PETROVIETNAM PVOIL	**PETEC TRADING AND INVESTMENT CORPORATION**
PROJECT	**EXPANSION OF 40,000M³ STORAGE CAPACITY AT PETEC HAI PHONG**
PACKAGE	**ENGINEERING, PROCUREMENT, CONSTRUCTION AND INSTALLATION**

TECHNICAL REQUISITION DOCUMENT FOR

PIPE AND FITTINGS FOR PIPING – BATCH 01

A	13/10/2025	Issued for Bid	NMH	PAD	PQP	VLT
Rev.	Date	Purpose	Prepared	Checked	Reviewed	Approved

EPC CONTRACTOR

PTSC THANH HOA – DAI DUNG – PHUONG ANH

PTSC THANH HÓA THANH HÓA - ĐẠI DŨNG III - PHƯƠNG ANH CONSORTIUM

Document No.:

PETEC-DD-TRD-006.01

REVISION RECORD SHEET

No	Content of Revision	Rev	Date (dd/mm/yyyy)
1	Issued for Bidding	A	13/10/2025

TABLE OF CONTENTS

1. INTRODUCTION

1.1. PROJECT BACKGROUND

Project name: Expansion of 40,000m³ Storage Capacity at PETEC Hai Phong Petroleum Terminal Project

Client: PETEC TRADING AND INVESTMENT CORPORATION

Contractors: PTSC THANH HOA – DAI DUNG III– PHUONG ANH

The total expanded capacity is 40,000m³ as follows:

- 01 tank 10,000m³ tank (with float): containing RON95 – T33

- 03 tanks of 10,000m³: containing DO - T34, T35, T36

- 01 tanks of 1500m3 containing fire water and auxiliary items....

1.2. PURPOSE

This document outlines the minimum technical requirements for the manufacture, supply, testing, inspection, packing & transportation, and documentation of Pipe and Fittings.

The BIDDER/ MANUFACTURER shall ensure that all materials and services supplied meet the requirements of this document, the Material Take-Off, Project Specifications and the Codes & Standards and Specifications referenced herein.

1.3. DEFINITIONS AND ABBREVIATIONS

PROJECT	EXPANSION OF 40,000M³ STORAGE CAPACITY AT PETEC HAI PHONG
CLIENT	PETEC TRADING AND INVESTMENT CORPORATION
EPC CONTRACTOR	CONSORTIUM: PTSC THANH HOA – DAI DUNG III – PHUONG
SUPPLIER/ BIDDER	SUPPLIER/BIDDER SHALL CARRY OUT THE WORKS OF SUPPLY, TESTING, INSPECTION, PACKAGING AND TRANSPORTATION OF PIPE AND FITTINGS
SCOPE OF WORKS	SUPPLY, TESTING, INSPECTION, PACKAGING AND TRANSPORTATION OF PIPE AND FITTINGS

2. SCOPE OF SUPPLY AND WORK

2.1. ITEMS AND QUANTITIES

The items and quantities shall be as specified in the Attachment #1 Material Take Off (MTO) – Batch 01.

2.2. SCOPE OF SUPPLY AND SERVICE

All items shall be completed in accordance with the requirements specified in this requisition such as material take off, project specifications and other documents attached herewith.

Refer to Attachment #1 Material Take Off (MTO) – Batch 01 for the detailed.

2.3. SCOPE OF WORK

The BIDDER/ MANUFACTURER will use his current, pre-engineered, or standard designs to meet the requirements specified below, as well as the material take off, project specifications, and any attachments attached to these documents.

Design, manufacturing, testing, painting, supply, packing and delivery all items as specify in the Attachment #1 Material Take Off (MTO) – Batch 01.

The BIDDER/ MANUFACTURER shall also provide supervision of complete erection, site testing, start up and commissioning and performance guarantee testing of these items, if required.

2.4. OUT OF SCOPE

Storage items at site.

Installation Piping works.

2.5. DELIVERY TIME

The contractor shall carry out the work in accordance with the project schedule.

For more details, please refer to Attachment #5 Project Schedule.

3. TECHNICAL REQUIREMENTS

3.1. GENERAL

The Package shall be strictly in accordance with specifications, codes, and standards specified in Attachment #2 Technical Support Document.

Compliance by the BIDDER/ MANUFACTURER with the provision of this specification does not relieve him of his responsibility to furnish the package/ material and accessories of a proper design to meet the specified duty and / or local codes governing health and safety.

All applicable documents mentioned below are attached with the request for inquiry. However, if the BIDDER/ MANUFACTURER is not in possession of any of the listed or referenced PURCHASER documents, it shall be BIDDER/ MANUFACTURER's sole responsibility to obtain them from the PURCHASER. Otherwise, it shall be assumed that the BIDDER/ MANUFACTURER has received, read and understood the total contents of the documents.

All materials and parts shall be new and un-used and free from defects and imperfections that would adversely affect the life or performance of the system.

Vendor data shall include detailed design drawings and updated data sheets of each material and appurtenances.

All documentation related to facilitating design appraisal approvals and inspection from Purchaser appointed Certification Authority (CA) and QA/QC Inspector (ITP) shall also be included in Vendor's scope of supply

3.2. DESIGN LIFE, AVAILABILITY AND RELIABILITY

The design life of the facility and all associated equipment, components and systems is minimum 20 years.

All components which for practical, safety or cost-efficiency reasons are unable to meet the required design life shall be identified as soon as possible. Their expected service life shall be informed to PURCHASER and provision made in the system design for maintenance to extend component life or routine change-out.

3.3. PROTECTIVE COATING AND PAINTING

N/A.

3.4. PREPARATION FOR SHIPMENT

Pipes and Fittings shall be prepared for export shipment and shall be created to provide maximum protection during shipment and extended outdoor storage.

Any pipes and fittings liable to be damaged during shipment shall be disassembled, packed separately, shipped with the unit and reassembled onsite under the supervision of Vendor 's commissioning/start-up technician.

Each crate shall be clearly identified in accordance with the customer's specification. As a minimum the crate shall be marked with the Purchase Order number, the item number, the shipping mass and the delivery address.

Fittings as flange connections shall be protected against damage during transportation and erection.

The pipes and fittings shall be suitably preserved to maintain in good condition throughout the phases of storage until ready to be operated.

Tools and spare parts shall be packed in metal boxes suitable for long term storage. The boxes shall be galvanized or coated in accordance with Project requirement.

3.5. GUARANTEE AND WARRANTY

The BIDDER/ MANUFACTURER shall have final and total responsibility for the design and performance of all specification for material supplied under this document.

The BIDDER/ MANUFACTURER shall replace and install without cost to the PURCHASER any materials, supplies which fails under design conditions due to defects in material or workmanship if the defect is observed and/or such failure occurs within the guarantee/warranty period. Acceptance of this order will signify acceptance of all conditions of this guarantee.

The guarantee period shall be at least 18 months from the date of delivery or 12 months from the date of operation, whichever comes first.

3.6. SPARE PARTS

3.6.1. START-UP AND COMMISSIONING SPARES

The BIDDER/ MANUFACTURER shall include, as part of his bid, a detailed, price list of start-up and commissioning spares which shall be supplied as part of the original purchase package.

3.6.2. TWO YEAR SPARES

The BIDDER/ MANUFACTURER shall include, as part of his bid, a detailed, list of recommended spare parts for two years continuous operation. These spares shall be costed for separate purchase.

3.7. CONFLICTING REQUIREMENTS

BIDDER/ MANUFACTURER shall notify PURCHASER of any conflicts between this TRD, specifications, the related data sheets, the Codes and Standards and any other specifications noted herein. Resolutions and/or interpretation precedence shall be obtained from Purchaser in writing before proceeding with the design/ manufacture.

3.8. DEVIATION LIST

BIDDER/ MANUFACTURER's quotation shall be in full conformity with PURCHASER's requirements. Unless exceptions, deviations or alternatives are clearly defined and listed on the attached PURCHASER's form "Deviation List" and submitted with BIDDER/

MANUFACTURER 's quotation, the requirements and conditions of this Requisition shall be deemed to be accepted by the BIDDER/ MANUFACTURER.

4. INSPECTION AND TESTS

Inspection and tests shall be made by the BIDDER/ MANUFACTURER in accordance with:

[X] Test & Inspection should be carried out acc. to the applicable codes, specification and standards.

[X] Maker's standard plan & procedure as approved by PURCHASER.

[X] Local regulation, if any.

The OWNER and/or PURCHASE inspector shall hold a right to be present at any manufacturing stage of the pipes, fittings and/or materials.

Refer to Attachment #4 Vendor Data Document List for the detailed.

5. VENDOR DOCUMENT REQUIREMENT

The BIDDER/ MANUFACTURER shall fill in all required technical information for the forms in "Attachment #3 – Technical Documentation Forms". In particular, the form "Attachment #3.1 – Technical Bid Requirement Forms" is mandatory. Failure to complete this form will render the bid invalid.

The CONTRACTOR must complete the forms, documents, and drawings as listed in "Attachment #4 – Vendor Data Documents List".

6. ATTACHMENT

No.	Attachment	Document	Remark
1.	Attachment #1	Material Take Off (MTO) – Batch 01	
2.	Attachment #2	Technical Support Document	
3.	Attachment #3	Technical Bid Proposal	
4.	Attachment #4	Vendor Data Documents List	
5.	Attachment #5	Project Schedule	

ATTACHMENT #1

MATERIAL TAKE OFF (MTO) – BATCH 01

PETROVIETNAM PVOIL

PROJECT: EXPANSION OF 40,000M³ STORAGE CAPACITY AT PETEC HAI PHONG
MTO OF PIPE AND FITTINGS FOR PIPING (PROCESS)

PTSC THANH HOA DAI DUNG PHUONG ANH

No.	NAME	SPECIFICATION	SIZE 1	SIZE 2	SIZE 3	DESSCRIPTION	MATERIAL	UNIT	DES. Q.TY	SPARE	TOTAL	REMARK
1	CAP	1A1	50	50	0	CAP THREADED FEMALE #3000 ASME B16.11 ASTM A234 WCB	A234 GR.WPB	psc	4	20%	5	
2	COUPLING	1A1	15	15	0	FULL COUPLING SCRD #3000 ASME B16.11 A105N	A105N	psc	1	50%	2	
3	COUPLING	1A1	25	25	0	FULL COUPLING SW #3000 ASME B16.11 A105N	A105N	psc	8	10%	9	
4	ELBOW	1A1	300	300	0	ELBOW 90DEG LR BW SCH20 ASME B16.9 ASTM A234 Gr. WPB	A234 GR.WPB	psc	26	10%	29	
5	ELBOW	1A1	15	15	0	ELBOW 90DEG SW #3000 ASME B16.11 ASTM A105	A105N	psc	4	10%	4	
6	ELBOW	1A1	100	100	0	ELBOW 90DEG LR BW SCH40 ASME B16.9 ASTM A234 Gr. WPB	A234 GR.WPB	psc	62	5%	65	
7	ELBOW	1A1	150	150	0	ELBOW 90DEG LR BW SCH40 ASME B16.9 ASTM A234 Gr. WPB	A234 GR.WPB	psc	89	5%	93	
8	ELBOW	1A1	200	200	0	ELBOW 90DEG LR BW SCH20 ASME B16.9 ASTM A234 Gr. WPB	A234 GR.WPB	psc	58	10%	64	
9	ELBOW	1A1	250	250	0	ELBOW 90DEG LR BW SCH20 ASME B16.9 ASTM A234 Gr. WPB	A234 GR.WPB	psc	15	10%	17	
10	ELBOW	1A1	20	20	0	ELBOW 90DEG SW #3000 ASME B16.11 ASTM A105	A105N	psc	4	10%	4	
11	ELBOW	1A1	300	300	0	ELBOW 45DEG LR BW SCH20 ASME B16.9 ASTM A234 Gr. WPB	A234 GR.WPB	psc	20	10%	22	
12	ELBOW	1A1	100	100	0	ELBOW 45DEG LR BW SCH40 ASME B16.9 ASTM A234 Gr. WPB	A234 GR.WPB	psc	22	10%	24	
13	ELBOW	1A1	25	25	0	ELBOW 90DEG SW #3000 ASME B16.11 ASTM A105	A105	psc	28	10%	31	
14	ELBOW	1A1	150	150	0	ELBOW 45DEG LR BW SCH40 ASME B16.9 ASTM A234 Gr. WPB	A234 GR.WPB	psc	7	10%	8	
15	ELBOW	1A1	200	200	0	ELBOW 45DEG LR BW SCH20 ASME B16.9 ASTM A234 Gr. WPB	A234 GR.WPB	psc	22	10%	24	
16	ELBOW	1A1	250	250	0	ELBOW 45DEG LR BW SCH20 ASME B16.9 ASTM A234 Gr. WPB	A234 GR.WPB	psc	2	10%	2	
17	ELBOW	1A1	50	50	0	ELBOW 90DEG LR BW SCH40 ASME B16.9 ASTM A234 Gr. WPB	A234 GR.WPB	psc	9	10%	10	
18	ELBOW	1A1	80	80	0	ELBOW 90DEG LR BW SCH40 ASME B16.9 ASTM A234 Gr. WPB	A234 GR.WPB	psc	12	10%	13	
19	BLIND FLANGE	1A1	300	300	0	BLIND FLANGE #150 RF ASME B16.5 ASTM A105N	A105N	psc	12	10%	13	
20	BLIND FLANGE	1A1	80	80	0	BLIND FLANGE #150 RF ASME B16.5 ASTM A105N	A105N	psc	1	10%	1	
21	BLIND FLANGE	1A1	100	100	0	BLIND FLANGE #150 RF ASME B16.5 ASTM A105N	A105N	psc	17	10%	19	
22	BLIND FLANGE	1A1	150	150	0	BLIND FLANGE #150 RF ASME B16.5 ASTM A105N	A105N	psc	20	10%	22	
23	BLIND FLANGE	1A1	200	200	0	BLIND FLANGE #150 RF ASME B16.5 ASTM A105N	A105N	psc	43	5%	45	
24	BLIND FLANGE	1A1	250	250	0	BLIND FLANGE #150 RF ASME B16.5 ASTM A105N	A105N	psc	6	20%	7	
25	FLANGE	1A1	300	300	0	FLANGE SO-RF #150 ASME B16.5 ASTM A105N	A105N	psc	24	10%	26	
26	FLANGE	1A1	20	20	0	FLANGE SW-RF #150 ASME B16.5 ASTM A105N	A105N	psc	4	20%	5	
27	FLANGE	1A1	25	25	0	FLANGE SW-RF #150 ASME B16.5 ASTM A105	A105N	psc	12	10%	13	
28	FLANGE	1A1	50	50	0	FLANGE SO-RF #150 ASME B16.5 ASTM A105N	A105N	psc	20	10%	22	
29	FLANGE	1A1	80	80	0	FLANGE SO-RF #150 ASME B16.5 ASTM A105N	A105N	psc	5	10%	6	
30	FLANGE	1A1	100	100	0	FLANGE SO-RF #150 ASME B16.5 ASTM A105N	A105N	psc	74	10%	81	
31	FLANGE	1A1	150	150	0	FLANGE SO-RF #150 ASME B16.5 ASTM A105N	A105N	psc	64	10%	70	
32	FLANGE	1A1	200	200	0	FLANGE SO-RF #150 ASME B16.5 ASTM A105N	A105N	psc	153	5%	161	
33	FLANGE	1A1	250	250	0	FLANGE SO-RF #150 ASME B16.5 ASTM A105N	A105N	psc	44	10%	48	
34	WELDOLET	1A1	150	150	50	WELDOLET BW SCH40 MSS-SP-97, ASTME A234 WPB	A234 GR.WPB	psc	8	10%	9	
35	WELDOLET	1A1	200	200	80	WELDOLET BW SCH40 MSS-SP-97, ASTME A234 WPB	A234 GR.WPB	psc	4	10%	4	
36	WELDOLET	1A1	300	300	100	WELDOLET BW SCH40 MSS-SP-97, ASTME A234 WPB	A234 GR.WPB	psc	1	10%	1	
37	WELDOLET	1A1	200	200	50	WELDOLET BW SCH40 MSS-SP-97, ASTME A234 WPB	A234 GR.WPB	psc	4	10%	4	
38	SOCKOLET	1A1	300	300	15	SOCKOLET SW #3000 MSS-SP-97, A105N	A234 GR.WPB	psc	1	10%	1	
39	SOCKOLET	1A1	100	100	15	SOCKOLET SW #3000 MSS-SP-97, A105N	A105N	psc	16	10%	18	

PETROVIETNAM PVOIL

PROJECT: EXPANSION OF 40,000M³ STORAGE CAPACITY AT PETEC HAI PHONG
MTO OF PIPE AND FITTINGS FOR PIPING (PROCESS)

PTSC THANH HOA DAI DUNG PHUONG ANH

No.	NAME	SPECIFICATION	SIZE 1	SIZE 2	SIZE 3	DESSCRIPTION	MATERIAL	UNIT	DES. Q.TY	SPARE	TOTAL	REMARK
40	SOCKOLET	1A1	100	100	25	SOCKOLET SW #3000 MSS-SP-97, A105N	A105N	psc	4	10%	4	
41	SOCKOLET	1A1	150	150	15	SOCKOLET SW #3000 MSS-SP-97, A105N	A105N	psc	7	10%	8	
42	SOCKOLET	1A1	200	200	15	SOCKOLET SW #3000 MSS-SP-97, A105N	A105N	psc	6	10%	7	
43	SOCKOLET	1A1	200	200	20	SOCKOLET SW #3000 MSS-SP-97, A105N	A105N	psc	4	10%	4	
44	SOCKOLET	1A1	250	250	20	SOCKOLET SW #3000 MSS-SP-97, A105N	A105N	psc	4	10%	4	
45	REDUCER	1A1	150	65	0	CONCENTRIC REDUCER BW SCH40 ASME B16.9 ASTM A234 WBP	A234 GR.WPB	psc	3	20%	4	
46	REDUCER	1A1	200	125	0	CONCENTRIC REDUCER BW SCH20 ASME B16.9 ASTM A234 WBP	A234 GR.WPB	psc	1	50%	2	
47	REDUCER	1A1	300	150	0	ECCENTRIC REDUCER SMLS BW SCH20 ASME B16.9 ASTM A234 Gr. WPB	A234 GR.WPB	psc	1	0%	1	
48	REDUCER	1A1	200	100	0	ECCENTRIC REDUCER SMLS BW SCH40 ASME B16.9 ASTM A234 Gr. WPB	A234 GR.WPB	psc	3	20%	4	
49	REDUCER	1A1	200	150	0	ECCENTRIC REDUCER SMLS BW SCH40 ASME B16.9 ASTM A234 Gr. WPB	A234 GR.WPB	psc	1	50%	2	
50	R-TEE	1A1	300	300	150	REDUCING TEE SMLS BW SCH20 ASME B16.9 ASTM A234 Gr. WPB	A234 GR.WPB	psc	1	50%	2	
51	R-TEE	1A1	300	300	200	REDUCING TEE SMLS BW SCH20 ASME B16.9 ASTM A234 Gr. WPB	A234 GR.WPB	psc	32	10%	35	
52	R-TEE	1A1	300	300	250	REDUCING TEE SMLS BW SCH20 ASME B16.9 ASTM A234 Gr. WPB	A234 GR.WPB	psc	12	10%	13	
53	E-TEE	1A1	300	300	300	TEE SMLS BW SCH20 ASME B16.9 ASTM A234 Gr. WPB	A234 GR.WPB	psc	9	10%	10	
54	E-TEE	1A1	20	20	20	TEE SW #3000 ASME B16.11 ASTM A105N	A105N	psc	4	30%	5	
55	R-TEE	1A1	100	100	50	REDUCING TEE SMLS BW SCH40 ASME B16.9 ASTM A234 Gr. WPB	A234 GR.WPB	psc	4	20%	5	
56	R-TEE	1A1	100	100	80	REDUCING TEE SMLS BW SCH40 ASME B16.9 ASTM A234 Gr. WPB	A234 GR.WPB	psc	1	50%	2	
57	E-TEE	1A1	100	100	100	TEE SMLS BW SCH40 ASME B16.9 ASTM A234 Gr. WPB	A234 GR.WPB	psc	20	10%	22	
58	R-TEE	1A1	150	150	100	REDUCING TEE SMLS BW SCH40 ASME B16.9 ASTM A234 Gr. WPB	A234 GR.WPB	psc	4	20%	5	
59	E-TEE	1A1	150	150	150	TEE SMLS BW SCH40 ASME B16.9 ASTM A234 Gr. WPB	A234 GR.WPB	psc	20	10%	22	
60	R-TEE	1A1	200	200	100	REDUCING TEE SMLS BW SCH20 ASME B16.9 ASTM A234 Gr. WPB	A234 GR.WPB	psc	2	30%	3	
61	R-TEE	1A1	200	200	150	REDUCING TEE SMLS BW SCH20 ASME B16.9 ASTM A234 Gr. WPB	A234 GR.WPB	psc	5	10%	6	
62	E-TEE	1A1	200	200	200	TEE SMLS BW SCH20 ASME B16.9 ASTM A234 Gr. WPB	A234 GR.WPB	psc	52	5%	55	
63	R-TEE	1A1	250	250	100	REDUCING TEE SMLS BW SCH20 ASME B16.9 ASTM A234 Gr. WPB	A234 GR.WPB	psc	4	10%	4	
64	E-TEE	1A1	250	250	250	TEE SMLS BW SCH20 ASME B16.9 ASTM A234 Gr. WPB	A234 GR.WPB	psc	12	10%	13	
65	PIPE	1A1	15	0	0	PIPE SMLS PE SCH80 ASME B36.10 ASTM A106 GR.B	A106 GR.B	m	4	10%	4	
66	PIPE	1A1	100	0	0	PIPE SMLS BE SCH40 ASME B36.10M ASTM A106 GR.B	A106 GR.B	m	427	23	450	
67	PIPE	1A1	300	0	0	PIPE SMLS BE SCH20 ASME B36.10M ASTM A106 GR.B	A106 GR.B	m	899	49	948	
68	PIPE	1A1	150	0	0	PIPE SMLS BE SCH40 ASME B36.10M ASTM A106 GR.B	A106 GR.B	m	558	30	588	
69	PIPE	1A1	200	0	0	PIPE SMLS BE SCH20 ASME B36.10M ASTM A106 GR.B	A106 GR.B	m	585	33	618	
70	PIPE	1A1	250	0	0	PIPE SMLS BE SCH20 ASME B36.10M ASTM A106 GR.B	A106 GR.B	m	91	5	96	
71	PIPE	1A1	20	0	0	PIPE SMLS PE SCH80 ASME B36.10 ASTM A106 GR.B	A106 GR.B	m	10	2	12	
72	PIPE	1A1	25	0	0	PIPE SMLS PE SCH80 ASME B36.10 ASTM A106 GR.B	A106 GR.B	m	82	8	90	
73	PIPE	1A1	50	0	0	PIPE SMLS BE SCH40 ASME B36.10M ASTM A106 GR.B	A106 GR.B	m	17	1	18	
74	PIPE	1A1	80	0	0	PIPE SMLS BE SCH40 ASME B36.10M ASTM A106 GR.B	A106 GR.B	m	14	4	18	

PETROVIETNAM PVOIL

PROJECT: EXPANSION OF 40,000M³ STORAGE CAPACITY AT PETEC HAI PHONG
MTO OF PIPE AND FITTINGS FOR PIPING (FIRE FIGHTING)

PTSC THANH HOA DAI DUNG PHUONG ANH

No.	NAME	SPECIFICATION	SIZE 1	SIZE 2	SIZE 3	DESSCRIPTION	MATERIAL	UNIT	DES. Q.TY	SPARE	TOTAL	REMARK
1	ELBOW	1A2	300	300	0	ELBOW 90DEG LR BW SCH20 ASME B16.9 ASTM A234 Gr. WPB	A234 GR.WPB	psc	4	20%	5	
2	ELBOW	1A2	15	15	0	ELBOW 90DEG SW #3000 ASME B16.11 ASTM A105N	A105N	psc	10	10%	11	
3	ELBOW	1A2	100	100	0	ELBOW 90DEG LR BW SCH40 ASME B16.9 ASTM A234 Gr. WPB	A234 GR.WPB	psc	122	5%	128	
4	ELBOW	1A2	150	150	0	ELBOW 90DEG LR BW SCH40 ASME B16.9 ASTM A234 Gr. WPB	A234 GR.WPB	psc	25	10%	28	
5	ELBOW	1A2	200	200	0	ELBOW 90DEG LR BW SCH20 ASME B16.9 ASTM A234 Gr. WPB	A234 GR.WPB	psc	45	10%	50	
6	ELBOW	1A2	250	250	0	ELBOW 90DEG LR BW SCH20 ASME B16.9 ASTM A234 Gr. WPB	A234 GR.WPB	psc	4	20%	5	
7	ELBOW	1A2	300	300	0	ELBOW 45DEG LR BW SCH20 ASME B16.9 ASTM A234 Gr. WPB	A234 GR.WPB	psc	1	50%	2	
8	ELBOW	1A2	100	100	0	ELBOW 45DEG LR BW SCH40 ASME B16.9 ASTM A234 Gr. WPB	A234 GR.WPB	psc	60	10%	66	
9	ELBOW	1A2	25	25	0	ELBOW 90DEG SW #3000 ASME B16.11 ASTM A105N	A105N	psc	9	10%	10	
10	ELBOW	1A2	150	150	0	ELBOW 45DEG LR BW SCH40 ASME B16.9 ASTM A234 Gr. WPB	A234 GR.WPB	psc	5	10%	6	
11	ELBOW	1A2	200	200	0	ELBOW 45DEG LR BW SCH20 ASME B16.9 ASTM A234 Gr. WPB	A234 GR.WPB	psc	9	10%	10	
12	ELBOW	1A2	50	50	0	ELBOW 90DEG LR BW SCH40 ASME B16.9 ASTM A234 Gr. WPB	A234 GR.WPB	psc	1	50%	2	
13	ELBOW	1A2	80	80	0	ELBOW 90DEG LR BW SCH40 ASME B16.9 ASTM A234 Gr. WPB	A234 GR.WPB	psc	13	10%	14	
14	BLIND FLANGE	1A2	300	300	0	BLIND FLANGE #150 RF ASME B16.5 ASTM A105N	A105N	psc	1	0%	1	
15	BLIND FLANGE	1A2	200	200	0	BLIND FLANGE #150 RF ASME B16.5 ASTM A105N	A105N	psc	2	0%	2	
16	FLANGE	1A2	300	300	0	FLANGE SO-RF #150 ASME B16.5 ASTM A105N	A105N	psc	4	20%	5	
17	FLANGE	1A2	15	15	0	FLANGE SW-RF #150 ASME B16.5 ASTM A105N	A105N	psc	3	20%	4	
18	FLANGE	1A2	25	25	0	FLANGE SW-RF #150 ASME B16.5 ASTM A105N	A105N	psc	1	50%	2	
19	FLANGE	1A2	50	50	0	FLANGE SO-RF #150 ASME B16.5 ASTM A105N	A105N	psc	1	50%	2	
20	FLANGE	1A2	80	80	0	FLANGE SO-RF #150 ASME B16.5 ASTM A105N	A105N	psc	16	10%	18	
21	FLANGE	1A2	100	100	0	FLANGE SO-RF #150 ASME B16.5 ASTM A105N	A105N	psc	96	5%	101	
22	FLANGE	1A2	150	150	0	FLANGE SO-RF #150 ASME B16.5 ASTM A105N	A105N	psc	29	10%	32	
23	FLANGE	1A2	200	200	0	FLANGE SO-RF #150 ASME B16.5 ASTM A105N	A105N	psc	55	5%	58	
24	FLANGE	1A2	250	250	0	FLANGE SO-RF #150 ASME B16.5 ASTM A105N	A105N	psc	8	10%	9	
25	WELDOLET	1A2	200	200	80	WELDOLET BW SCH40 MSS-SP-97, ASTME A234 WPB	A234 GR.WPB	psc	2	30%	3	
26	WELDOLET	1A2	250	250	80	WELDOLET BW SCH40 MSS-SP-97, ASTME A234 WPB	A234 GR.WPB	psc	2	30%	3	
27	WELDOLET	1A2	300	300	100	WELDOLET BW SCH40 MSS-SP-97, ASTME A234 WPB	A234 GR.WPB	psc	1	50%	2	
28	SOCKOLET	1A2	80	80	25	SOCKOLET SW #3000 MSS-SP-97, A105N	A105N	psc	1	50%	2	
29	SOCKOLET	1A2	100	100	15	SOCKOLET SW #3000 MSS-SP-97, A105N	A105N	psc	2	30%	3	
30	SOCKOLET	1A2	100	100	25	SOCKOLET SW #3000 MSS-SP-97, A105N	A105N	psc	1	50%	2	
31	SOCKOLET	1A2	200	200	15	SOCKOLET SW #3000 MSS-SP-97, A105N	A105N	psc	10	10%	11	
32	SOCKOLET	1A2	250	250	15	SOCKOLET SW #3000 MSS-SP-97, A105N	A105N	psc	4	30%	5	
33	SOCKOLET	1A2	80	80	15	SOCKOLET SW #3000 MSS-SP-97, A105N	A105N	psc	2	30%	3	
34	REDUCER	1A2	200	125	0	CONCENTRIC REDUCER BW SCH40 ASME B16.9 ASTM A234 WBP	A234 GR.WPB	psc	2	30%	3	
35	REDUCER	1A2	50	25	0	CONCENTRIC REDUCER BW SCH40 ASME B16.9 ASTM A234 WBP	A234 GR.WPB	psc	1	50%	2	
36	REDUCER	1A2	100	50	0	ECCENTRIC REDUCER SMLS BW SCH40 ASME B16.9 ASTM A234 Gr. WPB	A234 GR.WPB	psc	1	50%	2	
37	REDUCER	1A2	150	80	0	ECCENTRIC REDUCER SMLS BW SCH40 ASME B16.9 ASTM A234 Gr. WPB	A234 GR.WPB	psc	1	50%	2	

PETROVIETNAM PVOIL

PROJECT: EXPANSION OF 40,000M³ STORAGE CAPACITY AT PETEC HAI PHONG
MTO OF PIPE AND FITTINGS FOR PIPING (FIRE FIGHTING)

PTSC THANH HOA DAI DUNG PHUONG ANH

No.	NAME	SPECIFICATION	SIZE 1	SIZE 2	SIZE 3	DESSCRIPTION	MATERIAL	UNIT	DES. Q.TY	SPARE	TOTAL	REMARK
38	REDUCER	1A2	200	150	0	ECCENTRIC REDUCER SMLS BW SCH40 ASME B16.9 ASTM A234 Gr. WPB	A234 GR.WPB	psc	1	50%	2	
39	REDUCER	1A2	250	100	0	ECCENTRIC REDUCER SMLS BW SCH40 ASME B16.9 ASTM A234 Gr. WPB	A234 GR.WPB	psc	2	0%	2	
40	REDUCER	1A2	250	150	0	ECCENTRIC REDUCER SMLS BW SCH40 ASME B16.9 ASTM A234 Gr. WPB	A234 GR.WPB	psc	2	0%	2	
41	REDUCER	1A2	25	15	0	CONCENTRIC REDUCER SW #3000 ASME B16.11 A105N	A105N	psc	1	50%	2	
42	REDUCER	1A2	80	40	0	CONCENTRIC REDUCER BW SCH40 ASME B16.9 ASTM A234 WBP	A234 GR.WPB	psc	4	20%	5	
43	REDUCER	1A2	80	50	0	CONCENTRIC REDUCER BW SCH40 ASME B16.9 ASTM A234 WBP	A234 GR.WPB	psc	1	50%	2	
44	REDUCER	1A2	150	80	0	CONCENTRIC REDUCER BW SCH40 ASME B16.9 ASTM A234 WBP	A234 GR.WPB	psc	2	50%	3	
45	REDUCER	1A2	200	150	0	CONCENTRIC REDUCER BW SCH40 ASME B16.9 ASTM A234 WBP	A234 GR.WPB	psc	2	50%	3	
46	REDUCER	1A2	40	25	0	CONCENTRIC REDUCER SW #3000 ASME B16.11 A105	A234 GR.WPB	psc	2	30%	3	
47	R-TEE	1A2	300	300	250	REDUCING TEE SMLS BW SCH20 ASME B16.9 ASTM A234 Gr. WPB	A234 GR.WPB	psc	4	0%	4	
48	E-TEE	1A2	300	300	300	TEE SMLS BW SCH20 ASME B16.9 ASTM A234 Gr. WPB	A234 GR.WPB	psc	1	0%	1	
49	E-TEE	1A2	25	25	25	TEE SW #3000 ASME B16.11 ASTM A105N	A105N	psc	1	50%	2	
50	R-TEE	1A2	25	25	15	REDUCING TEE SW #3000 ASME B16.11 ASTM A105N	A105N	psc	1	10%	1	
51	E-TEE	1A2	80	80	80	TEE SMLS BW SCH40 ASME B16.9 ASTM A234 Gr. WPB	A234 GR.WPB	psc	3	30%	4	
52	R-TEE	1A2	100	100	50	REDUCING TEE SMLS BW SCH40 ASME B16.9 ASTM A234 Gr. WPB	A234 GR.WPB	psc	1	50%	2	
53	E-TEE	1A2	100	100	100	TEE SMLS BW SCH40 ASME B16.9 ASTM A234 Gr. WPB	A234 GR.WPB	psc	1	50%	2	
54	R-TEE	1A2	150	150	100	REDUCING TEE SMLS BW SCH40 ASME B16.9 ASTM A234 Gr. WPB	A234 GR.WPB	psc	21	10%	23	
55	E-TEE	1A2	150	150	150	TEE SMLS BW SCH40 ASME B16.9 ASTM A234 Gr. WPB	A234 GR.WPB	psc	1	50%	2	
56	R-TEE	1A2	200	200	100	REDUCING TEE SMLS BW SCH20 ASME B16.9 ASTM A234 Gr. WPB	A234 GR.WPB	psc	27	10%	30	
57	R-TEE	1A2	200	200	150	REDUCING TEE SMLS BW SCH20 ASME B16.9 ASTM A234 Gr. WPB	A234 GR.WPB	psc	1	50%	2	
58	E-TEE	1A2	200	200	200	TEE SMLS BW SCH20 ASME B16.9 ASTM A234 Gr. WPB	A234 GR.WPB	psc	11	10%	12	
59	R-TEE	1A2	250	250	150	REDUCING TEE SMLS BW SCH20 ASME B16.9 ASTM A234 Gr. WPB	A234 GR.WPB	psc	4	20%	5	
60	PIPE	1A2	15	0	0	PIPE SMLS PE SCH80 ASME B36.10 ASTM A53 GR.B	A53 GR.B	m	11	10%	12	
61	PIPE	1A2	100	0	0	PIPE SMLS BE SCH40 ASME B36.10M ASTM A53 GR.B	A53 GR.B	m	1367	37	1404	
62	PIPE	1A2	300	0	0	PIPE SMLS BE SCH20 ASME B36.10M ASTM A53 GR.B	A53 GR.B	m	34	5%	36	
63	PIPE	1A2	150	0	0	PIPE SMLS BE SCH40 ASME B36.10M ASTM A53 GR.B	A53 GR.B	m	441	27	468	
64	PIPE	1A2	200	0	0	PIPE SMLS BE SCH20 ASME B36.10M ASTM A53 GR.B	A53 GR.B	m	742	38	780	
65	PIPE	1A2	250	0	0	PIPE SMLS BE SCH20 ASME B36.10M ASTM A53 GR.B	A53 GR.B	m	18	6	24	
66	PIPE	1A2	25	0	0	PIPE SMLS PE SCH80 ASME B36.10 ASTM A53 GR.B	A53 GR.B	m	16	2	18	
67	PIPE	1A2	40	0	0	PIPE SMLS PE SCH80 ASME B36.10 ASTM A53 GR.B	A53 GR.B	m	1	5	6	
68	PIPE	1A2	50	0	0	PIPE SMLS BE SCH40 ASME B36.10M ASTM A53 GR.B	A53 GR.B	m	1	5	6	
69	PIPE	1A2	80	0	0	PIPE SMLS BE SCH40 ASME B36.10M ASTM A53 GR.B	A53 GR.B	m	17	1	18	
70	UNION	1A2	15	15	0	FEMALE THREAD UNION BY MFR	STAINLESS	psc	2	0%	2	
71	UNION	1A2	40	40	0	FEMALE THREAD UNION BY MFR	STAINLESS	psc	2	0%	2	

ATTACHMENT #2

TECHNICAL SUPPORT DOCUMENT

- *Att #2.1 Specifications*
- *Att #2.2 Drawings*

ATTACHMENT #3

TECHNICAL BID PROPOSAL

- *Att #3.1 Technical Bid Requirement forms*
- *Att #3.2 Technical forms*
- *Att #3.3 Technical Bid Clarification form*

ATTACHMENT #4

VENDOR DATA DOCUMENTS LIST

- *Att #4.1 Vendor Data Documents List*
- *ATt #4.2 Inspection And Test Plan*

VENDOR DATA DOCUMENTS LIST (VDRL)

No.	Description	With Bid	Final	Remark
1	Company Profile Brochure		**x**	
2	Vendor Data Index & Schedule		x	
3	Material Data Sheet		x	
4	General Arrangement Drawings		x	
5	Fabrication Drawings		x	
6	Hydrotest / Pneumatic Test Procedure		x	
7	Hydrotest / Pneumatic Test Reports		x	
8	Inspection & Test Plan		x	
9	Material Mill Test Certificate		x	follow EN10204, Type 3.1
10	Installation, Operation & Maintenance Manual (IOM)		x	
11	Preservation Procedure		x	
12	Packing List		x	The Verification & Certification of a local third party for PSV as per Decree No. as 36/2019/TT-BLĐTBXH and other related documents/regulations
13	Fumigation Certificate		x	
14	Certificate of Compliance (CoC)		x	
15	Test Certificate		x	
16	Insurance Certificate		x	
17	Commercial Invoice		x	
18	Bill of Lading (B/L)		x	
19	Import Declaration		x	
20	Import License (if required)		x	

INSPECTION AND TEST PLAN

	R: Review	SW: Spot Witness	W: Witness	H: Hold point
No.	**Inspection Item**	**Inspection Involvement**		
		PURCHASER	OWNER	3rd Party Inspection
1	Material certificates	R	R	R
2	CO/CQ	R	R	-
3	Material identification	SW	R	R
4	Balancing Test (impeller)	-	-	-
5	Heat Treatment	-	-	-
6	PMI (where applicable)	R	R	-
7	Hydrostatic Testy - Casing, Cooing Jacket	-	-	-
8	Helium leak Test (if required)	-	-	-
9	Dimensional check and visual inspection	W	SW	W
10	N.D.E (***)	-	-	-
11	NPSH Test (if required)	-	-	-
12	Mechanical running test (*) - Noise, Vibration, Temp. rising check, RPM, etc.	-	-	-
13	Performance Test (*) - Capacity, Head, BHP, Efficiency	-	-	-
14	Dismantling inspection (where required)	-	-	-
15	Motor Inspection (**)	-	-	-
16	Internal cleaning inspection	W	W	-
17	Component and Accessories inspection	SW	R	-
18	Final assembly inspection	SW	R	-
19	Rust prevention check and painting inspection	SW	R	R
20	Shipping preparation inspection	SW	R	-
21	Certificate of Completion and Final vendor inspection report review	R	R	R

Notes:

(*) One pump per each identical pump.
(All pumps will be witness tested for critical & big size pump)

(**) Electric Motor inspection detail shall be indentified later

(***) NDE shall be done after 24hrs from welding work and 48hrs from PWHT

ATTACHMENT #5

PROJECT SCHEDULE