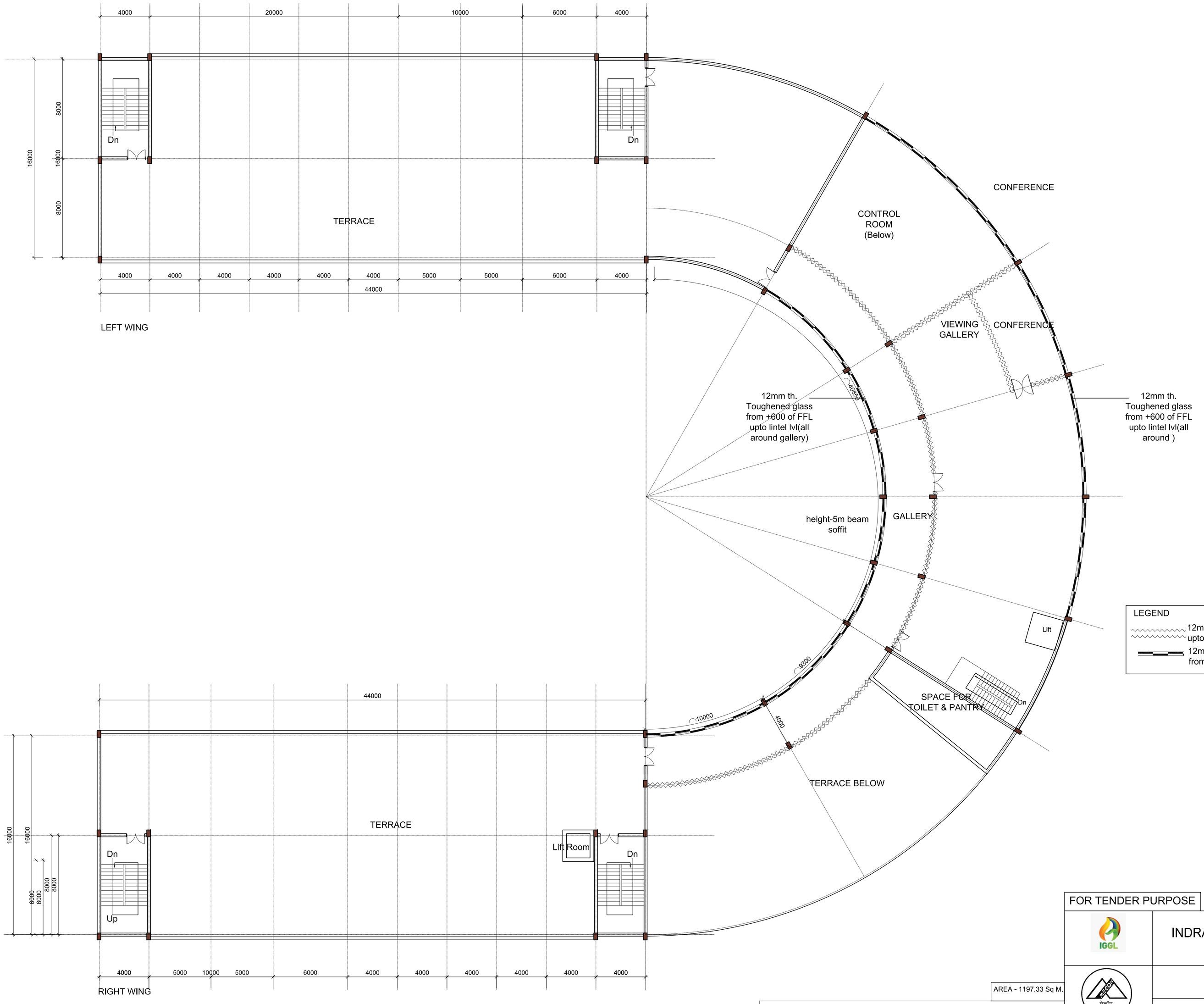

SECOND FLOOR PLAN

AREA - 1197.33 Sq M.

SCHEDULE OF FINISHES(OUTSIDE) - Granite & zinc cladding

FOR TENDER PURPOSE

INDRADHANUSH GAS GRID LTD.

मेकॉन लिमिटेड

MECON LIMITED

1. 250MM WIDE BRICKS TO BE USED FOR WALLS.
2. ALL PAINTS TO BE ECO-FRIENDLY WITH LOW V.O.C.
3. CERAMIC TILES WITH RECYCLED CONTENTS TO BE USED.
4. LOW FLOW TOILET FIXTURES TO BE USED.
5. ±0.00 CORRESPONDS TO FINISHED ROAD TOP LEVEL
6. 12 MM DROP IN FINISH/SLAB TO BE MAINTAINED FROM INSIDE THE ROOM TO THE VERANDAH/BALCONY/TERRACE ETC.
7.1:80 MM SLOPE APPROXIMATELY TO BE MAINTAINED FOR DRAINAGE AT ROOF LVL.
8.ALL FINISH FLOOR LEVELS (EXTERNAL/INTERNAL) MUST BE LAID IN PROPER SLOPE & DIRECTION AS MAY BE REQUIRED AS/NORMAL ENGINEERING PRACTISE.

REV	DATE	ZONE	DESCRIPTION	BY	VERIFIED
A	21.03.22		revised as per comments from Instrumentation section,Ranchi on 17.03.22	Vibha	Vibha
			REVISION		

REFERENCES

DRG.NO.

CONCURRED BY

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SECTION	ARCHITECTURE
LOCATION	DELHI
DESIGNED	VIBHA
DRAWN	VIBHA
CHECKED AND VERIFIED	S.BASU
APPROVED	SIG DR.R.K.DUTTA
	DATE : 15.03.2022

NORTH - EAST GAS GRID PIPELINE PROJECT

CONTROL ROOM BUILDING FOR COMPRESSOR STATION AT GUWAHATI

SECOND FLOOR PLAN

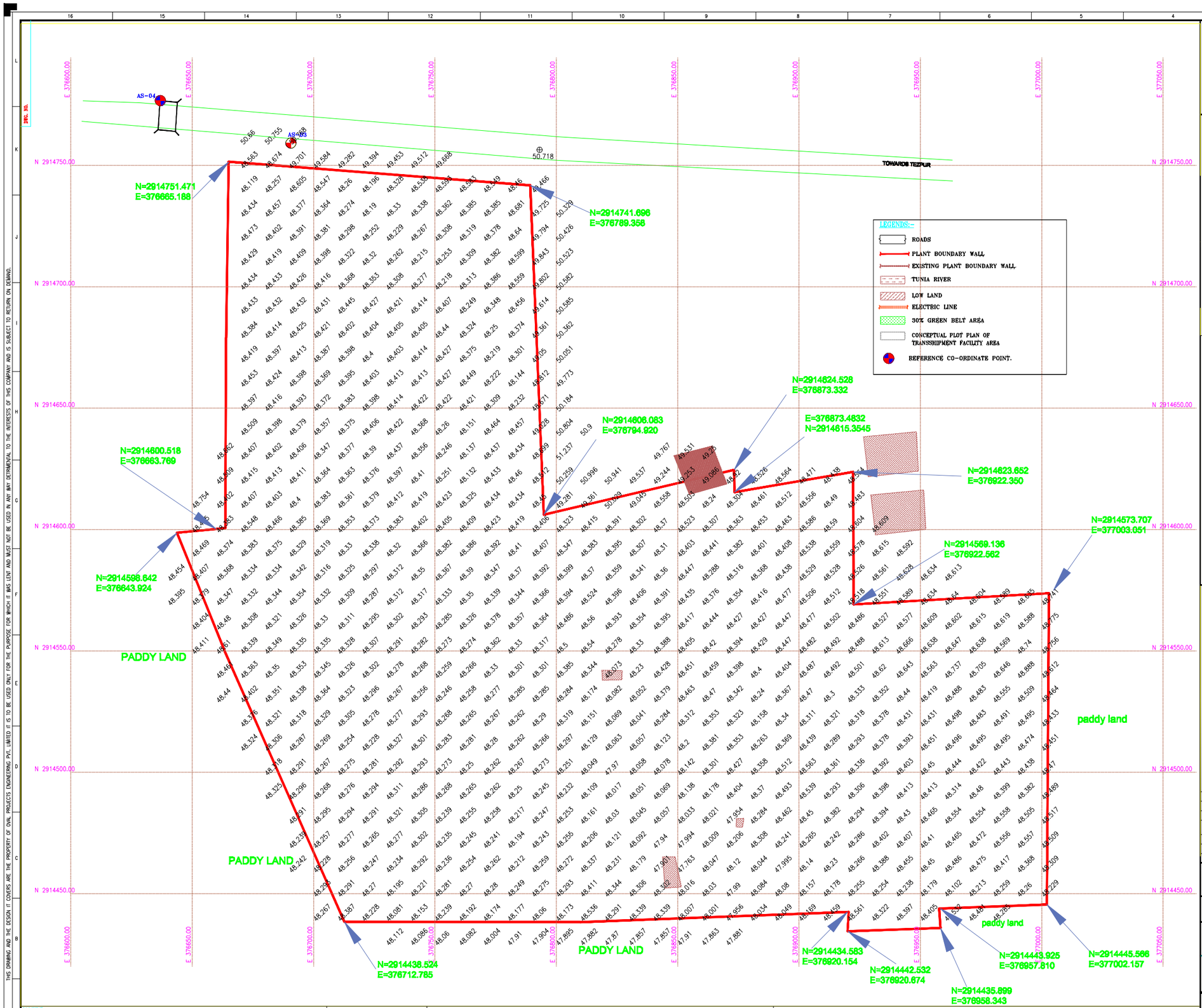
SCALE :- 1:100

DRG.NO.:-MEC/05/28/23UU/NGCS/TD/007

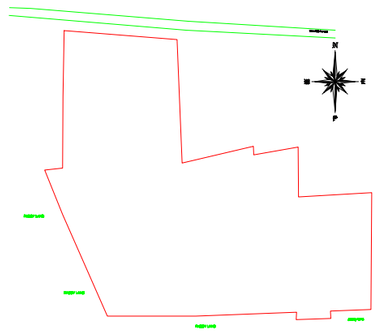
SHEET 1 OF 1

REV 1

ANNEXURE-2



KEYPLAN



ISSUED FOR APPROVAL

REV	DATE	DESCRIPTION	DRAWN	CHK	ENG	APPROVED
A	16-05-2022	ISSUED FOR REVIEW	R.DAS			

Revisions

CLIENT: INDRADHANUSH GAS GRID LIMITED (A JV OF IOCL,ONGCL,GAIL,OIL & NRL)

PMC: MECON LIMITED

CONTRACTOR: OVAL PROJECTS ENGINEERING PVT. LIMITED
Brahmakumarika Center, PO. AD Nagar, Badarghat, near Prajapita, Milanchakra, Agartala, Tripura 799003

ORDER NO.: IOGL/PD/BM/05/51/23UU/IGGL/001 --I--4/oval

PROJECT TITLE: NORTH - EAST GAS GRID PIPELINE PROJECT

TITLE: TOPOGRAPHICAL SURVEY DRAWING OF COMPRESSOR STATION.

SCALE	DRAWING NO :	PROCESS UNIT	STATUS	SHEET	REV.
1:500	IGGL/OVAL/NEGG/SUR/A1/01	0		1 OF 1	0

CAD FILE NAME:

Print date: 5/16/2022

NOTES:-
01. ALL DIMENSIONS ARE IN mm.AND ALL CO-ORDINATES ARE IN MM.UNLESS OTHERWISE SPECIFIED.
02. F.G.L (FINISHED GROUND LEVEL) = XXX m, (R.L) ROAD LEVEL = 50.718 m & F.F.L(FINISHED FLOOR LEVEL) = XXXX m.
03. PLOT AREA WITH RESPECT TO BOUNDARY WALL IS 70,763.680 Sq.m. Or 17.486 Acres
04. HIGH FLOOD LEVEL IS 51.800 M.

REFERENCE CO-ORDINATE

AS-03	Northing- 2914759.394 Easting - 3776690.630 Elevation - 50.730	AS-04	Northing- 2914776.895 Easting - 376637.020 Elevation - 52.177

ANNEXURE-3

TECHNICAL SPECIFICATION FOR GEO TECHNICAL INVESTIGATION (COMPRESSOR STATION)

1.0 SPECIAL INSTRUCTION

1.1 Each boring and field test shall be conducted under the direct supervision of a qualified and experienced engineer. The bore hole locations shall first be fixed at site with reference to a permanent reference point or as directed by Engineer -in -charge.

1.2 All data/information's including any unusual data/ information obtained during the execution of the work shall be immediately brought to the notice of IGGL/ MECON.

1.3 All field investigations, laboratory tests and reports etc., shall be done in accordance with the latest relevant Indian Standard Codes.

1.4 Survey and levelling work for establishing location and levels of bore holes and the contractor shall carry out other exploratory work. However, reference point/ lines will be provided by IGGL/MECON to successful bidder for carrying out such work. Depending on site condition, the locations and nos of test can be altered at site, if found necessary by Engineer-in-charge.

2.0 SCOPE OF WORK:

The soil investigation work comprises, but not limited to the following:

a) Bore Holes of 30 meters deep below natural ground level of plot. The number of bore hole to be drilled is decided as per IS 1892 (1979) or as directed by Engineer - in -Charge during engineering phase.

b) The depth of Bore hole can increase / decrease as per the directive of IGGL / MECON.

c) Standard Penetration tests and collections of disturbed and undisturbed soil sample from bore holes at every 1.5m interval and change of strata.

d) Recording of ground water level.

e) Laboratory tests on soil samples and water samples collected as per technical Specifications.

f) All Bore holes / pits in shall be backfilled. Boreholes shall be backfilled using bentonite cement grout in ratio of 1 to 1 by weight and shall be made into slurry with no more water than necessary for placing the slurry in the borehole. In case of standing water in boreholes, same shall be dewatered before placing the mix.

g) Submission of draft report in 2 sets and final report in 4 sets.

03.0 TECHNICAL SPECIFICATION OF WORK

03.01 Soil Investigation

The scope of services of the contractor for undertaking soil investigation work shall cover all the work connected with soil exploration program at the proposed Terminal/ plots including the setting out of locations of the various exploration points from reference point, conducting all field investigations at site, collection of soil and water samples, field and laboratory tests and submission of final report in 4 (Four) copies.

All field investigation, laboratory tests and reports etc. shall be done in accordance with the latest relevant Indian Standard Codes.

03.02 Soil Investigation Work

The details to be covered in the contract work shall include the following:

Field Investigation and Test

03.02.01 Exploratory bore holes and core drilling

a) <u>BY SHELL & AUGER</u>

All bore holes shall be of minimum 150mm in diameter. The exploratory work at site shall be carried out using shell and auger equipment. The boreholes shall be terminated at a depth, whenever with chiseling and subsequent cleaning with bailer, the bore hole cannot be advanced more than 300mm in one hour. The casing shall be extended upto a maximum depth which could be possible as per site conditions. No bentonite mud shall be used to advance boring. Chiseling shall be carried out with minimum 0.5mm tonne cross type chisel falling from a height of 2.0m. Chiseling and cleaning with bailer shall be done alternately, each operating from 5 to 10 minutes. Refusal to chiseling shall be considered after one hour of chiseling or when progress is less than 30cms. for each 200 drops, whichever is later. The bore holes thereafter shall be extended by core drilling method using Nx size drilling bits until 50% core recovery is achieved. Cores shall be properly preserved in core boxes and shall be handed over to IGGL/MECON if required. Whenever clay or other soft material is interspersed in rocky strata, the drilling shall continue deeper into rock to ascertain such formation. Disturbed samples from boring shall be collected at every 2.0m or change in stratum and representative samplesplaced systematically for proper logging of the strata. The existing ground levelshall be marked. Proper logging shall be done with description of different strata encountered with their reduced levels. (Profile of the different strata shall be plotted joining all adjacent boreholes apart from individual boreholes. All bore holes after completion of work shall immediately be filled in with a mixture of bentonite slurry and clay sand mixture).

b) BY MUD CIRCULATION DRILLING

In case the site conditions require the bore, drilling shall be employed using Mud circulation method. It should be adopted in all type of soils. Minimum diameter of bore holes shall be 150mm if the rate of progress of boring in hard strata is observed to be slow (Not more than 20 cm in two hours) contractor may be permitted to adopt core drilling with Nx size bit. However, the bit for core drilling shall be with double tube core barrel and this core drilling operation shall be at no extra cost to the owner so long as to core recovery is less than 25%. Commencement of rock coring shall be considered at a depth below which the core recovery is min 25%. For rock strata encountered having RDQ 50% Diamond Head of Nx size drilling bits shall be used.

Termination of bore holes shall be as indicated below. Max length cored in rock shall be limited to 10 x Nx if rock available within 2.0m from the Bed/GL level. Length of rock coring will decrease linearly.

03.02.02 This specification deals with Field Investigation/ tests and laboratory test involved in ascertaining soil stratification & engineering propertiesof the soil at proposed project site. The field investigations/ tests comprise of the following: -**ExploratoryBore Holes**

Depths indicated for bore holes or trial pits or any other depth correspond to the depth from general ground level unless otherwise specified.
The location and number shall be indicated by CLIENT/MECON before commencement of field activities. The location and number of these bore holes can be altered at site, if found necessary by CLIENT/MECON. All bore holes shall be of 150 mm diameter and shall be sunk into soil to a depth of 30 meters .

Sampling

In cohesive and semi cohesive soils, undisturbed samples conforming to IS:2132 shall be taken using open tube samples with an area ratio of less than 15% so as to obtain a core of sample of 100mm diameters and 450mm long at every change in stratum or at intervals of 1.5 metre whichever is less. The tube shall be properly marked and the ends of the sample tube shall be sealed properly with wax of thickness not less than 25mm and capped properly immediately after the sample is recovered from the bore holes to ensure no loss of moisture with time while retained in the tube. Sample tubes shall be immediately shifted to the laboratory for testing.

Disturbed samples

Representative disturbed samples obtained from boring at every staggered 1.5m interval in depth and change in stratum shall be placed in suitable jars labeled properlyfor onward transmission to the laboratory. These samples shall be sent to the laboratory immediately after the boring is completed. All SPT samples shall also be similarly preserved.

Undisturbed Sampling

In cohesive and semi-cohesive soils, undisturbed samples conforming to IS:2132 shall be taken using open tube samples with an area ratio of less than 15% so as to obtain a core of samples of 100mm diameters and 450mm long at every change in stratum or at intervals of 1.5m whichever is less. The tubes shall be marked and the ends of the sample tube shall be sealed properly with wax of thickness not less than 25mm and capped properly immediately after the sample is recovered from the boreholes to ensure no loss of moisture with time while retained in the tube. Sample tubes shall be immediately shifted to the laboratory for testing.

Standard Penetration Test (SPT)

The S.P.T. shall be performed at the base of boreholes as per IS:2131 with the first test at a depth of 0.5 m and thereafter at every change in stratum or at intervals of 1.5 metre whichever is less in both cohesive and non-cohesive soil. The S.P.T. shall also be conducted at termination depth of Borehole. Test may also be required to be carried out in compact sand which in normal terminology will be refusal strata. No. of blows required to penetrate every 150mm shall be recorded in case of normal sand, silt or clay as per IS:2131. In case of dense/ hard stratum, the penetration (in mm) for every 20 blows per test shall be recorded. All these field records are to be submitted along with bore logs.

Bent rods and damaged/ defective nipples shall not be used for the test and shall be replaced immediately by proper ones. Centering spacers shall be used at every 6 meters or at smaller intervals in depths to reduce the effect of whipping of rods. Samples collected in process of conducting S.P.T. shall be preserved as disturbed sample. Graphs shall be drawn for each penetration test. Collection of undisturbed samples and conducting S.P.T. tests will be done alternatively.

Standing Ground Water Level

Records shall be maintained of the level at which water is struck and the level of any rapid in flow shall also be recorded. On reaching such level, the borehole shall be left open for a period of two hours to observe the rise of water in the casing. Boreholes can be continued thereafter, up to the end of the day. The level of the water in the casing at the end of the day and at the beginning of the next day shall be recorded properly. For studying the ground water table no drilling mud will be permitted for stabilizing the hole.

Laboratory Tests

Laboratory tests shall be conducted on selected samples collected from site to establish the physical and chemical properties of soil. Following tests shall be done as appropriate in accordance with latest relevant Indian code of Practice.

i) Natural moisture content
ii) Void ratio
iii) Liquid plastic and shrinkage limits
iv) Specific gravity
v) Dry density and bulk density
vi) Direct Shear test
vii) Consolidation/ swelling test
viii) Particle size analysis
ix) Triaxial test (undrained quick test)
x) Test on core samples
xi) Chemical properties of the soil & sub-soil water
xii) CBR test

Atterberg Limits

Liquid and plastic limit tests shall be conducted on all cohesive soils for classification purposes and for predicting engineering properties. The results of limit tests shall be plotted on the plasticity chart of A. Casagrande. Shrinkage limit shall also be determined for a few soil samples.

Particle Size Analysis

Particle size analysis shall be done on all clayey and sandy samples. Both sieve and hydrometric analysis shall be conducted and gradation curves shall be plotted to show the particle size distribution.

Shear Test

Shear tests shall be conducted on the undisturbed samples. A few unconfined compression tests shall be conducted on clayey samples but the majority of clayey samples in undrained condition shall be subjected to triaxial tests. The cohesion values and angle of internal friction are to be determined either by Mohr's circle or by any other method.

Particular attention shall be paid for conducting triaxial tests, each of which shall be done on a minimum of 3 specimens. Specimens shall be prepared by trimming and not by pushing small tube in a large tube.

Consolidation Tests

A few consolidation tests shall be carried out on undisturbed samples of clayey soil, to estimate the settlement of foundation from “e-log p” curves, compression index - Cc and co-efficient of consolidation – Cu. Consolidation test shall be done in manner that will not allow the sample to swell.

Swelling Test

For soils of expansive nature, swelling tests on a few samples shall be selected for conducting swelling test to determine swelling pressure and magnitude.

Specific Gravity and Bulk Density

These shall be determined as per the standard procedures.

Chemical Analysis of Soil and Sub-soil Water Samples

Water samples from a few bore holes shall be taken and chemical analysis shall be done for sulphate, chloride content and pH value, particularly to determine the aggressiveness to concrete, steel and GI pipes. Care shall be taken to ensure that they are not diluted with rain or surface water during recovery from the boreholes. Similarly, a few soil samples shall be chemically tested to determine the sulphate contents, chloride content and pH values and other aggressive components as per IS - 2720.

TEST RESULTS AND REPORT

The Contractor shall submit the detailed report wherein information regarding the geological detail of the site, summarised observations and test data, bore logs, and conclusions and recommendations on the type of foundations with supporting calculations for the recommendations. Initially the report shall be submitted by the Contractor in draft form and after the draft report is approved, the final report shall be submitted.

Bore Logs: Bore logs of each bore holes clearly identifying the stratification and the type of soil stratum with depth. The values of Standard Penetration Test (SPT) at the depths where the tests were conducted on the samples collected at various depths shall be clearly shown against that particular stratum.

Test results of field and laboratory tests shall be summarised strata wise as well in combined tabular form. All relevant graphs, charts tables, diagrams and photographs, if any, shall be submitted along with report. Sample illustrative reference calculations for settlement, bearing capacity, shall be enclosed.

Recommendations: The report should contain specific recommendations for the type of foundation for the various structures envisaged at site. TheContractor shall acquaint himself about the type of structures and their functions from the Owner. The observations and recommendations shall include but not limited to the following:

Topography of the area, past observations or historical data, if available, for the area and for the structures in the nearby area, fluctuations of water table etc. Slope stability characteristics shall be specifically highlighted.

Recommended type of foundations for various structures.

Allowable bearing pressure on the soil at various depths (1m to 3m depth in general or more depth as per site condition) for different sizes of the foundations based on shear strength and settlement characteristics of soil with supporting calculations shall be submitted. Factor of safety for calculating net safe bearing capacity shall be taken as per relevant codes and standard practices.

Comments on the Chemical nature of soil and ground water with due regard to deleterious effects of the same on concrete and steel and recommendations for protective measures.

If expansive soil is met with, recommendations on removal or retainment of the same under the structure, road, drains, etc. shall be given. In the latter case detailed specification of any special treatment required including specification or materials to be used, construction method, equipments to be deployed etc. shall be furnished. Illustrative diagram of a symbolic foundation showing details shall be furnished.

In case of loose filled up soil or compressible soil recommendation for Pile foundation (End bearing Pile or skin friction pile or under-ream pile) shall be recommended along with geo technical design of piles. Horizonal subgrade reaction is to be provided by contractor per relevant IS code for Pile Foundation design.

DRAFT REPORT

a) Drawings- Two paper copies in colour, one copy onPen drive

b) Reports and Records - Two paper copies in colour, one copy on Pen drive

FINAL REPORT

a) Drawings- Four paper copies in colour, Two copieson Pen drive

b)Reports and Records - Four paper copies in colour, Two copieson Pen drive

LIST OF INDIAN STANDARDS REFERRED

1	IS: 1498	Classification and Identification of Soils for General Engineering Purposes.
2	IS: 1888	Method of Load Tests on Soils.
3	IS: 1892 (1979)	Code of practice for subsurface investigation for foundations [CED 43: Soil and Foundation Engineering].
4	IS: 2131	Method for Standard Penetration Test for Soils.
5	IS: 2132	Code of Practice for Thin Walled Tube Sampling of Soils.
6	IS: 2720	Method of Test of Soils (Relevant Parts)
7	IS: 4434	Code of practice for In Situ Vane Shear Test for Soils.
8	IS: 4968-Part-I	Method for subsurface sounding for soils – Dynamic Method Using Cone without Bentonite Slurry.
9	IS: 4968-Part-II	Method for subsurface sounding for soils – Dynamic Method Using Cone and Bentonite Slurry.
10	IS: 4968-Part-III	Method for subsurface sounding for soils static cone penetration test.
11	IS: 5249	Method of Tests for Determination of In situ Dynamic Properties of Soils.

ANNEXURE-4

Sl No.	Features	Requirements
1	Sensor type	Line of Sight Infra red absorption technique (xenon flash lamp) having field replaceable transmitter and receiver units
2	Gas Detection	Configurable library having Methane, propane, propylene, Ethane, Butane, Hexane, Pentane & Benzene/R-LNG covering Hydrocarbons (from C_1-C12)
3	Range	0 to 5 LEL meter or better.
4	Operating distance	5 to 120 meter. Range selection shall be based on actual operational requirements.
5	Operating voltage	24V DC nominal (18-32V DC)
6	**Output**: Choice of output mode shall be optional as per the following:	
a)	With `HART' protocol	Linear 4-20mA DC (isolated/non-isolated) rated at 600 ohms loop resistance at 24V DC + HART Configurable detector fault signal (0 mA), beam blockage, maintenance signal at 23.2mA over range etc.
b)	With Alarm Relays	3-wire system, Linear 4-20mA DC (isolated/non-isolated) rated at 600 ohms loop resistance at 24V DC.
7	Modbus Interface (Optional)	Compliant to RS-485 protocol. Vendor to indicate max no. of detectors that can be multi-dropped with max. cable length.
8	Construction	Flameproof, 316SS body with dust/weather protection for outdoor installation. Terminal box shall be provided for further cabling (flying leads are not acceptable).
9	Accuracy	±0.25 LEL-meters or ±10% of applied gas concentration, whichever is greater.
10	Displacement/ misalignment tolerance	Shall have in-built sensor system for transmitter & receiver alignment.
11	Warm-up Time	1 minute for transmitter. 30 seconds for receiver from power-up when correctly aligned.
12	Sensitivity/ Calibration checking	By placing test gas film in front of the receiver.
13	Field Alignment	By local digital display and adjustable mounting arms.
14	Local display	LED indication for – Normal, Fault condition & Gas detected condition. Local LCD Display for indication.
15	Self Check	Continuous self-check for immediate detection of internal failures

16	RFI /EMI protection	Shall comply performance verified in accordance with EN 50241-1 and EN 50241-2.and performance criterion as defined in latest revision of EN 50270.
17	Operating temperature	-5 deg C to + 55 deg C
18	Humidity	5 to 95% RH
19	Repeatability	Better than +/- 3% of FS.
20	Cable entry	3/4 " NPT (F) (Any reducer/expanders shall be supplied by bidder.)
21	Area classification	Explosion-proof (Eexd) conforming to hazardous area classification to Class-I, Div-I, Gr. C & D (Zone-1, Gr. IIA/B). Temperature Class will be T5
22	Enclosure classification	IP66 or better
23	Approval	FM/ ATEX/ CSA/ CENELEC/ UL/other accredited testing agencies & PESO
24	Safety Integrity Level	Min. SIL-2 (TUV / EXIDA/other accredited testing agencies) certified.
25	Power Consumption Transmitter & Receiver	Vendor to specify.
26	Dimensions & Weight	To be provided by vendor
27	Accessories required	Mounting kits, detector alignment & calibration kit (one set per station (i.e one at Barmer and one at Palanpur) shall be supplied. One set means one no for open path and one no for point type along with all the accessories as mentioned in the MR like gas with cylinders, configuratiors, filters, etc. The quoted prices shall be inclusive of same), cell etc. Rain & Dust protection cover, Filter, Carrying Case, Calibrated Gas Cylinders, Splash guard, alignment & mode selection kits, Junction box with terminals as required. Mounting bases and Ex Proof double compression cable glands etc as required.
28	Display housing MOC	SS 316
	Cable between detector and transmitter	Required
	Cable between transmitter and remote receiver	Required

NOTES –

1. Armoured Cable between detector and transmitter (if required) shall be supplied by vendor along with installation accessories like cable connectors, cable glands etc.
2. Local LCD display shall be provided for each HCD and shall be integral to transmitter
3. For portable detector, one number battery charger shall be supplied by vendor.
4. Portable calibration kit shall include portable calibrator, tubing, pressure regulator, gas cylinder etc. as required by vendor for calibration.
5. Transmitter enclosure material shall be metallic.
6. All spare cable entries shall be duly plugged with Nickel plated brass Ex'd'/Ex'e' dual certified plugs.
7. Environmental cover to be provided for each HCD
8. Make of the HCD shall be from approved vendor list of Mecon /Client.
9. PESO Certification for the desired Hazardous Area Application shall be provided for each HCD. PESO Certificate Number shall be mentioned on each HCD.
10. 316SS tag plates stamped with Tag No. in 6 mm characters shall be permanently attached using 316SS screws or wire for each HCD
11. Manuals like calibration manual, etc shall be provided
12. IR detector lamp shall be replaceable type. Detector shall be compensated for lamp intensity variation due to dust, humidity, sun light, wear & tear etc.

13. Design Tempertaure - -5 Deg C to 70 Deg C
14. Operating Temperature – 0 to 55 Deg C
15. Explosion Proof Hooter with explosion proof Flasher shall be provided with each HCD.
16. Separate terminal blocks shall be provided for power & signal connections
17. Surge/Transient protection to be provided for all electronic Instruments in the field.
18. Cable glands shall be double compression type made of Nickel plated brass material, suitable for Zone 1, Group IIA / IIB, T3, Weather proof to IP 65 minimum, PESO certified and dual certified Ex'd'/Ex'e'.

DATASHEET OF POINT TYPE IR HYDROCARBON DETECTOR (HCD)

Sl No.	Features	Requirements
1	Sensor type	Infrared sensor technology based explosion-proof Gas sensor with transmitter
2	Principle of operation	Multi-beam, dual compensated, non focusing infrared absorption. Temperature compensation shall be in- built.
3	Function	Shall be able to detect hydrocarbon gases in the range of 0-100% LEL
4	Gas Detection	Configurable library having Methane, propane, propylene, Ethane, Butane, Hexane, Pentane & Benzene/R-LNG, covering Hydrocarbons (from C1-C12)
5	Calibration	Factory calibration at Methane or Propane
6	Range	0 to 100% LEL.
7	Construction	Flameproof, 316SS body with dust/weather protection for outdoor installation. No external terminal box shall be provided for further cabling (flying leads are not acceptable).
8	Optical performance	Correct operation unto 75% obscuration, the same shall be configurable with facility for dirty optics warning. Provision (heated optics) for detectors to be made to avoid condensation.
9	Input Power	24V DC nominal (18-30V DC)
	Display	Integral LCD Display
10	Output: Output mode shall be as per the following:	
a)	With `HART' protocol	3-wire system, Linear 4-20mA DC (isolated/non- isolated) rated at 600 ohms loop resistance at 24V DC + (Optional) HART (shall have intrinsically safe port on receiver to connect HART devices). Configurable detector fault signal (0 mA), beam blockage, maintenance signal at 23.2 mA over range etc. Potential free contact output for LEL alarm.
11	Modbus Interface	Compliant to RS-485 protocol. Vendor to indicate max no. of detectors that can be multi-dropped with max. Cable length.
12	Overall accuracy	Better than +/- 3% of LEL
13	Repeatability	+/- 2% FSD
14	Zero drift	2 % FSD per year maximum.
15	Response time	90% of gas reading in less than 5 Seconds.
16	Warm-up Time	2 minutes from cold start-up.
17	Visual Status display	Integral Unit Required, LED indication for – Normal, Fault condition & Gas detected condition complete with 4 Digit LCD Display..
18	Self Check	Continuous self-check for immediate detection of internal failures
19	RFI /EMI protection compliance	EN50270:1999 Type 2 (EMC- electrical apparatus for the detection of combustible gas) /Electromagnetic compatibility directive 89/336/EEC.
20	Operating temperature	-40deg C to + 60 deg C
21	Humidity	0 to 95% RH
22	Cable entry	½ " NPT (F) or 3/4 " NPT (F) (Any reducer/expanders shall be supplied by bidder.)
23	Area classification	FM/ATEX certified for Explosion-proof (EExd) conforming to hazardous area classification to Class-I, Div-I, Gr. C & D (Zone-1, Gr. IIA/B). Temperature Class will be T5.
24	Statutory Approval	PESO/ CCOE

25	Enclosure classification	IP65 or better
26	Filter	Required
27	Dimensions & Weight	To be provided by vendor.
28	Accessories required	Mounting kits, Canopy, Tag Plates, calibration kit (one set per station (i.e one at Barmer and one at Palanpur) shall be supplied. One set means one no for open path and one no for point type along with all the accessories as mentioned in the MR like gas with cylinders, configuratiors, filters, etc. The quoted prices shall be inclusive of same), Rain & Dust protection cover, Splash guard, Ex Proof & Weather proof double compression cable glands etc as required.
29	Configuration	Non Intrusive configuration Required
30	Safety Integrity Level	Min. SIL-2 (TUV / EXIDA/other accredited testing agencies) certified.

Notes-

1. Local LCD display shall be provided for each HCD and shall be integral to transmitter
2. Environmental cover to be provided for each HCD
3. Make of the HCD shall be from approved vendor list of Mecon /Client.
4. PESO Certification for the desired Hazardous Area Application shall be provided for each HCD. PESO Certificate Number shall be mentioned on each HCD.
5. 316SS tag plates stamped with Tag No. in 6 mm characters shall be permanently attached using 316SS screws or wire for each HCD
6. Manuals like calibration manual, etc shall be provided
7. IR detector lamp shall be replaceable type. Detector shall be compensated for lamp intensity variation due to dust, humidity, sun-light, wear & tear etc.
8. Portable calibration kit shall include portable calibrator, tubing, pressure regulator, gas cylinder etc. as required by vendor for calibration.
9. Design Tempertaure - -5 Deg C to 70 Deg C
10. Operating Temperature – 0 to 55 Deg C
11. Explosion Proof Hooter with explosion proof Flasher shall be provided with each HCD.
12. All spare cable entries shall be duly plugged with Nickel plated brass Ex'd'/Ex'e' dual certified plugs
13. Separate terminal blocks shall be provided for power & signal connections
14. Surge/Transient protection to be provided for all electronic Instruments in the field.
15. Cable glands shall be double compression type made of Nickel plated brass material, suitable for Zone 1, Group IIA / IIB, T3, Weather proof to IP 65 minimum, PESO certified and dual certified Ex'd'/Ex'e'.

ANNEXURE-5

04.05.02 Emergency Diesel Generator Set

04.05.02.01 Scope of Work

Bidders scope shall include two nos. each of 500 kVA DG sets minimum capacity including exciter, AVR, Independent AMF cum control panel, acoustic enclosure, battery, battery charger, cables, relays, meters and all other items required for smooth running of the DG set.

The design ambient temperature for all the electrical equipment shall be 50^0C.

04.05.02.02 Alternator and Electrics

a) Codes and Standards

Alternator	:	IS-4722/IEC-60034,IS12065, IS12075
Speed of Diesel Generator	:	BS649 / 195B
Permissible limits of noise level of rotating machines	:	IS 12065
Measure, evaluation and limit of Vibration severity of rotating Electrical machines shaft 65 mm dia or higher	:	IS 12075
Code of practice for Fire Safety	:	IS 3034
OSID standard on lightning protection	:	OISD-GDN-180

b) Equipment complying with other internationally accepted standards such as ASA, IEC, BS, VDE etc. will also be considered if they ensure performance and constructional features equivalent to or superior to standards listed above. In such a case, the Bidder shall clearly indicate the standard(s) adopted and also furnish a copy in English of the latest revision of the standards along with copies of all official amendments in force as on date of opening of bid. Bidder shall clearly bring out the salient features for comparison.

c) Technical Requirements

i) The emergency DG set shall automatically come in to operation in the event of total power failure in the station as mentioned.

ii) The alternator shall be externally regulated type with a voltage variation of ± 5% of the rated voltage with ± 1% frequency variation. Automatic Electronic voltage regulator shall be provided

iii) The starting time required from the initiating signal until the operating speed and voltage is attained and the engine and generator are ready to take load, shall not be greater than 30 seconds. Three attempt starting facility shall be provided either by using two impulse timer and a summation timer or by using microprocessor based controller along with auxiliary panel if any. The DG set shall lockout automatically in case of failure of above.

iv) The DG shall be capable of being stopped manually from remote as well as local. Interlock shall be provided in DG control panel to prevent shutting down operation (when in auto mode) as long as the circuit at generator output is closed.

v) Electrical self starting system shall be provided, the source of energy shall be batteries backed up by battery chargers which shall be supplied by the Bidder.

vi) The DG Set shall be located inside the acoustic enclosure and shall be suitable for outdoor duty. The bidder shall consider space requirement. The exhaust shall be discharged through a silencer and stack outside the enclosure. Necessary lightning protection shall be provided by the bidder for the stack. The generating set shall be suitably placed and enclosed so as to meet the technical, functional and statuary requirement like Noise level, IP protection etc.

vii) Critical speed of the machine shall not be lesser than 120% of the normal speed.

viii) The alternator shall withstand a short circuit at its terminal for three seconds with excitation adjusted to develop rated voltage at no load without any damage.

ix) All couplings shall be capable of withstanding the maximum generator sudden short circuit torque.

x) The sub-transient impedance shall be suitable to start biggest drive at minimum voltage dip.

xi) The field winding shall be fully insulated from the core. The field system shall have low inductance to allow good voltage regulation.

xii) The line and neutral ends of each phase winding of the generator shall be bought out on six suitably located terminals. Bidder shall provide suitable clamping arrangement for connecting the cable to the terminals. The terminal shall be suitably enclosed to prevent short circuits by rodents etc.

xiii) Suitable cable glands shall be provided on the enclosure to facilitate entry of the above cables. The cable terminal box size shall be adequately dimensioned to accommodate PVC insulated, aluminium power cables of required size.

xiv) The alternator shall be provided with two nos. earthing terminals which shall be separated from the neutral terminal. The neutral shall be brought out to fully insulated terminal.

d) Generator

i) The generator shall be of totally enclosed or screen protected drip proof and self air cooled type. The generator shall be driven by the Diesel engine specified in other chapters of the specification and shall match the same in all respects. The generator shall conform to IS 4722 or IEC-60034.

ii) AC generator shall be supplied along with its excitation system, AVR including all necessary auxiliaries.

e) Rating

The Generator shall be star connected-3-phase, 50 Hz synchronous generator and shall have a continuous rating. The continuous rating of the alternator under the specified ambient condition shall be at least equal to the net electrical output specified for the DG set plus the power requirements of all electrical auxiliaries connected to the alternator terminal including excitation (if it is taken from alternator terminals). The operating condition for each electric generator shall be as follows:

i) Voltage 415V

ii) Frequency 50Hz (+3 to -5%)

iii) Power factor 0.85

f) Conductor, Insulation and Temperature Rise of Winding and Core

All insulated winding conductors of alternator shall be of copper. The generator stator and rotor windings core insulation and all connections including main and neutral leads shall have insulation conforming to IEC-60034 Pt.-I. The winding shall be given power house treatment i.e. two coats of varnish and backing followed by final coat of resin. The total insulation shall be non hygroscopic. The temperature rise of the stator core and mechanical parts in contact with or adjacent to winding shall not exceed the specified limits of IEC-60034 Pt.-I, Elastimold terminals with protective covers shall also be acceptable.

g) Temperature Detectors

Resistance element temperature detector shall be installed at the following locations :
Six numbers-Simplex type Resistance element Temperature Detectors (RTDs) shall be suitably distributed at locations where highest temperatures may be expected in stator windings and for each bearing, one (1) Duplex RTD. The RTD's shall comply with the latest edition of IS:2828.

h) Space Heaters

Suitably rated 240 V, single phase, 50 Hz, space heater located in lower part of alternator shall be provided to maintain the internal temperature above the dew point to prevent moisture condensation on the insulation when the set is not running. These heaters shall be switched on automatically, when DG set is not working.

i) Terminal Box

Separate terminal boxes shall be provided for phase and neutral side of leads. The terminal boxes shall be dust tight, weather proof having degree of protection of IP-54 as per IS: 13947.

The terminal box shall be of sufficient size to conveniently terminate the size and number of cables which shall be finalized during detailed engineering. Suitable tinned copper pads shall be provided for power cable termination. For single phase cables gland plate shall be of nonmagnetic material and shall be removable type. As far as possible connection between exciter and alternator shall be contained within the machine frame and connections carrying AC and DC current shall be segregated from each other.

j) Alternator vibration level shall not exceed the values as defined in IS:12075. Alternators in case driven by Diesel engine shall be able to withstand vibration level of 9mm/sec. as

per BS 5000 Part III. Vibration level shall not exceed the permissible levels for Generator however the same shall in any case not exceed 250 micron peak to peak.

k) Excitation System

The generator shall be provided with complete excitation system capable of supplying the excitation current of the generator under all conditions of output from no load to full load and capable of maintaining voltage of the generator constant within +/- 1% of set value. The setting range available on voltage regulator shall be at any value with +/- 10% of the rated voltage. It shall be possible to set the same from remote also.

l) Brief details of Generator

i) Continuous rating	:	500 kVA (Min.), 415V, 0.85 pf at specified site conditions at generator terminal
ii) Output	:	415 V, 3 phase, 4 wire,50 Hz AC
iii) Allowed voltage drop	:	15% on start of biggest motor
iv) Allowed frequency drop	:	5% transient
v) Ambient temperature	:	50 degree C
vi) Relative Humidity	:	100%
vii) Operating Speed	:	1500 rpm
viii) Noise level at source	:	85 dB(A)
ix) Starting System	:	Manual & Auto Both (Manual/ Auto) Manual start by push button starter from DG control room & sub-station control room. Machine shall have single push button start/ stop from control room. Starter
x) Type of alternator	:	Air cooled.
xi) Type of enclosure	:	Shall be totally enclosed or Screen protected, drip proof, self ventilated with removable covers to provide easy access to excitation unit, enclosure IP-23.
xii) Mounting	:	Horizontal, foot mounted with end shield bearings.
xiii) Excitation	:	Brushless static excitation
xiv) Insulation	:	Class H, temperature rise limited to class F
xv) Acoustic Enclosure	:	Yes, if required for keeping the noise level within specified limit for DG Set

xvi) Vibrations	:	Max. 250 microns peak to peak with anti-vibration pads
xvii)Battery System	:	Battery Charger with Lead Acid Battery
xviii)Other details		
Engine Control Panels	**:**	**Yes**
Gauges	**:**	**Yes**
Meters	**:**	**Yes**
Alarms	**:**	**Yes**
Trips	**:**	**Yes**
DG Control Panel	**:**	**Yes**
xix) Applicable Standard	:	Conforming to IS:4722 – 1992

m) Loading pattern (As applicable)

Industrial load with maximum demand of the highest rated drive to be decided as per the technological requirement (Largest rating motor with DOL starting). On failure of main supply, DG set shall be started automatically as per the selected option i.e Auto/Manual selection.
DG will be loaded to maximum demand in one stroke.
It shall be possible to run the DG set on lesser load also.

n) Operation philosophy

Tenderer shall note that the Power supply from AMF cum breaker panel shall be fed to LTPCC as shown in SLD.
In case of under-voltage sensed by bus PT of DG section of LTPCC /line PT of AMF panel, Start command to AMF panel shall be given to start the DG set. After DG set is started and voltage stabilized, the ACB mounted in the AMF panel shall be closed. When the power to LTPCC gets restored from the normal source, DG set shall be turned OFF and disconnected from the LTPCC by switching OFF the AMF breaker manually. However the detailed philosophy shall be finalised during detailed engineering.
Tenderer shall provide all the necessary controls, meters, interlocks and alarm system for the system

o) Diesel Generator Control Panel / AMF panel

i) **Construction details**

The local control panel shall be of robust construction, floor mounting, free standing type made of 2.0 mm thick CRCA sheet steel. Neoprene gaskets shall be provided

between all openings and joints. It shall be provided with hinged door with locking arrangement. The control panels shall have IP-54 degree of protection as per IS: 13947 Part-I.

The panel shall be painted with electro statically powder coated paint of shade RAL 7032 after necessary sheet metal treatment to remove dust, grease, oil, chemical compound, uneven surfaces and any foreign materials. The Gland plate shall be of at least 2.5mm thick sheet steel.

Control panel with provision for local starting shall be provided which shall incorporate all controls required for starting, monitoring, regulating and stopping DG set. It shall be equipped with all necessary instrumentation to provide adequate surveillance of DG set under all operating conditions including 'Standby'.

All cables shall have bottom entry. Enough space shall be provided in the control panel for easy access during maintenance and repairs.

A tinned copper/ aluminium bar of adequate dimension shall be provided for earth connection complete with nuts and bolts as required for external connection to earth grid.

CT shorting links, test terminal blocks etc. shall be provided. All the equipment mounted inside the control panel shall be identified by lamicoid labels/ stenciling by paint.

Panel shall be provided with panel illumination lamp operated by the door switch and thermostat-controlled space heater. Control panel shall be furnished complete with all accessories and wiring for safe and trouble free operation of the system

All control wiring inside the control panel shall be carried out with 2.5 mm^2 1100V grade PVC insulated copper wires. DG set control panels shall be provided with suitable cable glands for DG set power and control cables. The AMF panel shall be suitable for termination of PVC aluminium outgoing power cables.

One No. ACB, fixed type, 4 pole construction, electrically and manually operated with shunt trips, spring charge closing facility, close trip push button in addition to manual closing and emergency tripping. ACB shall be relay operated type.

ii) **Fuses(as applicable)**

All fuses shall be of HRC cartridge link type. Screw type fuses are not acceptable.

iii) **Relays**

A voltage relay for sensing the supply to control Panel shall be provided. The relay shall operate at about 90% of voltage

Relays for protections like Earth fault protection , Inverse time over current relay for Over load and Short Circuit protection, U/V and O/V relays with timer, Voltage healthy check relay (to monitor voltage availability after ACB), In addition, bidder shall also provide other protective functions/relays as per the requirement of the offered system. Protection relays shall be microprocessor based.

The Control panel shall be complete with the following

iv) **Microprocessor based control unit**

Microprocessor based control unit with the following:

(a) Voltage sensing mains supply failure monitor
(b) Auto engine start / stop & failure to start lock out.
(c) Generator voltage & frequency sensing
(d) Selector switch and push button to facilitate remote starting/stopping, speed & voltage control
(e) Manual / Auto / Test selector switches
(f) DG start /stop push button
(g) DG Incomer Breaker close / trip push button
(h) Mains breaker close / trip push button
(i) Auto manual Speed adjustment
(j) Auto manual Voltage adjustment
(k) Auto manual selector switch for priming pump motor (if required)

v) **LED indication lamps**

LED indication lamp shall be provided for the following

(a) 'DG ON' indication lamp'
(b) 'DG Breaker ON' indication lamp
(c) 'Mains ON' indication lamp
(d) 'Mains Breaker ON' indication lamp

(e) Charger ON indication lamp
(f) Engine running-hour indication
(g) DG breaker spring charged

vi) **Annunciation**

Annunciation for the following shall be provided with fault indication, alarm & trip contact, accept, reset and test facility and hooter. Any one or more of the following defects shall cause the alarm or running diesel generator to be tripped. In case of tripping, re-start shall be prevented until the fault(s) are removed and manual resetting is done. Separate indicators shall be provided for each of the following in control panel (As applicable)

(a) Engine fails to start (Alarm)
(b) Low lube – oil pressure (Trip)
(c) High cooling water temperature (Trip)
(d) D.G. overload (Alarm)
(e) DC failure
(f) DG over speed (Trip)
(g) Generator stator temperature high (Alarm)
(h) Electrical protection operated (Trip)
(i) Incomer to emergency switchgear from DG closed
(j) Earth fault (alarm) input from switchgear.

vii) **Metering**

Following meters shall be provided in the panel :

(a) Digital voltmeter
(b) Digital Ammeter
(c) Digital Frequency meter
(d) Electronic kW meter with counter display.
(e) Digital KW meter
(f) PF meter

Suitable 4-20mA transducers with dual output shall be provided in the control panel for voltmeter, ammeter, frequency, P.F. and 'KW' meter for owner's use at remote.

viii) Provision for following status/ signal for Owner's information shall be made available in the DG control panel/controller: It shall be decided during detailed engineering as per Project requirement.

(a) DG fail to start.

(b) DG start command actuated/ reset.

(c) DG working/ stop signal.

(d) DG trouble/ normal signal.

(e) DG control supply failure/ normal signal.

ix) Bidder shall provide all CTs, VTs, relays, timers and auxiliary contacts as per the system requirement.

x) The bidder shall supply any other controls and indications for diesel generator set though not specifically mentioned here but which the supplier may recommend and are required to make system complete for satisfactory operation of DG sets.

xi) Indicating lamps shall be of the panel mounting LED type with series resistor and of low power consumption. Lamps shall be provided with series resistor built-up lamp assembly.

xii) Necessary pressure switches, level switches, thermostats, flow switches, auxiliary relays, etc. required for the all controls, interlocks and alarm/ annunciation system shall be provided by the bidder within their scope of supply. The necessary provision for connectivity with Substation Automation System shall be considered.

p) Battery and Charger

i) The charger shall be protected by a suitable current limiting device. The battery shall be sized for site minimum temperature. Battery and battery charger shall also feed the control supply of DG control panel.
The minimum voltage at the end of load cycle shall not be less than 1.75 volts per cell.

ii) A suitable battery charger shall be housed inside the panel to recharge the battery within ten hours. The battery charger shall be SMPS based automatic and shall be complete with the following

a) DC voltmeter
b) DC Ammeter
c) Float / Boost selector switch

d) Auto / Manual selector switch for Boost to float change over.

iii) The Battery charger panel shall have Battery voltage low indication lamp with alarm.

iv) **Battery**

24 volts battery of suitable capacity (at 10 hours discharge rate) lead acid battery bank complete with connecting leads, first charging and routine check instruments including hydrometer and cell tester. Tenderer shall indicate the AH capacity in the offer. Battery stand should also be supplied along with the battery.

q) Type Tests

i) All equipment to be supplied shall be of type tested quality. The bidder shall submit for Owner's approval the reports of all the type tests as listed in this specification and carried out within last ten years from the date of bid opening. These reports should be for the test conducted on the equipment similar to those proposed to be supplied under this contract and the test(s) should have been either conducted at an independent laboratory or should have been witnessed by a client.

ii) In case the bidder is not able to submit report of the type test(s) conducted within last ten years from the date of bid opening, or in the case of type test report(s) are not found to be meeting the specification requirements, the bidder shall conduct all such tests under this contract free of cost to the owner and submit the reports for approval.

iii) All acceptance and routine tests as per the specification and relevant standards shall be carried out. Charges for these shall be deemed to be included in the equipment price.

iv) Type test reports as per relevant standards shall be submitted.

r) Commissioning Checks

i) In addition to the checks and test recommended by the manufacturers, the bidder shall supervise the following commissioning test to be carried out at site.

The battery or compressed air system for starting the engine shall be capable of performing six (6) normal start without recharging.

ii) **Insulation Resistance Test for Alternator**
Insulation resistance in mega-ohms between the coils and the frame of the alternator

when tested with a 500 V megger .

iii) **Insulation Resistance of Wiring**
Insulation resistance of control panel wiring shall be checked with 500V megger. The IR shall not be less than one mega ohm.

s) Functional Tests

i) Functional tests on control panel.

ii) Functional tests on starting provision on the engine.

iii) Functional tests on all field devices.

iv) Functional tests on DG Set complete with AVR and speed governor.

t) Measurement of vibration
The vibration shall be measured at load as close to maximum achievable load and shall not exceed 250 microns. Any modification/rectification required to bring down the vibration level within allowable limits specified by the manufacturer shall be done by the bidder at site.

u) Noise Level (Sound Pressure Level) check

Noise level measurement shall be done generally following the guidelines given in IS:12065. The measurement shall be carried out with a calibrated integrating sound level meter as per IS : 9779 at site.

v) Installation of DG sets

i) The installation work shall conform to Indian Electricity Act and Indian Electricity Rules as per latest amendment up to the date of issue of this specification. Any approval required from statutory authorities shall be obtained by the Bidder. Nothing in this specification shall be construed to relieve the Bidder of this responsibility.

ii) The installation, testing and commissioning of Diesel-Generator sets shall be carried out by the Bidder strictly in accordance with the applicable Codes of practice, the manufacturer's instructions, drawings etc., and/or as directed by the Owner.

iii) The Bidder shall install and commission the DG set, control panels, along with other accessories, starting equipment (Battery & battery charger/ compressed air system), fuel oil tank and fuel oil piping upto the DG sets. Minor civil works like fixing of anchor bolts, grouting etc. wherever required shall be done by the Bidder.

iv) The Bidder shall provide all tools, equipments and instruments required for installations, testing and commissioning.

w) Drawings/data to be submitted after placement of order for review / reference of Purchaser

1. Complete design and engineering drawings / datasheet w.r.t. generators and their control, protection, metering, interlocking, synchronisation and annunciation systems

2. G.A. drawing of D.G. set.

3. GA / Facia diagram of control panel, local control boxes, push button starter etc with complete dimension and weight.

4. Schedule of complete equipment/devices with specifications.

5. Single line diagram, power and control schematics and annunciation circuit diagrams.

6. A brief write-up giving description of control and annunciation scheme and safety interlocks.

7. Terminal wiring and external cable connection diagrams.

8. Test certificate

04.05.02.03 Diesel Engine

a) General

The diesel engine shall be multi cylinder, coolant / radiator cooled, turbo charged, single acting, Vee / In line construction, mechanical injection type suitable for cold starting and shall be furnished with atleast the minimum equipment according to the standard practice. The horse power rating, auxiliaries, guarantee of fuel consumption, governor performance and torsional vibration shall be in accordance with BS:649 or approved equivalent standard.

4 stroke, Air cooled, turbo- charged diesel engine, capable of driving continuously synchronous Alternator to give net required output at Alternator terminals at rated speed

under site conditions as mentioned in the specification.

The design of engine shall be such that it can take fluctuating load, sudden loading and load throw off from rated load to zero load without adverse effect and deration in the engine.

The design of the engine shall consider the case of maintenance, repair, cleaning and inspection.

The engine and DG set shall be capable to withstand 10 % overload for one hour in a period of 12 hours operation.

The engine shall be designed to burn HSD fuel oil as per IS:1460.

Engine cylinder heads shall be suitable for heavy duty application and shall be secured firmly to the engine frame. The liners of the cylinders shall be of suitable materials to resist the wear and tear of piston rings. Cooling water space shall be provided around cylinder jackets and arrangement shall be provided to compensate thermal expansion of the liner.

Flywheel with cover including suitable coupling between engine and Alternator shall be provided.

The crank shafts shall be made of high quality forged steel with smooth machining, grinding & honing all over.

The connecting rods shall be made of high quality forged steel of suitable cross section for heavy duty application.

The main bearings shall be made of suitable soft material. Arrangements shall be provided for lubrication of main bearings, big end and small end bearings. A vibration damper shall be provided to control torsional vibration resonances, if required. Conveniently located inspection window to facilitate removal of big bearing, piston etc. without sump removal shall be provided.

The pistons shall be made of suitable light metal having high thermal conductivity and low thermal expansion. There shall be oil scraper rings and sufficient number of compression rings.

The valve mechanism shall be actuated through cam shaft, push rods and rocker arms by

means of a suitable gear train and shall be accommodated in the engine frame itself.

The diesel engine shall conform to relevant parts of ISO 8528 and ISO 3046. Performance test of DG set shall be carried out as per latest standard of ISO 8528 and ISO 3046 and other relevant standard as applicable.

b) Fuel Oil System

The fuel injection system shall be driven by the engine itself and the system must ensure the proper timing of fuel injection, control of rate of fuel injection, proper atomisation of fuel in accordance with the type of combustion chamber used, proper distribution of fuel in combustion space and arrangement to return excess quantity of fuel oil to the oil tank. Priming pump will be provided.

Rate of fuel injection shall be automatically controlled in accordance with variation in engine load. Hydraulic/ Electronic governor [conforming to class A1 of ISO: 3046 (latest)] shall be provided to maintain the speed of the engine constant within limits of tolerances.

A "Day Tank" of 990 litres capacity with mechanical oil level indicator to indicate low and high levels shall be supplied. An engine driven booster pump shall be provided to deliver fuel oil from the supply line to the fuel oil injectors through duplex filters or two full capacity filters. Hand pump shall be supplied for pumping oil from barrels to "Day Tank". The Day Tank shall be provided with float valve, high/ low level switches for alarm.

i) **Day Oil Tank**

One number cylindrical box type metallic (M.S) fuel oil day tank of capacity 990 litres shall be provided with all accessories & fittings for each DG Set. The tank shall be fabricated from MS plates of minimum 14 SWG thickness conforming to IS : 2062-1992 and shall be complete with level switch, level gauge, vent, drain, inlet & outlet connection, manhole, pocket for instruments, low level alarm, high level alarm (audio visual type in control room) and supporting structures. The fuel oil shall be brought in barrels and transferred to the above tank by hand filling pump.

ii) **Filter**

Quantity : 2 set.

Type : Duplex type

Mesh size : at least 30 mesh

Filter element: Mild steel body and stainless steel (SS 316) wire mesh

Location : At inlet and outlet of day tank.

Capacity : As required.

iii) **Pipes & Fittings:**

All external pipes shall conform to IS:1978, line pipe, ERW medium grade. Necessary standard bends, tees, couplings, flanges, bolts, nuts and gaskets shall be used for laying the pipelines.

iv) **Valves**

All isolating valves shall be of self lubricating, taper plug, tight shut off type and of reputed make. Open/close position of valve and direction of flow shall be clearly indicated on the valve body.

v) **Hoses**

Type : Flexible
Standards : BS:1435 (latest)

vi) **Flanges**

As per ANSI B 16.5 with pressure rating of 150 class minimum.

vii) **Dip Rod**

The dip rod shall be of suitable length, calibrated and made of Aluminium. It shall be used to measure the contents of the oil in the tank. Diameter of dip rod shall be minimum 12 mm.

c) Lube Oil system

Diesel engine shall be provided with suitable lubricating system for effective lubrication of all components. The system should be complete with gear type lube oil pump, oil cooler

and duplex fine mesh filters or two full capacity filters, differential pressure gauge across the filters or pressure gauge on either side of the filters. The system shall be provided with oil pressure and temperature indicating instruments /gauges and all control/safety devices against loss of oil pressure and high oil temperature. It will have L.O. topping and draining arrangement, vapour extraction and oil cooling system. Lube oil heater, priming pump will be provided, if required, for smooth starting of the engine.

d) Engine Cooling System

The engine cooling water / coolant shall be forced through the system by engine driven cooling water pump and the hot return water shall be cooled by passing it under thermostatic control through a radiator/ heat exchanger.

Jacket water system shall be complete with water cooling arrangement, thermostatic control with alarm on high jacket water temperature, expansion tank with topping arrangement, controls/ safety devices. A separate or combined close water circuit shall be provided for injector cooling, if required.

e) Air Intake and Exhaust System

The engines shall be supplied with dry type air filter or through oil bath type intake, pressurised through exhaust gas turbine driven turbo charger and if required, cooled in a charge air cooler. The filter shall be made of special anti-corrosive materials, preferably stainless steel to SS 316.

The exhaust system shall consist of an exhaust gas driven Turbo-charger of reputed make, residential type exhaust gas silencer, expansion joints, necessary piping adapters, noise attenuation system, insulation supports etc.

The exhaust gas pipelines of the engines shall be led upto required height as per statutory norms and shall be provided with weather proof cowl. The exhaust pipe and exhaust silencer shall be made of carbon steel suitable for the maximum exhaust gas temp. Suitable supports shall be provided for supporting the exhaust pipe and silencer. Suitable expansion joints/flexible connections shall be provided between exhaust pipe and exhaust manifold of the engine to ensure that no undue vibration is transmitted to the piping system. The exhaust pipe shall be suitably lagged and cladded with 20 gauge Aluminum sheet for personnel protection against burning. Silencer shall be designed to have sound level below the acceptable limit. The sound level shall not exceed more than 85 dBA at the generating source.

f) DG Set Starting System

Starting of diesel engine shall be through electrical starting system. The electrical starting system shall comprise of starter, batteries, motors and battery charger and all the necessary instruments and accessories.

The diesel Alternator set will be normally at rest when the station AC supply is available from normal power source. Set shall have auto as well as manual starting system. In auto mode (A/M selection switch), signal to start the engine will be initiated from AMF panel and automatically in a sequence manner. DG set will be started and after reaching desired voltage & frequency Alternator circuit breaker will be closed. On restoration of mains supply DG set shall be tripped automatically in auto mode of operation. In case of manual start mode, DG set shall be started manually by initiation ON push button either from panel or push button mounted on DG skid and also manual closing of Alternator circuit breaker.

As soon as the diesel Alternator set reaches its rated speed and generates its rated voltage (a period not exceeding 30 seconds) a voltage and frequency sensitive relay shall permit the closing of the Alternator circuit breaker.

g) Governing System

Engine governing shall be in accordance with BS 5514 and/or ISO 3046 class A1. Governor shall be provided for keeping constant speed within certain limits with variable loads. It should be capable of operating on isochronous mode i.e. the speed of the engine (frequency of the Alternator set) should remain constant irrespective of the load on the DG set upto 100% capacity. A droop of 0 – 10% should also be available.

The governor shall be suitable for isochronous load sharing. It shall have external speed trim facility with speed adjustable within ± 5% of rated speed. The governor shall have automatic start fuel limit feature so that fuel is limited during start up overspeed. The automatic fuel shall be adjustable. It shall have a failed speed detector, which shall stop the engine in the event of speed sensing signal from magnetic pickup.

h) Technological Structures

Steel structures envisaged as supports for fuel oil tanks, starting batteries, exhaust pipes, valves, vent pipe and overhead pipelines (if any) in the DG station.

Superimposed loads considered in the design of steel structures shall be in accordance

with IS:875 (part 2) in addition to technological loads, if any.

The design of steel structures shall be carried out according to IS:800 and other relevant Indian Standards. Fabrication shall be carried out in accordance with IS:800 & IS:7215.

i) Enclosure

The acoustic enclosure shall be free standing floor mounting type independent of the DG set. It shall be an all weather proof one, pre-fabricated, factory built and modular in construction, so that it can be easily assembled at site around the DG set without any anchor to the ground. It consists of specially designed panels, sliding doors, louvers and locking arrangements. The enclosure shall have four sliding doors, two sets of detachable ventilating systems for fresh air intake and hot air exit. The attenuator openings shall take care of the temperature of the DG set. The panels are made out of CRCA sheet steels stuffed with insulation material mainly Mineral wool/Rock wool of high density covered by G.I. perforated sheet. The Enclosure shall be provided with inlet and outlet specifically designed ventilating louvers for air movement and sound absorption across the Enclosure. All the supporting structure and frame work shall be built out of ISM channels and IS Angles. Finally the Enclosure shall be finished with zinc chromate yellow suitable primer and epoxy based paint of 631 shade of IS5.

j) Painting and Packing

Equipment shall be painted with two coats of epoxy based primer followed by two Final coats of epoxy based paint. Sheet metal work shall be subjected to degreasing, Pickling and phosphating prior to painting. Exhaust pipe shall be painted with heat resistant paint for high temperature.

The equipment shall be shipped to site suitably packed to prevent any damage. Each Package shall have labels to show purchaser's name, purchase order and equipment number suitable lifting lugs etc. shall be provided and lifting points shall to clearly marked on the package. Packing shall be suitable for storage at site for a minimum period of six months.

ANNEXURE-6

Table No. 1

SUMMARY PRICE SCHEDULE
INDRADHANUSH GAS GRID LIMITED
NATURAL GAS COMPRESSOR STATION FOR NORTH EAST GAS GRID PIPELINE PROJET OF M/s IGGL

Name of the Bidder : Bidder's Ref No. :

SUMMARY PRICE SCHEDULE								
Sl. No	**Description**	**Table no.**	**CIF Price in foreign currency (Currency _____)**	**INR equivalent of foreign currency**	**Basic indigeneous Price (INR) incl. Transportation & all other duties/taxes/cess, but excl. GST**	**Import Duty (INR)**	**GST (INR)**	**Total (INR)**
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
1	Design & Engineering ***(price quoted in foreign currency should be including duties & taxes payable in the respective foreign country AND/OR Income tax payable in India)***	1.1 & 1.2						
2	Supply of Plant & Equipment incl. Technological Structures ***(CIF price in case of price in foreign currency)***	1.3 & 1.4						
3	**Import Duty on Foreign equipment Supplies in Sl. No. 2 above**	1.3						
4	Customs, Port clearance ***(excluding duties & cess)*** and Inland transportation ***(for all items quoted in foreign currency in Sl. No. 2)***							
5	Supply of Building Steel Structures including Sheeting and Glazing ***(CIF price in case of price in foreign currency)***	1.5 A & B						
6	**Import Duty on Foreign Supplies of building structures in Sl. No. 4 above**	1.5 A						
7	Customs, Port clearance ***(excluding duties & cess)*** and Inland transportation ***(for all items quoted in foreign currency in Sl. No. 5)***							
8	Civil Engineering work including all related supplies - ***for equipment foundation***	1.6A						
9	Civil Engineering work including all related supplies - ***others***	1.6B						
10	Storage, Handling, Erection of Plant & Equipment, and building structures including Commisioning and PG Tests of the Facilities	1.7 A & 1.7 B						
11	Training charges for 120 mandays ***(price quoted in foreign currency should be including duties & taxes payable in the respective foreign country AND/OR Income tax payable in India)***	1.8						
12	Comprehensive/ Transit, Storage cum erection insurance							
13	Comprehensive Operation & Maintenance for 5 years ***(price quoted in foreign currency should be including duties & taxes payable in the respective foreign country AND/OR Income tax payable in India)***	1.9						
14	**Total Contract Price (1 to 13)**							
15	Input Tax Credit for GST	1.10						
16	**Contract Price (net of Input Tax Credit) (14-15)**							

Contract price (net of Input Tax Credit) :
Indian Currency (In words) :
Foreign Currency (In words) :

CIF value of materials envisaged to be imported for the purpose of permanent incorporation in the works as per Clause No. 13.2 of ITB (in INR)	

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Notes:

1. The value of Input Tax Credit (Sl. No. 15) should match with Schedule 1.10
2. All imported supplies shall be on CIF basis
3. All imported services shall be inclusive of duties/taxes payable in the respective country AND/OR Income tax payable in India
4. In case of incorrect GST declaration by Bidder, the bids shall be evaluated as per clause 13.1.14 of ITB
5. In case of arithmetic error in totalling, corrected arithmetic total will be considered.
6. Other corrections of errors in the price bid shall be made as per clause no. 30 of ITB.
7. In case of discrepancy between summary price table and individual tables, the prices mentioned in summary price table shall prevail (as indicated in Clause no. L.1 of Section-II (Vol 1) of Bid Document.

Table No. 1.1

(Sheet No of)

PRICE SCHEDULE FOR DESIGN & ENGINEERING (Imported)

Name of the Facility:_____

Sl. No	Description	HSN/SAC Code (Bidder to mention against the applicable head)	Price in foreign currency (Currency_____ __)	INR equivalent of foreign currency	GST Rate in %	GST Amount (INR)	Input Tax Credit (INR)
1	Imported design & engineering						
	Total Price						
Total Price in Words ::							

NOTE : All imported services shall be inclusive of duties/taxes payable in the respective country AND/OR Income tax payable in India

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Table No. 1.2

(Sheet No of)

PRICE SCHEDULE FOR DESIGN & ENGINEERING (Indigenous)

Name of the Facility:_____

Sl. No	Description	HSN/SAC Code (Bidder to mention against the applicable head)	Basic Price in INR	GST Rate in %	GST Amount (INR)	Input Tax Credit (INR)
1	Indigenous design & engineering					
	Total Price					
Total Price in Words ::						

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Table No. 1.3

(Sheet No of)

PRICE SCHEDULE FOR SUPPLY OF PLANT & EQUIPMENT AND TECHNOLOGICAL STRUCTURES

(Imported Supplies quoted in Foreign Currency)

Name of the Facility:_____

Sl. No	Description	HSN/SAC Code (Bidder to mention against the applicable head)	Unit	Qty	CIF price in Foreign currency (Currency ____)	INR equivalent of foreign currency	Customs Duty Rate in %	Customs Duty (INR)	Social Welfare Surcharge	GST Rate on imported supply in %	GST Amount on imported Supply (INR)	Total Import duty	Input Tax Credit (INR) (only against GST Amount)
								a	b		c	(a+b+c)	
1	Mechanical Equipment (including technological structures)												
a													
b													
2	Electrical Equipment/ systems												
a													
b													
3	Instrumentation, Automation, Telecommunication Systems												
a													
b													
4	Others incl. Commissioning Spares, Special Tools & Tackles, Initial Fills etc.												
a													
b													
5	Mandatory spares												
6	Any other item (please specify)												
7	**Sub-Total (1 to 6)**												
8	**Total INR equivalent of Foreign Currency**												
9	**Total Import Duty**												
10	**Total (8 + 9)**												
Total Price in Words ::													

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Table No. 1.4
(Sheet No of)

PRICE SCHEDULE FOR SUPPLY OF PLANT & EQUIPMENT AND TECHNOLOGICAL STRUCTURES

(Indigenous Supplies) **(Indigenous Supplies)**

Name of the Facility:_____

(In INR)

Sl. No.	Description	HSN/SAC Code (Bidder to mention against the applicable head)	Unit	Qty	Basic Price (in INR)	CGST		SGST		IGST		Total	Input Tax Credit
						Rate (%)	Amount	Rate (%)	Amount	Rate (%)	Amount		
1	Mechanical Equipment including Technological Structures												
a													
b													
2	Electrical Equipment												
a													
b													
3	Instrumentation, Automation, Cabling, etc												
a													
b													
4	Others including Commissioning Spares, Special Tools & Tackles, Initial Fills, etc												
a													
b													
5	Mandatory spares												
6	Any other item (please specify)												
	Sub Total :												
7	Inland Freight												
	Total (1 to 7)												
Total Price in Words ::													

NOTE : 1. Basic price is inclusive of all other duties/taxes/cess/levies, but EXCL. GST
2. GST to be quoted at the appropriate column.

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Table No. 1.5 A

(Sheet No of)

PRICE SCHEDULE FOR SUPPLY OF FABRICATED BUILDING STRUCTURES INCLUDING SHEETING & GLAZING

(Imported Supplies quoted in Foreign Currency)

Name of the Facility:_____

Sl. No	Description	HSN/SAC Code (Bidder to mention against the applicable head)	Unit	Qty	CIF price in Foreign currency (Currency ____)	INR equivalent of foreign currency	Customs Duty Rate in %	Customs Duty (INR)	Social Welfare Surcharge	GST Rate on imported supply in %	GST Amount on imported Supply (INR)	Total Import duty (a+b+c)	Input Tax Credit (INR)
								a	b		c		
1	Supply of Building Steel Structures												
	a) Supply of Building Steel Structures ***(imported)***		T										NA
													NA
2	a) Sheeting Materials ***(imported)***												NA
	i) CGI		m^2										NA
	ii) AC		m^2										NA
	iii) Glazing		m^2										NA
	iv) Others		m^2										NA
													NA
3	**Sub-Total (1 to 2)**												NA
4	**Total INR equivalent of foreign currency**												NA
5	**Total Import Duty**												NA
6	**Total (4 + 5)**												NA
Total Price in Words ::													

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Table No. 1.5 B

(Sheet No of)

PRICE SCHEDULE FOR SUPPLY OF FABRICATED BUILDING STRUCTURES INCLUDING SHEETING & GLAZING

(Indigenous Supplies)

Sl. No.	Description	HSN/SAC Code (Bidder to mention against the applicable head)	Unit	Qty	Basic Price (in INR)	CGST		SGST		IGST		Total incl GST (INR)	Input Tax Credit
						Rate (%)	Amount	Rate (%)	Amount	Rate (%)	Amount		
1	Supply of Building Steel Structures												
	a) Supply of Building Steel Structures ***(indigenous)***		T										NA
	Sub Total (1)												NA
2	b) Sheeting Materials ***(indigenous)***												NA
	i) CGI		m^2										NA
	ii) AC		m^2										NA
	iii) Glazing		m^2										NA
	iv) Others		m^2										NA
	Sub Total (2)												NA
	Total (1 to 2)												
Total Price in Words ::													

NOTE : 1. Basic price is inclusive of all other duties/taxes/cess/levies, but EXCL. GST

2. GST to be quoted at the appropriate column.

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Table No. 1.6 A
(Sheet No of)

PRICE SCHEDULE FOR CIVIL ENGINEERING WORKS INCLUDING ALL SUPPLIES -- FOR EQUIPMENT FOUNDATION

Name of the Facility:_____

(in INR except for CIF price in Foreign currency)

Sl. No.	Description	HSN/SAC Code (Bidder to mention against the applicable head)	CIF price in Foreign currency (Currency ____)	INR equivalent of foreign currency	Basic Price (in INR)	CGST		SGST		IGST		Total incl IGST (INR)	Input Tax Credit
						Rate (%)	Amount	Rate (%)	Amount	Rate (%)	Amount		
1	Civil Work for equipment foundation ***(imported)***												
2	Civil Work for equipment foundation ***(indigenous)***												
	Total												
Total Price in Words ::													

NOTE : 1. Basic price / CIF price is inclusive of all other duties/taxes/cess/levies, but EXCL. GST
2. GST to be quoted at the appropriate column.
3. All imported services shall be inclusive of duties/taxes payable in the respective country AND/OR Income tax payable in India

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Table No. 1.6 B
(Sheet No of)

PRICE SCHEDULE FOR CIVIL ENGINEERING WORKS INCLUDING ALL SUPPLIES -- OTHERS

Name of the Facility:_____

(in INR except for CIF price in Foreign currency)

Sl. No.	Description	HSN/SAC Code (Bidder to mention against the applicable head)	CIF price in Foreign currency (Currency ____)	INR equivalent of foreign currency	Basic Price (in INR)	CGST		SGST		IGST		Total incl GST (INR)	Input Tax Credit
						Rate (%)	Amount	Rate (%)	Amount	Rate (%)	Amount		
1	Civil Work for Others ***(imported)***												NA
2	Civil Work for Others ***(indigenous)***												NA
	Total												
Total Price in Words ::													

NOTE : 1. Basic price / CIF price is inclusive of all other duties/taxes/cess/levies, but EXCL. GST
2. GST to be quoted at the appropriate column.
3. All imported services shall be inclusive of duties/taxes payable in the respective country AND/OR Income tax payable in India

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Table No. 1.7 A
(Sheet No of)

PRICE SCHEDULE FOR STORAGE, HANDLING, ERECTION OF PLANT & EQUIPMENT & BUILDING STEEL STRUCTURES INCLUDING COMMISSIONING & PG TESTS OF THE FACILITIES ***(for price quoted in INR)***

Name of the Facility:_____

(In INR)

Sl. No.	Description	HSN/SAC Code (Bidder to mention against the applicable head)	Basic Price (in INR)	CGST		SGST		IGST		Total incl GST (INR)	Input Tax Credit
				Rate (%)	Amount	Rate (%)	Amount	Rate (%)	Amount		
A	**Plant & Equipment**										
(i)	Mechanical Equipment										
(ii)	Technological structures										
(iii)	Electrical Equipment/ systems										
(iv)	Instrumentation, Automation, Cabling, etc										
	Sub Total										
B	Building Steel Structures										NA
C	Sheeting and Glazing materials										NA
E	Any Other										
	Total (A to D)										
Total Price in Words ::											

NOTE : 1. Basic price is inclusive of all other duties/taxes/cess/levies, but EXCL. GST
2. GST to be quoted at the appropriate column.

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Table No. 1.7 B
(Sheet No of)

PRICE SCHEDULE FOR STORAGE, HANDLING, ERECTION OF PLANT & EQUIPMENT & BUILDING STEEL STRUCTURES INCLUDING COMMISSIONING & PG TESTS OF THE FACILITIES ***(for price quoted in Foreign currency)***

Name of the Facility:_____

(in INR except for CIF price in Foreign currency)

Sl. No.	Description	HSN/SAC Code (Bidder to mention against the applicable head)	CIF price in Foreign currency (Currency ____)	INR equivalent of foreign currency	CGST		SGST		IGST		Total in INR	Input Tax Credit in INR
					Rate (%)	Amount	Rate (%)	Amount	Rate (%)	Amount in INR		
A	**Plant & Equipment**											
(i)	Mechanical Equipment											
(ii)	Technological structures											
(iii)	Electrical Equipment/ systems											
(iv)	Instrumentation, Automation, Cabling, etc											
	Sub Total											
B	Building Steel Structures											NA
C	Sheeting and Glazing materials											NA
E	Any Other											
	Total (A to D)											
Total Price in Words ::												

NOTE : 1. Basic price / CIF price is inclusive of all other duties/taxes/cess/levies, but EXCL. GST

2. All imported services shall be inclusive of duties/taxes payable in the respective country AND/OR Income tax payable in India

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Table No. 1.8

(Sheet No of)

PRICE SCHEDULE FOR TRAINING CHARGE

Name of the Facility:_____

(in INR except for CIF price in Foreign currency)

Sl. No	Description	HSN/SAC Code (Bidder to mention against the applicable head)	Mandays	Per diem rate	Price in foreign currency (Currency_____)	INR equivalent of foreign currency	Basic Amount in INR	GST Rate in %	GST Amount in INR	Total Amount incl GST (INR)	Input Tax Credit (INR)
1	Foreign Training charges										
2	Indian Training charges										
	Total Price										
Total Price in Words ::											

NOTE : 1. Basic price / price in foreign currency is inclusive of all other duties/taxes/cess/levies, but EXCL. GST

2. GST to be quoted at the appropriate column.

3. All imported services shall be inclusive of duties/taxes payable in the respective country AND/OR Income tax payable in India

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Table No. 1.9
(Sheet No of)

PRICE SCHEDULE FOR COMPREHENSIVE OPERATION & MAINTENANCE FOR 5 YEARS

Name of the Facility:_____

(in INR except for CIF price in Foreign currency)

Sl. No.	Item	HSN/SAC Code (Bidder to mention against the applicable head)	Price in Foreign currency (Currency ____)	INR equivalent of foreign currency	Price (In Indian Rupees)							Total (INR)	Input Tax Credit (INR)
					Basic price in INR	CGST		SGST		IGST			
						% Rate	Amount	% Rate	Amount	% Rate	Amount		
A	Price for comprehensive operation & maintenance for 5 years *(price quoted in foreign currency)*												
B	Price for comprehensive operation & maintenance for 5 years *(price quoted in INR)*												
	Total												
Total Price in Words ::													

NOTE :
1. **Basic price / price in foreign currency is inclusive of all other duties/taxes/cess/levies, but EXCL. GST**
2. **GST to be quoted at the appropriate column.**
3. **All imported services shall be inclusive of duties/taxes payable in the respective country AND/OR Income tax payable in India**

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Table No. 1.10
(Sheet No of)

RECONCILIATION OF GST AGAINST WHICH INPUT TAX CREDIT IS AVAILABLE

Base Date : dd/mm/yyyy

Rate of Taxes on Base date			
ITEM		**Unit**	**Value**
IGST		**%**	
CGST		**%**	
SGST		**%**	

(In INR)

Item Head	Table no.	INR equivalent of foreign currency	Basic Price	GST Quoted			Total	Input Tax Credit
				CGST	SGST	IGST		
Design & Engineering ***- Imported***	1.1							
Design & Engineering ***- Indigenous***	1.2							
Supply of Plant & Equipment ***- Imported***	1.3							
Supply of Plant & Equipment ***- Indigenous***	1.4							
Civil Work for equipment foundation ***(imported)***	1.6A							
Civil Work for equipment foundation ***(indigenous)***								
Erection of Plant & Equipment ***- Indigenous***	1.7A							
Erection of Plant & Equipment ***- Imported***	1.7B							
Training charges - ***for price quoted in Foreign currency***	1.8							
Training charges - ***for price quoted in INR***	1.8							
Customs & Port clearance for imported supplies	Table 1							
Inland Transportation of imported supplies								
Comprehensive/ Transit, Storage cum erection insurance								
Comprehensive Operation & Maintenance for 5 years - ***for price quoted in INR***	1.9							
Comprehensive Operation & Maintenance for 5 years - ***for price quoted in Foreign currency***								
Total								
Input Tax Credit								

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ANNEXURE-7 TO CORRIGENDUM 1

DECLARATION ON PROCEEDINGS UNDER INSOLVENCY AND BANKRUPTCY CODE 2016

To,
M/s INDRADHANUSH GAS GRID LIMITED
5th Floor, Central Mall, G S Road, Christian Basti, Guwahati

SUB: TENDER DOCUMENT FOR NATURAL GAS COMPRESOR STATION FOR NORTH EAST GAS GRID PIPELINE PROJECT OF M/s IGGL.
TENDER NO: **05/51/23UU/IGGL/001-i-5-R1**
Dear Sir,

I/ We hereby declare that I/We, M/s_____, declare that:

(i) I/We am/are not undergoing insolvency resolution process or liquidation or bankruptcy proceeding as on date.

OR

(ii) I/We am/are undergoing insolvency resolution process or liquidation or bankruptcy proceeding as on date as per details mentioned below.

(a) _____

(b) _____

(c) _____

(Attach details in separate sheet)

(iii) Further, I / We also confirms that in case there is any change in status of this declaration at any stage of tendering / execution (in case of award), the same will be promptly informed to IGGL.

Note: Strike out either (i) or (ii) as applicable.

It is understood that if this declaration is found to be false, Indradhanush Gas Grid Limited shall have the right to reject my/our bid, and forfeit the EMD/CPS. If the bid has resulted in a contract, the contract will be liable for termination without prejudice to any other right or remedy (including black listing or holiday listing) available to Indradhanush Gas Grid Limited.

Place:
Date:

[Signature of Authorized Signatory of Bidder]
Name:
Designation
Seal: