CORRIGENDUM-2 TO TENDER SPECIFICATION BHEL: PSSR: SCT: 1956

Sub: Erection & Testing of Sea water piping system and all associated Piping in tunnel, buildings & buried portion including related civil works like excavation, sand filling, construction of Inspection chamber at Kudankulam Nuclear Power Project Unit 3 & 4 Tamilnadu.

A. The following dates in Clause No. 1.0 Salient Features of NIT in NOTICE INVITING TENDER are revised as below: -

Description	As Per Tender	Revised as
Sl. No v) Due Date & Time of Offer Submission	18.06.2021, 1000 HRS	25.06.2021, 1000 HRS
Sl. No vi) Opening of Tender	18.06.2021, 1700 HRS	25.06.2021, 1700 HRS

B. The following clarifications have been sought in regard to subject tender and BHEL's reply is furnished below for information.

Sl. No.	Reference clause of tender document	Existing Provision/ Title of Clause	Bidder query	BHEL's Clarification
1.	Notice Inviting Tender, Sl. No. 1.0 (vii) EMD Amount	Rs. 10,00,000/- (Rupees Ten lakhs only)	With reference to the recent tenders floated by BHEL, EMD amount was proposed as Nil. But for this tender EMD is proposed as 10 lakhs which is a huge amount considering the Financial implications due to pandemic. By considering the above reasons we request you please waive off the EMD.	Tender condition prevails.
2.	Notice Inviting Tender	BG for EMD	We request you to kindly you to waive off the EMD value since we belong to MSME sector and due to covid -19 pandemic challenges/turmoil faced in the construction sector.	Tender condition prevails.
3.	(TCC) VOLUME-IA PART-I & II Clause 1.2.15.4 Page 55 of 402	Civil - Inspection chambers	Please provide all the necessary detail, drawings with Specification and type of chamber water proofing to be carried out.	Sample drawings for inspection chamber is attached for reference as **Annexure 1**. Detailed drawing to be submitted by contractor for NPCIL approval during execution.
4.	(TCC) VOLUME-IA PART-I & II Clause 1.2.11.18.3 Page 41 of 402	Water for testing requirements.	Please confirm whether DM water shall be provided by you for testing purpose	Water required for carrying out hydro test shall be provided by NPCIL at one point inside the plant premises on free issue basis. Kindly refer point b of clause no 1.2.11.18.3 of VOLUME-IA PART-I CHAPTER – II, SCOPE OF WORKS of TCC (Pg no 41 of 402)

CORRIGENDUM-2 TO TENDER SPECIFICATION BHEL: PSSR: SCT: 1956

Sl. No.	Reference clause of tender document	Existing Provision/ Title of Clause	Bidder query	BHEL's Clarification
5.	(TCC) VOLUME-IA PART-I & II Clause 1.5.1 Page 116 of 402	Erection & testing facilities to be provided by BHEL.	Please clarify whether any crane is required for Turbine building piping related works. If required, please inform the capacity of the same.	EOT crane will be provided by NPCIL for piping erection, if any, inside the turbine building at free of cost.
6.	(TCC) VOLUME-IA PART-I & II Clause 1.2.11.4 Page 22 of 402	Welding requirements	Please provide drawings, welding details with specification, welding procedures for Carbon steel/Stainless steel/Titanium fillet/Butt welds on pipes and fittings.	Welding details and drawings will be shared during execution. Welding procedure for Carbon steel/Stainless steel/Titanium fillet/Butt welds on pipes and fittings are to be submitted by contractor for NPCIL approval.
7.	(TCC) VOLUME-IA PART-I & II Clause 2.17 Page 208 of 402	Price Variation Clause(PVC)	Please confirm whether PVC is applicable from the commencement of work, since this project includes both mechanical and civil supply and labor component.	Base date for PVC shall be calendar month of actual commencement of work at site. Please refer Volume-IA, Part-II, Chapter 1, Sl No: 11 PRICE VARIATION COMPENSATION (PVC) (Pg. 208 to 211 of 402)
8.	(TCC) VOLUME-IA PART-I & II Chapter VII Clause 1.7 Page 120 of 402	Terms of Payment	Please confirm the terms of payment for the civil related works	VOLUME-IA PART-I CHAPTER VII i.e Terms of payment is amended & enclosed as **Annexure 2**.
9.	(TCC) Terms of Payment Page 120 of 402	As per the BBU An amount of 10% had been held upto Receipt of Construction Completion Certificate (i.e CCC) and Material Accounting Statement.	Since the contractor scope is limited to Erection of piping and equipment supplied by BHEL/NPCIL and involvement of Labour component is very high. Withholding of 10% will effect the cash flow during the execution of Work. Keeping the same in view we request BHEL to consider percentage against CCC and Material Accounting Statement as 5 % instead of 10%.	Tender condition prevails.

CORRIGENDUM-2 TO TENDER SPECIFICATION BHEL: PSSR: SCT: 1956

Sl. No.	Reference clause of tender document	Existing Provision/ Title of Clause	Bidder query	BHEL's Clarification
10.	(TCC) Clause 1.2.18 Anti-Corrosive Painting for Sea Water System	Surface preparation and application of anti-corrosive coating on field joint	We request you to please provide the procedure to be followed during the painting.	Refer Document no: I02.KK34.0.0.TH.TS.PR009 R1 published vide Corrigendum 1 dated 08.06.2021 for procedure for Anti-corrosive painting. (Pg 85 to 128 of 128)
11.	(TCC) Clause 1.2.11.3 Erection of CS, SS, Ti pipelines	Erection of pipes on different types of supports at various elevation, locations, alignment of pipes and slope as per the drawing, providing tapping for vents, drain and sampling connections and providing reinforcing pads for branch connections wherever required	We request you to please provide the Elevation of the piping and also provide the quantity to be considered in the different elevations.	Building wise pipe details and drawings are provided in TCC. Bidder to refer Pg 221 to 281 of 402 in TCC.
12.	(TCC) Clause 1.2.12.1 CS Piping for essential load cooling water system PEB in UQZ tunnel		We request you to please provide the Methodology for installation of the CS piping in the Tunnel Piping and Drainage system in PUQ in UQZ tunnel and UUP, UUQ vent chamber.	Refer **Annexure 3** for Proposed erection methodology of UQZ tunnel piping. However, erection methodology shall be prepared & submitted by bidder for approval by NPCIL before start of erection based on the location of erection openings and site conditions.
13.	(TCC) VOLUME-IA PART-I & II Chapter IV CL1.4.1 Page 111 of 402	T&PS and MMEs to be deployed by Contractor	Please confirm whether the tools and plants mentioned are for both unit-3 and 4.	Tentative T&P's list provided in VOLUME-IA PART-I CHAPTER – IV T&PS and MMEs TO BE DEPLOYED BY CONTRACTOR is for both units.

CORRIGENDUM-2 TO TENDER SPECIFICATION BHEL: PSSR: SCT: 1956

Sl. No.	Reference clause of tender document	Existing Provision/ Title of Clause	Bidder query	BHEL's Clarification
14.	(TCC) VOLUME-IA PART-I CL1.2.12.4 Page 49 of 402	Galvanized piping and fittings materials (GKD system)	Please confirm GI pipes and fittings are threaded or welded types supplied by M/s.BHEL.	GI pipes and fittings supplied by BHEL are threaded type.
15.	(SCC, GCC) Clause 2.14.2 (i) Quantity Variation		Quantity Variation against awarded value has been limited upto Plus or Minus 15% of awarded contract value. We request you to please reduce the limit upto (+/-) 10% of awarded contract value.	Tender condition prevails. This is an item rate contract. Payment shall be made for the actual quantities of work executed at the unit rate.
16.	General	IBR Clearance for Auxiliary piping system.	Please clarify the scope of IBR and its related works are involved in this package.	Scope of IBR is not applicable for this tender.
17.	VOLUME-II Price Bid, Ref. no: G.2 and G.3	CS piping for drainage system PUQ in UQZ tunnel and UUP, UUQ vent chamber and Buried Piping	We have considered all the Bends, Tees, reducers, Gaskets shall be provided by BHEL as Free issue item and no site fabrication has been considered. Please confirm.	Required bends, tees, reducers, gaskets will be provided by BHEL as free issue item.
18.	VOLUME-II Price Bid Ref. no. F 19, 20, 21, 22, 31 Page 10, 11 of 24	NDT works-Gamma Ray/X ray/UT/Digitization of RT film.	Please confirm whether radiography NDT inspection quantity covered under the sl.no F.19/20/21/22/31 is inclusive of all the tunnel, potable, drainage, buried, turbine piping system.	Please refer the description provided in the Price Bid. NDT works for Tunnel, potable, drainage, buried piping supplied by BHEL is not covered in BOQ of F19, 20, 21, 22 & 31. For these pipes, rates to be quoted on tonnage basis including associated NDT works. (Bidder to refer price bid: Ref. No G1, G2, G3, G4, G5).
19.	VOLUME-II Price Bid Ref.no: G.4, CS Tanks	CS Tank	We request you to please provide the sizes of the CS Tank. We understand that Only Erection of the CS is in our scope and no site fabrication has been considered. Please confirm.	Each tank capacity is of 180 Liters approx. Dimensions of tank is 800x900x410mm. Total no of tanks – 10 Nos. Tank is supplied in fabricated condition. Fabrication of tank is not in the scope of contractor.

CORRIGENDUM-2 TO TENDER SPECIFICATION BHEL: PSSR: SCT: 1956

Sl. No.	Reference clause of tender document	Existing Provision/ Title of Clause	Bidder query	BHEL's Clarification
20.	VOLUME-II Price Bid Ref. No. G.8.1 & G.8.2 Page 15 of 24	Civil – Excavation of earth –soft rock and hard rock	Please explain the locations of excavation as per the layout given. Please confirm the approximate depth of excavation of soft/hard rock at a depth of up to 1.5m, 1.5 m to 3m, 3 m to 5m and 5m to 8m is under this scope work. Please provide all the necessary details, drawings with specification.	Bidder to refer Buried piping drawings provided in TCC Pg 277 to 278 of 402
21.	VOLUME-II Price Bid Ref no. I, K Page 19,20,21 of 24	Grit blasting and Painting Works	Please confirm whether Big bore piping spools are (prefabricated)/Small bore piping/Structural materials (pipe supports) supplied by BHEL/NPCIL stores are duly pre-coated/painted before fabrication and Erection for turbine building. We understand that those are pre coated for seaworthy packing during transportation has to be blasted, fabricated, re-blasted followed by painting of primer, intermediate and final paint. Similarly, please confirm whether pipes to be blasted and painted for tunnel, potable, drainage, buried, turbine piping system has been covered under which reference numbered items. Please clarify.	Big bore pipes/small-bore Pipes/structural materials/pipe supports supplied by NPCIL as Free issue material (FIM) are to be grit-blasted and painted with primer, intermediate and final paint by contractor. BHEL supplied pipes & supports for Tunnel piping, potable, drainage are grit blasted and primer coated on the outer surface. Intermediate and final coating to be carried out by contractor on the outer surface. For tunnel piping anticorrosive coating on the inner surface shall be done by BHEL before issuing to the bidder. Providing the anticorrosive coating on field joints only is in the scope of bidder. For Buried piping Anti-corrosive coating on the inner and outer surfaces shall be done by BHEL wherever required before issuing to the bidder. Providing the anticorrosive coating on field joints only is in the scope of bidder.

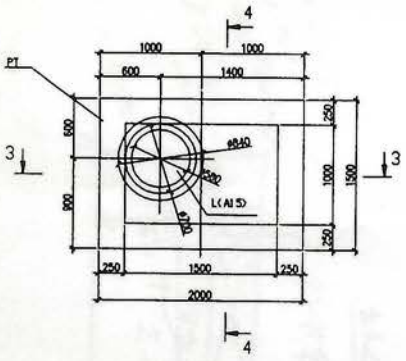
CORRIGENDUM-2 TO TENDER SPECIFICATION BHEL: PSSR: SCT: 1956

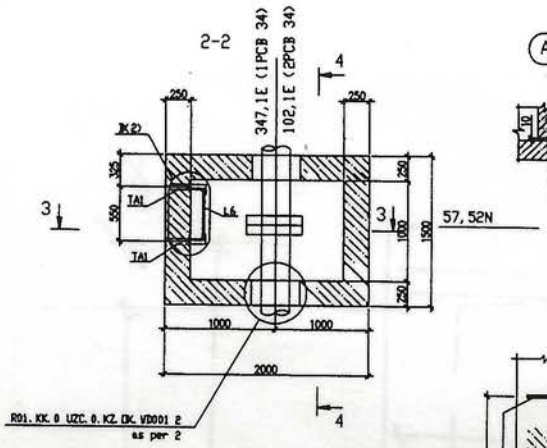
Sl. No.	Reference clause of tender document	Existing Provision/ Title of Clause	Bidder query	BHEL's Clarification
22.	VOLUME-II Price Bid Ref. no K	Painting Works - Anticorrosive coating – M/s. Kirloskar Corrocoat material (Poly glass 100)	We request you to advice any other equivalent/alternate material for application of the same on pipe site joints for sea water pipelines. Also we request you provide/supply the anticorrosive materials so that application can be carried out accordingly. Please confirm.	Tender condition prevails.

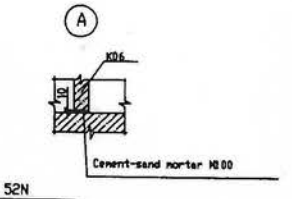
Note:
1. All other conditions remain unchanged.
2. Bidders are requested to consider this corrigendum as part of tender specification and quote accordingly.

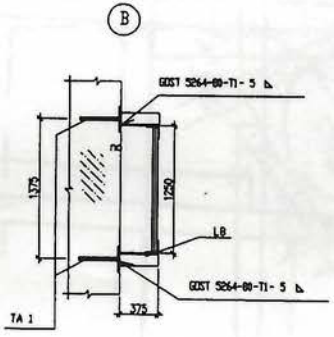
Encl.:
1. Annexure 1 - Sample drawings for inspection chamber (09 Pages)
2. Annexure 2 - Terms of Payment (04 Pages)
3. Annexure 3 - Erection methodology of UQZ tunnel piping (01 Page)

-sd-
Asha Alex
SDGM/ SCT

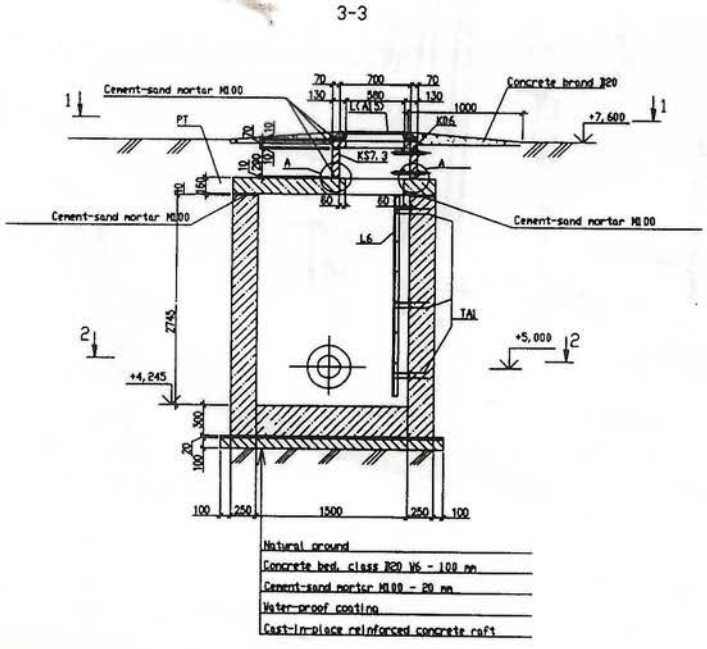


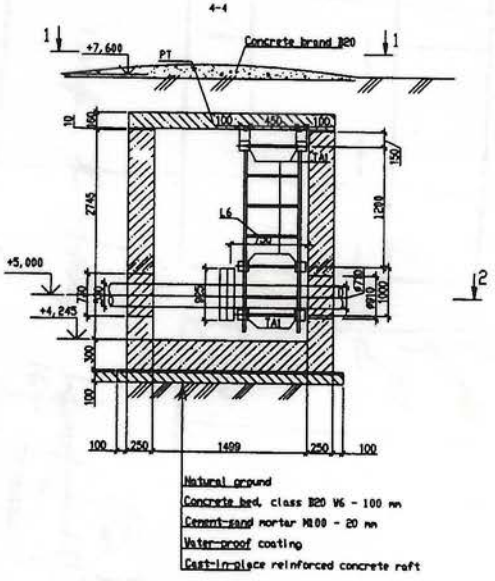






Pos.	Designation	Name	Q-ty per unit		Note
		Assembly units			
	GOST 3634-99	Hatch L(AI5)	1		
	GOST 8829-90	Support ring KD6	1		
	R01. KK. 0 UZC. 0. KZ. DK. VD001	Assembled ring of neck KS 7. 3	1		
1	TS 1566-1967	reinforcing fabric ø 3,15, 50x50	m² 0,8		
	see note No. 4	Covering plate PT	1		
	R01. KK. 0 UZC. 0. KZ. DK. VD001	Embedded part TA1	6		
	R01. KK. 0 UZC. 0. KZ. DK. VD001	Stepladder L6	1		
		Materials			
		B20 W6 type concrete	m³ 0,7		
		Cement-sand mortar M100	m³ 0,2		
	KK. 0. 0. KZ. TT. VD002	Polyurethane mastic of "Thiura" type	m² 52,0		





1 Surface waterproofer 1,5 mm thick shall be performed on the external side of the well over the foundation mat, on the side surfaces of walls up to layout elevation and over the floor top in compliance with KK. 0. 0. KZ. TT. VD002 'Technical requirements for waterproofing of underground parts of buildings and structures'.

The measures on surface waterproofer protection against mechanical damages during backfilling shall be envisaged in Work execution design according to the Customer's practice.

2 Inside the well, the surface waterproofer 1,5 mm thick shall be performed over the bottom surface and side surfaces of walls in compliance with KK. 0. 0. KZ. TT. VD002 'Technical requirements for waterproofing of underground parts of building and structures'.

3 Position 1 shall be installed with 15 mm protective layer.

4 covering plate details shall be same as PT-9 (DRG. No. R01. KK. 3 UZC. 0. KZ. DK. VD001D except that the overall dimensions shall be as given in this drawing.

PCB 34 LINE FLANGE JOINT ACCESS WELL

NEAR 1 UQA AND 2 UQA

H. R. Mondi
50/8(FE)

Annexure - B
Sh: 1/3

Annexure - B

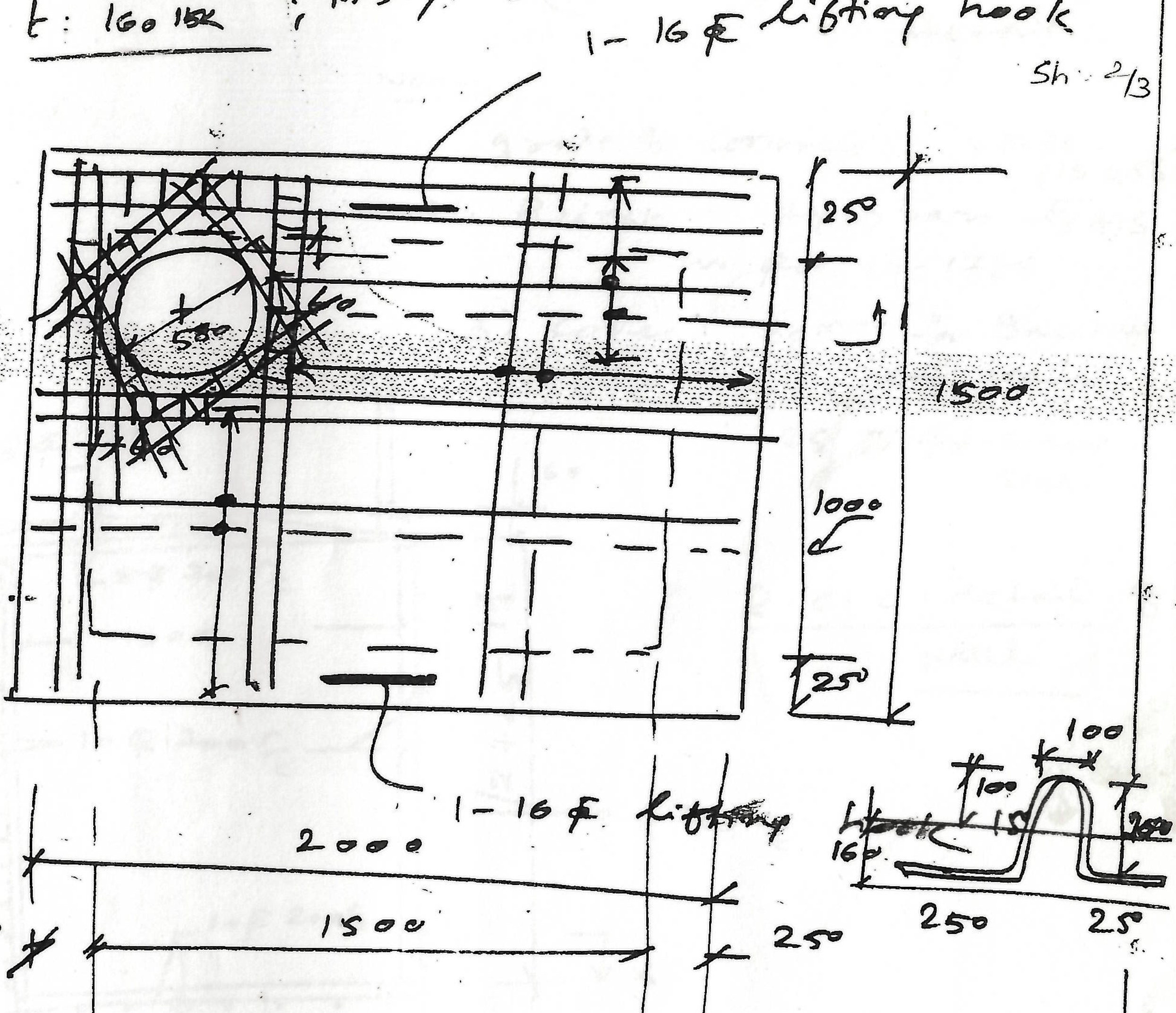
R.c.c. detail of cover slab

1-PCB 34, 2 PCB 34

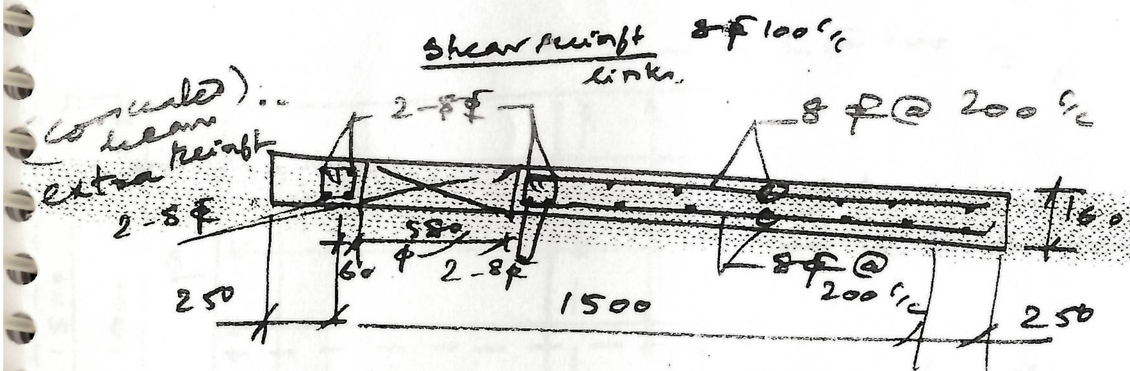
Cover slab

t: 160 15k ; m 30, fy 415

Sh: 2/3



8 ф 200 c/c (T+B)
B/ways.



Precast slab

1-1

25.9.07

Annexure. 5

Sh = 3/3

1-PCB 34

2 PCB 34

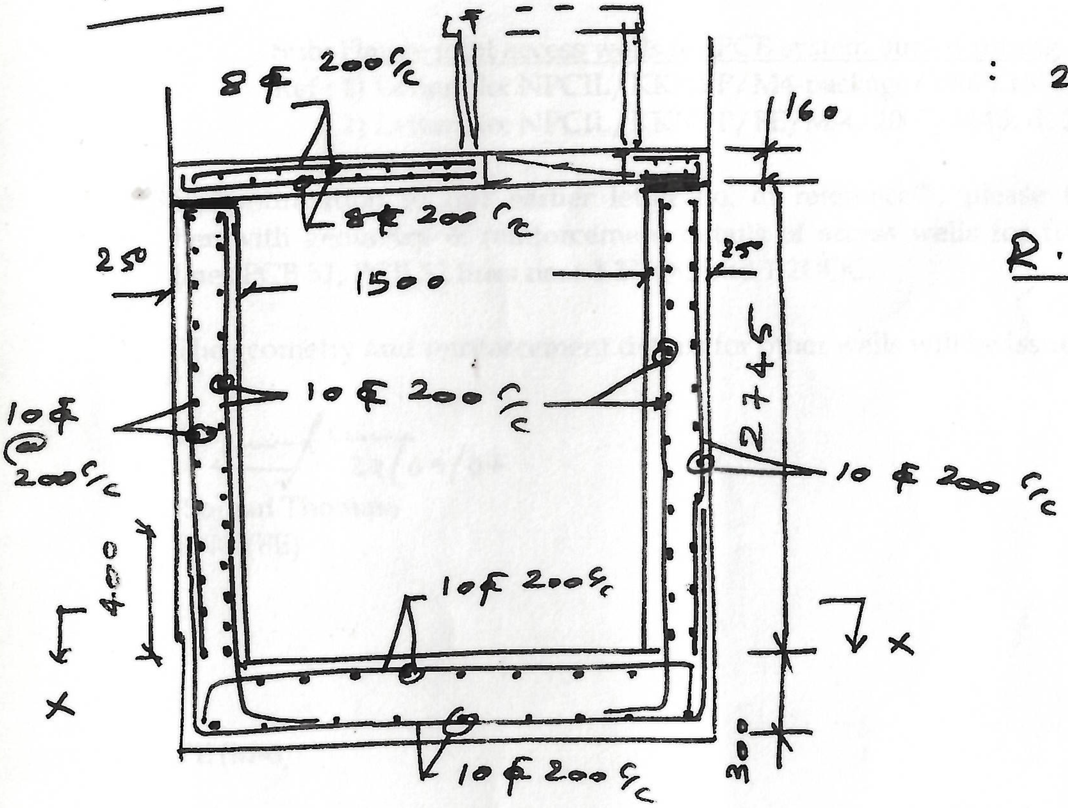
(Access) Inspection Well

(Reinforcement Detail.)

Notes:

1). grade of Concrete : M30 (IS 456)
2). Reinft : HYSD bars - Fy 415 as per IS-1786.
3) Cover : 50mm for Base raft and walls
   : 25mm for cover slab.

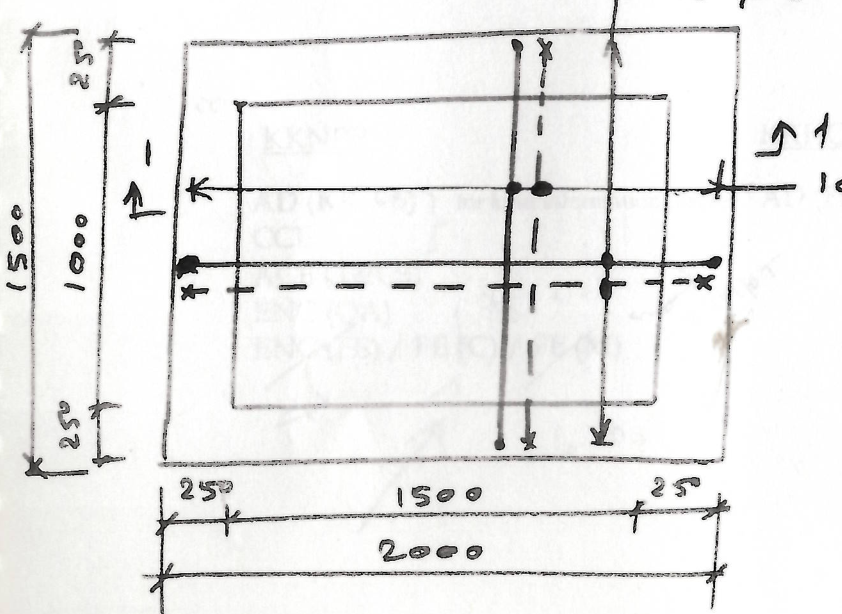
1 - 1



R.C.C. detail of Wall

25.9.07

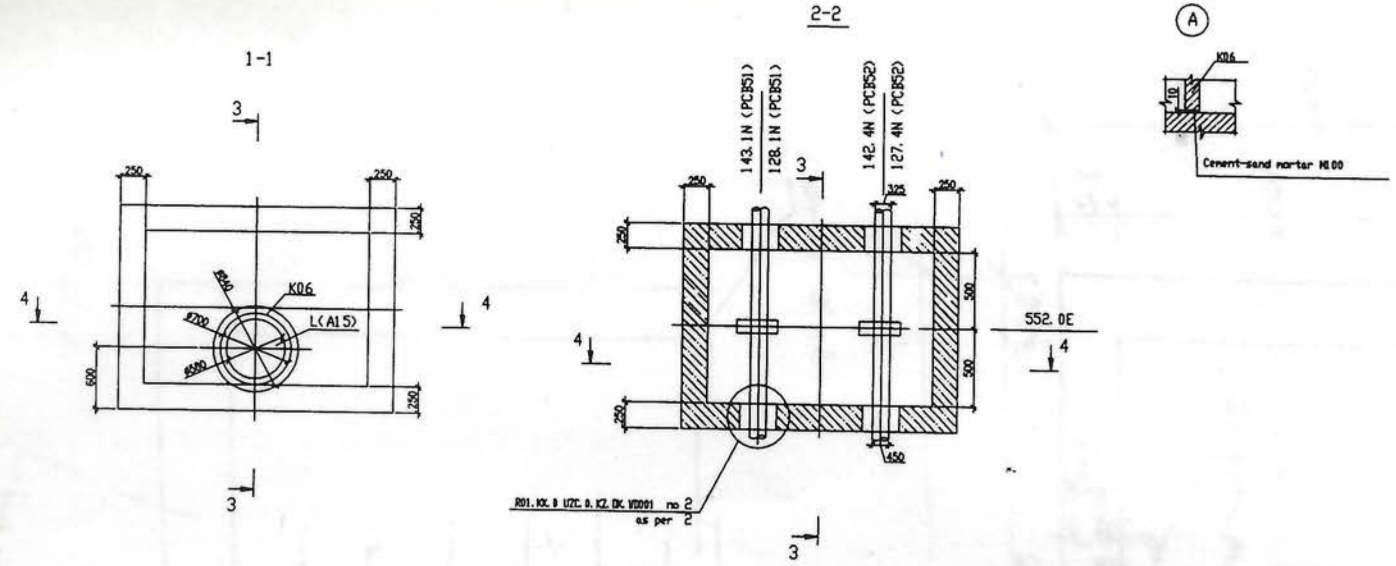
FE(C)

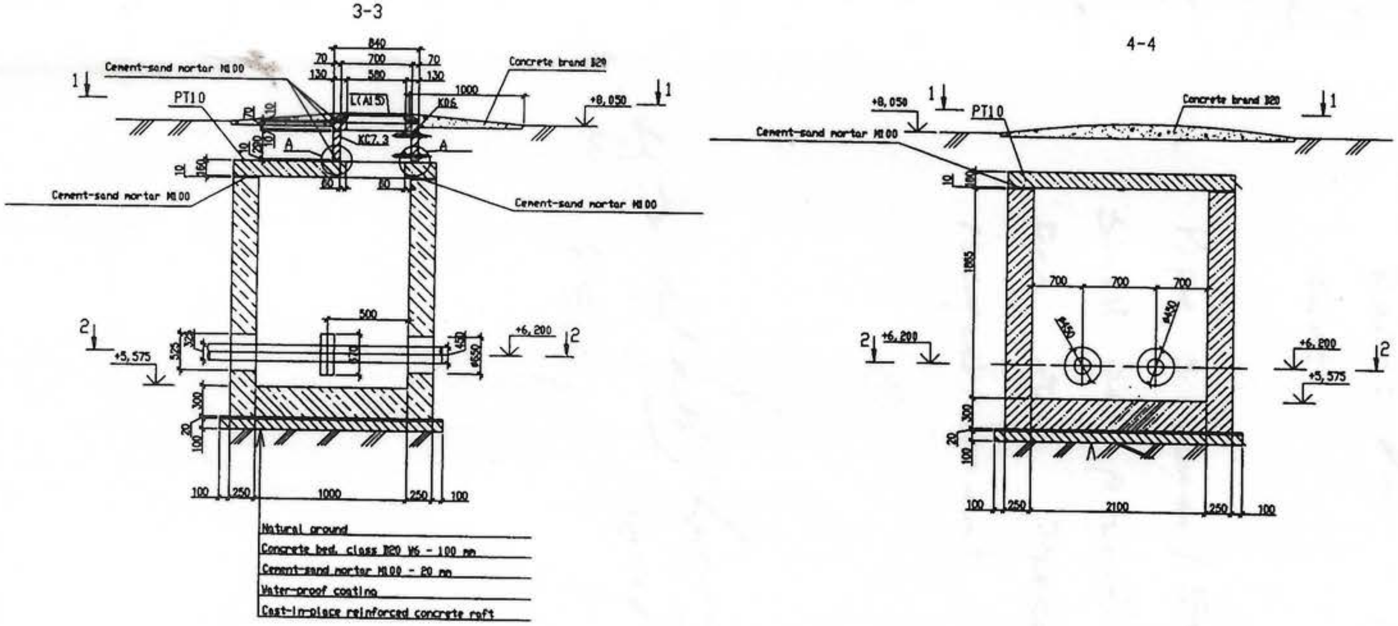


X - X

R.C.C details of base slab.

300 thk





Pos.	Designation	Name	un		
		Assembly units			
	GOST 3634-99	Hatch L(A15)	1		
	GOST 8020-90	Support ring K06	1		
	R01.KK.0 UZC.0.KZ.DK.VD001	Assembled ring of neck KS 7.3	1		
1	IS 1566-1967	reinforcing fabric Ø 3,15, 50x50 m^2	0,8		
	see note No. 4	Covering plate PT	1		
		Materials			
		B20 W6 type concrete m^3	0,7		
		Cement-sand mortar M100 m^3	0,2		
	KK.0.0.KZ.TT.VD002	Polyurethane mastic of "Mhard" type m^2	52,0		

1 Surface waterproofer 1,5 mm thick shall be performed on the external side of the well over the foundation mat, on the side surfaces of walls up to lay-out elevation and over the floor top in compliance with KK.0.0.KZ.TT.VD002 'Technical requirements for waterproofing of underground parts of buildings and structures".

The measures on surface waterproofer protection against mechanical damages during backfilling shall be envisaged in Work execution design according to the Customer's practice.

2 Inside the well, the surface waterproofer 1,5 mm thick shall be performed over the bottom surface and side surfaces of walls in compliance with KK.0.0.KZ.TT.VD002 'Technical requirements for wateroroofing of underground parts of building and structures'.

3 Position 1 shall be installed with 15 mm protective layer.

4 covering plate details shall be same as PT-10(DRG. No., R01.KK.0 UZC.0.KZ.DK.VD008 sht-14) except that the overall dimensions shall be as given in this drawing

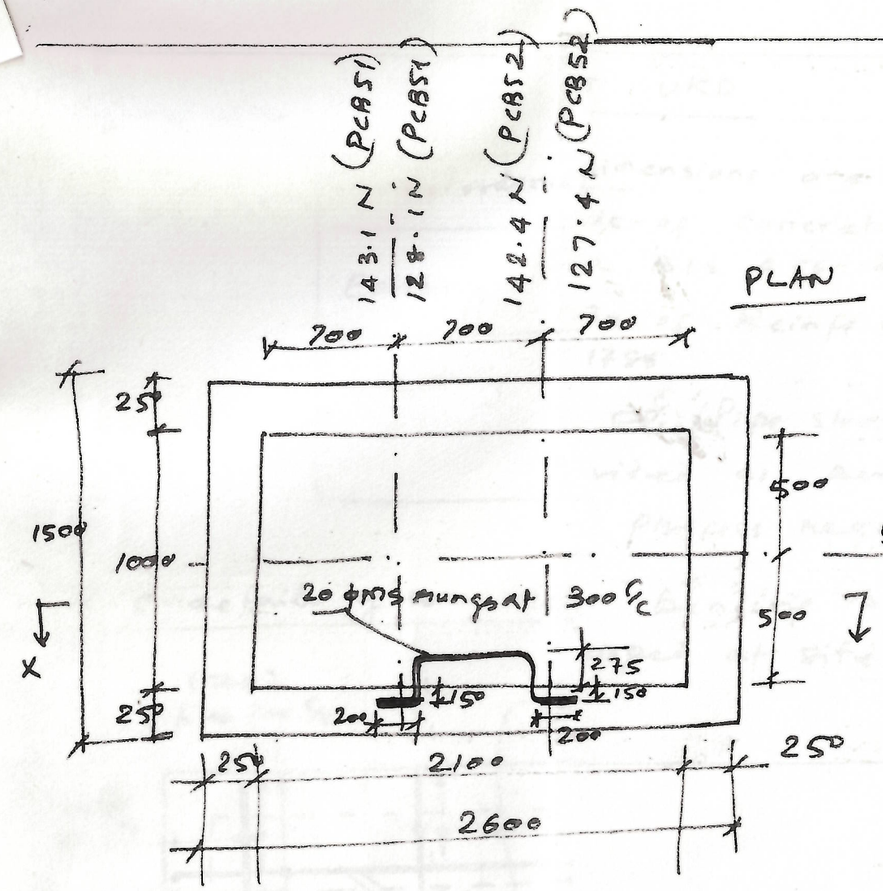
10/10/07
H Rajamani
SO/F(C)

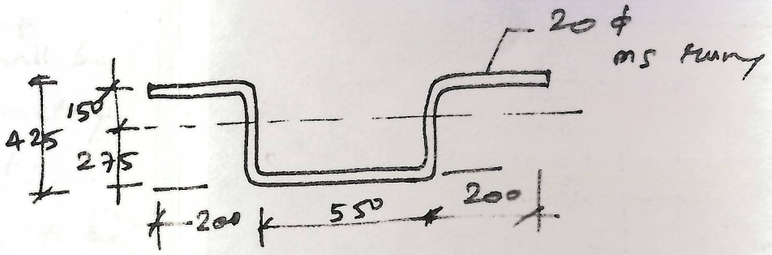
PCB 51 & 52 LINES FLANGE JOINT ACCESS WELLS

NEAR 05 UKD

Detail of Access (ladder) rungs

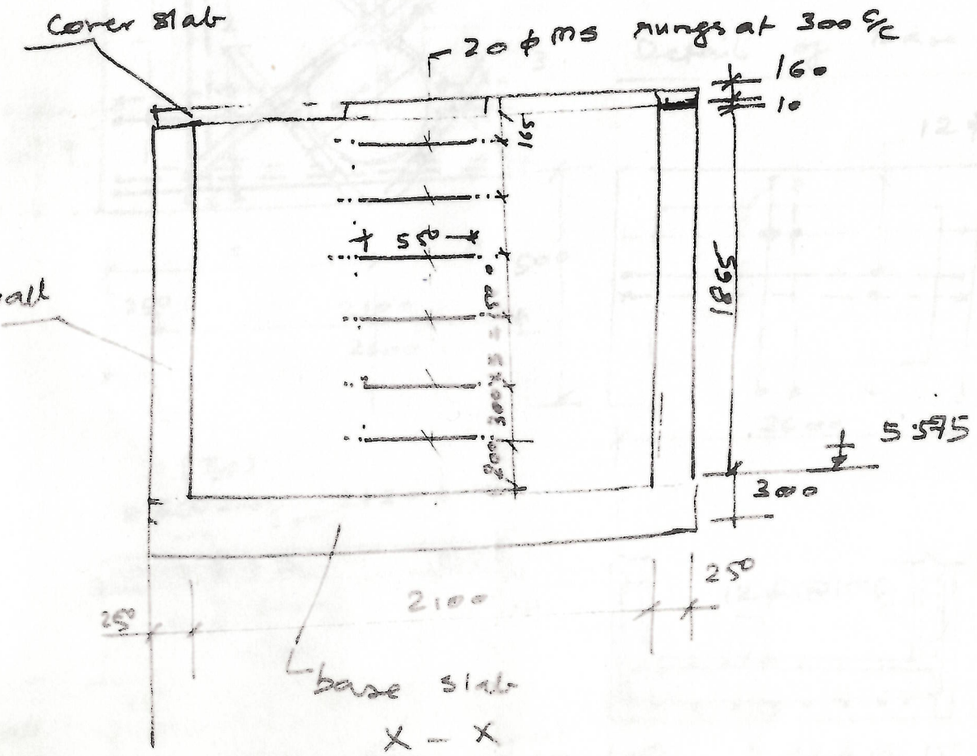
PCB 51 / PCB 52





detail of MS rung

6 No: required Nos for each well



Sh: 1/2

Notes:

1. All dimensions are in mm unless otherwise noted.
2. Material of structural steel: fy 250 N/mm² IS 2062 - gr-A
3. Painting: 2 coats of synthetic enamel paint over a primer coat.
4. Pipe sleeves / EPs shall be provided as per the process requirement.

10.10.07

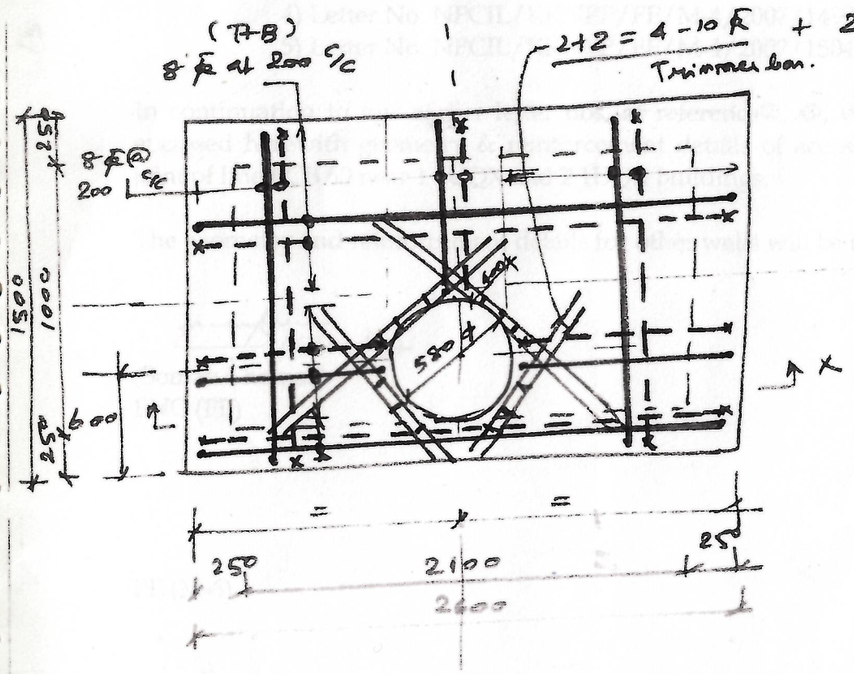
FE(C)

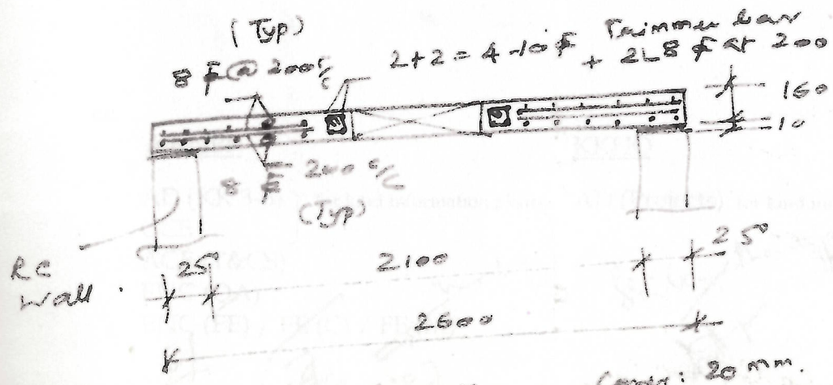
Reinforcement detail of Access wells near O 5 UKD

Co-ordinates	PCB 51	PCB 52
Easting	552.0 E	552.0 E
Northing	128.1 N	127.4 N
	143.1 N	142.4 N

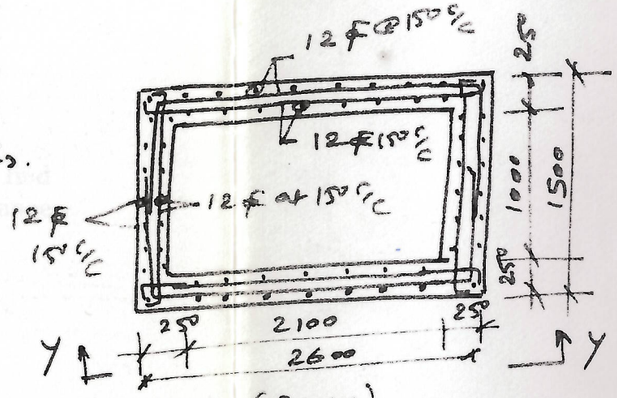
2 Nos of wells

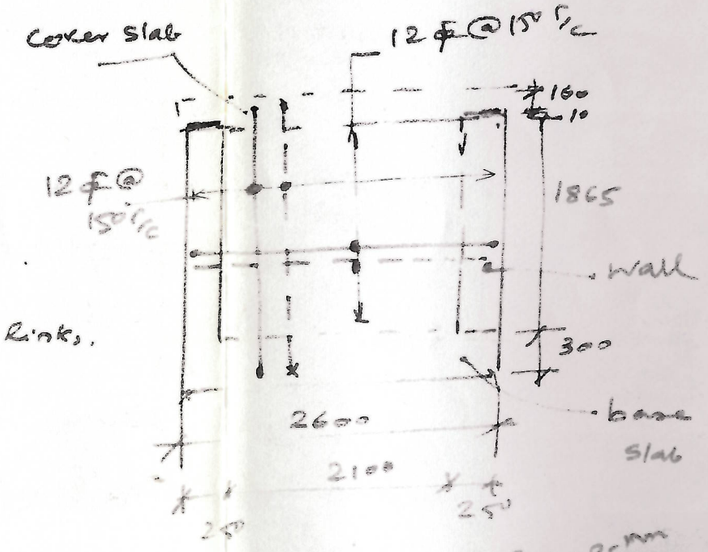
1. R.C. details of cover slab





2. R.C. Wall

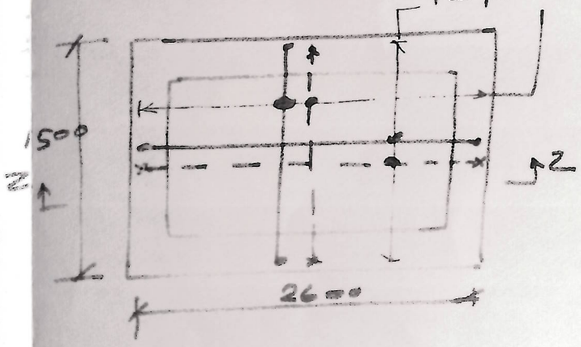


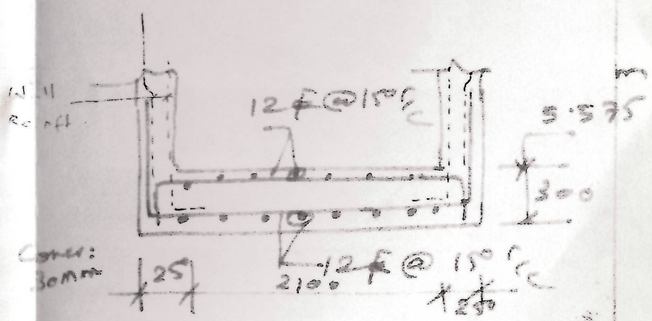


Notes:

1. All dimensions are in mm U.N.O
2. Grade of Concrete: M30 as per BIS 456-2000
3. Grade of Reinft Steel: Fy 415 BIS-1786
4. All EPs / Pipe sleeves / Runs shall be provided as per geometry and process requirement.
5. Bar bending schedule to be developed at site.

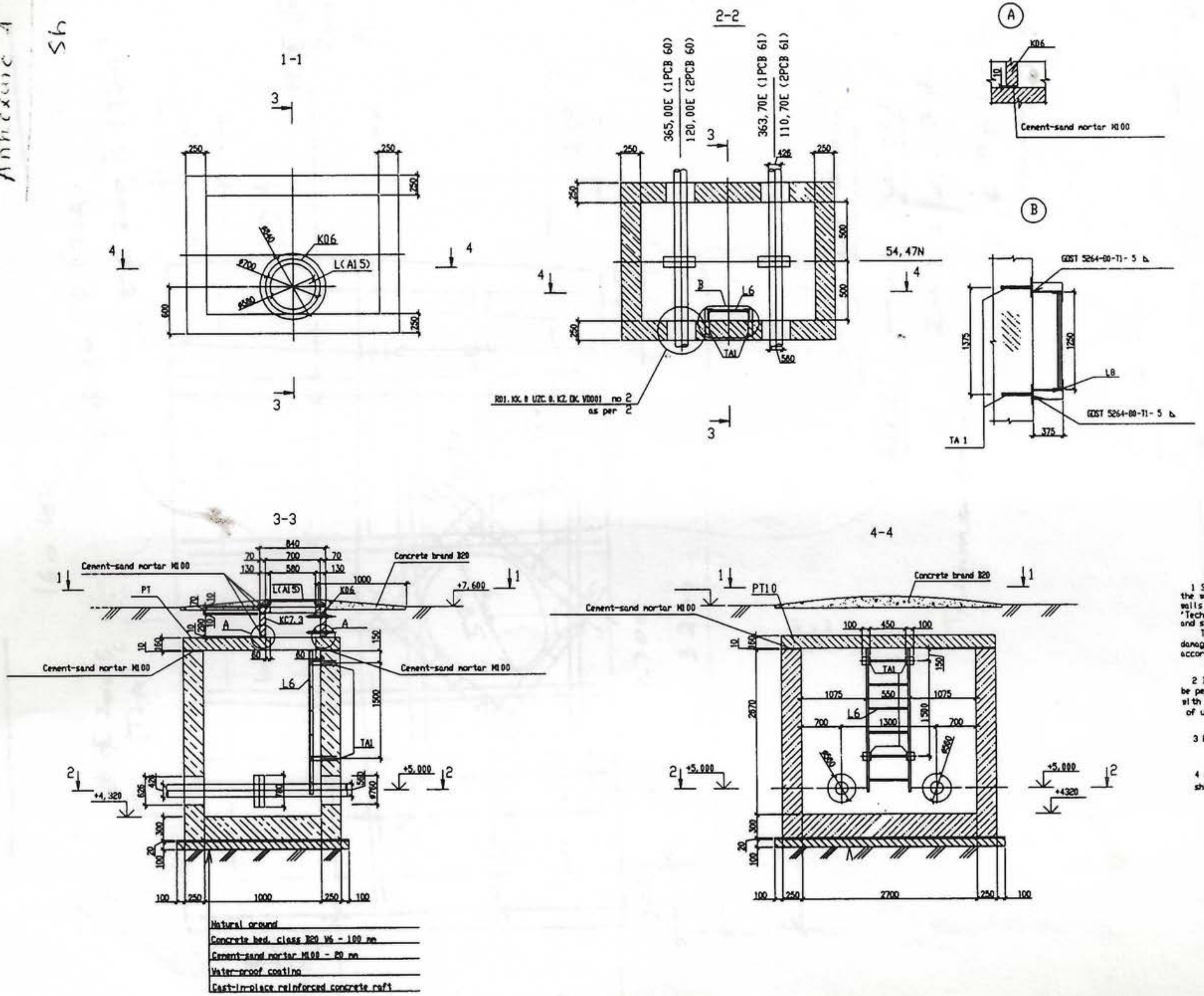
3. Detail of Base Slab





10.10.20

Annexure 4
Sh 1/3



Pos.	Designation	Name		Q-ty per unit		Note
		Assembly units				
	GOST 3634-99	Hatch	L(A15)	1		
	GOST 8020-90	Support ring	KD6	1		
	R01.KK.0 UZC.0.KZ.DK.VD001	Assembled ring of neck KS 7.3		1		
1	IS 1566-1967	reinforcing fabric Ø 3,15, 50x50	m^2	0,8		
	see note No. 4	Covering plate	PT	1		
	R01.KK.0 UZC.0.KZ.DK.VD001	Embedded part	TA1	4		
	R01.KK.0 UZC.0.KZ.DK.VD001	Stepladder	L6	1		
		Materials				
		B20 W6 type concrete	m^3	0,7		
		Cement-sand mortar M100	m^3	0,2		
	KK.0.0.KZ.TT.VD002	Polyurethane mastic of "Bitural" type	m^2	52,0		

1 Surface waterproofer 1,5 mm thick shall be performed on the external side of the well over the foundation mat, on the side surfaces of walls up to lay-out elevation and over the floor top in compliance with KK.0.0.KZ.TT.VD002 'Technical requirements for waterproofing of underground parts of buildings and structures'.

The measures on surface waterproofer protection against mechanical damages during backfilling shall be envisaged in Work execution design according to the Customer's practice.

2 Inside the well, the surface waterproofer 1,5 mm thick shall be performed over the bottom surface and side surfaces of walls in compliance with KK.0.0.KZ.TT.VD002 'Technical requirements for waterproofing of underground parts of building and structures'.

3 Position 1 shall be installed with 15 mm protective layer.

4 covering plate details shall be same as PT-10 (DRG. No., R01.KK.0 UZC.0.KZ.DK.VD008 sht-14) except that the overall dimensions shall be as given in this drawing.

PCB 60 & 61 LINES FLANGE JOINT ACCESS WELL

NEAR 1 UQA AND 2 UQA

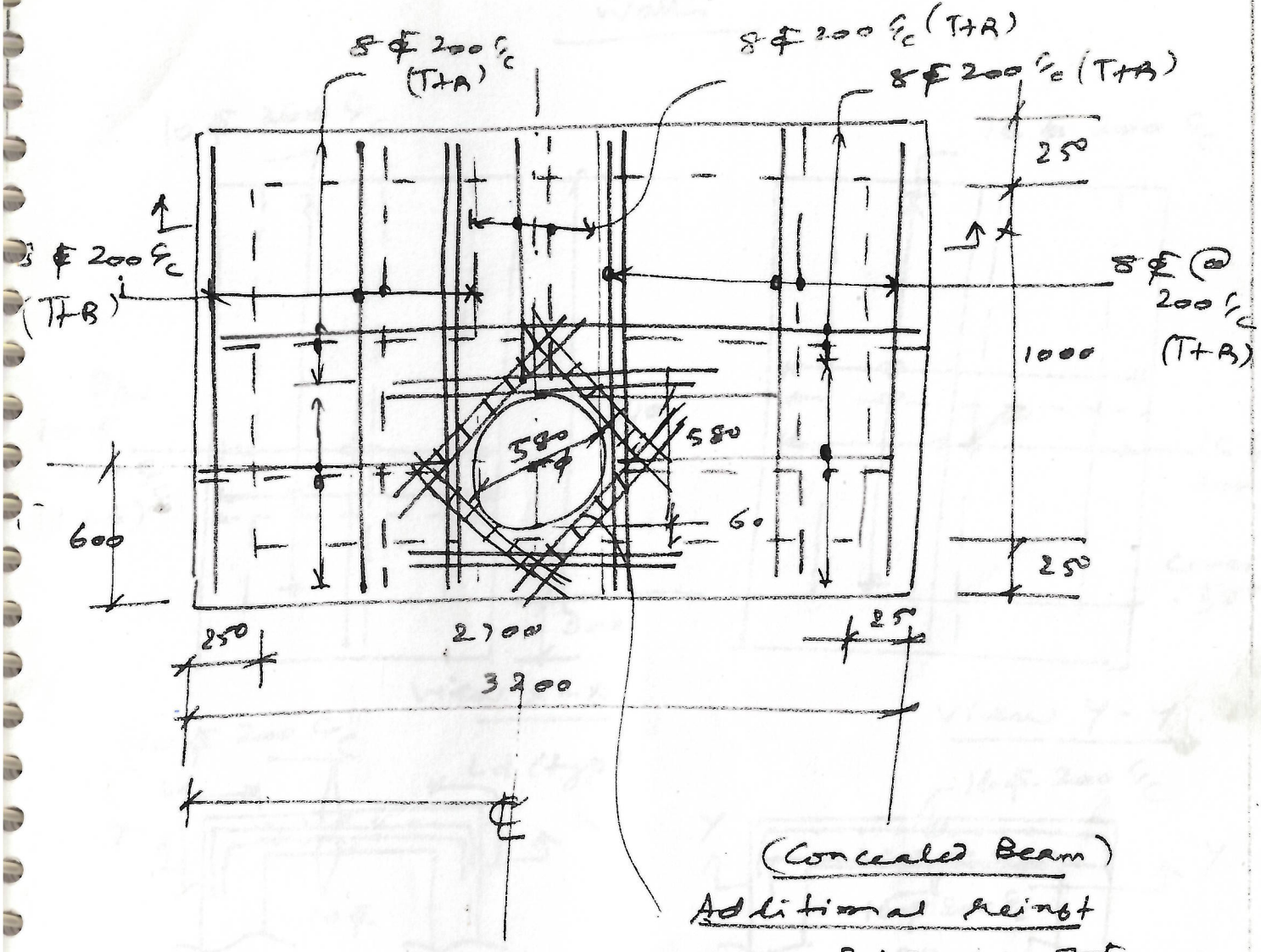
H.R. Mali
SE(FLFE)

Cover slab

PCB 60
PCB 61

Sh 2/3

160 thk.



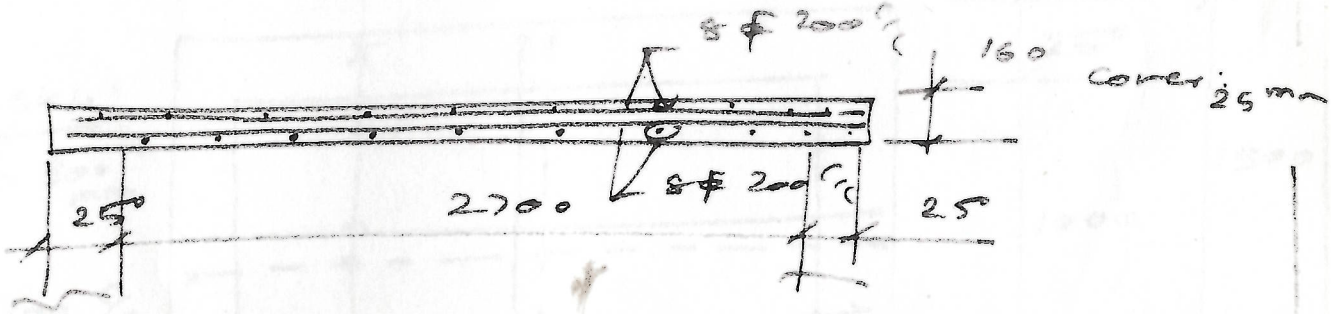
(Concealed Beam)

Additional reinf

2+2 = 4 - 8 ϕ

2 - L 8 ϕ 100 c/c
Shear reinf

Trimmer beam.



x - x

Cast. basin slab

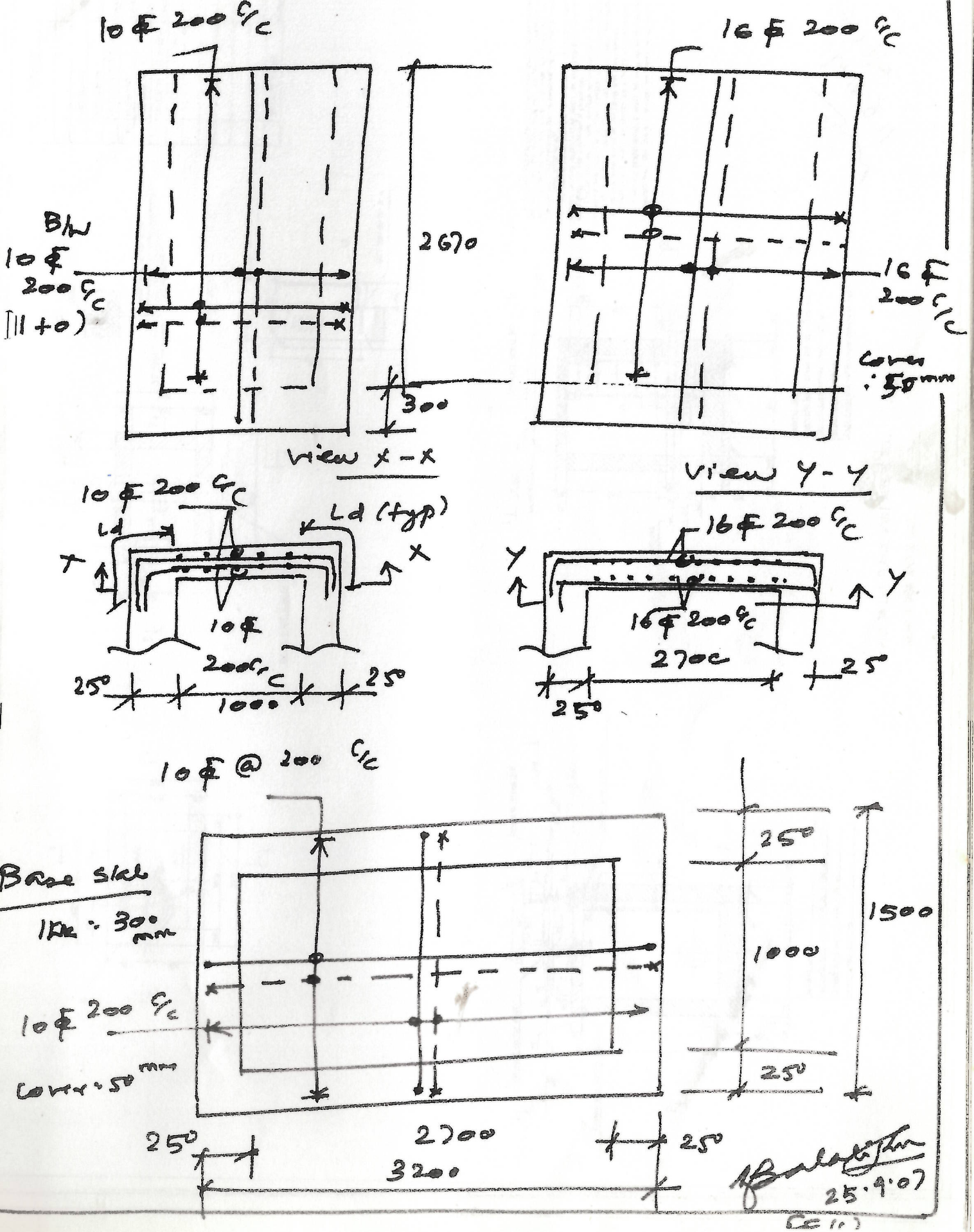
25.1.07

FE( )

Annexure 'A'

R.C.C. details of Base slab & Walls

PCBG0
PCBG1 sh. 3/3



25.9.07

VOLUME-IA PART-I CHAPTER – VII

TERMS OF PAYMENT

1.7.1 Advance for Mobilization is not applicable for this tender.

1.7.2 TERMS OF PAYMENT

a) Schedule F

Schedule F **BOQ item no**	**The following percentage of quoted rates of BOQ items will be paid on submission of respective reports along with RA bill after completion of relevant activities of the work on prorata basis.**				
	Stage	**1**	**2**	**3**	**4**
	Work	**70%**	**20%**	**5%**	**5%**
F1.1, F1.3, F1.5,F2, F4, F5,F6.1,F6.2,F6.3	Welding (CS/SS/Ti)	Welding Inspection Report		CCC	Material Acounting Statement.
F7.2	Preparation of weld edge	Welding Report	Welding Inspection Report	CCC	Material Acounting Statement.
F8	Erection of (CS/SS/Ti)	Erection Report	Hydrotest Report	CCC	Material Acounting Statement.
F10	Passivation of SS piping	Passivation Report	Erection Report (25%)		CCC
F12.1,F12.2,F12.3	Assembly of flanged joints	Flange Alignment Report	Hydrotest Report	CCC	Material Acounting Statement.
F13	Valves (VTF)	Valve Testing Report		CCC	Material Acounting Statement.
F14	Valves (Erection)	Erection Report	Welding Inspection Report / Flange Alignment Report	CCC	Material Acounting Statement.
F18	Stub/O-let drilling	Drilling Report	FME Inspection Report	CCC	Material Acounting Statement.
F19, F20, F21, F22	NDT (CS/SS/Ti)	NDT Report	Hydrotest Report	CCC	Material Acounting Statement.
F23	Testing (CS/SS/Ti)	Hydrotest Report	Draining & De-watering Report	CCC	Material Acounting Statement.
F31	Digitalization of RT films	Soft copy of films		CCC	Material Acounting Statement.
F32	Erection of GRP/FRP piping	Erection Report	Hydrotest Report	CCC	Material Acounting Statement.

b) Schedule G

Schedule G **BOQ item no**	**The following percentage of quoted rates of BOQ items will be paid on submission of respective reports along with RA bill after completion of relevant activities of the work on prorata basis.**					
	Stage	**1**	**2**	**3**	**4**	**5**
	Work	**40%**	**30%**	**20%**	**5%**	**5%**
G1.1, G1.2, G1.3, G2.1, G2.2,G2.4, G3.1, G3.2, G4.1, G4.2, G5.1	Fabrication and erection of PEB,PUQ, PGB, GKD, GML system for both units of KKNPP-3&4.	Erection Report against proportionate release of payment for the completed work.	Welding inspection Report against proportionate release of payment for the completed work.	NDT and Hydrotest Report against proportionate release of payment for the completed work.	CCC	Material Acounting Statement.
G1.4, G2.3	Pipe supports of PEB,PUQ, PGB, GKD, GML system	Erection Report against proportionate release of payment for the completed work.	Welding inspection Report against proportionate release of payment for the completed work.		CCC	Material Acounting Statement.
G7	Fabrication and erection of HDPE pipe and pipe fittings & supports, indoor and outdoor including RCC hume pipe.	Erection Report against proportionate release of payment for the completed work.	Welding inspection Report against proportionate release of payment for the completed work.	Hydrotest Report against proportionate release of payment for the completed work.	CCC	Material Acounting Statement.
G8, G9, G10, G11	Excavation and back filling for buried piping works, Inspection chamber construction	Completion Report (95%)				CCC

c) Schedule H,I,K,L

Schedule H,I,K,L BOQ item no	**The following percentage of quoted rates of BOQ items will be paid on submission of respective reports along with RA bill after completion of relevant activities of the work on prorata basis.**				
	Stage	**1**	**2**	**3**	**4**
	Work	**70%**	**20%**	**5%**	**5%**
H2.1	Fabrication of Metal structures	Weight Analysis Report and Fabrication Report		CCC	Material Acounting Statement.
H2.2	Erection of metal structures	Weight Analysis Report and Erection Report		CCC	Material Acounting Statement.
H5.1 to H5.6	Fixing of Hilti anchor fasteners by normal drilling	Fixing Report		CCC	Material Acounting Statement.
H6	Core drilling	Core drilling Report	Fixing Report	CCC	Material Acounting Statement.
I1	Grit blasting and supply and application of primer.	Grit blasting, Painting & inspection Report (95%)			CCC
I2.1, I2.2	Supply & Application of paint	Painting & inspection Report (95%)			CCC
K1.1,K1.2,K1.3, K1.4,K1.5,K1.6	Supply and Application of anti corrosive paint Polyester Glass Flake on field joints	Painting & testing Reports (95%)			CCC
K2,K3	Supply and Application of intermediate / finish coat	Painting & testing Reports (95%)			CCC
L2	Chipping of concrete	Chipping Completion Report (95%)			CCC
L7.1, L7.2	Core cutting of RCC slab/wall	Core Cutting Completion Report (95%)			CCC
L8.1.1, L8.1.2,L8.1.3	Man power assistance during repair works	Muster card(100%)			

Schedule H,I,K,L **BOQ item no**	**The following percentage of quoted rates of BOQ items will be paid on submission of respective reports along with RA bill after completion of relevant activities of the work on prorata basis.**				
	Stage	**1**	**2**	**3**	**4**
	Work	**70%**	**20%**	**5%**	**5%**
L8.2.1,L8.2.2,L8.2.3	Man power assistance during re-preservation	Muster card (100%)			
L8.4.1 , L8.4.2,L8.4.3	Man power assistance during System pre-handing over checks.	Muster card(100%)			

Note:

(i) Refer Part II Chapter 1 of Technical Conditions of Contract for Corrections/ Revisions in Special Conditions of Contract, General Conditions of Contract and Forms & Procedures

KUDANKULAM PROJECT – SEA WATER PIPING PACKAGE

PROPOSED ERECTION METHODOLOGY OF UQZ TUNNEL PIPING

Sl No	Description	Remark
1	Pipes are of sizes - CS pipe OD 630X12 (Weld Joint), CS Pipe OD 530X12 (Flange Joint), CS Pipe OD 406.4X12.7 (Flange Joint), CS Pipe OD 219.1X7.04 (Flange Joint) are to handed in the UQZ tunnel of PEB, PUQ piping	
2	Internally coated pipe lines shall be erected and the field joints welding shall be done in location. Coating of external surface of piping and inside field joints included in the scopeafter grit blasting.	
3	Grit blasting & Painting of outside surface (except weld area) shall also be done before taking up for erection. Area not to be coated shall be masked with disposable plastic sheets, tapes, cardboards etc	
4	630 mm OD size of tunnel pipeline (PEB) will be welded block by block inside the tunnel. The welding shall be smooth profile compatible for anticorrosive coating. While welding the pipeline,anti corrosive coating & inspection of inner surface of previous joint shall be completed before taking up welding of subsequent joint.	
5	For pipe sizes with OD less than 630 mm, the pipe connections shall be with flange joints. To minimize the field joints of flanged connections, fabrication of pipe spools with flanges shall be carried out and coated before moving to site.	
6	Pipes to be lowered to the tunnel via erection opening provided at different location either on topof the tunnel or on the sides	
7	Pipes to be moved from the lowered/shifted position in the tunnel to the final erection position by means of trolleys/rollers/any alternative arrangements without damaging the pipe surfaces,weld edges,coatings.	
8	Sequence of erection to be decided and pipes to be numbered prior to start of work. Work instruction with necessary sketches to be submitted for approval to NPCIL before taking up the erection work. Any deviation in the process shall be carried out with prior approval only.	
9	Pipes to be lowered via erection openings using suitable crane	
10	Fabricated support shall be grit blasted and painted before erection	
11	For fixed supports, blocks need to be welded with pipe. The same can be welded with pipe after marking the actual location in the fabrication area before taking up the coating or to be welded in position. If the blocks are to be welded in position, the area shall be left without coating, the left-out area to be coated insitu along with the welded joint	
12	The supports shall be erected either after positioning of pipes or before. The pipe to be slightlylifted or to be moved with temporary arrangements during the process.	

Note:

- There are two tunnels per unit - 1UQZ,2UQZ. Each tunnels have two channels with partition in between. Two lines will run in each channel.
- The methodology can be review and modified if required.
- The surface preparation and painting shall be as per painting specification no.I02.KK34.0.0.TH.TS.PR009.