# TENDER NO.: UCSL/CC/SER/T/DOCKING/110/A/2025 Dt.18<sup>th</sup> NOVEMBER 2025

## TENDER FOR FABRICATION AND ASSEMBLY OF SLOPPING CRADLE EXTENSION WORK



UDUPI COCHIN SHIPYARD LIMITED
MALPE, UDUPI 576108



#### TENDER NOTICE

Tender No. & date	UCSL/CC/SER/T/DOCKING/110/A/2025 Dt:18.11.2025
Name of work	Tender for Fabrication and Assembly of Slopping Cradle Extension Work
Last date & time of receipt of tende	09th December 2025 (Tuesday), 15:30 Hrs.
Date & time of opening of Bid	09th December 2025 (Tuesday), 15:30 Hrs.

- 1. Password protected quotations in the prescribed format is invited from bidders, for the work specified above, subject to the terms and conditions as mentioned in the annexure to the tender enquiry so as to reach the undersigned by email mentioned on or before the date and time as stipulated.
- 2. The following shall be submitted along with the quote: -

#### PART- I: TECHNICAL BID

- a. Tender document duly signed on all pages Including Terms & conditions, Scope of work, Technical Specifications and General arrangement Drawings placed at Annexure I, II, III and IV respectively.
- b. The Techno commercial Check List at Annexure VII to be filled up completely and duly signed.
- c. Duly filled form at Annexure V & VIII
- d. Unpriced Price bid (Price bid without price and marked as "QUOTED") to be submitted along with Part-I.

#### PART-II: PRICE BID

a. The price bids shall be prepared based on the price bid format at Annexure VI.

#### 3. Mode of Submission of Quote:

- i. Bid shall be submitted as Password Protected Zip File in two parts. Part I: Technical Bid - with all enclosures and annexures as mentioned in Para 2 above Part II: Price Bid.
- ii. The files are to be forwarded as Two (2) separate password protected Zip files to contractcell@udupicsl.com
- iii. Part I and Part II are to be protected with separate and distinctly different passwords.
- iv. The Bids will be opened on online mode during which the bidder will be advised to share the password through SMS with which the technical bid will be opened.
- v. The price bids will be opened after technical evaluation and only the technically qualified bidders will be invited for opening of price bids which shall also be conducted on online mode as above.

CONTRACT



- vi. The bidders can also attend the bid opening physically at Udupi Cochin Shipyard Limited, Baputhotta Ware house complex Office, Udupi, Karnataka, India.
- vii. The contractors can also submit the quotations in sealed covers (Two-Bid) as separate sealed covers for Technical Bid and Price bid, both enclosed in a common sealed cover to reach the below mentioned address before the stipulated time.
- 4. The bidders shall ensure the receipt of bids at contractcell@udupicsl.com acknowledgement mail shall be sent to the bidders on receipt of bids. UCSL takes no responsibility for delay, loss or non-receipt of tenders by mail by the stipulated time.
- 5. The tender should be addressed to the Assistant General Manager (Contract Cell), Udupi Cochin Shipyard Limited, Malpe Harbor Complex, Malpe, Udupi 576 108, Karnataka, India.
- 6. No deviations on the tender conditions will be accepted, and bids with deviations will be considered technically disqualified. The acceptance of a tender or part thereof will rest with the Assistant General Manager (Contract Cell), Udupi Cochin Shipyards Limited, tender and reserves the authority to reject the tender received without assigning any reason.

#### 7. Contact Person:

Name	Designation	Phone Number	E-mail
Srinivasa Rao Silaparasetti	Senior Manager (Operations)	+91-9341637005	srinivasarao@udupicsl.com
in case of commercial	queries please conta	ict	
Name	queries please conta Designation	Phone Number	E-mail

मोहामट फ़हीज़ एम टी MOHAMMED FAHIZ MT

Assistant General Manager (Contract Cell)

THE THE UTIF ASSISTANT MANAGER

#### Encl:

- 1. Terms & Conditions
- Scope of Work
- 3. Technical Specification
- 4. General Arrangement Drawing
- Power of Attorney
- Price Bid
- Techno-Commercial check List
- 8. Unconditional Acceptance Letter

उड़िप का चीन लिपयार्ड लिपिटेड UDUPI CUCHIN SHIPYARD LIMITED

- Annexure III
- Annexure IV
- Annexure V Annexure VI
- Annexure VII
- Annexure VIII





#### TERMS AND CONDITIONS

#### TENDER FOR FABRICATION AND ASSEMBLY OF SLOPPING CRADLE EXTENSION WORK

#### 1. DESCRIPTION OF WORK

- 1.1. This tender enquiry pertains to the awarding of contract for Fabrication and Assembly of slopping cradle Extension work at Udupi Cochin Shipyard Limited (UCSL), Malpe, Karnataka.
- 1.2. The proposal is for carrying out further extension of already extended cradle by another 15.00 m. The extension is proposed in three pieces so as to facilitate lifting of each piece by shore crane and placing it in position as per length requirement. Structural arrangement of extended frame shall be similar to that of the original cradle except for strengthening of vertical members. The vertical members are replaced with ISMB 300x140 as there is increase in length and the slenderness ratio. The length of vertical members shown in the drawing is theoretical. Due to cervical nature of the hauling track provided (See attached graph), it is suggested that actual length of vertical members shall be got verified at site and shop drawing prepared before commencement of fabrication works. This will, to an extent eliminate the tilt noticed when the cradle is at the river end.
- 1.3. The cradles are attached to each other by 12 nos. of 80 mm Dia removable pins. The pins are now positioned horizontally. The arrangement for locking system has been modified to accommodate for proper rotation of each segment of cradle. The hauling arrangement will remain the same and as it is no modification is required. The wheel assembly for extended cradle shall also remain the same as that of the existing cradle. Increase in height of cradle at the bottom most point shall be about 660 mm.
- 1.4. Following drawings may be referred.
  - 1) CSL/MALPE/04
  - 2) CSL/MALPE/05.
- 1.5. Infrastructure and Consumables: The contractor shall complete the work with the available infrastructure facilities and materials provided by Udupi Cochin Shipyard Ltd (UCSL) in accordance with the enclosed Specifications, delivery schedule and UCSL General Terms and conditions in all respects

## 2. SCOPE OF WORK

- 2.1. Fabrication, erection, inspection and commissioning as per the drawings and necessary testing to satisfactorily complete the work in accordance with UCSL.
- 2.2. Refer Annexure II, Annexure III and Annexure IV for detailed scope of work, technical specifications & drawing of Fabrication & Extension of Cradle works respectively.





#### 3. ELIGIBILITY CRITERA

The document related to minimum eligibility criteria as given below should be submitted along with the technical bid (part-1). The minimum qualification criteria for participating in the tender will be as follows: -

- 3.1. The contractor / Agency should be registered with appropriate registration and documents related to be submitted and to be registered under companies act.
- 3.2. The bidder should prove experience in successful completion of structural fabrication works in Public Sector Companies / Reputed Private Sector Companies during last 5 years ending last day of month previous to the one in which tenders are invited.
- 3.3. Details of orders executed along with work completion certificate (Self attested copy) from the client indicating the performance, nature of work and value of work executed should be submitted along with the technical bid.
- 3.4. Similar jobs in the above refers to the jobs that are undertaken in Central Government / State Government departments, Private or public sector undertaking for fabrication and assembling of steel structures.
- 3.5. Bidder shall not be under a declaration of ineligibility issued by Govt. of India / State Govt. /Public Sector Undertakings etc.

## 4. METHOD OF AWARDING CONTRACT

- 4.1. Contract will be concluded with Bidder qualifying technically (including eligibility criteria), agreeing to Commercial conditions (Annexure VI) and emerging as L1.
- 4.2. UCSL also reserves the right to split the work order to any number of bidders willing to match with L1 rate, if the performance of selected bidder is not satisfactory.
- 4.3. UCSL reserves the right to cancel the tender if required.

#### COMMON REQUIREMENTS

- 4.4. The work will be undertaken by only qualified welders of the contractor. Towards this, UCSL will provide the WPS and PQR. Welders will have to be qualified by UCSL. The subcontractor must pay for the welder qualification, testing and certification charges to UCSL on actuals. The contractor must retain the qualified welders till the completion of the project.
- 4.5. Work will be undertaken and inspected as per the quality standards provided by UCSL-Officer-in-charge. The same may be seen prior bidding, if required. Copy of the standards will be provided while awarding contract.

## 5. SCHEDULE OF COMPLETION OF WORK

- 5.1. Fabrication & Extension of slopping cradle works to be completed within 45 days from the date of commencement.
- 5.2. The contractor in turn shall submit their detailed schedule of completion of the work, in consultation with the UCSL-Officer In-charge. The progress of work shall be made in tandem with the progress of completion of the slopping cradle, allowing sufficient time for other interface activities/works.

CONTRACT



- 5.3. Yard has the right to change the schedules of the project to the interests of the company and the firm should be capable of adjusting the resources according to the instructions from the Yard contact person.
- 5.4. The work is of urgent nature and hence the contractor should mobilize the team to start the work not later than ten (10) days from the date of placement of work order.

#### 6. INSPECTION

- 6.1. The Cradle shall be fabricated under the satisfaction of UCSL.
- 6.2. The complete work must be carried out under the survey of UCSL officer in-charge. The works are to be inspected and approved by UCSL.
- 6.3. All welding machines are to be calibrated.
- 6.4. All test and Inspections shall be carried out as per approved Quality Plan.
- 6.5. All correspondence with the Shipyard to be in English language, including documents and plans to be in English language and in metric units.

#### 7. VALIDITY

7.1. The offer shall be valid for a period of 06 months and no escalation in rate shall be allowed by UCSL on whatsoever reason.

## 8. RATE

8.1. Rates are to be quoted in the Price Bid Format at Annexure VI attached herewith.

#### 9. PAYMENT TERMS

9.1. Payment will be made in 2 stages:

#### Stage I: 50% of Total contracted value

Deliverables: On completion of Fabrication, welding and inspection (as required) for extension portion of the slopping cradle.

## Stage II: 50% of Total contracted value

Deliverables: On completion of Erection of the cradle, commissioning of systems and handing over to UCSL.

- 9.2. Payment shall be made on the basis of certification by UCSL officer in-charge.
- 9.3. The payment shall be made within 30 days from submission of invoice along with the work completion certificate.
- 9.4. All claims for payment for the work/additional work shall be submitted by the contractor within one month of completion of work.

अनुबंध कहा CONTRACT



9.5. Payment will be made by RTGS/NEFT to the account of Agency. The name of the bank, branch, A/C No., IFSC code & other particulars shall be furnished by the Agency in the proforma of UCSL.

#### 10. TAXES & DUTIES

- 10.1. GST shall be applicable extra on the prescribed work. You are requested to furnish the following details in the invoice/Bill.
  - Applicable rate of GST/SAC Code
  - Firms GST Reg. NO.
  - Service accounting code (SAC) as prescribed by statutory authorities.
  - GST Reg. No. of Udupi Cochin Shipyard Limited (29AAACT1281B1ZO).

## 11. SECURITY DEPOSIT

11.1. The successful tenderer shall remit 5% of the value of the contract as security deposit within 15 days of receipt of the work order. This amount may be remitted by way of demand draft or bank guarantee (in approved proforma of UCSL) from any of the nationalized banks, valid till the satisfactory completion of the entire work. The Security Deposit will be released on certification of satisfactory completion of the contract and no liability to UCSL by Officer-in charge. The Security Deposit retained will not bear any interest.

## 12. PERFORMANCE GURANTEE

- 12.1. The complete work carried out by the contractor shall be guaranteed against defective on poor workmanship for a period of three months from the date of completion/ Hand overing of work. Any work found defective during this period is to be repaired entirely at the contractor's cost and such repaired items shall be guaranteed for a further period of three months from the date of repair.
- 12.2. Should any unsatisfactory performance and / or damage or failure occur due to poor workmanship and poor-quality material used by the contractor, the contractor shall be solely responsible for payment/reimbursement of expenditure incurred by Ship owner for rectifying the defect.
- 12.3. Towards this, a performance guarantee equivalent to 5% of the value of the contract to be furnished by the contractor on completion of the works by way of a bank guarantee (in approved proforma of UCSL, from a nationalized bank valid till the expiry of the guarantee period. In case the contract fails to submit the PG in time, SD mentioned at Clause 11 will be retained till the expiry of guarantee period.

## 13. LIQUIDATED DAMAGES

13.1. The progress of work will be monitored against the mutually agreed detailed schedule. Liquidated damages for delays in execution of the work beyond the scheduled date of completion, for any reason other than force majeure conditions, will be recovered at the rate of half percent of the value of the contract per week or part thereof, subject to a maximum of ten (10) percent of the value of the contract.





- 13.2. For better clarity, order values mentioned in LD clause are values excluding duties and taxes (Basic value). Liquidated damages, if any, shall be decided and settled only after the completion of the entire project, but prior to the release of Final stage Payment.
- 13.3. If, for any reasons, supplier has a justification towards delay in supply / work execution and would intend to consider applicability/ non applicability of LD, the same shall be intimated to UCSL by way of a letter, failing which it will be deemed that delay is attributable to the supplier.
- 13.4. Delay in supply/Interruption of the work for reasons not attributable to supplier shall entitle extension of the order execution period for proportionate period without any additional cost to UCSL.

## 14. POWER OF ATTORNEY

- 14.1. The tenderer(s) shall have to sign in each page of the tender documents with official stamp as a token of his acceptance of the conditions stated therein.
- 14.2. The person signing the tender form on behalf of another or on behalf of a firm, shall enclose to the tender, a Power of Attorney or the said deed duly executed in his favour or the partnership deed giving him such power showing that, he has the authority to bind such other persons or the firm, as the case may be, in all matters pertaining to the contracts. If the Person so signing the tender, fails to enclose the said Power of Attorney, his tender shall be liable for being summarily rejected. The Power of Attorney shall be signed by all partners in the case of partnership concern, by the Proprietor in the case of a proprietary concern, and by the person who by his signature can bind the company in the case of a Limited Company.

#### 15. TERMINATION & LIMITATION OF LIABILITY

- 15.1. This contract may be terminated upon the occurrence of any of the following events
- 15.2. By agreement in writing of the parties hereto;
- 15.3. By the non-defaulting party, upon default by the other party, of any clause of this contract, if not remedied within fifteen (15) days, or such longer time as may be agreed upon by the parties, after receipt of notice thereof in writing from the non-defaulting party;
- 15.4. By the other party, upon either party;
  - i. Making the assignment for the benefit of creditors, being adjudged a bankrupt or becoming insolvent; or
  - ii. Having a reasonable petition filed seeking its' dissolution or liquidation, not stayed or dismissed within sixty (60) days; or
  - iii. Ceasing to do business for any reason.
- 15.5. For fraud and corruption or other unacceptable practices.
- 15.6. Upon expiry or termination of this Contract, neither party shall be discharged from any antecedent obligations or liabilities to the other party under this Contract unless otherwise agreed in writing.

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- 15.7. UCSL may by notice in writing to Agency to terminate the order after issuing due notice i.e., 30 days' notice period. UCSL shall be entitled to compensation for loss limited to the order value.
- 15.8. Liability maximum that can be claimed by the Agency shall be limited to what is due to be and has been paid by UCSL for work done as per the payment milestones and limited to work order value.

#### 16. ARBITRATION & JURISDICTION

- 16.1. Any disputes arising during the period of the contract shall, in the first instance be settled by mutual discussions and negotiations. The results of such resolution of dispute shall be incorporated as an amendment to the contract, failing which supplier shall approach the UCSL Grievance Redressal Committee as per relevant clause of the Contract.
- 16.2. If any dispute, disagreement or question arising out of or relating to or in consequence of the contract, or to its fulfillment, or the validity of enforcement thereof, cannot be settled mutually or the settlement of which is not herein specifically provided for, then the dispute shall within thirty days from the date either party informs the other in writing that such disputes, disagreement exists, be referred to arbitration. The arbitrators shall be appointed and the arbitration proceedings shall be conducted in accordance with and subject to the Arbitration and Conciliation Act, 1996 (No. 26 of 1996) as amended from time to time and the decision of the Arbitrators shall be final and binding on the parties hereto. The arbitration will be done by a Board comprising one arbitrator nominated by each party, and a mutually agreed Umpire. Each party shall bear its own cost of preparing and presenting its case. The cost of arbitration shall be shared equally by the parties unless the award provides otherwise. Performance under this Contract shall however, continue during arbitration proceedings and no payment due or payable by the parties hereto shall be withheld unless any such payment is or forms a part of the subject matter of arbitration proceedings.
- 16.3. Seat & Venue of Arbitration: The seat & venue of arbitration shall be at Bangalore.
- 16.4. Language of Arbitration: The Language of arbitration shall be English.
- 16.5. Governing Law: The contract shall be governed by Indian Law
- 16.6. In case of disputes, the same will be subjected to the jurisdiction of courts at Bangalore, Karnataka.

#### 17. SUB CONTRACTING AND ASSIGNMENT

- 17.1. Contractor shall not assign or transfer the Purchase Order/ Work Order or any share or interest therein in any manner or degree to any third party without the prior written consent of UCSL.
- 17.2. Contractor shall not contract with any subcontractor and/or vendor without the prior written consent of UCSL. Such consent shall not relieve the Contractor from any of his responsibilities and liabilities under the Purchase Order/ Work Order. In addition, Contractor shall ensure that the terms and conditions of any such contract shall



comply with and correspond to the terms and conditions of the Purchase Order/ Work

## 18. SECRECY & RESTRICTION ON INFORMATION TO MEDIA

- 18.1. The information contained in the enquiry as such shall NOT be communicated to any third party without prior approval of UCSL.
- 18.2. Information in respect of contracts/orders shall NOT be released to the national or international media or anyone not directly involved in its execution without the written approval of UCSL.

#### 19. CANCELLATION OF ORDER AND RISK CONTRACTING

- 19.1. In the event the Agency fails to complete the work promptly and satisfactorily as per the terms of the order, and if any work is delayed beyond thirty (30) days from the agreed schedule, UCSL, without prejudice, reserves the right to cancel the order and get the work done at Agency's cost and the expenditure so incurred including any damage or loss will be recovered from him and the Security Deposit furnished by him is liable to be forfeited either in whole or in part.
- 19.2. UCSL also reserves to right to impose penalties ranging from Rs. 100 to Rs.500 to the employees of agencies and will be deducted from the bills, for any habitual offence on the cleanliness of uniforms, lack of obedience, not attending the tasks etc., and will be to the discretion of the Officer in charge for the work.

#### 20. FORCE MAJEURE

20.1. Should failure in performance of any part of this contract arise from war, insurrection, restraint imposed by Government act or legislation of other statutory authority, from explosion, riot, legal lock-out, flood, fire, act of God or any inevitable or unforeseen event beyond human control which will be construed as a reasonable ground for extension of time, UCSL may allow such additional time as is mutually agreed to be justified by the circumstances of the case.

## 21. STORAGE OF MATERIAL AND EQUIPMENT

- 21.1. The Contractor shall arrange the storage of the materials/ equipment etc. if any, at a suitable location assigned by UCSL and shall ensure the safe and secure possession and handling of the items thus handed over to contractor. UCSL shall allot storage space within UCSL premises, if available.
- 21.2. As regards the equipment/materials stored by him as above as also in use by him, UCSL will not be responsible for any damage, pilferage, accident that may take place during the course of execution of the work. It will be entirely his responsibility to keep all the equipment, materials etc., in safe custody as also hold them duly insured at his





#### 22. IMS GUIDELINES

- 22.1. UCSL implemented an Integrated Management System (IMS) and the Quality Management System (QMS) within the yard. As part of IMS, subcontractors shall comply with the following measures related to the Quality, Health, and Safety & Environment (QHSE) policy of UCSL.
  - a) Meeting or exceeding customer requirements.
  - b) Assuring quality of the products and service.
  - c) Preventing occupational ill health & injuries.
  - d) Ensuring safe work sites.
  - e) Conserving natural resources.
  - Preventing / minimizing air, water & land pollution.
  - g) Handling and disposal of Hazardous wastes safely.
  - h) Complying with statutory & regulatory and other requirements.
  - Developing skills and motivating employees.
- 22.2. Occupational Health, safety & Environmental requirements of UCSL shall also include the following.
  - The contractor (or a sub-contractor performing work on behalf of the contractor) is deemed to comply with the Occupational health, safety and environmental policy of the company and also to all operational controls/standard operating procedures and shall undertake the work in total compliance with the requirements of the established Integrated Management System (IMS) of the company.
  - The Contractor shall undertake the work in total compliance with all applicable legal/statutory requirements related to occupational health, safety and environment effective in the state of Karnataka.
  - c) It is the sole responsibility of the contractor to assure that any sub-contractor/s who shall perform works in company lands/facilities/worksites on behalf of the contractor, is also following all requirements related to the Integrated Management System of the company and the health/safety/environmental Rules effective in the state.
  - The contractor shall provide/implement and operate/practice all occupational health, safety and environmental management measures/facilities, for their period of contract, in their activities/at their work sites, which shall be required according to the IMS of the company or that required by the health/safety/environmental Rules established and effective in the state, at their own cost.
  - If any contractor failed to comply with or violated any clauses/requirements of occupational health, safety and environmental Rules effective in the state, in their activities or at work sites and the same shall be exposed to the government or any competent authorities upon inspections, the contractor shall be solely responsible for all liabilities caused by his/her action and shall be responsible for paying the penalty and taking stipulated corrective actions insisted by the authorities within





the specified time, at their own cost. Any liability to the company in this regard needs to be compensated by the contractor.

- Upon completion of the work, contractor shall clear the area and shall not leave any Occupational health/safety/environmental liabilities to the company, from their activities at the worksites.
- g) Any clarification related to IMS requirements of the yard, may be obtained by the contractor from the AGM (HSE) or the authorized representative of the contract, prior to the commencement of work.

#### 23. SAFETY OF PERSONNEL AND FIRST AID

- 23.1. The contractor shall be entirely responsible for the safety of all the personnel employed by him on the work. In this regard, he may adopt all the required safety measures and strictly comply with the safety regulations in force. A copy of UCSL's "Safety Rules for Contractors (Revised)" is available with HSE department for reference.
- 23.2. The Agency may arrange to suitably insure all his workmen/ other personnel in this regard. UCSL will not be responsible for any injury or illness to the Agency's workmen/other personnel during execution of the works due to whatsoever reasons.
- 23.3. In this regard, the Contractor will have to fully indemnify UCSL against any claims made by his workmen/other personnel
- 23.4. The Agency shall provide and maintain so as to be readily accessible during all working hours, a first aid box with prescribed contents at every place where he employs contract labor for executing the works.

#### 24. LABOUR LAWS AND REGULATIONS

- 24.1. The Agency shall undertake and execute the work with contract Labor only after taking license from the appropriate authority under the Contract Labor (Regulation & Abolition) Act 1970.
- 24.2. The Agency shall observe and comply with the provisions of all labour and industrial laws and enactments and shall comply with and implement the provisions of the Factories Act, 1948, Employees Provident Funds & Miscellaneous Provisions Act, 1952, Employees State Insurance Act, Payment of Gratuity Act, minimum Wages Act, Payment of Bonus Act, Contract Labour (Regulation and Abolition) Act and all other enactments as are applicable to him and his workmen employed by him. The Agency shall inform UCSL his license number from the Central Labour Commissioner.
- 24.3. All Persons, except those exempted under the respective Acts, shall necessarily be insured under the ESI scheme and be made members of the EPF Scheme from the day of their engagement as personnel in the Company. In Case 1, All such insured Persons should carry with them their ESI Identity Card for verification by the authorities. No Persons without a valid ESI Identity Card for verification by the authorities will be permitted to work in the company.
- 24.4. The Agency shall submit the Labour Reports/Returns as required by the Company from time to time in respect of their workmen in standard format to the concerned





contracting officer so as to enable the same to reach Contract cell by the 5th of every month. Delayed submission of the same shall attract penal interest /damages at the rate as levied by the respective authorities under the relevant Acts.

- 24.5. The Agency shall maintain the records viz. Muster Roll, Acquittance Roll with full details, Account books etc., in original. These are required for inspection by the concerned authorities under each scheme.
- 24.6. If the Agency fails to pay any contributions, charges or other amounts payable under any of the aforementioned provisions of law, UCSL shall deduct or adjust amounts equivalent to such contribution, charges or amounts from amount payable to him by UCSL, including any deposit or amounts payable against bills and make payments on his account to the appropriate authority. He shall not be entitled to question or challenge such deductions, adjustments or payment made by UCSL.
- 24.7. Any other amount payable under any law or in respect of any person employed by the Agency, if not paid by him, shall be deducted or adjusted by UCSL out of any amount payable to the Agency including any Security Receipt and paid ever or withheld for payment by UCSL.
- 24.8. The Agency shall be fully responsible for the conduct and discipline of the workmen employed by him in the Company premises. If such workmen commit any misconduct or criminal act inside the Company, the Agency shall take appropriate action against such workmen. The Agency shall abide by the instructions/ guidelines issued by the Company for maintenance of discipline and good conduct among the workmen employed by him.
- 24.9. All persons who are engaged for various works in UCSL either directly or through Agency/contractors, should produce the following documents prior to issuing their entry passes:
- 24.10. Passport/Aadhaar attested copy of passport with photo and address particulars.

Police clearance certificate with photo and address particulars. (Police clearance certificate to the effect that the concerned person is staying in the area of jurisdiction of the certificate issuing Police Station and that the person is not involved in any criminal offences as per the records available therein.)

- 24.11. Application and Declaration for enrolling under Employees Provident Fund and ESI Scheme- 3 individual passport size photographs and two copies of family photographs of the members.
- 24.12. Agency shall familiarize themselves with the labour rules & regulations.

## 25. ELECTRICITY RULES AND REGULATION

25.1. The contractor shall adhere to the various rules in respect of electrical installation as per the Indian Electricity Rules and Regulations and Electrical Inspectorate Standards in order to make sure that men and materials are safe from hazards.





## 26. OVERWRITING & CORRECTIONS

26.1. Tenders shall be free from overwriting or erasures. Corrections and additions, if any, shall be duly attested and a separate list of such corrections shall be attached with the offer

## 27. OTHER TERMS & CONDITIONS

- 27.1. Quality of services shall conform to the specification/ standards laid down by UCSL.
- 27.2. UCSL reserves the right to accept / reject any offer.
- 27.3. UCSL reserves the right to award the work to more than one contractor or to take over partially or fully the work depending upon the schedule requirements.
- 27.4. During the evaluation of tender, officer-in-charge may seek clarifications from the bidders. Clarification if any shall be given in writing/e-mail. Officer-in-charge's decision will be final and binding on the bidder.
- 27.5. Compliance of all statutory safety requirements and other safety rules stipulated by UCSL and other applicable statutory bodies shall be the responsibility of the Agency while working at UCSL premises. The Agency should ensure that their workmen and staff are adequately covered under Insurance.
- 27.6. Damages caused to the Shipyard properties/tools/accessories should be rectified by the Agency at his cost or proportional recoveries will be made from the Agency while passing their bills for payment.
- 27.7. The service provider shall have to engage men on round the clock basis and also on Sundays and holidays. Service has to be completed to the satisfaction of Udupi Cochin Shipyard Limited officer in-charge.
- 27.8. The service provider shall indemnify UCSL or its officers against any claims arising out of accidents or injuries to workmen or other persons or damage to other property which may arise during the execution of the contract or from breach of any Law or Regulation prior to delivery and acceptance of the items at UCSL.
- 27.9. The service provider shall also be governed by the General Conditions of Contract of UCSL, General Safety Rules and other relevant labour laws.
- 27.10. The upper age limit of all workers and supervisors employed by the Agency and those Agency who do or supervise the job themselves shall be as per the prevailing rules of UCSL and shall comply to the requirements of this tender.
- 27.11. Assistant General Manager, or his authorized representative will be the Officer-incharge of these contracts.





## SCOPE OF WORKS

## 1. SCOPE OF WORK - SLOPPING CRADLE EXTENSION WORK - 2ND STAGE

Project Title: Fabrication and Assembly of Slopping Cradle Extension Work - 2nd Stage Extension.

Location: UCSL Premises, Udupi, Karnataka, India

Payment Basis: Actual Certified Weight of Completed and Accepted Work (Per Unit Weight Rate) Drawings Ref: CSL/MALPE/04(2nd Stage Extension), CSL/MALPE/05 and CSL/MALPE/01(1st Stage Extension.

## 2. PROJECT SPECIFICATIONS AND KEY DELIVERABLES

Overall, Scope: Fabrication and assembly of a large structural steel Slopping Cradle Extension and installation of its wheel system, strictly conforming to UCSL Drawings.

S1 No	Category	Detail
01	Approximate Dimensions	15.0 meters (Length) \ 10.5 meters (Width)
02	Estimated Structure Weight	55.0 Metric Tons (MT) (Cradle) + 11.0 MT (Wheel Assembly) = 66.0 MT (Total)
03	Materials	New, defect-free structural steel sections: ISMB, ISMC, ISA, etc., of specified grade (e.g., IS 2062).
04	Wheel System	60 numbers of 315 mm diameter wheels must be fixed and assembled.
05	Locking Arrangement	Locking arrangement with 80mm dia Lock pins as per Drawing CSL/MALPE/01
06	Final Deliverable	Fully assembled, inspected, certified, and accepted Slopping Cradle Extension Work - 2nd Set

## 3. CONTRACTOR'S RESPONSIBILITIES AND RESOURCES

The successful contractor is responsible for providing all resources necessary for complete project execution.

Sl No	Area of Responsibility	Specific Requirements
01	Personnel	Provide all skilled, semi-skilled, and unskilled labour supervisors, QC personnel, and safety Personals as required
02	Equipment	Supply all necessary fabrication and assembly machinery, tools, welding sets, measuring instruments, and temporary support structures (scaffolding/staging)
03	Consumables	Procure all necessary type-approved welding consumables, temporary fasteners, grinding discs, and supplementary gases (other than UCSL-provided Oxygen/Acetylene).
04	Quality & Safety	Implement and maintain a robust QA/QC system throughout the process.  Adhere strictly to all UCSL, statutory, and Central Government PSU safety regulations.



05	Documentation	Prepare and submit all mandatory documentation,
		including reports, certification, and quality records.

## 4. UCSL SUPPLIED RESOURCES (FREE OF CHARGE)

UCSL will provide the following essential site resources to support the contractor's operations:

S1 No	Resource Provided	Condition of Use
01	Electric Power Supply	Available at the designated work location.
02	Industrial Gases	Oxygen and Acetylene gases for cutting operations.
03	Heavy Lifting Equipment	Heavy Lifting Equipment   Mobile Hydra and Crane for lifting and positioning components during assembly. Contractor must supervise and direct all lifting operations.

## 5. DETAILED SCOPE OF WORK (SOW) EXECUTION PHASES

Phase	Activity	Requirements and Standards
Planning & Mobilization	Work Plan Submission	Develop and submit a detailed Work Execution Plan and Schedule, including the assembly sequence and resource deployment.
Quality Documentation	Quality Standard	Submit Approved WPS, PQR, and valid Welder Certifications to UCSL prior to any welding commencement.
Safety Plan	and the state of t	Submit a site-specific Safety and Health Plan for approval
Steel Fabrication	Material Control	Ensure 100% traceability and use of new, defect-free steel (e.g., IS 2062).
Processing & cutting	Pre-Fabrication	Precise marking, cutting, and edge preparation of sections as per drawings.
Component Assembly	Fabrication	Fabricate all sub-assemblies (stiffeners, connections, etc.) to achieve the overall structure 15.0 Mtr length and 10.5 Mtr width and height as per the drawing. (Making into 3 Units)
Welding & QA/QC	Welding Execution	Must be executed by certified welders following the approved WPS.
Inspection	At Every stage	Perform 100% visual inspection of all welds.
Non-Destructive Testing (NDT)	Process control	Conduct DPI/MPI on critical welds as per drawings or as instructed by UCSL, with documented reports.
Assembly & Erection	Fit-up & Alignment	Accurately align and fit all fabricated sub- assemblies to ensure dimensional accuracy and structural integrity.
Wheel Installation	Installation	Fix and assemble the 60 wheels and all supporting components onto the cradle structure.



Lifting Operations	Resources	Manage and direct the safe and effective use of UCSL-provided cranes/hydras during component erection.
Final Handover	Surface Treatment	Execute specified surface preparation and apply the paint system (if detailed in drawings).
Final Inspection	Dimensional Accuracy	Present the completed cradle for Final Acceptance Inspection by UCSL.
Weighment	Structure weight	Coordinate with UCSL for the final certified weighing of the structure, which determines the payment basis.
Site Clean-up	Housekeeping	Remove all debris, waste, and contractor-owned items, and hand over a clean work area.

## 6. MANDATORY QUALITY STANDARDS

Aspect	Requirement
Dimensional Accuracy	Strict adherence to all dimensions and tolerances specified in UCSL drawings. Regular in-process dimensional checks are mandatory.
Material Grade	Use only specified grades (e.g., IS 2062). Material test certificates (MTCs) may be required.
Welding Qualification	Only welders qualified to approved WPS/PQR are permitted to work on the structure.
Inspection Rights	UCSL retains the right to inspect the work at any stage of fabrication and assembly.
Payment Basis	Payment is solely based on the actual certified weight of the completed and accepted structure.





#### DETAILED TECHNICAL SPECIFICATIONS

#### FOR STRUCTURAL STEEL WORKS FOR EXTENSION OF CRADLE

#### 1. INTRODUCTION

It is proposed to carry out further extension of already extended cradle by another 15.00 m. The extension is proposed in three pieces so as to facilitate lifting of each piece by shore crane and placing it in position as per length requirement. Structural arrangement of extension frame shall be similar to that of the extended cradle except for strengthening of vertical members due to increased length and increased slenderness ratio. The cradles are attached to each other by 10 nos. of 80 mm dia removable pins. The pins are now positioned horizontally so that it can be fixed and removed easily. The arrangement for locking system has been modified to accommodate for proper rotation of each segment of cradle. The hauling arrangement will remain the same and as it is no modification to it will be required. The wheel assembly for extended cradle shall also remain the same as that of the existing cradle. Increase in height of cradle at the bottom most point shall be about 660 mm.

This specification covers the general requirements for supply, fabrication, painting, delivery and erection at site of structural steel and wheel assembly.

This specification also covers preparation of all shop fabrication drawings, inspection and shop painting of structures.

#### 2. APPLICABLE CODES & SPECIFICATIONS

- a) The following specifications, standards and codes are made a part of this specification. All standards, specifications and codes of practices referred to herein shall be the latest editions including all applicable official amendments and revisions.
- b) In case of discrepancy between this specification and other documents referred to herein, this specification shall govern. (Refer latest version of standards)

#### **MATERIALS**

IS: 808	Dimensions for Hot Rolled Steel sections
IS: 814	Covered Electrodes for Manual Metal Arc Welding of Carbon and Carbon Manganese Steel
IS: 1161	Steel Tubes for structural purposes
IS: 1239	Mild steel tubes, tubular and other wrought steel fittings
	Part 1 - Mild steel tubes
	Part 2 - Mild steel Tubular and other wrought steel pipe fittings
IS: 1363	Hexagon Head Bolts, Screws and Nuts of product
	((Parts 1 to 3) Grade C (Size range M5 to M64)
IS: 1367	Technical Supply Conditions for Threaded Fasteners (All Parts)
IS: 1852	Rolling and Cutting Tolerances for Hot Rolled Steel



	E.
	products
IS: 2062	Steel for General Structural Purposes
IS: 2074	Ready Mixed Paint, Air drying, Red Oxide Zinc Chrome and Priming
IS: 3757	High Strength Structural Bolts
IS: 5369	General Requirements for Plain Washers and Lock Washers
IS: 5372	Taper Washers for Channels
IS: 5374	Taper Washer for I Beams
IS: 6610	Heavy Washers for Steel Structures
IS: 8500	Structural Steel-micro alloyed (medium and high strength qualities)
IS: 800	Code of Practice for General Construction in Steel
IS: 801	Code of practice for use of Cold formed light gauge steel structural members in general building construction
IS: 803	Code of practice for design, fabrication and erection of vertical mild steel cylindrical welded storage tanks
IS: 806	Code of practice for use of steel tubes in general building construction
IS: 816	Code of Practice for use of Metal Arc Welding for General construction in Mild Steel
IS: 822	Code of Procedure for Inspection of Welds
IS: 1182	Recommended Practice for Radiographic examination of Fusion - Welded Butt Joints in Steel Plates
IS: 1200	Method of Measurement in Building Civil Engineering Works
IS: 1477	Code of Practice for Painting of (Parts 1 & 2) Ferrous Metals in Buildings
IS: 2595	Code of Practice for Radiographic Testing
IS: 3658	Code of Practice for Liquid Penetrant Flaw De
IS: 4000	High strength bolts in Steel Structures - Code of Practice
IS: 5334	Code of Practice for Magnetic Particle Flaw Detection of Welds
IS: 7215	Tolerances for Fabrication of Steel Structures
IS: 102	Ready Mixed paint, Brushing, Red Lead, Non-setting, Priming.
IS: 110	Ready Mixed paint, brushing, grey filler for enamels for use over primers.
IS: 117	Ready Mixed paint, Brushing, Finishing, Exterior Semi-gloss for general purposes, to Indian Standard colours.



IS: 158	Ready Mixed paint, Brushing, Bituminous, Black, Lead free, acid, alkali and heat resisting.
IS: 159	Ready Mixed paint, Brushing, Acid resisting.
IS: 341	Black Japan, Types A, B and C
IS: 1477	Codes of Practice for painting of ferrous metals in buildings.
	Part I - Pre-treatment
	Part II - Painting
IS: 2074	Ready Mixed paints, Red Oxide Zinc chrome priming.
IS: 2339	Aluminium paint for general purposes, in Dual container
IS: 2932	Specification for enamel, synthetic, exterior, type 1,
	(a) Undercoating (b) finishing
IS: 2933	Specification for enamel, exterior, type 2,
	(a) Undercoating, (b) finishing
IS: 5905	Sprayed aluminium and zinc coatings on Iron and Steel.
IS: 6005	Code of practice for Phosphating of Iron and Steel.
IS: 9862	Specification for ready mixed paint, brushing, bituminous, black, lead free, acid, alkali, water & chlorine resisting.
IS: 13183	Aluminium paint, Heat resistant.
	ERECTION
IS: 800	Code of Practice for General Construction in Steel
IS: 801	Code of Practice for Use of Cold Formed Light Gauge Steel Structural Members in General Building Construction
IS: 806	Code of Practice for Use of Steel Tubes in General Building Construction
IS: 7205	Safety Code for Erection of Structural Steel Work
IS: 7215	Tolerances for Fabrication of Steel Structures
IS: 4000	High Strength Bolts in Steel Structure - Code of

#### 3. MATERIALS

- 3.1. All Steel materials like plates, angles, channels, Tees, I section and rounds etc. shall comply with the specifications laid down under respective item of Bill of quantities and relevant IS Codes. All materials supplied by the contractor shall be new, unused, and free from defects. Steel conforming to IS: 2062 E250 BR shall be used.
- 3.2. Bolt material shall be of mild steel (property class 4.6) and shall conform to IS: 1367 Part 3 and IS: 5624. Grade of Bolt steel shall be E250A.
- 3.3. Washers shall conform to IS:2016, IS:5369, IS:5372, IS: 5374, IS: 6610 and IS: 6649 as applicable. Spring washers shall be provided for those parts, which carry dynamic loads



and where black bolts for connection are permitted. Welding Consumables Mild steel electrodes shall conform to IS: 814.

3.4. The electrodes used for welding shall be of suitable type and size depending upon specification of parent material, method of welding, position of welding and quality of welds desired. The Contractor shall furnish a certificate issued by the manufacturer to the effect that the electrodes supplied are in accordance with the above specifications.

#### 4. MINIMUM THICKNESS AND SIZES OF STEEL ELEMENTS

The minimum thickness of various components of a structure and hot rolled sections shall be as follows. The minimum thickness of rolled shapes shall mean flange thickness regardless of web thickness. Structural steel members exposed to marked corrosive environment shall be increased suitably in thickness or suitably protected otherwise as per good practice and sound engineering judgment in each instance.

a. Columns and beams: 8 mm
b. Gussets: 8 mm
c. Stiffeners: 8 mm

Minimum thickness of structural members directly exposed to weather and inaccessible for painting and maintenance shall be 8 mm.

## 5. LIMITING DEFLECTION AND SLENDERNESS RATIO;

Deflections of structures shall satisfy the requirements of the clause 5.6.1 of ARE: 800:2007.

The Effective limiting slenderness ratio for shall be as per Clause 3.8 of IS: 800:2007.

#### 6. DRAWINGS PREPARED BY THE CONTRACTOR;

- 6.1. The Contractor shall prepare all general, detailed, fabrication and erection drawings for the entire work. All the drawings for the entire work shall be prepared in metric units. The drawings shall preferably be of one standard size and the details shown there in shall be clear and legible.
- 6.2. All fabrication drawings shall be submitted to the Engineer-In-Charge for approval.
- 6.3. No fabrication drawings will be accepted for Engineer-In-Charge's approval unless checked and approved by the Contractor's qualified structural engineer and accompanied by an erection plan showing the location of all pieces detailed. The Contractor shall ensure that connections are detailed to obtain ease in erection of structures and in making field connections.
- 6.4. Fabrication shall be started by the Contractor only after Engineer-In-Charge's approval of fabrication drawings. Approval by the Engineer-In-Charge of any of the drawings shall not relieve the Contractor from the responsibility for correctness of engineering & design of connections, workmanship, fit of parts, details, material, errors or omissions of any and all work shown thereon. The Engineer-In-Charge's approval shall constitute approval of the size of members, dimensions and general arrangement but shall not constitute approval of the connections between members and other details.
- 6.5. The drawings prepared by the Contractor and all subsequent revisions etc. shall be at the cost of the Contractor for which no separate payment shall be made.
- 6.6. Contractor shall submit detailed methodology for carrying out structural fabrication, painting and erection at site for the approval of Engineer-In-Charge.

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#### 7. FABRICATIONS

#### 7.1.GENERAL

All workmanship and finish shall be of the best quality and shall conform to the best approved method of fabrication. All materials shall be finished straight and shall be machined/ground smooth true and square where so specified. All holes and edges shall be free of burrs. Shearing and chipping shall be neatly and accurately done and all portions of work exposed to view shall be neatly finished. Unless otherwise directed/ approved, reference may be made to relevant IS codes for providing standard fabrication tolerance. Material at the shops shall be kept clean and protected from weather.

## 7.2. CONNECTIONS

- 7.2.1. Shop/field connections shall be as per approved fabrication drawings.
- 7.2.2. In case of bolted connections, taper washers or flat washers or spring washers shall be used with bolts as necessary. In case of high strength friction grip bolts, hardened washers shall be used under the nuts or the bolt heads whichever are turned to tighten the bolts. The length of the bolt shall be such that at least one thread of the bolt projects beyond the nut, except in case of high strength friction grip bolts where this projection shall be at least three times the pitch of the thread.
- 7.2.3. In all cases where bearing is critical, the unthreaded portion of bolt shall bear on the members assembled. A washer of adequate thickness may be provided to exclude the threads from the bearing thickness if a longer grip bolt has to be used for this purpose.
- 7.2.4. All connections and splices shall be designed for full strength of members or loads indicated on Engineer-In-Charge's design drawings. Column splices shall be designed for the full tensile strength of the minimum cross section at the splice.
- 7.2.5. All bolts, nuts, washers, electrodes, screws etc. shall be supplied/brought to site 10% in excess of the requirement in each category and size. Rates shall cover the cost of this extra quantity.
- 7.2.6. All members likely to collect rain water shall have drain holes provided.

#### 7.3.STRAIGHTENING

- 7.3.1. All materials shall be straight and, if necessary, before being worked shall be straightened and/or flattened by pressure and shall be free from twists. Heating or forging shall not be resorted to without the prior approval of the Engineer-In-Charge in writing.
- 7.3.2. Cutting, punching, drilling, welding and fabrication tolerances shall be generally as per relevant IS codes.

## 7.4. ROLLING AND FORMING

7.4.1. Plates, channels, R.S.J. etc., for gantry girders, etc., shall be accurately laid off and rolled or formed to required profile/ shape as called for on the drawings. Adjacent sections shall be match-marked to facilitate accurate assembly, welding and erection in the field

#### 7.5.WELDING

- 7.5.1. Welding procedure shall be submitted to Engineer-In-Charge for approval. Welding shall be entrusted to only qualified and experienced welders who shall be periodically tested and graded as per IS 817, IS: 7310 (Part 1) and IS: 7318 (Part 1).
- 7.5.2. While fabricating plated beams and built-up members, all shop splices in each component part shall be made before such component part is welded to other parts of the members. Wherever weld reinforcement interferes with proper fit-up between components to be assembled for welding, these welds shall be ground flush prior to

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assembly.

- 7.5.3. Approval of the welding procedure by the Engineer-In-Charge shall not relieve the Contractor of his responsibility for correct and sound welding without undue distortion in the finished structure.
- 7.5.4. No welding shall be done when the surface of the members is wet nor during periods of high wind.
- 7.5.5. Each layer of a multiple layer weld except root and surfaces runs may be moderately pecked with light blows from a blunt tool. Care shall be exercised to prevent scaling or flaking of weld and base metal from over pecking.
- 7.5.6. No welding shall be done on base metal at a temperature below (-) 5 Deg.C. Base metal shall be preheated to the temperature as per relevant IS codes.
- 7.5.7. Electrodes other than low-hydrogen electrodes shall not be permitted for thicknesses of 32 mm and above.

#### 7.6.INSPECTION OF WELDS

- 7.6.1. All welds shall be inspected for flaws by any of the methods described under clause 8 "Inspection". The choice of the method adopted shall be determined by the Employer/Engineer-In-Charge.
- 7.6.2. The correction of defective welds shall be carried out as directed by the Engineer-In-Charge without damaging the parent metal. When a crack in the weld is removed, magnetic particle inspection or any other equally positive means as prescribed by the Engineer-In-Charge shall be used to ensure that the whole of the crack and material up to 25 mm beyond each end of the crack has been removed. Cost of all such tests and operations incidental to correction shall be to the Contractor's account.

#### 8. TOLERANCES

The dimensional and weight tolerances for rolled shapes shall be in accordance with IS:1852 for indigenous steel and equivalent applicable codes for imported steel. The tolerances for fabrication of structural steel shall be as per IS: 7215.

#### 9. END MILLING

Where compression joints are specified to be designed for bearing, the bearing surfaces shall be milled true and square to ensure proper bearing and alignment.

#### 10. INSPECTIONS

- 10.1. The Vendor/Contractor shall give due notice to the Engineer-In-Charge in advance of the works getting ready for inspection. All rejected material shall be promptly removed from the shop and replaced with new material for the Engineer-In-Charge's approval/ inspection. The fact that certain material has been accepted at the Contractor's shop shall not invalidate final rejection at site by the Engineer-In-Charge if it fails to conform to the requirements of these specifications, to be in proper condition or has fabrication inaccuracies which prevents proper assembly, nor shall it invalidate any claim which the Employer may make because of defective or unsatisfactory materials and/or workmanship.
- 10.2. No materials shall be painted or dispatched from fabrication yard or manufacturer to site without inspection and approval by the Engineer-In-Charge unless such inspection is waived in writing by the Engineer-In-Charge.
- 10.3. The Vendor/Contractor shall provide all the testing and inspection services and facilities for shop work except where otherwise specified.
- 10.4. For fabrication work carried out in the field the same standard of supervision and quality



control shall be maintained as in shop fabricated work. Inspection and testing shall be conducted in a manner satisfactory to the Engineer-In-Charge.

10.5. Inspection and tests on structural steel members shall be as set forth below.

#### 10.6. Material Testing

If mill test reports are not available for any steel materials the same shall be got tested by the Contractor to the Engineer-In-Charge's satisfaction to demonstrate conformity with the relevant specification.

#### 10.7. Tests on Welds

100% of welds shall be inspected for external defects. Dimensions of welds shall be checked. Welds shall be free from unfilled craters on the surfaces, undercuts, slag on the surface and visible cracks. Weld gauges shall be used to measure the size of welds. The Contractor shall carry out radiographic/ ultrasonic or other non-destructive testing as and when required by the owner through the approved agency.

Dye penetration test of welds shall be carried out using standard solutions.

Radiographic testing at random shall be carried out at least for 5% of Butt joints if directed by the Engineer-In-Charge. All radiographic tests shall be carried out in the presence of the owner through an experienced representative of a licensed firm for weld testing approved by the owner through consultant. Testing of welds shall conform to relevant Indian or ASTM standards.

#### 10.7.1. Visual examination

All welds shall be 100% visually inspected to check the following:

Presence of undercuts

Surface cracks in both welds and base metals.

Unfilled craters

Improper weld profile and size

Excessive reinforcement in weld

Surface porosity

Before inspection, the surface of weld metal shall be cleaned of all slag, spatter matter; scales etc. by using wire brush or chisel.

#### 10.7.2. Dye penetration test (DPT)

This shall be carried out for all important fillet welds and butt welds to check the following.

- a) Surface cracks
- b) Surface porosities

5% of the total length, dye-penetration test shall be carried out to the root run.

Dye Penetration Test shall be carried out in accordance with American National Standard ASTM E165.

#### 10.7.3. Ultrasonic testing

Ultrasonic test shall be conducted for all groove welds and heat affected zone in dynamically loaded structures and for other important load bearing butt welds in statically loaded structures as desired by Employer to detect the following:

i. Cracks





- ii. Lack of fusion
- iii. Slag inclusions
- iv. Gas porosity

Ultrasonic testing shall be carried out in accordance with American National Standard ANSI / AWS D1-92 Chapter 6: Part C.

Before Ultrasonic test is carried out, any surface irregularity like undercuts, sharp ridges etc. shall be rectified. Material surface to be used for scanning by probes must allow free movement of probes. For this purpose, surface shall be prepared to make it suitable for carrying out ultrasonic examination.

## 10.7.4. Magnetic Particle Test

Where welds are examined by magnetic particle testing, such testing shall be carried out in accordance with relevant IS codes. If heat treatment is performed, the completed weld shall be examined after the heat treatment. All defects shall be repaired and retested. Magnetic particle tests shall be carried out using alternating current. Direct current may be used with the permission of the Engineer-In-Charge.

## 10.7.5. Liquid Penetrant Inspection

In the case of welds examined by Liquid Penetrant Inspection, such tests shall be carried out in accordance with relevant IS Code. All defects shown shall be repaired and rechecked.

## 10.7.6. Radiographic Inspection

If directed by the Engineer-In-Charge, this test shall be limited to 2% of length of welds for welds made by manual or semiautomatic welding and 1% of length of weld if made by automatic welding machines. The location and extent of weld to be tested by this method shall be decided by Employer to detect the following defects:

- i) Gas porosity
- ii) Slag inclusions
- iii) Lack of penetration
- iv) Lack of fusion
- v) Cracks

Radiographic testing shall be conducted in accordance with American National Standard ANSI / AWSD1.1-92.

## 10.8. Dimensions, Workmanship & Cleanliness

Members shall be inspected at all stages of fabrication and assembly to verify that dimensions, tolerances, alignment, surface finish and painting are in accordance with the requirements shown in the Contractor's approved fabrication drawings and the Engineer-In-Charge's drawings.

## 10.9. Test Failure

In the event of failure of any member to satisfy inspection or test requirement, the Contractor shall notify the Engineer-In-Charge or his authorized representative. The Contractor must obtain permission from the Engineer-In-Charge before repair is undertaken. The quality control procedures to be followed to ensure satisfactory repair shall be subject to approval by the Engineer-In-Charge. The Engineer-In-Charge has the right to specify additional testing as and when required. The Vendor/Contractor shall maintain records of all inspection and testing which shall be made available to the Engineer-In-Charge or his authorized representative.



The contractor shall submit the proposal and methodology for testing of old/new structural steel members.

Contractor shall mark all accepted and rejected materials and stack it separately by giving proper identification marks as discussed and advised by the Engineer-In-Charge.

#### 11. SHOP MATCHING

For steel work, such as columns along with the tie beams/bracings may have to be shop assembled to ensure satisfactory fabrication, obtaining of adequate bearing areas etc. if so desired by the Engineer-In-Charge. All these shop assemblies shall be carried out by Contractor at no extra cost to the Employer.

#### 12. DRILLING HOLES FOR OTHER WORKS

As a part of this Contract, holes in members required for installing equipment or steel furnished by other manufacturers or other contractors shall be drilled by the Vendor/Contractor at no extra cost to the Employer. The information for such extra holes will be supplied by the Employer/Engineer-In-Charge.

#### 13. MARKING OF MEMBERS

- 13.1. After checking and inspection, all members shall be marked for identification during erection. This mark shall correspond to distinguishing marks on approved erection drawings and shall be legibly painted and stamped on it. The erection mark shall be stamped with a metal dye with figures at least 20 mm high and to such optimum depth as to be clearly visible.
- 13.2. All erection marks shall be on the outer surface of all sections and near one end, but clear of bolt holes. The marking shall be so stamped that they are easily discernible when sorting out members. The stamped marking shall be encircled boldly by a distinguishable paint to facilitate easy location.
- 13.3. Erection marks on like pieces shall be in identical locations. Members having lengths of 7.0 m or more shall have the erection mark at both ends.

#### 14. ERRORS

Any error in shop fabrication which prevents proper assembling and fitting up of parts in the field by moderate use of drift pins or moderate amount of reaming will be classified by the Engineer-In-Charge as defective workmanship. In case Engineer-In-Charge rejects such material or defective workmanship; the same shall be replaced by the materials and workmanship conforming to the Engineer-In-Charge's requirements by Contractor free of cost at site.

#### 15. PAINTING

#### 15.1. SURFACE TREATMENT

- 15.1.1. All the surfaces of steel work to be painted shall be thoroughly cleaned of all loose mill scale, rust, grease, dirt, and other foreign matter. The type of surface treatment shall be as directed by Engineer-In-Charge. The workmanship shall generally conform to the requirements of IS 1477-Part I.
- 15.1.2. Oil and grease removal shall be carried out either by solvent cleaning or by using alkali type degreasing agents. To remove grease material the surface shall be cleaned with solvents containing emulsifier. After cleaning, the surface shall be washed with water. When the surface has cement pelts or salts, the cleaning shall be done with strong alkalis. After cleaning, water rinsing and subsequent passivation by dilute chromic acid rinsing shall be carried out to ensure that no traces of alkali are left on

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the surface. The procedure for cleaning by above mentioned methods shall be as per manufacturer's instructions.

- 15.1.3. De-rusting and de-scaling of steel shall be carried out either manually, mechanically, or chemically as per requirement of Engineer-In-Charge.
  - a) Manual or Hand Tool Cleaning

Loose mill scale, loose rust and loose paint shall be removed by wire brushing, scrapping, chipping, and rubbing with abrasive paper or steel wool. This method shall not be employed when the surface has firmly adhering mill scale. After hand tool cleaning, the surface shall be rubbed with sand paper so as to ensure that no loose material exists and the surfaces shall be dusted off.

- b) Mechanical Cleaning
  - i.Power Tool Cleaning
    - This shall be carried out by employing power operated wire brushes. Power tool cleaning shall be resorted to only if sand/shot blasting is not possible/permissible and high quality of surface preparation is required.
    - The surface prior to such cleaning shall be cleaned of dust; grease etc. and heavier layers of rust shall be removed by chipping.
    - The power tool cleaning shall remove loose mill scale and rust by adopting very thorough scrapping, grinding and machine brushing. After the surfaces are cleaned by compressed air, it shall have a pronounced metallic sheen.

## ii.Flame Cleaning

- Hard mill scale and rust shall be removed through Oxy- acetylene flame. The
  work shall be carried out by trained workmen to ensure that only mill scale is
  removed without affecting the parent steel. The work shall be carried out
  carefully on welded surfaces so that the strength of weld is not affected due to
  heating.
- c) Sand Blasting and Shot Blasting (If required) and /Shot blasting shall be resorted to only after removal of grease, oil, and other contaminants. The work shall be carried out by impinging under pressure of air, a jet of sharp sand or granulated steel (steel grits on to the metal surface. The process shall ensure complete removal of rust and firmly adhering mill scale. Special care shall be taken on weld areas to remove flux and spatter. Blasting shall ensure an even colour of the surface and the surface shall have silver grey colour. Precautions shall be taken when sand or shot blasting of light gauge steel surfaces to ensure that buckling does not occur to continuous impingement of sand or steel shots under high velocity.

Sand/Shot blasting shall be adopted for structures which are exposed to corrosive conditions for which superior paint protection is to be adopted. The finished surfaces shall conform to the requirements of Sa 2½ or Sa 3 as per Swedish Standard SIS-05-5900 as specified in the item of work. As sand blasting causes dust nuisance necessary clearance shall be obtained by the Contractor from competent authorities prior to commencing sand blasting.

As Sandblasting causes dust nuisance necessary clearance shall be obtained by the Contractor from Competent authorities prior to commencing Sand blasting.

d) Chemical Cleaning (Pickling)

Cleaning shall be done by pickling in sulphuric, hydrochloric or phosphoric acids. Pickling shall be carried out in accordance with detailed procedure as given in IS 6005.



Washing after pickling shall remove all traces of the acids. All work pieces shall be thoroughly inspected and in particular the inaccessible corners.

- 15.1.4. Contractor shall submit the Method Statement for surface treatment and painting works for old and new structural components/elements, for approval of Engineer-In-Charge.
- 15.1.5. At least 24 hours shall elapse between the applications of successive coats. Each coat shall vary slightly in shade, and this shall be got approved by the Engineer-In-Charge.

#### 15.2. MATERIALS

## 15.2.1. Primer Paint

All steel structures shall receive two primer coats and its DFT shall be 20 microns for each coat. Primer paint shall be red oxide zinc chromate of approved make, quality and colour.

Steel surface which is to be applied with primer paint shall be cleaned of dust and grease and the heavier layers of rust shall be removed by chipping prior to actual surface preparation.

First coat of primer shall be given in shop after fabrication, before dispatch to erection site. The second coat of primer shall be applied after erection and final alignment of the erected structures.

#### 15.2.2. Finish Paint

All steel structures shall receive two coats of finish paint and shall be applied after erection.

Finish paint shall be 2 coats of synthetic enamel paint of approved brand. Dry film thickness of each finish coat shall be 30 microns. The undercoat and finish coat shall be of different tint to distinguish the same from finish paint. The total dry film thickness shall be 100 microns. All paints shall be of approved brand and shade as per the Employer's requirement.

- 15.2.3. All the materials shall be of the best quality from an approved manufacturer. Contractor shall obtain prior approval of the Engineer-In-Charge for the brand of manufacture and the colour/shade prior to procurement for usage in the works.
- 15.2.4. Primer and finish paints shall be compatible with each other to avoid cracking and wrinkling. As such it is recommended that the primer and finish paint shall be from the same manufacturer.
- 15.2.5. The colour and shade shall conform to IS Standards referred to in Appendix 'D' of IS 1477-Part II. To facilitate choosing the correct shade/number from the alternatives available, Contractor shall adopt trial painting in small patches in consultation with and as directed by the Engineer-In-Charge.
- 15.2.6. All paint delivered to the fabrication shop/site shall be ready mixed, in original sealed containers, as packed by the manufacturer. Thinner shall not be permitted for usage unless specifically directed by the Engineer-In-Charge.
- 15.2.7. Paints shall be stirred thoroughly to keep the pigment in suspension.
- 15.2.8. Contractor shall at his own cost arrange for testing of paints as per relevant Indian Standards in standard laboratory whenever Employer wants the tests to be carried out for each batch of paints. Test results shall be submitted to the Employer for obtaining approval.
- 15.2.9. Joints to be site welded shall have no paint applied within 100 mm of welding zone. Similarly, where Friction grip fasteners are to be used no painting shall be provided.



On completion of the joint the surfaces shall receive the paint as specified.

15.2.10. Surfaces inaccessible after assembly shall receive two coats of primer prior to assembly. Surfaces inaccessible after erection including top surfaces of floor beams supporting gratings or chequered plate shall receive one additional coat of finish paint over and above number of coats specified before erection. Portion of steel member embedded / to be encased in concrete shall not be painted.

#### 15.3. WORKMANSHIP

- 15.3.1. No painting shall be done in frosty/foggy weather or when the humidity is high enough to cause condensation on the surface to be painted. Paint shall not be applied when the temperature of the surface to be painted is at 5°C or lower. Primers shall adhere to the surface firmly and offer a key to the subsequent coats. The application of paint film shall serve the twin purpose of protecting the steel from corrosion and giving the decorative appearance. A paint which gives the steel adequate protection over a long period together with good appearance shall therefore be adopted. Workmanship shall generally conform to requirements specified in IS: 1477-Part II.
- 15.3.2.It is essential to ensure that immediately after preparation of the surfaces; the first coat of primer paint shall be applied by brushing and working it well to ensure a continuous film without "holidays". After the first coat becomes hard dry a second coat of primer shall be applied by brushing to obtain a film free from holidays.
- 15.3.3. Structural steel surfaces shall be given the first coat of primer at shop and the second coat after it is erected in position. Further, any abraded surfaces of the first coat during transport from shop to site and during erection shall be provided with a touchup coat of the primer.
- 15.3.4.Application of finishing paints shall be carried out within the shortest possible time interval after primer since the primer coats are too thin to give adequate corrosion protection to the steel surface over a long duration.
- 15.3.5. Filler coats shall be applied to fill dents and to obtain a smooth finish wherever necessary. Only factory prepared filler suitable for steel work shall be used. Fillers prepared by whiting and linseed oil by craftsmen at site shall never be used as such fillers may be unbalanced and incompatible with primer and finishing coats. Application of filler shall be done with good 'putty knife' and necessary skill. Filler applied shall be just sufficient to fill the depression or unevenness and it shall be restricted to the minimum. It shall be applied in thin layers. In filling depression or unevenness, as many coats as are necessary may be applied allowing each layer to dry hard. The hardened coat shall be cut down by wet rubbing before the subsequent coat is applied. Where necessary, filler coats shall be applied over the undercoats also.
- 15.3.6. Painting shall be carried out either by brushing or by spraying. Contractor shall procure the appropriate quality of paint for this purpose as recommended by the manufacturer.
- 15.3.7. After the second coat of primer is hard dry, the entire surface shall be wet rubbed cutting down to a smooth uniform surface. When the surface becomes dry, the undercoat of paint shall be applied by brushing/spraying with minimum of brush marks. The coat shall be allowed to hard dry. The under coat shall then be wet rubbed cutting down to a smooth finish, taking adequate care to ensure that at no place the undercoat is completely removed. The surface shall then be allowed to dry.
- 15.3.8.At least 24 hours shall elapse between the applications of successive coats. Each coat shall vary slightly in shade and this shall be got approved by the Engineer-In-Charge.
- 15.3.9. The thickness of film shall be measured by an Elco meter to be supplied by the Contractor. The Contractor shall calibrate the Elco meter frequently for different settings. Necessary calibrating accessories should be kept ready for calibration/testing of Elco



meter at any time.

- 15.3.10. Epoxy primer and epoxy paint shall be applied within the specified pot life all as per recommendations of the manufacturer.
- 15.3.11. Surfaces inaccessible after assembly shall receive two coats of primer prior to assembly.
- 15.3.12. Surfaces inaccessible after erection, including top surfaces of floor beams supporting grating or chequered plate shall receive one additional coat of finish paint over and above the number of coats specified prior to erection.
- 15.3.13. Portion of steel members embedded/to be encased in concrete shall not be painted. Joints to be site welded shall have no shop paint for at least 50mm from the welding zone. Similarly, the steel surfaces shall not be painted in areas where connection is by use of friction grip bolts. On completion of the joint, the surfaces shall receive the painting as specified.
- 15.3.14. Maintenance painting of steel structures would become necessary if the painting already carried out shows signs of chalking, hairline cracking, deep checking, fine checking, and peeling, blistering and rusting. The breakdown of a paint film is progressive from the top finish paint to the primer coat and the object of maintenance painting is to renovate periodically to effectively check the breakdown and protect the steel surfaces from corrosion. It is essential that same quality of paint as specified earlier need be adopted to ensure compatibility. The general workmanship for maintenance painting shall conform as per Clause. 7 of IS 1477-Part II.
- 15.3.15. Contractor shall provide suitable protection as necessary to prevent paint finishes from splashing on equipment, floors, walls etc.

#### 16. ERECTION OF STEEL STRUCTURES

- 16.1. An experienced and qualified Supervisor shall be in full time charge of the job.
- 16.2. Contractor shall complete all preliminary works at site well before the arrival of structural steel, such as establishment of a well-equipped and adequately staffed site office, stores, unloading gantry, unloading and preassembly yard, labour quarters if any, electrical and water connections, electrical winches, derricks, cranes, compressors, all tools and tackles, rivet guns, welding sets, torque wrenches, spud wrenches, staging, etc. as well as experienced erection and supervisory personnel as part of this contract and any other work that may be necessary so as to start erection immediately after the arrival of the first batch of steel at site.
- 16.3. Contractor shall furnish at his own expense, the necessary noninflammable staging and hoisting materials or equipment required for the erection work and shall remove and take them away after completion of the job. Contractor shall also provide necessary passageways, fences, safety belts, helmets, lights and other fittings to the satisfaction of Employer/Engineer-In-Charge and to meet the rules of local authorities and for protection to his men and materials. A licensed electrician shall be kept on the job for the entire duration of the work to maintain Contractor's electrical equipment and connections.
- 16.4. Contractor shall protect all existing plant, structures, piping, conduits, equipment and facilities against damage during erection. Any damage caused by Contractor shall be rectified entirely at Contractor's cost, to the satisfaction of Employer/Engineer-In-Charge. If work has to be carried out adjacent to existing switch yards or electrical installations which are live, Contractor must ensure suitable safety precautions in consultation with Engineer-In-Charge.
- 16.5. If a portion of the work of the project area cannot be made available to Contractor for his



activities due to operations being carried out by other agencies, he shall suitably modify his sequence of operations so as to continue work without interruption. Contractor shall work in coordination with other agencies working on the project site and plan his work suitably so as not to hinder the progress of construction at site.

## 16.6. ACCEPTANCE OF STEEL, ITS HANDLING & STORAGE

- 16.6.1. Contractor shall carefully check the steel to be erected at the time of acceptance. Any fabrication defects observed should be brought to the notice of Employer/ Engineer-In-Charge.
- 16.6.2. No dragging of steel shall be permitted. All shall be stored 300mm above ground on suitable packing to avoid damage. It shall be stored in the order required for erection, with erection marks visible. All storage areas shall be prepared and maintained by Contractor. Steel shall not be stored in the vicinity of areas where excavation or grading will be done and, if so stored temporarily, this shall be removed by Contractor well before such excavation and/or grading commences to a safe distance to avoid burial under debris.
- 16.6.3. Scratched or abraded steel shall be given a coat of primer for protection after unloading and handling prior to erection. All milled and machined surfaces shall be properly protected from rust/corrosion by suitable coating and also from getting damaged.

#### 16.7. ASSEMBLY & CONNECTIONS

- 16.7.1. Field connections may be affected by riveting, bolting, welding or by use of high strength friction grip bolts as shown on the design and erection drawings.
- 16.7.2. All field connection works shall be carried out in accordance with the approved fabrication drawing. All bolts, nuts, washers, rivets, electrodes required for field connections shall be supplied by erector free of cost.
- 16.7.3. All assembling shall be carried on a level platform suiting the configuration.
- 16.7.4. Drifts shall be used only for drawing the work to proper position and must not be used to such an extent as to damage the holes. Size of drifts larger than the nominal diameter of hole shall not be used. Any damaged holes or burrs must be rectified to the satisfaction of Engineer-In-Charge.
- 16.7.5. Corrections of minor misfits and reasonable amount of reaming and cutting of excess stock from rivets shall be considered as a part of erection. Any error in the shop, which prevents proper fit on a moderate amount of reaming and slight chipping or cutting, shall be immediately reported to Engineer-In-Charge.

#### 16.8. ERECTION

- 16.8.1. All structural steel shall be erected as shown on the drawings. Proper size steel cable slings, etc., shall be used for hoisting. Guys shall not be anchored to existing structures, foundations, etc. unless so permitted by Engineer-In-Charge in writing. Care shall be taken to see that ropes in use are always in good condition.
- 16.8.2. Structural steel frames shall be erected plumb and true line and level. Frames shall be lifted at such points that they are not liable to buckle and deform. Frames shall be lifted only at node points. All steel columns and beams shall be checked for plumb and level individually before and after connections are made. Temporary bracings shall be introduced wherever necessary to take care of all loads to which the structure may be subjected, including erection equipment and the operation thereof. Such bracings shall be left in place as long as may be required for safety and stability.



- 16.8.3. As erection progresses, the work shall be securely bolted to take care of all dead load, wind, seismic and erection stresses.
- 16.8.4. No riveting or welding or final bolting shall be done until the structure has been properly aligned and approved by Engineer-In-Charge. No cutting, heating or enlarging of the holes shall be carried out without the prior written approval of Engineer-In-Charge.

#### 16.9. INSPECTION

Engineer-In-Charge/Employer or their authorized representatives shall have free access to all parts of the job during erection and all erection shall be subjected to their approval. In case of faulty erection, all dismantling and re-erection required will be at Contractor's cost. No paint shall be applied to field welds or bolts until these have been approved by Engineer-In-Charge.

## 16.10. PAINTING

After steel has been erected, all bare and abraded spots, field welds, bolt heads and nuts shall be spot painted with primer. Before paint is applied, the surface shall be dry and free from dust, dirt, scale and grease. All surfaces inaccessible after erection shall receive two coats of the approved primer and paint before erection as per specification. Any damage if found in the structure/element shall be checked and if found damaged, shall be rectified or shall be repainted.

#### 16.11. CLEAN UP OF WORK SITE

During erection, the Contractor shall without any additional payment, at all times keep the working and storage areas used by him, free from accumulation of waste materials or rubbish. Before completion of erection, he shall remove or dispose of in a satisfactory manner all temporary structures, waste and debris and leave the premises in a condition satisfactory to Employer/Engineer-In-Charge.

#### 16.12. SAFETY

The safety precautions to be applied during the erection of the steel structures shall be in accordance with IS: 7205 and other appropriate IS standards.

#### 16.13. INSPECTION AT SITE

After fabrication of the structures, the Contractor shall carry out inspections and checks in the presence of Engineer in order to demonstrate completeness of the works and correctness of the assembly. The Contractor, subject to Engineer's approval shall propose the inspections and checks to be carried out. In order to facilitate inspections as well as future maintenance, the structures shall be provided with steps, ladders, handrails, and other facilities in approved positions. The Contractor shall provide for the owner's use all equipment and instruments for inspection.

#### 17. MODE OF MEASUREMENT AND PAYMENT

#### 17.1. FABRICATION

- 17.1.1. For the purpose of payment, the weight of the actual completed structures shall be calculated from the approved shop drawings for different items of work. The Contractor shall submit to the Engineer-In-Charge relevant material list containing weight of each item.
- 17.1.2. No allowances will be permitted for bolts, nuts, washers, studs, screws etc., galvanizing, welding or for rolling margins. One tonne for the purpose of the payment shall mean ONE METRIC TONNE i.e. 1000kg.
- 17.1.3. The weight of a member made out of standard rolled section such as beams,



channels, angles, etc. shall be based on the standard IS:808 without deductions for holes, notches, bevel cuts, etc. Where a component consists of a cut joist or channels, the full weight of the rolled section shall be considered only if more than half the depth of the original section is used. Otherwise, only half the section unit weight shall be considered for calculation of the weight of the components.

- 17.1.4. Deductions shall be made in the weight of gussets/plates for cuts and a notch as specified in IS 1200 part 8.
- 17.1.5. The weight of any built-up members shall be based on the weight of each component.

#### 17.2. ERECTION WORKS

- 17.2.1. For the purpose of payment, the weight of the actual, completed structures shall be calculated from the approved drawings for different items of work. Contractor shall submit to Employer relevant material list containing weight of each item. No allowance will be permitted for weights of rivets, bolts, washers, screws etc. in calculating the weight of the completed structure. No allowances will be permitted for galvanizing, welding or for rolling margins. One ton for the purpose of payment shall mean ONE METRIC TON i.e. 1000 Kg.
- 17.2.2. The weight of a member made out of standard rolled sections such as beams, channels, angles, etc. shall be based on the weight of the member given in IS 808, without deducting for holes, notches, bevel cuts, etc. Where a component consists of a cut joist or channel, the full weight of the rolled section shall be considered only if more than half the depth of the section is used. Otherwise only half the section unit weight shall be taken. Deductions shall be made in the weight of gussets/plates including chequered plates for skew cuts, notches and openings as specified in IS 1200 part 8.
- 17.2.3. For gussets/plates used in trusses, bracings, columns, beams etc. the area shall be that of the minimum circumscribing rectangle, except as stated in clause 16.3 above.
- 17.2.4. The weight of any built-up member shall be separated into the weight of each component.
- 17.2.5. Erection bolts installed by erector may be left in position on completion of erection; however, no additional payment shall be made either for supply or use of such bolts. If erection bolts are removed after erection is complete, holes shall be plug welded and ground smooth. No extra payment shall be made for such plug welding.
- 17.2.6. Erection work shall not be measured separately if erection work is already included in the scope of item of work of fabrication/erection of steel.

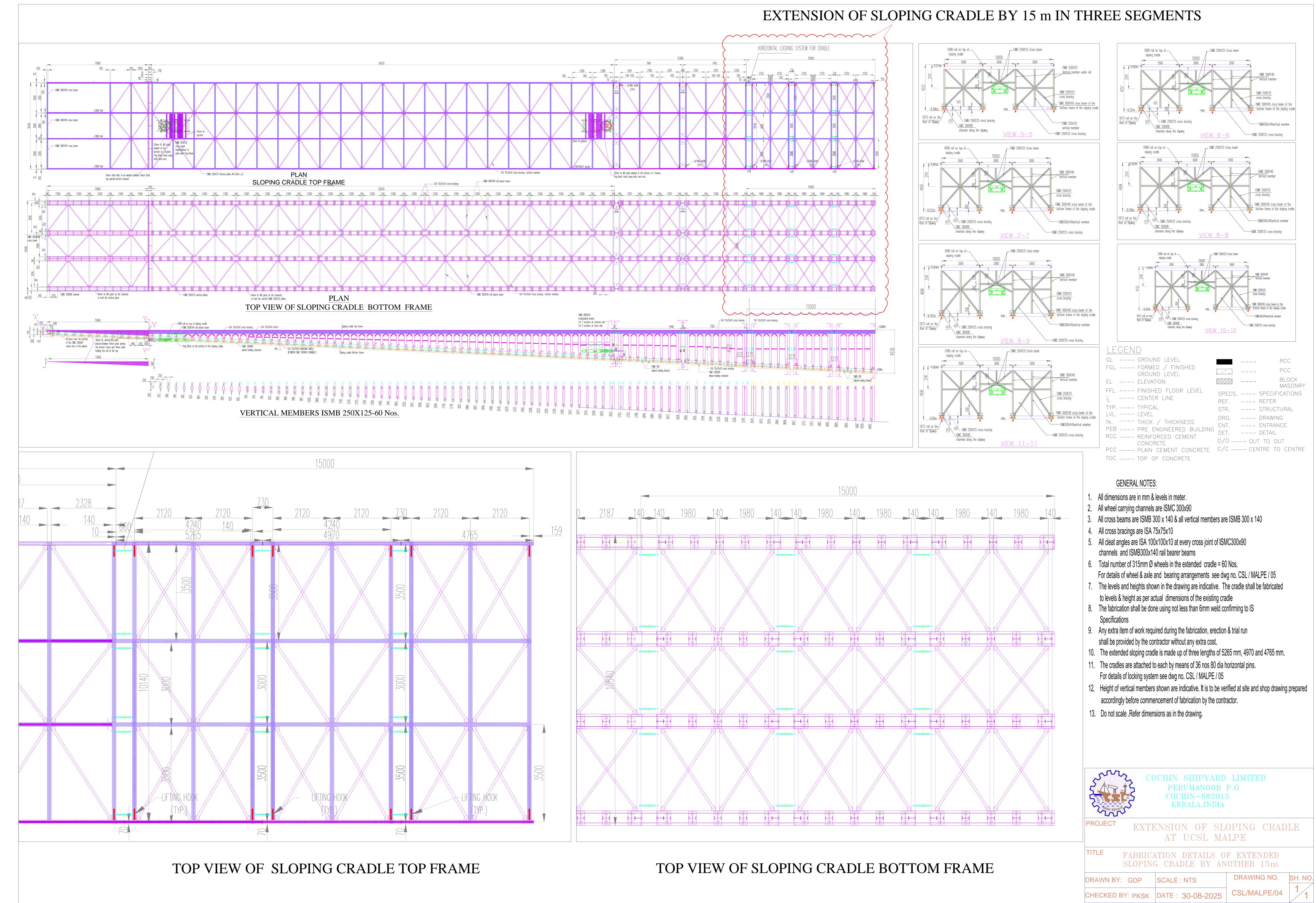
#### 17.3.PAINTING

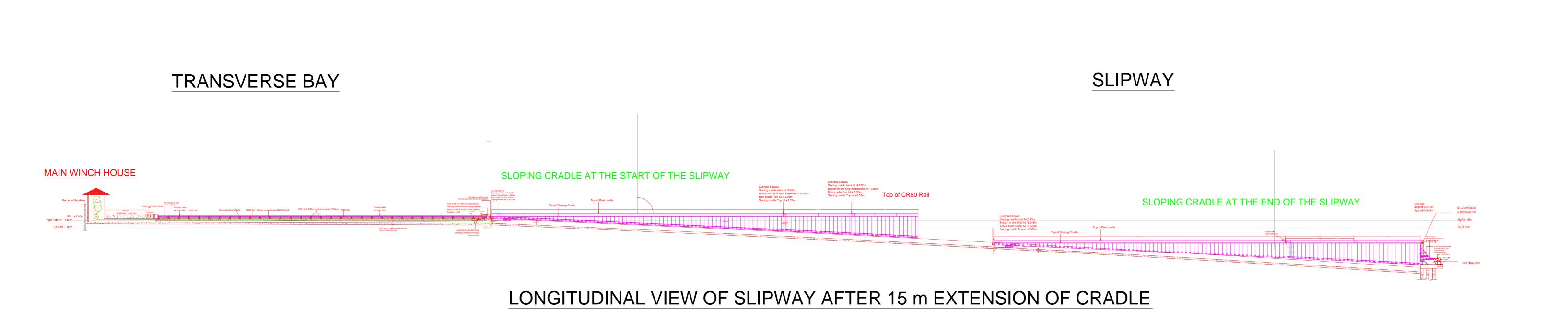
- 17.3.1. Method of measurement for payment for painting shall be in sq. meters, correct to two places of decimals, if so specified, in the respective item of work.
- 17.3.2. Painting work shall not be measured separately, if primer painting and/or primer and finish painting are already included in the scope of the item of work of fabrication and erection of structural steel since the rate per ton of steel is deemed to include for painting as specified.
- 17.3.3. Prior to commencement of fabrication contractor has to submit a detailed bill of material statement along with shop drawing in which item wise length, quantity, painting area shall be indicated. Fabrication has to be carried out only using shop drawing approved by Engineer-In-Charge



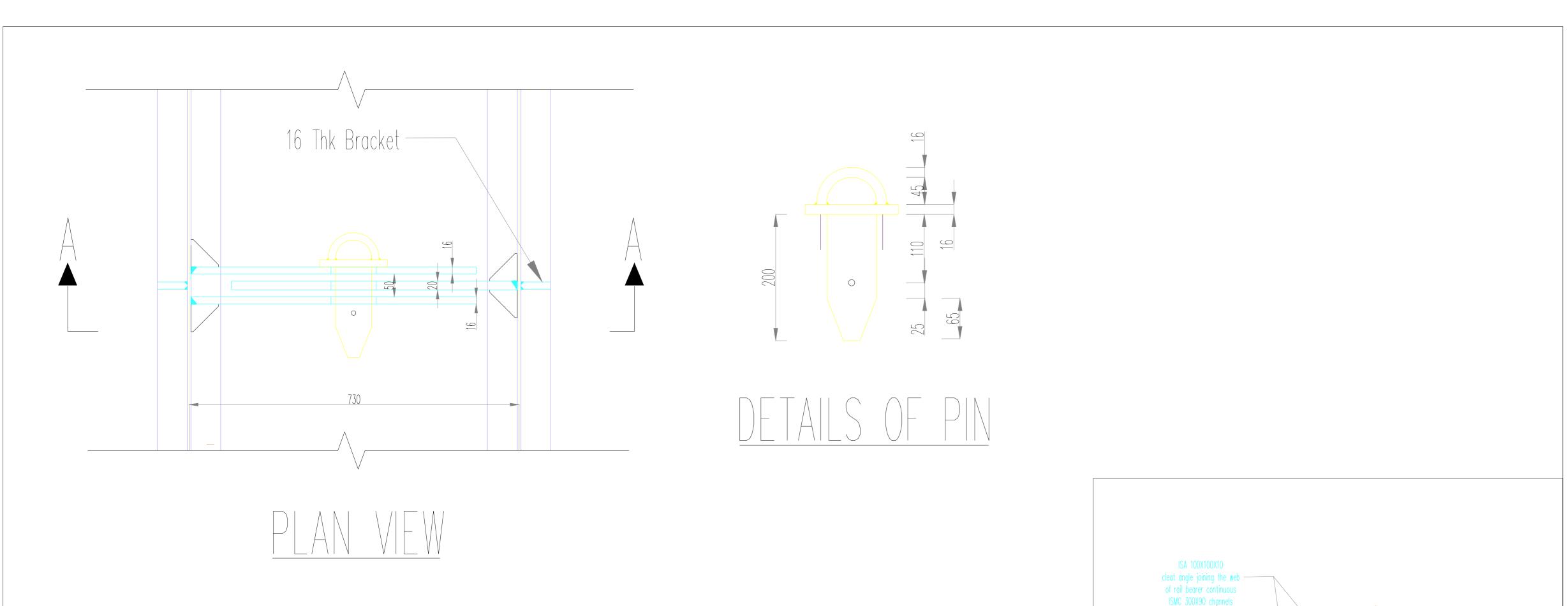
17.3.4. After completion of the work as mentioned above, joint measurements shall be taken and signed by Engineer-In-Charge and Contractor for the work completed.







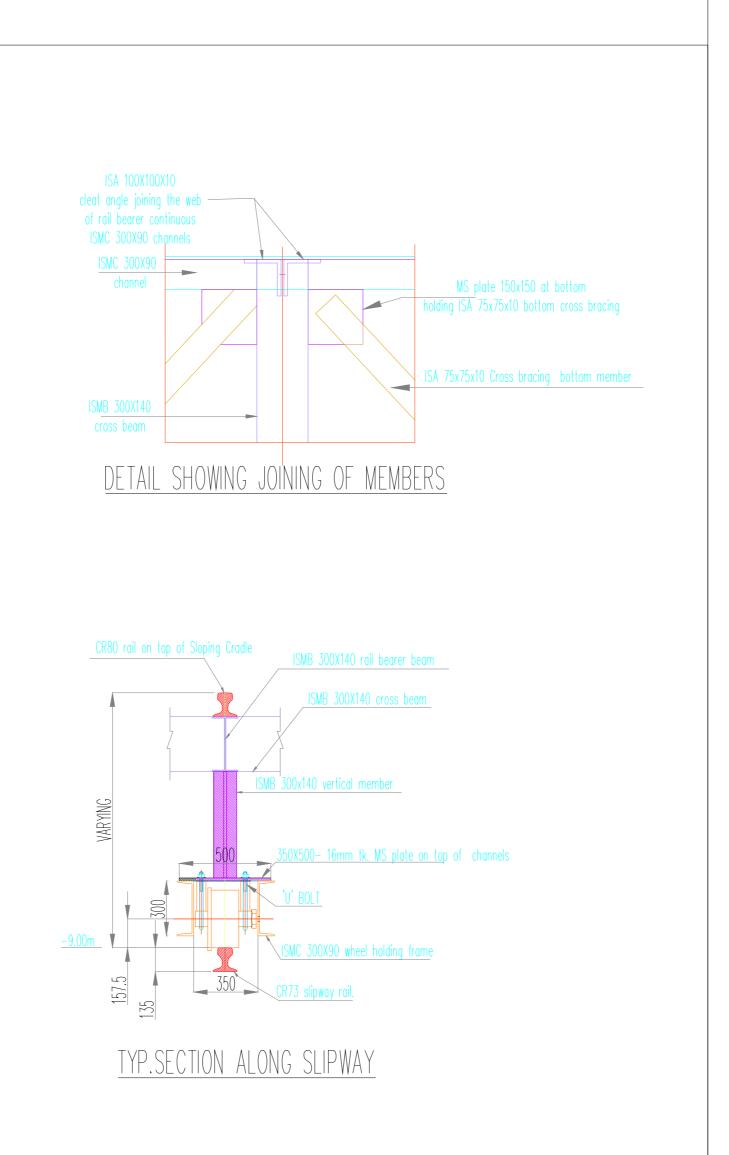


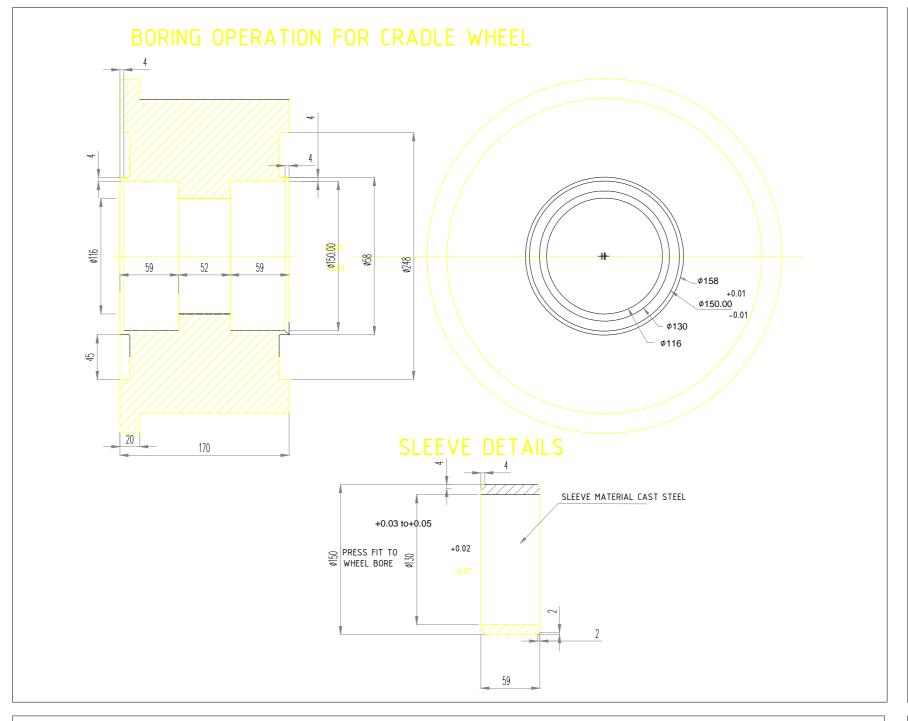


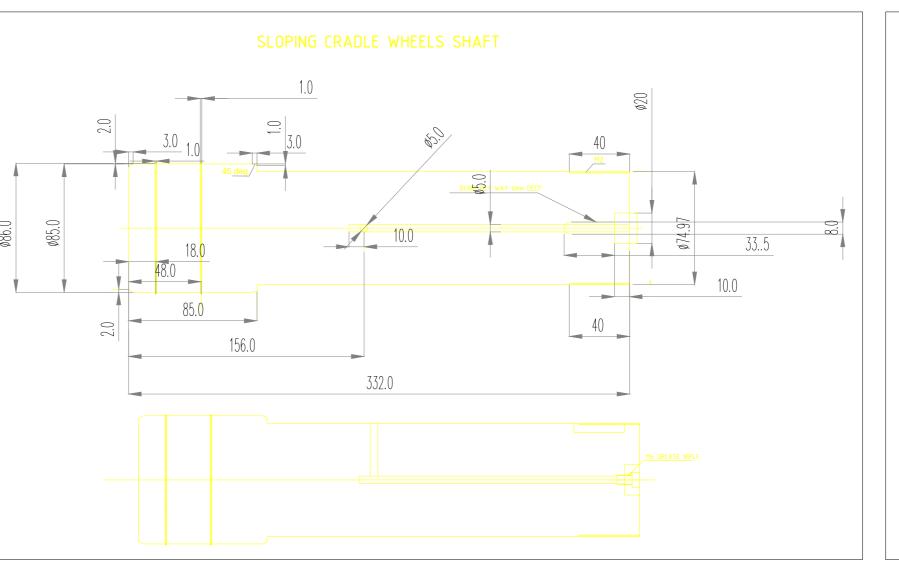
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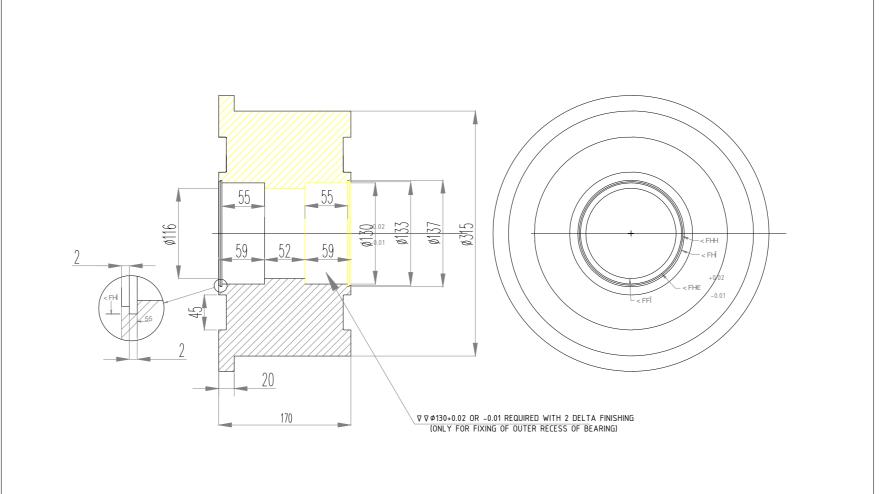
\_\_\_\_16 Thk Bracket

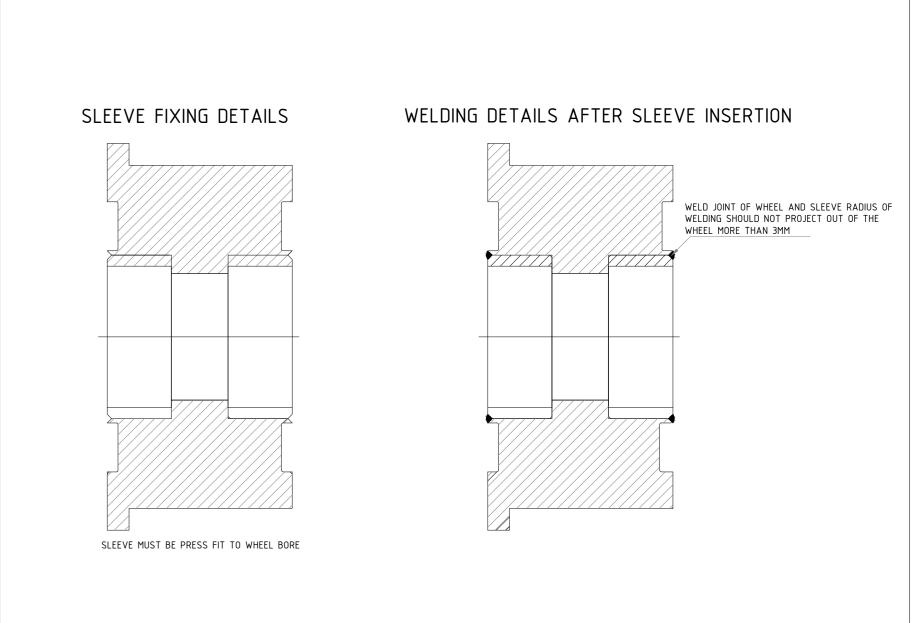
SECTIONAL WEW A-A

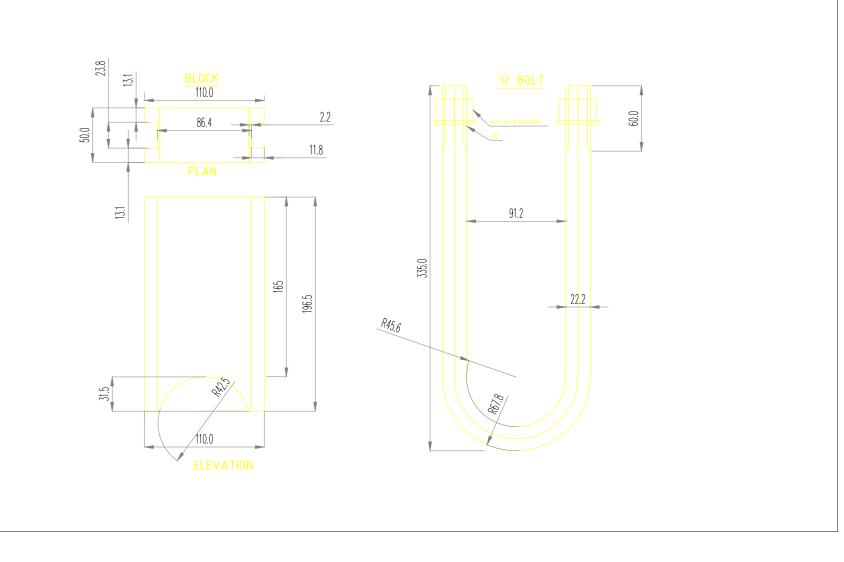












## NOTES:

- 1. All dimensions are in mm.
- 2. Do not scale .Refer dimensions as in the drawing.
- 3. After Press fit up of sleeve the bore Shall be machined to make the dia as per drawing



COCHIN SHIPYARD LIMITED

PERUMANOOR P.O

COCHIN-682015

KERALA,INDIA

PROJECT

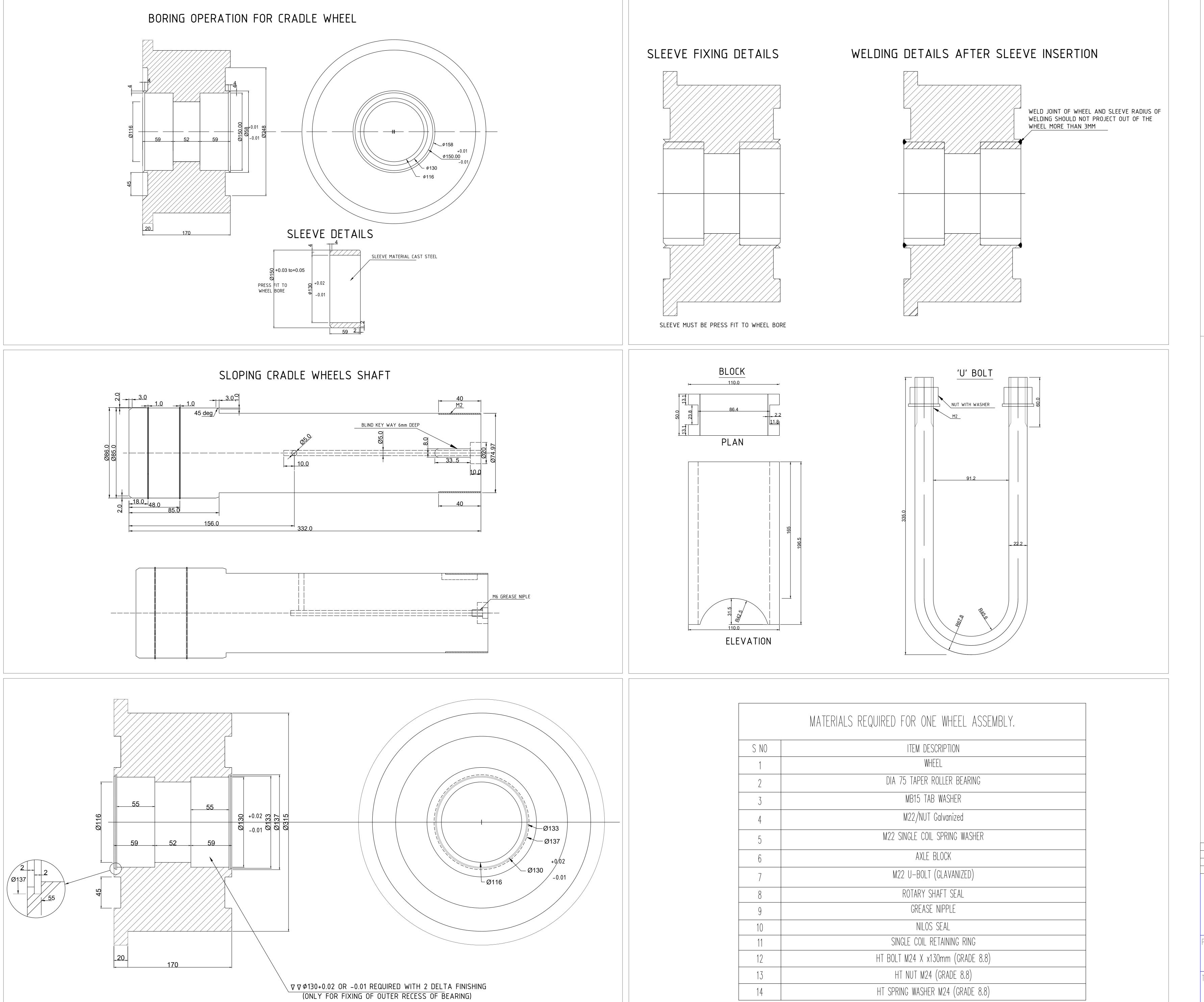
EXTENSION OF SLOPING CRADLE AT UCSL MALPE

DETAILS OF LOCKING SYSTEM AND CRADLE WHEEL ARRANGEMENT

DRAWN BY: GDP SCALE: NTS DRAWING NO.

CHECKED BY: PKSK DATE 30-08-2025

CSL/MALPE/05



GENERAL NOTES:

- All dimensions are in mm.
- Do not scale .Refer dimensions as in the drawing.
- 3. After Press fit up of sleeve the bore Shall be machined to make the dia as per drawing

No: Description:

COCHIN SHIPYARD LIMITED

PERUMANOOR P.O

COCHIN-682015

KERALA,INDIA

Date: Name:

PROJECT

SLIPWAY AT MALPE

SLOPING CRADLE WHEEL DRAWING FOR BEARING FITNESS

DRAWN BY VRN SCALE

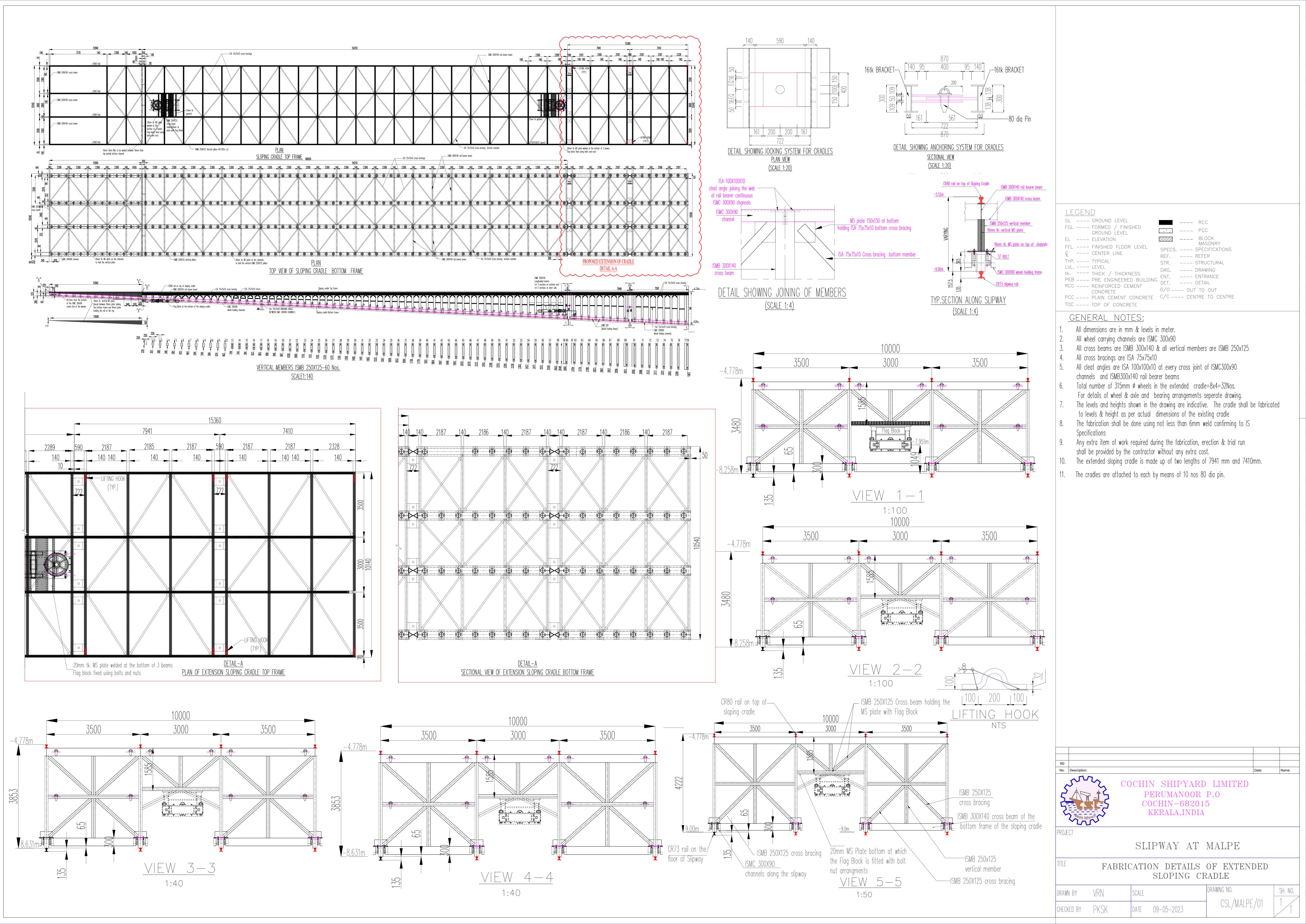
CHECKED BY PKSK

DATE 18-06-2023

DRAWING NO.

CSL/MALPE/03

1



#### SLIPWAY TRANSVERSE BAY MAIN WINCH HOUSE -210000 WHEN THE SLOPING CRADLE AT THE START OF THE SLIPWAY **DETAIL-A Curvical Slipway** Sloping cradle back ht 4.222m LEVEL CHART SHOWING THE TOP OF CR80 RAIL ON THE CURVICAL SLIPWAY SLAB & CAMBER OF THE CURVE ON TOP OF CR80 RAIL=0.588M TO THE PLANE Bottom of the Ship Ivl -3.045m Top of Boat cradle IvI -3.045m NGL & Top of CR80 Rail Sloping cradle Top IvI -3.565m @ start of slipway+2.00m CURVE PLANE CURVE PLANE distance CURVE PLANE CURVE PLANE in metres in mm -4035 -4600 191 -7811 -8004 192 -7872 -8057 -758 -1247 193 -7934 -8109 129 -4199 -4757 194 -7996 -8162 1876 1843 -1352 High Tide +1.50m 130 -4254 -4809 195 -8058 -8214 1835 1791 -1404 131 -4309 -4862 -8120 -8266 1793 1738 -950 -1457 132 -4364 -4914 197 -8182 -8319 -DATUM 0.00m 133 -4420 -4966 -8244 -8371 -1046 -1562 1709 1634 134 -4475 -5019 199 -8307 -8424 135 -4531 -5071 -8369 -8476 -1143 -1666 136 -4586 -5124 -8432 -8528 1583 1476 -1192 -1719 -4642 -5176 -8494 -8581 -1241 -1771 -4698 -5228 203 -8557 -8633 Ø1200mm horizontal sheave in a -1290 -1824 7948--4754 -5281 flag block with counter weight arrangments fixed in the -8620 -8685 -1339 -1876 Sloping cradleRope centre level is equal to -4810 -5333 205 -8683 -8738 1413 1267 -1388 -1928 rope centre level of Return pulley 141 -4866 -5385 206 -8746 -8790 1371 1215 -1437 -1981 142 -4922 -5438 -8809 -8843 -1487 -2033 1328 1162 143 -4979 -5490 wire anchor with removable and replaceable pin 208 -8873 -8895 1285 1110 -1536 -2085 so as to fit thimble eye for rope@150mn -5035 -5543 -8936 -8947 -1586 -2138 1242 1057 Rope centre level is equal to -5092 -5595 210 -9000 -9000 -1635 -2190 rope centre level of Return pulley 146 -5148 -5647 1155 953 -1685 -2243 River Bed -6.00m -1735 -2295 -5205 -5700 1112 900 -5262 -5752 1069 848 -1785 -2347 $_{-}$ 40mm tk.MS plate 149 -5319 -5804 - 400x140 ISMB 1025 796 -1835 -2400 150 -5376 -5857 RETURN PULLEY (VERTICAL SHEAVE) 981 -1885 -2452 151 -5434 -5909 938 -1935 -2504 -5491 -5962 -1986 -2557 End of Slipway -9.00m -5548 -6014 -2036 -2609 850 -5606 -6066 -2087 -2662 -5664 -6119 761 -2138 -2714 -5721 -6171 717 -2188 -2766 **DETAIL-A** -5779 -6224 673 376 -2239 -2819 -5837 -6276 628 324 -2290 -2871 -5895 -6328 583 -2342 -2924 GENERAL DETAILS RELATED TO CONCEPTUAL DRAWINGS FOR SLOPING CRADLE AND TRANSFER CRADLE -5954 -6381 539 219 -2393 -2976 -6012 -6433 -2444 -3028 NOTE SALIENT FEATURES -6070 -6485 **SLIPWAY** -2496 -3081 -6129 -6538 -2547 -3133 21.50m Slipway 210m Horizontal length All dimensions are in mm & levels in m. Slope Average 1:19 -6187 -6590 359 -2599 -3185 Top of CR80 Rail level +2.00m (Curvical -Radius of curvature 9407.02m) Please refer the following drawins Start level -Top of Rail+2.0mEnd level @ -6246 -6643 -2651 -3238 End of Slipway on-Return Pully -Top of Rail-9.00mBase RailCR80 in connection with this: -2703 -3290 -6305 -6695 WHEEL - Top of CR80 Rail level -9.00m 300mm TEBMA/2A for Slipway Level Chart 102 -2755 -3343 -6364 -6747 222 -147 0.588m Camber to plane TEBMA/2B for Detail 'A' ID-80mm,OD-100mm **Bush Bearing** -2807 -3395 -6423 -6800 177 -200 9407.02m Radius of curvature TEBMA/2C for Detail 'B' -2859 -3447 -6482 -6852 -252 104 **SLOPING CRADLE** 1000T **Actual Load** -6541 -6904 -2912 -3500 85 -304 105 81.410m 2000T Sloping Cradle Horizontal length Design Load 66m -2964 -3552 171 -6601 -6957 Length 39 -357 106 Shore side height 0.53m10.376m (10m+0.188+0.188m) COCHIN SHIPYARD LIMITED 172 -6660 -7009 -3016 -3604 Area of the Top surface 684.82sqm 4.222m Sea side height Wheel carrying frame panel span -6720 -7062 -3069 -3657 -53 108 PERUMANOOR P.O Total No. of Wheels in all panels 162Nos. (6Nos per panelx27) 6.17 T (1000/162) Load/wheel 174 -6780 -7114 109 -3122 -3709 66.00m **Boat Cradle** Horizontal total length Load/Area of theTop surface 1.46 T/sqm (1000/684.82) COCHIN-682015 -6839 -7166 Front height Top of Base CR80 Rail to Top of Sloping Cradle CR80 Rail530mm Shore side height 110 -3174 -3762 -145 Top of Base CR80 Rail to Top of Sloping Cradle CR80 Rail3480mm Back height KERALA, INDIA 111 -3227 -3814 a)Boat Cradle frame ht. 0.39m -192 -619 176 -6899 -7219 ISMC350x100 LS Channel for wheel 112 -3281 -3866 b)Wooden cussion max. 0.13m -238 -671 177 -6959 -7271 Wheel @ LS edge channel C/C Wheel @ LS mid channel Sea side height symmetrical inside one panel span -285 -724 113 -3334 -3919 178 -7019 -7324 with reference to cross beam **PROJECT** a)Boat Cradle frame ht. 0.39m -332 -776 114 -3387 -3971 179 -7080 -7376 Cross Beams ISA 75x75x10 Cross bracing b)Wooden cussion max. 0.13m -379 115 -3440 -4024 -828 180 -7140 -7428 CONSTRUCTION OF SLIP WAY AT MALPE MS Plates vertical 116 -3494 -4076 -7200 -7481 LS-Total length 123.90m Transverse Bay Rail on topCR80Rail centre to centre 10m(3.5+3+3.5) -933 117 -3547 -4128 182 -7261 -7533 77.00m **CS-Total length** -985 118 -3601 -4181 -520 -7322 -7585 TRANSFER CRADLE R52 Rail beams 33 Nos. **EXTENDED SLIPWAY CRADLE DETAILS** 74.349m 119 -3655 -4233 184 -7382 -7638 10.376m (10m+0.188+0.188m) 400x400mm Rail beam size Area of the Top surface 771.45sqm -615 -1090 -3709 -4285 -7443 -7690 Span between rails 2.296m Rail beam length 119m -3763 -4338 -7504 -7743 -662 -1143 132Nos. (4Nos. on each rail x33 Rails) Total No. of Wheels on all rails 2296mm Rail beam c/c DRAWING 7.6T (1000/132) Load /wheel 122 -3817 -4390 SH. NO 187 -7565 -7795 DRAWN BY: Load/Area of the Top surface 1.3 T/sqm (1000/771.45) -3871 -4443 Top of Base CR80 Rail to Top of Sloping Cradle CR80 Rail520mm -7626 -7847 74.349m Transfer Cradle Horizontal length -3926 -4495 189 -7688 -7900 ISMC350x100 LS Channel for wheel 0.52m CSL/MALPE/02 Shore side height CHECKED BY: PKSK DATE: 09-05-2023 300x140ISMB Stiffener cum Track base 125 -3980 -4547 190 -7749 -7952 ISA 75x75x10 Cross bracing Sea side height 0.52m

अनुबंध कक्ष CONTRACT CELL

## POWER OF ATTORNEY

(On Applicant's letter head)

(Date and Reference)

(Company Seal)

To
The Assistant General Manager (Contract Cell)
Udupi Cochin Shipyard Limited
Fishing Harbour complex, Malpe,
Udupi-576 108.

Subject: Power of Attorney

Person(s)),	domiciled	a
(Addr name of the compar Representative		ereby appointed as the Authorized on behalf of the Name of the Nam
Employer for the pr	rovide information and respond to enquiries roject ofer authorized to sign and file relevant documen	(Project title
(Attested signature	of Mr)	
For(Name & designatio		



## UCSL/CC/SER/T/DOCKING/110/A/2025 Dt 18th NOVEMBER 2025

## TENDER FOR FABRICATION AND ASSEMBLY OF SLOPPING CRADLE EXTENSION WORK.

#### PRICE BID

S1. No	Description	Unit	Qty	Rate	Amount- INR
1	Fabricating hauling cradle and wheel fixing assembly using hot rolled steel sections conforming to IS 2062 grade E250 BR, like Plates, Angles, Channels and T sections and rounds as per specifications and approved fabrication shop drawings, including providing necessary cleats, stiffeners, gussets, base plate, pins for anchoring etc. and all necessary operations such as but not limited to preheating as per specifications, straightening, bending, cutting, punching holes, drilling, grinding, threading, machining if required, welding, erecting etc. complete including cleaning using wire brush, mechanical tools or by using suitable chemical methods, grinding and removing the welding burr, scales and as directed by Engineer- in-Charge. Raw materials shall be supplied by UCSL	Ton	55		
2	Fabricating, assembling and erecting in position 315 mm dia wheels including sleeves and axel as per drawing including cutting, shaping, milling to slope and shape providing grease hole etc. complete in respect as per drawings and as instructed by the Engineer-in-Charge.  Raw materials shall be supplied by UCSL	Ton	11		
3	Total Amount				
4	GST/IGST%				
5	Grand Total Amount				

L1 will be determined based on the Total amount of Sl. No. 05

Signature:

Address of the contractor:

Seal:





## ANNEXURE-VII TECHNO COMMERCIAL CHECK LIST (To be submitted by the bidder)

(Bidders may confirm acceptance of the Tender Conditions/deviations if any to be specified)

SL No.	Tender Enquiry Requirements	Confirmation from bidder (Strike off whichever is not applicable)	Specific comments /Remarks	
1	Terms & Condition, Scope of work, Technical Specifications & Drawing (Annexure-I, II, III & IV)	Agreed as per tender /Do not agree		
2	Schedule	Agreed as per tender/Do not agree		
3	Mobilization period as per clause no 5.1	Agreed as per tender/Do not agree		
4	Unconditional Acceptance	Agreed as per tender/Do not agree	8	
5	Offer Validity	06 Months - Agreed as per tender/Do not agree		
6	Taxes & Duties	Specified/included in Price		
7	Payment terms - confirm			
а	As per Clause 9 of Annexure - I	Agreed as per tender/Do not agree		
8	Price shall remain firm and fixed and No Escalation in prices after awarding of contract	Agreed as per tender/Do not agree		
9	Security Deposit	Agreed as per tender/Do not agree		
10	Performance Guarantee	Agreed as per tender/Do not agree		
11	Force Majeure	Agreed as per tender/Do not agree		
12	Liquidated damages and cancellation of contract	Agreed as per tender/Do not agree		
13	Arbitration & Jurisdiction clauses	Agreed as per tender/Do not agree		
14	Confirm all other terms and conditions of our enquiry are acceptable.	Confirmed/Not confirmed		
15	Deviations from Tender conditions	No Deviations		

Signature:

Address of the Contractor:



Seal:

## UNCONDITIONAL ACCEPTANCE LETTER

(Unconditional acceptance to be given on applicant's letter head)

## ACCEPTANCE OF TENDER CONDITIONS

- Tender Document no. UCSL/CC/SER/T/DOCKING/110/A/2025 Dated 18th November 2025, Tender for Fabrication and Assembly of slopping cradle Extension work has been received by me/us and I/We hereby unconditionally accept the tender conditions of tender documents in its entirety for the above work.
- It is further noted that it is not permissible to put any remarks/conditions in the tender enclosed in "Part-2 (price bid)". I/We agree that the tender shall be rejected and ACCEPTING AUTHORITY.

(Signatu	re of	the tend	lerer) w	ith rub	ber stamp
Date:					

Yours faithfully,

