

**ANNEXURE TO TENDER**

**REQUEST FOR PROPOSAL (RFP)**

**FOR**

**DESIGN, MANUFACTURE, SUPPLY,  
TESTING & COMMISSIONING OF  
SELF PROPELLED UNIT (SPU)**

**SPECIFICATIONS & PRICE SCHEDULE**

OWNER : INDIAN SPACE RESEARCH ORGANISATION  
PROJECT : SPAG  
LOCATION : SDSC, SHAR, SRIHARIKOTA



**SPAG PROJECT  
SATISH DHAWAN SPACE CENTRE  
SRIHARIKOTA -524124.  
INDIAN SPACE RESEARCH ORGANISATION**

**SPAG PROJECT**

**SELF PROPELLED UNIT**

SHEET 2 OF 49

**REQUEST FOR PROPOSAL FOR SELF PROPELLED UNIT (SPU)**

<b>DESCRIPTION</b>	<b>TITLE</b>
SECTION-A	GENERAL TERMS AND CONDITIONS OF THE CONTRACT
SECTION-B	TECHNICAL SPECIFICATIONS

**SECTION -A**

**GENERAL TERMS AND CONDITIONS  
OF THE CONTRACT**

**SECTION - A**  
**GENERAL TERMS AND CONDITIONS OF THE CONTRACT**

SDSC SHAR invites offers from the bidders with proven ability for **“Supply of Self-propelled Unit of Payload Capacity 250t” as per the enclosed RFP Tender document** in two-part bid. Part-1: Technical & un-priced part of the work and Part-2: Priced commercial part. This Self Propelled Unit shall be used for launch vehicle production related works.

**Scope of work:**

The Scope of work for supply of self-propelled unit of capacity 250t shall include the following:

1. Design of Self-propelled Unit (SPU)- a multi axle self-propelled vehicle with diesel engine, hydrostatic drive systems, Electro hydraulic steerable axles and hydraulic multi axle suspension with control system.)
2. Fabrication & Manufacturing of SPU.
3. Inspection and Load Testing at Supplier’s Works site.
4. Transportation to SDSC SHAR, Sriharikota & Unloading of SPU and sub systems at SDSC SHAR, Sriharikota.
5. Load testing, commissioning of Self-propelled unit and training at Purchaser site i.e., SDSC SHAR, **SRIHARIKOTA, INDIA.**

**1. PROPOSAL DOCUMENT**

- 1.1. Proposal documents shall remain the property of SDSC SHAR and shall not be used for any another purpose without the consent of SDSC SHAR.
- 1.2. Pre-bid meeting is essential for offer submission. Offers of the bidders who have participated in the pre bid meeting will only be considered for evaluation. Other offers will not be considered.
- 1.3. The SPU is intended for critical transportation activities like transportation of hazardous propellant segments and required to be produced with high reliability and quality from reputed manufacturers. So, vendors who are not meeting bid qualification criteria (technical qualification requirements) as defined in tender will not be considered even under MSME/ start up norms.
- 1.4. Bidder shall quote for all the items (Sl.No. 1 to 4) of tender enquiry. Bidders who have quoted for all the items (Sl.No. 1to 4) of tender enquiry will only be considered for evaluation. Other offers will not be considered.
- 1.5. The proposal shall be completely filled in all respects and shall be submitted together with requisite information & Annexures. Any offer incomplete in any particulars is liable to be rejected.
- 1.6. The Proposal (Un-priced Techno-commercial bid) with a complete set of the required documents shall be up-loaded in ISRO e-procurement website.
- 1.7. Bidders shall set their quotations in firm figures and without variations/additions in the terms of the Proposal documents.
- 1.8. Overall L1 will be arrived by considering all the items (Sl.No.1 to 4) of tender enquiry.

**2. PREPARATION OF BIDS****2.1. Schedule of Prices**

The schedule of prices shall be read in conjunction with all the sections of proposal document. The price **must be filled online** in the same format of 'Schedule of Prices'. **Hard copy of Price bid shall not be sent strictly.** If hard copy of price bid is received the bid will be summarily rejected.

Price bid shall be filled in Price Bid form in e-procurement only. Price Bid annexures to be submitted in Price Bid supporting documents only and in e-procurement only.

**Price bid shall not be enclosed along with Technical & Unpriced Commercial Bid in e-procurement.**

**2.2. Documents Comprising the Bid**

Bids shall be arranged in the following order.

**2.2.1 Part – I: Technical and Un-Priced Commercial Part**

Technical and un-priced commercial part shall comprise the attachments, specifying attachment number arranged in the order as follows:

- a) Firm establishment certificate and nature of work.
- b) Details of work of similar type completed during the last five years ending with 31.03.2024.
- c) Satisfactory work Completion certificates with the work order copies.
- d) All the annexure shall be enclosed in proposal duly filled, signed and with official sealed.
- e) Un-priced copy of schedule of prices with all other commercial terms, taxes, duties, concessions certificates and conditions duly filled (Prices to be kept blank), signed and stamped. Bidder to clearly indicate "quoted" / "not quoted" against each sl.no in the price column in the unpriced schedule.
- f) Compliance for tender RFP document (General terms and conditions & Technical specifications details) of proposed SPU duly stamped in all pages as a token of acceptance along with supporting documents.
- g) Documents asked as per bid qualification criteria.
- h) Documents asked in the Technical specifications section.
- i) General arrangement drawings and other details, technical specifications of proposed SPU
- j) Data sheets & technical specifications for all sub systems of SPU.
- k) Write-up on the detailed procedure proposed to be followed for testing, erection & commissioning.
- l) Any deviations from technical specification and proposed design modifications.
- m) Structure and Organization chart.
- n) Details of factory, machinery, list of personnel with qualification & experience in the firm in the areas of design, production, quality, safety, administration etc.

- o) Project execution plan
- p) Bar chart for supply & erection schedule indicating the date of completion of various activities so as to complete the execution of the contract within the time frame stipulated in the tender specification.
- q) List of essential tools/accessories (Annexure-1) which shall be supplied along with the SPU.
- r) List of critical & essential spares and aggregates (Annexure-2) for two years trouble free maintenance without prices by mentioning against each item quoted/not quoted.
- s) List of items which require Customs duty concession certificate from SDSC SHAR.
- t) Any other relevant documents, bidder desires to submit.

### 2.2.2 Part – II: Priced Commercial Bid

- a) Priced commercial bid shall be filled online in the price bid format. Schedule of prices also are to be filled in the online format.
- b) Rate & amount prices for critical & essential spares and aggregates as given in Annexure-2 for two years trouble free maintenance.
- c) List of items with prices which require Customs duty concession certificate from SDSC SHAR

### 3. BID SUBMISSION

Bids duly filled in by the Bidder should invariably be submitted as stipulated in the tender document. Bids shall be submitted in the following manner.

#### ***Part – I : Un-priced Techno-Commercial Part of the Bid for the Work:***

Complete Techno-commercial part of the bid shall be filled online in the “Vendor Specified Terms’ form of the e-tender. Any documents related technical literature, guarantee / warrantee certificates and any other relevant documents as per the tender shall be scanned in lower resolution format and uploaded to the e-tender under ‘Documents solicited from Vendor’ form **only in ISRO e-procurement portal** (<https://eproc.isro.gov.in>).

Annexure-2 (Critical & essential spares) & Annexure-3 (Price breakup format) shall be filled by mentioning “Quoted” against each item and shall be uploaded. No prices shall be mentioned. If any prices mentioned in the technical bid, the bid will be rejected.

#### ***Part – II : Price Part of the Bid for the Work***

Price bid shall be filled in the on-line ‘price bid’ form of the e-tender only in ISRO e-procurement website **<https://eproc.isro.gov.in>**. The cost of spares and other prices shall be filled in the respective forms available on-line in the e-portal. Any other terms and conditions given in this part shall not be considered and if insisted upon by the Bidder, bids are liable for rejection.

Prices with rates for each spare as per Annexure-2 (Critical & essential spares) and Prices break up format as per Annexure-3 shall be uploaded with price bid.

SDSC SHAR may open Technical Bid, Part – I of the bid on the due date of opening subject to evaluation of technical and commercial terms. Price Bid (Part-II) of technically and commercially acceptable offers shall be opened at a later date.

SDSC SHAR reserves the right to reject any or all the Bids without assigning any reasons thereof.

***Any bids/offers with price details in Techno-Commercial Offer (Part – I) shall be rejected.***

SDSC SHAR reserve rights to place order for either full quantities of all items or partial quantities.

#### **4. BID EVALUATION**

- 4.1. During evaluation, SDSC SHAR may request bidder for any clarification on the bid or additional documents.
- 4.2. Techno-commercial discussion shall be arranged with bidder, if needed. Bidder shall depute his authorized representatives for attending discussions. The representatives attending the discussions shall produce authorization from his organization to attend the discussion and sign minutes of meeting on behalf of his organization if required. The authorized representative must be competent and empowered to settle/decide on all technical and commercial issues.
- 4.3. Bidder must provide the point by point compliance to the technical specifications along with deviations as per format “schedule of deviations” attached as Annexure-4. The tender will be rejected, if the deviations are not acceptable to the department.
- 4.4. Performance of bidder on similar nature of works executed/ under execution shall be taken into consideration before selecting the bidder for opening his price bid.
- 4.5. The time schedule for completion is given in the proposal document. Bidder is required to confirm the completion period unconditionally.
- 4.6. SDSC SHAR reserves the right to accept a bid other than a lowest and to accept or reject any bid in full or part without assigning any reasons. Such decisions by SDSC SHAR shall bear no liability whatsoever consequent upon such decision.
- 4.7. SDSC SHAR reserves the right to alter the quantities specified based on prices quoted for part work or unit rate quoted by bidder.
- 4.8. The bidder, whose bid is accepted by SDSC SHAR, shall be issued Purchase Order (PO) to proceed with the work. Bidder shall confirm acceptance by returning a signed copy of the PO.

#### **5. DELIVERY**

- 5.1. Dispatch Instructions given in the RFP shall be strictly followed. Failure to comply with the instructions may result in delay in payment apart from imposing any other charges as may be deemed to fit.

- 5.2. Supplier shall quote for delivery of the equipment on F.O.R Sriharikota only.
- 5.3. The Supplier shall be responsible for transporting all the equipment to site, unloading at Purchaser's site (SDSC SHAR). However, Material Handling Equipment support will be extended for unloading of consignment at SDSC SHAR, Sriharikota on chargeable basis subject to availability.
- 5.4. No equipment shall be delivered without obtaining dispatch clearance from SDSC SHAR.
- 5.5. All the equipment shall be properly packed to avoid any damage during Transportation / handling and any damage found has to be replaced free of cost.

#### **6. INSTALLATION, TESTING & COMMISSIONING:**

- 6.1. Supplier's commissioning staff shall arrive at site on date agreed by SDSC SHAR. Prior to proceeding to work, Supplier shall however, first ensure that required/sufficient part of his supply has arrived at site.
- 6.2. Testing and Commissioning of equipment at SDSC SHAR, Sriharikota, shall be carried out in presence of Department's quality team /engineers to establish conformity of the work with specification. Any deviations, deficiencies or evidence of unsatisfactory workmanship shall be corrected as instructed by Department.
- 6.3. Supplier shall carry out work in a true professional manner and strictly adhere to the approved drawings, standards and codes. Any damage caused by Supplier during erection shall be made good at no extra cost to Department.

#### **7. ACCOMMODATION**

Accommodation will be provided to the staff of supplier at Sriharikota subject to availability on chargeable basis by Department. Supplier shall make their own arrangement for transportation & canteen facility for all his staff.

#### **8. MEDICAL FACILITIES**

No medical facilities will be provided by SDSC SHAR. Supplier shall make their own arrangement at their own expenses for medical facilities for site personnel.

#### **9. SUB-CONTRACTS**

- 9.1. No work shall be sub-contracted without prior approval of SDSC SHAR.
- 9.2. Supplier shall be responsible for the proper execution of any sub-contract placed by him in connection with this purchase order.
- 9.3. Supplier shall furnish to SDSC SHAR the copies of all un-priced sub-orders showing promised delivery dates and places.

#### **10. CHANGES AND MODIFICATION TO SPECIFICATIONS, DRAWINGS AND QUALITATIVE / QUANTITATIVE REQUIREMENTS**

- 10.1. Supplier shall obtain approval from SDSC SHAR before initiating the action for procurement of bought out items.
- 10.2. During the fabrication review, supplier has to carry out the mutually agreed Modifications to meet the overall requirement.



10.3. In the event of conflict between requirements of any two clauses of the specification documents or requirements of different codes/standards, specified, the more stringent requirement as per the interpretation of the Department shall apply.

**11. Taxes and Duties (Income tax, CUSTOMS DUTY), Force Majeure:** Refer the enclosed document having general commercial terms and conditions attached herewith.

**12. STATUTORY VARIATION**

12.1 Statutory variation for CGST/SGST/UGST/IGST is applicable, provided the actual completion of services does not occur beyond the period stipulated in the order/contract or any extension (without levy of penalty). For variation after the agreed completion periods, the service provider alone shall bear the impact for the upwards revisions.

12.2 For downward revisions, the Department shall be given the benefit of reduction in CGST/SGST/UGST/IGST.

**13.0 RISK COVERAGE**

The Supplier shall arrange comprehensive risk coverage at his own cost covering the value of equipment including transportation to the site from manufacturer's works, erection, testing and commissioning at site. The period of such coverage shall be up to contractual completion period or any extension granted by Department thereof.

**14.0 SECURITY DEPOSIT**

A Bank Guarantee for the faithful execution of the contract / PO for 3% of the order value shall be provided immediately within 10 days after receipt of the order towards the performance of the contract. The Bank Guarantee should be from a Nationalised / Scheduled Bank in Rs.100 non-judicial stamp paper valid till the completion of scope of work / supply as per the order plus 60 days. This will not carry any interest and shall be returned to you after successful completion of scope of work / supply against your request. In case of non-performance/poor performance the Bank Guarantee shall be forfeited. If you are not submitted the BG within the specified period, this order is liable to be cancelled.

**15.PACKING AND FORWARDING**

The Supplier shall arrange to have all the material suitably packed as per the standards and as specified in the contract. Unless otherwise provided for in the contract, all containers (including packing cases, boxes, tins, drums, and wrappings) used by the Supplier shall be non-returnable.

All packing and transport charges, transit handling costs, transit risk coverage and transport fees of agents employed at the place of delivery or elsewhere, shall be deemed included in the price to be paid to the Supplier.

**16. WARRANTY**

The bidder shall provide minimum **12 months** warranty for the entire system for a defect liability from the date of final acceptance after successful load testing and commissioning at SDSC SHAR, Sriharikota. Supplier shall depute their *service representative to our site for periodical*

*preventive maintenance of equipment as per maintenance manual instructions during above warranty period minimum quarterly once visit. Replacement of any defective item within the warranty period is in the scope of supplier.*

#### **17. TERMS OF PAYMENTS**

A. In general, our payment terms will be 100% within 30 days after receipt, commissioning and acceptance.

B. However, if Vendors/Suppliers are requesting for advance payment, department may consider payment terms as given below,

1. After placement of confirmed Purchase Order:  
20% of supply cost as an advance against submission of bank guarantee for an equal amount from a nationalized/scheduled/commercial bank and shall be valid till Contract completion period plus 60 days. Format of Bank guarantee shall be obtained from Department after award of contract.
2. After receipt and acceptance of items at SDSC SHAR, Sriharikota:  
70% of the supply cost along with spares cost against receipt of materials at Purchasers / Department site along with GST (including for advance portion).
3. After commissioning at SDSC SHAR, Sriharikota:  
Balance 10% of supply cost along with 100% testing and commissioning charges and 100% taxes for testing and commissioning after successful load testing, commissioning and acceptance by Department and upon submission of Performance bank guarantee for 3% of order value valid till warranty period plus 60 days.

#### **Payment terms for Non-comprehensive AMC**

1. For item Sl.No.4 of tender enquiry (Non-comprehensive AMC) payment shall be made every half yearly on Pro-rata basis after completion of maintenance duly certified by EIC and approved by approving authority.

Wherever advance payment is requested, Bank Guarantee from any Nationalized Bank/Scheduled Bank/commercial bank should be furnished. In case of advance payments, if the vendor/supplier is not supplying the material within the delivery schedule, the advance amount will be recovered and interest will be levied as per the Marginal Cost of Lending Rate (MCLR) of RBI plus 2% penal interest.

#### **18.0 PERFORMANCE BANK GUARANTEE**

A Bank Guarantee for 3% of the order value shall be provided immediately within 10 days after supply or along with supply towards the performance of the system. The Bank Guarantee should be from a Nationalised / Scheduled Bank in Rs.100/- non-judicial stamp paper valid till the successful completion of warranty period plus 60 days. This will not carry any interest and shall be returned to you after successful completion of warranty period against your request. In case of non-performance/poor performance the Bank Guarantee shall be forfeited.

**SPAG PROJECT****SELF PROPELLED UNIT**

SHEET 11 OF 49

**19.0 DELIVERY SCHEDULE**

- a. The realization of SPU within the schedule is very essential. Hence, bidders are requested to adhere to the schedules given below. SPU as per the specifications of the contract shall be delivered within 12 MONTHS for supply from the date of release of Purchase Order.
- b. Commissioning shall be completed within TWO month from the date of receipt of Equipment at SDSC SHAR, Sriharikota.

<b>SI No</b>	<b>Description of Target</b>	<b>Responsibility</b>	<b>Target Completion Date</b>
1	Purchase Order release	Department	T
2	GA drawing of SPU with total design calculations and all the bought-out items details.	Vendor	T + 2 month
3	Approval of drawings and design calculations	Department	T + 3 months
4	Delivery of SPU to SDSC SHAR, Sriharikota	Vendor	T + 12 months
5	Erection & Commissioning of the equipment.	Vendor	T + 14 months

Note : The above mentioned Delivery schedule should be followed for timely commissioning of SPU without affecting Project Schedules. Supplier shall start the manufacturing/fabrication of SPU after obtaining the clearances from the purchaser i.e. SDSC SHAR.

**20.0 LIQUIDATED DAMAGES**

In the event of the Supplier failing to complete the work within the delivery period specified in the contract agreement or in extension agreed thereto, Department shall reserve the right to recover from the Supplier as liquidated damages, a sum of **0.5** percentage per week or part thereof of the undelivered portion of the total contract price of equipment or work. However, the total liquidated damages shall not exceed **10.0** percentage of the total Contract price.

LD will be imposed for supply and commissioning parts, If Party fails to adhere to the Delivery schedule mentioned above (Point No. 17).

**21. Make in India Clause**

General Terms & conditions for Bidders: For this procurement, bids from Class-I & class-II Local Suppliers are admissible. hence provisions contained in Public Procurement (Preference to Make in India), Order 2017 issued by Department for Promotion of Industry and Internal Trade (DIPP), Ministry of Commerce & Industries vide letter No. P-45021/2/2017-PP(BE-II) dated 04.06.2020 and subsequent amendment & directives shall be followed. Accordingly, offer will be evaluated & processed in conformation with above referred GOI order (Specially mentioned below). The bidder

	<b>SPAG PROJECT</b>	
	<b>SELF PROPELLED UNIT</b>	SHEET 12 OF 49

shall provide compliance and undertaking as per order and hereafter amendments:

(a) Order no: F.No.6/18/2019 PPD dated 23.07.2020 of Department of Expenditure), Ministry of Finance Under Public procurement division for the General Financial rule (GFRs).

(b) Class-I local supplier means a supplier or service provider, whose goods, service or works offered for procurement, has local content equal to or more than 50%, as defined under order.

(c) Class-II local supplier means a supplier or service provider, whose goods, services or works offered for procurement, has local content more than or equal to 20% but less than 50%, as defined under this Order

(d) Verification of local content:

(i) The Class I local supplier/ Class- II local supplier at the time to tender, bidding or solicitation shall be required to indicate percentage of local content and provide self-certification that the item offered meets the local content requirement for Class-I local supplier / Class II local supplier as the case may be. They shall also give details of the location(s) at which the local value addition is made.

(ii) In case bid value is in excess of Rs. 10 Cr., Class-I local supplier / Class-II local supplier shall be required to provide a certificate from the statutory auditor or cost auditor of the company (in the case of companies) or from a practicing cost accountant or practicing chartered accountant (in respect of suppliers other than companies) giving the percentage of local content.

(iii) False declarations will be in breach of the code of Integrity under Rule 175(1)(i)(h) of the General Financial Rules (GFR) for which a bidder or its successors can be debarred for up to two years as per Rule 151(iii) of the general Financial Rules along with such other actions as may be permissible under Law.

(iv) A supplier who has been debarred by any procuring entry for violation of this order shall not be eligible for preference under this order for procurement by any other procuring entity for the duration of the debarment.

(e) The percentage of local content should be specifically mentioned in the offer, without which it will be summarily rejected.

(f) Preference will be given to Class-I Local supplier and in their absence, Class-II Local supplier will be considered.

22.0 GST: As per the Notification No. 6/2018-Central Tax (Rate) dt:25.01.2018 A(ix) S.No.243A as amended by Notification No.25/2018-Integrated Tax (Rate) Dt: 31.12.2018 b(viii) S.No.243B issued by Ministry of Finance (Dept. of Revenue), SDSC SHAR is eligible to avail IGST @5% for the procurements related to Scientific and technical instruments, apparatus, equipment, accessories, parts, components, spares, tools, mock ups and modules, raw material and consumables required for launch vehicles and satellites and payloads.

**23.0 Down-time compensation for Non –Comprehensive AMC:**

**Case-1:** In case, the break-down calls are not attended to within 48 hours of intimation of vehicle break down.

**Case-2:** Problem shall be identified within 96 hours from the time of your service representative reporting at purchaser site.

**Case-3:** Identified reported problem shall be solved within one week from the date of spares readily available with purchaser.

If any of above three cases are not met down time compensation @ 0.5% (of the annual maintenance charges) per day shall be recovered from you subject to a maximum of 5% of AMC charges.

**24.0. Penalty clause for AMC:**

In case, services provided by the contractor for AMC is unsatisfactory during any period and any breach of contract occurs, no payment will be made on that particular service and 5% penalty will be levied on the Bill of contractor for that period.

**25.0 Risk and Cost Purchase:** Timely delivery of goods/services is of prime importance and where the vendor fails to fulfil their contractual obligations, the Procuring Entity shall be entitled, and it shall be lawful on his part, to procure Stores and/ or services similar to those ordered/cancelled, with such terms and conditions and in such manner as it deems fit at the “Risk and Cost” of the Contractor and the Contractor shall be liable to the Procuring Entity for the extra expenditure, if any, incurred or accrued by the Procuring Entity for arranging such procurement. However, the Contractor shall not be entitled to benefits if any, from such procurements.

Prior to resorting to risk purchase the Purchaser shall consider impact of the default by the contractor, proper notice to the contractor to invoke risk purchase clause and method of recovering the additional amount spent by the Purchaser. The cost as per risk purchase exercise may be recovered from the Earnest Money Deposit/ Security Deposit/ Performance Security of the supplier and/or bills submitted by the supplier against the same contract or any other contract. GST will be charged / levied on Risk Purchase as per the provision of GST Act Rule thereon.

Risk purchase action may be initiated under any of the following conditions.

- a. When the supplier fails to deliver the materials even after extending the delivery period.
- b. When the supplier fails to respond to purchases request for supply of the materials and fails to provide any genuine and bonafide reason for the delay in supply.
- c. When the supplier breaches any of the terms and conditions of the supply order/ contract and as a result fails to execute the order satisfactorily.

**26) ARBITRATION**

In the event of any dispute/s, difference/s or claim/s arising out of or relating to the interpretation and application of the Contract, such dispute/s or difference/s or claim/s shall be settled amicably by mutual consultations of the good Offices of the respective Parties and recognizing their mutual interests attempt to reach a solution satisfactory to both the parties. If such a resolution is not possible, within 30 days from the date of receipt of written notice of the existence of such

**SPAG PROJECT****SELF PROPELLED UNIT**

SHEET 14 OF 49

dispute/s, then the unresolved dispute/s or difference/s or claim/s shall be referred to the Sole Arbitrator appointed by the Parties by mutual consent in accordance with the rules and procedures of Arbitration and Conciliation Act 1996 as amended from time to time. The arbitration shall be conducted in Bengaluru in the Arbitration and Conciliation Centre Bengaluru (Domestic and International) as per its rules and regulations. The expenses for the Arbitration shall be shared equally or as may be determined by the Arbitrator. The considered and written decision of the Arbitrator shall be final and binding between the Parties. The applicable language for Arbitration shall be English only. Work under the Contract shall be continued by the CONTRACTOR during the pendency of arbitration proceedings, without prejudice to a final adjustment in accordance with the decision of the Arbitrator unless otherwise directed in writing by the DEPARTMENT or unless the matter is such that the works cannot be possibly continued until the decision (whether final or interim) of the Arbitrator is obtained

**27.0 VENDOR GENERAL INFORMATION FORMAT**

<b>SL. NO.</b>	<b>DESCRIPTION</b>	<b>REMARKS</b>
1	Name of Company	
2	Address of Company	
3	Type of Company (Proprietary/Pvt. Ltd/Public Ltd/Joint Venture/Consortium)	
4	Registration number	
5	Year of inception of the company	
6	Registered address	
7	Name & Designation of the officer of the Bidder to whom all correspondence shall be made for expeditors technical /commercial co ordination Telephone No Fax No Email address	
8	Annual turn-over of the company for the last three Years	
9	Major customers (Enclose copies of the Purchase Orders)	
10	Any customers feedback on the services which is in writing (Pl. enclose copies)	
11	Quality certification of the company for manufacturing the SPU/Hydraulic suspension modular trailers.	
12	Indian Branch details	
13	Orders executed during last five years, Mentioned. (Separate sheet can be	

	attached).	
14	Shop floor area covered	
15	No. of employees Engineers Supervisors Technicians Quality control engineers Administrative Staff.	
16	Performance testing facility Available:	
17	Details of inspection facilities / Instruments available ( Brief description & specifications shall be provided)	

**28. BID QUALIFICATION CRITERIA TO PARTICIPATE IN BID**

Sl. No.	Details to be confirmed and submitted along with offer	Supplier's confirmation/ acceptance
<b>1</b>	<p><b><u>Technical Qualification Requirements:</u></b> The bidder should meet the following technical qualifying requirements and shall submit relevant certificates to establish his credentials.</p>	
1.1	<p>The Bidder should be an organization with experience of at least 5 years ending with March-2024 in having executed contracts for design, engineering, manufacture, supply, testing and commissioning of specialized Material handling equipment (using in Transportation, Industrial, Construction and mining sectors etc.). <u>Necessary firm establishment certificate shall be provided.</u></p>	
1.2	<p><b>During last 5 years i.e. (From April-2019 To March-2024),</b> the firm should have successfully completed Design, Manufacture, supply, Installation, Testing and Commissioning of at least 1no. of <b>Self Propelled Unit of</b> minimum 100t payload capacity -1no with features like hydraulic system for suspension, steering, drive and with electronic control systems <b>or</b> above. <u>Bidder shall provide PO copies, GA drawings of SPU, relevant completion and performance certificates from end users with addresses, contact details including phone numbers along with the submission of bid for consideration of bid document.</u></p>	
1.3	<p>The bidder should have successfully completed the Design, Manufacture, supply, Testing and Commissioning of at least 1no. of <b>Self Propelled Unit with minimum 6 Nos. of axle lines and each axle line capacity of minimum 20t.</b> Bidder shall submit Purchase order copy with GA drawing of SPU with payload capacity with no. of axle lines, GA drawing of axle aggregate (set) with payload capacity, supply references</p>	

	<b>SPAG PROJECT</b>	
	<b>SELF PROPELLED UNIT</b>	SHEET 16 OF 49

	and performance certificates along with offer.	
1.4	<p>Bidder shall have supplied or integrated an SPU with electronic control system for hydraulic lifting, driving and multi-mode steering.</p> <p>Bidder shall submit the scheme, circuits of hydraulic drives, electronic controlled hydraulic multi-mode steering, suspensions and drive system with integrated PLC system. A schematic diagram of control system with GA / configuration drawings shall be submitted along with offer with relevant makes.</p>	
1.5	Bidder should have the facilities for load testing of subject SPU for SWL of 250t and for over load test for 125% of SWL i.e. 312.5t at their site during pre-delivery inspection before dispatch.	
2	<p><b><u>Financial Qualification Requirements:</u></b></p> <p>The bidder should also meet the following financial qualification requirements:</p>	
2.1	The Bidder should have annual average turnover of not less than a value of INR 15.0 Crores., from last three financial years ending 31-03-2023. (Financial Statement shall be enclosed.)	
2.2	Profit & Loss Accounts, Balance Sheets duly Certified by the auditor and IT returns for the last three financial years shall be provided.	
2.3	Bidder should possess a current Solvency Certificate from Nationalized /scheduled/commercial Bank for an amount of not less than Rs.5.0 Crores in the current financial year (FY 24-25).	
2.4	<p><b><u>Purchase orders executed for supply of Material handling equipment in last 5 years:</u></b></p> <p>One purchase order not less than Rs 10.0 Crores</p> <p>or</p> <p>Two purchase orders each not less than Rs 7.0 Crores</p> <p>or</p> <p>Three purchase orders each not less than Rs 5.0 Crores</p> <p>Or</p> <p>Cumulative purchase orders cost not less than Rs.10.0 crores in any one year in last 5 years.</p>	

**Note:**

- 1. Bids of those suppliers who are meeting above mentioned qualification criteria with documentary proofs only eligible for evaluation. Suppliers who**



**are not meeting above mentioned criteria will not be considered.**

- 2. Bidders shall submit all the supporting documents as asked in above criteria. Non submission of proper documents, those bids will not be considered.**
- 3.** Bidder shall have their own resources like factory area, qualified manpower, machinery, quality system, qualified design department and quality team etc. details in this regard shall be submitted along with the technical bid including organization chart.
- 4.** If required, the purchaser team shall visit the supplier site for assessing the facilities and capabilities of the supplier for supply of Self Propelled Unit of enquired range before opening of price bid.

**SECTION - B**

**TECHNICAL SPECIFICATONS OF SELF PROPELLED UNIT**

	<b>SPAG PROJECT</b>	
	<b>SELF PROPELLED UNIT</b>	SHEET 19 OF 49

**TECHNICAL SPECIFICATIONS OF 250T CAPACITY SELF PROPELLED UNIT (SPU)**

<b>SCOPE OF WORK &amp; FUNCTIONAL REQUIREMENTS</b>	<b>Confirmation /Acceptance from Bidder</b>
<p><b>1. SCOPE OF WORK:</b>            The Scope of work for supply of self-propelled unit of capacity 250t shall include the following:</p> <ul style="list-style-type: none"> <li>a) Design of Self-propelled Unit (SPU)- a multi axle self-propelled vehicle with diesel engine, hydrostatic drive systems, Electro hydraulic steerable axles and hydraulic multi axle suspension with control system.)</li> <li>b) Fabrication &amp; Manufacturing of SPU.</li> <li>c) Inspection and Load Testing at Supplier’s Works site.</li> <li>d) Transportation to SDSC SHAR, Sriharikota &amp; Unloading of SPU and sub systems at SDSC SHAR, Sriharikota.</li> <li>e) Load testing, commissioning of Self-propelled unit and training at Purchaser site i.e., SDSC SHAR, <b>SRIHARIKOTA, INDIA.</b></li> </ul>	
<p><b>2. Functional requirement:</b></p> <p>Self-Propelled Unit (SPU) of 250t capacity (<b>Ref: Fig-1</b>) is planned for transportation of high Center of Gravity (COG) cylindrical specimens of Height: ~11500mm and diameter: 4000mm using existing interface structures in vertical condition. The total weight to be transported is 250t (250,000 kg). The SPU shall also be used for horizontal transportation of above cylindrical specimen.</p> <p>Cylindrical specimens are loaded on rigid interface structures (already available with department), which transfers the load to longitudinal beam of SPU. Interface structures are in contact with the longitudinal beam of SPU platform. The schematic sketches of interface structures contacting with the SPU platform are given in these specifications. The main load bearing members are required for SPU on either side of platform in longitudinal direction. The top flange width of the main load bearing member should be minimum 400 mm.</p> <p>SPU has to go underneath the interface structures which are already loaded with the payload, lift the structure and transport among the facilities. SPU shall be used for lift, shift and unload functions. SPU has to unload the interface structure laden with payload at predefined location in the process facilities within ±5mm accuracy in position.</p> <p>The following are the different cases of operational requirement of Self Propelled Unit:</p> <p><b>Case-1:</b>            Self-loading, transportation and unloading of cylindrical specimen in the vertical condition using interface structure (Vertical support structure) on Self-propelled unit on (Black topping) BT road/Concrete</p>	

	<b>SPAG PROJECT</b>	
	<b>SELF PROPELLED UNIT</b>	SHEET 20 OF 49

road. **(Refer fig. no. 2)**

**Case-2:**

Self-loading, transportation and unloading of cylindrical specimen in the horizontal condition using interface structure (Horizontal Support structure) on Self-propelled unit on BT road/Concrete road. **(Refer fig. no. 3)**

**3. TECHNICAL SPECIFICATION OF SELF PROPELLED UNIT:**

SL. NO.	DESCRIPTION OF SPECIFICATION	Confirmation /acceptance from bidder
<b>1</b>	<p><b>DIMENSIONAL/PARAMETERS REQUIREMENT OF THE SPU</b></p> <p>1.1. Payload capacity : 250t</p> <p>1.2. Overall length of SPU : ~ 17700 mm</p> <p>1.3. Length of loading platform : ~14000 mm</p> <p>1.4. Width of SPU : 4500 mm</p> <p>1.5. Height of loading platform of SPU: 1650 ±350mm</p> <p>1.6. Nominal Driving height of loading platform: 1650 mm</p> <p>1.7. Overall height raised of loading platform: 2000mm</p> <p>1.8. Overall height lowered of loading platform: 1300mm</p> <p>1.9. Wheel track (Not less than) : 2800mm</p> <p>1.10. No. of axle lines : 10 Axle Lines / 20 bogies</p> <p>1.11. No. of drive wheel bogies : (Min .) 8</p> <p>1.12. No. of brake wheel bogies : (Min.) 6</p> <p>1.13. No. of steered wheel bogies : 20</p> <p>1.14. Gradeability: 10% @minimum 1KMPH with max. rated load</p> <p>1.15. Speed (Laden) : 5 KMPH</p> <p>1.16. Speed (Unladen) : 10 KMPH</p> <p>1.17. Loading area : ~14000mm X 4500mm</p> <p>1.18. Inner turning radius : 0 mm</p> <p>1.19. Outer turning radius : ~10000mm</p>	
<b>2</b>	<p><b>OPERATIONAL REQUIREMENT:</b></p> <p>Self-propelled unit shall meet the below mentioned operational requirements:</p> <p>2.1 SPU shall be suitable for the following operating environmental conditions:</p> <p style="margin-left: 40px;">a. Ambient temperature of 15°C to 50°C</p> <p style="margin-left: 40px;">b. Relative Humidity of 99%</p> <p style="margin-left: 40px;">c. Highly saline atmosphere (Nearer to seashore).</p> <p>2.2. SPU shall be operated on finished normal BT roads, Concrete roads or semi-finished or repaired roads. Skid free drive shall be ensured on all type of BT &amp; concrete roads. Hydrostatic drive shall be provided with Hydraulic anti-skid devices with</p>	

		<b>SPAG PROJECT</b>	
		<b>SELF PROPELLED UNIT</b>	SHEET 21 OF 49
<b>SL. NO.</b>	<b>DESCRIPTION OF SPECIFICATION</b>	<b>Confirmation /acceptance from bidder</b>	
	<p>protection against hydraulic motor over speed.</p> <p>2.3. Capable of positioning of payload within <math>\pm 5</math> mm accuracy.</p> <p>2.4. Considering the critical nature of operation, suitable electronic drive control system is to be designed like direct control of pump or auto mode for more precise and smooth acceleration/deceleration and speed without causing any kind of jerk/shock to the payload and also for accurate positioning.</p> <p>2.5. SPU shall work essentially at operating speed of 5 kmph with full load for a minimum period of six hours continuously. SPU shall be designed with robust systems like engine, hydraulic system, and transmission etc., such that overheating or any such issues does not occur.</p> <p>2.6. Easy and quick change of electronic cards of SPU electronics system.</p> <p>2.7. Electronically controlled diesel engine with self-diagnosis of troubles, alarms with recording facility shall be provided.</p> <p>2.8. Diesel fuel tank capacity not less than 400 liters.</p>		
<b>3</b>	<p><b>SPECIAL FEATURES/Specifications in SPU :</b></p> <p>Rated payload Capacity of Self-propelled Unit : 250t (250,000Kgs)  Overload capacity (1.25 times rated capacity): 312.5t (312,500Kgs)  Self-Propelled Unit shall be equipped with:</p> <p>3.1. Multi-axle, electronic lifting system, electronic controlled multi- mode steering.</p> <p>3.2. Hydraulic suspension, Hydro-static drive system, Multimode steering.</p> <p>3.3. Equal distribution axle loads shall be ensured and movable on BT road/concrete road with pneumatic tubeless tyres and corresponding suitable and compatible rims.</p> <p>3.4. SPU shall be provided with two operating cabins</p> <p>3.5. One cabin shall be provided on top of the SPU platform at one end, with full controls and accommodate two operators as shown in <b>schematic sketch. (Fig no.1)</b></p> <p>3.6. 2<sup>nd</sup> cabin (for accommodating one operator-underdeck) shall be provided underneath the platform on rear side of SPU with an operating panel using plug-in type Remote control. This driver cabin should not have any projection beyond top of the platform deck as shown in <b>schematic</b></p>		

		<b>SPAG PROJECT</b>	
		<b>SELF PROPELLED UNIT</b>	SHEET 22 OF 49
<b>SL. NO.</b>	<b>DESCRIPTION OF SPECIFICATION</b>	<b>Confirmation /acceptance from bidder</b>	
	<p><b>sketch. (Fig no.1)</b></p> <p>3.7. Radio/Plug-in type remote control panel shall be provided for operation of SPU from outside the driver cabin from a distance.</p> <p>3.8. The complete power pack (Engine &amp; hydraulic systems) shall be accommodated at front end of SPU (top deck driver cabin side) under the extended chassis platform as shown in the schematic sketch.</p> <p>3.9. Nominal loading platform height of trailer shall be around 1650 mm from the ground level with a provision for level adjustment of ±350 mm from the nominal height.</p> <p>3.10. Platform shall be in flat level condition irrespective of road irregularities. No welding projections are allowed above the loading platform level.</p> <p>3.11. Dual line Air brake system shall be provided with service, emergency and parking brakes.</p> <p>3.12. The SPU should be capable of Lift-Shift function of loads, lift the load by means of the lifting system, transport it to any required location and able to set the load down without the aid of a crane or other lifting support equipment.</p> <p>3.13. All the Stainless steel EN Grade: 1.4532, heavy duty hydraulic tubing shall be provided in the hydraulic systems.</p> <p>3.14. All the tubing and hoses are to be clamped using chrome coated/ SS clamps and no plastics shall be used for clamps.</p>		
<b>4</b>	<p><b>TECHNICAL PARAMETERS</b></p> <p>4.1. Speed of the vehicle on level road shall be <b>5 kmph</b> with <b>rated</b> pay load condition and <b>10 kmph</b> in unladen condition</p> <p>4.2. The self-propelled unit shall have a full load capacity suitable for transporting 250t payload on a gradient of 1 in 10 with a min. speed of 1kmph.</p> <p>4.3. Load per axle line with the rated load shall be around 30-34t. And No. of axle lines shall be 10. No of Axle aggregates (Bogies) shall be 20 nos. There shall be safety margin while selecting the axles/tyres/suspension</p>		

		<b>SPAG PROJECT</b>	
		<b>SELF PROPELLED UNIT</b>	SHEET 23 OF 49
<b>SL. NO.</b>	<b>DESCRIPTION OF SPECIFICATION</b>	<b>Confirmation /acceptance from bidder</b>	
	<p>capacity with respect to max rated payload, supported by Data sheets.</p> <p>4.4. Axle line shall be with two bogies.</p> <p>4.5. The capacity of each suspension system and tyres shall be selected such that they should able to withstand the loads, when the SPU travels on a longitudinal gradient 1 in 10 and transversal gradient of 1 in 20 with laden condition as shown in fig.2&amp;3.</p> <p>4.6. The schematic diagrams for 250 t payload with overall length, height, COG of payload and support locations for the payload and support areas etc., are indicated in figures 2&amp;3 enclosed with these specifications.</p> <p>4.7. Payload C.G. shift of ±150mm shall be allowed for all loading configurations in lateral and longitudinal directions. The same shall be considered in design and stability calculations.</p> <p>4.8. Platform height of SPU shall be adjustable (i.e. lifting and lowering) under laden conditions.</p> <p>4.9. The steering system shall be designed such that the SPU should be able to steer with full load in stand still condition.</p>		
<b>5</b>	<p><b>SPU PLATFORM FRAME/ CHASSIS SPECIFICATION:</b></p> <p>The loading platform/Chassis of Self Propelled Unit shall confirm to the following specifications:</p> <p>5.1. Frame should be robust and rigid of welded construction made of high strength weldable steel.</p> <p>5.2. Factor of safety in design of frame shall be minimum 2 on yield stress of material. Allowable stresses shall be as per standards, generally adopted for high capacity Self-propelled units. Structural Calculations showing working stresses &amp; factor of safety for all loading conditions shall be submitted.</p> <p>5.3. As explained earlier, the main load bearing members shall be longitudinal beams on either side of SPU. The top flange width dimension of this load bearing member shall be minimum <b>400mm</b>.</p> <p>5.4. All the cross members of adequate size shall be provided</p>		

		<b>SPAG PROJECT</b>	
		<b>SELF PROPELLED UNIT</b>	SHEET 24 OF 49
<b>SL. NO.</b>	<b>DESCRIPTION OF SPECIFICATION</b>	<b>Confirmation /acceptance from bidder</b>	
	<p>at close pitch and in case required, shall be able to bear some load. During detail engineering supplier shall indicate that maximum load that can be loaded on cross members.</p> <p>5.5. The loading platform has to be designed for the load combinations and loading diagrams given in the specifications.</p> <p>5.6. The structure shall be designed such that it maximizes the torsional stiffness of the frame ensuring better stability of the load during lifting and transport.</p> <p>5.7. The detailed calculations have to be submitted after placement of purchase order to meet all loading conditions.</p> <p>5.8. SelfPropelledUnit platform should not have any projections/unevenness/welding projections.</p> <p>5.9. The loading platform shall be completely covered with steel plates and wherever essential removable type inspection covers have to be provided with locking mechanism for maintenance operations.</p> <p>5.10. During detail engineering supplier shall furnish the drawings showing Longitudinal and transverse load bearing members of frame and permissible load transfers through the members.</p> <p>5.11. The outer long member load bearing frames sizes (either side) and side vertical height shall be selected such that based on the requirement load on the SPU tyres shall be relieved by lowering the loading platform on the support of side members, keeping packing (Metal/wood frames of height 200mm) materials underneath these members.</p> <p>5.12. Arrangement for fixing tow hitch (top deck cabin front side) shall be provided). The chassis frame shall be designed to take the towing load (250t payload + self-weight of SPU).</p>		
<b>6</b>	<p><b>POWER ENGINE SYSTEM</b></p> <p>Engine of SPU is the main power source and is connected with hydraulic pumps. The following are the specifications shall be provided on power system of SPU:</p> <p>6.1. Diesel engine shall be of reputed make, turbo charged, water cooled, and electronic controlled.</p>		



		<b>SPAG PROJECT</b>	
		<b>SELF PROPELLED UNIT</b>	SHEET 25 OF 49
<b>SL. NO.</b>	<b>DESCRIPTION OF SPECIFICATION</b>	<b>Confirmation /acceptance from bidder</b>	
	<p>6.2. Suitable capacity diesel engine to meet all load requirements as mentioned in these specifications shall be provided. Power rating of engine shall not be less than 300 kW of continuous cycle.</p> <p>6.3. Engine exhaust shall be provided with spark arrestor.</p> <p>6.4. All the heat parts of exhaust system and turbocharger are to be covered with the thermally insulated covers to limit the surface temperature within 200°C.</p> <p>6.5. The engine shall meet latest Indian emission norms applicable to SPU's in India under CEV/ Off-highway vehicles.</p> <p>6.6. Diesel tank of capacity min.400 liters shall be provided with lockable cap.</p> <p>6.7. All the flexible diesel hoses shall be reinforced with stainless steel wire braiding and inside the tube shall be of rubber/stainless steel. Preferably Stainless steel tubes can be used for diesel fuel.</p> <p>6.8. Details of the diesel engine like make, power rating shall be furnished along with offer.</p>		
<b>7</b>	<p><b>HYDROSTATIC DRIVE SYSTEM</b></p> <p>7.1. The SPU shall be equipped with closed circuit hydrostatic drive system with variable displacement axial piston pumps, motors, cooling system, etc.,.</p> <p>7.2. Drive system shall be provided with controls for smooth driving in both forward and reversing without shocks/jerks to payload.</p> <p>7.3. The configuration of the drive system shall be such that diesel engine drives the axial piston hydraulic pump and its output is transmitted through a closed circuit to hydraulic motors fixed in the drive axles to turn wheel drives, planetary gear boxes.</p> <p>7.4. No. of hydraulic drive motors required and their rating shall be mentioned in the offer.</p> <p>7.5. The drive system shall be equipped with power regulators to automatically prevent the diesel engine and drive assemblies from overloading.</p> <p>7.6. Pressure testing points shall be provided on the main hydraulic lines.</p> <p>7.7. The SPU shall be provided with wide range drive speeds for ensuring smooth drive and to position load accurately.</p>		

		<b>SPAG PROJECT</b>	
		<b>SELF PROPELLED UNIT</b>	SHEET 26 OF 49
<b>SL. NO.</b>	<b>DESCRIPTION OF SPECIFICATION</b>	<b>Confirmation /acceptance from bidder</b>	
	<p>Speed selection like Normal, high, Low, creep, tortoise, Snail, etc., shall be provided.</p> <p>7.8. Efficient hydraulic oil cooling system shall be provided.</p> <p>7.9. 355/65-15.0 24PR Pneumatic <b>tubeless tyres with suitable and compatible rims or</b> equivalent suitable Pneumatic tubeless tyres as per load requirement shall be considered for SPU.</p>		
<b>8</b>	<p style="text-align: center;"><b>ELECTRONIC CONTROLLED HYDRAULIC LIFTING/SUSPENSION SYSTEM:</b></p> <p>SPU shall be provided electronic precise controlled equal lifting/ lowering system with different modes.</p> <p>8.1. Equal Lifting &amp; lowering of entire platform as a whole unit. The platform shall lift / lower parallel from its initial position.</p> <p>8.2. All four corners shall be levelled to same height and then the whole platform is lifted or lowered.</p> <p>8.3. Equal &amp; parallel lifting/lowering of single or any group of suspensions.</p> <p>8.4. Smooth Lifting/lowering modes (normal/creep) suitable for laden/unladen condition.</p> <p>8.5. SPU shall be equipped with electronic equal lifting system to ensure very precise lifting accuracy.</p> <p>8.6. Each corner of lifting system shall be controllable through Precision Proportional/Servo valves and electronic master controller.</p> <p>8.7. All pendulum axles or bogies shall be connected to platform (Frame) through swivel bogie heavy duty slewing ring bearing/ heavy duty pivot bearing and with heavy duty hydraulic lift cylinder.</p> <p>8.8. Hydraulic cylinder shall be provided with articulated bearings on both ends, such that lateral forces will not act on the seals &amp; respective collar.</p> <p>8.9. Suspension cylinders shall be provided with reliable and reputed make i.e. HNBR seals or equivalent seals which shall be compatible with fire retardant HFDU hydraulic oil.</p> <p>8.10. The swing axles shall compensate road irregularities transverse to the individual wheel bogies; the hydraulic cylinders, through the hydraulic axle load compensation shall compensate longitudinal road irregularities.</p> <p>8.11. SPU shall be provided with Hydraulic suspension to ensure equal axle load on all wheel sets. Each Hydraulic suspension cylinder shall be provided with an isolation valve</p>		

		<b>SPAG PROJECT</b>	
		<b>SELF PROPELLED UNIT</b>	SHEET 27 OF 49
<b>SL. NO.</b>	<b>DESCRIPTION OF SPECIFICATION</b>	<b>Confirmation /acceptance from bidder</b>	
	<p>to isolate every one of the aggregates / hydraulic cylinders from hydraulic circuit in-order perform change of wheels.</p> <p>8.12. Individual hydraulic suspension cylinders shall be fitted with safety valves for total safety against hose rupture.</p> <p>8.13. Twin pipe line fracture safety (double circuit system) for lifting cylinders. In case of problem, the valve shall close the defective circuit immediately and axle system shall be capable of taking full load with one circuit.</p> <p>8.14. A provision shall be made in the Hydraulic suspension for the possibility of switching from 3 point to 4-point suspension group and vice versa.</p> <p>8.15. Overload protection, overload warning in the cabin and overload valves on the hydraulic system. Relief valves shall be provided to protect lifting cylinders against any damage should an overload situation occur.</p> <p>8.16. Pressure testing ports for main hydraulic lines. The pressure of each suspension group should be displayed in the driver cabin in the digital format.</p> <p>8.17. Maximum possible all the hydraulic, pneumatic and diesel lines shall be of rigid metallic tubes/ pipes as per specifications. Flexible hoses connections shall be needed wherever essential and required flexibility for relative moving systems.</p> <p>8.18. Manual and independent control possibility of the lifting or lowering of each hydraulic suspension point for adjustment of the platform position in case of emergency.</p> <p>8.19. High pressure and low pressure accumulators for laden &amp; unladen conditions of SPU shall be provided separately. Description and schematic sketch of accumulator's arrangement shall be submitted along with quotation.</p> <p>8.20. The suspension cylinder's bearing joint shall be protected from water and dust with proper sealing.</p> <p>8.21. Wheel changing mechanism shall be provided without the aid of jacks.</p>		
<b>9</b>	<p><b>ELECTRONIC CONTROLLED MULTI MODE HYDRAULIC STEERING SYSTEM:</b></p> <p>The SPU shall be equipped with an electronically controlled multimode steering system.</p> <p>9.1. The wheel bogies shall be steered by an electro-hydraulic multidirectional steering system. It consists of the digital steering electronics with several steering programs.</p> <p>9.2. Minimum multiple steering modes such as Normal</p>		

		<b>SPAG PROJECT</b>	
		<b>SELF PROPELLED UNIT</b>	SHEET 28 OF 49
<b>SL. NO.</b>	<b>DESCRIPTION OF SPECIFICATION</b>	<b>Confirmation /acceptance from bidder</b>	
	<p>(Ackermann) steering, front steering, rear steering, diagonal steering, transverse steering, circular steering, etc., shall be provided</p> <p>9.3. Steering system shall be provided with hydraulic steering gears, designed as double-rack and pinion gears or with equivalent arrangement for a steering angle of around 230°.</p> <p>9.4. Step less steering system shall be provided for accurate positioning with low steering forces through electro hydraulic actuating steering tooth and rack cylinders with feedback devices or with equivalent arrangement.</p> <p>9.5. The steering system is designed in such a way that the SPU can be also steered at standstill while under full load.</p> <p>9.6. Steering errors shall be indicated in drivers control display unit. Steering error limits for a pilot warning lamp on the instrument panel in the driver cabin and automatically shut down of the drive system of the SPU shall be provided.</p> <p>9.8. In case of a defect in the steering electronics, the complete SPU or single axle can be moved through a potentiometer or a manual control module.</p> <p>9.9. If the electronic steering system fails to work, it shall be possible to operate manually with the external valve control unit / powerpack. Provision shall be provided for attaching &amp; controlling the external power pack.</p>		
<b>10</b>	<p><b>HYDRAULIC OIL COOLING SYSTEM:</b></p> <p>Hydraulic oil cooling system shall be designed such that the hydraulic oil temperature rise shall be as minimum as possible over the ambient temperature. Warning lamp/alarm shall be provided in display unit in cabin, in case of over heat of hydraulic oil or in case of cooling system malfunction</p>		
<b>11</b>	<p><b>AIR BRAKE SYSTEM:</b></p> <p>11.1. Brake system shall be fed by an Air compressor installed in diesel engine.</p> <p>11.2. Air brake system shall be a Twin pipe line double circuit feature with Service, emergency and Parking brakes.</p> <p>11.3. Brake system shall be provided with in line Air dryers</p>		

		<b>SPAG PROJECT</b>	
		<b>SELF PROPELLED UNIT</b>	SHEET 29 OF 49
<b>SL. NO.</b>	<b>DESCRIPTION OF SPECIFICATION</b>	<b>Confirmation /acceptance from bidder</b>	
	<p>and automatic slack adjusters.</p> <p>11.4. Double circuit pneumatic operated braking system shall be provided on required bogies.</p> <p>11.5. Service brake as well as Parking brake shall be operated from any cabin.</p> <p>11.6. Brake system shall be designed to apply brakes in case of pressing any one of emergency button on the SPU</p> <p>11.7. The pneumatic system should have the tyre inflator valve, which will be used to inflate the tyre in case of any emergency.</p>		
<b>12</b>	<p><b>OPERATOR CABIN ABOVE THE PLATFORM (Top-Deck) :</b></p> <p>12.1. The size of the Operators cabin shall be around 2.5m (l) x 2.0m (W) x 1.5m (h) suitable for sitting two crew members and cabin shall be above the SPU platform.</p> <p>12.2. Ergonomically designed with <u>air conditioned</u>, weather &amp; sound proof cabin.</p> <p>12.3. Provided with wide wind screens / windows at front and rear fitted with safety glass.</p> <p>12.4. Easily accessible controls and display units with non-dazzling instrument lighting, showing all SPU parameters with warning system for any malfunctioning or failures of systems.</p> <p>12.5. Foot operated accelerator for engine control and steering wheel for steering shall be provided.</p> <p>12.6. Shall be provided with adjustable rear-view mirrors, wipers for wind screen with washer, sun visors, inclined footsteps/ladder to access the cabin etc.</p> <p>12.7. Operator panel in the cabin shall have complete controls of the SPU. Following are the controls required in operating panel:</p> <p>a. Digital display for monitoring critical parameters of engine, hydraulic system, electrical parameters etc.,</p> <p>b. Hydraulic lifting system parameters such as platform height from ground, pressures in the hydraulic suspension groups, stability polygon,</p> <p>c. Steering system parameters such as steering angle indicator, selected steering mode, speed display in m/min &amp; km/h</p> <p>d. Hydraulic drive system, drive pump pressure, temperature, etc</p> <p>e. Air pressure in the circuit, Pneumatic braking and</p>		

		<b>SPAG PROJECT</b>	
		<b>SELF PROPELLED UNIT</b>	SHEET 30 OF 49
<b>SL. NO.</b>	<b>DESCRIPTION OF SPECIFICATION</b>	<b>Confirmation /acceptance from bidder</b>	
	<p>control</p> <p>f. Weight of the Payload &amp; actual weight, Payload CG location,</p> <p>g. High precision levelling sensor/indicator, spirit level with indicator</p> <p>h. Error codes / messages, Overload warning etc.</p>		
<b>13</b>	<p><b>OPERATOR CABIN UNDER THE PLATFORM (Under-Deck):</b></p> <p>13.1. A small size operator cabin (non-air conditioned) of size around 1.6m (l) x 2.0m (W) x 1.2m (h) suitable for sitting <b>one operator</b> shall be provided on one side by taking supports from the SPU chassis as shown in the enclosed schematic sketch. No part of the operator cabin should project the beyond the top of platform deck.</p> <p>13.2. This operator cabin shall have the facility to operate the vehicle using plug in type remote control pendant alone. Display unit and other indications are not required in this cabin.</p> <p>13.3. Remote control panel supplied with SPU shall be placed in this under-deck cabin for operation with suitable attachment. Panel shall be provided with the following:</p> <p>a. SPU shall be provided with remote control panel with minimum 25 meter-long cable.</p> <p>b. Remote control panel shall be provided with all controls for operation of SPU like engine ignition ON / OFF, SPU lifting / lowering, selection of forward / reverse movement, different steering modes, braking, speed, lights, emergency stop etc.</p>		
<b>14</b>	<p><b>ELECTRICAL &amp; ELECTRONICS SYSTEM:</b></p> <p>The electrical and electronic control systems of SPU shall be confirmed to the following specifications:</p> <p>14.1. SPU electrical system shall be operated by 24Volt DC.</p> <p>14.2. Suitable rating alternator, starter motor and maintenance-free batteries shall be provided.</p> <p>14.3. SPU shall be provided with standard electrical fittings like Head lights in both front and rear sides, Directional indicators, hazard warning lights, 2 beacons, Back-up lights, horns, LED type emergency warning lights, Battery isolation switch, Maintenance-free Batteries placed in rigid flame retardant safety compartment, 4 nos. of working lights under the platform (2 nos. at front and 2 nos. at rear) etc.</p>		

		<b>SPAG PROJECT</b>	
		<b>SELF PROPELLED UNIT</b>	SHEET 31 OF 49
<b>SL. NO.</b>	<b>DESCRIPTION OF SPECIFICATION</b>	<b>Confirmation /acceptance from bidder</b>	
	<p>14.4. Emergency stop button in the operator’s cabin and also on four exterior corners of the SPU.</p> <p>14.5. All electrical wiring shall be routed properly through enclosures with earthing.</p> <p>14.6. Lights/Illumination shall be provided for under the chassis for maintenance/repair purpose.</p> <p>14.7. Fuses/ cut out shall be provided for all electrical fittings.</p> <p>14.8. IP ratings of all electrical fittings shall be Min. IP 65/66.</p> <p>14.9. Shall feed main electronic system, lighting system &amp; other electrical components.</p> <p>14.10. Electronic system shall contain complete set of control unit such as CPU, Digital analogue converters, I/O devices, software with redundant and manual override where ever required.</p> <p>14.11. IP rating for all the fittings and enclosures as applicable shall be provided.</p> <p>14.12. All instrumentation cables shall be of shielded and flexible type shall be provided.</p> <p>14.13. SPU shall be provided with electronic self-diagnosis with error code display and trouble shooting.</p> <p>14.14. Data logging shall be available for all analog parameters and event logging for digital &amp; diagnostics parameters. Same shall be exportable in pdf or Xcel format.</p> <p>14.15. HMI for displaying the essential vehicle parameters and diagnostics data.</p> <p>14.16. Electronic Control system/components shall be reliable and of reputed make.</p> <p>14.17. Air circulation shall be provided for the electronic control panel racks to keep the operating temperature within limits.</p> <p>14.18. Radio remote control panel also shall be provided for operation of SPU from outside the top deck driver cabin from a distance apart from the other operating panels provided in the two cabins.</p>		
<b>15</b>	<p><b>PAINTING SCHEME:</b></p> <p>SPU painting shall be as per the following scheme :</p>		

		<b>SPAG PROJECT</b>	
		<b>SELF PROPELLED UNIT</b>	SHEET 32 OF 49
<b>SL. NO.</b>	<b>DESCRIPTION OF SPECIFICATION</b>	<b>Confirmation /acceptance from bidder</b>	
	<p>15.1 Sand/Grit blasting the all surfaces to SA 2 ½</p> <p>15.2 primer coat- two component primer coat with Zinc Rich primer.</p> <p>15.3 Paint coat - two component intermediate paint coat.</p> <p>15.4 Top coat - two component coat PU finish.</p> <p>15.5 Total thickness of painting : minimum 200 µm DFT.</p> <p>15.6 The final color of SPU shall be <b>Golden Yellow</b>.</p>		
<b>16</b>	<p><b>SAFETY REQUIREMENTS:</b></p> <p>16.1. Hydraulic suspension system circuit shall be of <b>dual line</b> (double circuit) system.</p> <p>16.2. SPU shall be provided with <b>Safety feature against hose rupture</b> for both circuits in suspension system.</p> <p>16.3. Hydraulic suspension hoses shall be protected against abrasion with suitable protective covers.</p> <p>16.4. SPU shall be provided with emergency manual lowering (Quadrant) valves for lowering of SPU platform.</p> <p>16.5. All hydraulic pipes / tubes shall be of heavy duty stainless steel of EN grade 1.4532 to withstand highly saline atmosphere.</p> <p>16.6. All tube fittings shall be of highly reliable and leak proof fittings. VOSSForm / WALFORM+ tube fittings shall be provided for all hydraulic system.</p> <p>16.7. Hydraulic oil shall be synthetic fluid-based <b>Fire Resistant Hydraulic Fluid</b> (FRHF) HFD-U type conforming to any latest International standards meeting the minimum requirement. All hydraulic seals, O-rings, gaskets etc., in hyd system shall be compatible to this oil.</p> <p>16.8. Easy to fit magnetic based flashing beacons - 2 nos., one at front and other at rear shall be provided.</p> <p>16.9. Protection guard between Diesel fuel tank and other heat sources like engine, hot hydraulic lines etc.,</p> <p>16.10. SPU shall be provided with tilt sensor with audio alarm for lateral tilting of the SPU beyond a prefixed level and limits</p> <p>16.11. Spark arrester shall be fitted for diesel engine exhaust.</p> <p>16.12. Leak proof &amp; reliable diesel lines shall be provided.</p> <p>16.13. Earthing of all electrical equipment, Control cables and power cables shall be ensured.</p>		



		SPAG PROJECT	
		SELF PROPELLED UNIT	SHEET 33 OF 49
SL. NO.	DESCRIPTION OF SPECIFICATION	Confirmation /acceptance from bidder	
	16.14. The power unit/ hydraulic system shall have overload warning and protection system with suitable means. 16.15. All cables shall run in conduit pipes/ enclosures.		
17	Supplier shall use bought-out items components from the standard suppliers listed below preferably:		
	♦ Diesel Engine	M/s DEUTZ / VOLVO	
	♦ Slewing rings :	M/s IMO/ JOST /BPW/ Rothe Erde	
	♦ Axle assemblies :	M/s BPW/ TECMA/ SAF HOLLAND	
	♦ Tyres :	CONTINENTAL/ MICHELIN/ GOOD YEAR	
	♦ Hydraulic cylinders:	M/s NEUMEISTER/WIPRO/DANTAL/CANARA	
	♦ Hydraulic pumps and motors:	BOSCH REXROTH / EATON-VICKERS	
	♦ Hub reduction planetary gearbox	BOSCH REXROTH (L+S) / ZF	
	♦ Servo valves / Proportional valves	M/s MOOG/NORBREMSEN	
	♦ Hydraulic tubing & Fittings	M/s VOSS (Voss form) /M/s EATON-WALTERSCHEID (WALFORMplus)	
	♦ Hydraulic hoses	GATES/Manuli/Semperit/ALFAGOMMA/Parker	
	♦ Air brake system parts	: WABCO	
	♦ Electronic/ PLC components	Siemens SPS/Schneider/Allenbradely/MOBA/TEKNIC	
	<b>Note:</b> The supplier shall mention in the offer clearly about the makes/models of the above systems and all other bought out components. Supplier has to get specific prior approval of the purchaser for any other equivalent & reliable make of bought-out items other than indicated above and also for any other items not listed above. Major components like Hydraulic pumps, Hydraulic motors, Gear drives, Engine etc shall have respective brand OEM		

		<b>SPAG PROJECT</b>	
		<b>SELF PROPELLED UNIT</b>	SHEET 34 OF 49
<b>SL. NO.</b>	<b>DESCRIPTION OF SPECIFICATION</b>	<b>Confirmation /acceptance from bidder</b>	
	approved service points in India.		
<b>18</b>	<p><b>ACCESSORIES &amp; SERVICES TO BE SUPPLIED:</b></p> <p>18.1. Supply of SPU with standard accessories as mentioned in the Annexure-1.</p> <p>18.2. First fill of oil, grease, lubricants, consumables, spares etc. as required during start up and commissioning operations. (in the scope of supplier at commissioning)</p> <p>18.3. Accessories for monitoring pressure (Minimess) with gauges, special tools for maintenance, etc. shall be provided.</p> <p>18.4. One set of critical and essential spares &amp; aggregates for 2 years trouble free Maintenance. (Supplier shall list the spares with unit rates separately as mentioned in the <b>Annexure-2</b> for Price bid).</p> <p>18.5. One set of essential tools &amp; accessories includes Hub removal /Fitment spanner, Hyd. pressure gauges with hose kit for hydraulic system. (Supplier shall list the recommended Maintenance Tools and Tackles as mentioned in the Annexure-1 and include the same in base price).</p> <p>18.6. Rear view camera system with 10inch LCD HD screen in top deck cabin, with three cameras (1 rear/ 2 sides)</p>		
<b>19</b>	<p><b>DOCUMENTS/DETAILS TO BE SUBMITTED ALONG WITH OFFER:</b></p> <p>Supplier has to submit following details /documents along with their offer : (Note : All the documents and drawings in English only)</p> <p>19.1. General arrangement drawing with overall dimensions of SPU, turning circle radii, Overall features, Self-weight, Payload capacity, Axle Bogie/tyre loads , speeds, drive/brake wheels, steering modes, Performance data, etc.,.</p> <p>19.2. Technical specifications, data sheets, makes and model nos. of major systems like Engine, Hydraulic pumps, Hydraulic motors, Hydraulic oil, Bogies / axles, wheel reduction gearboxes, Slewing rings, Hydraulic Cylinders, Hydraulic tubing, Hydraulic hoses, tyres, electrical/electronic major components, etc.,</p> <p>19.3. Loading details with major loading members/ locations on platform.</p> <p>19.4. Stability limits of pay loads for different cases of loading</p>		

		<b>SPAG PROJECT</b>	
		<b>SELF PROPELLED UNIT</b>	SHEET 35 OF 49
<b>SL. NO.</b>	<b>DESCRIPTION OF SPECIFICATION</b>	<b>Confirmation /acceptance from bidder</b>	
	<p>as per tender and also considering offset in the cog location of payloads.</p> <p>19.5. Calculations for Tractive Effort and selection of Diesel engine power, hyd Pumps, hyd motors, wheel reductions.</p> <p>19.6. Technical details with schematic circuit diagram of hydraulic system for lifting showing major components and safety features (double circuit, hose rupture valves etc.,)</p> <p>19.7. Configuration of total steering system with make, model, data sheets of toothed racks, hyd motor drives, pumps.</p> <p>19.8. Configuration of braking system with component details.</p> <p>19.9. Features and Layout of Operator cabins with controls.</p> <p>19.10. References &amp; GA dwgs of earlier supply of heavy high capacity SPUs.</p> <p>19.11. List of Codes, Standards and guidelines followed for the design, manufacturing and quality management of the SPU.</p> <p>19.12. List of essential tools &amp; accessories as mentioned in the Annexure-1 are to be supplied along with SPU at FREE of COST.</p> <p>19.13. List of critical &amp; essential spares &amp; aggregates for 2 Years trouble free Maintenance as per the Annexure-2.</p> <p>19.14. The supplier shall submit documents as specified in various sections of this tender document and also as per the specific instructions of the purchaser.</p> <p>19.15. QAP for manufacturing, testing of SPU</p> <p>19.16. Document for Final acceptance procedure at Supplier site showing all kind of load testing, performance like acceleration, deceleration, speed etc</p>		
<b>20</b>	<p><b>DOCUMENTS/DETAILS TO BE SUBMITTED AFTER ISSUE OF PURCHASE ORDER:</b></p> <p>20.1. General arrangement drawing to SCALE of Self-propelled unit with major overall dimensions and with the details of bought out components.</p> <p>20.2. Chassis/Frame drawing to SCALE with dimensions and bill of materials.</p>		

		<b>SPAG PROJECT</b>	
		<b>SELF PROPELLED UNIT</b>	SHEET 36 OF 49
<b>SL. NO.</b>	<b>DESCRIPTION OF SPECIFICATION</b>	<b>Confirmation /acceptance from bidder</b>	
	<p>20.3. Chassis frame structural design calculations with Bending moment/stress diagrams.</p> <p>20.4. Detailed design report with calculations for selection of all systems like engine, lifting/suspension, drive, brake, steering, tyres and other sub systems etc., for approvals.</p> <p>20.5. Stability calculations/ diagrams at different speeds &amp; gradients for all pay load configurations.</p> <p>20.6. Detailed specifications, data sheets, ratings of the all the bought-out items like engine, hydraulic pumps, hydraulic wheel drive motors, cylinders, axles, tyres, slewing rings, valves etc.,.</p> <p>20.7. Performance diagrams of velocity/Tractive Effort, speed/torque, efficiency etc., and climbing ability in different speeds/loads in slopes.</p> <p>20.8. Hydraulic circuit diagrams for Lifting, drive and steering systems with BOQ.</p> <p>20.9. Hydraulic tubing layout diagram with details of all tubes, hoses, fittings and valves etc.,</p> <p>20.10. Pneumatic brake circuit diagram with all tubing, valves, filters, etc., BOQ with OEM data sheets.</p> <p>20.11. Electrical and electronic circuit diagrams with BOM &amp; data sheets.</p> <p>20.12. Supplier shall furnish detailed Quality Assurance Plan followed during manufacturing of Self-propelled unit.</p> <p>20.13. During detail engineering supplier shall submit documents/design details for systems as specified in various sections of this specifications as per the specific instructions of the purchaser.</p>		
<b>21</b>	<p><b>DOCUMENTS/DETAILS TO BE SUBMITTED ALONG WITH SUPPLY OF SPU:</b></p> <p><b>The following documents shall be submitted in 4 copies in the form of Hard Bound books:</b></p> <p>21.1. Operation manual, Maintenance manuals, Spare parts manuals of SPU shall be supplied.</p> <p>21.2. All the documents such as operation, maintenance, spare parts and repair manuals of subsystems like Diesel engine, pumps, motors, hydraulic valves, pneumatic systems etc.,</p> <p>21.3. Test certificates for all systems like engine, pumps, motors, hyd. tubing, spark arrestor shall be furnished.</p> <p>21.4. Detailed Circuit diagrams of the hydraulic, Pneumatic, Electrical &amp; Electronics system, BOQ shall be submitted</p>		

		<b>SPAG PROJECT</b>	
		<b>SELF PROPELLED UNIT</b>	SHEET 37 OF 49
<b>SL. NO.</b>	<b>DESCRIPTION OF SPECIFICATION</b>	<b>Confirmation /acceptance from bidder</b>	
	<p>with specification of components.</p> <p>21.5. Hydraulic piping layout with all components &amp; BOM.</p> <p>21.6. Pneumatic tubing layout with all components &amp; BOM.</p> <p>21.7. Trouble shooting charts for Mechanical, Hydraulic, Electrical and Electronic control systems.</p> <p>21.8. Data sheets, manuals, wiring drawings of all instrumentation and control system components.</p> <p>21.9. In addition to hard bound books, the above documentations shall be provided in 4 copies in soft form in DVDs / Pen drives format.</p>		
<b>22</b>	<p><b>INSPECTION &amp; TESTING AT SUPPLIER'S SITE:</b></p> <p>Supplier shall inform and get clearance from the purchaser at various stage of design, fabrication, inspection and testing of SPU.</p> <p>22.1. Party has to update progress of works on monthly basis with photograph and technical documentation and assure progress for scheduled delivery.</p> <p>22.2. Purchaser shall have right to inspect the SPU at any stage of fabrication and get clarifications on the design, fabrication and testing of SPU.</p> <p>22.3. During detail engineering, Supplier shall provide the test plan/methodology to demonstrate tractive effort, SWL and Over load capacity (1.25 X 250T) of the SPU at supplier premises.</p> <p>22.4. The supplier shall intimate the purchaser at least 8 weeks in advance about the readiness of SPU for inspection and testing at Party's works site.</p> <p>22.5. Pre-delivery inspection shall be carried out as per approved Quality Assurance Plan / Factory Acceptance Test at supplier's end before dispatch. Tractive Effort for designed capacity, No load, SWL (250t) at appropriate rated speeds and over load (312.5t) test in static condition, functional testing of SPU shall be demonstrated at the premises of the manufacturer prior to dispatch. Representatives of the purchaser will be present to witness the tests and accept the SPU for its capability.</p> <p>22.6. If any minor modifications suggested during testing &amp; inspection the same shall be carried out free of cost.</p> <p>22.7. At the time of inspection and testing at suppliers' works, test loads, labour, tools /instruments shall be arranged by the party.</p> <p>22.8. Supplier shall furnish calibration certificates for the instruments to be used for testing at shop and site.</p>		

		<b>SPAG PROJECT</b>	
		<b>SELF PROPELLED UNIT</b>	SHEET 38 OF 49
<b>SL. NO.</b>	<b>DESCRIPTION OF SPECIFICATION</b>	<b>Confirmation /acceptance from bidder</b>	
<b>23</b>	<p><b>TESTING AND COMMISSIONING, TRAINING AT PURCHASER'S SITE:</b></p> <p>23.1 Equipment shall be load tested for rated capacity at SDSC SHAR, Sriharikota and test loads will be provided by the Purchaser.</p> <p>23.2 The Supplier shall depute their representatives for unloading, Testing and commissioning of SPU at SDSC SHAR, Sriharikota.</p> <p>23.3 Unloading of consignment at SDSC SHAR is the responsibility of the Supplier. However, Material Handling Equipment support will be extended for the same on chargeable basis.</p> <p>23.4 If any minor modifications required during testing/assembling / commissioning at SDSC SHAR, Sriharikota, the same shall be carried out free of cost.</p> <p>23.5 After successful demonstration &amp; commissioning of the SPU, exclusive training session has to be conducted at SDSC SHAR. Commissioning period shall not be considered as Training period.</p> <p>23.6 Supplier has to provide training on vehicle driving/operation, maintenance, hydraulics, electronics, instrumentation and control systems and trouble shooting of SPU to PURCHASER's personnel for minimum 5 working days at SDSC SHAR at FREE of COST after successful commissioning of SPU and training session has to be imparted by the qualified representative of SPU Equipment manufacturer/Supplier. Supplier shall provide Audio /video presentation and Training material during training session.</p> <p>23.7 Supplier shall depute their personnel to our site at the earliest possible time in case of any break down of equipment during warranty period.</p>		
<b>24</b>	<p style="text-align: center;"><b>EVALUATION OF TENDERS</b></p> <p><b>GENERAL CONDITIONS:</b></p> <p>24.1. Basis for arriving lowest offer, L1:  <b>The rates quoted for SPU with all the items (Sl.No.1 to 4) as per Price bid will be considered for arriving lowest bidder.</b></p> <p><u>Basic cost of SPU, load testing and commissioning charges, cost of operational spares as per Annexure-2 and Non comprehensive AMC charges also will be taken into</u></p>		

		<b>SPAG PROJECT</b>	
		<b>SELF PROPELLED UNIT</b>	SHEET 39 OF 49
<b>SL. NO.</b>	<b>DESCRIPTION OF SPECIFICATION</b>	<b>Confirmation /acceptance from bidder</b>	
	<p style="text-align: center;"><u>consideration for arriving first lowest offer.</u></p> <p>24.2. The technical specifications mentioned in the Tender document are minimum required. Superior technical specifications offered by the suppliers, which will improve the performance of the Equipment, will be considered for evaluation without any additional cost. However, Purchaser has the right to evaluate for consideration or rejection on merit.</p> <p>24.3. Purchaser, SDSC SHAR, has the right to place order for full or part of the items or whichever is felt essential.</p> <p>24.4. <b>Delivery terms:</b></p> <p style="padding-left: 20px;">a. Supplier shall quote for delivery of the equipment as F.O.R: <b>SDSC SHAR, Sriharikota.</b></p>		
<b>25</b>	<p><b>NON COMPREHENSIVE ANNUAL MAINTENANCE CONTRACT FOR SPU (Sl.no.4 of tender) :</b></p> <p>Bidder shall extend Non-Comprehensive Annual maintenance contact (AMC) for a period of 5 years for ensuring trouble free operation &amp; maintenance of SPU.</p> <p>This AMC will start after completion of warranty period of one year with a visit on every half yearly basis. Supplier shall submit the detailed scope of work carried out during every half yearly visit along with offer.</p> <p>AMC check list will be covering complete maintenance plan of OEM.</p> <p>Semi-skilled/ unskilled man power assistance will be provided by department for above works.</p> <p>The SPU will be spared for AMC works on dates, depending on operational convenience.</p> <p>For any trouble/break-down of SPU, supplier shall extend service support immediately during AMC within 48 hours.</p> <p>During the period of AMC, if required, spare parts will be supplied by SDSC SHAR; If not available, supplier shall supply spare parts on chargeable basis on separate approval.</p> <p>Supplier shall prepare and submit the report on condition of SPU &amp; its systems after every service visit.</p> <p>AMC price will also be compared for arriving Lowest bidder.</p>		

	<b>SPAG PROJECT</b>	
	<b>SELF PROPELLED UNIT</b>	SHEET 40 OF 49

SL. NO.	DESCRIPTION OF SPECIFICATION	Confirmation /acceptance from bidder
	Payment for AMC will be made after completion of service every half yearly on Prorata basis.	

**Annexure-1**

**LIST OF ESSENTIAL TOOLS & ACCESSORIES TO BE SUPPLIED ALONG WITH SELF PROPELLED UNIT**

The list of items mentioned in the following table are essentially required to be supplied in wheeled trolley with lock and key along with SPU on FREE OF COST. Also Supplier has to furnish other essential tools and accessories, which comes under standard accessories and supply the same at **FREE OF COST**.

Sl. No.	Item description	Quantity
1	Wheel hub nut removal / fitment spanner	2 Nos.
2	Wheel nut spanner (Deep socket) for drive wheel including any extension bar and T handle.	2 Nos.
3	Wheel nut spanner (Deep socket) for Non-drive wheel any extension bar and T handle.	2Nos.
4	Suspension cylinder lock nut removal tool	2 Nos.
5	Suspension cylinder dismantling tools	2Nos.
6	Steering cylinder lock nut removal tool	2 Nos.
7	Steering cylinder dismantling tool	2 Nos.
8	Hydraulic hoses quick coupler loosening / tightening monkey pliers	2 Nos.
9	Suitable range Torque wrench for providing torque to the SPU aggregates such as drive & steer wheel hub nuts, wheel bogie mounting bolts etc. and wherever applicable.	1 No.
10	Complete set of Minimes hoses, pressure gauges and accessories for measuring pressures in hydraulic circuit system.	1 set

**Note:**

- a. Supplier has to clearly mention the list of essential tools & accessories offered with the SPU which contains, Description of the Part, part number and quantity along with the offer.



**SPAG PROJECT****SELF PROPELLED UNIT**

SHEET 41 OF 49

**Annexure-2****LIST OF CRITICAL & ESSENTIAL SPARES FOR TWO YEARS TROUBLE FREE MAINTENANCE**

The list of items mentioned in the table is essential required items. Supplier has to furnish additional spares which are required for 2 years trouble free maintenance.

<b>Sl.No</b>	<b>Item description</b>	<b>Qty</b>
.		
1	Seal kit for suspension cylinders	4 sets
2	Seal kit for Steering cylinders	4 sets
3	Thermal insulation cover for Engine Turbo	2 Nos.
4	Hose rupture valve	2 Nos.
5	Engine oil filter element	4 Nos.
6	Fuel filter elements	4 Nos.
7	Air filter element (Main)	4 Nos.
8	Air filter element(Secondary)	4Nos.
9	Hydraulic oil tank Breather filter element	4Nos.
10	Air drier filter	2Nos.
11	Hydraulic oil (high pressure) Filter element	4 Nos.
12	Filter element for hydraulic oil suction & return line filter elements	8 Nos.
13	Spare Drive wheel assembly with rim & tyre	2sets
14	Spare Non drive wheel assembly with rim & tyre	<u>2 sets</u>
15	Brake shoe complete with brake lining	2 sets
16	V-belt for alternator drive	2 Nos.
17	V-belt for compressor drive	2Nos.
18	V-belt for coolant pump drive	2Nos.
19	Emergency push button set	1 No.
20	Control card--Main	1No.
21	Control card--Lifting	1No.
22	Control card-Steering	1No.
23	Side indicator lamp bulbs	4Nos.
24	Head lamp bulbs	4Nos.
25	Working light	1 No
26	Electronic Accelerator pedal assembly	1 No
27	Main headlights	1 No
28	One set of I/O modules (AI, AO, DI, DO)	1set
29	One set for all types of Relays	1set
30	One set for all types of sensors	1 set
31	Self-starter	1No.
32	Alternator	1No.
33	Pressure transmitter	2Nos.
34	Coolant temperature sensor	2Nos.
35	Fuel level sensor	1No.

**SPAG PROJECT****SELF PROPELLED UNIT**

SHEET 42 OF 49

<b>Sl.No</b>	<b>Item description</b>	<b>Qty</b>
.		
36	Hydraulic oil temperature sensor	1No.
37	Ignition switch with key	2Nos
38	Pressure switch (if applicable)	1No.
39	Wheel RPM sensor	1No.

**Note:**

1. The above list of spares is indicative only. Supplier may suggest additional spares required for 2 years for trouble free operation and maintenance of vehicle. Cost table for above shall be given
2. Supplier has to clearly mention Description of the Part, part number, quantity, break-up cost along with the offer without fail.
3. Un-priced list of spare parts (Annexure -2) shall be furnished along with Part-1: Techno Commercial Bid.
4. Break-up cost for the above listed spares & aggregates of Annexure-2 shall be furnished along with Part-II: Price Bid only.
5. Overall L1 will be arrived by considering all the items (Sl.No.1 to 4) of tender enquiry.
6. Purchase order will be placed for item Sl.No.1, 2, 3 immediately. For items Sl.No.4 i.e. (for Non comprehensive AMC) purchase order will be placed after completion of warranty period of one year.

**SPAG PROJECT**

**SELF PROPELLED UNIT**

SHEET 43 OF 49

**Annexure-3**

**PRICE BREAK-UP FORMAT**

<b>Sl No</b>	<b>Item</b>	<b>Unit</b>	<b>Qty</b>	<b>Unit Cost (Rs.)</b>	<b>Total Cost (Rs.)</b>	<b>GS T (%)</b>	<b>GST (Rs.) (B)</b>	<b>Total Cost (Rs.)</b>
					<b>( A )</b>			<b>C= (A+B)</b>
1	Design, manufacture, inspection, testing and transportation of Self Propelled Unit (SPU) of Capacity:250t as per the technical specifications, terms & conditions, schematic drawings and as per the Request for proposal document enclosed as Annexure.	Nos	1					
2	Testing and commissioning of above Self Propelled Unit (SPU) at purchaser's site as per the technical specifications, terms & conditions.	Nos	1					
3	Critical & essential spares for two years trouble free maintenance of above Self Propelled Unit (SPU) as given in Annexure-2 of RFP	lot	1					
4	Non comprehensive AMC for above Self Propelled Unit (SPU) for 5 years and as per the details and conditions given in Sl.No.25 of RFP enclosed	years	5					

**Notes:**

1. Un-priced list of spare parts (Annexure -2) shall be furnished along with Part-1: Techno Commercial Bid. Break-up cost for the above listed spares & aggregates of Annexure-2 shall be furnished along with Part-II: Price Bid only.
2. Bidder shall quote for all the items (Sl.N.1 to 4) of tender enquiry for consideration of offer and Overall L1 will be arrived by considering overall cost of all the items (Sl.No.1 to4).

	<b>SPAG PROJECT</b>	
	<b>SELF PROPELLED UNIT</b>	SHEET 44 OF 49

**DRAWINGS**

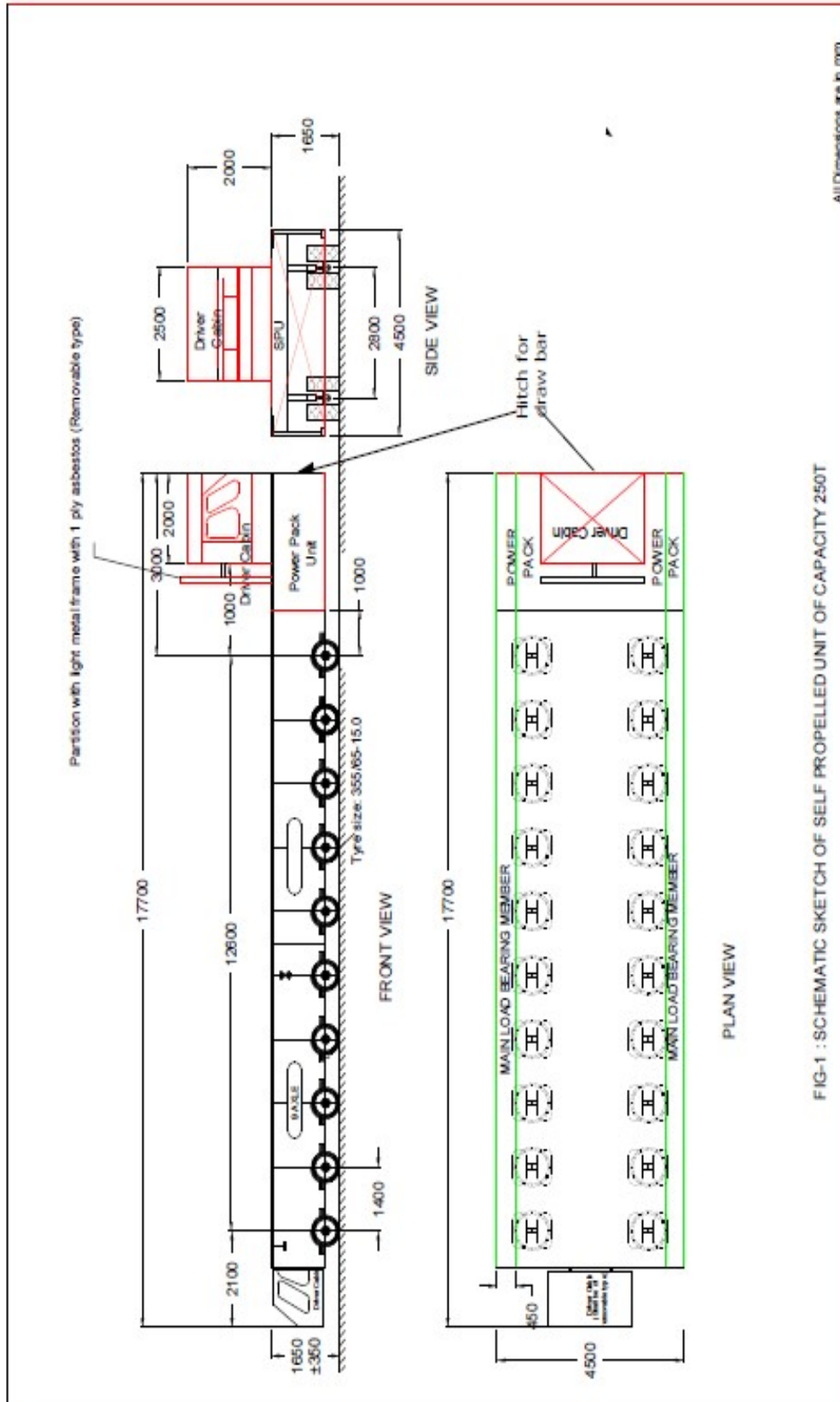
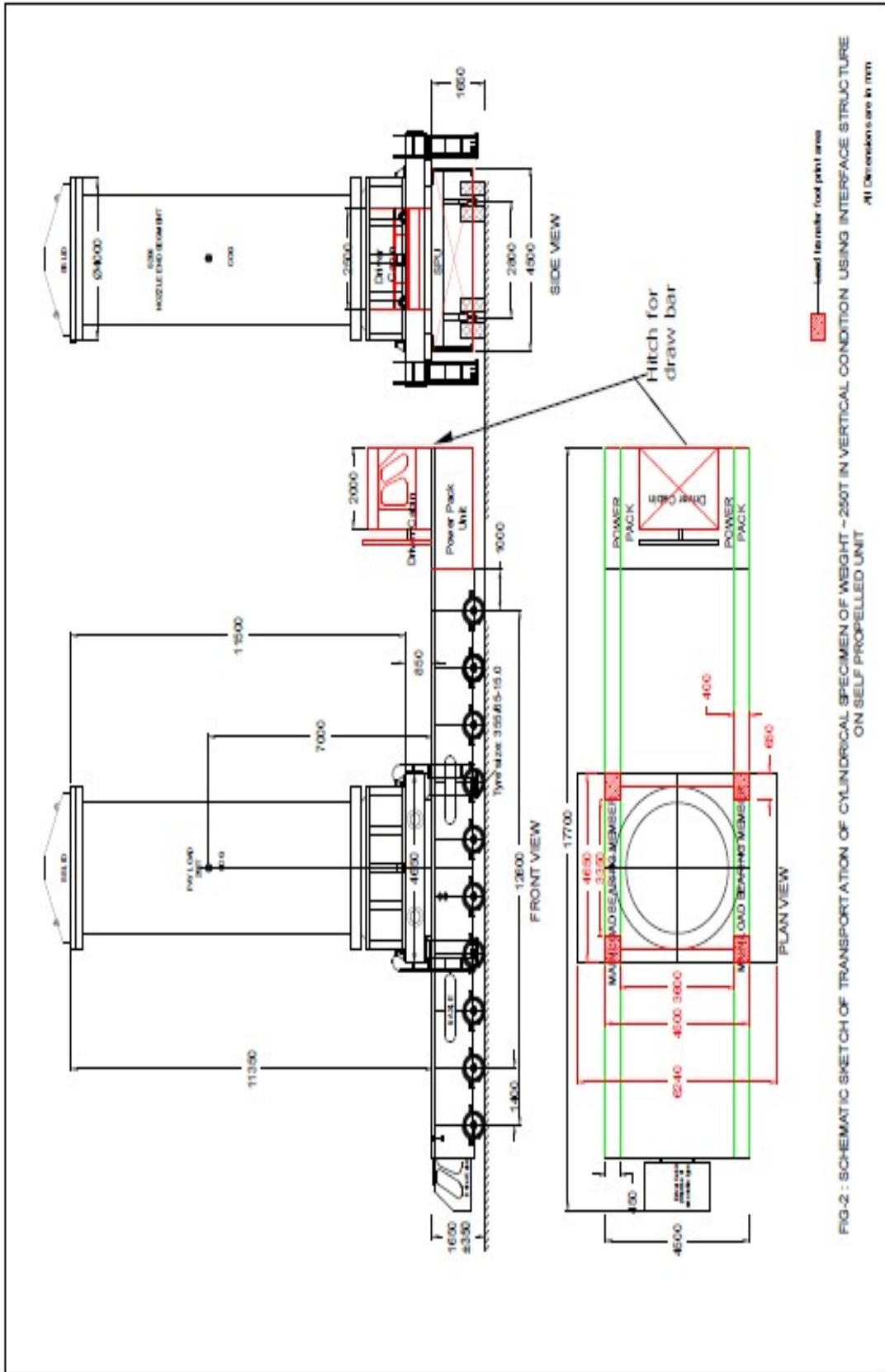
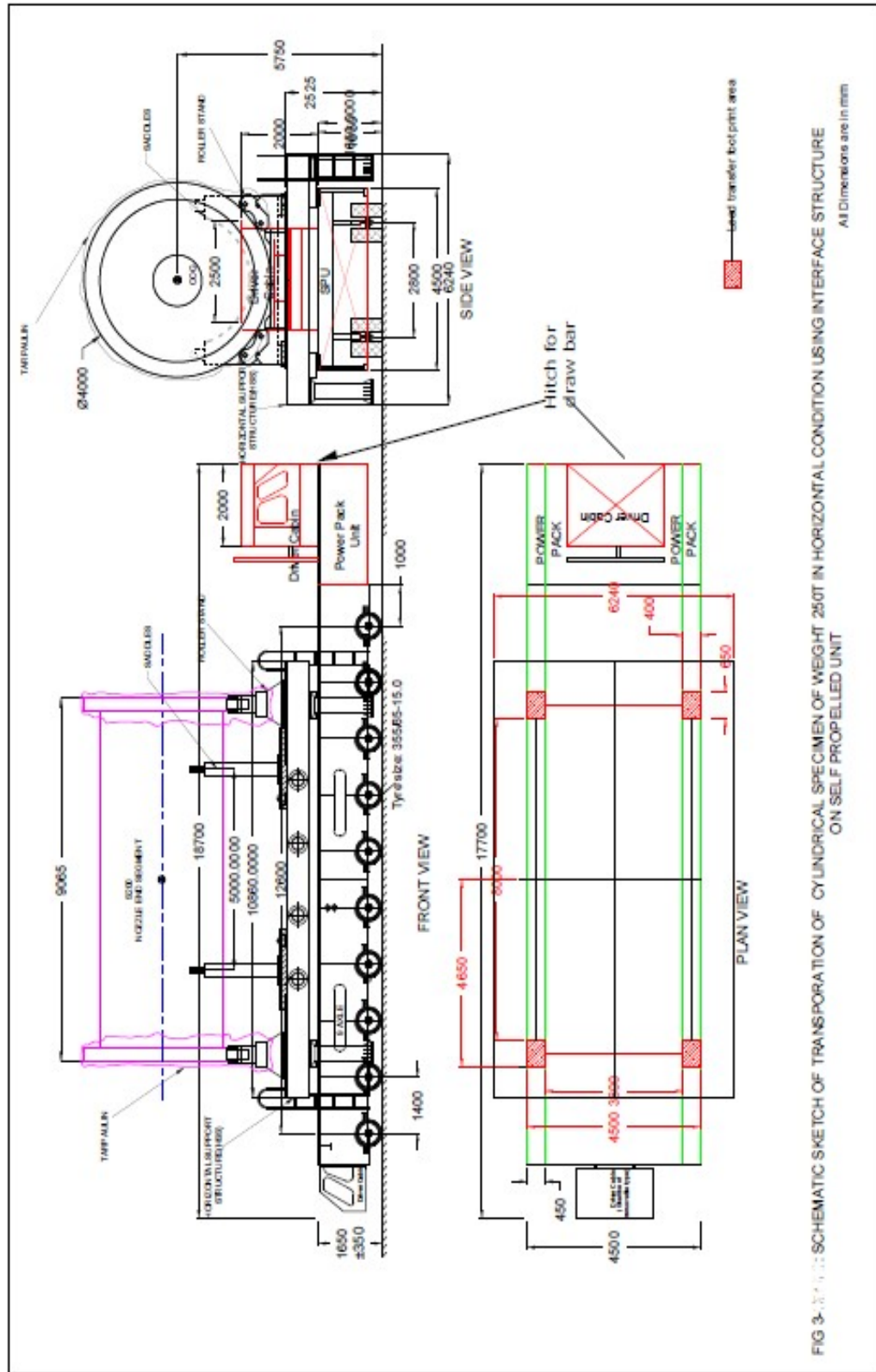


FIG-1 : SCHEMATIC SKETCH OF SELF PROPELLED UNIT OF CAPACITY 250T





**Annexure-4****EXCEPTIONS AND DEVIATIONS**

In line with Proposal Document, Bidder may stipulate Exceptions and deviations to the proposed conditions if considered unavoidable.

SL NO	Reference in Specification		Dept. Specification	Offered Specification	Remarks
	Page no	Clause no			

**NOTE :**

- Only deviations are to be written in the above form.
- Any deviations taken by the Bidder to the stipulations of the Proposal document shall be brought out strictly as per this format and enclosed along with the bid.
- Any deviations not brought out in this Pro-forma and written elsewhere in the Proposal document shall not be recognized and the same is treated as null and void.
- Any willful attempt by the Bidders to camouflage the deviations by giving them in the covering letter or in any other documents that are enclosed may render the Bid itself non-responsive.



**SPAG PROJECT****SELF PROPELLED UNIT**

SHEET 49 OF 49

**Annexure-5****CHECK LIST FOR BID SUBMISSION**

<b>Sl. No.</b>	<b>DESCRIPTION</b>	<b>Confirmation of bidder for submission</b>
1	All the Documents as mentioned in the 2.2.1 of Section-A are furnished along with Part 1 -Technical & unpriced bid.	
2	Are all the technical particulars as called for in the data sheets Sections A, B and commercial details as called for in schedule of prices filled up	
4	The detailed scope of work and technical specifications are understood and price was quoted accordingly.	
5	Confirmation that the quoted prices are firm and fixed till the completion of scope of work.	
6	Validity of Offer is 4 months (minimum).	
7	Vendor General Particulars Format is attached	
8	GST at the prevailing rates for (If not mentioned it will be assumed that the price quoted are inclusive of taxes).	
9	Delivery Schedule with milestones	
10	Accepted the Department Payment Terms	
11	Are General terms and Conditions of Contract for Design, manufacture, supply, installation, testing and commissioning cost included in proposal acceptable?	
12	If not acceptable, are the deviations brought out in the "Schedule of Deviations"	
13	Are there any deviations from enquiry technical specifications?	
14	If there are technical deviations, are these filled in "Schedule of Deviations from Tech. Specifications"?	
15	Warranty for the fully commissioned and accepted system is minimum 12 months	
16	3 % of the Order Value shall be submitted as Performance Security for the performance of the contract along with acceptance of order letter, which is valid till acceptance of the system.	
17	3 % of the Order Value shall be submitted as Performance Bank Guarantee, which is valid till completion of the warranty period plus 3 months claim period.	
18	Liquidated Damages are acceptable	
19	Registration certificate of the company is enclosed	
20	Are all data sheets duly filled in and submitted in offer	
21	Technical documents / drawings are attached along with technical bid	