

BILL OF QUANTITY & PRICE SCHEDULE					
Name of Project :			220kV GIS SUBSTATION AT IOCL		
Name of Work :			CABLE TRENCH & CABLE TRESTLE WORK		
S.No.	Description of Item	UNIT	QTY	Unit Rate (Rs)	Amount(Rs)
C1	Earthwork in excavation by mechanical means(Hydraulic excavator)/manual means over areas (exceeding 30cm in depth 1.5m in width as well as 10sqm on plan) including dewatering as necessary of rain water/subsoil seepage water and disposal of excavated earth upto 100m and lift upto 4m, disposed earth to be levelled and neatly dressed. All kinds of soil .	cum	1500	125.95	188925
C2	Earthwork in excavation by mechanical means (Hydraulic excavator)/manual means in foundation trenches or drains (not exceeding 1.5m in width as well as 10sqm on plan) including dewatering as necessary of rain water/subsoil seepage water and 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. All kinds of soil .	cum	2300	166.40	382720
C3	Filling available excavated earth (including 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.	cum	1400	125.75	176050
C4	Supplying and filling in plinth with Jamuna/local sand under floors including watering, ramming, consolidating and dressing complete.	cum	50	810.82	40541
C5	Carriage & disposal of surplus excavated earth/rock 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 1 km.	cum	1200	98.34	118008
C6	Carriage & disposal of surplus excavated earth/rock 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 3 km.	cum	2100	124.51	261471
C7	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work upto plinth level. *1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size)	cum	10	4943.80	49438
C8	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work upto plinth level. 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 20mm nominal size)	cum	10	4522.52	45225
C9	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work upto plinth level. 1:4:8(1 cement : 4 coarse sand : 8 graded stone aggregate 20mm nominal size)	cum	180	4148.54	746737
C10	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work upto plinth level. 1:4:8(1 cement : 4 coarse sand : 8 graded stone aggregate 40mm nominal size)	cum	20	4148.54	82971
C11	Providing and laying in position machine batched and machine mixed design mix M-25 grade cement concrete for reinforced cement concrete work , using cement content as per approved design mix, including pumping of concrete to site of laying but excluding the cost of centering,shuttering, finishing and reinforcement, including admixtures in recommended proportions as per IS: 9103 to accelerate, retard setting of concrete, improve workability without impairing strength and durability as per direction of Engineer-in-charge."(Note :- Cement content considered in this item is @ 330 kg/cum."Excess/ less cement used as per design mix is payable/recoverable separately). All works upto plinth level	cum	20	5887.43	117749
C12	Providing and laying in position machine batched and machine mixed design mix M-20 grade cement concrete for reinforced cement concrete work including road, using cement content as per approved design mix, including pumping of concrete to site of laying but excluding the cost of centering,shuttering, finishing and reinforcement, including admixtures in recommended proportions as per IS: 9103 to accelerate, retard setting of concrete, improve workability without impairing strength and durability as per direction of Engineer-in-charge."(Note :- Cement content considered in this item is @ 320 kg/cum."Excess/ less cement used as per design mix is payable/recoverable separately). All works upto plinth level.	cum	1030	5570.40	5737512
C13	Providing and laying in position machine batched and machine mixed design mix M-20 grade cement concrete for reinforced cement concrete work, using cement content as per approved design mix, including pumping of concrete to site of laying but excluding the cost of centering,shuttering, finishing and reinforcement, including admixtures in recommended proportions as per IS: 9103 to accelerate, retard setting of concrete, improve workability without impairing strength and durability as per direction of Engineer-in-charge."(Note :- Cement content considered in this item is @ 320 kg/cum."Excess/ less cement used as per design mix is payable/recoverable separately). All works above plinth level upto floor V level	cum	20	6501.16	130023
C14	Add for using extra cement in the items of design mix over and above the specified cement content therein	quintal	620	533.82	330968
C15	Centering and shuttering including strutting, propping, etc., and removal of form at all heights for. Foundations, footings, bases of columns, etc., for mass concrete.	sqm	460	184.42	84833
C16	Centering and shuttering including strutting, propping, etc., and removal of form at all heights for. RCC walls at all levels (any thickness).	sqm	2590	369.24	956332
C17	Centering and shuttering including strutting, propping, etc., and removal of form at all heights for. Columns, Pillars, Piers, Posts and Struts.	sqm	830	454.41	377160
C18	Steel reinforcement -Cold twisted bars /TMT- Excluding supply but including straightening, cutting, bending, binding, (i/c cost of binding wire), placing in position, etc., all labour & material, complete. (Note: Reinf. steel shall be supplied by BHEL free of cost at site. Unloading, storing, watch & ward, handling and testing of material as per FQP is in the scope of the contractor)	kg	65300	11.00	718300
C19	Steel reinforcement -Cold twisted bars /TMT- Fe 500/Fe 500D(To be procured from SAIL,TISCO, IISCO and RINL only) Including supply, straightening, cutting, bending, binding, (i/c cost of binding wire), placing in position, etc., all labour & material, complete.	kg	6600	49.62	327492

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S.No.	Description of Item	UNIT	QTY	Unit Rate (Rs)	Amount(Rs)
C20	Brickwork with non modular bricks of class designation 10 in foundation and plinth in: Cement mortar 1:6 (1 cement : 6 coarse sand)	cum	30	4524.10	135723
C21	12 mm cement plaster of mix: 1:5 (1 cement : 5 coarse sand)	sqm	90	154.72	13925
C22	Neat cement punning	sqm	60	39.55	2373
C23	Painting with synthetic enamel paint of approved brand and manufacture of required colour to give an even shade: Two or more coats on new work over an under coat of suitable shade with ordinary paint of approved brand and manufacture.	sqm	1300	74.91	97383
C24A	Supply, fabrication and erection of structural steel with mild steel rolled section / built up section / combination of both conforming to IS:2062, pipes conforming to IS:1161/ IS:1239, chequered plate conforming to IS: 3052, mild steel rounds, monorails, stays, safety chains, ladders, MS grating etc. in columns, beams, gantry girders, trestles, base plates, splice plates, chequered plate flooring, decking and seal plates, steel frame grid over false ceiling, walkway platforms, ladders, stairs, stringers, treads, landings, hand-rails etc including 2 coats of redoxide zinc-chromate primer (one coat at shop and one coat after erection), connection design & preparation of fabrication drgs (on the basis of line diagram issued by BHEL) and obtaining customer approval of the same, supply, fabrication, straightening, cutting, bending, rolling, grinding, machining, drilling, welding, electrodes and other consumables, alignment, erection bolts & nuts (weight of erection bolts, nuts and welds not payable), assembly, edge preparation, preheating (min preheat and interpass temperature of 20o C for welding over 20 mm and upto 40 mm & use of low hydrogen/ radiogenic electrodes), post heating, testing of welders, inspection of welds, visual inspection, non destructive and special testing, rectification and correction of defective welding works, production test plate, inspection and testing, erection scheme, protection against damage in transit, stability of structures, installation of temporary structures, setting column bases, surface preparation by means of manual or mechanical power tools as per IS:1477 part 1, touch-up painting, rectification, dismantling and removal of all temporary structures (weight of temporary structures not payable) etc all complete. - After approval of fabrication drg and BOM and supply of required structural steel	MT	180	41314.00	7436520
C24B	Supply, fabrication and erection of structural steel with mild steel rolled section / built up section / combination of both conforming to IS:2062, pipes conforming to IS:1161/ IS:1239, chequered plate conforming to IS: 3052, mild steel rounds, monorails, stays, safety chains, ladders, MS grating etc. in columns, beams, gantry girders, trestles, base plates, splice plates, chequered plate flooring, decking and seal plates, steel frame grid over false ceiling, walkway platforms, ladders, stairs, stringers, treads, landings, hand-rails etc including 2 coats of redoxide zinc-chromate primer (one coat at shop and one coat after erection), connection design & preparation of fabrication drgs (on the basis of line diagram issued by BHEL) and obtaining customer approval of the same, supply, fabrication, straightening, cutting, bending, rolling, grinding, machining, drilling, welding, electrodes and other consumables, alignment, erection bolts & nuts (weight of erection bolts, nuts and welds not payable), assembly, edge preparation, preheating (min preheat and interpass temperature of 20o C for welding over 20 mm and upto 40 mm & use of low hydrogen/ radiogenic electrodes), post heating, testing of welders, inspection of welds, visual inspection, non destructive and special testing, rectification and correction of defective welding works, production test plate, inspection and testing, erection scheme, protection against damage in transit, stability of structures, installation of temporary structures, setting column bases, surface preparation by means of manual or mechanical power tools as per IS:1477 part 1, touch-up painting, rectification, dismantling and removal of all temporary structures (weight of temporary structures not payable) etc all complete. - After fabrication, erection alignment and completion of work.	MT	180	25617.75	4611195
C25	Extra over above item C24B for blast cleaning of steel structures to near white metal surface (Sa 2 1/2) and applying zinc silicate primer in coats of minimum 25micron (DFT) at shop and 25Micron (DFT) after erection, instead of primer coat of red oxide zinc chromate, including touchup painting etc. all complete.	MT	180	4173.99	751318
C26	Extra over above item C24A for providing and application of two coats of synthetic enamel paint with minimum 50 micron total dry film thickness (DFT) of approved make and shade to achieve an even shade over steel section already having prime coat of different tint to distinguish the same and keeping overall DFT with primer not less than 100 microns including protection and cleaning, scaffolding etc. all complete.	MT	180	1690.05	304209
C27	Structural steelwork welded in built up sections like edge protection angles, pipes, 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.	kg	15500	51.36	796080
C28	Applying priming coat - With ready mixed red oxide zinc chromate primer of approved brand and manufacture on steel galvanised iron/ steel works.	sqm	1300	28.47	37011
C29	Providing and laying Non Pressure NP-3 class (Medium duty) R.C.C. pipes including collars/spigot jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 cement : 2 fine sand) including testing of joints etc. complete: 450 mm dia RCC pipes	RM	80	1660.11	132809
C30	Providing and fixing in culvert/road crossing/building PVC pipes conforming to IS : 12818 including jointing with seal in complete 150mm diameter	RM	40	283.20	11328
C31	Supplying & fixing (all dia & length) foundation bolts in position with help of proper templates (to be supplied by contractor) including nuts, washers and template all complete as per drawings & directions of Engr-in-Charge. Weight of the template shall not be measured for payment purpose.	kg	2000	87.19	174380
C32	Extra over Item above for providing galvanised bolts (Mass of zinc coating = 610gms/sqm), nuts & washer .	kg	2000	5.88	11760

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C33	Fixing (all dia & length) foundation bolts in position with help of proper templates including nuts, washers and template (to be supplied by contractor) all complete as per drawings & directions of Engr-in-Charge. Weight of the template shall not be measured for payment purpose.	kg	2000	9.20	18400
C34	Providing & fixing in position precast cement concrete trench covers/perforated covers/tile wherever necessary 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. Grade of concrete shall be M20	cum	200	7697.87	1539574
C35	Grouting of block outs, pockets, foundations, bolts holes and underside of base plates with cement, sand aggregate (of size 6 mm and down) grout 1:1:2 with non-shrink additive and shall be of strength not less than M30 including placing, curing, cleaning, surface preparation, testing, etc. complete with labour, materials, equipment, handling, testing, etc. all complete as per specifications, drawings and instructions of the Engineer.	cum	5	12179.63	60898
C36	Demolishing cement concrete Nominal mix 1:4:8 or leaner mix (i/c equivalent design mix) manually/ by mechanical means including disposal of material within 50 metres lead as per direction of Engineer - in - charge.	cum	5	615.15	3076
C37	Demolishing R.C.C. work manually/ by mechanical means including stacking of steel bars and foundation bolts and disposal of unservicable material within the substation boundary as per direction of site-in-charge.	cum	5	1454.55	7273
C38	Providing corrugated G.S. sheet roofing including vertical / curved surface 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, including a coat of approved steel primer and two coats of approved paint on overlapping of sheets complete (up to any pitch in horizontal/ vertical or curved surfaces), excluding the cost of purlins, rafters and trusses and including cutting to size and shape wherever required. 0.80 mm thick with zinc coating not less than 275 gm/m²	sqm	585	709.50	415058
C39	Providing and construction of temporary barricading on (buy back basis) around hot work location on safety point of view as per instruction of EIC. The barricading shall be done with metallic sheet and supporting structures. Height of the barricading shall be sufficient enough to cover all hot jobs even at height.(Measurement shall be as -Clear ht. of barricadex Length).After mutiple uses required at site contractor will take back all materials of barricading.	sqm	400	350.00	140000
	TOTAL				27572748

**Bill of Quantity cum Price Schedule for Installation for Tray & GI Flat
Annexure-II**

PROJECT: LSTK job for ISBL work of 220KV Grid Power Import at IOCL, Panipat Refinery
REV No.: 00

Sl. No.	Description	Unit	Quantity	Unit Rate (Rs.)	Total Amount (Rs.)
A.	GI cable tray and GI tray cover				
1	Unloading, handling and proper storage of GI cable trays and tray cover including watch & ward	Lot	1	90,496.23	90,496.23
2.1	Installation of following size of GI cable trays with horizontal and vertical bends, reducers, tees, cross members and other accessories, as per applicability including site fabrications, as required and duly suspended from the ceiling and/ or fixed to steel/ RCC columns, beams, rack assemblies in tressle/ trench/ cable cellar or any other structural members with MS suspenders, angles, channels etc. complete as per direction of the Engineer-in-charge in line with technical specification/ drawings, including painting with one coat of red oxide primer and zink chromate, as required or specified elsewhere in the specification. NOTE : Only GI Trays shall be provided by BHEL as a free issue material (FIM).				
(a)	Ladder/ channel type cable tray- 750mm wide, 100mm high, each 2.5m long	Metre	14000	39.38	551,308.80
(b)	Ladder/ channel type cable tray- 600mm wide, 100mm high, each 2.5m long	Metre	50	39.38	1,968.96
(c)	Ladder/ channel type cable tray- 300mm wide, 100mm high, each 2.5m long	Metre	50	39.38	1,968.96
(d)	Ladder/ channel type cable tray- 150mm wide, 100mm high, each 2.5m long	Metre	50	39.38	1,968.96
(e)	Perforated type cable tray- 750mm wide, 100mm high, each 2.5m long	Metre	50	48.64	2,432.16
(f)	Perforated type cable tray- 600mm wide, 100mm high, each 2.5m long	Metre	50	48.64	2,432.16
(g)	Perforated type cable tray- 300mm wide, 100mm high, each 2.5m long	Metre	50	48.64	2,432.16
(h)	Perforated type cable tray- 150mm wide, 100mm high, each 2.5m long	Metre	50	48.64	2,432.16
2.2	Installation of following size of GI cable tray cover with accessories, as per applicability including site fabrications, as required and suitable for covering the top layer of ladder/ channel/ perforated type cable trays complete as per direction of the Engineer-in-charge in line with technical specification/ drawings, including painting with one coat of red oxide primer and zink chromate, as required or specified elsewhere in the specification. NOTE : Only GI cover shall be provided by BHEL as a free issue material (FIM).				
(a)	Cable tray cover suitable for 750mm wide, 100mm high, each 2.5m long ladder/ channel/ perforated cable trays	Metre	50	39.38	1,968.96
(b)	Cable tray cover suitable for 600mm wide, 100mm high, each 2.5m long ladder/ channel/ perforated cable trays	Metre	50	39.38	1,968.96
(c)	Cable tray cover suitable for 300mm wide, 100mm high, each 2.5m long ladder/ channel/ perforated cable trays	Metre	50	39.38	1,968.96
(d)	Cable tray cover suitable for 150mm wide, 100mm high, each 2.5m long ladder/ channel/ perforated cable trays	Metre	50	39.38	1,968.96
B.	Above ground earthing				
1	Unloading, handling & proper storage of GI flat (75x12mm/ 50x6mm) including arrangement of watch & ward	Lot	1	15,539.21	15,539.21
2	Fabrication and fixing of following size of earth bus bar of GI flat (75x12mm/ 50x6mm) of on wall/ rack assembly/ hanger assembly in cable trench/ cable cellar/ tressle including GI rack bolts wherever necessary including drilling for holes complete with double nuts, washers etc. all complete as per direction of the Engineer-in-charge in line with technical specification/ drawings. This includes cutting, bending, welding with 40 mm dia MS rod riser/earth strip, applying zinc rich paint, clamping etc. complete in all respects. NOTE : Only GI cover shall be provided by BHEL as a free issue material (FIM).				
(a)	75x12mm GI Flat	Metre	100	59.68	5,968.12
(b)	50x6 mm GI Flat	Metre	10000	47.07	470,724.94
C.	Below ground earthing				
1	Unloading, handling & proper storage of 40mm (min) dia MS rod including arrangement of watch & ward	Lot	1	1,613.48	1,613.48
2.1	Fabrication and installation/ laying of 40mm (min) dia MS rod at depth of 600mm (min)/ as laid in the existing main earth mat measured from the top of Finished Ground Level (FGL) and bringing out risers upto finished level as per the directions of engineer in charge, including following activities but not limited to, - Excavation as per requirements - Laying of MS rod - Welding of rods in line with earthing philosophy and/ or technical spcification attached. - Backfilling of soil and compaction for bringing out risers of 40 dia MS rod for earthing of trench/ rack assembly/ tressle with rack assembly. Risers shall be raised from the existing earthmat, positioned at 600mm (min)/ as laid in neaby area depth to finished level. This shall include all activities such as cutting, bending, welding, fixing, application of paints on cutting & welding surface etc. to the main earthmat. - Any other work necessary to complete the below earthing work related to main earth mat and risers in for the earthing of trench/ rack assembly/ tressle with rack assembly in all respect. NOTE : MS rod shall be provided by BHEL as a free issue material (FIM).	Metre	200	101.94	20,388.79
2.2	Fabrication and installation/ laying of rod electrode without test pit (to be driven upto 3.0 meter) in line with technical specification as per the directions of engineer in charge, including following activities but not limited to, - Excavation as per requirements - Fabrication & installation of electrode. - any other work necessary to complete the work - This rod electrode without test pit shall be provided at the corners of trench/ rack assembly or tressle with rack assembly where, no existing main earth mat is available. NOTE : MS rod shall be provided by BHEL as a free issue material (FIM).	No	15	3,456.14	51,842.09
Total Amount (Excluding GST)					1,231,393

Remarks:

The quantities in BOQ may vary up to ±30% in line with quantity variation. However, individual quantities may be deleted or vary up to any extent.

ANNEXURE-III

**TRANSMISSION BUSINESS GROUP
(SUB- CONTRACTS MANAGEMENT)
TBG - NOIDA**

PRICE SCHEDULE FORMAT

SUB: TENDER FOR “EXECUTION & HANDING OVER OF CIVIL & STRUCTURAL WORK OF CABLE TRENCH AND CABLE TRESTLE AND INSTALLATION OF TRAY & GI FLAT AT 220 KV GIS SUBSTATION AT IOCL PANIPAT REFINERY IN HARYANA”.

TENDER NO.:- TBSM/PANIPAT-LSTK/CIVIL/PKG-III/TENDER

DATE: 19.06.2020

(a) I/ We hereby agree to execute the above work at ----- % (in figure).....
----- (in words) Above / Below/ At Par the rates of items given in BOQ
(Annexure-I, II & III) of subject tender.

NOTE:

1. In this annexure the tenderer shall quote a percentage above/ below/At Par the rates shown in the Bill of Quantities (Annexure-I&II) of subject tender. The percentage quoted shall be clearly written both in words and figures In case of discrepancy in rates in figure and words, the minimum will be taken into account by BHEL.
2. The quoted percentage will apply to the individual items uniformly.

Date:

Place

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

ANNEXURE-IV
(Summary of Prices)

Subject :- Execution & handing over of civil & structural work of cable trench and cable trestle and Installation of Tray & GI Flat at 220 kV GIS Substation at IOCL Panipat Refinery in Haryana.

Tender Spec. no.:- TBSM/PANIPAT-LSTK/CIVIL/PKG-III/TENDER Date 19.06.2020

Sl No.	Description	Amount (Rs.)
1	Total amount as per the rates in BOQ for " Execution & handing over of civil & structural work of cable trench and cable trestle at 220 kV GIS Substation at IOCL Panipat Refinery in Haryana" (Annexure-I)	27,572,748.00
2	Total amount as per the rates in BOQ for "Installation of Tray & GI Flat at 220 kV GIS Substation at IOCL Panipat Refinery in Haryana" (Annexure-II)	1,231,393.00
3	Total Amount For Subject work - Excluding GST (Annexure-I + Annexure-II)	28,804,141.00
4	Value of percentage above/below/at par (As indicated in Price Schedule Format, Annexure-III) applicable to the total amount of subject work (Sl. no. 3 above)% above/below/ at par
5	Total amount after consideration of percentage above/below/ at par.	