OIL INDIA LIMITED
(A Government of India Enterprise)
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Dist-Dibrugarh, Assam

CORRIGENDUM NO. 1 dated 05.12.2023 to OIL E-TENDER NO.: CDO5023P24 for Hiring of services for Construction of 01 no. of 795 KL capacity and 01 no. of 160 KL capacity Crude Oil storage tanks.

This Corrigendum is issued to notify the following changes:

1. Clause No. **21.1. A (ii)** of Section-IV: Scope of Work (SOW) of Part-III: Special Conditions of Contract (SCC) for Construction of 01 (One) no. of 795 KL capacity Crude Oil Storage is to be read as below in place of existing:

   Quote:

   (ii) Fabrication and erection of 1 (One) no. of 795 Kl capacity Crude Oil storage tank as per OIL Drawings (OIL/3077, OIL/0559 and OIL/4240) and API 650 standard along with anti-corrosive coating.

   : Unquote

2. Clause No. **21.2. A (ii)** of Section-IV: Scope of Work (SOW) of Part-III: Special Conditions of Contract (SCC) for Construction of 01 (One) no. of 160 KL capacity Crude Oil Storage is to be read as below in place of existing:

   Quote:

   (ii) Fabrication and erection of 01 no. Of 160KL Crude oil storage tank as per OIL Drawings (OIL/3885 and OIL/3886) and API 650 standard along with anti- corrosive coating.

   : Unquote

3. The following document has been uploaded in the "Amendments" folder in E-portal as replacements of the existing:

   (i) Part-II: SOQ (revised)

All others terms and conditions of the Bid Document remain unchanged. Details can be viewed at www.oil-india.com.

SCHEDULE OF WORK, UNIT AND QUANTITY

DESCRIPTION OF WORK/SERVICE: Hiring of Services for Construction of 01 no. of 795 KL capacity and 01 no. of 160 KL capacity Crude Oil storage tanks.

PART-A	For Construction of 01 no. of 795 KL Crude Oil storage tank at Tengakhat OCS

Sl No.	Description	UOM	Quantity
10	Erection and dismantling of barrier wall:	M (Meter)	100
20	Completion of remaining jobs	LSM (Lumpsum)	1
30	Fabrication and Erection of 795 KL Tank:	NO (Number)	1
40	External Painting:	M2 (Square meter)	1,641
50	Hydraulic testing of 795 KL tank:	JOB	1
60	Calibration of the 795 KL tank:	JOB	1
70	Transportation of various diameter pipes:	TKM (Metric tonne-Km)	1,177
80	Transportation of various types of materials:	TRP (Trip)	1
90	Handling of 250mm NB Pipes and Fittings:	JT (Joint)	10
100	Handling of 200mm NB Pipes and Fittings:	JT (Joint)	10
110	Handling of 150mm NB Pipes and Fittings:	JT (Joint)	25
120	Handling of 100mm NB Pipes and Fittings:	JT (Joint)	25
130	Handling,aligning,installn-250 NB valves:	NO (Number)	1
140	Handling,aligning,installn-200 NB valves:	NO (Number)	2
150	Handling,aligning,installn-150 NB valves:	NO (Number)	2
160	Handling,aligning,installn-100 NB valves:	NO (Number)	4
170	Handling of 250 mm NB Companion Flange:	PAA (Pair)	1

180	Handling of 200 mm NB Companion Flange:	PAA (Pair)	2
190	Handling of 150 mm NB Companion Flange:	PAA (Pair)	2
200	Handling of 100 mm NB Companion Flange:	PAA (Pair)	4
210	Fabrication of various pipe fittings:	CM (Centimeter)	1000
220	Supply, fabrication, welding & erection of Single Leg Pipe Supports:	NO (Number)	10
230	Supply, fabrication, welding & erection of Double Leg Pipe Supports:	NO (Number)	5
240	Supply, fabrication, welding & Erection of Concrete Pipe Supports:	M3 (Cubic meter)	25
250	Supply, Fabrication and erection of walkway:	M (Meter)	30
260	Radiographic inspections-Pipe/welded joints: Size: 150 mmNB to 250 mm NB. (for pipe joints).	NO (Number)	20
270	Radiographic inspections-Pipe/welded joints: Size: 50 mm NB to 100 mm NB. (for pipe joints).	NO (Number)	40
280	Letter writing (300 mm to 450 mm):	NO (Number)	150
290	Letter writing (150 mm to 299 mm):	NO (Number)	50
300	Erection of brick/ dyke wall around the Tanks:	M (Meter)	100
310	Additional increase in height of dyke wall:	M (Meter)	8
320	Casting of PCC for the Tank Farm Floor:	M2 (Square meter)	470
330	Earthing System of Tanks:	JOB	1
340	Supply of API 600gate valve wit flange-10":	NO (Number)	1
350	Supply of API 600gate valve wit flange-8":	NO (Number)	2
360	Supply of API 600gate valve wit flange-6":	NO (Number)	2
370	Supply of API 600gate valve wit flange-4":	NO (Number)	4
380	Foam pouring system:	JOB	1
390	Cooling Water System:	NO (Number)	1

400	Heating Coil:	NO (Number)	1
410	Supply and Installation of Breather Valve cum in- built Flame arrestor:	NO (Number)	1
420	Provision for Radar Gauge:	NO (Number)	1

PART-B	For Construction of 01 no. of 160 KL Crude Oil storage tank at Ushapur OCS

Sl No.	Description	UOM	Quantity
430	Erection and dismantling of barrier wall:	M (Meter)	80
440	Completion of remaining jobs	LSM (Lumpsum)	1
450	Fabrication and Erection of 160 KL Tank:	NO (Number)	1
460	Foam, Drenching system & Breather valve:	NO (Number)	1
470	External Painting of 160 KL tank:	NO (Number)	1
480	Hydraulic testing of 160 KL tank:	NO (Number)	1
490	Calibration of the 160 kl tanks:	NO (Number)	1
500	Transportation of various diameter pipes:	LSM (Lumpsum)	1
510	Transportation of various types of materials:	LSM (Lumpsum)	1
520	Handling of 150mm NB Pipes and Fittings:	JT (Joint)	26
530	Handling of 100 mm NB Pipes and Fittings:	JT (Joint)	26
540	Handling,aligning,installation150mm valve:	NO (Number)	3
550	Handling,aligning,installation100mm valve:	NO (Number)	4
560	Handling of 150 mm NB Companion Flange:	PAA (Pair)	3
570	Handling of 100 mm NB Companion Flange:	PAA (Pair)	4
580	Fabrication of various pipe fittings:	CM (Centimeter)	900

590	Single leg Pipe support:	NO (Number)	8
600	Double leg Pipe support:	NO (Number)	5
610	Supply, fabrication, welding & Erection of Concrete Pipe Supports:	M3 (Cubic meter)	30
620	Walkway and walkway platform:	M (Meter)	40
630	Radiographic inspections Pipe/welded joints: Size: 150mm NB/100mm NB. (for pipe joints)	NO (Number)	45
640	Letter writing (300 mm to 450 mm):	NO (Number)	40
650	Letter writing (150 mm to 299 mm):	NO (Number)	40
660	Erection of brick wall around the Tanks:	M2 (Square meter)	60
670	Casting of PCC for the Tank Farm Floor:	M2 (Square meter)	220
680	Earthing System of Tanks:	JOB	1
690	Supply of API600 6"x150 F-end GATE VALVE:	NO (Number)	2
700	Supply of API600 4"x150 F-end GATE VALVE:	NO (Number)	3
710	Supply of API600 2"x150 F-end GATE VALVE:	NO (Number)	1

1. Tenure of Agreement: The duration of the entire contract shall be for a period of **01 (One) year and 45 (forty five) days (mobilization time)** from the date of issue of LOA. Accordingly, the scheduled contract end date shall remain firm even in case of delayed mobilization. In case mobilization is completed before the scheduled mobilization completion date, then the duration of the contract shall be considered for **01 (One) year** from the date of completion of actual mobilization.

2. Mobilization Period: 45 (Forty-Five) days from the date of issue of LOA.

Detailed Description of service line items

PART-A

For Construction of 01 no. of 795 KL Crude Oil storage tank at Tengakhat OCS

1.0 Line item No. 10: Erection and dismantling of barrier wall:

Erection of barrier wall with CGI sheet to a height of minimum 10 metre to isolate the working area from the existing installation on three sides as per the instruction of the site engineer. The wall should be strong enough with proper structural supports and drawings should be submitted to site engineer for approval prior to erection job. No hot job (welding/

cutting/ grinding etc.) would be allowed at site during the installation of the barrier wall and also in the working place till the wall is completed and the area is made completely gas-free which is to be confirmed by gas testing. The site shall also have to be free from any hazardous / inflammable substances/ materials etc. and necessary work permit / clearance from concerned Installation Manager (IM)/ Site engineer/ in charge must be taken prior to start of the job on daily basis. The required pipes for the posts to be used for erection of barrier wall shall be arranged by company which shall have to be transported by the contractor to the work site from the place of handing over for job execution. The contractor shall have to dismantle the so erected barrier walls upon completion of the tank construction job. The Contractor will have to arrange all necessary infrastructure (scaffolding/ working platform etc.) to facilitate erection and dismantling of the barrier walls in a safe manner which is to be to the satisfaction of the Site engineer.

2.0 Line Item No. 20: Completion of remaining jobs pertaining to construction of RCC foundation for 795 KL Crude Oil Storage Tank, as stipulated below:

i) Sand filling and compaction inside the newly constructed Foundation.

ii) Construction of sump inside the Foundation.

iii) Bitumenous carpeting over the sand filling and foundation.

3.0 Line Item No. 30: Fabrication and Erection of 795 KL Tank:

Supply of materials, fabrication and erection of 795 KL capacity fixed roof tank using jack-up method as per OIL Drawings (OIL/3077, OIL/0559 and OIL/4240) and API 650 standard along with anti-corrosive coating.
The anti-corrosive coating is to be applied for the entire internal surfaces inclusive of tank bottom plate, roof and other structulal members. Anti-corrosive coating on all the internal surfaces of the tanks including top and bottom plates shall be applied with High temperature resistant and chemical resistant anti-corrosive solvent free ceramic reinforced composite/ amine cured phenolic epoxy resin coating.

The coating shall have 100% solid by Volume, and Mixed Density/specific gravity 1.25 gm/cc Minimum. The Dry Film Thickness (DFT) 300 to 600 microns, two coat system with minimum 150 micron per coat. Dry film thickness shall be measured after each coat using thickness gauge e.g. Mikrotest, Ecometer or any other suitable instruments. Holiday or spark testing shall be done after application of last coat to find nicks, scrapes and pin holes in the coating. The coating shall have tensile shear/Pull off adhesion of Minimum 200 kg/sq cm (2840 psi) as per ASTM D 1002/ASTM D 4541/ISO 4624. The coating shall be chemical resistant to mixture of crude oil & water in continuous emersion as per ASTM D543/ISO 2812-2. Service temperature shall be Minimum 80 Deg C in Wet (Immersion) service condition and Minimum 100 Deg C in Dry service condition as per ASTM D 648. The Surface preparation shall be achieved by abrasive/shot blasting to near white metallic as per NACE No. 2/SSPC-SP10, ISO 8501-1, Sa 2 ½, with blast surface profile depth of 75-125 micron. Profile measurement for abrasive blast cleaned surface shall be made with Testex Press-O-Film or other suitable method. Prior to blasting, all weld spatters shall be removed & sharp or rough welds rounded & contoured. Any change in the surface preparation recommended by the OEM of the coating system shall be forwarded in the technical bid for approval by OIL. The application shall be airless spray method. The anti corrosive coating to be applied on internal surfaces of the tank shall be of make Hempel/ Belzona/Chesterton/ Akzonobel or equivalent meeting the afore-stated specifications and Performance Guarantee of minimum 10 years shall be provided by the OEM to OIL for product as well as the application procedure. Third party inspection

report with special mention of meeting the afore-stated specifications in this regard shall have to be submitted by the contractor upon completion of the job. The welding slag deposited during welding shall have to be removed by appropriate method after completion of each run of welding job.

4.0 Line Item No. 40: External Painting:

Thorough cleaning and painting of external surfaces of the tank including shell, roof, soil side bottom plate (before installation) and all fittings/accessories etc. connected to the tank body as per direction of company engineer/ Installation Manager/ his or her representative. After putting two coats of Epoxy Zinc Chromate Primer (30 micron DFT in each coat), two coats of aluminium/enamel paint will have to be applied (colour to be approved by Company engineer). For the soil side bottom plate, one coat of Zinc Silicate primer (65 micron DFT) followed by two coats of high build Epoxy black paint (100 micron DFT in each coat) will have to be applied. The plate surfaces shall be adequately cleaned and there shall be no rust/scale left on the plates. Painting jobs shall only be done after completion of cleaning jobs and physical inspection by the company's engineer at site. The Contractor will have to arrange all necessary infrastructure including scaffolding/ working platform etc. to facilitate painting jobs. All paints, primers, painting materials etc. will have to be supplied by the contractor and should be duly approved by the company's engineer prior to application of paint. Third party inspection report with special mention of meeting the afore-stated specifications in this regard shall have to be submitted by the contractor upon completion of the job.

5.0 Line Item No. 50: Hydraulic testing of 795 KL tank:

Hydraulic testing of 795 KL tank as per specification and direction of Site Engineer/ Installation Manager/ his or her representative. Source Water for Hydraulic testing will be provided by the Company wherever available. In case source water is not available from Company's side, contractor shall have to arrange the same at his own cost. However, Temporary pipeline connection etc. should be arranged/made by the contractor for lifting/filling water in the tank. For hydraulic testing of the newly fabricated/constructed tanks, all works such as arrangement of suitable pumps for filling of water to the tank, operation/running of the pump including all necessary connections to and from the water source will be arranged/executed by the contractor. After filling the tank with water, a minimum period of 24 hours duration shall be maintained to observe any possible leakage/settlement of foundation etc. Necessary hrdraulic test report including the pressure test chart record certified by the Installation Manager shall have to be submitted by the contractor.

6.0 Line Item No. 60: Calibration of the 795 KL tank:

Calibration of the 795 KL tank including all necessary arrangement. Contractor will have to make all necessary arrangements for Calibration of the tanks which are already fabricated and tested. The callibration job is to be done by a Govt. approved agency and relevant documents issued by Govt. authority will have to be submitted to OIL.

Note: Contractor will have to make all necessary arrangements for Calibration of the tanks which are already fabricated and tested.

7.0 Line Item No. 70: Transportation of various diameter pipes:

Transportation of various diameter pipes (Bevel end/ Screwed) up to 250 mm NB diameter (provided by OIL) from OIL's Materials Dept. godown/pipe yards at the new/old industrial areas/well-head setup/site/OCS/EPS/ Department/field location including loading and unloading with the help of pipe Trailors/Crane without causing any damage to the pipes/pipe ends. Defective pipes shall be rejected prior to loading/ receiving by the Company Engineer/ Installation Manager/ his or her representative.

The contractor will have to bear all the cost required for the job.

Maximum distance - 60 km. Average length of pipe - 11.90 m.

8.0 Line Item No. 80: Transportation of various types of materials:

Transportation of various types of materials (provided by OIL) including valves such as gate/plug/ ball/check/control valves etc., pipe fittings of various sizes ranging up to 250 mm NB diameter such as elbow, bend, flange, tee, swage etc. M.S plates, gratings, angle iron, flat bar, rod etc. as per the requirement of the job from OIL's Materials Dept. godown/pipe yards near OCS 3/South Bank office/Industrial area etc. including loading & unloading to the work site in truck/trailor without causing any damage to the materials. Defective materials shall be rejected prior to loading/ receiving by the Company Engineer/Installation Manager/ his or her representative. The contractor will have to bear all the cost required for the job.(maximum load per trip - 10 tonnes).

9.0 Line Item No. 90: Handling of 250mm NB Pipes and Fittings:

Handling, laying, aligning, swabbing, purging and Welding of bevel/ screwed ended pipes and various fittings such as flange, bend, reducer, elbow tee etc. (All materials to be supplied by Contractor) on ground/above ground/under ground/elevated position for making connection to various equipment/vessel/tank within the working Complex. This job also includes bending of pipes through appropriate method/ repair of pipe ends etc., if necessary, with cutting torch, grinding, removing ovality etc. Welding, if any, should be as per API 1104 with requisite number of runs. The welding slag deposited during welding shall have to be removed by appropriate method after completion of each run of welding job.

10.0 Line Item No. 100: Handling of 200mm NB Pipes and Fittings:

Handling, laying, aligning, swabbing, purging and Welding of bevel ended pipes and various fittings such as flange, bend, reducer, elbow tee etc. (All materials to be supplied by Contractor) on ground/above ground/underground/ elevated position for making connection to various equipment/vessel/tank within the working Complex. .This job also includes bending of pipes through appropriate method/ repair of pipe ends etc., if necessary, with cutting torch, grinding, removing ovality etc. Welding, if any, should be as per API 1104 with requisite number of runs. The welding slag deposited during welding shall have to be removed by appropriate method after completion of each run of welding job.

11.0 Line Item No. 110: Handling of 150mm NB Pipes and Fittings: Handling, laying, aligning, swabbing, purging and Welding of bevel ended pipes and various fittings such as flange, bend, reducer, elbow tee etc. (All materials to be supplied by Contractor) on ground/above ground/underground/ elevated position for making connection to various equipment/vessel/tank within the working Complex. This job also includes bending of pipes through appropriate method/ repair of pipe ends etc., if necessary, with cutting torch, grinding, removing ovality etc. Welding, if any, should be as per API 1104 with requisite number of runs. The welding slag deposited during welding shall have to be removed by appropriate method after completion of each run of welding job.

12.0 Line Item No. 120: Handling of 100 mm NB Pipes and Fittings: Handling, laying, aligning, swabbing, purging and Welding of bevel ended pipes and various fittings such as flange, bend, reducer, elbow tee etc. (All materials to be supplied by Contractor) on ground/above ground/underground/ elevated position for making connection to various equipment/vessel/tank within the working Complex. This job also includes bending of pipes through appropriate method/ repair of pipe ends etc., if necessary, with cutting torch, grinding, removing ovality etc. Welding, if any, should be as per API 1104 with requisite number of runs. The welding slag deposited during welding shall have to be removed by appropriate method after completion of each run of welding job.

13.0 Line Item No. 130: Handling, aligning,installn-250 NB valves:

Handling, aligning and installation of 250 mm NB size Flanged type Valves such as control/gate/check/ball/plug valves, etc. with flanges on pipeline laid over ground/ under ground/ overhead or at all elevation wherever required with proper gaskets and nuts & bolts stc. (to be supplied by Contractor) in both sides as per the instruction of site engineer/ Installation Manager (IM) or his/ her representative. In case of generation of shear/deformations on the pipelines or its fittings after the activity on either side of valves the same will have to be repaired/rectified to bring back the same to the original condition by the Contractor at his/her own cost and no compensation to the effect shall be entertained by the company. Before installation, the valves to be tested hydraulically to the requisite pressure as per the instruction of the site engineer/ Installation Manager (IM) or his/ her representative. Welding, if any, should be as per API 1104 with requisite number of runs. The welding slag deposited during welding shall have to be removed by appropriate method after completion of each run of welding job.

14.0 Line Item No. 140: Handling, aligning, installation-200 NB valves:

Handling, aligning and installation of 200 mm NB size Flanged type Valves such as control/gate/check/ball/plug valves, etc. with already existing flanges on pipeline laid over ground/ under ground/ overhead or at all elevation wherever required with proper gaskets and nuts & bolts stc. (to be supplied by Contractor) in both sides as per the instruction of site engineer/ Installation Manager (IM) or his/ her representative. In case of generation of shear/deformations on the pipelines or its fittings after the activity on either side of valves the same will have to be repaired/rectified to bring back the same to the original condition by the Contractor at his/her own cost and no compensation to the effect shall be entertained by the company. Before installation, the valves to be tested hydraulically to the requisite pressure as per the instruction of the site engineer/ Installation Manager (IM) or his/ her representative. Welding, if any, should be as per API 1104 with requisite number of runs. The welding slag deposited during welding shall have to be removed by appropriate method after completion of each run of welding job.

15.0 Line Item No. 150: Handling,aligning,installn-150 NB valves:

Handling, aligning and installation of 150 mm NB size Flanged type Valves such as control/gate/check/ball/plug valves, etc. with already existing flanges on pipeline laid over ground/ under ground/ overhead or at all elevation wherever required with proper gaskets and nuts & bolts stc. (to be supplied by Contractor) in both sides as per the instruction of site engineer/ Installation Manager (IM) or his/ her representative. In case of generation of shear/deformations on the pipelines or its fittings after the activity on either side of valves the same will have to be repaired/rectified to bring back the same to the original condition by the Contractor at his/her own cost and no compensation to the effect shall be entertained by the company. Before installation, the valves to be tested hydraulically to the requisite pressure as per the instruction of the site engineer/ Installation Manager (IM) or his/ her representative. Welding, if any, should be as per API 1104 with requisite number of runs. The welding slag deposited during welding shall have to be removed by appropriate method after completion of each run of welding job.

16.0 Line Item No. 160: Handling, aligning, installation-100 NB valves:

Handling, aligning and installation of 100 mm NB size Flanged type Valves such as control/gate/check/ball/plug valves, etc. with already existing flanges on pipeline laid over ground/ under ground/ overhead or at all elevation wherever required with proper gaskets and nuts & bolts stc. (to be supplied by Contractor) in both sides as per the instruction of site engineer/ Installation Manager (IM) or his/ her representative. In case of generation of shear/deformations on the pipelines or its fittings after the activity on either side of valves the same will have to be repaired/rectified to bring back the same to the original condition by the Contractor at his/her own cost and no compensation to the effect shall be entertained by the company.. Before installation, the valves to be tested hydraulically to the requisite pressure as per the instruction of the site engineer/ Installation Manager (IM) or his/ her representative. Welding, if any, should be as per API 1104 with requisite number of runs. The welding slag deposited during welding shall have to be removed by appropriate method after completion of each run of welding job.

17.0 Line Item No. 170: Handling of 250 mm NB Companion Flange:

Handling of 250 mm NB Companion Flange: Handling, aligning and hooking up of Companion Flanges on pipe lines over ground/ under ground/ overhead or at all elevation as required, complete with jointing materials/nut-bolts etc. (to be supplied by Contractor) wherever required as per the instruction of site engineer/ Installation Manager (IM) or his/ her representative. In case of generation of shear/deformations on the pipelines or its fittings after the activity on either side of Flange the same will have to be repaired/rectified to bring back the same to the original condition by the Contractor at his/her own cost and no compensation to the effect shall be entertained by the company. Welding, if any, should be as per API 1104 with requisite number of runs. The welding slag deposited during welding shall have to be removed by appropriate method after completion of each run of welding job.

18.0 Line Item No. 180: Handling of 200 mm NB Companion Flange:

Handling, aligning and hooking up of Companion Flanges on pipe lines over ground/ under ground/ overhead or at all elevation as required, complete with jointing materials/nut-bolts etc. (to be supplied by Contractor) wherever required as per the instruction of site engineer/ Installation Manager (IM) or his/ her representative. In case of generation of shear/deformations on the pipelines or its fittings after the activity on either side of Flange the same will have to be repaired/rectified to bring back the same to the original condition by the Contractor at his/her own cost and no compensation to the effect shall be entertained by the company. Welding, if any, should be as per API 1104 with requisite number of runs. The welding slag deposited during welding shall have to be removed by appropriate method after completion of each run of welding job.

19.0 Line Item No. 190: Handling of 150 mm NB Companion Flange:

Handling, aligning and hooking up of Companion Flanges on pipe lines over ground/ under ground/ overhead or at all elevation as required, complete with jointing materials/nut-bolts etc. (to be supplied by Contractor) wherever required as per the instruction of site engineer/ Installation Manager (IM) or his/ her representative. In case of generation of shear/deformations on the pipelines or its fittings after the activity on either side of Flange the same will have to be repaired/rectified to bring back the same to the original condition by the Contractor at his/her own cost and no compensation to the effect shall be entertained by the company. Welding, if any, should be as per API 1104 with requisite number of runs. The welding slag deposited during welding shall have to be removed by appropriate method after completion of each run of welding job.

20.0 Line Item No. 200: Handling of 100 mm NB Companion Flange:

Handling, aligning and hooking up of Companion Flanges on pipe lines over ground/ underground/ overhead or at all elevation as required, complete with jointing materials/nut-bolts etc. (to be supplied by Contractor) wherever required as per the instruction of site engineer/ Installation Manager (IM) or his/ her representative. In case of generation of shear/deformations on the pipelines or its fittings after the activity on either side of Flange the same will have to be repaired/rectified to bring back the same to the original condition by the Contractor at his/her own cost and no compensation to the effect shall be entertained by the company. Welding, if any, should be as per API 1104 with requisite number of runs. The welding slag deposited during welding shall have to be removed by appropriate method after completion of each run of welding job.

21.0 Line Item No. 210: Fabrication of various pipe fittings:

Fabrication of various pipe fittings like Bend,Tee,Reducer etc. by welding including handling, cutting, end preparation etc. The job will be quantified as per unit length of welding measured in centimeter. All materials to be supplied by Contractor. Welding should be as per API 1104 with requisite number of runs. The welding slag deposited during welding shall have to be removed by appropriate method after completion of each run of welding job.

22.0 Line Item No. 220: Supply, fabrication, welding & erection of Single Leg Pipe Supports:

Supply, fabrication, welding & erection of Single Leg Pipe Supports, with 100 mm NB. M.S pipes, including clamping of pipes up to 1.5 mtr. height, generally as per the sketch no OIL/PO/04. All materials like pipes clamps, base plates, bolts & nuts etc. will be arranged and supplied by the contractor. The job also includes construction of Pillar Foundations for the pipe supports fabricated of size 0.25 m (L)x 0.25 (B) x0.40m (Depth) made out of CC of 1:1.5:3 ratio, including grouting.

23.0 Line Item No. 230: Supply, fabrication, welding & erection of Double Leg Pipe Supports:

Supply, fabrication, welding & erection of Double Leg Pipe Supports with 100 mm NB. M.S pipes, including clamping of pipes up to 1.5 mtr height, generally as per the sketch no. OIL/PO/05. All materials like pipes, clamps, base plates, bolts & nuts etc. will be arranged and supplied by the contractor. The job also includes Pillar Foundations for the pipe supports fabricated of size 0.25 m (L) x 0.25 (B) x 0.40m (Depth) made out of CC of 1:1.5:3 ratio, including grouting.

24.0 Line Item No. 240: Supply, fabrication, welding & Erection of Concrete Pipe Supports:

Supply of all materials, erection, installation, plastering, curing of RCC Pipe Supports (1:1.5:3 mixture) including clamping System/ arrangement as per OIL drawing no. OIL/PSS/01. Provision of clamping with the help of U clamps with nuts to clamp different diameter pipes with nuts and washers including all civil construction materials will have to be supplied by the contractor. All the supplied materials must be approved by OIL prior to erection including material test certificates and other documents.

25.0 Line Item No. 250: Supply, Fabrication and erection of walkway:

Supply, Fabrication and erection of walkway and walkway platform of 750 mm width with railings over the pipe/bunch of pipes, bundh, dyke wall, drains etc. as per sketch no. OIL/PP/17 supplied herewith (which is a representative drawing of walkways and which may be adjusted as per requirement depending on availability of space). The contractor will supply all necessary materials like M S Grating (500 mm width),support pipes, Angle iron frame, railing etc. and prior approval for all materials will have to be obtained from the company representative. After fabrication/erection, the posts are to be grouted out of CC composition 1:1.5:3 as per directive of site engineer/ Installation Manager (IM) or his/ her representative. All grouting materials will be supplied by the contractor. Size of the grouting 0.2 m (L) x 0.2 m (W) x 0.4 m (H).

26.0 Line Item No. 260: Radiographic inspections-Pipe/welded joints:

Radiographic inspection of pipe/welded joints by a third party inspection agency (approved by BARC) as directed by the site engineer/ Installation Manager (IM) or his/ her representative. All necessary equipment including the inspection agency to be arranged by the contractor at his/her own cost (no reimbursement shall be entertained by company) with the approval of the company engineer/ Installation Manager (IM) or his/ her representative. Certification from the third party inspection agency to the effect shall have to be deposited to OIL. Size: 150 mmNB to 250 mm NB. (for pipe joints).

27.0 Line Item No. 270: Radiographic inspections-Pipe/welded joints:

Radiographic inspection of pipe/welded joints by a third party inspection agency (approved by BARC) as directed by the site engineer/ Installation Manager (IM) or his/ her representative. All necessary equipment including the inspection agency to be arranged by the contractor at his/her own cost (no reimbursement shall be entertained by company) with the approval of the company engineer/ Installation Manager (IM) or his/ her representative. Certification from the third party inspection agency to the effect shall have to be deposited to OIL.Size: 50 mmNB to 100 mmNB. (for pipe joints).

28.0 Line Item No. 280: Letter writing (300 mm to 450 mm):

Arrow marking on piping and letter writing on vessels, tanks, signboards, piping, shed, pumps etc. Writing will be in English, Assamese and Hindi as per the instruction of the site engineer with approved paints. All materials including paint, paint brush etc. for the job will be arranged by the contractor.
Letter size - From 300mm to 450 mm.

29.0 Line Item No. 290: Letter writing (150 mm to 299 mm):

Arrow marking on piping and letter writing on vessels, tanks, signboards, piping, shed, pumps etc. Writing will be in English, Assamese and Hindi as per the instruction of the site engineer with approved paints. All materials including paint, paint brush etc. for the job will be arranged by the contractor.
Letter size - From 150 mm to 299 mm

30.0 Line Item No. 300: Erection of brick/ dyke wall around the Tanks:

Erection of brick/ dyke wall around the Tanks as per OIL drawing no. OIL/2488 including steps on both side and painting the all exposed surfaces with exterior weather proof paint. All materials will be supplied by the contractor.

31.0 Line Item No. 310: Additional increase in height of dyke wall:

Additional increase in height of brick/ dyke wall around the Tanks over the Line Item No. 350 to match the design of OIL drawing no. OIL/2488 including steps on both side and painting the all exposed surfaces with exterior weather proof paint. All materials will be supplied by the contractor

32.0 Line Item No. 320: Casting of PCC for the Tank Farm Floor:
Casting of PCC (1:1.5:3) for the tank farm floor, including broken floor in the adjoining areas, supports, drains etc. The job is to be carried out with one layer of brick soling followed by 75 mm cc and as per the directive of the company engineer/ Installation Manager (IM) or his/ her representative. The job involved chipping/ breaking/cleaning the existing floor and reconstruction of the same including drainage system. All the material for the job is to be supplied by the contractor. For low lying/ submerged area/pit/ unconsolidated or marshy land, the contractor shall have to develop the area employing all his resources required for the job at his own cost.

33.0 Line Item No. 330: Earthing System of Tanks:

Earthing connection of the storage tanks including supply of all materials. Providing complete earthing system to the constructed tanks, consisting of G. I earthing Bus, Earth Electrodes, connected firmly to the shell, as per drawing/specifications provided

in Drawing No. OIL/EPS/ELECT-007, including all the associated jobs. This item includes supply of all materials, fabrication and erection as needed. This item also includes construction of brick/RCC enclosure as per sketch no OIL/EPS/ELECT-002 for earth electrode pits with concrete cover at various locations. There shall be two earth pits constructed for each tank diametrically opposite to each other.

34.0 Line Item No. 340: Supply of API 600gate valve wit flange-10":

Supply of API 600 GATE VALVE with Companion flange, 10"X150 Class RF FLANGED END. Cast Carbon Steel Gate valve as per API 600 specification, regular bore type, rising stem, bolted bonnet, outside screw and yoke, integrally cast flexible wedge gate. End flanges having serrated RF face drilled in accordance with ANSI B-16.5 face to face dimension as per ANSI B-16.10 & tested as per API 598 specification.

35.0 Line Item No. 350: Supply of API 600gate valve with flange-8":

Supply of API 600 GATE VALVE with Companion flange, 8"X150 Class RF FLANGED END. Cast Carbon Steel Gate valve as per API 600 specification, regular bore type, rising stem, bolted bonnet, outside screw and yoke, integrally cast flexible wedge gate. End flanges having serrated RF face drilled in accordance with ANSI B-16.5 face to face dimension as per ANSI B-16.10 & tested as per API 598 specification.

36.0 Line Item No. 360: Supply of API 600gate valve with flange-6":

Supply of API 600 GATE VALVE with Companion flange, 6"X150 Class RF FLANGED END. Cast Carbon Steel Gate valve as per API 600 specification, regular bore type, rising stem, bolted bonnet, outside screw and yoke, integrally cast flexible wedge gate. End flanges having serrated RF face drilled in accordance with ANSI B-16.5 face to face dimension as per ANSI B-16.10 & tested as per API 598 specification.35.0 Line Item No.

37.0 Line Item No. 370: Supply of API 600gate valve with flange-4":

Supply of API 600 GATE VALVE with Companion flange, 4"X 150 class RF FLANGED END .Cast Carbon Steel Gate valve as per API 600 specification, regular bore type, rising stem, bolted bonnet, outside screw and yoke, integrally cast flexible wedge gate. End flanges having serrated RF face drilled in accordance with ANSI B-16.5 face to face dimension as per ANSI B-16.10 & tested as per API 598 specification.

38.0 Line Item No. 380: Foam pouring system:

Foam pouring system:

Installation of automatic foam pouring system for 795 kl safe filling capacity crude oil capacity fixed roof crude oil storage tanks. The item consist of following jobs:
i) Fabrication of 3 kl capacity Foam tanks with 3m thick S.S plates with suitable brachings inside to avoid collapse of the tank plates. This also includes fabrication and erection of ladder made of angle iron/ pipes/ MS rods of suitable size.

ii) Fabrication of a Staging of 100 mm NB pipe or angle iron for the foam tank fabricated against item no (i). above. The legs of the staging will be grouted as per the instruction of the site engineer. All the material for the staging of the tank will be supplied by the contractor.

iii) Fabrication of the foam manifoldof 150 mm NB size with 5 nos 25 mm NB points and then completing the piping connections as well as valves installations form the manifold to foam inductor. The foam manifold will be connected to the foam tank fabricated against item no (i).

iv) Fabrication of a 8" NB water manifold with 5 nos 4" NB points and then completing with 4" NB pipeline connections from the manifold to the existing crude oil tanks as well as valves and installation of foam inductor stainless steel make (to be supplied by the contractor) . The water manifold will then be connected to the 200 mm NB water ring line by taking out two 150 mm NB points with valves.

v) Fixing of foam maker cum pourer stainless steel make (to be supplied by the contractor) with the existing flanges in the crude oil tanks and then connecting the foam pourers by laying 4" NB vertical pipelines laid against item no (iv).

vi) All materials except pipes of dia 100 mm NB and above will be supplied by the contractor and will make necessary arrangement for scaffolding including scaffolding of materials.

vii) General specification of Foam Inductor and Foam Maker:

Inline Foam Inductor of 3% foam inductor capacity of 250 LPM at 7kg/cm2 inlet pressure, body made up of 50 mm/65 mm NB flanged inlet and outlet connection. 2 nos. of Foam Inductor shall be provided for each tank. The foam inductor will be hydraulically tested to 23kg/cm2 pressure. The foam inductor shall be made of SS-316. The Foam Maker should be of matching capacity for the inline inductor, with 50 mm NB inlet and 80 mm NB outlet flanged connections. 2 nos. of Foam Maker shall be provided for each tank. Foam line of 100 NB size with suitable reducer should be considered. All the pipe constructions should conform to IS: 1239 specification of heavy grades. The foam maker with foam pourer including vapour seal glass chamber shall be made of SS-316 and UL/FM approved. Both inline inductor and foam maker shall be procured from a single source and relevant documents to be submitted to OIL.

39.0 Line Item No. 390: Cooling Water System:

Fabrication and erection of double ring (size 2"Dia) circular type water spray system as per drawing no. OIL/PO/01 and OIL/10586, drenching system for the tanks as per applicable specification/codes etc. with supply of spray nozzles upto the tank bottom. All pipes, valves, flanges, fixtures, structurals, plates, supports, spray nozzles, pipe fittings and any other items necessary to complete the system as per direction of Engineer In-charge shall be supplied by the contractor.
*Pipes of diameter 4" and above will be supplied by OIL.

40.0 Line Item No. 400: Heating Coil:

Making of 'U' bends from 4"dia seamless pipe Sch. 40 as per OIL's drawing (OIL/10580) and erection of heating coil with proper supports and clamping up as per specification. OIL will supply pipes (seamless Sch.40). Supply of API 600 gate valve 150x4" class RF FLANGED END with companion flange, studs & nuts and all other materials including making of cold bends for the coil etc. is under the scope of the contractor. The joints of heating coil will be radiographed and hydrostatically tested after erection and completion of the job. *The necessary 4" diameter seamless pipe Sch.40 will be supplied by OIL.

41.0 Line Item No. 410: Supply and Installation of Breather Valve cum in- built Flame arrestor:

Supply of Breather Valve with inbuilt Flame Arrestor within one Unit as per ISO 16852. All jobs related to installation and commissioning of the item in this regard are under the scope of the Contractor. General specification of Breather Valve cum inbuilt Flame arrestor: Breather valve, non sparking open vent type with Flame Arrestor, base flange conform to ANSI 150 class, flat face, drilled as per ANSI B 16.5. Working pressure - 100 mm WG, Vacuum - 50 mm WG, Size - 6". Maximum pressure setting - 250 mm, maximum vacuum setting - 220 mm. Outlet size - 6". The Breather valves cum Flame arrestors should be ISO approved, conforming to ISO 16852 & EN 12874 and will have to be supplied by the bidder in-built type. *Pipes of diameter 4" and above will be supplied by OIL.

42.0 Line Item No. 420: Provision for Radar Gauge:

A 4"(100mm) dia. Flanged end Nozzle point / opening to accommodate the provision for Radar Gauge at the top of the tank roof shall be fabricated as per the direction of site engineer. Provision of a continuous 2" (50mm) dia. M.S. pipe leading to the the Nozzle point/ opening at the roof top of the tank, fabricated and clamped on the outer periphary of the tank to accommodate the sensors / sensing cables for future provisioning of Radar Gauge instrument shall also be kept. The 2" dia. pipe shall be grouted properly and the roof top end pointing above the Nozzle/ opening port shall have flenged end to place the Radar Gauge device suitably.

Detailed Description of service line items

PART-B

For Construction of 01 no. of 160 KL Crude Oil storage tank at Ushapur OCS

43.0 Line Item No. 430: Erection and dismantling of barrier wall:

Supply, fabrication & erection of barrier wall with CGI sheet to a height of minimum 10metre to isolate the working area from the existing installation on three sides as per the instruction of the site engineer. The wall should be strong enough with proper structural supports and drawings should be submitted to site engineer for approval prior to erection job. No hot job (welding/cutting/grinding etc.) would be allowed at site during the installation of the barrier wall and also in the working place till the wall is completed and the area is made completely gas-free which is to be confirmed by gas testing. The site shall also have to be free from any hazardous/inflammable substances/materials etc. and necessary work permit/clearance from concerned Installation Manager (IM)/Site engineer /incharge must be taken prior to start of the job on daily basis. The required pipes for the posts to be used for erection of barrier wall shall be arranged by company which shall have to be transported by the contractor to the work site for job execution. The contractor shall have to dismantle the so erected barrier walls upon completion of the tank construction job. The Contractor will have

to arrange all necessary infrastructure (scaffolding/working platform etc.) to facilitate erection and dismantling of the barrier walls in a safe manner which is to be to the satisfaction of the Site engineer.

44.0 Line Item No. 440: Completion of remaining jobs pertaining to construction of RCC foundation for 160 KL Crude Oil Storage Tank, as stipulated below:

i) Sand filling and compaction inside the newly constructed Foundation.

ii) Bitumenous carpeting over the sand filling and foundation.

45.0 Line Item No.450: Fabrication and Erection of 160 KL Tank:

Supply of materials, fabrication and erection of 160 KL capacity fixed roof tank as per OIL Drawings (OIL/3885 and OIL/3886) and API 650 standard along with anti- corrosive coating. The anti-corrosive coating is to be applied for the entire internal surfaces inclusive of tank bottom plate, roof and other structural members. Anti- corrosive coating on all the internal surfaces of the tanks including top and bottom plates shall be applied with High temperature resistant and chemical resistant anti-corrosive solvent free ceramic reinforced composite/ amine cured phenolic epoxy resin coating. The coating shall have 100% solid by Volume, and Mixed Density/specific gravity 1.25 gm/cc Minimum. The Dry Film Thickness (DFT) 300 to 600 microns, two coat system with minimum 150 micron per coat. Dry film thickness shall be measured after each coat using thickness gauge e.g. Mikrotest, Ecometer or any other suitable instruments. Holiday or spark testing shall be done after application of last coat to find nicks, scrapes and pin holes in the coating.The coating shall have tensile shear/Pull off adhesion of Minimum 200 kg/sq cm (2840 psi) as per ASTM D 1002/ASTM D 4541/ISO 4624. The coating shall be chemical resistant to mixture of crude oil & water in continuous emersion as per ASTM D543/ISO 2812-2. Service temperature shall be Minimum 80 Deg C in Wet (Immersion) service condition and Minimum 100 Deg C in Dry service condition as per ASTM D 648. The Surface preparation shall be achieved by abrasive/shot blasting to near white metallic as per NACE No. 2/SSPC-SP10, ISO 8501-1, Sa 2 ½, with blast surface profile depth of 75-125 micron.

Profile measurement for abrasive blast cleaned surface shall be made with Testex Press-O-Film or other suitable method. Prior to blasting, all weld spatters shall be removed & sharp or rough welds rounded & contoured. Any change in the surface preparation recommended by the OEM of the coating system shall be forwarded in the technical bid for approval by OIL. The application shall be airless spray method. The anti corrosive coating to be applied on internal surfaces of the tank shall be of make Hempel/ Belzona/Chesterton or equivalent and Performance Guarantee of minimum 10 years shall be provided by the OEM to OIL for product as well as application procedure.

46.0 Line Item No. 460: Foam, Drenching system & Breather valve:

Foam, Drenching system & Breather valve:

Foam System, Drenching system and Breather valve cum Flame arrestor: Supply of materials, Fabrication and Erection of fixed foam system, breather valve cum flame arrestor and fixed drenching system. All materials such as pipes, valves, nozzles etc required for the job will be supplied by the contractor.

i) Supply of Breather Valve with inbuilt Flame Arrester within one Unit as per ISO 16852:Supply and erection of Breather Valve for all the tanks fabricated and erected is under the scope of the CONTRACTOR. Detail specification including make of the valves is to be indicated in the bid for scrutiny and approval. All associated jobs in this connection will be carried out and completed by the contractor for complete installation of the item.

General specification of Breather Valve cum Flame arrestor: Breather valve, non sparking open vent type with Flame Arrestor, base flange conform to ANSI 150 class, flat face, drilled as per ANSI B 16.5. Working pressure - 100 mm WG, Vacuum - 50 mm WG, Size - 6". Maximum pressure setting - 250 mm, maximum vacuum setting - 220 mm. Outlet size - 6". The Breather valves cum Flame arrestors should be ISO approved, conforming to ISO16852 & EN12874 and will have to be supplied by the bidder in built type.

ii) Foam pourer and drenching water system: Double ring fixed cooling system-
Fabrication and erection of double ring circular type water spray system for the tanks as per sketch no OIL/PO/01 & OIL/10586. This item also includes supply of all materials (except pipes of dia 4" and above) such as valves, flanges, fixtures, deflector plates, all structural/ plates, supports, spray nozzles, pipe fittings, and any other items necessary to complete the system as shown in the drawing and as per direction of Engineer In-charge.

iii) Fixed foam system-
Fabrication and erection of fixed foam system (to be connectd to the existing system) for the tanks as per sketch no OIL/PO/02. This item also includes supply of all items (except pipes of dia 4" and above)) such as valves, flanges, Foam Pourer/ Maker of approved make, fixtures, Foam inductors, deflector plates, all structural/ plates, supports, pipe fittings and any other items necessary to complete the system as shown in the drawing as referred, applicable specifications/ codes and as per direction of Engineer In-charge. Necessary process pipes of dia 4" and above will only be supplied by OIL.

General specification of Foam Inductor and Foam Maker:

Inline Foam Inductor of 3% foam inductor capacity of 200 LPM at 7kg/cm2 inlet pressure, body made up of 50 mm/65 mm NB flanged inlet and outlet connection. The foam inductor will be hydraulically tested to 23kg/cm2 pressure. The foam inductor shall be made of SS-316. The Foam Maker should be of matching capacity for the inline inductor, with 50 mm NB inlet and 80 mm NB outlet flanged connections. All the pipe constructions should conform to IS: 1239 specification of heavy grades. The foam maker with foam pourer including vapour seal glass chamber shall be made of SS- 316 and UL/FM approved. Both inline inductor and foam maker shall be procured from a single source and relevant documents to be submitted to OIL.

The inductor will have TAC approval and BIS marked. All relevant documents, hydro-test reports, ISI/ TAC certificates for both the units will be submitted to OIL. Both the Inductor and Maker shall be procured from a single source. Amongst others, the recommended vendors are i) New Age Industries, 7 Champaklal Udyag Bhavan, Sian east, Mumbai -22, ii) Vimal Fire Controls Pvt Ltd,19/20 Vardhman Service Industrial Estate, LBS Marg, Vicroli West, Mumbai-83..

47.0 Line Item No. 470: External Painting of 160 KL tank:

Thorough cleaning and painting of external surfaces of the tank including shell, roof, soil side bottom plate and all fittings/accessories etc. connected to the tank body as per direction of company engineer/ Installation Manager/ his or her representative. After putting two coats of Epoxy Zinc Chromate Primer (30 micron DFT in each coat), two coats of aluminium/enamel paint will have to be applied (colour to be approved by Company engineer). For the soil side bottom plate, one coat of Zinc Silicate primer (65 micron DFT) followed by two coats of high build Epoxy black paint (100 micron DFT in each coat) will have to be applied. The plate surfaces shall be adequately cleaned and there shall be no rust/scale left over the plates. Painting jobs shall only be done after completion of cleaning jobs and physical inspection by the company's engineer at site. The Contractor will have to arrange all necessary infrastructure (scaffolding/ working platform etc.) to facilitate painting jobs. All paints, primers, painting materials etc. will have to be supplied by the contractor and should be duly approved by the company's engineer prior to application of paint.

48.0 Line Item No. 480: Hydraulic testing of 160 KL tank:

Hydraulic testing of 160 KL tank as per specification and direction of Site Engineer/ Installation Manager/ his or her representative.
Note: Source Water for Hydraulic testing will be provided by the Company. However, Temporary pipeline connection etc should be arranged/made by the contractor for lifting/filling water in the tank. For hydraulic testing of the newly fabricated/constructed tanks, all work such as arrangement of suitable pumps for filling of water to the tanks, running of the pump including all necessary connections to the water source will be arranged/executed by the contractor. After filling the tank with water a minimum period of 24 hours duration shall be maintained to observe any possible leakage/settlement of foundation etc.

49.0 Line Item No. 490:Calibration of the 160 kl tanks:

Calibration of the 160 kl tanks including all necessary arrangement.
Note: Contractor will have to make all necessary arrangements for Calibration of the tanks which are already fabricated and tested. The calibration job is to be done by a Govt. approved agency and relevant documents issued by Govt. authority will have to be submitted to OIL.

50.0 Line Item No. 500: Transportation of various diameter pipes:

Transportation of various diameter pipes Bevel/ Screwed up to 250 mm NB diameter to the tank construction sites, from pipe yards at the new/old industrial areas/well-head setup/site/OCS/EPS/ Department/field location including loading and unloading with the help of pipe Trailors/Crane without causing any damage to the pipes/pipe ends. Defective pipes shall be rejected prior to loading/ receiving by the Company Engineer/Installation Manager/ his or her representative. Payment will be made on Lumpsum basis per tank.

Maximum distance - 60 km. Average length of pipe - 12 m.

51.0 Line Item No. 510: Transportation of various types of materials:

Transportation of various types of materials including valves such as gate/plug/ ball/check/control valves etc., pipe fittings such as elbow, bend, flange, tee, swage etc. of various sizes ranging up to 250 mm NB diameter, M.S plates, gratings, angle iron, flat bar, rod etc. as per the requirement of the job from OIL godowns near OCS 3/South Bank office/Industrial area etc to the work site in truck/trailor including loading & unloading of such materials. (maximum load per trip - 10 tonnes). Payment will be made on Lumpsum basis per tank.

52.0 Line Item No. 520: Handling of 150mm NB Pipes and Fittings:

Handling, laying, aligning, swabbing, purging and Welding of bevel ended pipes and various fittings such as flange, bend, reducer, elbow tee etc. (All materials to be supplied by Contractor) on ground/above ground/under ground/elevated position for making connection to various equipment/vessel/tank within the working Complex. .This job also includes bending of pipes through appropriate method/ repair of pipe ends etc., if necessary, with cutting torch, grinding, removing ovality through jacks etc. Welding should be as per API 1104 with requisite number of runs.

53.0 Line Item No. 530: Handling of 100 mm NB Pipes and Fittings:

Handling, laying, aligning, swabbing, purging and Welding of bevel ended pipes and various fittings such as flange, bend, reducer, elbow tee etc. (All materials to be supplied by Contractor) on ground/above ground/under ground/elevated position for making connection to various equipment/vessel/tank within the working Complex.This job also includes bending of pipes through appropriate method/ repair of pipe ends etc., if necessary, with cutting torch, grinding, removing ovality through jacks etc. Welding should be as per API 1104 with requisite number of runs.

54.0 Line Item No. 540: Handling,aligning,installation150mm valve:

Handling, aligning and installation of 150 mm NB size Flanged type Valves such as control /gate /check /ball / plug valves, etc. with flanges on pipeline laid over ground/ underground/ overhead or at all elevation wherever required with proper gaskets, nuts & bolts (All materials to be supplied by Contractor) in both sides as per the instruction of site engineer/ Installation Manager (IM) or his/ her representative. In case of generation of shear/deformations on the pipelines or its fittings after the activity on either side of valves the same will have to be repaired/rectified to bring back the same to the original condition by the Contractor at his/her own cost and no compensation to the effect shall be entertained by the company. Before installation, the valves to be tested hydraulically to the requisite pressure as per the instruction of the site engineer/ Installation Manager (IM) or his/ her representative.

55.0 Line Item No. 550: Handling,aligning,installation100mm valve:

Handling, aligning and installation of For 100 mm NB size Flanged type Valves such as control/gate/check/ball/plug valves, etc. with already existing flanges on pipeline laid over ground/ under ground/ overhead or at all elevation wherever required with proper gaskets, nuts & bolts (All materials to be supplied by Contractor) in both sides as per the instruction of site engineer/ Installation Manager (IM) or his/ her representative. In case of generation of shear/deformations on the pipelines or its fittings after the activity on either side of valves the same will have to be repaired/rectified

to bring back the same to the original condition by the Contractor at his/her own cost and no compensation to the effect shall be entertained by the company.. Before installation, the valves to be tested hydraulically to the requisite pressure as per the instruction of the site engineer/ Installation Manager (IM) or his/ her representative.

56.0 Line Item No. 560: In case of generation of shear/deformations on the pipelines or its fittings after the activity on either side of Flange the same will have to be repaired/rectified to bring back the same to the original condition by the Contractor at his/her own cost and no compensation to the effect shall be entertained by the company.

57.0 Line Item No. 570: Handling of 100 mm NB Companion Flange:

Handling, aligning and hooking up of Companion Flanges on pipe lines over ground/ underground/ overhead or at all elevation as required, complete with jointing materials/nut-bolts (All materials to be supplied by Contractor) wherever required as per the instruction of site engineer/ Installation Manager (IM) or his/ her representative. In case of generation of shear/deformations on the pipelines or its fittings after the activity on either side of Flange the same will have to be repaired/rectified to bring back the same to the original condition by the Contractor at his/her own cost and no compensation to the effect shall be entertained by the company.

58.0 Line Item No. 580: Fabrication of various pipe fittings:

Fabrication of various pipe fittings like Bend, Tee, Reducer etc. by welding including handling, cutting, end preparation etc. The job will be quantified as per unit length of welding measured in centimeter. All materials to be supplied by Contractor. All welding joints shall be as per API 1104 specification.

59.0 Line Item No. 590: Single leg Pipe support:

Supply, fabrication, welding & erection of Single Leg Pipe Supports, with 100 mm NB. M.S pipes, including clamping of pipes up to 1.5 mtr. height, generally as per the sketch no OIL/PO/04. All materials like pipes clamps, base plates, bolts & nuts etc. will be arranged and supplied by the contractor. The job also includes construction of Pillar Foundations for the pipe supports fabricated of size 0.25 m (L)x 0.25 (B) x0.40m (Depth) made out of CC of 1:1.5:3 ratio, including grouting.

60.0 Line Item No. 600: Double leg Pipe support:

Supply, fabrication, welding & erection of Double Leg Pipe Supports: Supply, fabrication, welding & erection of Double Leg Pipe Supports with 100 mm NB. M.S pipes, including clamping of pipes up to 1.5 mtr height, generally as per the sketch no. OIL/PO/05. All materials like pipes, clamps, base plates, bolts & nuts etc. will be arranged and supplied by the contractor. The job also includes Pillar Foundations for the pipe supports fabricated of size 0.25 m (L) x 0.25 (B) x 0.40m (Depth) made out of CC of 1:1.5:3 ratio, including grouting.

61.0 Line Item No. 610: Supply, fabrication, welding & Erection of Concrete Pipe Supports:

Supply of all materials, erection, installation, plastering, curing of RCC Pipe Supports (1:1.5:3 mixture) including clamping System/arrangement as per OIL drawing no. OIL/PSS/01. Provision of clamping with the help of U clamps with nuts to clamp different

diameter pipes with nuts and washers including all civil construction materials will have to be supplied by the contractor. All the supplied materials must be approved by OIL prior to erection including material test certificates and other documents.

62.0 Line Item No. 620: Walkway and walkway platform:

Supply, Fabrication and erection of walkway and walkway platform of 750 mm width with railings over the pipe/bunch of pipes, bundh, dyke wall, drains etc. as per sketch no. OIL/PP/17 supplied herewith (which is a representative drawing of walkways and which may be adjusted as per requirement depending on availability of space). The contractor will supply all necessary materials like M S Grating (500 mm width),support pipes, Angle iron frame, railing etc. and prior approval for all materials will have to be obtained from the company representative. After fabrication/erection, the posts are to be grouted out of CC composition 1:1.5:3 as per directive of site engineer/ Installation Manager (IM) or his/ her representative. All grouting materials will be supplied by the contractor. Size of the grouting 0.2 m (L) x 0.2 m (W) x 0.4 m (H).

63.0 Line Item No. 630: Radiographic inspections Pipe/welded joints:

Radiographic inspection of pipe/welded joints by a third party inspection agency (approved by BARC) as directed by the site engineer/ Installation Manager (IM) or his/ her representative. All necessary equipment including the inspection agency to be arranged by the contractor at his/her own cost (no reimbursement shall be entertained by company) with the approval of the company engineer/ Installation Manager (IM) or his/ her representative. Certification from the third party inspection agency to the effect shall have to be deposited to OIL.

Size: 150mm NB/100mm NB. (for pipe joints)

64.0 Line Item No. 640: Letter writing (300 mm to 450 mm):

Arrow marking on piping and letter writing on vessels, tanks, signboards, piping, shed, pumps etc. Writing will be in English, Assamese and Hindi as per the instruction of the site engineer with approved paints. All materials including paint, paint brush etc. for the job will be arranged by the contractor.

Letter size - From 300mm to 450 mm

65.0 Line Item No. 650: Letter writing (150 mm to 299 mm):

Arrow marking on piping and letter writing on vessels, tanks, signboards, piping, shed, pumps etc. Writing will be in English, Assamese and Hindi as per the instruction of the site engineer with approved paints. All materials including paint, paint brush etc. for the job will be arranged by the contractor.

Letter size - From 150 mm to 299 mm.

66.0 Line Item No. 660: Erection of brick wall around the Tanks:

Erection of brick wall around the Tanks as per OIL drawing no. OIL/2488 including steps on both side and painting the all exposed surfaces with exterior weather proof paint. All materials will be supplied by the contractor.

67.0 Line Item No. 670: Casting of PCC for the Tank Farm Floor:

The job is to be carried out with one layer of brick soling followed by 75 mm cc and as per the directive of the company engineer/ Installation Manager (IM) or his/ her representative. The job involved chipping/breaking/cleaning the existing floor and reconstruction of the same including drainage system. All the material for the job is to be supplied by the contractor.

68.0 Line Item No. 680: Earthing System of Tanks:

Earthing connection of the storage tanks including supply of all materials. Providing complete earthing system to the constructed tanks, consisting of G. I earthing Bus, Earth Electrodes, connected firmly to the shell, as per drawing/specifications provided in Drawing No. OIL/EPS/ELECT-007, including all the associated jobs. This item includes supply of all materials, fabrication and erection as needed. This item also includes construction of brick/RCC enclosure as per sketch no OIL/EPS/ELECT-002 for earth electrode pits with concrete cover at various locations.

69.0 Line Item No. 690: Supply of API600 6"x150 F-end GATE VALVE:

Supply of API 600 GATE VALVE with Companion flange, 6"X150 Class RF FLANGED END. Cast Carbon Steel Gate valve as per API 600 specification, regular bore type, rising stem, bolted bonnet, outside screw and yoke, integrally cast flexible wedge gate. End flanges having serrated RF face drilled in accordance with ANSI B-16.5 face to face dimension as per ANSI B-16.10 & tested as per API 598 specification.

70.0 Line Item No. 700: Supply of API600 4"x150 F-end GATE VALVE:

Supply of API 600 GATE VALVE with Companion flange, 4"X 150 class RF FLANGED END. Cast Carbon Steel Gate valve as per API 600 specification, regular bore type, rising stem, bolted bonnet, outside screw and yoke, integrally cast flexible wedge gate. End flanges having serrated RF face drilled in accordance with ANSI B-16.5 face to face dimension as per ANSI B-16.10 & tested as per API 598 specification.

71.0 Line Item No. 710: Supply of API600 2"x150 F-end GATE VALVE:

Supply of API 600 GATE VALVE & Companion flange 2"X150 Class RF FLANGED END with companion flange stud & nuts: Cast Carbon Steel Gate valve as per API 600 specification regular bore type rising stem bolted bonnet outside screw and yoke integrally cast flexible wedge gate. End flanges having serrated RF face drilled in accordance with ANSI B-16.5 face to face dimension as per ANSI B-16.10 & tested as per API 598 specification.