



**DOMESTIC PETROLEUM OPERATING BRANCH -
PETROVIETNAM EXPLORATION PRODUCTION
CORPORATION LIMITED
(PVEP-POC)**



PROJECT

**DAI HUNG NAM PROJECT, BLOCK 05.1(a)
OFFSHORE VIETNAM**

PHASE

FRONT END ENGINEERING DESIGN (FEED)

**WHP-DHN – TECHNICAL REQUISITION FOR
PRIMARY AND SECONDARY STEEL**

| | | | | |
|------|-----------|----------------|---|--|
| 0 | 13 Dec 24 | Issued for Bid |  Shahnaz Norwawi |  Nguyễn Ngọc Trung |
| Rev. | Date | Description | Approved by RNZ | Approved by PVEP-POC |

Petrofac  RNZ 

CONTRACTOR: RNZ INTEGRATED (M) SDN BHD
SUBCONTRACTOR: PVENGINEERING CONSULTANCY JSC

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| D0 | 30 Oct 24 | Approved for Design | | | |
| C0 | 10 Sep 24 | Issued for Review | | | |
| | | | LDTan | Redza | |
| Rev. | Date | Description | Prepared by | Checked by | Checked by PVEP-POC |
| | | | RNZ | | |

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REVISION RECORD SHEET

| No. | Revision No. | Content of revision | Date of revision |
|------------|---------------------|----------------------------|-------------------------|
| 1 | C0 | Issued for Review | 10 Sep 24 |
| 2 | D0 | Approved for Design | 30 Oct 24 |
| 3 | 0 | Issued for Bid | 13 Dec 24 |
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**WHP-DHN - TECHNICAL REQUISITION FOR
PRIMARY AND SECONDARY STEEL**

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APPENDICES

APPENDIX 1 : MTO AND SHIPMENT PLANS FOR WHP-DHN TOPSIDE, JACKET
AND PILES (8 PAGES)

WHP-DHN - TECHNICAL REQUISITION FOR PRIMARY AND SECONDARY STEEL

1. SCOPE OF WORK/SUPPLY

Vendor shall supply materials in compliance with all technical documents provided in Appendix 1/ Section 3 of this Technical Requisition

The Scope of supply includes but not limited to the following:

- Engineering activities required for manufacture of the Material.
- Manufacture of the Materials in accordance with required specifications.
- Provision of all testing required by technical specifications and TPI/CA Services as defined Section 6. Inspection and Testing Requirements in order get properly Certification.
- Delivery of the material in accordance with required delivery terms and conditions.
- Provision of vendor data in accordance with Vendor Data Requirement List in Section 5 of this Technical Requisition.
- The Vendor must provide all information requested including a list of any exceptions and non-conformities to the specifications listed in this Technical Requisition.
- All technical exception and deviation shall be indicated at one place, Vendor to use attached technical exception and deviation form (section 7) Any Exception/ deviation not listed in attached form and listed anywhere else in the offer shall not be considered.

2. SPECIFIC INSTRUCTION TO VENDOR

The following are specific instructions to Vendor for the purchase of Primary and Secondary Steel

- Structural steel as shown in the MTO originated from front end engineering design, Vendor may round up the quantity of materials to the closest manufacturer's standard length or area.
- Vendor shall supply materials that strictly comply with Specification for Structural Materials WHP-DHN-S-S-0001. All raw material/mother plates shall be originated from EU/G7/Korea countries or equivalent which is a mandatory requirement. The materials that exceed the quality requirement of this specification are acceptable.
- Vendor shall supply full scope as per MTO, partial supply may be considered subject to the requirements specified in "Instruction to Vendor" of Request For Proposal (RFP).
- Electronic Copies (CD) of documents are required where indicated on Vendor Data Requirements List (VDRL). Client places high importance on the provision of Electronic Copies of Documents.

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- Preparation and marking of all structural steel shall strictly conformed to Client's material storage and identification requirements as specified in WHP-DHN-S-S-0001.

Provide to Client the structural steel materials specified in the attached technical documentation in Section 3.

3. LIST OF TECHNICAL DOCUMENTS

3.1 PROJECT SPECIFICATIONS

| No. | Document No. | Document Title | Rev |
|------------|---------------------|---|------------|
| 1 | DHF-00-A-P-0003 | Dai Hung Field Development - Vendor Data Instructions | 2 |
| 2 | DHF-00-A-P-0005 | Dai Hung Field Development - Vendor Quality Specification | 2 |
| 3 | WHP-DHN-S-S-0001 | WHP-DHN Specification for Structural Materials | D2 |
| 4 | WHP-DHN-S-S-0002 | WHP-DHN Welding Procedure & Performance Qualification Specification | D1 |
| 5 | WHP-DHN-S-S-0003 | WHP-DHN Welding & Fabricating Offshore Structures Specification | D2 |

3.2 PROJECT DOCUMENTS AND DRAWINGS

| No. | Document No. | Document Title | Rev |
|------------|---------------------|--|------------|
| 6 | WHP-DHN-S-D-2002 | WHP-DHN Topside - General Notes | 0 |
| 7 | WHP-DHN-S-D-2004-1 | WHP-DHN Topside - Typical Weld Profile (Sheet 1) | 0 |
| 8 | WHP-DHN-S-D-2004-2 | WHP-DHN Topside - Typical Weld Profile (Sheet 2) | 0 |
| 9 | WHP-DHN-S-D-1003 | Jacket General Notes | 0 |
| 10 | WHP-DHN-S-D-1004 | Jacket Typical Weld Profile Sht1 | 0 |
| 11 | WHP-DHN-S-D-1005 | Jacket Typical Weld Profile Sht2 | 0 |

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4. GENERAL INSTRUCTIONS FOR VENDOR'S DOCUMENTATION

Vendor Data Instructions (DHF-00-A-P-0003) and Vendor Quality Specification (DHF-00-A-P-0005) to be referred to for the general instructions for VENDOR's documentation.

CLIENT's requirements relating to the preparation, format, and submission of vendor data documentation shall comply with Vendor Data Instructions (DHF-00-A-P-0003) and this requisition.

The English language and SI units shall be used in all correspondence, documents, drawings and transmittals.

5. VENDOR DATA REQUIREMENT LIST – VDRL

5.1 NOTES TO VENDOR

Data marked with a 'C' in the Critical column is to be expedited as a priority.

Please tick in the 'Accept' columns on VDRL to verify you are able to supply the data.

- 1.* = Additional 2 copies of these Data/Documents to be shipped with equipment/materials.
2. CF Data/Documents due 2 weeks after receipt of FA Data/Documents by VENDOR.
3. MDR Data/Documents due 2 weeks after shipment.
4. IOM Data/Documents due 4 weeks before shipment.

5.2 ABBREVIATIONS

| | |
|-----|--|
| AW | After Award |
| AT | After Test |
| BD | Before Delivery |
| BT | Before Test |
| C | Critical data |
| CA | Certifying Authority |
| CF | Certified Final |
| E | Electronic |
| FA | For Approval |
| I | Included in IOM |
| IOM | Installation, Operation and Maintenance Manual |
| M | Included in MDR |
| MDR | Manufacturer's Data Report |

**WHP-DHN - TECHNICAL REQUISITION FOR
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| | |
|------|-------------------------------|
| P | Paper Print |
| PC | Purchase Contract |
| RFQ | Request for Quotation |
| PWHT | Post weld heat treatment |
| VDS | Vendor Data Schedule |
| VDRL | Vendor Data Requirements List |
| MTO | Material take-off |

| VENDOR DATA REQUIREMENT LIST - VDRL | | | | | | | | |
|-------------------------------------|--|----------|--------|----------------|---------------|------------------|---------------|-------------|
| VDRL Code | Data/Document Description | Critical | Accept | With Tender | For Approval | | Final Data | |
| | | | | No. Copies | No. Copies | Date Required | No. Copies | IOM/ MDR |
| 1 | Commercial/Contractual | | | | | | | |
| C01 | Vendor Document Index & Schedule | C | | 4P+1E | 1E | 2wks AW | 4P+1E | M |
| C02 | Manufacturing and Delivery/Construction Schedule | C | | 4P+1E | 1E | 2wks AW | 4P+1E | M |
| C03 | Sub-Contract Work Proposal | | | 4P+1E | 1E | 2wks AW | 4P+1E | M |
| C04 | Safety Policy and Performance Records | | | 4P+1E | 1E | 2wks AW | 4P+1E | M |
| C05 | Insurance Confirmation | | | | | 2wks BD | 4P+1E | M |
| C06 | Delivery, Handling and Packing Proposals | | | | 1E | 6wks BD | 4P+1E | M |
| C07 | Statement of Conformance with Specification | C | | 4P+1E | 1E | 2wks AW | 4P+1E | M |
| C08 | Vendor’s Sub-Orders | | | | 1E | 2wks AW | 4P+1E | M |
| C09 | Warranty/Guarantee Confirmation | C | | 4P+1E | 1E | 2wks BD | 4P+1E | M |
| C10 | Certificates Of Origin, Certificates Of Quality (CO, CQ) | C | | | 1E | 4wks BD | 4P+1E | M |
| 2 | Drawing – General | | | | | | | |
| D01 | General Arrangement Drawings | | | | | | | |

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| VENDOR DATA REQUIREMENT LIST - VDRL | | | | | | | | |
|--|---|----------|--------|----------------|---------------|------------------|---------------|-------------|
| VDRL Code | Data/Document Description | Critical | Accept | With Tender | For Approval | | Final Data | |
| | | | | No. Copies | No. Copies | Date Required | No. Copies | IOM/ MDR |
| D02 | Assembly Drawings | | | | | | | |
| D03 | Shop Detail Drawings | | | | | | | |
| D04 | Piping Isometric Drawings | | | | | | | |
| D05 | Process Flow Diagrams including Mass and Heat Balance | | | | | | | |
| D06 | Process and Instrument Drawings | | | | | | | |
| D07 | All Approved “As-Built” - Drawings and Data Sheets | | | | | | | |
| 3 | Drawing – Mechanical/Structural | | | | | | | |
| M01 | Foundation Load and Anchor Bolt Location | | | | | | | |
| M02 | Detail Drawings - Mechanical / Structural | | | | | | | |
| M03 | Drive Assembly Details | | | | | | | |
| M04 | Input / Output Nozzle Schedules | | | | | | | |
| M05 | Mechanical Design Calculations | | | | | | | |
| M06 | Structural Design Calculations | | | | | | | |
| M07 | Pipe Stressing Calculations | | | | | | | |
| M08 | Mechanical/Process Data Sheets | | | | | | | |
| M09 | Other Design Engineering Data Analysis | | | | | | | |
| 4 | Drawing – Instrument/Electrical | | | | | | | |
| J01 | Package Electrical Termination Drawings | | | | | | | |
| J02 | Panel Layout and Details | | | | | | | |
| J03 | Panel Wiring Diagrams | | | | | | | |
| J04 | Instrument / Fire and Gas Location Plans / Cable | | | | | | | |

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| VENDOR DATA REQUIREMENT LIST - VDRL | | | | | | | | |
|--|---|----------|--------|----------------|---------------|------------------|---------------|-------------|
| VDRL Code | Data/Document Description | Critical | Accept | With Tender | For Approval | | Final Data | |
| | | | | No. Copies | No. Copies | Date Required | No. Copies | IOM/ MDR |
| | Layouts | | | | | | | |
| J05 | Instrument / Fire and Gas Installation Details / Hook- ups | | | | | | | |
| J06 | Loop Diagrams | | | | | | | |
| J07 | Shutdown and Control Function Charts, Safe Charts | | | | | | | |
| J08 | Alarm / Trip Set Point List | | | | | | | |
| J09 | Electrical Wiring Diagrams and Schematics | | | | | | | |
| J10 | Electrical Schematic Diagrams | | | | | | | |
| J11 | Electrical Single Line Diagrams | | | | | | | |
| J12 | Sequence and Logic Diagrams, Cause and Effect Diagrams | | | | | | | |
| J13 | Instrument/Electrical Data Sheets | | | | | | | |
| J14 | Functional Design Specifications | | | | | | | |
| J15 | Cable Block Diagram, SR Data Link Address & Screen Graphics | | | | | | | |
| 5 | Data - General | | | | | | | |
| G01 | Descriptive Literature and Catalogue Information | | | | | | | |
| G02 | Sub Vendor/ Supplier Data Sheets | | | 4P+1E | 1E | 4wks AW | 4P+1E | M |
| G03 | Recommended Spare Parts For 2 Year Operation | | | | | | | |
| G04 | Recommended Spare Parts for Start-up & Commissioning | | | | | | | |

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|--|---|----------|--------|----------------|---------------|------------------|---------------|-------------|
| VDRL Code | Data/Document Description | Critical | Accept | With Tender | For Approval | | Final Data | |
| | | | | No. Copies | No. Copies | Date Required | No. Copies | IOM/ MDR |
| G05 | List of Special Tools | | | | | | | |
| G06 | Surface Preparation and Paint System Specification | | | | | | | |
| G07 | Design/ Engineering Calculations | | | | | | | |
| G08 | Foundation Static and Dynamic Loads Calculations | | | | | | | |
| G09 | Bills of Material/ Packing List | | | | 1E | 2wks BD | 4P+1E | M |
| G10 | Commissioning and Site Acceptance Test Procedures | | | | | | | |
| G11 | Factory Acceptance Test Procedure | | | | | | | |
| G12 | Cable Schedule | | | | | | | |
| G13 | Nameplate Details | | | | | | | |
| G14 | Instrument Index | | | | | | | |
| G15 | I/O Schedules | | | | | | | |
| G16 | Centre of Gravity Sketch/ Calculation | | | | | | | |
| G17 | Process/ Utility Calculation | | | | | | | |
| G18 | Weight Control Calculation | | | | | | | |
| G19 | Lubrication Requirements | | | | | | | |
| G20 | Maximum Acceptable Nozzle Forces and Moments | | | | | | | |
| G21 | Special Requirements (Grounding, etc) | | | | | | | |
| G22 | Dynamic Characteristics: Lateral & Torsional Analysis | | | | | | | |
| G23 | Loading, Transport and Unloading Details | | | | | | | |
| G24 | Preservation and Storage | | | | | | | |

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| VENDOR DATA REQUIREMENT LIST - VDRL | | | | | | | | |
|--|--|----------|--------|----------------|---------------|------------------|---------------|-------------|
| VDRL Code | Data/Document Description | Critical | Accept | With Tender | For Approval | | Final Data | |
| | | | | No. Copies | No. Copies | Date Required | No. Copies | IOM/ MDR |
| | Procedure | | | | | | | |
| G25 | Lifting Lug Details / Calculations | | | | | | | |
| G26 | Spreader Bar and Sling Certification | | | | | | | |
| G27 | Hazardous Area Dossier | | | | | | | |
| G28 | Hardware Standard Software Documentation | | | | | | | |
| G29 | Equipment Specific Software Document | | | | | | | |
| 6 | Data – Performance | | | | | | | |
| P01 | Performance and Test Procedure | | | | | | | |
| P02 | Performance Curves and Data, Charts | | | | | | | |
| P03 | Completed Client Data Sheets | | | | | | | |
| P04 | Trial Assembly Procedure | | | | 1E | 2wks AT | 4P+1E | M |
| P05 | HSE Policy/Plan/ Procedures | | | | | | | |
| P06 | Noise Test Data/ Procedures | | | | | | | |
| P07 | FAT Results (performance, leak and functional systems tests) | | | | | | | |
| P08 | Commissioning and Site Acceptance Test Results | | | | | | | |
| P09 | NDT (MT, PT, UT, RT, etc.) / PMI Procedures | | | | 1E | 4wks AW | 4P+1E | M |
| P10 | Hydrotest/ Leak Test Procedures | | | | | | | |
| P11 | Cleaning, Flushing & Drying Procedures | | | | | | | |
| P12 | Insulation Procedure | | | | | | | |

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|-------------------------------------|---|----------|--------|----------------|---------------|------------------|---------------|-------------|
| VDRL Code | Data/Document Description | Critical | Accept | With Tender | For Approval | | Final Data | |
| | | | | No. Copies | No. Copies | Date Required | No. Copies | IOM/ MDR |
| P13 | Pickling, Passivation Procedure | | | | | | | |
| P14 | Manufacturing Procedure Specification | | | | 1E | 4wks AW | 4P+1E | M |
| P15 | Bolt Tightening Procedure | | | | | | | |
| P16 | Surface Preparation and Painting Procedure | | | | | | | |
| P17 | Non-Conformance Control Procedure | | | | | | | |
| P18 | Material Control, Storage & Traceability Procedure | | | | | | | |
| P19 | Packing, Handling & Delivery Procedure | | | | | | | |
| P20 | Load Test Procedures | | | | | | | |
| P21 | Weight Control Procedure | | | | | | | |
| P22 | Other Relevant Inspection/Performance/ Testing Procedures | | | | 1E | 4wks AW | 4P+1E | M |
| 7 | QA/Certification | | | | | | | |
| Q01 | QA Accreditation Certification (Management System Certification, API Monogram, Certificate Of Authorization U-stamp ASME,.ect..) | C | | 4P+1E | 1E | 4wks AW | 4P+1E | M |
| Q02 | Contract Quality Plan | | | 4P+1E | 1E | 4wks AW | 4P+1E | M |
| Q03 | Welding Specification Procedures & Qualification Test Records (WPS & PQR) | C | | 4P+1E | 1E | 4wks AW | 4P+1E | M |
| Q04 | Inspection and Test Plan | C | | 4P+1E | 1E | 4wks AW | 4P+1E | M |
| Q05 | Electrochemical/ Potential Test Reports | C | | | 1E | 2wks AT | 4P+1E | M |
| Q06 | Calibration Procedures & Results | | | | | | | |

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|--|---|----------|--------|----------------|---------------|------------------|---------------|-------------|
| VDRL Code | Data/Document Description | Critical | Accept | With Tender | For Approval | | Final Data | |
| | | | | No. Copies | No. Copies | Date Required | No. Copies | IOM/ MDR |
| Q07 | Electrical Type Test Certificates/ Results | | | | | | | |
| Q08 | Hydrotest/ Leak Test Reports | | | | | | | |
| Q09 | Material Certification (Mill Test Certificates, Inspection Certificates, MRIR, Material Traceability Records, etc.) | C | | | 1E | 2wks AT | 4P+1E | M |
| Q10 | Dimension/Rolling/Forming Check Reports | | | | 1E | 2wks AT | 4P+1E | M |
| Q11 | Approval of Relevant Authorities (3 rd Party Inspection Certificates, Statement Of Conformity,.etc.) | | | | | | | |
| Q12 | Statement of Code Compliance (U-Stamp certificates, Type Approval Certificates, etc.) | C | | | 1E | 2wks BD | 4P+1E | M |
| Q13 | Hazardous Area Electrical Equipment Certification | | | | | | | |
| Q14 | Post Weld Heat Treatment Records | | | | | | | |
| Q15 | Welder/Welding Operator Qualification Test Records/Certificates | C | | | 1E | 4wks AW | 4P+1E | M |
| Q16 | Mock-up testing Procedure | | | | | | | |
| Q17 | NDT Reports | C | | | 1E | 2wks AT | 4P+1E | M |
| Q18 | Weld Map | | | | | | | |
| Q19 | Blasting, Painting Reports | | | | | | | |
| Q20 | Vendor/Sub-supplier Progress Report | | | | | | | |
| Q21 | Vendor Technical Query (VTQ) | | | | | | | |

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|-------------------------------------|---|----------|--------|----------------|---------------|------------------|---------------|-------------|
| VDRL Code | Data/Document Description | Critical | Accept | With Tender | For Approval | | Final Data | |
| | | | | No. Copies | No. Copies | Date Required | No. Copies | IOM/ MDR |
| Q22 | The Final Inspection Release Notes (IRN) | | | | 1E | 2wks BD | 4P+1E | M |
| Q23 | Third Party Inspection Report of Source Inspection Services (If applicable) | | | | | | | |
| Q24 | Non-Conformance Reports | | | | | | | |
| Q25 | Trial Fit Reports | | | | | | | |
| Q26 | Weight Control Report | | | | | | | |
| Q27 | Other Relevant QA/QC/ Performance Inspection/ Testing Reports | | | | | | | |
| 8 | Manuals & Indices | | | | | | | |
| R01 | Installation Operation and Maintenance Manual | | | | | | | |
| R02 | Manufacturer's Data Report (MDR) | | | | 3P | 2wks BD | 4P+1E | M |
| R03 | Data Manual | | | | | | | |
| R04 | Training Manuals (Operation and Maintenance) | | | | | | | |
| 9 | Miscellaneous | | | | | | | |
| Z01 | Specialty Documents as identified on VDS | | | | | | | |
| Z02 | Specialty Documents as identified on VDS | | | | | | | |
| Z03 | Specialty Documents as identified on VDS | | | | | | | |

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6. INSPECTION AND TEST REQUIREMENT

The VENDOR shall assume final responsibility for the inspection and testing of the equipment in accordance with the requirements of the referenced codes and standards. The VENDOR shall be responsible for obtaining statutory approval in the instance where the equipment is subject to such approval. Inspection and testing shall be in accordance with applicable specified Standards and Codes. Inspection and Test Plans (ITP) shall be submitted to the CLIENT / PURCHASER for review at the bid stage. The agreed ITP shall be part of VENDOR scope of supply. The VENDOR shall indicate in its bid the location of key production, inspection or testing activities (as identified in the Inspection and Testing Requirement). These locations shall not be changed at all times. VENDOR's ITP shall include the minimum activities and requirement as described in the typical ITP.

The CLIENT / PURCHASER and/or CLIENT / PURCHASER's inspection authority shall be given at any time full access to VENDOR's premise to inspect the VENDOR's manufacturing facilities, including major sub-VENDOR's manufacturing facilities, to confirm that satisfactory quality assurance and production procedures are being implemented. The VENDOR shall make available all relevant QA procedures and records for review.

The VENDOR shall provide to the CLIENT / PURCHASER or CLIENT / PURCHASER's representative, without charge, all facilities and access for satisfying himself that the equipment being manufactured shall be in accordance with the requirement of this Technical Requisition, relevant datasheet, Codes and Standards.

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| Inspection Activity | | Definition of Inspection Activity |
|----------------------------|-----|--|
| Approval | A | A point is defined where Vendor/Supplier is required to submit document/dossier for approval before proceeding with the next relevant work steps. |
| Document | D | Document provided/submitted |
| Hold | (H) | The activities or inspections shall not be performed without witnessed by specified Parties. Notification to The Relevant Parties is compulsory in agreed notification days. The Vendor/Supplier shall not change/deviate this point unless formally notified by The Relevant Parties. |
| Monitor | (M) | Witnessing or inspections by specified Parties is not mandatory, but optional. No notification is required. The Relevant Parties may witness/inspect the activities during monitoring or quality control management visits. |
| Witness | (W) | The activities or inspections shall not be performed without witnessed by specified Parties. Notification to The Relevant Parties is compulsory in agreed notification days. The Vendor/Supplier may proceed works in case the Relevant Parties do not attend. |
| Verify | (V) | Verification of inspection, manufacturing, testing or document activity |
| Review | (R) | A point is defined as which a record/dossier is required. The nominated Party is required to review/endorse these records/dossiers. The review shall be complied with Purchase Order. |
| Other | | Additional activity as required by VENDOR and subject to CLIENT acceptance |

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The below inspection and testing matrix specifies the minimum requirements. VENDOR to prepare detailed ITP for CLIENT / PURCHASER's approval.

| Act. No. | Activities Description | Procedure /Specification Reference | Acceptance Criteria | Documentation | Inspection / Surveillance Activities | | | |
|----------|---|------------------------------------|---------------------|---------------|--------------------------------------|-------------------|-------------|----------------------------------|
| | | | | | Vendor | Client/ Purchaser | Third Party | Client's Certification Authority |
| 1 | Pre-Award Meeting | | | | A | A | | |
| 2 | Documents: | | | | | | | |
| 3 | Specifications / Data Sheets | | | | | | | |
| 4 | Drawings (commented copies and status of follow-up actions) | | | | | | | |
| 5 | Technical Queries / Concession Requests (approved) | | | | | | | |
| 6 | QC System Manual | | | | | | | |
| 7 | Inspection and Test Plan (ITP) | | | | W | R | R | |
| 8 | Welding Procedure Specifications (WPS) & Procedure Qualification Record (PQR) | | | | W | W | W | |
| 9 | Welder qualification record | | | | W | R | W | |
| 10 | Welding repair procedures | | | | W | R | R | |
| 11 | NDE procedures | | | | W | R | R | |
| 12 | NDE personnel qualification records | | | | W | R | R | |
| 13 | Cladding procedure (where applicable) | | | | | | | |
| 14 | Material test reports / certificates | | | | W | R | R | |
| 15 | Material verification | | | | W | M | M | |
| 16 | Positive Material Identification | | | | | | | |

WHP-DHN – TECHNICAL REQUISITION FOR PRIMARY AND SECONDARY STEEL

| Act. No. | Activities Description | Procedure /Specification Reference | Acceptance Criteria | Documentation | Inspection / Surveillance Activities | | | |
|-------------|--|--|------------------------|---------------|--------------------------------------|----------------------|-------------|-------------------------------------|
| | | | | | Vendor | Client/ Purchaser | Third Party | Client's Certification Authority |
| 17 | Components /Parts Inspection (Visual, Dimensions) | | | | | | | |
| 18 | Shell / Head | | | | | | | |
| 19 | Nozzles, Flanges, Pads | | | | | | | |
| 20 | Opening holes for nozzles | | | | | | | |
| 21 | Internal details | | | | | | | |
| 22 | Supports | | | | | | | |
| 23 | External attachments | | | | | | | |
| 24 | Fabrication/ Assembly Inspection | | | | W | M | M | |
| 25 | Preliminary dimensional & orientation check | | | | W | M | M | |
| 26 | Welding Inspection | | | | W | M | M | |
| 27 | Welding material verification | | | | W | M | M | |
| 28 | Fit-Up/Joint preparation | | | | W | M | M | |
| 29 | Visual & Dimensional weldment | | | | W | M | M | |
| 30 | Cladding (where applicable) | | | | | | | |
| 31 | Production Test Piece & Testing | | | | W | M | W | |
| 32 | NDE & Other examination | | | | W | R | R | |
| 33 | NDE activities (RT/UT/MPI/ DPI) | | | | W | M / V / R | M | |
| 34 | Hardness test | | | | | | | |
| 35 | Impact test | | | | | | | |
| 36 | NDE & Other examination (after heat treatment) | | | | | | | |

WHP-DHN – TECHNICAL REQUISITION FOR PRIMARY AND SECONDARY STEEL

| Act. No. | Activities Description | Procedure /Specification Reference | Acceptance Criteria | Documentation | Inspection / Surveillance Activities | | | |
|----------|---|------------------------------------|---------------------|---------------|--------------------------------------|-------------------|-------------|----------------------------------|
| | | | | | Vendor | Client/ Purchaser | Third Party | Client's Certification Authority |
| 37 | Post Weld Heat Treatment (PWHT) (where applicable) | | | | W | R | | |
| 38 | PWHT procedure (If applicable) | | | | W | R | R | |
| 39 | PWHT | | | | | | | |
| 40 | Final Dimensions & Orientation Check | | | | W | M | M | |
| 41 | Testing: | | | | | | | |
| 42 | Test procedures | | | | | | | |
| 43 | Hydrostatic test | | | | | | | |
| 44 | Pneumatic test | | | | | | | |
| 45 | High pressure N ₂ / Helium tests (where applicable) | | | | | | | |
| 46 | Test Reports/Test Certificates | | | | R | R | R | |
| 47 | Cleaning/ Pickling Inspection | | | | | | | |
| 48 | Cleaning Internal (etc) | | | | | | | |
| 49 | Surface Preparation & Painting | | | | | | | |
| 50 | Coating Procedure | | | | | | | |
| 51 | Surface Preparation/ Primer Coat (thickness) visual, etc) | | | | | | | |
| 52 | Intermediate Coats (thickness, visual, etc) | | | | | | | |
| 53 | Topcoat (thickness, visual, adhesion, holiday detection, finish colour) | | | | | | | |
| 54 | Material Marking and Identification drawing. | | | | W | M | M | |

WHP-DHN – TECHNICAL REQUISITION FOR PRIMARY AND SECONDARY STEEL

| Act. No. | Activities Description | Procedure /Specification Reference | Acceptance Criteria | Documentation | Inspection / Surveillance Activities | | | |
|----------|--|------------------------------------|---------------------|---------------|--------------------------------------|-------------------|-------------|----------------------------------|
| | | | | | Vendor | Client/ Purchaser | Third Party | Client's Certification Authority |
| 55 | Final Inspection | | | | W | W | W | |
| 56 | Certificate of Compliance | | | | W | R | R | |
| 57 | Spare parts | | | | | | | |
| 58 | Data package | | | | R | R | | |
| 59 | Preparation for shipment | | | | A | R | R | |
| 60 | Preservation | | | | A | | | |
| 61 | Packing list | | | | R | R | | |
| 62 | Shipped loose items | | | | R | | | |
| 63 | Two year operation spares | | | | | | | |
| 64 | Commissioning and start-up spares | | | | | | | |
| 65 | Release for shipment | | | | R | H | R | |
| 66 | Site welding repair (where applicable) | | | | W | M | R | |

Notes:

The Third Party's activities indicative on the Inspection and Testing shall be updated and subject to necessary requirements to obtain proper Mill Certification as defined Specification for Structural Materials, Project Specifications.

WHP-DHN - TECHNICAL REQUISITION FOR PRIMARY AND SECONDARY STEEL

6.1 GENERAL REQUIREMENT

CLIENT shall have the right to inspect the manufacturing of all materials and shall have free access at all times to any part of the Vendor's operation that concerns the work.

Vendor shall allow authorized inspectors free and immediate access to all parts of the plant.

Vendor shall furnish all necessary safety facilities, adequate lighting, measurement and test equipment, etc., for a safe and thorough inspection by CLIENT.

The inspector has the authority to reject any materials or work that do not meet the specifications. Additionally, materials accepted by the inspector may still be rejected if found to be defective at a later time.

Vendor shall replace or correct rejected material at no additional cost to the CLIENT.

Vendor may appeal disputes with the inspector to the Client's QA/QC Manager for the final decision.

6.2 SPECIFIC REQUIREMENT

Document submission shall comply with requirements and schedule listed in Vendor Data Requirement List.

PWHT shall be applied for joints in C-Mn steels when the material thickness at the welds exceeds 50 mm. If, however, satisfactory performance in the as-welded condition can be documented by a fitness-for-purpose assessment applying fracture mechanics testing, fracture mechanics and fatigue crack growth analyses, PWHT may be omitted.

All Supplementary Test Requirements for material classes shall be carried out as per listed in Table 9.2 and 9.3. in Specification No.WHP-DHN-S-S-0001.

Production test shall be 2 sets per each WPS per welding line (or station), one set for min production thickness of the WPS and one set for max production thickness of WPS. For the WPS made only one production thickness, then production test required one set for each production welding line.

A production test shall include the followings:

1. Weld tranverse Tensile Test: 2ea
2. Bend test: 4ea
3. Charpy V-notch (CVN) impact test: each 3ea on W.M, F.L, F.L+2mm/root test for $T < 19\text{mm}$, root & cap test for $T \geq 19\text{mm}$
4. Hardness test: 01ea
5. Macro test: 01ea

NDE shall perform and conform to API 2B/ASTM A578 or equivalent standards. 100% MPI & 100% UT shall be carried for rolled tubulars, beam W24 and above, UT

WHP-DHN - TECHNICAL REQUISITION FOR PRIMARY AND SECONDARY STEEL

& MT for 12 inch length of each end for beams below W24, test result shall be mentioned in Mill Certificates.

Vendor shall be provided the mill certificates and supplementary tests, MPI, UT reports (if not included certificate) for ex-stock materials to determine proposed ex-stock materials to meet all relevant Codes, Standards, project specifications and specific requirements.

Mill certificates shall strictly conform to Section 10.3 of the Specification for Structural Materials Document No WHP-DHN-S-S-0001.

7. TECHNICAL EXCEPTION AND DEVIATION

VENDOR must clearly identify his exceptions to the scope of supply with a detail note of deviation request. All technical exception shall be subjected to CLIENT's / PURCHASER's approval in writing. Cost impact and/or schedule impact due to the technical exceptions shall be derived and presented clearly by VENDOR. VENDOR is required to cater an "alternative" proposal for all the exceptions taken. Those alternatives shall be approved by CLIENT / PURCHASER before work execution.

If there are exceptions, VENDOR shall submit the technical exception list together with his bid using the format provided in the Technical Bid Form.

The list shall contain the following information:

- Exception (title)
- Specification Clause Number
- Reason for non-compliance
- Cost and delivery impact to comply
- Alternative proposal (for compliance to the intent of the specification)

The technical exception list shall be signed and stamped.

If exceptions are not stated in the bid, it shall be interpreted by CLIENT / PURCHASER as full compliance with the technical requisition, project specification and all reference documents listed.

If there is conflict in the prescribed applicable Codes & Standards, VENDOR shall seek clarification in writing for PURCHASER's approval.

**WHP-DHN - TECHNICAL REQUISITION FOR
PRIMARY AND SECONDARY STEEL**

8. APPENDICES

Appendix 1 : MTO and Shipment Plans for WHP-DHN Topside, Jacket and
Piles (8 Pages)



**DAI HUNG NAM PROJECT, BLOCK 05.1(a), OFFSHORE
VIETNAM**

**WHP-DHN - TECHNICAL REQUISITION FOR
PRIMARY AND SECONDARY STEEL**

APPENDIX 1

**MTO AND SHIPMENT PLANS FOR WHP-DHN TOPSIDE, JACKET
AND PILES**

MTO AND SHIPMENT PLANS FOR WHP-DHN TOPSIDE, JACKET AND PILES

| Item | Material Type | Descriptions | Type | Unit | Unit Weight (Kg / mtr / sqmtr) | Req. Length/ Area (m/m2) | Typ. Size (m/m2) | Round Quantity (pcs) | Total Length/ Area (M / SQM) | Total Weight (MT) | Portion Consider | Shipment, Remarks |
|------------------|---------------------------------|--------------|------|------|--------------------------------------|-----------------------------------|------------------------|----------------------------|---------------------------------------|-------------------------|---------------------|----------------------|
| I | ROLLED SECTION | | | | | | | | | 613.49 | | |
| | Rolled Section (TYPE I) | | | | | | | | | | | |
| 1 | Beam | W36X194 | I | m | 288.70 | 428.91 | 12.00 | 36 | 432 | 124.72 | PORTION 3 | Shipment 1 |
| 2 | Beam | W33X152 | I | m | 226.20 | 271.22 | 12.00 | 23 | 276 | 62.43 | | |
| 3 | Beam | W24X104 | I | m | 154.80 | 1,088.82 | 12.00 | 91 | 1092 | 169.04 | | |
| 4 | Beam | W24X76 | I | m | 113.10 | 106.49 | 12.00 | 9 | 108 | 12.21 | | |
| 5 | Beam | W18X60 | I | m | 89.29 | 543.38 | 12.00 | 46 | 552 | 49.29 | | |
| 6 | Beam | W12X40 | I | m | 59.53 | 408.10 | 12.00 | 35 | 420 | 25.00 | | |
| Sub-total | | | | | | | | | | 442.70 | | |
| | Rolled Section (TYPE IV) | | | | | | | | | | | |
| 1 | Beam | W14x38 | IV | m | 56.71 | 780.89 | 12.00 | 66 | 792 | 44.91 | PORTION 3 | Shipment 3 |
| 2 | Beam | W18X60 | IV | m | 89.29 | 25.62 | 12.00 | 3 | 36 | 3.21 | | Shipment 2 |
| 3 | Beam | W12X40 | IV | m | 59.53 | 262.47 | 12.00 | 22 | 264 | 15.72 | | |
| 4 | Beam | W10X22 | IV | m | 32.70 | 95.52 | 12.00 | 8 | 96 | 3.14 | | |
| 5 | Beam | W8X18 | IV | m | 26.70 | 3,876.47 | 12.00 | 324 | 3888 | 103.81 | | |
| Sub-total | | | | | | | | | | 170.79 | | |
| II | TUBULAR | | | | | | | | | 7,051.01 | | |
| II.1 | Rolled Tubular (TYPE I) | | | | | | | | | | | |
| 1 | Tubular | 3000øx25 | I | m | 1834.20 | 35.80 | 4.00 | 0 | 0.00 | 0.00 | | Shipment 4 |
| 2 | Tubular | 2338øx40 | I | m | 2266.89 | 50.63 | 4.00 | 16 | 64.00 | 145.08 | | Shipment 3 |
| 3 | Tubular | 2338øx30 | I | m | 1707.56 | 50.63 | 4.00 | 16 | 64.00 | 109.28 | | Shipment 3 |
| 4 | Tubular | 2134øx60 | I | m | 3068.88 | 609.92 | 4.00 | 160 | 640.00 | 1,964.08 | | Shipment 4 |
| 5 | Tubular | 2134øx40 | I | m | 2065.65 | 240.00 | 4.00 | 62 | 248.00 | 512.28 | | Shipment 4 |
| 6 | Tubular | 1828.8øx44.5 | I | m | 1958.16 | 21.32 | 4.00 | 6 | 24.00 | 47.00 | | Shipment 1-1 |
| 7 | Tubular | 1828.8øx38.1 | I | m | 1682.55 | 166.21 | 4.00 | 48 | 192.00 | 323.05 | | Shipment 1-1 |
| 8 | Tubular | 1371.6øx60 | I | m | 1940.76 | 23.53 | 6.00 | 5 | 30.00 | 58.22 | | Shipment 1-1 |
| 9 | Tubular | 1371.6øx44.5 | I | m | 1456.41 | 20.61 | 6.00 | 4 | 24.00 | 34.95 | | Shipment 1-1 |
| 10 | Tubular | 1371.6øx38.1 | I | m | 1252.96 | 36.70 | 6.00 | 8 | 48.00 | 60.14 | | Shipment 1-1 |
| 11 | Tubular | 1320.8øx50.8 | I | m | 1591.06 | 110.88 | 6.00 | 20 | 120.00 | 190.93 | | Shipment 3 |

| Item | Material Type | Descriptions | Type | Unit | Unit Weight (Kg / mtr / sqmtr) | Req. Length/ Area (m/m2) | Typ. Size (m/m2) | Round Quantity (pcs) | Total Length/ Area (M / SQM) | Total Weight (MT) | Portion Consider | Shipment, Remarks |
|---------------|--------------------|------------------------|--------------|--------------|--------------------------------------|-----------------------------------|------------------------|----------------------------|---------------------------------------|-------------------------|---------------------|-----------------------|
| 12 | Tubular | 1320.8øx38.1 | I | m | 1205.23 | 76.40 | 6.00 | 14 | 84.00 | 101.24 | PORTION 1 | Shipment 1-1 |
| 13 | Tubular | 1219.2øx25.4 | I | m | 747.80 | 53.38 | 6.00 | 10 | 60.00 | 44.87 | | Shipment 2 |
| 14 | Tubular | 1219.2øx20.6 | I | m | 608.92 | 21.76 | 6.00 | 4 | 24.00 | 14.61 | | Shipment 3 |
| 15 | Tubular | 1118øx25.4 | I | m | 684.41 | 1.00 | 6.00 | 0 | 0.00 | 0.00 | | Shipment 2 |
| 16 | Tubular | 1100øx25.4 | I | m | 673.13 | 2.00 | 6.00 | 1 | 6.00 | 4.04 | | Shipment 2 |
| 17 | Tubular | 1080øx25.4 | I | m | 660.60 | 13.64 | 6.00 | 3 | 18.00 | 11.89 | | Shipment 2 |
| 18 | Tubular | 1066.8øx20.6 | I | m | 531.50 | 131.52 | 6.00 | 24 | 144.00 | 76.54 | | Shipment 1-2 |
| 19 | Tubular | 1016øx25.4 | I | m | 620.51 | 257.78 | 6.00 | 50 | 300.00 | 186.15 | | Shipment 1-1 |
| 20 | Tubular | 1016øx19.1 | I | m | 469.57 | 225.72 | 6.00 | 48 | 288.00 | 135.24 | | Shipment 1-1 |
| 21 | Tubular | 965.2øx38.1 | I | m | 871.11 | 48.61 | 12.00 | 5 | 60.00 | 52.27 | | Shipment 1-2 |
| 22 | Tubular | 965.2øx31.8 | I | m | 732.01 | 29.24 | 12.00 | 3 | 36.00 | 26.35 | | Shipment 1-2 |
| 23 | Tubular | 965.2øx20.6 | I | m | 479.88 | 276.19 | 12.00 | 28 | 336.00 | 161.24 | | Shipment 1-2 |
| 24 | Tubular | 965.2øx19.1 | I | m | 445.65 | 68.92 | 12.00 | 6 | 72.00 | 32.09 | | Shipment 1-2 |
| 25 | Tubular | 965.2øx15.9 | I | m | 372.24 | 231.73 | 12.00 | 20 | 240.00 | 89.34 | | Shipment 1-2 |
| 26 | Tubular | 965.2øx30 | I | m | 691.90 | 54.98 | 12.00 | 5 | 60.00 | 41.51 | | Shipment 4 |
| 27 | Tubular | 914.4øx15.9 | I | m | 352.32 | 174.91 | 12.00 | 15 | 180.00 | 63.42 | | Shipment 3 |
| 28 | Tubular | 914.4øx19.1 | I | m | 421.72 | 90.01 | 12.00 | 8 | 96.00 | 40.48 | | Shipment 3 |
| 29 | Tubular | 914.4øx25.4 | I | m | 556.87 | 4.52 | 12.00 | 0 | 0.00 | 0.00 | | Shipment 2 |
| 30 | Tubular | 863.6øx25.4 | I | m | 525.05 | 95.39 | 12.00 | 10 | 120.00 | 63.01 | | Shipment 1-2 |
| 31 | Tubular | 812.8øx25.4 | I | m | 493.23 | 4.42 | 12.00 | 0 | 0.00 | 0.00 | | Shipment 2 |
| 32 | Tubular | 812.8øx20.6 | I | m | 402.46 | 145.36 | 12.00 | 13 | 156.00 | 62.78 | | Shipment 1-2 |
| 33 | Tubular | 812.8øx15.9 | I | m | 312.48 | 415.52 | 12.00 | 38 | 456.00 | 142.49 | | Shipment 1-2 |
| 34 | Tubular | 762øx38.1 | I | m | 680.18 | 29.14 | 12.00 | 3 | 36.00 | 24.49 | | Shipment 1-2 |
| 35 | Tubular | 762øx31.8 | I | m | 572.65 | 26.72 | 12.00 | 3 | 36.00 | 20.62 | | Shipment 1-2 |
| 36 | Tubular | 762øx25.4 | I | m | 461.41 | 147.58 | 12.00 | 13 | 156.00 | 71.98 | | Shipment 1-2 |
| 37 | Tubular | 762øx12.7 | I | m | 234.68 | 161.48 | 12.00 | 14 | 168.00 | 39.43 | | Shipment 2 |
| 38 | Tubular | 711.2øx35 | I | m | 583.66 | 114.71 | 12.00 | 10 | 120.00 | 70.04 | | Shipment 1-2 |
| 39 | Tubular | 711.2øx15.9 | I | m | 272.64 | 20.65 | 12.00 | 2 | 24.00 | 6.54 | | Shipment 1-2 |
| 40 | Tubular | 660.4øx28.6 | I | m | 445.62 | 9.75 | 12.00 | 1 | 12.00 | 5.35 | | Shipment 1-2 |
| 41 | Tubular | 660.4øx25.4 | I | m | 397.77 | 90.86 | 12.00 | 8 | 96.00 | 38.19 | | Shipment 2 |
| 42 | Tubular | 660.4øx20.6 | I | m | 325.04 | 35.08 | 12.00 | 4 | 48.00 | 15.60 | | Shipment 1-2 |
| 43 | Tubular | 660.4øx15.9 | I | m | 252.72 | 13.06 | 12.00 | 2 | 24.00 | 6.07 | | Shipment 1-2 |
| 44 | Tubular | 660.4øx12.7 | I | m | 202.86 | 29.18 | 12.00 | 3 | 36.00 | 7.30 | | Shipment 1-2 |
| 45 | Tubular | 609.6øx25.4 | I | m | 365.94 | 2.59 | 12.00 | 2 | 24.00 | 8.78 | | Shipment 3 |
| 46 | Tubular | 609.6øx12.7 | I | m | 186.95 | 157.26 | 12.00 | 15 | 180.00 | 33.65 | | Shipment 1-2 |
| 47 | Tubular | 508øx19.1 | I | m | 230.29 | 170.41 | 12.00 | 15 | 180.00 | 41.45 | | Shipment 2 |
| 48 | Tubular | 508øx12.7 | I | m | 155.13 | 83.73 | 12.00 | 8 | 96.00 | 14.89 | | Shipment 2 |
| 49 | Tubular | 457.2øx19.1 | I | m | 206.36 | 193.51 | 12.00 | 17 | 204.00 | 42.10 | | Shipment 2 |

| Item | Material Type | Descriptions | Type | Unit | Unit Weight (Kg / mtr / sqmtr) | Req. Length/ Area (m/m2) | Typ. Size (m/m2) | Round Quantity (pcs) | Total Length/ Area (M / SQM) | Total Weight (MT) | Portion Consider | Shipment, Remarks |
|-----------|--------------------------|--------------|------|------|--------------------------------------|-----------------------------------|------------------------|----------------------------|---------------------------------------|-------------------------|---------------------|----------------------|
| 50 | Tubular | 457.2øx12.7 | I | m | 139.22 | 58.74 | 12.00 | 6 | 72.00 | 10.02 | | Shipment 2 |
| 51 | Tubular | 1371.6Øx45 | I | m | 1,472.22 | 2.61 | 6.00 | 1 | 6.00 | 8.83 | | Shipment 1 |
| 52 | Tubular | 1371.6Øx38.1 | I | m | 1,252.96 | 2.71 | 6.00 | 1 | 6.00 | 7.52 | | Shipment 1 |
| 53 | Tubular | 1219.2Øx45 | I | m | 1,303.09 | 6.46 | 6.00 | 1 | 6.00 | 7.82 | | Shipment 1 |
| 54 | Tubular | 1219.2Øx31.8 | I | m | 931.20 | 22.68 | 6.00 | 4 | 24.00 | 22.35 | | Shipment 1 |
| 55 | Tubular | 609.6Øx25.4 | I | m | 365.94 | 56.28 | 12.00 | 5 | 60.00 | 21.96 | | Shipment 2 |
| 56 | Tubular | 508Øx25.4 | I | m | 302.30 | 55.75 | 12.00 | 5 | 60.00 | 18.14 | | Shipment 2 |
| 57 | Tubular | 508Øx19.05 | I | m | 229.71 | 105.16 | 12.00 | 10 | 120.00 | 27.57 | | Shipment 2 |
| 58 | Tubular | 1828Øx38 | I | m | 1,677.48 | 3.47 | 4.00 | 1 | 4.00 | 6.71 | | Shipment 4 |
| Sub-total | | | | | | | | | | 5,371.96 | | |
| II.2 | Rolled Tubular (TYPE II) | | | | | | | | | | | |
| 1 | Tubular | 1828.8øx60 | II | m | 2827.37 | 259.85 | 4.00 | 71 | 284.00 | 802.97 | PORTION 1 | Shipment 1-1 |
| 2 | Tubular | 1828.8øx55 | II | m | 2405.95 | 11.00 | 4.00 | 3 | 12.00 | 28.87 | | Shipment 1-1 |
| 3 | Tubular | 1828.8øx44.5 | II | m | 1958.16 | 4.40 | 4.00 | 2 | 8.00 | 15.67 | | Shipment 1-1 |
| 4 | Tubular | 1371.6øx60 | II | m | 1940.76 | 26.09 | 4.65 | 6 | 27.90 | 54.15 | | Shipment 1-1 |
| 5 | Tubular | 1371.6øx55 | II | m | 1785.81 | 10.30 | 6.00 | 2 | 12.00 | 21.43 | | Shipment 1-1 |
| 6 | Tubular | 1371.6øx50.8 | II | m | 1629.63 | 16.13 | 4.20 | 4 | 16.80 | 27.38 | | Shipment 3 |
| 7 | Tubular | 1320.8øx60 | II | m | 2013.04 | 34.80 | 6.00 | 8 | 48.00 | 96.63 | | Shipment 1-2 |
| 8 | Tubular | 1320.8øx38.1 | II | m | 1205.23 | 15.20 | 6.00 | 3 | 18.00 | 21.69 | | Shipment 1-2 |
| 9 | Tubular | 1219.2øx55 | II | m | 1579.10 | 10.80 | 6.00 | 2 | 12.00 | 18.95 | | Shipment 3 |
| 10 | Tubular | 1219.2øx44.5 | II | m | 1289.16 | 6.00 | 6.00 | 0 | 0.00 | 0.00 | | Shipment 2 |
| 11 | Tubular | 1066.8øx44.5 | II | m | 1121.91 | 30.20 | 6.00 | 6 | 36.00 | 40.39 | | Shipment 1-2 |
| 12 | Tubular | 1066.8øx38.1 | II | m | 966.57 | 0.00 | 6.00 | 0 | 0.00 | 0.00 | | Shipment 1-2 |
| 13 | Tubular | 1016øx38.1 | II | m | 918.84 | 61.22 | 6.00 | 11 | 66.00 | 60.64 | | Shipment 1-2 |
| 14 | Tubular | 1016øx31.8 | II | m | 771.84 | 102.98 | 6.00 | 19 | 114.00 | 87.99 | | Shipment 1-1 |
| 15 | Tubular | 1016øx25.4 | II | m | 620.51 | 37.60 | 6.00 | 7 | 42.00 | 26.06 | | Shipment 1-1 |
| 16 | Tubular | 965.2øx44.5 | II | m | 1010.41 | 43.33 | 12.00 | 4 | 48.00 | 48.50 | | Shipment 1-2 |
| 17 | Tubular | 965.2øx38.1 | II | m | 871.11 | 26.53 | 12.00 | 3 | 36.00 | 31.36 | | Shipment 1-2 |
| 18 | Tubular | 965.2øx31.8 | II | m | 732.01 | 12.20 | 12.00 | 2 | 24.00 | 17.57 | | Shipment 1-2 |
| 19 | Tubular | 965.2øx25.4 | II | m | 588.69 | 0.00 | 12.00 | 0 | 0.00 | 0.00 | | Shipment 1-2 |
| 20 | Tubular | 914.4øx38.1 | II | m | 823.37 | 3.00 | 12.00 | 1 | 12.00 | 9.88 | | Shipment 2 |
| 21 | Tubular | 812.8øx38.1 | II | m | 727.91 | 15.90 | 12.00 | 2 | 24.00 | 17.47 | | Shipment 1-2 |
| 22 | Tubular | 762øx30 | II | m | 541.57 | 5.60 | 12.00 | 1 | 12.00 | 6.50 | | Shipment 2 |
| 23 | Tubular | 711.2øx31.8 | II | m | 532.81 | 72.86 | 12.00 | 7 | 84.00 | 44.76 | | Shipment 1-2 |
| 24 | Tubular | 660.4øx28.6 | II | m | 445.62 | 52.94 | 12.00 | 5 | 60.00 | 26.74 | | Shipment 1-2 |
| 25 | Tubular | 660.4øx25.4 | II | m | 397.77 | 44.56 | 12.00 | 4 | 48.00 | 19.09 | | Shipment 1-2 |
| 26 | Tubular | 609.6øx30 | II | m | 428.81 | 6.30 | 12.00 | 1 | 12.00 | 5.15 | | Shipment 1-2 |
| 27 | Tubular | 609.6øx28.6 | II | m | 409.79 | 31.99 | 12.00 | 4 | 48.00 | 19.67 | | Shipment 1-2 |
| 28 | Tubular | 609.6øx25.4 | II | m | 365.94 | 48.50 | 12.00 | 5 | 60.00 | 21.96 | | Shipment 1-2 |
| 29 | Tubular | 508øx25.4 | II | m | 302.30 | 4.80 | 12.00 | 1 | 12.00 | 3.63 | | Shipment 2 |

| Item | Material Type | Descriptions | Type | Unit | Unit Weight (Kg / mtr / sqmtr) | Req. Length/ Area (m/m2) | Typ. Size (m/m2) | Round Quantity (pcs) | Total Length/ Area (M / SQM) | Total Weight (MT) | Portion Consider | Shipment, Remarks |
|--------------------------|---------------------------|--------------|------|------|--------------------------------------|-----------------------------------|------------------------|----------------------------|---------------------------------------|-------------------------|---------------------|----------------------|
| 30 | Tubular | 1371.6Øx50.8 | II | m | 1654.70 | 9.70 | 2.26 2.45 2.54 | 1 2 1 | 9.70 | 16.05 | | Shipment 1 |
| 31 | Tubular | 1219.2Øx50.8 | II | m | 1463.78 | 4.16 3.26 | 4.16 3.26 | 1 1 | 7.42 | 10.86 | | Shipment 1 |
| 32 | Tubular | 1219.2Øx45 | II | m | 1303.09 | 6.52 | 3.26 | 2 | 6.52 | 8.50 | | Shipment 1 |
| 33 | Tubular | 1219.2Øx45 | II | m | 1303.09 | 12.45 | 4.15 | 3 | 12.45 | 16.22 | | Shipment 1 |
| 34 | Tubular | 1828Øx50.8 | II | m | 2226.48 | 3.39 | 3.39 | 1 | 3.39 | 7.55 | | Shipment 2 |
| 35 | Tubular | 1100Øx60 | II | m | 1538.88 | 1.77 | 2.00 | 1 | 2.00 | 3.08 | | Shipment 4 |
| 36 | Tubular | 900Øx45 | II | m | 948.85 | 1.24 | 1.40 | 1 | 1.40 | 1.33 | | Shipment 4 |
| 37 | Tubular | 600Øx45 | II | m | 615.92 | 2.13 | 2.50 | 1 | 2.50 | 1.54 | | Shipment 4 |
| Sub-total | | | | | | | | | | 1,640.20 | | |
| Rolled Tubular (TYPE IV) | | | | | | | | | | | | |
| 1 | Tubular | 508Øx15.9 | IV | m | 192.96 | 82.37 | 12.00 | 8 | 96.00 | 18.52 | PORTION 1 | Shipment 3 |
| 2 | Tubular | 1219.2Øx25.4 | IV | m | 747.80 | 3.85 | 6.00 | 1 | 6.00 | 4.49 | | Shipment 2 |
| 3 | Tubular | 1067Øx19.1 | IV | m | 493.60 | 2.20 | 6.00 | 1 | 6.00 | 2.96 | | Shipment 2 |
| 4 | Tubular | 508Øx25.4 | IV | m | 302.30 | 3.58 | 12.00 | 1 | 12.00 | 3.63 | | Shipment 4 |
| 5 | Tubular | 508Øx19.05 | IV | m | 229.71 | 9.47 | 12.00 | 1 | 12.00 | 2.76 | | Shipment 4 |
| 6 | Tubular | 457.2Øx25.4 | IV | m | 270.48 | 15.19 | 12.00 | 2 | 24.00 | 6.49 | | Shipment 4 |
| Sub-total | | | | | | | | | | 38.85 | | |
| SEAMLESS TUBULAR | | | | | | | | | | 291.05 | | |
| II.3 | Seamless Tubular (TYPE I) | | | | | | | | | | | |
| 1 | Tubular/PIPE | 406Øx12.7 | I | m | 123.18 | 151.90 | 12.00 | 13 | 156.00 | 19.22 | PORTION 2 | Shipment 2 |
| 2 | Tubular/PIPE | 356Øx15.9 | I | m | 133.36 | 66.44 | 12.00 | 7 | 84.00 | 11.20 | | Shipment 3 |
| 3 | Tubular/PIPE | 273Øx25.4 | I | m | 155.10 | 4.88 | 12.00 | 1 | 12.00 | 1.86 | | Shipment 3 |
| 4 | Tubular/PIPE | 406.4Øx25.4 | I | m | 238.66 | 144.44 | 12.00 | 13 | 156.00 | 37.23 | | Shipment 3 |
| 5 | Tubular/PIPE | 406.4Øx19.05 | I | m | 181.98 | 57.18 | 12.00 | 6 | 72.00 | 13.10 | | Shipment 3 |
| 6 | Tubular/PIPE | 406.4Øx15.9 | I | m | 153.12 | 172.95 | 12.00 | 15 | 180.00 | 27.56 | | Shipment 3 |
| 7 | Tubular/PIPE | 406.4Øx12.7 | I | m | 123.31 | 219.39 | 12.00 | 19 | 228.00 | 28.11 | | Shipment 3 |
| 9 | Tubular/PIPE | 323.9Øx15.9 | I | m | 120.77 | 55.18 | 12.00 | 5 | 60.00 | 7.25 | | Shipment 3 |
| 10 | Tubular/PIPE | 323.9Øx12.7 | I | m | 97.47 | 4.85 | 12.00 | 1 | 12.00 | 1.17 | | Shipment 3 |
| 11 | Tubular/PIPE | 273.1Øx15.9 | I | m | 100.85 | 304.67 | 12.00 | 26 | 312.00 | 31.47 | | Shipment 3 |
| 12 | Tubular/PIPE | 273.1Øx12.7 | I | m | 81.56 | 56.00 | 12.00 | 5 | 60.00 | 4.89 | | Shipment 3 |
| 13 | Tubular/PIPE | 219.1Øx12.7 | I | m | 64.64 | 64.04 | 12.00 | 6 | 72.00 | 4.65 | | Shipment 3 |
| 14 | Tubular/PIPE | 219.1Øx9.52 | I | m | 49.20 | 70.13 | 12.00 | 6 | 72.00 | 3.54 | | Shipment 3 |
| 15 | Tubular/PIPE | 168.3Øx7.1 | I | m | 28.23 | 20.76 | 12.00 | 2 | 24.00 | 0.68 | | Shipment 3 |

| Item | Material Type | Descriptions | Type | Unit | Unit Weight (Kg / mtr / sqmtr) | Req. Length/ Area (m/m2) | Typ. Size (m/m2) | Round Quantity (pcs) | Total Length/ Area (M / SQM) | Total Weight (MT) | Portion Consider | Shipment, Remarks |
|----------------------------|----------------|--------------|------|------|--------------------------------------|-----------------------------------|------------------------|----------------------------|---------------------------------------|-------------------------|---------------------|----------------------|
| 16 | Tubular/PIPE | 114.3Øx6.02 | I | m | 16.08 | 39.65 | 12.00 | 4 | 48.00 | 0.77 | | Shipment 3 |
| Sub-total | | | | | | | | | | 192.71 | | |
| Seamless Tubular (TYPE II) | | | | | | | | | | | | |
| 1 | Tubular/PIPE | 406.4Øx25.4 | II | m | 238.66 | 8.87 | 12.00 | 1 | 12.00 | 2.86 | PORTION 2 | Shipment 4 |
| Sub-total | | | | | | | | | | 2.86 | | |
| Seamless Tubular (TYPE IV) | | | | | | | | | | | | |
| 1 | Tubular/PIPE | 406.9Øx15.9 | IV | m | 153.32 | 56.37 | 12.00 | 7 | 84.00 | 12.88 | PORTION 2 | Shipment 3 |
| 2 | Tubular/PIPE | 324Øx12.7 | IV | m | 97.50 | 95.13 | 12.00 | 8 | 96.00 | 9.36 | | Shipment 2 |
| 3 | Tubular/PIPE | 324Øx9.52 | IV | m | 73.83 | 29.92 | 12.00 | 3 | 36.00 | 2.66 | | Shipment 3 |
| 4 | Tubular/PIPE | 219Øx9.52 | IV | m | 49.18 | 153.64 | 12.00 | 13 | 156.00 | 7.67 | | Shipment 2 |
| 5 | Tubular/PIPE | 406.4Øx25.4 | IV | m | 238.66 | 13.98 | 12.00 | 2 | 24.00 | 5.73 | | Shipment 4 |
| 6 | Tubular/PIPE | 406.4Øx19.05 | IV | m | 181.98 | 24.55 | 12.00 | 3 | 36.00 | 6.55 | | Shipment 4 |
| 7 | Tubular/PIPE | 323.9Øx15.9 | IV | m | 120.77 | 13.17 | 12.00 | 2 | 24.00 | 2.90 | | Shipment 4 |
| 8 | Tubular/PIPE | 323.9Øx12.7 | IV | m | 97.47 | 25.13 | 12.00 | 3 | 36.00 | 3.51 | | Shipment 4 |
| 9 | Tubular/PIPE | 273.1Øx15.9 | IV | m | 100.85 | 14.08 | 12.00 | 2 | 24.00 | 2.42 | | Shipment 4 |
| 10 | Tubular/PIPE | 273.1Øx12.7 | IV | m | 81.56 | 40.16 | 12.00 | 4 | 48.00 | 3.91 | | Shipment 4 |
| 11 | Tubular/PIPE | 219.1Øx12.7 | IV | m | 64.64 | 284.11 | 12.00 | 24 | 288.00 | 18.62 | | Shipment 4 |
| 12 | Tubular/PIPE | 219.1Øx9.52 | IV | m | 49.20 | 46.78 | 12.00 | 4 | 48.00 | 2.36 | | Shipment 4 |
| 13 | Tubular/PIPE | 168.3Øx9.52 | IV | m | 37.28 | 175.54 | 12.00 | 15 | 180.00 | 6.71 | | Shipment 4 |
| 14 | Tubular/PIPE | 168.3Øx7.11 | IV | m | 28.26 | 235.16 | 12.00 | 20 | 240.00 | 6.78 | | Shipment 4 |
| 15 | Tubular/PIPE | 141.3Øx7.11 | IV | m | 23.53 | 85.71 | 12.00 | 8 | 96.00 | 2.26 | | Shipment 4 |
| 16 | Tubular/PIPE | 114.3Øx6.02 | IV | m | 16.08 | 64.68 | 12.00 | 6 | 72.00 | 1.16 | | Shipment 4 |
| Sub-total | | | | | | | | | | 95.48 | | |
| III | PLATE | | | | | | | | | 1,245.36 | | |
| III.1 | Plate (TYPE I) | | | | | | | | | | | |
| 1 | Plate | PL60 | I | m2 | 471.00 | 2.02 | 2.4x3.0 | 0 | 0 | 0.00 | PORTION 3 | Shipment 3 |
| 2 | Plate | PL50 | I | m2 | 392.50 | 10.24 | 2.4x6.0 | 0 | 0 | 0.00 | | Shipment 3 |
| 3 | Plate | PL40 | I | m2 | 314.00 | 189.86 | 2.4x6.0 | 27 | 388.8 | 122.08 | | Shipment 2 |
| 4 | Plate | PL38 | I | m2 | 298.30 | 136.66 | 2.4x6.0 | 15 | 216 | 64.43 | | Shipment 1-1 |
| 5 | Plate | PL32 | I | m2 | 251.20 | 58.95 | 2.4x6.0 | 7 | 100.8 | 25.32 | | Shipment 1-1 |
| 6 | Plate | PL30 | I | m2 | 235.50 | 234.70 | 2.4x6.0 | 30 | 432 | 101.74 | | Shipment 1-1 |
| 7 | Plate | PL25 | I | m2 | 196.25 | 921.74 | 2.4x6.0 | 82 | 1180.8 | 231.73 | | Shipment 1-1 |
| 8 | Plate | PL20 | I | m2 | 157.00 | 149.24 | 2.4x6.0 | 15 | 216 | 33.91 | | Shipment 1-1 |
| 9 | Plate | PL15 | I | m2 | 117.75 | 192.23 | 2.4x6.0 | 24 | 345.6 | 40.69 | | Shipment 1-1 |
| 10 | Plate | PL12 | I | m2 | 94.20 | 49.60 | 2.4x6.0 | 6 | 86.4 | 8.14 | | Shipment 2 |
| 11 | Plate | PL45 | I | m2 | 353.25 | 3.67 | 2.4x6.0 | 1 | 14.4 | 5.09 | | Shipment 1 |

| Item | Material Type | Descriptions | Type | Unit | Unit Weight (Kg / mtr / sqmtr) | Req. Length/ Area (m/m2) | Typ. Size (m/m2) | Round Quantity (pcs) | Total Length/ Area (M / SQM) | Total Weight (MT) | Portion Consider | Shipment, Remarks |
|-----------|------------------|--------------|------|------|--------------------------------------|-----------------------------------|------------------------|----------------------------|---------------------------------------|-------------------------|---------------------|----------------------|
| 12 | Plate | PL40 | I | m2 | 314.00 | 16.14 | 2.4x6.0 | 2 | 28.8 | 9.04 | | Shipment 1 |
| 13 | Plate | PL35 | I | m2 | 274.75 | 81.17 | 2.4x6.0 | 6 | 86.4 | 23.74 | | Shipment 1 |
| 14 | Plate | PL30 | I | m2 | 235.50 | 20.09 | 2.4x6.0 | 2 | 28.8 | 6.78 | | Shipment 1 |
| 15 | Plate | PL25 | I | m2 | 196.25 | 161.15 | 2.4x6.0 | 12 | 172.8 | 33.91 | | Shipment 1 |
| 16 | Plate | PL20 | I | m2 | 157.00 | 228.48 | 2.4x6.0 | 16 | 230.4 | 36.17 | | Shipment 1 |
| 17 | Plate | PL16 | I | m2 | 125.60 | 117.94 | 2.4x6.0 | 9 | 129.6 | 16.28 | | Shipment 1 |
| 18 | Plate | PL12 | I | m2 | 94.20 | 15.02 | 2.4x6.0 | 2 | 28.8 | 2.71 | | Shipment 1 |
| 19 | Plate | PL10 | I | m2 | 78.50 | 5.94 | 2.4x6.0 | 1 | 14.4 | 1.13 | | Shipment 1 |
| Sub-total | | | | | | | | | | 762.91 | | |
| III.2 | Plate (TYPE II) | | | | | | | | | | | |
| 2 | Plate | PL60 | II | m2 | 471.00 | 6.21 | 2.4x6.0 | 2 | 28.8 | 13.56 | | Shipment 4 |
| 3 | Plate | PL50 | II | m2 | 392.50 | 2.47 | 2.4x6.0 | 1 | 14.4 | 5.65 | | Shipment 4 |
| 4 | Plate | PL40 | II | m2 | 314.00 | 8.01 | 2.4x6.0 | 2 | 28.8 | 9.04 | | Shipment 4 |
| 5 | Plate | PL50 | II | m2 | 392.50 | 9.11 | 2.4x6.0 | 1 | 14.4 | 5.65 | | Shipment 1 |
| 6 | Plate | PL45 | II | m2 | 353.25 | 40.35 | 2.4x6.0 | 5 | 72 | 25.43 | | Shipment 1 |
| 7 | Plate | PL40 | II | m2 | 314.00 | 126.87 | 2.4x6.0 | 11 | 158.4 | 49.74 | | Shipment 1 |
| 8 | Plate | PL35 | II | m2 | 274.75 | 109.14 | 2.4x6.0 | 8 | 115.2 | 31.65 | | Shipment 1 |
| 9 | Plate | PL30 | II | m2 | 235.50 | 43.32 | 2.4x6.0 | 4 | 57.6 | 13.56 | | Shipment 1 |
| 10 | Plate | PL25 | II | m2 | 196.25 | 24.70 | 2.4x6.0 | 2 | 28.8 | 5.65 | | Shipment 1 |
| 11 | Plate | PL60 | II | m2 | 471.00 | 21.94 | 2.4x6.0 | 3 | 43.2 | 20.35 | | Shipment 2 |
| Sub-total | | | | | | | | | | 180.30 | | |
| III.3 | Plate (TYPE III) | | | | | | | | | | | |
| 1 | Plate | PL12 | III | m2 | 94.20 | 205.76 | 2.4x6.0 | 15 | 216 | 20.35 | PORTION 3 | Shipment 2 |
| 2 | Plate | PL6 | III | m2 | 47.10 | 362.34 | 2.4x6.0 | 26 | 374.4 | 17.63 | | Shipment 3 |
| Sub-total | | | | | | | | | | 37.98 | | |
| III.4 | Plate (TYPE IV) | | | | | | | | | | | |
| 1 | Plate | PL20 | IV | m2 | 157.00 | 144.10 | 2.4x6.0 | 12 | 172.8 | 27.13 | PORTION 3 | Shipment 3 |
| 3 | Plate | PL12 | IV | m2 | 94.20 | 1.06 | 2.4x6.0 | 1 | 14.4 | 1.36 | | Shipment 3 |
| 4 | Plate | PL10 | IV | m2 | 78.50 | 51.90 | 2.4x6.0 | 6 | 86.4 | 6.78 | | Shipment 3 |
| 5 | Plate | PL25 | IV | m2 | 196.25 | 29.23 | 2.4x6.0 | 3 | 43.2 | 8.48 | | Shipment 1 |
| 6 | Plate | PL20 | IV | m2 | 157.00 | 25.32 | 2.4x6.0 | 2 | 28.8 | 4.52 | | Shipment 1 |
| 7 | Plate | PL16 | IV | m2 | 125.60 | 84.05 | 2.4x6.0 | 6 | 86.4 | 10.85 | | Shipment 3 |
| 8 | Plate | PL12 | IV | m2 | 94.20 | 1,209.23 | 2.4x6.0 | 84 | 1209.6 | 113.94 | | Shipment 3 |
| 9 | Plate | PL10 | IV | m2 | 78.50 | 1,130.16 | 2.4x6.0 | 79 | 1137.6 | 89.30 | | Shipment 3 |
| 10 | Plate | PL8 | IV | m2 | 62.80 | 7.30 | 2.4x6.0 | 2 | 28.8 | 1.81 | | Shipment 3 |
| Sub-total | | | | | | | | | | 264.17 | | |
| IV | Reducer | | | | | | | | | 27.03 | | |

| Item | Material Type | Descriptions | Type | Unit | Unit Weight (Kg / mtr / sqmtr) | Req. Length/ Area (m/m2) | Typ. Size (m/m2) | Round Quantity (pcs) | Total Length/ Area (M / SQM) | Total Weight (MT) | Portion Consider | Shipment, Remarks |
|-----------|--|--------------------|------|------|--------------------------------------|-----------------------------------|------------------------|----------------------------|---------------------------------------|-------------------------|---------------------|----------------------|
| IV.1 | Reducer (Fabricate from plates TYPE I) | | | | | | | | | | | |
| 1 | Cone | 1828.8øx1371.6øx38 | I | Pcs | | | 1.83 | 3 | | 8.91 | PORTION 1 | Shipment 1-1 |
| | | 1828.8øx1371.6øx60 | 1.0 | Pcs | | | 1.83 | 1 | | 4.69 | | Shipment 1-1 |
| 2 | Cone | 1016øx1320.8øx30 | I | Pcs | | | 1.00 | 4 | | 3.41 | | Shipment 1-1 |
| 3 | Cone | 965.2øx1320.8øx30 | I | Pcs | | | 1.05 | 4 | | 3.51 | | Shipment 1-1 |
| 4 | Cone | 1219.2øx1828øx38 | I | Pcs | 2808.10 | | 2.00 | 1 | | 2.81 | | Shipment 1 |
| 5 | Cone | 1219.2øx1371.6øx45 | I | Pcs | 1048.50 | | 0.75 | 1 | | 1.05 | | Shipment 1 |
| 6 | Cone | 1219.2øx1371.6øx38 | I | Pcs | 885.40 | | 0.75 | 3 | | 2.66 | | Shipment 1 |
| Sub-total | | | | | | | | | | 27.03 | | |

Notes: WHP-DHN Topside, Jacket, Piles Steel will be divided to 3 Portions and each portion will be consider to delivery by four (04) of shipments

| Estimate weight (T) | | |
|---------------------|----------|-----------------------------------|
| Portion 1 | 7,078.03 | Rolling tubular and rolling cones |
| Portion 2 | 291.05 | Seamless pipe |
| Portion 3 | 1,858.85 | Plate and rolling sections (beam) |
| Total | 9,227.94 | |