CEYLON PETROLEUM STORAGE TERMINALS LIMITED

BIDDING DOCUMENT

FOR

REPAIRS AND MODIFICATIONS TO TANK NO. 4 & 5 AT LBD MA-GALLE

KPR/41/2021

Employer:

Chairman,
Ceylon Petroleum Storage Terminals Limited,
Oil Installation, Kolonnawa.

Engineer:

Engineering Manager,
Engineering Function,
Ceylon Petroleum Storage Terminals Limited,
Oil Installation, Kolonnawa.

Issued to :……..

Issued by :…….

Date :…….

September - 2021

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VOLUME - 01

SECTION 01 : INSTRUCTIONS TO BIDDERS
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SECTION - 1

INSTRUCTIONS TO BIDDERS

Instructions to Bidders applicable to this contract are that given in Section-I of the Standard Bidding Document for Procurement of Works. ICTAD Publication No.ICTAD/SBD/01, Second Edition ,January 2007, published by Construction Industry Development Authority (CIDA), "Savsiripaya", 123, Wijerama Mawatha, Colombo 07.

This publication will not be issued with the Bidding Document and the Bidder is advised to purchase it from CIDA.

Instructions to Bidders shall be read in conjunction with the Bidding Data provided under section-5 of the Bidding Document (Volume 2)

Instructions to Bidders will not be a part of the contract and will case to have effect once the Contract is signed.

SECTION – 2

STANDARD FORMS (CONTRACT)

- ***Form of letter of acceptance***
- ***Form of agreement***
- ***Form of performance security***
- ***Form of advance payment security***

FORM OF LETTER OF ACCEPTANCE

[LETTER HEADING PAPER OF THE PROCURING ENTITY]

---------- *[date]*

To: ----------

[name and address of the Contractor]

This is to notify you that your bid dated ---------- *[insert date]* for the construction and remedying defects of the ---------- *[name of the Contract and identification number]* for the Contract price of ----------[*name of currency]* ----------[*amount in figures and words]* as corrected in accordance with Instructions to Bidders and / or modified by a Memorandum of Understanding, is hereby accepted.

The adjudicator shall be ---------- ---------- ---------- *[name and address of the Adjudicator, if agreed]* / shall be appointed by the Construction Industry Development Authority (CIDA).

You are hereby instructed to proceed with the execution of the said Works in accordance with the Contract documents.

The Start Date shall be: ---------- *(fill the date as per Conditions of Contract).*

The amount of Performance Security is *:* ---------- *(fill the date as per Conditions of Contract).*

The Performance Security shall be submitted on or before ---------- *(fill the date as per Conditions of Contract).*

Authorized Signature : ----------

Name and title of Signatory : ----------

Name of Agency : ----------

STANDARD FORM: AGREEMENT

This AGREEMENT, made the ……*[day]* day of ----------*[month]* 20-------- *[year]* between ----------*[name and address of Employer]* (hereinafter called "the Employer") of the one part, and ---------- *[name and address of Contractor]* (hereinafter called "the Contractor") of the other part.

WHEREAS the Employer desires that the Contractor execute ---------- *[name and identification number of Contract]* (hereinafter called "the Works") and the Employer has accepted the Bid by the Contractor for the execution and completion of such Works and the remedying of any defects therein.

NOW THIS AGREEMENT WITNESSETH as follows:

1. In this Agreement, words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract hereinafter referred to, and they shall be deemed to form and be read and construed as part of this Agreement.
2. In consideration of the payments to be made by the Employer to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the Employer to execute and complete the Works and remedy any defects therein in conformity in all respects with the provisions of the Contract.
3. The Employer hereby covenants to pay the Contractor in consideration of the execution and completion of the Works and the remedying of defects wherein the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

IN WITNESS whereof the parties thereto have caused this Agreement to be executed the day and year aforementioned in accordance with laws of Sri Lanka.

…….	……..
Authorized signature of Contractor	Authorized signature of Employer
COMMON SEAL	COMMON SEAL

In the presence of:
Witnesses:

1.	Name and NIC No.	:	……
			……
	Signature	:	……
	Address	:	……
			……
2.	Name and NIC No.	:	……
			……
	Signature	:	……
	Address	:	……
			……

FORM OF PERFORMANCE SECURITY (UNCONDITIONAL)

……
(Issuing Agency's Name and Address of Issuing Branch or Office)

Beneficiary: **Ceylon Petroleum Storage Terminals Limited, 1st floor, New Administration Building, Oil Installation, Kolonnawa**

Date: …….

PERFORMANCE GUARANTEE NO. : ……

We have been informed that ……
……..…… *(Name of Contractor)* (hereinafter called "the Contractor") has entered into Contract No. ……..….. (Reference No. of the Contract) dated ……..……. With you, for the …….. [*name of the contract and brief description of works*](hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, a performance guarantee is required.

At the request of the Contractor, we ……..……
…….. *(name of agency)* hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of …….……. *(amount in figures)*
……..……
…….. *(amount in words)* upon receipt by us of your first demand in writing accompanied by a written statement stating that the Contractor is in breach of its obligation(s) under the Contract, without your needing to prove or to show grounds for your demand or the sum specified therein.

This guarantee shall expire, no later than the ……. day of …… 20……. *(insert date, 28 days beyond the intended Completion Date)* and any demand for payment under it must be received by us at this office on or before that date.

……
Signature(s)

FORM OF ADVANCE PAYMENT SECURITY

……
……
(Name and Address of Agency, and Address of Issuing Branch or Office)

Beneficiary :……..... [Name and Address of employer]

Date: …….

ADVANCE PAYMENT GUARANTEE NO. : ……..

We have been informed that ……..…
……..……. *(Name of Contractor)* (hereinafter called "the Contractor") has entered into Contract No. …….. (Reference No. of the Contract) dated ……
With you, for the …..…… [*name of contract & brief description*] (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, an advance payment in the sum……*(amount in figures)* …….…… *(amount in words)* to be made against an advance payment guarantee.

At the request of the Contractor, we ……..……
…… *(name of issuing agency)* hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of …….. *(amount in figures)* …… *(amount in words)* upon receipt by us of your first demand in writing accompanied by a written statement stating that the Contractor is in breach of its obligation in repayment of the advance payment under the Contract.

The maximum amount of this guarantee shall be progressively reduced by the amount of the advance payment repaid by the Contractor.

This guarantee shall expire on ……. …… *(insert date, 28 days beyond the expected expiration Date of the contract)*

Consequently, any demand for payment under this guarantee must be received by us at this office on or before that date.

…….
Signature(s)

SECTION – 3

CONDITIONS OF CONTRACT

Condition of Contract that will be applicable for this Contract is that given in Section III of the Standard Bidding Document for Procurement of Works "ICTAD PUBLICATION NO. – ICTAD/SBD/01" Second Edition January 2007 published by Construction Industry Development Authority (CIDA), "Savsiripaya", 123, Wijerama Mawatha, Colombo 07.

This publication will not be issued with the Bidding Document and the Bidder is advised to purchase it from CIDA.

Conditions of Contract shall be read in conjunction with Contract data provided under Section-5 of the Bidding Document (Volume 2).

VOLUME - 02

INVITATION FOR BIDS

SECTION 04 : FORM OF BID AND QUALIFICATION INFORMATION

SECTION 05 : BIDDING DATA AND CONTRACT DATA

SECTION 06 : SPECIFICATIONS

SECTION 07 : BILL OF QUANTITIES AND DAY WORK SCHEDULES

SECTION 08 : DRAWINGS

SECTION 09 : STANDARD FORMS (BID)

Invitation for Bids (IFB)

CEYLON PETROLEUM STORAGE TERMINALS LIMITED

REPAIRS AND MODIFICATIONS TO TANKS NO. 4 & 5

AT LBD MA – GALLE

KPR/41/2021

1. The Chairman, Department Procurement Committee (Minor), on behalf of the **Chairman, Ceylon Petroleum Storage Terminals Limited, Oil Installation, Kolonnawa** now invites sealed bids from eligible and qualified bidders for **Repairs and Modifications to Tanks No. 4 & 5 at LBD Ma – Galle** as described below.

    i. Replacement of existing tank bottom with bottom most 600 mm shell strip in Tank No. 4.

    ii. Replacement of existing tank roof including structure and 3 topmost shell courses in Tank No. 5.

    iii. Modifications to introduce internal floating roofs for Tank No. 4 and 5.

    iv. Painting of tank No. 4 and 5.

    v. The Construction period is 240 calendar days.

2. Bidding will be conducted through **National Competitive Bidding Procedure.**

3. To be eligible for contract award, the successful bidder shall not have been blacklisted and shall meet the following requirements.

    ICTAD (CIDA) registration is required as follows:

Specialty	Grade
Heavy Steel Fabrication	EM 3 or Above

4. Qualification requirements to qualify for contract award include

    i. Experience Required

    Experience as a contractor in construction of at least one new vertical steel petroleum storage tank of capacity not less than 500 m^3 conforms to API 650 or at least two major repairs (similar nature and complexity) to tank/s of capacity not less than 500 m^3 including replacement of roof or bottom conforms to API 653 during last ten years (to comply with this requirement, works cited should be at least 70 percent complete).

    ii. Average of the annual volume of construction work performed in the last five years shall be at least **Rs. 50,000,000.00 (Rupees Fifty Million).**

    iii. The minimum amount of liquid assets and /or credit facilities net of other contractual commitments and exclusive of any advance payments which may be made under the contract shall be not less than **Rs.8,500,000.00 (Rupees Eight Million Five Hundred Thousand).**

5. Interested bidders may obtain further information from The Manager (procurement), Ceylon Petroleum Storage Terminals Limited of Sri Lanka on Telephone-

0112572156, Fax – 0112572155 and inspect the bidding documents at the address given below from 0900 hrs to 1600 hrs.

6. Interested parties may refer the bidding document ***(only for viewing purpose)*** and obtain necessary information through the website www.cpstl.lk .

The bidders who are eligible to quote the tender, could obtain the original bidding documents (full set) on submission of a written request ***(the request letter shall be on the company letter head and signed by an authorized person)*** via an email to procure@cpstl.lk during working days from **0900 hrs. to 1400 hrs till 25th October 2021.** Considering bidder's request, Manager Procurement, CPSTL may issue the consent via email for depositing the non-refundable bidding document fee **Rs.5,000.00**.

On receipt of non- refundable bidding document fee to CPSTL account, bidding documents (full set) will be issued by Procurement Function via email.

7. Bids shall be submitted on the bidding document obtainable from Procurement Function and duly filled bidding documents may be sent by post/courier under registered cover or sealed cover **to reach** the Chairman, Department Procurement Committee (Minor), C/o Manager Procurement, Ceylon Petroleum Storage Terminals Limited, Procurement Function, 01st Floor, New Building, Oil Installation, Kolonnawa, Wellampitiya or could be deposited in the tender box kept at the main entrance of CPSTL, on or before **1400 hrs. on 26th October 2021.**

In case the bidders are unable to submit the original bids as above, they could submit the scanned copy of the duly filled bidding documents in PDF format via email to tenders@cpstl.lk **to reach** on or before **1400 hrs. on 26th October 2021,** subject to following conditions.

1. Submission of the bid via email is at own discretion of the bidder.

2. The title and the closing date of the tender shall be indicated as the subject of the email.

3. Size of an email (with attachment) shall be limited to the maximum of 20 MB. In case the size of an attachment exceeds 20 MB, the bidder is requested to split the attachments and send as separate emails (i.e. 01 of 03, 02 of 03 etc.,).

4. Do not CC/BCC to any other official/personal email IDs of CPSTL staff. Bids sent to any other email IDs are strictly not entertained.

5. However, the original bid shall be sent to CPSTL prior to finalize the technical evaluation.

Bids will be closed at 1400 hrs. on 26th October 2021 and will be opened immediately thereafter at the office of Manager (Procurement). Due to the prevailing COVID-19 pandemic situation in the country, the authorized representatives of the bidders may allow to participate / witness the tender opening procedure via video conferencing method.

8. Bids shall be valid up to **11.01.2022**.

9. All bids shall be accompanied by a Bid Security of **Rs. 220,000.00** (Rupees Two Hundred and Twenty Thousand). Bid Security shall be valid up to **08.02.2022**.

10. Any of the following party who wishes to submit a bid, shall register himself at the Department of Registrar of Companies www.drc.gov.lk (e-ROC) as per the Public Contracts Act, No. 03 of 1987 for every public contract value exceeding Sri Lankan Rupees **Five million** (**LKR 5,000,000**).

    i. An agent, sub-agent, representative or nominee must be registered **prior to the closing of the Bid/Tender**.
    ii. If the tender applicant and the tenderer is the same party he must be registered prior to the **award of the tender**.

    However, this registration will be verified by CPSTL at the preliminary evaluation of Bids. In case of failure to meet this legal requirement the Bid shall be rejected.

    Contact details of the Registrar: Department of Registrar of Companies, "Samagam Medura", No. 400, D R Wijewardena Mawatha, Colombo 10 / Tel.: +94-11-2689208 / +94-11-2689209 / Email: registrar@drc.gov.lk (Contact details may vary from actuals & CPSTL does not take any responsibility in this regard)

    The address(es) referred to above is (are):

    The Chairman,
    Department Procurement Committee (Minor)
    C/O Manager (Procurement),
    Ceylon Petroleum Storage Terminals Limited
    Procurement Function,
    1st floor, New Administration Building,
    Oil Installation,
    Kolonnawa.

SECTION – 4

- ***FORM OF BID***
- ***QUALIFICATION INFORMATION***

FORM OF BID

Name of Contract: **REPAIRS AND MODIFICATIONS TO TANKS NO. 4 & 5 AT LBD MA - GALLE**

To: **The Chairman,**
Ceylon Petroleum Storage Terminals Limited,

Gentleman,

1. Having examined the Standard Bidding Document – Procurement of Works (ICTAD/SBD/01 – Second Edition – January 2007), Specifications, Drawings and Bill of Quantities and addenda for the execution of the above – named Works, we/I the undersigned, offer to execute and complete such Works and remedy any defects therein in conformity with the aforesaid Conditions of Contract, Specification, Drawings, Bill of Quantities and addenda for the sum of Sri Lankan Rupees…… …… ……(LKR …… … ……..) or such other sums as may be ascertained in accordance with the said Conditions.

2. We/I acknowledge that the schedule forms part of our Bid.

3. We/I undertake, if our Bid is accepted, to commence the Works as stipulated in the Contract Data, and to complete the whole of the Works comprised in the contract within the time stated in the Contract Data.

4. We/I agree to abide by this bid for the period stated in the Sub-Clause 15 of Instructions to Bidders or any extended period and it shall remain binding upon us and may be accepted at any time before the expiration of that period.

5. Unless and until a formal agreement is prepared and executed this Bid, together with your written acceptance thereof, shall constitute a binding contract between us.

6. We accept/ we do not accept the Adjudicator.

7. We/I understand that you are not bound to accept the lowest or any Bid you may receive.

Dated this …… day of …….. 20…. in the capacity of …… …… … ….. …… …….. duly authorized to sign tenders for and on behalf of ….. ……. ……..…… …… ……

(IN BLOCK CAPITALS)

Signature :……

Name :……

Designation :……

Address :……

……

Witness :……

QUALIFICATION INFORMATION

(To be completed and submitted by the bidder, with the Bid)

ICTAD Registration		
Registration number	*(attach copies of relevant pages from the registration book)*	
Grade : EM3 or above	...……	
Specialty : Heavy Steel Fabrication	...……	
Expiry Date	...……	
Blacklisted Contractors		
Have you been declared as a defaulted contractor by NPA or any other Agency? (Yes/No)		
(If yes provide details)		
VAT Registration Number	...……	
Construction Program	*(attach as annex in the form of bar chart)*	
Legal status	*(attach relevant status copies, as annex)*	
Value of Construction works performed in last 5 years (average value shall be at least 50 million)	*(attach copies of Certificate of Completion etc. and other documents such as profit-loss and income expenditure statement)*	
Year 2015/2016	LKR ……..	
Year 2016/2017	LKR ……..	
Year 2017/2018	LKR ……..	
Year 2018/2019	LKR ……..	
Year 2019/2020	LKR ……..	
The minimum amount of liquid assets and/or credit facilities net of other contractual commitments and exclusive of any advance payments which may be made under the contract shall be not less than LKR 8,500,000.00	LKR ……..	
Value of similar works completed in last 10 years (indicate only the three largest projects)	1. Value……..	Year……..
	2. Value……..	Year……..
	3. Value……..	Year……..
Major items of construction equipment proposed	1. Type ……. Capacity ……..	
	2. Type ……. Capacity ……..	
	3. Type ……. Capacity ……..	
	4. Type ……. Capacity ……..	
	5. Type ……. Capacity ……..	
Qualification and experience of key staff – Site & Head Office (Permanent, Contract basis & Consultants)	**Technical**	**Availability with the bidder**
	1. Site Engineer (Mech)	(Yes/No)
	2. Technical Officer (NDT Mech or equivalent)	(Yes/No)
	3. Technical Officer (NDT Civil or equivalent)	(Yes/No)
	4. Welding Supervisor	(Yes/No)
	(attach copy of CVs as annex)	
Any deviation from the scope of work, specifications drawings, bill of quantities and addenda	(Yes/No) *(If yes provide the details as annex)*	

SECTION - 5

BIDDING DATA & CONTRACT DATA

G. Bidding Data

Instructions to Bidders
Clause Reference

(1.1) The Employer is

Name : The Chairman

Address: Ceylon Petroleum Storage Terminals Limited,
Oil Installation,
Kolonnawa

The work consists of

i. Replacement of existing tank bottom with bottom most 600 mm shell strip in Tank No. 4.
ii. Replacement of existing tank roof, roof structure and 3 topmost shell courses in Tank No. 5.
iii. Modifications to introduce internal floating roofs for Tank No. 4 and 5.
iv. Paintings of tanks.
v. The Construction period is 240 calendar days.

(1.2) Intended Completion Date is **240 Calendar Days** from the Start Date.

(1.3) The office for collection of bid forms is

Procurement Manager,
Procurement Function,
Ceylon Petroleum Storage Terminals Limited,
Oil Installation, Kolonnawa.

The non-refundable fee is Rupees **5,000.00**

The Bid forms will be issued from 27.09.2021up to 25.09.2021 during normal working hours (from 0900 hrs to 1400hrs)

(2.1) The source of funds is **CPSTL**

(4.2) The registration required

Specialty	Grade
Heavy Steel Fabrication	EM3 or Above

(4.3) Any Deviation from the scope of work, specifications, drawings, bill of quantities and addenda in the bidding document shall be clearly mentioned in the Bid. Otherwise, the Employer shall proceed with evaluation assuming that the Bidder is adhering to all requirements in the Bidding Document. The following information shall be provided in Section 4:

* ICTAD Registration;
  - Registration number
  - Grade
  - Specialty
  - Expiry Date
* VAT Registration number
* Construction Programme
* Legal Status (Sole proprietor, Partnership, Company etc.)
* Total monetary value of construction work performed for each of the last five years;
* Experience in works of a similar nature and size for each of the last ten years;
* Major items of construction equipment proposed to carry out the Contract;
* Qualifications and experience of key site management and technical personnel proposed for the Contract;
* List of Country of origin and manufacture of materials supplied by contractor.

(4.4)

i. Experience as a contractor in construction of at least one new vertical steel petroleum storage tank of capacity not less than 500 m^3 conforms to API 650 or at least two major repairs (similar nature and complexity) to tank/s of capacity not less than 500 m^3 including replacement of roof or bottom conforms to API 653 during last ten years (to comply with this requirement, works cited should be at least 70 percent complete).

ii. Average of the annual volume of construction work performed in the last five years shall be at least **Rs. 50,000,000.00 (Rupees Fifty Million).**

iii. Following technical and managerial staff:

One Site Engineer with BSc. (Eng.) with minimum two years' experience and one Technical Officer with NDT (mechanical) or equivalent with minimum 05 years' experience shall be assigned to the project full time basis and one Technical Officer with NDT (civil) or equivalent with minimum 05 years' experience and a welding supervisor shall be assigned when civil works and welding is attended. This is the minimum requirement and the successful bidder shall assign all other necessary staff to enable compliance with all other contractual stipulations.

iv. The minimum amount of liquid assets and /or credit facilities net of other contractual commitments and exclusive of any advance payments which may be made under the contract shall be not less than **Rs. 8,500,000.00 (Rupees Eight Million Five Hundred Thousand)**

(7.1) Site Visit

Prior to submitting a bid, bidders shall familiarize themselves and shall be deemed to have done so. The bidders shall inform Engineering Manager, Engineering Function, Oil Installation, CPSTL, Kolonnawa (Tel. +94-11-2572214, Fax No. 0094-11-2531328) at least 02 days in advance with their names, NIC Numbers/Passport Numbers so that the CPSTL will arrange required permits for the site visit.

The bidders are advised to limit the number of persons, for the visit, due to the security reasons, at the LBD Ma - Galle. Site visit will be permitted during 0830 – 1600 hrs except Sundays and mercantile holidays. The cost of such visits shall be borne by the bidder.

(9.1) Employer's address for the purpose of clarification is;

Name : The Manager (Procurement),
Address : Procurement Function
Ceylon Petroleum Storage Terminals Limited
Oil Installation
Kolonnawa

Telephone: 0112572156
Fax: 0112572155
Email : procure@cpstl.lk

(11.1) The language of the bidding document shall be English.

(13.3) VAT component shall not be included in the rates. The amount written in the Form of Bid shall be without VAT. However, VAT component shall be shown separately at the end of the BOQ.

(13.4) The Contract is not subjected to price adjustment in accordance with Clause 47 of the Conditions of Contract.

(15.1) The Bid shall be valid up to **11.01.2022.**

(16.1) Bid shall include a Bid Security using the form included in Section 9.

(16.2) Bid Security shall be:

- for an amount **Rs. 220,000. 00 (Rupees Two Hundred and Twenty Thousand)**
- Valid until **08.02.2022.**

- Securities and Guarantees shall be on demand guarantees issued by a commercial bank operating in Sri Lanka with the authority of a license issued by the Monitory Board (Central Bank of Sri Lanka).

(17.0) Pre-Bid meeting shall be together with the site visit
- date: 05.10.2021 / time: at 1000 hrs via video conferencing method

(19.2) a The Employer's address for the purpose of Bid submission is

The Chairman,
Department Procurement Committee (Minor),
Procurement Function.
Ceylon Petroleum Storage Terminals Limited,
Oil Installation,
Kolonnawa

(19.2) b

Contract name: **Repairs and Modifications to Tanks No. 4 & 5 at LBD Ma - Galle**

Contract No : **KPR/41/2021**

The deadline for submission of Bids shall be **1400 hrs on 26.10.2021**

(28.1) Not applicable

(34.0) The amount of Performance Security is 5% of the Initial Contract Price.

(36.0) CPSTL does not propose any adjudicator.

In case of any dispute an Adjudicator shall be appointed by the Appointing Authority who shall be the Construction Industry Development Authority (CIDA).

Fees and types of reimbursable expenses to be paid to the Adjudicator shall be on a case to case basis and shall be shared by the contractor and the Employer. 50% by the Employer and 50% by the Contractor.

Contract Data

(Please note that the Clause nos. given hereunder are that of Conditions of Contract)

(1.1) The Employer is
Name : The Chairman,
Address: Ceylon Petroleum Storage Terminals Limited
Oil Installation,
Kolonnawa

Employers Representative
Name : Manager (Procurement),

Address: Ceylon Petroleum Storage Terminals Limited
Oil Installation
Kolonnawa

(1.1) The Engineer is
Name: Engineering Manager

Address: Engineering Function
Ceylon Petroleum Storage Terminals Limited
Oil Installation
Kolonnawa

The work consists of,

The work consists of

i. Replacement of existing tank bottom with bottom most 600 mm shell strip in Tank No. 4.
ii. Replacement of existing tank roof, roof structure and 3 topmost shell courses in Tank No. 5.
iii. Modifications to introduce internal floating roofs for Tank No. 4 and 5.
iv. Paintings of tanks.
v. The Construction period is 240 calendar days.

The Site is located at Lanka Bulk Depot, Ma - Galle

(1.1) The Start Date shall be 14 Days from the Letter of Acceptance.

(8.1) Schedule of other contractors**:** None

(9.1) Schedule of Key Personnel:

Minimum persons with qualifications and experience to be defined,

	Technical Designation	**Academic Qualification**	**Experience**
i.	Site Engineer (Mechanical)	BSc (Eng)	2 years
ii.	Technical Officer (Mechanical)	NDT or equivalent	5 Years
iii	Technical Officer (Civil)	NDT or equivalent	5 Years
iv.	Welding Supervisor	AWS certification or equivalent	5 Years

13.1 The minimum insurance covers shall be

(a) The minimum cover for insurance of the Works and of plant and Materials is **110% of initial Contract Price**.

The maximum deductible for insurance of the Works and of Plant and Materials is **5% of initial contract price**

(b) Contractor's Responsibility.

(c) The minimum cover for insurance of other property (other than the Site) is Rs. **20,000,000.00.**

(d) The minimum cover for personal injury of death, for third party and employees of the Employer and other persons engaged by the Employer in the Works is **Rs. 1,000,000.00** per event.

13.2

(a) A copy of insurance policy for the workmen and other employees of the Contractor as per the Workmen compensation Act shall be forwarded to CPSTL prior to commencement of the work.

(17.1) The Intended Completion Date for the whole of Works shall be **240 days** from the Date of Commencement of Works

(21.1) The Site Possession Date shall be **14 Days** from the Letter of Acceptance

(27.1) The Contractor shall submit a programme for the Works within **14 Days** of delivery of the Letter of Acceptance.

<u>Working Hours</u>

i. Normal working hours of CPSTL from Monday to Friday is from 0730 hrs. to 1630 hrs.

ii. In the work programme Saturday also can be considered as a working day and from Monday to Friday up to 1800 hrs also can be considered as a working hour by the contractor. But to

work on Saturday and up to 1800 hrs the contractor is required to obtain prior permission since the offices are normally closed on Saturdays.

iii. However, working on statutory holidays, Sundays and after 1800 hrs. on working days will not be permitted.

iv. Provided always that provision of above (iii) shall not be applicable in the cause of any work which it is customary to carry out, outside normal working hours by rotary or double shifts.

(27.3) The Programme will be updated **Monthly**

(27.4) The amount to be withheld for late submission of a Programme is Rupees (2% of the Initial Contract Price)

(35.1) The Defects Liability Period is **180** Days.

(39.2) Not Applicable

(46.1) All Payments shall be made in Sri Lanka Rupees. The exchange rate used for calculating amounts to be paid in Sri Lankan Rupees if quoted in other currencies, is based on the selling rate of conversion determined by the Central Bank as at 28 days prior to the date of closing of bids

(47.1) The Contract Price is not subjected to price adjustment

(48.1) The retention from each payment shall be **10%** percent of the certified work done.

The limit of retention shall be **5%** percent of the Initial Contract Price.

(49.1) The liquidated damages for the whole of the Works shall be **0.2% of Initial Contract Price per Day**

(50.1) The maximum amount of liquidated damages for the whole of the Works shall be **10%** of the Initial Contract Price

(52.1) The Performance Security shall be **5 %** of the Initial Contract Price.

(58.1) Schedule of operating and maintenance manuals.

(60.1) The percentage to apply to the value of the work not completed, representing the Employer's additional cost for completing the Works, is **25% of Initial Contract Price.**

63.7 The attendance fee payable to the Contractor on nominated sub-contract work shall not exceed 8%

SECTION 6

❖ ***SPECIFICATIONS***

6.1 Scope of Supply by CPSTL

6.1.1 Steel plates required for replacement of bottom and 600 mm strip of bottom most shell course of the tank no. 04 shall be supplied by CPSTL. The size of plates provided for replacement work would be of 1.8m × 6m × 9 mm and 1.8m × 6m × 12 mm.

6.1.2 Steel plates required for replacement of top three shell courses of tank no. 05 shall be supplied by CPSTL. The size of plates provided for replacement work would be of 1.8m × 6m × 6 mm.

6.1.3 Steel plates required for replacement of roof of tank no. 05 shall be supplied by CPSTL. The size of plates provided for replacement work would be of 1.8m × 6m × 5 mm.

The most economical cutting schedule requiring minimum quantity of plates shall be adopted by the Contractor subject to the approval of the Engineer.

6.1.4 Material transportation from the main stores to the work site and outside facilities are under the 'Contractor's Scope of Work.

6.1.5 Construction Utilities

6.1.3.1 Electricity and drinking water that would be supplied to the contractor to undertake this work would be charged from the contractor as per meter estimate. The prospective contractor is required to indicate his requirements of power from the CPSTL in his offer for evaluation purposes. Or The Contractor shall arrange his own source

6.1.3.3 The maximum available electrical power supply available to the contractor is 45kVA, 400V AC, 4 wire (TPN), 50Hz and will be subjected to following 05 conditions.

i. Electrical power supply will be provided by CPSTL on the request of the Contractor and charge according to the applicable tariff system, or the Contractor shall have to arrange his own power source.

ii. The Electrical Section of CPSTL will provide terminating point to feeding cables through a suitable circuit isolating and interrupting devices such as a circuit breaker or a switch fuse at convenient location, within 150 m from the tank shell. This switch gears will remain the property of CPSTL and contractor has no access to it.

iii. The maximum load that the CPSTL electrical section can feed will be 63A, 3 Phases.

iv. Power supply will be energized after inspection by the Electrical Engineer of CPSTL provided all requirements in clause 6.2.20 are satisfied.

v. CPSTL will reserve the right to disconnect the power supply to the contractor without prior notice, if any of the foresaid conditions are violated.

6.1.3.3 Water supply will be provided by CPSTL on the request of the contractor and charge according to the meter.

6.2 Contractor's Scope of Supply

Contractor shall supply construction equipment, materials, consumables and other requisites as follows;

6.2.1 Supply of all construction equipment such as welding machines, metal cutting equipment, air compressors, cranes, soil compacting and cutting equipment, excavators, material transporting vehicles, rigging equipment, jacks, scaffolding materials, planks, corrugated metal sheets, materials for fire blankets, tools and other equipment where necessary.

6.2.2 Supply of all inspection equipment such as X - ray machines, pressure/ vacuum testing instruments and gauges to perform necessary inspection and testing.

6.2.3 Supply of materials of roof structure, roof manholes and top angle for the replacement of the roof in tank no. 5.

6.2.4 Supply of materials of all materials but not limited to water draw off system piping, crown handrails, inlet and outlet nozzles, repairs to be attended in the stairways, all other minor repairs to be attended, etc as per the specifications given in this document.

6.2.5 Supply of all materials but not limited to of rim air vents, center vents, vertical ladders, dip hatches with guide poles and covering box, foam pourers, butterfly valves, foam system piping with all accessories and water drencher systems.

6.2.6 Supply of all materials but not limited to, solid copper earthing plates, copper cladded steel rods, copper tapes, concrete/polymer earth inspection pits, exothermic welding material, Copper/ Bronze/ Stainless Steel couplings, nuts and bolts, ground conductivity improvement material and all other accessories for successful completion of earthing system installation for the tank no. 4 & 5 as per the specifications provided.

6.2.7 Supply of gaskets, nuts & bolts for all replacements and for boxed up the tanks as per the specification given in this document.

6.2.8 Supply of all consumables such as welding electrodes, gas for cutting, grinding discs, temporary erection material, dye penetrant / X ray films / diesel for inspection, grit for blast cleaning and all other consumables necessary for the proper execution of the job.

6.2.9 Supply of paint and thinner required for painting work as specified.

6.2.10 All direct requirements of field equipment such as fuel, lubrication oil etc. the contractor intends to mobilize at site.

6.2.11 Supply of sand, cement, reinforcement, butamine and all necessary material for proper execution of job.

6.2.12 <u>Quality of Material and Equipment</u>

The Contractor shall supply all equipment, material and accessories to be used under the scope of this contract with proven quality.

All materials and equipment supplied by The Contractor are subjected to approval by The Engineer.

6.2.13 <u>Safeguarding the Materials and Equipment</u>

CPSTL shall not be responsible for theft, damage or loss of any of the materials and equipment during the handling, transportation and installation. Equipment

shall be covered and protected against dirt, water, moisture, sand and chemical or mechanical damage. Upon completion of all works the materials and equipment shall be thoroughly cleaned, adjusted and tested to demonstrate its proper operation to the Engineer. All materials and equipment shall be properly and adequately protected by The Contractor before, during and after installation. Material or equipment damaged due to inadequate attention of The Contractor shall not be accepted and The Engineer reserves the right to request replacements for such equipment at the handing over. It is the responsibility of The Contractor to clean the installation at close of work every day and also to handover a clean and neat site at completion.

6.2.14 Shall submit a bar chart for the total project clearly indicating the various phases of the contract, breakdown of manpower and equipment and organization chart allocated for this contract.

6.2.15 Submit of method statement for tank no. 04 jacking procedure with relevant calculations to obtain prior approval from The Engineer.

6.2.16 Quality assurance records shall be maintained by the contractor and these records shall be given to Engineer upon completion of each job.

6.2.17 The most economical plate layout requiring the minimum quantity of plates and meeting the API requirements should be adopted by the contractor subject to the approval of the Engineer. The detailed drawings shall be submitted for the approval of the engineer.

6.2.18 <u>As-Built Drawings</u>

The Contractor shall submit soft copies and har copies of As-Built drawings, all catalogues, manuals, reports and required documents in English language as directed by the Engineer. Drawings to be submitted in ACAD (dwg) format too.

6.2.19 Successful bidder should submit an insurance cover as per “Schedule” under Section -5 of this bidding document.

6.2.20 <u>Construction Utilities</u>

i. Contractor shall use his own feeder cables and temporary power distribution board sufficiently rated to power the equipment and machinery used at site, conforming to CEB regulations in consultation / supervision of Electrical Engineer of CPSTL

ii. Contractor’s power distribution board should consist of adequate over current and earth leakage protective devices for safety of men and machinery.

iii. Contractor shall install the feeder cables from the metering point up to the temporary power distribution board as per the instruction & approval of the CPSTL Electrical Engineer.

iv. It is a responsibility of the contractor to maintain his switch gear and cable network in good condition, so as to provide, complete safety to men and machinery.

v. All portable electrical appliances used inside the tank shall be at low voltage, 110V, 1 Phase and should be fed through a centre earthed transformer.

vi. The whole electrical installation of the contractor should conform to IEE wiring regulations (16th Edition) published by the Institution of Electrical Engineers (I.E.E), London.

6.3 Contractor's Scope of Work and Specifications

The scope of work of the contractor is defined in general and shall include the following, but not limited to the same. The bidder shall also carry out all the related work that are not listed in this document but required for completion of the entire work as specified in this Bidding Document.

6.3.1 The Contractor shall construct temporary access road by removal of all debris and obstructions in the selected route as required. It is contractor's sole responsibility to make adequate and safe access to the site/s without interrupting to CPSTL operations. Required permissions for the proposed access route/s must be obtained from the Engineer. Any damages or alterations to be carried out in the existing structures must be rectified at the end of the construction works.

6.3.2 The construction site shall be cleared by removing of vegetation, removing of debris, removing of topsoil, etc. before commencement, during the work and at completion of works. The debris shall be transport to a location outside the premises and contractor shall handover the usable materials to CPSTL Stores as directed by the Engineer.

6.3.3 Construction and maintenance of temporary site office (approx. 20×10 ft^2) with providing necessary furniture, fittings and other facilities for the contractor's personal.

6.3.4 Erection of temporary fire barriers and fire blankets in order to protect the surrounding piping, nearby tanks and pump houses in operation. This should be complying with the fire and safety regulations of the CPSTL. A temporary fire barrier should be erected as instructed by the Engineer using corrugated metal sheets by ensuring the firmly stand during the adverse weather conditions. It should be to a height of at least 1.5 m beyond the tank roof starting from the ground. It should be erected in such a way as to give positive fire isolation. Further the pipes, valves, accessories etc. running by the tank farm should be covered by fire blankets. Tank farm of the LBD Magalle is situated near the residential dwellings. It is required to implement control actions to prevent escape of generated dust from the construction site during the process of blasting. The Contractor shall bear overall responsibility to ensure safe and convenient environment during the blasting and any delays or interruptions can be caused due to the improper site conditions must be borne by the Contractor.

6.3.5 Erection of Scaffolding

6.3.5.1 Scaffolding should be erected and obtain the approval of the safety department of CPSTL. Should be of steel pipes and couplings, toe plates, platforms etc and ladders should be provided from the ground to the platform. 2" timber planks to be used for the platforms and to be properly fastened at both ends.

6.3.5.2 After erecting the scaffolding, the Contractor should obtain a written approval from the safety department of CPSTL before commencement of the work.

6.3.6 Removing of 3 no's of semi buried steel tanks (approximate capacity of a tank 50,000 L, Diameter – 2.77 m, Length – 9.07 m) with connected pipes, valves, flanges etc. Work shall include removing of bund wall earth, excavation, back filling and compaction by using excavated soil /imported earth and buffalo grass turfing where necessary.

6.3.7 Removing of 1 no's of 9.57 m long and 2.76 m dia. existing over ground steel tank (approximate capacity of a tank 50,000 L) with connected pipes, valves, flanges etc.

6.3.8 Steel tanks and any usable materials to be stack in a location within the LBD Magalle and handover to CPSTL as directed and site must be cleared by removing of debris, rubbish and etc to a location outside the premises. Tanks will be handed over to the Contractor in gas free state.

Repairs and Modifications of the Tank No. 4

All repair, modification, testing, and inspection works shall be conformed to API 653 and API 650.

6.3.9 The Contractor should collect the materials supply by CPSTL from CPSTL main stores, Oil Installation at Kolonnawa, Load and transport them to the site.

6.3.10 The tank would be handed over to the Contractor in a clean and gas free state.

6.3.11 Check the existing tank design and structural rigidity for suitability of the proposed method by the bidder for the replacement of tank bottom and shell strip in the bottom most shell course. Suitability of the method to be informed to CPSTL in writing.

6.3.12 All shop drawings, welding sequences, welder qualifications, method statements, time schedules, as built drawings and other related documents shall be prepared and submitted by the Contractor.

6.3.13 Welding Procedure and Welder Qualification

6.3.13.1 Qualification of Welding Procedure
Prepare welding procedure specification (WPS) for all category of welding that are intended to be carried out in tank repair work and perform tests documented by Procedure Qualification Records (PQR) to support the specifications as required by section ix of the ASME code and any additional provisions of API 650 standards.

6.3.13.2 Qualification of Welders
Conduct tests for all welders assigned to manual and semi-automatic welding to demonstrate the welders' ability to make acceptable welds in accordance with section ix of ASME code and API 650 standards.

6.3.14 **Repairs to Tank 4**

6.3.14.1 Correction of Tank Bottom Settlement

The tank has an undergone an uneven settlement. Hence, relevel the sand bed underneath the bottom plate in such a way to install the new bottom plates at 2 inches to 120 inches from the tank shell sloped towards the tank center. Sand bed to be consolidated as per the instructions given by the Engineer. Sufficient river sand should be supplied by the Contractor to fulfil said requirements.

6.3.14.2 Minor Repairs to Apron and Drain

Minor repairs to apron should be carried out to suit the new bottom plate level under the directions of the Engineer. Damaged areas in the existing apron and the drain must be repaired by the Contractor to provide smooth and levelled outer surface. Slope of the drain must be corrected to ensure proper flow of water.

6.3.14.3 Laying of Premix Layer

Lay 100 mm thick premix layer on the consolidated sand bed using river sand mixed with hot bitumen (80% - 100% penetration grade) and percentage of bitumen used should be 5% by weight of sand. The mix to be laid hot and compacted as instructed by the Engineer. The premix layer to be graded to suit the slope of the bottom plates. Cut, lay and tack weld new steel bottom plate should be laid on premix layer.

6.3.10.5 Existing bottom plates shall be cut along the weld joints into manageable sizes.

6.3.10.6 The Contractor shall fabricate and install required jacking up brackets to the shell plates of the tank. Contractor shall ensure the jacking up of the tank shell without distorting the shell plates. Calculations and methodology for tank jacking procedure shall submit 02 weeks prior to the commencement and obtain approval from the Engineer.

6.3.10.7 Cut and remove the 600 mm strip of the bottom most shell course including all manholes, nozzles etc. Cutting shall be done along the weld seems where possible.

6.3.10.8 The Contractor must handover all removed steel plates and components to the main stores of CPSTL Kolonnawa.

6.3.10.9 Fabricate, install, welding and testing of bottom plates as per the bottom plate layout submitted by the contractor and approved by the Engineer. Laying of new bottom plates as per bottom plate layout on premix asphalt layer. Weld the joints of new bottom plates as per the welding sequence submitted by the contractor and approved by the Engineer. Welding of plate joints shall be carried out using AWSE 7018 series electrode in such a way it will provide a near possible plane surface as per the given welding sequence, the welding sequence adopted should result in least distortion.

6.3.10.10 Fabricate, install, welding and testing of 600 mm strip of the bottom most shell course as per the shell plate layout submitted by the contractor and approved by the Engineer. Weld the joints of new shell plate segments as per the welding sequence submitted by the contractor and approved by the Engineer. Welding of plate joints shall be carried out by using AWSE 7018 series electrode in such a way it will provide a near possible plane surface as per the given welding sequence, the welding sequence adopted should result in least distortion. Low hydrogen electrode shall be used for manual metal arc welds in shell to bottom

joints.

6.3.10.11 Fabricate, install, welding and testing of draw off sump, datum plate, tank internal piping as per the shop drawings submitted by the Contractor and approved by the Engineer. Slope of the new tank bottom at 2" to 120" from the tank shell towards the tank center. Materials for internal piping should be supplied by the Contractor.

6.3.10.12 Fabricate, install, welding and testing of 2 no's of shell manholes, 6" diameter inlet and outlet nozzles, 3" diameter drain nozzle as per the shop drawings submitted by the Contractor and approved by the Engineer. Elevation of tank nozzles must be matched with the existing piping and any modifications must be attended by the Contractor.

6.3.10.13 Remove the top and middle handrails of the existing crown handrail. Supply, fabricate, install and welding of new handrails by GI pipes. Crown handrail must be suited to install rim air vents.

6.3.10.14 Existing stairway should be repaired by replacement of heavily corroded steps, steel structures of the top landing and handrails, nuts, bolts etc. as per the instructions of the Inspection Engineer. All materials for the repairing work should be supplied by the Contractor.

6.3.10.15 Supply, fabricate, install and welding of toe guard of the crown handrail as required.

6.3.10.16 Removal of temporary sealings in the roof and fabricate, install, welding and testing of patch plates.

6.3.10.17 Supply, fabricate, install and welding of roof walkway with handrail to provide sufficient and safe access to the roof center and the manholes.

6.3.10.18 The existing tank shell has undergone and uneven deformations. The Contractor shall obtain all required measurements (Roundness, Peaking and Banding of each shell course, etc.) and check whether they are within the limits specified in API 653 & Annex H of the API 650 to introduce an internal floating roof. Suitability of the shell corrections shall be informed in writing. Possible corrections to be attended at Engineer's satisfaction. All reports, possible corrections and relevant methodologies shall be submitted to prior approval of the Engineer.

6.3.10.19 Supply, fabricate, install, testing and commissioning of a water drencher system including all pipe supports. The piping system shall be hot dip galvanized. Pipes along the tank farm should be wrapped and laid underground. Final connections to the existing firewater supply system to be made as per the directions of the Engineer. Water drencher System should be complied with NFPA-30 requirements.

6.3.10.20 Supply, install and testing of earthing system complies to API 650 as follows,

i. Locate the grounding electrodes of the previous earthing system around the perimeter of the tank if possible and test each electrode for grounding resistance. If the grounding resistance of a particular existing electrode is below 5 Ω, when measured individually, it can be used as an electrode for the new grounding system.

ii. For plate electrode installation, excavate pit for a depth of 3m from the ground level, install the electrode with bonding material (Bentonite, etc.), backfill and compact the filling up to the ground level. Plate must be bonded with the copper tapes using exothermic welding and additional 2 sets of

stainless-steel nuts and bolts.

iii. Additional copper rods shall be installed spaced at two times the length of the rod to achieve the required resistance level.

iv. Concrete inspection pits must be installed for each separate electrode. The pit shall be complete with a lid and the assembly shall be installed flush with ground level.

v. All connections between electrodes and the grounding points on the tank shall be carried out using 25mmX3mm high conductive copper tapes and all underground tape joints must be exothermic welded.

vi. 40mm PVC Sleeves must be kept through the ring beam, pavement and the drain to rout the conductor tapes from the tank to the inspection pits.

vii. Earthing system shall be tested jointly with a representative of the Engineer to ascertain the electrode resistance levels and a report shall be submitted to the Engineer upon completion.

6.3.11 Modifications to Tank No. 04

6.3.11.1 Supply materials, dismantle and remove the existing dip hatch. Existing location of the dip hatch should be properly sealed. Supply, fabricate, install and weld safety net (Coated wire mesh) required in the crown handrail nearby the gauge hatches.

6.3.11.2 Supply, fabricate, and installation of floating roof access manhole, 8" and 6" gauging nozzles vertical ladder. The ladder pipes and guide pole shall be truly vertical as an internal floating roof to be installed after installation of the ladder. If any modifications that would be required to roof structure for introduction of ladder, it shall be attended by the contractor

6.3.11.3 Supply, fabricate, and installation of 04 No's rim air vents. The rim air vents shall be equally spaced around the periphery of the tank. The top pipe, middle pipe and toe plate to be fixed to the 1080 mm long 65x65x5 mm angle irons at each side of the rim air vent. Top horizontal pipe at rim air vent shall be re fixed as a removable part.

6.3.11.4 Supply, fabricate, and installation of 01 No of center vent.

6.3.11.5 Fabrication and installation of foam top pouring system.

6.3.11.5.1 Foam Top Pourers shall be supplied as per the specifications, and necessary fabrication work shall be carried out by the Contractor.

6.3.11.5.2 Supply, fabricate, install, testing and commissioning of foam top pourer system including all pipe supports up to the foam feeding manifold to be located near outer periphery of the existing bund/dike wall. The piping system shall be hot dip galvanized. Pipes along the tank farm should be wrapped and laid in underground as directed by the Engineer. Foam Top Pourer System should be complied with NFPA-11 requirements

6.3.11.6 Grit/Sand blast cleaning and hot dip galvanizing of all lids of rim air vents. All galvanizing work shall conform to ASTM A 123 or BS EN ISO 1461:2009. Average mean coating thickness of galvanizing is 70 microns for lids of rim air vents and 85 microns for all other pipes, fittings, flanges and supports.

Touch up painting with Zn rich paint shall be attended on the galvanized surfaces wherever required after installation.

Certificate from the galvanizing company stating that all the specifications of the bidding document were met, shall be submitted to CPSTL after completion of galvanizing work.

6.3.12 Paintings of the Tank No. 04

6.3.12.1 The Contractor shall Grit/ Sand blast and paint bottom underside, tank interior of bottom and 1m height of bottom most shell course, roof structure, interior of roof and 1m height of topmost shell course and tank exterior, stairways, handrails, and all pipes.

i. Painting of Underside of Bottom Plates

The undersides of the bottom plates are to be painted after Grit/ Sand blast cleaning specified under Clause viii). Approval for painting to be obtained as described in Clause ix).

Description	Thickness	Coat
SIGMA COVER 280 (PDS 7417) or SIGMA COVER 522 (PDS 7420) or equivalent	50 microns DFT	Primer
SIGMA COVER 300 Brown (PDS 7422) or equivalent	150 microns DFT	Intermediate
SIGMA COVER 300 Black (PDS 7422) or equivalent	150 microns DFT	Finish
Required overall paint thickness	350 microns DFT	
Sigma solvent – Thinner 91-92 or equivalent or as specified in manufactures data sheet.		

ii. Leak Prevention Painting at Riveted Joints

The Tank riveted joints (one feet width of vertical riveted joints and horizontal riveted joints) shall be cleaned by Kerosene and wash by detergent then grit/ sand blast cleaning specified under Clause viii). Application of leak prevention coating and obtaining of approval for painting shall be carried out as described in Clause ix).

Paint preparation & application shall comply with manufactures data sheet.

Description	Thickness	Coat
SIGMAGUARD CSF 650 Green (PDS) or equivalent	150 microns DFT	Primer
SIGMAGUARD CSF 650 Off White (PDS) or equivalent	150 microns DFT	Intermediate
SIGMAGUARD CSF 650 Green (PDS) or equivalent	200 microns DFT	Finish
Required overall paint thickness	500 microns DFT	
No Thinner should be added. Cleaning Solvent - Thinner 90-53 or 90-83		

iii. Painting of underside of roof plates and roof structure

The entire roof structure and 1 m height of bottom most shell course, and under side of the roof plates shall be painted before plates are installed and touch-up paintings shall be done on welding joints as necessary and as follows, after Grit/ Sand blast cleaning specified under clause viii). Application of paint and obtaining of approval for painting shall be carried out as described in clause ix).

Description	Thickness	Coat
SIGMACOVER 280 (PDS 7417) or equivalent	50 microns DFT	Primer
SIGMAGUARD 720 (EHB) GREEN OR LIGHT GREY (PDS 7433) or equivalent	150 microns DFT	Intermediate
SIGMAGUARD 720 (EHB) GREEN OR LIGHT GREY (PDS 7433) or equivalent	150 microns DFT	Finish
Required overall paint thickness	350 microns DFT	
Sigma solvent – Thinner 91-92 or equivalent or as specified in manufactures data sheet.		

iv. Painting of Tank interior

The entire bottom of the tank interior and the bottom most shell course up to 1 meter height from the bottom to be painted as follows after Grit/ Sand blast cleaning specified under clause viii). Application of paint and obtaining of approval for painting shall be carried out as described in clause ix).

Description	Thickness	Coat
SIGMACOVER 280 Yellow Green (PDS 7417) or equivalent	50 microns DFT	Primer
SIGMA GUARD 720 (EHB) GREEN OR LIGHT GREY (PDS 7433) or equivalent	150 microns DFT	Intermediate
SIGMA GUARD 720 (EHB) GREEN OR LIGHT GREY (PDS 7433) or equivalent	150 microns DFT	Finish
Required overall paint thickness	350 microns DFT	
Sigma solvent – Thinner 91-92 or equivalent or as specified in manufactures data sheet.		

v. Painting of Tank Exterior

The shell exterior surface and roof external surfaces with all attachments shall be painted as follows after Grit/ Sand blast cleaning specified under clause viii). Application of paint and obtaining of approval for painting shall be carried out as described in clause ix).

Description	Thickness	Coat
SIGMA COVER 280 – Yellow Green (PDS - 7417) or equivalent	60 microns DFT	Primer
SIGMACOVER 456 Grey 5163 Light (PDS 7466) or equivalent	75 microns DFT	Intermediate
SIGMADUR White 7000 (PDS 6824) or equivalent	75 microns DFT	Finish
Required overall paint thickness	210 microns DFT	
Sigma solvent – Thinner 91-92 or equivalent or as specified in manufactures data sheet.		

Note:

1 m band on tank exterior of bottom most shell course shall be painted with additional 100 microns intermediate coat before finish coat to accomplish total overall thickness of 310 microns.

Tanks shall be marked with tank identification number, capacity and CPSTL logo as directed by the Engineer.

vi. Painting of Stairway, handrails, all attachments and steel structures

The Stairway and its supportive structure, handrail and crown hand rail with all attachments including stanchions and steel structures shall be painted according to their standard colour codes as follows after Grit/ Sand blast cleaning specified under clause viii). Application of paint and obtaining of approval for painting shall be carried out as described in clause ix).

Description	Thickness	Coat
SIGMA COVER 280 – Yellow Green (PDS - 7417) or equivalent	60 microns DFT	Primer
SIGMA COVER 456 GREY (PDS 7466) or equivalent	100 microns DFT	Intermediate
SIGMADUR 188Yellow(PDS 6824)/ SIGMADUR White 7000 (PDS 6824) or equivalent	50 microns DFT	Finish
Required overall paint thickness	210 microns DFT	
Sigma solvent – Thinner 21-06 or equivalent or as specified in manufactures data sheet.		

vii. Painting of piping of the foam system, water drencher system and tank internal piping.

Piping systems of foam top pourer system, water drencher system, product piping and tank internal piping system of drawoff sump shall be painted as follows after hot dip galvanizing specified under clause x). Application of paint and obtaining of approval for painting shall be carried out as described in clause ix).

Description	Thickness	Coat
SIGMA COVER 280 – Yellow Green (PDS - 7417) or equivalent	60 microns DFT	Primer
SIGMA COVER 456 GREY (PDS 7466) or equivalent	100 microns DFT	Intermediate
SIGMADUR 188 Yellow/ Red/ Gray/ Green (PDS 6824) or equivalent	50 microns DFT	Finish
Required overall paint thickness	210 microns DFT	
Sigma solvent – Thinner 21-06 or equivalent or as specified in manufactures data sheet.		

viii. Surface Preparation

All the surfaces which are to be painted to be blast cleaned to conform to Swedish Standard SA 2 ½ by grit/sand blasting.

Industrial vacuum cleaning to be carried out for tank bottom prior to application of painting.

ix. Details of application and approval

a. All painting work shall be done as per the manufactures' "datasheet". The whole area specified above to be painted with primer, intermediate and finish paint. The primer paint is recommended to apply by Air Spray or Airless spray. The intermediate and finish coats are recommended to apply by Airless spray.

b. Stripe coating 3 times on welding joins & sharp edges before each paint code and other required are to be stripped coated as required.

c. Required overall paint thickness should not be less than 350 microns DFT for under sides of roof and roof structure, 370 microns DFT for tank interior and 210 microns DFT for tank exterior/stairway/handrails while first coat, intermediate coat and final coat thickness to be not less than what is specified.

d. Approval for painting should be obtained from the Inspection Engineer of CPSTL or his representative as follows.

- Prior to application of first primer coat after satisfactory cleaning of surfaces.
- Prior to application of first intermediate coat after applying the required thickness of primer.
- Prior to application of first finish coat after applying the required thickness of intermediate coat.
- Required total DFT indicated in specifications to be applied and the first coat of Paint shall be applied as soon as possible after surface preparation is approved by Engineer. The preparation of paint before application is to be done as per the instruction stated by the paint manufacturer.

- Time interval between two coatings shall comply with paint manufactures instructions
- The Engineer reserves the authority to accept or reject.
- Prepared surface before painting depending on his observations.
- Application of paint depending on the preparation of paint and the weather.

Painting carried out under doubtful weather condition is the responsibility of contractor. If any painting is found to be unacceptable the particular surfaces shall be made paint free and repainted at contractor's expense.

x. Hot dip Galvanising

All hot dip galvanizing work shall conform to ASTM A 123 or BS EN ISO 1461:2009. Average mean coating thickness of galvanizing 85 microns for all pipes, fittings, flanges, supports and gratings.

Touch up painting with Zn rich paint shall be attended on the galvanized surfaces wherever required after installation.

Certificate from the galvanizing company stating that all the specifications of the bidding document were met shall be submitted to CPSTL after completion of galvanizing work.

6.3.13 Hydro Test of the Tank No. 04

On completion of the work tank would be hydro tested and any leaks and settlements that appear on the tank at this stage would have to be rectified by the Contractor at his cost within a period of two weeks. Any delay in attending to such leaks or settlements too would be covered by late completion in "Schedule" – Section 5. Water required for hydro test should be supplied by the Contractor and Contractor shall supply and arrange necessary equipment in order to fill and discharge water.

6.3.14 Box up the Tank

After completion of all works specified the tank shall be boxed up and handed over for operational purposes. Materials (Studs & bolts, gaskets, etc) required for tank boxed up must be supplied by the Contractor.

6.3.15 Physical Measurement Report

Physical measurement of the tank should be obtaining by a third-party company acceptable to CPSTL using optical line reference method. The report should be submitted before completion of modification works.

Repairs and Modification of the Tank No. 5

All repair, modification, testing, and inspection works shall be conformed to API 653 and API 650.

6.3.15 The Contractor should collect the materials supply by CPSTL from CPSTL main stores, Oil Installation at Kolonnawa, Load and transport them to the site.

6.3.16 The tank would be handed over to the Contractor in a clean and gas free state.

6.3.17 Check the existing tank design and structural rigidity for suitability of the proposed method by the bidder for the replacement of top three shell courses, roof and roof structure. Suitability of the method to be informed to CPSTL in writing.

6.3.18 All shop drawings, welding sequences, welder qualifications, method statements, time schedules, as built drawings and other related documents shall be prepared and submitted by the Contractor.

6.3.19 Welding Procedure and Welder Qualification

6.3.19.1 Qualification of Welding Procedure
Prepare welding procedure specification (WPS) for all category of welding that are intended to be carried out in tank repair work and perform tests documented by Procedure Qualification Records (PQR) to support the specifications as required by section ix of the ASME code and any additional provisions of API 650 standards.

6.3.19.2 Qualification of Welders
Conduct tests for all welders assigned to manual and semi-automatic welding to demonstrate the welders' ability to make acceptable welds in accordance with section ix of ASME code and API 650 standards.

6.3.20 **Repairs to Tank 5**

6.3.20.1 Correction of Tank Bottom Settlement

The tank has an undergone an uneven settlement. Hence, relevel the bitumen layer underneath the bottom plates by filling the premix layer on the exiting using river sand mixed with hot bitumen (80% - 100% penetration grade) and percentage of bitumen used should be 5% by weight of sand. Gaps between projection plate and the existing apron should be sealed properly.

6.3.20.2 Minor Repairs to Apron and Drain

Minor repairs to apron should be carried out by the Contractor. Damaged areas in the existing apron and the drain must be repaired by the Contractor to provide smooth and levelled outer surface. Slope of the drain must be corrected to ensure proper flow of water.

6.3.20.3 Dismantle the existing steel crossover between tank no 5 and 6. Supply, erection and installation of temporary access stairway to tank no 6 to provide safe access to fulfil operational requirements during the period of contract execution. Written approval for the erected stairway must be obtained from the Safety Department of the CPSTL. Any modification to be attended in the existing structures must be done by the Contractor and rectify them to as at initial conditions at the end of the repair.

6.3.20.4 Existing roof plates and roof structure should be cut and removed including crown handrails, roof accessories and water drenching system.

6.3.20.5 All plates of the 6th, 5th and 4th Shell courses shall be cut and removed.

6.3.20.6 The Contractor must handover all removed steel plates and components to the main stores of CPSTL Kolonnawa.

6.3.11.5 The existing tank shell has undergone and uneven deformations. The Contractor shall obtain all required measurements (Roundness, Peaking and Banding of each shell course, etc.) of remaining shell courses and check whether they are within the limits specified in API 653 & Annex H of API 650 to introduce an internal floating roof. Suitability of the shell corrections shall be informed in writing. Possible corrections to be attended at Engineer's satisfaction. All reports, possible corrections and relevant methodologies shall be submitted to prior approval of the Engineer.

6.3.20.7 Fabrication, installation, welding and testing of shell plates as per the shell plate layout submitted by the Contractor and approved by the Engineer. Weld the joints of new shell plates as per the welding sequence submitted by the contractor and approved by the Engineer. Welding of plate joints shall be carried out using AWSE 7018 series electrode in such a way it will provide a near possible plane surface as per the given welding sequence, the welding sequence adopted should result in least distortion. The Contractor must ensure the maintaining of tank dimensional tolerances within the limits of the API 653 & Annex H of API 650 to suit to introduce IFR.

6.3.20.8 Supply of angle iron, structural steel, etc. for roof structure as per specifications.

6.3.20.9 Fabricate, install, welding and testing of roof structure as per the roof structure drawing submitted by the Contractor and approved by the Engineer. New roof structure must be designed similar to the existing roof structure of the tank. Reference drawing is annexed to provide preliminary idea on the arrangement of the existing roof structure.

6.3.20.10 Supply angle iron for the whole roof top angle as per the specifications, and fabricate, install, welding and testing.

6.3.20.11 Fabrication, laying and welding and testing of new roof plates as per the shell plate layout submitted by the Contractor and approved by the Engineer. Weld the joints of new roof plates as per the welding sequence submitted by the contractor and approved by the Engineer. The plates shall be joined by a suitable welding method using AWS E 7018 series electrode in such a way it will provide a near possible plane surface. The welding sequence adopted should result in least distortion.

6.3.20.12 Supply materials as per specifications, fabrication, installation, and welding of roof manhole, crown handrail with toe guard and roof walkways. Crown handrail should be suitable to install rim air vents.

6.3.20.13 Supply, fabrication, install, welding and testing of removed portion of the water drencher system. Corroded flanges, nuts, bolts, and components in the existing water drencher system must be replaced.

6.3.20.14 Existing stairway should be repaired by replacement of heavily corroded steps, steel structures, nuts and bolts etc. as per the instructions of the Inspection Engineer. All materials for the repairing work should be supplied by the Contractor.

6.3.20.15 Removal of the existing earthing system. Removed materials must be hand over to the CPSTL.

6.3.20.16 Supply, install and testing of earthing system as follows,

i. Locate the grounding electrodes of the previous earthing system around the perimeter of the tank if possible and test each electrode for grounding resistance. If the grounding resistance of a particular existing electrode is below 5 Ω, when measured individually, it can be used as an electrode for the new grounding system.

ii. For plate electrode installation, excavate pit for a depth of 3m from the ground level, install the electrode with bonding material (Bentonite, etc.), backfill and compact the filling up to the ground level. Plate must be bonded with the copper tapes using exothermic welding and additional 2 sets of stainless-steel nuts and bolts.

iii. Additional copper rods shall be installed spaced at two times the length of the rod to achieve the required resistance level.

iv. Concrete inspection pits must be installed for each separate electrode. The pit shall be complete with a lid and the assembly shall be installed flush with ground level.

v. All connections between electrodes and the grounding points on the tank shall be carried out using 25mmX3mm high conductive copper tapes and all underground tape joints must be exothermic welded.

vi. 40mm PVC Sleeves must be kept through the ring beam, pavement and the drain to rout the conductor tapes from the tank to the inspection pits.

vii. Earthing system shall be tested jointly with a representative of the Engineer to ascertain the electrode resistance levels and a report shall be submitted to the Engineer upon completion.

6.3.21 Modifications to Tank No. 05

6.3.21.1 Supply, fabrication, and installation of floating roof access manhole, 8" and 6" gauging nozzles vertical ladder. The ladder pipes and guide pole shall be truly vertical as an internal floating roof to be installed after installation of the ladder. If any modifications that would be required to roof structure for introduction of ladder, it shall be attended by the contractor

6.3.21.2 Supply, fabrication, installation and welding of safety net (Coated wire mesh) required in the crown handrail nearby the gauge hatches.

6.3.21.3 Supply, fabrication, and installation of 04 No's rim air vents. The rim air vents shall be equally spaced around the periphery of the tank. The top pipe, middle pipe and toe plate to be fixed to the 1080 mm long 65x65x5 mm angle irons at each side of the rim air vent. Top horizontal pipe at rim air vent shall be re fixed as a removable part.

6.3.21.4 Supply, fabrication, and installation of 01 No of center vent.

6.3.21.5 Supply, fabrication, and installation of the datum plate.

6.3.21.6 Fabrication and Installation of Foam Top Pouring System.

6.3.21.6.1 Foam Top Pourers shall be supplied as per the specifications, and necessary fabrication work shall be carried out by the Contractor.

6.3.21.6.2 Supply, fabricate, install, testing and commissioning of foam pourer system including all pipe supports up to the foam feeding manifold to be located near outer periphery of the existing bund/dike wall. The piping system shall be hot dip

galvanized. Pipes along the tank farm should be wrapped and laid in underground as directed by the Engineer. Foam Top Pourer System should be complied with NFPA-11 requirements

6.3.21.7 Grit blast cleaning and hot dip galvanizing of all lids of rim air vents. All galvanizing work shall conform to ASTM A 123 or BS EN ISO 1461:2009. Average mean coating thickness of galvanizing is 70 microns for lids of rim air vents and 85 microns for all other pipes, fittings, flanges and supports.

Touch up painting with Zn rich paint shall be attended on the galvanized surfaces wherever required after installation.

Certificate from the galvanizing company stating that all the specifications of the bidding document were met, shall be submitted to CPSTL after completion of galvanizing work.

6.3.22 Paintings of the Tank No. 05

6.3.22.1 The Contractor shall Grit/ Sand blast and paint tank interior of bottom and 1m height of bottom most shell course, roof structure, interior of roof and 1m height of topmost shell course and tank exterior, stairways, handrails, and all pipes.

i. Painting of underside of roof plates and roof structure

The entire roof structure and 1 m height of top most shell course and under side of the roof plates shall be painted before plates are installed and touch-up paintings shall be done on welding joints as necessary and as follows, after Grit/ Sand blast cleaning specified under clause vi). Application of paint and obtaining of approval for painting shall be carried out as described in clause vii).

Description	Thickness	Coat
SIGMACOVER 280 (PDS 7417) or equivalent	50 microns DFT	Primer
SIGMAGUARD 720 (EHB) GREEN OR LIGHT GREY (PDS 7433) or equivalent	150 microns DFT	Intermediate
SIGMAGUARD 720 (EHB) GREEN OR LIGHT GREY (PDS 7433) or equivalent	150 microns DFT	Finish
Required overall paint thickness	350 microns DFT	
Sigma solvent – Thinner 91-92 or equivalent or as specified in manufactures data sheet.		

ii. Painting of Tank interior

The entire bottom of the tank interior and the bottom most shell course up to 1-meter height from the bottom to be painted as follows after Grit/ Sand blast cleaning specified under clause vi). Application of paint and obtaining of approval for painting shall be carried out as described in clause vii).

Description	Thickness	Coat
SIGMACOVER 280 Yellow Green (PDS 7417) or equivalent	50 microns DFT	Primer
SIGMA GUARD 720 (EHB) GREEN OR LIGHT GREY (PDS 7433) or equivalent	150 microns DFT	Intermediate
SIGMA GUARD 720 (EHB) GREEN OR LIGHT GREY (PDS 7433) or equivalent	150 microns DFT	Finish
Required overall paint thickness	350 microns DFT	
Sigma solvent – Thinner 91-92 or equivalent or as specified in manufactures data sheet.		

iii. Painting of Tank Exterior

The shell exterior surface and roof external surfaces with all attachments shall be painted as follows after Grit/ Sand blast cleaning specified under clause vi). Application of paint and obtaining of approval for painting shall be carried out as described in clause vii).

Description	Thickness	Coat
SIGMA COVER 280 – Yellow Green (PDS - 7417) or equivalent	60 microns DFT	Primer
SIGMACOVER 456 Grey 5163 Light (PDS 7466) or equivalent	75 microns DFT	Intermediate
SIGMADUR White 7000 (PDS 6824) or equivalent	75 microns DFT	Finish
Required overall paint thickness	210 microns DFT	
Sigma solvent – Thinner 91-92 or equivalent or as specified in manufactures data sheet.		

Note:

1 m band on tank exterior of bottom most shell course shall be painted with additional 100 microns intermediate coat before finish coat to accomplish total overall thickness of 310 microns.

Tanks shall be marked with tank identification number, capacity and CPSTL logo as directed by the Engineer.

iv. Painting of Stairway, handrails, all attachments and steel structures

The Stairway and its supportive structure, handrail and crown hand rail with all attachments including stanchions and steel structures shall be painted according to their standard colour codes as follows after Grit/ Sand blast cleaning specified under clause vi). Application of paint and obtaining of approval for painting shall be carried out as described in clause vii).

Description	Thickness	Coat
SIGMA COVER 280 – Yellow Green (PDS - 7417) or equivalent	60 microns DFT	Primer
SIGMA COVER 456 GREY (PDS 7466) or equivalent	100 microns DFT	Intermediate
SIGMADUR 188Yellow(PDS 6824)/ SIGMADUR White 7000 (PDS 6824) or equivalent	50 microns DFT	Finish
Required overall paint thickness	210 microns DFT	
Sigma solvent – Thinner 21-06 or equivalent or as specified in manufactures data sheet.		

v. Painting of piping of the foam system, water drencher system and tank internal piping

Piping systems of foam top pourer system, water drencher system, product piping and tank internal piping system of drawoff sump shall be painted as follows after hot dip galvanizing specified under clause vi). Application of paint and obtaining of approval for painting shall be carried out as described in clause vii).

Description	Thickness	Coat
SIGMA COVER 280 – Yellow Green (PDS - 7417) or equivalent	60 microns DFT	Primer
SIGMA COVER 456 GREY (PDS 7466) or equivalent	100 microns DFT	Intermediate
SIGMADUR 188 Yellow/ Red/ Gray/ Green (PDS 6824) or equivalent	50 microns DFT	Finish
Required overall paint thickness	210 microns DFT	
Sigma solvent – Thinner 21-06 or equivalent or as specified in manufactures data sheet.		

vi. Surface Preparation

All the surfaces which are to be painted to be blast cleaned to conform to Swedish Standard SA 2 ½ by grit/sand blasting.

Industrial vacuum cleaning to be carried out for tank bottom prior to application of painting.

vii. Details of application and approval

a. All painting work shall be done as per the manufactures' "datasheet". The whole area specified above to be painted with primer, intermediate and finish paint. The primer paint is recommended to apply by Air Spray or Airless spray. The intermediate and finish coats are

recommended to apply by Airless spray.

b. Stripe coating 3 times on welding joins & sharp edges before each paint code and other required are to be stripped coated as required.

c. Required overall paint thickness should not be less than 350 microns DFT for under sides of roof and roof structure, 370 microns DFT for tank interior and 210 microns DFT for tank exterior/stairway/handrails while first coat, intermediate coat and final coat thickness to be not less than what is specified.

d. Approval for painting should be obtained from the Inspection Engineer of CPSTL or his representative as follows.

- Prior to application of first primer coat after satisfactory cleaning of surfaces.
- Prior to application of first intermediate coat after applying the required thickness of primer.
- Prior to application of first finish coat after applying the required thickness of intermediate coat.
- Required total DFT indicated in specifications to be applied and the first coat of Paint shall be applied as soon as possible after surface preparation is approved by Engineer. The preparation of paint before application is to be done as per the instruction stated by the paint manufacturer.
- Time interval between two coatings shall comply with paint manufactures instructions
- The Engineer reserves the authority to accept or reject.
- Prepared surface before painting depending on his observations.
- Application of paint depending on the preparation of paint and the weather.

Painting carried out under doubtful weather condition is the responsibility of contractor. If any painting is found to be unacceptable the particular surfaces shall be made paint free and repainted at contractor's expense.

viii. Hot dip Galvanising

All hot dip galvanizing work shall conform to ASTM A 123 or BS EN ISO 1461:2009. Average mean coating thickness of galvanizing 85 microns for all pipes, fittings, flanges, supports and gratings.

Touch up painting with Zn rich paint shall be attended on the galvanized surfaces wherever required after installation.

Certificate from the galvanizing company stating that all the specifications of the bidding document were met shall be submitted to CPSTL after completion of galvanizing work.

6.3.23 Hydro Test of the Tank No. 05

On completion of the work tank would be hydro tested and any leaks that appear on the tank at this stage would have to be rectified by the Contractor at his cost within a period of two weeks. Any delay in attending to such leaks too would be covered by late completion in "Schedule" – Section 5. Water required for hydro

test should be supplied by the Contractor and Contractor shall supply and arrange necessary equipment in order to fill and discharge water.

6.3.24 Box up the Tank

After completion of all works specified the tank shall be boxed up and handed over for operational purposes. Materials (Studs & bolts, gaskets, etc) required for tank boxed up must be supplied by the Contractor.

6.3.25 Physical Measurement Report

Physical measurement of the tank should be obtained by a third-party company acceptable to CPSTL using optical line reference method. The report should be submitted before completion of modification works.

6.3.26 Specifications of Materials

The Contractor shall submit details of the materials to be use for repairing work along with the bid submission for the purpose of evaluation.

The Contractor must obtain approval for all materials from the Engineer prior to purchase. Any non-approved material found in the site will be rejected and ask to replace by the Contractor on his own cost.

6.3.26.1 Carbon Steel Line Pipes

i. Length 5.8m, seamless and Bevel Ends (BE)
ii. Material shall conform to API Standard 5L-Gr B or ASTM A 106 B.
iii. Dimensions shall conform to ANSI B 36.10 SCH 40/80
Note – Pipes for all shell nozzles and tank internal piping should be SCH 80.
iv. Identification: - Heat/Batch number, SCH number, API or ASTM number, seamless and material description shall be marked on the pipes.
v. Both ends of pipe should have protective sleeves.
vi. Valid mill test certificate should be supplied with Heat/Batch numbers or any other reference number marked on pipes as well as in the certificates to check once the items are delivered to CPSTL Kolonnawa with reference to the items against the Mill Certificate.

6.3.26.2 Carbon Steel fittings (Elbows, Reducers)

i. Bevel ends (BE)
ii. Material shall conform to ASTM A 234 Gr. WPB.
iii. Dimensions shall conform to ANSI B 16.9, SCH40
iv. Identification: - SCH number, ASTM number and material description shall be marked on the elbows and reducers.
v. Valid mill test certificate should be supplied with Identification number or any other reference number marked on elbow as well as in the certificates to check once the items are delivered to Ceylon Petroleum Storage Terminals Limited Kolonnawa with reference to the items against the Mill Certificate.

6.3.26.3 Carbon Steel Flanges

i. Class 150, Slip on, Raised Face (RF)
ii. Material shall conform to ASTM A 105 Normalised.
iii. Dimensions shall conform to ANSI B 16.5.
iv. Identification: - ASTM number, ANSI Number, Class and material description shall be marked on the flange.
v. Flange should be marked with the ASTM specification grade identification symbol and ASTM specification number.

vi. Valid mill test certificate should be supplied with identification numbers or any other reference number marked on flanges as well as in the Certificate to check once the items are delivered to CPSTL Kolonnawa with reference to the items against the Mill Certificate.

6.3.26.4 Gasket Materials

i. Maximum Working Pressure -: 225 psi
ii. Nominal Working Temperature -:45^{o}
ii. Thickness -: 3 mm
iii. To use as packing for flanges of pipelines and tank manholes for petroleum refined products such as Gasoline, Gas oil, Fuel Oil and Aviation Turbine.
iv. Gaskets should conform to BS 7531 or equivalent.
v. Each sheet of jointing shall be indelibly marked with the number of British Standard and manufacturer's identification mark

6.3.26.5 Butterfly Valves

i. Operational condition:
   a. Pressure Rating: ANSI Class 150 (285 psig @ 100^{0}F)
   b. Operator: Ten position hand lever
   c. Disk Alignment: Double offset
ii. Material
   a. Body Type: Flangeless (Wafer Style)
   b. Body Material: ASTM A 216 Grade WCB
   c. Seat Material: Buna-N, PTFE
   d. Disk Material: Stainless Steel
iii. Designed as per API Standard 609
iv. Body coating of the valve should be Epoxy Power Coated
v. Mill Certificate should be supplied in accordance with EN 10204 3.1 with identification numbers or any other reference number marked on flanges as well as in the Certificate to check once the items are delivered to CPSTL Kolonnawa with reference to the items against the Mill Certificate.

6.3.26.6 Foam Top Pourer

All materials supplied by the contractor should have origin and manufacture in European, Japanese, or USA.

Foam Top Pourers should be designed specifically for the use fixed roof equip with internal floating roof fuel storage tanks. The pourers shall comprise with two elements, a Foam Generator and a Foam Pourer.

a. Foam Generator which produces expanded foam when supplied with foam solution.

Capacity (Foam solution flow)	- 150 l/m at 5 bar
Inlet Connection	- 2" RF Flange ANSI Class 150
Outlet Connection	- 4" RF Flange ANSI Class 150
Material Body	- Carbon Steel
Internal Fitting	- Stainless – steel
Frangible Disc	- Glass

b. Foam Pourer which delivers the foam gently into the fuel surface of the fixed roof fuel storage tank. Foam Pourer should be designed to fix through a

standard ANSI class 150 hole cut in the tank shell. Connection of the pourer to the tank shall be 8" RF Flange ANSI Class 150.

Operating Pressure - 3 bar to 10 bars
Foam Expansion - Low expansion

c. Finish - Yellow thermoplastic Powder Coated

Following details to be submitted with the offer.

i. Make and model.
ii. Country of origin and Country of manufacture.
iii. Original Brochures and standard test certificates.
iv. List of required spare parts for a period of 5 years.
v. Surface preparation and coating thickness details.

6.3.26.7 Angle Iron

i. Material: ASTM A 36
ii. Size: As specified in the drawing and as existing in the tank
iii. Valid mill test certificate shall be supplied

6.3.26.8 Nuts and Bolts

i. Material of bolts to be conformed to ASTM A 193 Gr.B 07 or BS 1506-621 Gr.A and materials of nuts shall conformed to ASTM A 194 Gr. 2H.
ii. Threads should be in accordance with ANSI B 1.1 Class 2A for bolts and class 2B for nuts.
iii. Identification marks shall be available on items to conform above standards.

6.3.26.9 GI Pipes

Grade : Heavy Duty
Size : As existing in the tank

6.3.26.10 Flat Iron

Material: ASTM A 36
ii. Size: As existing in the tank
iii. Valid mill test certificate shall be supplied

6.3.26.11 C Channel

Material: ASTM A 36
ii. Size: As existing in the tank
iii. Valid mill test certificate shall be supplied

6.3.26.12 Earthing System

Tank shall be grounded through a minimum of four separate grounding electrodes, spaced at maximum of 25 m intervals along the perimeter of the tank.

The resistance value of each electrode must be below 5 Ω

Item	Specifications	
Earthing Plates	Dimensions	300mm X 300mm X 3mm
	Material	Solid Copper
	Standards Applicable	BS EN 13601:2013, BS EN/IEC 62305
	Brand	Furse, Kingsmill or equivalent

SECTION - 7

BILL OF QUANTITIES

BILL OF QUANTITIES
CEYLON PETROLEUM STORAGE TERMINALS LIMITED - ENGINEERING FUNCTION
REPAIRS AND MODIFICATIONS TO TANK NO. 4 & 5 AT LBD MA-GALLE

BOQ No: E/17/2021

Item No.	Description	Unit	Qty.	Rate	Amount
	Contractors are strictly advised to visit the site & follow the given details, sketch drawings, specifications before commencing the works. Any discrepancy should be forwarded to the Engineer before commencement of such works.	Note			
	All material should be supplied by the Contractor unless otherwise stated under "Scope of Supply by CPSTL" in section 6 of the Bidding Document".	Note			
	The excavation shall be carried out on an approved method with approved tools and equipment acceptable to the Engineer with prior approval.	Note			
	The contractor's rates shall include for all precautions to minimize the noise, dust and vibrations etc. to the approval of the Engineer.	Note			
	The contractor shall obtain approval from CPSTL for all materials and equipment to be used for repairing work prior to commence any work.	Note			
	Repairing, modifications, inspection and testing shall be according to the API 653 and API 650	Note			
	The Contractor's Rates Shall Include for				
	Supplying of all materials as specified and costs of preparations, fabrication, erection, laying in position, forming, welding and painting etc	Note			
	Transportation of all materials to the final location at the LBD Magalle	Note			
	Third party inspection where applicable	Note			

Item No.	Description	Unit	Qty.	Rate	Amount
A	**PRELIMINARIES**				
A-1	Allow lump sum for cleaning site on commencement of works, during the works and completion of works, including removal of all rubbish, vegetation and debris and leaving the site clean internally and externally.	Item	1		
A-2	Allow lump sum for construction maintenance of temporary site office with providing necessary furniture, fittings and other facilities for the contractor's personal.	Item	1		
A-3	Allow lump sum for mobilization and demobilization.	Item	1		
A-4	Construction of access road to make adequate and safe access to the tank farm	Item	1		
A-5	Allow lump sum for Erection of temporary fire barrier and fire blanket in order to protect the surrounding piping and nearby tanks and pump houses in operation.	Item	1		
A-6	Removing of 3 no's existing semi buried steel tank (approximate capacity of the tank 50,000 L) with connected pipes, valves, flanges etc. Rate to include for necessary bund wall earth removing, excavation, back filling and compaction by using excavated soil/ imported soil and buffalo grass turfing where necessary. Steel tank and any usable material to be stack within the site and handover to CPSTL as directed and debris to be remove from the site.	Item	1		
A-7	Removing of 1 number 9.57 m long and 2.76 m dia. existing over ground steel tank (approximate capacity of the tank 50,000 L) with connected pipes, valves, flanges etc. Rate to include for necessary dismantling works of tank supports, etc. Usable material to be stack within the site as directed and debris to be remove from the site.	Item	1		
	Total Amount Carried to Summary				

Item No.	Description	Unit	Qty.	Rate	Amount
	Tank No. 4				
B	**CIVIL WORK**				
B-1	Supply, level, compact and correction of tank bottom settlement.	m^3	9		
B-2	Minor repairs to apron and outer drainage	Item	1		
B-3	100mm thick layer of sand tar mixture (river sand and 80 - 100 hot bitumen mixture) over compacted sand filling.	Item	1		
	Total Amount Carried to Summary				
C	**MECHANICAL WORK**				
C-1	Cut, remove, transport and stack the existing bottom plates and 600 mm shell strip of the bottom most shell course including all manholes and nozzles.	Item	1		
C-2	Supplying, fabrication, installation of Jacking up brackets and jacks. Removal of all components at the end of the repairing works.	Item	1		
C-3	Laying, forming and welding of bottom plates.	Item	1		
C-4	Fabrication, erection, welding and testing of 600 mm strip of the bottom most shell plates.	Item	1		
C -5	Fabrication, formation, preparation and welding of draw off sump (24” dia.), datum plate and related piping.	Item	1		
C - 6	Fabrication, preparation, installation and welding of 2 no's of shell manholes (24” dia.) with reinforcement plate including necessary machinery work.	Item	1		
C-7	Fabrication, preparation, installation, and welding of 6" dia. inlet and outlet nozzles and 3" dia. Drain nozzle with reinforcement plates.	Item	1		

Item No.	Description	Unit	Qty.	Rate	Amount
C-8	Supplying, fabrication, installation, replacement and welding of top and middle handrails of the existing crown handrail. Required minor repairs to be attended in other steel components of the crown handrail where necessary.	Item	1		
C-9	Supplying, fabrication, installation and repairing of corroded steps, structural components and handrails of the existing stairway	Item	1		
C-10	Supplying, fabrication, installation and welding of toe guard of the crown handrail.	Item	1		
C-11	Supplying, fabrication, installation and welding of roof patch plates	Item	1		
C-12	Supplying, fabrication, installation and welding of roof walkway	Item	1		
C-13	Obtain measurements, Supply of measurement reports and corrections of the deformations in the existing tank shell	Item	1		
C-14	Supplying, fabrication and installation of water drencher system. Piping along the tank farm must be laid in underground.	Item	1		
C-15	Supplying, fabrication, installation and welding of earthing system including necessary machinery work, conductor, and base plate	nr	4		
C-16	Removal of the existing dip hatch and supplying, fabrication, installation, and welding of patch plate to seal the existing location of the dip hatch.	Item	1		
C-17	Supplying, fabrication, preparation, installation and welding of floating roof access manholes (24” dia.) with 8" & 6" gauging nozzles (02nr) and access ladder.	nr	1		
C-18	Supplying, fabrication, installation and welding of safety net required in nearby the gauge hatches.	nr	1		
C-19	Supplying, fabrication, preparation, installation of rim air vents	nr	4		
C-20	Supplying, fabrication, preparation, installation, and welding of roof center air vent.	nr	1		

Item No.	Description	Unit	Qty.	Rate	Amount
C-21	Supplying of foam top pourers as per specifications	nr	2		
C-22	Supplying, fabrication, preparation, installation and welding of foam top pourer system with piping, pipe supports, valves and nozzles.	Item	1		
C-23	Grit/Sand blast cleaning and hot dip galvanizing of all lids of rim air vents. All galvanizing work shall conform to ASTM A 123 or BS EN ISO 1461:2009	Item	1		
C-24	Grit/Sand blast cleaning and painting of underside of bottom plates.	Item	1		
C-25	Grit/Sand blast cleaning and painting of riveted joints with leak prevention painting as specified.	Item	1		
C-26	Grit/Sand blast cleaning and painting of roof structure, top angle, underside of roof plates, 1m below the top angle in the topmost shell course. Pipes of the gauges and internal vertical ladder must be fully painted.	Item	1		
C-27	Grit/Sand blast cleaning and painting of entire bottom of the tank interior and up to 1-meter height from the bottom in the bottom most shell course.	Item	1		
C-28	Grit/ Sand blast cleaning and painting of the shell exterior surface and roof external surfaces with all attachments.	Item	1		
C-29	Grit/ Sand blast cleaning and painting of stairway and its supportive structure, handrail and crown handrail with all attachments.	Item	1		
C-30	Grit/Sand blast cleaning and galvanizing of the water drencher piping system including finish painting.	Item	1		
C-31	Grit/Sand blast cleaning and galvanizing of the foam piping system including finish painting.	Item	1		
C-32	Grit/ Sand blast cleaning and galvanizing of the draw off piping system including finish painting.	Item	1		
C-33	Carrying out tank hydro test. Fresh water suitable for hydro test shall be supplied by the Contractor.	Item	1		

Item No.	Description	Unit	Qty.	Rate	Amount
C-34	Supply of 3 physical measurement reports.	Item	1		
C-35	Box up the Tank	Item	1		
	Total Amount Carried to Summary				
	Tank No. 05				
D	**CIVIL WORK**				
D-1	Supplying, level, compact and correction of tank bottom settlement and seal the existing gaps between projection plate and the apron.	Item	1		
D-2	Minor repairs to apron and outer drainage	Item	1		
	Total Amount Carried to Summary				
E	**MECHANICAL WORK**				
E-1	Dismantling of existing steel crossover between tank no 5 and 6. Supply, erection and installation of temporary access stairway to provide access to the tank no. 06 during the time of contract execution.	Item	1		
E-2	Cut, remove, transport and stack of existing roof plates, roof accessories and water drencher system.	Item	1		
E-3	Cut, remove, transport and stack of existing roof structure.	Item	1		
E-4	Cut, remove, transport and stack of 6^{th}, 5^{th} and 4^{th} shell courses with reinforcement ring as per the drawing.	Item	1		
E-5	Obtain measurements, Supply of measurement reports and corrections of the deformations in the existing tank shell	Item	1		
E-6	Fabrication, erection and welding and testing of new shell plates and accessories.	Item	1		
E-7	Supplying, fabrication and installation of roof top angle.	Item	1		

Item No.	Description	Unit	Qty.	Rate	Amount
E-8	Supplying, fabrication and installation of roof structure	Item	1		
E-9	Fabrication, installation and testing of new roof plates.	Item	1		
E-10	Supplying, fabrication, installation and testing of 24" dia. roof manhole, crown handrail with toe guard and roof walkways.	Item	1		
E-11	Supplying, fabrication and install of water drenching system.	Item	1		
E-12	Supplying, fabrication, installation and repairing of corroded steps, structural components and handrails of the existing stairway. Removed portion of the existing stairway must be refix to the new shell plates with necessary replacements and modifications.	Item	1		
E-13	Removal of the existing earthing system and supplying, fabrication, installation and welding of new earthing system including necessary machinery work, conductor and base plate	nr	4		
E-14	Supplying, fabrication, preparation, installation and welding of floating roof access manholes (24” dia.) with 8" & 6" gauging nozzles (02nr) and access ladder.	nr	1		
E-15	Supplying, fabrication, installation and welding of safety net required in nearby the gauge hatches.	nr	1		
E-16	Supplying, fabrication, preparation, installation of rim air vents	nr	4		
E-17	Supplying, fabrication, preparation, installation and welding of roof center air vent.	nr	1		
E-18	Supplying, fabrication, installation and welding of datum plate.	nr	1		
E-19	Supplying of foam top pourers as per specifications	nr	2		
E-20	Supplying, fabrication, preparation, installation and welding of foam top pourer system with piping, pipe supports, valves and nozzles.	Item	1		

Item No.	Description	Unit	Qty.	Rate	Amount
E-21	Grit/Sand blast cleaning and hot dip galvanizing of all lids of rim air vents. All galvanizing work shall conform to ASTM A 123 or BS EN ISO 1461:2009	Item	1		
E-22	Grit/Sand blast cleaning and painting of roof structure, top angle, underside of roof plates, 1m below the top angle in the topmost shell course. Pipes of the gauges and internal vertical ladder must be fully painted.	Item	1		
E-23	Grit/Sand blast cleaning and painting of entire bottom of the tank interior and up to 1-meter height from the bottom in the bottom most shell course.	Item	1		
E-24	Grit/ Sand blast cleaning and painting of the shell exterior surface and roof external surfaces with all attachments.	Item	1		
E-25	Grit/ Sand blast cleaning and painting of stairway, cross over and its supportive structure, handrail and crown handrail with all attachments.	Item	1		
E-26	Grit/Sand blast cleaning and galvanizing of the water drencher piping system including finish painting.	Item	1		
E-27	Grit/Sand blast cleaning and galvanizing of the foam piping system including finish painting.	Item	1		
E-28	Grit/ Sand blast cleaning and galvanizing of the draw off piping system including finish painting.	Item	1		
E-29	Carrying out tank hydro test. Fresh water suitable for hydro test shall be supplied by the Contractor.	Item	1		
E-30	Supply of 3 physical measurement reports.	Item	1		
E-31	Box up the Tank	Item	1		
	Total Amount Carried to Summary				

SUMMARY OF BOQ No: E/17/2021

DESCRIPTION		**AMOUNT (Rs)**
A.	PRELIMINARIES	…………………….
	TANK NO. 04	
B.	CIVIL WORK	…………………….
C.	MECHANICAL WORK	…………………….
	TANK NO. 05	
D.	CIVIL WORK	…………………….
E.	MECHANICAL WORK	…………………….
SUB TOTAL		
DISCOUNT IF ANY		( )
TOTAL CARRIED TO "FORM OF BID"		
VAT. (8%)		…………………….
TOTAL AMOUNT WITH VAT.		

VAT Registration No. : - ……………………………..…………………………………………….

Total amount in words: - …………………………………………….…………..........................

……..…….………..………….……….…………………………….…………………………………

Name of Bidder :- …........……………………….…………………………………………………..

…………………………………………………………………….………..…………………......................

Address:- …………………………………………………….……………………………………………….

….……………………………...………………….....……………………………..……………………

…….

……………………..   …………………

Signature of Bidder   Date

SECTION – 8

DRAWINGS

Ref.	Title of the Drawing	Drawing No.
1	Details of Bottom Plate Arrangement and Welding	Dwg. No. 1654 - 1
2	Details of Bottom Plate Arrangement and Plate Cutting Schedule	Dwg. No. 1654 - 2
3	Replacement of 600 mm Bottom Shell Plates	Dwg. No. 1654 - 3
4	Water Drencher System for tank No. 04	Dwg. No. 1654 - 4
5	Draw – Off Sump & Drainpipe Details	Dwg. No. 1654 - 5
6	Details of Shell Manhole	Dwg. No. 1654 - 6
7	Details of Inlet & Outlet Nozzles	Dwg. No. 1654 - 7
8	Details of Dip Hatch with Internal Ladder	Dwg. No. 1654 - 8
9	Rim Air Vent	Dwg. No. 1654 - 9
10	Replacement of Roof Plates & Structure	Dwg. No. 1654 - 10
11	Details of the Roof Manhole	Dwg. No. 1654 - 11
12	Reference Drawing of Roof Structure	Dwg. No. 1654 - 12

SECTION – 9

STANDARD FORMS (BID)

FORM OF BID SECURITY

[this Guarantee form shall be filled in accordance with the instructions indicated in brackets]
---------- *[insert issuing agency's name, and address of issuing branch or office]*
Beneficiary: **Ceylon Petroleum Storage Terminals Limited, 1st floor, New Administration Building, Oil Installation, Kolonnawa**

Date: ---------- *[insert (by issuing agency) date]*

BID GUARANTEE No.: ---------- *[insert (by issuing agency) number]*
We have been informed that ---------- *[insert (by issuing agency) name of the Bidder]* (hereinafter called "the Bidder") has submitted to you its bid dated ----------*[insert (by issuing agency) date]* (hereinafter called "the Bid") for the ……. of *[insert name of Contract]* under Invitation for Bids No. ---------- *[insert IFB number]* ("the IFB").

Furthermore, we understand that, according to your conditions, Bids must be supported by a Bid Guarantee.
At the request of the Bidder, we ---------- *[insert name of issuing agency]* hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of ---------- *[insert amount in figures]* ---------- *[insert amount in words]* upon receipt by us of your first demand in writing accompanied by a written statement stating that the Bidder is in breach of its obligation(s) under the bid conditions, because the Bidder:

(a) has withdrawn its Bid during the period of bid validity specified; or

(b) does not accept the correction of errors in accordance with the Instructions to Bidders (hereinafter "the ITB"); or

(c) having been notified of the acceptance of its Bid by the Employer during the period of bid validity, (i) fails or refuses to execute the Contract Form, if required, or (ii) fails or refuses to furnish the Performance Security, in accordance with the ITB.

This Guarantee shall expire: (a) if the Bidder is the successful bidder, upon our receipt of copies of the Contract signed by the Bidder and of the Performance Security issued to you by the Bidder; or (b) if the Bidder is not the successful bidder, upon the earlier of the successful bidder furnishing the performance security, otherwise it will remain in force up to ---------- *(insert date)*
Consequently, any demand for payment under this Guarantee must be received by us at the office on or before that date.

_____
[signature(s) of authorized representative(s)]

CHECK LIST FOR BIDDERS

Bidders are advised to fill the following table.

ITEM	ITB Clause	YES (tick)	REFERENCE
Form of Bid			
Addressed to the Employer?	18		
Completed?	18		
Signed?	18		
Bid Securing Declaration Form (if required)			
Properly filled and signed	16		
Bid Security (if required)			
Address to the Employer?	16		
Format as required?	16		
Issuing Agency as specified?	16		
Amount as requested?	16		
Validity 28 days beyond the validity of Bid?	16		
Qualification Information			
All relevant information completed?	4		
Signed?	4		
Addendum			
Contents of the addendum (if any) taken in to account?	10		
Bid package			
All the documents given in ITB Clause 12 enclosed in the original and copy?	12		
ITB Clause 19 followed before sealing the Bid package?	19		