



AEGIS LOGISTICS LIMITED

Unit No. 1202, 12th floor, Tower B, Peninsula Business Park,
G.K. Marg, Lower Parel (West), Mumbai - 400013

NOTICE INVITING TENDERS / BIDS

TENDER NO.: TD/ALL/HPCL/CIVIL DATE: 23.11.2015

DESCRIPTION

ALL is India's leading Logistics Company engaged extensively in Liquefied Petroleum Gases (LPG), Liquid POL products, Petrochemicals and Chemicals, serving the Oil, Petrochemical and Gas Industry since 1977. The registered office of the Company is at Unit No. 1202, 12th floor, Tower B, Peninsula Business Park, G. K. Marg, Lower Parel (West), Mumbai 400 013. Aegis Logistics Limited is a listed public limited company and a leading Logistics Company in India.

ALL is India's leading Logistics Company engaged extensively in Liquefied Petroleum Gases (LPG), Liquid POL products, Petrochemicals and Chemicals, serving the Oil, Petrochemical and Gas Industry since 1977. Aegis group owns / operates India's largest integrated bulk Liquid cum LPG Terminal in the port of Mumbai and also the largest private bulk Liquid Terminal at Kochi port, Liquid and pressurized LPG Storage Terminal at Pipavav Port, Liquid Bulk Storage Terminal at Haldia and a LPG Bottling /Blending Unit at Kheda, Gujarat.

The Group aims to create 'necklace' of similar port terminals around the coastline of India. It has firmed up plans to put up new/additional storage capacity at Pipavav, Kochi and Haldia during the next 18-24 months at an investment exceeding INR 4,000 million.





ELIGIBILITY CRITERIA FOR TENDERER

The tenderer shall meet all the following conditions for qualifying for the job of construction of civil foundation for cryogenic tanks

1. Should have done Civil projects including Piling in the past.
2. Should have completed atleast 1 project of similar size

OR

Should have completed 3 projects of 50% size of bidding project

3. Average Annual Financial Turnover during the last 3 years, ending 31st March, of the previous financial year should be at least 200% of Bid value. Bidders are required to submit the audited balance sheets, profit & loss statements for the last 3 financial years.
4. Bidder shall furnish documentary evidence i.e. copies of work orders/relevant pages of contract, completion certificate or certified final bill from their clients, annual reports containing audited balance sheets and profit & loss accounts statement, in the first instance itself, in support of their fulfilling the qualification criteria. ALL reserve the right to complete the evaluation based on the details furnished without seeking any additional information.
5. Parties who are affiliates of one another can decide which Affiliate will make a bid. Only one affiliate may submit a bid. Two or more affiliates are not permitted to make separate bids directly or indirectly. If 2 or more affiliates submit a bid, then any one or all of them are liable for disqualification.
6. Registered for PF, ESI and Labour license.
7. Solvency certificate from Banks/registered financial institutions should be furnished for the value of 40% of the respective classes for which registration is sought for.
8. Registration of VAT, Service Tax in correct category should be available.
9. The contractor should have sufficient number of technical and administrative personnel for proper execution of contract. The contractor should submit a list of their employees. Details are to be furnished
10. The contractor should have adequate tools and equipments required for proper execution of work within the prescribed time. Details should be furnished in the format



NOTICE INVITING TENDERS/BIDS

Sealed item rate tender for the Civil Work for Construction of Pipeline Foundations at HPCL (MUMBAI REFINERY) TO AEGIS LOGISTICS LIMITED, TROMBAY.

Bid submission Address:	Project Location
President - Projects and Operations AEGIS LOGISTICS LIMITED C/O Sealord Containers Limited Ambapada, Mahul Village, Trombay Near BPCL Refinery Main Gate, Chembur Mumbai - 400 074	HPCL (MUMBAI REFINERY) & AEGIS LOGISTICS LTD AT TROMBAY / GAVANPADA AREA, INSIDE HPCL (MUMBAI REFINERY), TATA ELECTRIC COMPANY & MbPT PREMISES

On behalf of: (Corporate Address)

Aegis Logistics Limited
1202, Tower B, Peninsula Business Park,
G. K. Marg, Lower Parel (West)
Mumbai-400013

The company reserves the right:

1. To accept or reject any / all tender(s) / Bid(s) without assigning any reason.
2. To place an order on one or more Contractors.
3. To split and / or combine quantum of purchase at its own discretion.
4. The company will not entertain any affiliated / associated bids.

The bid shall be submitted in Sealed envelopes or vide e-bid. The last date for submission of complete tender shall be **10.12.2015**. The Sealed bids shall be sent to above mentioned address in the proper format before the closing date. E-bids shall be addressed to projectprocurement@aegisindia.com. In case of e-bid, the EMD should reach the above address before the closing date.

The request for extension of Bid closing date may be requested on the same email. In case of same request from other bidders, we shall consider. Else we shall request you to adhere to the closing date in the Tender.



In case of any queries or clarification pertaining to tender document or clauses, the bidders are requested to write the same as per correspondence clause in the general Conditions of Tender.

Bidders are requested to send in their pre bid queries by 30th Nov. 2015 on the Email id provided.

The pre bid meeting is tentatively scheduled on 3rd Dec 2015. The confirmation of pre bid meeting will be uploaded on the website www.aegisindia.com or will be conveyed to you in advance through mail.

The Minutes of Pre bid meeting shall be posted on the website within 2 days after the meeting.



GENERAL CONDITIONS OF TENDER - SECTION A

1. DEFINITIONS

The following expressions hereunder and elsewhere in the contract documents used will have the following meanings hereunder respectively assigned to them namely:-

- 1.1. The "Owner" or "Employer" shall mean "Aegis Logistics Limited" incorporated in India and having its registered office at, 1202, Tower B, Peninsula Business Park, G. K. Marg, Lower Parel (West) Mumbai-400013 and shall include its successors and assigns.
- 1.2. The "Contractor / successful tenderer" shall mean the tenderer selected by the owner for the performance of the work and shall include the successors and permitted assigns of the Contractors.
- 1.3. The "Project" shall mean detailed working of Civil Work required for laying 8" Above ground and underground Jetty Pipe Line from Aegis Trombay Terminal to HPCL (Mumbai Refinery) through MbPT and Tata Electric Company premises.
- 1.4. The "Project Manager" shall mean the officer nominated by owner to co-ordinate and supervise all the activities connected with the implementation of project on their behalf. The "Project Manager" may at his discretion depute owner's officer to co-ordinate/supervise the work of Contractor.
- 1.5. The "Site-in-Charge" shall mean the Engineer nominated by the owner for the purpose of the contract or any work covered there under.
- 1.6. The "Job Site" shall mean any site at which the work is to be performed by the Contractor under the contract.
- 1.7. The "Work" and "Scope of Work" shall mean the totality of the work by expression or implication envisaged in the contract and shall include all material equipment and labour required for or relative or incidental to or in connection of any work and/or for incorporation in the work.
- 1.8. The "Contract" shall mean the totality of the agreement between the parties as derived from the contract documents.
- 1.9. The "Contract Documents" shall mean the contract documents as laid out in the Owner's standard contract format which is based on General and Special conditions of Tender.



- 1.10. The "Specification(s)" shall mean the various specification as set out in the specifications forming part of the tender documents and as referred to derived from the contract and any order (s) or instruction(s) there under, and in the absence of any specifications as aforesaid covering any particular work or part of portion thereof, shall mean the relevant Indian Standard Institution specifications for or relative to the particular work or part thereof, and in the absence of any Indian Standard Institution Specification covering the relative work or part or portion thereof, shall mean the standard or specification of any other country applied in India as a matter of standard engineering practice and approved in writing by the Site-in-Charge with or without modifications.
- 1.11. "Order" and "Instruction" shall respectively mean and written order or instruction given by the Owner/Site-In-Charge within the scope of their respective powers in terms of the contract.
- 1.12. "Plans" and "Drawings" shall mean maps drawing, sketches, tracings and prints forming part of the tender documents and any details or working drawings, amendments and/or modifications thereof approved in writing by the Site-In-charge or any agency notified by the Site-In-Charge, to the contractor for the purpose and shall include any other drawings or plans in connection with the work as may from time to time be furnished by or approved in writing by the Owner /Site-In-Charge or any other agency nominated by the Owner/Site-In-charge in this behalf in connection with the work.
- 1.13. "Inspector" means Third Party Inspection Agency" (TPIA) as specified by the Owner/Owner's authorized representative as specified in the special condition of tender.
- 1.14. "Final Test Certificates" shall mean the final Test Certificate issued by Owner.
- 1.15. "Completion Certificate" shall mean the completion certificate issued by the Site-in-Charge"
- 1.16. "Final Certificate" shall mean the final certificate issued by the Site-In-Charge.
- 1.17. "Acceptance of Tender" shall mean the Acceptance of Tender issued by the Owner of the Tender"
- 1.18. The "Total Contract Value" shall mean the total contract value as specified in the acceptance of Tender, and after calculation of the entire remuneration due to the Contractor the contractor on successful of the works.
- 1.19. "Progress Schedule" shall mean the time schedule of progress of work.
- 1.20. "Running Account Bill" shall mean a bill for payment of "on Account' to the Contractor.



- 1.21. "Schedule of Prices" shall mean the schedule or prices annexed to the Acceptance of Tender and shall include any remuneration payable to the Contractor for any work determined in accordance with the conditions.
- 1.22. "Tender Documents" shall mean the Tender Documents comprising Part-I (Technical Bid) – Invitation to Tenders, Project information, General Conditions of Tender, Special Conditions of Tender, Tender Schedule, Drawings/Sketches, Data Sheets, Form of Tender and Price Schedule, Annexure, and Part II (Commercial Bid)-Form of Tender and Price Schedule, and Annexure.
- 1.23. "Agreed Variation" shall mean the statement of Agreed Variation annexed to the Acceptance of Tender or a further amendment annexed to the Contract forming part thereof.
- 1.24. The "Sub-Contractor" means any person of firm of Company (other than the Contractor) to whom any part of the work has been entrusted by the Contractor with the written consent of the Owner.
- 1.25. The "Permanent Work" means and includes works which will be incorporated and form a part of the works to be handed over to the Owner by the Contractor on completion of the Contract.
- 1.26. The "Construction Equipment" means all appliances and equipment of whatever nature for the use in or for the execution and completion of the works unless intended to form part of the permanent work.
- 1.27. "Letter of Intent" shall mean intimation by a letter to tenderer that the tender has been accepted in accordance with the provisions contained in the letter.
- 1.28. The "Alteration Order or Variation Order" means an order given in writing by the Owner to effect additions to or deletions from and alterations in the works.
- 1.29. All headings of the Clauses in these General Conditions of Tender or otherwise in any contract document are intended solely for the purpose of giving a broad indication of the contents of the clause and not as a summary of the contents thereof.
- 1.30. Unless otherwise specifically stated, a masculine gender shall include the feminine and natural genders and vice-versa and the singular shall include the plural and vice versa.



2. GENERAL

- 2.1. Tender documents shall remain the property of the owner and if obtained by one intending tenderer shall not be utilizable by another without the consent of the Owner. No more than 3 copies of Tender documents shall be issued to any one intending tenderer.
- 2.2. The tenderer should study all tender documents and understand the conditions/drawing/specification etc., before quoting. If there are any doubts, he should obtain clarification from Owner. This shall not be the justification for late submission of tender or time to the tender. All tender documents shall govern the contract, shall form part of the contract and shall be binding during the execution till completion of works
- 2.3. The tenderer should visit the site and acquaint himself with the site condition at his own cost including the boundary management issues.
- 2.4. Under no circumstances, tenders may be withdrawn or modified after submission to the Owner. Negligence on the part of the Tenderer in preparing his tender confers no right for withdrawal or modification of his tender after the tender has been opened.
- 2.5. Tenderer is required to make the lowest offer for the work as per the enclosed specification and details available therein. Please note that the estimated quantities given in the schedule are approximate. As the work progresses, it is possible that there may be variations.
- 2.6. The rates quoted should be inclusive of all materials, labour, equipment, tools/tackles, transportation of material and labour, excise, custom, octroi duty, sales tax and turn-over tax etc. All materials are to be supplied by the tenderer unless otherwise stated.
- 2.7. Canvassing in connection with the tender is strictly prohibited and the tender submitted by the tenderer resorting to canvassing shall be liable for rejection.
- 2.8. The final drawings are under preparation and shall be sequentially issued for the work. For any review, similar drawings from previous projects shall be offered. Interpreting specifications, the following order of decreasing importance shall be followed:
 - a) Drawings
 - b) Unit Rate Specifications & Technical Specifications.
 - c) Bill of Quantities
 - d) General specifications



- 2.9. Incomplete/Conditional tender quotation or those received late and/or note conforming to the terms and conditions in the tender documents will be rejected. If rates are offered for part of the scope only, then the tender shall be treated as incomplete / conditional. If few special scopes are excluded citing reasons of specialization, the same shall be at the Owner's discretion to treat as complete / incomplete.
- 2.10. The Owner reserves the right to reject any or every tender without assigning any reason whatsoever/or to negotiate with the tendered (s) in the manner the Owner considers suitable.

3. SUBMISSION OF TENDER

- 3.1. Tender document Part-A-Technical Bid and Part B-Commercial Bid should be sealed in separate covers, clearly marking 'COMMERCIAL BID" on the cover containing Commercial bid. Both the above covers should be sealed in one cover clearly marking the Tender No. and Vendor's name and address. The quotation must be submitted only in the prescribed tender schedule form supplied by the Owner along with draft for the earnest money deposit as specified in Clause 4.1 of General Conditions of Tender.
- 3.2. The sealed tender should be addressed and sent by Registered post or personally handed over to the Tender Receiving Authority specified in Tender Notice or put in the Tender Box designated for the specific work located at the address specified in the Tender Notice.
- 3.3. The sealed Tender must reach the specified address before the date and time specified in the Tender Notice. Tender received after the due date and time will not be considered.
- 3.4. The tenderer should quote for all items in the tender schedule. The rate should be expressed both in figures and words. Where discrepancy exists between the two, the rates expressed in work will prevail. Similarly if there is any discrepancy between unit rate and total amount the unit rate will prevail.
- 3.5. The rates should be quoted in the same units as mentioned in the tender schedule.
- 3.6. All entries in the tender documents should be in ink/typed. Corrections if any should be attested by full signature of the tenderer.
- 3.7. Every page of the tender documents shall be "SIGNED" by the tenderer or his authorized representative.



- 3.8. Tenderers are required to state in the tenders their addresses fully and correctly. All notices, communications and reference to any tenderer by the Owner shall be deemed to have been duly given to the tenderer if delivered to the tenderer or left at or posted to the address given by the tenderer and shall be deemed to have been so given in the case of posting on the day on which they would have reached such address in the ordinary course of post and in other cases on the day on which they were so delivered or left.

4. BANK GUARANTEES

- 4.1. The tenderer shall be required to furnish Earnest Money Deposit vide Bank Guarantee drawn in favor of Aegis Logistics Limited for a sum of Rs. 10,00,000/-. The earnest money deposit shall be returned to the unsuccessful tenderer after the selection of the successful tenderer.
- 4.2. If the successful tenderer is unable to accept or execute orders when placed upon him or fails to furnish Performance Bank Guarantee or withdraws/revises his quoted prices and quantities offered, within the validity period of his tender or after placement of the Order/Letter of Acceptance, his Earnest Money Deposit shall be forfeited.
- 4.3. In case of successful tenderer, the Earnest Money Deposit will be returned after the receipt of Performance Bank Guarantee.
- 4.4. Please note that no interest shall be paid on Earnest Money Deposit and Performance bank Guarantee.
- 4.5. The Mobilization Advance shall be paid against Advance Bank Guarantee of equivalent value. This Bank Guarantee shall be valid for at least 6 months from mobilization date. The mobilization advance shall be deducted from 2nd R.A Bill and shall be completely recovered before the expiry of Advance Bank Guarantee.

5. CONTRACT AGREEMENT

The successful Tenderers shall receive within 15 days the Owner's communication in form of Work Order / Contract / Letter of Intent. This communication shall detail the agreed price and terms and the extent of the scope.

6. VALIDITY

The validity of the bid shall be for a period of minimum 90 days from the last submission date. It shall there after continue to be valid, until,

- a) A written advice is given to the Owner giving 10 days clear notice of their intention to reverse/alter the terms.
- b) The work is completed to the satisfaction of the Owner and so certified in writing by Owner or their accredited representative in the case of successful tenderer.



7. QUANTITY MEASUREMENT

- 7.1 The quantities of work shown in the tender schedule are approximate and payment shall be made as per actual measurement. The contractor is not entitled for any sort of compensation towards material procured/stored in excess of the measured quantities.
- 7.2 The owner reserve the right to increase or decrease the tendered quantity or replace specifications, drawings, design of any or every item or delete them at any stage of work. The contractor's claim for compensation or damages on account this shall not be entertained. Such deviation shall be adjusted at the rates contained in the contract or arrived at by calculation from contract rates.
- 7.3 Detailed measurement of completed work shall be taken jointly by the Contractor and Owner/Site-in-Charge at every stage of work before proceeding to the next stage of work and shall be measured as per procedure laid down. The payment shall be made as per measured quantities, subject to their conforming to the quantities ordered as per drawing/schedules and not as per tender schedule quantities.

8. TIME FOR COMPLETION OF WORK

The timeframe considered by client is 2 months from LOI. The tenderer may indicate the time required to complete the entire work from the date of receiving the order. The time indicated by the tenderer may have a bearing on the awarding of the contract. The Tenderer may suggest an improved schedule that Clients consideration.

To validate this schedule the Tenderer shall also furnish a Site Organogram for executing this project for our review and acceptance.

9. STOPPAGE OF WORK

In case it becomes necessary for the Owner to temporarily suspend or postpone the work partly or fully due to unforeseen circumstances, Owner shall not be liable for any compensation on account of the resultant delay.

10. SUBCONTRACTING

No part of the contract shall be sublet without the written permission of the consultant & the employers nor shall be transferred by a 'Power of Attorney authorizing others to carry out the work or receive payment on behalf of the tenderer.

11. INSPECTION AND TESTING

- 11.1 A Field Quality Plan (FQP) shall be furnished by each tenderer as part of each bid document. This FQP shall be reviewed and approved and the same shall form an integral Inspection document at site.



11.2 A Quality Assurance Plan (QAP) shall be furnished by each tenderer as part of each bid document. This QAP shall be reviewed and approved and the same shall form an integral Inspection document for all materials at site. For supply scope by the Owner, the charges shall be borne by the Owner. Else, the scope shall be managed by the Owner.

12. DEFECTS LIABILITY PERIOD

The performance of Work executed by the successful Tenderer shall be warranted against any defect for a period of 18 months from completion of work. developed within 'Defect Liability period' as mentioned in appendix from the accepted & certified date of virtual completion of that work will have to be rectified by the contractor at their own cost & in case the defects are not rectified by the contractor, consultants/employer shall get the work done at the risk and cost of the contractor.

13. VIRTUAL COMPLETION CERTIFICATE:

VCC will be issued to the CONTRACTOR once the CONTRACTOR and the CLIENT mutually agree that the job is complete. The defect and liability period will commence from that date. The certificate will be issued by the Structural & Architectural Consultant.

14. COMPENSATION FOR DELAY IN COMPLETION

- 14.1 In case of any delay in completion of the work beyond the specified completion date, the Owner shall be entitled to be paid Liquidated Damages by the Contractor. The liquidated damages shall be initially at the rate of 0.5% (half percent) of the total contract value for every week of the delay subject to a maximum of 5% of the total contract value. The liquidated damages shall be recovered by the Owner out of the amounts payable to the Contractor or from the Performance Bank Guarantees or from the Retention Money retained from the Bills of the Contractor, either under this contract or any other contract.
- 14.2 Notwithstanding what is stated in clause 11.1 above, the Owner shall have the right to employ any other agency to complete the remaining work at the risk and cost of the Contractor in the event of his failing to complete the work within the stipulated milestones of the schedule.
- 14.3 The Contractor shall present in writing to the Site-in-Charge on account of the following for the extension in Contract period:
- Force Majeure
 - Inclement Weather Conditions
 - Delay from other Contractors engaged by the Owner
 - Boundary or public disputes
 - Legal Proceedings
 - Insufficiencies in Schedule of Rates



14.4 The Site-in-charge shall thereby prepare a fair and reasonable Extension for the schedule and furnish to the Contractor, who shall constantly use his best endeavor to the satisfaction of the Engineer to proceed with the works. Nothing herein shall prejudice the right of the Owner under the Clause 11.1 and 11.2 herein after.

15. PERFORMANCE/FAILURE OF CONTRACTOR

- 15.1 If the performance of the successful tenderer is found to be unsatisfactory, the company reserves the right to cancel in part or whole of the contract and gets the work executed through alternate means at the entire risk and cost of the successful tenderer.
- 15.2 The successful tenderer shall not consider independently, any change in specifications mentioned in the tender documents. In case of doubt he will refer the matter in writing to the Owner/Site-In-Charge and act as per clarifications given by the Owner/Site-in-charge. Any change in the work involving changes in original specifications quantities /additional items of work, should be covered by obtaining suitable variation order (s) from the Owner/site in charge immediately.
- 15.3 If the contractor after receipt of written notice from the Site-in-charge requiring compliance within 10 days fails to carry out and execute any work in accordance with this contract and or to comply with Site-in-charge's instructions then the Owner with the consent and may employ and pay other persons to execute any such work whatsoever that may be necessary to give effect thereto, and all costs incurred in connection there with shall be recoverable from the Contractor by the Owner as a debit and may at the option of the owner be deducted from any money due to or to become due to the Contractor.

16. TERMINATION OF CONTRACT BY THE OWNER

The owner may terminate the contract at any stage for reasons to be recorded in the letter of termination. The Owner inter alia may terminate the Contract for any or all of the following reasons that the contractor

- has abandoned the work/Contract.
- has failed to commence the works, or has without any lawful excuse under these conditions suspended the work for 15 consecutive days.
- has failed to remove materials from the site or to pull down and replace the work within 15 days after receiving from the Project Manager written notice that the said materials or work were condemned and/or rejected by the Engineer under specified conditions.
- has neglected or failed to observe and perform all or any of the terms acts, matters or things under this Contract to be observed and performed by the Contractor including the compliance to the instructions of Site Engineer and/or Third party Inspector and/or paint manufacturer.



- has to the detriment of good workmanship or in defiance of the Site Engineer's and/or Third Party Inspectors and/or Paint manufacturer's instructions to the contrary sub-let any part of the Contract.
- has acted in any manner to the detrimental interest, reputation, dignity, name or prestige of the Owner.
- has stopped attending to work without any prior notice and prior permission for a period of 15 days.
- And his workmen have been found not complying to the safety requirement of Worksite and are found to be engaged or involved in Unsafe Acts and accidents on the site.
- has become untraceable.
- has without authority acted in violation of the terms and conditions of this contract and has committed breach of terms of the contract in best judgment of the owner.
- has been declared insolvent/bankrupt.
- in the event of sudden death of the Contractor.
- has been charged by police or convicted by courts in India for Illegal acts, ransom, money extortion and criminal intimidation etc. during the contract period.

17. CONTRACTOR'S STORE

Contractor shall construct suitable godowns for storing tools. However, space for site office cannot be offered at site. The contractor however will have to dismantle all such sheds, toilet and vacate the land of all debris etc. at his own expense after completion of work.

18. EXTRA ITEMS - NON TENDER ITEMS

Rates for extras items/work as may be ordered shall be determined by the consultant/Employer as follows:

The rate of extra item shall be submitted by Contractors before execution of work. The same shall be confirmed by Clients/Consultant.

If not specified, the rates for that item shall be derived from the nearest similar item in the Tender.

At the actual expenditure incurred in execution of the item inclusive of any taxes, Octroi, etc. plus 15% for contractor's profit, plant, machinery, tools, and supervision and overhead etc. The actual expenditure will have basis of materials and labour as per actual working rate analysis. In case of materials supplied by owners at fixed prices, only 5% overhead & profit will be admissible on the cost of such material.

For extra items contractors shall get the instructions confirmed in writing from Engineer in charge before executing the work & keep proper record of same.



Any verbal instruction given by Engineer-in-charge for executing work or any other items, which are not shown in drawing, the contractors will write the same & get the confirmation from Engineer in charge before execution. He shall also keep the proper record of the same. Cost of work executed on verbal instructions without confirmation in writing from consultant/ Employer will not be paid.

19. WATER AND ELECTRICITY

The Water and Power required for the work shall be arranged by the successful tenderer at their own cost.

20. STEEL & CEMENT

The Cement and Steel required shall be supplied by the contractor. This quantity shall not be separately billed. The measurement for fixing of reinforcement shall be inclusive of TMT supply and on theoretical weight of Steel. Similarly the concrete quantity shall consider Cement supply too.

Empty bags of cement will be the property of owner.

21. INSURANCE AND LABOUR

Contractor shall at his own expense obtain and maintain an insurance policy with a Nationalized Insurance Company to the satisfaction of the Owner as provided hereunder.

21.1. EMPLOYEES STATE INSURANCE ACT

The Contractor agrees to and does hereby accept full and exclusive liability for the compliance with all obligations imposed by Employees State Insurance Act, 1948, and the Contractor further agrees to defend indemnify and hold Owner harmless from any liability or penalty which may be imposed by the Central, State or local authority by reason of any asserted violation by Contractor, or sub-contractor of the Employees' State Insurance Act, 1948 and also from all claims, suits or proceedings that may be brought against the Owner arising under, growing out of or by reason of the work provided for by this contract whether brought by employees of the Contractor, by third parties or by Central or State Government authority or any political sub-division thereof.

The Contractor agrees to file with the Employees State Insurance Corporation, the Declaration forms and all forms which may be required in respect of the Contractor's or sub-contractor's employee whose aggregate remuneration is within the specified limit and who are employed in the work provided or those covered by ESI Act under any amendment to the Act from time to time.



The Contractor shall deduct and secure the agreement of the sub-contractor to deduct the employee's contribution as per the first schedule of the Employee's State Insurance Act from wages and affix the employee's contribution cards at wages payment intervals. The Contractor shall remit and secure the agreement of the sub-contractor to remit to the State Bank of India, Employee's State Insurance Corporation Account, and the Employee's contribution as required by the Act.

The Contractor agrees to maintain all records as required under the Act in respect of employees and payments and the Contractor shall secure the agreement of the sub-contractor to maintain such records. Any expenses incurred for the contributions, making contribution or maintaining records shall be to the Contractor's or sub-contractor's account.

The Owner shall retain such sum as may be necessary from the total contract value until the Contractor shall furnish satisfactory proof that all contributions as required by the Employees State Insurance Act, 1948, have been paid.

21.2. WORKMAN'S COMPENSATION AND EMPLOYEE'S LIABILITY INSURANCE

Provide Insurance for all the Contractor's employees engaged in the performance of this contract. If any of the work is sublet, the Contractor shall ensure that the sub-contractor provides workmen's compensation and Employer's Liability Insurance for the latter's employees who are not covered under the Contractor's insurance.

21.2.1. AUTOMOBILE LIABILITY INSURANCE

Contractor shall take out Insurance to cover all risks to Owner for each of his vehicles plying on works of this contract and these insurances shall be valid for the total contract period. No extra payment will be made for this insurance. Owner shall not be liable for any damage or loss not made good by the Insurance Company, should such damage or loss result from unauthorized use of the vehicle. The provisions of the Motor Vehicle Act would apply.

21.2.2. FIRE INSURANCE

Contractor shall within two weeks after award of contract insure the Works, Plant and Equipment and keep them insured until the final completion of the Contract against loss or damage by accident, fire or any other cause with an insurance company to be approved by the Employer/Consultant in the joint names of the Employer and the Contractor (name of the former being placed first in the Policy). Such Policy shall cover the property of the Employer only.

21.2.3. ANY OTHER INSURANCE REQUIRED UNDER LAW OR REGULATION OR BY OWNER

- Contractor shall also provide and maintain any and all other insurance which may be required under any law or regulations from time to time. He shall also carry and maintain any other insurance which may be required by the Owner.



- The aforesaid insurance policy/policies shall provide that they shall not be cancelled till the Engineer-in-Charge has agreed to their cancellation.
- The Contractor shall satisfy to the Engineer-in-Charge/Site-in-Charge from time to time that he has taken out all insurance policies referred to above and has paid the necessary premium for keeping the policies alive till the expiry of the defects liability period.
- The contractor shall ensure that similar insurance policies are taken out by his subcontractor (if any) and shall be responsible for any claims or losses to the Owner resulting from their failure to obtain adequate insurance protections in connection thereof. The contractor shall produce or cause to be produced by his sub-contractor (if any) as the case may be, the relevant policy or policies and premium receipts as and when required by the Engineer-in-Charge/Site-in-Charge.

22. SITE SUPERVISION/FACILITIES

- 22.1 The entire work will be carried out under the supervision of the authorized representative of the Owner, but this will not absolve the Contractors from his responsibilities for quality/period of execution of the work. ALL may at its discretion, engage a competent Third Party Inspectors or Manufacturers representative for supervision of the entire work. All the instructions issued by ALL Site Engineer and/or Third party Inspectors and/or Manufacturer Representative shall be complied by the contractor.
- 22.2 The successful tenderer shall arrange for a team of competent supervisors headed by site manager to be present at site at all times during the progress of the work, and shall be duly authorized to take instructions and execute them on his behalf.
- In absence of required supervision, ALL shall engage supervisors after due notification /intimation. Supervision charges shall be debited against the Contractors immediate RA bill.
- 22.3 If the Progress of the work is not upto the expectation / planned level of the Owner, the Contractor shall be intimated to reinforce resources or work extra hours to cover / compensate the time loss. No additional claim shall be accepted by Owner for this reinforcement or extra working hours. If the progress of work is still not satisfactory, Owner shall advise the Contractor to enact to the shortfall. In case of failure to enact effectively, Owner reserves the right to curtail the scope / annul the Contract. The curtailment shall be with a 15 days' notice to the Contractor to arrange appropriate Corrective Action. The annulment shall be done in case the Contractor fails to act effectively to the notice. The completed work according to Measurement sheets / SOR shall only be paid in such circumstances.



23. OBSERVANCE OF RULES AND REGULATIONS IN FORCE.

- 23.1 The contractor and his men shall abide by all security, safety rules/regulations in force at a location and the laws, by-laws and statutes of Government/Semi-Government and other local authorities such as requirements/liability under enactments like the Workmen's Compensation Act, Contract Labour Act., etc. and the Owner shall stand indemnified against any claims on these scores. The Contractor and his men shall strictly abide by "no smoking" and other petroleum regulations on the premises.
- 23.2 The Contractor shall conform to the provisions of acts at Parliament or State Legislatures and to say by-laws, rules, orders or notifications of any government Municipal or Local authority for the time being in force affecting the work undertaken by him and will give all necessary notices to and obtain requisite sanction and permits of and from the Municipal and any other authority in respect of the said work or the materials to be used there at and generally will comply with the building and other regulations of such authorities and will keep the Company indemnified against all claims, penalties and losses that may be incurred by it by reason of any breach by the Contractor of any statutes by-laws, rules, regulations, notifications etc.,
- 23.3 The contractor' and the sub-Contractor(s) of the Contractor shall obtain authority(ies) designated in this behalf under any applicable law, rule or regulations (including but not limited to the factories act and contract labors (Abolition and regulations) act 1970 (in far as applicable any and all such license (s) consent (s), and/or other authorization (s) as shall from time to time to be or become necessary for or relative to the execution of one work or any part or portion thereof or the storage or supply or any material (s) or otherwise in connection with the performance of the contract, and shall at all times observe and ensure due observance by the sub-contractors, servants and agents of all terms and conditions of the said license (s), consent (s), regulations (s), and other authorization (s) and laws, rules and regulations applicable thereto.
- 23.4 The contractor undertakes to ensure due and complete compliance with all laws, regulations, rules etc. whether of the central government or the state government or any other competent authority applicable to the workmen employed or whose services are otherwise availed of by the contractor, whether in connection with the work at the site or otherwise. The owner shall have been right to inspect the records maintained by the contractor, shall whenever required by the owner produce such records and as and when the owner may all upon the contractor ascertain whether or not the requirements of all such laws, regulations, rules etc. have been compiled with by the contractor. In the event of any contravention of such laws, regulations, rules etc., coming to light whether as a results of such inspection or otherwise, the owner shall have the right to make the prejudice to his other rights be entitled to withhold from the amount payable to the workmen under any such laws,



regulations or rules and to make payment thereof to the workmen. The owner shall also have in that event the right to terminate the contract with immediate effect and to exercise powers reserved to the owner under the contract as a result of termination.

- 23.5 The contractor shall be responsible at his own cost in and relative to performance of the work and contract to observe and to ensure observance by his sub-contractors, if any, agents and servants of the provisions of the safety goods, as hereinafter appearing and all fire, safety and security regulations, as may be prescribed by the owner from time to time and such other precautions and measures as shall be necessary and shall employ/deploy all equipment necessary to protect all works, materials, properties, structures, installations, communication facilities, whatsoever from damage, loss or any other hazard (including but not limited to fire and explosion) and shall during Contract and other operations minimize the disturbance and inconvenience to the owner, other contractors, the public and the adjoining land, property, crops, trees and vegetation and shall indemnify and keep indemnified the owner from all losses, damages, costs, charges, expenses, penalties, actions, claims, demand and proceedings whatsoever suffered or incurred by or against the owner, as the case maybe, by virtue of any loss, alternation, displacement, disturbance, destruction or accident to any works, materials, properties, structure, equipment, installations, communication facilities, land property, crops, trees and vegetation as aforesaid with the intent that the contractor shall be exclusively responsible for any accident, loss, damage, alteration, displacement, disturbance or destruction, as aforesaid resulting directly or indirectly from any breach by the contractor of his obligations, aforesaid or upon any operations, act or omission of the contractor, his subcontractor (s), if any, agent (s) or servant (s).

24. APPROVALS

It will be the successful tender's responsibility to get the works approved and obtain all certificates for plumbing, electrical, civil works, etc. from local, municipal, governmental, MbPT or other required authorities, where applicable.

25. SAFETY/SECURITY OF EQUIPMENT/PROPERTY

- 25.1 The responsibility for the safety, security of the components, materials, equipment brought or installed by the contractor or handed over to him by the owner for completion of the work will remain with him till acceptance of the work by the owner. Any damage caused to the material/equipment during the execution of the work will be made good by the contractor to have a guarantee /indemnity bond executed for the value of the material supplied to him free of cost as per the terms of agreement.
- 25.2 The contractor should ensure the safety of adjoining property and shall prevent any loss to product/ property resulting from his negligence.



26. DISMANTLING/DAMAGE TO PROPERTY

- 26.1 During execution of work if it is found necessary to dismantle a portion of existing bund wall, enclosure wall, compound wall, fencing, etc. to facilitate the movement of materials and equipment, the same shall be carried out after obtaining permission in writing from owner's authorized representative and shall also be made good by the contractor at his own cost.
- 26.2 Any material obtained by the contractor consequent upon dismantling of any building, structure or construction whatsoever at the job site other than any building, structure or construction dismantled by the contractor pursuant to the contractor's liabilities for defects as elsewhere herein provided, shall be exclusive property of the owner.
- 26.3 Contractor shall be responsible for making good to the satisfaction of the owner any loss of and any damage to all structures and properties belonging to the owner any loss of any damage to all structures and properties belonging to the owner or being executed or procured or being procured by the owner or of other agencies within the premises of all the work of the Owner, if such loss or damage is due to fault and/or the negligence or willful acts of omission of the contractor, his employees, agents representative or sub-contractor.
- 26.4 The Contractor shall indemnify and keep the Owner harmless of all claims for damage to property other than Owner's property arising under or by reason of this agreement, if such claims results from the fault and/or negligence or willful acts or omissions of the Contractor, his employees, agents, representative or sub-contractor.

27. WORKING CONDITIONS-SAFETY CODE

27.1. General

Contractor shall adhere to safe construction practice and guard against hazardous and unsafe working conditions and shall comply with Owner's safety rules as set forth herein.

27.2. First aid and Industrial Injuries

Contractor shall maintain first aid facilities for its employees and those of its sub-contractors.

- a) Contractor shall make outside arrangements for ambulance or suitable service and for the treatment of industrial injuries. Names of those providing these services shall be furnished to Site-in-Charge prior to start of construction, and their telephone numbers shall be prominently posted in Contractor's field Office.
- b) All critical industrial injuries shall be reported promptly to Site-in-Charge, and a copy of Contractor's report covering each personal injury requiring the report covering each personal injury requiring the attention of a physician shall be furnished to Owner.



27.3. General Rules

Carrying/striking of matches, lighters and smokers inside the hazardous area, is strictly prohibited. Violators of the No Smoking Rules shall be discharged immediately. Within the operation area, no hot work shall be permitted without valid gas/safety/fire permits issued by the Owner. The contractor shall be held liable and responsible for all lapses of his sub-contractors employees in this regard.

27.4. Contractors Barricades

- a) Contractor shall erect and maintain barricades required in connection with his operations to guard to protect:
 - i. Excavations.
 - ii. Hoisting areas
 - iii. Areas adjusted by contractor's or Owners inspectors
 - iv. Owner's existing property liable to damage by contractor's operations, in the opinion of Owner/site-in-charge.
- b) Contractor's employees and those of his sub-contractors shall become acquired with owner's barricading practice and shall respect the provisions thereof.
- c) Barricades and hazardous areas adjacent to but not located in normal routes of travel shall not be marked by red flasher lanterns at night.

27.5. Scaffolding

- a) Suitable scaffoldings shall be provided for workmen for all works that cannot safely be done from the ground or from solid constructions except such short period work, as can be done safely from ladders. When a ladder is used, an extra worker shall be engaged for holding the ladder and if the ladder is used for carrying materials as well as suitable foot-holds and hand-holds shall be provided on the ladder and the ladder shall be given an inclination not steeper than 1 in 4 (a horizontal and 4 vertical).
- b) Scaffolding or staging more than 30cm above the ground or floor swing or suspended from an overhead support or erected with stationary support shall have a guard rail properly attached, bolted braced and otherwise rewarded at least 1 m high above the floor or platform of scaffolding or staging and extending along the entire length of the outside and ends thereof with only such openings as may be necessary for the delivery materials. Such scaffoldings or staging shall be so fastened, as to prevent it from swaying from the building structure.
- c) Working platform, gangways and stairways should be so constructed that they should not sag unduly or unequally and if the height of the platform or the gangway or the stairway is more than 30 cm above ground level or floor level, they should be closely boarded, should have adequate width and should be suitably fastened as described above.



- d) Every opening in the floor of a building or in a working platform is provided with suitable beam to prevent the fall of persons or materials by providing suitable fencing or failing whose minimum height shall be 1 meter.
- e) Safe means of access shall be provided to all working platform and other working places. Every ladder shall be securely fixed. No portable single ladder shall be over 10 meter in lengths, while the width between the side rails in ring ladder shall in no case be less than 30 cm for ladder upto and including 3 meters in length. For longer ladders this width should be increased by at least 6mm for spacing shall not exceed 15 cm. adequate precautions shall be taken to prevent danger from the electrical equipment. No material on any of the site of work shall be so staked or placed as to cause danger or inconvenience to any person or public. The contractor shall also provide all necessary fencing and lights to protect the workers and staff from accidents, and shall be bound to bear the expenses of defense of every suit, action or other proceedings, at law that may be brought by any person for injury sustained owing to negligence of the above precautions and to pay damages and costs which may be awarded in any such suit or action or proceedings to any such persons, or which may be with the consent of the contractor be paid to compromises any claim by such person.

27.6. Excavation and Trenching

- a) All trenches 1.3 meter or more in depth shall all times be supplied with at least one ladder for each 33 meter length of trench or fraction thereof.
- b) Ladder shall be extended from bottom of the trench to at least 1 meter above the surface of the ground. The sides of the trenches which are 1.5 meter or more in depth shall be stepped back to give suitable slope or securely held by timber braking, so as to avoid the danger of sides to collapse. The excavated material shall not be placed within 45 cm of the edge of the trench or half of the trench depth whichever is more. Cutting shall be done from top to bottom. Under no circumstances undermining or undercutting shall be done.

27.7. Demolition

- a) Before any demolition work is commenced and also during the process of the work, all roads and open area adjacent to the work site shall either be closed or suitably protected.
- b) No electrical cable or apparatus which is liable to be source of danger over a cable or apparatus used by operator shall remain electrically charged.
- c) All practical steps shall be taken to prevent danger to persons, employees, from risk or fire or explosions or flooding. No floor or other part of the building shall be so overloaded with debris or material to render it unsafe.



27.8. Safety equipment

- a) All necessary personal safety equipment as considered adequately by the Site-in-Charge should be made available for the use to the persons employed on the site and maintained in a condition suitable for immediate use, and the Contractor should take adequate steps to ensure proper use of equipment by those concerned.
- b) Workers engaged in white washing in mixing or stacking of cement bags or any materials which are injurious to the eyes shall be provided with protective goggles.
- c) Those engaged in welding and cutting works shall be provided with protective face and eye-shields, hand gloves etc.
- d) Workers employed on mixing asphaltic materials, cement and lime mortars shall be provided with protective footwear and protective gloves.
- e) Stone breakers shall be provided with protective goggles and protective clothing, and seated at sufficiently safe intervals.
- f) When workers are employed in sewers and manholes, which are in use, the Contractor shall not employ men and women below the age of 18 years and women on the work of painting of products containing lead in any form, Whatever men above the age of 18 years are employed on the work of lead painting, the following precautions should be taken.
- g) No paint containing lead product shall be used, except in the form of paste or ready-made paint.
- h) Suitable face masks shall be supplied for use by the workers, when paint is applied in the form of spray or a surface having lead paint dry, rubbed and scrapped.
- i) Suitable face masks shall be supplied for use by the workers, when paint is applied in the form of spray or a surface having lead paint dry, rubbed and scrapped.
- j) Overall shall be supplied by the Contractor to the workmen and adequate facilities shall be provided to enable the working painters to wash during the on cessation of work.
- k) Hot work should be carried out only in the areas earmarked for the purpose after taking required safety precautions and only after obtaining written permission form the Site-in-Charge. Any provision required to be made e.g wind screens of G.I sheets etc. to make the area safe for hot work, will be made by the successful tendered at his own cost.



27.9. Risky Places

When the work is done near any place where there is a risk of drowning all necessary safety equipment shall be provided and kept ready for use and all necessary steps taken for prompt rescue of any person in danger and adequate provision should be made for prompt first aid treatment of all injuries likely to be sustained during the course of the work.

27.10. Hoisting Equipment

- a) All the lifting tools and tackles shall be tested from competitive authority as per local Factory Rules.
- b) Use of hoisting machine and tackle including their attachments, anchorage and supports shall conform to the following standards or conditions.
- c) These shall be of good mechanical construction, sound materials, and adequate strength free from patent defect and shall be kept in good conditions and in good working order.
- d) Every rope used in hoisting or lowering materials or as a means of suspension shall be durable quality and adequate strength and free from patent defects.
- e) Every crane driver or hoisting appliance operator shall be properly qualified and no person under the age of 21 years should be in charge of any hoisting machine including any scaffolding, winch or give signals to the operator.
- f) In case of every hoisting machine and of every chain ring hook, shackle swivel and pulley block used in hoisting or lowering or as means of suspension the safe working load shall be ascertained by adequate means. Every hoisting machine and all gear referred to above shall be plainly marked with the safe working load and the conditions under which it is applicable shall be clearly indicated. No part of any machine or any gear referred to above in this paragraph shall be loaded beyond the safe working load except for the purpose of testing.
- g) In case of departmental machine, the safe working load shall be notified by the Site-in-Charge. As regards, Contractor's machines, the Contractor shall notify the safe working load of the machine to the Site-in-Charge, whenever he brings any machinery to site of work and get it verified by the Site-In-Charge, concerned.

27.11. Electrical Equipment

Motors, gear transmission, electric wiring and other dangerous parts of hoisting appliances shall be provided with efficient safeguards. Hoisting appliances should be provided with such means as will reduce to the minimum the risk of accidental descent of the load; adequate precautions shall be taken to reduce to the minimum the risk of any part of a suspended load becoming accidentally displaced. When workers are employed on electrical installations which are already energized, insulation mats, wearing apparel, such as gloves and boots as may be necessary shall be provided. The workers shall not wear any rings, watches and carry keys or other materials which are good conductors of electricity.



27.12. Maintenance of Safety devices

All scaffolding, ladders and other safety devices mentioned or described herein shall be maintained in safe conditions and no scaffold, ladder or equipment shall be altered or removed while it is in use. Adequate washing facilities should be provided at or near place or work.

27.13. Display of safety instruction

Safety provisions should be brought to the notice of all concerned by display on a notice board at a prominent place at the work-spot. The person responsible for compliance of the safety code shall be named therein by the Contractor.

27.14. Inspection and Monitoring

To ensure effective enforcement of the rules and regulations relating to safety precautions, the arrangements made by the Contractor shall be open to inspection by the Site-in-Charge.

27.15. No exemption

- a) Notwithstanding the above Clauses 20.1 to 20.14, there is nothing in these to exempt the Contractor from the operations of any ACT or rules in force.
- b) The works throughout including any temporary work shall be carried out in such a manner as not to interfere in any way whatsoever with the traffic on any roads or footpaths, at the site or in the vicinity thereto or any existing works, whether on the property of a third party.
- c) No men/material equipment not covered by valid passes shall be permitted within the Project area and no material/equipment shall be permitted to be taken out of the Project area, unless authorized by the concerned authorities of the Project. The Contractor shall be held fully responsible for any or all delays/looses/damages that may result consequent on any lapse that may occur on the part of his sub-Contractors/employees in this regard.

28. MISCONDUCT/MISBEHAVIOUR OF CONTRACTORS EMPLOYEES

- 28.1. The Contractor is expected to co-operate/co-ordinate with other Contractors carrying out work allocated to them so as to avoid breaking up of work already done by them or causing any hindrance in the progress of their work. In case there is any difficulty/dispute the same should be immediately brought to the notice of the Site-in-Charge.
- 28.2. If an whenever the Contractors or Sub-Contractors employees, shall in the opinion of the Site-In-Charge be guilty of any misconduct of misbehavior the Contractor if so directed by the Site-in-Charge shall at once, remove such person/persons from the employment.



28.3. The ignorance or the inefficiency of contractor's employees to meet the quality standard shall be the liability of the Contractor. The Employer may claim expulsion of such employees too and the Contractor shall abide by the same.

29. PATENTS AND ROYALTIES

- 29.1. If any requirement, machinery or material to be used or supplied or method of processes to be practices or employed in the performance of the Contractor is/are covered by a patent under which the Contractor is not licensed, the Contractor shall before supplying of using the equipment, machinery, materials, methods, processes, as the case may be, obtain such license (s) and pay such royalty (ies) and license fee (s) as may be necessary in connection with the performance of the contract. In the event that the Contractor fails to pay such royalty or obtain such license, the Contractor will defend at his own expense any suit for infringement of patent, which is brought against the Contractor to the owner, as a result of the failure, and shall pay any damage and costs awarded in such a suit and will keep the Owner indemnified form the against all other consequences thereof.
- 29.2. The successful tenderer shall not sublet or assign any part of the work to another party without prior written consent of the owner. In any event, the successful tenderer will be solely responsible for the work so sublet or assigned.

30. GURANTEE PERIOD, REPLACEMENT OF DEFECTIVE PARTS

30.1. Performance Guarantee

The Contractor shall guarantee the work done against any defect in the performance, for a period of 18 (eighteen) calendar months after completion.

30.2. WARRANTY

The Contractor will repair all identified defects which shall be notified to him in writing until completion of the "Guarantee Period". The Contractor immediately on notification shall arrange for repairs within 7days of intimation.

31. CORRESPONDANCES

The Communication Circle shall be identified in the Contract. However for pre-bid / post-bid clarifications, a meeting may be requested or Email may be sent to projectprocurementm@aegisindia.com

The request for extension, if furnished may be evaluated only on similar request from other bidders. If the request is found relevant, the closing date may be extended. Else, we may request adherence to the closing date in the Tender.

However, these entire requests shall be done only through approved communication channel.



32. DOCUMENTATION

ISSUE OF DRAWINGS:

Drawings approved for construction will be issued to the contractor progressively during the contract period not more than 10 days in advance and the contractor shall arrange for the execution of the works & the procurement of materials accordingly.

COPIES OF DRAWINGS TO BE KEPT AT SITE

Three copies of the drawings furnished to the contractor as aforesaid shall be kept at the site and the same shall at all reasonable times be available for inspection & use by the Consultants or his representative & by any other person authorized by the Consultants in writing.

OWNERSHIP OF DRAWINGS:

All drawings supplied to the contractor are deemed to be the property of the Owner. The contractor agrees both on behalf of himself & his employees, & sub-contractors, whether during or after completion of the contract not to divulge or use, except for the purpose of this contract, & information contained in the drawings. All the drawing should be returned to employer after completion of site activity.

EXECUTION AS PER DRAWINGS

The contractor must not vary or deviate from the drawings in any respect while executing the work or executing any extra work of any kind whatsoever unless authorized by the Employer. All as built drawings and markers at ground levels to be done by the contractor at no extra cost. All these plans and drawings submitted by the contractor and approved by the Consultants/Clients shall become part of the contract.

ROYALTIES AND PATENT RIGHTS

All royalties or other sums payable in respect of the supply and use in carrying out the work as desired by or referred to in the schedule of quantities of any patented articles, process or inventions shall be deemed to have been included in the contract sum and the contractor shall indemnify the Employer from and against all claims, proceedings, damages, costs and expense which may be brought or made against the Employer or to which he may be put by reason of the contractor infringing or being held to have infringed any patent rights in relation to any such articles, process and inventions.

SITE COMMUNICATION

All references, communications, correspondences made by the Employer, the Consultant, the consultant's representative or the contractor concerning the works shall be in writing and no reference, communication, or complaint which is not in writing, shall not be recognized. Verbal advises may be followed, however the same shall be documented.



33. PROGRESS REPORTS

The successful tenderer shall submit to the Office which has awarded the contract periodic progress report like daily, weekly and monthly of his works.

34. FORMAT FOR BANK GUARANTEE

The successful tenderer will have to furnish to the Owner the following Bank Guarantees as applicable in the Proforma enclosed:

- a) Proforma of Bank Guarantee in lieu of Earnest Money Deposit - Annexure II
- b) Proforma of Bank Guarantee for Advances - Annexure III
- c) Proforma of Bank Guarantee for Performance - Annexure IV

35. ARBITRATION

- a) Any dispute or difference of any nature whatsoever any claim, cross claim, counter-claim or set off of the Corporation against the Contractor or regarding any right, liability, act, omission or account of any of the parties hereto arising out of or in relation to this agreement shall be referred to the Sole Arbitration of the CEO, Aegis Logistics Limited, or to an Officer of the Company who may be nominated by the CEO. The Contractor will not be entitled to raise any objection to any such Arbitrator on the ground that the Arbitrator is an Officer of the Company or that he has dealt with the matters to which the contract relates or that in the course of his duties as an Officer of the Company he had expressed views on all or any other matters in dispute or difference. In the event of the Arbitrator to whom the matter is originally referred being transferred or vacating his Office or being unable to act for any reason, the CEO as aforesaid at the time of such transfer, vacation of Officer of inability to act may in the discretion of the CEO designate another person to act as Arbitrator in accordance with the terms of the agreement to the end and intent that the original Arbitrator shall be entitled to continue the Arbitration proceedings notwithstanding his transfer or vacation of office as an officer of the Corporation if the Vice President LPG does not designate another person to act as Arbitrator on such transfer, vacation of officer or inability of original Arbitrator. Such persons shall be entitled to proceed with the reference from the point at which it was left by his predecessors. It is also a term of this contract that no person other than the CEO or a person nominated by such CEO of the Company as aforesaid shall act as Arbitrator hereunder. The award of the Arbitrator appointed shall be final conclusive and binding on all parties to the agreement subject to the provisions of the Arbitration Act, 1940 or any statutory modification on re-enactment thereof and the rules made there under for the time being in force shall apply to the arbitration proceedings under this clause.



- b) The award shall be in writing and published by the Arbitrator within two years after entering upon the reference of within such extended time not exceeding further twelve months as the Sole Arbitrator shall by writing under his own hands appoint. The parties hereto shall be deemed to have irrevocable given their consent to the Arbitrator to make and publish the award within the period referred to hereinabove and shall not be entitled to raise any objection or protest thereto under any circumstances whatsoever.
- c) The Arbitrator shall have power to order and direct either of the parties to abide by, observe and perform all such directions, as the Arbitrator may think fit having regard to the matters in difference i.e. dispute before him. The Arbitrator shall have all summary powers and may take such evidence oral and/or documentary, as the Arbitrator in his absolute discretion thinks fit and shall be entitled to exercise all powers under the Indian Arbitration Act 1940 including admission of any affidavit as evidence concerning the matter in difference i.e. dispute before him.
- d) The parties against whom the arbitration proceedings have been initiated, that is to say, the respondents in the proceedings, shall be entitled to prefer a cross-claim, or set off before the Arbitrator in respect of any matter in issue arising out of or in relation to the agreement without seeking a formal reference of arbitration to the CEO for such counter-claim, cross claim or set off and the Arbitrator shall be entitled to consider and deal with the same as if the matters arising there from has been referred to him originally and deemed to form part of the reference made by the CEO.
- e) The Arbitrator shall be at liberty to appoint, if necessary any accountant or engineering or other technical person to assist him, and to act by the opinion so taken.
- f) The Arbitration shall have power to make one or more awards whether interim or otherwise in respect of the dispute and difference and in particular will be entitled to make separate awards in respect of claims or cross-claims of the parties.
- g) The arbitrator shall be entitled to direct any one of the parties to pay the costs of the other party in such manner and to such extent as the Arbitrator may in his discretion determine and shall also be entitled to require one or both the parties to deposit funds in such proportion to meet the Arbitrators expenses whenever called upon to do so.
- h) The parties agree that the courts in the city of Mumbai alone shall have jurisdiction to entertain any application or other proceedings in respect of anything arising under this agreement and nay award or awards made by the Sole Arbitrator hereunder shall be filed in the concerned courts in the city of Mumbai only.



36. *TENDER CHECKLIST*

Technical Bid Checklist:

- Bank Guarantee towards EMD.
- Balance Sheet as specified.
- Previous Similar projects Details/Certificate of Controls copies issued by TPIA.
- JV Details if Applicable for previous Projects.
- JV/Consortium Details for this tender identifying Principle Bidder, if applicable.
- Deviation List, as applicable
- Copies of ISO/OSHAS/other accreditations as applicable.
- Form A-E

Commercial Bid Checklist:

- Price Bid
- Quality Assurance Plan / Field Quality Plan
- Power of Attorney of the signatory to the tender.
- Project Schedule – MS Project.
- List of Exceptions and Deviations
- Solvency Certificate.



SPECIAL CONDITIONS OF TENDER - SECTION B

1. SCOPE MATRIX

SN	Description	AEGIS	CONTRACTOR	REMARKS
A	ENGINEERING			
1	Civil design and drawings for Pipeline Foundations	*		
2	Detailed Civil Drawings & BOQ	*		
B	SITE FACILITIES			
1	Site Office		*	
2	Store		*	
3	Fabrication yard		*	
4	Rest Rooms		*	
5	Staff / labour accommodation / Transport / Food / Salary / Wages		*	
6	Construction & Drinking Water		*	
7	Construction Power		*	
8	Hard stand and approach road for construction		*	
9	Disposal for excavated material		*	
10	Security for Construction Material & Equipment		*	
11	Approach road up to Plot (Site)		*	
C	Administration/Insurance/Taxes/Duties			
1	Form - V	*		
2	Labour License		*	
3	Workmen Compensation Policy		*	
4	Automobile Insurance		*	
5	Contractor Plant & Machinery Insurance		*	
6	All Statutory compliances		*	
7	CAR Policy/Third party liability Insurance		*	
8	Employers Liability Insurance		*	



9	MBPT Gate Pass for Labors & Material		*	
10	Work permits		*	
11	Handling of local administrative issues if any.		*	
12	Service Tax	*		
13	Increase in Statutory fees/taxes/ duties etc.		*	Case to case review
14	VAT / WCT / ED / CST		*	
15	Royalty for all natural material like sand, aggregates etc.		*	
E	CONSTRUCTION			
1	All civil works including grouting if any.		*	
2	All foundations for Pipeline		*	
3	Excavation/ Back Filling/ Compactions		*	
4	Road Crossing - Thrust Boring, Micro Tunneling		*	
5	All Third Party Inspection		*	
6	Batching Plant & Machinery as required		*	
7	Tools & Tackles as required		*	
8	Calibrations		*	
9	Concrete for Piling, Raft, Columns		*	
10	Shuttering, Shoring, Strutting		*	
11	Excavation, Backfilling		*	
12	BBS preparation, checking, bending, placing		*	
13	Testing of Pile		*	
14	Safety during construction		*	
F	Materials			
1	Cement		*	
2	Reinforcement Steel		*	
3	Sand		*	
4	Metal		*	
5	Bitumen		*	
6	Hume Pipe	*		
7	Insert Plates & Bolts	*		



G	QA/QC			
1	Machinery calibrations		*	
2	PQR/WPS		*	
3	Welder Qualifications		*	
4	Cube and Slump testing		*	
5	Reinforcement steel testing		*	
6	Cement testing		*	
7	Water Testing		*	where required
8	TPI	*		where required
H	DOCUMENTATIONS		*	3 sets of hard copies + 1 soft copy on CD
1	Final Dossier		*	
2	As Built Drawings		*	
3	Cube, Pile Test Reports		*	



2. BOQ FOR CIVIL WORK FOR 8" HPCL PIPELINE

SN	Description of works	Unit	Qty	Rate	Amount
1	Excavation upto 2 meters in all types of soil for different civil works manually or by mechanical excavator including shoring ,shuttering, de-watering, removing excavated soil / muck and disposing the materials outside the premises upto any unobjectionable place or as directed. (Royalty or any permission required to cart away the debris shall be obtained by contractors at their own cost.)				
	i) Manually	CUM	1100		
	ii) By Mechanical Excavator	CUM	150		
2	Dressing of all types of soil including leveling, dressing, watering, compacting with mech. roller and removing extra soil & dumping in low lying areas in the premises (or) as directed.	SQM	50		
3	Breaking of old structures manually or by machines including scaffolding, removing debris and disposing the materials outside the premises up to any unobjectionable place or as directed.(Royalty or any permission required to cart away the debris shall be obtained by contractors at their own cost.)				
	i) RCC structures	CUM	10		
	ii) Brick Work / UCR Work / PCC	CUM	10		
	iii) Road	CUM	75		
4	Providing & laying Plain Cement Concrete (M10) in position in-situ of mix 1:3:6 as per design and drawings including compacting, leveling and curing.	CUM	45		
5	Providing & laying Reinforced Cement Concrete (M20) as per design and drawing by using graded stone aggregate ,ordinary port land cement with minimum cement content of 400 kg/m ³ and slump between 17-19 cm. including pouring of concrete compacting with mechanical vibrators, and curing, etc.	CUM	175		



6	Providing and Placing in position the deformed steel reinforcement tested as per I.S.:2502 including transportation, cutting, bending, and binding with 18 gauge soft drawn annealed wire for all R.C.C. works as per design and drawings and as directed.	MT	20		
7	P & L Shuttering as per design and drawing to confine to support or to keep the concrete in position. The shuttering shall be removed slowly and carefully so that no part of concrete is damaged /disturbed.	SQM	500		
8	providing and spreading of 230 mm thick rubble soling with proper hand packing ,filling the voids with murrum /gravel watering ramming maintaining level line etc. complete work as directed by EIC	SQM	550		
9	Providing and laying 75 mm thk W.B.M. with approved quality material on compacted rubble soling, with voids filled up with slope and camber	SQM	100		
10	Providing and constructing 230mm thk. brick work in super structure using good quality, well burnt bricks including scaffolding, stacking, raking of joints, curing as directed in mortar 1:4 mix etc.				
	i) Up to 2 m	CUM	5		
11	Providing and applying 15 mm. thick plastering in C M 1 : 4 with line, level, plumb including scaffolding and curing etc. complete work				
	i) Up to 2 m	SQM	150		
12	Providing & laying Grouting Material (GP2) as per design and drawing including compacting with mechanical vibrators, and curing, etc.	CUM	1		
13	Charges for Placing and fixing, welding of Insert Plates as per design and drawing	Each	400		
14	Charges for fixing , alignment, welding of Foundation bolts as per the given drawing of size Upto M32	Each	20		



15	Providing and constructing R.R. Masonry work in super structure using good quality stones including scaffolding, stacking, raking of joints, pointing, curing as directed in mortar 1:4 mix etc.	Cu.mt	5		
16	Laying Hume Pipe NP3 including Dressing of Excavated trench as per required levels, Shifting of Hume pipes form storage location, lowering of Hume Pipes in the trench, filing the joints with Cement Mortar 1:4 & Curing. (Hume Pipe Supply in our scope)				
	ii) 300 mm dia	RM	100		
	iii) 450 mm dia	RM	50		
17	Supply of Manpower (Labour)	Each	100		
18	Supply of machines on Hire basis including Driver, Operator, helper, diesel and machine maintenance. (Rate only)				
	i) Excavator - JCB	Hrs.	80		
	ii) Excavator - Poclain	Hrs.	20		
	iii) Dumper	Hrs.	80		
	iv) Hydra	Hrs.	20		
	iv) Pneumatic Becker with Compressor.	Hrs.	8		
19	Bitumen Layer for Road - 75mm Macadam (Base Coat) + 25mm Seal Coat	SQM	100		
20	Filling in Excavated Pits , with selected earth, murum or any other approved materials, in layers, of not exceeding 200mm deep, watering, consolidating to 150mm thick or so, finished to desired levels all as per drgs., specifications to get PD of 95% as per directed. Measurement shall be on excavated area billed less the Pipe & RCC volume for substructure filling.				
	i) Back filling with excavated material	CUM	500		
	ii) Sand Filling	CUM	250		



3. BASIS OF OFFER

- 3.1. The offer shall be valid for a minimum period of 3 months (90 days) from the due date of the tender.
- 3.2. The prices quoted shall remain firm without any escalation till the completion of contract.
- 3.3. If the items need to be imported involving foreign Exchange the contractor shall indicate the exchange value considered for the imports.

4. PROGRESS REPORTS

The Contractor has to submit progress reports and inspection report of their work fortnightly and on critical items weekly to the Owner. The Contractor will also submit Project Plan in MS Projects including Resource Planning.

5. GUARANTEES

- 5.1. The Contractor shall guarantee the work done until the completion of Defect Liability Period.
- 5.2. A Performance Bank Guarantee shall be furnished with validity until completion of Defect Liability Period.

6. EARNEST MONEY DEPOSIT

The tenderers are required to pay Earnest Money Deposit of Rs. 40,00,000/- (Rupees Forty Lakhs only) in form of Bank Guarantee, valid atleast until 180 days from the date of opening of tender as per Proforma attached.

Any bid without the enclosure of EMD shall be rejected.

7. TERMS OF PAYMENT

1. 90% payment will be made progressively against your monthly running bills duly certified by our engineer.
2. Balance 10% amount will be retained for 12 months after the completion of individual tank work which will not be released against Bank Guarantee.

8. TAXES, EXCISE DUTY AND OTHERS

1. The Contractor shall necessarily furnish the following valid documents:
 - i. Service Tax Registration No. and Category of Service
 - ii. Income Tax Pan No.
 - iii. VAT Registration No.
 - iv. PF/ESIC Registration No.
 - v. Labour License No.



2. Service tax will be paid extra as applicable against the submission of documentary proof. Further your prices are inclusive of any other taxes and duties of statutory governing bodies like Excise duty, Value Added Tax (supply items), Octroi duty, Turnover Tax, State Entry tax, ESIC and PF of labour etc. and in no case shall be paid extra on this account.
3. The Service Tax shall be applicable on 40% of the contract value.
4. The contractor should also attach necessary payment challans of Service Tax, PF, ESIC etc. and monthly wages sheet to verify PF/ESIC deductions. The contractor will be solely responsible for liabilities on account of any of the above said taxes and duties. All your bills must be accompanied with Muster Roll / Wage Sheets.
5. An amount, as per relevant rules applicable by government bodies, shall be deducted from your bills as Tax Deduction at Source (TDS) on Income Tax and 2% of the VAT and all the relevant documentary evidence shall be handed over to the contractor on completion of works.
6. The Contractor's workmen should be insured under the Workmen Compensation Act or Employees State Insurance Act.
7. Contractor shall take contractor's All Risk Policy of appropriate value to be mutually agreed upon.
8. The Contractor should present all invoices to the Site Manager and get the same certified for quantity / quality as per the terms and should include the following details and should be signed by Authorized Signatory from contractor's side.
9. The details like Service Tax Number and category, CST/VAT No if applicable, for the invoice, Service Locations, Period of Service shall be mentioned.
10. The frequency of Running Account Bill shall be end of every month.
11. The successful tenderer shall indemnify the Owner for all liabilities of the contractor towards materials or wages. The final RA bill shall be settled upon receipt of Indemnity Bond



9. INFORMATION TO BE FURNISHED BY THE TENDERER

The tenderer is required to enclose the following documents as part of his tender:-

- a) Power of attorney of the signatory to the tender.
- b) Details of equipment, tools and tackles proposed to be deployed at site – **Form 'A'**.
- c) Site organization proposed to be set up by the tenderer including bio data of site -in-charge and key personnel in the **Form 'B'**.
- d) Exception and deviation, if any as a separate Annexure.
- e) Additional and necessary informational elaborated write-up etc. (except price figures) in regard to their offer/tender in Annexure.
- f) Schedule of labour rates.
- g) Details of similar work done during past Seven years **Form 'C'**.
- h) Concurrent commitments of the tenderer in **Form 'D'**.
- i) Latest Income tax clearance certificate & Solvency Certificate from a Nationalized/ RBI approved foreign bank, certifying Contractors capability to undertake the jobs costing Rs. 2 crores and above.
- j) Declaration of Understanding – **Form 'E'**.

Additional Information:

1. Year of incorporation / establishment
2. VAT / CST / Excise registration number
3. PAN number
4. Any other details

**Name and Address of Bidder
Place and company seal**

**Authorized Signatory
Name and designation**



OTHER SPECIAL CONDITION OF THE CONTRACT - SECTION C

1. The water for construction work shall be got tested quarterly from the laboratory approved by the Engineer in-charge to ensure its suitability for construction. However, the contractor shall not be paid extra on this account.
2. The contractor shall provide, at his own cost instruments for testing, surveying, weighing and measuring purpose at the site of work as may be necessary for execution of the work.
3. The contractor shall construct a sample unit complete in all respect as per the directions of the Engineer in-charge. This sample unit shall be got approved from the Engineer in-charge before commencing the mass work.
4. The contractor shall take all preventive measures against any damage caused by rain, snowfall, floods or any other natural calamity, whatsoever during the execution of the work.
5. The work will be carried out in the manner complying, in all respects, with the requirements of relevant bye-laws of the local body under the jurisdiction of which the work is to be executed or as directed by the Engineer in-charge and nothing extra shall be paid on this account.
6. The contractor shall comply with proper and legal orders and directions of the local or public authority or municipality and abide by their rules and regulations and pay all fees and charges which may be liable.
7. All materials to be incorporated in the work shall be arranged by the contractor and shall be in accordance with the specifications laid down and instruction of Engineer in-charge.
8. The tenderer shall use materials bearing ISI Certification Mark unless otherwise specified or allowed in writing by the Engineer in-charge. Any material banned by the company shall not be used in the work.
9. The contractor shall submit to the Engineer in-charge samples of all materials for approval. Such samples of materials which affect aesthetics of the work shall also be got approved from the Engineer in-charge of the project before procuring bulk supplies. These approved samples shall be preserved and retained in the custody of the Engineer in-charge as standards of materials till the completion of the work. The cost of such samples shall be borne by the Contractor and nothing shall be payable on this account over the Agreement rates.
10. In case any material / work is found sub-standard the same shall be rejected by the Engineer in-charge and the same shall be removed from the site of work within 48 hours, failing which the same shall be got removed by the Engineer in-charge at the risk and cost of the contractor without giving any further notice and time.



11. Even ISI marked materials may be subjected to quality test at the discretion of the Engineer in-charge. Whenever ISI marked materials are brought to the site of work the contractor shall, if required by the Engineer in-charge, furnish manufacturer's test certificate or test certificate from approved testing laboratory to establish that the materials procured by the contractor, satisfy the provisions of relevant ISI codes. The testing charges shall be borne by the contractor.
12. Cement bags or in loose shall be stored in separate protected warehouse to be constructed by contractor at his own cost as per the instruction of Project in-charge. The store shall be in-situ or near Ready mix plant. The quantity of Cement shall be periodically reconciled.
13. The steel reinforcement shall be stored by the contractor at site of work in such a way as to prevent distortion and corrosion and nothing extra shall be paid on this account.
14. The rate shall be inclusive of working under water and adverse of foul conditions and including pumping out or bailing out water, unless otherwise specified in the nomenclature. This will include water encountered from any source such as rains, floods and any other cause whatsoever and including sub-soil water.
15. Other agencies doing works related with this project will also simultaneously execute the works and the contractor shall afford necessary co-ordination for un-hindered completion of these sub-works.
16. The contractor shall continue to maintain watch and ward to safeguard the Owner's property in his possession until the same is formally handed over as per directions of the Engineer in-charge. Nothing extra over agreement rates shall be paid on this account.
17. The contractor shall provide adequate lighting arrangements as approved by the Engineer in-charge for carrying out the work during night time, if so required and also provide all other facilities for the labour employed to carry out the work as per direction of Engineer in-charge.
18. In order to achieve the targeted date of completion the contractor may have to work in multiple shifts, round the clock and nothing extra shall be paid on this account.
19. The contractor shall get the samples of all the materials to be used, in the work approved from Engineer in-charge before going for bulk procurement. Any delay in getting the samples approved shall be contractor's responsibility.
20. The contractor is supposed to abide the minimum wages act, and shall produce all records to the Engineer in-charge or any other statutory authority as and when called for. The Engineer in-charge does not hold any responsibility on account of any lapses in this regard.



21. No extension of time shall be granted to the contractor on account of rains or inclement weather conditions.
22. For any clarification/ doubt, the Engineer in-charge may organize regular meetings with Contractor in consultation with Structural Consultant. The contractor shall attend such meetings invariably as and when required.
23. No chiseling or cutting or drilling of RCC columns, beams, girders and other principal structural members shall be done unless prior permission has been granted by the Engineer in-charge in writing.



ANNEXURE-I

PROFORMA OF BANK GUARANTEE
(In lieu of Earnest Money Deposit)
(On non-judicial paper of appropriate Value)

To,
M/s Aegis Logistics Ltd.
1202, Tower B, Peninsula Business Park,
G. K. Marg, Lower Parel (West)
Mumbai-400013

Dear Sirs,

In consideration of Aegis Logistics Limited (hereinafter called "the Owner" which expression shall include its successors and assigns) having awarded certain work for an relative to _____

_____ (Name and Address of the Contractor)
to _____
upon certain items and conditions interlaid mentioned in the Owner's letter of Intent, (hereinafter collectively called the "the Contractor", expression shall include any formal contract entered into between the Owner and Contractor in suppression of the said Letter of Intent and all amendments and/or modifications in the Contract) inclusive of the condition that the owner may accept a Bank Guarantee of a Scheduled Bank in India in lieu of Cash Deposit of the EMD as provided for in Clause 4.1 of the General Conditions of Contract:

We, _____ (Name of the Bank) Having registered and head office at (hereinafter called "the Bank") at the request of the Contractor and with the intent to bind the Bank and its successors and permitted assigns, do hereby unconditionally and irrevocable guarantee payment to the Owner at Mumbai of the unpaid balance of the EMD upto an aggregate limit of Rs. 40,00,000 (Rupees Forty Lacs only) AND undertake to pay the Owner on demand and without protect or demur.

AND the Bank does hereby further agree as follows:-

- i. The guarantee/undertaking herein contained shall remain in full force and effect during the period that would be taken for the performance of the said Contract and the claims of the Owner relative thereto satisfied and/or discharged and the Owner accordingly discharges this Guarantee/Undertaking subject. However, that the Owner shall have no claim under this Guarantee/undertaking has been served on the Bank before the expiry of the said date, in which event the same shall be enforceable against the Bank notwithstanding that the same is enforced after the expiry of the said date namely



- ii. The Owner shall have the fullest liberty without reference to the Bank and without affecting in any way the liability of the Bank under this Guarantee/Undertaking, at any time and/or from time to time to anywise vary the said contract and/or any of the terms and conditions thereof or of or relative to the said EMD or to extend time of performance of the said Contract in whole or part or to postpone for any time and/or from time to time any of obligations of the Contract and/or power exercisable by the Owner against the Contractor the Contractor and either to enforce or for bear from enforcing any of the terms and conditions of or covering the said Contract or the said EMD or the securities available to the Owner or any of them and the Bank shall not be released from its liability under these presents and the liability of the Bank shall remain in full force and effect notwithstanding any exercise by the Owner of the liberty with reference to any or all the matters aforesaid or the reason of time being given to the Contractor or any other forbearance, act or omission on the part of the Owner or any indulgence by the Owner to the Contractor or of any other act, matter of thing whatsoever which under the law relating to sureties would, but for this provision, have the effect of releasing the bank from its liability hereunder of any part.
- iii. It shall not be necessary for the Owner to proceed against the Contractor before proceeding against the Bank and the Guarantee/Undertaking herein contained shall be enforceable against the bank notwithstanding the existence of any other security for any indebtedness of the Contractor to the Owner (including relative to the said EMD) and notwithstanding any such security shall at the time when claim is made against the Bank or proceedings taken against the Bank hereunder, the outstanding or unrealized
- iv. The amount stated by the Owner in any demand, claim or notice as the unpaid balance of the said EMD for the time being shall as between the Bank and the Owner for the purpose of these presents be conclusive of the said balance.
- v. The liability of the bank to the Owner under this Guarantee/undertaking shall remain in full force and effect notwithstanding the existence of any difference or dispute between the Contractor and the Bank/and or the Bank and the Owner, or otherwise howsoever touching or effecting these present or the liability of the Contractor to the Owner and notwithstanding the existence of any instructions or purported instructions by the Contractor or any other person to the Bank not to pay or for any cause withhold or defer payment to the Owner under these presents with the intent that notwithstanding the existence of such difference, dispute or instruction , the Bank shall be and remain liable to make payment to the Owner in terms hereof.



- vi. The bank shall not revoke this Guarantee/undertaking during its currency except with the previous consent of the Owner in writing and also agree that any change in the constitution of the Contractor or the Bank or Owner shall not discharge the Bank's liability hereunder.

-----who is-----is
(on behalf of the Bank) (his designation)
authorized to sign this Guarantee/undertaking on behalf of the bank and to bind the Bank thereby.

Date this _____ day of _____ 20____

Yours faithfully,

For
Signature
Name & Designation
Name of the Branch.



ANNEXURE-II
PROFORMA OF BANK GUARANTEE

ADVANCES

(On Non-Judicial Paper for appropriate Value)

To,

M/s Aegis Logistics Ltd.
1202, Tower B, Peninsula Business Park,
G. K. Marg, Lower Parel (West)
Mumbai-400013

Dear Sirs,

In consideration of the Aegis Logistics Ltd. (hereinafter called "the Owner") having agreed to grant an advance of Rs _____ (Rupees _____) to M/s _____ (hereinafter called "The said contractor/Supplier) Under the Terms and Conditions of Purchase Order No. _____ dated _____ made between the Owner and M/s for supply and/or installation of _____ (hereinafter called the said Agreement), on Production of Bank Guarantee for Rs. _____ (Rupees _____ Only) we M/s _____ (hereinafter referred to as "The Bank") do hereby undertake to pay to the Corporation an amount not exceeding Rs. _____ (rupees _____ only) against any loss or damage caused to or suffered by the Owner by reason of any breach by the said Contractor/Supplier of the terms & Conditions contained in the said Agreement)

We, _____ do hereby undertake to pay the amounts due and payable under this Guarantee without any demurral, merely on demand from the Owner stating that the amount claimed is due by way of loss or damage caused to or would be caused to or suffered by the Owner by reason of any breach by the said Contractor(s)/Supplier(s) of any of the terms and conditions contained in the said agreement or by reason of the Contractor(s)/supplier(s) failure to perform the said Agreement. Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this Guarantee shall be restricted to an amount not exceeding Rs. _____ (Rupees _____ only)

We, _____ further agree that the guarantee herein contained shall remain in force and effect during the period that would be taken for the performance of the said Agreement and that it shall continue to be enforceable till all the dues of the Owner under or by virtue of the said Agreement have been fully paid and its claims satisfied or discharged or till the owner certifies that the terms & conditions of the said



Agreement have been fully and properly carried out by the said contractor(s)/supplier(s) and accordingly discharges the guarantee. Unless a demand or claim under this guarantee is made on us in writing on or before we shall be discharged from all liability under this Guarantee thereafter

We, further agree with the Owner shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Agreement or to extend time of performance by the said Contractor(s)/Supplier(s) from time to time or to postpone by the Owner against the said Contractor(s)/Supplier(s) and to forbear or enforce any of the terms and conditions relating to the said Agreement and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said Owner or for any forbearance, act or omission on the part of the Owner or any indulgence by the Owner to the said Contractor(s)/Supplier(s) or by any such matter or thing whatsoever which under the law relating to sureties would but for this provision have effect of so relieving us.

We, _____lastly undertake not to revoke this guarantee during its currency except with the previous consent of the Owner in writing. Notwithstanding anything stated above, our liability under this guarantee is restricted to Rs _____ (Rupees_____)

Our Guarantee shall remain in force until_____. Unless a demand in writing for claim under this Guarantee is lodged with us before that date i.e on before _____all your rights under the said guarantee shall be forfeited and we shall be released and discharged from all liabilities there under.

Date

Address

** This date will be six months later than the date of expiry of the Agreement.



ANNEXURE-III
PROFORMA OF BANK GURANTEE
(Performance)
(On Non-Judicial For 5% of Contract Value)

To,

M/s Aegis Logistics Ltd.
1202, Tower B, Peninsula Business Park,
G. K. Marg, Lower Parel (West)
Mumbai-400013

Dear Sir,

In Consideration of the Aegis Logistics Limited (hereinafter called "the Owner" which expression shall include its successors and assigns) having awarded to M/s _____ (name) _____ (constitution) _____ (address) (hereinafter referred to as "the supplier/Contractor" which expression shall wherever the subject or context so permits include its successors and assigns) a supply contract in terms inter-alia, of the Owner's Purchase Order No. _____ dated _____ and the general Purchase Conditions of the Owner and upon the condition of Supplier's furnishing security for the performance of the Supplier's obligations and/or discharge of the Supplier's liability under and/or in connection with the said supply contract upto a sum of Rs. _____ (Rupees _____ only) amount to 5% (ten percent) of the total contract value.

We, _____ (name) _____ (constitution) (hereinafter called "the Bank which expression shall include its successors and assigns) hereby jointly and severally undertake the guarantee to pay to the Owner in Rupees forthwith on demand in writing and without process or demur of any and all moneys anywise payable by the supplier to the Company under, irrespective of or in connection with the said supply contract inclusive of all the Owner's losses and damages and costs (inclusive between attorney and client). Changes and expenses and other money anywise payable in respect of the above as specifies in any notice of demand made by the Owner to the Bank with reference to this Guarantee upto and aggregate limit of Rs _____



(Rupees _____ only) And the Bank hereby agrees with the Owner.

- i. This Guarantee/Undertaking shall be a continuing Guarantee/Undertaking and shall remain valid and irrevocable for all claims of the Owner and liabilities of the Supplier arising upto and until midnight of _____. This date shall be a months from the last date of guarantee period.
- ii. This Guarantee/Undertaking shall be addition to any other guarantee or security whatsoever that the Owner may now or at any time anywise have in relating to the Supplier's obligations/liabilities under and/or in connection with the said contract, and the Owner shall have full authority to take recourse to or reinforce this security in preference to the other security(ies) at it sole discretion, and no failure on the part of the Owner in enforcing or requiring enforcement of any other security shall have the effect of releasing the Bank from its full liability hereunder.
- iii. The Owner shall be at liberty without reference to the Bank and without affecting the full liability of the Bank hereunder to take any other security in respect of the supplier's obligations and/or liabilities under or in connection with the said supply contract and to vary the terms vis-à-vis the supplier of the said supply contract or to grant time and/or indulgence to the supplier or to reduce or to increase or otherwise vary the prices of the total contract value or to release or to forebear from enforcement of all or any of the obligations of the supplier under the said supply contract and/or the remedies of the Owner under and other security(ies) now or here-after held by the Owner and no such dealing(s), variation(s), reduction(s), increase(s) or other indulgence(s), or arrangement(s) with the supplier or release or forbearance what-so-ever shall have the effect of releasing the Bank from its full liability to the Owner hereunder or of prejudicing rights of the Owner against the Bank.
- iv. This Guarantee/Undertaking shall not be determined or affected by the liquidation or winding up, dissolution, or charge of constitution or insolvency of the supplier but shall in all respects and for all purposes be binding and operative until payment of all moneys payable to the Company in terms hereof
- v. The bank hereby waives all rights at any time inconsistent with the terms of this Guarantee/Undertaking and obligations of the Bank in terms hereof shall not be anywise affected or suspended by reason of any dispute or disputes having been raised by the supplier (whether or not pending before any Arbitrator, Officer, Tribunal or Court) or any denial or liability by the supplier of any other order or communication whatsoever, by the supplier or preventing or purporting to stop or prevent any payment by the bank to the Owner in terms hereof.



- vi. The amount stated in any notice of demand addressed by the Owner to the Guarantor as liable to be paid to the Owner by the supplier or as suffered or incurred by the owner on account of any losses or damages of costs, charges and/or expenses shall as between the Bank and the Owner be conclusive of the amount so liable to be paid to the Owner or suffered or incurred by the Owner, as the case may be, and payable by the Guarantor to Owner in terms hereof.

Yours faithfully,



FORM 'A'

AEGIS LOGISTICS LIMITED

NAME OF WORK:

**CIVIL WORK FOR CONSTRUCTION OF FOUNDATIONS FOR STORAGE
TERMINAL AT HALDIA**

NAME OF TENDERER:

DETAILS OF EQUIPMENT, TOOLS, TACKLES ETC (FORM-A)

Tenderer shall submit herein details of equipment, tools, tackles etc required to perform the work and shall note in each case whether the same is (a) already owned by tenderer and available for use on his contract, (b) anticipated to be hired by contractor or (c) anticipated to be purchased by contractor. In case of (a), present location shall be stated. In case of (b) and (c), location of hirer or supplier shall be stated.

No. of items	Description & Capacity	Make, Model	Year of manufacture	Category (a) or (b) or (c) above	Location	Remarks if any

1. Contractor agrees to augment the above chart with additional number / categories of equipment, if required to complete the work within the agreed time schedule of completion as directed by the Site - In - Charge.



FORM B

AEGIS LOGISTICS LIMITED

NAME OF WORK:

**CIVIL WORK FOR CONSTRUCTION OF FOUNDATIONS FOR STORAGE
TERMINAL AT HALDIA**

NAME OF TENDERER:

PROPOSED SITE ORGANISATION

The tenderer is to indicate here the proposed site organization he proposes to set up at each site for execution of the work. It is understood that this will be augmented from time to time depending on the requirements for timely completion of work, as directed by site in charge.

Note:

Bio-data of Site -In-Charge and key personnel proposed to be posted for this job should be attached.

A Planning Engineer for scheduling card monitoring of the work, of the tenderer will be associated full time for the entire duration of the work.



FORM -C

NAME OF WORK:

**CIVIL WORK FOR CONSTRUCTION OF FOUNDATIONS FOR STORAGE
TERMINAL AT HALDIA**

NAME OF TENDERER

Details of Similar Works done during past Seven Years

S N	Full Postal address of the Client & Name of Officer-in charge	Description of the Work	Value of the Contract	Comme ncement Date of Work	Actual completi on time	Year of comple tion	Remar ks
1	2	3	4	5	6	7	8

Signature of Tenderer



FORM-D

NAME OF WORK:

CIVIL WORK FOR CONSTRUCTION OF FOUNDATIONS FOR STORAGE
TERMINAL AT HALDIA

NAME OF TENDERER :

Concurrent Commitments of the Tenderer

S N	Full Postal address of the client & Name of Officer-in charge	Descriptio n of the Work	Value of the Contract	Date of commenc ement of Work	Schedule d completi on time	% of comple tion	Expecte d date of complet ion
1	2	3	4	5	6	7	8



FORM E

Declaration of Understanding

I / We hereby declare that we have read and understood the scope and specifications in every minute detail. The Site Conditions are verified and the rates quoted are in adherence to statutory and site conditions.

The Standards referred in the Tender Specifications are also been reviewed and understood prior to bidding. Upon being awarded, we shall execute the complete Contract with total satisfaction to the Owner.

The deviation request has been presented for items deemed needful.

This understanding is being endorsed by us even on behalf of the Sub-Contractors, Vendors, and JV partners.

Authorized Signatory



**TECHNICAL SPECIFICATIONS
FOR CIVIL WORKS FOR PROPOSED 8 inch HPCL Pipe Line**



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1.0 General

- 1.1 Specifications of materials and workmanship shall be as described in the Central Public Works Department Specifications Vol. I & II (latest) include latest amendments, unless otherwise specified. These CPWD Specifications shall be deemed to form part of this contract. The **CONTRACTOR** shall procure and maintain copies of the latest CPWD Specifications at site for reference.
- 1.2 These technical Specifications shall be supplementary to the specifications contained in the CPWD specifications, wherever at variance, these Particular Specifications shall take precedence over the provisions in the CPWD Specifications.

2.0 Reference Codes & Standards

- 2.1 Wherever reference of IS Specifications/ or IS Codes of Practice are made in the Specifications/ Schedule of Rates or Preambles, reference shall be to the latest edition of IS (Bureau of Indian Standards).

IS - 383	Coarse & Fine aggregates from natural sources for concrete.
IS - 427	Distemper, dry, colour as required.
IS - 432	Mild Steel & Medium tensile steel bars.
IS - 456	Code of Practice for Plain and Reinforced Concrete.
IS - 515	Natural and Manufactured aggregates for use in mass concrete
IS - 730	Hook bolts for corrugated sheet roofing
IS - 800	Code of Practice for General Construction in Steel
IS - 1079	Hot rolled carbon steel sheets & strips
IS - 1081	Code of practice for fixing and glazing of metal (steel & aluminium) doors, windows and ventilators.
IS - 1161	Steel tubes for structural purposes.
IS - 1285	Wrought aluminium & aluminium alloy extruded round tube and hollow sections
IS - 1367	Technical supply conditions for threaded steel fasteners
IS - 1566	Hard - Drawn steel wire fabric for concrete reinforcement.
IS - 1786	High strength deformed steel bars & wires for concrete reinforcement.
IS - 2062	Steel for general structural purposes.
IS - 2116	Sand for masonry mortars.
IS - 2212	Code of practice for brickwork.
IS - 2386	Methods of test for aggregates.



3.0 Earthwork

3.1 Excavation

- 3.1.1 Excavation shall be carried out in soil of any nature and consistency, in the presence of water or in the dry, met on the site to the lines, levels and contours shown on the detailed drawings and **CONTRACTOR** shall remove all excavated materials to soil heaps on site or transport for use in filling on the other site or stack them for reuse as directed by the Engineer-in-Charge.
- 3.1.2 Surface dressing shall be carried out on the entire area occupied by the buildings including plinth protection as directed without any extra cost. The depths of excavation shown on the drawings are the depths after surface dressing.
- 3.1.3 The site around all buildings and structures to a width of 3 metres beyond the edge of plinth protection, ramps, steps, etc. shall be dressed and sloped away from the buildings.
- 3.1.4 Black cotton soil, and other expansive or unsuitable soils excavated shall not be used for filling in foundations, and plinths of buildings or in other structures including manholes, septic tanks etc. and shall be disposed off within the contract area marked on the drawings, as directed, levelled and neatly dressed.
- 3.1.5 In case of trenches exceeding 2 metres depth or where soil is soft or slushy, the sides of trenches shall be protected by timbering and shoring. The **CONTRACTOR** shall be responsible to take all necessary steps to prevent the sides of trenches from caving in or collapsing. The extent and type of timbering and shoring shall be as directed by the **Engineer-in-Charge**.
- 3.1.6 Where the excavation is to be carried out below the foundation level of adjacent structure, the precautions to be taken such as under pinning, shoring and strutting etc. shall be determined by **Engineer-in-Charge**. No excavation shall be done unless such precautionary measures are carried out as per directions of **Engineer-in-Charge**.
- 3.1.7 Specification for Earth work shall also apply to excavation in rock in general. The excavation in rock shall be done such that extra excavation beyond the required width and depth as shown in drawings is not made. If the excavation done in depth greater than required /ordered. The **CONTRACTOR** shall fill the extra excavation with concrete of mix 1:5:10 as the foundation concrete at his own cost.
- 3.1.8 **CONTRACTOR** shall make all necessary arrangements for dewatering / defiling as required to carry out proper excavation work by bailing or pumping out water, which may accumulate in the excavation pit from any cause/ source whatsoever.
- 3.1.9 **CONTRACTOR** shall provide suitable draining arrangements at his own cost to prevent surface water entering the foundation pits from any source.
- 3.1.10 The **CONTRACTOR** is forbidden to commence the construction of structures or to carry out concreting before **Engineer-in-Charge** has inspected, accepted and permitted the excavation bottom.
- 3.1.11 Excavation in disintegrated rock means rock or Boulders including brickbats which may be quarried or split with crow bars. This will also include laterite and hard conglomerate.
- 3.1.12 Excavations in hard rock - meant excavation made in hard rock to be done manually, or by blasting using only explosives and / or pneumatic hammers. In case of blasting, control blasting should be adopted depending on site conditions. For using explosives



- CONTRACTOR** shall follow all provisions of Indian Explosives Act / Rules 1983, corrected / revised up to date.
- 3.1.13 In case of hard rock excavation to be carried out using explosives the, **CONTRACTOR** shall obtain the written approval in advance.
- 3.1.14 The measurements for excavations shall be restricted and limited to minimum excavation line as per drawing for payment purposes.
- 3.1.15 Adequate protective measures shall be taken to see that the excavation does not affect or damage adjoining structures. The **CONTRACTOR** shall take all measures required for ensuring stability of the excavation and safety of property and people in the vicinity. The **CONTRACTOR** shall erect and maintain during progress of work, temporary fences around dangerous excavations at no extra cost.
- 3.1.16 Excavation in ordinary soil means excavation in ordinary hard soil including stiff heavy clay, hard shale, or compact moorum, or any materials, which can be removed by the ordinary application of spades, shovels, picks and pick axes. This shall also include removal of isolated boulders each having a volume not more than 0.50m³.
- 3.1.17 Excavation in soft rock includes limestone, sandstone, laterite, hard conglomerates, etc. or other rock which can be quarried or split with crowbars or wedges. This shall also include excavation of tarred pavements, masonry work and rock boulders each having a volume of not more than 0.25m³.
- 3.1.18 Excavation in hard rock includes any rock bound in ledges or masses in its original form or cement concrete for which in the opinion of the Engineer-in-Charge, requires the use of compressed air, equipment, sledge hammer and blasting or non-explosive materials viz. Acconex manufactured by A.C.C. Ltd. Specifications and instructions for use shall be as per manufacturer.
- 3.1.19 In case of any difficulty concerning the interpretation of type of soil as mentioned above, the Engineer-in-Charge shall decide whether the excavation in a particular material is in ordinary soil, soft rock or hard rock and his decision in this matter shall be final and binding on the **CONTRACTOR** and without appeal.

3.2 Filling

- 3.2.1 Back filling of excavations in trenches, foundations and elsewhere shall consist of one of the following materials approved by **Engineer-in-Charge**.
- 1) Soil
 - 2) Sand
 - 3) Murum
 - 4) Hard-core
 - 5) Stone/gravel

All back filling material shall be approved by the **Engineer-in-Charge**.

- 3.2.2 Soil filling - Soil material shall be free from rubbish, roots, hard lumps and any other foreign organic material. Filling shall be done in regular horizontal layers each not exceeding 20 cm. depth.
- 3.2.3 Back filling around completed foundations, structures, trenches and in plinth shall be done to the lines and levels shown on the drawings.
- 3.2.4 Back filling around pipes in the trench shall be done after hydro testing is done.



- 3.2.5 Back filling around liquid retaining structures shall be done only after leakage testing is completed and approval of **Engineer-in-Charge** is obtained.
- 3.2.6 Sand used for filling under foundation concrete, around foundation and in plinth etc. shall be fine/ coarse, strong, clean, free from dust, organic and deleterious matter. The sand filling under foundation shall be rammed with Mech. compactor. Sand material shall be approved by **Engineer-in-Charge**.
- 3.2.7 Murum for filling, where ordered, shall be obtained from approved pits and quarries which contain siliceous material and natural mixture of clay. Murum shall not contain any admixture of ordinary earth. Size of murum shall vary from dust to 10 mm.
- 3.2.8 Hard-core shall be of broken stone of 90 mm to 10 mm size suitable for providing a dense and compact sub grade. Stones shall be sound, free from flakes, dust and other impurities. Hard core filling shall be spread and levelled in layers, 15 cm thick, watered and well compacted with ramming or with mechanical / hand compacts including hand packing wherever required.
- 3.2.9 If any selected fill material is required to be borrowed, CONTRACTOR shall make arrangements and procure such material from outside borrow pits. The material of source shall be subject to prior approval of Engineer-in-Charge. CONTRACTOR shall make necessary access roads to borrow areas and maintain the same, if such access roads do not exist, at no extra cost.
- 3.2.10 Plinth filling shall be carried out with approved material as described earlier, in layers not exceeding 200mm, watered and compacted with mechanical compaction machines. Engineer-in-Charge may however permit manual compaction by hand tampers in case he is satisfied that mechanical compaction is not possible. When filling reaches the finished level, the surface shall be flooded with water, unless otherwise directed, for at least 24 hours, allowed to dry and then the surface again compacted as specified above to avoid settlements at later stage. The finished level of the filling shall be trimmed to the level specified. Compacted surface shall have at least 95% of laboratory maximum dry density. A minimum of one test per 250 sq. meters of compacted area shall be done.
- 3.2.11 Whenever the fill material (earth or soil) is purchased, **CONTRACTOR** shall get the approval of Engineer-in-Charge. The **CONTRACTOR** shall arrange to determine the following properties of the soil and shall get the approval of **Engineer-in-Charge**.
1. Clay content : 15% to 20%
 2. Laboratory dry density : Not less than 1600 kg/ m³
 3. Plasticity Index : Not more than 20
- 3.2.12 The fill shall be compacted using a vibrating compactor of not less than 1.5 tons. The fill shall be thoroughly compacted in layers as directed but not more than 200 mm thick. Adequate water shall be used for compaction and the density after compaction shall be not less than maximum dry density obtained in test of IS: 2720 Part-8. Compacted surface shall have at least 90% of laboratory maximum dry density. A minimum of one test per 250 sq. meters of compacted area shall be done.
- 3.2.13 The Gravel fill shall be non-plastic granular material, well graded, strong, with maximum particle size of 50 mm, with not more than 15% passing a 4.75 mm IS sieve, free of all debris, vegetable matter and chemical impurities.



- 3.2.14 All clods, lumps etc. shall be broken before compaction.
- 3.2.15 In case of grading/banking successive layers of filling shall not be placed, until the layer below has been thoroughly compacted to satisfy the requirements laid down in this specification.

Prior to rolling, the moisture content of material shall be brought to within +/-2% of the optimum moisture content as described in IS 2720 Part-7. The moisture content shall preferably be on the wet side for potentially expansive soil.

After adjusting the moisture content as described, the layers shall be thoroughly compacted by means approved by Engineer-in-Charge, till the specified maximum laboratory dry density is obtained.

General, fill shall be placed in layers not exceeding 300 mm thickness and shall be thoroughly compacted to achieve a compaction of at least 90% of laboratory maximum dry density up to a depth of 600 mm below finished grade. Final fill of 600 mm thickness shall consist of preferably natural material in, as dug condition except that stones larger than 100 mm shall be removed. It shall be placed in layers not exceeding 150 mm thickness and compacted to achieve of at least 95% of laboratory maximum dry density. Each layer shall be tested in field for density and accepted by Engineer-in-Charge, subject to achieving the required density before laying the next layer. A minimum of one test per 250 sq meters for each layer shall be conducted.

If the layer fails to meet the required density, it shall be reworked or the material shall be replaced and method of construction altered as directed by Engineer-in-Charge to obtain the required density.

The filling shall be finished in conformity with the alignment, levels, cross-section and dimensions as shown in the drawing.

Extra material shall be removed and disposed off as directed by the Engineer-in-Charge.

4.0 Plain and Reinforced Concrete Work

This specifications deals with cement concrete, plain or reinforced, for general use, and covers the requirements for concrete materials, their storage, grading, mix design, strength & quality requirements, pouring at all levels, reinforcements, protection, curing, form work, finishing, painting, admixtures, inserts and other miscellaneous works.

4.1 Materials

4.1.1 Cement: Any of the following cements may be used as required.

IS - 8112	43 Grade ordinary Portland cement
IS - 12269	53 Grade ordinary port land cement
IS - 1489	Portland Pozzolona cement

4.1.2 Water: Water used for mixing and curing concrete and mortar shall conform to the requirements as laid down in IS: 456. Sea water shall not be used for concrete work.



4.1.3 Aggregates: Coarse and fine aggregates for cement concrete plain and reinforced shall conform to the requirements of IS 383 and / or IS 515. Before using, the aggregates shall be tested as per IS: 2386.

Coarse aggregate: Coarse aggregate for all cement concrete work shall be broken or crushed hard stone, black trap stone obtained from approved Quarries or gravel.

Sand: Fine aggregate for concrete work shall be coarse sand from approved sources. Grading of coarse sand shall be within grading zones I, II or III laid down in IS: 383, table 4. If required the aggregates (both fine and coarse) shall have to be thoroughly washed and graded as per direction of **Engineer-in-Charge**.

4.2 Mixing

All cement concrete plain or reinforced shall be machine mixed. Mixing by hand may be employed where quantity of concrete involved is small, with the specific prior permission of the **Engineer-in-Charge**. 10% extra cement shall be added in case of hand mixing as stipulated in IS-456.

For large and medium project sites the concrete shall be sourced from ready- mixed concrete plants or from on site or off site batching and mixing plants (IS 4926)

4.3 Water Cement Ratio, Laying & Curing

Water Cement Ratio, Laying & Curing shall be done as per IS:456.

4.6 Grades of Concrete

4.6.1 Grades lower than M 20 shall not be used in reinforced concrete for Concrete Structures.

4.6.2 A sieve analysis test of aggregates shall be carried out as and when the source of supply is changed without extra charge notwithstanding the mandatory test required to be carried out as per CPWD specification.

4.6.5 All tests in support of mix design shall be maintained as a part of records of the contract. Test cubes for mix design shall be prepared by the CONTRACTOR under his own arrangements and at his costs, but under the supervision of the **Engineer-in-Charge**.

4.7 Design Mix Concrete

4.7.1 Design mix shall be allowed for major works where it is contemplated to be used by installing weigh batch mixing plant as per IS 4925. At the time of tendering, the CONTRACTOR, after taking into account the type of aggregates, plant and method of laying he intends to use, shall allow in his tender for the design mix i.e., aggregate/cement and water/cement ratios which he considers will achieve the strength requirements specified, and workability for concrete to be properly finished.

4.8.2 Before commencement of concreting, **CONTRACTOR** shall carry out preliminary tests for design mix on trial mixes proposed by him in design of mix to satisfy the **Engineer-in-Charge** that the characteristic strength is obtained. In this regard, CONTRACTOR may consult govt. approved/reputed institute to get design mix done as per IS 10262 at his own cost. The concrete mix to be actually used shall be approved by the **Engineer-in-Charge**.

4.8.3 Notwithstanding the above, the following shall be the maximum combined weight of coarse and fine aggregate per 50 kg of cement.



Grade of Concrete	Maximum weight of fine & coarse aggregates together per 50 kg of cement (for nominal mix only)
1. M - 10	480 kg
2. M - 15	350 kg
3. M - 20	250 kg

4.8.4 The workability of concrete produced shall be adequate, so that the concrete can be properly placed and compacted. The slump shall be as per IS 456.

4.8.5 The minimum consumption of the cement irrespective of design mix shall not be less than the following:

M 7.5 (1:4:8)	170 kg/cu m
M 10 (1:3:6)	220 kg/cu m
M 15	300 kg/cu m
M 20	350 kg/cu m
M 25	380 kg/cu m
M 30/40	400 kg/cu m

4.9 Testing of Concrete

4.9.1 Testing of concrete, sampling and acceptance criteria shall be in accordance with IS 456.

4.10 Proportioning

Mixes of cement concrete shall be as ordered. Where the concrete is specified by grade, it shall be prepared by mixing cement, sand and coarse aggregate by weight as per mix design. In case the concrete is specified as volumetric mix, then dry volume batching shall be done, making proper allowances for dampness in aggregates and bulking in sand. Equivalent volume batching for concrete specified by grade may however be allowed by the **Engineer-in-Charge** at his discretion.

4.11 Pre Cast Concrete

The specifications for pre cast concrete will be similar as for the cast in situ concrete. All pre cast work shall be carried out in a yard made for the purpose. This yard shall be dry, properly levelled and having a hard and even surface. If the ground is to be used as a soft former of the units, shall be paved with concrete or masonry and provided with a layer of plaster (1:2 proportion) with smooth neat cement finish or a layer of MS sheeting. The casting shall be over suitable vibrating tables or by using form vibrators as per directions of **Engineer-in-Charge**.

The yard, lifting equipment, curing tank, finished material storage space etc. shall be designed such that the units are not lifted from the mould before 7 (seven) days of curing and can be removed for erection after 28 (Twenty Eight) days of curing. The moulds shall preferably be of steel or of timber lined with G.I. sheet metal. The yard shall preferably be fenced.

Lifting hooks, wherever necessary or as directed by **Engineer-in-Charge** shall be embedded in correct position of the units to facilitate erection, even though they may not be shown on the drgs. and shall be burnt off and finished after erection.



Pre cast concrete units, when ready shall be transported to site by suitable means approved by **Engineer-in-Charge**. Care shall be taken to ensure that no damage occurs during transportation. All adjustments, levelling and plumbing shall be done as per the instructions of the **Engineer-in-Charge**. The CONTRACTOR shall render all help with instruments, materials and staff to the **Engineer-in-Charge** for checking the proper erection of the pre cast units.

After erection and alignment the joints shall be filled with grout or concrete as directed by **Engineer-in-Charge**. If shuttering has to be used for supporting the pre cast unit they shall not be removed until the joints has attained sufficient strength and in no case before 14 (fourteen) days. The joint between pre cast roof planks shall be pointed with 1:2 (1 cement: 2 sand) mortar where called for in the drgs.

5.0 STEEL REINFORCEMENT

5.1 Steel reinforcement shall comprise:

- 1) Mild steel bars conforming to IS : 432 Part-I.
- 2) Cold twisted bars conforming to IS: 1786
- 3) CRS bars
- 4) TMT bars
- 5) Hard drawn steel wire fabric conforming to IS: 1566

5.2 All joints in reinforcement shall be lapped adequately to develop the full strength of the reinforcement as per provision of IS: 456 or as per instruction of **Engineer-in-Charge**.



6.0 Form Work

6.1 The shuttering or form work shall conform to the shape, lines and dimensions as shown on the drawings and be so constructed as to remain sufficiently rigid during placing and compacting of the concrete and shall be sufficiently tight to prevent loss of liquid from the concrete. The surface that becomes exposed on the removal of forms shall be examined by **Engineer-in-Charge** or his authorized representative before any defects are made good. Work that has sagged or bulged out, or contains honey combing, shall be rejected. All shuttering shall be plywood or steel shuttering.

6.2 The **CONTRACTOR** shall be responsible for sufficiency and adequacy of all form work. Centering and form work shall be designed & detailed in accordance with IS 14687 and approved by the **Engineer-in-Charge**, before placing of reinforcement and concreting.

6.3 Stripping Time

Forms shall not be struck until the concrete has reached strength at least twice the stress to which the concrete may be subjected at the time of removal of form work. The strength referred to shall be that of concrete using the same cement and aggregates, with the same proportions and cured under conditions of temperature and moisture similar to those existing on the work. Where possible, the form work shall be left longer as it would assist the curing.

Note 1: In normal circumstances and where ordinary Portland Cement is used, forms may generally be removed after the expiry of the following periods:

1.	Walls, columns and vertical faces of all structural members	24 to 48 hours as may be decided by the Engineer-in-Charge
2.	Slabs (props left under)	3 days
3.	Beam soffits (Props left under)	7 days
4.	Removal of props under slabs	
	1. Spanning up to 4.5 m	7 days
	2. Spanning over 4.5 m	14 days
5.	Removal of props under beams & arches:	
	1. Spanning up to 6 m	14 days
	2. Spanning over 6m	21 days

For other types of cements, the stripping time recommended for ordinary Portland Cement may be suitably modified.

Note 2: The number of props left under, their sizes and disposition shall be such as to be able to safely carry the full dead load of the slab, beam or arch as the case may be together with any live load likely to occur during curing or further construction.