Procurement of Plant for Design, Supply, Installation and Commissioning of Gas insulated 220kV Lapsiphedi Substation, 132kV Changunarayan Substation and upgradation of Teku Substation and Suichatar Substation.				
ICB: PMD/PTDEEP/LCSCP-073/74RE-01				
CLARIFICATION 1 ISSUED BY NEPAL ELECTRICITY AUTHORITY				
Sl N	**Reference Section & Clause**	**Description**	**Bidder's Query/ Changes suggested**	**Client Response**
			General & Commercial	
1	SECTION 1- ITB CLAUSE NO 21	Bid Security	we presume that the BG against Bid security issued by an Indian bank is accepted to NEA and it is not required to have counter guaranteed by a commercial bank in Nepal? Please confirm.	Confirm
3	Vol-II	MV & EHV Cable Specification & Control and Power Cable	GTP and Technical Specification is not available for 72kV, 145kV and MV Cables and LT (power and control) Cables. Please provide the same.	Please Refer GTR, Chapter 22 - EHV XLPE and GTR, Chapter 9 - Power and Control Cable
4	General	Quantity Variation	Quantity Variation Clause is not mentioned in the tender document. Please confirm the quantity variation in %.	Please refer GCC clause 39
5	Section 3- EQC, Clause 2.5 Subcontractors, Power Transformers (220kV or Higher Voltage Class)	General	Since the current tender requirement is for 220kV voltage class, we understand the 400kV Voltage class against type test requirement is a typo error. Kindly accept 220kV Voltage class instead of 400kV Class and confirm.	We will confirm during amendment else it will hold.
6	Section 3- EQC, Clause 2.5 Subcontractors, Power Transformers (220kV or Higher Voltage Class)	Must have successfully carried out the complete type test including Dynamic Short Circuit (DSC) test as per IEC over last 10 years period as on the originally scheduled date of bid opening in Short-Circuit Testing Liaison (STL) - Accredited Laboratory on : - 400 kV voltage class, three phase 160 MVA (or single phase 3 X 53.3 MVA) Transformer	**Since there is no facility to conduct the complete Type Test in STL accredited Laboratory like CPRI, India; we request you to accept the following changes:** Must have successfully carried out the **complete type test** in **NABL Accredited Laboratory witnessed by Government customers (end user)** and Dynamic Short Circuit (**DSC**) in **Short-Circuit Testing Liaison (STL)** - Accredited Laboratory as per IEC over last 10 years period as on the originally scheduled date of bid opening on : - **220kV voltage class**, three phase 160 MVA (or single phase 3 X 53.3 MVA) Transformer or higher capacity three phase or single phase bank of three transformers. Please confirm your acceptance	We will confirm during amendment else it will hold.
		However, IF the Bidder/Manufacturer has not conducted the complete type tests including DSC in Short-Circuit Testing Liaison (STL) - Accredited Laboratory THEN the bidder has to submit undertaking letter along with bid to carry out the complete type test on the above mentioned ratings of transformers including DSC in Short-Circuit Testing Liaison (STL)-Accredited Laboratory without any extra cost to the employer.	In line with the above point, we request you to accept the following changes: However, IF the Bidder/Manufacturer has not conducted the complete type tests including DSC in Short-Circuit Testing Liaison (STL) - Accredited Laboratory THEN the bidder has to submit undertaking letter along with bid to carry out the **complete type test at NABL Accredited Laboratory witnessed by – Authorized STL and NEA representative and Dynamic Short Circuit (DSC) in Short-Circuit Testing Liaison (STL) - Accredited Laboratory** without any extra cost to the employer.	We will confirm during amendment else it will hold.
7	Section 3- EQC, Clause 2.5 Subcontractors, Power Transformers (132kV Voltage Class)	Must have successfully carried out the complete type test including Dynamic Short Circuit (DSC) test as per IEC over last 10 years period as on the originally scheduled date of bid opening in Short-Circuit Testing Liaison (STL) - Accredited Laboratory on : - 132 kV voltage class, three phase 45 MVA transformer	**Since there is no facility to conduct the complete Type Test in STL accredited Laboratory like CPRI, India; we request you to accept the following changes:** iv. Must have successfully carried out the **complete type test** in **NABL Accredited Laboratory witnessed by Government customers (end user)** and Dynamic Short Circuit (**DSC**) in **Short-Circuit Testing Liaison (STL)** - Accredited Laboratory as per IEC over last 10 years period as on the originally scheduled date of bid opening on : - **132kV voltage class**, three phase 45 MVA Transformer or higher capacity three phase or single phase bank of three transformers. Please confirm your acceptance	We will confirm during amendment else it will hold.

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Sl N	**Reference Section & Clause**	**Description**	**Bidder's Query/ Changes suggested**	**Client Response**
		However, IF the Bidder/Manufacturer has not conducted the complete type tests including DSC in Short-Circuit Testing Liaison (STL) - Accredited Laboratory THEN the bidder has to submit undertaking letter along with bid to carry out the complete type test on the above mentioned ratings of transformers including DSC in Short-Circuit Testing Liaison (STL)-Accredited Laboratory without any extra cost to the employer.	In line with the above point, we request you to accept the following changes: (a) However, IF the Bidder/Manufacturer has not conducted the complete type tests including DSC in Short-Circuit Testing Liaison (STL) - Accredited Laboratory THEN the bidder has to submit undertaking letter along with bid to carry out the **complete type test at NABL Accredited Laboratory witnessed by – Authorized STL and NEA representative and Dynamic Short Circuit (DSC) in Short-Circuit Testing Liaison (STL) - Accredited Laboratory** without any extra cost to the employer.	We will confirm during amendment else it will hold.
8	Section 3- EQC, Clause 2.5 Subcontractors, GIS (220 kV or higher voltage class)	General	Since the current tender requirement is for 220kV voltage class, we understand the 400kV Voltage class against type test requirement is a typo error. Kindly accept 220kV Voltage class instead of 400kV Class and confirm.	We will confirm during amendment else it will hold.
7	Section 3- EQC, Clause 2.5 Subcontractors, GIS (220 kV or higher voltage class)	iv) Must have successfully carried out the complete type test as per IEC over last 10 years period as on the originally scheduled date of bid opening in Short-Circuit Testing Liaison (STL) – Accredited Laboratory on 400 kV voltage class GIS Switchgears (Circuit Breaker, Disconnector, Grounding Switches, Instrument Transformers, SF6/Air & Oil Bushing etc.;).	Many reputed Suppliers has conducted the Type Test and are witnessed by STL Authorized members and the this has been accepted by varoius projects funded by Many MDBs across globe. Please accept the same and confirm.	Will be as per the bid document
		However if the manufacturer has not conducted complete type tests in Short-Circuit Testing Liaison (STL)– Accredited Laboratory over last Ten (10) years as on the originally scheduled date of bid opening, bidder has to submit undertaking letter along with bid to carry out the complete type test in Short-Circuit Testing Liaison (STL) – Accredited Laboratory from offered Manufacturer without any extra cost to Employer.	As accepted by NEA for Power Transformers, We request yout accept the withness of Authorised STL and NEA for GIS and amend the Clause as follows: However if the manufacturer has not conducted complete type tests in Short-Circuit Testing Liaison (STL)– Accredited Laboratory over last Ten (10) years as on the originally scheduled date of bid opening, bidder has to submit undertaking letter along with bid to carry out the **complete type test at NABL Accredited Laboratory or any independent laboratory witnessed by – Authorized STL and NEA** without any extra cost to the employer.	We will confirm during amendment else it will hold.
9	Section 3- EQC, Clause 2.5 Subcontractors, Power Transformers (220kV or Higher Voltage Class)	Must have successfully completed the design, manufacture & supply of 220 kV or higher voltage class, power/Auto transformer of three phase 160 MVA or above capacity (or equivalent capacity in banks of 3 single phase units), at least twice the bid quantity as a main supplier over last seven (7) years period ending on the last date of bid submission and same shall have been in satisfactory operation for at least 2 (two) years as on the date of bid opening.	for calculation of Twice the bid quantity, please confirm that One number 160MVA (3-ph) Transformer will be calculated equal to Three numbers of 53.3 MVA (1-ph) Transformers.	One number 3Phase 160 MVA or 1 Phase 3x53.3MVA will be counted as one
10	Section 7- GCC, Clause 14	Taxes and Duties	As per Nepal Taxation system, we understand that 5% TDS is applicable for the Items supplied under Schedule No.1 and 1.5% TDS applicable on the Civil and Installation works (Schedule- 4(a), 4(b), 4(c), 4(d))in Nepal. please confirm.	TDS as an advance income tax is applicable as per the taxation rules and regulation of Government of Nepal. Please Refer the following website of Inland Revenue Department of Nepal for the prevailing rates which may be revised time to time: https://ird.gov.np/Content/ContentAttachment/10/IncomeTaxAct20581252019125151PM.pdf
11	Vol-II, Project Specific Requirement (Chapter 1)	ERT Report	Please provide ERT report for all sites.	The measured value for Lapsephedi and changunarayan are attached. The successful bidder is required to retest to confirm the value.
12	Vol-II, Project Specific Requirement (Chapter 1)	Contouring	Please provide the countour plot for all sites.	Please visit the site for details. However, the successful bidder is required to do the detail survey.
13	Vol-II, Project Specific Requirement (Chapter 1)	Dismantling of 66kV GIS at Teku	The Dismantled GIS modules shall be stored in NEA stores as directed by the Employer. Please clarify the store loction and distance?	Store location within Kathmandu Valley

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Sl N	**Reference Section & Clause**	**Description**	**Bidder's Query/ Changes suggested**	**Client Response**
14	Vol-II, Project Specific Requirement (Chapter 1)	Control and Relay Panel and SCADA at Teku & Siuchatar Substation	Kindly provide the existing makes	At Teku substation, the CRP is of Easun Reyrolle make. At suichatar, there are various manufacturer. For confirmation please visit the sites.
15	Vol-II, Project Specific Requirement (Chapter 1)	Telecommunication	Kindly provide the existing makes of communication system	ABB
16	BPS	Pile Fundation	Kindly clarify, for what are the equipments, pile foundation is envisaged? Also Provide the Soil Investigation report for Changunarayan site.	All major civil structure, building are envisaged or pile foundation. This will be decided during DDE.
17	General	Bid Submission method: ITB clause 23.1	Due to the travelling restrictions impacted by COVID -19 and the risks involved with travelling, we request you to enable the international Bidders to submit the bid electronically.	It will be as per bid document. If there is amendment , it will be informed through NEA website.
18	Clause no 14 of Section-8 Special Conditions of Contract	Page 8-3	As per the referred clause we understand that for the imported items customs duty shall be reimbursable at a special rate of 1% of CIP or customs entry point value.And VAT for the imported materials shall be exempted and for the materials supplied directly from manufacturing plant in the employers country shall be reimbursed. We understand that the taxes and duties will not be taken for evaluation.Please confirm.	Confirm
19	General	-	We understand that operation and maintenance of the substation is not in the bidders scope.Please confirm.	As per the bid document
20	Clause no.2.5 of Section-3 Evaluation and qualification criteria	If the bidder submits the type test report of higher rated equipment, the bidder must provide the commitment that the type test will be performed without any extra cost to employer.	We understand that Repetition of type test is not mandatory if the IEC clause accepting higher rating. Please confirm	As mentioned in the bidding documents
21	Volume -1 Section-3 - Evaluation and Qualification Criteria Clause 2.5.3	Must have successfully carried out the complete type test as per IEC in Short-Circuit Testing Liaison (STL) - Accredited Laboratory on 220 kV voltage class GIS Switchgears (Circuit Breaker, Disconnector, Grounding Switches, Instrument Transformers, SF6/Air & Oil Bushing etc.;)."	"In case of an Indian GIS manufacturer who have not conducted the type testing of 220kV , 132kV & 33kV GIS manufactured in India but the parent company or subsidiary company have conducted the type testing of 220kV, 132kV & 33kV or higher voltage class.The type test reports of the parent company or subsidiary company shall be acceptable provided that the design of the 220kV, 132kV ,33kV GIS being offered from Indian works is same as that of GIS manufactured and successfully type tested from the parent company or subsidiary companyparent company". Hence, we request NEA to accept the type test of parent company, if the GIS manfaucturers having stipulted performance and meeting criteria (i) and (ii) of above referred clause. Kindly confirm.	The qualifying document of the bidding subcontractor will onl be considered for quaification evaluation.
22	Volume -1 Section-3 - Evaluation and Qualification Criteria Clause 2.5	As per the referred clause,all the documents like type test reports,performance certificate,ISO certificate pertaining to vendor qualification need to be notarized for the submission of the same alongwith the bid. Since EPC bidders would propose multiple makes for various equipments and that too from different MNCs, it would be practically difficult to get notary for all these documents at the bidding stage. Also, the volume of documents will be huge.	Hence, we request you to kindly accept the documents without notary at the bidding stage specfically for sub- vendor's credentials. We shall provide necessary Notatarised documents, incase it is required by NEA during bid evaluation. This was accepted in the same tender previous time	Please refer the bid document
220/132/11kV at Lapsiphedi Substation				
23	General layout, C/NEA/LAPSE/LAYOUT/01		In the referred drawing, future 220kV & 132kV Line bays are shown in between present scope of GIS bays. Please calrify whether the bay arrangement can be decided by Bidder by segregating present & Future bays during detail engineering.	Shall be decided during DDE

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Sl N	**Reference Section & Clause**	**Description**	**Bidder's Query/ Changes suggested**	**Client Response**
24	General layout, C/NEA/LAPSE/LAYOUT/01 and Single line diagram, C/ENGG/NEA/LAPSEPHEDI/SLD/01		In the referred drawing, spare bays for future 220kV & 132kV Line bays are shown under present scope. However, spare bays are not mentioned in project specification requirement. As there are discrepencies, please clarify the requirement of spare bays.	Please refer BPS
25	Single line diagram, C/ENGG/NEA/LAPSEPHEDI/SLD/01		As per Project specific requirement, Cl. 3.A, the number of 132kV line bays are 2Nos. As per SLD, the number of line bays under present scope (indicated as firm lines), is 3Nos. including 1 spare bay. Please check and confirm the number of 132kV line bays.	Please refer BPS
26	General layout, C/NEA/LAPSE/LAYOUT/01 and Single line diagram, C/ENGG/NEA/LAPSEPHEDI/SLD/01		Please clarify the number of future and spare bays for 220kV and 132kV as there are discrepencies between SLD and layout. Also please confirm whether GIS modules are to be provided for spare bays?	Please refer BPS
27	General layout, C/NEA/LAPSE/LAYOUT/01 and CHAPTER 1 – PROJECT SPECIFICATION REQUIREMENT, Cl.no.4.1.13		In the referred drawing, Tentative layout of 400kV future GIS is shown. As we don't not envisage any 400kV system under present scope of this substation package. Please clarify whether AC and DC system shall be considered for present scope of works only. If future bays to be considered, please mention the no. of future bays for each voltage levels.	Please refer BPS
28	Single line diagram, C/ENGG/NEA/LAPSEPHEDI/SLD/01		In the referred SLD, wave trap is shown in 132kV line bays. However, there is no wave trap line item in the BPS. Please check and confirm the actual requirement.	Please refer BPS
29	CHAPTER 1 – PROJECT SPECIFICATION REQUIREMENT, Cl.no.3.A		The number of 11kV panels as mentioned in the referred clause in not matching with the BPS & SLD. As, there is discrepency between Project specific requirement, Bid price schedule and SLD, please check and clarify the actual number of 11kV panels for Lapsiphedi substation	Please refer BPS
30	CHAPTER 1 – PROJECT SPECIFICATION REQUIREMENT, Cl.no.4.1.1		In the referred clause, 245kV Gas Insulated SF6 to Air Termination bushing is not mentioned. Please check and include the same if required.	Please refer BPS
31	CHAPTER 1 – PROJECT SPECIFICATION REQUIREMENT, Cl.no.4.1.2.C, D & E		From the referred clause, GIS surge arrester & GIS Potential Transformer are mentioned for Line & ICT bays. However, as per BPS Sl.no.E.2.1 & 2.2, Outdoor surge arresters & outdoor CVT are mentioned. We understand that GIS surge arrester & GIS Potential Transformers are not required for Lapsiphedi substation. Please confirm.	132 kV (145 kV) GIS Surge Arrester and 132 kV (145 kV) GIS Potential Transformers shall be included in GIS System whereas 220 kV (245 kV) GIS Surge Arrester and 220 kV (245 kV) GIS Potential Transformers are not required for Lapsiphedi Substation.
32	CHAPTER 1 – PROJECT SPECIFICATION REQUIREMENT, Cl.no.4.1.2.G.b)		From the referred clause, we understand that bidder shall also have the option for EHV cable connection instead of GIB. But, there is no line item available for EHV cable in the BPS. If the option is open to the bidder, please include line item for EHV cable with required size and furnish technical specification for the same.	Please refer BPS
33	CHAPTER 1 – PROJECT SPECIFICATION REQUIREMENT, Cl.no.4.1.5		Please confirm the type of bus bar protection scheme (high impedance or Low impedance) for 132kV system	Low impedance type for both voltage level as per TS
34	CHAPTER 1 – PROJECT SPECIFICATION REQUIREMENT, Cl.no.4.1.5		We understand that Bus bar protection (220kV & 132kV) shall be considered only for present scope of bays. Please confirm.	Please provide the provision for additional 2 future bays in both 220kV and 132kV voltage level.
35	CHAPTER 1 – PROJECT SPECIFICATION REQUIREMENT, Cl.no.4.1.6		From the referred clause, it is mentioned that 11kV supply to LT transformer is to be supplied from 11kV switchgear. However in SLD, the same is mentioned as 11kV switchyard and 11kV line from Lamosanghu. Pls check and confirm the actual source of 11kV auxiliary supply to LT transformer.	11kV supply to LT transformer is to be supplied from 11kV switchgear.
36	CHAPTER 1 – PROJECT SPECIFICATION REQUIREMENT, Cl.no.4.1.6		From the referred clause, the secondary voltage of 630kVA LT transformer is mentioned as 400V. However, in LT SLD the auxiliary voltage is mentioned as 415V. Please check and confirm the AC auxiliary voltage.	AC Auxiliary voltage: 400V

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Sl N	**Reference Section & Clause**	**Description**	**Bidder's Query/ Changes suggested**	**Client Response**
37	CHAPTER 1 – PROJECT SPECIFICATION REQUIREMENT, Cl.no.4.1.7		As there are discrepencies between Project specification requirement cl.no.3.A and cl.no.4.1.6 for no. of 11kV switchgear panel. Please check and confirm the actual requirement	Please refer BPS
38	CHAPTER 1 – PROJECT SPECIFICATION REQUIREMENT, Cl.no.4.1.7		In the CRB drawing, Drg. No. C-ENGG-WR-CHP-CRB-ARCH-01, space for 11kV indoor switchgear is not shown. Please check and furnish the revised dawing.	Shall be decided during DDE with indoor switchgear
39	CHAPTER 1 – PROJECT SPECIFICATION REQUIREMENT, Cl.no.4.1.9		From the referred clause, 11kV double pole structure is mentioned. However, there is no line item in the BPS. Please check and clarify the scope of 11kV pole structure And also please provide the location of 11kV DP structure for termination of the outgoing 11kV lines.	termination of the outgoing 11 kV line near to the boundary of the Substation, shall be decided during DDE
40	CHAPTER 1 – PROJECT SPECIFICATION REQUIREMENT, Cl.no.4.1.18		Please furnish the layout for auxiliary building for LT switchgear which is mentioned in the referred clause.	LT Switchgear Room shall be accomodated in the Control Building
41	CHAPTER 1 – PROJECT SPECIFICATION REQUIREMENT, Cl.no.4.1.22		As the referred clause, DPC for both ends of Changunarayan-Moolpani 132 kV D/C line is in the present scope of this package. We understand that the same is a typo error and the same shall be Lapsiphedi-Changunarayan D/C line. Please confirm.	As total quantity is 14 Nos, it is intended to be installed in the substation in existing scope and adjoining substations, which will be decided during DDE
42	CHAPTER 1 – PROJECT SPECIFICATION REQUIREMENT, Cl.no.4.1.25		Kindly furnish the Annexure-IV as mentioned in the referred clause. Also please furnish the detailed specification of Visual monitoring system.	Attached
43	CHAPTER 1 – PROJECT SPECIFICATION REQUIREMENT, l.no.4.1.28.c)		Please furnish the AC distribution SLD for Township lighting distribution.	To be desined by the Contractor
44	CHAPTER 1 – PROJECT SPECIFICATION REQUIREMENT, Cl.no.4.1.28.l)		Please clarify whether the scope of street lighting along with JB for approach road is in bidder's scope. If required, please add a separate line item in the BPS.	Street lighting inside NEA Boundary wall is in the scope; same for the outside approach road is not in the present scope
45	Price schedule of Lapsephedi S/s, Part.1, item.no.D1.1.5		In referred line item, both 1-ph & 3-ph busduct quantity are given. We presume that bidder can quote either of these based on 1-ph or 3-ph design. Please confirm	WE understood that both 1 P and 3 P bus ducts will be required as the scope includes installtion of single phase transformer. Please quote as per BPS.
46	Price schedule of Lapsephedi S/s, Part.1, item.no.D2.2.0		Number of CVT (12 Nos.) as mentioned in SLD is not matching with BPS (9 Nos.) and both are not matching with the scope of works i.e 6 nos. for 2 lines. Please check and update the relevant specification clauses.	Please refer BPS
47	Price schedule of Lapsephedi S/s, Part.1, item.no.E1.1.6		For 145kV, Gas insulated bus duct shall be 3 phase design only. However, 1 phase GIB quantity is also mentioned in the BPS. Please check and confirm the actual requirement	Singlephase GIB might be required for connection to the single phase transformers and spare transformer switching arrangement.
48	Price schedule of Lapsephedi S/s, Part.1, item.no.G.1.4, 11kV 2500A trunking		Please clarify what is the requirement of this panel & what need to be quoted against this line item.	Please quote as per BPS. It is a adaptor panel for future use.
49	Price schedule of Lapsephedi S/s, Part.1, item.no.I.1.1 & 2.1		The following details are required for 220kV & 132kV lines: a) Whether line protection shall be distance or differential protection. b) In case of differential protection, whether remote end differential relays also to be provided under the scope of this package. c) Remote end differential relays shall be supplied as loose supply. Integration with the exisiting system is not in our scope of works. Please confirm d) If remote end differential relay is already available, kindly provide the make and model no. of existing line protection relay.	The distance or differential protection will depends upon the line length, so will be decided during DDE. As it is a turnkey project, contractor is understood to be responsible for design and installation of whole system. If differential relay is envisaged, particularly for changunarayan s/s, relays for both end shall be supplied and installed by the contractor.

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Sl N	**Reference Section & Clause**	**Description**	**Bidder's Query/ Changes suggested**	**Client Response**
50	Price schedule of Lapsephedi S/s, Part.1, item.no.Q.1.0		In BPS the cable size for 11kV outgoing lines is mentioned as 3Cx400 Sq.mm. But in project specification requirement, cl.no. 13.0.aa, 1Cx400 Sq.mm cable is mentioned. Please clarify the actual requirement as there is a discrepancy between project specification requirement & BPS	As per BPS
51	Price schedule of Lapsephedi S/s, Part.1, item.no.Q.2.0		In BPS the cable size for 11kV side of LT transformer is mentioned as 3Cx400 Sq.mm. But in project specification requirement, cl.no. 13.0.aa, 1Cx300 Sq.mm cable is mentioned. Please clarify the actual requirement as there is a discrepancy between project specification requirement & BPS	As per BPS
52	Price schedule of Lapsephedi S/s, Part.1, item.no.T.1.1		Please clarify whether FOTE is already existing at Barhabise end. If available, please furnish the following details: i) Make and Model number ii) Transmission capacity (STM-1/STM-4/STM-16)	Barhabise Substation is under construction
53	Price schedule of Lapsephedi S/s, Part.1, item.no.F		Please include a separate line item for 1.1kV grade XLPE power cables and propose suitable amendments.	As per BPS
54	Price schedule of Lapsephedi S/s, Part.1, Mandatory spare, 3.2.6, 3.2.5, 3.3.6, 3.3.7		From the referred line item, the quantity of trip coil & close coil is mentioned as 1 set. We understand that 1 set is 1 no. Please confirm whether bidder's understanding is correct.	Confirm
55	Price schedule of Lapsephedi S/s, Part.1, Mandatory spare, 7.1 & 7.2		From the referred line item, the quantity of surge arrester is mentioned as 1 set. We understand that 1 set is 1 no. Please confirm whether bidder's understanding is correct.	Confirm
			132/11kV at Changunarayan Substation	
56	Single line diagram, C/ENGG/NEA/CHANGU/SLD/01		As per SLD & Cl. 3.B, 1no. 145kV ICT bay is in present scope. But as per BPS, Sl. No. C.1.3, the number of ICT bays are 2Nos. As there is a discrepancy between the SLD, Project specification requirement & BPS, please clarify the number of 145kV ICT Bays.	As per BPS
57	Single line diagram, C/ENGG/NEA/CHANGU/SLD/01		In SLD, one spare bay is shown in firm lines. If the same is in present scope, then the number of line bays shall be 7 which is contradicting with the scope as defined in Project specification requirement, Cl.3 & BPS, Sl. No. C.1.2. Please check and clarify.	Please refer BPS
58	General layout, C/NEA/CHANGU/LAYOUT/01		From the referred drawing, future 132kV Line bay is shown in between present scope of GIS bays. We understand that whether the bay arrangement can be decided by Bidder by segregating present & Future bays during detail engineering. Please confirm	Shall be decided during DDE
59	Single line diagram, C/ENGG/NEA/CHANGU/SLD/01		In the referred SLD, wave trap is shown in 132kV line bays. However, there is no wave trap line item in the BPS. Please check and confirm the actual requirement.	Please refer BPS
60	CHAPTER 1 – PROJECT SPECIFICATION REQUIREMENT, Cl.no.4.2.1.C		From the referred clause, GIS Potential Transformer are mentioned for 132kV Line bays. However, as per BPS Sl.no.D.2.0, outdoor CVT are mentioned. We understand that GIS Potential Transformer is not required for present substation package. Please confirm.	GIS Potential Transformer are required for 132kV Line bays

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Sl N	**Reference Section & Clause**	**Description**	**Bidder's Query/ Changes suggested**	**Client Response**
61	CHAPTER 1 – PROJECT SPECIFICATION REQUIREMENT, Cl.no.4.2.3		From the referred clause, complete Sub-station automation system (SAS) including complete hardware and software along with associated equipment for present 132kV & 11 kV bays only. We do not considered any future bays for 132kV & 11 kV bays. Please confirm. If future bays to be considered, please mention the no. of future bays for each voltage levels.	Confirm for the Hardware, however for software the provision shall be provided for adding additional 2 bays each for ecah voltage level.
62	CHAPTER 1 – PROJECT SPECIFICATION REQUIREMENT, Cl.no.4.2.4		Please confirm the type of bus bar protection scheme (high impedance or Low impedance) for 132kV system	Low impedance type
63	CHAPTER 1 – PROJECT SPECIFICATION REQUIREMENT, Cl.no.4.2.4		We understand that Bus bar protection shall be considered only for present scope of bays. Please confirm	Please provide the provision for additional 2 future bays in both 220kV and 132kV voltage level.
64	CHAPTER 1 – PROJECT SPECIFICATION REQUIREMENT, Cl.no.4.2.5		From the referred clause, it is mentioned that 315kVA LT transformer. However, in BPS item.no.B.1 & SLD, 630kVA LT transformer is mentioned. As there is a discrepancy between the SLD, Project specification requirement & BPS, please clarify the LT transformer rating	as per BoQ
65	CHAPTER 1 – PROJECT SPECIFICATION REQUIREMENT, Cl.no.4.2.5		From the referred clause, it is mentioned that 11kV supply to LT transformer is to be supplied from 11kV switchgear. However in SLD, the same is mentioned as 11kV switchyard and 11kV line from Lamosanghu. Pls check and confirm the actual source of 11kV auxiliary supply to LT transformer.	11kV supply to LT transformer is to be supplied from 11kV switchgear
66	CHAPTER 1 – PROJECT SPECIFICATION REQUIREMENT, Cl.no.4.2.5		From the referred clause, the secondary voltage of 315kVA LT transformer is mentioned as 400V. However, in LT SLD the auxiliary voltage is mentioned as 415V. Please check and confirm the auxiliary voltage	AC Auxiliary voltage: 400V
67	CHAPTER 1 – PROJECT SPECIFICATION REQUIREMENT, Cl.no.4.2.6		As there is discrepencies between Project specification requirement cl.no.3.B and cl.no.4.2.6 and BPS for no. of 11kV switchgear panel. Please check and confirm the actual requirement	Please refer BPS
68	CHAPTER 1 – PROJECT SPECIFICATION REQUIREMENT, Cl.no.4.2.6		In the CRB drawing, Drg. No. C-ENGG-WR-CHP-CRB-ARCH-01, space for 11kV indoor switchgear is not shown. Please check and furnish revised CRB dawing.	Shall be decided during DDE
69	CHAPTER 1 – PROJECT SPECIFICATION REQUIREMENT, Cl.no.4.2.26.f)		From the referred clause, 11kV double pole structure is mentioned. However, there is no line item in the BPS. Please check and clarify the scope of 11kV pole structure And also please provide the location of 11kV DP structure for termination of the outgoing 11kV lines.	termination of the outgoing 11 kV line near to the boundary of the Substation, shall be decided during DDE
70	CHAPTER 1 – PROJECT SPECIFICATION REQUIREMENT, Cl.no.4.2.17		Please furnish the layout for auxiliary building for LT switchgear which is mentioned in the referred clause.	LT Switchgear Room shall be accomodated in the Control Building
71	CHAPTER 1 – PROJECT SPECIFICATION REQUIREMENT, Cl.no.4.2.17		In the referred clause, illumination for Township is mentioned. However there is no line item in the BPS for township lighting. Also Township building are not shown in the General layout plan. If township buildings are under the scope of this package, please add separate line item for township lighting in BPS and show the location of township building in the general layout	township builiding is not in the scope of Changunarayan Substation
72	CHAPTER 1 – PROJECT SPECIFICATION REQUIREMENT, Cl.no.4.2.23		Kindly furnish the Annexure-IV as mentioned in the referred clause. Also please furnish the detailed specification of Visual monitoring system.	Attached

CLARIFICATION 1 ISSUED BY NEPAL ELECTRICITY AUTHORITY				
Sl N	**Reference Section & Clause**	**Description**	**Bidder's Query/ Changes suggested**	**Client Response**
73	CHAPTER 1 – PROJECT SPECIFICATION REQUIREMENT, Cl.no.4.2.26.k)		Please clarify whether the scope of street lighting along with JB for approach road is in bidder's scope.	Street lighting inside NEA Boundary wall is in the scope; same for the outside approach road is not in the present scope
74	Price schedule of Changunarayan S/S, Part.2, item.no.D.2.0		Number of CVT 21 nos as mentioned in BPS is not matching with SLD and are not matching with the scope of works i.e 18 nos. for 6 lines bays. Please check and confirm the actual requirement	Please refer BPS
75	Price schedule of Changunarayan S/S, Part.2, item.no.C.1.4		For 145kV, Gas insulated bus duct shall be 3 phase design only. However, 1 phase GIB quantity is also mentioned in the BPS. Please check and confirm the actual requirement	Please quote as per BPS. If not required will be deleted during DDE.
76	Price schedule of Changunarayan S/S, Part.2, item.no.F.1.4, 11kV 2500A trunking		Please clarify what is the requirement of this panel & what need to be quoted against this line item.	Refer above
77	Price schedule of Changunarayan S/S, Part.2, item.no.H.1.1		The following details are required for 132kV lines: a) Whether line protection shall be distance or differential protection. b) In case of differential protection, whether remote end differential relays also to be provided under this scope of package. c) Remote end differential relays shall be supplied as loose supply. Integration with the exisiting system is not in our scope of works. Please confirm d) If remote end differential relay is already available, kindly provide the make and model no. of existing line protection relay. e) Please provide transmission line distance of Chapall (Mulpani) and Bhakthapur remote end stations	Refer above
78	Price schedule of Changunarayan S/S, Part.2, item.no.H.1.2		Transformer control and protection panel shall be 1 no. instead of 2 nos. as mentioned in the BPS. Please check and confirm the actual requirement	Please refer BPS
79	Price schedule of Changunarayan S/S, Part.2, item.no.I.1.1		Number of bays to be automated is not matching with the number of 145kV bays as mentioned in project specification requirement cl.3.B. Please check and confirm.	Please refer BPS
80	Price schedule of Changunarayan S/S, Part.2, item.no.L.1		In the referred line item, 110V battery is mentioned. However, Battery charger and DCDB is mentioned as 220V in BPS. Please clarify the actual requirement as there is a discrepancy between different line items of BPS.	Please refer BPS. The voltage system for lapsephedi ad changunarayan is 220V DC while for Existing substation it is 110V D.
81	Price schedule of Changunarayan S/S, Part.2, item.no.P.1.0		In BPS the cable size for 11kV outgoing lines is mentioned as 3Cx400 Sq.mm. But in project specification requirement, cl.no. 13.0.aa, 1Cx400 Sq.mm cable is mentioned. Please clarify the actual requirement as there is a discrepancy between project specification requirement & BPS	Please refer BPS
82	Price schedule of Changunarayan S/S, Part.2, item.no.P.2.0		In BPS the cable size for 11kV side of LT transformer is mentioned as 3Cx400 Sq.mm. But in project specification requirement, cl.no. 13.0.aa, 1Cx300 Sq.mm cable is mentioned. Please clarify the actual requirement as there is a discrepancy between project specification requirement & BPS	Please refer BPS
83	Price schedule of Changunarayan S/S, Part.2, item.no.S.1.1.1		We understand that the FOTE system is required for 132kV Changunarayan-Chapall (Mulpani) and 132kV Changunarayan-Bhakthapur directions also. Please clarify whether FOTE is already existing at Chapall (Mulpani) and Bhakthapur end. If available, please furnish the following details: i) Make and Model number ii) Transmission capacity (STM-1/STM-4/STM-16)	Mulpani Substation is under construction
84	Price schedule of Changunarayan S/S, Part.2, item.no.A.1.1		Erection hardware for transformer bay shall be 1 no instead of 2 nos. mentioned in the BPS. Please check and confirm the actual requirement	Please quote as per BPS.

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Sl N	**Reference Section & Clause**	**Description**	**Bidder's Query/ Changes suggested**	**Client Response**
85	Price schedule of Changunarayan S/S, Part.2, item.no.E		Please include a separate line item for 1.1kV grade XLPE power cables and propose suitable amendments.	Please quote as per BPS.
86	Price schedule of Changunarayan S/S, Part.C, Mandatory spare, 2.4 & 2.5		From the referred line item, the quantity of trip coil & close coil is mentioned as 1 set. We understand that 1 set is 1 no. Please confirm whether bidder's understanding is correct.	Confirm
87	Price schedule of Changunarayan S/S, Part.C, Mandatory spare, 5.II.1		From the referred line item, the quantity of surge arrester is mentioned as 1 set. We understand that 1 set is 1 no. Please confirm whether bidder's understanding is correct.	Confirm
Upgradation of Teku Substation				
88	Single line diagram C/NEA/TEKU/SLD/01		From the referred SLD, Bays are suitable for EHV cable termination. However, as per project specification requirement cl.no.4.3.1.F all bays are suitable for SF6-to-Air termination. Please clarify the actual requirement as there is a discrepancy between project specification requirement & SLD	Please quote as per BPS.
89	Price schedule of Teku S/S, Part.3, item.no.K.c)		Please clarify the Scope of 132kV & 66kV cables which are provided in the BPS. Please clarify the starting & end point termination for the 132kV & 66kV cables by means of a layout drawing.	The cables will be laid within the substation compound. The tentative cable route for suichatar is provided, but will be finalized during DDE. For Teku it will be decided during DDE.
90	Single line diagram C/NEA/TEKU/SLD/01		The configuration of bays is not matching with project specification requirement cl.4.3.1. In case of discrepancy, project specification requirement cl.4.3.1 shall be followed. Please confirm	Confirm
91	Single line diagram C/NEA/TEKU/SLD/01		In SLD replacement of 2Nos. Incomer panels are mentioned. But in project specification requirement the same is not mentioned. If required, please furnish the make and model number of the existing 11kV panel.	Correction of PSR: Replacement of 2 Nos. Incomer Panels is in the present scope along with the required adopter panel. The make and model will be provided later.
92	Single line diagram C/NEA/TEKU/SLD/01		As per BPS item no.E.1.a.ii, Number of 11kV bays (14 bays) to be automated is not matching with the number of bays shown in the SLD (13 bays)	Please quote as per BPS.
93	Price schedule of Teku S/S, Part.3, item.no.A1.2.a)		Please provide the capacity of oil storage tank?	The storage tank shall be of 20 KL.
94	Price schedule of Teku S/S, Part.3, item.no.B.1		145kV Gas insulated bus duct quantity is not mentioned in the BPS. Please add a separate line item for 145kV GIB	145kV, XLPE Cable shall be used
95	Price schedule of Teku S/S, Part.3, item.no.B.2		In BPS and project specification requirement, Highest system voltage of 66kV is mentioned as 72kV. However, we would like to clarify that the highest system voltage for 66kV shall be 72.5kV. So, we request you to accept the 72.5kV GIS.	will be accepted
96	Price schedule of Teku S/S, Part.3, item.no.B.2		72.5kV Gas insulated bus duct quantity is not mentioned in the BPS. Please add a separate line item for 72.5kV GIB	72.5kV, XLPE Cable shall be used
97	Price schedule of Teku S/S, Part.3, item.no.B3.1.2		Please clarify what is the requirement of this panel & what need to be quoted against this line item.	It is a adopter panel, to match the existing busbar.
98	Price schedule of Teku S/S, Part.3, item.no.C		Bus coupler protection panel for 66kV is not mentioned in the BPS. Please add a separate line item for Bus coupler protection panel for 66kV	Quote as per BPS
99	Price schedule of Teku S/S, Part.3, item.no.C		Please clarify whether busbar protection for 66kV is not required? If required, please add separate line item for the same	It is a existing system. Please quote as per BPS

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Sl N	**Reference Section & Clause**	**Description**	**Bidder's Query/ Changes suggested**	**Client Response**
100	Price schedule of Teku S/S, Part.3, item.no.C.1.0.a		In referred line item, Distance/differential protection is mentioned for line bays. However in project specification requirement cl.no.4.3.2.d) only Distance protection is specified. Please clarify the actual requirement	Both opeions are appicable. The contracto is required to provide the protection schme as required as per the design during DDE.
101	Price schedule of Teku S/S, Part.3, item.no.G.e, H.a, I.a		110V DCDB, Battery and charger shall be 2 set instead of 1set as mentioned in BPS	Please quote as per BPS
102	Price schedule of Teku S/S, Part.3, item.no.K.a)		For 1.1kV grade XLPE power cable, quantity is not mentioned. Please check and furnish the same	Please quote as per BPS
103	Price schedule of Teku S/S, Part.3, item.no.N		Please furnish specification for SMPS based 48V DC power supply system & its battery bank.	As per TS
104	Price schedule of Teku S/S, Part.3, item.no.O.1.1.1		a) We understand that the FOTE system is required for 132kV Teku-Thapathali directions also. Please clarify whether FOTE is already existing at Thapathali end. If available, please furnish the following details: i) Make and Model number ii) Transmission capacity (STM-1/STM-4/STM-16) b) Please provide the transmission line distance of Thapathali remote end station	Thapathali Substation is planned and proposed substation
105	Price schedule of Teku S/S, Part.3, item.no.A.b		Please clarify where we need to include the Lightning mast in line item?	Cost for lightning mast shall be included in strucutre, RCC, erection hardware etc as required.
106	Price schedule of Teku S/S, Part.3, item.no.E		Please include a separate line item for 1.1kV grade XLPE power cables and propose suitable amendments.	Please quote as per BPS
107	Price schedule of Teku S/S, Part.3, Mandatory spare, B.f, B.g		From the referred line item, the quantity of trip coil & close coil is mentioned as 1 set. We understand that 1 set is 1 no. Please confirm whether bidder's understanding is correct.	Confirm
108	General input		Please furnish the following: a) Plot plan b) Equipment layout (plan & section) c) Existing 66kV GIS building layout d) Existing Control building layout e) Earth mat layout (or) Earth mat spacing f) Existing 11kV swiitchgear building layout	The drawings are provided. For additional requirment, please make necessary site visit.
109	LT transformer		We understand that adequately rated LT aux transformer is already available in the Teku substation. Hence the same is not considered in the scope of this package. Please confirm.	Confirm
110	Visual monitoring system		We do not envisage visual monitoring system for Teku substation. Please confirm	Please quote as per BPS
Upgradation of Suichatar Substation.				
111	Existing station details		a) SLD b) Plot plan c) Equipment layout (plan & section) d) Control building layout e) Earth mat layout (or) Earth mat spacing	Refer above
112	CHAPTER 1 – PROJECT SPECIFICATION REQUIREMENT, Cl.no.4.4.1.d		We understand that the SAS is being supplied under a separate contract. If it is already existing please specify the make and model number.	Will be provided later.
113	CHAPTER 1 – PROJECT SPECIFICATION REQUIREMENT, Cl.no.6, Physical & other parameters		Please provide the physical parameters (such as altitude, minimum & maximum ambient temperature, Humidity, Seismic & wind zone details) for TEKU and Suichtar substations also.	Almost similar to Lapsiphedi & Changunarayan Substations

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Sl N	**Reference Section & Clause**	**Description**	**Bidder's Query/ Changes suggested**	**Client Response**
114	Price schedule, Part.4, item.no.E.1		Please clarify the scope of OPGW. Please specify the starting & end location for OPGW. We request NEA to include the same in TL scope.	Supply, delivery, erection, testing & commissioning of OPGW from Teku Substation to Suichatar Substation is in present scope
115	Price schedule, Part.4, item.no.A.4.b & A.6		Please clarify the requirement of 66kV BPI & LA for Suichtar substation as the scope involves extension of 2# 132kV bays only.	Dismanteling of 66 kV tower for Kulekhani-II double circuit feeder and line termination by cables is in the present scope
116	Price schedule, Part.4, item.no.B		Please clarify the requirement of 66kV cables at suichtar substation. We request NEA to provide a sketch indicating the scope of works.	Refer above
117	Price schedule, Part.3, item.no.C		Please include a separate line item for 1.1kV grade XLPE power cables and propose suitable amendments.	Please quote as per BPS
118	Switchyard panel room		Please clarify whether switchyard panel room is required or not? If required please add separate line item for SPR illumination in BPS	Please quote as per BPS
119	Visual monitoring system		We do not envisage visual monitoring system for Tehu substation. Please confirm	Please quote as per BPS
120	Auxiliary supply		We understand that the existing ACDB, DCDB, Battery, charger & other auxiliary facilities are suitably rated to take care of the bay extensions under present scope. We do not envisage augmentation of the existing facilities. Please confirm.	Confirm
121	Bus bar scheme		Please clarify the existing busbar switching scheme (Single bus / Main & transfer / Double bus).	Single Busbar scheme
122	Bus bar protection		Please furnish the Make & Model number of the existing Busbar protection scheme.	
			Common Queries	
123	Lapsephedi s/s price schedule, item no.L.5 & 6		220V and 48V DCDB shall be 2 set instead of 1 set mentioned in BPS. Please check and confirm the actual requirement	Please quote as per BPS
124	Changunarayan s/s price schedule, item no.K.5 & 6, L.1 & 2		220V and 48V DCDB and battery shall be 2 set instead of 1 set mentioned in BPS. Please check and confirm the actual requirement	Please quote as per BPS
125	Price schedule, Part.C, Mandatory spare (Common for all stations)		Mandatory spare list are provided in both BPS and project specification requirement-Annexure-1.2. Please clarify which one to be followed as there are discrepancies between project specification requirement & BPS	Please quote as per BPS
126	CHAPTER 1 – PROJECT SPECIFICATION REQUIREMENT, Cl.no.4.4.1.h		We do not envisage 132kV wave trap under this scope of package as there is no line item in the BPS.	Confirm
127	CHAPTER 1 – PROJECT SPECIFICATION REQUIREMENT, Cl. 13.0.c		For Teku & Suichtar stations, Bidder scope is limited to Gateway at substation end. The gateway shall be suitable for remote communication to LDC/RCC. Supply of any hardware, software & database modification works at LDC/RCC is not in Bidder's scope.	As mentioned in the bidding documents
128	CHAPTER 1 – PROJECT SPECIFICATION REQUIREMENT, Cl.no.13.00.k		Energy meter shall be provided for each 220kV, 132kV and 11kV bays (Bus coupler and Bus section bay excluded) at Lapsephedi and changunarayan substation only. We do not envisage energy meters for Teku and Suichatar substation. Please confirm whether bidder's understanding is correct	Energy meters for each 220kV, 132kV, 66 kV and 11kV bays (Bus coupler and Bus section bay excluded) at Lapsiphedi, Changunarayan, Teku & Suichatar Substations are in the present scope (for all new bays)

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Sl N	**Reference Section & Clause**	**Description**	**Bidder's Query/ Changes suggested**	**Client Response**
129	Chapter-1, project specification requirement, Cl.13.0.aa		Please furnish the technical specification for 11kV cables indicating the following minimum details: a) Conductor b) Insulation screen c) Insulation d) Insulation screen e) Inner sheath f) Armour g) Outer sheath	As per TS
130	Technical specification for indoor switchgear (VCB type), cl.no.9.00.10		In referred clause, the short circuit rating is mentioned as 25kA for 1 sec for 11kV switchgear. However, as per project specification requirement cl.no.6.3.3, short cirucit rating for 11kV system is mentioned as 25kA for 3 sec. Please check and confirm the short circuit rating for 11kV system	It shall be 25kA for 3s.
131	Chapter-6: Lighting System, Annexure-1		As conventional light fixtures are obsolete, we propose LED light fixture for illumination system. Please confirm your acceptance	Confirm
132	Chapter-7: LT Transformer		Please furnish 315kVA, 11kV/0.4kV LT transformer specification	The required transformer rating is 630kVA, which is already provided.
133	Chapter 12: Switchyard erection, cl.no.7.0		Please furnish the specification for 72.5kV Bus post insulator	
134	Chapter-19: GIS, Cl.no.1.1.4, sl.no.7		As per client requirement, GIS shall be rated as per BPS at 50 Deg. C. However, 132kV, 72.5kV & 220kV GIS are type tested at 40 Deg. C ambient as per IEC. Request client to accept the same. Please confirm your acceptance	Please refer PSR clause 6.1
135	Chapter-19: GIS		Please furnish the CT parameters for 66kV GIS	The 132kV parameter shall be applicable for 66kV. Please note, the CT ratings will be decided during DDE>
136	Chapter-19: GIS, Annexure-6		From the referred clause, the minimum cantilever strength for 132kV SF6 to air bushing is mentioned as 5kN. However as per project specification requirement clause no.4.1.2.G, the minimum cantilever strength for SF6 to air bushing is mentioned as 8kN. Please check and clarify the requirement	Please consider the rating as per PSR.
137	Chapter-20, Technical particulars for transformer, cl.no.3.1.1.4		Please clarify whether bell type tank construction of transformer is acceptable?	As per TS
138	Chapter-20, Technical particulars for transformer		We do not envisage the following online monitoring systems for transformers as there is no line item in the Price schedule: a) Online Dissolved Gas (Multi-gas) and Moisture Analyser b) FO based temperature measurement system c) On Line Dissolved Hydrogen and Moisture Monitor d) On-line insulating oil drying system (Cartridge type) e) Nitrogen Injection Type Fire Protection System (NIFPS) f) Oil Sampling Bottle & Oil Syringe Please confirm. In case required, please include the same in the price schedule	Price of such items for online monitoring systems for transformers shall be included in the price of transformers. For detail please refer specification of transformer
139	Chapter-20, Technical particulars for 132/66kV, 51.5/63MVA transformer		At Sl. No. 1, it is mentioned that MV rating shall be proposed if required. Further, at Sl. No. 1.34, Vector group is mentioned as YNyn0 (D11). Please clarify whether tertiary winding is required or not.	Shall be decided during DDE
140	Chapter-22, EHV Power cable, Cl. No. 1.8		In the referred clause the shape of the conductor is mentioned as compacted segmental. As segmental type construction is followed for EHV cables above 1000 Sq. mm, we shall propose round circular compacted design for the required Cu cables of 240 sq. mm and 500 sq. mm. Please confirm	As per TS
141	Chapter-22, EHV Power cable, Cl. No. 1.13		We propose welded Corrugated Aluminum Tape - Annular. Please confirm acceptance. Please furnish the required earth fault current & its duration that need to be withstand by the Metallic sheath/screen.	As per TS

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Sl N	**Reference Section & Clause**	**Description**	**Bidder's Query/ Changes suggested**	**Client Response**
142	Chapter-22, EHV Power cable, Cl. No. 12		Please furnish the drawing as mentioned in the referred clause as the same is not enclosed with the specification	The Contractor is required to propose the layout scheme as per site conditions, so drawing is not attached.
143	Chapter-22, EHV Power cable, Cl. No. 2.1		Please clarify whether Non-returnable steel cable drums are acceptable.	Acceptable
144	Chapter-22, EHV Power cable		Kindly provide installation conditions such as: a) Installation in trench (in free air) / underground b) Depth of laying c) Type of formation : Trefoil / flat d) Ground temperature e) Ambient air temperature f) Soil Thermal resistivity g) Single circuit laying / double circuit laying	During DDE as cable is to be laid inside the substation compound, existing avilable space has to be considered.
145	Chapter-22, EHV Power cable, Cl. No. 29		As per the referred clause of technical specification, Cross-bonding is mentioned for sheath bonding. As the cables are of shorter length within the substation plot, we request NEA to accept Single point bonding. Please confirm.	Shall be decided during DDE
146	Chapter-22, EHV Power cable, Cl. No. 33, DTS		As per the referred clause of technical specification, Distributed temperature sensing system (DTS) is mentioned. As DTS is normally employed for cross-country cabling between substations, we understand that the same is not in the scope of this package. Please confirm whether Bidder's understanding is in order.	Shall be decided during DDE
147	Chapter-22, EHV Power cable, Cl. No. 1.12 & 1.13		As per the referred specification clauses, corrugated aluminum is mentioned or both Radial moisture barrier & Metallic screen. We understand that both these layers are one and the same. Please confirm.	As per TS
148	Chapter-22, EHV Power cable, Cl. No. 1.15		Please specify the continous current requirement for the EHV cables used for 132kV & 66kV lines. Otherwise, Bidder shall consider 1run per phase of the cable sizes as mentioned in BPS.	Please Refer Technical Data Sheet (Provided in the ammendment). The numbers of runs shall be condiering the rating and length of the cable in BPS.
149	Chapter-18, Technical specification of Fibre optic based communication equipments, Appendix-A		FOTE BoQ is provided in both BPS and Chapter-18 (Annexure-A) of technical specification. Please clarify which one to follow as there is a discrepancy between technical specification & BPS	As per BPS
150	Chapter-19, GIS, Annexure-1, Technical parameters of Circuit breaker, Sl. No. 16, Reclosing		In the referred clause, Single phase & Three phase auto reclosing is mentioned for both 132kV & 66kV GIS circuit breaker also. As 132kV & 66kV GIS are of three phase design having one common CB operating mechanism, single pole reclosing is not possible. Please check & issue suitable amendments.	As applicable.
151	Plot dimensions (applicable for Lapsiphedi, Changunarayan & TEKU substation)		a) Please furnish the plot dimensions of the aread allotted for the 220/132kV substation at Lapsiphedi substation b) Please furnish the plot dimensions of the TEKU substation	Please visit the sites for details. For lapsephedi, thaland plot is provided. For teku, the avilable space is limited, therefore all strucutre shall be designed to accommodate all eqipment. Also, the existing 66kV line structure gantry has to be suitably modified for 132kV system, so site visit is recommended.
152	GIS Building (applicable for Lapsiphedi, Changunarayan & Teku substations)		We understand that the GIS building size shall be suitable to accommodate the present+spare+future bays as shown in the single line diagram of the respective stations. Please confirm whether Bidder's understanding is in order.	Confirm
153	Chapter-1, Cl. 4.1.1, Modifications/Dismantling Works at Siuchatar and Teku Substation		We request NEA to provide a handsketch to understand better the scope as mentioned in the relevant clause	

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Sl N	**Reference Section & Clause**	**Description**	**Bidder's Query/ Changes suggested**	**Client Response**
154	Chapter-1, Annexure-V, Energy Meter		The accuracy class of Energy meter is mentioned as 0.1. However, the accuracy class of CT metering core as mentioned in GIS technical specification is 0.2s. Please check and clarify as the accuracy of CT & Energy meter are different.	AS per TS
155	PLCC system		We do not envisage any PLCC system under this package. Please confirm	Confirm
156	Common for all stations		We understand that the scope of Earthing, Gravel spreading, DSLP, Lighting etc. are limited to the present scope of bays only. Please confirm.	Confirm
157	CRB drawing, Drg. No. C-ENGG-WR-CHP-CRB-ARCH-01		Control room building Drg. No. C-ENGG-WR-CHP-CRB-ARCH-01 is not matching with Control room building plan shown in the General layout of Lapsephedi and Changunarayan substation. Please check and confirm which drawing to be followed.	Please refer Control room building plan shown in the General layout of Lapsephedi and Changunarayan substation
158	Order of precedence		In case of discrepancy between price schedule, project specification requirement & Tender drawings, Please clarify the order of precedence.	Order of Precedence: Price schedule, PSR and then Tender drawings
159	Vol-II, Chapter-20, Clause-6.0, Technical parameters, Sl. No. 2.0, Technical particulars for 45MVA, 132/11kV transformer Sl. No. 3.0, Technical particulars for 22.5MVA, 132/11kV transformer Technical particulars for 63MVA, 132/66kV transformer		As per the referred datasheets the impedance value is specified as given below: a) 45MVA, 132/11kV transformer > 11% b) 22.55MVA, 132/11kV transformer>10% c) 63MVA, 132/11kV transformer>11% We request NEA to furnish the exact value of percentage impedance in order to have uniform bidding conditions.	As per TS
160	Vol-II, Chapter-20, Clause-6.0, Technical parameters, Sl. No. 2.0, Technical particulars for 45MVA, 132/11kV transformer Sl. No. 3.0, Technical particulars for 22.5MVA, 132/11kV transformer Technical particulars for 63MVA, 132/66kV transformer		As per the referred datasheets the Noise limit is specified as given below: a) 45MVA, 132/11kV transformer ≤70 dB b) 22.55MVA, 132/11kV transformer ≤70 dB c) 63MVA, 132/11kV transformer ≤70 dB However as per specification, Chapter-23 (Technical data sheet to be filled by Bidder), the expected noise limit is 75dB at rated voltage & ONAF rating. As the above requirements are contradicting, please check and furnish the actual noise limit for the above ratings.	As per TS
Lapsephedi 220/132/11 kV Substation.Changunarayan 132/11 kV SubstationUpgradation of Teku Substation to 132/11 kV Substation				
161	Volume II, CH-1 (Project Specification Requirement)	Clause no- 4.1.28 (y) & 4.2.26 (x) & 4.3.3 (n)	As per referred clause, it is menioned that "Soil investigation has been carried out. NEA will provide Geotechnical Investigation Report of the substation area for reference". However in tender document the soil report is not attached. Kindly provide the same in order to estimate the quantum of work.	The reference values are attched herewith.
162	Volume II, CH-1 (Project Specification Requirement),	Clause no- 4.1.28 (v) & 4.2.26 (u) & 4.3.3 (k)	As per referred clause, the underground water tank is in bidders scope. Whereas item for the same is not included in price schedule. We presume that, items (i.e: excavation, PCC, RCC & Reinforcement) shall be paid in respective items of BPS. Please confirm.	Confirm
163	Volume II, CH-1 (Project Specification Requirement),	Clause no- 4.1.28 (m) & 4.2.26 (l) & 4.3.3 ®	As per referred clause it is mentioned that, **"Strengthening of approach road/ bridges, if required during transportation of equipment, shall be included in respective item of price schedule"**. However in price schedule there is no separate item for strengthening of approach road and bridge. Kindly include the item for the same in price schedule.	The cost for such work shall be included with the respective BPS items. No separate payment will be made for such works

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Sl N	**Reference Section & Clause**	**Description**	**Bidder's Query/ Changes suggested**	**Client Response**
164	Volume II, CH-1 (Project Specification Requirement),	Clause no- 4.1.28 (l) & 4.2.26 (k)	As per referred clause it is mentioned that, **"Preliminary survey of the approach road has been carried out. Employer will provide the survey report of the approach road for reference only"**. kindly provide the same in order to estimate the quantum of work.	The report for reference will be provided to successful bidder, but the bidder is requre to reconfirm the survey report.
165	Volume II, CH-1 (Project Specification Requirement),	Clause no- 4.1.28 & 4.2.26 & 4.3.3	We trust that, the diversion of the water stream or nalla(If any) inside proposed area is not in bidder scope. Please confirm.	Diversion of the water stream or nalla if required inside the proposed area, to be performed by the successful bidder. The cost for such works will done as per rates avaiable in the the BPS.
166	Volume II, CH-1 (Project Specification Requirement)	Clause no- 4.1.28 (C)	As per referred clause , the Quarters buildings (B,C,D type) are in bidders scope. Please provide the following drawings to estimate the finishes quantity of the buildings. 1. Building Plan with room dimension. 2. Elevation of drawing. 3. Section details.	Please find the attached drawings.
167	Volume II, CH-1 (Project Specification Requirement)	Cl.no : 6.1 e	As per referred clause, seismic requirement for proposed substation is 0.5g which is very Severe and much higher than the maximum critical value in IS:1893. We have considered that, bidders shall do civil & Structural design. Please confirm.	Confirm
168	Volume II, CH-1 (Project Specification Requirement)	Clause no- 4.1.28 (C) & 4.3.3	We presume that the pile foundation, Rubble soling or any additional foundation protection works is not envisaged for the proposed Lapsephedi & Teku Substation. If required the same shall be paid in additional item with mutually agreed rate. Please confirm.	If pile foundation is required at Lapsephedi, Suichatar or Teku Substation, the rate of Chanunaryan BPS will be considered. The existing GIS cum control building at Teku is on normal foundation.
169	Volume II, CH-13 (Structure)	Cl.no : 1	We presume that, the galvanisation thickness for steel structures is 610g/sq.m for all proposed substations. Please confirm.	This the the minimum value specified.
170	Volume II, CH-1 (Project Specification Requirement)	Clause no- 4.1.28 (a) & 4.2.26 (b)	As per referred clause, it is mentioned that **"Earthworks (cutting and filling), Gabion/Retaining Wall and partial drawing of control room building & Security room has been prepared. Employer will provide such drawings for reference only"**. However in tender document the mentioned drawings are not enclosed. kindly provide the same. in order to estimate the quantum of work.	Will be provided to successful bidder for reference.
171	Volume II, CH-1 (Project Specification Requirement)	Clause no- 4.1.28 & 4.2.26 & 4.3.3	We trust that, the rain water harvesting for the proposed Lapsephedi & Changunarayan & Teku is not included in bidders scope. If it is required, kindly add a separate item for the same in the BPS.	As per BPS
172	Price Schedule 1: Plant, and Mandatory spares parts supplied from abroad Part 1 : Lapsephedi Substation Part 2 : Changunarayan Substation Part 3 : Teku Substation Part 4 : Suichatar Substation	Clause no : Part 1 : S Part 2 : R Part 3 : M Part 4 : D	We trust that, the referred item of the supply schedule is inclusive of all structural steel required for towers, LMs, girders, equipment support structures etc. for 220kV,132kV & 33kV. Kindly confirm.	Confirm
173	Volume II, CH-1 (Project Specification Requirement),	Clause no- 4.1.28 (b) & 4.2.26 (b) & 4.3.3 (f)	As per referred clause, the fire resistant wall is in bidders scope. However in price schedule there is no separate item for the same. Kindly add an item for the same.	Shall be paid as per available BPS items.
174	Volume II, CH-1 (Project Specification Requirement)	Clause no- 4.1.28 & 4.2.26 & 4.3.3	If earth fill depths are high, the foundations can be rested on filled up soil after ensuring proposer compaction formed by plate load test or the applicable Geo-tech tests. Kindly confirm.	Confirm

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Sl N	**Reference Section & Clause**	**Description**	**Bidder's Query/ Changes suggested**	**Client Response**
175	**Lapsephedi :** Volume II , CH-14 (Civil work), Volume III, BPS Schedule 4a (Part 1) ,Part-C Civil work Page no-10 of 37	Clause no-24.16 & BPS Sl no - 11.2 PRE ENGINEERED BUILDING	As per mode of measurement for Building "The measurement of all items except excavation, concrete, reinforcement steel of each type of buildings shall be made on area in Square Meter basis. However, the quantity of excavation, concrete, reinforcement steel shall be measured separately under respective items of BPS." In price schedule the building quantity is given in Sq.m, but it is mentioned as including excavation, PCC, RCC & Reinforcement etc. Please clarify, whether the quantity of excavation, PCC, RCC & Reinforcement shall be measured & paid separately under respective items of BPS or paid in Sq.m area.	For normal foundation of the building, the cost shall be included with the building. For pile foundation, payment will be made as per respective items.
176	**Changunarayan :** Volume II , CH-14 (Civil work), Volume III, BPS Schedule 4a (Part 2) ,Part-C Civil work Page no-19 of 37	Clause no-24.16 & BPS Sl no - 11.2 PRE ENGINEERED BUILDING	As per mode of measurement for Building "The measurement of all items except excavation, concrete, reinforcement steel of each type of buildings shall be made on area in Square Meter basis. However, the quantity of excavation, concrete, reinforcement steel shall be measured separately under respective items of BPS." In price schedule the building quantity is given in Sq.m, but it is mentioned as including excavation, PCC, RCC & Reinforcement etc. Please clarify, whether the quantity of excavation, PCC, RCC & Reinforcement shall be measured & paid separately under respective items of BPS or paid in Sq.m area.	Refer above
177	**Teku :** Volume II , CH-14 (Civil work), Volume III, BPS Schedule 4a (Part 3) ,Part-C Civil work Page no-31 of 37	Clause no-24.16 & BPS Sl no - 15 PRE ENGINEERED BUILDING	As per mode of measurement for Building "The measurement of all items except excavation, concrete, reinforcement steel of each type of buildings shall be made on area in Square Meter basis. However, the quantity of excavation, concrete, reinforcement steel shall be measured separately under respective items of BPS." In price schedule the building quantity is given in Sq.m, but it is mentioned as including excavation, PCC, RCC & Reinforcement etc. Please clarify, whether the quantity of excavation, PCC, RCC & Reinforcement shall be measured & paid separately under respective items of BPS or paid in Sq.m area.	Refer above
178	**Changunarayan :** Volume II , CH-14 (Civil work),	Clause no- 4.2.26 (aa)	As per referred clause, the dismantling of existing structure, foundation, equipment etc., is in bidders scope. However in price schedule there is no separate item for the same. Kindly include the same.	No separate payment will be made for such works
179	**Drawing : Access Road** **Volume III, BPS Schedule 4a (Part 1 & 2) ,Part-C Civil work**	Cl.no : 28.1	As per referred drawing, the Asphalt concrete pavement thickness is mentioned as 50mm. However in price schedule the concrete pavement thickness is mentioned as 40mm. Please clarify which one to be followed.	As per BPS
180	**Drawing no: C/ENGG/STD/M25/FFPH - 11**		As per referred drawing it is mentioned that, the lean concrete for water tank is PCC 1:3:6. However in price schedule no separate item for the same. Kindly inlcude.	Pleas use the PCC as per available rate.

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Sl N	**Reference Section & Clause**	**Description**	**Bidder's Query/ Changes suggested**	**Client Response**
181	Volume II, CH-1 (Project Specification Requirement)	Clause no- 4.3.3	We wish to inform that, the GA layout for Teku substation is not attached with tender document. Kindly provide the same.	Attched
182	Teku Substation : Volume II, CH-1 (Project Specification Requirement)	--	Please furnish the following details for the proposed Teku Substation:- 1. Existing General arrangement layout 2. Existing cable trench layout 3. Existing Soil investigation report. 4. Existing road and drain layout 5. Finished ground level 6. Existing gravel spreading layout 7. Plot co-ordinates. 8. Existing contour layout.	Please visit the site for details
183	Volume II, CH-1 (Project Specification Requirement)	Clause no- 4.1.28 & 4.2.26 & 4.3.3	As per referred clause, it is menioned that "The finished ground level has been finalized and certain volume f cutting has been done. The substation area shall be developed in terraces at single or multi levels by remaining cutting and filling to attain final finished ground level". Please specify the Finished Ground Level for all substation.	The successful bidder will be provided the FGL level drawings for reference.
184	Volume II, CH-1 (Project Specification Requirement)	Clause no- 4.1.28 & 4.2.26 & 4.3.3	Please furnish the following details for the proposed Lapsephedi & Changunarayan & Teku Substation:- 1. High Flood Level. 2. Sectional layout (indicates Bus height, tower height and clearance)	High flood level data will be provided after contract, if available. Regrding sectional layout, the successful bidder is required to design and submit for approval.
185	Volume II, CH-1 (Project Specification Requirement) Volume III, BPS Schedule 4a (Part 1) ,Part-C Civil work Volume III, BPS Schedule 4a (Part 2) ,Part-C Civil work	Clause no- 4.1.28 (l) & 4.2.26 (k) Cl.no : 28	As per referred clause, approach road is in bidder's scope. Approach road from existing main road to proposed site boundary is to be constructed with suitable gradient, in order to reach the proposed bench level of substation with respect to the existing road level. This would require formation of side embankment, Retaining wall, slope protection. The payment for the road (i.e., inside and outside boundary (approach road))shall be paid in Sq. m basis under Sl.no: 28, 28.1, 28.2 & 28.3 for Lapsiphedi and Sl. no: 28, 28.1, 28.2 & 28.3 for Changunarayan substations. We trust that, the road quantities would be paid in Sl.no: 28, 28.1, 28.2 & 28.3 for lapsiphedi and Sl. no: 28, 28.1, 28.2 & 28.3 for Changunarayan substations & other Civil works as required for Gradient formation such as side embankment, Retaining wall, slope protection would be paid at actuals in Sl no: 24, 25, 29 & 31 for lapsiphedi and Sl no: 24, 25, 29 & 31 for Changunarayan substation. Please confirm.	Confirm
186	Volume II, CH-1 (Project Specification Requirement)	Clause no- 4.1.28 & 4.2.26 & 4.3.3	As per referred clause, site levelling is in bidder scope. Please clarify, whether the site levelling is to be done only in present + future bays of 220/132/33kV area along with township area and the remaining untouched area within property line (i.e; boundary wall) to be left as it is. (or) The entire site area within the property line to be levelled.	the site levelling is to be done only in present + future bays of 220/132/33kV area along with township area and the remaining untouched area within property line (i.e; boundary wall) to be left as it is.
187	Volume II, CH-1 (Project Specification Requirement)	Clause no- 4.1.28 & 4.2.26	We trust that, land acquisition for proposed substation (including approach road) is not in bidder scope. Please confirm.	Confirm
Upgradation of Suichatar Substation				

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Sl N	**Reference Section & Clause**	**Description**	**Bidder's Query/ Changes suggested**	**Client Response**
188	Volume II, CH-1 (Project Specification Requirement)	Cl.no : 4.4	Please furnish the following details for the Existing Suichatar Substation:- 1. Existing General arrangement layout 2. Existing cable trench layout 3. Existing Soil investigation report. 4. Existing road and drain layout 5. Finished ground level 6. Existing gravel spreading layout 7. Existing contour layout.	Please visit the site.
189	Volume II, CH-1 (Project Specification Requirement)	Cl.no : 4.4	We trust that pile foundation is not envisaged for the proposed Suichatar substation. Please confirm.	Confirm but if pile foundation is required, design and construction shall be done by Contractor as per TS 14.2.
190	Volume II, CH-13 (Structure)	Cl.no : 1	We presume that, the galvanisation thickness for steel structures is 610g/sq.m for all proposed substations. Please confirm.	Refer above
191	Volume II, CH-1 (Project Specification Requirement)	Cl.no : 4.4	We do not envisage any building extension or modification works in the present scope of work in Existing Suichatar substaion. Kindly confirm. If not add an item for the same.	Confirm but existing control building spaces are very limited, therefore the equipment design shall be done as per the available spaces. If civil works is required for cable trench, panel foundation , etc such cost shall be ncluded in the respective Item except for the items available in
192	Volume II, CH-1 (Project Specification Requirement)	Cl.no : 4.4	As per referred clause, the dismantling of existing strucure and foundation work is required for the Suichatar substation. However in price schedule there is no item for dismantling works. Please include the same.	No separate payment will be made for such works
193	Volume II, CH-1 (Project Specification Requirement)	Cl.no : 4.4.1 (b)	As per referred clause it is mentioned that, **"At Teku Substation, the existing line gantry which is designed for 66kV voltage level shall be suitably modified to make ready for 132kV incoming line with regards to clearance as per relevant standard".** Please provide the Existing tower and girder design and drawings. Inorder estimate the quantum of work and modification.	Attached. Please download the document from NEA website.
			CRP/SAS	
194	3.2, 2.2, D 1.0	3.2 Relay Test Kit 3.2 Relay Test Kit D.1.0 Relay Test tool kit	We understand that against the requested item we can offer ABB Combiflex Tool Kit and not a dynamic Relay Testing kit. Please confirm	During DDE
195	132/11 kV Teku Substation upgrade (132V GIS & Indoor) - C1.(g)	Bus Bar Protection Panel	We understand the busbar protection scheme asked here is for 132kV Bays only. Please confirm.	Confirm
195	132/11 kV Teku Substation upgrade (132V GIS & Indoor) - C1.a,b,c	Current Differential Relay for other end of line is 4No.s	The total No. of bays are 6 No,s with Line differential Relay, but Losse Current Differential for other end of Line called is 4 no.s please clarify.	
196	132/11 kV Teku Substation upgrade (132V GIS & Indoor) - C1.(f)	Buscoupler Control & Protection Panel	We understand the Buscoupler quantity shall be 1 No. of each 132kV and 66kV Voltage levels. Please Confirm.	Confirm
196	Suichatar Substation Extenson (132V AIS Outdoor)	Line Control & Protection Panel with distance relay	The scope includes only supply and commissioning of 132kV Line Bay, there is no Busbar /SCADA integration scope called here. If yes, please confirm the Make and Type of same.	Confirm
197	4.3.2 Air insulated switchgear(AIS) and Other Main Equipments at Teku: (d)	Main-I Protection shall be distance Protection Scheme as per specification section control & Relay Panel	As per the Price schedule/BPS its calls for "132 kV Line Control & Protection Panel with distance relay / Differential relay", but as per Specificationand PSR it calls for Distance Relays. Hence please confirm for the no. of Bays with Line distance Relays and No. of Bays with Line Differential Relays **for 132kV and 66kV .**	Multi-Function relay with both distance and differential relay has been envisaged for 132 kV/66 kV line protection

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198	Annexure-V - Specification for Revenue Meter & Metering (Instrument) Transformer.	Accuracy Class: 0.1s, IEC 687 (latest edition) or Equivalent.	1. The standards mentioned doesn't call for 0.1s class accuracy. Can we provide 0.2s class meters. please confirm 2. Approved make: ELSTER (ABB), ACTARIS (Schlumburger), EDMI, SIEMENS etc. we found the vendors mentioned doesn't have 0.1s class meters. Requestng NEA to provide standard vendor, alternatively can we suggest vendors who manufacture high accuracy meters and request to take up the approval during execution. Please confirm	Please provide as per TS
199	BOQ of SAS - 132/11 kV Teku Substation upgrade (132V GIS & Indoor)	Integration of Siemens Sinaut Spectrum Integration of MCC at Banoshwar substation	Integration of Siemens Sinaut Spectrum Integration of MCC at Baneshwar substation Both the integration is not mentioned. Please confirm if the integartion is in bidder's scope.	It is confirmed that both the integration is in bidder's scope.
200	Project Specific Requirement: Augmentation and integration work related to SCADA System	The existing communication protocol used for SCADA at LDC Kathmandu is IEC 101. For the present scope of work no RTU is envisaged and the Data for SCADA purpose shall be obtained from the Substation Automation System (based on IEC 61850) using Gateway port with communication protocol IEC 101/104 as per requirement being provided under present contract.	We understand LDC of Siemens make is being upgraded and accommodate on IEC104 Protocol. Hence we will provide data from the gateway of substation on IEC104 Data only. Please confirm.	Confirm. TO be discussed during DDE>
201	PSR: 4.3 132/66/11kV Teku GIS Substation:	(d) Complete Relay & Protection System as per of Chapter - C & R of the Technical Specifications The protection to be provided on 132kV Lines shall be as under; Main-I Protection shall be distance Protection Scheme as per specification section control & Relay Panel. Bus Bar Protection: For the 132kV System, Bus bar protection scheme with static type high impedance differential relay shall be provided.	Please confirm for having High Impedance Busbar protection, the CT Ratios of all the bays is common.	Low impedance scheme shall be provided as mentioned in PSR and as mentioned above.
202	TS for SAS: 3.3.2 Remote Control Centre (MCC) Communication Interface Employer will supply communication channels between the Substation Automation System and the remote control centre.	The communication channels provided by Employer will consist either of power line carrier, microwave, optical fibre, VSAT or leased line, the details of which shall be provided during detailed Engineering.	Interface equipments between Substation SAS & MCC & LDC is not considered in Bidder's scope. Please confirm.	It is in bidders scope.
203	TS for SAS: : Switched Ethernet Communication Infrastructure:	The bidder shall provide the redundant switched optical Ethernet communication infrastructure for SAS. One switch shall be provided to connect all IEDs for two bays of 220kV yard to communication infrastructure. Each switch shall have at least two spare ports for connecting bay level IEDs and one spare port for connecting station bus.	Can we Consider One Ethernet for 2 Bays at 220KV & 132KV Level & One ethernet switch for connecting 8 Nos of 11KV Bays? Please confirm	As per TS
TELECOMMUNICATION				
204	General	Distance between Substations	Please provide network connectivity of the all four substations along with optical link distances.	During DDE
EHV CABLE				
205	SECTION 22: EHV XLPE POWER CABLE, cl. no. 1.12 MOISTURE BARRIER	Radial Moisture Barrier: This shall be of extruded corrugated aluminum sheath.	kindly confirm **Seam welded**, corrugated aluminium sheath as radial moisture barrier / metal sheath is acceptable.	Shall be decided during DDE

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206	cl. no. 1.13 METALLIC SCREEN:	The sheath shall be continuously extruded, of uniform thickness and homogeneous construction, close fitting, seamless and free from defects.		
207	SECTION 22: EHV XLPE POWER CABLE,cl. no. 12. DEPTH OF LAYING OF CABLES	Drawings of Cable Laying	Please provide drawing along with specification.	Refer above
208	SECTION 22: EHV XLPE POWER CABLE,cl. no. 12. DEPTH OF LAYING OF CABLES	Depth of laying shall be as per drawing enclosed with Specification.	Kindly provide installation conditions such as: 1) Installation in trench (in free air) / underground 2) Depth of laying 3) Type of formation : Trefoil / flat 4) Ground temperature 5) Ambient air temperature 6) Soil resistivity 7) Single circuit laying / double circuit laying etc.	Refer above
			GIS	
209	Item No. 2, Clause No. 2.5 "Subcontractors" of Section 3 - "Evaluation and Qualification Criteria"	-	We understand that GIS make from the preferred vendor list can be offered, and the same make can be offered from Indian works, provided Indian works has manufactured and supplied double the Quantity offered as specified. However, since different voltages are included in the scope of tender, we request that the preferred make from Indian works may kindly considered with 1 year satisfactory experience for the 50% of the tendered quantity, provided that the preferred make from Indian works is manufactured under a valid Technical Licence Agreement with the Technical Collaborator for the preferred make who meets the Qualification Requirement. Please confirm	As per Bid document
210	-	Layout	Please provide us the substation layout and section view of GIS building for our reference and understanding. (for all three substations) As per our understanding from BOQ , the typeof termination for all bays is SF6 to air bushing. Please clarify the type of termination & provide us the plot plan with exact gantry positions for SF6 to air bushing terminations and clearance from ground level to bushings.	All bays are to be terminated using SF6 to air bushing. The design of the substation layout is in bidders scope.
211	-	SLD	Please provide us the Single line diagram with bay configurations for our reference and understanding.	
212	Chapter19_ General Technical Requirement_GIS	Future Extension	Please confirm whether provision for future extension of GIS bays is required. If required, please specify the no. of bays.	Provision for future extension of GIS bays is required. The no. of future bays shall be decided during DDE as per available space.
213		**General design & safety requirement**		
214		3.10) These insulators shall be designed to have high structural strength and electrical dielectric properties and shall be free of any voids and free of partial discharge at a voltage which is at least 5% greater than the rated voltage.	The section barrier or support insulators are tested for partial discharge according to IEC 62271-203 & IEC 62271-1 clause 7.1.102. Please confirm	Testing shall be done according to relevant IEC/IEEE/BS/IS standards
215		3.12) The material and thickness of the enclosures shall be such as to withstand an internal flash over without burn through for a period of 300ms at rated short time withstand current.	The material and thickness of the enclosures shall be such as to withstand an internal flash over without burn through as per Table 4 of IEC 62271-203. Please confirm.	As per relevant standard and TS

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216		3.22) The layout of substation equipment, bus bars & switchgear shall preferablybe based on the principle of "phae grouping". Switchgear layout based on "mixed phases" shall not be accepted without mutual agreement between supplier & employer.	Please elaborate the term "phase grouping" and "mixed phases" with respect to GIS. However as per manufacturer standard design, 145kV GIS is three phase encapsulated design and 245kV GIS is single phase encapulated type.	As per relevant standard and TS
217		3.25) The surfaces shall be smooth with no projection or irregularities which may cause visible corona. No corona shall be visible in complete darkness which the equipment is subjected to specified test voltage. There shall be no radio interference from the energised switchgear at rated voltage.	Corona or radio interference is not applicable to GIS equipments. It is applicable only for SF6 to air bushings. Please confirm.	As per relevant standard and TS
218		3.30) The enclosure shall be designed to eliminate the external electro magnetic field & thereby electromagnetic stress even under short ciruit. The average intensity of electromagnetic field shall not be more than 50 micro teslaonthesurface of the enclosure.	As per manufacturer's design standard, it's a continuous enclosure type design, and as per IEEE Standard 80-2000 (ref clause 10.3) electromagnetic flux is mainly contained within the enclosure, and not on the surface, for continuous enclosure type GIS. please confirm	As per relevant standard and TS
219		3.36) Gas Insulating System: iii) Any other alarm necessary to indicate deterioration of the gas insulating system.	We wish to inform you that, deterioration of the SF6 gas insulating system does not comes under standard design of GIS. Hence we do not envisage any alarm to indicate deterioration of the gas insulating system. Please confirm.	As per relevant standard and TS
220		3.36) Operating System: ii) Loss of Heater power. v) Pole Discordance.	As per the manufacturer standard design, Loss of heater power is not applicable for 145kV GIS. Please confirm. As per manufacturer standard design,145kV GIS is a three phase encapsulated type. Since three phases are operated with a common mechanism, hence there shall be no pole discrepancy. Please confirm.	As per relevant standard and TS
221	Chapter19_ General Technical Requirement_GIS	3.42) Pressure vessel requirements : Each enclosure has to be tested as a routine test at 1.5 times the design pressure for one minute.	As per IEC 62771-203,the standard test pressure shall be 1.3 times the design pressure for welded aluminium and steel enclosure. Please confirm.	As per relevant standard and TS
		3.43) Grounding		
222		3.43.2) The GIS supplier shall define clearly what constitutes the main grounding bus of the GIS.	We would like to inform you that GIS manufacturer will provide only earthing terminals at GIS. The grounding bus of GIS viz conductor, clamps, joints etc is in the main contractor's scope.	Confirm
223	Chapter19_ General Technical Requirement_GIS	3.43.3) The enclosure of GIS is grounded at several points so that there shall be grounded cage around all the live parts. A minimum of two grounding connections should be provided for each circuit breaker,cable terminals, surge arrestors, earth switches and each end of busbars.	The enclosures of GIS is connected by nut & bolt arrangement ensuring the Connectivity between the enclosures and earthing pad is provided near circuit breaker operating box for final earthing.	As per relevant standard and TS
		3.48) SF6 Gas		
224		3.48.1) SF6 Gas monitoring devices and alarm circuit	As per manufacturer standard design, two stage gas density monitors are provided for each gas compartments which can produce two alaram signals as mentioned below. 1)Refill Level 6.7bar(abs) for GCB compartment and all other compartments 2)SF6 low level 6.4bar (abs) for GCB compartment(Lockout stage) and all other compartments. Please confirm.	As per relevant standard and TS

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225	Chapter19_ General Technical Requirement_GIS	3.48.2) It shall be possible to test all gas monitoring relays without de-energizing the primary equipment and without reducing pressure in the main section.	Basically there is no need of calibration (accuracy check after years of use, say 25 years), however functional check /comparative check/calibration/replacement of gas density switch can be done by isolating the device from the GIS system, without de-energizing the primary equipement and without reducing pressure in gas compartments.	As per relevant standard and TS
		4) Circuit Breaker		
226		4.1) The circuit breakers shall be designed for high speed single and three phase reclosing with an operating sequence and timing as specified.	As per manufacturer design standard, 145kV GIS circuit breaker has common mechanism for all three phases. So, high speed single phase reclosing is not applicable. Please confirm	As applicable Howver, for single phase transformers the mechanism type may vary considering the single phase switching and spare transformer switching.
227		4.2) Withstanding all dielectric stresses imposed on it in open condition at lock out pressure continuously (i.e. shall be designed for 2 p.u. across the breaker continuously, for validation of which a power frequency withstand test conducted for a duration of at least 15 minutes is acceptable).	The offered GIS is designed and shall be manufactured following IEC guidelines. The power frequency withstand test is done as per IEC-62271-100. We request you to accept the same.	As per relevant standard and TS
228	Chapter19_ General Technical Requirement_GIS	4.9.1) Type Tests : ii)The type test report of Electromagnetic Compatibility Test (EMC) of CSD shall be submitted for approval 4.9.2) Routine Tests : ii) Functional tests are to be carried out on circuit breaker along with Control Switching device (CSD).	We wish to inform you that the we are not considering CSD in the offered GIS. Please clarify.	As per relevant standard and TS
		5) Disconnectors		
229	Chapter19_ General Technical Requirement_GIS	5.2.2) Disconnectors shall be suitable to switch the bus charging currents during their opening and closing and shall confirm to all three test duties viz TD1,TD2 and TD3 as per Annexure –F of IEC: 62271- 102.	We wish to inform you that the offered Disconnectors are not equipped with parallel capacitors. Hence as per IEC-62271-102 TD2 is not applicable. Please confirm.	As per relevant standard and TS
		7) HIGH SPEED MAKE PROOF GROUNDING SWITCHES		
230	Chapter19_ General Technical Requirement_GIS	7.13) Continuous current rating of the grounding switches (not less than 100A) shall be specified by the manufacturer, which can be safely injected for Bay/ Bus equipment testing.	We wish to inform you that the ground switches can carry 100A DC only for measuring Contact resistance. It shall not carry 100A continuously. Please confirm.	As per relevant standard and TS
	GTP_GIS	**Technical data sheet**		
231		Rated peak withstand current - 80kA	As per IEC, rated peak withstand current for rated shot time withstand current 31.5KA is 78.75KA. Please confirm.	As per relevant standard and TS
232			Please clarify that the auxillary voltage to be considered is 110V DC or 220V DC	220V DC for Lapsiphedi and Changunarayan Substation; 110V DC for other substations
233	Type Test	-	Supplier QR requires supplier must have successfully carried out the complete type test as per IEC over last 10 years period in STL -accredited laboratory on 400kV class GIS. : which requires carried out the **complete type test** as per IEC in STL-accredited laboratory, our KEMA TTR can not meet all items, in the TTR lists, even though some tests is done by XIHARI, these are also witnessed by a representative from STL member testing laboratories. please confirm your acceptance.	Please Refer to the ammendments bidding document
2nd Clarification				
Sl N	**Reference Section & Clause**	**Description**	**Bidder's Query/ Changes suggested**	**Client Response**

CLARIFICATION 1 ISSUED BY NEPAL ELECTRICITY AUTHORITY				
Sl N	Reference Section & Clause	Description	Bidder's Query/ Changes suggested	Client Response
& Commercial				
234	Section 3 – Evaluation and Qualification Criteria	GIS (220 kV or higher voltage class): Must have designed, manufactured and supplied GIS Switchgears 220 kV or higher voltage class (Circuit Breaker, Disconnectors, Grounding Switches, Instrument Transformers, SF6/Air & Oil Bushing etc;). at least twice the bid quantity as a main supplier over last seven (7) years period ending on the last date of bid submission. Out of supplied quantity, a minimum of half the bid quantity shall have been in operation satisfactorily to the end users for at least two (2) years.	Please confirm if the GIS supplier has to consider only 220kV GIS Switchgear quantity mentioned in BPS to calculate the quantity required as per Qualification requirement (Subcontractors).	Confirm
235	ITB, Clause 4	Conflict of Interest	If a GIS manufacturer is directly participating in the tender as a bidder; please confirm whether the same manufacturer can support another Bidder through Manufacturer's Authrization Letter route?	Confirm
236	CRP/SAS	CRP/SAS	Please confirm that Control Panel required will not be of Conventional type. We understand that we have to offer Control panel with BCU only , any mimic is not required.	Please Offer Control panel with BCU; Refer Technical Specifications for details
237	CRP/SAS	CRP/SAS	Lapsephedi Substation :- Please confirm that we do not have to integrate new SAS with the 400kV SAS (Yet to be constructed).	The new 400kV substation, if commissioned earlier than current project, the SAS system needs to be integrated
238	CRP/SAS	CRP/SAS	Siuchatar Station :- Please confirm that there is no integration with the existing Busbar at 132kV Level .	Connection with existing 132kV Busbar is in the scope of Contract
239	CRP/SAS	CRP/SAS	Siuchatar Station :- Please confirm that there is no integration with the existing SAS.	The new SAS is being implemented by another Contract, the integration shall be done with Substation SAS, MCC and LDC
240	CRP/SAS	CRP/SAS	Siuchatar Station :- Please confirm that in the offered new 132kv Line relay panel we have to offer only distance protection NO Line differential protection is required.	The protection type shall be finalized later, considering line length and suitability of protection system.
241	CRP/SAS	CRP/SAS	please confirm that in Siuchatar Station :- Availability of space to Mount the new panel is there.	Space is availabe; however dismanteling of existing unused panels may be needed, which is in the scope of Contractor
242	CRP/SAS	CRP/SAS	Teku Station :- Please confirm that 132kV Will be completely new GIS which will be installed in the present tender.	Confirm
243	CRP/SAS	CRP/SAS	Teku Station :- Please confirm the type of Busbar protection to be offered for 132kv. Since in specification it is low impedance busbar while in SLD it is written as high impedance Busbar.	Low impedance type Busbar Protection has been envisaged
244	CRP/SAS	CRP/SAS	Teku Station :- We understand that 66kv is already having 6 Bays with its own C&R Panels as per the SLD. While in BOQ 2 No's of Line Protection panel is asked for. Please confirm the exact scope of 66kv C&R Panels	It will be used for future expansion.
245	CRP/SAS	CRP/SAS	Teku Station :- Please confirm the type of Busbar protection present at 66kv. Make & Model of existing Busbar is also required, Please provide.	No busbar protection avialble.
246	CRP/SAS	CRP/SAS	Teku Station :- In Line protection panel of 132 and 66kV, What we need to offer Distance protection or Differential protection? Please confirm	Refer above
247	CRP/SAS	CRP/SAS	Teku Station :- We understand that we have to offer new SAS in this tender. Please provide the details of all the existing bays, make, model. Communication protocol to make them integrate.	Protocols: For SAS IEC 61850 , and IEC60870-5-101/104 for Communication with MCC / LDC

CLARIFICATION 1 ISSUED BY NEPAL ELECTRICITY AUTHORITY				
Sl N	Reference Section & Clause	Description	Bidder's Query/ Changes suggested	Client Response
248	Power Transformer (220/132 kV)- 53.33 MVA	General	In GTP 8.3.3, Tertiary winding is mentioned	Tertiary winding for single phase transformer is required which will be unloaded and ratings of tertiary winding shall be as per relevant standard (one-third of primary rating of transformer)
249	Power Transformer (220/132 kV)- 53.33 MVA	General	As per specification cl 6 (1.0) it is 1-phase auto transformer where else in GTP cl 6 it is mentioned as three phases. Please clarify.	Power Transformer (220/132 kV), 53.33 MVA: 1-phase Auto-transformer
250	Power Transformer (220/132 kV)- 53.33 MVA	General	Specification cl 1.6 Cooling is required as ONAN/ONAF/(OFAF or ODAF) : 60% / 80%/100% or ONAN/ONAF1/ONAF2: 60% / 80%/100% where else as per GTP cl 7 it is ONAN/ONAF only. Please confirm which one to follow.	The colling shall be three stage, ONAN/ONAF1/ONAF2: 60% / 80%/100% .
251	Power Transformer (132/11 kV)- 22.5 MVA	General	GTP cl 11.3 Vector group is YNyn0 d11 however as per Specification clause 6 (3.0) sub clause 1.15 it is YNyn0. Please clarify Transformer is with tertiary or without tertiary winding? If Tertiary is required, it is loaded or unloaded and what is the rating of tertiary winding? Please clarify.	The transformer vector is YNyn0. If tertiary is required by the design, the vector group shall be YNyn0 D11. The tertiary is intended to be unloaded, howver, the rating shall be as per relevant standard (1/3 of rating).
252	Power Transformer (132/11 kV)- 22.5 MVA	General	Specification clause 6 (3.0) sub clause 1.1.14 HV winding basic insulation level is 550 kVp/230 kVrms where else as per GTP cl 23.2 it is 650 /275 kVp/ kVrms. Please confirm the requirement?	650 /275 kVp/ kVrms.
253	Power Transformer (132/11 kV)- 22.5 MVA	General	Specification clause 6 (3.0) sub clause 1.6 Rating in mentioned as ONAN where else as per sub clause 1 it is 18 /22.5 i.e. ONAN/ONAF. please confirm the requirement?	ONAN/ONAF
254	Power Transformer (132/11 kV)- 22.5 MVA	General	GTP cl 8.1.1; 5 MVA rating is not applicable . Please confirm.	Confirm
255	Power Transformer (132/11 kV)- 22.5 MVA	General	Specification cl 6(3.0) sub clause 1.16 OLTC tap range is +/-10% @ 2.5%, 8 STEPS Where else in GTP clause 12 It is +/-10% @ 1.25 %, 16 Steps. Kindly confirm the requirement?	It is +/-10% @ 1.25 %, 16 Steps excluding central tap position
256	Power Transformer (132/11 kV)- 45 MVA	General	GTP cl 11.3 Vector group is YNyn0 d11 however as per Specification clause 6 (2.0) sub clause 2.15 it is YNyn0 Transformer is with tertiary or without tertiary winding? If Tertiary is required it is loaded or unloaded and what is the rating of tertiary winding?	Refer above.
257	Power Transformer (132/11 kV)- 45 MVA	General	Specification clause 6 (2.0) sub clause 2.14 HV winding basic insulation level is 550 kVp/230 kVrms where else as per GTP cl 23.2 it is 650 /275 kVp/ kVrms.Please confirm the requirement?	650 /275 kVp/ kVrms
258	Power Transformer (132/11 kV)- 45 MVA	General	GTP cl 7 Rating in mentioned as ONAN where else as per sub clause 8.1 it is 31.5/45 MVA i.e. ONAN/ONAF. please confirm the requirement?	ONAN/ONAF
259	Power Transformer (132/11 kV)- 45 MVA & (132/66kV)- 63 MVA	General	Altitude level above MSL for Teku S/s is not available . Please provide	MSL for Teku: Approximately 1400 m
260	Power Transformer (132/66 kV)- 63 MVA	General	GTP cl 11.3 Vector group is YNyn0 d11 & as per Specification clause 6 sub clause 1.34 it is YNyn0(d11). Also in data sheet cl 6 It is mentioned as winding "Two or Three " Transformer is with tertiary or without tertiary winding? If Tertiary is required it loaded or unloaded and what is the rating of tertiary winding?	Refer clause above

CLARIFICATION 1 ISSUED BY NEPAL ELECTRICITY AUTHORITY				
Sl N	**Reference Section & Clause**	**Description**	**Bidder's Query/ Changes suggested**	**Client Response**
261	Power Transformer (132/66 kV)- 63 MVA	General	Specification clause 6 sub clause 1.33 HV winding basic insulation level is 550 kVp/230 kVrms where else as per GTP cl 23.2 it is 650 /275 kVp/ kVrms. Please confirm the requirement?	650 /275 kVp/ kVrms.
262	Power Transformer (132/66 kV)- 63 MVA	General	Specification 6 sub clause cl 1.25 Rating in mentioned as ONAN where else as per clause 1 it is 51.5/63 MVA i.e. ONAN/ONAF. please confirm the requirement?	ONAN/ONAF
263	Power Transformer (132/66 kV)- 63 MVA	General	5. Specification cl 6 sub clause 1.35 OLTC tap range is +/-10%% @ 2.5% , 8 STEPS Where else in GTP clause 12 It is +/-10% @ 1.25 %, 16 Steps . Kindly confirm the requirement?	It is +/-10% @ 1.25 %, 16 Steps excluding central tap position
264	ALL Rating of Transformers	Common points for all ratings	Spec 6.0 technical Parameters notes; Parallel operation requirements If parallel operation is required with any existing transformer. Please give existing transformer rating plate (Rating, Vector group, Ratio, OLTC tapping range), Existing transformer impedances (Max. voltage tap, Normal volt. tap, Min. Volt. tap). Existing OLTC, AVR details and existing OLTC schematics.	Parallel Operation of Power Transformers with existing Transformers is not in the present scope of works
265	ALL Rating of Transformers	Common points for all ratings	For 132 kV voltage level in specification switching level is mentioned it is not applicable for this voltage range . Please confirm	As per specification, to be decided later
266	ALL Rating of Transformers	Common points for all ratings	Hot spot rise shall be 78 Deg C. over 20 Deg C. yearly average ambient temperature as per IEC -60076 against mentioned 55 Deg C. Please confirm	Confirm
267	ALL Rating of Transformers	Common points for all ratings	For 132 kV class transformers: As 132 kV is with graded insulation & OLTC is installed at neutral end of HV winding so, OLTC insulation class shall be 72.5 kV against mentioned 132kV Class . Please confirm	The OLTC shall be suitable for 132kV voltage class transformer.
268	ALL Rating of Transformers	Common points for all ratings	please confirm, OIP Bushing or RIP Bushing is to be provided?	Please provide RIP Type bushig
269	ALL Rating of Transformers	Common points for all ratings	Specification cl 3.7.3.2 Any specific make AVR and model is required? Please provide	Please refer TDS.
270	Section-3/Evaluation and Qualification Criteria/2.5 Subcontractors/Sl.no.4/CRP(ii)	CRP/SAS	Accordingly, we understand that CRP should be supplied from who has manufactured, routine tested and supplied 58 Nos (Twice the Bid quantity will be 58) of standalone Control & Relay panel of all voltages from 33kV onwards, but in 220kV GIS substation and similarly 14 No.s (Half the bid quantity 14) of out of the above referred stand alone Control & Relay panel of all voltage from 33kV onwards, but in 220kV GIS Substations shall be in operation at least one year. Please Confirm.	The quantity shall be for Control & Relay Panels of voltage level 66kV or above
271	GIS Specification	25. ON SITE TESTING 25.2. Application of AC voltage equal to 1.2 times the service voltage in order to condition the GIS whilst at the same time permitting measurement of Partial discharge and detection of conductive particles by UHF method	For voltage class upto 245kV, Partial discharge Test at site is not envisaged. Kindly confirm your acceptance.	As per specification
272	GIS Specification	16. Reclosing Single phase &Three phase auto reclosing.	Offered 145&66kV GIS is Three Pole gange operated. Hence Single pole auto reclosing is not appicable. Kindly confirm your acceptance.	Confirm
273	GIS Specification	9.2) the following type tests should have been conducted within 5 (five) years prior to the originally Scheduled date of bid opening. iii) Multiple Chopped Impulse Test (For CT)	As per IEC Standrd same is not applicable to 66/132/245kV GIS. Kindly confirm your acceptance	As per the specification. To be decided later

CLARIFICATION 1 ISSUED BY NEPAL ELECTRICITY AUTHORITY				
Sl N	**Reference Section & Clause**	**Description**	**Bidder's Query/ Changes suggested**	**Client Response**
274	GIS Specification	3.36. Alarm circuit shall not respond to faults for momentary Operating System: v) Pole Discordance.	In offered 145 & 66kV GIS Pole Discordance alarm is not envisaged	Confirm. Shall be provided if required
275	GIS BOQ	S/s Name 1-Ph SF6 To Air Bushing 1.7.1) 220kV Lapsephedi 13 Nos 1.8.1)145kV Lapsephedi 16 Nos 1.5.1)13 kV Changunarayan 27 Nos	There is discrepancy related to SF6 to air bushing.As per BOQ and PSR details are as follows: S/s Name CB Bays Required 1-Ph Bushing 1.7.1) 220kV Lapsephedi 3 Nos 9 Nos 1.8.1)145kV Lapsephedi 4 Nos 12 Nos 1.5.1)132 kV Changunarayan 8 Nos 24 Nos	Quote as per the BPS. Will be deleted if not required.
276	GIS Specification	145kV GIS Lapsephedi S/s BOQ : ICT Bay : 2 Nos PSR : ICT Bay : 1 No 132/11 kV Changunarayan S/S BOQ : ICT Bay: 2 Nos PSR : ICT Bay : 1 No	There is discrepancy for number of 145kV GIS ICT Bays at Lapsephedi. BOQ shows 2 Nos while PSR calls for 1 No of ICT Bay. Kindly clarify the same There is discrepancy for number of 145kV GIS ICT Bays at Changunarayan. BOQ shows 2 Nos while PSR calls for 1 No of ICT Bay. Kindly clarify the same	Quote as per the BPS.
277	GIS- General	CT Details for 66kV GIS	Please share CT Core details for 66kV GIS	Attached
278	4.1.1 245 kV GIS System:	f) End Piece with the test link for Future extension of Bus bar module. As 245kV GIS is likely to be extended in future, the contractor shall make available all details such as cross section, gas pressure etc. required to design adopted in future for extension of GIS, during detailed engineering stage.	Kindly clarify whether End Piece with the test link to be provided on both side or only one side of GIS.	Will be decided during DDE.
279	4.1.1 245 kV GIS System:	(D) 245kV, 40 kA for 1 sec, 2000A, SF6 gas insulated ICT feeder bay module each comprising of:- (For Single phase Transformer with spare unit switching)	Kindly clarify the exact requirement.	The switching requirment shall be proposed by the successful bidder considering the spare transformer switching, wihtout shifting of the transformer. The switching arrangment may require single phase switching. Please quote accodingly.
280	SPEC FOR GIS	h) Insulation Coordination studies including studies to recommend for additional surge arrestor	As complete substation design is in the scope of contractor, The insulation coordination study will be conducted by contractor. Hence the same is not in scope of CGPISL.	Confirm
281	ALL Rating of Transformers	General	a. Data sheet in the TS shows tapping range as –10% to +10% in the step of 2.5% for HV variation, 9 steps whereas GTP shows –10% to +10% in the step of 1.25%, 17 taps. Please confirm which to follow	–10% to +10% in the step of 1.25%, 17 taps
282	ALL Rating of Transformers	General	b. As per Technical Data Sheet cl.1.33. vi), it is stated that winding insulation is required for LV side "UNIFORM INSULATION". Kindly confirm it is required or not?	As per specification
283	ALL Rating of Transformers	General	c. As per cl.1.34 (Page 20-42), the vector group is stated that YNyn0(D11). Kindly get the confirmation whether TV winding is required or not?	Refer above
284	Section-3/Evaluation and Qualification Criteria/2.5 Subcontractors/ 132kV Power Transformers	Must have successfully carried out the complete type test including Dynamic Short Circuit (DSC) test as per IEC over last 10 years period as on the originally scheduled date of bid opening in Short-Circuit Testing Liaison (STL) - Accredited Laboratory on : 132 kV voltage class, three phase 45 MVA transformer	There are three different ratings (45 MVA, 63 MVA and 22 MVA) for 132kV Power Transformers; please confirm t whether bidder has to perform Short circuit test on all of the ratings for 132kV as mentioned above OR only 45MVA rating of 132 KV class?	Please provide the type test of 132kV voltage level transformer
285	Bus Post Insulator	General	Bending strength (KN) of BPI not given 245/145/66 kV. Please confrrm required bending strength of BPI of each kV rating.	Shall be suitable to withstand all forces acting on the BPI. Shall be minimum 8kN.

CLARIFICATION 1 ISSUED BY NEPAL ELECTRICITY AUTHORITY				
Sl N	Reference Section & Clause	Description	Bidder's Query/ Changes suggested	Client Response
286	11kV VCB Panel	General	please provide SLD for 11kV VCB Panel for each Substation?	
287	11kV VCB Panel	General	Please clarify, how 2 Incmoer & 2 Bus PTs are going to connected for the following TEKU substation. In case it is being coupled to existing switchboard, then kindly inform make of existing board along with SLD & GA drawings.	Please provide trunking / adaptor panel, for connection
288	GIS- Specification, point no. 3.42	Pressure Vessel Requirement	Please confirm that any alternative to ASME/CENELEC code for pressure Vessel, is acceptable to NEA.	As per specification.
289	TECHNICAL SPECIFICATION FOR Indoor Switchgear (VCB Type), Standard & codes	TECHNICAL SPECIFICATION FOR Indoor Switchgear (VCB Type), Standard & codes	Offered switchgear shall be inline with latest IEC 62271-200/100 & Instrument transformers shall be as under : Current Transformer : IEC61869-2 Voltage Transformer : IEC61869-3 Please confirm your acceptance	As per specification.
290	TECHNICAL SPECIFICATION FOR Indoor Switchgear (VCB Type), Cl.no.4.01.g	TECHNICAL SPECIFICATION FOR Indoor Switchgear (VCB Type), Cl.no.4.01.g	We propose panels made up of special material called "Alu Zinc". Alu Zinc is light in weight, has more strength, and extremely corrosion resistant compared to normal CRCA sheets and this does not require any surface treatment like powder coating. Panels shall be made up of Alu Zinc material except front doors & end covers which shall be painted sheet steel. We shall provide powder coated paint only for front doors and end covers, which shall be made of CRCA sheet. However, painting procedure and thickness shall be as per manufacturer standard procedure. Please confirm your acceptance	As per specification.
291	TECHNICAL SPECIFICATION FOR Indoor Switchgear (VCB Type), Cl.no.4.01.d	TECHNICAL SPECIFICATION FOR Indoor Switchgear (VCB Type), Cl.no.4.01.d	The offered panel is type tested for IP4X degree of protection and since the installation is indoor, the second digit is not applicable (IP 4X , 4 stands for dust proof and X is for water which is required for outdoor installations). Please confirm	As per specification.
292	Price schedule of Lapsephedi S/s, Part.1, Mandatory spare, 17.1	Price schedule of Lapsephedi S/s, Part.1, Mandatory spare, 17.1	As per BOM, we need to quote spares for all Switchboards, In that we have observed 11 kV Vacuum Interrupter (VI) for Incomer and Outgoing are required, kindly note that VI cannot be changed at site, hence we will offer Circuit breaker Pole inplace of VI. Please confirm your acceptance	It will be accepted but the extra payment will not be made.
293	Price schedule of Teku S/S, Part.3, item.no.B3	Price schedule of Teku S/S, Part.3, item.no.B3	Please clarify how 2 Incoming & 2 trunking are going to connected for the TEKU substation. In case it is being coupled to existing switchboard, then kindly inform make of existing board along with SLD & GA drawings.	Refer above
294	TECHNICAL SPECIFICATION FOR Indoor Switchgear (VCB Type), Cl.no.4.04.f	TECHNICAL SPECIFICATION FOR Indoor Switchgear (VCB Type), Cl.no.4.04.f	As per client requirement, temperature rise of bus bar and other equipment shall be rated at 50 Deg. C. However, 11kV Switchgear panel are type tested at 40 Deg. C ambient as per IEC. Request client to accept the same. Please confirm your acceptance	As per specification
295	TECHNICAL SPECIFICATION FOR Indoor Switchgear (VCB Type), Cl.no.4.05	TECHNICAL SPECIFICATION FOR Indoor Switchgear (VCB Type), Cl.no.4.05	We have offered the switchgear panels with Breakers along with Earth-switch. The earthing switch will be of the knife type and manually operated. Please confirm.	As per specification.
296	TECHNICAL SPECIFICATION FOR Indoor Switchgear (VCB Type), Cl.no.11.00	TECHNICAL SPECIFICATION FOR Indoor Switchgear (VCB Type), Cl.no.11.00	We do not envisage any TVM meters in 11kV VCB switchgear panel. Please confirm.	Please provide as per specification
297	TECHNICAL SPECIFICATION FOR Indoor Switchgear (VCB Type), Relay	TECHNICAL SPECIFICATION FOR Indoor Switchgear (VCB Type), Relay	We have considered only basic overcurrent and earth fault protection relay for all the feeders. If any specific protection relays are required, please clarify the actual requirement.	Please provide as per specification

CLARIFICATION 1 ISSUED BY NEPAL ELECTRICITY AUTHORITY				
Sl N	Reference Section & Clause	Description	Bidder's Query/ Changes suggested	Client Response
298	SECTION 22: EHV XLPE POWER CABLE, Clause No: 12	SECTION 22: EHV XLPE POWER CABLE, Clause No: 12	From the referred clause, Depth of laying shall be as per drawing enclosed with Specification is mentioned. Kindly furnish the drawing as same is not available in tender documents.	The contractor shall provide the drawings for approval, after studying the site conditions.
299	SECTION 22: EHV XLPE POWER CABLE, Clause No: 1.2 & 1.13	SECTION 22: EHV XLPE POWER CABLE, Clause No: 1.2 & 1.13	From the referred clause, the thickness of the corrugated aluminium sheath shall be designed to meet the requirement of the system short circuit rating as specified in the bidding documents. Kindly provide required short circuit with time duration as same is not available in documents.	Shall be as per TS, suitable for sytem fault level.
300	Chapter-19, SECTION – GAS INSULATED SWITCHGEAR , cl.no.25.2, measurement of Partial discharge	Chapter-19, SECTION – GAS INSULATED SWITCHGEAR , cl.no.25.2, measurement of Partial discharge	For voltage class upto 245kV, Partial discharge Test at site is not envisaged. Please confirm acceptance.	As per specification
301	CHAPTER 2- GENERAL TECHNICAL REQUIREMENT, cl.no.9.2.iii)	CHAPTER 2- GENERAL TECHNICAL REQUIREMENT, cl.no.9.2.iii)	As per IEC Standard, multiple Chopped Impulse Test (For CT) is not applicable to 66/132/245kV GIS. Please confirm acceptance.	As per specification
302	Chapter-19, SECTION – GAS INSULATED SWITCHGEAR , cl.no.3.36, v) Pole Discordance	Chapter-19, SECTION – GAS INSULATED SWITCHGEAR , cl.no.3.36, v) Pole Discordance	As 145kV & 66kV GIS are three pole gang operated, pole Discordance alarm is not required. Please confirm acceptance.	Refer above
303	Chapter-19, SECTION – GAS INSULATED SWITCHGEAR , Annexure-3, 66kV CT	Chapter-19, SECTION – GAS INSULATED SWITCHGEAR , Annexure-3, 66kV CT	Please furnish the CT & VT parameters for 66kV GIS, as the same is not available in the technical specification.	Attached.
304	CHAPTER 1-Project Specification Requirement, Clause No: 4.1.1.f), 245 kV GIS System	CHAPTER 1-Project Specification Requirement, Clause No: 4.1.1.f), 245 kV GIS System	Kindly clarify whether End Piece with the test link to be provided on both side or only one side of GIS.	Refer above
305	CHAPTER 1-Project Specification Requirement, Clause No: 4.1.2.C.d, 145 kV GIS Potential transformer	CHAPTER 1-Project Specification Requirement, Clause No: 4.1.2.C.d, 145 kV GIS Potential transformer	In referred clause, Three (3) numbers of 1-phase potential transformers is mentioned. However, 145kV GIS is of three phase enclosed, gang Operated design. Hence single phase potential transformer is not applicable. One three Phase enclosed PT shall be provided which will fulfill the specification requirement. Please confirm.	As per specification. Shall be decided during DDE.
306	CHAPTER 1-Project Specification Requirement, Clause No: 4.1.2.C.e, 145 kV GIS Surge arrester	CHAPTER 1-Project Specification Requirement, Clause No: 4.1.2.C.e, 145 kV GIS Surge arrester	In referred clause, Three (3) numbers of 1-phase surge arrester is mentioned. However, 145kV GIS is of Three Phase Enclosed ,Gang Operated design. Hence single phase surge arrester is not applicable. One three Phase enclosed surge arrester shall be provided which will fulfill the specification requirement. Please confirm.	As per specification. Shall be decided during DDE.
307	Chapter-19, SECTION – GAS INSULATED SWITCHGEAR , Cl.no.3.9, GENERAL DESIGN AND SAFETY REQUIREMENT	Chapter-19, SECTION – GAS INSULATED SWITCHGEAR , Cl.no.3.9, GENERAL DESIGN AND SAFETY REQUIREMENT	By keeping in view the criticality of the substation, For 220 kV GIS, during maintenace, there is no disruption of the power flow in the adjacent bays. However for 132 kV GIS, during busbar disconnector maintenance, adjacent two bays shall be out of service. Please confirm acceptance.	As per specification. Shall be decided during DDE.
308	Chapter-19, SECTION – GAS INSULATED SWITCHGEAR , Cl.no.3.11, GENERAL DESIGN AND SAFETY REQUIREMENT	Chapter-19, SECTION – GAS INSULATED SWITCHGEAR , Cl.no.3.11, GENERAL DESIGN AND SAFETY REQUIREMENT	Due to safety requirements, if the gas pressure of a compartment is reduced, the same part cannot be kept in service as the gas density in the stated compartment shall not be sufficient to withstand the electrical stress. Please confirm acceptance.	Please provide as per specification
309	Chapter-19, SECTION – GAS INSULATED SWITCHGEAR , Cl.no.3.11, GENERAL DESIGN AND SAFETY REQUIREMENT	Chapter-19, SECTION – GAS INSULATED SWITCHGEAR , Cl.no.3.11, GENERAL DESIGN AND SAFETY REQUIREMENT	We undersand that this clause is applicable only if busbar and busbar disconnectors are enclosed in same gas compartment and hence the bus bar sectionalization (gas barriers in the bus bar section) are not required, if the bus bar and bus disconnector are not in the same gas compartment. Please confirm.	Please provide as per specification

CLARIFICATION 1 ISSUED BY NEPAL ELECTRICITY AUTHORITY				
Sl N	Reference Section & Clause	Description	Bidder's Query/ Changes suggested	Client Response
310	Chapter-19, SECTION – GAS INSULATED SWITCHGEAR , Cl.no.3.12, GENERAL DESIGN AND SAFETY REQUIREMENT	Chapter-19, SECTION – GAS INSULATED SWITCHGEAR , Cl.no.3.12, GENERAL DESIGN AND SAFETY REQUIREMENT	From the referred clause, The material and thickness of the enclosures shall be such as to withstand an internal flash over without burn through for a period of 300 ms at rated short time withstand current. However, the burn through shall be as per IEC 62271-203. Table enclosed for reference We request NEA to accept the internal arc withstand requirements as stipulated in IEC. Please confirm acceptance.	Please provide as per specification
311	Chapter-19, SECTION – GAS INSULATED SWITCHGEAR , Cl.no.3.26, GENERAL DESIGN AND SAFETY REQUIREMENT	Chapter-19, SECTION – GAS INSULATED SWITCHGEAR , Cl.no.3.26, GENERAL DESIGN AND SAFETY REQUIREMENT	As per IEC 62271-203-Table 103, VFTO studies are not applicable for 220 kV and 145 kV voltage levels. Therefore this studies are not required and shall be excluded from our scope. Please confirm	Please provide as per specification
312	Chapter-19, SECTION – GAS INSULATED SWITCHGEAR , Cl.no.3.32, GENERAL DESIGN AND SAFETY REQUIREMENT	Chapter-19, SECTION – GAS INSULATED SWITCHGEAR , Cl.no.3.32, GENERAL DESIGN AND SAFETY REQUIREMENT	From the referred clause, the ladders and walkways shall be provided wherever necessary for access to the equipment is mentioned. However, we propose provision of Mobile Ladders for access to operating mechanisms and no walkways are neccessary for proposed Layout. Please accept.	Please provide as per specification
313	Chapter-19, SECTION – GAS INSULATED SWITCHGEAR , Cl.no.3.44, UHF sensors for PD detection	Chapter-19, SECTION – GAS INSULATED SWITCHGEAR , Cl.no.3.44, UHF sensors for PD detection	Number of UHF sensors & the location of UHF sensors shall be as per manufacturer's recommendations. Please note that the locations of sensors shall be decided during detailed engineering to achieve the desired sensitivity & the same will be reflected on the drawings which will be submited for approval. No change on the same recommended at site. Please confirm acceptance.	Please provide as per specification. May be decided during DDE.
314	Chapter-19, SECTION – GAS INSULATED SWITCHGEAR , Cl.no.4.9.2, Routine Tests ii) & iii)	Chapter-19, SECTION – GAS INSULATED SWITCHGEAR , Cl.no.4.9.2, Routine Tests ii) & iii)	Functional tests are to be carried out on circuit breaker along with Control Switching device (CSD) is mentioned in the referred clause. However, we would like to clarify that CSD is not applicable for this tender package. Also the DCRM test is not performed on the CB as part of FAT test. However we shall submit the routine test reports of DCRM test. Please confirm acceptance.	Please provide as per specification
315	Chapter-19, SECTION – GAS INSULATED SWITCHGEAR , Cl.no.6.2, SAFETY GROUNDING SWITCHES	Chapter-19, SECTION – GAS INSULATED SWITCHGEAR , Cl.no.6.2, SAFETY GROUNDING SWITCHES	The disconnectors and the safety grounding switches are in separate modules in GIS design and shall have only electrical inter-locks between them. Please Confirm acceptance.	Please provide as per specification
316	Chapter-19, SECTION – GAS INSULATED SWITCHGEAR , Cl.no.21, TRANSPORT OF EQUIPMENT TO SITE	Chapter-19, SECTION – GAS INSULATED SWITCHGEAR , Cl.no.21, TRANSPORT OF EQUIPMENT TO SITE	Shock indicators shall be provided only for VTs being a sensitive equipments. No electronic imparct recorders are necessary for Circuit Breaker. Please accept the same.	Please provide as per specification
317	Chapter-19, SECTION – GAS INSULATED SWITCHGEAR , Cl.no.3.10, GENERAL DESIGN AND SAFETY REQUIREMENT	Chapter-19, SECTION – GAS INSULATED SWITCHGEAR , Cl.no.3.10, GENERAL DESIGN AND SAFETY REQUIREMENT	The section barrier or support insulators are tested for partial discharge according to IEC 62271-203 & IEC 62271-1 clause 7.1.102. Please confirm	Please provide as per specification
318	Chapter-19, SECTION – GAS INSULATED SWITCHGEAR , Cl.no.3.42, Pressure vessel requirements	Chapter-19, SECTION – GAS INSULATED SWITCHGEAR , Cl.no.3.42, Pressure vessel requirements	As per the referred clause, "Each enclosure has to be tested as a routine test at 1.5 times the design pressure for one minute". However, as per IEC 62771-203,the standard test pressure shall be 1.3 times the design pressure for welded aluminium and steel enclosure. Please confirm acceptance.	Please provide as per specification

CLARIFICATION 1 ISSUED BY NEPAL ELECTRICITY AUTHORITY				
Sl N	**Reference Section & Clause**	**Description**	**Bidder's Query/ Changes suggested**	**Client Response**
319	Chapter-19, SECTION – GAS INSULATED SWITCHGEAR , Cl.no.3.48.1) SF6 Gas monitoring devices and alarm circuit	Chapter-19, SECTION – GAS INSULATED SWITCHGEAR , Cl.no.3.48.1) SF6 Gas monitoring devices and alarm circuit	As per manufacturer standard design, two stage gas density monitors are provided for each gas compartments which can produce two alaram signals as mentioned below. 1)Refill Level 6.7bar(abs) for GCB compartment and all other compartments 2)SF6 low level 6.4bar (abs) for GCB compartment(Lockout stage) and all other compartments. Please confirm.	Please provide as per specification
320	Chapter-19, SECTION – GAS INSULATED SWITCHGEAR , Cl.no.7.13, Grounding switches	Chapter-19, SECTION – GAS INSULATED SWITCHGEAR , Cl.no.7.13, Grounding switches	We wish to inform you that the ground switches can carry 100A DC, only for measuring Contact resistance. It shall not carry 100A continuously. Please confirm.	Please provide as per specification
321	Chapter-19, SECTION – GAS INSULATED SWITCHGEAR , Annexure-2, Technical data sheet, sl.no.7	Chapter-19, SECTION – GAS INSULATED SWITCHGEAR , Annexure-2, Technical data sheet, sl.no.7	As per IEC, the rated peak withstand current corresponding to 31.5kA(rms) shall be 78.75kAp. Please confirm acceptance.	Please provide as per specification
322	Price schedule, Relay test kit (Common for all stations)	Price schedule, Relay test kit (Common for all stations)	We understand that the relay test kit shall be as per Chapter-15, cl.no.31.1 will be provided. Numerical relay test kit are not envisage under this package. Please confirm.	Confirm
323	CHAPTER-15: CONTROL AND RELAY PANELS	CHAPTER-15: CONTROL AND RELAY PANELS	As SAS based control & monitoring is required for all stations, we do not envisage conventional control panel with Mimics, switches etc. We shall offer Bay control units (BCU) which shall be able to perform the functions of control & monitoring. Please confirm acceptance.	Please provide as per specification
324	CHAPTER 20 – TECHNICAL SPECIFICATIONS FOR TRANSFORMERS, technical parameters, (132/66 kV, 3-Phase Transformer) cl.no.1.35	CHAPTER 20 – TECHNICAL SPECIFICATIONS FOR TRANSFORMERS, technical parameters, (132/66 kV, 3-Phase Transformer) cl.no.1.35	From the referred Data sheet, tapping range is mentioned as –10% to +10% in steps of 2.5% for HV variation i.e. 9 steps. However, as per technical data sheet (To be filled by Bidder), Cl. no. 2a, sl.no.12, tap range shall be –10% to +10% in steps of 1.25% i.e.17 taps. As the requirements are contradicting, please confirm the actual requirement.	Refer answers above
325	CHAPTER 20 – TECHNICAL SPECIFICATIONS FOR TRANSFORMERS, technical parameters, (132/66 kV, 3-Phase Transformer) cl.no.1.33	CHAPTER 20 – TECHNICAL SPECIFICATIONS FOR TRANSFORMERS, technical parameters, (132/66 kV, 3-Phase Transformer) cl.no.1.33	As per referred clause of technical specification, HV winding basic insulation level is 550 kVp/230 kVrms. But as per technical data sheet (To be filled by Bidder), Clasue no. 2a, Sl.no. 23.2, the BIL is mentioned as 650 kVp/ 275 kVrms. As the requirements are contradicting, please check and confirm the actual requirement.	Refer answers above
326	Physical parameters: Teku Substation and Suichatar Substation	Physical parameters: Teku Substation and Suichatar Substation	Please furnish the altitude of Teku Substation and Suichatar Substation	Refer answers above
327	CHAPTER 20 – TECHNICAL SPECIFICATIONS FOR TRANSFORMERS, technical parameters, (132/66 kV, 3-Phase Transformer) cl.no.1.25	CHAPTER 20 – TECHNICAL SPECIFICATIONS FOR TRANSFORMERS, technical parameters, (132/66 kV, 3-Phase Transformer) cl.no.1.25	As per referred clause of technical specification, rating in mentioned as ONAN. But as per technical data sheet (To be filled by Bidder), Clasue no. 2a, Sl.no. 7, it is mentioned as ONAN/ONAF. As there is discrepency between two document, please check and confirm your requirements	Refer answers above
328	CHAPTER 20 – TECHNICAL SPECIFICATIONS FOR TRANSFORMERS, technical parameters, (220/132 kV 1-Phase Auto Transformer) cl.no.1.3	CHAPTER 20 – TECHNICAL SPECIFICATIONS FOR TRANSFORMERS, technical parameters, (220/132 kV 1-Phase Auto Transformer) cl.no.1.3	As per referred clause, single phase auto transformer where else in Technical data sheet (to be filled by Bidder) cl no.3, sl.no.6 it is mentioned as three phases. As there is discrepency between two document, please check and confirm your requirements	Refer answers above
329	CHAPTER 20 – TECHNICAL SPECIFICATIONS FOR TRANSFORMERS, technical parameters, (220/132 kV 1-Phase Auto Transformer) cl.no.1.6	CHAPTER 20 – TECHNICAL SPECIFICATIONS FOR TRANSFORMERS, technical parameters, (220/132 kV 1-Phase Auto Transformer) cl.no.1.6	As per referred clause, Cooling required is ONAN/ONAF/(OFAF or ODAF) : 60% /80%/100% or ONAN/ONAF1/ONAF2: 60% / 80%/100% where else as per Technical data sheet (to be filled by Bidder) Cl. no.3, sl.no.7 it is mentioned as ONAN/ONAF only. As there is discrepency between two document, please check and confirm the actual requirement.	Refer answers above

CLARIFICATION 1 ISSUED BY NEPAL ELECTRICITY AUTHORITY				
Sl N	**Reference Section & Clause**	**Description**	**Bidder's Query/ Changes suggested**	**Client Response**
330	CHAPTER 20 – TECHNICAL SPECIFICATIONS FOR TRANSFORMERS, technical parameters, (132/11 kV, 3-Phase Transformer) cl.no.1.15	CHAPTER 20 – TECHNICAL SPECIFICATIONS FOR TRANSFORMERS, technical parameters, (132/11 kV, 3-Phase Transformer) cl.no.1.15	As per cl.1.15, the vector group is stated that YNyn0. However, as per technical data sheet (To be filled by Bidder), Cl no.1, sl.no.11.3, vector group is stated that YNyn0 D11. Kindly clarify whether Tertiary winding is required or not? If Tertiary is required it loaded or unloaded and what is the rating of tertiary winding?	Refer answers above
331	CHAPTER 20 – TECHNICAL SPECIFICATIONS FOR TRANSFORMERS, technical parameters, (132/11 kV, 3-Phase Transformer) cl.no.1.14	CHAPTER 20 – TECHNICAL SPECIFICATIONS FOR TRANSFORMERS, technical parameters, (132/11 kV, 3-Phase Transformer) cl.no.1.14	As per referred clause of technical specification, HV winding basic insulation level is 550 kVp/230 kVrms. But as per technical data sheet (To be filled by Bidder), Clasue no. 1, Sl.no. 23.2, the BIL is mentioned as 650 kVp/ 275 kVrms. As the requirements are contradicting, please check and confirm the actual requirement.	Refer answers above
332	CHAPTER 20 – TECHNICAL SPECIFICATIONS FOR TRANSFORMERS, technical parameters, (132/11 kV, 3-Phase Transformer) cl.no.1.16	CHAPTER 20 – TECHNICAL SPECIFICATIONS FOR TRANSFORMERS, technical parameters, (132/11 kV, 3-Phase Transformer) cl.no.1.16	From the referred Data sheet, tapping range is mentioned as –10% to +10% in steps of 2.5% for HV variation i.e. 9 steps. However, as per technical data sheet (To be filled by Bidder), clause no. 1, sl.no.12, tap range shall be –10% to +10% in steps of 1.25% i.e.17 taps. As the requirements are contradicting, please confirm the actual requirement.	Refer answers above
333	CHAPTER 20 – TECHNICAL SPECIFICATIONS FOR TRANSFORMERS, 2.0 technical parameters, (132/22(11) kV, 3-Phase Transformer) cl.no.2.6	CHAPTER 20 – TECHNICAL SPECIFICATIONS FOR TRANSFORMERS, 2.0 technical parameters, (132/22(11) kV, 3-Phase Transformer) cl.no.2.6	Rating in mentioned as ONAN/ONAF where else as per GTP item no.2, sl.no.7. it is mentioned as ONAN. As there is discrepency between two document, please check and confirm your requirements	Refer answers above
334	CHAPTER 20 – TECHNICAL SPECIFICATIONS FOR TRANSFORMERS, 2.0 technical parameters, (132/22(11) kV, 3-Phase Transformer) cl.no.2.15	CHAPTER 20 – TECHNICAL SPECIFICATIONS FOR TRANSFORMERS, 2.0 technical parameters, (132/22(11) kV, 3-Phase Transformer) cl.no.2.15	As per cl.2.15, the vector group is stated that YNyn0. However, as per technical data sheet (To be filled by Bidder) Cl. no.2, sl.no.11.3, vector group is stated that YNyn0 D11. Kindly clarify whether Tertiary winding is required or not? If Tertiary is required it loaded or unloaded and what is the rating of tertiary winding?	Refer answers above
335	CHAPTER 20 – TECHNICAL SPECIFICATIONS FOR TRANSFORMERS, 2.0 technical parameters, (132/22(11) kV, 3-Phase Transformer) cl.no.2.14	CHAPTER 20 – TECHNICAL SPECIFICATIONS FOR TRANSFORMERS, 2.0 technical parameters, (132/22(11) kV, 3-Phase Transformer) cl.no.2.14	As per referred clause of technical specification, HV winding basic insulation level is 550 kVp/230 kVrms. But as per technical data sheet (To be filled by Bidder), Clasue no. 2, Sl.no. 23.2, the BIL is mentioned as 650 kVp/ 275 kVrms. As the requirements are contradicting, please check and confirm the actual requirement.	Refer answers above
336	Vol-II, Chapter-20, Clause-6.0, Technical parameters, Sl. No. 2.0, Technical particulars for 45MVA, 132/11kV transformer Sl. No. 3.0, Technical particulars for 22.5MVA, 132/11kV transformer Technical particulars for 63MVA, 132/66kV transformer	Vol-II, Chapter-20, Clause-6.0, Technical parameters, Sl. No. 2.0, Technical particulars for 45MVA, 132/11kV transformer Sl. No. 3.0, Technical particulars for 22.5MVA, 132/11kV transformer Technical particulars for 63MVA, 132/66kV transformer	As per the referred datasheets the impedance value is specified only at principal tap. a) 45MVA, 132/11kV transformer b) 22.55MVA, 132/11kV transformer c) 63MVA, 132/11kV transformer We request NEA to confirm the impedance values at Minimum & Maximum tap positions also.	Shall be designed and proposed by successful bidder.

Procurement of Plant for Design, Supply, Installation and Commissioning of Gas insulated 220kV Lapsiphedi Substation, 132kV Changunarayan Substation and upgradation of Teku Substation and Suichatar Substation.

ICB: PMD/PTDEEP/LCSCP-073/74RE-01

CLARIFICATION 1 ISSUED BY NEPAL ELECTRICITY AUTHORITY

Sl N	Reference Section & Clause	Description	Bidder's Query/ Changes suggested	Client Response
1st Clarification				
			General & Commercial	
337	**Drawings**	Teku	Lack of electrical general layout, the location of this stage is unknown	Drawings has been attached in the hard copy. Please download from NEA website
338	**Volume II**	Teku	High voltage and mid voltage bared conductors' requirements are unknown	Bare conductor if required shall be the part of BPS "PART B, Item A, Erection hardware.
339	**BOQ**	Teku	Is it necessary to build a DG set for this upgrade stage? For that 132kV substation all configured one.	DG set is applicable for New substation only. Please quote as per the BPS
340	**Volume II**	Teku	Is a new control building necessary?	The existing control room shall be used for Control and supervision. The new scope include the GIS hall with AHU and Panel room, which shall be quoted as per BPS.
341	**Volume II**	Suichatar	Lack of SLD and electrical general layout, the location of this stage is unknown	Drawings has been attached in the hard copy. Please download from NEA website
342	**Volume II**	Suichatar	Detail requests are not mentioned for 132kV equipment	Please refer Volume II, Specification.
343	**Volume II**	Suichatar	Are the gantries and bus bar of this new 2 line bays in this upgrade work scope? What is the style of 132kV bus bar, suspended tube bar or supported tube bar, or soft wire?	The scpe of work under this tender is turnkey project, all struccture, towers if required. Gantry, civil works equipments are in the scope . Please quote as per BPS.
344	**Drawings**	Lapsi	245kV and 132kV line spare bay are marked on SLD, but not exist in BOQ	Please quote as per the BPS
345	**Drawings**	Changu	132kV line spare bay is marked on SLD, but not exist in BOQ	Please quote as per the BPS
346	**Volume II**	Teku Suichatar	Lack of the climate information. Same as the new substation?	Confirm
347	**Chapter 1 Page 6 3. SCOPE OF WORK**	Lapsiphedi	11 kV Indoor Switchyard Panels for 1 no Transformer bays, 2 Nos. LT Transformer bays and 1 Bus section Bay. Outgoing Panel- 8Nos	Confirm. Please quote as per the BPS
348				
349	**A. 220/132/11kV Lapsephedi (New) GIS Substation**		There are 6 outgoing bays and 2 incoming bays in the drawing. And in BOQ, it comes to 6 outgoing bays 2 incoming bays and 1 bus coupler bay. These do not match. Please confirm which should we follow?	Please quote as per the BPS
350	**Chapter 1 Page 6 3. SCOPE OF WORK A. 220/132/11kV Lapsephedi (New) GIS Substation**		• 2 nos. 220kV bays for termination of Barhabise-Lapsephedi D/C Transmission line. • 2 nos. 132kV bays for termination of 132kV Transmission line. There are 1 spare 220kV line and 1 spare 132kV line in the single line drawing. Please confirm whether we should consider equipment used for spare lines.	Please quote as per the BPS
351	**Chapter 1 Page 6 3. SCOPE OF WORK B. 132/11 kV Changunarayan (new)**		• 6 nos. 132kV bays for termination of 132kV Transmission line. There is 1 spare 132kV line in the single line drawing. Please confirm whether we should consider equipment used for spare lines.	Please quote as per the BPS
352	**Chapter 1 Page 31 Page 52 Annexure-V**		k. One number each Energy meter for the record and revenue purpose is to be provided for each 220/132/11V bays (Bus coupler bays to be excluded) at Lapsephedi and Changunarayan substations under present scope of contract, meeting the requirement as specified at Annexure – V.	
353			Does that mean we should configure 1 energy meter for every bay of all voltage level except bus coupler bay? Is there any requirement about the place of energy meter installed? Should we put them in control panel of each bay or individual panel for energy meters?	One number each of energy meter, as specified in the specification of the control and relay panel shall be provided. The enrgy meter shall be placed in the control panel of each bay.
354	**CHAPTER 5 Page 358**		1.1.2. DC System shall consist of two (2) float-cum-boost chargers and two (2) battery sets for each of 220V and 48 V systems respectively. The standard scheme drawing is enclosed with this specification. We understand this means that should have 2 set of 220V DC system and 2 set of 48V DC system in each substation. Please clarify.	Confrim

CLARIFICATION 1 ISSUED BY NEPAL ELECTRICITY AUTHORITY

Sl N	Reference Section & Clause	Description	Bidder's Query/ Changes suggested	Client Response
355	**BOQ page6 17 25**		Item M shows DC voltage is 220V for Lapsephedi (New) GIS Substation and 110V for 132/11 kV Changunarayan (new) and 132/11 kV Teku Substation. This do not match with document. Please clarify voltage level for DC system	DC control voltage for Lapsephedi and Changunaraan is 220 VDC. For existing substation at Teku and suichatar the voltage level shall be 110V DC.
356	**Chapter 7 Page 627 Chapter 19 Page 810**		We are very confused about the voltage of DC system. Because Some places say DC voltage is 110V and some places say DC voltage is 220V. Please clarify	Refer above.
357	**Chapter 20 page 882 899 BOQ page6**			
358	**Chapter 15 Page 564 Chapter 19 Page 813**		26. BUS BAR PROTECTION 26.1. Single bus bar protection scheme shall be provided for each main bus and transfer bus (as applicable) for 220KV and 132 KV voltage levels. On page 813, there are two cores of CT for main and check bus bar diff. protection. How many sets of bus bar protection for each voltage should we consider? Please confirm.	The busbar protection scheme asked for is Main and check busbar scheme, applicable for double busbar system. The busbar protection relays shall be three for each voltage level. One each for busbar I and 2, one check relay.
359			Please provide typical protection configuration drawing	
360	**Chapter 7 Page 624 Chapter 23 Page 935**		In chapter 7, It says "4.1 Redundant Station HMI, Remote HMI and Disturbance Recorder Work station:" But in TECHNICAL DATA SHEET we cannot find Disturbance Recorder Work station item. Please clarify is the work station necessary.	The work station is neessary.
361	**Chapter 1 Page 12 4.1.3 BOQ**		4.1.3 a. 4X53.33 MVA, 220/132kV , 1-Phase Auto Transformer (One bank + One Spare) including all materials/fittings/accessories/Digital RTCC panel/Common MB/Individual MB, Cables including special cable (if any), tertiary delta formation & loading arrangement, both Neutral (HV & LV) formations etc. Do not find RTCC panel item in the BOQ. Please confirm we do not need consider this device in the scope.	RTCC panel is included in the BOQ. Please quote the rate including RTCC panel.
362	**Chapter 23 Page 938**		We understand there is a specialized UPS for each HMI and DR WORK STATION. Please clarify the capacity of UPS and whether we need consider the other UPS for other equipment in the substation.	The bidder shall propose the capacity of UPS as per the station requirment for SAS system includng all equipment.
363	**Chapter 1 page25 BOQ**		Siuchatar Substations is a AIS substation. 2 Nos of 132kV line bays to be constructed in this scope. Usually there is one marshalling box for one bay, but we cannot find this item on BOQ. Please confirm is this necessary.	If marshaling box is required, it shall be provided without any extra cost.
364	**Drawing**	Siuchatar	Please provide control room arrangement drawing of Siuchatar Substation	Please visit the site. The current control room have limited space. Few existing old panels requires to be removed to accomdate the new panel. No additional payment will be paid for such dismanteling works. The type of panel simplex / duplex shall be decided during Detail engineering.
365	**Drawing**	Siuchatar	What is the DC voltage in Siuchatar Substation? Please provide DC system drawing of Siuchatar Substation.	Refer above.
366	**Drawing**	Siuchatar	Whether Bus bar protection already exists in Siuchatar Substation? Please provide Bus bar protection drawing of Siuchatar Substation.	No busbar protection is currently avaiable.
			Whether SAS already exists in Siuchatar Substation? Please provide the manufacture of SAS to make sure the device in this scope can connect to the system.	No SAS system
367	**Chapter 15 Page 555 573 BOQ Page24 31**		In document on page 555, it say for 132kV line there are main and backup protection relay. But there is only distance/differential protection device on page 573 and in BOQ. Is backup protection relay for 132kV line necessary? Which one should we follow? Please clarify.	Please refer the specification of control and relay panel, clause 33 for detail.
368	**Volume II Chapter 18- Fibre Optic Based Communication Equipments， Appendix - A Page 654-656**	**Lapsiphedi/ Changunaryan/ Chapali/ BH**	The amount of communication equipment (including SDH Equipment) in Bidding Document is not consistent with the BOQ. Is it subject to Bidding Document or BOQ? Please confirm	Please quote as per the BPS
369	**Volume II**	**Lapsiphedi/ Changunaryan**	There is no PCM equipment in the BOQ .Do we need to consider adding PCM equipment for Lapsiphedi and Changunaryan?	Please quote as per the BPS

CLARIFICATION 1 ISSUED BY NEPAL ELECTRICITY AUTHORITY

Sl N	Reference Section & Clause	Description	Bidder's Query/ Changes suggested	Client Response
370	**Volume II Chapter 18- Fibre Optic Based Communication Equipments，Appendix - A Page 654-656**	**Lapsiphedi/ Changunaryan**	①There is one E1 card in Bidding Document, but there are two E1 card in the BOQ. ②There is "Ethernet interfaces 10/100 Mbps" in Bidding Document, but there is "Giga - Ethernet Interface 10/100/1000 Mbps" in the BOQ.	Please quote as per the BPS
371	**Volume II**	**K3/Teku/Thapathali**	①Please inform us the transmission length between K3 and Teku substations. ②Please inform us the transmission length between Thapathali and Teku substations.	The line length between Teku and K3: 5.6 Km, Teku and Thapathali: 3 km. The exact data will be provided later during DDE.
372	**BOQ**		① Which manufacturer is the SDH equipment of Barhabise substation? ② Which manufacturer is the SDH equipment of Chapali/Mulpani substation?	The substations mentioned are new and is under construction.
373	**BOQ**		Does the manufacturer of the communication equipment (including SDH, PABX) of Lapsiphedi/Changunaryan substation have any requirements?	As per Technical Specifications and Drawings
374	**BOQ**		According to the BOQ,we think that the Optical interface board and Digital protection coupler of the opposite substation are not included in this bid . Please confirm.	The DPC for all opposite substations are included.
375	**Volume -II, Chapter 14- General Technical Requirement, Civil Works, 21.3.5 Wall Panels " Wall panel material specifications shall be same as roof panels." page 14-46 AND 21.5.2 WALLS "All walls of control room building shall be nonload bearing walls. Min. thickness of walls shall be 230 mm (one brick) " AND 21.5.3 ROOF "Roofing Panel: 50mm thick puff (density 40kg/cu.m.) sandwiched panels shall be provided as described in previous clauses."**		Please confirm wall panels.	As per specification
376	**Drawings**	**Teku/Suichatar**	Please provide the layout of Teku Substation and Suichatar Substation to estimate the civil works.	Provided in the bid document. Please download from NEA website.
377	**Volume -II, Schedule No.4(a), PART 2 132/11 kV Changunarayan S/S, PART-C: Civil Works 11.2 the quantity in the table is different from the past drawing of the 132kV GIS building**	**Changunarayan**	Please confirm the quantity of the building is calculated directly through the schedule No.4 (a) or the past drawing of 132kV GIS building.	Please quote as per the BPS
378	**Volume -II, Schedule No.4(a), PART 2 132/11 kV Changunarayan S/S, PART-C: Civil Works 1.0 AND 24.1 the quantity of earth work in the table is different from each other**		Please confirm which data should be correct.	Please quote as per the BPS
379	**Volume -II, Schedule No.4(a), the quantity of steel structure are all included in the PART-A S STEEL STRUCTURES Volume -II, Schedule No.4(a), 132/11 kV Changunarayan S/S has pile foundation data, while Teku Substation and Suichatar Substation don't mention it**		Please confirm the quantity of steel structure.	It is mentoned in the BPS.
		Teku/Suichatar	Please confirm whether need to consider the pile foundation.	The pile foundation at Teku and Suichatar is not envisaged. But if it is required during DDE, the rate avialable in this tender will be referred for any additional works.
380	**Volume II-Chapter 14 : Civil Works Page No.-71 6.0 site drainage "(b) Drain shall be constructed at suitable locations in such a way that substation is not flooded and roads are not affected with ponding of surface water."**		Are surface rainwater discharged only through open surface drains?	Drains may be covered. To be discussed during DDE.
381	**Volume II-Chapter 14 : Civil Works Page No.-72 6.0 site drainage " (j) Two Nos. of portable pumps of 5 hp capacity for drainage of water shall be provided by the Contractor."**		After drainage lifting where it discharged into? Inspection manholes or open surface drains?	Drains
382	**Volume II-Chapter 14 : Civil Works Page No.-72 6.1 rainwater harvesting:**		Is the water in the cable trench considered to be discharged?	Yes, it is to be connected with drains

CLARIFICATION 1 ISSUED BY NEPAL ELECTRICITY AUTHORITY

Sl N	Reference Section & Clause	Description	Bidder's Query/ Changes suggested	Client Response
383	**"Branch drains from the main drain carrying rainwater from entire switchyard."**			
384	**Volume II-Chapter 14 : Civil Works Page No.-76 Clause 8 "Each oil collection pit shall be drained towards a sump pit within the collection pit whose role is to drain water and oil due to leakage within the collection pit so that collection pit remains dry."**		How much transformer oil can the sump pit hold? please provide a percentage data	As per specification, it shall be 100 % of transforme oil volume
385	**Volume II-Chapter 14 : Civil Works Page No.-76 Clause 8 "Each oil collection pit shall be drained towards a sump pit within the collection pit whose role is to drain water and oil due to leakage within the collection pit so that collection pit remains dry."**		Does "a sump pit "mean accident oil-water separation pool?	It is a oil / water holding tank.
386	**Volume II-Chapter 14 : Civil Works Page No.-76 Clause 8**	Teku	Is there existing accident oil-water separation pool available in the station?	Yes for the existing transformer, but for new transformer it shall be designed and provided.
387	**"Each oil collection pit shall be drained towards a sump pit within the collection pit whose role is to drain water and oil due to leakage within the collection pit so that collection pit remains dry."**			
388	**Volume II-Chapter 14 : Civil Works Page No.-90 13.13 plumbing & sanitation "However, a minimum of 2 nos. 1500 liter capacity shall be provided."**		Whether allow to set just one roof water tank?	Please follow the specification.
389	**Volume II-Chapter 14 : Civil Works Page No.-114 23.3 Security Room "Suitable septic tank and soak pit for 10 users with cleaning interval of 3 years shall also be provided."**		Can Security Room is not set up septic tank and soak pit separately? Sewage from the Security Room discharge into the station septic tank and soak pit.	Please follow the specification.
390	**Volume II-Chapter 14 : Civil Works Page No.-114 23.3 Security Room "All sanitary works and a PVC water tank of 1000 litre capacity shall also be provided."**		Can Security Room is not set up roof water tank separately? Water supply comes from roof water tank on the control building.	Please follow the specification.
391	**Volume III - BPS PART 2: 132/11 kV Changunarayan S/S PART-B: D-3 "HVW spray system, Hydrant system and complete U/G & O/G piping and accessories etc. out side the pump house for Transformer : one 132/11 kV Three Phase Transformer "**	**Changunarayan**	Whether to consider including the fire-fighting materials of two future main transformers	Yes
392	**Volume II-Chapter 1 : Project Specification Requirement Page No.-22 4.3.2 (f) Complete Fire protection system suitable for electrical fire for Outdoor Transformer and GIS at Teku Substation**	**Teku**	Whether new Hydrant system and high velocity water spray system is needed to be built in Substation.	Yes, it is required wherever specified.
393	**Volume II-Chapter 1 : Project Specification Requirement Page No.-24 4.3.3 k) Facilities for firefighting equipment, Underground water tanks.**	**Teku**	Is there existing firefighting pump house and fire water tank available in the station?	No
394	**Volume II-Chapter 1 : Project Specification Requirement Page No.-24**	**Teku**	Whether new firefighting pump house is needed to be built in Substation. There is no such item in BPS. Please clarify	The pumphouse building with equipment, water tanks and accessories complete for satisfactory operation is included in the scope. Please quote your price including all required equipment, accessories for fire fighting system.
395	**4.3.3 k) Facilities for firefighting equipment, Underground water tanks**			

CLARIFICATION 1 ISSUED BY NEPAL ELECTRICITY AUTHORITY

Sl N	Reference Section & Clause	Description	Bidder's Query/ Changes suggested	Client Response
396	**Volume II-Chapter 1 : Project Specification Requirement Page No.-24 4.3.3 k) Facilities for firefighting equipment, Underground water tanks**	**Teku**	Whether new fire water tank is needed to be built in Substation. There is no such item in BPS.Please clarify	Refer above
397	**Volume II-Chapter 8 : Fire Protection System Page No.-404 2.01.00 Hydrant System Hydrant protection shall be provided for the following in all substations of voltage levels 132kV and above (This is not applicable for extension of existing 220kV and 132kV substations where Hydrant system is not available).**	**Teku**	Is there existing Hydrant system available in the station?	No
398	**Volume II-Chapter 8 : Fire Protection System Page No.-406 2.02.00. HIGH VELOCITY WATER (H.V.W) SPRAY SYSTEM This shall be provided for transformers and reactors in all 132kV & above substations (This is not applicable for extension of existing 220kV and 132kV substations where HVWS system is not available).**	**Teku**	Is there existing high velocity water spray system available in the station?	No
399	**Volume III - BPS PART 3: 132/11 kV Teku Substation upgrade (132V GIS & Indoor) Part-A : J-a-ii "one 50 litre foam type"**		Volume II-Chapter 8: Fire Protection System Page No.-408 2.04.02 Wheel/ Trolley mounted Fire Extinguishers Wheel/Trolley mounted Mechanical foam type fire extinguishers of 50litre capacity, shall be provided for the protection of the following:"1. Transformers and reactors in 220kV and 132 kV substations where Hydrant/HVWS system is not available. Two (2) nos. for each 220kV or 132kV transformer and reactor." Whever the Quantity of 50litre capacity in BPS meet this requirement. Please clarify.	Please quote as per BPS

2nd Clarification

No.	Page & sub-clause	Text from technical specification	Text of the Deviation or Clarification from Bidder	Reply from NEA
400	Page 8 of 942:(B) b)/(C) b) /(D) b) Page 10 of 942:(B) b)/(C) b) /(D) b) Page 11 of 942:(E) b) Page 15 of 942:(B) b) Page 16 of 942:(C) b)/(D) b)	b) Three Nos. 1-phase, 5-core, multi ratio, current transformers duly distributed on both side of circuit breaker .	The requirement is not corresponding to that of single line diagram: CT arranged on one side of CB only. Please clarfy which GIS manufacturer should follow.	Please ReferTechnical Specifications
401	Page 20 of 942: b) ii Page 21 of 942: C) ii (132/66kV Teku GIS Substation)	ii) Three Nos. 1-phase, 5-core, multi ratio, current transformers duly distributed on both side of circuit breaker	The requiement is not correponding to that of single line diagram as follows: 132kV: 5 cores(one side of CB) and 2 cores (another side of CB) 66kVPlease clarfy which GIS manufacturer should follow.:3 cores(one side of CB) and 2 cores (another side of CB) Please clarfy which GIS manufacturer should follow.	Please Refer Technical Specifications
402	Page 9 of 942: E) e) f) (Lapsephedi 220kV Substation) Page 11 of 942: E) e) f) (132/66kV Teku GIS Substation)	e) Three nos. 1-phase, 1250A, 31.5kA Individual operated isolator switches complete with manual and motor driven operating mechanisms.	The Qty. of DS&ES is not corresponding to that indicated single line diagram.Please provide detailed single line schematic diagram to show how it works.	Please Refer Technical Specifications
403	Page 20 of 942: (132/66kV Teku GIS Substation)	66 kV (72 kV) GIS System Shall be installed in the replacement of existing (old) 66 kV GIS Modules (Make:	Please provide existing structure of GIS room	Please refer the tender drawings

CLARIFICATION 1 ISSUED BY NEPAL ELECTRICITY AUTHORITY

Sl N	Reference Section & Clause	Description	Bidder's Query/ Changes suggested	Client Response
404	Page 27 of 942:6.1 e) page 779 of 942:3.37&3.38	6.1 Location of the Substations – b) Ambient Air Temperature : 45ºC(max)/ 0 ºC(min) In case of 245kV GIS, the rating specified (4000A) are considered for 40 degree centigrade ambient temperature. 3.37. a) The ambient temperature varies between 0 degree-C and 50 degree-C. However, for design purposes, ambient temperature should be considered as 50 degree-C. 3.38. Temperature rise of current carrying parts shall be limited to the values stipulated in IEC-62271-1, under rated current and the climatic conditions at site. The temperature rise for all enclosures shall not exceed 20 degree C above the ambient temperature of 50 degree C.	As per sub-clause 6.1 , 4000A is considered for 40 degree only. However, 50 degree is required according to item 3.38 .which manufacture should follow.	As per sub-clause 6.1 , 4000A current rating at the ambinet temperature of 40 degree centrigrade is for 220 kV (245 kV) Class GIS only. Please follow technical specifications for the rest of the items.
405	Page 781 of 942:3.45	(2) GIS bus ducts of each circuit shall be arranged in preferably horizontal formation and the clearance (outer to outer) between nearest bus ducts of two adjacent circuits shall be minimum one (1) meter. (4) The minimum outer to outer horizontal clearance between each GIS bus duct shall 0.5 meter for 220 kV & 132 kV voltage level	(2) Compactness is one of the advantages of Siemens products, which can save space for customer. However, it menas that nearest bus ducts of two adjacent circuits shall be less one meter. Please approve. (3) As alarified above, compactness is one of the advantages of Siemens products, The minimum outer to outer horizontal clearance between each GIS bus duc maybe less than 0.5m.Some clearance are fixed due to the characteristics of the product itself. (6) The clearance is a little big. GIS manufacturer do not see any benifits from customer side. Please check whether this diemension can be optimized. such as 2m or 1.5m .etc, base on design.	Please Refer Technical Specifications
406	Page 830 of 942:21	All transport packages containing critical units viz Circuit breakers and Voltage transformers shall be provided with sufficient number of electronic impact recorders (on	Impact recorders were too expensive and use once only,However since it cannot return to the factory due to custom limitation. And therefore, Impact recorders are never provided for export projects.Color-changing stickers will be provided as an alternative. Please check whether it's acceptable.	Please Refer Technical Specifications
407	Page 809 of 942:26.3.7	16. Reclosing :Single phase &Three phase auto reclosing.	In normal case , Three phases of CB are driven by one common mechanism simultaneously. It means that three phase auto reclosing is available only. To fulfill single auto reclosing. Each phase should be equipped with its own drive mechanism. Manufactury single pole operated CB can fulfill this requirement but it's not recommended not only because of cost increasing (for 132kV&66kV) but also spacing increasing. Hence please cross check what's the actual requirement.	Please Refer Technical Specifications

CLARIFICATION 1 ISSUED BY NEPAL ELECTRICITY AUTHORITY

Sl N	Reference Section & Clause	Description	Bidder's Query/ Changes suggested	Client Response
408	Page 806 of 942:26	All testing & maintenance equipment shall be offered： 26.1. SF6 Gas leakage detector. 26.2. Gas filling and evacuating plant （This shall include all the necessary gas cylinders for temporarily storing the evacuated SF6 gas.) 26.3. SF6 gas analyzer: 26.3.1. Portable Partial Discharge(PD) monitoring system	Please clarify those special tools mentioned in specificaion should be included in GIS basic price.	Price of All testing & maintenance equipment for GIS shall be included in the Price of GIS
409	Page 785 of 942 Clause 4.5.6	Provisions shall be made for attaching an operational analyzer to record travel, speed and making measurement of operating timings etc. after installation at site. The contractor shall supply three set of transducer for each substation covered under the scope.	Please confirm whether the required equipment needs to be provided by the GIS manufacturer? Neither the analyuzer nor the transducer is a necessary part of the GIS, nor is it included in the regular configuration. It is only used for maintenance or debugging.	Shall be supplied as mentioned in Technical Specifications

3rd Clarification

No.	Volume / Section / Clause / Item / Page	Substation	Bidder's comment / Query / Clarification	NEA's Reply / Clarification
410	Drawing Page7 BOQ Page24 C 1.0-g Chapter 15 page564	Teku	In charpter 15, It says"Single bus bar protection scheme shall be provided for each main bus and transfer bus (as applicable) for 220KV and 132 KV voltage levels". In the drawing, it shows high impedance type busbar protection should be configured for 66kV bay. Does it mean a new set busbar protection device should be provided for 66kV bay? We consider it should have two busbar protecion device in Teku substation, one is for 132kV voltage level and the other is for 66kV voltage. But in the BOQ, there is only one set busbar protecion for this substation, Please clarify how many sets busbar protection should we consider for this substation	Only one set busbar protection for 132 kV system is in the scope of Contractor

CLARIFICATION 1 ISSUED BY NEPAL ELECTRICITY AUTHORITY

Sl N	Reference Section & Clause	Description	Bidder's Query/ Changes suggested	Client Response
411	Volume II Chapter 5- BATTERY AND BATTERY CHARGERE 1.1. GENERAL TECHNICAL REQUIREMENTS Page 358 item 1.1.2 DC System shall consist of two (2) float-cum-boost chargers and two(2) battery sets for each of 220V and 48 V systems respectively. but in the BOQ , 48V dc battery of Changunaryan Substation is one set.	Changunaryan	Is it subject to Bidding Document or BOQ? Please confirm.	Please Refer BPS
412	Volume -III, Schedule No.4(a), PART 1 220/132/11kV GIS Lapsephedi Substation PART-C: Civil Works 10.3 Township (Quarters)	Lapsephedi	Please provide the typical figure of township building of difference types.	Will be provided in the amendment
413	Volume II-Chapter 8 : Fire Protection System Page No.-404 2.01.00 Hydrant System Hydrant protection shall be provided for the following in all substations of voltage levels 132kV and above (This is not applicable for extension of existing 220kV and 132kV substations where Hydrant system is not available).	Teku	This project upgrade existing 66/11kV Teku Substation to 132/66/11kV voltage level. Is it required to be built new hydrant system in substation?	
414	Volume II-Chapter 8 : Fire Protection System Page No.-406 2.02.00. HIGH VELOCITY WATER (H.V.W) SPRAY SYSTEM This shall be provided for transformers and reactors in all 132kV & above substations (This is not applicable for extension of existing 220kV and 132kV substations where HVWS system is not available).	Teku	This project upgrade existing 66/11kV Teku Substation to 132/66/11kV voltage level. Is it required to be built new high velocity water spray system in substation?	Refer above

Procurement of Plant for Design, Supply, Installation and Commissioning of Gas insulated 220kV Lapsiphedi Substation, 132kV Changunarayan Substation and upgradation of Teku Substation and Suichatar Substation.

ICB: PMD/PTDEEP/LCSCP-073/74RE-01

CLARIFICATION 1 ISSUED BY NEPAL ELECTRICITY AUTHORITY

S.NO	SECTION/ VOLUME	SECTION/ CLAUSE NO.	CLAUSE DESCRIPTION	COMMENTS/ QUESTION OF BIDDER	REPLY FROM NEA
220/132/11kV LAPSEPHEDI GIS SUBSTATION					
415	General	-	-	Please provide plot plan for Lapsephedisubstation .	Please refer Technical Specifications and Drawings
416	VOLUME-II	4.1.1.D	-	PLEASE CONFIRM SPARE ICT SWITCHING ARRANGEMENT WILL BE OUTSIDE GIS BUILDING OR INSIDE.	Spare ICT Switching arrangement will be inside GIS Building and within the GIS module
417	General	-	-	PLEASE CONFIRM BUS BAR PROTECTION TO BE CONSIDERED ONLY FOR PRESENT SCOPE BAYS	Please provide provision for inclusion of two spare bay for future use in each voltage level as applicable.
418	General	-	Illumination	We understand that, illumination to be considered for outdoor yard is for present scope of work only. Please confirm.	Confirm
419	General	-	VMS	PLEASE CONFIRM VMS to be considered OR NOT .	VMS to be considered in the present scope
420	General	-	-	We understand that Earthing Main mat to be laid for present scope of work.	Confirm
421	General	-	-	PLEASE PROVIDE SOIL RESISTIVITY VALUE OR TYPE OF SOIL FOR EARTHING DESIGN.	Soil Resistivity values has been included in the attachment
422	General	-	-	PLEASE CONFIRM WHETHER IT IS CONVENTIONAL SUBSTATION HAVING CONTROL ROOM ONLY OR IT IS SPR BASED SUBSTATION.	Please refer Technical Specifications and Drawings
423	General	-	-	Mandatory Spare to be considered OR NOT. Please confirm.	Please refer BPS for the Mandatory Spares
132/11kV CHANGUNARAYAN (NEW) GIS Substation					
424	General	-	-	Please provide plot plan for CHANGUNARAYAN substation .	Please refer Technical Specifications and Drawings

CLARIFICATION 1 ISSUED BY NEPAL ELECTRICITY AUTHORITY

S.NO	SECTION/ VOLUME	SECTION/ CLAUSE NO.	CLAUSE DESCRIPTION	COMMENTS/ QUESTION OF BIDDER	REPLY FROM NEA
425	VOLUME-II	4.2.1.C	-	PLEASE CONFIRM SPARE ICT SWITCHING ARRANGEMENT WILL BE OUTSIDE GIS BUILDING OR INSIDE.	Spare ICT Switching arrangement will be inside GIS Building
426	General	-	-	PLEASE CONFIRM BUS BAR PROTECTION TO BE CONSIDERED ONLY FOR PRESENT SCOPE BAYS	Refer above
427	General	-	Illumination	We understand that, illumination to be considered for outdoor yard is for present scope of work only. Please confirm.	Confirm
428	General	-	VMS	PLEASE CONFIRM VMS to be considered OR NOT .	VMS to be considered in the present scope
429	General	-	-	We understand that Earthing Main mat to be laid for present scope of work.	Confirm
430	General	-	-	PLEASE PROVIDE SOIL RESISTIVITY VALUE OR TYPE OF SOIL FOR EARTHING DESIGN.	Soil Resistivity values has been included in the attachment
431	General	-	-	PLEASE CONFIRM WHETHER IT IS CONVENTIONAL SUBSTATION HAVING CONTROL ROOM ONLY OR IT IS SPR BASED SUBSTATION.	Please refer Technical Specifications and Drawings
432	General	-	-	Mandatory Spare to be considered OR NOT. Please confirm.	Please refer BPS for the Mandatory Spares
433	General	-	-	PLEASE CONFIRM WHETHER IT IS CONVENTIONAL SUBSTATION HAVING CONTROL ROOM ONLY OR IT IS SPR BASED SUBSTATION.	Please refer above
132/66/11kV TEKU GIS Substation					
434	VOLUME-II	4.3.1		WE UNDERSTAND THAT IT IS WRONGLY MENTIONED TO INSTALL NEW 66KV GIS. IT SHOULD BE 132KV GIS. ALSO NEW GIS TO BE INSTALLED IN EXISTING 66KV GIS HALL . PLEASE CONFIRM	Both 132kV and 66kV GIS are in the present scope. Please refer Technical Specifications, Drawings and BPS and visit the sites for details.

CLARIFICATION 1 ISSUED BY NEPAL ELECTRICITY AUTHORITY

S.NO	SECTION/ VOLUME	SECTION/ CLAUSE NO.	CLAUSE DESCRIPTION	COMMENTS/ QUESTION OF BIDDER	REPLY FROM NEA
435	VOLUME-II	4.3.2		PLEASE SHARE EXISTING DRAWINGS OF GIS HALL AND OVERALL LAYOUT .	included in the tender drawings (additional drawings)
436	General	-		Please provide soil investigation report of existing substation.	Values has been included in the attachment
437	General	-		Please Confirm there are feeders in existing ACDB & DCDB to cater the load of new AC & DC panel for extention.	Confirm
438	General	-	-	Existing battery is sufficient or not to cater the DC requirement of present scope bay.Kindly Confirm	Existing Battery is sufficient
439	General	-	-	Please confirm that this substation comes under coastal area or not	Please visit the sites for details
440	General	-	-	PLEASE CONFIRM CREEPAGE DISTANCE TO BE CONSIDERED	Please refer Technical Specifications
441	General	-	-	PLEASE CONFIRM WHETHER IT IS CONVENTIONAL SUBSTATION HAVING CONTROL ROOM ONLY OR IT IS SPR BASED SUBSTATION.	Please refer Technical Specifications
442	General	-	-	PLEASE PROVIDE SOIL RESISTIVITY VALUE OR TYPE OF SOIL FOR EARTHING DESIGN.	Soil resistivity shall be determined by the Contractor
443	General	-	-	SAS MAKE TO BE CONFIRMED FOR AUGMENTATITION FOR PRESENT SCOPE BAYS	
444	General	-	-	PLEASE PROVIDE ALTITUDE OF SITE ABOVE MSL.	Approximately 1400 meters above MSL
UPGRADATION AT SIUCHATAR SUBSTATION					
445	General	-		Please provide soil investigation report of existing substation.	Will be provided to successful bidder, if available

CLARIFICATION 1 ISSUED BY NEPAL ELECTRICITY AUTHORITY

S.NO	SECTION/ VOLUME	SECTION/ CLAUSE NO.	CLAUSE DESCRIPTION	COMMENTS/ QUESTION OF BIDDER	REPLY FROM NEA
446	General	-		Please Confirm there are feeders in existing ACDB & DCDB to cater the load of new AC & DC panel for extention.	Confirm
447	General	-	-	Existing battery is sufficient or not to cater the DC requirement of present scope bay.Kindly Confirm	Existing Battery is sufficient
448	General	-	-	Please confirm that this substation comes under coastal area or not	Please visit sites for details
449	General	-	-	PLEASE CONFIRM CREEPAGE DISTANCE TO BE CONSIDERED	Please refer Technical Specifications
450	General	-	-	PLEASE CONFIRM WHETHER IT IS CONVENTIONAL SUBSTATION HAVING CONTROL ROOM ONLY OR IT IS SPR BASED SUBSTATION.	Please refer Technical Specifications
451	General	-	-	PLEASE PROVIDE SOIL RESISTIVITY VALUE OR TYPE OF SOIL FOR EARTHING DESIGN.	Will be provided to successful bidder, if available
452	General	-	-	SAS MAKE TO BE CONFIRMED FOR AUGMENTATITION FOR PRESENT SCOPE BAYS	The SAS for the substation is under implementation through separate contract, and is of GE Make. The current bays shall be integrated in the substation SAS, MCC and LDC
453	General	-	-	PLEASE PROVIDE SLD, EXISTING LAYOUT, EARTHMAT LAYOUT CABLE TRENCH LAYOUT FOR OUR WORKING	Layout included in the tender drawing (additional drawings), please visit the site for details
454	MODIFICATION/DISMANTLING WORK	-	-	PLEASE PROVIDE LOCATION OF DEAD END TOWER WHICH IS TO BE DISMANTLED AND CABLES TO BE CONNECTED ALONG WITH DUSTANCE BETWEEN TWO DEAD END TOWER.	Please visit sites for details
455	General	-	-	PLEASE PROVIDE ALTITUDE OF SITE ABOVE MSL.	Approximately 1420 meters above sea level

Procurement of Plant for Design, Supply, Installation and Commissioning of Gas insulated 220kV Lapsiphedi Substation, 132kV Changunarayan Substation and upgradation of Teku Substation and Suichatar Substation.

ICB: PMD/PTDEEP/LCSCP-073/74RE-01

CLARIFICATION 1 ISSUED BY NEPAL ELECTRICITY AUTHORITY

S. No.	Queries from Perspective Bidder	Reply from NEA	Remarks
456	In Basic Requirement of Master Control Center at Baneshwor Substation Chapter 7 of Volume II, this Baneshwor control room work is not listed in volume III. Is this control room work included in the work scope of this project?	Master Control Center (MCC) at Baneshwor is not in this scope, however, integration with MCC is in the scope of Contractor as mentioned in the Technical Specifications and BPS	
457	In Technical Specification Section-18 Technical Description of OPGW cable Volume II, this is technical specification of OPGW cable. is this OPGW cable not included in the work scope of this project?	Supply, delivery, erection, testing and commissioning of OPGW cable from Teku Substation to Suichatar Substation is in the scope of Contractor	
458	Would NEA please provide the general layout drawing of Teku substation?	Already included in the tender drawing (additional drawings)	
459	Would NEA please provide the general layout drawing and single line diagram drawing of Suichatar Substation?	Layout already included in the tender drawing (additional drawings), Please visit the site for the details.	
460	In Schedule NO.1-G 11kV, 25 kA (3 Phase) Indoor Switch Gear Panel Volume III,		
461	1)Is this 11 kV indoor switch gear panel equipped with bus contact cabinet?		
462	2)There are 2 no Incomer, 6 no Outgoing,1 Buscoupier and 1Trunking in this BOO of 11kV indoor switch gear panel. But there are 1 no Transformer bays, 2 nos LT Transformer bays and 1 Bus section Bay. Outgoing Panel- 8Nos in 3-Scope of work Chapter 1 Volume II. Please confirm which one shall govern?	Please refer BPS	
463	3)In drawings of Volume II, there are 220kV and 132kV spare bay on the Lapsephed substation layout drawing, but it is not mentioned in Scope of Works -Volumen II and BOO-Volume III. Please confirm whether the complete spare bay is required in scope of work of this project?	Please refer BPS	
464	4)In Lapsephedi substation. How does the 11kV 0/C connect to high voltage side? And what kind of switching equipment is required for this connection. Are those equipments included in the Scope of Work of this project?	Termination of 11 kV to overhead line near to the boundary of Substation is in the scope of contractor	
465	In 1.2-h-ANNEXURE VI-Chapter 1-Volume II, the requirement of suitable interface for VOIP connectivity is 50 Nos but in BOQ 2.0 A2 -Appendix A-Chapter 18-Volume II it is required 2 wire (SublExch) voice channel cards (min 8channels per card). Please confirm the type of PABX Interface (network interface or 2 wire interface)?	Please refer BPS and Volume II-Technical Specifications, Chapter 1 -Project Specific Requirement, Annexure VI - Technical Specifications of IP-PBAX	
466	Is the OPGW which from substation out going gantry to communication room included in the work scope of this project or another transmission line work?	OPGW from substation out going gantry to communication room included in the scope of this project	
467	It is not mentioned the item and quantity of carrier telecommunication equipment in BOO. Would NEA please provide said information?	Please Refer BPS	
468	K to M-part 2-132/11 kV Changunarayan 5/5, schedule No.1-Volume Ill , the requirement of battery is 1(one) set but charger are 2 (two) sets, the quantity of them are not same, please confirm the required quantity.	Please Refer BPS	
469	The termination equipment is requred in BOG 2.0 A2 - Appendix A-Chapter 18- Volume II but not listed in Price Schedule. Please confirm whether it is inculded in the work scope of this project	Please refer Technical Specifications and BPS; no separate payment will be made for such works	

CLARIFICATION 1 ISSUED BY NEPAL ELECTRICITY AUTHORITY

S. No.	Queries from Perspective Bidder	Reply from NEA	Remarks
470	In General Technical requirement, GIS for Clause 3.42: Pressure Vessel Requirements(Vol II, Chapter 19, Page-19-7, along with the pressure Vessel Code(ASME/CENELEC). Can we adopt Chinese Pressure Vessel Code for this works also, such as GB/T28819 or Gb7674 etc?	Please follow Technical Specifications	

Procurement of Plant for Design, Supply, Installation and Commissioning of Gas insulated 220kV Lapsiphedi Substation, 132kV Changunarayan Substation and upgradation of Teku Substation and Suichatar Substation.

ICB: PMD/PTDEEP/LCSCP-073/74RE-01

CLARIFICATION 1 ISSUED BY NEPAL ELECTRICITY AUTHORITY

Sr No	Volume / Section	Clause No.	Text as per Bid document	Prebid Query	Reply from NEA
471	Section Project, Scope of work			We also understand that land required for development of substation shall be cleared from all encumbrances and handed over to contractor. We do not envisage any such dismantling or clearing of buildings in contractors scope of work at Lapsiphedi & Chungunarayan. Kindly confirm the same.	Confirm
472	Vol-II	Annexure II	LIST OF PREFERED (SHORTLISTED) MAKE	We understand that we can supply from any of the factories of the mentioned approved/shortlisted makes. Kindly confirm	
	220/132/11kV GIS Lapsephedi Substation (Civil)				
473	Vol-III	Price Schedule-4a	Part C-Civil Work-Excavation Excavation in all types of soil and rock including backfilling disposal etc. for all leads and lifts: 40,000cum	We understand that the Earth work in excavation of all types of soils including soft/disintegrated rock with all leads only and excavated material can be use for backfilling and surplus earth can be spread within switchyard. Kindly confirm. In case of any hard rock found during execution, excavation rates will be paid separately as extra item. Kindly confirm	In case o excavation with hard rock, please include the cost in the rates for escavation as provided in the BPS.
474	Vol-III	Price Schedule-4a	Part C-Civil Work-Control Room Building All Civil works including finishing, internal cable trench, etc. complete as per technical specification and approved drawings, excluding excavation, PCC, RCC and reinforcement steel which shall be measured and paid seperately under respective items of BPS. (Including 11kV switchgear room)	We understand that, total constructed area as per attached tender drawing of Double storied Control Room Building (GF+FF) will be paid under this item. Please confirm.	Confirm
475	Vol-III	Price Schedule-4a	Part C-Civil Work-GIS Building 220kV GIS Hall All civil works related to pre-engineered 220 kV GIS Hall to be supplied as per schedule 1 including foundation, internal cable trench, excavation, PCC, RCC and reinfircement etc. complete to erect the building as per approved drawings and technical specification	We understand all PEB related work will be paid under Item U of Schedule 1 Vol-III and in this item other building related civil work will be paid except Structural steel. Kindly confirm our understanding Further we would request excavation, PCC, RCC and reinforcement steel for foundation of building shall be measured and paid seperately under respective items of BPS. The same is being requested as the soil investigation report is not available to design the foundation.	The PEB building is to include all supply materials including structural steel, PEB materials etc complete. It also includes PCC, RCC, reinforcement steel, finishing etc as required for completion of the building. Please quote accordingly

CLARIFICATION 1 ISSUED BY NEPAL ELECTRICITY AUTHORITY

Sr No	Volume / Section	Clause No.	Text as per Bid document	Prebid Query	Reply from NEA
476	Vol-III	Price Schedule-4a	Part C-Civil Work-GIS Building 132kV GIS Hall All civil works related to pre-engineered 132 kV GIS Hall to be supplied as per schedule 1 including foundation, internal cable trench, excavation, PCC, RCC and reinfircement etc. complete to erect the building as per approved drawings and technical specification	We understand all PEB related work will be paid under Item U of Schedule 1 Vol-III and in this item other building related civil work will be paid except Structural steel. Kindly confirm our understanding Further we would request excavation, PCC, RCC and reinforcement steel for foundation of building shall be measured and paid seperately under respective items of BPS. The same is being requested as the soil investigation report is not available to design the foundation.	The PEB building is to include all supply materials including structural steel, PEB materials etc complete. It also includes PCC, RCC, reinforcement steel, finishing etc as required for completion of the building. Please quote accordingly
477	Vol-III	Price Schedule-4a	Part C-Civil Work-Site Levelling 24.1 Earth work in excavation and filling in all types of soils including soft/disintegrated rock with all leads and lifts within sub station boundary: 30000 cum	We understand that this item is not covered for any hard rock found during area grading and incase it is found during execution, the same shall be paid separately as extra item.	No separate payment will be made. Refer above
478	Vol-III	Price Schedule-4a	Part C-Civil Work-Car Parking 10.5 Parking Shed (for 5 Cars)	Please provide the drawing of Parking Shed.	Attached
479	Vol-III	Price Schedule-4a	Part C-Civil Work-Township 10.3 Township Quarters (B Type, C Type, D Type)	Please provide the drawing/Layout of Township for estimation purpose.	Attached
480	Vol-II	Civil Works	Field Quality Plan-Civil work	Please provide the Field quality plan of civil work which is not attached with tender documents.	Shall be developed by the siccessful bidder and submit for employer
481	Vol-II	Civil Works	Approved vendor list of NEA_Nepal	Please provide the approved vendor list for below listed works. 1.PEB Works 2.Cement 3.Steel	Shall be proposed by the siccessful bidder and submit for employer
	132/11 kV Changunarayan S/S (Civil)				
482	Vol-III	Price Schedule-4a	Part C-Civil Work-Control Room Building All Civil works including finishing, internal cable trench, etc. complete as per technical specification and approved drawings, excluding excavation, PCC, RCC and reinforcement steel which shall be measured and paid seperately under respective items of BPS.	We understand that, total constructed area as per attached tender drawing of Double storied Control Room Building (GF+FF) will be paid under this item. Please confirm.	Confirm
483	Vol-III	Price Schedule-4a	Part C-Civil Work-GIS Building 132kV GIS Hall All civil works related to pre-engineered 132 kV GIS Hall to be supplied as per schedule 1 including foundation, internal cable trench, excavation, PCC, RCC and reinfircement etc. complete to erect the building as per approved drawings and technical specification	We understand all PEB related work will be paid under Item U of Schedule 1 Vol-III and in this item other building related civil work will be paid except Structural steel. Kindly confirm our understanding Further we would request excavation, PCC, RCC and reinforcement steel for foundation of building shall be measured and paid seperately under respective items of BPS. The same is being requested as the soil investigation report is not available to design the foundation.	The PEB building is to include all supply materials including structural steel, PEB materials etc complete. It also includes PCC, RCC, reinforcement steel, finishing etc as required for completion of the building. Please quote accordingly

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Sr No	Volume / Section	Clause No.	Text as per Bid document	Prebid Query	Reply from NEA
484	Vol-III	Price Schedule-4a	Part C-Civil Work-Excavation Excavation in all types of soil and rock including backfilling disposal etc. for all leads and lifts: 11,000cum	We understand that the Earth work in excavation of all types of soils including soft/disintegrated rock with all leads only and excavated material can be use for backfilling and surplus earth can be spread within switchyard. Kindly confirm. In case of any hard rock found during execution, excavation rates will be paid separately as extra item. Kindly confirm	Refer above
485	Vol-III	Price Schedule-4a	Part C-Civil Work-Site Levelling 24.1 Earth work in excavation and filling in all types of soils including soft/disintegrated rock with all leads and lifts within sub station boundary: 5000cum	We understand that this item is not covered for any hard rock found during area grading and incase it is found during execution, the same shall be paid separately as extra item.	Refer above
	132/11 kV Teku Substation upgrade (132V GIS & Indoor) - Civil				
486	Vol-III	Price Schedule-4a	Part C-Civil Work-Excavation Excavation in all types of soil and rock including backfilling disposal etc. for all leads and lifts: 500cum	We understand that the Earth work in excavation of all types of soils including soft/disintegrated rock with all leads only and excavated material can be use for backfilling and surplus earth can be spread within switchyard. Kindly confirm. In case of any hard rock found during execution, excavation rates will be paid separately as extra item. Kindly confirm	Refer above
487	Vol-III	Price Schedule-4a	Part C-Civil Work-GIS Building 132kV GIS Hall All civil works related to pre-engineered 132 kV GIS Hall to be supplied as per schedule 1 including foundation, internal cable trench, excavation, PCC, RCC and reinfircement, finishing etc. complete to erect the building as per approved drawings and technical specification	We understand all PEB related work will be paid under of Schedule 1 Vol-III and in this item other building related civil work will be paid except Structural steel. Kindly confirm our understanding Further we would request excavation, PCC, RCC and reinforcement steel for foundation of building shall be measured and paid seperately under respective items of BPS. The same is being requested as the soil investigation report is not available to design the foundation.	Refer above
488	Vol-III	Price Schedule-4a	Part C-Civil Work-Site Levelling 24.1 Earth work in cutting & Filling in all types of soils including soft/ disintegrated rock: 200cum	We understand that this item is not covered for any hard rock found during area grading and incase it is found during execution, the same shall be paid separately as extra item.	Refer above
	Electrical				
489	220/132/11kV SLD of Lapsephedi S/s Schedule No. 1 of Volume-III	Drwg No. C/ENGG/NEA/LAPSEPHEDI/SLD/01, REV-00 Schedule No. D.1(1.3) & E.1(1.3)	Spare bays provision	As per SLD, 1 No. Spare Line bay at 220kV GIS & 132kV GIS is indicated, however same is not appearing into Schedule No. D.1(1.3) & E.1(1.3)	Please quote as per the BPS

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Sr No	Volume / Section	Clause No.	Text as per Bid document	Prebid Query	Reply from NEA
490	220/132/11kV SLD of Lapsephedi S/s 220/132/11kV LAYOUT of Lapsephedi S/s	Drwg No. C/ENGG/NEA/LAPSEPHEDI/SLD/01, REV-00 SC/ENGG/NEA/LAPSEPHEDI/LAYOUT/01&02, REV-00	Future bays provision	We observed discrepancy with respect to Future bays mentioned on SLD & Layout. We are following as per SLD. Please confirm	Please quote as per the BPS
491	220/132/11kV SLD of Lapsephedi S/s	Drwg No. C/ENGG/NEA/LAPSEPHEDI/SLD/01, REV-00	GIS Building	Please clarify whether GIS Building is to be constructed for Present & Future bays both as indicated on SLD.	Yes, GIS Building is to be constructed for Present & Future bays. However, please refer the TS and Drawings for tentative size of the building
492	Chapter-1- Project Specific Requirement 220/132/11kV Lapsephedi S/s	Cl. No. 4.1.23 Pg No. 1-12	CVT & LA as AIS or GIS	As per mentioned clause of chapter-1 project specific requirements, AIS CVT & LA may be deleted. Please clarify whether CVT & LA to be considered as GIS or not.	AIS CVT and LA is envisaged for 220kV (245 kV) at Lapsiphedi whereas GIS CVT & LA to be considered as part of GIS system for 132 kV (145kV) and 66 kV (72.5kV) voltage levels.
493	Chapter-1- Project Specific Requirement 220/132/11kV Lapsephedi S/s	Cl. No. 4.1.2 C) Pg No. 1-9	(d) Three (3) numbers of 1-phase potential transformers (g) Three (3) numbers of 1-phase Lightning arrestors, if not mentioned in the BPS.	Please confirm that 145kV GIS module of Line bay to be considered with CVT & LA as part of GIS.	Please Refer above
494	Chapter-1- Project Specific Requirement 220/132/11kV Lapsephedi S/s	Cl. No. 4.1.2 C) Pg No. 1-9	e) Three (3) numbers of 1-phase Lightning arrestors, if not mentioned in the BPS.	Please confirm that 145kV GIS module of ICT bay to be considered with LA as part of GIS.	Please Refer above
495	220/132/11kV SLD of Lapsephedi S/s Chapter-1- Project Specific Requirement	Cl. No. 3 A Scope of Work Pg No. 1-5 Cl. No. 4.1.7 Pg No. 1-11	11 kV Indoor Switchyard Panels for 1 no Transformer bays, 2 nos LT Transformer bays and 1 Bus section Bay. Outgoing Panel- 8Nos MV Indoor Switchgear for 2 no. Transformer Incomer bay 132/11kV, 6 nos. Feeders bays, 1 no. Bus section or as per BPS	Please confirm total bays for 11kV Indoor panels at Lapsephedi S/s since there is discrepancy between Chapter-1 PSR & SLD.	Please quote as per the BPS
496	220/132/11kV SLD of Lapsephedi S/s	Drwg No. C/ENGG/NEA/LAPSEPHEDI/SLD/01, REV-00	132kV Wave trap	Wave Trap is indicated on SLD at 132kV Lines however Line item is not there in schedule-1. Please confirm	Please quote as per the BPS
497	Chapter-1- Project Specific Requirement 220/132/11kV Lapsephedi S/s	Cl. No. 4.1.13 Pg No. 1-11	4.1.13 LT switchgear (AC/DC Distribution boards) considering present bays and future 400kV, 220kV & 132 kV bays	Please confirm our understanding that 220kV , 132kV & 11kV Bays as indicated on SLD shall be considered while estimating feeders for LT AC-DC System	Confirm
498	Chapter-1- Project Specific Requirement 220/132/11kV Lapsephedi S/s	Cl. No. 4.1.28 y) Pg No. 1-13	(y) Soil investigation (except Plate load test) has already been carried out. NEA will provide Geotechnical Investigation Report of the substation area for reference.	We request NEA to share Soil investigation report with us.	Exerpt of Soil investigation reportis attached. Howver, the successful bidder shall perform the soil investigation to reconfirm the value.

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Sr No	Volume / Section	Clause No.	Text as per Bid document	Prebid Query	Reply from NEA
499	Schedule No. 1 of Volume-III 220/132/11kV Lapsephedi S/s	Schedule No. F(1.0)	9kV LA	We request NEA to clarify requirement of said line item. 6 NO.s of 9kV LA are to installed at which place.	11 kV cable terminations
500	Schedule No. 1 of Volume-III 220/132/11kV Lapsephedi S/s	Schedule No. G(1.4)	11kV 2500A Trunking	We request NEA to clarify requirement of said line item.	IT is a adaptor panel required to match with panels of other manufacturer during future installation.
501	220/132/11kV Lapsephedi S/s	General	Equipment support structures	Please confirm our understanding that NEA has asked for Pipe structure for Equiments.	Confirm
502	Schedule No. 1 of Volume-III 220/132/11kV Lapsephedi S/s	Schedule No. Q (1.4)	11kV HT 3C, 400 Sq.mm Aluminum Cable alongwith accessories and terminationcequipments for termination of 11 kV Line	As per chapter-1 PSR, 11kV switchgear to be designed for 8 No.s of feeder bay also. However as per schedule No. 1, 11kV Cable termination is also to be considered along with cable. We request NEA to provide more details regarding termination points of said cable.	Termi ation points are 11kV panel, and outoging line takeoff points.
503	Chapter-1- Project Specific Requirement	13.0 k) Pg No. 1-30	One number each Energy meter for the record and revenue purpose is to be provided for each 220/132/11V bays (Bus coupler bays to be excluded) at Lapsephedi and Changunarayan substations under present scope of contract,meeting the requirement as specified at Annexure – V.	Please clarify the requirement of Energy meter since line item is missing in Price Schedule.	One number each of energy meter, as specified in the specification of the control and relay panel shall be provided and is a part of the Panel. The enrgy meter shall be placed in the control panel of each bay.
504	132/11kV SLD of Changunarayan S/s Schedule No. 1 of Volume-III	Drwg No. C/ENGG/NEA/CHANGU/SLD/01, REV-00 Schedule No. 1, Part-2 - C (1.1)	Spare bays provision	As per SLD, 1 No. Spare Line bay at 132kV GIS is indicated, however same is not appearing into Schedule No. 1 Part-2, C (1.1)	Please quote as per the BPS
505	132/11kV SLD of Changunarayan S/s 132/11kV LAYOUT of Changunarayan S/s S/s	Drwg No. C/ENGG/NEA/CHANGU/SLD/01, REV-00 SC/ENGG/NEA/CHANGU/LAYOUT/01&02, REV-00	Future bays provision	We observed discrepancy with respect to Future bays mentioned on SLD & Layout. We are following as per SLD. Please confirm	Please quote as per the BPS
506	132/11kV SLD of Changunarayan S/s	Drwg No. C/ENGG/NEA/CHANGU/SLD/01, REV-00	GIS Building	Please clarify whether GIS Building is to be constructed for Present & Future bays both as indicated on SLD.	Yes, GIS Building is to be constructed for Present & Future bays. However, please refer the TS and Drawings for tentative size of the building
507	Chapter-1- Project Specific Requirement 132/11kV Changunarayan S/s	Cl. No. 4.2.21 Pg No. 1-16	CVT & LA as AIS or GIS	As per mentioned clause of chapter-1 project specific requirements, AIS CVT & LA may be deleted. Please clarify whether CVT & LA to be considered as GIS or not.	AIS CVT and LA is envisaged for 220kV (245 kV) at Lapsiphedi whereas GIS CVT & LA to be considered as part of GIS system for 132 kV (145kV) and 66 kV (72.5kV) voltage levels.
508	Chapter-1- Project Specific Requirement 132/11kV Changunarayan S/s	Cl. No. 4.2.1 C) Pg No. 1-15	(e) Three (3) numbers of 1-phase potential transformers	Please confirm that 145kV GIS module of Line bay to be considered with LA as part of GIS.	Please Refer above

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Sr No	Volume / Section	Clause No.	Text as per Bid document	Prebid Query	Reply from NEA
509	132/11kV SLD of Changunarayan S/s Chapter-1- Project Specific Requirement	Cl. No. 3 A Scope of Work Pg No. 1-5 Cl. No. 4.1.7 Pg No. 1-11	11 kV Indoor Switchyard Panels for 1 no Transformer bays, 2 nos LT Transformer bays and 1 Bus section Bay. Outgoing Panel- 8Nos MV Indoor Switchgear for 2 no. Transformer Incomer bay 132/11kV, 6 nos. Feeders	Please confirm total bays for 11kV Indoor panels at Lapsephedi S/s since there is discrepancy between Chapter-1 PSR & SLD.	Please quote as per the BPS
510	132/11kV SLD of Changunarayan S/s	Drwg No.C/ENGG/NEA/CHANGU/SLD/01, REV-00	132kV Wave trap	Wave Trap is indicated on SLD at 132kV Lines however Line item is not there in schedule-1. Please confirm	Confirm
511	Chapter-1- Project Specific Requirement 132/11kV Changunarayan S/s	Cl. No. 4.2.12 Pg No. 1-16	4.2.12 LT switchgear (AC/DC Distribution boards) considering present bays and future bays	Please confirm our understanding that 132kV & 11kV Bays as indicated on SLD shall be considered while estimating feeders for LT AC-DC System	Confirm
512	Chapter-1- Project Specific Requirement 132/11kV Changunarayan S/s	Cl. No. 4.2.26 x) Pg No. 1-18	(x) Soil investigation (except Plate load test) has already been carried out. NEA will provide Geotechnical Investigation Report of the substation area for reference.	We request NEA to share Soil investigation report with us.	Refer above
513	Schedule No. 1 of Volume-III 132/11kV Changunarayan S/s	Schedule No. E.1, 1.6 a)	145kV, SF6 to Air Bushing alongwith associated support structure as 27 No.s	We request NEA to confirm Qty once again since Qty shall be 24 No.s	Please quote as per the BPS
514	Schedule No. 1 of Volume-III 132/11kV Changunarayan S/s	Schedule No. E.1, 1.3	145kV, SF6 GIS ICT feeder bay Module for Transformer [Module description as per Technical Project specification] as 2 Sets	We request NEA to confirm Qty once again since Qty shall be 1 No.	Please quote as per the BPS
515					
516	Schedule No. 1 of Volume-III 132/11kV Changunarayan S/s	Schedule No. G(1.4)	11kV 2500A Trunking	We request NEA to clarify requirement of said line item.	Refer above
517	132/11kV Changunarayan S/s	General	Equipment support structures	Please confirm our understanding that NEA has asked for Pipe structure for Equiments.	Confirm
518	Schedule No. 1 of Volume-III 132/11kV Changunarayan S/s	Schedule No. P (1.0)	11kV HT 3C, 400 Sq.mm Aluminum Cable alongwith accessories and termination equipments for termination of 11 kV Line	As per chapter-1 PSR, 11kV switchgear to be designed for 8 No.s of feeder bay also. However as per schedule No. 1, 11kV Cable termination is also to be considered along with cable. We request NEA to provide more details regarding termination points of said cable on Plan layout.	Refer above
519	Schedule No. 1 of Volume-III 132/11kV Changunarayan S/s	Part-B Vendor Accessed Quantities	Erection hardware line item for 11kV Feeders	Please clarify 11kV Erection hardware items for 11kV Feeders bay for line termination at Changunarayan S/s to be quoted under which line item.	Respective items under 11kV panel, Cables. No extra payment will be made.
520	Chapter-1- Project Specific Requirement 132/11kV Changunarayan S/s	13.0 y) Pg No. 1-32	For Changunarayan S/S having indoor type 11 kV switchgear, each outgoing 11kV line feeder, take off gantry/tower shall be suitable for accommodating 01 set structure mounted isolator and 01 set surge arrestor	We request NEA to clarify whether take of gantry/tower shall be in contractor scope. If yes please provide location on Plan layout.	Take of gantry / tower / pole shall be in contractor scope. Will be inidcated during DDE

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Sr No	Volume / Section	Clause No.	Text as per Bid document	Prebid Query	Reply from NEA
521	Upgradation of Teku Substation		Existing drawings required to analyze present scope of upgradation works	We request NEA to provide following Existing drawings of Teku S/s 1) Existing SLD 2) Existing Plan & Section layouts 3) Existing 66kV GIS Building drawings 4) Existing DSLP layout drawing 5) Existing Earthmat Layout 6) Existing Cable Trench Layout 7) Existing Lighting Layout 8) Existing Control Room Building Layout 9) Existing 66kV Busbar drawing 10) Existing SAS drawings 11) Existing Fire fighting system drawings including Annunciation panels 12) Existing LT Board drawings (MSB, ACDB, DCDB, MLDB & ELDB)	Available Drawings are provided. Please download from NEA web site.
522	Upgradation of Teku Substation	Cl. No. 4.3.1 Pg No. 1-19	Dismanteling of existing GIS System shall be in the scope of the Contractor. The Dismantled GIS modules shall be stored in NEA stores as directed by the Employer.	Request NEA to share if any special instructions for dismantling & Storage of same into NEA stores.	NEA stores in Kathmandu Valley
523	Upgradation of Teku Substation	Cl. No. 4.3.1 Pg No. 1-19	66 kV (72 kV) GIS System Shall be installed in the replacementof existing(old) 66 kV GIS Modules (Make: Pinggao, China).	Request you to share Existing GIS building drawing to check feasibility of new supplied GIS fitment into existing building.	Included in the tender drawings
524	Upgradation of Teku Substation	Cl. No. 4.3.1 c iv) & vii) Pg No. 1-20	Line Bays	Please confirm LA & CVT for Line Bays to be offered as part of GIS module of AIS type.	Please consider GIS LA & CVT for Line Bays to be offered as part of GIS module
525	Upgradation of Teku Substation	Cl. No. 4.3.1 b v) Pg No. 1-19	ICT Bays	Please confirm LA for ICT Bays to be offered as part of GIS module of AIS type.	Please consider GIS LA & CVT for ICT Bays to be offered as part of GIS module
526	Upgradation of Teku Substation	Cl. No. 4.3.3 a) Pg No. 1-21	2 (Two) numbers of 31.5/45MVA, 132/11kV, 3-phase Outdoor transformers complete with all materials / fittings / accessories / DigitalRTCC panel /MB/, Cables including special cable (if any) etc. The Transformer shall berated for outdoor operation.These transformers shall be installed in thereplacement of 2 (Two) numbers of existing 66/11kV 22.5MVATransformers. Dismantling of existing transformers and their accessories such as	We presume that dismantling of existing Transformers along with foundations shall be under NEA scope. Please confirm.	Dismantling of existing Transformers along with foundations shall be under scope of Contractor. The price of such works shall be included in the respective items wherever appropriate.
527	Upgradation of Teku Substation	SLD Drawing No. C/NEA/TEKU/SLD/01, REV-00	SF6 to cable termination	As per SLD, it is understood that 132kV Lines & ICT connection are GIS to cable. Please confirm	Confirm
528	Upgradation of Teku Substation		At Teku Substation, the existing line gantry which is designed for 66kV voltage level shall be suitably modified to make ready for 132kV incoming linewith regards to clearance as per relevant standard.	We presume that said works shall be done by NEA	All works as mentioned in the bidding documents are in the scope of contractor

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Sr No	Volume / Section	Clause No.	Text as per Bid document	Prebid Query	Reply from NEA
529	Upgradation of Suichatar Substation.		Existing drawings required to analyze present scope of upgradation works	We request NEA to provide following Existing drawings of Suichatar S/s 1) Existing SLD 2) Existing Plan layout 3) Existing Section layout 4) Existing DSLP layout drawing 5) Existing Earthmat Layout 6) Existing Cable Trench Layout 7) Existing Lighting Layout 8) Existing Control Room Building Layout 9) Existing Busbar drawing 10) Existing SAS drawings 11) Existing Fire fighting system drawings including Annunciation panels 12) Existing LT Board drawings (MSB, ACDB, DCDB, MLDB & ELDB)	Refer above. Please visit the silte for clearer understanding of site.
530	Upgradation of Suichatar Substation.		At Siuchatar substation, the employer intends to dismantle the existing 66kVDC dead end tower of Kulekhani -I & 2 and connect the 66kV cable from existing Gantry to next 66kV DC tower with necessary arrangement such as new gantry or other structure, to accommodate new 132kV line bays, for the work in this scope or for future scope. The area thus vacated shall be levelled and make ready for future use.	Request NEA to confirm that said works shall be done by NEA. And with this information it seems that Main Bus / Transfer Bus of existing 132kV S/s shall require extension. Hope existing Gantries are suitable for extension works.	Such works as mentioned in the bidding documents are in the scope of contractor,. Main Bus / Transfer Bus of existing 132kV S/s shall require extension. The bidder is to provide new busbar gantry for bus extension, and internal line termination arrangement for connection with 132kV or 66kV cable as appliacble. Special arrangment may be required for terminatio of 66kV existing line due to clearnace with the existing structures. Please, visit the site for detail information.
531	Upgradation of Teku & Suichatar Substation	General		Please specify creepage distance of existing Suichatar S/s Please specify conductor for Main Bus, Transfer bus, jack bus & equipment interconnection of existing 132kV.	Only single bus is available with ACSR conductor. Appropriate size conductor, larger than ACSR Bear , shall be provided as required during DDE.
532	Upgradation of Teku & Suichatar Substation	General		Request you to furnish Type of Conductor for Outgoing Lines at each voltage level on SLD.	For 132kV line at suichatar ACSR Bear For 66kV line at suichatar ACSR Wolf For 132kV line at Teku ACSR Bear, currently charged on 66kV For 132kV line at Changunarayan / Lapsephedie ACSR Bear For 220 / 400kV line at Lapsephedie ACSR Moose Double

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Sr No	Volume / Section	Clause No.	Text as per Bid document	Prebid Query	Reply from NEA
533	Chapter 2, General Technical Requirement	Clause 9.2 Type Test Requirement	However, in case of instrument transformers, the following type tests should have been conducted within 5 (five) years prior to the originally Scheduled date of bid opening. i) Lightning Impulse Test ii) Switching Impulse Test iii) Multiple Chopped Impulse Test (For CT) iv) Chopped Impulse Test (For CVT) In case the test reports are of these tests (for instrument transformers) as mentioned above are conducted earlier than 5 (five) years prior to the originally Scheduled date of bid opening, the contractor shall repeat these test(s) at no extra cost to the purchaser.	Please confirm that this requirement is only for AIS equipements. Further we request to accepet type test reports conducted within 10 years prior to the orginally scheduled bid opening.	As per TS

Sr No	Volume / Section	Clause No.	Text as per Bid document	Prebid Query	Response from NEA
534	Section 3 Evaluation and Qualification Criteria	2.4.1 Contracts of Similar Size and Nature	Participation in at least two contracts that have been successfully or substantially completed within the last 10 (Ten) Years and that are similar to the proposed contract, where the value of the Bidder's participation exceeds US$ 26 Million. The similarity of the Bidder's participation shall be based on the physical size, nature of works, complexity, methods, technology or other characteristics as described in Section 6 (Employer's Requirements). **The similarity here shall mean that the Bidder must have executed two contracts of design, supply, installation and commissioning of 220 kV or above voltage class Gas Insulated Substation (GIS) with minimum 4 Nos of GIS bays in each contract.**	We request to modify the said clause as below. "The similarity here shall mean that the Bidder must have executed two contracts of design, supply, installation and commissioning of 220 kV or above voltage class Gas Insulated Substation (GIS) / **Air Insulated Substation (AIS)** with minimum 4 Nos of GIS/**AIS** bays in each contract.	as per EQC Clause 2.4.1
535	Section 3 Evaluation and Qualification Criteria	2.5.1 Power Transformer (220 kV or higher voltage class)	iv) Must have successfully carried out the complete type test including Dynamic Short Circuit (DSC) test as per IEC over last 10 years period as on the originally scheduled date of bid opening in Short-Circuit Testing Liaison (STL) - Accredited Laboratory on : - 400 kV voltage class, three phase 160 MVA (or single phase 3 X 53.3 MVA) Transformer	Since the maximum requirment of transformer to be supplied for the proejct is of 220kV, we request to change the requirement as below for type test. Kindly confirm. iv) Must have successfully carried out the complete type test including Dynamic Short Circuit (DSC) test as per IEC over last 10 years period as on the originally scheduled date of bid opening in Short-Circuit Testing Liaison (STL) - Accredited Laboratory **or verified by STL Labs or witnessed by STL Lab representative on :** **- 220kV voltage or higher class, three phase 160 MVA (or single phase 3 X 53.3 MVA) or higher capacity Transformer**	We will confirm during amendment else it will hold.

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Sr No	Volume / Section	Clause No.	Text as per Bid document	Prebid Query	Reply from NEA
536	Section 3 Evaluation and Qualification Criteria	2.5.2 Power Transformer (132kV or higher voltage class)	Must have successfully carried out the complete type test including Dynamic Short Circuit (DSC) test as per IEC over last 10 years period as on the originally scheduled date of bid opening in Short-Circuit Testing Liaison (STL) - Accredited Laboratory on : - 132 kV voltage class, three phase 45 MVA transformer	We request to change the requirement as below for type test. Kindly confirm. Must have successfully carried out the complete type test including Dynamic Short Circuit (DSC) test as per IEC over last 10 years period as on the originally scheduled date of bid opening in Short-Circuit Testing Liaison (STL) - Accredited Laboratory **or verified by STL Labs or witnessed by STL Lab representative on** : **- 132 kV voltage class or higher class, three phase 45 MVA or higher capacity transformer**	We will confirm during amendment else it will hold.
537	Section 3 Evaluation and Qualification Criteria	2.5.2 GIS (220 kV or higher voltage class)	iv) Must have successfully carried out the complete type test as per IEC over last 10 years period as on the originally scheduled date of bid opening in Short-Circuit Testing Liaison (STL) – Accredited Laboratory on 400 kV voltage class GIS Switchgears (Circuit Breaker, Disconnector, Grounding Switches, Instrument Transformers, SF6/Air & Oil Bushing etc.;).	Since the maximum requirment of GIS to be supplied for the proejct is of 220kV, we request to change the requirement as below for type test. Kindly confirm. iv) Must have successfully carried out the complete type test as per IEC over last 10 years period as on the originally scheduled date of bid opening in Short-Circuit Testing Liaison (STL) – Accredited Laboratory **or verified by STL Labs or witnessed by STL Lab representative on 220kV voltage class or higher rating GIS Switchgears** (Circuit Breaker, Disconnector, Grounding Switches, Instrument Transformers, SF6/Air & Oil Bushing etc.;).	We will confirm during amendment else it will hold.
538	Appendix 1 - Terms and Procedures of Payment		Payments in case of Joint venture bids	We understand that in case of bid submitted in Joint Venture/consortium, each partner can invoice for its portion of work as specifed in divison of work and receive the payments direcly paid by NEA / Employer. Kindly confirm.	Payment will be made only to JV/ Consortium in case of JV / Consortium Contractor.
539	SCC	Clause 13, Securities	Bank Guarntee Forms Advance BG, Perfromance BG's	In case of joint venture/consortium bids, each partner can submit bank guarntees equivalent to their respective scope of works as per the price schedule. Kindly confirm	In case of joint venture/consortium bids, all bid bonds, performance security, advance guarantee and other docments shall be in the name of JV / Consortium firms
540	ITB & BDS	Joint Venture & Power of Attorney Formats		We understand that bidder can use their own formats for the following, a) Joint Venture b) Power of Attorney for Joint Venture c) Power of Attorney	Confirm but shall be as instructed in the Volume I, Section 1 ITB

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Sr No	Volume / Section	Clause No.	Text as per Bid document	Prebid Query	Reply from NEA
541	GCC & SCC	GCC Clause 35.3	"In addition to notice of any Unforeseeable physical conditions, the Contractor shall provide the Engineer with a written notice of any unanticipated environmental or resettlement risks or impacts that arise during construction, implementation or operation of the Plant or Permanent Works, which were not considered in the initial environmental examination, the environmental management plan or the resettlement plan attached hereto as Appendix xxx through Appendix yyy"	Request to provide the mentioned appendix in the clause	Will be provided later if required
542	GCC & SCC	GCC Clause 24.9 & 21.1	–"The Contractor shall adequately record the conditions of roads, agricultural land and other infrastructure prior to the start of transporting materials, goods and equipment, and construction." - Upon the completion of construction, the Contractor shall fully reinstate pathways, other local infrastructure, and agricultural land to at least their pre-project condition as recorded by the Contractor in consonance with its obligation in Clause 21.1.	We understand that the land required for the construction of substations shall be encumbrance free and we do not envisage any reinstantement of pathways/ local infrastructure or agricultural land in the land allocated for development of substations. Kindly confirm	Confirm. For work of approach road at Lapsiphedi, there may be some issues during extension of road. Will be sorted out in consultation with the local administration ward office.
543		Type test requirement for equipments other than specified under qualification requirment		We understand that the type test required for all other equipmenst, other that mentioned in pre qulification criteria (Cl No 2.5.1, 2.5.2 & 2.5.3 Subcontractors, Section 3 - Evaluation and Qualification Criteria), is not required to be from STL Labs and can be from accredeited labs as as per the General Technical Requirement of Technical docuemnts of relevant equipmenst technical specifications.	As per TS

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Sr No	Volume / Section	Clause No.	Text as per Bid document	Prebid Query	Reply from NEA
544	GCC & Contract Agreement	Clause 1.1 Definitions & Article 3 of Contract Agreement (CA)	Effective Date: The Effective Date upon which the period until the Time for Completion of the Facilities shall be counted from is the date when all of the following conditions have been fulfilled: (a) This Contract Agreement has been duly executed for and on behalf of the Employer and the Contractor. (b) The Contractor has submitted to the Employer the performance security. (c) The Employer has paid the Contractor the advance payment provided the Contractor has submitted the advance payment guarantee. Each party shall use its best efforts to fulfill the above conditions for which it is responsible as soon as practicable.	Request to modify the clause as below The Effective Date from which the Time for Completion of the Facilities shall be counted is the date when all of the following conditions have been fulfilled: (a) This Contract Agreement has been duly executed for and on behalf of the Employer and the Contractor; (b) The Contractor has submitted to the Employer the performance security and the advance payment guarantee; (c) The Employer has paid the Contractor the advance payment. (d) The Letter of Credit has been issued in favor of Contractor. (e) The Site is fully handed over to Contractor and all the approvals, permits and licenses required to execute the Project are in place. If the conditions listed above are not fulfilled within two (2) months from the date of Notification of Award because of reasons not attributable to the Contractor, the Parties shall discuss and agree on an equitable adjustment to the Contract Price and the Time for Completion and/or other relevant conditions of the Contract.	Change in the GCC. SCC. Contract forms and other document not possible. Please follow the bid document.
545	GCC	Clause No 10.2 Employer's Responsibilities & Appendix 6 of Contract Agreement		In addition to the clause, we request Employer to confirm the below. Employer to provide in Facilities 1.Full handover of Site with clear External and internal access to Site, 2.Access points of Construction Power and Construction Water within reasonable distance from work area within the Site. 3.Rights of access as required for Completion of Project Scope	Please refer PSR and other bid document.
546	Contract Agreement	Appendix 6	Scope of Works and Supply by the Employer	We request to add the below points also to the said clause -Employer shall provide construction power & water inside the facilities at single point on chargeable basis to Contractor.	Refer above
547	Contract Agreement	Appendix 1 Schedule No. 1 & 2 Schedule 4		Request to add the following clauses in the contarct agreement In case of delay in testing and commissioning & issuance of Operational Acceptance certificate by Employer beyond six (6) months from the date of receipt of equipment at site, the last 5% of of CIP/ pro rata EXW amount of respective supplied items shall be paid based on Post Landing Inspection (PLI) Report . If the Commissioning does not take place for more than 2 months from the date of Recommissioning then obligation of Contractor is over in this regard without ant further extension and respective bank guarantees shall be released along with commencement of Defect liability period & release of 5% retention amount.	Refer above

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Sr No	Volume / Section	Clause No.	Text as per Bid document	Prebid Query	Reply from NEA
548	SCC	14.5 (2 g) Taxes and Duties	Income tax assessed in accordance with the prevailing Income Tax Act of Nepal and as per the provision of any specific Double Taxation Agreement, shall be imposed on the Contractor, its sub-contractors and nominated sub- contractors. An advance income tax as per the prevailing income Tax Act and Finance Act shall be deducted from the monthly progress payment of the Contractor.	The Employer is requested to provide the rate of income tax deducted for the to be appliable for foreign supply materials, and other inland services	TDS as an advance income tax is applicable as per the taxation rules and regulation of Government of Nepal. Please Refer the following website of Inland Revenue Department of Nepal for the prevailing rates which may be revised time to time: https://ird.gov.np/Content/ContentAttachment/10/IncomeTaxAct2058125201912515 1PM.pdf
549	GCC	Cl 21.4	Transportation The Contractor shall, at its own expense……In the event of delays in customs clearance that are not the fault of the Contractor, the Contractor shall be entitled to an extension in the Time for Completion, pursuant to GC Clause 40	We requeat to amed the said clause as below. The Contractor shall, at its own expense……In the event of delays in customs clearance that are not the fault of the Contractor, the Contractor shall be entitled to an extension in the Time for Completion **and additional cost**, pursuant to GC Clause 40	Refer above. As per bid document
550	GCC	Cl 22.5.2	Opportunities for Other Contractors	Request to add the following clause Any such instruction or written request by Employer shall constitute a Variation if and to the extent that it causes the Contractor to incur Cost in an amount which was not reasonably foreseeable by an experienced contractor by the date for submission of the Tender. Services for these personnel and other contractors may include the use of Contractor's Equipment, Temporary Works or access arrangements which are the responsibility of the Contractor. The Contractor shall be responsible for his construction activities on the Site. and shall co-ordinate his own activities with those of other contractors to the extent (if any) specified in the Employer's Requirements. If. under the Contract, the Employer is required to give to the Contractor possession of any foundation, structure, plant or means of access in accordance with Contractor's Documents, the Contractor shall submit such documents to the Employer in the time and manner stated in the Employer's Requirements.	Refer above. As per bid document
551	SCC	24.9	24. Completion of the Facilities Upon the completion of construction, the Contractor shall fully reinstate pathways, other local infrastructure, and agricultural land to at least their pre-project condition as recorded by the Contractor in consonance with its obligation in Clause 21.1.	We requeat to amend the said clause as below. 24.9 Upon the completion of construction, the Contractor shall fully reinstate pathways, other local infrastructure, ~~and agricultural land to at least their pre-project condition~~ as recorded by the Contractor in consonance with its obligation in Clause 21.1.	Refer above. As per bid document

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Sr No	Volume / Section	Clause No.	Text as per Bid document	Prebid Query	Reply from NEA
552	GCC	Cl 25.5.3	Delayed Pre-Commissioning and/or Guarantee Test In the event that the Contractor is unable to proceed with the Pre-commissioning of the Facilities pursuant to Subclause 24.3, or with the Guarantee Test pursuant to Subclause 25.2, for reasons attributable to the Employer either on account of non availability of other facilities under the responsibilities of other contractor(s), or for reasons beyond the Employer's control, the provisions leading to "deemed" completion of activities such as Completion, pursuant to GCC Subclause 24.6, and Operational Acceptance, pursuant to GCC Subclause 25.3.4, and Contractor's obligations regarding Defect Liability Period, pursuant to GCC Subclause 27.2, Functional Guarantee, pursuant to GCC Clause 28, and Care of Facilities, pursuant to GCC Clause 32, and GCC Clause 41.1, Suspension, shall not apply. In this case, the following provisions shall apply.	We understand that "In the event the Contractor is unable to proceed Recommissioning/Commissioning the reasons not attributable to the Contractor and Recommissioning/Commissioning and is delayed more than 7 days in the situation Recommissioning/Commissioning and shall be deemed completed for all contractual purposes. ". Kindly confirm	Refer above. As per bid document
553	SCC	Cl 26.2	Completion Time Guarantee The applicable rate for liquidated damages is 0.05 % of Contract Price per day of delay The maximum deduction for liquidated damages is 10% of the contract price.	The applicable rate for liquidated damages is 0.05% of the **delayed portion** of contract price per day of delay. The maximum deduction for liquidated damages is 10% of the contract price. **application of LD as sole and exclusive remedy due to Contractor delays or due to non performance.** The principle of "No harm no foul" shall apply	Refer above. As per bid document
554	GCC	Cl 27.8	27. Defect Liability If the Facilities or any part thereof cannot be used by reason of such defect and/or making good of such defect, the Defect Liability Period of the Facilities or such part, as the case may be, shall be extended by a period equal to the period during which the Facilities or such part cannot be used by the Employer because of any of the aforesaid reasons.	If the Facilities or any part thereof cannot be used by reason of such defect and/or making good of such defect, the Defect Liability Period of the Facilities or such part, as the case may be, shall be extended by a period equal to the period during which the Facilities or such part cannot be used by the Employer because of any of the aforesaid reasons. **However, in no event shall the Defect Liability Period extend beyond twenty-four (24) months after the date of respective Supply of the Plant or the relevant part thereof.**	Refer above. As per bid document
555	GCC	Cl 40.1	Extension of Time for Completion The Time(s) for Completion specified in the PC shall be extended if the Contractor is delayed or impeded in the performance of any of its obligations under the Contract by reason of any of the following:.....	The Time(s) for Completion specified in the PC shall be extended and **additional impact on Contract Price will be amended** if the Contractor is delayed or impeded in the performance of any of its obligations under the Contract by reason of any of the following:	Refer above. As per bid document

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Sr No	Volume / Section	Clause No.	Text as per Bid document	Prebid Query	Reply from NEA
556	New Provision under bid to be incorporated			Request to add the following clause in the contract "If at any time prior to the award of the tender, the performance in whole or in part by contractor of any obligation under this tender is prevented or delayed by reason of the COVID-19 pandemic, then contractor may be entitled to withdraw from the tender with no further obligations and in such circumstance, the [Employer] shall have no claim for damages whatsoever, including but not limited to encashment of the [bid bond]. The Employer is requested to provide, the right to the contractor to withdraw the bid if any obligation under this tender is prevented or delayed by reason of the COVID-19 pandemic.	Refer above. As per bid document

Procurement of Plant for Design, Supply, Installation and Commissioning of Gas insulated 220kV Lapsiphedi Substation, 132kV Changunarayan Substation and upgradation of Teku Substation and Suichatar Substation.

ICB: PMD/PTDEEP/LCSCP-073/74RE-01

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S.N.	Volume/Section	Clause No.	Bidder's Query	Reply from NEA
1st Clarification				
557	Vol. I, Section 3 EQC, Clause 2 Qualification	2.5 Subcontractors NOTE: To substantiate the above qualification, the Bidder must submit certificate (notarized) from client (end-user certificates) for all number of projects. The bidder is required to submit the notarized translation of the copy, if the document submitted is in language other than bidding language.	Considering that the manufacturers' certificates from client are bulky. It is advised that such certificates of the proposed manufacturers shall not be notarized at the bidding stage. The Bidder undertakes to submit the notarized certificates once it happens to win the project.	We will confirm during amendment else it will hold.
558	Vol II	Vol II	There is a lack of hydrologic and geological prospecting data related to the site，The amount of foundation treatment and anticorrosion works cannot be estimated, please provide it.	Please refer Technical Specifications and visit the sites for details
559	Vol II, Chapter 3 –Instrument Transformer	TABLE - IIA REQUIREMENTS FOR 245 KV CURRENT TRANSFORMERS …… All relaying CTs shall be of accuracy class TPS as per IEC 60044-1. …… TABLE - IIB REQUIREMENTS FOR 245 KV CURRENT TRANSFORMERS …… All relaying CTs shall be of accuracy class TPS as per IEC 60044-1.	At present, IEC 60044-1 standard and IEC 60185 standard have been cancelled and replaced by IEC 61869-2 standard. In the IEC 61869-2, there is no CT of accuracy class TPS. Please clarify which standard should be used and whether the CT still use the accuracy class TPS?	Accuracy Class "TPS" shall be considered to be equivalent to accuracy class "PS"
560	Vol II, Chapter 20 – Technical Specification for Transformers	7.1 Current transformers shall comply with IEC-60185 …… 7.5 Technical Parameters for Bushing CT …… For TPS class CT's, Dimensioning parameter "K", Secondary VA shall be considered 1.5 and 20 respectively. Class (for the relevant protection and duties) as per IEC 60185.		Accuracy Class "TPS" shall be considered to be equivalent to accuracy class "PS"

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S.N.	Volume/Section	Clause No.	Bidder's Query	Reply from NEA
561	Vol II, Chapter 1 – Project Specific Requirement (PSR)	13.0 SPECIFIC REQUIREMENT g) The Contractor shall impart the necessary training to NEA's Personnel as per following details:- i) Training at Manufacturer's works. The Contractor shall include in the training charges payment of per Diem allowance to NEA trainees @ as per NEA Financial Regulation per day per trainee for the duration of training abroad towards accommodation, meals and other incidental expenses and to and fro economy class air ticket from Nepal to place of training. The duration of training shall be excluding travelling period.	Please clarify the specific amount of the per Diem allowance.	Please refer "Visit Expenditures by Law" of NEA
562	Vol II, Chapter 1 – Project Specific Requirement (PSR)	ANNEXURE VI 1.5 Factory Acceptance Tests Factory acceptance tests shall be conducted on final assemblies of all equipment to be supplied. Equipment/Material shall not be dispatched to the Employer until required factory tests are completed satisfactorily, all variances are resolved, full test documentation has been delivered to the Employer, and the Employer has issued Material Inspection & Clearance Certificate (MICC). Successful completion of the factory tests and the Employer approval to dispatch shall in no way constitute final acceptance of the system or any portion thereof. These tests shall be carried out in the presence of the Employer's/Owner's authorised representatives	1.Please clarify who will be responsible for the cost of the Employer's/Owner's authorised representatives to the factory to witness the FAT? 2.If the cost should be borne by the contractor, please specify which Equipment/Material's FAT the owner needs to witness, and how many people will come each time?	Please Refer Volume II, Chapter 1 - PSR
563	Vol II, Chapter 1 – Project Specific Requirement (PSR)	3. SCOPE OF WORK A. 220/132/11kV Lapsephedi (New) GIS Substation with the following bays as per Single Line Diagram & as indicated in BPS:	Numbers of 220kV line bays are different from single line diagram and swtichyard layout. Please make sure that the spare line bay shall be constructed during this period, and two line bays shall be reserved for future.	Please refer BPS
564			Numbers of incoming bays for 132/11kV transformer are different from single line diagram and swtichyard layout. Please make sure that one incoming bay shall be constructed at this period, and one incoming bay shall be reserved for future.	Please refer BPS

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S.N.	Volume/Section	Clause No.	Bidder's Query	Reply from NEA
565		indicated in BPS.	Numbers of 11kV Indoor Switchyard Panels are different from single line diagram and PRICE SCHEDULE. Please make sure that 6 outgoing bays,1 incoming bay and 2 LT Transformer bays shall be constructed at this period, and 1 incoming bay shall be reserved for future.	Please refer BPS
566	Vol II, Chapter 1 – Project Specific Requirement (PSR)	3.SCOPE OF WORK 132/11 kV Changunarayan (new) GIS Substation	Numbers of 132kV line bays are different from single line diagram and PRICE SCHEDULE. Please make sure that the spare line bay shall be constructed during this period, and one line bay shall be reserved for future.	Please refer BPS
567			Numbers of incoming bays for 132/11kV transformer are different from single line diagram and PRICE SCHEDULE. Please make sure that one incoming bay shall be constructed at this period, and one incoming bay shall be reserved for future.	Please refer BPS
568	Vol II, Chapter 1 – Project Specific Requirement (PSR)	3.SCOPE OF WORK 132/11 kV Teku Substation upgrade	Please provide the electrical general layout.	Included in the tender drawings (additional drawings)
569			Please clarify the form of structure supports and gantry in 132/66/11 kV Teku GIS Substation and Siuchatar Substation expansion, and the foundations of structure supports and gantry are preliminary already built?	Please visit the sites for details
570	Vol II, Chapter 1 – Project Specific Requirement (PSR)	3.SCOPE OF WORK Suichatar Substation Extenson (132V AIS Outdoor)	Please provide the drawings for single line and switchyard layout.Please make sure that whether the extension of 132kV bus shall be needed in this period.	Switchyard Layout is already included in the tender drawings (additional drawings); 132 kV busbar extension is in the present scope of works. Please visit the site for details
571	Vol II, Chapter 1 – Project Specific Requirement (PSR)	4.1.28 Civil works - The scope of work shall include but shall not be limited to the following based on design and drawings to be developed by the contractor. …… (y) Soil investigation (except Plate load test) has already been carried out. NEA will provide Geotechnical Investigation Report of the substation area for reference.	The Soil investigation report is not found in the bidding documents, please provide it.	Values for Lapsiphedi and Changunarayan Substations are included in the attachment
572	Vol. II, Chapter 12 – General Technical Requirement, Switchyard Erecton	7.0 BUS POST INSULATORS 7.3 Technical Parameters of Bus Post Insulators.	Please provide the minimum breaking strength and minimum creepage distance of 66 kV Bus post insulators.	

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S.N.	Volume/Section	Clause No.	Bidder's Query	Reply from NEA
573	Vol II, Chapter 14–General Technical Requirement, Civil Works	2.3 SCOPE OF WORK ……The soil investigation for substation extension in existing switch yard has not been envisaged. Soil data of existing substation shall be referred for the design of foundations in switch yard extension under present scope of work.	There is no geological investigation data for reference in the bidding documents, please provide it.	Values for Lapsiphedi and Changunarayan Substations are included in the attachment
574	Vol II, Chapter 14–General Technical Requirement, Civil Works	2.3.2 Trial Pits The Contractor shall excavate two number trial pits per substation (New) as and where directed by NEA/Consultant, of area 2m*2m and not exceeding 4 m depth. Undisturbed samples shall be taken from the trial pits as per the direction of the NEA/Consultant. All Trial Pits shall be re-filled with approved material after the tests are complete and shall be compacted in layers of not more than 500mm.	Please clarify whether we can use drilling machines to take undisturbed soil samples instead of Trial Pits.	Please refer Technical Specifications
575	Vol II, Chapter 14–General Technical Requirement, Civil Works	2.3.4 Plate load test ……Two number of Plate load tests shall be conducted each at the location of control room/ GIS building and township area……	Please clarify whether we can use SPT instead of Plate load test.	Please refer Technical Specifications
576	Vol II, Chapter 14–General Technical Requirement, Civil Works	2.3.7 Laboratory Test …… g) Consolidated drained test with pore pressure measurement.	Please clarify whether we can use direct shear test instead of Consolidated drained test.	Please refer Technical Specifications
577	Vol II, Chapter 14–General Technical Requirement, Civil Works	3.1 CONTOUR SURVEY & SITE LEVELLING: ……The contractor shall carry out survey work by taking spot level at 05 m x 05 m grid interval with respect to temporary bench mark transferred from permanent bench mark in the locality if available either on bridge , government buildings of local authorities or any other permanent structure.	Can I understand that the permanent reference point is provided for the owner?	Please refer Technical Specifications
578	Vol II, Chapter 14–General Technical Requirement, Civil Works	19.0 WATER SUPPLY (i) Water shall be made available by NEA/consultant at any feasible point within substation boundary at single point to the contractor. Contractor shall state the total water requirement both in terms of quantity and head to NEA/Consultant. …… (vi) Bore wells and pumps for water supply is not in the scope of contractor.	Is the water supplied by the owner?Is the contractor responsible for drilling Wells for water? please clarify.	Water will not by supplied by the owner, Contractor shall make necessary arrangement for the water for construction. Please refer PSR

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S.N.	Volume/Section	Clause No.	Bidder's Query	Reply from NEA
579	Vol II, Chapter 17 – General Technical Requirement, Substation Automation System	BASIC REQUIREMENT OF MASTER CONTROL CENTER AT BANESHWOR SUBSTSTION 1. The scope of work includes construction of Master Control Center at Baneshwor substation complete with server room, control room with monitoring screen, airconditioning	Is the MCC at Baneshwor substation under the scope of this project? There is no description in the technical document or BOQ.	Master Control Center (MCC) at Baneshwor is not in this scope, however, integration with MCC is in the scope of Contractor as mentioned in the Technical Specifications and BPS
580	Vol II, Chapter 20 – Technical specification for transformer	For 22.5MVA/132kV, 45MVA/132kv, 63MVA/132kv Transformer,	Please confirm the cooling type: ONAN or ONAN/ONAF	ONAN/ONAF
581	Vol II, Chapter 20 – Technical specification for transformer	For 22.5MVA/132kV, 45MVA/132kv, 63MVA/133kv Transformer,	Please confirm the Impulse withstand voltage of HV: 550kV or 650kV.	Please refer Technical Specifications
582	Vol II, Chapter 23 –Technical Datasheet	ITEM No. 3: 53.33MVA POWER TRANSFORMER	The third winding is required in this datasheet. Please clarify whether the third winding is a stable winding or not.	Confirm
583	Vol II, Chapter 23 –Technical Datasheet	ITEM No.2: 45MVA POWER TRANSFORMER	The cooling requirement in this datasheet is "ONAN", but the cooling requirement in the "2.0 Technical Particulars / Parameters of Transformers" of chapter 20-Technical Specification for Transformers is "ONAN / ONAF". Please clarify whether the cooling requirement of this 45MVA power transformer is "ONAN" or "ONAN / ONAF".	ONAN / ONAF
584	Vol II, Chapter 23 –Technical Datasheet	ITEM No.1: 22.5MVA POWER TRANSFORMER	The transformer Ratings requirement in this datasheet is 5MVA, which seems to be an incorrect value, please clarify.	Corrected Datasheet is attached with this clarification
585	Vol. II, Chapter 23 -Technical Datasheet	ITEM No.1: 22.5MVA POWER TRANSFORMER	The required value of Hottest Spot Temperature seems to be wrong, please clarify.	
586	Vol. II, Chapter 23 -Technical Datasheet	ITEM No.2: 45MVA POWER TRANSFORMER	The required value of Hottest Spot Temperature seems to be wrong, please clarify.	
587	Vol. II, Chapter 23 -Technical Datasheet	ITEM No.2a: POWER TRANSFORMER	1.Please provide the third winding capacity and Impedance. 2.The required value of Hottest Spot Temperature seems to be wrong, please clarify.	
588	Vol. II, Chapter 23 -Technical Datasheet	ITEM No. 3: 53.33MVA POWER TRANSFORMER	1.Please provide the third winding capacity and Impedance. 2.Please confirm the Transformer is Single phase or Three Phase.	

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S.N.	Volume/Section	Clause No.	Bidder's Query	Reply from NEA
589	Vol. II, Chapter 23 -Technical Datasheet	ITEM No.4: 630kVA Station transformer	The title of this technical datasheet is "ITEM No.4: 630kVA Station transformer", but the rated power requirement in the datasheet is 315kVA, Please clarify whether the rated power requirement of the station transformer is 315kVA or 630kVA.	Corrected Datasheet is attached with this clarification
590	Vol. II, Chapter 23 -Technical Datasheet	ITEM No.5A: 66kV GIS (Circuit breaker)	The title of this technical datasheet is "ITEM No.5A: 66kV GIS (Circuit breaker)", but the rated voltage requirement in the datasheet is 132kV, Please clarify whether the rated voltage requirement is 66kV or 132kV.	66 kV GIS Datasheet is also attached with this clarification
591	Vol. II, Chapter 23 -Technical Datasheet	ITEM No.5b: 66kV Disconnecting switch & Earth switch	The title of this technical datasheet is "ITEM 5b: 66kV Disconnecting switch & Earth switch", but the first line in the datasheet has a requirement of 132kV, and the rated voltage requirement in the datasheet is 6kV, Please clarify.	Corrected Datasheet is attached with this clarification
592	Vol. II, Chapter 23 -Technical Datasheet	ITEM No.5d: 66kV Voltage transformer	The title of this technical datasheet is "ITEM No.5d: 66kV Voltage transformer", but the rated primary voltage requirements are 132 √ 3kV for norminal and 145 √ 3kV for maximum in the datasheet, Please clarify.	Corrected Datasheet is attached with this clarification
593	Vol. II, Chapter 23 -Technical Datasheet	Item No.7e: 220kV Lighting arrestor	The title of this technical datasheet is "Item No.7e: 220kV Lighting arrestor", but the first line in the datasheet has a requirement of 132kV, Please clarify.	Corrected Datasheet is attached with this clarification
594	Vol. II, Chapter 23 -Technical Datasheet	Item No.8: 220kV Lighting arrestor	The title of this technical datasheet is "Item No.8: 220kV Lighting arrestor", but the first line in the datasheet has a requirement of 132kV, Please clarify.	Corrected Datasheet is attached with this clarification
595	Vol. II, TECHNICAL SPECIFICATIONS FOR Fibre Optic Based Communication Equipments	Appendix - A, Bill of Quantities	Please confirm the supply of SDH & PDH equipments as per Appendix - A Bill of Quantities pdf. Please provide network connectivity of the substations mentioned in BOQ along with optical link distances.	Please refer Technical specifications
596	Vol. III	BOQ TELECOM excel file	Please confirm the supply of SDH & DTPC equipments as per BOQ TELECOM excel file. Please provide network connectivity of the substations mentioned in BOQ along with optical link distances.	
597	Drawings	DRG. NO. C/NEC/LAPSE/LAYOUT/02 DRG.NO. C/NEC/CHANGU/LAYOUT/02	Please provide the specific positioning coordinates of the substation.	Please Refer Volume II, Chapter 1 - PSR
598	Drawings	DRG.NO. C/ENGG/NEA/LAPSEPHEDI/SLD/01	The wave trap is drawn on the 132kV bays, but the wave trap is not found in the price schedule. Please confirm whether it is necessary to install the wave trap on the 132kV bays.	Please refer BPS

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S.N.	Volume/Section	Clause No.	Bidder's Query	Reply from NEA
599	Drawings	DRG.NO. C/ENGG/NEA/CHANGU/SLD/01	The wave trap is drawn on the 132kV bays, but the wave trap is not found in the price schedule. Please confirm whether it is necessary to install the wave trap on the 132kV bays.	Please refer BPS
600	Drawings	Drawings	There is no Layout drawing for 132/66/11kV Teku substation, please provide.	Layout drawing has been included in the tender drawings (additional drawings)
601	Drawings	Drawings	There is no Layout drawing and single line diagram for 132kV suichatar substation, please provide.	Layout drawing has been included in the tender drawings (additional drawings)
SN.	Volume/Section	Clause No.	Bidder's Query	Reply from NEA
602	Vol II, Chapter 20 – Technical specification for transformer	For 22.5MVA/132kV, 63/51.5MVA Transformer, Page 862	Please confirm if we should comply with Tap step & No. of Tap: (1.25%&17) or (2.5%&9）	Tap step & No. of Tap: (1.25%&17)
603	Vol II, Chapter 20 – Technical specification for transformer	For 63/51.5MVA Transformer,Page 863,	As per required One minute power frequency withstand voltage's HV Neutral is 38 kV, so the 40kv On-load switch would be enough，Please confirm the On-load switch's withstand voltage: 132kV or 40kV.	Please refer Technical Specifications
Sr.No.	**Subject**	**Clause Description**	**Deviations**	**NEA Reply**
604	INTENT OF SPECIFICATION	2.1 The specification includes design, engineering, manufacture, fabrication,testing at manufacturers works, delivery, unloading at site, storage, erection, testing and commissioning at site	Our scope shall be limited to design, engineering, manufacture, fabrication,testing at manufacturers works, delivery, supervision of installation, testing & commissioning at site.	As per Bid document
605	SCOPE OF Work	3. A. 220/132/11kV Lapsephedi (New) GIS Substation with the following bays as per Single Line Diagram & as indicated in BPS: □ 2 nos. 220kV bays for termination of Barhabise-Lapsephedi D/C Transmission line.	The no. of Line feeders as per the PSR, BOQ is 2 nos., however in SLD, 3 nos. of Line bays are indicated (2no. Barabhisi + 1no. spare). Please clarify the requirement of line bays	Please quote as per BPS
606	SCOPE OF Work	3. A. 220/132/11kV Lapsephedi (New) GIS Substation with the following bays as per Single Line Diagram & as indicated in BPS: □ 2 nos. 132kV bays for termination of 132kV Transmission line	The no. of Line feeders as per the PSR, BOQ is 2 nos., however in SLD, 3 nos. Of Line bays are indicated (2no. Line + 1no. spare). Please clarify the requirement of line bays	Please quote as per BPS

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S.N.	Volume/Section	Clause No.	Bidder's Query	Reply from NEA
607	SCOPE OF Work	3. B. 132/11 kV Changunarayan (new) with the following bays (132 kV GIS and 11 kV Inddor) as per Single Line Diagram & as indicated in BPS:. □ 1 nos. 132 KV bays for 1 x 31.5/45 MVA, 132/11 kV, 3 Phase Transformers □ 6 nos. 132kV bays for termination of 132kV Transmission line □ 01 no. 132kV Bus Coupler bay.	The quantity of bays as per BPS, PSR & SLD is different. Please clarify the requirement.	Please quote as per BPS
608	145 kV GIS System	4.1.2 (C) 145kV, 31.5KA for 1 second, SF6 gas-insulated metal enclosed Line feeder bay module each set comprising of :- (d) Three (3) numbers of 1-phase potential transformers. (g) Three (3) numbers of 1-phase Lightning arrestors, if not mentioned in the BPS.	As per the SLD we understand that no GIS surge arrestors & potential transformers are required. So AIS type surge arrestors & PT shall be employed to take care of the requirement.	The Surge arrester and PT are the part of the 132kV GIS. The quantity mentioned in the BPS for AIS Surge arrestors and PT may be deleted if not required.
609	G) 145kV Gas Insulated SF6 to Air	b) If the bidder intent to use 132kV power cable for connection with line / Transformer feeder module outside of GIS hall, then the bus duct will not be applicable. The bidder must take the approval of the Employer. (If allowed as per BPS)	For line connection, we request customer to consider cable termination.	For Lapsephedi and changunaryan Substation, the connection between GIS and Equipment shall be with the 132kV busducts. At Teku and Suichatar , the 132kV and 66kV is envisaged for connection.
610	4.3 132/66/11kV Teku GIS Substation:	4.3.1 66 kV (72 kV) GIS System Shall be installed in the replacement of existing (old) 66 kV GIS Modules (Make: Pinggao, China). Dismanteling of existing GIS System shall be in the scope of the Contractor.	Dismantling of the existing GIS is not under OEM scope of work.	The dismantling, removal and handing over to NEA is in the scope of the contractor. Please include the cost for such work in the respecifive items in Price schedule 4(a).
611	ANNEXURE VI	1.5 Factory acceptance tests shall be conducted on final assemblies of all equipment to be supplied.	FAT shall be performed on the largest shipping unit & 10% of the total lot	As per Bid document

Chapter 19_GIS				
612	2. REFERENCE STANDARDS	2. IEC 60044-1 Current transformers IEC 60044-2 Voltage transformers	Revised reference standard for Instrument Transformers IEC 61869-2 Current transformers IEC 61869-3 Voltage transformers Please accept.	As per the bid document specification

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S.N.	Volume/Section	Clause No.	Bidder's Query	Reply from NEA
613	1. GENERAL CHARACTERISTICS	1.3 The equipment offered shall be protected against all types of voltage surges and any equipment necessary to satisfy this requirement shall be deemed to be included.	As per the SLD we understand that no GIS surge arrestors are required. So AIS type surge arrestors shall be employed to take care of the requirement.	Refer answer above.
614	GENERAL DESIGN AND SAFETY REQUIREMENT	3.9 These compartments shall be such that maintenance on one feeder may be performed without de-energising the adjacent feeders.	By keeping in view the criticality of the substation, For the 220 kV GIS S/s during maintenace there is no disruption of the power flow in the other feeders of the 220 kV substation. However for 132 kV GIS, during busbar disconnector maintenance only adjacent two feeders shall be out of service. Request customer to kindly confirm the same.	As per the bid document specification
615	GENERAL DESIGN AND SAFETY REQUIREMENT	3.11 Due to safety requirement for working on this pressurized equipment, whenever the pressure of the adjacent gas compartment is reduced during maintenance, this compartment shall be designed so that it shall remain in service to perform its intended duty.	Due to safety requirements,if the gas pressure of a compartment is reduced,the same part can not be kept in service as the gas density in the stated compartment shall not be sufficient to withstand the electrical stress.	As per the bid document specification
616	GENERAL DESIGN AND SAFETY REQUIREMENT	3.11 The bus enclosure should be sectionalized in a manner that maintenance work on any bus disconnector (when bus and bus disconnector are enclosed in a single enclosure) can be carried out by isolating and evacuating the small effected section and not the entire bus.	We undersand that this clause is applicable only if busbar and busbar disconnectors are enclosed in same gas compartment and the bus bar sectionalsiation(gas barriers in the bus bar section) is not required If the bus bar and bus disconnector are not in the same gas comaprtment.Please confirm.	As per the bid document specification
Sr.No.	**Subject**	**Clause Description**	**Deviations**	**Reply from NEA**
617	**GENERAL DESIGN AND SAFETY REQUIREMENT**	3.12 The material and thickness of the enclosures shall be such as to withstand an internal flash over without burn through for a period of 300 ms at rated short time withstand current. The material shall be such that it has no effect of environment as	The burn through shall be as per IEC 62271-203. Table enclosed for reference	As per the bid document specification
618	**GENERAL DESIGN AND SAFETY REQUIREMENT**	3.26 Manufacturer shall submit the study report of VFTO generated for GIS installation.	As per IEC 62271-203, VFTO studies are not applicable for 220 kV and 145 kV voltage levels. Therefore this studies are not required and shall be excluded from OEM scope.	As per the bid document specification

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S.N.	Volume/Section	Clause No.	Bidder's Query	Reply from NEA
619	**GENERAL DESIGN AND SAFETY REQUIREMENT**	3.32 The ladders and walkways shall be provided wherever necessary for access to the equipment.	We envisage provision of Mobile Ladders for access to operating mechanisms and no walkways are necessary for proposed Layout. Please accept.	As per the bid document specification
620	**Grounding:**	3.43 Grounding:	The earthing proposal shall be provided during the detailed engineering stage. However supply of any	As per the bid document specification
621	**UHF sensors for PD detection**	Contractor shall provide adequate number of UHF sensors in the offered GIS for detection of Partial discharge (of 5 pC and above) as per IEC 60270 through Partial Discharge (PD) monitoring system and the number and location of these sensors shall be subject to approval of the employer/consultant. Further UHF sensors shall necessarily be provided in close proximity to VT 3.44 compartments However adequacy of number of sensors and their location shall be verified at site by the contractor as per recommendations of CIGRE task force TF 15/33.03.05 (Task force on Partial discharge detection system for GIS: Sensitivity verification for the UHF method and the acoustic method). In case during site testing additional UHF sensors are required, the same shall also be supplied& installed to complete the technical requirement.	Number of UHF sensors & the location of UHF sensors shall be as per manufacturers' recommendations. Please note that the locations of sensors shall be decided during detailed engineering itself to achieve the desired Sensitively & the same will be reflected on the drawings which will be submitted for approval. No change on the same recommended at site. please accept.	As per the bid document specification Numbers and location shall be discussed during DDE.
622	**CIRCUIT BREAKERS**	4.5.6 The contractor shall supply three set of transducer for each substation covered under the scope.	Supply of these transducers shall be excluded from Siemens Aurangabad scope of supply.	As per the bid document specification
623	**Routine Tests**	4.9.2 Functional tests are to be carried out on circuit breaker along with Control Switching device (CSD). DCRM (Dynamic Contact Resistance Measurement) to be carried out for all CBs during routine test.	CSD is not applicable for subject tender. Also the DCRM test is not performed on the CB as part of FAT test. However we shall submit the routine test reports of DCRM test.	As per the bid document specification

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S.N.	Volume/Section	Clause No.	Bidder's Query	Reply from NEA
624	**DISCONNECTORS (ISOLATORS)**	5.2.12 The disconnectors and safety grounding switches shall have a mechanical and electrical inter-locks to prevent closing of the grounding switches when isolator switches are in the closed position and to prevent closing of the disconnectors when the grounding switch is in the closed position. Integrally mounted lock when provided shall be equipped with a unique key for such three phase group. Master key is not permitted.	When there is a three position switch (a module having both the switches in it- disconnect switch and earth switch) a mechanical interlock shall be provided,but when the mentioned switches are different modules,practically it can not be made possible to introduce the stated mechanical interlock.The product types that we are considering for the project under discussion have been supplied to and installed at numerous substations in India and abroad.	As per the bid document specification
625	**SAFETY GROUNDING SWITCHES .**	6.2 Each safety grounding switch shall be electrically interlocked with its associated disconnectors and circuit breaker such that it can only be closed if both the circuit breaker and disconnectors are in open position. Safety grounding switch shall also be mechanically key interlocked with its associated	The disconnectors and the safety grounding switches are separate modules in GIS design and shall have only electrical inter-locks between them.	As per the bid document specification
Sr.No.	**Subject**	**Clause Description**	**Deviations**	**Deviations**
626	**SAFETY GROUNDING SWITCHES .**	6.13 Continuous current rating of the grounding switches (not less than 100A) shall be specified by the manufacturer, which can be safely injected for Bay/ Bus equipment testing.	The same shall be in line with IEC 62271-102.	As per the bid document specification
627	**Insulation co-ordination and selection of surge arrestor:**	9.2 The contractor shall be fully responsible for complete insulation co-ordination of switchyard including GIS.	The insulation coordination study shall be excluded from Siemens scope of supply. However we shall always extend our support for any details required for stressful completion of the study.	As per the bid document specification
628	**Duty requirements of GIS Surge Arrestor**	9.3 Duty requirements of GIS Surge Arrestor	We understand that no GIS surge arrestors are required, referring to the bay description given in the section project.	As per the bid document specification
629	**Constructional features**	13.2.1 It shall comprise structural frames completely enclosed with specially selected smooth finished, cold rolled sheet steel of thickness not less than 3 mm for weight bearing members of the panels such as base frame, front sheet and door frames, and 2.0mm for sides, door, top and bottom portions.	As per the standard practice, for the weight bearing members a sheet thickness of 2.5 mm is more than sufficient and as a GIS manufacturer we recommended the same and for non weight bearing members the same is 2 mm thick. We request customer to kindly confirm the same.	As per the bid document specification
	GIS BUILDING	14 GIS BUILDING		

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S.N.	Volume/Section	Clause No.	Bidder's Query	Reply from NEA
630	**ELECTRIC OVERHEAD CRANE VENTILATION SYSTEM FOR GIS HALL**	ELECTRIC OVERHEAD CRANE VENTILATION SYSTEM FOR GIS HALL	The same shall be excluded from Siemens scope of supply.	As per the bid document specification
631	**18. DESIGN REVIEW**	18.7 Insulation Coordination studies including studies to recommend for additional surge arrestor Calculation in support of touch & step voltages in all enclosures and earthing of complete GIS installation.	Any such calculations shall be excluded from Siemens scope of supply.	As per the bid document specification
632	**TRANSPORT OF EQUIPMENT TO SITE**	21 All transport packages containing critical units viz Circuit breakers and Voltage transformers shall be provided with sufficient number of electronic impact recorders (on returnable basis) during transportation to measure the magnitude and duration of the impact in all three directions. The acceptance criteria and limits of impact in all three directions which can be withstood by the equipment during transportation and handling shall be submitted by the contractor during detailed engineering. The recording shall commence in the factory and must continue till the units reach site. The data of electronic impact recorders shall be downloaded at site and a soft copy of it shall be handed over to Engineer – in –charge. Further, contractor shall communicate the interpretation of the data within three weeks.	Shock indicators shall be provided only for VTs being a sensitive equipment s. No electronic impact recorders are necessary for Circuit Breaker. Please accept the same.	As per the bid document specification
633	**PACKING, STORAGE AND UNPACKING**	22 PACKING, STORAGE AND UNPACKING	The storage at site shall be excluded from Siemens scope of supply. We shall provide with the storage guidelines for proper storage of material at site.	As per the bid document specification
634	**TESTING & MAINTENACE EQUIPMENT**	26 SF6 Gas leakage detector. Gas filling and evacuating plant : SF6 gas analyzer: Portable Partial Discharge(PD) monitoring system (Shall generally applicable for	26.1 - 26.3 .These tools and tackles shall be excluded from Siemens scope of supply. 26.4 - Only sensors for offline PD monitoring shall be considered. However the kit for portable PD monitoring shall be excluded from Siemens Aurangabad scope of supply.	As per the bid document specification As per the bid document specification

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S.N.	Volume/Section	Clause No.	Bidder's Query	Reply from NEA
		220kV&132 kV)	26.5 - The online PD monitoring for 400 kV GIS shall be excluded from Siemens Aurangabad scope os supply.	
		00_Qualification Requirement		
Sr.No.	**Subject**	**Clause Description**	**Deviations**	**Deviations**
635	**GIS (220 kV or higher voltage class)**	) Must have successfully carried out the complete type test as per IEC over last 10 years period as on the originally scheduled date of bid opening in Short-Circuit Testing Liaison (STL) – Accredited Laboratory on 400 kV voltage class GIS Switchgears (Circuit Breaker, Disconnector, Grounding Switches, Instrument Transformers, SF6/Air & Oil Bushing etc.;). However if the manufacturer has not conducted complete type tests in Short-Circuit Testing Liaison (STL)– Accredited Laboratory over last Ten (10) years as on the originally scheduled date of bid opening, bidder has to submit undertaking letter along with bid to carry out the complete type test in Short-Circuit Testing Liaison (STL) – Accredited Laboratory from offered Manufacturer without any extra cost to Employer.	The STL is concerned with high voltage transmissions and distribution power equipment (i.e above 1KV A.C and 1.2 KV DC).Their main interest is to guide the member laboratories as to how the applicable IEC standards in relation to short circuit tests and dielectric tests are to be interpreted. Therefore it is required to carry out the above mentioned tests at a laboratory that is a member of the said fraternity. Now, carrying out other tests such as pressure tests on enclosures, endurance tests on different drives etc. at an STL member Lab shall not give any additional weightage to the tests or the decisions that the lab will make as these tests are falling beyond their main objectives. We request your good office to consider the explanation above and render your decision, please.	Will be informed through Amendment else it will hold. Will be informed through Amendment else it will hold.

Procurement of Plant for Design, Supply, Installation and Commissioning of Gas insulated 220kV Lapsiphedi Substation, 132kV Changunarayan Substation and upgradation of Teku Substation and Suichatar Substation.

ICB: PMD/PTDEEP/LCSCP-073/74RE-01

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S.No	Tender	Clause No.	Description	Query	Reply from NEA
	Civil				
636	Chapter 1- Project Specific requirements	Clause No. 4.1.28-a) & 4.2.26-a)	Drawings of Master/General Layout Plan, Earthworks (cutting and filling)Gabion/Retaining Wall and partial drawing of Control room building , GIS hall & security room building has been prepared. Employer will provide such drawings for reference purpose only.	Bidder request to provide other drawings viz. Contour plan, retaining wall layout, plan and section drawings, GIS hall drawings,Security room, Township quarters.	Will be provided later
637	Chapter 1- Project Specific requirements	Clause No. 4.1.28-c)	Construction of Township buildings (D type- 1 Nos, C-type- 1 Nos and B –type- 1 Nos) , Underground water tank, pump room shed. The design of the township building shall be of Nepalese architecture.	Bidder request to provide township drawings (plan and sections) along with details of architecture as required.	Attached
638	Chapter 1- Project Specific requirements	Clause No. 4.1.28-l) & 4.2.26-k)	Approach Road (Outside NEA boundary): The road shall be bituminous black top rod designed as per relevant BS with drainage. Width of the bituminous section of approach road shall be 4-6 m. Approximately 3 Km road is to be black topped with necessary works. Preliminary survey of the approach road has been carried out. **Employer will provide the survey report of the approach road for reference only.**	Bidder request to confirm an provide followings; a) We understand that approach road outside NEA boundry wall, approx. 3 kms is under present scope of works and same shall be paid under Price schedule item no. 28 - Lapsiphedi Civil works and Approx. 1.5 kms is under present scope of works and same shall be paid under Price schedule item no. 28 - Changunarayan Civil works b) Further, no bridge strengthening is under present scope of works, If same is under present scope, then same shall be measured under respective items of Price schedule.Please confirm. c) Please provide survey report of the approach road for Lapsiphedi and Changunarayan	a) Confirm b) The bridge and minor road strengthening works, if required, shall be done by the Contractor, without any extra cost to NEA. The cost for such works shall be included in the bid prices elsewhere. C) The survey report will be provided to sucessful bidder. However, the contractor shall reconfirm the survey report.
639	Chapter 1- Project Specific requirements	Clause No. 4.1.28-p) & 4.2.26-o)	Drain and culverts, Drain Layout shall be developed by the contractor based on various type of drains.	Bidder request to confirm an provide followings; a) Drain layout. b) Outfall point for drain shall be within plot premises or near to boundary.Please confirm and suggest the location	Drain layout is to be designed by the successful biider, considering the outlet and terrain of the proposed site.
640	Chapter 1- Project	Clause No. 4.1.28-q) &	Boundary wall along substation property line and main gate	Bidder request to provide boundary wall drawings (plan and sections).	Boundary wall layout and design / drawing is to be designed by the successful bidder.
641	Chapter 1- Project Specific requirements	Clause No. 4.1.28-y) & 4.2.26-x)	Soil investigation (except Plate load test) has already been carried out. NEA will provide Geotechnical Investigation Report of the substation area for reference. However	Bidder request customer to share soil investigation report available for all sites.	
642	Chapter 1- Project Specific requirements	Clause No. 4.1.28-z) & 4.2.26-y)	Contouring and site leveling works: The finished ground level has been finalized and certain volume of cutting has been done. The substation area shall be developed in terraces at single or multi levels by remaining cutting and filling to attain final finished ground level.	Bidder request NEA to share Contour map, proposed benches along with levels and volume of job completed.	Basic data is attached.
643	Chapter 1- Project Specific requirements	Clause No. 4.1.28-cc)	Construction of random rubble stone masonry wall and gabion wall	Bidder request to specifically mention where gabbion wall is required in the layout and reason for considering the same.	Gabion wall and other protection is to be proposed by the successful biider, considering the terrain of the proposed site.

644	Chapter 1-Project Specific requirements	Clause No. 4.1.28-dd) & 4.2.26-bb)	The technical specification for external finishing of control room building and roofing has been included in Annexure…. Based on the specification included in Chapter 14 and Annexure… , external finishing shall be decided during detail engineering design.	Annexure and Annexure ref. no. are missing in said clause. Please provide the same.	Attached in the bid document. ReferAnnexure B1
645	Chapter 1-Project Specific requirements/	"	Doors and windows of front face shall be wooden(carved). TS for door and windows has been attached in Annexure….	Annexure and Annexure ref. no. are missing in said clause. Please provide the same.	Attached in the bid document
646	Chapter 1-Project Specific requirements	Clause No. 4.2.26-aa)	Dismantling of existing structure, foundation, equipment etc., if required, shall be included with the bid prices elsewhere in the price schedule.	Bidder request to specify the scope of dismantling works clearly and amend the Price schedule as same is not quantified in civil price schedule.	Request you to visit th site.
647	Chapter 1-Project Specific	Clause No. 4.2.26-dd)	Any other item/design/drawing for completion of scope of works.	We understand that Bidder has to quote as per NEA price schedule only. Please confirm.	Please quote as per BPS
648	Chapter 1-Project Specific requirements	Clause No. 4.3.3.-n)	Soil investigation.	SinceTeku is existing station. Bidder request NEA to share the existing soil report for the same.	
649	Chapter 1-Project Specific requirements	Clause No. 4.3.3.-0)	Contouring and Site leveling: The leveling in the area under present scope of work inside substation boundary wall is to be carried out to achieve finished ground level. The leveling area and finished ground level of switchyard shall be decided during detailed engineering stage. The leveling area shall be leveled in single or multi level	Since Teku is existing station. Bidder request NEA to share the existing Contour map and proposed Finished ground levels for the same.	Soil report not avialable.
650	Chapter 1-Project Specific requirements	Clause No. 4.3.3.-q)	Dismantling and disposal of existing building, gantry structure as required and disposal.	Bidder request to share drawings and details of building & gantry structures etc. to be dismantled.	Request you to visit th site.
651	Chapter 1-Project Specific requirements	Clause No. 4.3.3.-r)	Strenthening of approach road: Strengthening of approach road/ bridges, if required during transportation of equipment, shall be included in respective item of price schedule. Employer will not be liable for any additional payment for such work.	a) Bidder request Customer to specify the length and section of approach road under present scope. b) Approach road shall be paid under respective items of price schedule. Hence please amned the Price Schedule.	Request you to visit th site.
652	Chapter 1-Project Specific requirements	Clause No. 4.4.1	Modifications/Dismantling Works at Siuchatar and Teku Substation a) At Siuchatar substation, the employer intends to dismantle the existing 66kV DC dead end tower of Kulekhani -I & 2 and connect the 66kV cable from existing Gantry to next 66kV DC tower with necessary arrangement such as new gantry or other structure, to accommodate new 132kV line bays, for the work in this scope or for future scope. The area thus vacated shall be levelled and make ready for future use. b) At Teku Substation, the existing line gantry which is designed for 66kV voltage level shall be suitably modified to make ready for 132kV incoming line with regards to clearance as per relevant standard.	Bidder request to confirm and provide followings; a) Item of dismantling works is not there in price schedule of Siuchatar. Bidder request to amend the price schedule or suggest under which item same shall be paid. b) Any kind modification/ dismentaling of Transmission line Tower or supply of material for Transmission line are not in Bidder scope. Please confirm c) any kind of work of Supply or Services related to 66kV Cables are not in Bidder scope d) Please provide complete details of existing Substation Gantry which need to be modified. e) Please confirm existing foundation is having adiquate load bearing capacity incase there is modification in Tower. f) Bidder understand the existing Over Head Transmission is already designed for 132kV. hence Any kind of supply of materials and modification or services for Transmission line are not in Bidder scope. Please confirm.	Please quote as per the BPS. Please visit the site where required.

653	Site		Site	Due to the country wide lockdown and travel ristrictions due to the Covid 19, Bidder request to provide us the following information. i).Construction material availability (aggregate, sand, borrowed earth, bricks etc..) and its rates along with supplier details. ii). Local condition like availibilty of water and power, proposed site location along with coordinates and village name. iii). Availability of guest house, nearest bus/railway station, availability of NEA guest house if any, detail of nearby any construction work. iv). Borewell depth to be considered for water supply, photographs of the proposed site etc... v). We would like to setup labour camp for approximately labour force of 600Nos (Skilled and unskilled) during the peak period adjecent to the proposed site. Request M/s.NEA to provide permission for the same. Kindly do inform us about the lease cost for the same in monthly basis inorder to set up the same adjecent to the proposed site.	Please refer above
654	Site		Site	Bidder assume that necessary construction permission along with required gate passess without any delay will be provided to us for our staff, labour, vehicles and for working at night. Kindly confirm	Confirm
655	Site		Hinderance Register	Hinderance register shall be maintained by bidder at site which shall include the delays due to force majures,rain fall,natural calmaities, local issues etc. And extension/ compensation shall be provided to us for the same.	Bidder may maintain such register. Extension will be provided as per Contract.
656	Site		Site office,stores, batching plant, fabrication yard etc …	Bidder request to permit for having site office / stores / batching plant/fabrication yard within NEA proposed site for smooth coordination works. Also confirm Availibity of suitable space wihtin NEA site boundry wall.	Request you to visit the site.
657	Site		Hinderances in the proposed site	Bidder understand that encumbrance free land shall be handed over to us. No dismantling,tree cutting,jungle clearance etc. is under present scope of works.Please confirm.	Confirm
658	Site		Construction power and water	Bidder understand that the construction power and water will be provided at one point within the proposed Switchyard free of cost. Please confirm.	Please refer the PSR for details.
	Lapsiphedi				
659		Layout Plan	General	Bidder request to provide the plot size for the proposed station	Please refer Volume II, Chapter 1 - PSR, Clause 6.2
660		Layout Plan	General	Bidder understand that the 220kV and 132kV line orientation is fixed and the same cannot be altered. Please confirm.	Tentatively fixed, to be confirmed during DDE
661		Layout Plan	General	Bidder understand that no Gantry structures and outdoor equipments are to be provided for the spare bays of both 132 and 220kV. Please confirm	Confirm

662		Layout Plan	General	The Scope defined in PSR, SLD / Layout and Price Schedule are not mathing. 3 numbers of 220kV future bays (2 Lines and 1 transformer) are shown in the layout whereas 2 number of 220kV future bays (1 Line and 1 Transformer) are shown in the SLD and so on in PSR and Price Schedule. Bidder request to Confirm the present and future requirement and amend the PSR/ Price Schedule/ SLD drawing accordinlgy.	Please quote as per BPS
663		Layout Plan	General	3 numbers of 132kV future bays (1 Line and 2 transformer) are shown in the layout whereas 2 number of 132kV future bays (1 Line and 1 Transformer) are shown in the SLD , Bidder request to confirm the future requirement if any.	Please quote as per BPS
664		Layout Plan	General	Bidder request to provide the location of 11kV line from Lamosanghu	To be decided during DDE
665		Layout Plan	General	Bidder request to provide the detail of control room building	Layout and elevation, and tentative architctural drawings are provided. Based on these drawings the design shall be submitted for approval.
666		SLD	General	The Aux bus for single phase spare bank switching is not shown in the SLD. Bidder request to confirm the requirement.	Please quote as per BPS
667		Price Schedule	General	No spare bay requirement for 230kV GIS is mentioned in the schedule but the same is shown in the layout and SLD. Bidder request to confirm the requirement.	Please quote as per BPS
668		Price Schedule	General	No spare bay requirement for 132kV GIS is mentioned in the schedule but the same is shown in the layout and SLD. Bidder request to confirm the requirement.	Please quote as per BPS
669		Price Schedule	General	9 numbers of 220kV CVT are mentioned in the price schedule instead of 6 numbers required. Bidder request to confirm the same.	Please quote as per BPS
670		Price Schedule	General	13 numbers of 220kV LA are mentioned in the price schedule instead of 10 numbers required. Bidder request to confirm the same.	Please quote as per BPS
671		Price Schedule	General	13 numbers of 220kV SF6/Airbushing are mentioned in the price schedule instead of 10 numbers required. Bidder request to confirm the same.	Please quote as per BPS
672		Price Schedule	General	The requirement stated in D1 1.6 of Schedule 1 is already included in D1 1.3, Bidder request to confirm the same.	Please quote as per BPS
673		Price Schedule	General	9 numbers of 132kV CVT are mentioned in the price schedule instead of 6 numbers required. Bidder request to confirm the same.	Please quote as per BPS
674		Price Schedule	General	16 numbers of 132kV LA are mentioned in the price schedule instead of 13 numbers required. Bidder request to confirm the same.	Please quote as per BPS
675		Price Schedule	General	16 numbers of 132kV SF6/Airbushing are mentioned in the price schedule instead of 13 numbers required. Bidder request to confirm the same.	Please quote as per BPS

676		Price Schedule	General	The requirement stated in G1 of Schedule 1: 2 incomers, 6 outgoings, 1 buscoupler , 1 trunking doesn't matches with the requirement mentioned in the PSR (1 Transformer, 2 LT transformer, 1 buscoupler, 8 outgoings); Bidder request to confirm the requirements.	Please quote as per BPS
677		Price Schedule	General	We understand that the 11kV Isolator, Horn gap fuse shown in the SLD is not required. Bidder request to confirm the same.	Please quote as per BPS
678		Price Schedule	General	We understand that the battery sizes mentioned in the schedule is final and no further sizing calculations are to be done. Bidder request to confirm the same.	The contractor is required to submit the design calculation for battery sizing.
679		General		Bidder request to provide the Earth resistivity value to be considered for bid estimation	Attached
	Changunarayan				
680		Layout Plan	General	Bidder understand that the 132kV line orientation is fixed and the same cannot be altered. Bidder request to confirm the same.	Refer above
681		Layout Plan	General	Bidder understand that no Gantry structures and outdoor equipments are to be provided for the spare bays of both 132kV. Bidder request to confirm the same.	Refer above
682		Layout Plan	General	3 numbers of 132kV future bays (1 Line and 2 transformer) are shown in the layout whereas 2 number of 132kV future bays (1 Line and 1 Transformer) are shown in the SLD. Bidder request to confirm the future requirement	Please quote as per BPS
683		SLD	General	Bidder request to confirm name and distance of remote end of substation to be interconnected with 132kV Line.	During DDE
684		SLD	General	Bidder request to provide the location of 11kV lines from Lamosanghu mention in SLD or revise the SLD as per substation requirement.	Read it as "11kV line", however the connection requirement will be decided during DDE.
685		Layout Plan	General	Bidder request to provide the detail of control room building	Refer above
686		SLD	General	We understand that the 220kV equipments mentioned in the SLD are not in scope. Bidder request to revise the SLD and confirm the same.	Refer whichever is applicable
687		Price Schedule	General	2 Number transformer bay is mentioned in the schedule but only 1 number is shown in the layout and SLD. Bidder request to confirm the requirement.	Please quote as per BPS
688		Price Schedule	General	No spare bay requirement for 132kV GIS is mentioned in the schedule but the same is shown in the layout and SLD. Bidder request to confirm the requirement.	Please quote as per BPS
689		Price Schedule	General	21 numbers of 132kV CVT are mentioned in the price schedule instead of 18 numbers required. Bidder request to confirm the requirement.	Please quote as per BPS
690		Price Schedule	General	27 numbers of 132kV LA are mentioned in the price schedule instead of 21 numbers required. Bidder request to confirm the requirement.	Please quote as per BPS

691		Price Schedule	General	27 numbers of 132kV SF6/Airbushing are mentioned in the price schedule instead of 21 numbers required Bidder request to confirm the requirement.	Please quote as per BPS
692		Price Schedule	General	The requirement stated in G1 of Schedule 1: 2 incomers, 10 outgoings, 1 buscoupler , 1 trunking doesn't matches with the requirement mentioned in the PSR (1 Transformer, 2 LT transformer, 1 buscoupler, 8 outgoings); Bidder request to confirm the requirement.	Please quote as per BPS
693		Price Schedule	General	We understand that the 11kV Isolator , Horn gap fuse shown in the SLD is not required. Bidder request to confirm the same.	Please quote as per BPS
694		Price Schedule	General	We understand that the battery sizes mentioned in the schedule is final and no further sizing calculations are to be done, kindly confirm Bidder request to confirm the requirement.	Refer above
695		General		Bidder request to provide the Earth resistivity value to be considered for bid estimation	attached
	Teku		Teku		
696		Layout Plan	General	Bidder request to provide the layout of the existing Teku station.	Provided in the biddocument. Please download from the NEA website.
697		SLD	General	Bidder understand that for 145 kV AIS (outdoor) type LAs have to be considered for 2nos. 132/11kV Transformer bays and GIS (indoor) Type LAs for 4 nos. Line bays and 1no. 132/66kV Transformer bay., Please confirm the same or correct our understanding.	LA and PT (VT) are part of the GIS, as per PSR.
698		SLD	General	Bidder understand that the132kV GIS Voltage transformers shown in the SLD will be EMVT instead of CVT. Please to confirm the same.	Confirm
699		SLD	General	Bidder understand there is no future requirement for 145kV. Please to confirm the same.	To be decided during DDE. There is space constraint at Teku proposed 132kV GIS site, if space is avilable the provision for future bay shall be provided.
700		SLD	General	Bidder understand that the 2 nos. of 66kV feeders will be same as 66kV K3-I & 66kV K3 II in all respect. Please to confirm the same.	Confirm
701		SLD	General	The Requirement of Half Bay shown in the 66kV SLD in not clear. Please carify the scope and amend the SLD.	
702		SLD		Bidder understand there is no furhter requirement for 66kV in future. Please to confirm the same.	Confirm
703		Price Schedule	General	Biddder understand that 145kV line feeders are connected with EHV cable, in that case the requirement of SF6/ Airbushing is not clear. Please clarify the scope.	Please quote as per BPS
704		General		Bidder understand that 145kV transfomer feeders are connected with EHV cable, in that case the requirement of SF6/ Airbushing is not clear Please confirm the same.	Please quote as per BPS
705		General		Bidder understand that 66kV line feeders are connected with EHV cable, in that case the requirement of SF6/ Airbushing is not clear. Please confirm the same	Please quote as per BPS

706		General		Bidder understand that 66kV transformers feeders are connected with Gas insulated Busduct(GIB), But the requirement of GIB is not stated in the schedule. Please clarify the scope.	Please quote as per BPS
707		General		We understand that no outdoor equipments are envisaged in 66kV. Please confirm the same.	Please quote as per BPS
708		General		We understand that the battery sizes mentioned in the schedule is final and no further sizing calculations are to be done. Please confirm the same.	Refer above
709		General		Bidder understand that the control voltage for Teku station will be 110VDC, Please confirm the same.	Confirm
710		General		Bidder request to provide the Detail 66kV Existing GIS drawing.	Will be provided later
711		General		Bidder request to provide the Detail of Existing 11kV VCB drawing and existing make.	Will be provided later
712		General		Bidder request to provided the location where the existing 11kV boards are present	It is in the 66kV GIS hall. Please visit the site if required
713		General		Old GIS to be handed over to NEA and New GIS shall be installed in the same GIS hall. Bidder request to confirm our understaning is correct. If there is any extension of GIS Room is required then please deifne the scope and provide details of exsiting GIS room drwaings and details	Your understanding is right. Regarding drawings, it will be provided later
714		General		Bidder request to confirm there is existing Earthing grid is already available. During Modificaiton / construction of foundation bidder has to modify the Earthing conductor. Hence please provide Size and Type of Existing earthing conductor to be considered for bid estimation.	Existing grid is available at the existing switchyard. For, extension work the earth mat is required to be extended, and it shall be as per the specification.
	Suichatar		Suichatar		
715		General		Bidder request to provide the Key SLD of the existing station.	Provided
716		General		Bidder request to provide the Overall Layout of the existing station.	Provided
717		General		Bidder request to provide the Control Room layout of the existing station	Will be provided later / please visit the site
718		General		Bidder request to provide the internal cable tray layout of the existing station	Will be provided later / please visit the site
719		General		Bidder request to provide the Outdoor cable trench layout of the existing station	Will be provided later / please visit the site
720		General		Bidder request to provide the Overall earthmat layout of the existing station	Will be provided later if avilable / please visit the site
721		General		Bidder request to provide the indoor earthing drawing of the existing layout	Will be provided later if avilable / please visit the site
722		General		Bidder request to provide the LVAC/LVDC SLD of the existing layout	Will be provided later if avilable / please visit the site
723		General		Bidder request to provide the existing Control and Protection drawings	Will be provided later if avilable / please visit the site
724		General		Bidder request to provide the existing Busbar protection drawings	No busbar protection system

725		General		Bidder request to confirm followings; a) Adequate space availbility at site for 2 bays of 132kV Line bays. b) Suitable Shutdown availabilty as per requirement of site construction / Installaion testing and commissioning activity.	Please refer PSR. There may be space constrint for termination of 66kV line and connection of 66kV cable for bypassing and removal of existing 66kV tower. So, the speial arangment for termination of line through gantry or other means has to be done. For details please visist site. Similarly the existing 66kV gantry at Teku and suichatar have to be modified to accomadate the 132kV voltage system.
726		General		Bidder request to confirm there is existing Earthing grid is already available. During Modificaiton / construction of foundation bidder has to modify the Earthing conductor. Hence please provide Size and Type of Existing earthing conductor to be considered for bid estimation.	Existing grid is available at the existing switchyard. For, extension work the earth mat is required to be extended, and it shall be as per the specification.
	General				
727	Price Schedule	Schedule No. 4 : Installation and Other Services (Common for all)(d):	Maintance Charges in price schedule	Bidder request to amend the Price Schedule as Maintanace charge is not applicable for this tender.	Please quote as per BPS
728	Price Schedule	Schedule No. 5: Grand Summary	Price Shchedule Type test charges	Bidder request to amend the Price Schedule as Type Test charges Schedule is not applicable for this tender.	Please quote as per BPS
729	PSR		BASIC REQUIREMENT OF MASTER CONTROL CENTER AT BANESHWOR SUBSTSTION 1. The scope of work includes construction of Master Control Center at Baneshwor substation complete with server room, control room with monitoring screen, airconditioning. 2. The control center building shall be built over existing RCC structure building at Baneshwor Substation. The construction shall be PES (Pre-engineered structure or RCC). 3. The control center is to be designed such as to Supervise, monitor and control all substation within Kathmandu Valley. There is 14 substation in operation in Kathmandu valley, 5 substation under construction and 3 substation is proposed. 4. The existing substation is equipped with the SAS system of ABB, India make. The contractor is required to provide all necessary servers, hardware, software, switches etc which are required for satisfactory completion of work and for future requirement. The contractor is required to provide all necessary document, design to prove the capacity of the equipment provided.	The requirement mentioned for BANESHWOR SUBSTSTION is already under exectution with other NEA contract package. Hence in this tender has No scope of work applicable for bidder in this tender. Bidder request to amend the PSR or Clarify the scope in detail.	Please ignore this page.
730	Volume 2	General	Drawigns	Tender Drawings are not clear hence Bidder request to provide the clear SLD / Layout Drawings for each voltage level and each sites.	

731	PSR	Madatory Spare	Spare insulating oil to be handed over to POWERGRID after commissioning for O&M requirement	Bidder request to confirm that Insulating Oil shall be handedover to NEA after commissioing for O&M requirement. NEA will be responsible if the Insulating oil has to handover to	confirm
732	Price Schedule Part 3 : 132/11 kV Teku Substation	Item No. VI of Part-C: Mandatory Spares	BATTERY CHARGER(220V & 48V)	Please amend the Price Schedule for Teku Substation, we understand that Battery Charger voltage should be 110V.	The battery voltage is 110V. The amended BPS is attached.
733	Price Schedule and Chapter 1 – Project Specific Requirement (PSR)	Clause 4.1.26 Clasue 4.2.25 Clasue 4.3.2 Clause 7.	- Design, engineering, manufacture, testing, supply including transportation, insurance & storage at site of **mandatory spares as per Annexure-I** - Design, engineering, manufacture, testing, supply including transportation, insurance & storage at site of **mandatory spares as per Annexure-I** - i) **Mandatory Spares as per BPS** (Bid Price Schedule). - SCHEDULE OF QUANTITIES The detailed bill of quantities of the mandatory spares for which break up is not given in the bid price Schedules are indicated at **Annexure-1.I** of this part.	Since there are Mandatory Spare items are mentioned in Price Schedule and A separate Sheet of Mandatory Spare is given as ANNEXURE-I.2 in PSR - Bidder has to consider Price Schedule of Vol 3 for Spare or PSR of Vol 1 please confirm the requirement. - Annexure 1.I is not available in tender documents please provide.	Please quote as per BPS
734	General			Due to country lockdown situation Bidder are not able to conduct Route Survey, Site visits, Route Survey and other Soil tests. Hence to understand the correct requirement of the project Bidder request to provide followings; - Detailed Route Survey report - Soil Investigation report - Countour Map and FGL - Earth resistivity report - Route Survey Report upto the sites - Suitable time extension for Prebid queries submission and Bid submission along with Inviation and permission for site visits because of Internation travels are restricted due lockdown situation.	
735	PSR		Training at Manufacturer's works. The Contractor shall include in the training charges payment of per Diem allowance to NEA trainees @ as per NEA Financial Regulation per day per trainee for the duration of training abroad towards accommodation, meals and other incidental expenses and to and fro economy class air ticket from Nepal to place of training. The duration of training shall be excluding travelling period.	a) Bidder request to provide NEA Financial Regulation or define the allaownace rate for per day per trainee. b) Since the duration of training shall be excluding travelling period, hence please clarifiy the Allownaces will be applicable for Travelling period.	USD 125 - USD 175 per day depending on the trainees. Allowance will be applicable for traveling time also.
	Control & Protetion				
736	Volume 2 Chapter 15		Common for all site	Bidder request to confirm that Control Panel required will not be of Conventional type. Hence the Control panel is equipped with BCU only accordingly any mimic is not required.	As per the specification

737			Lapsephedi Substation	Please confirm that we do not have to integrate new SAS with the 400kV Existing SAS from other NEA contract package.	The existing scope is for integration of the feeder under current tender, if integration is required later, it will be instructed as per contract.
738			Siuchatar Station	Please confirm the Make & Model of existing Busbar system and there is no integration with the existing Busbar at 132kV Level in Bidder scope.	No busbar protectio system
739			Siuchatar Station	Please confirm the existing Make & Model of existing SAS system and there there is no integration with the existing SAS in bidder scope.	The SAS system is in implmentation and is of GE make.
740			Siuchatar Station Teku Sunstation	Please confirm that in the offered new 132kv Line relay panel we have to offer only distance protection no Line differential protection is required. Provide distance of Transmission line from Teku to Thapathalli.	The line differential / distance protection is to be provided consdering the line length and the equipment functionality.To be decided during DDE. The distance will be rpovided later.
741			Siuchatar Station & Other Sites	Please provide the existing Control Room drawing and location of panels to be installed. (As per site space availablilty requirement suggest Panel Type for Simplex or Duplex) - Incase Simplex Protection panel will be sparate and Control Panel will be saparate. Also confirm that space is avaiable at sites for New Control Panels.	The existing space at the control room of Suichatar and Teku is limited, the bidder may have to dismantle some panel and remove it for necessary space.0 Also, the type of the panel, simplex / duplex shall be decided during DDE as per site condition.
742			Teku Station	Bidder request to confirm the type of Busbar protection to be offer for 132kV. Since in specification it is low impedance busbar However in SLD it is written as high impedance Busbar. Please clarify the scope.	Low impedance type, with additional 2 bays as spare for future use for each voltage level.
743			Teku Station	Bidder understand that 66kV is already having 6 Bays with its own C&R Panels as per the SLD. While in BOQ 2 No's of Line Protection panel is asked as per Price Schedule. Bidder request confirm the exact scope for 66kV C&R Panels	Please quote as per BPS
744			Teku Station	Bidder request to confirm the Type, Make & Model of existing Busbar of existing Busbar protection for 66kV. Integration with exisitng Busbar is not in present scope.	No bus bar protection
745			Teku Station	Please confirm the requirment of Distance protection or Differential protectionin for Line protection panel of 132kV or 66kV.	Refer above
746			Teku Station	Bidder understand that new SAS system is required in the tender. Please provide the details of all the existing bays, make, model. Communication protocol to make them integrate. Bidder request to confirm available communication port available in existing BCU in the 11kV or 66kV to make it controllable from SAS. Also provide details including make and Model of exiting BCU	As per SLD or please visit site.

	XLPE Cable				
747	**SECTION 22: EHV XLPE POWER CABLE**	**Clause No: 1.8**	The conductor shall be of Copper/Aluminium wires as specified in the Bid Price Schedule (BPS). The shape of conductor shall be compacted segmental having high compactness and smooth surface finish.	As per BOQ required size is 1C X 240 Sq.mm, 1C X 500 Sq.mm. Hence , as per IEC: 60228, conductor shall be stranded compacted circular instead of Segmental. Kindly confirm the same.	Conductor shall be stranded circular Cu conductor.
748	**SECTION 22: EHV XLPE POWER CABLE**	**Clause No: 12**	Depth of laying shall be as per **drawing enclosed with Specification**. Laying at varying depths due to obstructions/site conditions may be accepted in extreme cases with prior approval of Employer during detailed engineering.	Bidder request to provide the drawing and route as same is not available in tender documents for Teku and Suchitar subsation.	Please refer layout drawing for suichatar Substation. For Teku, the route has to be finalized during detail engineering.
749	**SECTION 22: EHV XLPE POWER CABLE**	**Clause No: 1.3**	The cable shall be suitable for laying under the climate conditions **(as specified in Section- Project)** and underground buried installation with uncontrolled back fill and chances of flooding by water.	Bidder request to provide proper laying and existing site conditions having below informations as it is not clear. a) Formation: Trefoil/Flat b) Type of Bonding c) Native Soil Thermal Resistivity	As pe specification and to be decided during detail engineering.
750	**SECTION 22: EHV XLPE POWER CABLE**	**Clause No: 1.2** **Clause No: 1.13**	**METALLIC SCREEN:** The metal sheath shall consist of a tube of corrugated aluminium of at least 99.5% purity. **The thickness of the corrugated aluminium sheath shall be designed to meet the requirement of the system short circuit rating as specified in the bidding documents.**	Bidder request to provide required short circuit with time duration as same is not available in documents.	For system fault level as specified in the PSR.
	Tender	**Clause No.**	**Description**	**Query**	**Reply from NEA**
751	**CHAPTER 1- Project Specification Requirement**	**Clause No: 9.0**	Chapter 24 Technical Data Sheet.	Please provide the Technical Data Sheet for 132kV and 66 kV cable	Attached
	VMS				
752	**CHAPTER 1- Project Specification Requirement**		Visual Montioring System Annexure IV is missing.	Bidder request to provide Annexure IV for Visual Monitoring System (VMS) for delaited scope of VMS and Location and position of Camera as per Site Layout.	Provided with the bid document
	Transformer				
753			Transformer	Bidder request to confirm requirement of tertiary winding rating and other details. e.g.for 53.33MVA is with 3phase or 1phase auto transformer is not mentioned in tender document	The tertiry winding shall be provided, along with the connection arrgangement, complete with all accessories like insulators etc. The price shall be included in the relevant items.
	GIS				
754	**SCOPE OF Work**	3	A. 220/132/11kV Lapsephedi (New) GIS Substation with the following bays as per Single Line Diagram & as indicated in BPS: □ 2 nos. 220kV bays for termination of Barhabise-Lapsephedi D/C Transmission line.	The no. of Line feeders as per the PSR, BOQ is 2 nos., however in SLD, 3 nos. of Line bays are indicated (2no. Barabhisi + 1no. spare). Bidder request to clarify the requirement of line bays	Please quote as per BPS
755	**SCOPE OF Work**	3	A. 220/132/11kV Lapsephedi (New) GIS Substation with the following bays as per Single Line Diagram & as indicated in BPS: □ 2 nos. 132kV bays for termination of 132kV Transmission line	The no. of Line feeders as per the PSR, BOQ is 2 nos., however in SLD, 3 nos. of Line bays are indicated (2no. Line + 1no. spare). Bidder reques to clarify the requirement of line bays	Please quote as per BPS

756	**SCOPE OF Work**	3	B. 132/11 kV Changunarayan (new) with the following bays (132 kV GIS and 11 kV Inddor) as per Single Line Diagram & as indicated in BPS:. □ 1 nos. 132 KV bays for 1 x 31.5/45 MVA, 132/11 kV, 3 Phase Transformers □ 6 nos. 132kV bays for termination of 132kV Transmission line □ 01 no. 132kV Bus Coupler bay.	The quantity of bays as per BPS, PSR & SLD is different. Bidder request to clarify the requirement	Please quote as per BPS
757	**145 kV GIS System:**	4.1.2	(C) 145kV, 31.5KA for 1 second, SF6 gas-insulated metal enclosed Line feeder bay module each set comprising of :- (d) Three (3) numbers of 1-phase potential transformers. (g) Three (3) numbers of 1-phase Lightning arrestors, if not mentioned in the BPS.	At Lapshiphedi & Changunarayan sites as per the SLD Surge arrestors & potential transformers outdoor type are required and at the same time as per PSR for 132kV Surge arrestor is needed inside the GIS. For Teku site surge arrestor is requried inside the GIS. Bidder request to correct the understanding and ammend the tender drawings.	Please quote as per BPS. The quantity mentioned in BPS if not required, may be deleted.
758	**2. REFERENCE STANDARDS**	2	IEC 60044-1 Current transformers IEC 60044-2 Voltage transformers	All OEM of GIS is following latest IEC standard for Instrument Transformers as per below. IEC 61869-2 for Current transformers IEC 61869-3 for Voltage transformers Bidder request to confirm the acceptance for above IEC	As per specification / standards
759	**GENERAL DESIGN AND SAFETY REQUIREMENT**	3.11	The bus enclosure should be sectionalized in a manner that maintenance work on any bus disconnector (when bus and bus disconnector are enclosed in a single enclosure) can be carried out by isolating and evacuating the small effected section and not the entire bus.	Bidder undersand that this clause is applicable only if busbar and busbar disconnectors are enclosed in same gas compartment and the bus bar sectionalsiation (gas barriers in the bus bar section) is not required. Please correct our understanding.	As per specification
760	**GENERAL DESIGN AND SAFETY REQUIREMENT**	3.12	The material and thickness of the enclosures shall be such as to withstand an internal flash over without burn through for a period of 300 ms at rated short time withstand current. The material shall be such that it has no effect of environment as well as from the by-products of SF6 breakdown under arcing condition.	Bider request to confirm, the burn through shall be as per IEC 62271-203. Table 4, burn through is acceptable for STC >=40kA for a period of 0.3s. Table is enclosed for your reference.	As per specification
761	**UHF sensors for PD detection**	3.44.	Contractor shall provide adequate number of UHF sensors in the offered GIS for detection of Partial discharge (of 5 pC and above) as per IEC 60270 through Partial Discharge (PD) monitoring system and the number and location of these sensors shall be subject to approval of the employer/consultant. Further UHF sensors shall necessarily be provided in close proximity to VT compartments However adequacy of number of sensors and their location shall be verified at site by the contractor as per recommendations of CIGRE task force TF 15/33.03.05 (Task force on Partial discharge detection system for GIS: Sensitivity verification for the UHF method and the acoustic method). In case during site testing additional UHF sensors are required, the same shall also be supplied& installed to complete the technical requirement.	Number of UHF sensors & the location of UHF sensors shall be as per manufactureres' recommendations. Please note that the locations of sensors shall be decided during detailed engineering itself to achieve the desired sensitivety & the same will be reflected on the drawings which will be submited for approval. During site testing additional UHF sensors cannot be installed and No change is recommended at site by OEMs. Bidder request to confirm the same.	As per specification

762	**Routine Tests**	4.9.2.	Functional tests are to be carried out on circuit breaker along with Control Switching device (CSD). DCRM (Dynamic Contact Resistance Measurement) to be carried out for all CBs during routine test.	CSD is not applicable for subject tender (220kV and 132kV GIS). Also the DCRM test is not performed on the CB as part of FAT test. However we shall submit the routine test reports of DCRM test. Please confirm the same.	As per specification
763	**Appendix 1- Terms and Procedures of Payment**	Voulme 1 Section 9	(A) Terms of Payment Schedule No. 1- Plant and Equipment Supplied from abroad, second paragraph		Shipping document mentioned in the bid document is defined as (Site Delivery Certificate, Bill of lading, Proforma invoice etc and documents as indicated in the letter of credit or other relevant documents)

Attachments

1. TDS of 132 kV cable & 66 kV cable
2. 66 kV CT Core Detail
3. Annexure IV: Technical Specification for Visual Monitoring System
4. Corrected TDS of 630 kVA Transformer, 66 kV GIS & Accessories, 66 kV LA, 220 kV GIS LA, 9 kV LA
5. Summary of Geotechnical Report and ERT report (Lapsiphedi and Changunarayan substation)
6. Architectural Drawings of Township Quarters(B, C, D type)
7. Drawings of Car Parking Sheds
8. Schedule No. 1: Plants and Equipemnt including mandatory spares to be supplied from abroad

TDS of 132 kV cable & 66 kV cable

TECHNICAL DATA FOR 132kV SINGLE CORE 500 SQMM XLPE INSULATED CABLE:

Sl. No	Name of the Particulars	Emplyer Requirement	Guaranteed Value
		500 sqmm / 240 Sq.mm	
1	No. of cores	1(Single)	
2	Size (in mm2)	500 / 240	
3	Voltage Grade(in kV)	76/132(145)kV	
4	Type of cable		
5	Standard according to which cable has been manufactured and tested	IEC-62067, Testing as per IEC-60840.	
6	Permissible Voltage & Frequency variation for satisfactory operation.		
	Voltage	± 10%	
	Frequency	± 5%	
7	Maximum rated conductor temperature	90^0C	
8	Max. allowable conductor temperature during short circuit	250^0C	
9	Conductor Details		
	(a) Normal Cross-Sectional Area	500 mm^2 / 240 mm^2	
	(b) Material and Grade	Annealed Plain Copper	
	(c) Shape of Conductor	Compacted stranded Circular / as per specs	
10	**Conductor Screen**		
	(a) Material	Extruded Semi-Conducting XLPE	
	(b) Nominal Thickness (min)	1.5mm(Approx.)	
11	**Insulation**		
	(a) Material	Cross linked Polyethylene	
	(b) Nominal Thickness (min)	18.0 mm	
12	**Insulation Screen**		
	(a) Material	Extruded Semi-Conducting XLPE (SC) layer followed by water swellable SC tapes	
	(b) Min. Thickness	1.0 mm followed by water swellable SC tapes	

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	(c) Longitudinal Water Sealing	Semiconducting water blocking tape(s) with 50% over lap		
13	Metallic Sheath			
	(a) Material	Seam Welded/ Corrugated Aluminium sheath with anti corrosion protection		
	(b) Thickness	3.0 mm		
	(c) Short Circuit current of metallic screen for 1 sec (kA)	>31.5		
14	Outer Sheath			
	(a) Material	Extruded HDPE Type		
	(b) Colour	Black		
	(c) Thickness (Nom/Min)	4.0 mm		
	(d) Conducting layer over outer sheath	Graphite Coating		
15	Nominal overall Diameter of cable			
16	Nominal Overall Weight of Cable Per Meter			
17	Standard Drum Length with Tolerance	500m±5%		
18	Minimum Bending Radius allowable during installation	20 x OD		
19	Safe Pulling force	5kg/mm^2 of CU		
20	(a) Impulse Withstand	650kVp		
21	(b) One minute Power Frequency Withstand Voltage (kV)	275		
22	Short circuit current for one second(kA)	143		
	Max conductor DC resistance at 200C			
	Approx. AC resistance at 900C			
	Max. capacitance			
23	Continuous Current Rating for cable laid in close trefoil formation			
	(i) In ground at 30°C ground temp, Depth of laying 1.0 m, Thermal Resistivity of soil 150°C Cm/W			
	(ii) In free air at 40° C Ambient Air Temperature			

TECHNICAL DATA FOR 66kV SINGLE CORE 500 SQMM XLPE INSULATED CABLE:

Sl. No	**Name of the Particulars**	**Emplyer Requirement**	Guaranteed Value
		500 sqmm	
1	No. of cores	1(Single)	
2	Size (in mm2)	500	
3	Voltage Grade(in kV)	38/66(72) kV	
4	Type of cable		
5	Standard according to which cable has been manufactured and tested	IEC-62067, Testing as per IEC-60840.	
6	Permissible Voltage & Frequency variation for satisfactory operation.		
	Voltage	±10%	
	Frequency	± 5%	
7	Maximum rated conductor temperature	90^0C	
8	Max. allowable conductor temperature during short circuit	250^0C	
9	Conductor Details		
	(a) Normal Cross-Sectional Area	500 mm^2	
	(b) Material and Grade	Annealed Plain Copper	
	(c) Shape of Conductor	Compacted stranded Circular / as per specs	
10	**Conductor Screen**		
	(a) Material	Extruded Semi-Conducting XLPE	
	(b) Nominal Thickness (min)	0.75 mm(Approx.)	
11	**Insulation**		
	(a) Material	Cross linked Polyethylene	
	(b) Nominal Thickness (min)	9.0 mm	
12	**Insulation Screen**		
	(a) Material	Extruded Semi-Conducting XLPE (SC) layer followed by water swellable SC tapes	
	(b) Min. Thickness	1.0 mm followed by water swellable SC tapes	

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	(c) Longitudinal Water Sealing	Semiconducting water blocking tape(s) with 50% over lap		
13	Metallic Sheath			
	(a) Material	Seam Welded/ Corrugated Aluminium sheath with anti corrosion protection		
	(b) Thickness	3.0 mm		
	(c) Short Circuit current of metallic screen for 1 sec (kA)	>31.5		
14	Outer Sheath			
	(a) Material	Extruded HDPE Type		
	(b) Colour	Black		
	(c) Thickness (Nom/Min)	3.0 mm		
	(d) Conducting layer over outer sheath	Graphite Coating		
15	Nominal overall Diameter of cable			
16	Nominal Overall Weight of Cable Per Meter			
17	Standard Drum Length with Tolerance	500m±5%		
18	Minimum Bending Radius allowable during installation	20 x OD		
19	Safe Pulling force			
20	(a) Impulse Withstand	275kVp		
21	(b) One minute Power Frequency Withstand Voltage (kV)	140		
22	Short circuit current for one second(kA)	72		
	Max conductor DC resistance at 200C			
	Approx. AC resistance at 900C			
	Max. capacitance			
23	Continuous Current Rating for cable laid in close trefoil formation			
	(i) In ground at 30°C ground temp, Depth of laying 1.0 m, Thermal Resistivity of soil 150°C Cm/W			
	(ii) In free air at 40° C Ambient Air Temperature			

66 kV CT Core Detail

TABLE-3E

REQUIREMENTS FOR 66 kV CURRENT TRANSFORMER (LINE)

No. of cores	Core no.	Applic-ation	Current ratio	Output Burden (VA)	Accuracy Class as Per IEC: 44-1	Min. Knee pt. Voltage Vk	Max. CT Sec.Wdg Resistance (ohm)	Max. Excitation current at Vk (in mA)
5	1	BUS DIFF CHE-CK	2000-1000/1	-	PS	2000-1000/1	10/5	30 on 2000/1 60 on 1000/1
	2	BUS DIFF MAIN	2000-1000/1	-	PS	2000-1000/1	10/5	30 on 2000/1 60 on 1000/1
	3	METE RING	800-600/1	20	0.2S	-	-	-
	4	TRAN BACK UP/ LINE PRTN.	800-600/1	-	-	800-600	8/ 4	25 on 800/1 50 on 400/1
	5	DIFF/ LINE PRTN.	800-600/1	-	-	800-600	8/ 4	25 on 800/1 50 on 400/1

REQUIREMENTS FOR 66 kV CURRENT TRANSFORMER (TRANSF)

No. of cores	Core no.	Applic-ation	Current ratio	Output Burden (VA)	Accuracy Class as Per IEC: 44-1	Min. Knee pt. Voltage Vk	Max. CT Sec.Wdg. Resistance (ohm)	Max. Excitation current at Vk (in mA)
5	1	BUS DIFF CHE-CK	2000-1000/1	-	PS	2000-1000/1	10/5	30 on 2000/1 60 on 1000/1
	2	BUS DIFF MAIN	2000-1000/1	-	PS	2000-1000/1	10/5	30 on 2000/1 60 on 1000/1
	3	METE RING	600-900/1	20	0.2S	-	-	-
	4	TRAN BACK UP/ LINE PRTN.	600-900/1	-	-	600-900	8/ 4	25 on 600/1 50 on 300/1
	5	DIFF/ LINE PRTN.	600-900/1	-	-	600-900	8/ 4	25 on 800/1 50 on 400/1

All relaying CTs shall be of accuracy class PS as per IS: 2705.

Note: The rating and ratio of the current transformer will be finalized during DDF. The contractor shall provide design parameter for approval.

Technical Specification for Visual Monitoring System

Technical Specification for Visual Monitoring System

Visual monitoring system for watch and ward of Substation premises:

Visual monitoring system (VMS) for effective watch and ward of substation premises covering the areas of entire switchyard, Control Room cum Administrative building, Firefighting pump house, stores and main gate, shall be provided. The contractor shall design, supply, erect, test and commission the complete system including cameras, Digital video recorder system, mounting arrangement for cameras, cables, LAN Switches, UPS and any other items/accessories required to complete the system. To provide all the necessary licenses to run the system successfully shall be in the scope of contractor.

System with Color IP Cameras for VMS surveillance would be located at various locations including indoor areas and outdoor switchyard and as per the direction of Engineer-In- Charge. The VMS data partly/completely shall be recorded (minimum for 15 days) and stored on network video recorder.

The number of cameras and their locations shall be decided in such a way that any location covered in the area can be scanned. The cameras shall be located in such a way to monitor at least:

1. The operation of each and every isolator pole of the complete yard in case of AIS Sub-station.
2. The Operation of each bay bays of GIS Hall as Applicable.
3. All the Transformer and Reactors All the Entrance doors of Control Room Building and Fire-fighting Pump House, GIS Hall and Switchyard Panel room as applicable.
4. All the gates of switchyard.
5. Main entrance Gate
6. All other Major AIS Equipment (such as CB, CT, CVT, SA etc. as applicable)

The cameras can be mounted on structures, buildings or any other suitable mounting arrangement to be provided by the contractor.

Technical requirements of major equipment of Visual Monitoring System

The Video Monitoring system shall be an integrated system with IP network centric functional and management architecture aimed at providing high-speed manual/automatic operation for best performance.

The system should facilitate viewing of live and recorded images and controlling of all cameras by the authorized users.

The system shall use video signals from various types of indoor/outdoor CCD colour cameras installed at different locations, process them for viewing on workstations/monitors in the control Room and simultaneously record all the cameras after compression using H 264/MPEG 4 or better standard. Mouse/Joystick-Keyboard controllers shall be used for Pan, Tilt, Zoom, and other functions of desired cameras.

The System shall provide sufficient storage of all the camera recordings for a period of 15 days or more @ 25 FPS, at 4 CIF or better quality using necessary compression techniques for all cameras. It shall be ensured that data once recorded shall not be altered by any means. The recording resolution and frame rate for each camera shall be user programmable.

The surveillance VMS System shall operate on 230 V, 50 Hz single-phase power supply. System shall have back up UPS power supply meeting the power supply need of all the cameras in the stations including those which are installed at gate for a period of 2 hours. The bidder shall submit the sizing calculation for the UPS considering the total load requirement of Video Monitoring System.

System requirements:

a) System must provide built-in facility of watermarking or Digital certificate to ensure tamperproof recording.

b) All cameras may be connected through a suitable LAN which shall be able to perform in 765kV class sub-station environment without fail.

c) All camera recordings shall have Camera ID & location/area of recording as well as date/time stamp. Camera ID, Location/Area of recording & date/time shall be programmable by the system administrator with User ID & Password.

d) Facility of camera recording in real-time mode (25 FPS)/15/12.5/10 or lower FPS as well as in any desired combination must be available in the system.

e) Facility of Camera recording in HD (1280X720p), D1 , 4CIF , CIF, VGA, as well as in any combination i.e. any camera can be recorded in any quality.

f) System to have facility of 100% additional camera installation beyond the originally planned capacity.

g) In order to optimize the memory, while recording, video shall be compressed using H 264/MPEG-4 or better standard and streamed over the IP network.

h) System shall be triplex i.e. it should provide facility of Viewing, Recording & Replay simultaneously.

i) The offered system shall have facility to export the desired portion of clipping (from a specific date/time to another specific date/time) on CD or DVD. Viewing of this recording shall be possible on standard PC using standard software like windows media player etc.

j) System shall have provision of WAN connectivity for remote monitoring.

k) The equipment should generally conform to Electro magnetic compatibility requirements for outdoor equipment in EHV switchyards. The major EMC required for Cameras and other equipment shall be as under:

1. Electrical Fast Transient (Level 4) – As per IEC 61000-4-4
2. Damped Oscillatory (1 MHz and 100 KHz) (level 3) – As per IEC 61000-4-
3. AC Voltage Dips & Interruption/Variation (class 3) – As per IEC 61000-4-
4. Electrostatic Discharge (Level 4) – As per IEC 61000-4-2
5. Power Frequency Magnetic Field (level 4) – As per IEC 61000-4-8
6. Ripple on DC input Power Supply Port immunity test(level - As per IEC 61000-4-

Type test reports to establish compliance with the above requirement shall be submitted during detailed engineering.

VIDEO SURVEILLANCE APPLICATION SOFTWARE

a) Digital video surveillance control software should be capable to display and manage the entire surveillance system. It should be capable of supporting variety of devices such as cameras, video encoder, Servers, NAS boxes/Raid backup device etc.

b) The software should have inbuilt facility to store configuration of encoders and cameras.

c) The software should Support flexible 1/2/4/8/16/32 Windows Split screen display mode and scroll mode on the PC monitor.

d) The software should be able to control all cameras i.e. PTZ control, Iris control, auto / manual focus, and color balance of camera, Selection of presets, Video tour selection etc.

e) The software should have user access authority configurable on per device or per device group basis. The system shall provide user activity log with user ID, time stamp, action performed, etc.

f) The users should be on a hierarchical basis as assigned by the administrator. The higher priority person can take control of cameras, which are already being controlled by a lower priority user.

g) It should have recording modes viz. continuous, manual, or programmed modes on date, time and camera-wise. All modes should be disabled and enabled using scheduled configuration. It should also be possible to search and replay the recorded images on date, time and camera-wise. It should provide onscreen controls for remote operation of PTZ cameras. It should have the facility for scheduled recording. Different recording speeds (fps) and resolution for each recording mode for each camera should be possible.

h) The software for clients should also be working on a browser based system for remote users. This will allow any authorized user to display the video of any desired camera on the monitor with full PTZ and associated controls.

i) Retrieval: The VMS application should allow retrieval of data instantaneously or any date / time interval chosen through search functionality of the application software. In case data is older than 15 days and available, the retrieval should be possible. The system should also allow for backup of specific data on any drives like DVD's or any other device in a format which can be replayed through a standard PC based software. Log of any such activity should be maintained by the system.

j) VMS shall provide the full functionality reporting tool which can provide reports for user login/logoff, camera accessibility report, server health check reports etc.

Network video recorder

The Network Video recorder shall include at least Server (min 3.0 GHZ, 4GB RAM, 3000GB HDD(min)), RAID 5 ,with suitable configuration along with Colored TFT 22" High resolution monitor, and Internal DVD writer. Windows XP/Vista/7 Prof. or VMS compatible operating system latest version with hardware like graphic cards, licensed Anti-virus etc.

Further the digital video recorder shall conform to the following requirements:

1.	Server Spec	Intel Quad Core (or better) 3.0 Ghz (min.) , 8 MB Cache , 4 GB memory , with suitable NVIDIA graphics card,3 TB HDD , Raid 5
2.	Recording and Display Frame Rate	Real-time 25 frames per second per channel , manual select
3.	Recording Resolution	(PAL): 1280X720 , 704(H) x 586(V) It should be possible to select lower resolutions
4.	Compression Method	H.264/MPEG-4 or better and latest
5.	Video Motion Detection Capable	Standard and built-in (selectable in menu)
6.	Monitoring Options	Split screen 1, 2, 4 , 8, 16, 32 or more cameras
7.	Playback Options	Search, still image capture
8.	Alarm/Event Recording Capable	To be provided with built-in external alarm input/ output ports minimum(8 in, 2 out)
9.	Network Operation Capable	To be provided by using WAN or LAN router
10.	Remote Internet Viewing Capable	Using WAN or LAN router
11.	HDD Storage Consumption	1GB ~ per hour / channel variable based on frame speed and resolution settings, as well as compression
12.	Operation	Triplex operation (simultaneous recording, playback, network operation)
13.	Number of Video Channel	32
14.	Audio Recording Capable	32
15.	Input Voltage	230V AC or equivalent with UPS as a
		back up for 30 minutes.

VMS Camera

a) The color IP camera for substation shall have PAN, TILT and ZOOM facilities so that it can be focused to the required location from the remote station through a controller. Whereas wireless IP cameras with PTZ controls are required for installation at gates of the POWERGRID premises as per the direction of Engineer-In-Charge

b) The IP Camera at the main gate can be fixed or PTZ based and shall be used for monitoring entry and exit

c) It should have sufficient range for viewing all the poles of isolators and other equipments with high degree of clarity.

d) The VMS camera shall be suitable for wall mounting, ceiling mounting and switchyard structure mounting.

e) It shall be possible to define at 128 selectable preset locations so that the camera gets automatically focused on selection of the location for viewing a predefined location.

f) The camera should be able to detect motion in day & night environments having light intensity of Color: 0.5 Lux; B&W:0.05 Lux

g) Housing of cameras meant for indoor use shall be of IP 42 or better rating whereas outdoor camera housing shall be of IP 66 or better rating. Housing shall be robust and not have the effect of electromagnetic induction in 765/400KV switchyard.

h) All camera recordings shall have Camera ID & location/area of recording as well as date/time stamp. Camera ID, Location/Area of recording & date/time shall be programmable by the system administrator with User ID & Password

i) Facility of camera recording in real-time mode (25 FPS)/15/12.5/10 or lower FPS as well as in any desired combination must be available in the system.

A. Outdoor IP Fixed Megapixel Camera Specifications (For Main Gate)

1.	Image Sensor	2-megapixel Progressive ,1 / 3" CMOS/CCD sensor, Minimum illumination 0.1 Lux
2.	Min Luminous	0.5LUX(Color) 0.05Lux(Black)
3.	Camera Enclosure Type	IP66 Grade
4.	Iris/Focus	Auto/Manual
5.	Video Compression	Dual Stream H.264 and MPEG 4 user selectable
6.	Support Dual-stream	primary/secondary stream, H.264/MPEG 4 optional
7.	Video Definition	Primary stream:1600x1200,1280x960,1280x720,
		Secondary stream:800x600,400x288,192x144
8.	Video Parameters	Brightness, hue, contrast, saturation and image quality
9.	Video Frame Rate	PAL: 1-25frames/second NTSC:1-30frames/second
10.	Video Compression BR	32Kbit/S - 6Mbit/S
11.	Video Output	One channel composite Streaming
12.	Supported Protocols	TCP, UDP, IP, HTTP, FTP, SMTP, DHCP, DNS,ARP, ICMP, POP3, NTP, IPsec, UpnP, RTP, RTCP

13.	Operating Temperature	-5 ~ +50□
14.	Operating Humidity	10 ~ 90%

B. Outdoor IP66 PTZ HD Camera Specifications (For Switch Yards)

1.	Image sensor	1/3 type Solid State Progressive Scan CCD,WDR(High Definition)
2.	Security	Multiple user access with password protection
3.	Effective Pixels	(PAL): Main Stream : 1280x720 Sub Stream : 640x360、320x280 selectable
4.	Compression	Dual Stream H.264 and MPEG 4 user selectable
5.	Signal System	50 Hz
6.	S/N (signal to noise) Ratio	Better than 50 dB
7.	Electronic Shutter	1/60 ~ 1/10,000 sec. automatic or better
8.	Scanning System	Progressive/interlace
9.	Low Light Sensitivity (lux)	Color: 0.5 Lux; B&W:0.02 Lux
10.	Lens	Minimum 10x (minimum) optical in High Definition (The system shall be able to zoom the images on the monitor without any distortion to the maximum level of optical zoom)
11.	Lens Size	Minimum 4.1~73.8 mm
12.	Lens Aperture	F1.6(wide)~F2.8(tele), f=4.1~41.0mm, 10X Zoom, Video Auto Focus Angle of View Horizontal : 52°(wide) , 2.8°(tele)
13.	PTZ Data Transfer Baud/Bit Rates Supported	Selectable 2400 bps / 4800 bps / 9600 bps
14.	Panning Range	Complete 360 degrees (horizontal)
15.	Pan Speed	Adjustable, 0.1 degrees / second ~ 250 degrees / second
16.	Tilting Range	Minimum 180° Tilt Rotation
17.	Tilt Speed	Adjustable, 0.1 degrees / second ~ 150 degrees / second
18.	In Built Storage	Camera should have inbuilt storage TF or SD format for recording and storing Pictures
19.	IP Class	IP66 Standard
20.	Working temperature	-0 ~ +50
21.	Working Humidity	10 ~ 90%

PTZ-Keyboards

The features of PTZ shall include:

- Fully functional dynamic keyboard/joystick controllers
- Controls all pan, tilt, zoom, iris, preset functions
- Control up to 255 units from a single keyboard
- Many preset options and advanced tour programming
- Compatible with all connected cameras

1.	Key Application	wired keyboard control operation of PTZ functions for weatherproof dome cameras
2.	Pan / Tilt / Zoom Protocol Languages Supported	Selectable
3.	PTZ Data Transfer Baud Rates Supported	selectable 1200 bps / 2400 bps / 4800 bps / 9600 bps
4.	Additional Features	dynamic joystick for smooth camera movements, preset location option for quick access to frequently monitored areas

Corrected TDS of 630 kVA Transformer, 66 kV GIS & Accessories, 66 kV LA, 220 kV GIS LA, 9 kV LA

TECHNICAL DATA SHEET
(To Be Completed By the Tenderer)

ITEM No.4: 630kV STATION TRANSFORMER

Sheet 1 of 1

	DESCRIPTION	UNIT	NEA REQ	DATA to be Filled
1	Manufacturer and Country of Origin			
2	Rated power	kVA	630	
3	Rated voltage		IEC	
4	Voltage rating			
	a) Primary	kV	11	
	b) Secondary	V	400	
5	Max system Voltage			
	a) Primary	kV	12	
	b) Secondary	V	440	
6	Conection -Primary / secondary		Delta /Y	
7	Cooling		ONAN	
8	Vector group		Dyn 11	
9	Rated impedance voltage		5 %	
10	Withstand Voltage -Primary -Secondary	 kV kV	 75 3	
11	BIL of winding (primary)	kV	75	
12	Off circuit tap changer		+/- 5%	
13	Max. noise level	dB	44	
14	No load loss	W		
15	Load loss	W		
16	Applicable standard		IEC	
17	**Approximate Overall Dimension (L x W x H)**			
18	**Approximate Weights**			
18.1	Core and Coil	Kg		
18.2	Tank and fittings	Kg		
18.3	Oil	Kg		
18.4	Total Weight	Kg		
19	Delivery of Equipment in Months, following the Award of Contract (Allowing the time for Drawing Approval)		Months	
20	Is manufacturer ISO 9001 holder?	Yes/No	Yes	
22	Technical literature / drawings submitted?	Yes/No	Yes	

Deviations from technical requirements:

Signed..... As representative for.....

Address..... Date .....

TECHNICAL DATA SHEET
(To Be Completed By the Tenderer)

ITEM No.5A : 66kV GIS (CIRCUIT BREAKER) Sheet 1 of 2

	DESCRIPTION	UNIT	NEA REQ	DATA to be Filled
				66kV
1	**Manufacturer and Country of Origin**			
2	**Year of manufacturing experience**	Years	10	
3	**Manufacturing's Designation as per submitted catalogue**			
4	**Applicable standard**		IEC	
5	**Type**		GIS	
6	**Poles**		Three pole	
8	**Rated Voltage**	kV	132	
9	**Rated current**			
9.1	Continuous at 50 degree ambient	A	1250 2000 (B/C)	As per PSR
9.2	Short time for 1 sec at max. kV	kA	31.5	
10	**Frequency**	Hz	50	
11	**Temperature rise above 45 degree C ambient**		As per IEC	
11.1	Contacts	°C	65	
11.2	Terminals	°C	65	
12	**Rated short circuit breaking current**	**kA**	**31.5**	
13	**Rated short circuit making current**			
13.1	Peak	kA	80	
14	**Interrupting time at 100% capacity**			
14.1	Maximum opening time	mS		
14.2	Total interrupting time	mS		
15	**Closing time**	mS		
17	**Maximum capacitive current breaking capacity (rms)**	A		
18	**Insulation level**			
18.1	Impulse withstand voltage (crest)	kV	325	
18.2	Power frequency withstand voltage	kV	140	
19	**Operating mechanism**			
19.1	Type		Spring operated	
19.2	Number of mechanism per breaker		1	
19.3	Single/three phase auto-reclosure		3	
19.4	Operating voltage of closing and tripping coil	V DC	220	
19.5	Operaing voltage range -Closing -Tripping	% of rated voltage	 85-110% 70-110%	
19.6	Closing and tripping current	A		
19.7	Spring charging motor rating -Capacity -Rated voltage	 kW V	 110V DC	
19.8	Time required by motor to charge the spring completely	Sec	30	

TECHNICAL DATA SHEET
(To Be Completed By the Tenderer)

ITEM No. 5a : 66kV GIS (66kV CIRCUIT BREAKER) Sheet 2 of 2

	DESCRIPTION	UNIT	NEA REQ	DATA to be Filled
				66kV
20	Anti pumping device provided	Yes/No	Yes	
21	Trip-free feature provided	Yes/No	Yes	
22	**Number of N.C. contacts**	No.	8	
23	**Number of N.O. contacts**	No.	8	

ITEM No. 5b: 66kV DISCONNECTING SWITCH & EARTH SWITCH

	DESCRIPTION	UNIT	NEA REQ	DATA to be Filled
			66kV	66kV
1	**Applicable standard**		IEC	
2	**Type**		3 pole group operated	
4	**Rated Voltage**			
4.1	Nominal	kV	6	
4.2	Maximum	kV	72	
5	**Rated current**			
5.1	Continuous at 50°C ambient	A	1250 / 2000	
5.2	Short time for 1 sec at max. kV	kA	31.5	
6	**Temperature rise above 45 degree C ambient at normal rated current**		As per IEC	
6.1	Contacts	°C		
6.2	Current carrying parts	°C		
7	**Insulation level**			
7.1	Impulse withstand voltage(peak)	kV	325	
7.2	Power frequency withstand voltage (1min, rms)	kV	140	
13	**Main contacts**			
	- Material of fixed contacts		Provide	
	- Material of moving contacts		Provide	
	- Material of the contacts of the earthing switch		Provide	
19	**Auxiliary power supply**			
19.2	Control circuit	V, DC	110V DC	
19.3	Operating motor	V, phase	110V DC	
22	**Number of N.C. contacts**	No.	4 min	
23	**Number of N.O. contacts**	No.	4 min	
25	**Operating mechanism**		Motor & Manual Operated	
	Operating motor	W		
26	**Types of interlocks furnished**		Electrical and manual	
27	**Earthing Switch**			
27.1	Operating Mechanism		Manual and Motor Operated	
	Operating motor	W		
27.2	Type of Interlocks		Electrical and manual	
22	**Number of N.C. contacts**	No.	4	

23	**Number of N.O. contacts**	No.	4	
26	**Operating duty cycle**		O - 0.3sec – CO - 3min – CO	

ITEM No. 5c: 66kV CURRENT TRANSFORMER				
	DESCRIPTION	**UNIT**	**NEA REQ**	**DATA to be Filled**
			66kV	
5.	**Type**		Indoor, Metal enclosed	
7.	**Number of cores in each CT**	NO.	5	
9.	**Rated Primary Voltage**			
9.1	Nominal	kV	66	
9.2	Maximum	kV	72	
11.	**Insulation level**			
11.1	Impulse withstand voltage(peak)	kV	325	
11.2.	Power frequency withstand voltage (1min, rms)	kV	140	
13.	**Short time thermal rating**	kA	31.5	
14.	**Rated Peak Short circuit Current**	kA	80	
15.	**Rated VA burden for each core**	VA	As per PSR	
16.	**Accuracy class**	5P20 for protection 0.2 for metering PS for diff / Bus		
17.	**Current Ratio**	A	As per Technical Data in specification	
19.	**Overvoltage factor**		1.1	
19a	**Rated continuous thermal current**		1.2x	

ITEM No. 5d: 66kV VOLTAGE TRANSFORMER				
	DESCRIPTION	**UNIT**	**NEA REQ**	**DATA to be Filled**
	4. Applicable standard		IEC	
	5. Type		Indoor Metal enclosed	
	7. Rated primary voltage			
	a) Nominal	kV	66/√3	
	b) Maximum voltage	kV	72/√3	
	8. Insulation level			
	a) Impulse withstand voltage (primary)	kV	325	
	b) Power frequency withstand (1 min. rms) (primary)	kV	140	
	10. Rating			
	a) Voltage ratio	kV	66/√3: 0.11/√3	
	b) Rated burden	VA	50	
	c) Accuracy class		3P & 0.2 for metering	
	d) Overvoltage factor			
	- Continuous		1.1	
	- 30 seconds		1.5	
	h) Number of secondary windings		2/ 3	

ITEM No. 5e: 66 kV LIGHTNING ARRESTOR				
	DESCRIPTION	**UNIT**	**NEA REQ**	**DATA to be Filled**
			66kV	**66kV**
5	**Type**		Outdoor, gapless, Metal-Oxide	
6	**Voltage rating of L.A**	kV	60	
7	**Nominal discharge current**	kA	10	
8	**Surge counter with insulating base furnished**	Yes/No	Yes	
14	**Insulation level**			
	a)Impulse withstand voltage(peak)	kV	325	
	b)Power frequency withstand voltage (1min, rms)	kV	140	

5f: GAS INSULATED BUS				
23	**Bus arrangement formation**		Horizontal	
24	**Bus Duct Proposed**	1 or 3 Phase		

5g: GENERAL				
22	**Gas density detector provided**	Yes/No	Yes	
23	**Operation counter provided**	Yes/No	Yes	
24	**Space heater provided for cubicle**	Yes/No	Yes	
28	**Enclosure Protection**		IP55W	
29	**Number of possible operations without maintenance under:** Rated short circuit breaking current Rated normal current	 No No	 10 2000	
31	**Rated SF6 pressure**	kgf/cm2		
32	**Guaranteed SF6 losses/year**	kg	0.5% per Annum	
33	**Padlocking provision for local cubicle**	Yes/No	Yes	
22	UHF sensors for PD detection	Yes/No	Yes	
	Numbers of sensors			
34	**Total weight of the circuit breaker**	Kg		
35	**Mechanical dimension(LXWXH)**	mm x mm x mm		
36	**Delivery of equipment in months** following award of contract	(Allowing time for approval of drawing)		
37	Is manufacturer is ISO 9001 holder?	Yes/No	Yes	
38	Type test certificate submitted?	Yes/No	Yes	
39	Has manufacturer exported units?	Yes/No	Yes	
40	Technical literature / drawings submitted?	Yes/No	Yes	

Deviations from technical requirements:

Signed.....

Address.....

As representative for.....

Date.....

ITEM No.7e: 220 kV LIGHTNING ARRESTOR				
	DESCRIPTION	**UNIT**	**NEA REQ**	**DATA to be Filled**
			220kV	**220kV**
1	**Type**		Outdoor, gapless, Metal-Oxide	
2	**Voltage rating of L.A**	kV	216	
3	**Nominal discharge current**	kA	10	
4	**Surge counter with insulating base furnished**	Yes/No	Yes	
5	**Insulation level**			
	a)Impulse withstand voltage(peak)	kV	1050	
	b)Power frequency withstand voltage (1min, rms)	kV	460	

6f: GAS INSULATED BUS				
1	**Bus arrangement formation**		Horizontal	
2	**Bus Duct Proposed**	1 or 3 Phase		

7g: GENERAL				
1	**Gas density detector provided**	Yes/No	Yes	
2	**Operation counter provided**	Yes/No	Yes	
3	**Space heater provided for cubicle**	Yes/No	Yes	
4	**Enclosure Protection**		IP55W	
5	**Number of possible operations without maintenance under:** Rated short circuit breaking current Rated normal current	 No No	 10 2000	
6	**Rated SF6 pressure**	kgf/cm2		
7	**Guaranteed SF6 losses/year**	kg	0.5% per Annum	
8	**Padlocking provision for local cubicle**	Yes/No	Yes	
9	UHF sensors for PD detection	Yes/No	Yes	
9.1	Numbers of sensors			
10	**Total weight of the circuit breaker**	Kg		
11	**Mechanical dimension(LXWXH)**	mm x mm x mm		
12	**Delivery of equipment in months** following award of contract	(Allowing time for approval of drawing)		
13	Is manufacturer is ISO 9001 holder?	Yes/No	Yes	
14	Type test certificate submitted?	Yes/No	Yes	
15	Has manufacturer exported units?	Yes/No	Yes	
16	Technical literature / drawings submitted?	Yes/No	Yes	

Deviations from technical requirements:

Signed..... As representative for.....

Address..... Date.....

TECHNICAL DATA SHEET
(To Be Completed By the Tenderer)

ITEM No.8: 220 kV LIGHTNING ARRESTOR

Sheet 1 of 1

	DESCRIPTION	UNIT	NEA REQ	DATA to be Filled
			220kV	220 kV
1	**Manufacturer and Country of Origin**			
2	**Year of manufacturing experience**	Years	5	
3	**Manufacturing's Designation as per submitted catalogue**			
4	**Applicable standard**		IEC	
5	**Type**		Outdoor, gapless, Zinc-Oxide	
6	**Voltage rating of L.A**	kV	216	
7	**Nominal discharge current**	kA	10	
8	**Surge counter with insulating base furnished**	Yes/No	Yes	
9	**Minimum power frequency sparkover voltage**	kV		
10	**Maximum 1/50 impulse sparkover voltage**	kV		
11	**Maximum front wave sparkover voltage**	kV		
12	**Maximum switching surge sparkover voltage**	kV		
13	**Number of section per Pole**			
14	**Insulation level**			
	a)Impulse withstand voltage(peak)	kV	1050	
	b)Power frequency withstand voltage (1min, rms)	kV	460	
15	**Porcelain creepage distance**	mm		
16	**Earth terminal with accessories provided**	Yes/No	Yes	
17	**Delivery of equipment in months** following award of contract (Allowing time for approval of drawing)	month		
18	Is manufacturer is ISO 9001 holder?	Yes/No	Yes	
20	Has manufacturer exported units?	Yes/No	Yes	
21	Technical literature/drawings submitted?	Yes/No	Yes	

Deviations from technical requirements:

Signed..... As representative for.....

Address..... Date.....

TECHNICAL DATA SHEET
(To Be Completed By the Tenderer)

ITEM No.8A: 66 kV LIGHTNING ARRESTOR

Sheet 1 of 1

	DESCRIPTION	UNIT	NEA REQ	DATA to be Filled
			66kV	66kV
1	**Manufacturer and Country of Origin**			
2	**Year of manufacturing experience**	Years	5	
3	**Manufacturing's Designation as per submitted catalogue**			
4	**Applicable standard**		IEC	
5	**Type**		Outdoor, gapless, Zinc-Oxide	
6	**Voltage rating of L.A**	kV	60	
7	**Nominal discharge current**	kA	10	
8	**Surge counter with insulating base furnished**	Yes/No	Yes	
9	**Minimum power frequency sparkover voltage**	kV		
10	**Maximum 1/50 impulse sparkover voltage**	kV		
11	**Maximum front wave sparkover voltage**	kV		
12	**Maximum switching surge sparkover voltage**	kV		
13	**Number of section per Pole**		1	
14	**Insulation level**			
	a)Impulse withstand voltage(peak)	kV	325	
	b)Power frequency withstand voltage (1min, rms)	kV	140	
15	**Porcelain creepage distance**	mm	1650	
16	**Earth terminal with accessories provided**	Yes/No	Yes	
17	**Delivery of equipment in months** following award of contract (Allowing time for approval of drawing)	month		
18	Is manufacturer is ISO 9001 holder?	Yes/No	Yes	
20	Has manufacturer exported units?	Yes/No	Yes	
21	Technical literature/drawings submitted?	Yes/No	Yes	

Deviations from technical requirements:

Signed..... As representative for.....

Address..... Date.....

TECHNICAL DATA SHEET
(To Be Completed By the Tenderer)

ITEM No.9: 9 kV LIGHTNING ARRESTOR **Sheet 1 of 1**

	DESCRIPTION	UNIT	NEA REQ	DATA to be Filled
			11 kV	11 kV
1	**Manufacturer and Country of Origin**			
2	**Year of manufacturing experience**	Years	5	
3	**Manufacturing's Designation as per submitted catalogue**			
4	**Applicable standard**		IEC	
5	**Type**		Outdoor, gapless, Zinc-Oxide	
6	**Voltage rating of L.A**	kV	9	
7	**Nominal discharge current**	kA	10	
8	**Surge counter with insulating base furnished**	Yes/No	Yes	
9	**Minimum power frequency sparkover voltage**	kV		
10	**Maximum 1/50 impulse sparkover voltage**	kV		
11	**Maximum front wave sparkover voltage**	kV		
12	**Maximum switching surge sparkover voltage**	kV		
13	**Number of section per Pole**		1	
14	**Insulation level**			
	a)Impulse withstand voltage(peak)	kV	28	
	b)Power frequency withstand voltage (1min, rms)	kV	75	
15	**Porcelain creepage distance**	mm	....	
16	**Earth terminal with accessories provided**	Yeas/No	Yes	
17	**Delivery of equipment in months** following award of contract (Allowing time for approval of drawing)	month		
18	Is manufacturer is ISO 9001 holder?	Yes/No	Yes	
19	Has manufacturer exported units?	Yes/No	Yes	
20	Technical literature/drawings submitted?	Yes/No	Yes	

Deviations from technical requirements:

Signed..... As representative for.....

Address..... Date.....

Summary of Geotechnical Report and ERT report (Lapsiphedi and Changunarayan substation)

Recommendation of Foundation Type and Depth

Based on the analysis, the following recommendations are made.

- Isolated footing for permissible settlement of 25 mm and Raft/Mat foundation for permissible settlement of 40 mm to compute allowable bearing capacity (static condition) were analyzed
- The details with different depths and different dimensions of different types of foundations for the project site is summarized below:

The slope of the excavation should be maintained at about 45° to prevent the slope from collapsing during excavation or construction period.

Subgrade Reaction Modulus (K_S) required for design of raft/mat foundation in different boreholes at different depths calculated from corrected N value. Due consideration of probable rise in water table in monsoon, side fall (collapse) is eminent. So, at the time of construction of foundation, it is strongly recommended to design the appropriate site protection measures based on the soil properties shown in this report.

The above recommendation is based on the mentioned methodology of our analysis. It is worth mentioning that the allowable bearing capacity depends on many variables such as allowable settlement, type of foundation, size and depth of foundation, importance of structure, cost of project etc. Therefore, based on soil index properties data and engineering properties data provided in this report, the foundation designer is free to refine the calculations wherever he feels necessary.

Table 1: Isolated Footing at Lapsiphedi Substation

ISOLATED FOOTING (SQUARE)																											
Depth of footing, D_f,m		1.5					2					2.5					3					3.5				
Length of footing L,m		1.5	2	2.5	3	3.5	1.5	2	2.5	3	3.5	1.5	2	2.5	3	3.5	1.5	2	2.5	3	3.5	1.5	2	2.5	3	3.5
Width of footing B,m		1.5	2	2.5	3	3.5	1.5	2	2.5	3	3.5	1.5	2	2.5	3	3.5	1.5	2	2.5	3	3.5	1.5	2	2.5	3	3.5
Allowable Bearing Capacity in KN/m^2 for 25 mm Permissible Settlement	BH -1	129	138	149	160	159	164	170	179	189	181	202	206	213	221	206	229	228	233	239	216	270	266	267	272	238
	BH -2	104	110	117	115	109	200	206	198	185	175	239	220	209	193	182	323	297	282	272	255	335	308	292	282	274
	BH -3	90	95	101	97	93	132	132	119	111	105	144	132	125	116	109	144	132	125	121	113	239	220	209	201	196
	BH -4	94	100	103	97	93	139	143	129	120	114	156	143	136	125	118	168	154	146	141	132	192	176	167	161	157
	BH -5	109	115	123	131	130	221	228	239	251	240	274	277	285	296	273	395	363	344	332	312	359	330	313	302	294
	BH -6	103	110	117	123	118	217	225	228	212	201	269	253	240	222	209	383	352	334	322	302	371	341	323	312	304
	BH -7	169	179	191	204	203	266	275	288	302	288	331	334	344	356	328	490	486	480	463	435	371	341	323	312	304
	BH -8	263	281	302	325	322	480	500	476	443	420	575	528	501	463	437	551	506	480	463	435	431	396	375	362	353
	BH -9	213	227	243	238	227	407	396	357	332	315	431	396	375	347	328	539	495	469	453	425	515	473	448	432	421

Table 2: Raft/Mat Footing (Square) at Lapsiphedi Substation

RAFT/MAT FOOTING (SQUARE)																											
Depth of footing, D_f,m		1.5					2					2.5					3					3.5				
Length of footing L,m		6	8	10	12	14	6	8	10	12	14	6	8	10	12	14	6	8	10	12	14	6	8	10	12	14
Width of footing B,m		6	8	10	12	14	6	8	10	12	14	6	8	10	12	14	6	8	10	12	14	6	8	10	12	14
Allowable Bearing Capacity in KN/m^2 for 40 mm Permissible Settlement	BH -1	358	314	289	273	262	474	474	438	415	399	518	460	427	406	391	551	589	550	525	507	606	568	534	512	496
	BH -2	155	149	145	142	140	245	233	226	222	219	251	237	230	225	221	347	327	315	307	302	368	345	331	322	316
	BH -3	131	126	122	120	119	147	140	136	133	131	150	142	138	135	133	154	145	140	136	134	263	246	237	230	226
	BH -4	131	126	122	120	119	159	151	147	144	142	163	154	149	146	144	180	169	163	159	156	210	197	189	184	181
	BH -5	183	219	255	292	302	335	361	351	344	339	375	368	356	348	342	424	399	385	375	369	394	370	355	346	339
	BH -6	167	160	156	153	151	281	268	260	255	251	288	273	264	258	254	411	387	373	364	357	408	382	367	357	350
	BH -7	288	345	403	461	510	402	473	543	532	524	451	520	551	539	530	591	556	536	523	514	408	382	367	357	350
	BH -8	470	569	557	547	540	587	559	543	532	524	602	570	551	539	530	591	556	536	523	514	473	443	426	415	407
	BH -9	322	309	301	295	292	441	419	407	399	393	451	427	413	404	398	578	544	525	512	503	565	530	509	495	486

Electric Resistivity Test of Lapsiphedi Substation

RESULTS

i. The electric resistivity test of the site was performed in 16th and 17th of December, 2018 at eight locations as suggested by client.

ii. The average resistance value for different test point varying from 488 to 1126 Ohm-m and the soil stratification is categorized into 4 type based on the resistance values (Table 1). classification followed to Barnes (1952) and results are followed.

   a. Resistance value range 100 to 250 Ohm-m (sandy clay and wet silty sand).
   b. Resistance value range 250 to 500 Ohm-m (clayey sand and saturated sand).
   c. Resistance value range 500 to 1500 Ohm-m (dry sand/weathered rock mass).
   d. Resistance value range 1500 to 5000 Ohm-m (dry gravel/rock mass).

iii. The earth resistance values doesn't indicates the water bearing stratum in soil layers.

iv. Measured surface resistivity data is attached separately (Appendices).

LIMITATION

The Electrical resistivity testing has been carried out at the location chosen by the client. In general resistivity values are influenced by water, presence of dissolved ions in soil media and nature of strata. Recommendation made in the report are hence valid only for tested locations only. However, if there is any change in subsoil conditions and properties at places beyond chosen test locations, the soil consultant to be contacted for further guidance.

नेपाल विद्युत प्राधिकरण
स्थापना: २०४२
NEPAL ELECTRICITY AUTHORITY
ESTD. 1985

Table1: Soil statification based on earth resistance values (Barnes, 1952)

Electrode distance (m)	Resistivity (Ohm-m)															
	ER1	ER1	ER2	ER2	ER3	ER3	ER4	ER4	ER5	ER5	ER6	ER6	ER7	ER7	ER8	ER8
0.2	3731.35	44.79	4743.76	2307.28	1846.09	2539.08	499.18	361.63	549.49	598.53	644.84	689.74	1398.67	1241.90	770.89	116.10
1	496.82	20.50	278.45	1230.42	1243.88	590.82	354.22	650.94	603.86	578.25	504.71	510.13	520.05	584.70	677.58	614.12
2	305.05	385.65	706.34	672.88	518.27	392.09	689.69	590.50	536.17	527.57	503.32	467.63	487.66	503.04	651.38	694.34
3	314.42	438.26	635.96	744.77	354.77	376.25	1059.06	796.07	598.75	547.43	521.91	543.27	469.78	476.62	596.05	635.88
4	529.28	535.85	646.21	787.13	485.57	400.54	926.59	613.16	587.16	611.03	581.47	514.56	556.92	515.61	597.79	650.62
5	501.23	676.73	711.90	851.10	524.71	504.66	798.76	569.12	608.76	636.57	540.52	643.95	655.56	524.29	648.41	753.39
10	677.10	389.78	797.05	996.33	444.61	738.44	900.83	854.40	645.85	779.09	806.02	658.72	351.42	657.54	626.82	761.93
20	942.16	785.94	743.21	220.24	873.68	599.74	921.57	1052.56	781.05	706.93	793.31	569.55	159.88	690.70	777.05	746.08
30	849.31	1122.63	875.41	760.52	1203.85	722.02	1056.50	966.16	1678.21	575.60	1333.25	961.84	513.59	823.04	721.12	356.57
Maximum	3731.35	1122.63	4743.76	2307.28	1846.09	2539.08	1059.06	1052.56	1678.21	779.09	1333.25	961.84	1398.67	1241.90	777.05	761.93
Minimum	305.05	20.50	278.45	220.24	354.77	376.25	354.22	361.63	536.17	527.57	503.32	467.63	159.88	476.62	596.05	116.10
Average	927.41	488.90	1126.48	952.30	832.83	762.63	800.71	717.17	732.14	617.89	692.15	617.71	568.17	668.60	674.12	592.11

Legend

- Resistance value range 100 to 250 Ohm-m (Sandy Clay and Wet Silty Sand)
- Resistance value range 250 to 500 Ohm-m (Clayey Sand and Saturated Sand)
- Resistance value range 500 to 1500 Ohm-m (Dry Sand/ Weathered rock mass)
- Resistance value range 1500 to 5000 Ohm-m (Dry Gravel/ Rock mass)

Conclusion

Lacustrine deposit with alternate band of colluvial traces exist on project site within the drilled depth.

Based on the map prepared by the Department of Mines and Geology, Peak Ground Acceleration for Kathmandu Valley is around 200-250gal. Considering the important factors such as structure, zoning and performance,the project site may experience 400gal as design PHGA. As per the Engineering and Environmental Map of Kathmandu valley,
the project area lies in an area which is moderate hazardous from liquefaction potential point of view. The evaluation of the site utilizing N-Value method shows that the site is highly potential (Susceptible) for liquefaction, for a value of 0.36g as the maximum ground acceleration at the surface.

Recommendation

For Non-Seismic condition, shallow/open foundation is suitable at the proposed construction site, whereas for Seismic condition, pile foundation is suitable at proposed construction site.

Designer have to design Pile foundation if bearing capacity of Shallow foundation in No- Seismic condition isn't enough to resist load from structure. Capacity of pile for liquefaction (Seismic) case for seismic load should consider with FoS of 1, else have to consider FoS 2.5 in average. As of top soil is combination of recent fluvial deposit combine with colluvial fines and of sloppy land, in case of seismic condition Pile serves more stability.

Modulus of sub-grade reaction is about 14,000 – 23,000 KN/m^3, which changes significantly with depth and size of raft foundation, so it is recommended to use with critical attention and calculation, based on actual size and shape of footing.

The modulus of Subgrade reaction is based upon Bowles Formula. It is the general value presented in the report. It is recommended to adopt the Modulus of Subgrade Reaction after conduction of Plate load Test.

The foundation design engineer need not strictly follow the depth and dimension of foundation selected in the bearing capacity analysis of this report. There are options to select the dimension and greater depth depending upon the load of the structure. However, allowable bearing capacity depends on many variables such as adopted allowable settlement, type of foundation, size and depth of foundation, importance of structure, cost of the project etc. Hence, based on the parameters calculated from this investigation report, it is highly recommended to revisit the calculations for the design phase.

The details with different depths and different dimensions of different types of foundation are given below.

Technical Discussion

Locally underlying formation to be unfavorable

As per the Engineering and Environmental Map of Kathmandu Valley prepared by Department of Mines and Geology, Nepal, the project site lies on SAL formation (recent alluvial soil). Recent sediments of flood plains and lower alluvial terrace have sand and gravel deposits of up to boulder size. Material define in the proposed substation consist of low bearing capacity, loose density /soft consistency formation. Hence, the site has risk of ground settlement, surface erosion and flooding in long term.

Geotechnical Investigation field and laboratory test results also verified with the analysis given on Engineering and Environmental Map of Kathmandu Valley.

Variation of ground water table according to monsoon is very common in Kathmandu valley including proposed substation area, so it is very likely to have ground level in shallow depth during the monsoon season which makes it further susceptible to liquefaction however geotechnical investigation was conducted during the dry season.
Geotechnical investigation information's such as (Bore hole logs and lab tests results) indicates that it is very unlikely to achieve the enough ground bearing capacity in shallow depth.

Hence it is our recommendation for deep footing pile foundation on such seismic condition on proposed Changunarayan Construction Site.

Deep Footing, pile foundation (Seismic condition)

Deep Footing, pile foundation (Seismic condition) is suitable at proposed construction site. The piles are to be socketed into a the very dense sandy gravel. The preferred pile type for the site is concrete pile The design of deep footings should consider the capacity and construction requirements. It is recommended that pile footings for this project be designed in accordance with Pile Foundations: IS 2911 :Part 1 : Sec 1 :1979 Driven cast in-situ concrete piles. IS 2911 :Part 1 : Sec 2 :1979 Bored cast-in-situ piles, IS 5121 :1969 Safety code for piling– Design and Installation. The use of small diameter piles or mini piles is not advised. The recommendation would go for the use of mid-size (600mm and 900mm) diameter concrete bored piles.

Before pouring concrete, he excavations for the installation of footings should be inspected by a geotechnical engineer to confirm that the bases of the footing excavations are clean and without soft, loose, wet or disturbed soils.

ALLOWABLE BEARING CAPACITY OF FOUNDATION AT PROPOSED SITE BH # 4

Depth of footing, m	Theoretical Allowable Bearing Capacity, t/m^2	Recommended Design gross Allowable Bearing Capacity, t/m^2	Theoretical Allowable Bearing Capacity, t/m^2	Recommended Design gross Allowable Bearing Capacity, t/m^2	Theoretical Allowable Bearing Capacity, t/m^2	Recommended Design gross Allowable Bearing Capacity, t/m^2
	Width of Square Footing, m		Width of Square Footing, m		Width of Square Footing, m	
	1.5		2		2.5	
1.5	17.3	**17.3**	16.5	**16.5**	16.0	**16.0**
2	22.9	**22.9**	21.6	**21.6**	20.7	**20.7**
2.5	28.1	**28.1**	26.3	**26.3**	25.0	**25.0**
	Width of Square Footing, m		Width of Square Footing, m		Width of Square Footing, m	
	3.0		4.0		5.0	
1.5	14.4	**14.4**	13.1	**13.1**	12.3	**12.3**
2	18.3	**18.3**	16.6	**16.6**	15.4	**15.4**
2.5	21.9	**21.9**	19.7	**19.7**	18.2	**18.2**
3	38.6	**38.6**	42.4	**42.4**	46.9	**44.0**
4	56.9	**44.0**	66.2	**44.0**	56.9	**44.0**
5	71.9	**44.0**	56.5	**44.0**	47.9	**44.0**
	Width of Square Footing, m		Width of Square Footing, m		Width of Square Footing, m	
	6.0		7.0		10.0	
1	8.7	**8.7**	8.4	**8.4**	7.9	**7.9**
1.5	20.6	**20.6**	19.4	**19.4**	16.7	**16.7**
2	24.8	**24.8**	23.2	**23.2**	19.9	**19.9**
2.5	28.2	**28.2**	26.5	**26.5**	22.7	**22.7**
3	48.7	**44.0**	44.2	**44.0**	47.7	**44.0**
4	53.6	**44.0**	52.6	**44.0**	51.0	**44.0**
5	65.6	**44.0**	59.4	**44.0**	51.0	**44.0**
6	63.6	**44.0**	61.0	**44.0**	53.8	**44.0**
	Width of Square Footing, m		Width of Square Footing, m		Width of Square Footing, m	
	15.0		20.0		30.0	
1.5	14.6	**14.6**	13.4	**13.4**	11.7	**11.7**
2	17.4	**17.4**	15.9	**15.9**	13.9	**13.9**
2.5	19.7	**19.7**	18.0	**18.0**	15.8	**15.8**
3	38.5	**38.5**	33.0	**33.0**	26.2	**26.2**
4	41.4	**41.4**	35.4	**35.4**	28.4	**28.4**
5	42.5	**42.5**	37.0	**37.0**	30.0	**30.0**
6	45.0	**44.0**	39.3	**39.3**	32.3	**32.3**
7	48.1	**44.0**	42.1	**42.1**	34.8	**34.8**
8	52.2	**44.0**	45.1	**44.0**	37.0	**37.0**
9	75.8	**44.0**	61.7	**44.0**	47.4	**44.0**

ALLOWABLE BEARING CAPACITY OF FOUNDATION AT PROPOSED SITE BH # 6

Depth of footing, m	Theoretical Allowable Bearing Capacity, t/m^2	Recommended Design gross Allowable Bearing Capacity, t/m^2	Theoretical Allowable Bearing Capacity, t/m^2	Recommended Design gross Allowable Bearing Capacity, t/m^2	Theoretical Allowable Bearing Capacity, t/m^2	Recommended Design gross Allowable Bearing Capacity, t/m^2
	Width of Square Footing, m		Width of Square Footing, m		Width of Square Footing, m	
	1.5		2		2.5	
1.5	11.4	**11.4**	10.3	**10.3**	9.7	**9.7**
2	14.7	**14.7**	13.2	**13.2**	12.3	**12.3**
2.5	18.1	**18.1**	16.3	**16.3**	15.2	**15.2**
	Width of Square Footing, m		Width of Square Footing, m		Width of Square Footing, m	
	3.0		4.0		5.0	
1.5	9.3	**9.3**	8.9	**8.9**	8.6	**8.6**
2	11.9	**11.9**	11.3	**11.3**	10.9	**10.9**
2.5	14.6	**14.6**	13.9	**13.9**	13.4	**13.4**
3	31.0	**31.0**	28.3	**28.3**	25.8	**25.8**
4	39.6	**39.6**	35.5	**35.5**	32.0	**32.0**
5	112.4	**44.0**	110.9	**44.0**	92.4	**44.0**
	Width of Square Footing, m		Width of Square Footing, m		Width of Square Footing, m	
	6.0		7.0		10.0	
1	7.6	**7.6**	7.4	**7.4**	6.9	**6.9**
1.5	13.4	**13.4**	12.9	**12.9**	11.7	**11.7**
2	16.6	**16.6**	15.9	**15.9**	14.3	**14.3**
2.5	19.9	**19.9**	19.0	**19.0**	16.9	**16.9**
3	40.6	**40.6**	36.1	**36.1**	28.1	**28.1**
4	47.8	**44.0**	42.1	**42.1**	32.7	**32.7**
5	103.2	**44.0**	85.6	**44.0**	56.2	**44.0**
6	91.8	**44.0**	78.7	**44.0**	54.1	**44.0**
	Width of Square Footing, m		Width of Square Footing, m		Width of Square Footing, m	
	15.0		20.0		30.0	
1.5	10.2	**10.2**	9.2	**9.2**	8.1	**8.1**
2	12.3	**12.3**	11.0	**11.0**	9.7	**9.7**
2.5	14.4	**14.4**	12.9	**12.9**	11.4	**11.4**
3	21.2	**21.2**	18.0	**18.0**	15.0	**15.0**
4	24.5	**24.5**	21.0	**21.0**	17.6	**17.6**
5	37.3	**37.3**	30.1	**30.1**	23.9	**23.9**
6	37.8	**37.8**	31.3	**31.3**	25.5	**25.5**
7	39.6	**39.6**	33.1	**33.1**	27.3	**27.3**
8	41.0	**41.0**	34.7	**34.7**	29.2	**29.2**
9	42.7	**42.7**	36.7	**36.7**	31.2	**31.2**

ALLOWABLE BEARING CAPACITY OF FOUNDATION AT PROPOSED SITE BH # A

Depth of footing, m	Theoretical Allowable Bearing Capacity, t/m^2	Recommended Design gross Allowable Bearing Capacity, t/m^2	Theoretical Allowable Bearing Capacity, t/m^2	Recommended Design gross Allowable Bearing Capacity, t/m^2	Theoretical Allowable Bearing Capacity, t/m^2	Recommended Design gross Allowable Bearing Capacity, t/m^2
	Width of Square Footing, m		Width of Square Footing, m		Width of Square Footing, m	
	1.5		2		2.5	
1.5	8.2	**8.2**	7.9	**7.9**	8.6	**8.6**
2	12.1	**12.1**	13.6	**13.6**	14.7	**14.7**
2.5	19.2	**19.2**	20.5	**20.5**	21.1	**21.1**
	Width of Square Footing, m		Width of Square Footing, m		Width of Square Footing, m	
	3.0		4.0		5.0	
1.5	8.6	**8.6**	9.6	**9.6**	10.9	**10.9**
2	14.5	**14.5**	16.0	**16.0**	17.8	**17.8**
2.5	23.0	**23.0**	24.9	**24.9**	25.3	**25.3**
3	34.7	**34.7**	33.6	**33.6**	37.8	**37.8**
4	51.0	**44.0**	52.4	**44.0**	46.6	**44.0**
5	71.8	**44.0**	67.0	**44.0**	55.0	**44.0**
	Width of Square Footing, m		Width of Square Footing, m		Width of Square Footing, m	
	6.0		7.0		10.0	
1	7.3	**7.3**	7.5	**7.5**	10.7	**10.7**
1.5	12.4	**12.4**	12.7	**12.7**	15.5	**15.5**
2	20.2	**20.2**	20.4	**20.4**	21.5	**21.5**
2.5	27.7	**27.7**	27.8	**27.8**	29.3	**29.3**
3	37.7	**37.7**	37.7	**37.7**	38.6	**38.6**
4	56.4	**44.0**	52.8	**44.0**	42.4	**42.4**
5	67.7	**44.0**	61.1	**44.0**	46.0	**44.0**
6	69.3	**44.0**	65.2	**44.0**	47.7	**44.0**
	Width of Square Footing, m		Width of Square Footing, m		Width of Square Footing, m	
	15.0		20.0		30.0	
1.5	17.5	**17.5**	18.6	**18.6**	15.9	**15.9**
2	22.2	**22.2**	19.5	**19.5**	16.9	**16.9**
2.5	23.2	**23.2**	20.6	**20.6**	18.0	**18.0**
3	29.5	**29.5**	25.3	**25.3**	21.4	**21.4**
4	31.1	**31.1**	27.2	**27.2**	23.2	**23.2**
5	34.9	**34.9**	30.6	**30.6**	25.9	**25.9**
6	37.2	**37.2**	33.0	**33.0**	28.2	**28.2**
7	38.7	**38.7**	34.9	**34.9**	30.0	**30.0**
8	41.6	**41.6**	37.5	**37.5**	32.6	**32.6**
9	44.3	**44.0**	39.9	**39.9**	35.5	**35.5**

ALLOWABLE BEARING CAPACITY OF FOUNDATION AT PROPOSED SITE BH # B

Depth of footing, m	Theoretical Allowable Bearing Capacity, t/m^2	Recommended Design gross Allowable Bearing Capacity, t/m^2	Theoretical Allowable Bearing Capacity, t/m^2	Recommended Design gross Allowable Bearing Capacity, t/m^2	Theoretical Allowable Bearing Capacity, t/m^2	Recommended Design gross Allowable Bearing Capacity, t/m^2
	Width of Square Footing, m		Width of Square Footing, m		Width of Square Footing, m	
	1.5		2		2.5	
1.5	18.1	**18.1**	16.8	**16.8**	16.0	**16.0**
2	21.4	**21.4**	20.2	**20.2**	20.1	**20.1**
2.5	24.3	**24.3**	23.0	**23.0**	23.2	**23.2**
	Width of Square Footing, m		Width of Square Footing, m		Width of Square Footing, m	
	3.0		4.0		5.0	
1.5	15.2	**15.2**	14.6	**14.6**	14.3	**14.3**
2	19.3	**19.3**	18.2	**18.2**	17.7	**17.7**
2.5	22.3	**22.3**	21.3	**21.3**	20.6	**20.6**
3	31.3	**31.3**	33.5	**33.5**	41.9	**41.9**
4	50.0	**44.0**	58.3	**44.0**	63.4	**44.0**
5	89.9	**44.0**	88.6	**44.0**	90.5	**44.0**
	Width of Square Footing, m		Width of Square Footing, m		Width of Square Footing, m	
	6.0		7.0		10.0	
1	9.2	**9.2**	9.1	**9.1**	8.9	**8.9**
1.5	16.4	**16.4**	18.3	**18.3**	23.0	**23.0**
2	22.0	**22.0**	24.9	**24.9**	27.0	**27.0**
2.5	29.2	**29.2**	29.2	**29.2**	30.2	**30.2**
3	41.7	**41.7**	46.8	**44.0**	54.2	**44.0**
4	70.5	**44.0**	70.0	**44.0**	76.7	**44.0**
5	100.1	**44.0**	98.8	**44.0**	76.5	**44.0**
6	137.1	**44.0**	134.6	**44.0**	85.8	**44.0**
	Width of Square Footing, m		Width of Square Footing, m		Width of Square Footing, m	
	15.0		20.0		30.0	
1.5	17.9	**17.9**	15.2	**15.2**	11.9	**11.9**
2	20.8	**20.8**	17.6	**17.6**	13.7	**13.7**
2.5	23.3	**23.3**	19.7	**19.7**	15.4	**15.4**
3	46.6	**44.0**	35.3	**35.3**	24.1	**24.1**
4	49.3	**44.0**	37.9	**37.9**	26.5	**26.5**
5	50.1	**44.0**	38.9	**38.9**	27.8	**27.8**
6	53.8	**44.0**	41.1	**41.1**	29.6	**29.6**
7	56.6	**44.0**	43.8	**43.8**	32.0	**32.0**
8	56.5	**44.0**	44.1	**44.0**	33.0	**33.0**
9	56.1	**44.0**	44.3	**44.0**	34.0	**34.0**

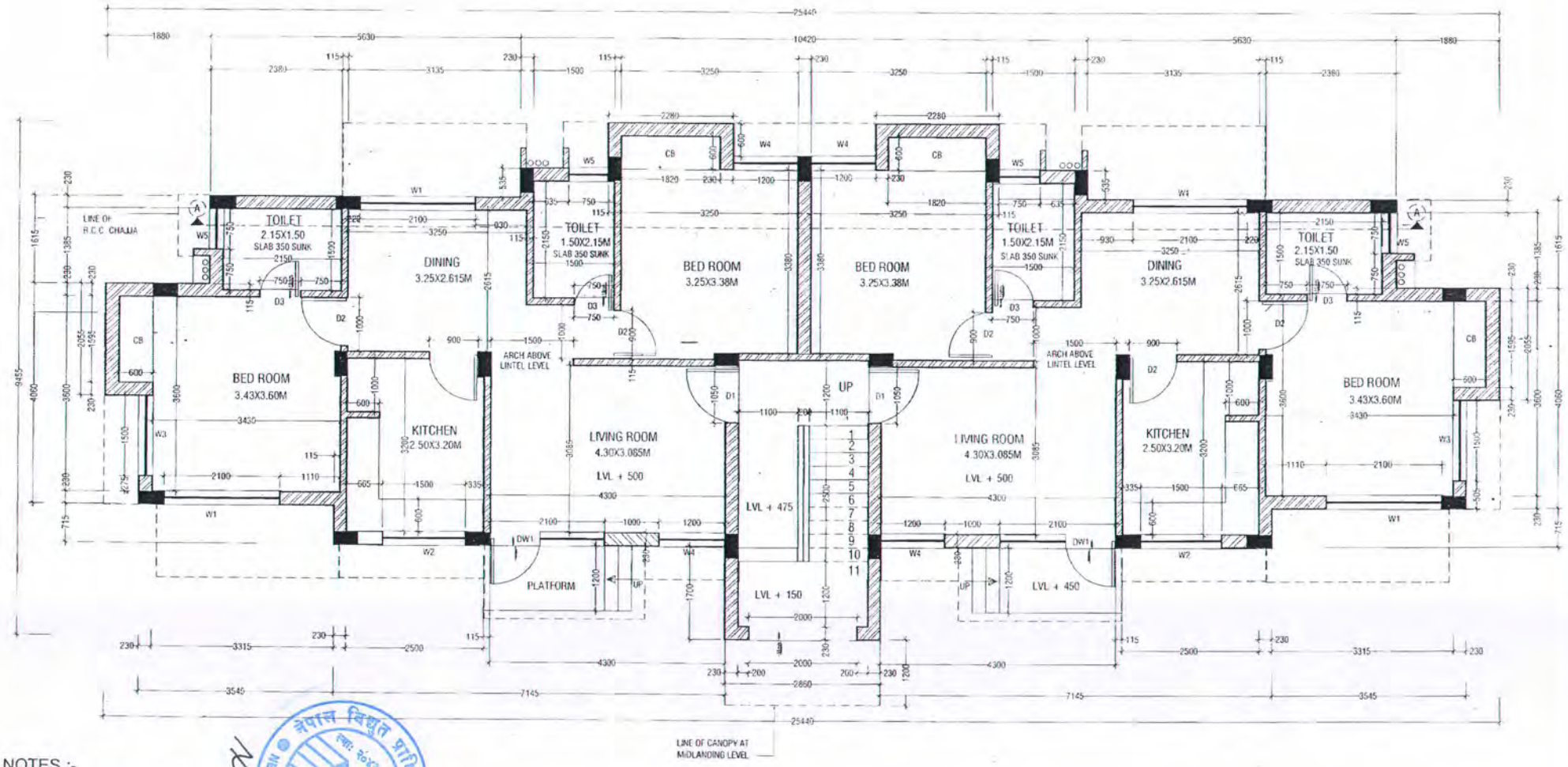
Earth Resistivity Testing (ERT)

The Earth Resistivity Test (ERT) of soil was carried out at site for **STUDIES WORK FOR CHAGUNARAYAN SUB-STATION, CHAGUNARAYAN, BHAKTAPUR.**

Result of Earth Resistivity Testing at Changunarayan

Electrode distance	Resistivity (Ohm-m)									
0.2	495.26	394.11	132.41	189.14	173.70	156.01	299.66	33.11	325.72	467.06
1	409.85	621.20	172.97	119.12	99.23	12.69	311.19	383.74	1284.11	281.52
2	151.55	305.76	188.87	153.57	84.52	7.39	299.85	344.60	104.51	220.65
3	136.83	149.08	168.31	146.67	76.17	10.31	265.91	171.37	102.57	167.54
4	119.18	101.69	154.36	140.39	76.41	124.84	245.40	187.31	101.13	146.19
5	124.41	92.01	141.28	150.36	78.67	115.72	230.57	183.55	107.95	128.90
10	123.82	132.17	135.28	149.64	93.75	99.86	130.23	158.10	114.93	109.52
15	135.90	142.21	115.19	139.01	138.62	119.73	129.73	136.29	-	-
20	142.44	137.55	131.19	146.84	176.62	114.86	101.92	137.31	152.49	154.94
25	149.60	142.67	-	123.16	205.38	-	-	138.05	-	-
30	-	145.37	-	130.02	122.71	-	-	-	161.16	165.97
35	-	149.52	-	133.10	-	-	-	-	-	-
Maximum	495.26	621.20	188.87	189.14	205.38	156.01	311.19	383.74	101.13	109.52
Minimum	119.18	92.01	115.19	119.12	76.17	7.39	101.92	33.11	1284.11	467.06
Average	198.89	209.44	148.87	143.42	120.52	84.60	223.83	187.34	272.73	204.70

Architectural Drawings of Township Quarters (B, C & D type)



NOTES :-

1. ALL DIMENSIONS ARE IN MM.
2. DO NOT SCALE THE DRAWING, FOLLOW WRITTEN DIMENSIONS ONLY.
3. ALL DIMENSIONS SHALL BE CHECKED PRIOR TO EXECUTION OF THE WORK.
4. FOR LOCATION OF BUILDING REFER TOWNSHIP LAY OUT PLAN.
5. FOR R.C.C COLUMN SIZES REF. STRUCTURAL DRAWINGS.
6. BRICKS (CLASS 75) SHALL BE USED IN BRICK MASONRY.
7. ALL INTERNAL WALL SHALL BE 115MM THK. & EXTERNAL WALL SHALL BE 230MM THK.
8. THE DRAWING TO BE READ IN CONJUCTION WITH RELEVANT STRUCTURAL DRAWINGS BOTH FOR DIMENSIONS AND LAYOUT.
9. FOR CB,TOILETS AND KITCHEN DETAILS REF. SEPARATE DRAWINGS.
10. FOR DOORS, WINDOWS AND VENTILATORS DETAILS REF. SEPARATE DRAWINGS.
11. LAYOUT SHALL BE MARKED ON SITE AND GOT APPVD. BY ENGINEER IN-CHARGE IN WRITING BEFORE COMMENCING EXCAVATION WORK AT SITE.
12. ANY DESCREPANCY IN DRAWING TO BE BROUGHT TO THE NOTICE OF SITE INCHARGE.
13. RWP SHALL BE 110 MM DIA. UPVC PIPE.
14. COLUMN SHOWN IN THE DRAWING ARE INDICATIVE . FOR EXACT COLUMN LOCATIONS REFER STRUCTURAL DRAWING.

SPECIAL NOTE IN CASE ONLY TWO QTRS OF ONE BLOCK ARE TO BE CONSTRUCTED

1. IN CASE ONLY 2 QUARTERS OF ONE BLOCK HAVE TO BE MADE, ONLY GROUND FLOOR UNITS SHALL BE MADE. STAIRCASE AND MUMTY SHALL BE SUITABLY ADJUSTED.
2. PROVISION SHALL BE MADE FOR FUTURE EXPANSION BY EXTENDING ALL COLUMNS ABOVE TOP OF ROOF SLAB TO PARAPET TOP.
3. ALL EXTENDED COLUMNS SHALL BE CONSTRUCTED USING BRICK BATS CONCRETE 1:5:10 AND SHALL BE PLASTERED WITH 1:4 CEMENT MORTAR WITH WATER PROOFING COMPOUND.

RELEASED FOR TENDER PURPOSE ONLY

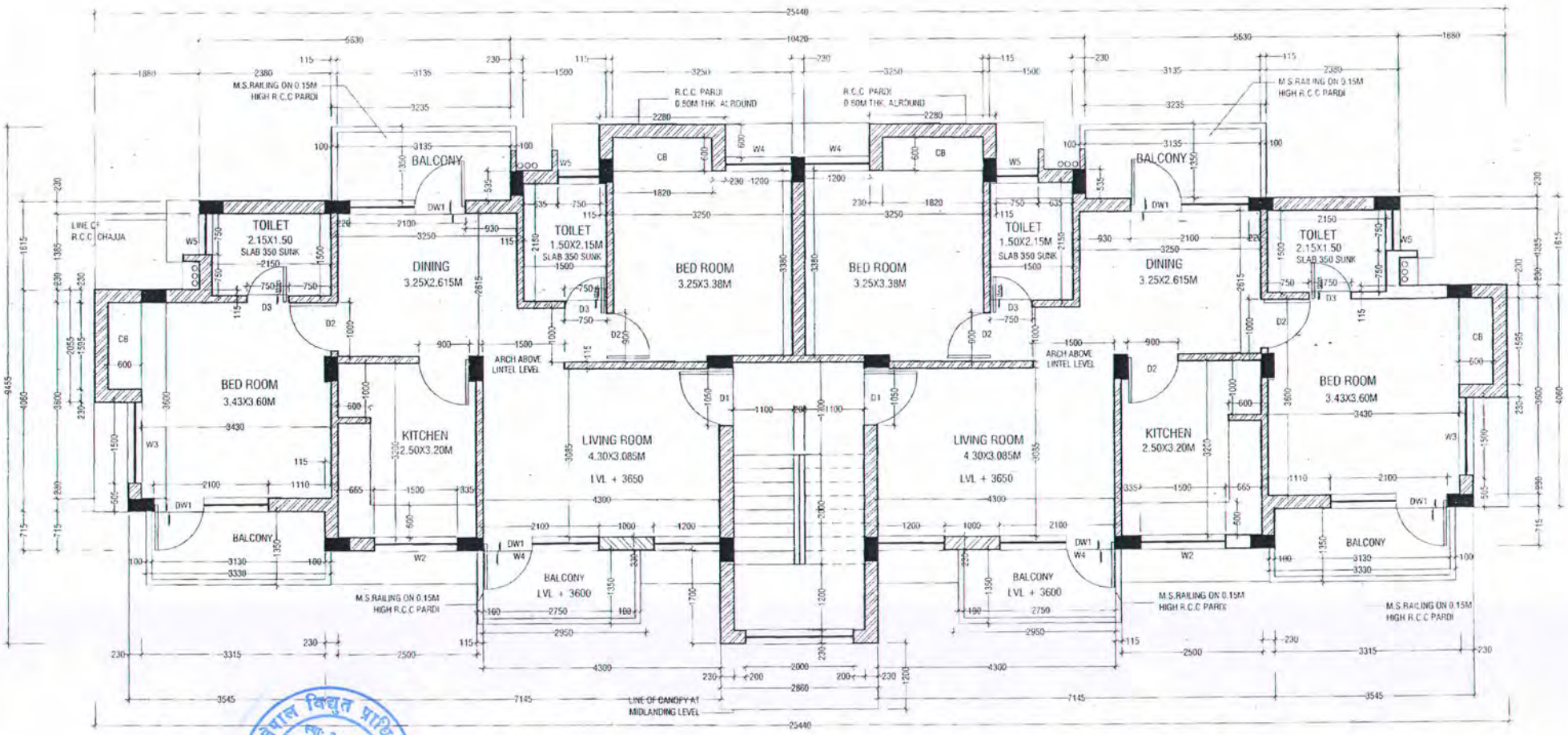
POWER GRID CORPORATION OF INDIA LIMITED
(A Government of India Enterprise)

PROJECT: STANDARD DRAWINGS FOR TOWNSHIP

TITLE: GROUND FLOOR PLAN (DOUBLE STOREY) TYPE - B2

MINOR CHANGES MADE IN KITCHEN				
R-02	DCDL (ENGG-CIVIL)	AGM (ENGG CIVIL)	GM (ENGG SS&TL)	DATE

SCALE: NTS | DRAWING NO: C/ENGG/TS/STD/TYPE-B-2/DS/01 | REV: R-02



NOTES :-

1. ALL DIMENSIONS ARE IN MM.
2. DO NOT SCALE THE DRAWING, FOLLOW WRITTEN DIMENSIONS ONLY.
3. ALL DIMENSIONS SHALL BE CHECKED PRIOR TO EXECUTION OF THE WORK.
4. FOR LOCATION OF BUILDING REFER TOWNSHIP LAY OUT PLAN.
5. FOR R.C.C COLUMN SIZES REF. STRUCTURAL DRAWINGS.
6. BRICKS (CLASS 75) SHALL BE USED IN BRICK MASONRY.
7. ALL INTERNAL WALL SHALL BE 115MM THK. & EXTERNAL WALL SHALL BE 230MM THK.
8. THE DRAWING TO BE READ IN CONJUCTION WITH RELEVANT STRUCTURAL DRAWINGS BOTH FOR DIMENSIONS AND LAYOUT
9. FOR CB,TOILETS AND KITCHEN DETAILS REF. SEPARATE DRAWINGS.
10. FOR DOORS, WINDOWS AND VENTILATORS DETAILS REF. SEPARATE DRAWINGS.
11. LAYOUT SHALL BE MARKED ON SITE AND GOT APPVD BY ENGINEER IN-CHARGE IN WRITING BEFORE COMMENCING EXCAVATION WORK AT SITE.
12. ANY DESCREPANCY IN DRAWING TO BE BROUGHT TO THE NOTICE OF SITE INCHARGE.
13. RWP SHALL BE 110 MM DIA UPVC PIPE.
14. COLUMN SHOWN IN THE DRAWING ARE INDICATIVE . FOR EXACT COLUMN LOCATIONS REFER STRUCTURAL DRAWING.

SPECIAL NOTE IN CASE ONLY TWO QTRS OF ONE BLOCK ARE TO BE CONSTRUCTED

1. IN CASE ONLY 2 QUARTERS OF ONE BLOCK HAVE TO BE MADE, ONLY GROUND FLOOR UNITS SHALL BE MADE. STAIRCASE AND MUMTY SHALL BE SUITABLY ADJUSTED
2. PROVISION SHALL BE MADE FOR FUTURE EXPANSION BY EXTENDING ALL COLUMNS ABOVE TOP OF ROOF SLAB TO PARAPET TOP
3. ALL EXTENDED COLUMNS SHALL BE CONSTRUCTED USING BRICK BATS CONCRETE 1:5:10 AND SHALL BE PLASTERED WITH 1:4 CEMENT MORTAR WITH WATER PROOFING COMPOUND

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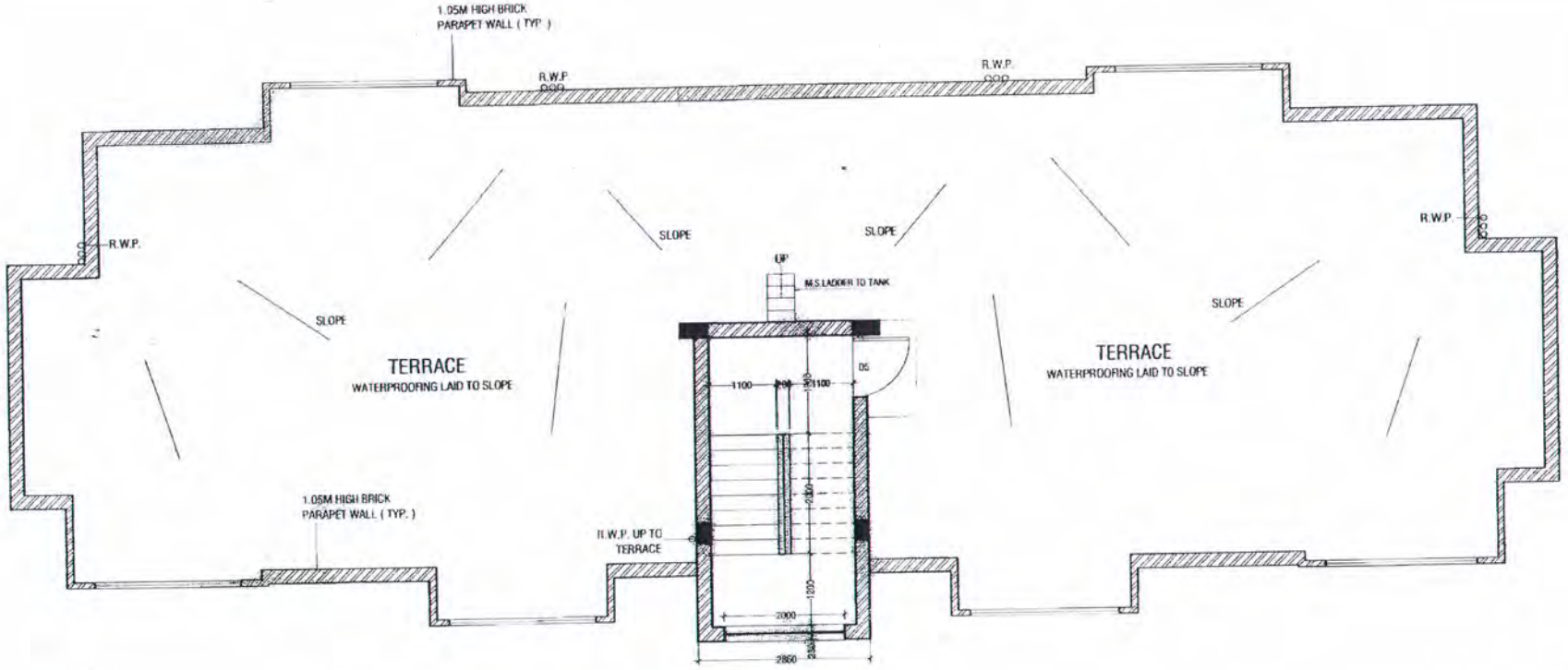
MINOR CHANGES MADE IN KITCHEN				20/X/10
R.C.	DCDE (ENGG-CIVIL)	AGM (ENGG-CIVIL)	GM (ENGG-SS&EL)	DATE

PROJECT: STANDARD DRAWINGS FOR TOWNSHIP

TITLE: FIRST FLOOR PLAN (DOUBLE STOREY) TYPE - B2

SCALE: NTS | DRAWING NO: C/ENGG/TS/STD/TYPE-B-2/DS/02 | REV: R_00



NOTES :

1. ALL DIMENSIONS ARE IN MM
2. DO NOT SCALE THE DRAWING, FOLLOW WRITTEN DIMENSIONS ONLY.
3. ALL DIMENSIONS SHALL BE CHECKED PRIOR TO EXECUTION OF THE WORK.
4. FOR LOCATION OF BUILDING REFER TOWNSHIP LAY OUT PLAN.
5. FOR R.C.C COLUMN SIZES REF. STRUCTURAL DRAWINGS
6. BRICKS (CLASS 75) SHALL BE USED IN BRICK MASONRY
7. ALL INTERNAL WALL SHALL BE 115MM THK. & EXTERNAL WALL SHALL BE 230MM THK.
8. THE DRAWING TO BE READ IN CONJUCTION WITH RELEVANT STRUCTURAL DRAWINGS BOTH FOR DIMENSIONS AND LAYOUT.
9. FOR CB,TOILETS AND KITCHEN DETAILS REF. SEPARATE DRAWINGS
10. FOR DOORS, WINDOWS AND VENTILATORS DETAILS REF. SEPARATE DRAWINGS.
11. LAYOUT SHALL BE MARKED ON SITE AND GOT APPVD. BY ENGINEER IN-CHARGE IN WRITING BEFORE COMMENCING EXCAVATION WORK AT SITE.
12. ANY DESCREPANCY IN DRAWING TO BE BROUGHT TO THE NOTICE OF SITE INCHARGE
13. RWP SHALL BE 110 MM DIA. UPVC PIPE

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POWER GRID CORPORATION OF INDIA LIMITED
(A Government of India Enterprise)

PROJECT : STANDARD DRAWINGS FOR TOWNSHIP

DCDE (ENGG-CIVIL)	AGM (ENGG-CIVIL)	AGM (ENGG-CIVIL)	GM (ENGG-SS&TL)

TITLE : TERRACE FLOOR PLAN (DOUBLE STOREY) TYPE – B2

DATE : 19/10/2017 | SCALE : NTS | DRAWING NO. : C/ENGG/TS/STD/TYPE-B-2/DS/03 | REV : R-01

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PROJECT: STANDARD DRAWINGS FOR TOWNSHIP

TITLE: FRONT ELEVATION (DOUBLE STOREY) TYPE - B2

DCDE (ENGG-CIVIL)	AGM (ENGG-CIVIL)	AGM (ENGG-CIVIL)	GM (ENGG-SS&TL)	DATE 19/10/2009	SCALE NTS	DRAWING NO. C/ENGG/TS/STD/TYPE-B-2/DS/05	REV R-01

नेपाल विद्युत प्राधिकरण
स्था: २०४२
ESTD. 1985
NEPAL ELECTRICITY AUTHORITY

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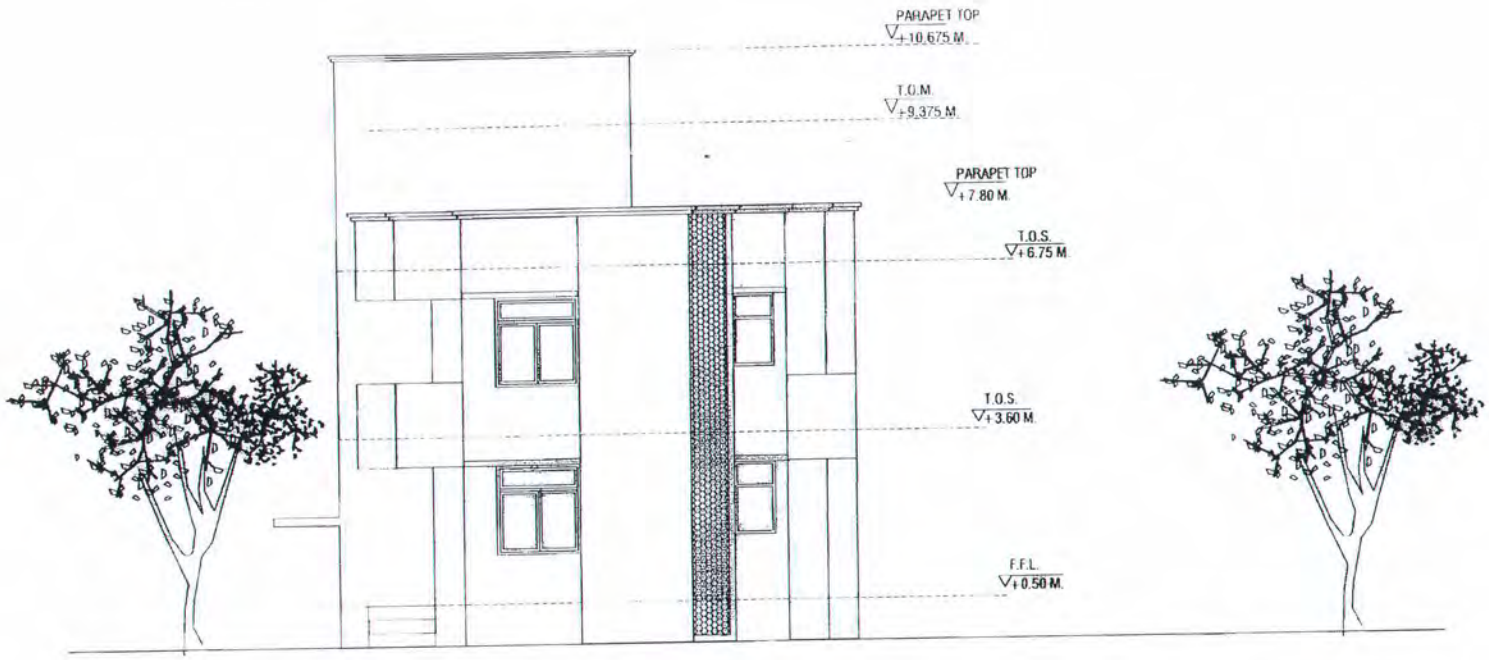
POWER GRID CORPORATION OF INDIA LIMITED
(A Government of India Enterprise)

PROJECT: STANDARD DRAWINGS FOR TOWNSHIP

TITLE: REAR ELEVATION (DOUBLE STOREY) TYPE – B2

DCDE (ENGG-CIVIL)	AGM (ENGG-CIVIL)	AGM (ENGG-CIVIL)	GM (ENGG-SS&TL)	DATE
				19/10/10

SCALE: NTS | DRAWING NO.: C/ENGG/TS/STD/TYPE-B-2/DS/06 | REV: R-01



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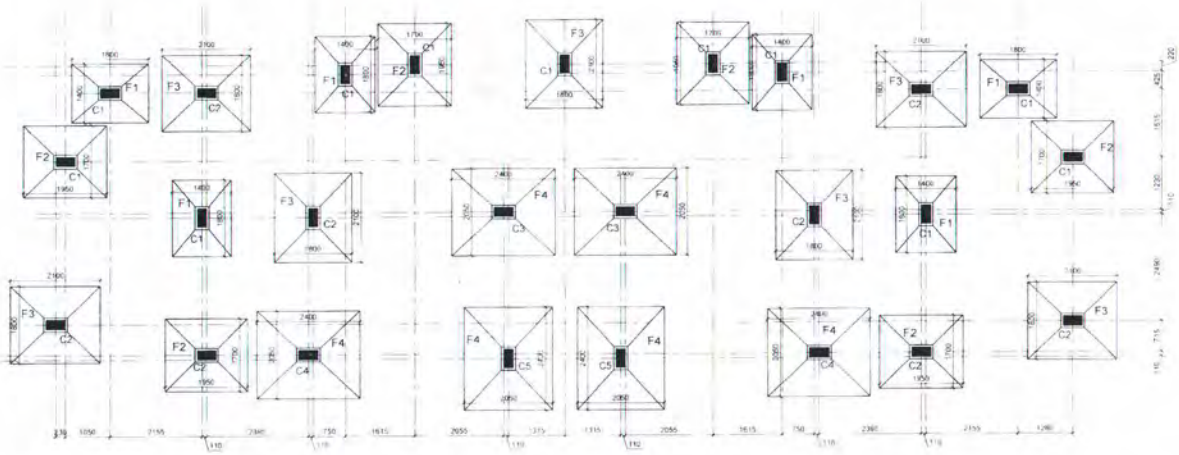
POWER GRID CORPORATION OF INDIA LIMITED
(A Government of India Enterprise)

PROJECT: STANDARD DRAWINGS FOR TOWNSHIP

TITLE: SIDE ELEVATION (DOUBLE STOREY) TYPE - B2

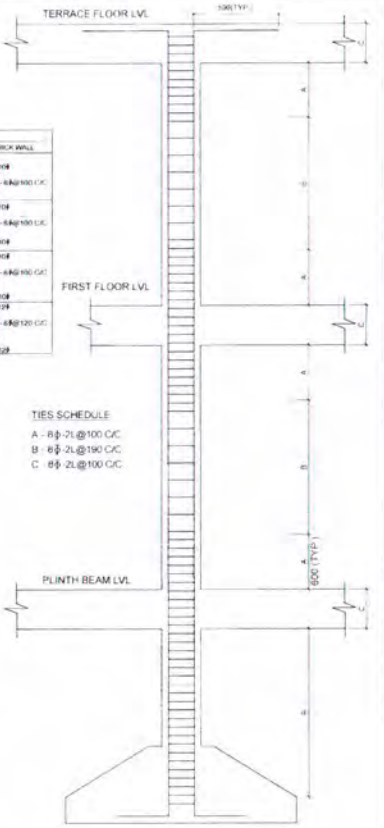
DCDE (ENGG-CIVIL)	AGM (ENGG-CIVIL)	AGM (ENGG-CIVIL)	GM (ENGG-SS&TL)	DATE 19/10/2007

SCALE: NTS | DRAWING NO: C/ENGG/TS/STD/TYPE-B-2/DS/07 | REV: R-01



DETAILS OF LINTEL BEAM

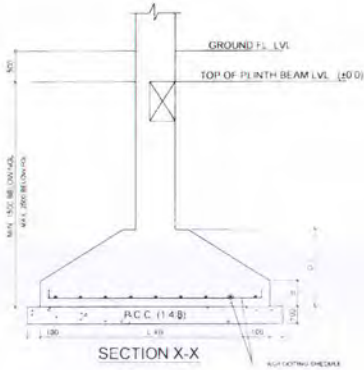
LINTEL TYPE	OPENING WIDTH	MINIMUM END BEARING (IN MM)	LINTEL DEPTH (IN MM)	R.C.C. DETAILS: 115 THK BRICK WALL	R.C.C. DETAILS: FULL THK. BRICK WALL
01	UP TO 900 MM	100	115	4-10ϕ 6ϕ@100 C/C	4-10ϕ 6ϕ@100 C/C
02	ABOVE 900 MM BUT UPTO 1200mm	150	115	1-10ϕ 6ϕ@100 C/C	2-10ϕ 6ϕ@100 C/C 3-10ϕ
03	ABOVE 1200 MM BUT UPTO 1500mm	200	150	1-10ϕ 6ϕ@100 C/C	3-10ϕ 6ϕ@100 C/C 3-10ϕ
04	ABOVE 1500 MM BUT UPTO 2000mm	250	180	2-12ϕ 6ϕ@120 C/C 3-12ϕ	4-12ϕ 6ϕ@120 C/C 3-12ϕ



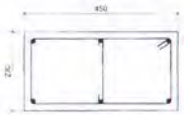
TIES SCHEDULE

A - 8ϕ-2L@100 C/C
B - 8ϕ-2L@190 C/C
C - 8ϕ-2L@100 C/C

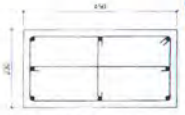
TYPICAL COLUMN ELEVATION



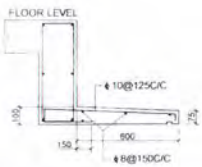
SECTION X-X



SECTION 1-1



SECTION 2-2



TYPICAL DETAIL OF R.C.C. SUNSHADE

FOOTING SCHEDULE

FOOTING MARK	SIZE (L X B)		THICKNESS		REINFORCEMENT		REF SECTION
	L(MM)	B(MM)	d	D	ALONG LENGTH	ALONG WIDTH	
F1	1800	1400	150	350	12ϕ@200 C/C	12ϕ@250 C/C	X -X
F2	1950	1700	150	350	12ϕ@150 C/C	12ϕ@150 C/C	X -X
F3	2100	1800	200	400	12ϕ@125 C/C	12ϕ@150 C/C	X -X
F4	2400	2050	200	500	12ϕ@125 C/C	12ϕ@150 C/C	X -X

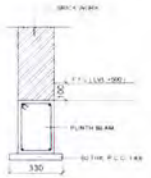
NOTES -

1. ALL DIMENSIONS ARE IN MILIMETER AND LEVELS ARE IN METRES.
2. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH RELEVANT STRUCTURAL, ARCHITECTURAL, SERVICES DRAWINGS AND SPECIFICATIONS.
3. DISCREPENCIES IF ANY FOUND SHALL BE BROUGHT TO THE NOTICE OF ENGINEER - IN - CHARGE BEFORE EXECUTION OF THE WORK.
4. DRAWING SHOULD NOT BE SCALED ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
5. CONCRETE MIX SHALL BE 1:1.5:3.
6. LAPPING TO REINFORCMENT FOR -
   - BEAM TENSION REINFORCMENT SHALL BE AT 'd' FROM SUPPORT (d = EFFECTIVE DEPTH).
   BEAM COMPRESSION REINFORCMENT SHALL BE AT MID SPAN.
   - COLOUMN :LONGITUDINAL REINFORCMENT SHALL BE AT MID-HEIGHT OF FLOOR.
   LAPPING TO REINFORCMENT SHALL BE 50 X BAR DIA.
7. REINFORCMENT SHALL BE LAID AS PER IS 456 (LATEST) OR SP:34 IF DETAILS ARE NOT AVAILABLE IN THE DRAWING.
8. ADEQUATE CHAIRS SHALL BE PROVIDED TO THE REINFORCEMENT.
9. ALL REINFORCEMENT SHALL BE OF GRADE Fe - 415 CONFORMING IS 1786 OR TMT BARS OF EQIVALENT GRADE.
10. MINIMUM CLEAR COVER TO MAIN REINFORCEMENT SHALL BE AS FOLLOWS :
    (a) FOOTING - 50 MM. (c) BEAM - 25 MM.
    (b) COLUMN - 40 MM. (d) SLAB - 20 MM.
11. ALL WORK SHALL BE CARRIED OUT AS PER CPWD SPECIFICATIONS (LATEST).

COLUMN SCHEDULE

COLUMN MARK / STOREY	DESCRIPTION	C1	C2	C3	C4	C5
FOUNDATION TO FIRST FLOOR	COL. SIZE	230 X 450	230 X 450	230 X 450	230 X 450	230 X 450
	MAIN BARS	8-20ϕ	8-20ϕ	8-20ϕ	4-25ϕ+4-20ϕ	8-25ϕ
	TIES	A@ELE	A@ELE	A@ELE	A@ELE	A@ELE
	GRADE OF CONC	1:1.5:3	1:1.5:3	1:1.5:3	1:1.5:3	1:1.5:3
	REF. SECTION	1-1	2-2	2-2	2-2	2-2
FIRST FLOOR TO SECOND FLOOR/ MUMTY	COL. SIZE	230 X 450	230 X 450	230 X 450	230 X 450	230 X 450
	MAIN BARS	4-20ϕ+2-12ϕ	4-20ϕ+2-12ϕ	4-20ϕ+4-16ϕ	4-25ϕ+2-12ϕ	8-25ϕ
	TIES	A@ELE	A@ELE	A@ELE	A@ELE	A@ELE
	GRADE OF CONC	1:1.5:3	1:1.5:3	1:1.5:3	1:1.5:3	1:1.5:3
	REF. SECTION	1-1	1-1	2-2	1-1	2-2

SECTION THROUGH AT LVL ±0.0 PLINTH BEAM



SECTION THROUGH AT LVL +400 PLINTH BEAM

RELEASED FOR TENDER PURPOSE

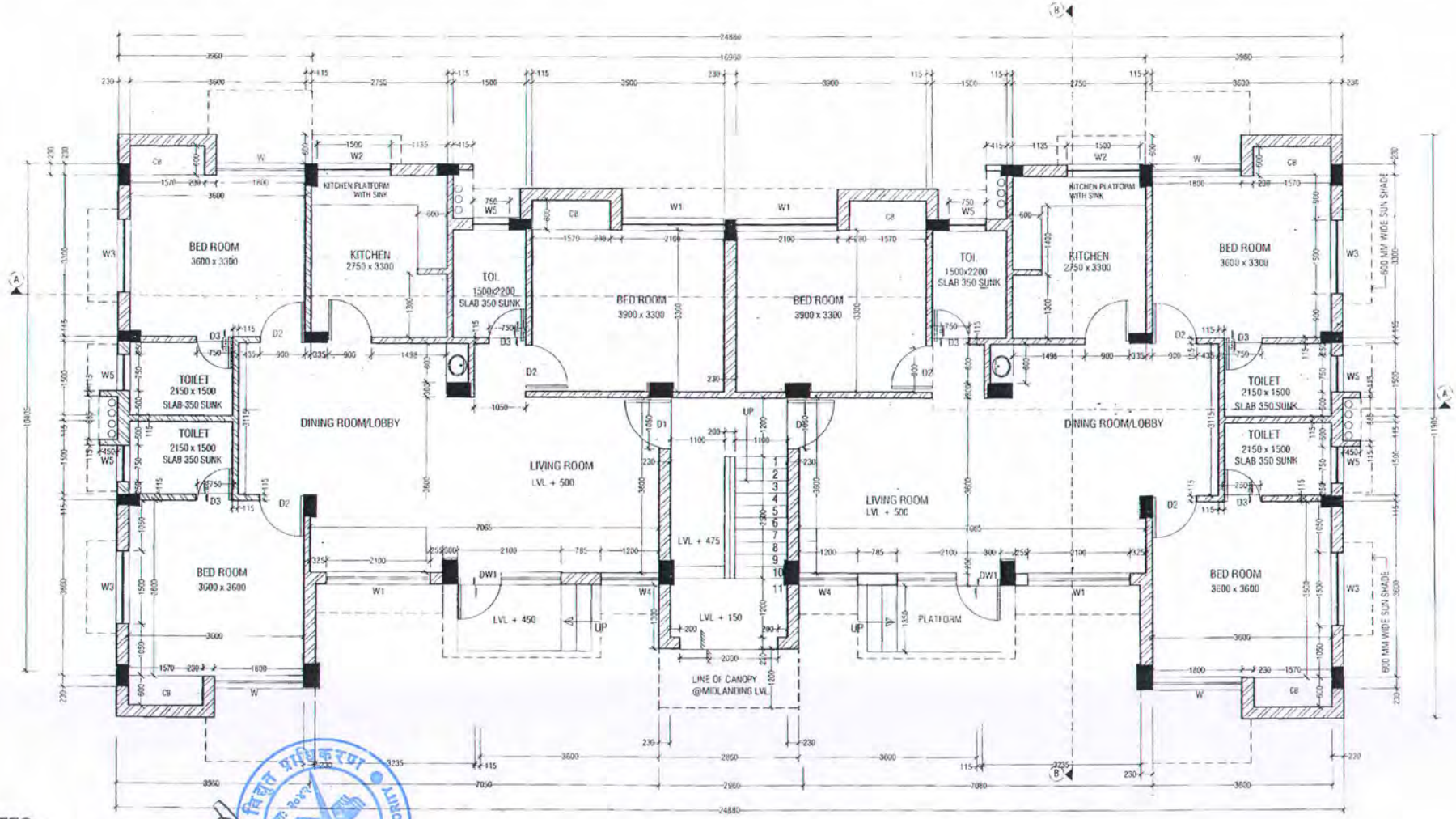
POWER GRID CORPORATION OF INDIA LIMITED
(A Government of India Enterprise)

PROJECT: STANDARD DRAWINGS FOR TYPE - B2 (BEARING CAPACITY -15T/M² SEISMIC ZONE IV)

DCDE (ENGG-CIVIL)	AGM (ENGG-CIVIL)	GM (ENGG-SS&TL)	DATE: 15/3/2010

TITLE: R.C. DETAILS OF FOUNDATIONS, COLUMNS & LINTELS

SCALE: NTS | DRAWING NO.: C/ENGG./TS/STD(G+1)/B2/STR/01a | REV: R-00



NOTES :-

1. ALL DIMENSIONS ARE IN MM.
2. DO NOT SCALE THE DRAWING, FOLLOW WRITTEN DIMENSIONS ONLY.
3. ALL DIMENSIONS SHALL BE CHECKED PRIOR TO EXECUTION OF THE WORK.
4. FOR LOCATION OF BUILDING REFER TOWNSHIP LAY OUT PLAN.
5. FOR R.C.C COLUMN SIZES REF. STRUCTURAL DRAWINGS.
6. BRICKS (CLASS 75) SHALL BE USED IN BRICK MASONRY.
7. ALL INTERNAL WALL SHALL BE 115MM THK. & EXTERNAL WALL SHALL BE 230MM THK.
8. THE DRAWING TO BE READ IN CONJUCTION WITH RELEVANT STRUCTURAL DRAWINGS BOTH FOR DIMENSIONS AND LAYOUT.
9. FOR CB,TOILETS AND KITCHEN DETAILS REF. SEPARATE DRAWINGS.
10. FOR DOORS, WINDOWS AND VENTILATORS DETAILS REF. SEPARATE DRAWINGS.
11. LAYOUT SHALL BE MARKED ON SITE AND GOT APPVD. BY ENGINEER IN-CHARGE IN WRITING BEFORE COMMENCING EXCAVATION WORK AT SITE.
12. ANY DESCREPANCY IN DRAWING TO BE BROUGHT TO THE NOTICE OF SITE INCHARGE.
13. RWP SHALL BE 110 MM DIA. UPVC PIPE.
14. COLUMN SHOWN IN THE DRAWING ARE INDICATIVE . FOR EXACT COLUMN LOCATIONS REFER STRUCTURAL DRAWING.

SPECIAL NOTE IN CASE ONLY TWO QTRS OF ONE BLOCK ARE TO BE CONSTRUCTED

1. IN CASE ONLY 2 QUARTERS OF ONE BLOCK HAVE TO BE MADE, ONLY GROUND FLOOR UNITS SHALL BE MADE. STAIRCASE AND MUMTY SHALL BE SUITABLY ADJUSTED.
2. PROVISION SHALL BE MADE FOR FUTURE EXPANSION BY EXTENDING ALL COLUMNS ABOVE TOP OF ROOF SLAB TO PARAPET TOP.
3. ALL EXTENDED COLUMNS SHALL BE CONSTRUCTED USING BRICK BATS CONCRETE 1:5:10 AND SHALL BE PLASTERED WITH 1:4 CEMENT MORTAR WITH WATER PROOFING COMPOUND

RELEASED FOR TENDER PURPOSE ONLY

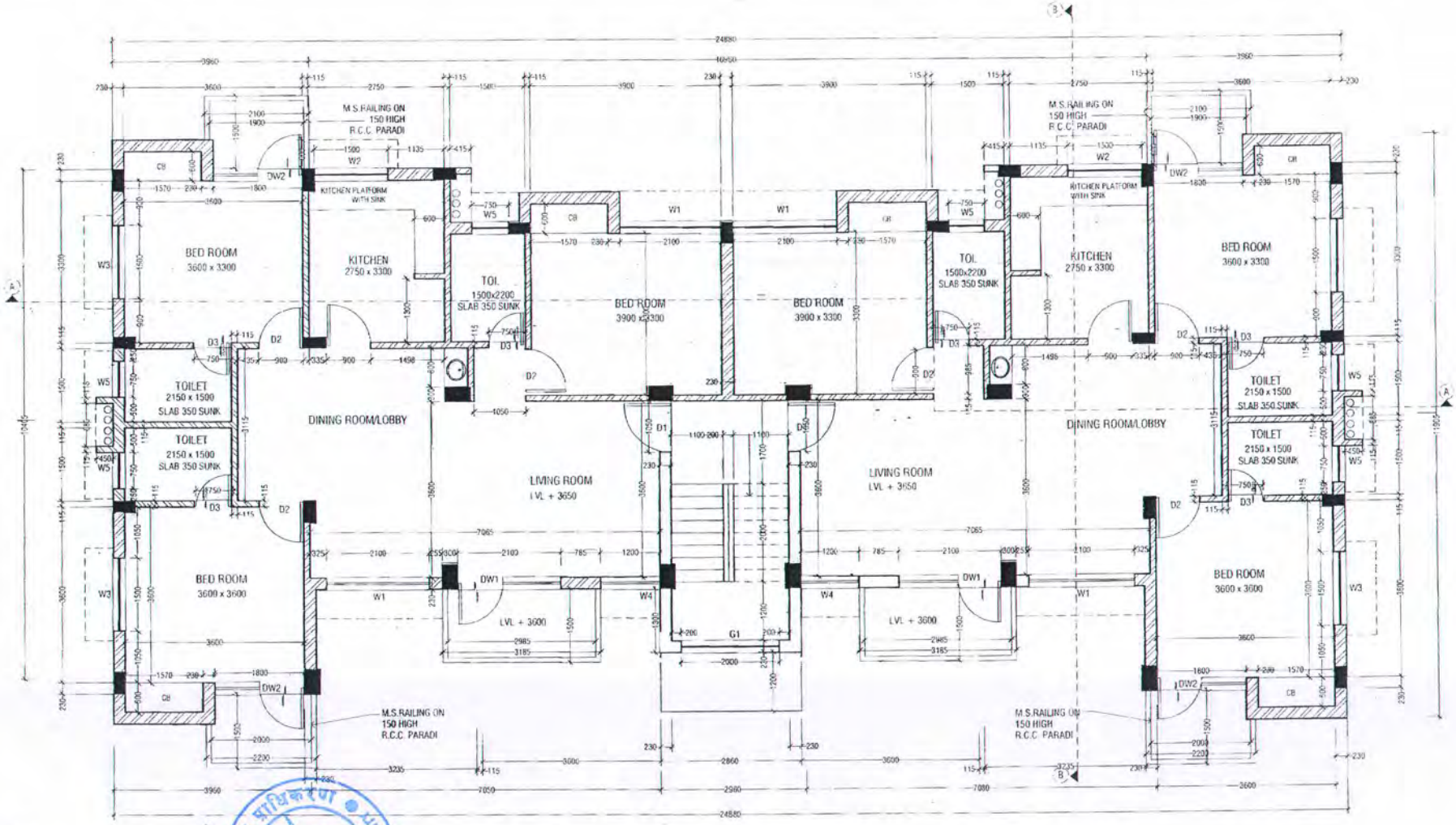
COLUMN SIZES REVISED AS PER STRUCTURAL REQUIREMENT					
REV 02	DCDE (ENGG-CIVIL)	AGM (ENGG-CIVIL)	GM (ENGG-SS&TL)	DATE 20/8/10	SCALE NTS

POWER GRID CORPORATION OF INDIA LIMITED
(A Government of India Enterprise)

PROJECT: STANDARD DRAWINGS FOR TOWNSHIP

TITLE: GROUND FLOOR PLAN (DOUBLE STOREY) TYPE - C

DRAWING NO: C/ENGG/TS/STD/TYPE-C/DS/01 REV R-02



NOTES :-

1. ALL DIMENSIONS ARE IN MM.
2. DO NOT SCALE THE DRAWING, FOLLOW WRITTEN DIMENSIONS ONLY.
3. ALL DIMENSIONS SHALL BE CHECKED PRIOR TO EXECUTION OF THE WORK.
4. FOR LOCATION OF BUILDING REFER TOWNSHIP LAY OUT PLAN.
5. FOR R.C.C COLUMN SIZES REF. STRUCTURAL DRAWINGS.
6. BRICKS (CLASS 75) SHALL BE USED IN BRICK MASONRY.
7. ALL INTERNAL WALL SHALL BE 115MM THK. & EXTERNAL WALL SHALL BE 230MM THK.
8. THE DRAWING TO BE READ IN CONJUCTION WITH RELEVANT STRUCTURAL DRAWINGS BOTH FOR DIMENSIONS AND LAYOUT.
9. FOR CB,TOILETS AND KITCHEN DETAILS REF. SEPARATE DRAWINGS.
10. FOR DOORS, WINDOWS AND VENTILATORS DETAILS REF. SEPARATE DRAWINGS.
11. LAYOUT SHALL BE MARKED ON SITE AND GOT APPVD. BY ENGINEER IN-CHARGE IN WRITING BEFORE COMMENCING EXCAVATION WORK AT SITE.
12. ANY DESCREPANCY IN DRAWING TO BE BROUGHT TO THE NOTICE OF SITE INCHARGE.
13. RWP SHALL BE 110 MM DIA. UPVC PIPE.
14. COLUMN SHOWN IN THE DRAWING ARE INDICATIVE , FOR EXACT COLUMN LOCATIONS REFER STRUCTURAL DRAWING.

SPECIAL NOTE IN CASE ONLY TWO QTRS OF ONE BLOCK ARE TO BE CONSTRUCTED

1. IN CASE ONLY 2 QUARTERS OF ONE BLOCK HAVE TO BE MADE, ONLY GROUND FLOOR UNITS SHALL BE MADE. STAIRCASE AND MUMTY SHALL BE SUITABLY ADJUSTED.
2. PROVISION SHALL BE MADE FOR FUTURE EXPANSION BY EXTENDING ALL COLUMNS ABOVE TOP OF ROOF SLAB TO PARAPET TOP.
3. ALL EXTENDED COLUMNS SHALL BE CONSTRUCTED USING BRICK BATS CONCRETE 1:5:10 AND SHALL BE PLASTERED WITH 1:4 CEMENT MORTAR WITH WATER PROOFING COMPOUND.

REV	DESCRIPTION	DCDE (ENGG-CIVIL)	AGM (ENGG-CIVIL)	GM (ENGG-SS&TL)	DATE
02	COLUMN SIZES REVISED AS PER STRUCTURAL REQUIREMENT				20/4/10

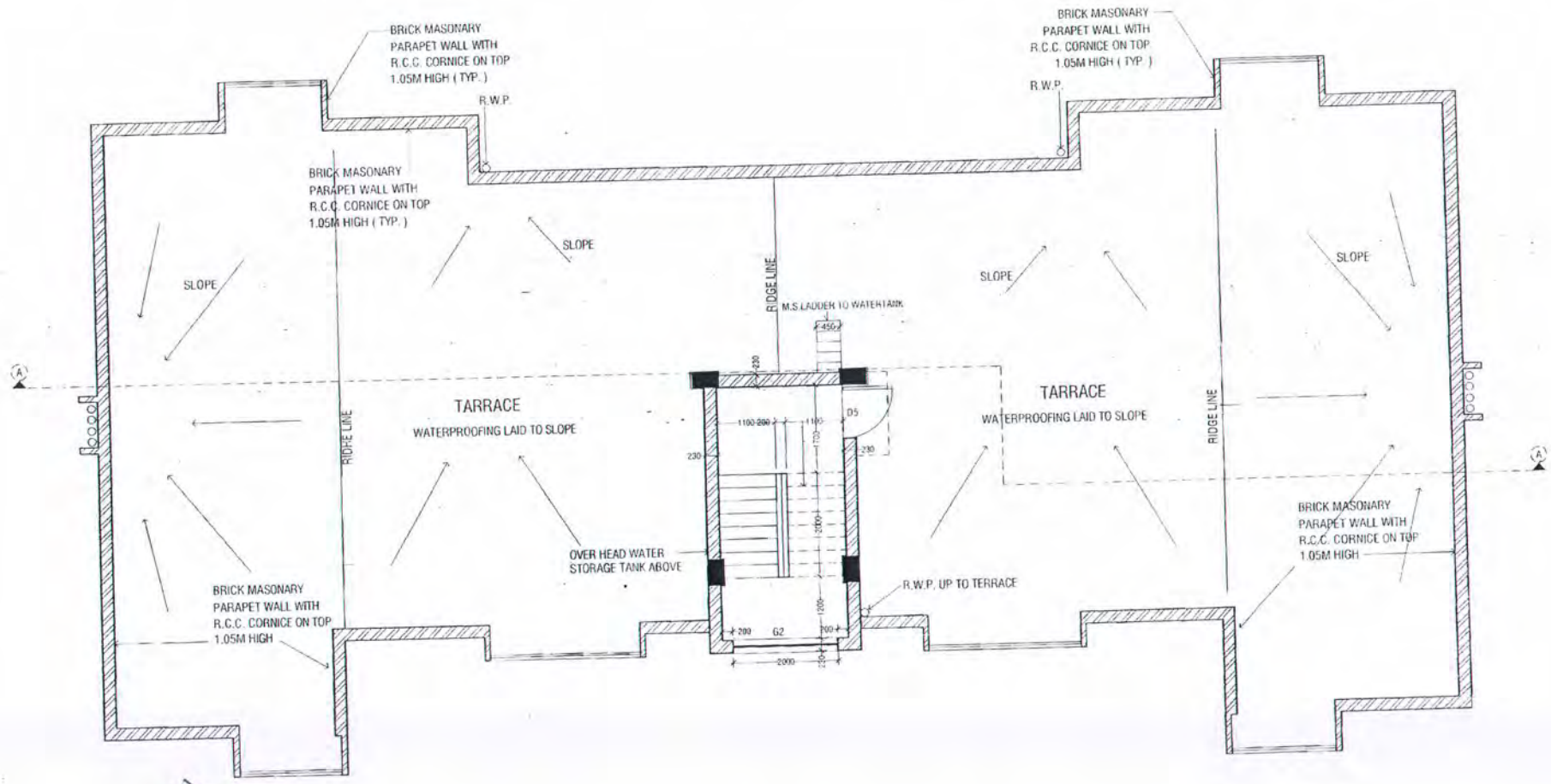
RELEASED FOR TENDER PURPOSE ONLY

POWER GRID CORPORATION OF INDIA LIMITED
(A Government of India Enterprise)

PROJECT : STANDARD DRAWINGS FOR TOWNSHIP

TITLE : FIRST FLOOR PLAN (DOUBLE STOREY) TYPE – C

SCALE NTS | DRAWING NO. C/ENGG/TS/STD/TYPE-C/DS/02 | REV R-02



NOTES :-

1. ALL DIMENSIONS ARE IN MM.
2. DO NOT SCALE THE DRAWING. FOLLOW WRITTEN DIMENSIONS ONLY.
3. ALL DIMENSIONS SHALL BE CHECKED PRIOR TO EXECUTION OF THE WORK.
4. FOR LOCATION OF BUILDING REFER TOWNSHIP LAY OUT PLAN.
5. FOR R.C.C COLUMN SIZES REF. STRUCTURAL DRAWINGS.
6. BRICKS (CLASS 75) SHALL BE USED IN BRICK MASONRY.
7. ALL INTERNAL WALL SHALL BE 115MM THK. & EXTERNAL WALL SHALL BE 230MM THK.
8. THE DRAWING TO BE READ IN CONJUCTION WITH RELEVANT STRUCTURAL DRAWINGS BOTH FOR DIMENSIONS AND LAYOUT.
9. FOR CB,TOILETS AND KITCHEN DETAILS REF. SEPARATE DRAWINGS.
10. FOR DOORS, WINDOWS AND VENTILATORS DETAILS REF. SEPARATE DRAWINGS.
11. LAYOUT SHALL BE MARKED ON SITE AND GOT APPVD. BY ENGINEER IN-CHARGE IN WRITING BEFORE COMMENCING EXCAVATION WORK AT SITE.
12. ANY DESCREPANCY IN DRAWING TO BE BROUGHT TO THE NOTICE OF SITE INCHARGE
13. RWP SHALL BE 110 MM DIA. UPVC PIPE
14. COLUMN SHOWN IN THE DRAWING ARE INDICATIVE , FOR EXACT COLUMN LOCATIONS REFER STRUCTURAL DRAWING.

SPECIAL NOTE IN CASE ONLY TWO QTRS OF ONE BLOCK ARE TO BE CONSTRUCTED

1. IN CASE ONLY 2 QUARTERS OF ONE BLOCK HAVE TO BE MADE, ONLY GROUND FLOOR UNITS SHALL BE MADE. STAIRCASE AND MUMTY SHALL BE SUITABLY ADJUSTED.
2. PROVISION SHALL BE MADE FOR FUTURE EXPANSION BY EXTENDING ALL COLUMNS ABOVE TOP OF ROOF SLAB TO PARAPET TOP.
3. ALL EXTENDED COLUMNS SHALL BE CONSTRUCTED USING BRICK BATS CONCRETE 1:5:10 AND SHALL BE PLASTERED WITH 1:4 CEMENT MORTAR WITH WATER PROOFING COMPOUND

RELEASED FOR TENDER PURPOSE ONLY

REV		DCDE (ENGG-CIVIL)	AGM (ENGG-CIVIL)	GM (ENGG-SS&TL)	DATE
03	COLUMN SIZES REVISED AS PER STRUCTURAL REQUIREMENT				20/X/10

POWER GRID CORPORATION OF INDIA LIMITED
(A Government of India Enterprise)

PROJECT: STANDARD DRAWINGS FOR TOWNSHIP

TITLE: TERRACE FLOOR PLAN (DOUBLE STOREY) TYPE – C

SCALE: NTS | DRAWING NO: C/ENGG/TS/STD/TYPE-C/DS/03 | REV: R-02

RELEASED FOR TENDER PURPOSE ONLY

POWER GRID CORPORATION OF INDIA LIMITED
(A Government of India Enterprise)

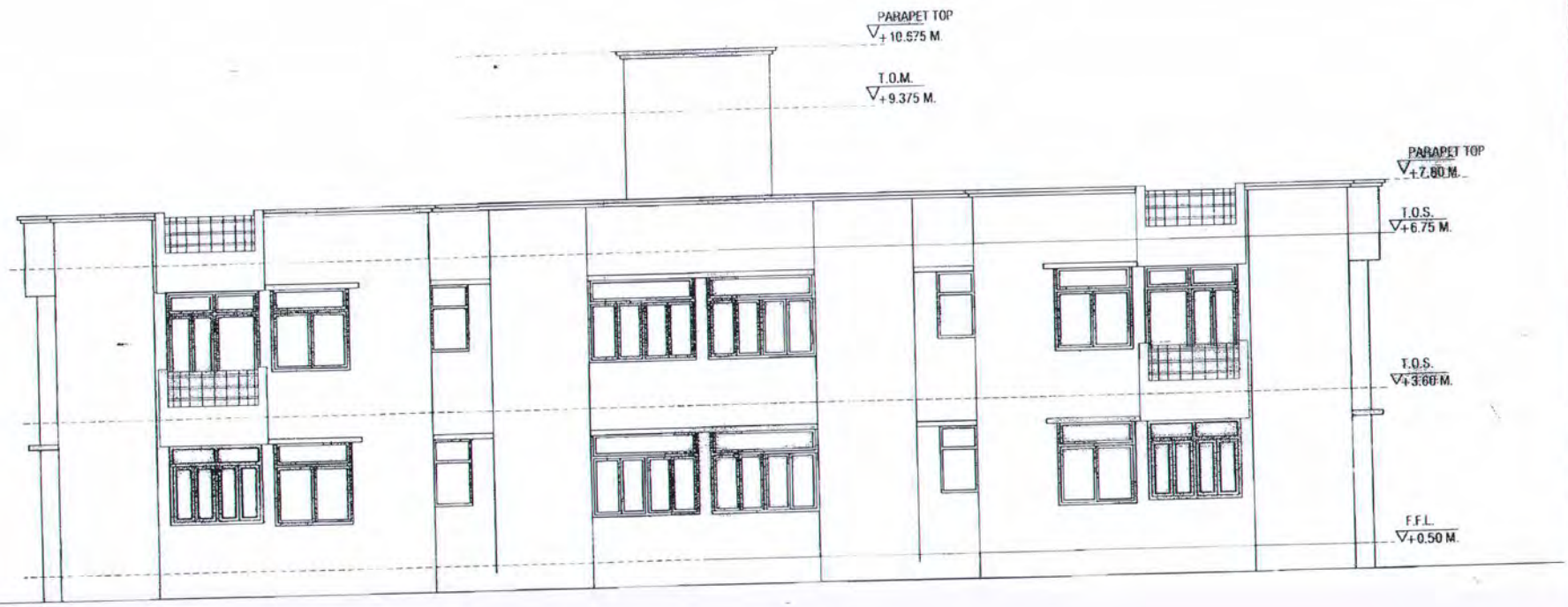
PROJECT: **STANDARD DRAWINGS FOR TOWNSHIP**

TITLE: **FRONT ELEVATION (DOUBLE STOREY) TYPE - C**

DCDE (ENGG-CIVIL)	AGM (ENGG-CIVIL)	AGM (ENGG-CIVIL)	GM (ENGG-SS&TL)	DATE
				19/10/2010

SCALE: NTS | DRAWING NO: C/ENGG/TS/STD/TYPE-C/DS/06 | REV: R-01

NEPAL ELECTRICITY AUTHORITY ESTD. 1985



RELEASED FOR TENDER PURPOSE ONLY

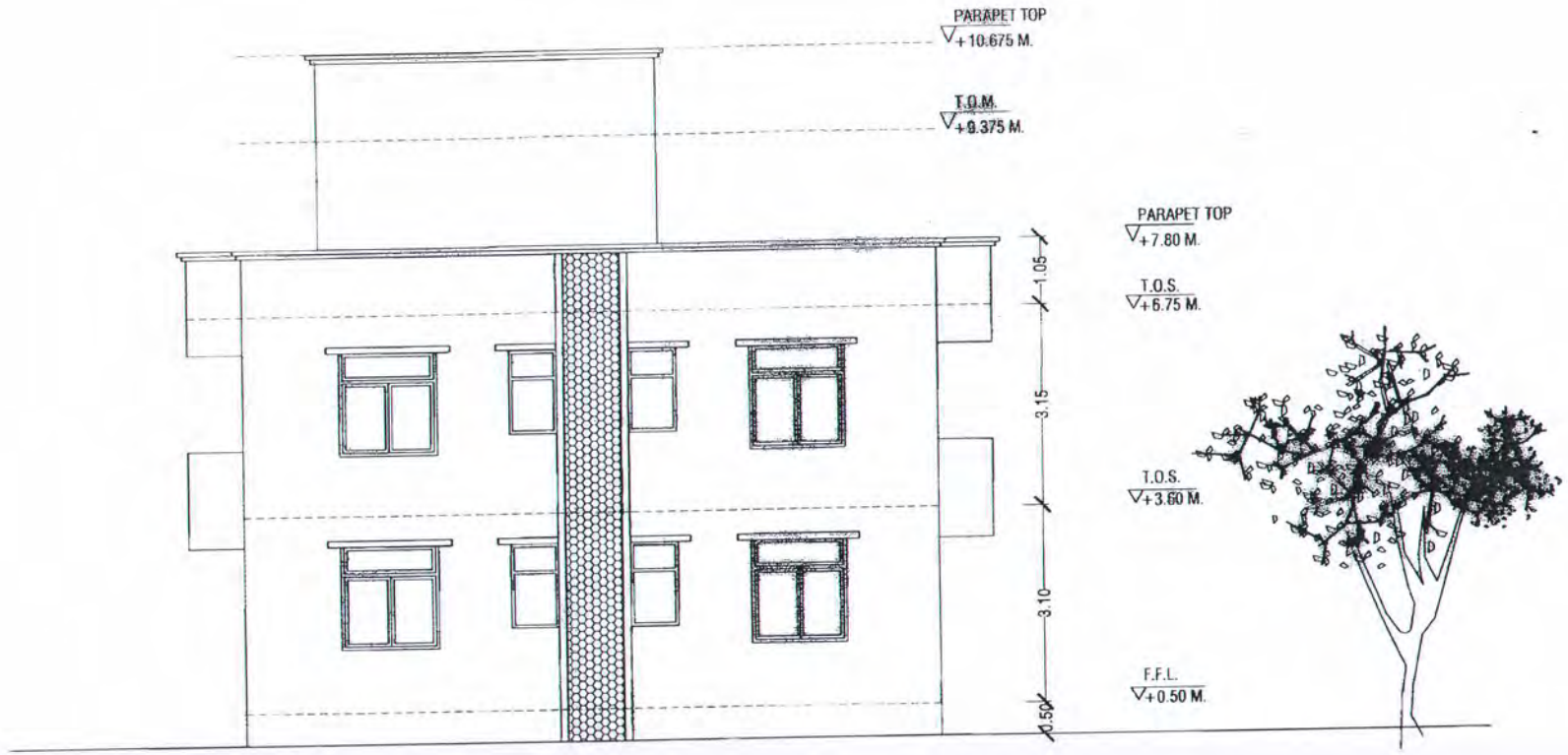
POWER GRID CORPORATION OF INDIA LIMITED
(A Government of India Enterprise)

PROJECT: STANDARD DRAWINGS FOR TOWNSHIP

DCDE (ENGG-CIVIL)	AGM (ENGG-CIVIL)	AGM (ENGG-CIVIL)	GM (ENGG-SS&TR.)	DATE	TITLE	DRAWING NO.	REV
				19/10/2009	REAR ELEVATION (DOUBLE STOREY) TYPE – C	C/ENGG/TS/STD/TYPE-C/DS/07	R-01

SCALE: NTS

नेपाल विद्युत प्राधिकरण NEPAL ELECTRICITY AUTHORITY ESTD. 1985



RELEASED FOR TENDER PURPOSE ONLY

POWER GRID CORPORATION OF INDIA LIMITED
(A Government of India Enterprise)

PROJECT: STANDARD DRAWINGS FOR TOWNSHIP

TITLE: RIGHT SIDE ELEVATION (DOUBLE STOREY) TYPE - C

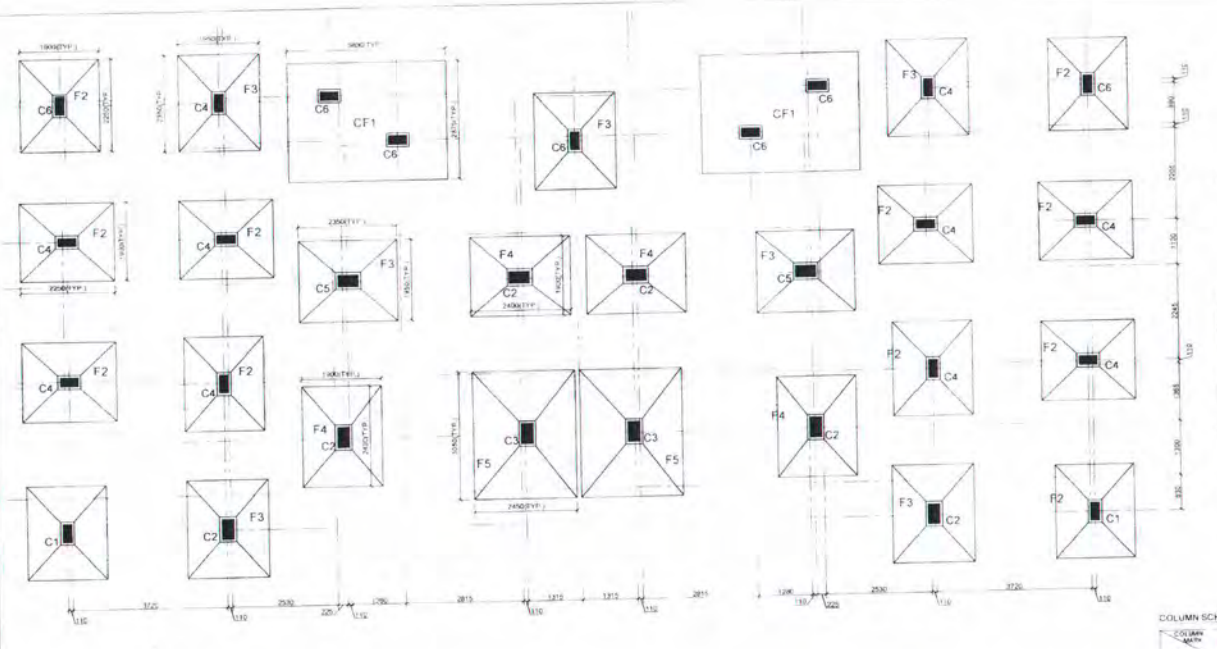
SCALE: NTS

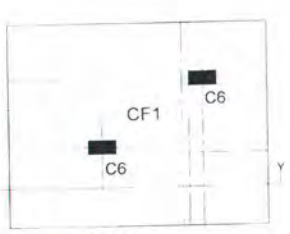
DRAWING NO: C/ENGG/TS/STD/TYPE-C/DS/06

REV: R-01

DCDE (ENGG-CIVIL)	AGM (ENGG-CIVIL)	AGM (ENGG-CIVIL)	GM (ENGG-SS&TL)	DATE
				19/10/2009

नेपाल विद्युत प्राधिकरण
NEPAL ELECTRICITY AUTHORITY
ESTD. 1985





CF1 PLAN

DETAILS OF LINTEL BEAM

LINTEL TYPE	OPENING WIDTH	MINIMUM END BEARING (mm)	LINTEL DEPTH (mm)	R.C.C. DETAILS 115 THK BRICK WALL	R.C.C. DETAILS FULL THK. BRICK WALL
01	UPTO 900 MM	90	115	4-10ϕ 8ϕ@100 C/C 3-10ϕ	4-10ϕ 8ϕ@100 C/C 3-10ϕ
02	ABOVE 900 MM BUT UPTO 1200mm	150	115	4-10ϕ 8ϕ@100 C/C 3-10ϕ	4-10ϕ 8ϕ@100 C/C 3-10ϕ
03	ABOVE 1200 MM BUT UPTO 1500mm	200	150	4-10ϕ 8ϕ@100 C/C 3-12ϕ	4-10ϕ 8ϕ@100 C/C 3-12ϕ
04	ABOVE 1500 MM BUT UPTO 2000mm	250	150	2-12ϕ 8ϕ@125 C/C 2-12ϕ	2-12ϕ 8ϕ@125 C/C 2-12ϕ

TERRACE FLOOR LVL

FIRST FLOOR LVL

PLINTH BEAM LVL

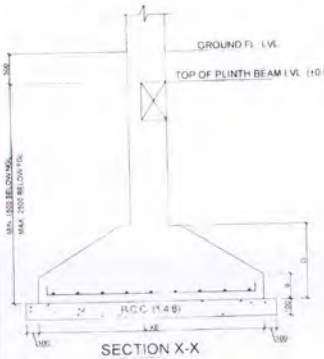
TIES SCHEDULE

A : 8ϕ-2L@100 C/C
B : 8ϕ-2L@190 C/C
C : 8ϕ-2L@100 C/C

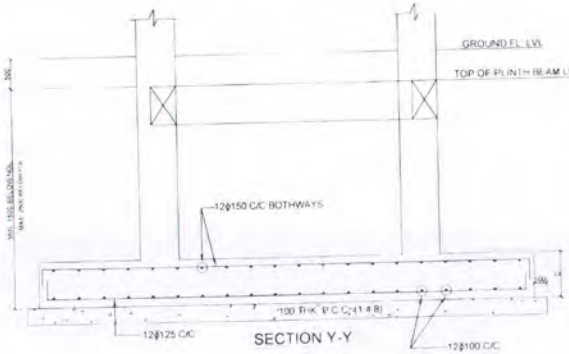
TYPICAL COLUMN ELEVATION

COLUMN SCHEDULE

COLUMN MARK / STOREY	DESCRIPTION	C1	C2	C3	C4	C5	C6
FOUNDATION TO FIRST FLOOR	COL SIZE	230 X 450	300 X 500	300 X 500	230 X 450	300 X 500	230 X 450
	MAIN BARS	6-25ϕ+2-20ϕ	6-25ϕ+2-20ϕ	10-20ϕ	4-25ϕ+4-20ϕ	10-20ϕ	4-25ϕ+4-16ϕ
	TIES	8ϕ@ELE	8ϕ@ELE	8ϕ@ELE	8ϕ@ELE	8ϕ@ELE	8ϕ@ELE
	GRADE OF CONC	1:1.5:3	1:1.5:3	1:1.5:3	1:1.5:3	1:1.5:3	1:1.5:3
	RLY SECTION	2-2	2-2	3-3	2-2	3-3	2-2
FIRST FLOOR TO SECOND FLOOR	COL SIZE	230 X 450	300 X 500	300 X 500	230 X 450	300 X 500	230 X 450
	MAIN BARS	6-25ϕ	8-25ϕ	8-25ϕ	4-25ϕ+2-20ϕ	8-25ϕ	4-25ϕ+2-20ϕ
	TIES	8ϕ@ELE	8ϕ@ELE	8ϕ@ELE	8ϕ@ELE	8ϕ@ELE	8ϕ@ELE
	GRADE OF CONC	1:1.5:3	1:1.5:3	1:1.5:3	1:1.5:3	1:1.5:3	1:1.5:3
	RLY SECTION	1-1	1-1	1-1	1-1	2-2	1-1



SECTION X-X



SECTION Y-Y

SCHEDULE OF TIES

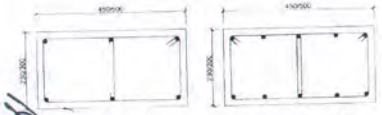
ZONE	8ϕ TIES@
A	100 C/C
B	190 C/C
C	100 C/C (OUTER TIES ONLY)

NOTES -

1. ALL DIMENSIONS ARE IN MILIMETER AND LEVELS ARE IN METRES.
2. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH RELEVANT STRUCTURAL, ARCHITECTURAL, SERVICES DRAWINGS AND SPECIFICATIONS.
3. DISCREPENCIES IF ANY FOUND SHALL BE BROUGHT TO THE NOTICE OF ENGINEER - IN-CHARGE BEFORE EXECUTION OF THE WORK.
4. DRAWING SHOULD NOT BE SCALED ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
5. CONCRETE MIX SHALL BE 1:1.5:3.
6. LAPPING TO REINFORCEMENT FOR
   - BEAM TENSION REINFORCMENT SHALL BE AT d FROM SUPPORT (d = EFFECTIVE DEPTH)
   - BEAM COMPRESSION REINFORCMENT SHALL BE AT MID SPAN.
   - COLOUMN LONGITUDINAL REINFORCMENT SHALL BE AT MID-HEIGHT OF FLOOR.
   LAPPING TO REINFORCMENT SHALL BE 50 X BAR DIA.
7. REINFORCMENT SHALL BE LAID AS PER IS 456 (LATEST) OR SP:34, IF DETAILS ARE NOT AVAILABLE IN THE DRAWING.
8. ADEQUATE CHAIRS SHALL BE PROVIDED TO THE REINFORCEMENT.
9. ALL REINFORCEMENT SHALL BE OF GRADE Fe : 415 CONFORMING IS 1786 OR TMT BARS OF EQUIVALENT GRADE.
10. MINIMUM CLEAR COVER TO MAIN REINFORCEMENT SHALL BE AS FOLLOWS.
    (a) FOOTING : 50 MM (c) BEAM : 25 MM
    (b) COLUMN : 40 MM (d) SLAB : 20 MM
11. ALL WORK SHALL BE CARRIED OUT AS PER CPWD SPECIFICATIONS (LATEST)

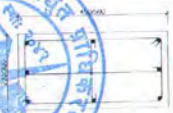
FOOTING SCHEDULE

FOOTING MARK	SIZE (L X B)		THICKNESS		REINFORCEMENT	
	L(MM)	B(MM)	d	D	ALONG LENGTH	ALONG WIDTH
CF1	3800	2875		450	REFER SEC. Y-Y	REFER SEC. Y-Y
F2	2250	1900	250	450	12ϕ@125 C/C	12ϕ@200 C/C
F3	2350	1950	250	450	12ϕ@140 C/C	12ϕ@175 C/C
F4	2400	1900	250	450	12ϕ@140 C/C	12ϕ@175 C/C
F5	3050	2450	300	550	16ϕ@175 C/C	12ϕ@150 C/C



SECTION 1-1

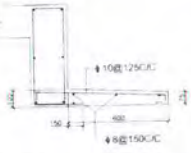
SECTION 3-3



SECTION 2-2

SECTION THROUGH AT LVL ±0.0 PLINTH BEAM

SECTION THROUGH AT LVL +400 PLINTH BEAM



TYPICAL DETAIL OF R.C.C SUNSHADE

DCDE (ENGG-CIVIL)	AGM (ENGG-CIVIL)	GM (ENGG-SS&TL)	DATE
			03/03/2010

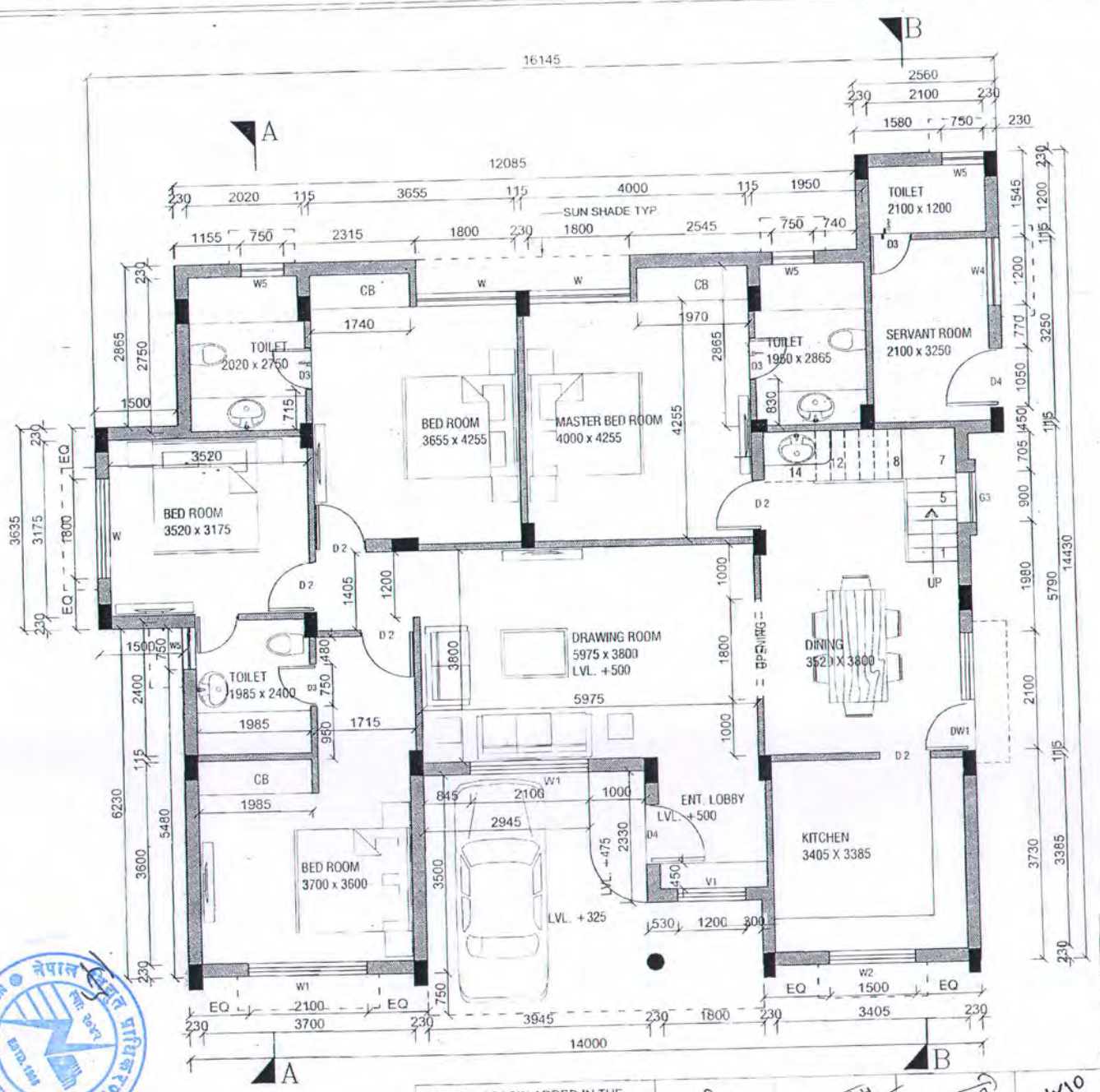
RELEASED FOR TENDER **PURPOSE ONLY**

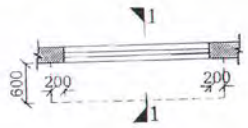
POWER GRID CORPORATION OF INDIA LIMITED
(A Government of India Enterprise)

PROJECT: STANDARD DRAWINGS FOR TYPE-C (BEARING CAPACITY : 15T/M^2 SEISMIC ZONE IV)

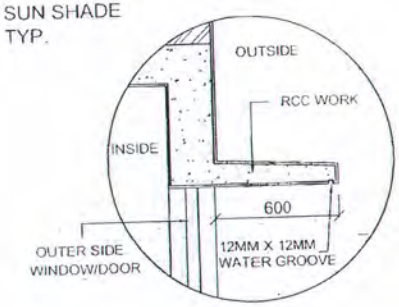
TITLE: FOUNDATION PLAN, COLUMN DETAILS, SUNSHADE & LINTEL DETAILS

SCALE	DRAWING NO.	REV
NTS	C/ENGG/T.S./STD/TYPE-C/ZONE-IV/STR/01a	R-0





SUN SHADE TYP.



SECTION 1-1
TYP.

NOTES :-

1. ALL DIMENSIONS ARE IN MM
2. DO NOT SCALE THE DRAWING, FOLLOW WRITTEN DIMENSIONS ONLY.
3. ALL DIMENSIONS SHALL BE CHECKED PRIOR TO EXECUTION OF THE WORK.
4. FOR LOCATION OF BUILDING REFER TOWNSHIP LAY OUT PLAN.
5. FOR R.C.C COLUMN SIZES REF. STRUCTURAL DRAWINGS.
6. BRICKS (CLASS 75) SHALL BE USED IN BRICK MASONRY
7. ALL INTERNAL WALL SHALL BE 115MM THK. & EXTERNAL WALL SHALL BE 230MM THK.
8. THE DRAWING TO BE READ IN CONJUCTION WITH RELEVANT STRUCTURAL DRAWINGS BOTH FOR DIMENSIONS AND LAYOUT.
9. FOR CB, TOILETS AND KITCHEN DETAILS REF. SEPARATE DRAWINGS
10. FOR DOORS, WINDOWS AND VENTILATORS DETAILS REF. SEPARATE DRAWINGS.
11. LAYOUT SHALL BE MARKED ON SITE AND GOT APPVD. BY ENGINEER IN-CHARGE IN WRITING BEFORE COMMENCING EXCAVATION WORK AT SITE.
12. ANY DESCREPANCY IN DRAWING TO BE BROUGHT TO THE NOTICE OF SITE INCHARGE.
13. COLUMN SHOWN IN THE DRAWING ARE INDICATIVE , FOR EXACT COLUMN LOCATIONS REFER STRUCTURAL DRAWING.

RELEASED FOR TENDER PURPOSE ONLY.

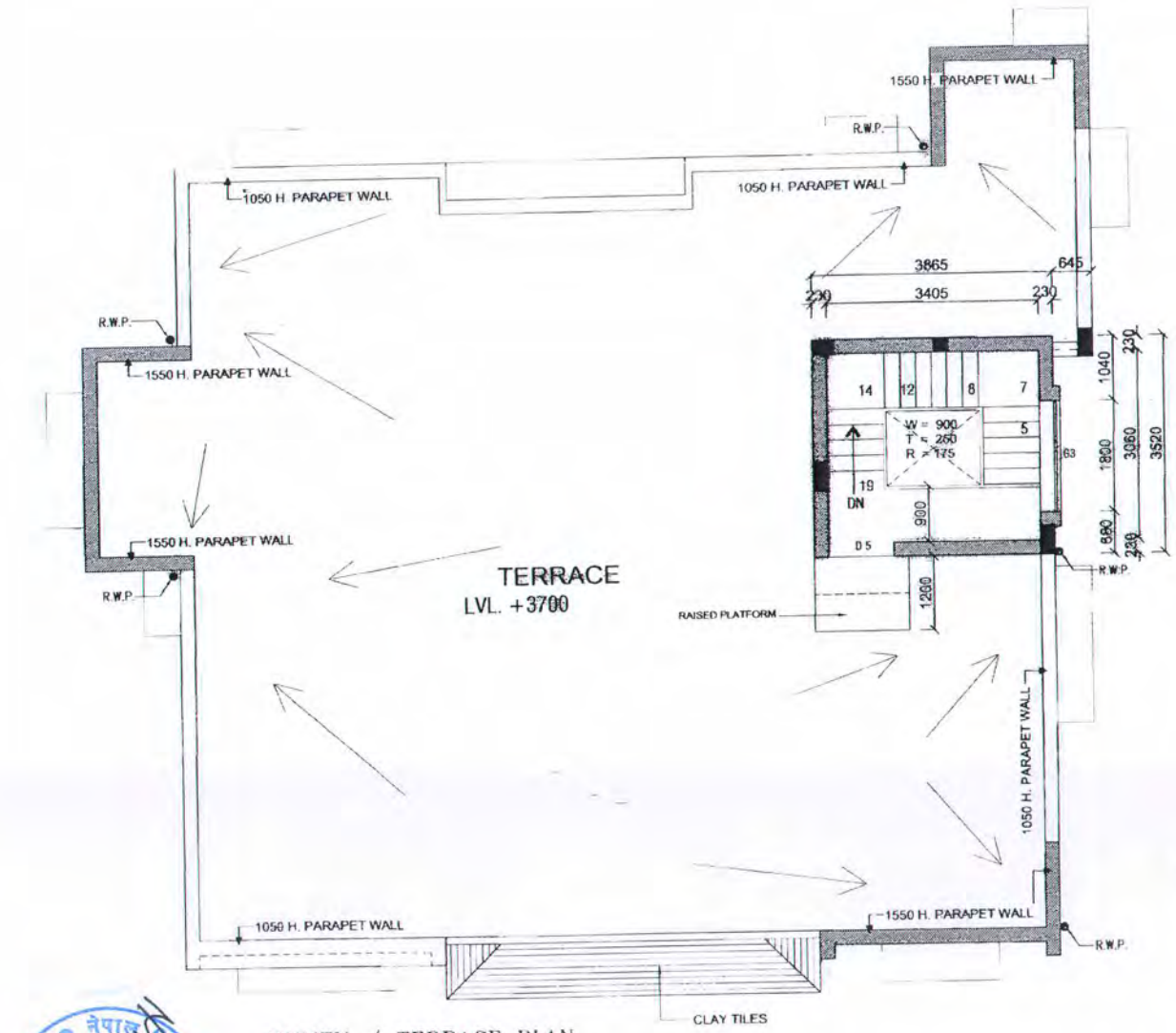
POWER GRID CORPORATION OF INDIA LIMITED
(A Government of India Enterprise)

PROJECT: STANDARD DRAWINGS FOR TOWNSHIP

TITLE: GROUND FLOOR PLAN TYPE-D

ONE WASH BASIN ADDED IN THE DININIG AREA							
REV. 02	DCDE (ENGG-CIVIL)	AGM (ENGG-CIVIL)	GM (ENGG-SS & TL)	DATE 20/1/10	SCALE NTS	DRAWING NO C/ENGG/TS/STD/TYPE-D/01	REV R-02

NEPAL ELECTRICITY AUTHORITY



MUMTY / TERRACE PLAN

MUMTY TERRACE

NOTES :-

1. ALL DIMENSIONS ARE IN MM
2. DO NOT SCALE THE DRAWING, FOLLOW WRITTEN DIMENSIONS ONLY.
3. ALL DIMENSIONS SHALL BE CHECKED PRIOR TO EXECUTION OF THE WORK.
4. FOR LOCATION OF BUILDING REFER TOWNSHIP LAY OUT PLAN.
5. FOR R.C.C COLUMN SIZES REF. STRUCTURAL DRAWINGS.
6. BRICKS (CLASS 75) SHALL BE USED IN BRICK MASONRY
7. ALL INTERNAL WALL SHALL BE 115MM THK. & EXTERNAL WALL SHALL BE 230MM THK.
8. THE DRAWING TO BE READ IN CONJUCTION WITH RELEVANT STRUCTURAL DRAWINGS BOTH FOR DIMENSIONS AND LAYOUT.
9. FOR CB, TOILETS AND KITCHEN DETAILS REF. SEPARATE DRAWINGS
10. FOR DOORS, WINDOWS AND VENTILATORS DETAILS REF. SEPARATE DRAWINGS.
11. LAYOUT SHALL BE MARKED ON SITE AND GOT APPVD. BY ENGINEER IN-CHARGE IN WRITING BEFORE COMMENCING EXCAVATION WORK AT SITE.
12. ANY DESCREPANCY IN DRAWING TO BE BROUGHT TO THE NOTICE OF SITE INCHARGE.

RELEASED FOR TENDER PURPOSE ONLY.

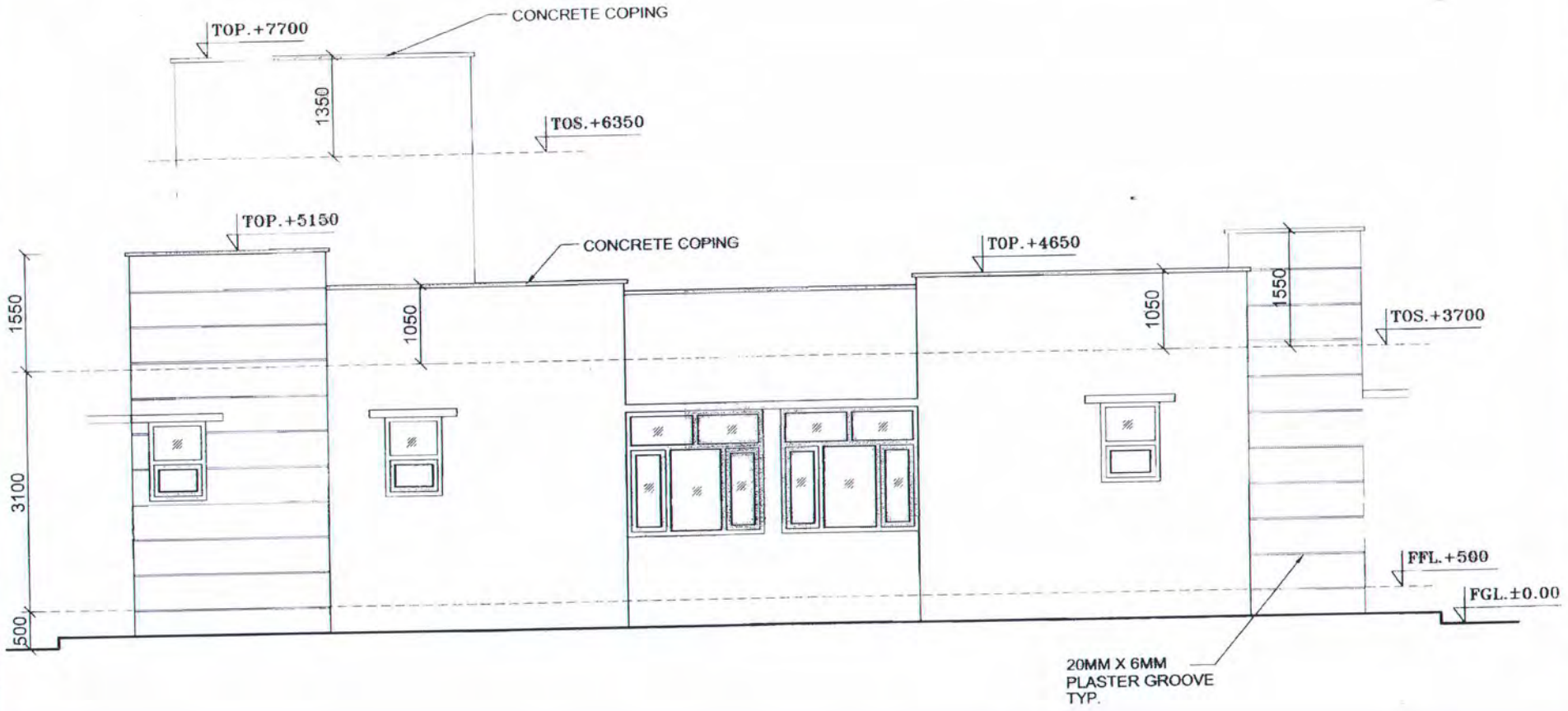
POWER GRID CORPORATION OF INDIA LIMITED
(A Government of India Enterprise)

PROJECT: STANDARD DRAWINGS FOR TOWNSHIP

TITLE: MUMTY/TERRACE PLAN TYPE-D

DCDE (ENGG-CIVIL)	AGM (ENGG-CIVIL)	AGM (ENGG-CIVIL)	GM (ENGG-SS & TL)	DATE	SCALE	DRAWING NO	REV
				19/10/2007	NTS	C/ENGG/TS/STD/TYPE-D/02	R-01

NEPAL ELECTRICITY AUTHORITY ESTD. 1985



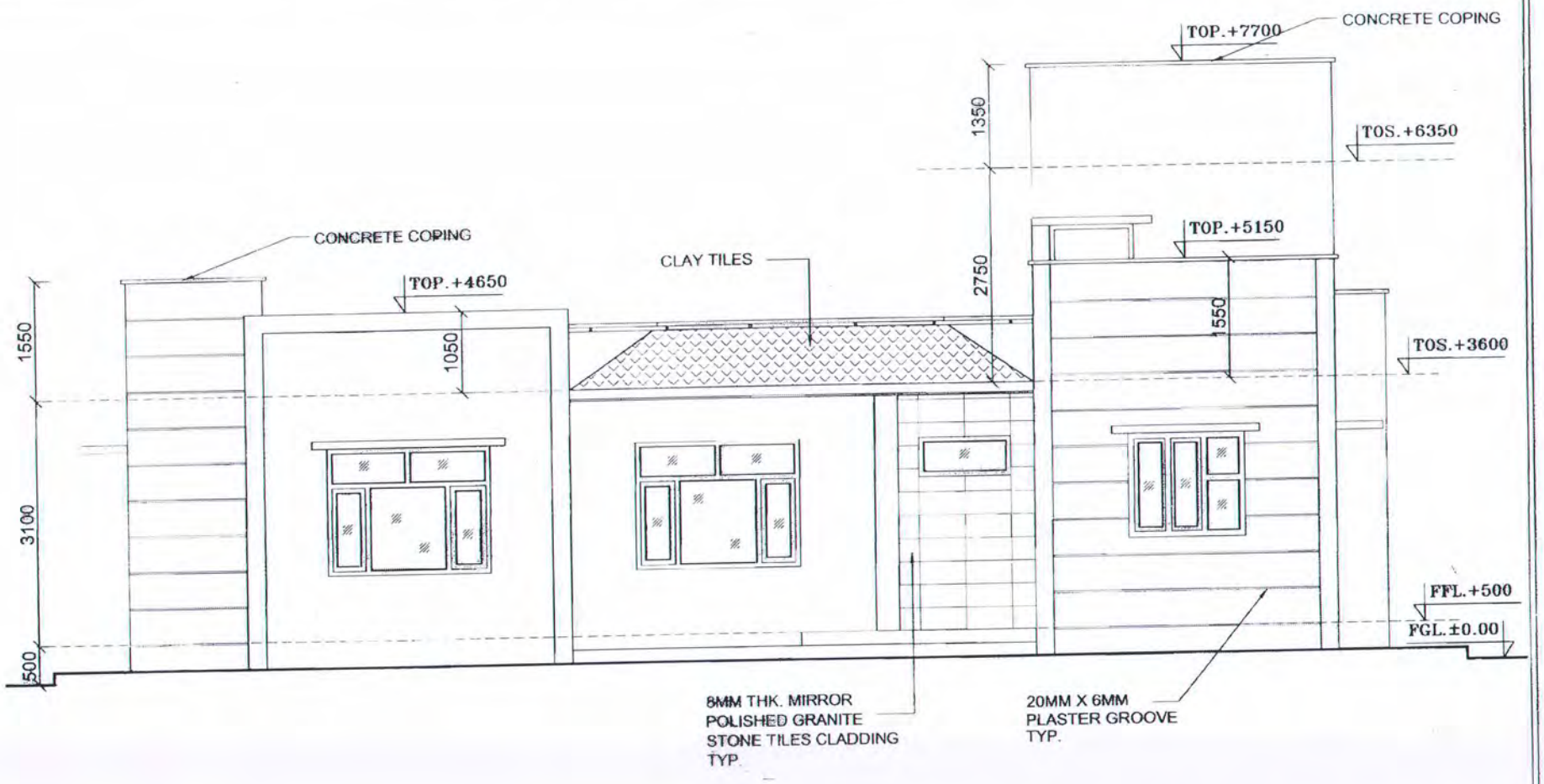
RELEASED FOR TENDER PURPOSE ONLY

POWER GRID CORPORATION OF INDIA LIMITED
(A Government of India Enterprise)

PROJECT: STANDARD DRAWINGS FOR TOWNSHIP

DCDE (ENGG-CIVIL)	AGM (ENGG-CIVIL)	AGM (ENGG-CIVIL)	GM (ENGG-SS & TL)	DATE: 19/10/2009	TITLE: REAR ELEVATION TYPE-D	
				SCALE: NTS	DRAWING NO: C/ENGG/TS/STD/TYPE-D/04	REV: R-00

NEPAL ELECTRICITY AUTHORITY ESTD. 1936



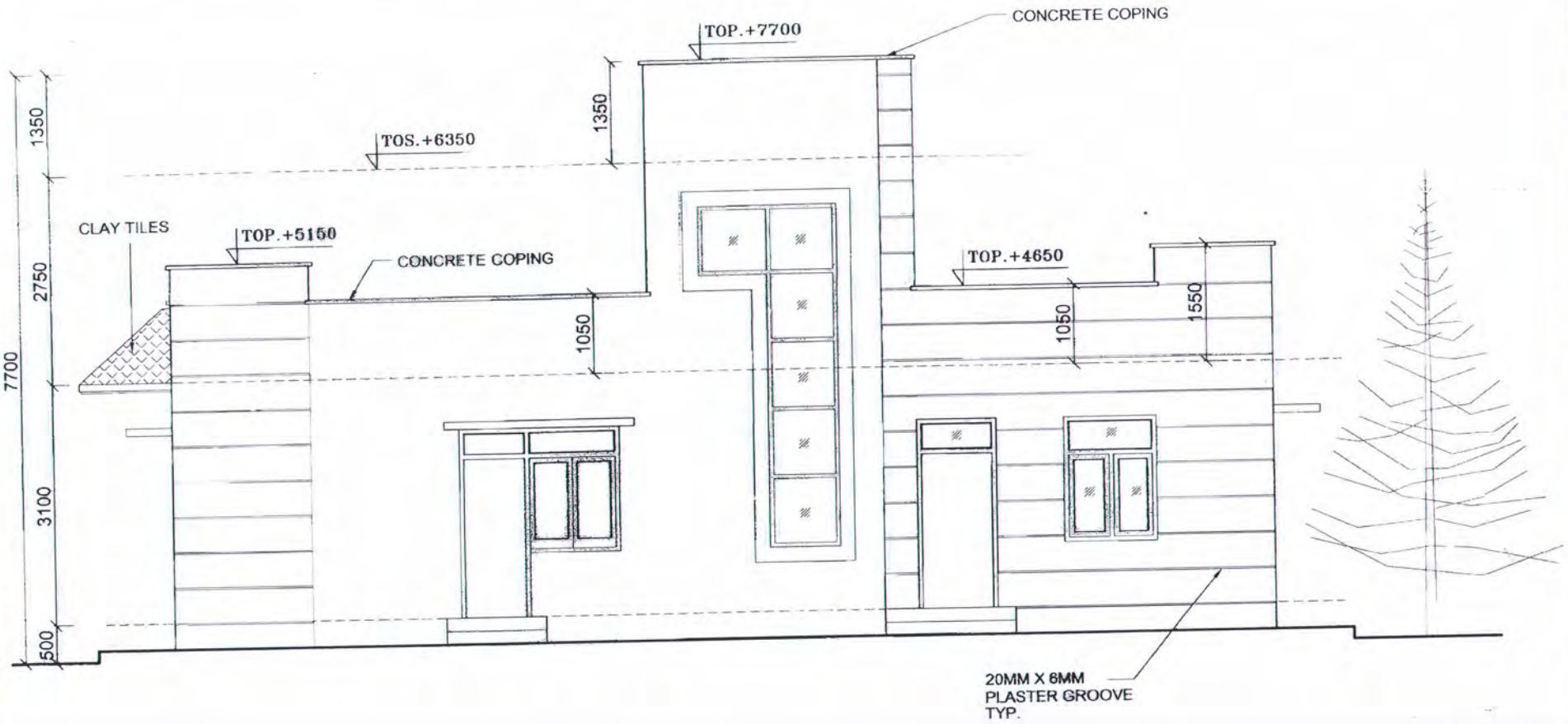
RELEASED FOR TENDER PURPOSE ONLY.

POWER GRID CORPORATION OF INDIA LIMITED
(A Government of India Enterprise)

PROJECT: STANDARD DRAWINGS FOR TOWNSHIP

DCDE (ENGG-CIVIL)	AGM (ENGG-CIVIL)	AGM (ENGG-CIVIL)	GM (ENGG-SS & TL)	DATE: 19/10/2009	TITLE: FRONT ELEVATION TYPE-D
				SCALE: NTS	DRAWING NO. C/ENGG/TS/STD/TYPE-D/05 REV R-01

NEPAL ELECTRICITY AUTHORITY ESTD. 1936



RELEASED FOR TENDER PURPOSE ONLY.

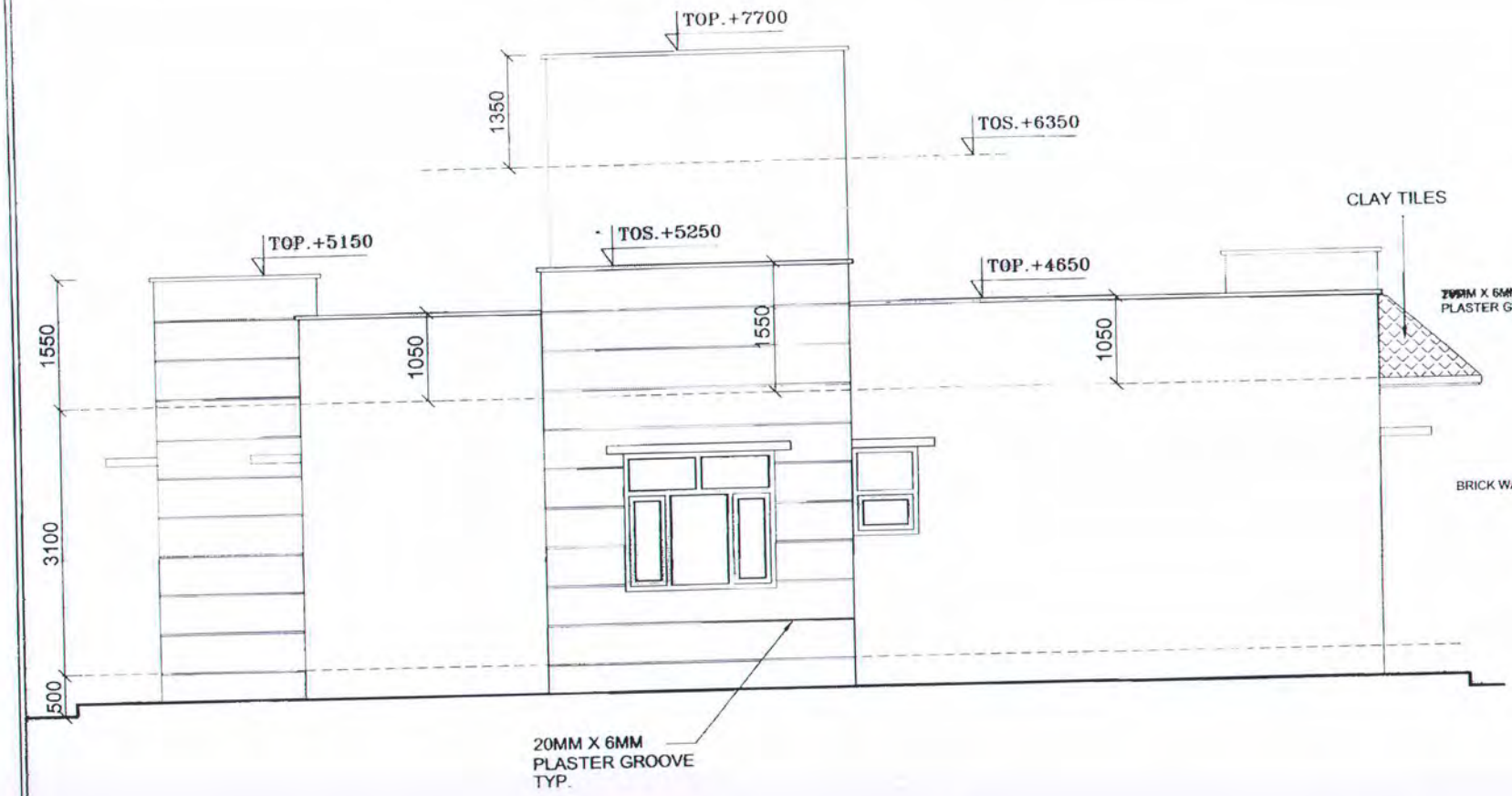
POWER GRID CORPORATION OF INDIA LIMITED
(A Government of India Enterprise)

PROJECT: STANDARD DRAWINGS FOR TOWNSHIP

TITLE: RIGHT SIDE ELEVATION TYPE-D

DCDE (ENGG-CIVIL)	AGM (ENGG-CIVIL)	AGM (ENGG-CIVIL)	GM (ENGG-SS & TL)	DATE	SCALE	DRAWING NO	REV
				19/10/2015	NTS	C/ENGG/TS/STD/TYPE-D/06	R-00

नेपाल विद्युत प्राधिकरण
NEPAL ELECTRICITY AUTHORITY
ESTD. 1985



RELEASED FOR TENDER PURPOSE ONLY

POWER GRID CORPORATION OF INDIA LIMITED
(A Government of India Enterprise)

PROJECT: STANDARD DRAWINGS FOR TOWNSHIP

DCDE (ENGG-CIVIL)	AGM (ENGG-CIVIL)	AGM (ENGG-CIVIL)	GM (ENGG-SS & TL)	DATE: 19/10/2019	TITLE: LEFT SIDE ELEVATION TYPE-D	
					SCALE: NTS	DRAWING NO: C/ENGG/TS/STD/TYPE-D/06a REV: R-00

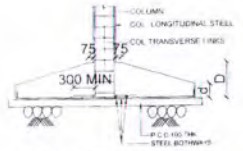
नेपाल विद्युत प्राधिकरण
NEPAL ELECTRICITY AUTHORITY
ESTD. 1985

SCHEDULE OF COLOUMN

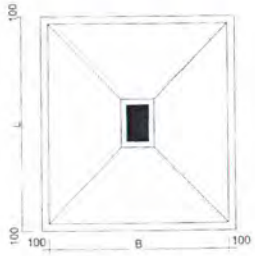
COLUMNS	SHAPE						
TYPE	C1	C2	C3	C4	C5	C6	C7
REINFORCEMENT	4 #16 + 4 #12	6 #20	4 #20 + 4 #16	8 #16	8 #20	6 #25	6 #20
SIZE	300 DIA	230 x 450	230 x 450	230 x 450	230 x 450	230 x 450	230 x 300

FOOTING

TYPE	L X B	D	d	REINFORCEMENT	
				ALONG - B	ALONG - L
F1	1200 X 1200	225	150	10 ϕ @225c/c	10 ϕ @225c/c
F2	1600 X 1200	300	200	10 ϕ @225c/c	10 ϕ @225c/c
F3	1600 X 1300	300	200	10 ϕ @175c/c	10 ϕ @225c/c
F4	1750 X 1450	300	200	10 ϕ @175c/c	10 ϕ @200c/c
F5	1800 X 1450	300	200	10 ϕ @125c/c	10 ϕ @150c/c

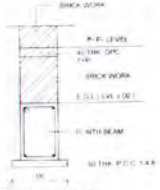


TYPICAL SECTION OF FOOTINGS

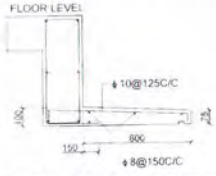


TYPICAL PLAN OF FOOTINGS

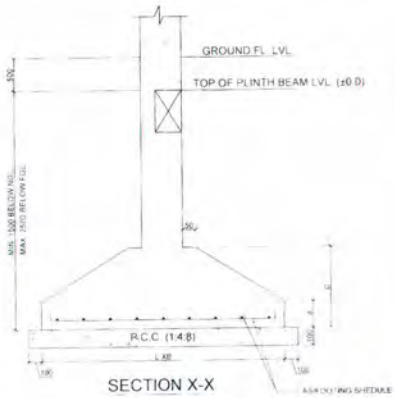
SECTION THROUGH INTERNAL PLINTH BEAM



SECTION THROUGH EXTERNAL PLINTH BEAM

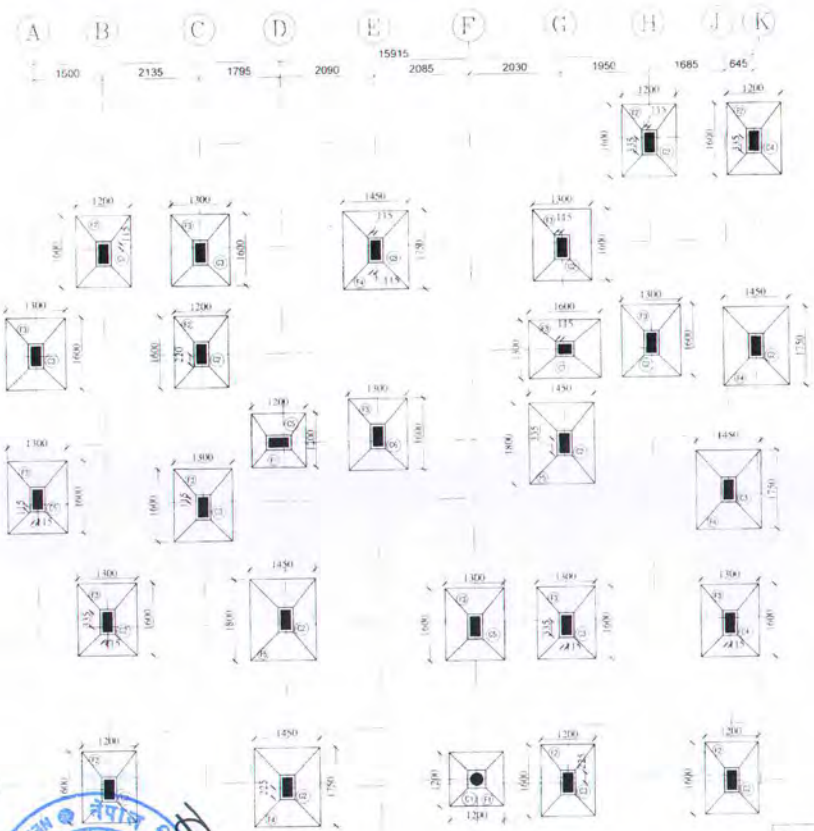


TYPICAL DETAIL OF R.C.C. SUNSHADE

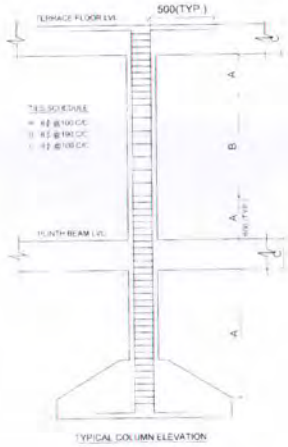


SECTION X-X

R2



FOUNDATION LAYOUT PLAN



TYPICAL COLUMN ELEVATION

DETAILS OF LINTEL BEAM

LINTEL TYPE	OPENING WIDTH	MINIMUM END BEARING	LINTEL DEPTH	R.C.C. DETAILS	
				115 THK BRICK WALL	FULL THK BRICK WALL
01	UP TO 900 MM	100	115	4-10ϕ 8#@100 C/C	4-10ϕ 8#@100 C/C
02	ABOVE 900 MM BUT UPTO 1200mm	150	115	4-10ϕ 8#@100 C/C	4-10ϕ 8#@100 C/C
03	ABOVE 1200 MM BUT UPTO 1500mm	200	150	4-10ϕ 8#@100 C/C	4-10ϕ 8#@100 C/C
04	ABOVE 1500 MM BUT UPTO 2000mm	250	150	2-12ϕ 8#@100 C/C	2-12ϕ 8#@120 C/C

NOTES :-

1. ALL DIMENSIONS ARE IN MILIMETER AND LEVELS ARE IN METRES.
2. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH RELEVANT STRUCTURAL ARCHITECTURAL, SERVICES DRAWINGS AND SPECIFICATIONS.
3. DISCREPENCIES IF ANY FOUND SHALL BE BROUGHT TO THE NOTICE OF ENGINEER - IN - CHARGE BEFORE EXECUTION OF THE WORK.
4. DRAWING SHOULD NOT BE SCALED ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
5. CONCRETE MIX SHALL BE 1:5:3.
6. LAPPING TO REINFORCEMENT FOR :
   - BEAM TENSION REINFORCMENT SHALL BE AT 'd' FROM SUPPORT (d = EFFECTIVE DEPTH).
   - BEAM COMPRESSION REINFORCMENT SHALL BE AT MID SPAN.
   - COLOUMN LONGITUDINAL REINFORCMENT SHALL BE AT MID HEIGHT OF FLOOR.
   LAPPING TO REINFORCMENT SHALL BE 50 X BAR DIA.
7. REINFORCEMENT SHALL BE LAID AS PER IS 456 (LATEST) OR SP 34 IF DETAILS ARE NOT AVAILABLE IN THE DRAWING.
8. ADEQUATE CHAIRS SHALL BE PROVIDED TO THE REINFORCEMENT.
9. ALL REINFORCEMENT SHALL BE OF GRADE Fe - 415 CONFORMING IS 1786 OR TMT BARS OF EQUIVALENT GRADE.
10. MINIMUM CLEAR COVER TO MAIN REINFORCEMENT SHALL BE AS FOLLOWS
    (a) FOOTING - 50 MM (c) BEAM - 25 MM
    (b) COLUMN - 40 MM (d) SLAB - 20 MM
11. ALL WORK SHALL BE CARRIED OUT AS PER CPWD SPECIFICATIONS (LATEST).

RELEASED FOR TENDER **PURPOSE ONLY.**

REV	DESCRIPTION	DCDE (ENGG-CIVIL)	AGM (ENGG-CIVIL)	GM (ENGG-SS&TE)	DATE
02	MARKED AS (R2				30/8/10
01	GENERAL STRUCTURAL DETAILS OF DRG. NO. : C/ENGG/T.S./STD/TYPE D/G /STR/05 HAVE BEEN INCORPORATED & OTHER MINOR CORRECTION MADE				

POWER GRID CORPORATION OF INDIA LIMITED
(A Government of India Enterprise)

PROJECT: STANDARD DRAWINGS FOR TYPE - D
(BEARING CAPACITY - 15T/M² SEISMIC ZONE IV)

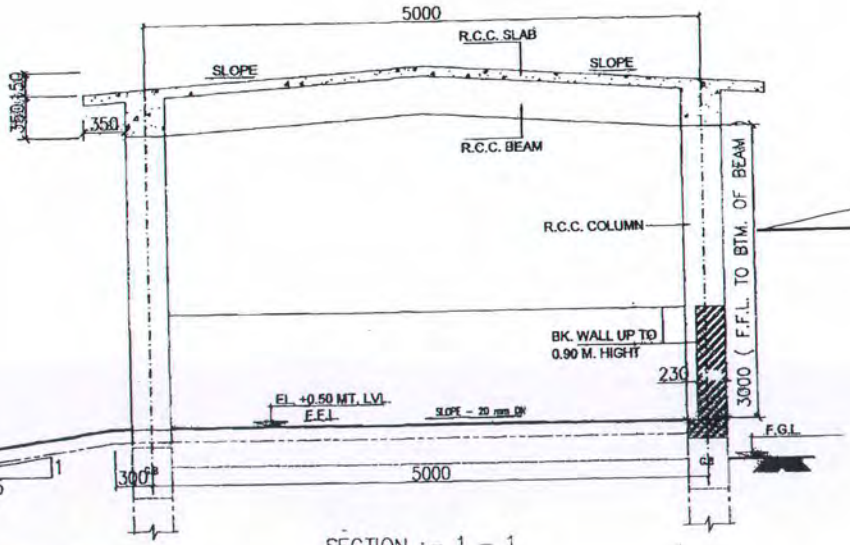
TITLE: FOUNDATION, COLUMN & LINTEL DETAILS

SCALE	DRAWING NO.	REV.
NTS	C/ENGG./T.S./STD/TYPE-D/STR/1a	R-02

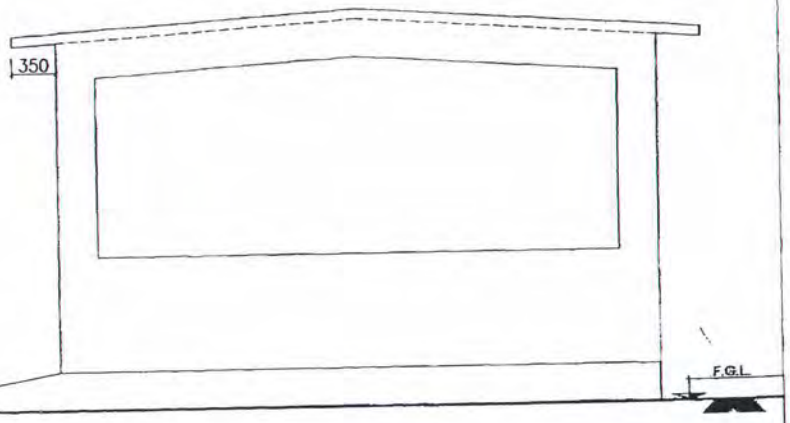
Drawings of Car Parking Sheds

EL. +0.50 MT. LVL.
F.F.L.

FRONT ELEVATION–A



SECTION :– 1 – 1



SIDE ELEVATION–B

RELEASED FOR TENDER PURPOSE

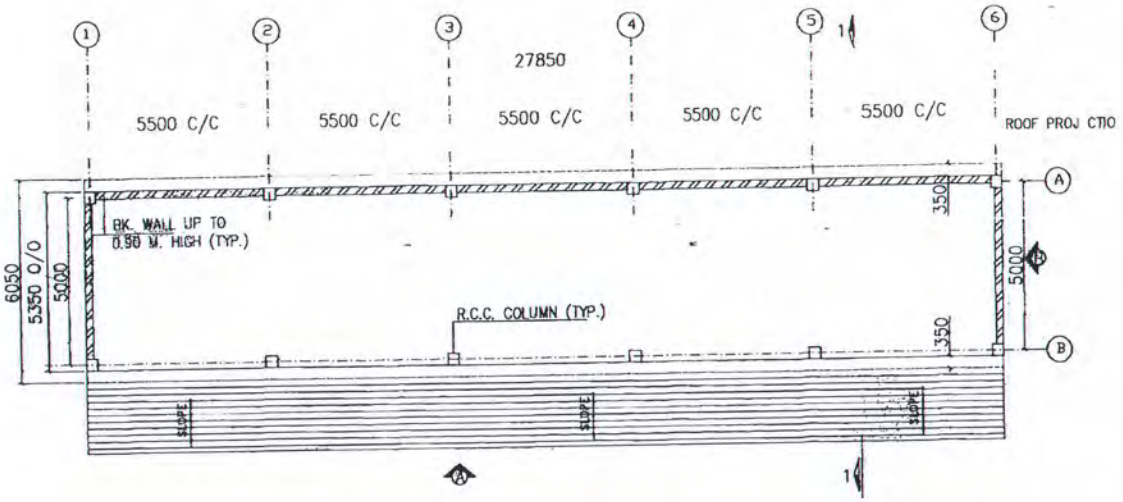
POWER GRID CORPORATION OF INDIA LIMITED
(A Government of India Enterprise)

PROJECT: STANDARD COVERD PARKING FOR 10 VEHICLES FOR TOWNSHIP & SUB-STATION

TITLE: ELEVATION AND SECTION

DCDE (ENGG-CIVIL)	AGM (ENGG-CIVIL)	AGM (ENGG-CIVIL)	GM (ENGG-SS & TL)	DATE –	SCALE NTS	DRAWING NO. C/ENGG/TS/STD/PARKING-10/02	REV R-00

नेपाल विद्युत प्राधिकरण NEPAL ELECTRICITY AUTHORITY ESTD. 1985



GROUND FLOOR PLAN

SELF FINISH

100 THK. RCC 1:1.5:3 WITH VACCUM DEWATERING

P.C.C. 1:4:8 100 MM. THK.

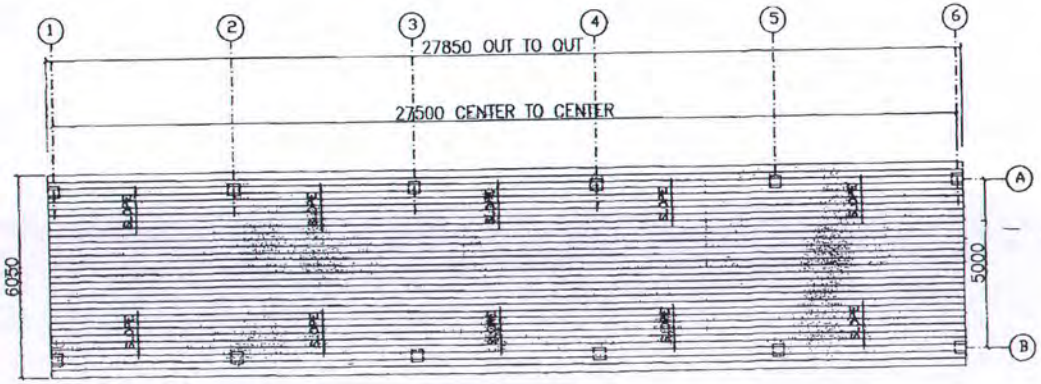
WELL COMPACTED EARTH G.

OVER 100 THK. FINE SAND

FLOORING DETAIL

NOTES :-

1. ALL DIMENSIONS ARE IN MM
2. NOT SCALE THE DRAWING, FOLLOW WRITTEN DIMENSIONS ONLY.
3. FOR LOCATION OF BUILDING REFER TOWNSHIP LAY OUT PLAN.
4. FOR STRUCTURAL DETAIL REFER SEPERATE D NG.
5. BRICKS (CLASS 75) SHALL E USED IN MASONRY
6. ANY DESCREPANCY IN TO BE B UGHT TO THE NOTICE OF SITE INCHARGE
7. ALL RCC SHALL BE (1: 1.5: 3)



TERRACE LAYOUT

RELEASED FOR TENDER PURPOSE ONLY

POWER GRID CORPORATION OF INDIA LIMITED

(A Government of India Enterprise)

PROJECT: STANDARD COVERD PARKING FOR 10 VEHICLES FOR TOWNSHIP & SUB-STATION

TITLE: GROUND AND TERRACE PLANS

DCDE (ENGG-CIVIL)	AGM (ENGG-CIVIL)	AGM (ENGG-CIVIL)	GM (ENGG-SS & TL)		DATE 19/11/2012	SCALE NTS	DRAWING NO. C/ENGG/TS/STD/PARKING-10/01	REV R-00

Schedule No. 1: Plants and Equipemnt including mandatory spares to be supplied from abroad

Schedule No.1: Plant and Equipment including Mandatory Spares to be supplied from abroad

Item No.	Item description	Country of origin	Estimated		CIP Project Site including insurance, clearing, forwarding and transportation to site (Excluding Taxes and Duties applicable in Nepal)			Total Amount (Excluding Taxes and Duties)	Custom, VAT and other taxes
					FC			FC	LC
			Unit	Quantity	Currency#	Unit Rate	Amount		
1	2	3	4	5	6	7	8 = (7) x (5)	9=8	10
1.1	132 kV System		Nos.	9					
1.2	BCU for auxilary system		set	1					
1.3	11 kV HT Indoor Switchgear		Nos	13					
J	**DIgital Protection Coupler & IP-PBAX**		Nos	8					
1	Digital Protection Coupler		Set	1					
2	PBAX as per TS								
K	**LT Switchgear (As per Technical specification)**		Set	1					
1	400V Main switchboard		Set	1					
2	400V ACDB		Set	1					
3	400V MLDB		Set	1					
4	400V Emergency LDB		Sets	1					
5	220V DCDB		Set	1					
6	48V DCDB								
L	**Batteries**								
1	220V		Nos	1					
1.1	600 AH								
2	48V		Nos	1					
2.1	600AH								
M	**Float Cum Boost Battery Charger**								
1	220V Float Cum Boost Battery Charger		Nos	2					
1.1	80A/80A								
2	48V Float Cum Boost Battery Charger		Nos	2					
2.1	80A/80A								
N	**Diesel Generator with control Panel**		Set	1					
1	100 kVA								
O	**Fire Protection System**								
1	Portable /Trolley/Wheel mounted extinguishers		Nos	2					
1.1	9 litre water type		Nos	2					
1.2	50 litre foam type		Nos	6					
1.3	4.5 kg CO_2 type		Nos	2					
1.4	4.5 kg Dry Chemical Power (DCP) type		Set	1					
2.0	Smoke detection system		Set	1					
3.0	Fire detection and Alarm System								
P	**Cables along with clamps, glands, lugs and straight joints etc.**								
1.0	11kV HT 3C .400 Sq.mm Aluminum Cable alongwith accessories and termination equipments for termination of 11 kV Line		KM	2					
2.0	11kV HT 3C .400 Sq.mm Aluminum Cable alongwith accessories and termination equipments for termination of 11 kV LT Transformer		KM	0.25					
3.0	11kV HT Cable (1CX800 SQmm) Copper for 11k kV side of 132/11 kV Transformer alongwith accessories and termination equipments		KM	1					
4	Power Cables - (1.1kV grade)								

Schedule No.1: Plant and Equipment including Mandatory Spares to be supplied from abroad

Item No.	Item description	Country of origin	Estimated		CIP Project Site including insurance, clearing, forwarding and transportation to site (Excluding Taxes and Duties applicable in Nepal)			Total Amount (Excluding Taxes and Duties)	Custom, VAT and other taxes
					FC			FC	LC
			Unit	Quantity	Currency#	Unit Rate	Amount		
1	2	3	4	5	6	7	8 = (7) x (5)	9=8	10
g.1	For isolator		Sets	1					
g.2	For earth switch		Sets	1					
D)	**145 KV CURRENT TRANSFORMER**								
a.	Gas insulated complete CT of each type and rating with enclosure.		Lot	1					
b.	Secondary bushing of each type		Sets	1					
E)	**145 kV VOLTAGE TRANSFORMER**								
a.	Gas insulated complete PT of each type and rating with enclosure.		Nos.	1					
(F)	**120kV SA**								
i)	Complete LA		No.	1					
ii)	Surge counter/monitor		Nos.	2					
(III)	**C&R PANELS**								
i)	Transformer protection panel :								
a)	Transformer differential protection		No.	1					
b)	REF protection relay with non-linear resistor		No.	1					
c)	Directional over current & E/F Protection Relay		No.	1					
ii)	Line protection panel :								
a)	Distance Protection relay or Current differential Protection relay		No.	1					
iii)	Breaker Relay panel. Part of CRP								
a)	Breaker failure relay		No.	1					
b)	Trip circuit supervision relay		Nos.	2					
c)	Self reset trip relay (relay of each type)		Set	1					
d)	Hand reset trip relay(relay of each type)		Set	1					
e)	Timer relay(relay of each type)		Set	1					
f)	DC supervision relay(relay of each type)		Set	1					
g)	Flag relays(relay of each type)		Set	1					
h)	Auxiliary relays(relay of each type)		Set	1					
(V)	**SAS**								
i)	Bay Control Unit (IED) of each type		Set	1					
ii)	Ethernet Switch of each type		Set	1					
(VI)	**BATTERY CHARGER(110V & 48V)**								
i)	Set of control cards		Set	1					
ii)	Set of relays		Set	1					
iii)	Rectifier transformer		No.	1					
iv)	Thyristor/diode		Set	1					
v)	Fuses of Thyristor with indicators		Set	6					