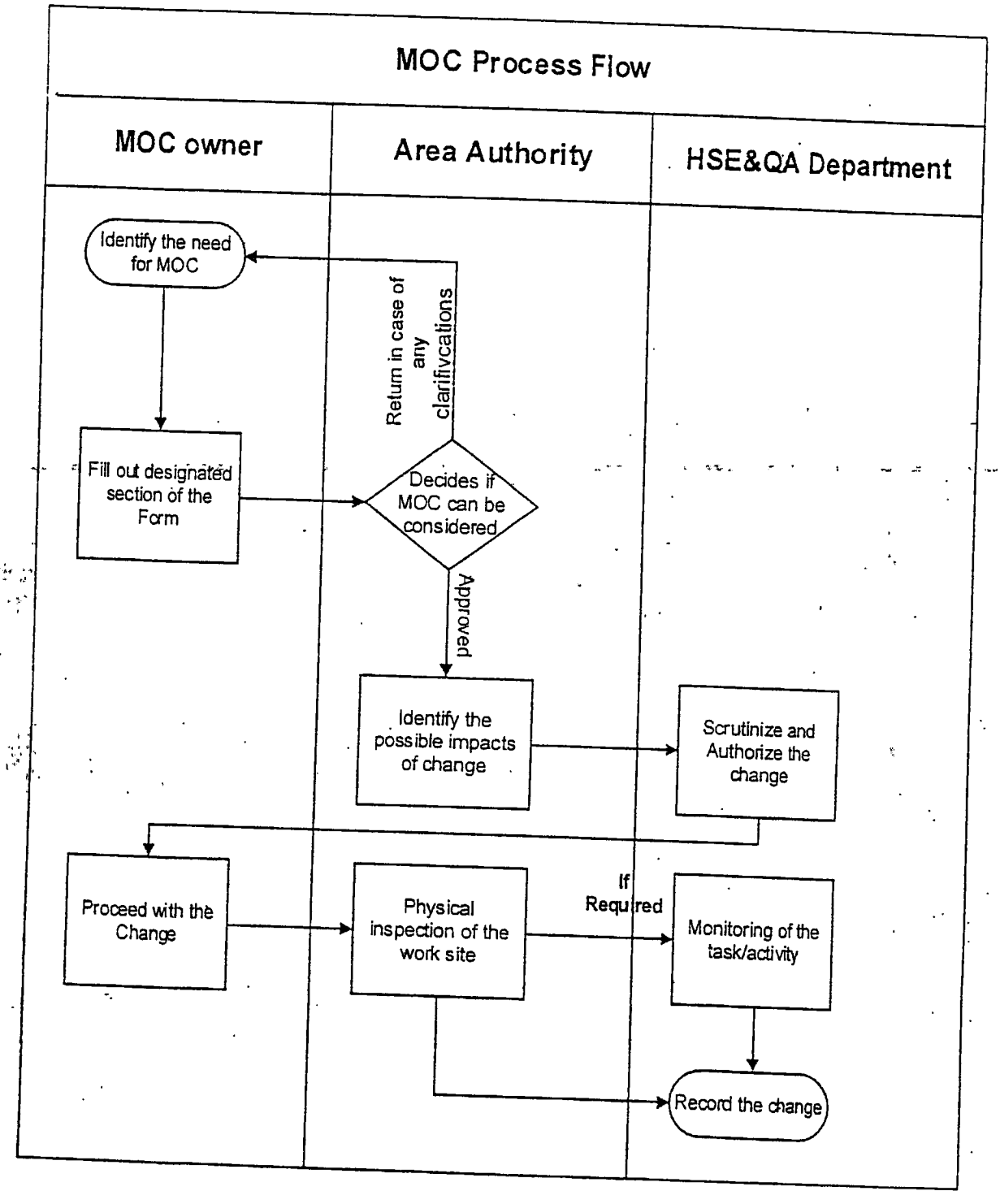
MOC Process Flow



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7. TYPICAL SSGC OPERATIONAL HAZARDS AND THEIR POSSIBLE CONTROLS

Some of the common Hazards related to SSGC operations are tabulated below and may be used while doing Risk assessment. There might be other hazards related to a particular activity/ operation or process. These hazards should be identified accordingly along with possible controls.

7.1. PHYSICAL

Hazards	Control Measures
Adverse weather	Shelter, personal protective equipment (PPE; cold / wind / rain-proof).
Poor / Bad housekeeping	Improved safety attitude, good management, safety inspection, good work layout.
Contact with hot / cold surfaces	Insulation, guarding, PPE (gloves, face shields, insulated clothing).
Drowning	Life guarding, lifesaving equipment, presence of first Aider.
Excavation work	Physical barriers; fencing, shoring, safe system of work, signs, caution tape.
Fall from height	Edge protection, safety lines / harnesses, safe means of access, (e.g. scaffolding), safe system of work (e.g. permit to work).
Fall of material from height	Alternative storage, physical means of securing.
Lighting	Good work area design and lighting equipment, measuring of illumination (LUX level), appropriate lighting.
Awkward lifting while laying pipes in trenches	Define weight limits, use mechanical means for lifting and laying of pipes.
Noise	Reduction at source, insulation, PPE.
Slips / Trips / Falls on same level	Good maintenance of work areas, good housekeeping, good cleaning, good footwear.
Stacking	Good work area layout, height limits, weight limits, strong packing, mechanical assistance.
Vibration	Elimination or reduction at source, damping, insulation, PPE.

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7.2. MECHANICAL

Hazards	Control Measures
Hand tools	Periodic inspection, electrical testing and maintenance.
Machines	Periodic inspection, testing and maintenance, physical barriers (guarding), safety interlocks, supervision and training.
Mechanical lifting operations	Periodic inspections, maintenance, supervision and training.
Manual handling	Regular assessment of handling techniques, improvisation to eliminate stress / fatigue, training in good lifting techniques.
Moving vehicles	Good road layout within premises, proper signs, vehicle maintenance, speed limit, enforce SSGC driving policy, defensive driving classes.
Over Pressure	Proper identification of pressure vessels, preventive maintenance, pressure indicators, alarms, PRV's where required, periodic inspection.

7.3. ELECTRICAL

Hazards	Control Measures
Live working	Avoid (i.e. No Live Working), use competent / trained staff.
Hand tools	Regular inspection, testing of electrical integrity and replacement (where appropriate).
Heaters (elements)	Isolate from combustible material, guarding.
Machines / Electrical cables	Electrical testing and maintenance, good electrical safety design, periodic inspection for design load vs actual load, use of circuit breakers, lockout/ tag out, anti-static materials, Use double insulation, proper grounding.
Electrical cables / cords	Use factory assembled cords, always use plugs, no naked wires.
Power Lines (Overhead / Buried)	Look out for signs, contact local utilities (KE, WAPDA) for locations, stay at least 10 feet away from overhead lines, use proper PPE.

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7.4. FIRE

Hazards	Control Measures
Combustible materials	Avoid, reduce storage of combustible materials, isolate from sources of heat and ignition.
Flammable gases	Storage of gas cylinders (e.g. hydrogen, acetylene) outside in an isolated, well-ventilated area, signs, no smoking, color-coding.
Flammable solvents	Controlled storage, use and disposal (e.g. limit quantities held), fire proof storage, signs, no smoking, no naked flames, emergency plans.
Heaters	Segregation from sources of combustion, guarding special construction if used in hazardous areas.
Oxidizing agents	Chemicals that are a source of oxygen, e.g. hydrogen peroxide, segregate from sources of combustion(e.g. flammable solvents).
Oxygen (gas and liquid)	Segregate from sources of combustion, controlled storage and usage.
Smoking materials	Designated smoking areas with proper ventilation; promote no smoking policy.
Static electricity	Limit use of static generators in hazardous areas. Use of anti-static devices, earthling.
Gas Leaks	Odourization for timely detection where possible, proper joining methods, Field survey, training, leak detection techniques.

7.5. OTHER

Hazards	Control Measures
Chemical: Chemical substances, Corrosives (acids, alkalis), Carcinogens, Irritants (e.g. Ammonia)	Avoid use, substitute less harmful substances, use, maintain and test engineering controls, monitor for hazardous substances; inform and train employees, use personal protective equipment (PPE), emergency plans for uncontrolled releases.
Biological: Biological agents (micro-organisms; pathogens, mutagens, carcinogens), Rodents, Snake Bite	Avoid use, substitute less harmful substances, use maintain and test engineering controls, monitor for hazardous substances, inform and train employees, use personal protective equipment (PPE), emergency plans for uncontrolled releases. Periodic rodent control drive, identification and elimination of snakes and other harmful reptiles specially in remote locations of SSGC.
Food / Water safety	Good food hygiene standards, good cleaning / disinfection, employee information and training, good personal hygiene, protective clothing. Testing if required from accredited lab (AKUH, PCSIR), Involve canteen contractors, credibility of product/Services.
Ergonomics	Educate / Train employees, avoid repetitive tasks, procure ergonomically design products (e.g. chair, Computer desk, Tools).

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8. DOCUMENTED INFORMATION

Record No.	Record Name	Maintained by	Retention Period
SSGC-IMS/CRM-F-01	Hazard Identification & Risk Assessment Form	HSE&QA Department	3 Years
SSGC-IMS/CRM-F-02	Environmental Aspect & Impact Assessment Form	HSE&QA Department	3 Years
SSGC-IMS/CRM-F-03	Permit to Work Form	HSE&QA Department	3 Years
SSGC-IMS/CRM-F-04	Job Safety Analysis Form	HSE&QA Department	3 Years
SSGC-IMS/CRM-F-05	Management of Change Form	HSE&QA Department	3 Years
SSGC-IMS/CRM-F-06	Context of the Organization	HSE&QA Department	3 Years
SSGC-IMS/CRM-F-07	SWOT Analysis	HSE&QA Department	3 Years

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SSGC HSE&QA Department	IMS Form	SSGC-IMS/CRM-F-01
	Hazard Identification & Risk Assessment Form	Revision 01
		Issue Date: July, 2021

Zone		Department		Location			Date	
S. No	Hazard *(E.g. Worn out electrical cord)*	What can go wrong *(E.g. Electrical shock to any employee)*	Existing Operational Control *(E.g. Covered with plastic tape)*	Risk Priority			Additional Operational Controls *(E.g. Isolate/Replace the wire)*	
				PROBABILITY *(E.g. Likely)*	CONSEQUENCE *(E.g. Significant)*	PRIORITY *(E.g. High)*		

Additional Comments (if any):

Zonal HSE Team Leader		HIRA Team		
Name & Designation	Signature	S. No	Name & Designation	Signature
		1		
		2		
		3		

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SSGC HSE&QA Department	IMS Form	SSGC-IMS/CRM-F-02
	Environmental Aspect & Impact Assessment Form	Revision 01
		Issue Date: July, 2021

Zone		Department		Location		Date	

Process / Operation Description: *(E.g. Power Generation)*

S.No	Activity *(E.g. Fuel Combustion)*	Input *(E.g. fuel, air)*	Output *(E.g. Hydrocarbons, CO2, H_2O, CO, particulate matters)*	Environmental aspect *(E.g. air emissions)*	Environmental impact *(E.g. Degradation of air, consumption of natural resources, Depletion of ozone layer etc.)*	Risk Priority *(High/Medium/ Low)*	Operational controls

Additional Comments (If any):

Zonal Team Leader		EAIA Team		
Name & Designation	Signature	S. No	Name & Designation	Signature
		1		
		2		
		3		

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C-02

SSGC HSE&QA Department	IMS Form	SSGC-IMS/CRM-F-03
	Permit To Work Form	Revision 01
		Issue Date: July, 2021

Work Permit Number *(To be filled by HSE&QA)*:

Section "A"

To be filled by Executing Department

Department Name:		**Contractor Details (If Any):**	**Contact Name:**
Responsible Person	**Name:**		**Signature:**
	Signature:		**Date & Time:**
Permit Valid From	**Time:**	**Permit Valid Until**	**Time:**
	Date:		**Date:**

Location of the Work:

Type of Work(s)

☐ Hot Work ☐ Electrical maintenance work ☐ Mechanical maintenance work ☐ Hazardous chemicals ☐ Working at height ☐ Working in confined spaces ☐ Working with compressed gases ☐ Janitorial/Cleaning Service ☐ Excavation/Trenching ☐ Handling Asbestos ☐ Lifting or hoisting ☐ Other *(Please provide details)*

Detail of Work

Equipment/tools to be used:

Please mention the associated hazards of this activity ***(Please refer IMS Procedure: Context, Opportunities & Risk Management)***:

Following services to be isolated / locked off (If required)

☐ Electricity ☐ Gas ☐ Water ☐ Air ☐ Other

Section "B"

To be filled by Area

I authorize the task / activity to be carried out at above mentioned location for specified time. Executing Department should carry out work in compliance to safety / PPE requirements identified by HSE&QA Department in section 'C' below.

Name	Designation	Signature	Date and Time

Section "C"

To be filled by HSE&QA

Name		Designation		Signature		Date	

Following controls must be implemented to mitigate the safety risk/hazard associated with the task/activity:

PPE Required:

☐ Hard Hat ☐ Safety Shoes ☐ Cover all ☐ Reflective Jackets ☐ Ear Plug ☐ Ear Muffs ☐ Dust Mask ☐ Face Shields ☐ Welding Shields ☐ Safety Belt/ Harness ☐ Safety Goggles ☐ Hand Gloves ☐ Breathing Apparatus ☐ Others:

Any additional operational controls (Please Specify):

☐ Fire Extinguisher ☐ Ambulance ☐ Barrication ☐ Other:

Section "D" (Monitoring & Closing)

Area Authority			Executing Department			HSE&QA Department		
I have physically inspected the work site and verified the operational controls are in place.			I declare that the above task / activity has been carried out in compliance with the controls / requirements mentioned above. The task / activity is now completed and site is safe for routine operations. Any incident happened during execution: Yes ☐ No ☐			HSE&QA Observations during monitoring (If any): This work permit is now considered close.		
Name	**Sign & Stamp**	**Date**	**Name**	**Sign & stamp**	**Date**	**Name**	**Sign & stamp**	**Date**

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SSGC HSE&QA Department	IMS FORM	SSGC-IMS/CRM-F-04
	Job Safety Analysis Form	Revision 01
		Issue Date: July, 2021

Executing Department		Zone		Date
Job/Activity:	Activity Details:			
Location:				

PPE Required:
☐ Hard Hat ☐ Safety Shoes ☐ Cover all ☐ Reflective Jackets ☐ Ear Plug ☐ Ear Muffs ☐ Dust Mask
☐ Face Shields ☐ Welding Shields ☐ Safety Belt/ Harness ☐ Safety Goggles ☐ Hand Gloves
☐ Breathing Apparatus ☐ Others:

Any additional operational controls (If required)
☐ Fire Extinguihser ☐ Ambulance ☐ Barrication ☐ Other:

S.No	Steps of field Activity	Potential Hazards	Controls

Activity Incharge / Supervisor			Head of Executing Department		
I hereby certify that all operational controls, mentioned above, will be implemented at each step of the job. The team is trained to execute the job and the equipment involved in this activity are safe to operate.			I authorize the team to conduct the job. The team is adequately resourced to execute the job safely.		
Name & Designation	**Sign & Stamp**	**Date**	**Name & Designation**	**Sign & Stamp**	**Date**

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3M-F-04

SSGC HSE&QA Department	IMS FORM	SSGC-IMS/CRM-F-05
	Management of Change	Revision 01
		Issue Date: July, 2021

MOC No: Date

To be filled by MOC Owner

Section A : Description of proposed change and potential hazards

MOC Owner		Location of Work:
Expected Duration of Work		

Type of Change

☐ Permanent ☐ Temporary	☐ Pipeline construction ☐ Physical structure/building ☐ New or modification in process/procedure ☐ New or modification in equipment/machine ☐ Material ☐ Substance ☐ Other:

Detail of MOC/Scope of MOC: (Summarize the basis for the proposed change and any potential health, safety and environment impacts resulting from the proposed change.)

The proposed change is now submitted to Area Authority for evaluation.

Name & Designation	Sign & Stamp	Date

To be filled by Area Authority

Section B : Evaluation of the impact(s) related to the change

Evaluation Criteria	Yes	No	Comments
Does the proposed change meet all applicable legal or other requirements?			
All modifications in the existing process/ equipment are Environmentally Manageable and Safe?			
Does the change requires changes in SSGC HSE Procedures			
Does the change will affect the use of Emergency response equipment of the location			
Does the change requires any specialized training for SSGC staff			

Note: In case of "YES" please provide details on a separate sheet

The proposed change is now submitted to In charge HSE&QA for authorization.

Name & Designation	Sign & Stamp	Date

To be filled by HSE&QA

Section C : Authorization for change to proceed

Following proposed controls should be implemented while execution of the job.

Potential hazard/risk	Risk level	Proposed control	Responsibility	Timeline

Name& Designation	Sign & Stamp	Date

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30

SSGC HSE&QA Department	IMS Form	SSGC-IMS/CRM-F-06
	Context of the Organization	Revision 00
		Issue Date: July, 2021

LIST OF INTERESTED PARTIES

External Interested Parties	Needs & Expectation
Board Of Directors	Profitability, good financial and legal compliance, avoidance of fine and penalty OR • Protect shareholders interest. • Ensure adherence / compliance to GOP / SECP guidelines. • Allocate resources to maximize revenue. • Follow best practices of corporate governance. • Ensure committee meetings are held as per plan. • Financial benefits of the organization. • Avoidance of any fines / penalties. • Reputation enhancement. • Corporate Social Responsibility (CSR). • Enhanced corporate governance (CG). • Allocation of all resources to achieve quality goals. • Achievement of safe and healthy conditions in organization. • Commitment to quality, safety and health. • Be prepared to seek advices from industry experts as required. • No major accident at company premises.
Management	• Take policy decisions to increase revenue per employee.

SSGC HSE&QA Department	IMS Form	SSGC-IMS/CRM-F-06
	Context of the Organization	Revision 00
		Issue Date: July, 2021

	• Ensure that policy and related objectives are established. • Communicate clear roles to employees. • Develop, lead and promote culture in the organization. • Meet organizational goals by assigning targets to right personnel. • Demonstrate leadership at all levels and functions of the organization. • Effective management of hazards, risks, incident, emergency, and injury. • Workers engage and participation in all quality, environment, health and safety activities. • Continued growth in quality and productivity. • Effective controls on quality, health & safety issues. • No major accident at workplace / safe working conditions for all employees. • Develop positive quality and health & safety culture. • Continuously improve quality, safety and health performance with review process. • Well performed employees. • Better staff retention and morale.
Staff & Workers	Continuation of job, timely wages with all applicable benefits to pay the cost of living, professional development and growth via regular trainings. OR • Good and safe working conditions. • Job security.

Procurement Dept.

32

SSGC HSE&QA Department	IMS Form **Context of the Organization**	SSGC-IMS/CRM-F-06 Revision 00 Issue Date: July, 2021

	• Training and development opportunities. • Sustained reputation and image of company. • Consultation. • Communication and participation. • No accident / injury / ill-health. • Reward and recognitions. • Opportunities for dialogue / improvement / changes. • Timely and fair provision of remuneration coupled with career progression.
Client/Customer	Timely provide high quality services, quick response on any complaint, follow all local laws and QH&S requirements. OR • Uninterrupted gas supply. • Customer facilitation. • Quick response of queries & complaints. • Value for money. • No health and safety issue in product. • Prompt actions on quality, health and safety issues. • Minimize the risk of injuries when receiving a services. • Socially and environmentally responsible.
Suppliers/Contractor	• Continuous orders, prompt payments as per agreed terms, good long terms working relationship. • Fair chance of participating in bid opening. • Communication of hazards present at workplace. • Timely payment.

SSGC HSE&QA Department	IMS Form **Context of the Organization**	SSGC-IMS/CRM-F-06 Revision 00 Issue Date: July, 2021

	• Transparency.
Trade Union & Worker Representative	• Effective implementation of national & local labor laws with any non-conformance, good working relationship with management • Conducive and safe environment for work • Timely provision of information necessary for workers • No fear of dismissal or disciplinary action while reporting near miss / accident.

External Interested Parties	Needs & Expectation
Media & NGOs	• Media management. • Patient and positive attitude. • Effective communication.
Visitors	• Safe entry and exit during stay at SSGC. • Communication of pertinent information. • Emergency response. • Briefing necessary safety rules. • Necessary PPE available. • Site access controls.
Emergency Services (Fire/Medical etc)	• Good Risk management. • Emergency procedure in place and drilled. • Regulatory compliance.

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SSGC HSE&QA Department	IMS Form **Context of the Organization**	SSGC-IMS/CRM-F-06 Revision 00 Issue Date: July, 2021

	• Regular drills for flooding, spillage, site excavation and first aid etc. • Availability of adequate resources.
Utility Providers (Power/water/fuel,Telecom)	• Prompt payment. • Good Management.
Academic Institutes	• Effective learning programs for employees. • Synchronize the linkage of quality, health and safety with technical and non-technical learnings. • Learning from SSGC.
Insurance Companies	• No claims, risk management, prompt payment.
Banks	• Financial performance, cash flow.
Neighborhood/Community/ Society	• Safe working conditions. • Environment friendly operations. • Contribute positivel to local environment and populations. • No complaint relating to noise, pollution, waste and employment.
Share Holders	• Minimize risk and losses. • Increase market capitalization. • Return on investment. • Transparency. • Rights are protected. • Good dividend.
Federal and local law enforcement agencies	• Pay all applicable taxes timely, follow local laws and regulations with regular updating

SSGC HSE&QA Department	IMS Form **Context of the Organization**	SSGC-IMS/CRM-F-06 Revision 00 Issue Date: July, 2021

Third party auditors-Finance	• Smooth data collection • Better financial performance • Effective communication • On time response on queries • No fraud or illegal acts detection
Certification bodies	• Effective implementation of ISO standards with all relevant clauses in the organization
Creditor/Financial Institution	• Repaid on time, good financial performance
Government/ Regulators (Local/Regional/Provincial/ National/International)	• Identified applicable statutory and regulatory requirements for Quality and health & safety. • Prompt responses in case of any non-conformance. • Proper investigation on uncontrollable. • Implementation of safe policy in the field of occupational safety. • Fulfill the requirements of all applicable laws, rules, regulation, orders, guidelines, interpretations and directives.

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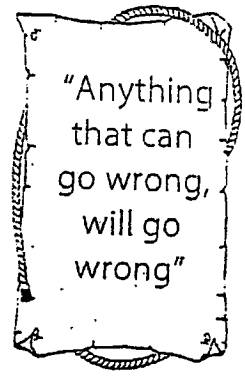
SSGC HSE&QA Department	IMS Form	SSGC-IMS/CRM-F-07
	SWOT Analysis	Revision 00
		Issue Date: July, 2021

POSITIVE	NEGATIVE
STRENGTHS	WEAKNESSES
Having vast experience of Transmission and Distribution of Natural gas.	Complex distribution network leading to UFG.
Infrastructure available in two provinces.	Substantial resources required for up gradation.
Highly competent human resource.	Lack of succession planning.
Certified to international standards.	Takes extra time to implement all requirements because of big size of the organization.
Sole Meter manufacturing plant in Pakistan.	High price.
Serving the nation since decades.	Government new rules implementation.
Positive image of the company is already established in the Society.	Resource transfers.

OPPORTUNITIES	THREATS
Monopolistic market.	Depleting natural gas.
Over 2.8 million customers.	Customers may turn to renewable energy sources.
Import of LNG.	High cost.
Huge infrastructure of Transmission and Distribution to connect new customers.	Gas theft and leakages resulting in huge loses.
Reduction in the lead time to facilitate complainant.	Change in Government policies.
Advancement and use of latest technology to control the system will create more effectiveness.	Criminals threats on security.

1. PURPOSE

The purpose of this document is to define a mechanism of incident and near miss reporting investigation & propose corrective/preventive actions against near miss, incidents and accidents.

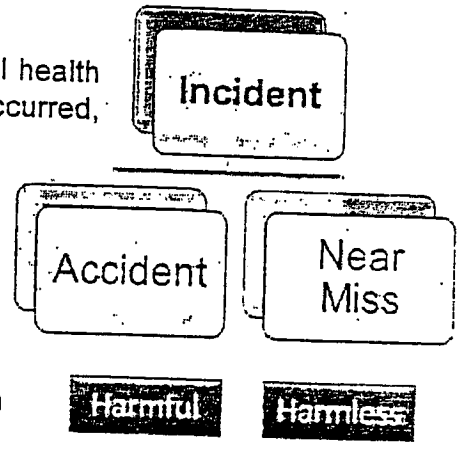


2. SCOPE

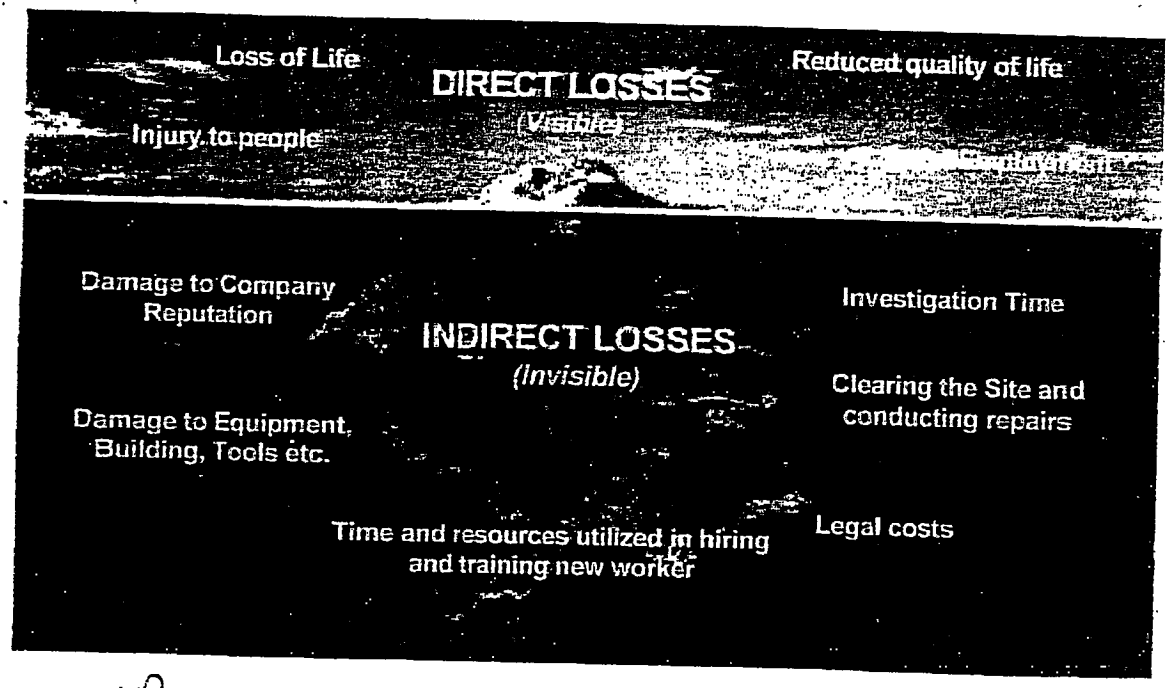
This procedure is applicable to all incidents (i.e. accidents & near miss) which take place within SSGC premises or outside SSGC premises i.e. its installations or work -related sites which are under the scope of management system.

3. DEFINITION

a. **Incident:** Work-related event(s) in which an injury or ill health or property damage (regardless of severity) or fatality occurred, or could have occurred.
b. **Accident:** An incident in which an injury or illness or property damage actually occurs .
c. **Near Miss:** A Near Miss is an unplanned event that did not result in an injury or property damage, but had the potential to do so.
d. **CPR:** Cardiopulmonary resuscitation .
e. **Emergency:** An emergency is a situation that poses an immediate risk to health, life, property, or environment.



INCIDENT / ACCIDENT LOSSES



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4. PROCEDURE

4.1. Incident Classification Table

S. No	Incident Type	Classification	Actions to be taken	Responsibilities	Record
1	• Major fire • Major gas leakage • Explosion • Bomb blast • Vehicular accident • Significant asset / human loss due to any untoward situation including natural disaster, damage or theft of asset / property having an estimated amount of more than Rs. 30,000 • Injury/illness serious enough to result in two off workdays.	Major	Inform respective departmental head/in-charge and immediately call local rescue departments, such as Fire Brigade. Bomb Disposal Squad etc. Thus, whichever is necessary.	Anyone who has witnessed or received initial information about the incident.	
			Follow the Emergency Response Procedure.	Security department in case within SSGC premises, Site/ Zonal HSE team leader in case it is outside the SSGC premises.	SSGC-IMS/ERP-04
			Provide Help/Support to the victims such as First Aid or CPR if needed.	Only trained persons in case of CPR/First Aid is needed.	
			Report the incident using incident notification form via web portal to in-charge HSE&QA immediately (or within 24 hours) after the occurrence of incident.	Zonal HSE Team leader.	SSGC-IMS/IAM-F-01
			HSE&QA will complete the investigation report via web portal within seven working days after receiving incident notification form. Additional days may also be required depending upon the criticality of investigation	HSE&QA	SSGC-IMS/IAM-F-02
			HSE&QA will share the report with all concerned for necessary corrective / preventive actions.	HSE&QA	
			HSE&QA will maintain incident data base using online web portal and will share the information with all concerned to avoid reoccurrence.	HSE&QA	
			Implement Corrective / Preventive action.	Zonal HSE Team Leader and anyone who is identified in Investigation report.	
			Follow-up to verify the implementation of recommended corrective/preventive actions.	HSE&QA	

S. No	Incident Type	Classification	Actions to be taken	Responsibilities	Record
		Major	In case of gas loss, transmission/distribution department will quantify the amount of gas loss and shares the same with concerned departments along with investigation report.	Transmission/ Distribution	
2	• Minor Injuries where only basic first Aid or less than two off days provided to the victim. • Minor Vehicular accidents where there is no significant injury or loss.	Minor	Inform respective departmental head / in-charge.	Anyone who has witnessed or received the initial information about the incident.	
			Report the incident using incident notification form via web portal to in-charge HSE&QA within twenty four hours of the occurrence of the incident.	Zonal HSE Team leader.	SSGC-IMS/IAM--F-01
			HSE&QA will share the information with all concerned to avoid reoccurrence.	HSE&QA	
3	• Any Near Miss Occurred / Observed.		Report the Near Miss using online Near Miss Notification Form via web portal. Enter details as mentioned on the form attach evidence (if any) and submit.	All Employees	SSGC-IMS/IAM-F-03

4.2. Incident Reporting:

a. Incident that resulted in personnel injury, spill, fire, asset damage etc. will be considered as accidents and will be reported through online Incident Management System within 24 hours after the accident.
b. Incident that have not done any damage or lose will be considered as Near Miss and will also be reported via web portal.
c. All HSE Zonal Team Leaders are responsible to immediately report any incident took place in their respective Zone.
d. All Employees are responsible to immediately report any Near Miss occurred / observed via web portal.

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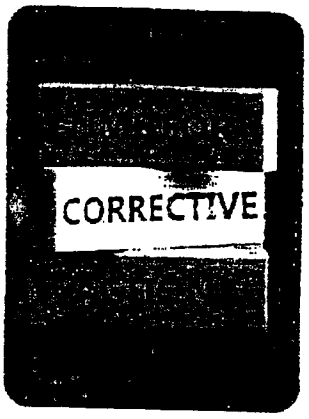
4.3. Investigation and Corrective Action



Incidents are investigated by the team constituted by In-charge HSE&QA. If required, a cross functional team may be formed. Depending upon the situation, Incharge HSE&QA will decide whether to investigate or not any major/minor incident/accident, considering following factors:

a. Severity of the incident/accident.
b. Time lapse between reporting of the incident and the actual occurrence of the incident.
c. Lack of supporting information.

- The investigation is carried out to determine the root cause of the problem. The investigation process covers:

a. Determination of root cause using any suitable method like tripod analysis etc.

b. Investigation will be conducted as soon as possible after the incident, following the activities required controlling the hazard.

c. When indicated by the severity of the incident, steps to secure the incident site must be initiated immediately to ensure that investigating party can reconstruct the events leading to the incident.

d. Individual interviews will be conducted with each person present at the time of the incident. The following rules are followed for interviews with all individuals:
   1. The witnesses should be interviewed promptly, separately and privately.
   2. The interviewer should avoid questions that give a yes or no answer.
   3. After the interview, the interviewer should document any concerns identified.

e. The investigation will be focused at determining the root cause and therefore:
   1. The investigator or investigating team must focus on getting accurate and complete information.
   2. Facts must be separated from opinions, and direct evidence from circumstantial evidence.
   3. Each concern identified in the investigation must be fully addressed.

f. Upon completion of the investigation, the team will fill and submit the Online Incident Investigation Form (SSGC-IMS/IAM-F-02). It includes Background Information, Root Cause Analysis, Conclusion and Recommended Corrective / Preventive Actions.

g. In all cases, the Incident investigation must be completed within 07 working days from the incident notification date. Depending upon the nature of investigation, in-charge HSE&QA may extend the report submission timeline.

h. Determination and implementation of viable corrective/preventive actions to eliminate the causes of incident.

i. In-charge HSE&QA / Zonal HSE Team Leader ensures that the corrective/preventive actions assigned to concerned department/personnel. to be completed within agreed time frame.

j. It is responsibility of the Zonal HSE Team Leader to:

1. Provide leadership role in implementation of corrective/preventive actions within the agreed timescale.
2. Ensure that corrective / preventing actions are effective in eliminating / reducing the risks.
3. Maintain record of Incident Notification Form and Incident Investigation Form of their respective zones.

4.4. Updating of Assessment

After the incident, depending upon the nature of severity and risk, the assessments (risk assessment, environmental aspect impact assessment) of specific activity / department will be updated including controls, risk level, likelihood etc.

4.5. Data Analysis and Review of Actions

The data of incidents will be evaluated and investigation outcomes will be shared with the management during management review meetings to seek advice and to discuss the effectiveness of measures / actions implemented.

5. DOCUMENTED INFORMATION

Record No.	Record Name	Maintained by	Retention Period
SSGC-IMS/IAM-F-01	Incident Notification Form	In-charge HSE&QA / Zonal HSE Team Leader	3 Years
SSGC-IMS/IAM-F-02	Incident Investigation Form	In-charge HSE&QA / Zonal HSE Team Leader	5 Years
SSGC-IMS/IAM-F-03	Near Miss Notification Form	In-charge HSE&QA / Zonal HSE Team Leader	3 Years

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SSGC HSE&QA Department	IMS FORM	SSGC-IMS/IAM-F-01
	Incident Notification Form	Revision 01
		Issue Date: Aug, 2021

Date: _____ Time: _____ Report No. _____
(To be filled by HSE&QA)

Reported by: _____

Location:

SSGC Premises ☐ Outside SSGC Premises ☐

Location Details: _____

Responsible Zone _____ Zonal HSE Team Leader _____

Region _____

Particulars of Affected Person(s):

Serial No		1	2	3
Name(s)				
Employee ID(s)				
Designation				
Type of Employment	Permanent			
	Contractual			
	Contractor			
	Visitor			
	Other			
Age				

Details of Affected Asset *(If any)*

(Note: For further details additional page may be used)

Incident Type:

Fire ☐ Explosion ☐ Vehicular Accident ☐ Asset Damage ☐ Work Related Injury ☐
Theft ☐ Sabotage ☐ Natural Disaster ☐ Gas Leakage ☐ Other: ☐

Incident Consequences:

Fatality SSGC ☐ Other ☐ Hospitalization ☐ Asset Damage ☐ First Aid ☐ Other _____

Incident Classification:

Major ☐ Minor ☐ Near Miss ☐

Incident Detail:

SSGC HSE&QA Department	IMS FORM	SSGC-IMS/IAM-F-02
	Incident Investigation Form	Revision 01
		Issue Date: Aug, 2021

Incident Notification Form Ref. No.		Incident Detail *(Brief)*
Incident Date		
Investigated by		

BACKGROUND INFORMATION:

ROOT CAUSE ANALYSIS:

CONCLUSION:

RECOMMENDATION OF CORRECTIVE AND PREVENTIVE ACTIONS

Recommended Actions	Action by (whom)	Action till (date)
1.		
2.		
3.		
4.		

Is risk assessment required for the corrective actions? If yes, please mention the serial numbers for the recommended actions:

Incharge HSE&QA

NOTE:
1. Please include sketch / photo where ever required to explain the accident scene / conditions
2. Additional pages can be used for mentioning other details
3. Transmission/Distribution department must submit the quantity of gas loss in case of any gas leakage or sabotage

M-F-02

SSGC HSE&QA Department	IMS FORM	SSGC-IMS/IAM-F-03
	Near Miss Notification	Revision 00
		Issue Date: Aug, 2019

Personnel Detail (Who Witnessed the Near-Miss):

Category/Type: ☐ Unsafe Act ☐ Unsafe Condition

Name:

Executive / Employee No.:

Designation:

Department:

Location / Area:

Near Miss Detail:

Date:

Time:

Location:

Near Miss Related To:

- ☐ Leakage
- ☐ Slip / Trip
- ☐ Falling Hazard
- ☐ Fire
- ☐ Electrical
- ☐ Physical
- ☐ Equipment
- ☐ Chemical
- ☐ Biological
- ☐ Transport
- ☐ Spill
- ☐ Other

Brief description of what you saw! (max. 100 words):

Attach Picture: Choose File No file chosen

Reset/Empty Form

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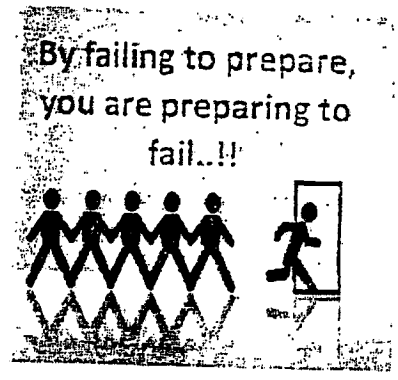
1. PURPOSE

The purpose of this procedure is to define a frame work for identification of emergency situations which arise in company operations and for developing emergency preparedness and response plans to mitigate and manage risks arising from such situations or events. The Procedure defines requirements for business continuity planning post emergency situations to bring the business on-line.



Purpose of the procedure is to

a. Formulate plan, responsibilities and actions to be taken to handle any emergency situation.
b. Identify potential emergency situations and response plans to minimize or avoid actual & potential hazards of any emergency situation.
c. Define mechanism and frequency to test plan so as to ensure preparedness and effectiveness of emergency response system.

2. SCOPE

This procedure is applicable to all locations of SSGC, its employees and any visitor physically present at the location of emergency site. Due to variations in nature of operations, various departments/sections have developed their own ER Plans catering for their strategic, operational and physical requirements. The same includes HSE emergencies arising from company's day to day operations in terms natural calamities, fire, major incidents with loss in our operations, major environmental damage, external terror or bomb threats, public unrest, war and etc.

3. DEFINITIONS

a. **Emergency Situation:** An abnormal situation that calls for immediate and urgent actions for safeguarding life of persons, protecting buildings, machines, vital installations and other assets.
b. **Rescue:** It refers to responsive operations that usually involve the saving of life or prevention of injury during an incident or dangerous situation.
c. **Emergency Response Organization (ERO):** It is a group of people, in each section (such as HO, Headquarters etc.), who prepare for and respond to any emergency incident, such as a natural disaster or an interruption of business operations.
d. **Emergency Response Centre (ERC):** It is a room suitably equipped to handle any potential emergency situations. All emergencies are to be reported here.
e. **First Aid:** It is the provision of initial care for an illness or injury. It is usually performed by non-expert, but trained personnel to a sick or injured person until definitive medical treatment can be accessed.
f. **Assembly Areas:** If an evacuation to the outside is appropriate, the nominated assembly areas for personnel shall be far enough away from the building, structure or workplace to ensure that, where practicable, everyone is protected from falling glass and other objects.
g. **Emergency Evacuation:** It is the immediate and rapid movement of people away from the threat or from the place of the hazard.

4. RESPONSIBILITIES

Responsibilities for the particular department/personnel are identified in the response plans prepared by various departments and sections. General responsibilities for Emergency response organization are as under:

a. Rush to the area of incident without any delay.
b. Immediately assess the situation and initiate the remedial actions.
c. Call the fire brigade & other emergency services like ambulances if required.
d. Ask/inform all personnel present within premises, using megaphone or any other means, for complete evacuation if situation goes out of control.
e. Inform all to go back to their work places using megaphone or any other suitable means when the situation comes under control and the area is free from any hazard.

5. PROCEDURE

The HSE&QA In-charge and department heads shall ensure that all emergency situations are identified during risk assessments performed and emergency response plans are implemented within the departments. They shall also ensure that all employees are made aware of their emergency situations and how to respond during a real emergency. They shall ensure that employees including emergency team members in their respective departments are trained to respond to emergencies and mitigate risks arising out of real emergencies. Some of the potential emergency situations that might occur in SSGC along with the response plans are lis ted below. Sequence of actions for any response specified on each section's ER plan may change depending upon the emergency situation.

6. Emergency Considerations

The following areas of needs to be given consideration while identifying potential emergency situation but the same need not be limited to these areas:

- Fire & Explosion
- Heavy Spillage of Toxic/flammable chemicals or leakage of gas
- Heavy rain/ flood
- Earth quake
- Bomb threat
- Building & office lockdown/shelter in place
- Active shooter/hostage situation

6.1. Fire & Explosion

In case of fire & explosion each personnel present within the premises must act as per but not limited to the following instructions:

a. Give voice alarm - FIRE! In case of fire for all immediate employees in the area.
b. Push the nearest located call point button in case of fire (if present).
c. Immediately inform Emergency Response Organization through phone or in person.
d. Try to control the fire by using fire extinguishers. Use fire extinguisher only if you have been trained.
e. Remove all explosive, inflammable and poisonous materials away to the maximum possibility.
f. Shut off main valves of gas and circuit breakers.
g. Stay away from the fire in case it is not controllable.
h. Report to the designated Assembly Point away from the scene of fire / explosion if asked by Emergency Response Organization through emergency exits and wait for the further instructions.

6.2. Heavy spillage of toxic/flammable chemicals or leakage of gas

In case of heavy spillage of toxic/flammable chemicals or heavy leakage of Gas each personnel present within the premises must act as per but not limited to following instructions:

a. Immediately inform Emergency Response Organization through phone or in person.
b. Eliminate all ignition sources (sparks/flames/heat) from the immediate areas.
c. Turn off gas supply from nearest control valve.
d. In case of gas leakage in confined space, proper measures (opening windows, doors etc.) should be taken to ventilate the gas: Ensure the availability of fire extinguishers.
e. Stop leaks if this can be done without having any risk.
f. Do not touch or walk through spilled material.
g. Prevent entry into waterways, sewers or confined space.
h. If available wear the Personal Protective Equipment recommended.
i. Arrange immediate cleaning of spilled chemical by taking suitable precautions

MR

47

Procurement Dept.

6.3. Heavy Rain / Flood

In case of emergency situation of heavy rain/flood, personnel must remain present within SSGC premises if the situation gets worst outside. In case of water entering in department/office each person must act as per but not limited to the following instructions:

a. Try to stop water by keeping sand bags.
b. Protect building, machines, equipment, tools, parts & material.
c. Shut off Electricity and Gas if necessary.

Following precautions should be taken by the departments/sections, located under rain/flood threat areas:

a. Ensure no material is placed outside in open area which may be affected by rain.
b. Ensure proper drainage system at vital installations so that every valve, equipment, electrical board etc. be accessible in case of any emergency.
c. Sufficient quantity of tarpaulin and rain suit is available to meet the rainy condition.
d. Keep the drain line open all the time.
e. All pumps used for draining out the rainy water are in running condition.
f. Sufficient quantity of sand bags is available to stop entering the water inside, which may be placed in advance if required.

CLASSES OF FIRE

Class	Material	Examples	Type of Fire Extinguisher to be used
A	Solids	Paper, wood plastic, etc.	• Water
B	Flammable Liquids	Paraffin, petrol, oil, etc.	• CO2 • Dry Powder
C	Flammable Gases	Propane, butane, methane, etc.	• Dry powder
D	Metals	Aluminum, magnesium, titanium, etc.	• Sodium chloride based dry powder fire extinguisher
E	Electrical Apparatus	Short-circuiting, over loaded electrical cables, etc.	• CO2 Fire Extinguisher
F	Cooking Oil & Fat	Animal fat. etc.	• Dry chemical based: Potassium bicarbonate • Wet: Fine chemical mist

6.4. Earthquake

In case of earthquake shocks each personnel present within the premises must act as per but not limited to the following instructions:

a. Immediately inform Emergency Response Organization through phone or in person.
b. Immediately Evacuate to Assembly Areas (in open space where you can keep distance at least one half of the height of the building) after the shocks dampen.
c. Shut off all switches and valves of main supplies of gas and electricity. (If possible)
d. Maintain your senses, do not let them disperse.
e. Protect yourself by sitting on side of tables, furniture & under strong structures. Be aware of falling walls, debris, heavy objects and electrical wires.
f. Stay away from loosely hanging objects that may fall after initial shock and tremors.
g. Wait for further instructions from Emergency Response Organization.
h. ERO should keep in touch with the metrological department / media for aftershocks and future forecasts.

e. The Bomb Disposal Department shall be allowed to operate in the company premises as deemed appropriate.
f. On getting clearance from Bomb Disposal Department normal routine shall be adopted as advised by Emergency Response Organization.

6.5. Bomb Threat

In case of bomb threat each personnel present within the premises must act as per but not limited to the following instructions:

a. Immediately inform Emergency Response Organization through phone or in person.
b. Maintain your senses, do not let them disperse.
c. Report to the designated Assembly Point if asked by Emergency Response Organization through emergency exits and wait for the further instructions.
d. Bomb Disposal Department shall be called by Emergency Response Organization.
e. The Bomb Disposal Department shall be allowed to operate in the company premises as deemed appropriate.
f. On getting clearance from Bomb Disposal Department normal routine shall be adopted as advised by Emergency Response Organization.

6.6. Building or Office Lockdown/shelter-in-place

If a situation calls for building or office lockdown, the personnel present within premises should act as per but not limited to following instructions:

a. Remain calm and stay with your colleagues.
b. Try to stay in pairs.
c. Do not leave the room and/or building under a lockdown situation until asked otherwise.
d. Keep quiet and away from doors and windows.
e. If a gunshot is heard, lay down on the floor and shield under/behind furniture as much as possible.

Take care:-
Don't try to be a hero in emergency situations; do not place your own life or health or that of others in danger
Be prepared for the unexpected!

6.7. Active Shooter/Hostage Situation

In case of shooter/hostage situation each personnel present within the premises must act as per but not limited to the following instructions:

a. If it is safe to do so, exit the building; if not, lock or barricade yourself inside a room.
b. Turn off lights, cover and lock the windows, and lay on the floor.
c. If the shooter(s) leave the area, go to a safer place, if possible. Have an escape route/plan in mind, keep your hands open and visible, and follow any instructions given by law enforcement.
d. Call the Police/Rangers when it is safe to do so. Remain calm, use a quiet voice, and provide as much information as possible (your name and location, details about the shooter(s) - appearance, weapons, etc.). If you can't speak, leave the line open so the responding authority can listen and try to pinpoint the location.
e. Cooperate and negotiate with the shooter, in order to buy as much time as possible until the rescue team reaches.

7. EMERGENCY NUMBERS

In consideration of the emergency numbers to be included in the emergency plan, the following should be taken into account:

- Fire brigade/civil defense or equivalent.
- Police.
- Ambulance service.
- Hospitals/Clinics.
- Mutual aid agreements/neighbors.
- Environmental protection agencies.
- Key company personnel.

8. EVACUATION

All Emergency evacuation routes/doors should be accessible at all times. No hindrances should be placed in the route. All employees should be familiarized with the evacuation routes of their premises.
All employees should immediately evacuate their premises and assemble at the assembly areas (identified by each section). During evacuation following instructions should be followed.

a. Take only keys, wallets and essential belongings with you.
b. Leave the building/premises immediately, do not try to investigate the source of the emergency.
c. Walk, don't run, to the nearest exit.
d. Use stairs, not elevators.
e. Assist people with special needs.
f. As you make your way out, encourage those you encounter to exit as well.

9. THINGS TO BE EVACUATED

In case of emergency, evacuation should be carried in the following order:

9.1. Personnel

Those personnel who do not have sound health such as patients of Heart, Asthma and physically/mentally disabled people are to be evacuated on priority basis.

9.2. Raw Material

Raw material which is explosive, inflammable and poisonous must be removed. Similarly, important lightweight items that are easy to carry must also be removed.

9.3. Documents

Important records and files must also be removed.

9.4. Equipment

Cash Lockers, Computer Sets, External Hard-drives, Expensive Tools and Fixtures must also be removed.

10. TESTING AND EXERCISES

Testing and exercise of the emergency response plan should be conducted at each location of SSGC to evaluate the effectiveness of the preparedness plan. The record and observations of the exercise should be recorded on Emergency Drill Form (SSGC-IMS/ERP-F-01).
Each section should nominate the person who is responsible to periodically conduct the exercise. The frequency and type of drill at each location should be as below:

Location	Type of Emergency Drill	Frequency
a. Head Office b. Regional Offices c. Billing Offices d. P&C Offices e. Store (all locations) f. KT (Transmission) g. Distribution (Zonal and Sub-zonal offices)	Evacuation and Mock Emergency Drill (all employees)	Six Monthly
	Fire Fighting Drill by Emergency Response Team	Six Monthly

Meter Manufacturing Plant	Evacuation and Emergency Mock Drill (all employees)	Six Monthly
	Fire Fighting Drill by Emergency Response Team	Quarterly
Headquarter Stations	Evacuation and Emergency Mock Drill (all employees)	Six Monthly
	Fire Fighting Drill by Emergency Response Team	Monthly

11. AVAILABILITY AND MAINTENANCE OF ER EQUIPMENT:

Zonal HSE team leaders ensure that emergency detection and response equipment are identified, available and properly maintained in their respective zones. A joint inspection will be carried out periodically to verify the efficacy of ER Equipment. The record shall be maintained on Inspection and Monitoring of ER Equipment Form (SSGC-IMS/ERP-F-02). Each zonal HSE team leader shall maintain record of their respective zone and share with In-charge HSE&QA as and when required. The need for the emergency response equipment is determined by considering the hazards and associated risks with the particular location/operation/equipment/installation etc. The response equipment usually include but are not limited to:

a. Fire extinguisher.
b. Fire hydrant/hose/bucket/water pump.
c. Smoke/gas detectors.
d. Communication equipment. (Mega phones, Alarm systems, walkie-talkie etc.)
e. First aid box.
f. ER vehicles/Ambulance.
g. Breathing apparatus.
h. Emergency lights.
i. Hammer/Axe/shovel/ropes etc.

Frequency of inspection and monitoring of ER Equipment will be as per table given below. However, if situation warrants, this frequency can be changed on the instructions of In-charge HSE&QA or Zonal HSE team leader.

Location	Frequency
a. Head Quarter Stations b. Meter Manufacturing Plant c. K.T (Transmission)	Monthly
a. Head Office b. Regional Offices c. Billing Offices d. P&C Offices e. Store (all locations) f. Distribution (Zonal and Sub-zonal offices)	Quarterly

12. DOCUMENTED INFORMATION:

Record No	Record Name	Maintained by	Retention Period
SSGC-IMS/ERP-F-01	Emergency Drill Form	HSE&QA Department	3 Years
SSGC-IMS/ERP-F-02	Inspection and Monitoring of ER Equipment Form	HSE&QA Department	3 Years

MR

51

SSGC HSE&QA Department	IMS FORM	SSGC-IMS/ERP-F-01
	Emergency Drill Form	Revision 01
		Issue Date: Aug, 2021

Zone		Region		Location		Date	

Type Of Emergency Drill

☐ Fire and Explosion ☐ Heavy spillage of toxic/flammable chemicals ☐ Heavy gas leakage ☐ Earthquake ☐ Bomb Threat ☐ Other :

Observations

S.No	Description	Time	Comments
1	Emergency Siren rang at		
2	Evacuation started at		
3	Last person reached at the assembly point		
4	Firefighting/Bomb disposal squad/other interested party reached at site		
5	Emergency under control at		

Total time of Drill (minutes):

Additional Observations (If any):

S.No	Assessment	Yes	No
1	Emergency responders were present at the site		
2	Employee were properly instructed		
3	Behavior of employees was satisfactory		
4	Evacuation route was satisfactory		
5	SSGC firefighters were well trained		
6	Firefighting equipment were up to the mark		
7	Response of the medical staff was satisfactory		

Overall Assessment: Satisfactory ☐ Unsatisfactory ☐

S.No	Corrective Actions/Improvements Required	Responsibility	Target Date

Security Services Representative		HSE&QA Representative	
Name	Signature	Name	Signature

MR

52

SSGC HSE&QA Department	IMS FORM	SSGC-IMS/ERP-F-02
	Inspection and Monitoring of ER Equipment Form	Revision 01
		Issue Date: Aug, 2021

Zone		Region		Location		Date	

Type Of Equipment

☐ Fire Extinguisher ☐ Fire Hydrant/Water Pump/Buckets/Hose ☐ Smoke/Gas Detector ☐ Emergency light
☐ Ambulance ☐ First Aid Box ☐ Communication Equipment ☐ Other :

CHECKLIST

S.No	What to check	Yes	No	Comments
Fire Extinguisher				
01	Fire extinguishers are in operable condition and not expired.			
02	Pipe and nozzle do not have cracks.			
03	Lever and lever pin are in place and locked.			
04	All extinguishers are clearly visible and accessible.			
Fire Hydrant/Hose/Bucket				
01	No leakage in fire hydrant system.			
02	Hydrant valves are properly lubricated and operational.			
03	Hose pipe is rolled and properly placed. Nozzles are attached at the end.			
04	Fire buckets are maintained and adequately filled with sand			
First Aid Box				
01	All necessary/required medicines are available in First Aid box.			
02	Medicines are not expired and valid for use.			
Smoke/Gas Detector				
01	Alarms and Smoke/gas detectors are properly functioning.			
Other Equipment (if any)				
01				
02				

S.No	Observations	Recommendations
1		
2		
3		

Additional Comments (If any):

Security Services Representative		HSE&QA Representative	
Name & Designation	Signature	Name & Designation	Signature

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1. PURPOSE

The HSE&QA guidelines for suppliers and contractors are developed to assist suppliers/contractors to meet ssgc's hse&qa policies, procedures, commitment & requirements to ensure safety, integrity and quality of goods/services provided.

2. SCOPE

The procedure is applicable to all suppliers and contractors providing goods or services to SSGC whether on SSGC premises or outside SSGC premises.

3. DEFINITIONS

a. **Contractor:** Is an independent employer/organization who will be responsible to execute jobs agreed with SSGC.
b. **Supplier:** Is an independent employer/organization that is responsible to provide goods or services.
c. **Contract coordinator:** Is an executive of SSGC procurement department, who has been delegated/given responsibility and authority from the head of department to initiate and maintain the contract.
d. **NEQS:** National Environmental Quality Standards.
e. **SEPA:** Sindh Environmental Protection Agency.

4. RESPONSIBILITIES

4.1 Suppliers/Contractors and Sub Contractors

a. The contractor must take all necessary safety precautions related to the performance of the contract in order to protect the work site. including all personnel and property of the SSGC, the contractor, all third parties involved.
b. Suppliers/Contractors are responsible for safety and well-being of their employees.
c. The contractor will also be responsible to provide relevant safety equipment (PPE) to their workforce where required. Suppliers/Contractors who have their own HSE&QA management system, shall provide details of the same on request.
d. The contractor shall ensure that all personnel are adequately trained to perform the task assigned.
e. Supplier/Contractor shall ensure compliance with SSGC policies, procedures and applicable legal and regulatory requirements.
f. The contractor shall adhere to set standards and requirements for environmental protection.

4.2 Contract Coordinator

The contract coordinator is responsible to arrange training sessions/meetings between contractors and HSE&QA department within 10 days of issuance of a letter to proceed.

4.3 HSE&QA Department

a. In-charge HSE&QA and contract coordinator are responsible to evaluate the capability and competence of Supplier/Contractor regarding HSE&QA.
b. In-charge HSE&QA is responsible for providing necessary information and training to Suppliers/contractors regarding applicable SSGC's HSE&QA policies and procedures.
c. HSE&QA department will carry out inspections and audits to ensure safety and well-being of employees and adherence to set standards, technical specifications and guidelines.
d. In-charge HSE&QA is responsible to highlight critical nonconformances related to HSE&QA. Strict decisions may be taken against any violation/breaches of SSGC's safety policies/procedures/contract terms during the execution of contract.

5. PROCEDURE

a. The contract coordinator should ensure that this procedure is part and parcel of every contract made by SSGC.
b. The contract coordinator must notify in-charge HSE&QA to evaluate the capability & commitment of potential suppliers/contractors regarding HSE&QA during technical evaluation phase.
c. The contract coordinator arranges a meeting between supplier/contractor and HSE&QA department after issuance of letter to proceed. HSE&QA awareness form (SSGC-IMS/GSC-F-01) will be communicated and duly signed by supplier/contractor as well as HSE&QA department.
d. HSE&QA department will conduct periodic inspection/audit of worksite/supplier facility to identify gaps on issues related to HSE&QA.
e. The contractor/supplier shall educate and adequately train their employees in order to understand the requirement of this procedure.
f. Supplier shall adhere to technical specifications provided by SSGC to ensure quality of goods provided.
g. The contractor shall perform hazard identification and risk assessment related to their activities for the proper implementation of possible controls/personal protective equipment (PPE) or otherwise consult SSGC's HSE&QA department to seek guidance and awareness on risk/hazards related to activity and its possible controls.
h. The contract is liable to understand and implement "permit to work (PTW), job safety analysis (JSA)" where required. Please refer to risk assessment and management procedure (SSGC-IMS/CRM-02).
i. The contractors are responsible to dispose of any waste generated during their activities in an environmentally safe & responsible manner.
j. The contractors must ensure that only trained individuals meeting necessary requirements/skills will carry out the required job.
k. Any equipment used by contractor during the project must not pose any environmental and/or safety concerns. and should be in accordance with SSGC's safety procedures and NEQS and SEPA set standards.
l. Any identified hazards discovered by the contractor that is beyond their ability and/or responsibility to fix must be immediately reported to the contract coordinator and HSE&QA department in writing.
m. The contractors must ensure that the workforce involved must be physically fit and should not carry any contagious disease. SSGC reserves the right to ask for medical examination/tests of any employee. Contractor will bear all expenses incurred during the medical examination/tests.
n. For contracts related to providing food services/canteen services, medical reports from accredited labs must be submitted to head of administration services department for entire crew once the contract is awarded and annually for following diseases hepatitis B & C, tuberculosis, and chest X-ray.
o. In case of violations from SSGC safety standards/policies/procedures, actions will be taken to penalize the contractor depending on the severity/recurrence of breaches, as per following matrix:

S. No	Violation	Action
1	Single Minor Non-Compliance	Verbal warning
2	Multiple Minor Non-Compliance	Written warning
3	Single Major Non-Compliance	Written warning / Stop the work on site
4	Multiple Major Non-Compliance	Written warning / Financial penalization, discontinuation of contract

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6. ACCESS

a. Prior to comencement, the contractor will submit a list of their workforce personnel who will be on the site. This data will be updated each time the contractor changes site personnel.
b. All contractor personnel should park vehicles in the designated parking area. Provisions should be made in advance by the contractor to allow for unloading of equipment and materials inside the facility property. No vehicles shall remain inside the building except for unloading tools or equipment and vehicles will be subject to search and inspection upon exit.
c. A written pass by the SSGC representative is required in order to remove tools equipment or material from SSGC property. Toolboxes, lunch box bags, etc., are subject to inspection prior to removal. SSGC will prosecute any person, or persons caught removing SSGC property from the premises.
d. All contractor personnel should enter and leave premises through the main gate, and will be required to sign in and out upon entering and exiting the property. Security will issue an ID badge to each person upon sign-in and at the beginning of each day all contractors must receive a new badge from security.
e. Contractor employees must stay in their assigned area(s) at the job site and not visit other areas or make any adjustments to any piece of equipment or device unless authorized to do so by an authorized SSGC representative. Failure to abide by this work rule will result in immediate dismissal from the facility and including prosecution.
f. Each zone maintains secure work areas with limited access at all times. No one is permitted to override any security device for convenience. If access to a secured area is required contact the SSGC representative for authorization. At no time should contractor or subcontractor employees enter the area without prior authorization.
g. Any work not performed during normal business hours must be approved in advance by the SSGC representative.
h. All contractor employees will go through contractor safety/induction training upon initial work at Ss and annually thereafter. A copy of authorized (current) personnel for contractors will be updated and kept at guard shack.

6.1 Tools and Property

a. For any situation in which the Contractors activity may endanger product quality such as: drilling, welding, removing ceiling tile or any other job which creates metal fragments, shavings or dirt in exposed product of manufacturing equipment areas, approval must be made through the SSGC representative and conditionally approved by the ZTL or representative before work is to commence. The Contractor must abide by conditions established by the Zonal Team Leader or representative to protect the equipment.
b. Soliciting, selling of any merchandise, gambling or distribution of literature for any cause is forbidden on SSGC property.
c. Use of company telephones is restricted, unless prior approval is attained from the SSGC representative. Pay telephones are not available.
d. Horseplay, throwing any object and scuffling are dangerous and forbidden.
e. Cameras of any kind are not permitted in SSGC/.work site unless prior written approval is attained from SSGC representative.
f. Guns, knives or any other weapons are NOT allowed on company property in any case.
g. SSGC expects all contractors and subcontractors to maintain a drug-free and alcohol-free workplace. Contractors shall maintain a substance abuse program that includes post-offer and for-cause testing. It will be the responsibility of the Contractor Management to inform their employees and subcontractors that the use of, or evidence of use of, intoxicating liquor or illegal drugs are prohibited at all times while on Zone property. Reporting for work under the influence of alcohol or drugs will not be tolerated. SSGC management reserves the right to remove any contractor or subcontractor employee from Zone property who is believed to be under the influence of alcohol or drugs. It will be the contractor's responsibility to enforce these rules.

MR--

56

h. Contractor activities are prohibited in overhead areas of the Zone during the times of production or otherwise that may pose a hazard to personnel or product/material. Deviation from this section will be permitted only with the prior consent of the SSGC representative and affected area is isolated and marked off.
i. Contractor material will not be shipped directly to the Zone without approval of the SSGC representative.

6.2 Quality Assurance and Personal Hygiene

While working on SSGC premises or at any worksite;

a. All persons shall maintain a high degree of personal cleanliness, conforming to the same SSGC standard as SSGC employees.
b. Pens, pencils, tools and supplies must be carried in a secure manner to eliminate the possibility of product contamination or adulteration, (i.e., nothing is to be carried in shirt pockets, lapel, and etc.).
c. Appropriate PPEs must be worn by all personnel, including dress as appropriate. Contractor is responsible to provide PPE to their workforce.
d. Proper clothing must be worn at all times. No tank tops, cutoff shirts, or short pants will be allowed. Jewelry and rings are safety and contamination hazards and are not to be worn in working areas.
e. Persons with suspected communicable diseases, respiratory infections, infected open cuts, sores or skin abrasions will not be permitted to work in any area that could result in contamination of SSGC personnel.
f. The use of tobacco in any form is prohibited at all times except in the designated Smoking areas.
g. Chewing gum, candy, storing lunches, eating or drinking beverages are not permitted in or adjacent to the SSGC premises and storage areas. There will be a designated area for contractors to eat. (Cafeteria)
h. In the event that there are open tanks, or exposed product/materials, containers or storage, the contractor must erect temporary partitions to eliminate the possibility of any foreign material. (This shall include: grinding, cutting, core drilling, masonry work, jack hammering, chipping, metal drilling, pipe threading, wiring, welding and other hot work, etc., where any dust, mist, chips or other debris may be generated.)
i. The use of containers, boxes, cans, jugs etc., for holding or storing parts, lubricants, solvents or construction material is strictly prohibited.
j. The contractor is responsible to notify the SSGC representative immediately if foreign material used or generated by the contractor's activity, was accidentally spill into the zone area/ SSGC premises.
k. Contractor will follow 'Spill Response Procedure' of SSGC in case of any spill occurred.

7. CONTRACTOR SAFETY REQUIREMENTS

7.1 General Safety Rules

a. All applicable Occupational Safety and Environmental regulations must be followed.
b. Contractors shall supply to their personnel and to the SSGC representative: emergency contact SSGC, phone numbers, and pager numbers as well as emergency procedures appropriate to their on-site work.
c. Contractors shall provide the SSGC representative with a current copy of their Safety Program including: Confined Space Entry, Lockout/Tagout, and Hazard Communication procedures (if applicable) and associated training certificates.
d. The Contractor shall supply all required first aid supplies and safety equipment to support his/her personnel.
e. Contractors are responsible for providing all required Personnel Protective Equipment (PPE). Contractor employees and subcontractors are required to adhere to all established and/or posted PPE requirements while on SSGC property. Industrial grade safety shoes and safety glasses with side shields are required to be worn at all times. Hearing protection in designated areas.
f. Only SSGC personnel may operate any valve, electrical switch or other equipment connected to operating sections of the Zone unless prior authorization has been obtained from the SSGC representative. Lockout/Tagout is the standard for energy isolation and MUST be adhered to at ALL times with no exceptions. Contractors are responsible for using their own locks and tags for completing their lockouts. In addition, SSGC personnel may initiate we/they lockout system to ensure compliance.

MR

57

g. Contractor, contractor employees or subcontractors are NOT authorized to dismantle, shut down, or otherwise make ineffective any fire protection device or system. This requires a special permit obtained by the Zonal Team Leader.
h. Materials, tools, equipment and supplies will be stored neatly and safely so as not to obstruct roadways, walkways, stairways, emergency doors etc., or allow any condition which may be a potential safety or fire hazard. No tools or materials should be left on steps, walkways, platforms elevated equipment, pipes or overhead areas.
i. Materials are not to be thrown or dropped from scaffolds or other overhead areas.
j. Fire lanes and aisles to firefighting equipment are to be left unobstructed at all times. Contractors are to provide fire extinguishers for each welding and burning operation and complete HOT WORK PERMITS.
k. Material should not have been kept in such a way to block access to fire extinguishers, fire doors, hydrants or manhole covers.
l. All electrical equipment must be properly grounded.
m. Any lights carried into and used in a hazardous location must be explosion-proof type and suitable for use in the hazardous area involved.
n. Use of explosive actuated fastening tools should be used according to the manufacturer's safety guidelines.
o. All compressed gas cylinders must be supported and secured standing upright according to Pakistan standards. When hoses and valves are removed from cylinders, a protective cap is to be installed on all tanks whether empty or full. Acetylene cylinders, when in use must have a wrench in place.
p. Areas where overhead hazards, excavations or other unsafe conditions exist must be properly blocked off with appropriate warning signs. In the case of an excavation, barricades must be provided. In reference to night excavation projects, night lights shall be provided by the contractor.
q. In the event an oil, gas, vapor or other harmful volatile release is caused or discovered, the contractor and/or his employees shall report it at once to the nearest SSGC office and request for further actions immediately.
r. Vehicles in Zone are required to adhere to the declared speed limit.
s. Any contractor, contractor employee or subcontractor violating Zone area safety or security rules shall be subject to immediate dismissal.

7.2 Accident Reporting

a. Accidents occurring in Zone jurisdiction must be reported immediately to the SSGC representative.
b. In the event of a fire, medical or other emergency, contractors are required to notify zone security or the SSGC representative immediately. When providing notification give all pertinent information, including your SSGC, location, and emergency situation involved.
c. All contractor injuries requiring medical assistance beyond basic first aid must be reported in writing with a full investigation within 24 hours of the occurrence (Contractor Accident Investigation Form). This report must be submitted to the SSGC representative for forwarding to the HSE& QA Department.
d. All contractors and subcontractors must maintain their own OH&S required document/record.

7.3 Confined Space Entry

a. The SSGC representative will notify the Contractor prior to being hired, if the work will involve entry into confined spaces. The form included in documents will be used to make this notification.
b. All Contractors who conduct confined space entries must adhere to the SSGC confined space entry requirements.
c. At no time shall a contractor, contractor employees or subcontractors enter a confined space in Zone without specific authorization from the SSGC representative. Failure to adhere to this policy will result in immediate dismissal.
d. All contractors are required to keep and maintain their own equipment for confined space entry.
e. In the event of a confined space entry by contractors, their employees or subcontractor, a standby rescue team must be assembled in Zone assembly area. This rescue team may be SSGC personnel or contractor personnel, however, all arrangements must be made and documented prior to entry.
f. All contractors and subcontractors who enter a confined space, serve as entry supervisors or rescue team members must have the appropriate training and certification according to the Zone requirements. Copies of all training certification documents must be provided to the SSGC representative & HSE&QA Department.

7.4 Cranes and Overhead Work

a. All Contractors who conduct work at height, e.g., all work occurring at an elevation above 72 inches without a standard railing must adhere to the SSGC Work at Height Requirements.
b. All work at height requires the use of a safety harness. All safety harnesses, lanyards and related fall protection equipment must comply with applicable local and ANSI requirements.
c. All contractor employees working in forklift baskets, scissors or man lifts are required to wear a safety harness.
d. Working with cranes and derricks require compliance with the SSGC Lifting Equipment requirements and the equipment manufacture's recommendation. Zones and generally accepted practices for safely operating and rigging procedures and methods must be used.
e. All cranes used on company property must be inspected once per shift and any problems identified must be corrected prior to crane usage. Copies of all inspection records must be provided to the SSGC representative upon request.
f. In the event that overhead work must occur in locations within the Zone where high voltage, overhead power lines are located, all cranes and overhead lifting devices must maintain a 10-foot clearance. In the event proper clearance cannot be maintained, the power lines are to be de-energized and locked out prior to performing work. In the event the lines must be de-energized, prior approval must be given by the SSGC representative.

7.5 Hazardous Energy Control (Lockout) Procedures

a. All contractors, contractor employees and subcontractors must comply with the SSGC Energy Control Requirements.
b. In the event that a contractor, contractor employee or subcontractor servicing or entering a piece of machinery where the danger of injury exists from unexpected energizing of the equipment or unexpected release of stored energy, the contractor or contract employee must disconnect the source of energy and lock/tag out this equipment before beginning work.
c. In the event that SSGC employees or other unknown persons have locked/tagged out equipment, the contractor is not to remove the lock/tag or energize the equipment. Likewise, the contractors are not to LO/TO any machinery without approval of SSGC representative or remove LO/TO without communicating to all affected associates.
d. Contractors are required to supply their own lockout locks, tags and hasps.
e. In the event that a contractor or subcontractor has de-energized and locked out a piece of equipment, the equipment specific lockout procedure must be adhered to. A contractor, contractor employee or subcontractor can acquire the specific equipment lockout procedures from the SSGC representative.
f. The lockout tag used by the contractor must have the contractor's phone number and a person name, SSGC to be contacted concerning the lockout.

7.6 Zone Equipment and Tools

a. Contractors will provide their own equipment to their employees.
b. The use of SSGC vehicles and equipment is prohibited for contractors. Contractors can only acquire this authorization from the Zonal Team Leader. Authorization, when provided, will be documented by use of the Equipment Loan and Indemnification Agreement. Use of all shop equipment is prohibited.
c. Misuse of SSGC material, equipment or products is prohibited.
d. The use of SSGC powered industrial vehicles (i.e. forklifts) is strictly prohibited. In the event that SSGC forklifts are required, they can only be operated by certified SSGC employees. There will be no exceptions to this policy. Any contractor, contractor employee or subcontractor who operates an SSGC forklift will be requested to leave the property immediately.
e. All contractors, contractor employees or subcontractors who operate a powered industrial vehicle in Zone Area must possess a current operator certification.

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7.7 Hazard Communication

a. Contractors, contractor employees or subcontractors who bring hazardous chemicals on-site, must prior to bringing them on-site:
   i. Provide the SSGC representative with a listing of all hazardous chemicals.
   ii. Properly label all containers, adhering to SSGC labeling requirements.
   iii. Provide the SSGC representative with copies of all SDSs (Safety Data Sheet) for the hazardous chemicals.

b. The SSGC representative will provide all contractors with a list of hazardous chemicals that the contractor, contractor employees, or subcontractors will come in contact with during the work on Zone property.

c. At no time should hazardous materials or fuels be left unattended in open containers or unsecured areas overnight, during weekends, or during holiday periods. Temporary storage of such material must be reviewed with the Company representative.

d. When the use or storage of explosives or other hazardous materials or equipment is necessary for the execution of the work, the Contractor shall exercise the utmost care and shall carry on such activities under the supervision of properly qualified personnel and in conformance with all applicable Zone Requirements and local environmental and safety regulations.

e. The contractor shall be responsible for all necessary Personal Protective Equipment (PPE), training, and informing their employees of all hazardous substances in use at the job site and of the appropriate safety procedures and policies.

7.8 Emergency Procedures

a. In the event of a fire, medical or other emergency, Contractors are required to notify zone security or the SSGC representative immediately. Tell the security personnel the location of the fire and any other pertinent information. In the event that Zone security or SSGC representative cannot be reached, evacuate the area and call area/city emergency department as soon as possible.

b. All contractors, contractor employees and subcontractors are required to follow the predetermined exit routes and emergency evacuation procedures posted at the facility.

c. All contractors, contractor employees and subcontractors are required to exit the work area/building in the event of emergency alarm activation or if instructed to by an SSGC representative. In the event of an evacuation, contractors are required to go directly to the employee staging area located at guard shack.

7.9 Gasoline and Propane Powered Equipment

a. Contractors are required to inform the SSGC representative of any propane or gasoline powered equipment that is to be used indoors.

b. SSGC Management discourages the use of internal combustion engines indoors, and will only permit it when no reasonable alternative means are available to complete the job.

7.10 Temporary Electrical Connections

a. All wiring & electrical installations are expected to follow National Electric Code practices.

b. All temporary electrical hook-ups for equipment must be approved by the SSGC representative, prior to installation. All temporary installations must be removed as soon as the task requiring them is complete.

c. Electrical outlets for portable power tools not a part of permanent wiring of the building should have ground-fault circuit interrupters (GFCI).

MR

60

7.11 Cutting, Welding and Other Hot Work

a. All Contractor and subcontractor employees must comply with the SSGC Cutting, Welding and Other Hot Work procedure.
b. The SSGC representative will issue the Cutting-Welding-Hot Work Permit after confirming that the necessary precautions have been taken.
c. The permit is valid for ONE SHIFT ONLY. When the work overlaps with the next shift, the SSGC representative will issue a new permit.
d. The contractor employee designated as the "fire watch" shall sign the permit after the final check has been made and return the signed permit to the SSGC representative.

7.12 Ladders and Scaffolding

a. All ladders belonging to the contractor must be labeled with the contractor's SSGC and possess safety feet and meet SSGC Work at Height Requirements.
b. All ladders used on Zone property must be properly secured.
c. All scaffolding must be equipped with railings and toe boards.
d. All "swinging" type scaffolds must be inspected by the contractor and repaired if necessary before use.
e. All overhead work from a forklift must be conducted from a secured safety cage. Standing on forks or pallets is not permitted.

8. CONTRACTOR ENVIRONMENTAL RULES

SSGC requires that contractors comply with all applicable environmental rules & regulations.

8.1 Non-Hazardous Waste

a. Construction refuse and debris will not be allowed to accumulate and will be removed daily by the contractor at its expense, unless otherwise negotiated in the contract document.
b. Contractors shall take ownership of all waste and debris generated from materials they brought to the job site or from demolition activities, and shall dispose of such waste and debris in accordance with all applicable laws and regulations.
c. Reference to SSGC. The SSGC Company or any of its trademarks shall not be used in any documentation associated with the disposal of such waste and debris.
d. Contractors shall coordinate with the Zone, whenever practical, to segregate debris or waste which may be recycled or re-used in a safe and environmentally responsible manner.
e. Worksites may be periodically inspected by the SSGC representative to ensure that the contractor is fulfilling its obligations under its contract. Final payment will be withheld until such time as the worksite and property have had a final inspection and removal of all containers, debris, wastes and materials has been confirmed by the SSGC representative and documentation has been printed that all hazardous wastes have been properly disposed.
f. For those contractors working outside, it is illegal to dispose of any liquid, including water, onto the ground/outside drain for any reason. All water, provided it was not contaminated, shall be disposed of at a drain inside of the facility.

8.2 Hazardous Materials

a. Contractors, contractor employees or subcontractors who bring hazardous chemicals on-site, must prior to bringing them on-site:
   i. Provide the SSGC representative with a listing of all hazardous chemicals.
   ii. Provide the SSGC representative with copies of all MSDSs for the hazardous chemicals.
   iii. Properly label all containers, adhering to SSGC labeling requirements.

b. No hazardous wastes will be placed or discarded into any drain or sewer on SSGC property. Sewers include: process sewers, sanitary sewers and stormwater sewers. Contractors shall use drain covers, dikes or other appropriate means to prevent a potential release into a drain. In the event that material enters an SSGC sewer, the contractor shall notify the SSGC representative immediately.

c. Contractor is solely responsible for any and all hazardous wastes generated by contractor's activities on the property. All hazardous material/waste generated by contractors must be disposed of in an approved container and properly labeled. It is the contractor's responsibility to properly dispose of all waste and hazardous materials, and remove containers that store or contain any waste or hazardous materials. Such containers/materials shall be removed from SSGC's property daily and shall be properly disposed of by the contractor/supplier in accordance with all applicable Federal, State and Local laws, rules and regulations. No waste, containers, debris, etc., are to be disposed of in SSGC dumpsters by Contractor, without approval from the SSGC representative. At no time should hazardous waste be manifested or labeled with reference to The SSGC Company or any of its zones or subsidiaries without authorization from the SSGC representative or Zone HSE Manager.

d. The contractor shall assure that all employees dealing with hazardous materials and hazardous wastes have had all legally required training and are familiar with the hazards presented by such wastes or materials.

8.3 Spill Response Procedures

a. Each contractor is required to have a written emergency response plan to handle spills and releases which may occur during transport, delivery, or use of hazardous materials at the SSGC work site. The contractor must provide a copy of its emergency response plan to the SSGC representative prior to beginning work.

b. Each contractor must provide and be equipped with appropriate spill response equipment. All contractors, contractor employees or subcontractors who engage in the emergency response of a hazardous material release must have been trained and have the appropriate spills response certification and meet response requirements.

c. Contractor must provide documentation to verify that it has contracted with at least one reputable outside spill response contractor, that is reasonably agreeable to SSGC, to respond to larger spills or releases which may occur during transport, delivery or use of hazardous materials.

d. The contractor shall be responsible for appropriate clean-up of spills caused by their activities. Such clean-up will include removal or remediation of any materials impacted by such spill; such as: building materials, soil, groundwater or surface waters, etc.

e. In the event that a spill or release of contractor's material occurs on SSGC's property and the contractor does not respond to the release to the satisfaction of SSGC, SSGC shall have the right to take any reasonably necessary steps to respond to or remediate such spill or release. The Contractor shall reimburse SSGC for all costs incurred by SSGC to respond to such spill or release.

f. Spills and releases of hazardous materials must be reported immediately by the contractor to the SSGC representative.

g. Any spill or release that exceeds an applicable reportable quantity must be reported by the contractor to the appropriate governmental agencies according to applicable laws and regulations. Prior to notifying the responsible outside parties (i.e., governmental agencies), contractor shall first inform SSGC of its intent to report such spill or release.

h. Contractor is also bound to follow SSGC's 'Spill Response Procedure'.

8.4 Special Circumstances

SSGC acknowledges that, from time to time, specific work regarding hazardous materials investigation or response may occur. Under such circumstances, the contractor shall supply a copy of the Work Plan (WP) and Health and Safety Plan (HASP) to SSGC for review and approval prior to commencing work.

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9. CONTRACTOR ACCEPTANCE OF WORK RULES AND REQUIREMENTS

All contractors are required to sign a statement that they have received a copy of this program and have read and understand the program. Each contractor shall sign the following Contractor Acceptance of Work Rules and Requirements form and return it to the SSGC representative. A copy will be kept in the project management file and the Zone's HSE Manager's files.

In consideration of admission to the premises of SSGC, we agree to hold in strict confidence and not to divulge to any other person or entity all proprietary information observed or disclosed by SSGC personnel. This includes information that relates to SSGC's past, present, or future research, development and business activities or any client or customer to whom SSGC provides services and/or materials. We will not remove any document, material, or equipment, nor photograph or record any data without specific written permission from a duly authorized representative of SSGC.

This agreement of confidentiality will terminate only when and as SSGC proprietary information becomes public knowledge.

We have read and understood the visitor agreement and will abide by the document while visiting the SSGC facility as required.

10. CONTRACTOR ACCEPTANCE OF WORK RULES AND REQUIREMENTS

The undersigned hereby acknowledges that we have received a copy of the SSGC Contractor Work Rules. We have read and will be able to abide by the items listed in the SSGC Contractor Work Rules. We understand and agree that any persons and/or contractors who violate these rules will not be permitted to work for SSGC. We also understand that we are responsible for ensuring that all employees working directly for us, as well as any contractor and/or subcontractors that we hire, comply with these rules.

Compliance with the SSGC Contractor Work Rules does not in any way relieve any contractor or person from complying with any applicable Federal; Provincial or local safety, environmental and other regulations which may apply. The work rules are only a compendium of certain legal requirements and Zone policies. They are not an exclusive discussion of any and all legal requirements applicable to contractors and/or suppliers.

The undersigned represents and warrants that we shall comply with all applicable Federal, State and Local laws, regulations and rules while we are engaged to work or perform services for SSGC, including but not limited to any and all OSHA, Federal, EPA, Sindh, and other health, safety, and environmental requirements. In addition, in consideration of SSGC hiring us, we hereby agree to indemnify and hold harmless SSGC against any and all liability; including defense cost and attorneys' fees, arising from or relating to breach of the above warranty and/or any violation of applicable laws, regulations and/or rules.

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Company _____

Date _____

SSGC (Print) _____

Signature _____

Title _____

SSGC Representative _____

cc: Project Manager File
Zone HSE Manager
Contractor

11. DOCUMENTED INFORMATION

Record No.	Record SSGC	Maintained by	Retention Period
SSGC-IMS/GSC-F-01	HSE&QA Awareness Form	HSE&QA Department	3 Years

MR

SSGC HSE&QA Department	IMS Form	SSGC-IMS/GSC-F-01
	HSE&QA Awareness Form (Guidelines for Suppliers and Contractors)	Revision 01
		Issue Date: Aug, 2021

Organization Name		Contact name	
		Contact number	

Type of Contractor
☐ Mechanical Work ☐ Electrical Work ☐ Civil Work ☐ Waste Disposal ☐ Canteen ☐ Transport ☐ Manpower Contractor ☐ Pipeline Construction ☐ Third party inspection ☐ Goods Supplier ☐ Other:

Area of Working:

Contract Coordinator:

HSE&QA Awareness

Description	Remarks
ISO & OHSAS Standards	
HSE&QA Policy	
PPE Policy	
Risk Assessment and Management Procedure	
Incident and Accident Management Procedure	
Emergency Response Procedure	
Technical Specifications/Performance and Testing Criteria	

Remarks:

Supplier/Contractor Representative			**HSE&QA Representative**		
I have received and reviewed the SSGC's HSE&QA Requirements and understand that the requirements will be applicable while supplying goods, works or services within company premises or outside company premises. I shall make sure all employees of our company and Sub-Contractor companies understand and agree to the requirements applicable to the activities our company will be performing.			I have met the Supplier's/contractor's representative and provided basic information of HSE&QA Policies and Integrated Management System. The Contractor has shown its commitment in adherence to Company's HSE&QA Policies/procedures/technical specifications /and related requirements to ensure quality, safety and integrity of the goods/services provided.		
Name	Signature	Date	Name	Signature	Date

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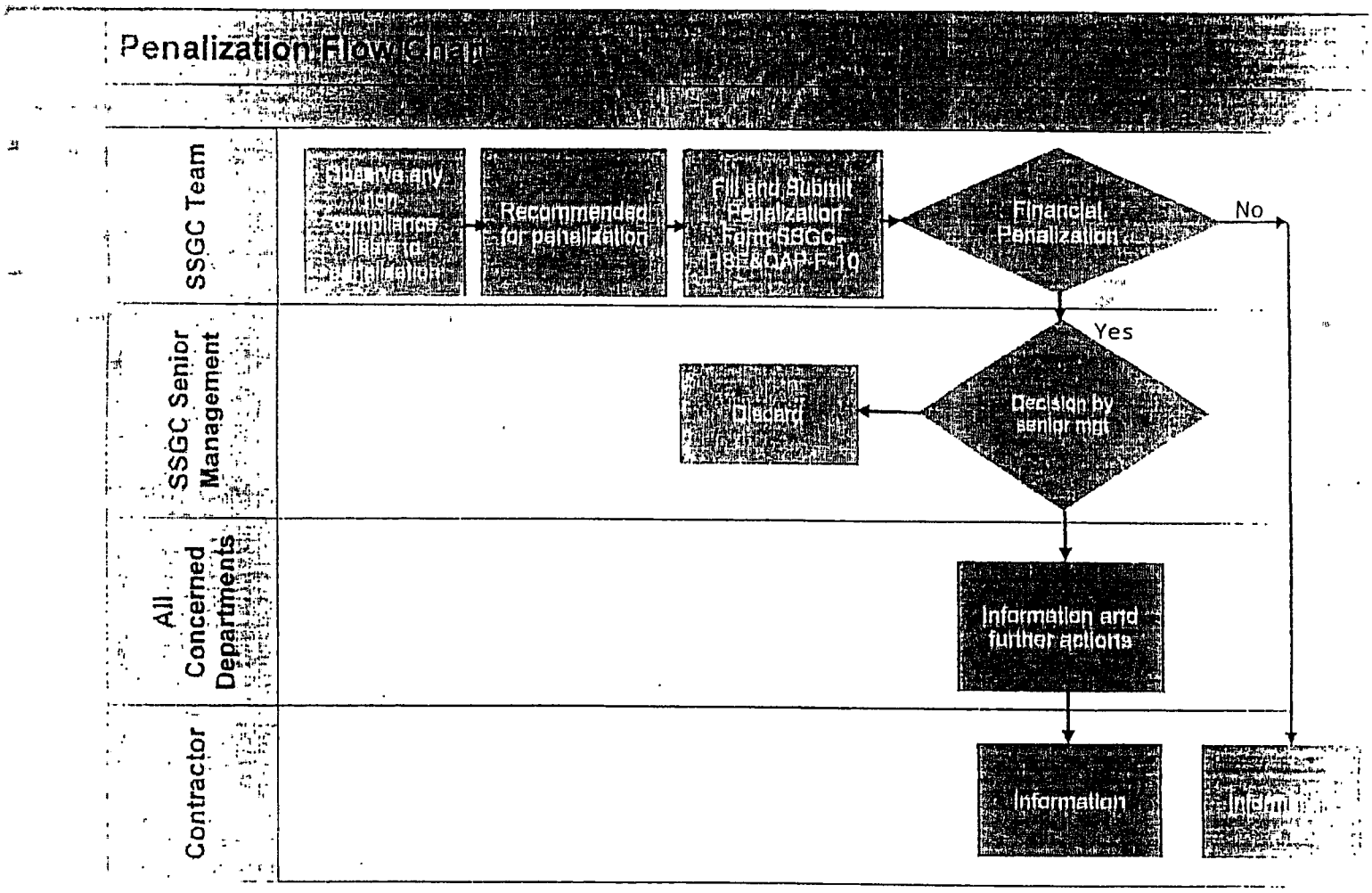
1. Penalization

SSGC management reserves the right to penalize the service contractors in case of any nonconformance during course of the project (addressed in respective ToR / Tender Documents in detail). Penalization will vary according to severity of nonconformance and mode of penalization is provided in respective Terms of References. SSGC management decides the mode and degree of penalization.

1.1 Penalization mechanism

Following flow chart depicts the mechanism/ hierarchy, which will be followed for the penalization of the contractor. Penalization Form and *Annexure-J-1* can be found below.



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SSGC HSE&QA Department	**PENALIZATION FORM** for Service Contracts Only MR	SSGC-HSEQP-F-10 Revision 01 Issue Date: Sep, 202

Project		Date	
Section		Contractor	
User Dept.		Focal Person	

Nature of Non-Compliance (As per Annexure J-1)

Mode of Penalization

Initiator	
Name	Signature

Recommended by HSEQA	
Name	Signature
Recommended by User Departmental/Divisional Head	

Following Section is applicable ONLY in case of Financial Penalization

DMD (Ops)	DMD (Finance)

Copy to: Procurement/Finance/P&D Department. Contractor
Note: Adequate evidences MUST be furnished along with form by initiator

MR

67

SSGC HSE&QA Department	PENALIZATION MECHANISM for Service Contracts only ANNEXURE J-1	SSGC-HSEQP-J Revision 01 Issue Date: Sep. '0

S. No.	Nature of Non- Compliance	Mode of Penalization
HSE		
1	PPE related	**1st Time** ---------- Verbal Warning from site in charge **2nd Time** ---------- Written warning/ Explanation Letter **3rd Time** ---------- Removal of worker from duties
2	Unsafe Act / Unsafe Condition	**1st Time** --------- Stop work **2nd Time** -------- Stop work along with written warning letter **3rd Time** -------- Removal from duties
3	Not reporting any major incidents within the time frame specified in Tender documents / HSE&QA Plan	Financial Penalization up to Rs. 200,000 for each accident
4	No proper tag out/ lockout/ barrication / signage boards and systematic PPE non-compliance as advised by SSGC representative(s) at Site or mentioned in SSGC SOPs. work instructions or ToRs.	**1st time** ------ Warning Letter **2nd time** ------ Stoppage of Work **3rd Time** ----- Financial Penalization up to 3% (Max.Rs. 200,000 can be penalized.
Quality		
5	Deviation in actual manpower provided vs the manpower (Organogram) submitted in tender documents	Cost of unavailable staff, as listed in BOQ or other related documents
6	Non-Compliance related to Quality Parameters outlined in ToR, BOQ, applicable international Standards & Codes and SSGC's SOPs.	Up to 2% of the invoice amount of the billing period
Reporting		
7	Non Submission of time bound reports (as mentioned in Tender documents / Construction Plan	Financial penalization up to 2% of the invoice amount of the billing period
8	Unavailability of documents such as drawings, SOP manuals, inspection reports and other Technical data at site office.	Explanation letter
9	Providing wrong / insufficient information in invoicing pertaining to equipment and manpower.	Financial penalization Up to 2% of the invoice amount of the billing period
10	False reporting, misleading information	Financial Penalization up to 3% of the invoice amount of the billing period

Ethics & Conduct

11	Non-cooperation with SSGC team by any staff of Contractor. Non-cooperation includes non-sharing of construction site data, supporting documents, future work execution strategies etc. compliance of Company protocols or instructions related to works given by SSGC's representative(s).	Removal from duties in case the request is made against this non-Compliance **Note:** Approval will be taken from contract owner i.e. User Departmental Head.
12	Repeatedly (03) absence/Unavailability of site Contractors staff during surprise visits of SSGC teams	Financial penalization (One day salary deduction of entire site staff of audited site)

Note:
1. Penalization amount will not exceed the 5% of the total contract value.
2. If Three (03) non-compliance (on any one issue or combination of issues) are issued to any contractor, Management will decide to impose additional penalization (e.g. forfeiting of Performance Bank Guarantee / retention money), termination of contract or temporary blacklist (Blacklisting will be up to one (01) year.
3. Tender/ Project specific requirements and penalization are outlined in tender documents/ ToR under special requirement section.

MR

69

SSTW-05

Ref No _____ Dated _____

M/s _____

SNTN _____

Address _____

NOTICE UNDER RULE 3(1) OF THE SINDH SALES TAX SPECIAL PROCEDURE (WITHHOLDING) RULES, 2011.

Dear Sir,

Kindly note that we are a withholding agent under the Sindh Sales Tax Special Procedure (Withholding) Rules, 2011, and that we shall withhold and deduct the prescribed amounts of Sindh sales tax against your tax invoices in relation to the services provided or rendered by you to us. We hold NTN/FTN .....

2. We undertake to deposit the withheld/deducted amounts of Sindh sales tax in the Sindh Government's head of account "B-02384" against a SRB-prescribed PSID/Challan (SST-04 or SSTW-04) in the manner prescribed under the aforesaid Sindh Sales Tax Special Procedure (Withholding) Rules, 2011, and we shall provide you a certificate of deduction-cum-deposit in terms of rule 3(9) thereof.

Signature _____

Name _____

CNIC _____

Designation _____

Date _____

Official seal _____

Sui Southern Gas Co. Ltd. Procurement Dept. H.O Gulshan-e-Iqbal

Sui Southern Gas Company Limited

Procurement Department

Standard Advisory to all Bidders

SUB: Sindh Sales Tax Withholding On Services Payment

(Effective from 1 July 2024)

Dear Sir,

Background

Please be informed that:

1. Uptil February 2024, SSGC deducted 20% of Sindh Sales Tax amount from Invoice value payable to a Vendor for services rendered in Sindh & deposit the same with Sindh Revenue Board, while remaining 80% is deposited by the Vendor themselves.

2. From March 2024 – June 2024, SSGC deducted 80% of Sindh Sales Tax amount from Invoice value payable to a Vendor for services rendered in Sindh & deposit the same with Sindh Revenue Board, while remaining 20% is deposited by the Vendor themselves

Amendment in Law

Sindh Revenue Board (SRB) has amended Withholding Rules thereby requiring SSGC to deduct 20% of sales tax amount from Invoice Value.

Revised Procedure for Sindh Sales Tax Withholding

In order to ensure implementation of above amendment, following process is being implemented 01. July 2024:

1) 80% Sales Tax to continue to be withheld on 'Past" Invoices only (where Vendor has already deposited 20% Sales Tax in Government treasury provides evidence thereof).

2) 20% Sales Tax will be deducted on Current and future invoices (while 80% will be deposited by vendor directly with SRB)

It is needless to mention that only Sindh Withholding Rules have been amended white there is no change in other Rules (income tax withholding Balochistan Sales Tax withholding; etc.)

SSGC

سوئی سدرن گیس کمپنی لمیٹڈ
پروکیورمنٹ ڈیپارٹمنٹ

تمام ٹھیکیداروں کے لئے معیاری ایڈوائزری

خدمات کی ادائیگی پر سندھ سیلز ٹیکس
(۱ جولائی ۲۰۲۴ سے نافذ العمل)

<u>پس منظر</u>

مطلع کیا جائے کہ:
1. فروری 2024 تک، SSGC نے سندھ میں فراہم کی جانے والی خدمات کے لیے وینڈرز کی انوائس ویلیو سے سندھ سیلز ٹیکس کی رقم کا 20% کاٹ لیا ہے اور اسے سندھ ریونیو بورڈ کے پاس جمع کرایا ہے، جبکہ وینڈرز بقیہ 80% خود جمع کراتے ہیں۔

2. مارچ 2024 سے جون 2024 تک، SSGG نے سندھ میں فراہم کی جانے والی خدمات کے لیے وینڈرز کی انوائس ویلیو سے سندھ سیلز ٹیکس کی رقم کا 80% کاٹ لیا ہے اور اسے سندھ ریونیو بورڈ کے پاس جمع کرایا ہے، جبکہ بقیہ 20% وینڈرز خود جمع کراتے ہیں۔

<u>قانون میں ترمیم</u>

سندھ ریونیو بورڈ (SRB) نے ود ہولڈنگ رولز میں ترمیم کی ہے جس کے تحت SSGC کو انوائس ویلیو سے سیلز ٹیکس کی رقم کا 20% کٹوتی کرنا ہوگی۔

<u>سندھ سیلز ٹیکس ودہولڈنگ کا نظرثانی شدہ طریقہ کار</u>

مندرجہ بالا ترمیم کے نفاذ کو یقینی بنانے کے لیے، 01 جولائی 2024 سے درج ذیل عمل کو نافذ کیا جا رہا ہے:

1) 80% سیلز ٹیکس صرف 'ماضی' انوائسز پر کٹوتی جاری رہے گی (جہاں وینڈر نے پہلے ہی سرکاری خزانے میں 20% سیلز ٹیکس جمع کرایا ہے اس کا ثبوت فراہم کرتا ہے)۔

2) 20% سیلز ٹیکس موجودہ اور مستقبل کے انوائسز پر کاٹا جائے گا (جبکہ 80% وینڈر براہ راست SRB کے ساتھ جمع کرائے گا)

یہ واضح رہے کہ صرف سندھ ودہولڈنگ رولز وائٹ میں ترمیم کی گئی ہے دیگر رولز (انکم ٹیکس ود ہولڈنگ بلوچستان سیلز ٹیکس ود ہولڈنگ وغیرہ) میں کوئی تبدیلی نہیں کی گئی ہے۔