



भारत भारी बिजली सीमांत लिमिटेड
(भारत भारी बिजली सीमांत लिमिटेड)

Bharat Heavy Electricals Limited
Industry Sector, Transmission Business Group

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AMENDMENT NO-4 TO NIT

DATE: 11.04.07

(AMENDMENTS NO 1, 2 & 3 ISSUED EARLIER STAND CANCELLED)

SUB : AMENDMENT- 04 To NIT 2579 For Civil Works

REF: 1. TENDER SPECIFICATION. No. –TBSM/SLPP/CIVIL/TENDER, DATED: 14.03.07.

With reference to above tender for Civil Works for 220 kV S/S at Surat Lignite Power Plant in Gujarat, following amendments/addendum may be noted.

1. BOQ (Annexure-I) provided alongwith our earlier amendment No.01 Dated 29.03.07 has been revised.
 - Revised BOQ (Rev.02) & Revised price schedule format (Rev.02) due to above amendment is enclosed, these will replace our earlier BOQ (Annexure-I) & Price schedule format provided in amendment No.01 dated 29.03.07.
 - All other BOQ's Annexure-II & Annexure-III provided in amendment No. 01 Dtd 29.03.07 & Amendment No. 02 Dtd 03.04.07 respectively remain unchanged. Annexure-II (BOQ for stores), specifications & drawings for stores, Annexure-III (Earthing BOQ) are enclosed.
 - Annexure to conditions of contract for civil works for supply of steel by BHEL provided in our amendment No.03 Dtd 03.04.07 remain unchanged and the same is enclosed.
 - Bidders are required to quote as per enclosed Revised BOQ (Rev.02) (Annexure-I) & Revised price schedule format (Rev.02) along with the Annexure-II & Annexure-III.
 - All other terms & conditions of the NIT 2579 dtd 14.03.07 shall remain unchanged.

Please enclose a copy of the amendment 04 alongwith all the enclosures duly signed by your authorized signatory and stamped with your Technical Bid.

(R.LODWAL)
DGM/TBSM

REVISED BILL OF QUANTITY-CUM-PRICE SCHEDULE (Rev.02)

Name of Project

: 220KV Substation at Surat Lignite

Name of Work

: YARD CIVIL WORKS.

S.No.	Item Description	Quantity	Unit	Unit Rate(Rs)	Amount(Rs)
1	Earthwork in excavation over areas (exceeding 30cm in depth 1.5m in width as well as 10sqm on plan) including disposal of excavated earth upto 100m and lift upto 3.5m, disposed earth to be levelled and neatly dressed.				
(a)	All kinds of soil.	15000	cum	91.50	1372500.00
2	Earthwork in excavation in foundation trenches or drains (not exceeding 1.5m in width as well as 10sqm on plan) including dressing of sides and ramming of bottoms, lift upto 3.5m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 100m.				
(a)	All kinds of soil.	1000	cum	93.55	93550.00
3	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations, etc., in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead upto 100m and lift upto 3.5m.	2600	cum	30.25	78650.00
4	Carriage & disposal of surplus excavated earth beyond initial lead by mechanical means not necessarily all the times on pucca roads, including loading, unloading, dressing of excavated material, etc., complete as per specifications - Lead upto 5km.	12600	cum	34.77	438102.00
5	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work upto plinth level.				
(a)	1:4:8(1 cement : 4 coarse sand : 8 graded stone aggregate 40mm nominal size)	150	cum	1404.7	210705.00
(b)	1:2:4(1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size)	10	cum	1843	18430.00
©	1:3:6(1 cement : 3 coarse sand : 6 graded stone aggregate 20mm nominal size)	20	cum	1588.35	31767.00

S.No.	Item Description	Quantity	Unit	Unit Rate(Rs)	Amount(Rs)
6	Providing & laying in position machine batched, machine mixed and machine vibrated design mix cement concrete of specified grade for reinforced cement concrete structural elements, excluding the cost of centering, shuttering, finishing and reinforcement - <u>M25 grade reinforced cement concrete.</u>				
(a)	All works upto plinth level (including footings, rafts, pedestals, columns and walls)	1000	cum	2284.05	2284050.00
7	Centering and shuttering including strutting, propping, etc., and removal of form for:				
(a)	Foundations, footings, bases of columns, etc., for mass concrete.	700	sqm	61.10	42770.00
(b)	Columns, pillars, piers, abutments, posts and struts,	1800	sqm	135.80	244440.00
(c)	Walls	2500	sqm	106.40	266000.00
8	Reinforcement for RCC work including straightening, cutting, bending, placing in position and binding complete. <u>Reinforcement steel shall be supplied by BHEL free of cost .The contractor shall quote for labour rate only including the cost of binding wire .</u>				
(a)	Cold twisted bars.	95000	kg	3.00	285000.00
9	Providing and fixing (all dia & length) foundation bolts in position with help of proper templates including nuts and washers all complete as per specs, drawings & directions of Engr-in-Charge	13500	kg	40.15	542025.00
10	Extra over Items 10 above for providing galvanised bolts (Mass of zinc coating = 610gms/sqm), nuts & washer (Mass of zinc coating = As per IS)	13500	kg	5.00	67500.00
11	Steelwork welded in built up sections/framed work including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer using structural steel etc., as required.				
(a)	In gratings, frames, guard bar, ladders, railings, brackets, gates and similar works.	1000	kg	29.15	29150.00

ANNEXURE-I

R2

S.No.	Item Description	Quantity	Unit	Unit Rate(Rs)	Amount(Rs)
12	Structural steelwork welded in built up sections like edge protection angles/insert plates with lugs & framed work including providing, cutting, hoisting, fixing in position/ embedding in concrete and applying a priming coat of approved steel primer all complete.	5000	kg	24.30	121500.00
13	Preparation of subgrade by excavating earth to an average of 22.5cm depth, dressing to camber and consolidating with road roller including making good the undulations etc., and disposal of surplus earth lead upto 50m.	390	sqm	21.50	8385.00
14	Consolidation of subgrade with power road roller of 8 to 12 tonne capacity including making good the undulations etc. with earth or quarry spoils etc. and rerolling the subgrade.	390	sqm	0.65	253.50
15	Extra for compaction of earthwork in embankment under optimum moisture conditions to give at least 95% of the maximum dry density (Proctor density)	390	sqm	2.90	1131.00
16	Supplying and stacking of graded stone aggregate at site of size range				
(a)	90mm to 45mm	60	cum	374.65	22479.00
(b)	63mm to 45mm	60	cum	389.65	23379.00
©	53mm to 22.4mm	60	cum	432.55	25953.00
17	Laying WBM with specified stone aggregate stone screening and blinding material including screening, sorting, spreading to template and consolidation with power road roller of 8 to 10 tonne capacity etc., complete (payment for stone aggregate, screenings, kankar, moorum and red bajri etc., to be made separately)				
(a)	Subbase with stone aggregate 90mm to 45mm including stone screening 13.2mm size.	60	cum	128.9	7734.00
(b)	Base course with stone aggregate 63mm to 45mm including stone screening 13.2mm size.	60	cum	122	7320.00
©	Base course with stone aggregate 53mm to 22.4mm including stone screening 11.2mm size.	60	cum	122	7320.00
18	Supplying and stacking of moorum at site .	500	cum	264.70	132350.00

S.No.	Item Description	Quantity	Unit	Unit Rate(Rs)	Amount(Rs)
19	Supplying and stacking of stone screenings/chippings at site				
(a)	13.2mm nominal size (Type A)	20	cum	470.95	9419.00
(b)	11.2mm nominal size (Type B)	20	cum	465.10	9302.00
20	Providing and laying non-pressure NP2 class (light duty) RCC pipes with collars jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 cement: 2 fine sand) including testing of joints etc., complete.				
(a)	250mm dia. RCC pipe	10	RM	191.70	1917.00
(b)	300mm dia. RCC pipe	5	RM	259.45	1297.25
21	Providing and laying non-pressure NP3 class (light duty) RCC pipes with collars jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 cement: 2 fine sand) including testing of joints etc., complete.				
(a)	300mm dia. RCC pipe	10	RM	225.00	2250.00
(b)	400mm dia. RCC pipe	5	RM	300.00	1500.00
22	Providing and fixing PVC coated GI chain link fencing including all allied activities, all complete as per Customer's specification (Clause no:1.3.2 stipulated in the scope , Specification No: TCE-3506-H-TPP-01) (Rates shall be inclusive of all items like angles, chainlink fence, barbed wire, PCC,RCC for toe wall etc).	245	Meter	2100.00	514500.00
23	Providing and laying stone aggregate paving in two layers consisting of top layer of 100mm thick using 40 mm aggregates and bottom layer of 100mm thick using 20 mm aggregates.Before laying the paving, the yard surface shall be treated with antiweed treatment all complete as per Customer's specification. (The rate shall be inclusive of all materials ,labour,loading,unloading etc. required for paving and antiweed treatment)	11118	sqm	160	1778880

S.No.	Item Description	Quantity	Unit	Unit Rate(Rs)	Amount(Rs)
24	Providing & fixing in position precast cement concrete trench covers, coping, roof units, fascia, RCC grills, etc., at various elevations in all kinds of work including moulding, formwork, mixing, laying out, compacting and curing, storing, transportation, erection without damage, setting in position with cement and sand mortar, grouting etc all as per specs, drawings and directions of Engr-in-Charge but excluding the cost of reinforcement, inserts, edge angles, etc, and of following grade:				
	M25 concrete.	50	cum	3000	150000
25	Fixing (all dia & length) foundation bolts in position with help of proper templates including nuts and washers all complete as per specs, drawings & directions of Engr-in-Charge. Bolts to be provided by BHEL free of cost.	500	kg	3	1500
26	Providing and filling good earth in trenches, plinth, sides of foundations, etc., in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering. The lead of transporting the earth may be upto 5 km and lift upto 3.5m.	11000	cum	100	1100000
Total Amount (Rs.)					9933008.75

**TRANSMISSION BUSINESS GROUP
(SUB- CONTRACTS MANAGEMENT)
INDUSTRY SECTOR- NEW DELHI**

REVISED PRICE SCHEDULE FORMAT (REV.02)

**SUB EXECUTION AND HANDING OVER OF CIVIL WORKS FOR 220 KV
SWITCHYARD AT SURAT LIGNITE POWER PLANT IN GUJRAT**

- (a) I/ We hereby agree to execute the above work at ----- % (in figure)
----- (in words) Above/ Below the rates of items given in
Revised BOQ-Cum-Price Schedule, Rev.02 (Annexure-I) of subject tender.

NOTE:

1. In case of discrepancy in rates in figure and words, the minimum will be taken into account by BHEL.

Date:
Place

Signature of tenderer
Name & Designation of authorized person(s) with seal

ANNEXURE-II
BILL OF QUANTITIES FOR STORES

Name of Project : 220KV Substation at Surat Lignite
Name of Work : Construction of Stores

S. No	Description	Unit	Qty.	Rate	Amount
1	Open Store	Sqm	1000		
2	Covered Store Type B (100 Sq.meter)	Lot	1		
	Total Amount (Rs.)				

ANNEXURE-III

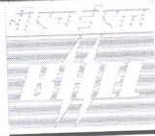
Project : 220 kV SWITCHYARD AT SURAT LIGNITE POWER PLANT, UNIT # 3&4

Customer : GIPCL

Rev 00

Name of Work: **Underground Earthing & Electrode for 220 kV Switchyard at SLPP Unit # 3 & 4:**

S.No.	Description	Unit	Qty.	Rate	Amount
MAIN EQUIPMENT					
1	Laying of Underground earthmat of 32 mm dia MS Rods at a depth of 600 mm below finished grade level including following works: - excavation of trenches - laying of MS rod - welding of rods - bringing out risers just below gravel level near the equipment foundations - laying of Auxiliary Mat of 32 mm Dia MS Rods at a depth of 300 mm below finished grade level - backfilling of soil - any other work necessary to complete the laying of earthmat (32 Diameter MS rod will be supplied by BHEL Quantity may vary by +/- 30% at contract stage.)	MT	30		
2	Installing of 40 diameter Pipe Electrode including following works: - excavation - Installing the pipe electrode with alternate layers of Coke & charcoal, salt - backfilling and compaction - Casting the Test Pit with Cast Iron covers - any other work necessary to complete the work (GI Pipe.Nuts, Bolts & Washers and funnel with wire mesh will be supplied by BHEL Quantity may vary by +/- 10% at contract stage.)	nos.	12		
3	Installing of 32 mm diameter Rod Electrode with test link at a height of about 1000mm above ground level without test pit including following works: - excavation - installingthe pipe electrode - backfilling and compaction - anyother work necessary to complete the work (32 Diameter MS rod will be supplied by BHEL Quantity may vary by +/- 20% at contract stage.)	nos.	20		
4	Installing of 32 mm diameter Rod Electrode with disconnection link in RCC Chamber including following works: - excavation/hammering of rod in earth - installing the pipe electrode - backfilling and compaction - Casting the Test pit with Cast Iron covers - anyother work necessary to complete the work (32 mm Diameter MS rod will be supplied by BHEL Quantity may vary by +/- 20% at contract stage.)	nos.	11		
	TOTAL AMOUNT (Rs.)				



TRANSMISSION BUSINESS GROUP (Subcontracts Management)

Doc. No. TBSM/Std-Spec/Cov-Str/01

Rev. 00

SPECIFICATIONS OF COVERED STORE FOR SWITCHYARD

1. The stores shall have a tubular truss of span 10M. at an interval of 5M. The length of the store shall be 20/15/10 Mtrs. depending on the scope of work. The truss material shall be procured from reputed manufactures conforming to the requirement of IS: 1161-1979 and as approved by Engineer-in-charge. The specific technical requirement for the execution of work shall be as per latest CPWD/IS specifications. The rate shall include the cost of labour and materials involved in all the operations including one coat of approved steel primer i.e. redoxide zinc chrome primer conforming to IS 2074: 1979.
2. Roof shall be made with GS corrugated sheets (24G) fixed with polymer coated J or L hooks, bolts and nuts 8 mm diameter with bitumen and G.I. Limpet washers or with G.I. limpet washers filled with white lead and including a coat of approved steel primer and two coats of approved paint on overlapping of sheets complete (up to a pitch of 60 degrees). The materials shall be procured from reputed manufacture and as approved by Engineering Incharge. The roof shall be made with proper arrangements to prevent water leakage.
3. Bottom of the truss shall be 4.5 Mtrs. above floor level. Sidewalls shall be brick work (1:6) for the bottom 1.5 Mtrs. level and balance with GS Corrugated sheets.
4. The floor of the store shall be made with 75mm PCC (1:4:8) over hard compacted ground/surface. If the ground available at site is not hard enough, 150mm thick boulder soling or some other suitable alternative arrangement as directed by Engineering Incharge shall be done before PCC work.
5. The store shall be provided with a 3 M wide lockable rolling shutter with all accessories as required. The material used for rolling shutter shall be procured from reputed manufacturer and as approved by Engineering Incharge.
6. Adequate no. of fire extinguishers (min. 4 nos. Co₂ and 2 nos. foam type) and sand & water buckets shall be provided in the stores area.
7. These specifications shall be read in conjunction with drawing no. TBSM/TRUSS/01 Rev.00 enclosed with the tender.



**TRANSMISSION BUSINESS GROUP
(Subcontracts Management)**

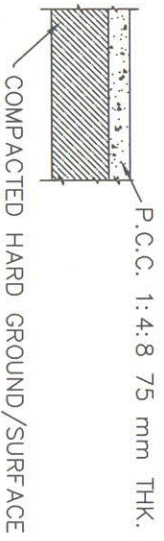
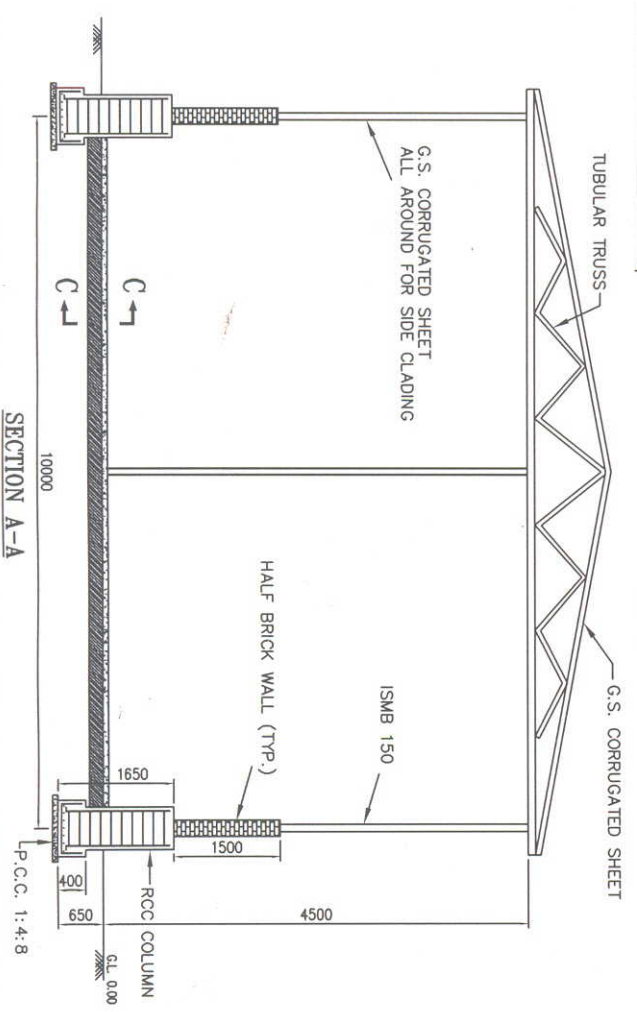
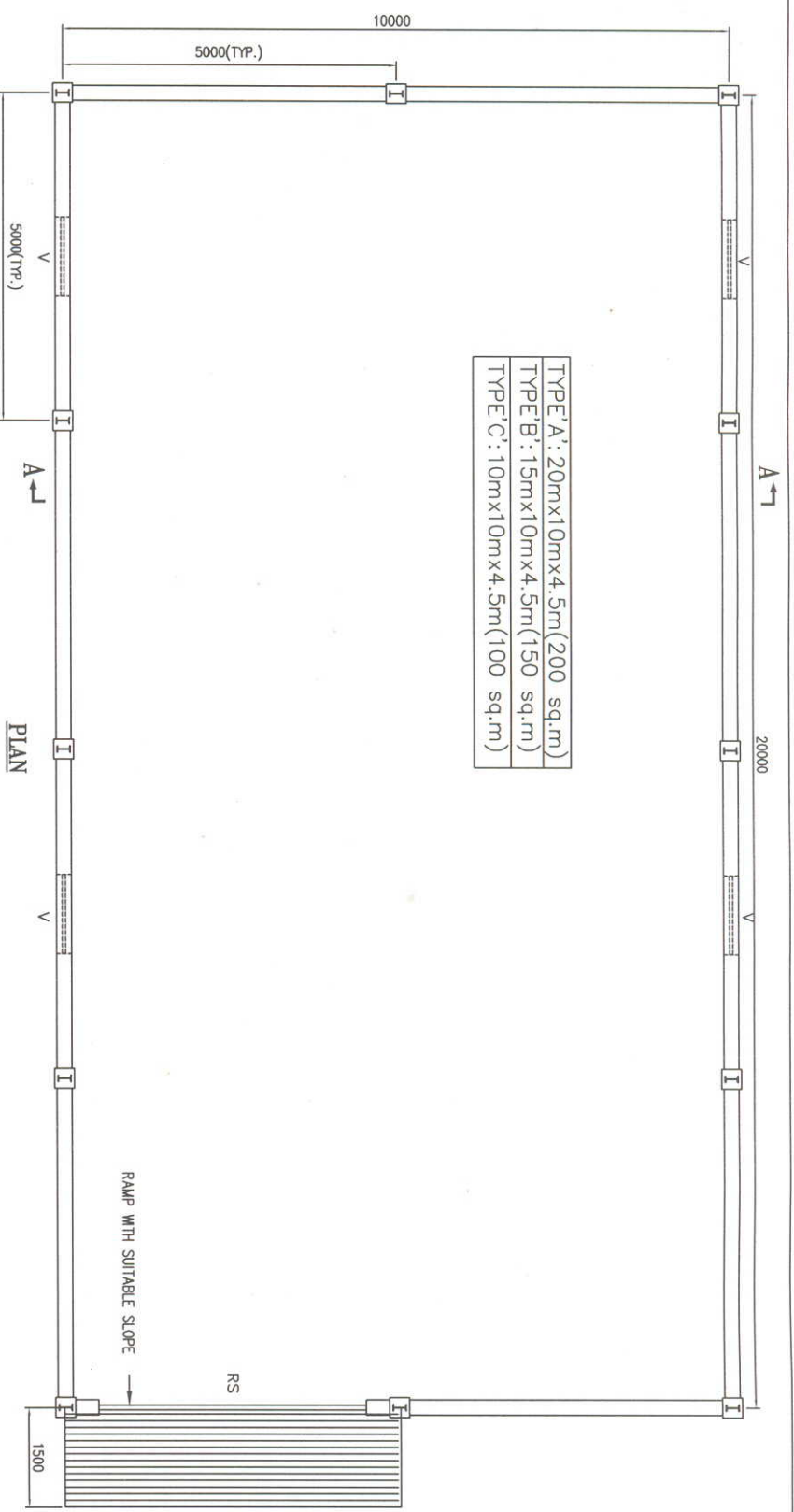
Doc. No. TBSM/Std-Spec/Open-Str/02

Rev. 00

SPECIFICATIONS OF OPEN STORE FOR SWITCHYARD

1. Area around the open stores to be surrounded with barbed wire fencing- 1.8 M high above ground level with 8 strands of horizontal and two diagonal barbed wires. The posts shall be of medium M.S. tubes of 50mm dia/ angle 50x50x6 conforming to IS: 1161/IS 806. A M.S. base plate of size 160x160x6mm thick shall be welded with the tubular posts. All posts shall be 3.0m apart and shall be set in 1:2:4 PCC block of 0.40x0.40x0.6m depth. 75mm thick plain cement concrete 1:4:8 shall be provided below concrete block. The material shall be procured from reputed manufacture and as approved by Engineering Incharge.
2. One wide gate (5m.) for trucks / trailers and one wicket gate for personnel to be installed. The gate shall be of pipe framework with suitable stiffness, with weld mesh and with locking arrangement. The materials shall be procured from reputed manufacturer and as approved by Engineering Incharge.
3. One security cabin shall be provided inside the fence adjacent to the gate. The cabin shall be of size 2.0m x 2.0m.
4. The area of the open stores shall be raised 150mm above the surrounding ground level with brick soling / boulder soling or some other suitable inexpensive alternative arrangement & is to be compacted properly to prevent water logging and flow of water from surrounding area in to this area.
5. The area shall be adequately illuminated for clear visibility at night.

TYPE 'A': 20m x 10m x 4.5m (200 sq.m)
TYPE 'B': 15m x 10m x 4.5m (150 sq.m)
TYPE 'C': 10m x 10m x 4.5m (100 sq.m)



LEGEND :-
 V - VENTILATION (1200Lx500H)
 RS - ROLLING SHUTTER (4000Lx4500H)

NOTE :-
 1. ALL DIMENSIONS ARE IN MM.

SKETCH NO.	REV.	SCALE
TSM/TRUSS/01	00	1:100

ANNEXURE
TO CONDITIONS OF CONTRACT FOR CIVIL WORKS
FOR SUPPLY OF STEEL BY BHEL

WITH REFERENCE TO OUR TENDER, THE REINFORCEMENT STEEL FOR THE WORKS SHALL BE SUPPLIED BY BHEL. HENCE UNDER ITEMS OF REINFORCEMENT STEEL IN BOQ ANNEXURE(S) EXCEPT FOR ITEM NO. 20 (a) , THE BIDDERS ARE REQUIRED TO QUOTE LABOUR RATES ONLY.

CONSEQUENT TO THE SUPPLY OF REINFORCEMENT STEEL BY BHEL, THE FOLLOWING REVISED TERMS AND CONDITIONS SHALL BE APPLICABLE AND SHALL FORM A PART OF THE TENDER DOCUMENT.

1. CLAUSE C-26.0 OF PRICE VARIATION UNDER SPECIAL CONDITION OF CONTRACT IS NOW DELETED. PRICE WILL BE FIRM FOR TOTAL CONTRACT PERIOD AND EXTENDED PERIOD, IF ANY, AND NO PRICE ESCALATION/ PRICE VARIATION WILL BE APPLICABLE.
2. CLAUSE C-35.0 OF SECURED ADVANCE UNDER SPECIAL CONDITIONS OF CONTRACT IS NOW DELETED. NO ADVANCE ON MATERIALS SHALL BE PAYABLE UNDER THE CONTRACT.
3. THE REINFORCEMENT STEEL SHALL BE LIFTED FROM THE STOCK YARD BY THE CONTRACTORS BASED ON OUR DELIVERY ORDER FROM THE STEEL SUPPLIERS, NORMALLY NEAREST TO SITE OR WITHIN THE STATE DEPENDING ON THE AVAILABILITY OF STOCK. LOADING CHARGES / TRANSPORTATION UPTO SITE AND UNLOADING AT SITE ARE TO BE INCLUDED IN THE SCOPE OF BIDDER AND DEEMED TO BE INCLUDED IN THE QUOTED RATES. TRANSIT INSURANCE & INSURANCE DURING STORAGE TILL CONSUMPTION IS ALSO TO BE INCLUDED IN BIDDER'S SCOPE.
4. THE STEEL ISSUED TO THE CONTRACTOR SHALL BE MAINLY IN STANDARD LENGTH AND SECTION AS RECEIVED FROM THE STEEL SUPPLIER. HOWEVER THE CONTRACTORS SHALL BE BOUND TO ACCEPT THE STEEL IN LENGTH AS AVAILABLE. NO CLAIMS FOR EXTRA PAYMENT BECAUSE OF ISSUE OF NON STANDARD LENGTH WILL BE ENTERTAINED DURING EXECUTION
5. **RETURN OF STEEL:** ALL SURPLUS STEEL AND ALL WASTAGE MATERIALS SHALL BE TAKEN BACK ON WEIGHMENT BASIS. SURPLUS, UNUSED AND UN-TAMPED STEEL SHALL BE STORED DIAMETER / SECTION WISE AND RETURNED SEPARATELY AT A PLACE DIRECTED BY BHEL / ENGINEER IN-CHARGE WITHIN THE PROJECT AREA. RETURN OF SUCH MATERIALS WILL NOT BE ENTITLED TO ANY HANDLING AND INCIDENTAL CHARGES. ALL WASTAGE / SCRAP (INCLUDING MELTING SCRAP, WASTAGE, UNUSABLE) SHALL BE RETURNED DIAMETER/ SECTION WISE TO THE STORES AND A RECEIPT OBTAINED FOR MATERIAL ACCOUNTING PURPOSES.

(A) CONSUMPTION:

THE THEORETICAL CONSUMPTION OF VARIOUS SECTION / DIAMETER OF REINFORCEMENT SHALL BE BASED ON APPROVED CONSTRUCTION DRAWING AND BAR BENDING SCHEDULE, APPROVED LAPS, CHAIRS & LUGS. THE WEIGHT SHALL BE CALCULATED CONSIDERING THE SECTIONAL WEIGHTS AS PER INDIAN STANDARDS. NO EXTRA COST SHALL BE PAYABLE TO THE CONTRACTOR FOR ANY DEVIATION IN WEIGHTS FOR THE DIFFERENT PROCEDURES ADOPTED FOR ISSUE AND CALCULATION FOR THE THEORETICAL CONSUMPTION INCLUDING ROLLING TOLERANCES. THE CONSUMPTION / WASTAGE SHALL BE DETERMINED AS UNDER:

- i) ACTUAL CONSUMPTION = (QTY ISSUED BY BHEL) – (SURPLUS QTY RETURNED BY THE CONTRACTOR).
- ii) SURPLUS = UN-TAMPERED AND UNUSED QUANTITY OF STEEL RETURNED BY THE CONTRACTOR TO BHEL SUPPORTED BY RELEVANT DOCUMENTS
- iii) WASTAGE = ACTUAL CONSUMPTION - THEORETICAL CONSUMPTION (AS ERECTED QUANTITY)

(B) WASTAGE

ALLOWABLE WASTAGE: (+5%) OF THE THEORETICAL CONSUMPTION SHALL BE CONSIDERED AS ALLOWABLE WASTAGE.

WASTAGE IS FURTHER CLASSIFIED AS CUT PIECES [PIECES OF LENGTHS 3 M AND ABOVE] AND SCRAP (INCLUDING PIECES OF LENGTHS LESS THEN 3 M) MEASURED AS PER ACTUAL WEIGHMENT BASIS.

SL.	REINFORCEMENT STEEL	BASIS OF ISSUE & PENAL RECOVERY
R-1	THEORETICAL CONSUMPTION [WITHOUT CONSIDERING WASTAGE AND SCRAP OF LOSS	FREE
R-2	WASTAGE LIMITED TO PLUS FIVE PERCENT [+5%] OF AFORESAID THEORETICAL CONSUMPTION [R-1] TOWARDS ALLOWABLE WASTAGE [CUT PIECES PLUS SCRAP TO BE RETURNED TO BHEL]	FREE
R-3	WASTAGE BEYOND FIVE PERCENT [+5%] OF THE THEORETICAL CONSUMPTION ABOVE (R-1).	PENAL RATE @ 50% OVER & ABOVE THE PROCUREMENT RATE

6. ALL OTHER TERMS AND CONDITIONS OF TENDER SHALL REMAIN UNCHANGED.