



प्रोजेक्ट्स एण्ड डेवलपमेंट इण्डिया लिमिटेड
(भारत सरकार का उपक्रम) : मिनी रत्न-1 कंपनी

Projects & Development India Limited

(A Govt. of India Undertaking) : A Mini Ratna-1 Company

PDIL Bhawan, A-14, Sector-1, NOIDA-201 301

Distt. Gautam Budh Nagar, (U.P.), India

CIN : U74140UP1978GOI028629

ISO 9001:2015 & OHSAS 18001:2007 Certified
and

ISO/IEC 17020:2012 Accredited

Date: 09.07.2018

AMENDMENT-III dated 09.07.2018
to NIT No. PNPM/PC-150/E/103 dated 15.06.2018

Project **SUPPLY, ERECTION, TESTING & COMMISSIONING OF CONSTRUCTION
WATER SYSTEM, AT TALCHER, ODISHA**

Dear Sir's

Please find attached herewith the Amendment No.-III dated 09.07.2018 to NIT No.
PNPM/PC-150/E/103 dated 15.06.2018 for Supply, Erection, Testing & Commissioning of
Construction Water System, at Talcher, Odisha

All other terms and conditions of NIT and subsequent Amendment(s) shall remain
unchanged.

Joshi
9/7/2018

Kailash Joshi
Dy. CE (Projects)



**NIT FOR SUPPLY, ERECTION, TESTING & COMMISSIONING OF CONSTRUCTION
WATER SYSTEM AT TALCHER FERTILIZERS LIMITED, ODISHA
NIT NO. : PNPM/PC-150/E/103,DATED-16.06.18**



AMENDMENT-III dated 09.07.2018

SL. NO.	Reference of Bidding Document			Amendment Type M/D/A/C	MODIFICATION
	Section	Clause No. / Attachment	Description as per NIT		
1.	Part-II/ SECTION-VII	Schedule of Rate	SOR for Mechanical Electrical & Civil work	M	Section VII has been revised. Refer " Revised Schedule of Rates (SOR), Rev.1" attached with this Amendment
2.	Part-II/ SECTION-VII (8.0)	-----	Drawings & Documents	A	Following additional Drawings/ Documents are added in this Amendment 1-Sketch of existing intake well 2) Schematic Flow Diagram for Const Water Supply 3) Schematic for Hydro test vents & drains arrangement 4) Vendor List for Gaskets & Strainers 5) Vendor List for pipe fittings & flanges 6) Vendor List for Valves 7) Proposed DG Location Sketch
3.	Part-II/ SECTION-VII	SOR ITEMS NO. 11.0/ Schedule of Rates for Laying of Steel pipeline & Associated works (Mechanical works)	SUPPLY & INSTALLATION OF FIELD INSTRUMENT Supply , Installation of Pressure Gauges and their accessories inclusive of supply of necessary piping materials and all necessary valves & fittings, plugs etc &hydraulic testing, calibration as per installation standard.	A	Specification of pressure gauges is added in this clause



**NIT FOR SUPPLY, ERECTION, TESTING & COMMISSIONING OF CONSTRUCTION
WATER SYSTEM AT TALCHER FERTILIZERS LIMITED, ODISHA
NIT NO. : PNPM/PC-150/E/103,DATED-16.06.18**



AMENDMENT-III dated 09.07.2018

SL. NO.	Reference of Bidding Document			Amendment Type M/D/A/C	MODIFICATION
	Section	Clause No. / Attachment	Description as per NIT		
4.	Part-II/ SECTION-VII	Page no 492 of 492 of SOR	Schedule of Rates for Laying of Steel pipeline & Associated works	A	Old soil investigation report is attached for Reference purposes, However soil investigation for Pipeline work is in contractor scope of work.
5.	Part-II/ SECTION-VI(6.0)	Time Schedule	Annexure- 3.0 - Time Schedule Laying of Pipeline & Associated Works for Construction water arrangement as described in scope of works under particular job specification. - 06 (Six) Months	M	The entire clause is deleted from part-II, section-VI For Time schedule please refer clause no. 57.0 of SCC (Section-V)
6.	Part-II/ SECTION-VI(6.0)	Page 16 OF 36 Terms of Payment	Scope of Work & Technical Specification(Terms of Payment Annexure-5)	M	Terms of Payment, Annexure-5 is deleted from this section. For Terms of Payment please refer clause no. 58.0 of SCC (Section-VII)
7	NIT - Schedule of Rates for Laying of Steel pipeline & Associated works (Mechanical works) at TFL, Talcher	SOR Item No 7.0	All civil works including supply of all materials, excavation of pit, piping supports including all PCC and RCC works for valves pits including pedestals with insert plates as required sealing of pipe at valve pits, providing cover (Chequered plates) with handle etc. and finishing, clean-up and restoration of site,	A	Valve pit drawings is attached in this Amendment



**NIT FOR SUPPLY, ERECTION, TESTING & COMMISSIONING OF CONSTRUCTION
WATER SYSTEM AT TALCHER FERTILIZERS LIMITED, ODISHA
NIT NO. : PNPM/PC-150/E/103,DATED-16.06.18**



AMENDMENT-III dated 09.07.2018

SL. NO.	Reference of Bidding Document			Amendment Type M/D/A/C	MODIFICATION
	Section	Clause No. / Attachment	Description as per NIT		
			filling and grading of area around valve station for avoiding any local flooding of area, as per typical drawing and specification		

LEGEND:

M: MODIFICATION, A: ADDITION, D: DELETION, C: CLARIFICATION

Enclosure:

- 1-Sketch of existing intake well
- 2) Schematic Flow Diagram for Const Water Supply
- 3) Schematic for Hydro test vents & drains arrangement
- 4) Vendor List for Gaskets & Strainers
- 5) Vendor List for pipe fittings & flanges
- 6) Vendor List for Valves
- 7) Proposed DG Location Sketch
- 8) Old soil investigation report for reference.
- 9) Valve Chamber or Pit Drawings
- 10) Revised SOR (Rev-1)

	SCHEDULE OF RATES SUPPLY, ERECTION, TESTING & COMMISSIONING OF CONSTRUCTION WATER SYSTEM AT TALCHER FERTILIZERS LIMITED, ODISHA	PC150/E/103/P-II/SEC-VII	1	
		DOCUMENT NO.	REV	
		SHEET 1 OF 1		

PART II: TECHNICAL

SECTION- VII



SCHEDULE OF RATES

SUPPLY, ERECTION, TESTING & COMMISSIONING OF CONSTRUCTION WATER SYSTEM

AT

TALCHER FERTILIZERS LIMITED, ODISHA

1	09.07.18	09.07.18	For Issuance	DILIP	DILIP / GC	GC
0	02.05.18	02.05.18	For Issue	DILIP	DILIP / GC	SM
P	08.12.17	08.12.17	Issue for Review	DILIP	GC	SM
REV	REV DATE	EFF DATE	PURPOSE	PREPD	REVWD	APPD

	SCHEDULE OF RATES FOR CIVIL, STRUCTURAL AND OTHER ALLIED WORKS TFL	PC150/E/103/P-II/SEC-VII	1	
		DOC. NO.	REV.	
		PAGE 1 OF 13		

PART II: TECHNICAL

SECTION- VII

SCHEDULE OF RATES
FOR
CIVIL, STRUCTURAL AND OTHER ALLIED WORKS

FOR

PIPELINE FABRICATION & ERECTION WORKS FOR CONSTRUCTION WATER ARRANGEMENT

OF



TALCHER FERTILIZERS LIMITED
AT

TALCHER ANGUL, ODISHA



1	09.07.17	ISSUED	GC	SS/GC	UPT
0	05.12.17	ISSUED	GC	SS/GC	UPT
P	05.12.17	ISSUED FOR REVIEW	GC	GC	UPT
REV	REV DATE	PURPOSE	PREPD	REVWD	APPD

SL. NO.	DESCRIPTION OF ITEMS	UNIT	QTY	RATE INCLUSIVE OF ALL TAXES AND DUTIES EXCEPT GST		AMOUNT INCLUSIVE OF ALL TAXES AND DUTIES EXCEPT GST (IN Rs.)
				(In Figure)	(In Words)	



A	EARTH WORKS:					
	NOTE:					
i)	The prices for all excavations are to include for removing and clearing away all shrubs, bushes, roots, removal of staked material & disposing the same from the site etc, as per direction of owner /consultant.					
ii)	The prices are also to include for all levelling and ramming foundation beds, trimming of sides and bottom grading to proper level as required mechanically or manually.					
iii)	Removal and carrying shall include for all loading, unloading and handling as may be necessary and also all necessary means of transport (Mechanical or animal or manual as required).					

	SCHEDULE OF RATES FOR REPAIR AND RE-EXCAVATION OF INTAKE CHANNEL AND OTHER ALLIED WORKS TALCHER FERTILIZER COMPLEX AT TALCHER ODISHA	PC09-PNCV-SOR-201	1	05.12.17	GC	GC	UPT	2 OF 13	
		DOCUMENT NO	REV	REV DT	PREPD	REVWD	APPD	SHEET	



SL. NO.	DESCRIPTION OF ITEMS	UNIT	QTY	RATE		AMOUNT (IN Rs.)
				(In Figure)	(In Words)	
iv)	The prices are also to include removal of water from all kinds of sources, either by pumping or by bailing, that may accumulate in the trenches, foundations, pits etc. The contractor shall be responsible to remove all water accumulated in foundations/pits / trenches etc, due to subsoil seepage, rainwater or from any other source. The contractor shall be fully responsible for removal of all water from its working area.					
	However, in cases where any items or materials indicated in drawings or elsewhere in N.I.T, or required to complete work should be included.					
v)	Nothing extra shall be paid on account of any lift for disposal of excavated materials.					
vi)	Where excavations are made in excess of the depth required, the contractor shall at his own expense fill up to the desired level with lean concrete of mix 1.5.10 as suitable in consultation with owner/consultant					
vii)	The prices are also to include for the removal of water caused by rains/seepage etc. either by pumping or by bailing out that may accumulate in the trenches and foundation pits etc. The proper cleaning of trenches mechanically and manually as required.					

	SCHEDULE OF RATES FOR CIVIL,STRUCTURAL AND OTHER ALLIED WORKS TALCHER FERTILIZER COMPLEX AT TALCHER ODISHA	PC09-PNCV-SOR-201	1	09.07.18	GC	GC	UPT	3 OF13	
		DOCUMENT NO	REV	REV DT	PREPD	REVWD	APPD	SHEET	

SL. NO.	DESCRIPTION OF ITEMS	UNIT	QTY	RATE		AMOUNT (IN Rs.)
				(In Figure)	(In Words)	
viii)	The tentative quantity of major items of civil work has been considered, all other items required to be executed but not covered here has to be envisaged by Bidder to complete the work in all respect and to make it functional shall to include in price. Nothing extra will be entertained. The item and quantity are indicative and may vary on either side while actual execution at site .Bidder to envisage and include while pricing/quoting.					
A-01	Excavation to required side slopes below ground level in all kinds of soils as defined in IS: 1200 for foundations, isolated pits, trenches for pipelines /cables, pipe sleepers, drains, etc., to the required levels and grades in both dry and wet conditions, including dressing of sides and ramming of bottoms, getting out excavated earth with lift upto 1.50 M and disposal of surplus excavated materials within a lead of 50 M including stacking, levelling and dressing etc., including providing temporary supports to all service lines such as overhead and underground water, sewage and drain pipes, cables etc. and shoring and strutting including dewatering wherever necessary, complete in all respects as per direction of Engineer-in-Charge.	Cu.M	20			
A-02	Same as Item No. A-01, but lift from 1.5 M to 3.0 M.	Cu.M	10			
A-03	De-silting of sediments/materials shall be carried out in the Intake well and intake channel bed with the Cutter Suction dredger. Including removal of Aquatic plants viz: hydrilla, water	Cu.M	1400			



	SCHEDULE OF RATES FOR CIVIL,STRUCTURAL AND OTHER ALLIED WORKS TALCHER FERTILIZER COMPLEX AT TALCHER ODISHA	PC09-PNCV-SOR-201	1	09.07.18	GC	GC	UPT	4 OF13	
		DOCUMENT NO	REV	REV DT	PREPD	REVWD	APPD	SHEET	

SL. NO.	DESCRIPTION OF ITEMS	UNIT	QTY	RATE		AMOUNT (IN Rs.)
				(In Figure)	(In Words)	
	hyacinth, duck weed, trash etc., in the intake lagoon prior to desilting under water body for augmenting the storage capacity of raw water. With inclusive of soils such as sand, silt mixed with/without clay or soft clay and disposing the dredged spoils up to a distance of 500m. Including Mobilization of equipment, loading and transporting complete in all respect and as per direction of Engineer-in-Charge.					
A-04	Disposal: Removal and carriage of surplus excavated earth, debris, etc., from the site of work to other areas anywhere within the factory/plant battery limits beyond the initial lead of 50 M and spreading and levelling the same in layers not exceeding 20 cm thickness including loading and unloading as per the direction of Engineer-in-Charge.	Cu.M	10			
A-05	Backfilling: Filling with available excavated good earth (excluding rocks / boulders), as approved and directed by Engineer-in-Charge, in trenches, plinth, under floors, sides of foundation etc., at all depths in layers not exceeding 20cm. in thickness including consolidating and dressing each deposited layer by ramming and watering with lead upto 50 metres, complete in all respects.	Cu.M	5			
B.	PLAIN CEMENT CONCRETE (PCC):					



	SCHEDULE OF RATES FOR CIVIL, STRUCTURAL AND OTHER ALLIED WORKS TALCHER FERTILIZER COMPLEX AT TALCHER ODISHA	PC09-PNCV-SOR-201	1	09.07.18	GC	GC	UPT	5 OF 13	
		DOCUMENT NO	REV	REV DT	PREPD	REVWD	APPD	SHEET	

SL. NO.	DESCRIPTION OF ITEMS	UNIT	QTY	RATE		AMOUNT (IN Rs.)
				(In Figure)	(In Words)	



B-01	Providing and laying Plain Cement Concrete (PCC) of 1:4:8 (1 cement: 4 coarse sand: 8 graded stone aggregate 20 mm nominal size), machine mixed and mechanically vibrated in foundations and plinth beams, for rafts, footings, bases of pedestals, trenches and pits, machine and equipment foundations, pile caps, pipe supports, etc., including all necessary cost of centering and shuttering, complete in all respects as per direction of Engineer-in- Charge.	Cu.M	2			
C.	REINFORCED CEMENT CONCRETE (RCC)					
C-01	Providing and laying reinforced cement concrete of nominal mix 1:1.5:3 (1 cement: 1.5 coarse sand: 3 graded stone aggregate 20 mm nominal size).with 320 kg/m ² characteristic compressive strength at 28 days, machine mixed and mechanically vibrated and finished to a fair face but excluding the cost of centring, shuttering and reinforcement in foundation and plinth, for rafts, footings, bases of columns, pedestals, beams, walls, columns, slabs, machine and equipment foundations, pile caps, box sections, pipe supports, etc., complete in all respects as per direction of Engineer-in- Charge.	Cu.M	15			
C-02	Repairing & Renewing existing RCC/Cement concrete works in patches including chipping / dismantling the damaged portion to required depth/thickness and re-doing the same with rich cement concrete/cement mortar and making good the same as the	Cu.M	5			

	SCHEDULE OF RATES FOR CIVIL,STRUCTURAL AND OTHER ALLIED WORKS TALCHER FERTILIZER COMPLEX AT TALCHER ODISHA	PC09-PNCV-SOR-201	1	09.07.18	GC	GC	UPT	6 OF13	
		DOCUMENT NO	REV	REV DT	PREPD	REVWD	APPD	SHEET	

SL. NO.	DESCRIPTION OF ITEMS	UNIT	QTY	RATE		AMOUNT (IN Rs.)
				(In Figure)	(In Words)	
	existing shape. Including scaffolding, cantering, shuttering and disposal of unserviceable material within 50 metres leads.etc. Complete in all respects as per direction of Engineer-in- Charge.					
C-03	Providing and laying "SHRINKKOMP- 10" or any other approved equivalent anti-shrinkage grouting in pockets, under base plates of light static equipments, structural steel columns, etc., and as specified in the drawing, complete in all respects as per direction of Engineer-in-Charge.	Cu.M	1			
D	REINFORCEMENT AND EMBEDMENTS					
D-01	Supplying, cutting, bending, hoisting, placing in position and binding with 18 SWG annealed wire, high yield strength deformed reinforcements as per IS: 1786 for all R.C.C. works including all necessary handling at all heights and depths complete in all respects and as per direction of the Engineer-in Charge. (Fe 500D of only TATA/SAIL/JSW/RINL make steel to be used)	MT	10			
D-02	Anchor Bolts: Supplying, fabricating and fixing in position M.S. holding down bolts assembly consisting anchor bolts, heads, nuts, washers etc., and the like including embedding in cement concrete/R.C.C. works as per approved drawings complete in all respects including one coat of approved quality anti-corrosive paint over a coat of approved quality primer. (All material supply is in contractor's scope.)	Kg.	50			



	SCHEDULE OF RATES FOR CIVIL,STRUCTURAL AND OTHER ALLIED WORKS TALCHER FERTILIZER COMPLEX AT TALCHER ODISHA	PC09-PNCV-SOR-201	1	09.07.18	GC	GC	UPT	7 OF13	
		DOCUMENT NO	REV	REV DT	PREPD	REVWD	APPD	SHEET	

SL. NO.	DESCRIPTION OF ITEMS	UNIT	QTY	RATE		AMOUNT (IN Rs.)
				(In Figure)	(In Words)	
D-03	Insert Plates: Supplying, fabricating, erecting and fixing in position to line and level all M.S Inserts such as anchor plates, angles, tees, channels, plates with lugs, hooks, sleeves etc. embedding in cement concrete /R.C.C. works at all levels including welding, bolting, drilling, cutting, scaffolding, holding in position, providing one coat of approved anti-corrosive paint and / or Bituminous paint on exposed surfaces, etc. all complete in all respects and as per specifications, drawing and as per direction of Engineer-in-Charge.(Templates if any required for fixing the inserts will not be paid for).	Kg	20			
E	STRUCTURAL STEEL :					
E-01	Supplying, de-rusting by shot blasting fabricating, erecting, hoisting and fixing in position structural steel work in rolled steel joints, channels, angles tees, flats, plates, lattice members built up / compound sections in columns, portals, girders, beams, bracings, trusses, Purlins, rafters, staircase, steps, hand-railings, walkway, toe plates, side walling, trestles, Conveyor gantries, screens etc. including gusset plates, anchor plates etc., including site and shop fasteners, riveting, bolting, welding at shop or work site at all heights etc. & epoxy painting complete as per drawing and direction of Owner / Consultant. (All material supply is in contractor's scope including paints (As per TS). (only TATA/SAIL/JSW/RINL make steel to be used)					



	SCHEDULE OF RATES FOR CIVIL,STRUCTURAL AND OTHER ALLIED WORKS TALCHER FERTILIZER COMPLEX AT TALCHER ODISHA	PC09-PNCV-SOR-201	1	09.07.18	GC	GC	UPT	8 OF13	
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SL. NO.	DESCRIPTION OF ITEMS	UNIT	QTY	RATE		AMOUNT (IN Rs.)
				(In Figure)	(In Words)	

a)	With providing and applying two coats of chlorinated rubber based high build zinc phosphate primer of approved brand and manufacture compatible to chlorinated rubber paint at a dry film thickness of 50 micron per coat on structural steel work after preparation of surfaces including providing and applying two coats of chlorinated rubber based paint of approved colour, brand and manufacture at a dry film thickness of 50 microns per coat on structural steel work complete in all respects as per specifications and direction of Engineer-in-Charge. (Surface preparation by sand blasting/ power driven brushes will be paid separately).	MT	10			
F	MISCELLANEOUS					
F-01	SHUTTERING :Providing, fabricating, erecting and fixing in position with bolts and nuts, nails and ties, etc., centring and shuttering materials true to line and level, including strutting, propping, staging etc. with necessary bracing in all axes to give a stable assembly for cast-in-situ, plain or reinforced concrete works of any type and section at all elevations, including labour, materials, equipment, waste for forms, shoring, strutting, scaffolding, staging, tying, nailing, caulking, bolting, testing, etc. and removal of formwork and staging etc. All complete as per specifications, drawings and instructions of the Engineer-incharge.	Sq.M	100			
F-02	Providing and constructing brick work using bricks of class designation 7.5 in cement mortar 1 : 6 (1 cement: 6 coarse sand) in walls, etc. at all depths, places and positions including	Cu.M	10			



	SCHEDULE OF RATES FOR CIVIL,STRUCTURAL AND OTHER ALLIED WORKS TALCHER FERTILIZER COMPLEX AT TALCHER ODISHA	PC09-PNCV-SOR-201	1	09.07.18	GC	GC	UPT	9 OF13	
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SL. NO.	DESCRIPTION OF ITEMS	UNIT	QTY	RATE		AMOUNT (IN Rs.)
				(In Figure)	(In Words)	
	raking out joints, curing, scaffolding etc. complete excluding plastering and painting.					
F-03	Repairs to plaster of thickness 12 mm to 20 mm in patches of area 2.5 sq. meters and under, including cutting the patch in proper shape, raking out joints and preparing and plastering the surface of the walls complete, including disposal of rubbish to the dumping ground, all complete as per directions of Engineer-In-Charge.					
	a) With cement mortar 1:4 (1 cement : 4 fine sand)	Sq.M	20			
F-04	Providing 12 mm thick plaster in cement mortar 1:6 on the even side of walls, finished to a smooth finish as per specification.	Sq.M	20			
F-05	Providing and applying two (2) coats of Oil bound washable distemper paint over walls (Inside) of plastered surfaces as per IS 161, of approved manufacturer and in approved shades, including cleaning and preparing the wall surface, one layer of primer with distemper primer, curing, labour, material, scaffolding, equipment, handling, transportation etc. Cleaning stain from floors, walls, glass panes etc. all complete as per specifications, drawings, and instructions of the Engineer. etc.at all elevations.					
	a) On new work	Sq.M	20			
	b) On old work	Sq.M	320			

	SCHEDULE OF RATES FOR CIVIL,STRUCTURAL AND OTHER ALLIED WORKS TALCHER FERTILIZER COMPLEX AT TALCHER ODISHA	PC09-PNCV-SOR-201	1	09.07.18	GC	GC	UPT	10 OF13	
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SL. NO.	DESCRIPTION OF ITEMS	UNIT	QTY	RATE		AMOUNT (IN Rs.)
				(In Figure)	(In Words)	

F-06	Providing and applying two (2) coats of Cement based paint of approved make (Asian/ Nerolac/ Berger or equivalent) as per IS 15489 of approved manufacture, quality and shades over exterior walls/ceilings of POP surface including labour, materials, equipment, handling, transportation, finishing, scaffolding and preparing the surface etc. Cleaning stain from floors, walls, glass panes etc. all complete as per specifications, drawings, and instructions of the Engineer at all elevations. Roller to be used in the paint application.					
	a) On new work	Sq.M	20			
	b) On old work	Sq.M	350			
F-07	Welded steel wire fabric fencing with angle iron post placed at required distance and placed and embedded in cement concrete blocks 45x45x 60 cm of mix 1:5:10 (1 cement:5 fine sand : 10 graded stone aggregate 40 mm nominal size), every 15th post, last but one end post and corner post shall be strutted on both sides and end post on one side only and struts embedded in cement concrete blocks 70x45x50 cm of the same mix, provided with welded steel wire fabric fixed between the posts fitted and fixed with G.I. staples on wooden plugs or tied to 6 mm bar nibs with G.I. binding wire (including all necessary cost of centring and shuttering, posts, welded steel wire fabric, painting, earth work in excavation and concrete).	Sq.M	60			
F-08	Supplying, fabricating and erecting MS gate built with galvanised tubes conforming to IS: 1161 of 50mm dia frames including galvanised flats 25x6mm connection bolts and nuts 8mm dia	Sq.M	9			



	SCHEDULE OF RATES FOR CIVIL, STRUCTURAL AND OTHER ALLIED WORKS TALCHER FERTILIZER COMPLEX AT TALCHER ODISHA	PC09-PNCV-SOR-201	1	09.07.18	GC	GC	UPT	11 OF13	
		DOCUMENT NO	REV	REV DT	PREPD	REVWD	APPD	SHEET	

SL. NO.	DESCRIPTION OF ITEMS	UNIT	QTY	RATE		AMOUNT (IN Rs.)
				(In Figure)	(In Words)	
	welded wire fabric (50 x 50mm square mesh welded to galvanised flats 25 x 6mm bottom rollers, guide track, locking arrangement from both sides, handles, stoppers, hold fasts, pin clamps, MS L-drops etc. complete as per drawing and directions of Engineer-in-Charge.					
F-09	Demolishing/ dismantling and removing the scraps of existing MS sluice gate along with hand wheels, spindles, guide rails & all other accessories and fittings and stacking the serviceable materials at a place as desired by Engineer-in-charge and Disposal of un-serviceable materials beyond a lead of 50 m.	Each	2			
F-10	Providing & fixing in R.C.C. work, Single Face sluice gate, Class- 1 (Rising Type) of 1000 mm square size, conforming to IS : 3042 (Figure 1-B) along with hand wheels, spindles, guide rails & all other fitting accessories required, complete as per drawing and directions of Engineer-in-Charge	Each	2			
F-11	Supplying and providing coarse rubble stone masonry in cement mortar 1: 3 (1 cement: 3 coarse sand) on sloping surfaces of earthen embankment at all heights above ground bed level, complete in all respect and as per direction of Engineer-in-Charge.	Sq.M	40			

TOTAL:-

Amount in Figure : Rs.....

Amount in Words : Rs.....

	SCHEDULE OF RATES FOR CIVIL,STRUCTURAL AND OTHER ALLIED WORKS TALCHER FERTILIZER COMPLEX AT TALCHER ODISHA	PC09-PNCV-SOR-201	1	09.07.18	GC	GC	UPT	12 OF13	
		DOCUMENT NO	REV	REV DT	PREPD	REVWD	APPD	SHEET	

SL. NO.	DESCRIPTION OF ITEMS	UNIT	QTY	RATE		AMOUNT (IN Rs.)
				(In Figure)	(In Words)	

Discount, if any : Rs.....



Total Amount in figure : Rs.....



Total Amount in words : Rs.....

Signature of Tenderer :

Name & seal of Tenderer :

Place / Date :



	SCHEDULE OF RATES FOR CIVIL,STRUCTURAL AND OTHER ALLIED WORKS TALCHER FERTILIZER COMPLEX AT TALCHER ODISHA	PC09-PNCV-SOR-201	1	09.07.18	GC	GC	UPT	13 OF13	
		DOCUMENT NO	REV	REV DT	PREPD	REVWD	APPD	SHEET	

	SCHEDULE OF RATES LAYING OF STEEL PIPELINE & ASSOCIATED WORKS (MECHANICAL WORKS) AT TFL TALCHER	PC150/E/103/P-II/SEC- VII	1	
		DOCUMENT NO	REV	
		SHEET 1 OF 13		

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DESCRIPTION

1. PREAMBLE TO SOR
2. SOR FOR MAINLINE & ASSOCIATED WORKS
3. SUMMARY OF PRICES

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		DOCUMENT NO	REV	
		SHEET 2 OF 13		

PREAMBLE TO SOR

- i. Schedule of Rates is to be read in conjunction with all the sections/sub-sections or Part of this contract document.
- ii. The rates shall be applicable for all floors, heights and depths: -
 - a This being an item rate contract, the unit rate shall prevail, does any dispute arise. In the event of unit rate being different in figures & words, the unit rate in words shall be taken as final.
 - b Owner/Consultant reserves the right to interpolate or extrapolate the rate for any item from the rates available for similar work in the Schedule of Rates.
 - c Whenever it is mentioned in the specifications that the Contractor shall perform certain work or provide certain facilities/materials or certain item or activity is in Contractor's scope of services, it is understood that the Contractor shall do so at his cost within the item rates unless expressly stated otherwise.



d **PIPELINE LAYING / INSTALLATION (CARBON STEEL PIPES) UG**

"Supply , taking over" as defined in the specifications, handling, loading, transportation ,unloading and Laying of bare/coated line pipes and other materials like valve, fittings, flanges, supply & application of 3LPE coating materials etc. from Contractors suppliers locations/works etc. to Contractor's stock yard/workshop/work-site including preliminary activities, preparation of drawings, wherever required for crossing etc. Handling, stacking, stringing of the line pipe on the pipeline Right of-Use/ pipeline route alignment, Carrying out inspection of materials including line pipes at the time of laying/ installation of line pipes, associated valves, tees, insulating joints, flanges & fittings for buried application of all sizes, thickness & ANSI class rating and accessories as per specification wherever required depending on site condition.

Arrangement of all additional lands required for Contractor's storage, fabrication, access for construction, etc. procurement and supply of all materials, consumables, equipment, labour and other inputs, carrying out all temporary, ancillary, auxiliary works, etc. make ready for commissioning of pipeline as per drawings, specifications, other provisions of Contract document and instructions of Engineer-in-charge, including but not limited to carrying out the following works.

Barricading the pipeline construction area prior to execution to the entire satisfaction of Owner / Engineer-in-charge.

Checking, cleaning, aligning, bending, cutting and beveling (as required) of pipes for welding and field adjustments including pipe fittings, welding, carrying out non-destructive testing of welds as required and providing all requisite equipment, labour, supervision, materials, films, consumables, all facilities and personnel to process, develop, examine and interpret radiographs and other tests as

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required, carrying out repairs of weld joints found defective by Engineer-in-Charge, carrying out re-radiography and other tests as required on repaired joints.

Carrying out installation of carrier pipe at all crossings like roads/railways at designated depths by open cut/jacking/boring (cased crossings/ crossings carried out by HDD method).

Coating of all pipelines as well as weld joints, bends, elbows, buried fittings and valves etc. including supply of coating materials etc. (i.e. heat shrinkable sleeves and high build epoxy etc/Or equivalent polyethylene materials.) as per Technical Specification compatible with coating material of the line pipe.

Installation / lowering the pipeline in trench to required depth as per Technical Specification & drawings, supply & placement of 1.0 mm thk.

Carrying out air cleaning, flushing, cleaning and hydrostatic testing of complete pipeline including pre-testing of designated sections complete as per specification and approved by Engineer-in-Charge to specified pressures indicated elsewhere and duration after stabilization as per specification, providing all equipment, pumps, fittings, instruments, dead weight tester, pressure recorder, thermocouples etc., and services, supervision, labour, consumables, water including supply of air, etc. as required, locating of leaks and rectification of defects attributable to Contractor (rectification of defects in line pipe material not attributable to contractor shall be paid separately as per schedule of rate), re-testing after rectification, dewatering after successful completion of hydrotesting of entire section and as approved by Engineer-in-charge.



Backfilling & Compaction of trench and final clean-up of right-of-use or area disturbed by contractor during their construction activities for laying of pipeline works and disposal of debris and surplus material to designated disposal areas and re-installing the area to its original condition as per satisfaction of Owner and / or as directed by Engineer-in-charge.

Installation of all buried valves (except extended stem valves) inside the valve pit and making provision to operate the valve.

e ANY OTHER UNSPECIFIED CASED CROSSING BY BORING / OPEN CUT METHOD FOR ROAD CROSSING By Boring

Preparation of required length of carrier pipeline welded string including all other works as mentioned in item no. 1.0 above and specification/ drawings. Insertion of carrier pipeline welded string including all other works as mentioned in item no. 1.0 above and as per specification/ drawings. Insertion of car.

rier pipe in casing pipe after above ground pretesting at specified test pressure and installation of casing insulators as per specification/ drawings. Installation of vent and drain assembly, fixing of end seals, backfilling and restoration as original of the facilities crossed and

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performing all other works including cleaning, final hydro testing etc. along with mainline works and as per specification, approved procedure, drawing etc. and instruction of Engineer-in-charge and provision of contract document.

f PIPELINE LAYING / INSTALLATION OF ABOVE GROUND PIPELINE(if any)

Supply ,Fabrication including cutting, edge preparation, inclusive of grinding the edges of pipes, fittings, flanges etc, to match with grinding the edges of pipes, fittings, flanges etc. to match with the matching edges of uneven / different thickness wherever required fit - up bending, welding threading etc. pipe fittings like elbows, tees, reducers, weldolets, sockolets, etc. flanges, vent and drain point connection etc. including providing stub - in connection, fabricated fittings and reinforcement pads etc. as required.



Erection of pipes of all types and thickness at all elevations, connecting with equipment nozzle, aligning, installation and carrying out connected activities for all types of valves, all online instruments and fittings of all sizes of elbow, reducers, tees, flanges blind flange, spectacle blind flanges, branch connection / tapping, vents and drains, required for process and hydrotesting, tapping for pressure gauges thermowells sample connections, etc. including supply and fixing of all types of gaskets bolts and nuts for all sizes. Carrying out Non-destructive testing as per specification.

Surface preparation before application of primer by means of sand blasting including supply of approved quality of abrasive, manpower, machineries, tools & tackles to achieve required roughness as per specification and as per instruction of Engineer-in-charge. Painting of entire system (including all pipes and accessories) as per specification, including supply of approved paints and primers, preparation of surface and application of primer and paint, identification lettering/numbering, colour coding, etc. as specified including rub down & touch up of shop primer or scrapping of shop primer wherever required by CLIENT and providing scaffolding (if required) for all heights etc.

Cleaning and flushing by water/compressed air, testing of the system including hydrostatic and any other type of testing as specified, draining, and drying by compressed air / other methods approved by CLIENT.



Completion of all such work in all respect as per scope of work and as per drawings specifications and instructions of the CLIENT and keeping the system ready in all respects for further commissioning and start up.

Commissioning Contractor scope shall provide all necessary assistance in term of supply of man-power, equipment, tools and tackles required during commissioning activities.



	SCHEDULE OF RATES LAYING OF STEEL PIPELINE & ASSOCIATED WORKS (MECHANICAL WORKS) AT TFL TALCHER	PC150/E/103/P-II/SEC- VII	1	
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SCHEDULE OF RATES FOR MAINLINE & ASSOCIATED WORKS



MAINLINES & ASSOCIATED WORKS		UNIT	QUANTITY	Unit Rate inclusive of all taxes & duties except GST (in Rs.)		Total Amount Inclusive of all taxes & duties except GST (in Rs.)												
SL.No.	DESCRIPTION OF ITEMS			In Figure	In Words													
	PIPELINE SUPPLY & LAYING / INSTALLATION (CARBON STEEL PIPES) :																	
1.0	LAYING OF UNDER GROUND PIPE LINES																	
	Trenching to all depths by excavation in all types of soils including soft/ hard rock and different type of pavement / footpath / roads etc. including rock breaking, chiseling or otherwise cutting etc. as required and storing top surface materials, excavated soil, reusable materials at designated area as directed by Engineer in charge as per the relevant standard / specification etc. Checking, cleaning, aligning, bending, cutting and beveling (as required) of pipes for welding and field adjustments including pipe fittings, welding(Welding of Elbow, Tee, Flanges Reducers Weldolet & Sockolets etc), carrying out non-destructive testing of welds as required including 10% radiography(to be paid separately). All welding of including the tie-in(s) of the pipeline with the adjacent sections of pipeline including cutting of test header, rebeveling as required.																	
	Carrying out repairs of pipe defects/replacement in case of irreparable defects and repairs of defects of pipe coating not attributable to Owner including defects / damages occurring during transportation/handling.																	
1.1	<table border="0" style="width: 100%;"> <tr> <td style="text-align: center;">Specified Size</td> <td style="text-align: center;">Thk (inch)</td> <td style="text-align: center;">Material</td> <td style="text-align: center;">Coating Type</td> </tr> <tr> <td style="text-align: center;">(inch)</td> <td style="text-align: center;">HEVY</td> <td style="text-align: center;">IS 1239 (ERW)</td> <td style="text-align: center;">3LPE,COATING</td> </tr> <tr> <td style="text-align: center;">(6 ")</td> <td></td> <td></td> <td></td> </tr> </table>	Specified Size	Thk (inch)	Material	Coating Type	(inch)	HEVY	IS 1239 (ERW)	3LPE,COATING	(6 ")				Meter	13000			
Specified Size	Thk (inch)	Material	Coating Type															
(inch)	HEVY	IS 1239 (ERW)	3LPE,COATING															
(6 ")																		
	NOTES : I) This item shall be applicable for the underground steel grid main pipeline & branch pipeline including, valves, tees, bends (R=3D/1.5), flanges & fittings, accessories etc. and aboveground approach pipeline. iii) In above item, restoration works are to be paid as separate elsewhere mentioned in SOR.																	

	SCHEDULE OF RATES LAYING OF STEEL PIPELINE & ASSOCIATED WORKS (MECHANICAL WORKS) AT TFL TALCHER	PC150/E/103/P-II/SEC- VII	1	
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	<p>v) In above item, backfilling of pipeline trench by borrowed select soil duly approved by Owner /EIC shall be paid by separate item mentioned elsewhere in the SOR.</p> <p>vi) Contractor shall not perform any pipeline activities along ROU without specified barricading and other safety measures. In case contractor does not provide specified barricading.</p> <p>vii) The quantities given in above item no. are tentative only and shall not be considered to be binding. The quantities may be increased, decreased or deleted as per the actual site requirement and instructions / recommendations of Owner. The unit rate shall be operated to work out the final payment to the contractor.</p> <p>viii) Above price shall be inclusive of all type of taxes & duties, transit insurance during transportation & other insurance etc. including all financial & commercial implication as per the tender document except GST. No other payment except as per quoted unit rate & executed quantities will be payable by the Owner.</p>					
2.0	INSTALLATION OF CROSSING BY HDD					
	<p>Installation of carrier pipes by HDD method with/without Casing pipe by HDD for road and highway crossings wherever required in all types of soils and terrain, including all associated works including supply of all other Contractor supplied materials viz. supply of casing pipe of minimum 2 mm PE tape externally coated of 219mm OD x 6.4mm Wall thk. Casing Pipe (for 6" NB Pipeline) of materials IS3589 or equivalent ERW pipe. Pipes, duly coal tar epoxy coated of minimum 300 Casing insulators and casing end seals as per enclosed drawing, materials for casing vents and drains etc, including supply of all other materials, equipment, consumables, manpower, welding including visual inspection of all weld joints, installation of Casing Pipe , casing insulators, end seals, backfilling and restoration as original of the facility crossed and performing all works as per drawings, specifications and instructions of Engineer -in -Charge and provisions of contract document. Direct heat shrinkable sleeves shall be applied for joint coating in case of HDD without casing. Details of Crossing by HDD Crossings at various locations as decided by EIC at site as per concerned authority requirement.</p>					
2.1	Line pipe detail 6" NB, HEAVY IS3589 or equivalent ERW 3LPE Coated pipe with Casing Pipe by HDD (Road Crossing)	Meter	30			
2.2	Line pipe detail 6" NB, HEAVY IS3589 or equivalent ERW 3LPE Coated pipe with Casing Pipe by HDD (Road Crossing) without Casing Pipe by HDD (Other Crossing)	Meter	12			

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2.3	Line pipe detail 6" NB, HEAVY IS3589 or equivalent ERW 3LPE Coated pipe with Casing Pipe by HDD (Railway Crossing)	Meter	12			
	<p>Note:-</p> <p>(i) Crossing width may vary as per site condition. Tenderer are advised to visit site for actual assessment of extent of crossing. Actual string length for HDD shall be as per design calculations so that pipe is not under stress as permitted by codes/ specifications. However final length of string & cover from top of pipe shall be decided by concerned Authority/ Engineer-in-charge.</p> <p>(ii) Payment for the length of final tied-in carrier pipeline string with mainline laid by HDD method are inclusive in the above item rate and no separate payment shall be made under other item mentioned elsewhere.</p> <p>(iii) Installation of Casing Pipe, Casing insulators , casing end seals ,casing vents and drains etc are inclusive in above item rate. Payment for Supply of casing pipes shall be made under item mentioned elsewhere in SOR.</p> <p>(iii)Widths of above crossings indicated are tentative. The widths indicated are not for any single crossings. This shall be as per requirement at site for crossing at different locations.</p>					
3.0	ANY OTHER UNSPECIFIED CASED CROSSING BY BORING / OPEN CUT METHOD FOR ROAD CROSSING					
	<p>By Boring - Complete work of the other road crossings (between the limits as defined at site and decided by Engineer-in-charge) including supply, handling, loading, transportation, unloading to Contractor's own stock yard/ work site of casing pipe of size 219 mm OD x 7.92mm thk., duly coal tar epoxy coated of minimum 300 micron confirming to IS:3589 or equivalent ERW pipe, casing insulators and casing end seals as per enclosed specification/ drawings, materials for casing vents and drain assembly etc. including supply of all other materials, equipments, consumables, manpower, welding including visual inspection of all weld joints, installation of casing insulators, end seals, vents and drain - off pipes for steel casing, backfilling and restoration as original of the facility crossed and performing all works as per drawings, specifications and instructions of Engineer -in -Charge and provisions of contract document</p>					
3.1	219 mm OD x 9.2 mm Wall thk. Casing Pipe (for 6" NB Pipeline) Casing pipe installation by Open Cut/jacking/ boring method.	Meter	20			
	<p>Note:-</p> <p>i) Widths of above crossings indicated are tentative. The widths indicated are not for any single crossings. This shall be as per requirement at site for crossing at different locations.</p> <p>ii) Payment for the lengths of carrier pipeline string with mainline laid by above method is Exclusive in the above item rate and separate payment shall be made under SOR item no 1.1 &1.2.</p>					
4.0	RESTORATION OF ROAD					

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	Restoration of asphalt/concrete/red stone roads/pavement/Paver block including compaction of soil, to original condition as per requirement and to the entire satisfaction of Owner and / or Authorities having jurisdiction for following pavement thickness.				
4.1	Restoration of Asphalted road upto 10cm thickness	Sq M	150		
4.2	Restoration of Asphalted road beyond 10 cm upto 20cm thickness	Sq M	30		
4.3	Restoration of Concrete road upto 10 cm thickness	Sq M	30		
4.4	Restoration of red stone road/footpath/pavement upto 4 cm thickness	Sq M	30		
4.5	Restoration of Paver Block	Sq M	400		
4.6	Restoration of Brick Pitched Road upto 75 mm thick	Sq M	150		
	Note: The quantities mentioned above are tentative				
5.0	BORROWED LOCAL/FOREIGN SELECT SOIL FOR BACKFILLING				
	Additional work over and above item 1.0 for supply of specified and approved quality of borrowed local soft graded soil / sand in place of available excavated material and / or other suitable soil as per applicable standards / specifications, including backfilling of excavated trench for specified length after laying and padding of pipeline, including local transportation of such special backfill material over all distances, complete.	Cu M	1500		
	Note: i) The quantities mentioned above are tentative				
6.0	PRE-COMMISSIONING AND ASSISTANCE IN COMMISSIONING OF PIPELINE SYSTEM				
	Swabbing, drying of the complete pipeline network and the associated facilities being installed to the specified acceptance criteria, carrying out pre-commissioning works, providing assistance during the complete duration of commissioning operations for entire pipeline network system including supply of all equipment, man-power, consumables, materials for all temporary works and performing all associated works, complete as per the relevant specifications, other provisions of Contract document and instructions of Engineer-in-charge				
6.1	For 6" NB ,3LPE Coated UG Pipeline	Meter	13000		
7.0	VALVE PITS				

	SCHEDULE OF RATES LAYING OF STEEL PIPELINE & ASSOCIATED WORKS (MECHANICAL WORKS) AT TFL TALCHER	PC150/E/103/P-II/SEC- VII	1	
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	All civil works including supply of all materials, excavation of pit, piping supports including all PCC and RCC works for valves pits including pedestals with insert plates as required sealing of pipe at valve pits, providing cover (Chequered plates) with handle etc. and finishing, clean-up and restoration of site, filling and grading of area around valve station for avoiding any local flooding of area, as per typical drawing and specification enclosed and instructions of Engineer-in-charge.					
7.1	Valve Pit of Size 1.5 x 1.5m (with lockable MS steel top cover plate).	Nos	6			
7.2	INSTALLATION OF VALVES etc.					
	6" GATE VALVE,300#	Nos	6			
	Note: The quantities mentioned above are tentative					
8.0	SUPPLY OF MOVING MACHINERY					
	SUPPLY, TESTING, COMMISSIONING OF TURBINE TYPE VERTICAL ELECTRIC MOTOR DRIVEN CENTRIFUGAL PUMP WITH ASSOCIATED INSTRUMENTATION AND CONTROL SYSTEM (Supply of Vertical Turbine Pump with Its Drive Motor Etc. As per PC150-PNPRDD-01 & TC: 5106).	Nos	2(1+1)			
8.1	ERECTION/INSTALLATION OF PUMPS	MT	5			
9.0	SUPPLY OF PIPES/PIPELINES, FITTINGS, FLANGES & VALVES etc					
	Complete works of supply of pipes for 6", (below mentioned length), flanges, fittings & valves for underground installation including all taxes, duties (EXCEP GST) transportation and inspection charges but not limited to, the following items in accordance with, relevant specifications & drawings indicated in job specification under this technical documents and instructions of Engineer-in-charge and as per all provisions of the CONTRACT. - Handling including lifting, transportation from Contractor Stores to CONTRACTOR's workshop for fabrication and/ or to work site for field fabrication and erection for all piping items supplied by Contractor.					
9.0	PIPELINES & ITS FITTINGS :					
	PIPES					

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a	6" ,3LPE COATED PIPES IS 1239 (ERW),HEVY BE	Mtr.	13000			
	2" , PIPES IS 1239 (SMLS),HEVY BE	Mtr.	6			
	1.5" , PIPES IS 1239 (SMLS),HEVY BE	Mtr.	6			
	1" , PIPES IS 1239 (SMLS),HEVY BE	Mtr.	2			
	0.754" , PIPES IS 1239 (SMLS),HEVY BE	Mtr.	2			
b	BLIND FLANGE					
	6" ASME B16.5, 300#-A-105 RF	Nos	3			
c	BRANCH CONNECTIONS					
	6"X0.75",SCH HEAVY, MSS-SP97-A105	Nos	8			
	6"X1",SCH HEAVY, MSS-SP97-A105	Nos	4			
d	CAP					
	0.75 ,CAP (THD) -ASME B16.11, A105	Nos	8			
	1.0 ,CAP (THD) -ASME B16.11, A105	Nos	4			
e	VALVES					
	6"-Check Valve, CHV211, 300# A216Gr WCB, RF	Nos	2			
	6"-Gate Valve, GAV211 , 300# A216Gr WCB, RF	Nos	6			
	2"-Gate Valve, GAV211 , 300# - A216Gr WCB,13%Cr. Trim, RF	Nos	4			
	1.5"-Gate Valve, 800#GAV201,A105,SW	Nos	4			
	1"-Gate Valve, 800#GAV201,A105,SW	Nos	4			
	3/4"-Gate Valve, 800#GAV201,A105,SW	Nos	4			

	SCHEDULE OF RATES LAYING OF STEEL PIPELINE & ASSOCIATED WORKS (MECHANICAL WORKS) AT TFL TALCHER	PC150/E/103/P-II/SEC- VII	1	
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	3/4"-Glob Valve, 800# GLV201,A105,SW	Nos	4			
	1"-Glob Valve, 800# GLV201,A105,SW	Nos	4			
f	ELBOW					
	6"ELBOW 45 DEG.-SCH HVY,BW-B16.9- A234 Gr. WPB	Nos	40			
	6" ELBOW 90 DEG.A234 Gr. WPB,SCH HVY ,BW-B16.9	Nos	100			
g	FLANGE					
	6"-W.N. FLANGE,B16.5-300#-A105-wnrf	Nos	21			
	2"-W.N. FLANGE,B16.5-300#-A105-wnrf	Nos	8			
	4" W.N. FLANGE,B16.5-300#-A105-wnrf		4			
	3" W.N. FLANGE,B16.5-300#-A105-wnrf		4			
	1" W.N. FLANGE,B16.5-300#-A105-wnrf		4			
	¾" SORF FLANGE,B16.5-300#-A105-wnrf		4			
H	INSULATING JOINT					
	6" SCH HEAVY x BE, INSULATING JOINT-ASME B 31.3	Nos	2			
I	REDUCER					
	6" X 4" ECCENTRIC CS	Nos	2			
J	NIPPLE					
	3/4"-NIPPLE (P-P)- IS 1239 (SMLS,HEAVY	Nos	8			
	1" NIPPLE (P-P)- IS 1239 (SMLS,HEAVY	Nos	4			
	3/4"-NIPPLE (P-T)- IS 1239 (SMLS,HEAVY					
	1" NIPPLE (P-T)- IS 1239 (SMLS,HEAVY					
K	6X6 TEE,SCH HEAVY,BW-B16.9-A 234 Gr. WPB.	Nos	5			
L	6"-GASKET(SPRL-WND RF), TP304 SS WDG;GPH FLR;TP304 SS INR RNG;CS OTR RNG, ASME B16.20-300#	Nos	50			
	2"-GASKET(SPRL-WND RF), TP304 SS WDG;GPH FLR;TP304 SS INR RNG;CS OTR RNG, ASME B16.20-300#	Nos	50			

	SCHEDULE OF RATES LAYING OF STEEL PIPELINE & ASSOCIATED WORKS (MECHANICAL WORKS) AT TFL TALCHER	PC150/E/103/P-II/SEC- VII	1	
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M	¾"-125mm-STUD & 2NUTS HVY HEX-ASTM A193 GR.B7/ASTM A194 GR.2H	Nos	400			
	5/8"-90mm-STUD & 2NUTS HVY HEX-ASTM A193 GR.B7/ASTM A194 GR.2H	Nos	150			
	Note: i) Pipe Specification and thickness may vary depending upon availability of pipe. No extra payment shall be made for this. ii) All butt welded fittings & flanges end shall generally match with connecting pipe wall thickness. However, in case of misalignment, Contractor shall have to do end preparation without any extra cost. The quantities mentioned above are tentative.					
10.0	COATING MATERIALS (SUPPLY & APPLICATION)					
	Field LPE Coating ITEM FOR SITE WORKS (Field joints)	SQ.Mtr	100			
10.1	REPAIR OF COATING DEFECTS IN 3 LAYER PE COATING LINE PIPE					
	Supply of all coating repair materials as per requirement of specification, supply of all consumables, utilities, equipments and all manpower required, pipe cleaning and surface preparation, repairing of coating defects and testing including all handling, transportation, etc. for line pipes, performing all works necessary for the completion of the works strictly in accordance with relevant specification and instructions of Engineer -In - Charge. This rate shall be applicable per sq-cm of the exposed steel area.					
11.0	SUPPLY & INSTALLATION OF FIELD INSTRUMENT					
	Supply , Installation of Pressure Gauges and their accessories inclusive of supply of necessary piping materials and all necessary valves & fittings, plugs etc & hydraulic testing ,calibration as per installation standard.					
11.1	Pressure Gauge complete assembly (0-30 kg/cm2)	Nos	4			
11.2	WATER FLOW METER, WITH TOTALIZER 0-100 m3PH	Nos	1			
11.3	Erection , commissioning & installation for above Instruments	As required	1			
12.0	RADIOGRAPHY					
13.0	6" NB	No of Joints	20			
14.0	STRUCTURAL WORKS					
14.1	Pipe Supports & Other Structures					

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	Supply, fabrication and erection of all types of pipe supports like clamps, saddle, guide stops, cradles, turn buckles, anchors, T-posts; stockade/ trestle and pipe bridge for overhead piping; frames for canopy, approach ladders and platforms, crossover, cable tray supports, Crash barrier and Base frame modification of Pump Intake etc. including painting suitable for highly corrosive area as per specification labour and supervision & complete work as per drawings, specifications and instruction of Engineer-in-charge. (Bolts, nuts, washers, U-clamps etc. for supporting shall be supplied by the Contractor within the rates quoted. These items will not be measured and paid separately). The work is to be completed in all respect as per scope of work and specification.	MT	5			
	Notes: i) The quantities indicated are estimated values and hence are approximate. Final payment will be made based on actual quantities to be certified by the Owner. ii) The cost of MS bolts (permanent and service), washers, electrodes, putty, gases, cost of straightening the raw materials, cutting of flats from plates and providing splices, paints, tools, plants etc., as required for the work shall be deemed to be included in the quoted rates. iii) All handling and transport charges of raw materials and fabricated structures including double handling, as required, for completion of work in accordance with time schedule, are deemed to be included in the quoted rates.					
General Note : i) All SOR item shall be quoted by the bidder in the price part of the bid other-wise bid will be rejected. ii) The quantities given above against individual items are indicative and shall not be considered to be binding. The quantities may be increased, decreased or deleted at site at the time of actual execution and as per discretion of Owner / Engineer-in-charge. The unit rate shall be operated to work out the final payment due to Contractor. iii) The payment will be made as per actual certified measurement at site. iv) The scope as mentioned in the SOR is of indicative nature only and shall include all activities as detailed in the relevant clauses of the respective Particular Job Specifications, Technical Specifications, Data Sheets & drawings, etc.						
Total Amount in INR (inclusive of all taxes & duties) Except GST						In Figure:
						In Words:


SCHEDULE OF RATES

FOR TCP & PCP OF U/G STEEL PIPELINE NETWORK FOR CONSTRUCTION WATER SYSTEM AT TFL TALCHER

 पो डी आई एल PDIL	TCP & PCP SCHEDULE OF RATES U/G STEEL PIPELINE NETWORK TFL, TALCHER	PC150/E/103/ P-II/Sec-VII	1	05.07.18	05.07.18	SS	SKB	SKB	1 of 4
		DOCUMENT NO.	REV	REV DT	EFF DT	PREPD	REVWD	APPD	SHEET NO.

GENERAL INSTRUCTIONS TO BIDDER:


1. The schedule of rates is to be read in conjunction with clause No. 8.0 of Technical Specification for Electrical System for Construction Water Pump Station & its attachments and other relevant sections / sub sections of NIT.
2. The rates shall be applicable for all floors, heights and depths.
3. This being an item rate contract, the unit rate shall prevail, correction of errors (if any) shall be done as per clause no. 30 Section III of ITB.
4. Owner/Consultant reserves the right to interpolate or extrapolate the rate for any item, which is not covered in the Schedule of Rates, from the rates available for similar item / work in the Schedule of Rates.
5. Whenever it is mentioned in the specifications that the bidder shall perform certain work or provide certain facilities/materials or certain item or activity is in bidder's scope of services it is understood that the bidder shall do so at his cost within the item rates unless expressly stated otherwise.
6. Unit rates for erection shall inclusive of Unloading from Truck/ Trailer, transportation from store (at site), handling, the cost of labour, supervision, all consumables, cost towards providing erection materials & hardware, necessary tools and tackles, and providing all the required facilities for execution and inspection, testing and commissioning, guarantees etc. Minor repair and touch painting work towards providing all required facilities for execution shall be in bidder's scope.
7. Work shall involve, at every stage, correct identification of all equipment including loose equipment from stores, identifying spare items/ excess items, listing the same and carefully storing them under the custody of the contractor. Information to this extent shall be passed on to the concerned Owner's Engineer-in-charge / owner. Certification of balance items after erection and return to the Owner's Engineer in-charge so assigned.
8. All equipment shall be deemed to have clear tags, descriptive letter writing indicating locations / sources (from - to), cable sizes, circuit no., unit no., and any other writing required to make installation completely informative. All costs in view of above shall be deemed to have been included in installation/ commissioning.
9. *Deleted.*
10. *Deleted.*
11. This being a grass root job, the Contractor must visit TFL, Talcher site to assess the quantum and nature of work before quoting. However, the Contractor shall inform PDIL / TFL, 1 week prior to their visit.

 पो डी आई एल PDIL	TCP & PCP SCHEDULE OF RATES U/G STEEL PIPELINE NETWORK TFL, TALCHER	PC150/E/103/ P-II/Sec-VII	1	05.07.18	05.07.18	SS	SKB	SKB	2 of 4
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12. Quantities mentioned in the Schedule of Rates are indicative and not exhaustive in nature. Payment shall be made as per actual quantity used/certified at site by Owner's Engineer-in-charge
13. Contractor shall indicate the prices as per attached documents. The quantities indicated in Schedule of Rates are estimated quantities and may change during detailed engineering as per site condition.

Quantity of some or all the items may increase or decrease up to any extent at the time of actual execution, for variation in value of contract please refers clause no. 60.2 of GCC.

14. Un-priced Price Schedule indicating the word "Quoted" (with prices blanked out) against each item shall be attached with bid documents for conformity that all the items have been quoted.
15. Owner reserve their right to execute any additional works / extra works, during the execution of Work, either by themselves or by appointing any other agency, even though such works are incidental to and necessary for the completion of works awarded to the Contractor. In the event of such decisions taken by Owner, Contractor is required to extend necessary cooperation, and act as per the instructions of Engineer-in-Charge.
16. Before procurement of any equipment / material, the Contractor shall submit drawing / document, Compliance Statement supported by Product Catalogue for review/ approval. PDIL/TFL shall indicate the quantity of equipment / material to be procured during approval of respective equipment Document
17. Quoted rates shall also cover the cost towards fabrication of steel structure, its painting with two coats of epoxy paint, after surface preparation, at welded joints and surface of steel structure and providing one coat of zinc oxide primer.
18. All GI materials shall have zinc coating of 610 gm/Sq.m at any point on its surface unless indicated otherwise in the schedule of rates.
19. The portion, which is under "HOLD" shown in the approved drawing (if any) or the portion, which would be brought under "HOLD" during execution on account of co-ordinating different activities of other working agencies (if any) shall be taken up by the Bidder to execute only after the said "HOLD" is withdrawn. The bidder on this account shall not be entitled to claim for any extra charge.
20. Quoted rates shall remain firm till completion of work including all extensions granted for any reasons whatsoever.
21. All heavy machinery including Cranes, Hydra, etc for the job of CP works (if required) shall be in the bidder's scope.
22. Bidders are required to undertake all the safety precautions as deemed fit and necessary by statutory authorities and/or CONSULTANT/OWNER and cost towards such safety precautions /measures must be included in the quoted prices.
23. All civil works associated with TCP & PCP are included in the scope of bidder, This shall include but not limited to making of cable trenches wherever required, foundation for all equipment, test station etc.


	TCP & PCP SCHEDULE OF RATES U/G STEEL PIPELINE NETWORK TFL, TALCHER	PC150/E/103/ P-II/Sec-VII	1	05.07.18	05.07.18	SS	SKB	SKB	3 of 4
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Sl. No.	DESCRIPTION	UNIT	QTY	Unit Rate inclusive of all taxes & duties except GST (in Rs.)		Total Amount Inclusive of all taxes & duties except GST (in Rs.)														
				Figure	Words															
1.0	Schedule of Rates For Temporary & Permanent Cathodic Protection System																			
	<p>Basic surveys, Design, Detailed Engineering, Supply, testing at works, transportation on FOT Project site in well packed condition, Storage at site, transportation to work place, Physical verification/ inspection at site, Installation, testing ,commissioning of TCP & PCP system for underground steel pipeline network of 6"dia, 3LPE Coated Pipelines which shall includes but not limited to MMO anodes, Cables, Deep well anode ground beds, TR units, AJB, CJB, Sacrificial Mg anode, Zn ribbon anodes for casing protection, Type A/A1/B/C/D/E/F/G Test Stations, Cu/CuSO4 reference electrode, Spark gap surge diverter with Zinc grounding cell for Monolithic insulating/insulating flange joint, Zinc Grounding Anodes & Solid State Polarisation cell for HT Electric Line Crossing, Thermit Weld Kit along with all accessories for 25/06/10 sq.mm cable to pipe connection including all work labour, materials, hardwares, civil masonry & structural materials. Scope shall also include Supply of tools and equipments for Erection, Pre commissioning & Commissioning activities, Supply of Mandatory Spares etc.</p> <p>Further scope shall also includes Post Commissioning CP surveys like CIPL, DCVG, AC/DC interference detection & mitigation Survey etc, supply and installation of mitigative measures in order to achieve adequate level of protection as per NACE criteria, TCP system monitoring for 24 weeks from date of commissioning of TCP, Monitoring of complete PCP for 3 month from date of commissioning, complete with all work, labour, materials, hardware, civil masonry & structural materials. Above activities shall be as per Technical Specification for Electrical System (PC150/E/103/P-II/5.0) and its attachments Technical Specification - Cathodic Protection Power Supply Module (CPPSM) (PC150-TS-0817), Technical Specification - Cathodic Protection Transformer Rectifier Unit (PC150-TS-0818), Technical Specification - Impressed Current Cathodic Protection System (PC150-TS-0819), drawings and instruction of Owner's Engineerin-charge.</p>																			
a)	<table border="0"> <tr> <td>Specified Size (inch)</td> <td>Thk (inch)</td> <td>Material</td> <td>Coating Type</td> <td></td> <td></td> <td></td> </tr> <tr> <td>6"</td> <td>HEVY</td> <td>IS 1239 ERW</td> <td>3LPE,COATING</td> <td>Mtrs</td> <td>13000</td> <td></td> </tr> </table>	Specified Size (inch)	Thk (inch)	Material	Coating Type				6"	HEVY	IS 1239 ERW	3LPE,COATING	Mtrs	13000						
Specified Size (inch)	Thk (inch)	Material	Coating Type																	
6"	HEVY	IS 1239 ERW	3LPE,COATING	Mtrs	13000															

	TCP & PCP SCHEDULE OF RATES U/G STEEL PIPELINE NETWORK TFL, TALCHER	PC150/E/103/ P-II/Sec-VII	1	05.07.18	05.07.18	SS	SKB	SKB	4 of 4
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SCHEDULE OF RATES


ELECTRICAL WORKS (SUPPLY & ERECTION) FOR CONSTRUCTION WATER PUMP STATION AT TFL TALCHER

 पो डी आई एल PDIL	ELECTRICAL SCHEDULE OF RATES CONSTRUCTION WATER PUMP STATION TFL, TALCHER	PC150/E/103/P-II/Sec-VII	1	05.07.18	05.07.18	SS	SKB	SKB	1 of 21
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ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE Unit Rate inclusive of all taxes & duties except GST (in Rs.)		TOTAL AMOUNT Inclusive of all taxes & duties except GST (in Rs.)
				FIGURE	WORDS	


GENERAL INSTRUCTIONS TO BIDDER:

1. The Schedule of Rates is to be read in conjunction with Technical Specification for Electrical System for Construction Water Pump Station & its attachments and other relevant sections / sub sections of NIT.
2. The rates shall be applicable for all floors, heights and depths.
3. This being an item rate contract, the unit rate shall prevail, correction of errors (if any) shall be done as per clause no. 30 Section III of ITB.
4. Owner/Consultant reserves the right to interpolate or extrapolate the rate for any item, which is not covered in the Schedule of rates, from the rates available for similar item / work in the Schedule of Rates.
5. Whenever it is mentioned in the specifications that the bidder shall perform certain work or provide certain facilities/materials or certain item or activity is in bidder's scope of services it is understood that the bidder shall do so at his cost within the item rates unless expressly stated otherwise.
6. Unit rates for erection shall inclusive of Unloading from Truck/ Trailer, transportation from store (at site), handling, the cost of labour, supervision, all consumables, cost towards providing erection materials & hardware, necessary tools and tackles, and providing all the required facilities for execution and inspection, testing and commissioning, guarantees etc. Minor repair and touch painting work towards providing all required facilities for execution shall be in bidder's scope.
7. Work shall involve, at every stage, correct identification of all equipment including loose equipment from stores, identifying spare items/ excess items, listing the same and carefully storing them under the custody of the contractor. Information to this extent shall be passed on to the concerned Owner's Engineer-in-charge / owner. Certification of balance items after erection and return to the Owner's Engineer in-charge so assigned.
8. All equipment shall be deemed to have clear tags, descriptive letter writing indicating locations / sources (from - to), cable sizes, circuit no., unit no., and any other writing required to make installation completely informative. All costs in view of above shall be deemed to have been included in installation/ commissioning.

	ELECTRICAL SCHEDULE OF RATES CONSTRUCTION WATER PUMP STATION TFL, TALCHER	PC150/E/103/P-II/Sec-VII	1	05.07.18	05.07.18	SS	SKB	SKB	2 of 21
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ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE Unit Rate inclusive of all taxes & duties except GST (in Rs.)		TOTAL AMOUNT Inclusive of all taxes & duties except GST (in Rs.)
				FIGURE	WORDS	

9. All primary & secondary injection tests & testing of relays and other equipment as per relevant IS, code of practice for testing and commissioning shall be deemed to have been included for testing & commissioning. No extra charges shall be provided for that. Testing of motors, including re-greasing, and at least 4 hour run shall be included in the motor testing & commissioning.
10. Deleted.
11. Deleted.
12. This being a grass root job, the Contractor must visit TFL, Talcher site to assess the quantum and nature of work before quoting. However, the Contractor shall inform PDIL / TFL, 1 week prior to their visit.
13. Deleted.
14. Quantities mentioned in the Schedule of Rates are indicative and not exhaustive in nature. Payment shall be made as per actual quantity used/certified at site by Owner's Engineer-in-charge.
15. Contractor shall indicate the prices of all electrical items as per attached documents. The quantities indicated in Schedule of Rates are estimated quantities and may change during detailed engineering as per site condition.
Quantity of some or all the items may increase or decrease up to any extent at the time of actual execution, for variation in value of contract please refers clause no. 60.2 of GCC.
16. Un-priced Price Schedule indicating the word "Quoted" (with prices blanked out) against each item shall be attached with bid documents for conformity that all the items have been quoted.
17. Owner reserve their right to execute any additional works / extra works, during the execution of Work, either by themselves or by appointing any other agency, even though such works are incidental to and necessary for the completion of works awarded to the Contractor. In the event of such decisions taken by Owner, Contractor is required to extend necessary cooperation, and act as per the instructions of Engineer-in-Charge.
18. Before procurement of any equipment / material, the Contractor shall submit drawing / document, Compliance Statement supported by Product Catalogue for review/ approval. PDIL/TFL shall indicate the quantity of equipment / material to be procured during approval of respective equipment Document.
19. Quoted rates shall also cover the cost towards fabrication of steel structure, its painting with two coats of epoxy paint, after surface preparation, at welded joints and surface of steel structure and providing one coat of zinc oxide primer.

 ELECTRICAL SCHEDULE OF RATES CONSTRUCTION WATER PUMP STATION TFL, TALCHER	PC150/E/103/P-II/Sec-VII	1	05.07.18	05.07.18	SS	SKB	SKB	3 of 21
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ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE Unit Rate inclusive of all taxes & duties except GST (in Rs.)		TOTAL AMOUNT Inclusive of all taxes & duties except GST (in Rs.)
				FIGURE	WORDS	

20. All GI materials shall have zinc coating of 610 gm/Sq.m at any point on its surface unless indicated otherwise in the schedule of rates.
21. The portion, which is under "HOLD" shown in the approved drawing (if any) or the portion, which would be brought under "HOLD" during execution on account of co-ordinating different activities of other working agencies (if any) shall be taken up by the Bidder to execute only after the said "HOLD" is withdrawn. The bidder on this account shall not be entitled to claim for any extra charge.
22. Quoted rates shall remain firm till completion of work including all extensions granted for any reasons whatsoever.
23. All heavy machinery including Cranes, Hydra, etc for the job (if required) shall be in the bidder's scope.
24. Bidders are required to undertake all the safety precautions as deemed fit and necessary by statutory authorities and/or CONSULTANT/OWNER and cost towards such safety precautions /measures must be included in the quoted prices.
25. Bidders are required to undertake all the safety precautions as deemed fit and necessary by statutory authorities and/or CONSULTANT/OWNER and cost towards such safety precautions /measures must be included in the quoted prices


	ELECTRICAL SCHEDULE OF RATES CONSTRUCTION WATER PUMP STATION TFL, TALCHER	PC150/E/103/P-II/Sec-VII	1	05.07.18	05.07.18	SS	SKB	SKB	4 of 21
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ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE Unit Rate inclusive of all taxes & duties except GST (in Rs.)		TOTAL AMOUNT Inclusive of all taxes & duties except GST (in Rs.)
				FIGURE	WORDS	


1.	Diesel Generator Set (DG Set)					
1.1	Supply of 200 KVA, 415 V DG Set with all accessories, as specified in Technical Specification PC150/E/103/P-II/Sec 5.0. This DG shall be capable of starting and running 1 No. Motor plus all lighting and other load as well. In case bidder envisage higher rating of DG set , bidder shall quote for higher rating also in addition to 200 KVA rating DG. <i>Bidder shall indicate Fuel consumption at 100% load (litre/hour) as per data sheet/declaration of the original diesel engine manufacturer only, i.e. Cummins / Kirloskar Oil Engine Ltd. / Greaves Cotton / Volvo / Caterpillar and not the dealer.</i>	No.	1			
1.2	Handling, Installation, Testing and Commissioning of 200 KVA, 415 V DG Set including transportation, dressing of foundation, placing in position on M S base channel / flat, assembly of all accessories supplied loose, all labour and material complete as per drawings / specification and direction of the DG manufacturer / Owner's Engineer-in-charge. In case bidder envisage higher rating of DG set , bidder shall quote for higher rating also in addition to 200 KVA rating DG.	No.	1			
2.	LOCAL CONTROL STATION (LCS)					
2.1	Supply of Weather Proof Local Control Station of following type, as specified in Technical Specification PC150/E/103/P-II/Sec 5.0.					
A.	LCS with Trip-Neutral-Close control switch with Ammeter & 3 nos. indication lamp.	Nos.	2			

	ELECTRICAL SCHEDULE OF RATES CONSTRUCTION WATER PUMP STATION TFL, TALCHER	PC150/E/103/P-II/Sec-VII	1	05.07.18	05.07.18	SS	SKB	SKB	5 of 21
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ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE Unit Rate inclusive of all taxes & duties except GST (in Rs.)		TOTAL AMOUNT Inclusive of all taxes & duties except GST (in Rs.)
				FIGURE	WORDS	
2.2	Installation, testing and commissioning of weather proof Local control stations of following type, including shifting of control stations from store to the site of erection, fixing control stations with nuts & bolts, on already erected supports / nearby structure / walls etc. connecting control cable for control switch , ammeter & Indication lamp as required and testing to make the installation complete in all respect as per approved drawings, specifications and direction of Owner's Engineer-in-charge. Supply of all required hardware for mounting shall be in Contractor's scope.	Nos.	2			
A.	LCS with Trip-Neutral-Close control switch with Ammeter & 3 nos. indication lamp	Nos.	2			
3.	INTER LOCKED TYPE SW SOCKET & PLUG					
3.1	Supply of Heavy duty Hoseproof & Weather proof interlocking Switch Socket having enclosure with IP-65 degree of protection with matching Plug of following type as specified in Technical Specification PC150/E/103/P-II/Sec 5.0.					
A.	63A, 5-pin, 415V (Weather Proof)	Nos.	1			
B.	25A, 3 pin, 240V (Weather Proof)	Nos.	2			
3.2	Installation, testing and commissioning of interlocked type switch sockets with matching plugs complete with cable glands, lugs, terminal blocks etc. of following ratings:					
A.	63A, 5-pin, 415V (Weather Proof)	Nos.	1			
B.	25A, 3 pin, 240V (Weather Proof)	Nos.	2			
4.	415 V Switchboard					
4.1	Supply of 415V, 3 Ph & N, ,50kA for 1 Sec, Single front 415 V Switchboard complete in all respect, as specified in Technical Specification	No.	1			

	ELECTRICAL SCHEDULE OF RATES CONSTRUCTION WATER PUMP STATION TFL, TALCHER	PC150/E/103/P-II/Sec-VII	1	05.07.18	05.07.18	SS	SKB	SKB	6 of 21
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ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE Unit Rate inclusive of all taxes & duties except GST (in Rs.)		TOTAL AMOUNT Inclusive of all taxes & duties except GST (in Rs.)
				FIGURE	WORDS	
	PC150/E/103/P-II/Sec 5.0 and its attachments Single Line Diagram – 415 V Switchboard (Drg No. PC150-7111A-0985) and Component rating for Star/Delta Starter (Doc. No. PC150-1207).					
4.2	Installation, testing and commissioning of 415 V switch board, free standing, floor mounting, cubicle type, including transportation, assembly, mounting, fixing and wiring of loose components like relays/meters, interconnection of shipping sections and inter panel wiring as necessary, inter bus bar jointing and earthing, operational and functional checking, installation on foundation including levelling and aligning, supply of foundation nuts and bolts, drilling of gland plates with requisite holes, fixing of cable glands supplied loose, plugging of all unused cable entries and other holes found in switch boards for making the same dust and vermin proof with all labour and materials to make the installation complete as per approved drawings, technical specifications and direction of Owner's Engineer-in-charge. Job shall include rigidly fixing the frame including grouting, if necessary	No.	1			
5.	Motors					
5.1	Testing and commissioning of 3-Phase, Squirrel Cage, Weatherproof Induction Motors of following ratings excluding cable glanding, cable termination, dehydration of windings but including checking & replenishment/ replacement of bearing grease/ lubricant; checking of IR values between each winding & motor frame & checking of continuity of rotation, if required, by changing supply connections; trial runs on NO LOAD & ON LOAD; supply of approved grease/ lubricant & necessary hardware; all work, labour & materials complete as per specifications, documents, codes & standards & directions of Owner's Engineer-in-charge. (Contractor to keep proper record of tests on motors for NO LOAD & ON LOAD runs).					
A	415 V Motors of Rating above 75 KW	Nos.	2			

	ELECTRICAL SCHEDULE OF RATES CONSTRUCTION WATER PUMP STATION TFL, TALCHER	PC150/E/103/P-II/Sec-VII	1	05.07.18	05.07.18	SS	SKB	SKB	7 of 21
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ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE Unit Rate inclusive of all taxes & duties except GST (in Rs.)		TOTAL AMOUNT Inclusive of all taxes & duties except GST (in Rs.)
				FIGURE	WORDS	
6.	Cables					
6.1	Supply of 1.1 KV Grade, XLPE Insulated, PVC inner Sheath, Armoured, FRLS PVC outer sheathed cables LT Power & Control Cable / Earthing cable as specified in Technical Specification PC150/E/103/P-II/Sec 5.0.of following sizes					
A.	3.5 C x 240 sqmm (Al)	Mtrs	100			
B.	3 C x 185 sqmm (Al)	Mtrs	200			
C.	3.5 C x 50 sqmm (Al)	Mtrs	100			
D.	3 C x 2.5 sqmm (Cu)	Mtrs	600			
E.	12 C x 2.5 sqmm (Cu)	Mtrs	100			
F.	1C x 10 Sqmm (Al) Earthing Cable	Mtrs.	40			
6.2	Horizontal and vertical laying, testing (before and after laying) and commissioning of above LV Power & Control cables in readymade trenches, on pre-fabricated cable trays / racks, on already installed risers, support hangers, saddles etc. pulling through pipes on walls / columns, steel structures including transportation, including supply and fixing of necessary saddles, saddle bars, cable tags, Al clamps for cables laid vertical on walls / columns / structures, risers with all labour, consumable materials and necessary hardware to make installation complete in all respect as per approved standard drawings and direction of Owner's Engineer-in-charge. This also includes drilling, taping of cable insulation, crimping of lugs to the conductor, connection of the lugs to equipment terminal, supply and fixing of G.I. nuts, screws, bolts, washers and other necessary hardware, PVC tape of required grade for taping, making cable entries dust and vermin proof, earthing etc. as per instruction of manufacturer, approved drawings, specifications and directions of Owner's Engineer-in-charge.					


	ELECTRICAL SCHEDULE OF RATES CONSTRUCTION WATER PUMP STATION TFL, TALCHER	PC150/E/103/P-II/Sec-VII	1	05.07.18	05.07.18	SS	SKB	SKB	8 of 21
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ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE Unit Rate inclusive of all taxes & duties except GST (in Rs.)		TOTAL AMOUNT Inclusive of all taxes & duties except GST (in Rs.)
				FIGURE	WORDS	
A.	3.5 C x 240 sqmm (Al)	Mtrs	100			
B.	3 C x 185 sqmm (Al)	Mtrs	200			
C.	3.5 C x 50 sqmm (Al)	Mtrs	100			
D.	3 C x 2.5 sqmm (Cu)	Mtrs	600			
E.	12 C x 2.5 sqmm (Cu)	Mtrs	100			
F.	1C x 10 Sqmm (Al) Earthing Cable	Mtrs.	40			
6.3	Supply of heavy duty Industrial double compression ET Thread rolled Aluminum cable glands suitable for 1.1 KV Grade, XLPE Insulated, PVC inner Sheath, armoured, FRLS PVC outer sheathed cables of the following sizes of cables as specified in Technical Specification Doc. No. PC150/E/103/P-II/Sec 5.0. of following sizes.					
A.	3.5 C x 240 sqmm (Al)	Nos.	5			
B.	3 C x 185 sqmm (Al)	Nos.	10			
C.	3.5 C x 50 sqmm (Al)	Nos.	5			
D.	3 C x 2.5 sqmm (Cu)	Nos.	50			
E.	12 C x 2.5 sqmm (Cu)	Nos.	5			
6.4	Supply of Tinned Copper / Aluminum crimping type lugs of following sizes for termination of 1.1 kV grade cables.					
A.	240 sqmm (Al)	Nos.	12			
B.	185 sqmm (Al)	Nos.	24			
C.	120 sqmm (Al)	Nos.	4			
D.	50 sqmm (Al)	Nos.	12			
E.	25 sqmm (Al)	Nos.	4			
F.	10 sqmm (Al)	Nos.	10			
G.	2.5 sqmm (Cu)	Nos.	150			
6.5	End termination and subsequent testing of XLPE/PVC insulated single core / multi core armoured Cables of 1.1 KV grade, Al / Cu cable using suitable					


 PDIL	ELECTRICAL SCHEDULE OF RATES CONSTRUCTION WATER PUMP STATION TFL, TALCHER	PC150/E/103/P-II/Sec-VII	1	05.07.18	05.07.18	SS	SKB	SKB	9 of 21
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				FIGURE	WORDS	
	excluding supply of glands & lugs but including Glanding, all labour and consumable materials to make installation complete in all respect. The rate shall include drilling, taping of cable insulation, crimping of lugs to the conductor, connection of the lugs to equipment terminal, supply and fixing of G.I. nuts, screws, bolts, washers and other necessary hardware, PVC tape of required grade for taping, making cable entries dust and vermin proof, earthing etc. as per instruction of manufacturer, approved drawings, specifications and directions of engineer-in-charge.					
A.	3.5 C x 240 sqmm (Al)	Nos.	4			
B.	3 C x 185 sqmm (Al)	Nos.	8			
C.	3.5 C x 50 sqmm (Al)	Nos.	4			
D.	3 C x 2.5 sqmm (Cu)	Nos.	40			
E.	12 C x 2.5 sqmm (Cu)	Nos.	4			
7.	CABLE RACK (PREFABRICATED LADDER TYPE GI CABLE TRAYS) & ACCESSORIES					
7.1	Supply of GI ladder type Cable trays and their accessories i.e. coupling plate etc. As required, as per Technical Specification PC150/E/103/P-II/Sec 5.0. <i>This include Cable Trays straight run, horizontal bends, vertical (inside/outside) bends, Tees. Reducer, Cross etc.</i>	Lumpsum	1			
7.2	Installation, laying and connecting of above pre-fabricated ladder type GI cable trays and horizontal & vertical bends and regular Tees of different radii of various sizes on already erected supports or risers, including joining various cable trays by bolting with G.I. bolts, nuts & washers as per approved drawings (including fixing J-hooks, reducer coupler plate, adjustable coupler plate) as per the desired cable route and as per the drawings and directions of Owner's Engineer-in-charge. Job also includes	Lumpsum	1			


 ELECTRICAL SCHEDULE OF RATES CONSTRUCTION WATER PUMP STATION TFL, TALCHER	PC150/E/103/P-II/Sec-VII	1	05.07.18	05.07.18	SS	SKB	SKB	10 of 21
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ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE Unit Rate inclusive of all taxes & duties except GST (in Rs.)		TOTAL AMOUNT Inclusive of all taxes & duties except GST (in Rs.)				
				FIGURE	WORDS					
	supply of all hardware required i.e. J-hooks, GI Nut, Bolt, Washers etc.									
8.	DISTRIBUTION BOARDS									
8.1	Supply of 415 V Lighting sub Distribution Board 12-way wall mounted Sheet enclosed Hose & Weather Proof Lighting Sub Distribution Board in IP55 degree of protection having 1 No. Incoming (63 A TP & Switched Neutral Isolator switch) and 3nos feeder circuit of 63A DP MCB having 12 Nos. outgoing of 16 A DP MCB (i.e. 4 nos. 16 A DP MCB per circuit), as specified in Technical Specification PC150/E/103/P-II/Sec 5.0 .	No.	1							
8.2	Installation, testing and commissioning of 415 V, 12 way wall mounted Lighting sub Distribution Boards including supply and fabrication of epoxy painted MS frame, operational and functional checking, drilling of gland plates with requisite holes, fixing of cable glands, plugging of all unused cable entries and other holes found in the boards to make the same dust and vermin proof with all labour and consumable materials to make installation complete as per approved drawings, specifications and directions of engineer-in-charge.	No.	1							
9.	LIGHTING FIXTURES & ACCESSORIES									
9.1	Supply of Lighting Fixtures & Accessories									
A.	240V AC,1-Ph, hose and weather proof Lighting fixtures with integral control gear box and lamps suitable for use in safe area having IP-65 degree of protection complete with all accessories and all hardware for fixing the lighting fittings with ceiling / wall / pole/ frame of following types as specified in Technical Specification Doc. No. PC150/E/103/P-II/Sec 5.0 .									
i.	250 W HPSV Flood lighting fixtures	Nos.	7							
ii.	45 W LED Lighting Fixtures.	Nos.	7							
B.	240V 1-ph suspension/ wall mounted T5 type LED Lighting Fixture with/									
	ELECTRICAL SCHEDULE OF RATES CONSTRUCTION WATER PUMP STATION TFL, TALCHER	PC150/E/103/P-II/Sec-VII	1	05.07.18	05.07.18	SS	SKB	SKB	11 of 21	
		DOCUMENT NO.	REV	REV DT	EFF DT	PREPD	REVWD	APPD	SHEET NO.	


ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE Unit Rate inclusive of all taxes & duties except GST (in Rs.)		TOTAL AMOUNT Inclusive of all taxes & duties except GST (in Rs.)
				FIGURE	WORDS	
	without reflector having IP20 Protection					
i.	2 x 20 W LED Philips make suspension mounted Lighting Fixture with vitreous enameled reflector type fixture and lamps.	Nos.	15			
9.2	Installation, connection, testing and commissioning of pre-wired fluorescent/ LED/ HPMV / Sodium vapour Lighting fixtures along with integral /non-integral control gears, lamps, tubes, chokes, starters, condensers, mounting accessories, including cable glanding, crimping of lugs on cable conductor & connecting cables at fixtures, earthing, junction boxes, etc. including supply of all connecting materials like clamps, supports, conduits, down rods etc. as required as well as transportation from store to site of erection with all labour and material to make installation complete in all respect as per approved drawings, specifications and directions of engineer-in-charge. The rates shall be valid for all mounting heights.					
i.	250 W HPSV Hose proof & weather proof Streetlight fixtures with separate control gear complete with weatherproof cable glands, plug suitable for 3 X 2.5 mm ² XLPE-A-PVC cable and stopping plug.	Nos.	7			
ii.	45 W LED Hose proof & weather proof Street Lighting Fixture complete with weatherproof cable glands, plug suitable for 3 X 2.5 mm ² XLPE-A-PVC cable and stopping plug.and installation of suspension rod and other mounting accessories	Nos.	7			
iii.	2x20 W LED recess/suspended mounting FTL type Lighting Fixture including supply and installation of mounting accessories.	Nos.	15			
10.	JUNCTION BOXES					
10.1	Supply of 25A, 230V, 1Ph & N 4 Way type hose proof & weatherproof Junction Boxes in cast aluminium (LM6) enclosure with IP-65 degree of protection and suitable for 3Cx2.5 sq.mm(Cu) cable with cable glands, terminal blocks and threaded plug of suitable size for easy termination of	Nos.	12			

	ELECTRICAL SCHEDULE OF RATES CONSTRUCTION WATER PUMP STATION TFL, TALCHER	PC150/E/103/P-II/Sec-VII	1	05.07.18	05.07.18	SS	SKB	SKB	12 of 21
		DOCUMENT NO.	REV	REV DT	EFF DT	PREPD	REVWD	APPD	SHEET NO.


ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE Unit Rate inclusive of all taxes & duties except GST (in Rs.)		TOTAL AMOUNT Inclusive of all taxes & duties except GST (in Rs.)
				FIGURE	WORDS	
	cables and as specified in Technical Specification - Electrical System (Doc. No. PC150/E/103/P-II/Sec 5.0, Rev. 0).					
10.2	Installation, connection, testing and commissioning of 25A, 230V, 1Ph & N 4 Way type hose proof & weatherproof Junction Boxes, including cable glanding, crimping of lugs on cable conductor & connecting cables, earthing etc. including supply of all connecting materials like clamps, supports etc. as required as well as transportation from store to site of erection with all labour and material to make installation complete in all respect as per approved drawings, specifications and directions of engineer-in-charge. The rates shall be valid for all mounting heights.	Nos.	12			
11.	PLANT LIGHTING POLES					
11.1	Supply of hot dip galvanized MS tubular swaged lighting poles of following types suitable for wind velocity of 150 Km/Hr and along with suitable pole junction box.					
A.	5m. high ground mounted poles	Nos.	7.			
11.2	Erection and commissioning of following hot dipped galvanised mild steel tubular swaged lighting poles including transportation of required items from owner's issue point to site and installation of poles, junction box, supply of requisite cable glands and tinned copper lugs, cable termination, necessary hardware required for excavation, providing concrete foundation (ratio of cement : sand : stone chips = 1:2:4) for ground installation, disposal of surplus earth within 30 m lead, earthing and painting with all labour to make installation complete in all respect as per instruction and directions of engineer-in-charge.					
A.	5m. high ground mounted poles	Nos.	7			
12.	EARTHING MATERIAL					

	ELECTRICAL SCHEDULE OF RATES CONSTRUCTION WATER PUMP STATION TFL, TALCHER	PC150/E/103/P-II/Sec-VII	1	05.07.18	05.07.18	SS	SKB	SKB	13 of 21
		DOCUMENT NO.	REV	REV DT	EFF DT	PREPD	REVWD	APPD	SHEET NO.


ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE Unit Rate inclusive of all taxes & duties except GST (in Rs.)		TOTAL AMOUNT Inclusive of all taxes & duties except GST (in Rs.)
				FIGURE	WORDS	
12.1	Supply of 3.8M, 100mm dia. heavy G.I. Pipe earth electrode having 100 micron zinc coating for earthing as per Technical Specification - Electrical System (Doc. No. PC150/E/103/P-II/Sec 5.0, Rev. 0). The hot dip galvanizing (minimum Zinc coating of 610 gms/ sq. M as per IS-2629) shall be done after all fabrication. The electrodes shall be made from one piece length of pipe	Nos.	8			
12.2	Installation, testing and commissioning of earth pits as per earthing layout drawings (excluding supply of safe earth electrodes & accessories) including digging the earth upto required depth, erecting safe earth electrode, disposal of surplus earth (as directed by engineer-in-charge) and back filling of the pit as required including supply of erection material providing necessary brick works and other civil works, fixing G.I. L-shaped test links and brackets, twisted piece and connecting to it earth electrodes and earth strips with all labour and materials to complete installation work in all respect as per approved drawings, specifications and directions of engineer-in-charge	Nos.	8			
12.3	Supply of G.I. Earth Bus (50mm x 12mm x 390mm), with 10 Nos earthing holes and as per PDS: E 615 enclosed.	Nos.	10			
12.4	Installation and commissioning of hot dip galvanised earth bus bar of size 360 mm x 75 mm x 10 mm with 10 holes of 14 mm dia including all labour and materials to complete installation in all respect as per approved drawings, specifications and directions of Owner's Engineer-in-charge.	Nos.	10			
12.5	Supply of hot dip galvanized (minimum Zinc coating of 610 gms / sq. M as per IS-2629) Earthing strip / earth wire of the following sizes :					
A.	75mm X10mm	Mtrs.	250			
B.	50mm X 6mm	Mtrs.	100			
12.6	Installation, testing and commissioning of Hot dip galvanised G.I. earthing strip running on O.H. cable trays / cable trays in underground cable					

	ELECTRICAL SCHEDULE OF RATES CONSTRUCTION WATER PUMP STATION TFL, TALCHER	PC150/E/103/P-II/Sec-VII	1	05.07.18	05.07.18	SS	SKB	SKB	14 of 21
		DOCUMENT NO.	REV	REV DT	EFF DT	PREPD	REVWD	APPD	SHEET NO.


ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE Unit Rate inclusive of all taxes & duties except GST (in Rs.)		TOTAL AMOUNT Inclusive of all taxes & duties except GST (in Rs.)
				FIGURE	WORDS	
	trenches / buried under soil in already excavated cable trenches of depth 600mm or supported by G.I. saddles & saddle bars as mentioned below including interconnection between different earth pits, strip / cable for connection to various equipments & system neutral, necessary hardware for connection and interconnection between earth bus bars including all labour and miscellaneous materials to make installations complete in all respect as per approved drawings, specifications, instructions and directions of engineer-in-charge.					
A.	75mm X10mm	Mtrs.	250			
B.	50mm X 6mm	Mtrs.	100			
12.7	Supply of GI Links for Earth Pit Connections	Nos.	8			
13.	MS Structure					
13.1	Supply of MS structurals in channels, angles, flats, plates, rods etc. conforming to IS: 226.	MT	1			
13.2	Fabrication and installation of MS frame supports and brackets for various equipment base frame, miscellaneous electrical equipment support, made of channels, angles, flats etc. of different sections including bolting, welding, riveting, supply of necessary anchor bolts and grouting etc. including 2 coats of zinc rich anti-rust epoxy primer and 2 finished coats of epoxy paint including breaking wall, floor etc. and making good the same with all labour and consumable materials to complete installation in all respect as per approved drawings , specifications and directions of Owner's Engineer-in-charge	MT	1			
13.3	Supply of 8 mm thick MS Chequered plates.	MT	0.2			
13.4	Fabrication and Installation of 8mm thick chequered plate in flooring, steps, covers over cable trenches in switch board room, painting with one coats of bitumen paint in the 50% thinner with two coats of black bitumen paints	MT	0.2			

	ELECTRICAL SCHEDULE OF RATES CONSTRUCTION WATER PUMP STATION TFL, TALCHER	PC150/E/103/P-II/Sec-VII	1	05.07.18	05.07.18	SS	SKB	SKB	15 of 21
		DOCUMENT NO.	REV	REV DT	EFF DT	PREPD	REVWD	APPD	SHEET NO.


ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE Unit Rate inclusive of all taxes & duties except GST (in Rs.)		TOTAL AMOUNT Inclusive of all taxes & duties except GST (in Rs.)
				FIGURE	WORDS	
	including supply of all consumables and paints.					
14.	G.I.					
14.1	Supply of G. I. pipes; Medium Class as per IS 1239 (part-1) of following sizes :					
A.	25 mm NB	Mtrs.	50			
B.	50 mm NB	Mtrs.	50			
C.	100 mm NB	Mtrs.	20			
D.	150 mm NB	Mtrs.	5			
E.	200 mm NB	Mtrs.	5			
14.2	Installation of G.I. pipes of following sizes for cable protection, floor sleeves etc. fixed on a steel structure, concrete, laid in trenches including concrete cutting, bending, threading etc. to a clamp, nuts, bolts sockets, reducers, spacers, plug, bushing, chipping of concrete floor, breaking of concrete cable trench, walls and complete with all labour and material as per directions of engineer-in-charge.					
A.	25 mm NB	Mtrs.	50			
B.	50 mm NB	Mtrs.	50			
C.	100 mm NB	Mtrs.	20			
D.	150 mm NB	Mtrs.	5			
E.	200 mm NB	Mtrs.	5			
15.	CABLE TRENCH MATERIAL & ACCESSORIES					
15.1	Supply of Fine river sand and Class B 9"x 4.5" x 3" bricks for cable trenches, as required.	Lumpsum	1			
15.2	Excavation of soft soil and back filling of trenches for cables and earth strips etc. following types of soil except rocks for a maximum depth of 1.25 m for cables / 0.6 mtr. for earth strips including shoring, strutting, dewatering,	Lumpsum	1			

	ELECTRICAL SCHEDULE OF RATES CONSTRUCTION WATER PUMP STATION TFL, TALCHER	PC150/E/103/P-II/Sec-VII	1	05.07.18	05.07.18	SS	SKB	SKB	16 of 21
		DOCUMENT NO.	REV	REV DT	EFF DT	PREPD	REVWD	APPD	SHEET NO.


ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE Unit Rate inclusive of all taxes & duties except GST (in Rs.)		TOTAL AMOUNT Inclusive of all taxes & duties except GST (in Rs.)
				FIGURE	WORDS	
	consolidation and disposal of surplus earth upto 100 m leads including all labour and materials to complete installation in all respect.					
15.3	Spreading of approved fine river sand approved first class bricks of 4 inch thickness in cable trenches and including all labour and materials to make the installation complete in all respect as per approved drawings, specifications and directions of Owner's Engineer-in-charge.	Lumpsum	1			
16.	MISCELLANEOUS ITEMS					
16.1	Supply of 415 Volts Caution boards / dangers boards written in ENGLISH, HINDI & Oriya as per IS 2551 :	Nos.	2			
16.2	Fixing of 415 Volts Caution boards / dangers boards written in ENGLISH, HINDI & Oriya.	Nos.	2			
16.3	Supply of Shock treatment chart conforming to Indian Electricity Rules in Aluminum frame with glass.	No.	1			
16.4	Fixing of shock treatment chart written in English, Hindi and Local language duly framed and approved by engineer-in-charge.	No.	1			
16.5	Supply of Do & Don't chart as per Indian Electricity Rules in Aluminum frame with glass.	No.	1			
16.6	Fixing of Do & Don't chart as per Indian Electricity Rules in Aluminum frame with glass.	No.	1			
16.7	Supply of fire retardant / extinguishing Elect. Insulated Synthetic Mat suitable for all voltages not exceeding 3.3 KV System (with L.T. Trolley movement) Electrically insulated PVC synthetic sheet having nominal thickness of 2.0mm +/-10% along with suitable Resin/ Chemical bound (Hardener)/ Adhesive /Pigment/ PVC Strip etc & having minimum current leakage as per IS with dielectric strength test at 22KV, breakdown strength of 30KV and without adverse effect of mineral oil, high insulation resistance (min. 600 Mega ohm per Km.) including material for water proofing of floor	Mts.	10			

	ELECTRICAL SCHEDULE OF RATES CONSTRUCTION WATER PUMP STATION TFL, TALCHER	PC150/E/103/P-II/Sec-VII	1	05.07.18	05.07.18	SS	SKB	SKB	17 of 21
		DOCUMENT NO.	REV	REV DT	EFF DT	PREPD	REVWD	APPD	SHEET NO.


ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE Unit Rate inclusive of all taxes & duties except GST (in Rs.)		TOTAL AMOUNT Inclusive of all taxes & duties except GST (in Rs.)
				FIGURE	WORDS	
	& sealing of all joints having Min. width of 1000 mm ± 20mm. Mats shall conform to BIS: DOC NO. ET-02 (5440) Dt.30/04/04, meet requirements of IS 15652:2006, 5216 (part-1, 2&3), IS 8437, IS 3043 & IEC 479 Pub-1 & tested for Tensile/ Elongation properties, Insulation Resistance, effects of Acid Alkaline Diesel & Transformer Oil, Leakage Current Test, Fire Test etc.					
16.8	Fixing of above synthetic insulating mats in front of 415 V Switchboard and LSDB as per directions of engineer-in-charge including supply of all consumables for fixing.	Mts.	10			
16.9	Supply of Cable route markers of Round shape made of MS of dia 200mm with suitable engraving as of LT/ Control/ Data Cable jointed with angle of 30X30X5 mm grouted in concrete of size 150mm x150mm x 500mm.	No.	1			
16.10	Grouting and Installation of Cable Route Marker	No.	1			
16.11	Supply of 240V, 1-Ph, 50Hz, 1400mm sweep high speed ceiling fan with electronic regulator.	Nos.	2			
16.12	Installation , testing and commissioning of 240V, 1-Ph, Wall Mounting Fans/ Exhaust Fans/ Ceiling Fans (with Electronic Regulator)/ Man Cooler Fans etc on wall/ Ceiling/ Steel Structure including supply, fabricating and grouting of MS Frame/ Hooks and other hardware etc.	Nos.	2			
16.13	Supply of 240V room lighting boards along with required wiring (concealed in PVC conduit / on wall) having following features:- 1no Switch & Socket for 5 / 15 Amp 2nos 5 Amp switches with regulators for ceiling Fan 4 nos 5 Amp switches for lighting	Nos.	2			
16.14	Installation, testing and commissioning of 240V room lighting boards along with required wiring (concealed in PVC conduit / on wall) having following features:- 1no Switch & Socket for 5 / 15 Amp	Nos.	2			

 ELECTRICAL SCHEDULE OF RATES CONSTRUCTION WATER PUMP STATION TFL, TALCHER	PC150/E/103/P-II/Sec-VII	1	05.07.18	05.07.18	SS	SKB	SKB	18 of 21
	DOCUMENT NO.	REV	REV DT	EFF DT	PREPD	REVWD	APPD	SHEET NO.

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE Unit Rate inclusive of all taxes & duties except GST (in Rs.)		TOTAL AMOUNT Inclusive of all taxes & duties except GST (in Rs.)
				FIGURE	WORDS	
	2nos 5 Amp switches with regulators for ceiling Fan 4 nos 5 Amp switches for lighting					
16.15	Supply of portable CO2 type fire extinguisher (4.5 litre capacity).	Nos.	2			
16.16	Installation of portable CO2 type fire extinguisher (4.5 litre capacity).	Nos.	2			
16.17	Sand buckets with stand (each with at least 3 sand buckets).	No.	1			
16.18	Installation of Sand buckets with stand (each with at least 3 sand buckets).	No.	1			
17.	Item wise unit prices of following spares for two years operation and maintenance along with recommended quantity shall be quoted :					
17.1	LV SWITCHBOARDS					
i.	Ammeter Selector Switch	No.	1			
ii.	Voltmeter Selector Switch	No.	1			
iii.	Push Button Element of each type	No.	1			
iv.	Push Button Actuator of each type	No.	1			
v.	FUSES (OF EACH RATING)					
a.	Fuse Link	No.	1			
b.	Fuse Fittings	No.	1			
vi.	CONTACTOR (OF EACH RATING)					
a.	Contact with Auxiliary Contacts	No.	1			
b.	Operating Coil	No.	1			
c.	Auxiliary Contact Block	No.	1			
vii.	RELAYS					
a.	Relays of each type	No.	1			
b.	Glass cover of each case	No.	1			
viii.	INDICATION LAMPS					
a.	Indicating Lamp Globes of each colour	No.	1			
b.	Indication Lamp Fittings	No.	1			


	ELECTRICAL SCHEDULE OF RATES CONSTRUCTION WATER PUMP STATION TFL, TALCHER	PC150/E/103/P-II/Sec-VII	1	05.07.18	05.07.18	SS	SKB	SKB	19 of 21
		DOCUMENT NO.	REV	REV DT	EFF DT	PREPD	REVWD	APPD	SHEET NO.

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE Unit Rate inclusive of all taxes & duties except GST (in Rs.)		TOTAL AMOUNT Inclusive of all taxes & duties except GST (in Rs.)
				FIGURE	WORDS	
c.	Indicating Lamp Bulbs	No.	1			
ix.	METERS					
a.	Ammeter of each type	No.	1			
b.	Voltmeter	No.	1			
x.	TRANSFORMERS					
a.	Current Transformer of each rating	No.	1			
xi.	MCB (OF EACH RATING)	No.	1			
17.2	LIGHT FITTINGS OF EACH TYPE & RATING					
i.	Lighting fixture	No.	1			
ii.	LED lamps of each type	No.	1			
iii.	Ballasts	No.	1			
iv.	Heat resistant toughened glass cover of each type	No.	1			
v.	Cable glands of each type	No.	1			
vi.	Allen keys of different sizes as applicable.	No.	1			
17.3	LSDB					
i.	63 A TPN SFU	No.	1			
ii.	32 A TPN MCB	No.	1			
iii.	16 A DP MCB	Nos.	2			
iv.	Terminal block.	Nos.	2			
17.4	Motor (For each rating)					
i.	Bearings (Driving end)	No.	1			
ii.	Bearings (Non driving end)	No.	1			
iii.	Cooling fan	No.	1			
iv.	Terminal block	No.	1			
v.	Grease Nipple & Plug (if applicable)	No.	1			
18.	REMOVAL OF CABLES					

	ELECTRICAL SCHEDULE OF RATES CONSTRUCTION WATER PUMP STATION TFL, TALCHER	PC150/E/103/P-II/Sec-VII	1	05.07.18	05.07.18	SS	SKB	SKB	20 of 21
		DOCUMENT NO.	REV	REV DT	EFF DT	PREPD	REVWD	APPD	SHEET NO.

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE Unit Rate inclusive of all taxes & duties except GST (in Rs.)		TOTAL AMOUNT Inclusive of all taxes & duties except GST (in Rs.)
				FIGURE	WORDS	
18.1	Removal of power & control cable from existing overhead cable rack / cable trench / pipe after disconnecting at both ends, rolling in a proper manner on Cable Drums and transporting the same to safe place as directed by Owner's Engineer-in-charge	Mtrs.	40			
19.	DISMANTLING OF Switchboard					
19.1	Dismantling of Existing abandoned HT Switchboard and transporting the same to safe place as directed by Owner's Engineer-in-charge	MT	0.5			
20.	DISMANTLING OF STRUCTURES					
20.1	Dismantling of existing MS frame supports , brackets made of channel, angles, flats etc. and transporting the same to safe place within plant area as directed by Engineer-in-charge	MT	0.1			

TOTAL AMOUNT FOR SUPPLY, ERECTION, TESTING & COMMISSIONING OF ELECTRICAL ITEMS	
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 PDIL पो ली आई एल	ELECTRICAL SCHEDULE OF RATES CONSTRUCTION WATER PUMP STATION TFL, TALCHER	PC150/E/103/P-II/Sec-VII	1	05.07.18	05.07.18	SS	SKB	SKB	21 of 21
		DOCUMENT NO.	REV	REV DT	EFF DT	PREPD	REVWD	APPD	SHEET NO.

	SUMMARY OF PRICE LAYING OF STEEL PIPELINE & ASSOCIATED WORKS AT TFL TALCHER	PC150/E/103/P-II/SEC- VII	1	
		DOCUMENT NO	REV	
		SHEET 1 OF 1		

SI No	Description	(In Figures)	(In Words)
1	PRICE FOR CIVIL & STRUCTURAL WORKS		
2	PRICE FOR MECHANICAL WORKS		
3	PRICE FOR ELECTRICAL WORKS		
4	PRICE FOR CP SYSTEM		
5	TOTAL PRICE , INCLUSIVE OF ALL TAXES & DUTIES EXCEPT GST (SL. NO. 1+12+3+4)		
6	APPLICABLE GST(INCLUDING CESS / SURCHARGE, IF ANY (BIDDER TO INDICATE % ONLY)	_____ %	
7	APPLICABLE BOCW CESS, IF ANY (BIDDER TO INDICATE % ONLY)	------%	
8	BIDDER TO INDICATE APPLICABLE SAC/HSN CODE		
9	TOTAL GST AMOUNT		
10	TOTAL BOCW CESS AMOUNT		
11	GRAND TOTAL (S.NO. 5+ 9 + 10)		

Place : _____

Date : _____

Tender No.: _____

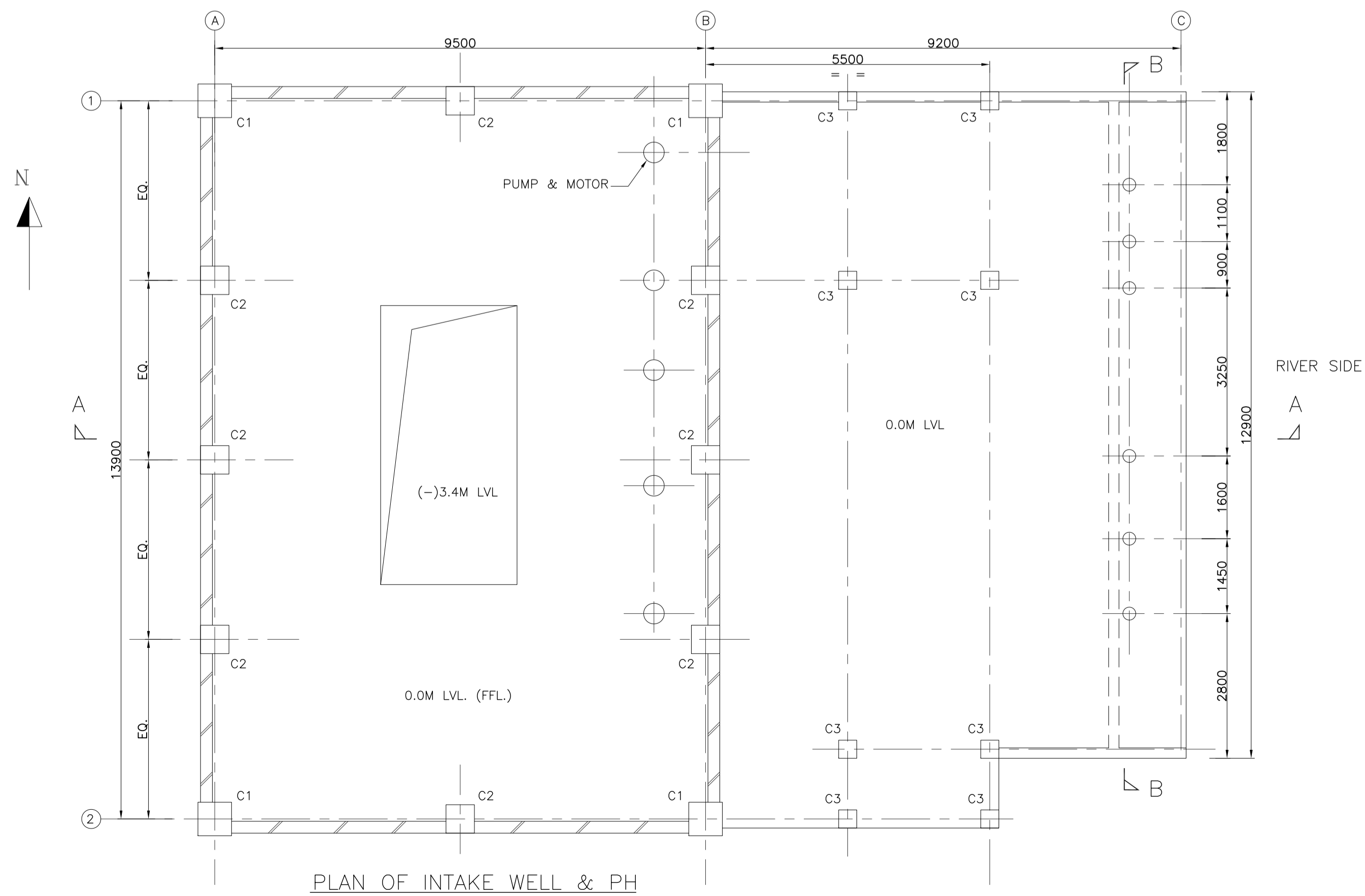
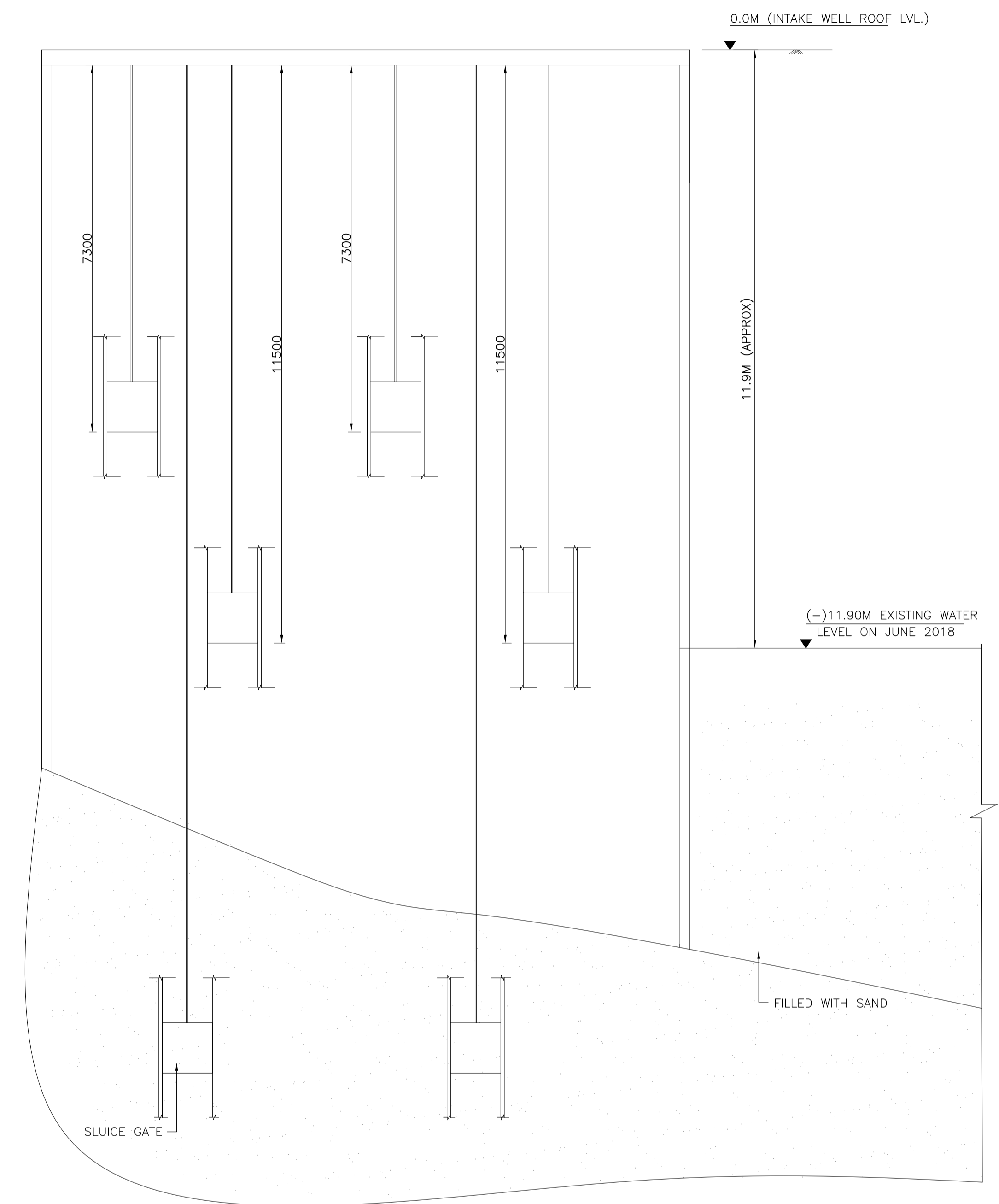
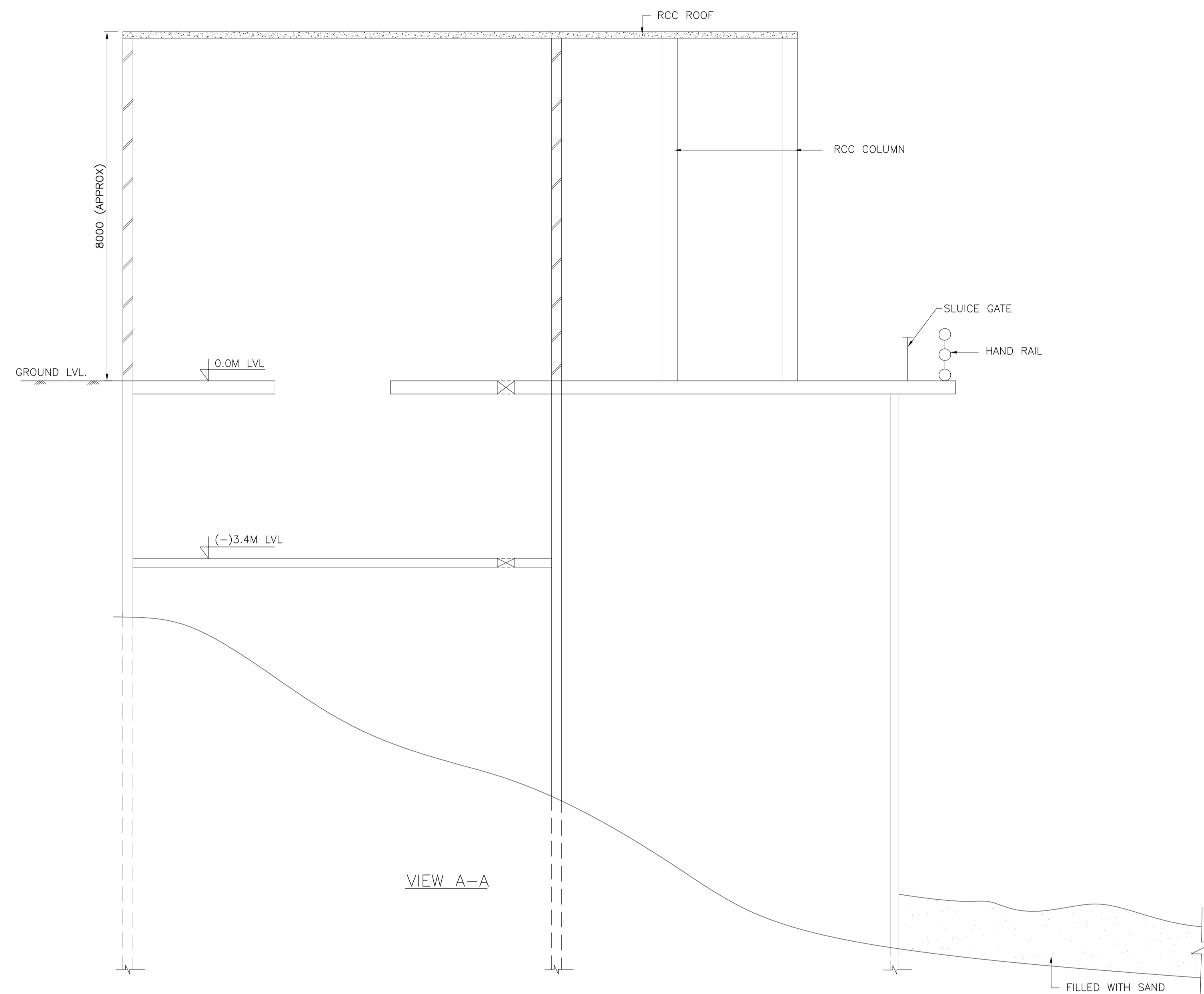
Offer No. & Date : _____

Signature of Authorised Signatory

Name :

Designation :

Seal :



VIEW B-B

NOTE :-

1. THE DIMENSIONS OF EXISTING INTAKE WELL ARE TENTATIVE & ISSUED ONLY FOR TENDER PURPOSE.
2. DEPTH OF SLUICE GATE IS 950MM (APPROX.).

SKETCH OF EXISTING INTAKE WELL AT TFL, TALCHER

Schematic flow diagram for Construction Water Supply for TFL
Project, Talcher, Odisha

BRAHMANI RIVER AREA

TFL PLANT AREA

DG WITH POWER
DISTRIBUTION
SYSTEM

Lighting

M

Pump

PG

PG

FI

M

Pump

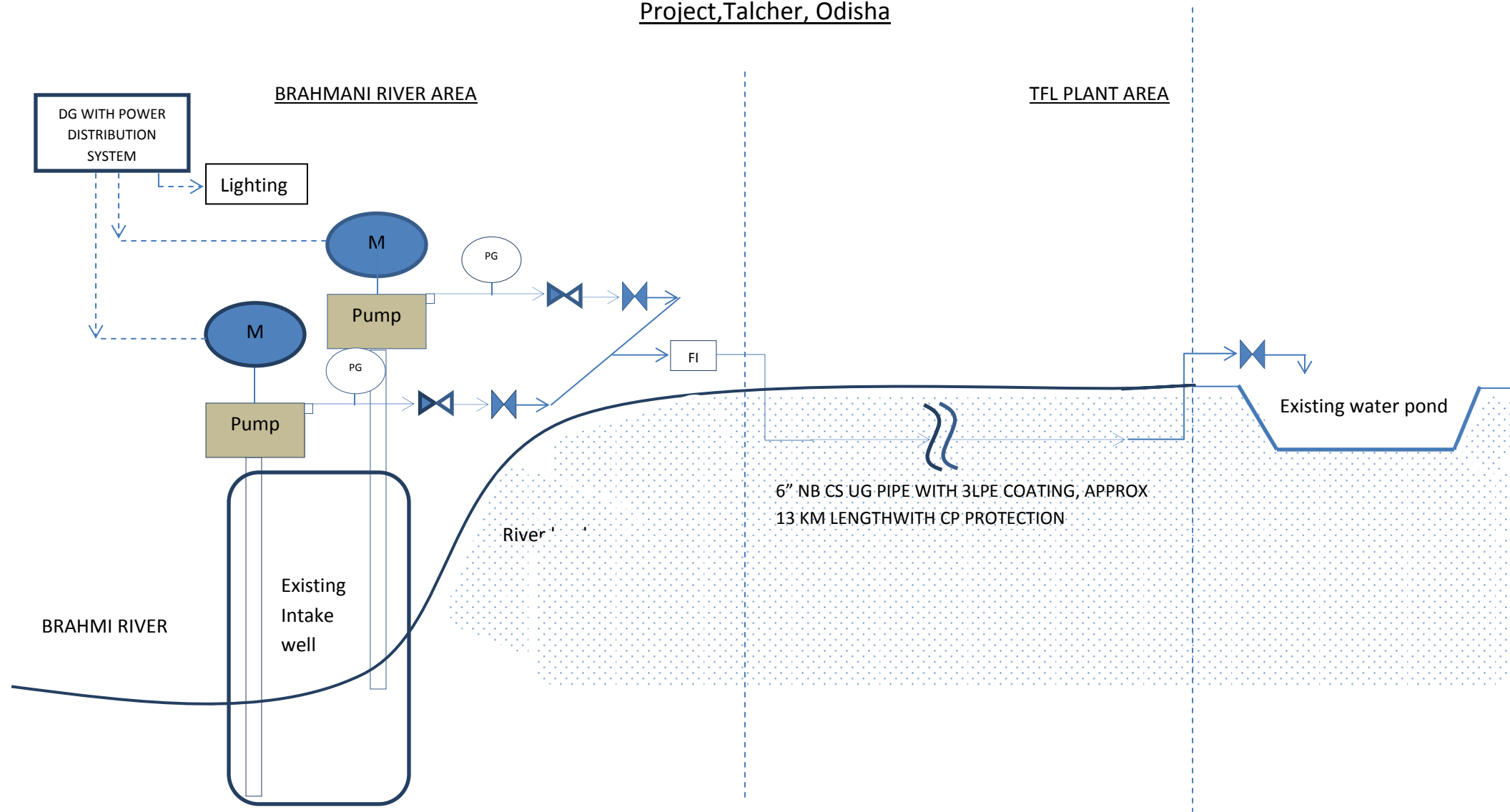
Existing Intake well

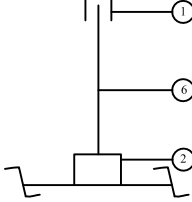
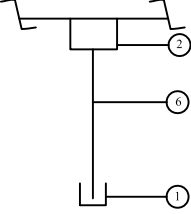
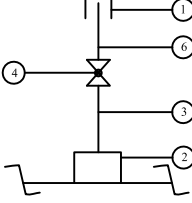
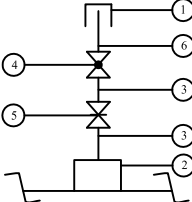
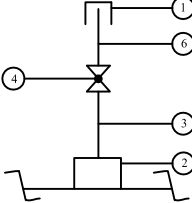
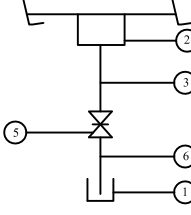
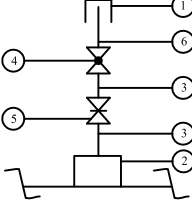
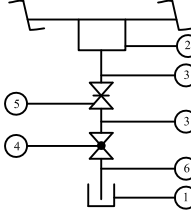
BRAHMI RIVER

River

6" NB CS UG PIPE WITH 3LPE COATING, APPROX
13 KM LENGTH WITH CP PROTECTION

Existing water pond



Fluid	Pressure rating	3/4" Vent	3/4" Drain
Gas	NP < = CLASS 2500	* 	* 
Steam	NP < = CLASS 900		For steam trap installation See separate specification
	NP > = CLASS 1500		
Liquid	NP < = CLASS 900		
	NP > = CLASS 1500		

1. 3/4 " Thd. Cap.
2. 3/4" Branch Fitting acc. to Pipe Class.
3. 3/4" Nipple (P).
4. 3/4" Globe Valve (SW).
5. 3/4 "Gate Valve (SW).
6. 3/4" Nipple (P/T).

* For Hydrostatic test only. For process purpose use installation as for liquid service.

120401 : RUBBER GASKETS

CODE	NAME
INDIA	
1 . P0256	FERROLITE JOINTINGS (P) LTD. (Asbestos,CAF only)
2 . P0294	GASKETS (INDIA) PVT. LTD. (Asbestos,CAF only)
3 . P2112	GOODRICH GASKET PVT. LTD. (upto 24")
4 . P0350	HINDUSTAN ASBESTOS & ALLIED PRODUCTS
5 . P0354	HINDUSTAN COMPOSITES LIMITED
6 . P2079	HINDUSTAN FERREDO LTD.
7 . P0373	IGP ENGINEERS LIMITED
8 . P0501	MADRAS INDUSTRIAL PRODUCTS (upto 48")
9 . P0525	MECHANICAL PACKING INDUSTRIES LTD.,
10 . P0614	PACKINGS & JOINTINGS (P) LTD.
11 . P2088	PERFECT MARKETING (P) LTD,
12 . P2090	PRASHANT ENGG STORES
13 . P0663	REINZ TALBROS PRIVATE LIMITED
14 . P0745	SPIRASEAL GASKETS PVT. LTD. (CAF & Teflon)
15 . P2115	STARFLEX SEALING INDIA PVT. LTD.
16 . P2123	THE BENGAL MILL STORES SUPPLY CO.(TRADER)
17 . P2184	UNIQUE INDUSTRIAL PACKINGS PVT. LTD.

120402 : SPIRALLY WOUND GASKETS

CODE	NAME
INDIA	
1 . P0294	GASKETS (INDIA) PVT. LTD.
2 . P2112	GOODRICH GASKET PVT. LTD. (up to 24")
3 . P0373	IGP ENGINEERS LIMITED (10 to 3550mm size, 150#-2500# for exch gskt)
4 . P0501	MADRAS INDUSTRIAL PRODUCTS (upto 52")
5 . P0614	PACKINGS & JOINTINGS (P) LTD.
6 . P2088	PERFECT MARKETING (P) LTD,
7 . P2090	PRASHANT ENGG STORES
8 . P0745	SPIRASEAL GASKETS PVT. LTD. (SS upto 12" & 150#)
9 . P2115	STARFLEX SEALING INDIA PVT. LTD.
10 . P2123	THE BENGAL MILL STORES SUPPLY CO.(TRADER)
11 . P2184	UNIQUE INDUSTRIAL PACKINGS PVT. LTD. (Upto 42"(600#) & Upto 24" (2500#))
CHINA	
12 . P2080	Zhejiang Jiehua Valve Co.,Ltd .

120405 : EXPANSION JOINTS & BELLOWS

CODE	NAME
INDIA	
1 . P0177	CORI ENGINEERS PVT. LTD. (For Rubbber)
2 . P0217	D.WREN & CO. (For Rubber & Fabric)
3 . P0269	FLEXATHERM EXPANLLOW PVT. LTD. (Circular: Upto 240", Rectangular: No bar for size, (Up to 600#))
4 . P0270	FLEXICAN BELLOWS & HOSES PVT. LTD.
5 . P0274	FLUIDYNE ENGINEERS (I) PVT. LTD. (Metallic Bellows upto 800 mm dia)
6 . P0443	KELD ELLENTOFT INDIA PVT. LTD. (For Fabric)
7 . P0498	LONESTAR INDUSTRIES
8 . P0530	MB METALLIC BELLOWS PVT. LTD.
9 . P2090	PRASHANT ENGG STORES
10 . P0752	STANDARD PRECISION BELLOWS
GERMANY	
11 . P2019	TUBOFLEX
ITALY	
12 . P0271	FLEXIDER S.P.A.

120406 : FASTENERS

CODE	NAME
INDIA	
1 . P0017	AEP COMPANY
2 . P0146	CAPITAL INDUSTRIES
3 . P2020	CONSOL ENGG. & FASTNERS INDUSTRIES
4 . P0221	EBY FASTNERS
5 . P0265	FIT TIGHT NUTS & BOLTS LTD.
6 . P0266	FIX FIT FASTENERS MFG. PVT. LTD.
7 . P2180	INDUSTRIAL ENGINEERING CORPORATION (Size upto 4" (M100))
8 . P2212	MEGA ENGINEERING PRIVATE LIMITED (½" to 3" Material: CS/AS/SS)
9 . P0532	METRO MECHANICAL PVT.LTD.
10 . P0559	NAGBHUSHANAM INDUSTRIES
11 . P0586	NIREKA ENGG. CO. PVT. LTD.
12 . P2021	PACIFIC FORGING & FASTENERS PVT. LTD. (M 10 to M125)
13 . P2088	PERFECT MARKETING (P) LTD,
14 . P2022	PIONEER NUTS & BOLTS PVT. LTD. (1/4" to 4" dia)
15 . P0641	PRECISION AUTO ENGINEERS
16 . P0642	PRECISION ENGINEERING INDUSTRIES
17 . P0650	PTD FASTNERS PVT. LTD.

120406 : FASTENERS

CODE	NAME
18 . P2110	SANGHVI METALS (TRADER)
19 . P0772	SUNDARAM FASTENERS LIMITED
20 . P2099	UDHERA FASTENERS

120101 : CS PIPES IS-1239 (BLACK & GI)

CODE	NAME
INDIA	
1 . P0039	AMBICA TUBES CO.
2 . P2055	ANIL METAL CORPORATION
3 . P2216	CHETAN STEELS (Upto 6")
4 . P2196	DADU PIPES (P) LIMITED (½" to 6")
5 . P2075	GOOD LUCK STEEL TUBES LTD. (15 mm to 150 mm dia)
6 . P0326	GUJRAT STEEL TUBES LTD.
7 . P2166	HI-TECH PIPES LTD. (ERW MS / GI Pipes:½" NB to 6" NB, (Thickness 2.2 mm to 6.0 mm))
8 . P0814	INDIAN TUBE CO. (TATA DIV. OF TUBES & PIPES) (For >200M)
9 . P0387	INDUS TUBES LIMITED (½" to 6")
11 . P0427	JINDAL PIPES LTD. (1/2" to 4")
12 . P2193	JOTINDRA STEEL & TUBES LTD. (½" to 6")
13 . P2111	KALPESH TUBE(INDIA), (TRADER) (upto a max order value Rs.25.0 lakh)
14 . P0548	MUKAT PIPES LTD
15 . P2178	NAVRATAN PIPE AND PROFILE LTD. (Upto 6")
16 . P2040	P.K.FORGE & FITTING INDUSTRIES
17 . P2116	SAGAR STEEL CORPORATION (TRADER)

120101 : CS PIPES IS-1239 (BLACK & GI)

CODE	NAME
18 . P2110	SANGHVI METALS (TRADER)
19 . P0775	SURINDRA ENGINEERING CO. PVT. LTD.
20 . P0776	SURYA ROSHNI LTD. (15mm to 150mm)
21 . P2123	THE BENGAL MILL STORES SUPPLY CO.(TRADER)
22 . P2152	WELSPUN GUJARAT STAHL ROHREN LIMITED (ANJAR) (Upto 6")
23 . P0894	ZENITH LIMITED

120102 : CS WELDED PIPES IS-3589

CODE	NAME
INDIA	
1 . P2055	ANIL METAL CORPORATION
2 . P2196	DADU PIPES (P) LIMITED (6" to 12" (Thickness up to 9.5 mm))
3 . P2069	EVERGREEN HARDWARE STORES
4 . P2075	GOOD LUCK STEEL TUBES LTD. (Upto 150mm dia , 8 mm thick.)
5 . P0326	GUJRAT STEEL TUBES LTD.
6 . P2077	HEAVY METAL & TUBES
7 . P2166	HI-TECH PIPES LTD. (ERW MS / GI Pipes: 6" NB OD to 12", (Thickness 2.6 mm to 8.0 mm))
8 . P0387	INDUS TUBES LIMITED (6" to 12")
10 . P0427	JINDAL PIPES LTD. (8" to 14")
11 . P2193	JOTINDRA STEEL & TUBES LTD. (6" to 14")
12 . P2111	KALPESH TUBE(INDIA), (TRADER)
13 . P2124	LALIT PIPES & PIPES LIMITED (16" to 64", thickness upto 20mm)
14 . P0548	MUKAT PIPES LTD
15 . P2178	NAVRATAN PIPE AND PROFILE LTD. (Upto 10")
16 . P2040	P.K.FORGE & FITTING INDUSTRIES
17 . P2174	PRATIBHA INDUSTRIES LTD., (16" NB to 24" NB, Wall Thickness: 6 mm to 20 mm)

120102 : CS WELDED PIPES IS-3589

CODE	NAME
18 . P0661	RATNAMANI METALS & TUBES LIMITED
19 . P2116	SAGAR STEEL CORPORATION (TRADER)
20 . P2110	SANGHVI METALS (TRADER)
21 . P2095	SAW PIPES
22 . P2105	SHRI RAM METALS
23 . P0754	STEEL AUTHORITY OF INDIA LTD.
24 . P0775	SURINDRA ENGINEERING CO. PVT. LTD.
25 . P0776	SURYA ROSHNI LTD. (6" to 16" ,(150mm to 400mm))
26 . P2123	THE BENGAL MILL STORES SUPPLY CO.(TRADER)
27 . P2153	WELSPUN GUJARAT STAHL ROHREN LIMITED (DAHEJ) (Upto 72" (50 mm thk.))
28 . P2152	WELSPUN GUJARAT STAHL ROHREN LIMITED (ANJAR) (Upto 100" (30 mm thk.))

**120103 : CS WELDED PIPES TO API 5L SPIRAL/LONG. WELDED
(SAW/EFSW)**

CODE	NAME
INDIA	
1 . P2198	HEAVY METAL PIPE CENTRE (Upto 24" (Upto SCHXXS) (PDIL approved Manufacturer's Make only))
2 . P0427	JINDAL PIPES LTD. (2" TO 14")
3 . P2193	JOTINDRA STEEL & TUBES LTD. (½" to 14")
4 . P2111	KALPESH TUBE(INDIA), (TRADER)
5 . P2124	LALIT PIPES & PIPES LIMITED (16" to 64", thickness upto 20mm)
6 . P0548	MUKAT PIPES LTD
7 . P2040	P.K.FORGE & FITTING INDUSTRIES
8 . P2174	PRATIBHA INDUSTRIES LTD., (16" NB to 24" NB, Wall Thickness: 6 mm to 14.27)
9 . P0661	RATNAMANI METALS & TUBES LIMITED
10 . P2116	SAGAR STEEL CORPORATION (TRADER)
11 . P0754	STEEL AUTHORITY OF INDIA LTD.
12 . P0775	SURINDRA ENGINEERING CO. PVT. LTD.
13 . P0776	SURYA ROSHNI LTD. (Gr. A, 3" to 4", Gr. B, 6" to 14")
14 . P2123	THE BENGAL MILL STORES SUPPLY CO.(TRADER)
15 . P2153	WELSPUN GUJARAT STAHL ROHREN LIMITED (DAHEJ) (Upto 72" (50 mm thk.))
16 . P2152	WELSPUN GUJARAT STAHL ROHREN LIMITED (ANJAR) (Upto 100" (30 mm thk.))

FRANCE

120103 : CS WELDED PIPES TO API 5L SPIRAL/LONG. WELDED
(SAW/EFSW)

CODE	NAME
17 . P0834	ETS TROUVAY & CAUVIN
18 . P0629	PHOCEEENNE
GERMANY	
19 . P0509	MANNESMANN HANDEL AG
20 . P0813	THYSSEN-KRUPP STAHLUNION GmbH
ITALY	
21 . P0191	DALMINE SPA
22 . P2092	RACCORTUBI SRL
JAPAN	
23 . P0464	KOSEI SANGYO LTD
24 . P0517	MARUBENI ITOCHU STEEL
25 . P0539	MITSUBISHI CORPORATION
26 . P0583	NIPPON KOKAN
27 . P0585	NIPPON STEEL CORPORATION
28 . P0587	NISHITANI & CO. LTD.
29 . P0588	NISSHO IWAI CORPORATION
30 . P0601	OKURA & CO. LTD.
31 . P0575	SOJITZ CORPORATION
32 . P0770	SUMITOMO METAL INDUSTRIES LTD.

120103 : CS WELDED PIPES TO API 5L SPIRAL/LONG. WELDED
(SAW/EFSW)

CODE	NAME
KOREA	
33 . P0370	HYUNDAI CORPORATION
U.K.	
34 . P2064	BRITISH STEEL CORPORATION
35 . P0129	CORUS TUBES LIMITED
U.S.A.	
36 . P0703	SAW PIPES USA,INC.

120104 : CS / AS / LTCS SEAMLESS PIPES

CODE	NAME
INDIA	
1 . P2224	ANAND SEAMLESS TUBES PVT. LTD. (CS Seamless Pipes Upto 2")
2 . P0115	BHEL (VALVES DIVISION)
3 . P2216	CHETAN STEELS (Upto 12" SCH 80)
4 . P2077	HEAVY METAL & TUBES (Upto 8" (thickness upto 18.26 mm))
5 . P2198	HEAVY METAL PIPE CENTRE (Upto 24" (Upto SCHXXS) (PDIL approved Manufacturer's Make only))
6 . P0814	INDIAN TUBE CO. (TATA DIV. OF TUBES & PIPES)
7 . P0800	ISMT LIMITED
9 . P2133	JINDAL SAW LIMITED
10 . P0503	MAHARASHTRA SEAMLESS LTD.
11 . P2040	P.K.FORGE & FITTING INDUSTRIES
12 . P2138	RATNADEEP METAL & TUBES PVT. LTD. (<=168.3mm OD)
13 . P2170	SAINEST TUBES PVT. LTD. (½" NB to 3" Upto Sch 160 (ASTM A106 Gr. B, A333 Gr.1 & 6 & A335 Gr. P11))
FRANCE	
14 . P0834	ETS TROUVAY & CAUVIN
15 . P0629	PHOCEEENNE
GERMANY	
16 . P0477	HORST KURVERS GmbH

120104 : CS / AS / LTCS SEAMLESS PIPES

CODE	NAME
17 . P0509	MANNESMANN HANDEL AG
ITALY	
18 . P0191	DALMINE SPA
19 . P2119	GAM RACCORDI S.P.A
20 . P0175	IBF SEAMLESS PIPES Spa
21 . P2092	RACCORTUBI SRL
JAPAN	
22 . P0517	MARUBENI ITOCHU STEEL
23 . P0539	MITSUBISHI CORPORATION
24 . P0585	NIPPON STEEL CORPORATION
25 . P0587	NISHITANI & CO. LTD.
26 . P0588	NISSHO IWAI CORPORATION
27 . P0601	OKURA & CO. LTD.
28 . P0575	SOJITZ CORPORATION
29 . P0770	SUMITOMO METAL INDUSTRIES LTD.
KOREA	
30 . P0370	HYUNDAI CORPORATION
SWEDEN	
31 . P0004	AB SANDVIK STEEL
U.K.	

120104 : CS / AS / LTCS SEAMLESS PIPES

CODE	NAME
32 . P2064	BRITISH STEEL CORPORATION
33 . P0129	CORUS TUBES LIMITED
34 . P0870	VOMAL INTERNATIONAL LIMITED

120113 : FITTINGS: CS/AS/SS SEAMLESS & FORGED

CODE	NAME
INDIA	
1 . P2120	AMFORGE INDUSTRIES (Upto 24")
2 . P2055	ANIL METAL CORPORATION
3 . P2216	CHETAN STEELS (Upto 6" SCH 80)
4 . P0166	COMMERCIAL SUPPLYING AGENCY
5 . P2195	CSA FITTINGS (Forged: ½" to 2" (Upto 9000#) & Seamless: 2" to 8" (Upto SCH XXS))
6 . P0221	EBY FASTNERS
7 . P0222	EBY INDUSTRIES
8 . P2150	FIT-TECH INDUSTRIES (Upto 24")
9 . P2159	FLASH FORGE(P) LTD. (Forged: Upto 4" (Upto 9000#) & Seamless: Upto 42")
10 . P2002	GUJARAT INFRAPIPES PVT. LTD.
12 . P2111	KALPESH TUBE(INDIA), (TRADER) (upto a max order value Rs.25.0 lakh)
13 . P0553	M.S.FITTINGS MANUFACTURING CO.PVT.LTD.
14 . P2084	MARDALE PIPES PLUS LTD
15 . P2162	NAVKAR FORGINGS & FITTINGS PVT. LTD. (Forged: 3" (Upto 6000#) & Seamless: Upto 16" (Sch XXS))
16 . P2003	NL HAZRA (up to SCH 80)
17 . P2215	P K TUBES & FITTINGS PVT. LTD. (Forged upto 1 ½" & Seamless upto 24" (SCH 160))

120113 : FITTINGS: CS/AS/SS SEAMLESS & FORGED

CODE	NAME
18 . P2040	P.K.FORGE & FITTING INDUSTRIES
19 . P2199	PARAS FITTINGS PVT. LTD. (Forged CS: ½" to 2" & CS Seamless: 2" to 8" (Upto Sch XXS))
20 . P2156	PARMAR TECHNO FORGE (Elbow-1/2" to 12", Tees-1/2" to 8", Reducer (conc. & eccn.)-1/2" to 12", CAPS-1/2" to 18" (CS&SS))
21 . P2088	PERFECT MARKETING (P) LTD,
22 . P2187	PETROCHEM INDUSTRIES (Seamless: upto 16" (all Fittings) & upto 36" (Only Caps) Sch : XXS / 80S, Forged : Upto 3" 6000#)
23 . P2210	RAJENDRA FORGE INDUSTRIES (CS: Upto 12" Sch 40 & SS: 6" Sch 40S)
24 . P0733	S & G ENGINEERS (P) LTD.
25 . P2116	SAGAR STEEL CORPORATION (TRADER)
26 . P2110	SANGHVI METALS (TRADER)
27 . P2004	SAWAN ENGINEERS PVT. LIMITED (Upto 36" (SCH 160))
28 . P0728	SHIVANANDA PIPE FITTINGS LTD.,
29 . P0758	STEWARTS AND LLOYDS OF INDIA LIMITED
30 . P0793	TEEKAY TUBES PRIVATE LIMITED
31 . P2123	THE BENGAL MILL STORES SUPPLY CO.(TRADER)
32 . P2165	TOPAZ PIPING INDUSTRIES (Upto 36" (Sch160))
33 . P2006	TUBE BEND (CALCUTTA) PVT LTD (CS FITTINGS ONLY)
34 . P0835	TUBE PRODUCTS INCORPORATE

120113 : FITTINGS: CS/AS/SS SEAMLESS & FORGED

CODE	NAME
35 . P2135	ZOLOTO INDUSTRIES (15mm to 150mm (only CS-Galv.))
ITALY	
36 . P2188	PETROL RACCORD S.P.A. (Seamless: 1" - 42" (Elbows) & 1" - 56" (Tees/ Reducers/Caps))
FRANCE	
37 . P0834	ETS TROUVAY & CAUVIN
38 . P0629	PHOCEENNE
39 . P0853	VALLOUREC
GERMANY	
40 . P0477	HORST KURVERS GmbH
41 . P0509	MANNESMANN HANDEL AG
42 . P0712	SEIKMANN ANLAGEN-TECHNIK GMPH.
43 . P0822	TPS-TECHNITUBE ROHRENWERKE GMBH
ITALY	
44 . P0191	DALMINE SPA
45 . P2119	GAM RACCORDI S.P.A
46 . P0175	IBF SEAMLESS PIPES Spa
47 . P0377	IND MECCANICA BASSI LUIGI & C. SPA
48 . P2083	MANTOVANI SpA
49 . P2092	RACCORTUBI SRL

120113 : FITTINGS: CS/AS/SS SEAMLESS & FORGED

CODE	NAME
50 . P0789	TECHNO FORGE SPA
JAPAN	
51 . P0517	MARUBENI ITOCHU STEEL
52 . P0583	NIPPON KOKAN
53 . P0587	NISHITANI & CO. LTD.
54 . P0588	NISSHO IWAI CORPORATION
55 . P0601	OKURA & CO. LTD.
56 . P0575	SOJITZ CORPORATION
57 . P0770	SUMITOMO METAL INDUSTRIES LTD.
TAIWAN	
58 . P2007	HAITIMA CORPORATION
U.K.	
59 . P2064	BRITISH STEEL CORPORATION
60 . P0129	CORUS TUBES LIMITED
61 . P0245	EUROTUBE LIMITED
62 . P0870	VOMAL INTERNATIONAL LIMITED
U.S.A.	
63 . P2063	BONNEY FORGE

120117 : FORGED FLANGES

CODE	NAME
INDIA	
1 . P2053	AJAY FORGINGS PVT. LTD.
2 . P2120	AMFORGE INDUSTRIES (Upto 24" for upto 1500#; Upto 12" for 2500#)
3 . P0048	ANANDMAYEE FORGINGS PVT. LTD.
4 . P0141	C D ENGINEERING
5 . P2233	CHANDAN STEEL LIMITED (Only SS Flanges: Upto 36" - 150#, upto 24" - 300#, upto 20" - 600#, upto 16" - 900#, upto 12" - 1500#, upto 8" - 2500#)
6 . P2216	CHETAN STEELS (Upto 6" (150#))
7 . P0152	CHW FORGE PRIVATE LIMITED (FORMERLY CHAUDHARY HAMMER WORKS)
8 . P0223	ECHJAY INDUSTRIES LIMITED
9 . P0255	FEEROUS ALLOYS FORGINING PVT.LTD.,
11 . P2194	GOODLUCK ENGINEERING CO. (½"-12" (Upto 2500#), 14"-16" (Upto 900#), 18"-32" (Upto 600#), 34"-48" (Upto 300#))
12 . P0417	J K FORGINGS (1/2" to 60",ANSI B16.5,Class 150 to 2500)
13 . P2160	KUNJ FORGINGS PVT. LTD. (Upto 60"(upto 300#) & Upto 12"(upto 2500#))
14 . P2175	MAHESH INDUSTRIES (Upto 8" (150#, Material: ASTM A105 only))
15 . P2223	METAL FORGINGS PVT. LTD. (Upto 86" (150#); 60" (300# to 600#); 48" (900#); 24" (1500#); 12" (2500#))
16 . P2215	P K TUBES & FITTINGS PVT. LTD. (Upto 24" (upto 1500#) & upto 12" (upto 2500#) (Spectacle Blinds and Spacer & Blind only).)
17 . P2214	PARAMOUNT FORGE (CS, AS & SS: ½" to 42" (Upto 600#), ½" to 24" (Upto 900#), ½" to 16" (Upto 1500#), ½" to 12" (Upto 2500#))

120117 : FORGED FLANGES

CODE	NAME
18 . P2088	PERFECT MARKETING (P) LTD,
19 . P2008	PUNJAB STEEL
20 . P2155	R.D. FORGE (A UNIT OF R D CHEMICALS PVT LTD) (½" to 54" - 150#, ½" to 40" - 300#, ½" to 42" - 600#, ½" to 20" - 900#, ½" to 20" - 1500#, ½ to 12" - 2500# (CS, AS & SS))
21 . P2210	RAJENDRA FORGE INDUSTRIES (CS & SS : Upto 12", 300#)
22 . P0733	S & G ENGINEERS (P) LTD.
23 . P2005	SANGHVI FORGINGS & ENGINEERING LTD. (Upto 42" (upto 300#), 36"(600#), 24"(upto1500#) & 12"(2500#))
24 . P2110	SANGHVI METALS (TRADER)
25 . P2004	SAWAN ENGINEERS PVT. LIMITED
26 . P2185	TECHNO FORGE LTD. (Upto 42" (upto 300#), upto 24" (600#), upto 20" (900#), upto 16" (1500#), upto 12" (2500#))
27 . P2006	TUBE BEND (CALCUTTA) PVT LTD
FRANCE	
28 . P0834	ETS TROUVAY & CAUVIN
29 . P0629	PHOCEEENNE
GERMANY	
30 . P0477	HORST KURVERS GmbH
ITALY	
31 . P0414	I.S. INTERNATIONAL
32 . P2083	MANTOVANI SpA
33 . P0599	OFFICINE NICOLA GALPERTI & FIGLIO S.P.A

120117 : FORGED FLANGES

CODE	NAME
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34 . P2092 RACCORTUBI SRL

JAPAN

35 . P0576 NICHINAN SANGYO CO. LTD.,

36 . P0587 NISHITANI & CO. LTD.

37 . P0575 SOJITZ CORPORATION

U.K.

38 . P0870 VOMAL INTERNATIONAL LIMITED

120119 : FITTINGS: CS/AS/SS WELDED

CODE	NAME
INDIA	
1 . P2227	PARAS ENGINEERING WORKS (8" to 36" NB, Sch 5 to Sch XXS (CS & SS))
2 . P2216	CHETAN STEELS (Upto 10" SCH 80)
3 . P2150	FIT-TECH INDUSTRIES (Upto 48")
4 . P2159	FLASH FORGE(P) LTD. (Upto 42")
5 . P2162	NAVKAR FORGINGS & FITTINGS PVT. LTD. (Upto 24" (Sch XXS, Material: CS only))
6 . P2215	P K TUBES & FITTINGS PVT. LTD. (Upto 48" (SCH 160))
7 . P2187	PETROCHEM INDUSTRIES (6" to 36" (all Fittings) & 6" to 56" (Only Conc. / Ecc. Reducers) Sch : XXS/ 80S)
8 . P2210	RAJENDRA FORGE INDUSTRIES (CS & SS : Upto 12", Sch 40)
9 . P2004	SAWAN ENGINEERS PVT. LIMITED (Upto 52" (SCH 160))
10 . P2165	TOPAZ PIPING INDUSTRIES (Upto 48" (Sch160))
ITALY	
11 . P2188	PETROL RACCORD S.P.A. (4" - 56" (Tees/ Reducers/ Elbows))

120301 : GATE/GLOBE/CHECK VALVES CS/SS/AS < 900 Lbs

CODE	NAME
INDIA	
1 . P0003	A V VALVES LIMITED (Cast: Up to 42" (150#), 28" (300#), 24" (600#) & Forge:Upto 2" (800#))
2 . P2052	ADVANCE VALVES (2"- 80" (Upto 600#) (Dual Plate Check Valves only).)
3 . P0072	ASSOCIATED TOOLINGS (I) PVT. LTD. (½" to 2" (Rating upto : 800 #))
4 . P0077	AUDCO INDIA LIMITED(L&T VALVES DIVN.)
5 . P2136	AUTOCAP INDUSTRIES (1/2" to 2", 800 # (only CS & SS))
6 . P2060	BELL-O-SEAL VALVES PVT. LTD. (for zero leakage, hazardous fluids.)
7 . P0115	BHEL (VALVES DIVISION)
8 . P2146	BRIGHTCH VALVES AND CONTROLS PVT. LTD. (Upto 8" x 300# for CS, AS & SS Material)
9 . P2117	CHEMTECH INDUSTRIAL VALVES PVT. LTD
10 . P2229	CHEMTROLS SAMIL (INDIA) PVT. LTD. (Upto 12" - 150-# (Dual Plate Check Valves only))
11 . P2137	CRAWLEY & RAY (FOUNDERS & ENGINEERS) PVT. LTD (<=300 # (only CS))
12 . P0194	DATRE CORPORATION LTD. (Upto 300#, 2-8 "(Gate),2-6"(Globe&Check))
13 . P0202	DEWRANCE MACNEILL & CO. LTD.
14 . P0224	ECONO VALVES PVT.LTD.
15 . P2118	EXPERT ENGINEERING ENTERPRISES (Forged: upto 2"- 800#; Gate & Globe Valve: upto12"- 150# & 300#; Check Valve: upto 32"- 150# & 300#)
16 . P0273	FLOCON SYSTEMS PVT. LTD. (CS upto 6" 150#)
17 . P2172	FLOVEL VALVES PVT. LTD. (Single Disc, Dual Plate & Nozzle Check Valves only: Upto 48" (150#) & 24" (upto 600#))

120301 : GATE/GLOBE/CHECK VALVES CS/SS/AS < 900 Lbs

CODE	NAME
18 . P2219	FLUIDTECH EQUIPMENT PVT. LTD. (Cast# (CS and SS): 2" to 12" 150# & 2" to 8" 300# and Forged (CS and SS) ½" to 2" (800#))
19 . P2114	FORWARD ALLOYS & CASTINGS (upto 14")
20 . P2145	GURU INDUSTRIAL VALVES PVT. LTD. (Cast CS only: Upto 24"(150#), 20"(300#), 10"(600# & Forged: Upto 2" (800#))
21 . P2218	HAWA ENGINEERS LTD. (Gate Valve:Upto 40" (150#),Upto 26"(300#),Upto 24"(600#),Upto 2" (800#); Globe Valve:Upto 20"(150#),Upto 16" (300#),Upto 12"(600#),Upto 2"(800#); Check Valve:Upto 36" (150#),Upto 24"(300#),Upto 16"(600#),Upto 2" (800#) (Dual Plate:36" (150#
22 . P2013	HAWA VALVES INDIA PVT. LTD. (CS upto 6",150#)
23 . P0897	HI-TECH VALVES PVT. LTD. (CS,<=800# size 1/2"-2", <=300# for size 2"-6)
24 . P0404	INTERVALVE POONAWALLA LIMITED (Cast upto 24" (Upto 300#) & Upto 12" (600#), Forged: Upto 2" (800#))
25 . P2161	JC VALVES & CONTROLS INDIA PVT. LTD. (Cast: Upto 48" (150#), 24" (upto 600#) & Forged: Upto 2" (800#))
26 . P0451	KIRLOSKAR BROTHERS LIMITED (CS upto 12" size, 300#)
27 . P0473	KSB PUMPS LIMITED (VALVES DIVN)
28 . P1101	LARSEN & TOUBRO LIMITED (1/2" to 24")
29 . P0487	LEADER VALVES LIMITED (Casting<=20"- upto 600# & 30"-150#, Forging<=2"- upto 800#)
30 . P2082	M.H. VALVES PVT. LTD. (1/2" to 1 1/2" - 800#, 2"to 6"- 600#)
31 . P2147	MICON ENGINEERS (HUBLI) PVT. LTD. (Cast : Upto 12" (150# & 300#), 6" (600#) & Forged: Upto 2" (800#))
32 . P0094	MICROFINISH VALVES (P) LTD.
33 . P0590	NITON VALVE INDUSTRIES PVT. LTD. (Forging upto 800#, <= 1.5" size)
34 . P2164	NSSL LIMITED (Cast: Upto 80"(150#), 56"(Upto 600#) & Forged: Upto 2" (800#))

120301 : GATE/GLOBE/CHECK VALVES CS/SS/AS < 900 Lbs

CODE	NAME
35 . P2041	OSWAL INDUSTRIES LTD. (Upto 48" (150#), 32" (300#) & 24" (600#))
36 . P2096	S & M INDUSTRIAL VALVES LIMITED (CS Gate & Globe valves 2"- 24" <=300#)
37 . P2204	SHALIMAR VALVES PVT. LTD. (Cast: Upto 24"(Upto 600#), Forged: ½" to 1½" (800#))
38 . P0731	SHREERAJ INDUSTRIES (CS upto 150#)
39 . P2097	STEEL STRONG VALVES (I) PVT. LTD (Upto 42")
40 . P2014	VENUS PUMP & ENGINEERING WORKS
41 . P2144	VIBA FLUID CONTROL
42 . P0093	WEIR BDK VALVES (A UNIT OF WEIR INDIA PVT. LTD.) (Cast: Upto 36" (150#), 24" (300#), 12" (600#) & Forged: Upto 2"(800#))
43 . P2149	ZED VALVES CO. PVT. LTD. (Upto 14" (600#))
44 . P2135	ZOLOTO INDUSTRIES (40mm to 200mm (Only CS & SS))
CANADA	
45 . P0857	VELAN INC. (Size upto 48" (Rating upto 600#))
CHINA	
46 . P2173	BOTELI VALVE GROUP CO. LTD. (Cast: Upto 56" (150#), 36" (300#), 24" (600#) & Forged: Upto 2" (800#))
47 . P2080	Zhejiang Jiehua Valve Co.,Ltd .
GERMANY	
48 . P2016	PEMTO VALVE
ITALY	
49 . P0150	CESARE BONETTI SPA (Cast: Upto 42" (Upto 300#), 24" (600#) & Forged: Upto 1 ½" (800#))

120301 : GATE/GLOBE/CHECK VALVES CS/SS/AS < 900 Lbs

CODE	NAME
50 . P0253	FASANI S.P.A.
51 . P2179	FRIULCO SPA (Upto 48" (150#), 32" (Upto 600#))
52 . P0476	GTC ITALIA, S.R.L.
53 . P2083	MANTOVANI SpA
54 . P0603	OMB S.P.A.
55 . P0628	PETROL VALVES S.R.L
JAPAN	
56 . P0520	MATSURA H. P MACHINE WORKS CO.LTD.,
57 . P0587	NISHITANI & CO. LTD.
58 . P0575	SOJITZ CORPORATION
NETHERLAND	
59 . P2093	REDPOINT ALLOYS BV
SPAIN	
60 . P0083	BABCOCK BORSIG ESPANA, S.A.
61 . P2201	POYAM VALVES, (AMPO S. COOP.) (Size upto 60"(Rating upto 800#))
62 . P2015	WALTHAN & WEIR
U.A.E.	
63 . P0764	SUFA LIMITED
U.K.	
64 . P0097	BEL VALVES

120305 : BUTTERFLY VALVES

CODE	NAME
INDIA	
1 . P0003	A V VALVES LIMITED (Upto 48" (150#))
2 . P2052	ADVANCE VALVES (2" - 120" (Upto 150#), 2" - 80" (Upto 900#))
3 . P2176	AIRA EURO AUTOMATION PVT. LTD. (Upto 48", Rating: Upto 300#)
4 . P0077	AUDCO INDIA LIMITED(L&T VALVES DIVN.)
5 . P2018	BDK PROCESS CONTROLS PVT. LTD. (upto 1600mm)
6 . P2117	CHEMTECH INDUSTRIAL VALVES PVT. LTD
7 . P2137	CRAWLEY & RAY (FOUNDERS & ENGINEERS) PVT. LTD (40mm - 1000mm)
8 . P2163	DELVAL FLOW CONTROLS PRIVATE LIMITED (Upto 24" (Upto 300#))
9 . P0273	FLOCON SYSTEMS PVT. LTD. (CS upto 12" 150#)
10 . P2219	FLUIDTECH EQUIPMENT PVT. LTD. (Up to 12" (300#))
11 . P0281	FOURESS ENGINEERING (I) LTD.
12 . P2218	HAWA ENGINEERS LTD. (2" to 48" (PN10/PN16/150#/300#))
13 . P2013	HAWA VALVES INDIA PVT. LTD. (CS upto 6", 150#)
14 . P2134	HI-TECH BUTTERFLY VALVES INDIA PVT. LTD. (<300#,<30"(Teflon/Rubber) ,<72"(Metal))
15 . P0400	INSTRUMENTATION LTD. (PALAKKAD)
16 . P0404	INTERVALVE POONAWALLA LIMITED (Upto 72" (150#) & Upto 16" (300#))
17 . P2161	JC VALVES & CONTROLS INDIA PVT. LTD. (Upto 20" (150#) & 10" (300#))

120305 : BUTTERFLY VALVES

CODE	NAME
18 . P1101	LARSEN & TOUBRO LIMITED (1/2" to 24")
19 . P0487	LEADER VALVES LIMITED (size <=16" - 150#)
20 . P0519	MATHER & PLATT (INDIA) LTD. (A Subsidiary of WILO SE German (upto DN 1600,PN10 Double flange type)
21 . P0533	METROPOLITAN INDUSTRIES (size=2000mm)
22 . P2147	MICON ENGINEERS (HUBLI) PVT. LTD. (Upto 24" (PN10 & PN16))
23 . P2014	VENUS PUMP & ENGINEERING WORKS (upto 600NB,150#)
24 . P0865	VIRGO ENGINEERS LTD. ((Triple Offset only): 3" to 24", Upto 600# (CS/SS))
25 . P0093	WEIR BDK VALVES (A UNIT OF WEIR INDIA PVT. LTD.) (Upto 56" (Upto 250#); 24" (300#))
26 . P0264	XOMOX SANMAR LIMITED (FISHER XOMOX)
JAPAN	
27 . P2200	TOMOE VALVE CO. LTD. (Upto 48" (150# & 300#), Upto 24" (600#, 900# & 1500#))
AUSTRIA	
28 . P0120	BHDT GMBH
CANADA	
29 . P0857	VELAN INC. (Size upto 48" (Rating upto 600#))
CHINA	
30 . P2173	BOTELI VALVE GROUP CO. LTD. (36" (150# & 300#))
31 . P2080	Zhejiang Jiehua Valve Co.,Ltd .
FRANCE	
32 . P2076	GRISS SAPAG INDUSTRIAL VALVES

120305 : BUTTERFLY VALVES

CODE	NAME
GERMANY	
33 . P2051	ADAMS ARMATUREN
ITALY	
34 . P0476	GTC ITALIA, S.R.L.
TAIWAN	
35 . P2007	HAITIMA CORPORATION
U.K.	
36 . P0489	LEEDS VALVE LTD
U.K	
37 . P2101	WEIR VALVES & CONTROLS DIVISION.
U.S.A.	
38 . P2068	CURTIS WRIGHT FLOW CONTROL CORPOARATION
39 . P0679	EMERSON PROCESS MGT
40 . P0488	LEAR SIEGLER MEAS. CTRLS. CORP.
41 . P0174	SPX VALVES & CONTROLS (COPES-VULCAN LTD)
42 . P0889	TYCO INTERNATIONAL INC.,U.S.A.
43 . P2102	XOMOS(CRANE CO)

ANNEXURE-II

**TABLE - 3.14
CHARACTERISTICS OF SOIL**

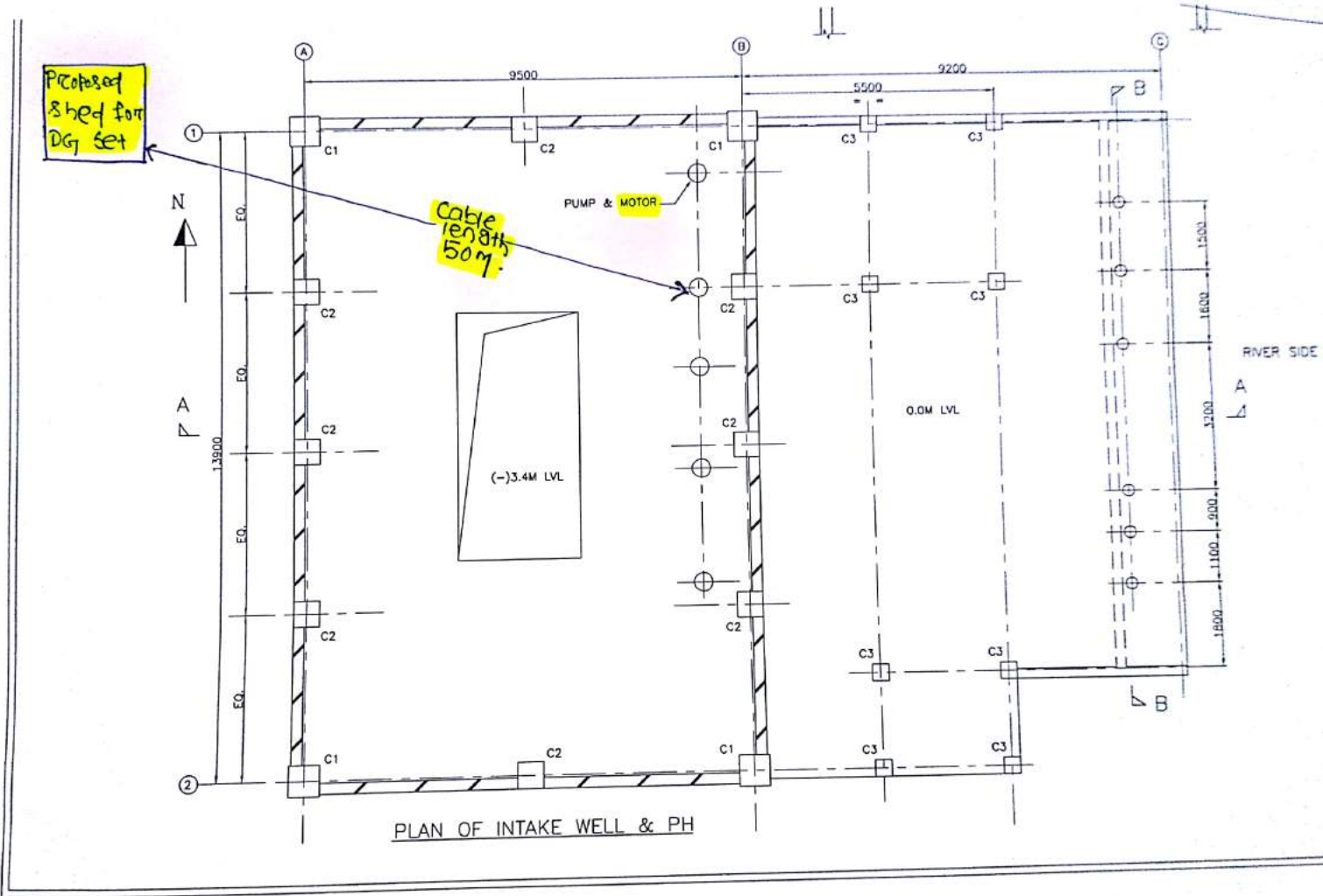
Period: December 2013 to February 2014

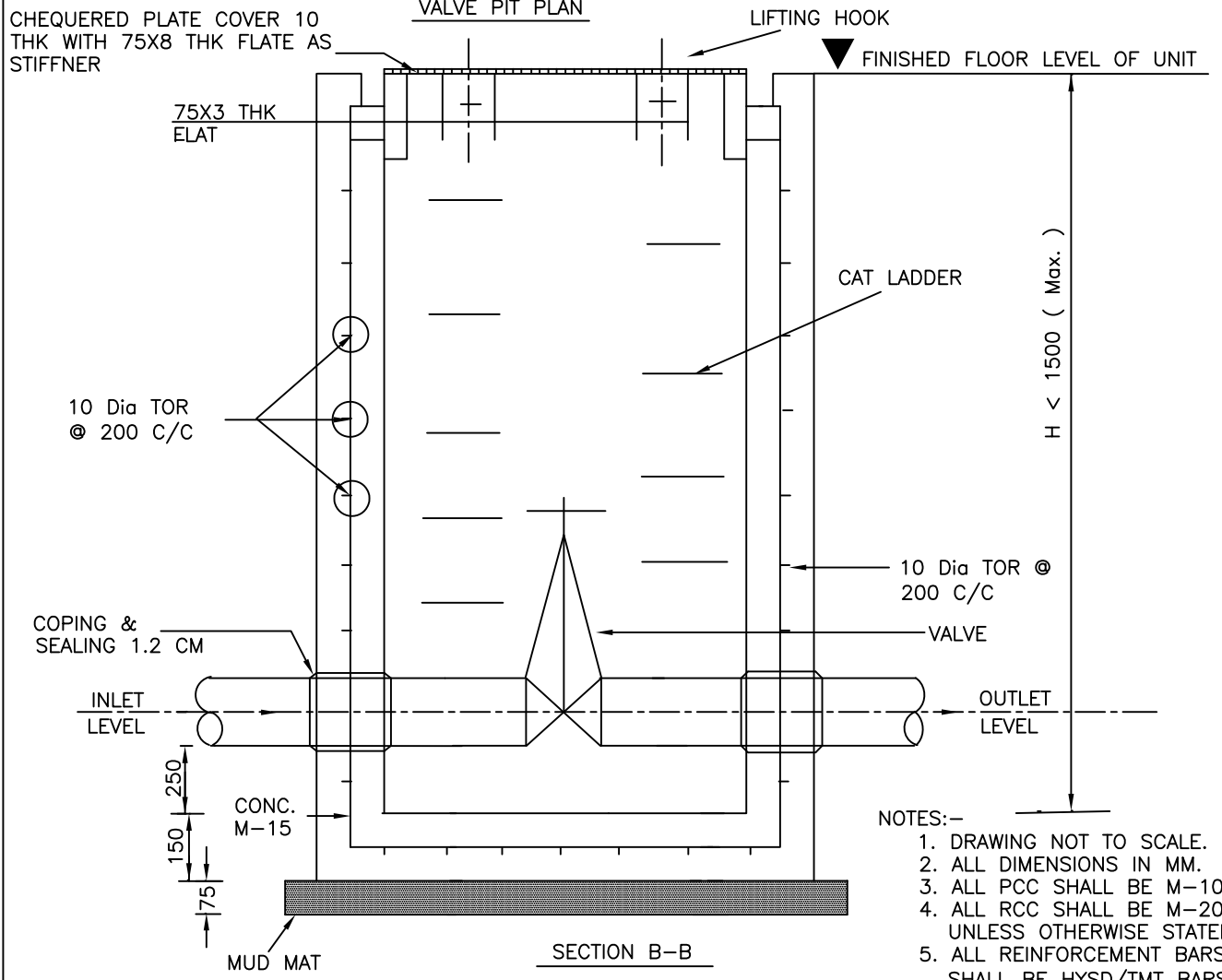
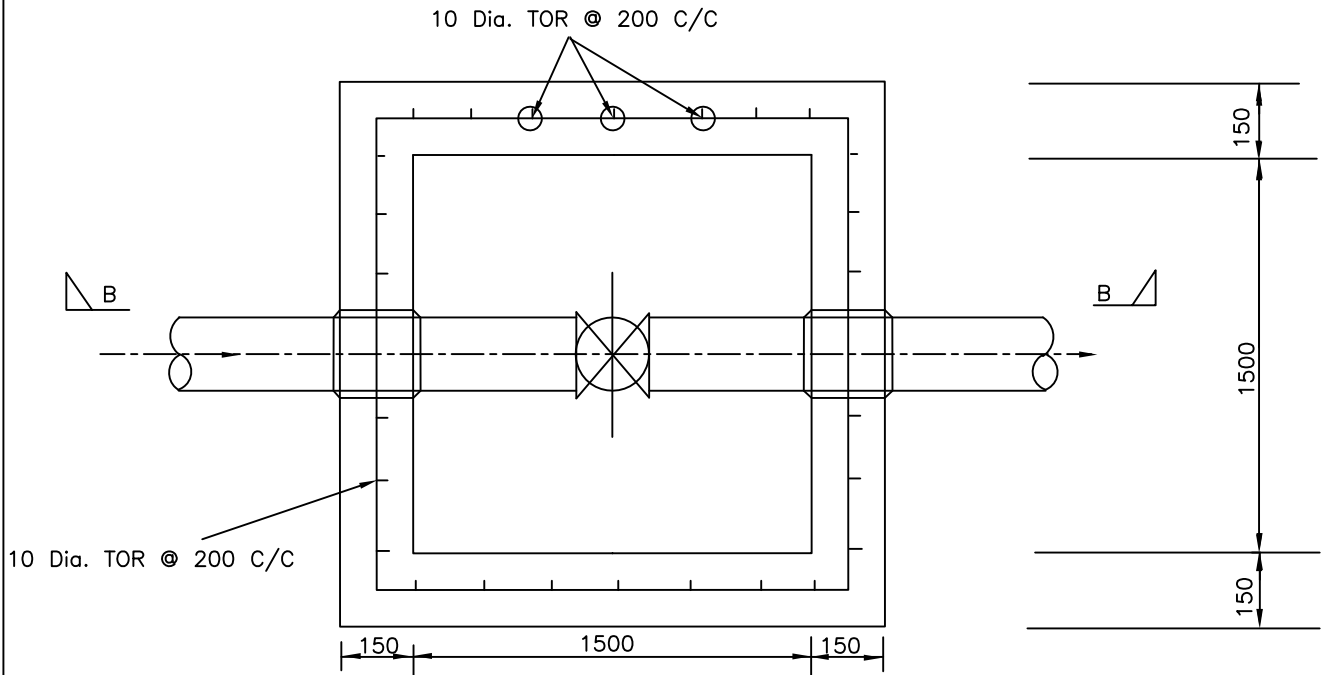
Location: Proposed project site SS1

Sl. No.	Parameters	Observed Value		
		SS ₁		
		(0-30cm)	(30-60cm)	(60-90cm)
1	Soil Texture	Sandy Clay	Sandy Clay	Sandy Clay
2	Grain Size,%			
	a) Sand	55.24	54.26	54.81
	b) Silt content	12.33	11.64	11.94
	c) Clay content	32.43	34.10	33.25
3	Porosity, %	40.2	40.6	39.8
4	Bulk Density, g/cm ³	1.32	1.31	1.33
5	pH	6.5	6.7	6.7
6	Elect. Conductivity (dS/cm at 20°C)	0.52	0.53	0.55
7	Water holding capacity %	42.2	42.6	41.8
8	Infiltration Rate (cm/hr.)	6.17	5.34	5.79
9	Available Magnesium, as MgO mg/kg	22.64	23.54	25.62
10	Organic Carbon %	0.86	0.87	0.90
11	Sodium Adsorption Ratio	1.34	1.36	1.40
12	Cation Exchange Capacity,Cmol(+)/kg	42.16	44.33	43.23
13	Nitrogen as N, mg/kg	136.22	138.64	140.21
14	Phosphorous as P ₂ O ₅ mg/kg	4.5	4.5	4.7
15	Potash as K ₂ O, mg/kg	33.24	35.26	35.84

Soil Fertility Quality Standard w.r.t C:N:P:K

Sl. No.	PARAMETERS	QUALITY STATUS		
		Poor	Medium	Fertile
1	Organic Carbon %	<0.5	0.5 to 0.75	>0.75
2	Nitrogen as N, kg/ha	<280	280 to 560	>560
3	Phosphorus as P ₂ O ₅ , kg/ha	<23	23 to 57	>57
4	Potash as K ₂ O, kg/ha	<133	133 to 337	>337





- NOTES:-
1. DRAWING NOT TO SCALE.
 2. ALL DIMENSIONS IN MM.
 3. ALL PCC SHALL BE M-10.
 4. ALL RCC SHALL BE M-20 UNLESS OTHERWISE STATED.
 5. ALL REINFORCEMENT BARS SHALL BE HYSD/TMT BARS.

0	09.07.18	ISSUED FOR TENDER PURPOSE	BKC	DD	Amar
REV	REV DATE	PURPOSE	PREPARED	REVIEWED	APPROVED