DM/CN/COR-OF/049 Dated: 08.08.2019

LETTER OF ACCEPTANCE

To,

M/s KEC-CCECC JV
KEC International Limited
8th Floor,Building No 9A, DLF Cyber City
Phase-III, Gurgaon 122002 (Haryana) India
Tel : 0124- 6757555
Fax : 0124- 6757698/99
Email id:- patilsr@kecrpg.com

(hereinafter termed as Contractor)

(Kind Attention- **Mr. Shashikant Rangarao Patil**)

Sub :- Tender No: Package-1: DM/CN/COR-OF/049 : Construction of elevated viaduct from start of elevated ramp near Sahibabad RRTS Station upto end of Ghaziabad RRTS Station, including all special spans and two nos. of elevated RRTS Stations viz., Sahibabad and Ghaziabad [excluding Architectural Finishing & Roof structure of Stations] of Delhi – Meerut Regional Rapid Transit System (RRTS) Corridor.

Ref :-

i. Press Advertisement dated 25.05.2019
ii. Bid Reference No. Package-1: DM/CN/COR-OF/049 dated 28.05.2019.
iii. Addendum No.1 published on 14.06.2019.
iv. Technical Bid opened on 09.07.2019.
v. Post Bid queries uploaded on 24.07.2019.
vi. Replies to Post bid Queries (Shortfall) downloaded on 02.08.2019.
vii. Financial Bid Opened on 05.08.2019

With reference to the above this is to inform to the Contractor that the bid for the subject work of "**Package-1: DM/CN/COR-OF/049 : Construction of elevated viaduct from start of elevated ramp near Sahibabad RRTS Station upto end of Ghaziabad RRTS Station, including all special spans and two nos. of elevated RRTS Stations viz., Sahibabad and Ghaziabad [excluding Architectural Finishing & Roof structure of Stations] of Delhi – Meerut Regional Rapid Transit System (RRTS) Corridor**" has been accepted by National Capital Region Transport Corporation Ltd (hereinafter termed as "Employer") at total contract value of **Rs. 579,76,46,139/- (Rupees Five Hundred Seventy Nine Crore Seventy Six Lakhs Fourty Six Thousand One Hundered Thirty Nine Only),** hereinafter termed as "Contract value", **inclusive of all taxes, duties, royalties etc. excluding GST.** The scope of work, accepted rates and terms/conditions applicable to this LOA are as under:

1.0 Scope of Work

received copy in original

In terms of **ITB 1.1 (Instructions to Bidders),** Section-1 of the bid documents, the scope of work covered under this LOA is as stipulated in **Part-II Employer's (Works) Requirement** under the bid documents read with amendments referred above, uploaded on Employer's website and submitted by the Contractor with their bid. The work shall be carried out as per the above scope of work.

8/8/2019

Registered & Corporate Office:
7/6, सिरी फोर्ट इंस्टीट्यूशनल एरिया, अगस्त क्रांति मार्ग, नई दिल्ली 110049
7/6, Siri Fort Institutional Area, August Kranti Marg, New Delhi 110049

ncrtc.in
CIN: U60200DL2013GOI256716
P: +91 11 41066943 F: +91 11 41066953
M: contactus@ncrtc.in

2.0 Accepted Rates/Cost and Payment Schedule

2.1 The accepted rates for various items of work covered under this LOA are stipulated in the Bill of Quantities enclosed as **Annexure-1 (containing Preamble Sheet, Summary Sheet, Breakup of Schedule-A, Schedule-B and Schedule-C)** to this LOA. The above accepted rates include all costs associated for performing the entire scope of work, all taxes, duties etc. complete except **GST.** GST will be paid extra as applicable on the submission of GST Invoices for first RA bill. The subsequent RA bill shall be processed for payment upon submission of documentary evidence towards payment of GST collected on the previous bill to the GST Authorities. The Final bill payment shall be released on the undertaking by the Contractor for providing evidence within 21 days from the close of month in which payment is released.

2.2 In terms of **Clause 11.1.3 of GCC, Section-5** of bid documents, the price escalation is payable on the accepted rates.

3.0 Completion Period

In terms of **Clause 1.1.3.11 of Appendix to Bid, Section-6** of the bid documents, the entire work shall be completed in a period of **30 months (130 weeks)** from the commencement date. The work shall be executed as per the Key Dates stipulated in Appendix-2B of Employer's Requirement under Appendices Section. As per **clause 8.1 of Appendix to Bid, Section-6,** the commencement date will start from 23.08.2019 i.e. 15 days from the date of issue of LOA.

4.0 Submission of Performance Security

In terms of **ITB 40 (Instructions to Bidders), Section-1** of the bid documents, within 28 days of receipt of this Letter of Acceptance by the Contractor, the Contractor shall furnish to the Employer a Performance Security in any of the forms stipulated in **Clause 4.2** of the **General Condition of Contract (GCC), Section-5 and Particular Conditions (PC), Section-6** of the bid document for an amount of **Rs. 57,97,64,614/- (Rupees Fifty Seven Crore Ninty Seven Lakhs Sixty Four Thousand Six Hundred Fourteen Only)** being amount equal to **10% (Ten Percent)** of the accepted Contract value as stated in **Clause 4.2 of Appendix to Bid, Section-6.**

5.0 Release of Bid Security

In terms of **ITB 19.5 (Instructions to bidders), Section-1** of the bid document, the bid security submitted by the Contractor with his bid shall be returned upon the execution of the contract agreement and on receipt of the performance security by the Employer or the condition stipulated in bid documents.

6.0 Signing of Contract Agreement

In terms of **ITB 41 of Section-1 (Instructions to Bidders)** of the bid documents, the Contractor shall enter into a contract agreement with the Employer for the works covered under this LOA within the time limits as specified therein. The Contractor shall be informed by the Employer about signing of contract agreement on receipt of acceptance of this LOA and Performance Security by the Employer.

7.0 Other Terms and Conditions

The execution of this contract shall be governed by the various stipulations in the bid documents and it's amendments referred above. Any deviation from the above conditions, submitted by the Contractor in its bid, if any, stands withdrawn.

8.0 Nomination of Engineer in Charge

In terms of Clause 3.1 of General Conditions of Contract, Section-5, it is to inform that **Chief Project Manager/Ghaziabad**, National Capital Region Transport Corporation Limited, Khasra No. 112, Gadi Guldhar, Delhi-Meerut Road, Ghaziabad,Uttar Pradesh-201017, Tel : 0120-2807800, Fax : 0120-2807800 has been nominated as the Engineer for the subject Contract. The Contractor is advised to interact with the above official for further instructions as regards the execution of works.

9.0 Acceptance of the LOA

This letter of acceptance is being issued in duplicate, in favour of the Contractor. The copy marked as "Duplicate" is required to be returned by the Contractor, duly signed and stamped on each page by the authorized signatory of the Contractor, as a token of Contractor unconditional acceptance of the same so as to reach the undersigned within seven days of issue of this letter. This LOA shall constitute a binding agreement between the Employer and the Contractor till such time a formal agreement is signed between the Employer and the Contractor for the execution of this contract.

Please acknowledge receipt of the letter.

Yours faithfully,

For & on behalf of
National Capital Region Transport Corporation Limited

7/6
Sin Fort Institutional Area
August Kranti Marg,
New Delhi-110049
NCRTC

(Dhanesh Gupta)
Group General Manager/Procurement

Encl: Annexure-1 (Bill of Quantities containing Preamble Sheet, Summary Sheet, Breakup of Schedule-A, Schedule-B and Schedule-C Total 73 pages).

NOTE:

1. **The rates of Schedule B and Schedule C should not be considered as reference last accepted rates for future tenders and positive variation in Schedule B and C may be undertaken only with the specific approval of the Chief Project Manager and concurrence of associate finance.**
2. **Copy to CPM/Ghaziabad – Engineer for the subject work in terms of Clause 3.1 of GCC for further necessary action.**

Copy to: ED/Design, CE/G, GGM/Finance, Chief Architect.

7/6
Sin Fort Institutional Area
August Kranti Marg,
New Delhi-110049
NCRTC

(Dhanesh Gupta)
Group General Manager/Procurement

ANNEXURE-1

BILL OF QUANTITIES

NATIONAL CAPITAL REGION TRANSPORT CORPORATION LIMITED

Package-1: DM/CN/COR-OF/049, Construction of elevated viaduct from start of elevated ramp near Sahibabad RRTS Station upto end of Ghaziabad RRTS Station, including all special spans and two nos. of elevated RRTS Stations viz., Sahibabad and Ghaziabad [excluding Architectural Finishing & Roof structure of Stations] of Delhi – Meerut Regional Rapid Transit System (RRTS) Corridor.

NATIONAL CAPITAL REGION TRANSPORT CORPORATION LTD.,
7/6, SIRIFORT INSTITUTIONAL AREA,
AUGUST KRANTI MARG, NEW DELHI –110 049

Bid No. Package-1: DM/CN/COR-OF/049

BILL OF QUANTITIES

PREAMBLE

1 The BOQ shall be read in conjunction with Notice for Invitation of Bids, Instruction to bidders, Bid Data sheet, General Conditions of Contract and Particular Conditions , Appendix, Technical specification, Employer's Requirements and Tender Drawings.

2 Schedule 'A' of BOQ comprises of structural works of Viaduct and stations.

3 Schedule 'B' of BOQ comprises of items of General Works and items as per DSR 2016 required for Viaduct & Stations.

4 Schedule 'C' of BOQ comprises of items related to Shifting/Rearranging of electrical, telecom and civil utilities. Unit rates of different items involved in shifting of various types of utilities are given in the Schedule 'C' without any quantities for any of the items .However total amount for this Schedule is specified. During exection of works ,these unit rates for individual items ,after applying the quoted/accepted percentage rate shall be adopted for working out the payable amounts for the quantities of various items executed by the Contractor.

5 The accepted rates and prices for various items in Schedule 'A', 'B' & 'C' of financial bid are for completed and finished items of work complete in all respect. The accepted rates and prices are deemed to include cost of all plants, labour, supervision , materials, transport, all temporary works, erection, maintenance, utility identification, SHE policy compliance, contractor's profit and establishment/overheads, mockup and testing , all general risks, insurance liabilities, compliance of labour laws and obligations set out or implied in the contracts etc complete.

6 The work executed against the Schedule 'A', 'B' & 'C' of BOQ would be paid on measurement basis.

7 The rates and prices shall be inclusive of all taxes, duties, cess, levies, royalties etc., which are applicable on the base date, except GST which will be paid extra as per para 2.1 of LOA.

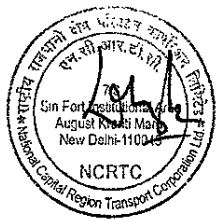
BILL OF QUANTITIES

SUMMARY SHEET

PACKAGE-1

Package-1: DM/CN/COR-OF/049, Construction of elevated viaduct from start of elevated ramp near Sahibabad RRTS Station upto end of Ghaziabad RRTS Station, including all special spans and two nos. of elevated RRTS Stations viz., Sahibabad and Ghaziabad [excluding Architectural Finishing & Roof structure of Stations] of Delhi – Meerut Regional Rapid Transit System (RRTS) Corridor.

NAME OF BIDDER			KEC-CCECC (JV)		
S.No.	Description	Amount of Respective Schedule	Percentage accepted above/below/ at par the total basic amount of respective schedule		Accepted Amount (INR)
			Above/below/at par	(Percentage (%age) in figure)	(in fig.)
1	2	3	4	5	6
1	Schedule-A: Structural Works (Viaduct & Stations)	**5,35,38,20,622.00**	Above	2.47	5,48,60,59,991.36
2	Schedule-B: General Works	**19,31,33,220.00**	Above	34.1	25,89,91,648.02
3	Schedule -C: Shifting / Rearranging of electrical, Telecom and civil Utilities - Rate Only (Please Refer BOQ Preamble Para. No. 4)	**3,50,00,000.00**	Above	50.27	5,25,94,500.00
	Total of Schedule A, B & C (S.No 1 to 3)	**5,58,19,53,842.00**	**N.A.**	**N.A.**	5,79,76,46,139.00



NATIONAL CAPITAL REGION TRANSPORT CORPORATION LIMITED

Package-1: DM/CN/COR-OF/049, Construction of elevated viaduct from start of elevated ramp near Sahibabad RRTS Station upto end of Ghaziabad RRTS Station, including all special spans and two nos. of elevated RRTS Stations viz., Sahibabad and Ghaziabad [excluding Architectural Finishing & Roof structure of Stations] of Delhi – Meerut Regional Rapid Transit System (RRTS) Corridor.

CONTRACT DM/CN-COR-OF/049
BILL OF QUANTITIES
Package 1

SCHEDULE-A		
Structural Works (Viaduct & Stations)		
Item	**Description**	**Amount (Rs)**
1	Sub-head VS01: Foundation	97,16,73,245
2	Sub-head VS02: In-Situ Concrete Works	38,35,59,695
3	Sub-head VS03: Precast Concrete Works for Superstructure	1,06,67,43,895
4	Sub-head VS04: Reinforcing and Pre-Stressing Steel	2,12,05,15,934
5	Sub-head VS05: Structural Steel	64,89,59,090
6	Sub-head VS06: Bearings	28,000
7	Sub-head VS07: Brick/Block work	2,06,55,738
8	Sub-head VS08: Miscellaneous Items	14,16,85,026
	GRAND TOTAL OF SCHEDULE-A	5,35,38,20,622

Item	Description	As per BOQ			
		Unit	Est. Qty	Unit Rate (Rs.)	BOQ Amount (Rs)
VS01	FOUNDATION				
1.1	Providing and installing cast-in-situ vertical bored piles of approximate depth as per drawing and with M40/20 grade of concrete (using cement as per technical specification) incl all operations such as installation and shifting of piling rig etc, in all soil strata along elevated section. The cost shall also include the cost of empty boring wherever required. The stated length include test piles for initial load tests. (Measurement shall be from cut-off level to founding level). The item includes disposal of earth, muck, slush released from piles at contractor's own disposal ground for all leads and lifts. Reinforcement shall be paid separately. Rate shall include cost of using required dosage of admixture in concrete for obtaining required workability as per approval of Engineer-in-charge. Rate shall include provision of A class Mild Steel pipes of 50mm (in each pile as per technical specification)) outer Diameter as per technical specification, 2.9mm thick (light) as per IS:1239 in all piles at the time of casting to be used for cross-hole sonic test (irrespective of either it is used for cross hole sonic test or not). Pipes shall extend from ground level to bottom of pile where pipe shall be sealed at bottom. Rate shall include filling of tubes after sonic test using standard cement non-shrink mortar before casting of pile cap/transition block. The item includes drilling and socketing in rock at required depth. The item shall also include the cost of polymer to be used for stabilisation of bore.				
	Note: 600 mm dia, 800 mm dia, 1000 mm dia, 1200 mm dia and 1500 mm dia multiple pile foundations will be implemented. The lengths of each pile diameter is indicative only and may vary in Detailed Design stage.				
i	For 600 mm dia Pile				
	(i) By hydraulic rigs using partial depth temporary casing and polymer	RM	640	5715.00	3657600.00
ii	For 800 mm dia Pile				
	(i) By hydraulic rigs using partial depth temporary casing and polymer	RM	640	8705.00	5571200.00
iii	For 1000 mm dia Pile				

Item	Description	As per BOQ			
		Unit	Est. Qty	Unit Rate (Rs.)	BOQ Amount (Rs)
	(i) By hydraulic rigs using partial depth temporary casing and polymer	RM	9775	11560.00	112999000.00
	(ii) Extra over (1.1) above for drilling and Socketing in rock (UCS from 12.5MPa to 50MPa) with total socketting length up to 2xDiameter of pile	RM	30	9635.00	289050.00
	(iii) Extra over (1.1) above for drilling and Socketing in rock (UCS less than 12.5MPa) with total socketting length beyond 2xDiameter of pile	RM	20	8030.00	160600.00
iv	For 1200 mm dia Pile				
	(i) By hydraulic rigs using partial depth temporary casing and polymer	RM	28694	15895.00	456091130.00
	(ii) Extra over (i) above for drilling and Socketing in rock (UCS from 12.5MPa to 50MPa) with total socketting length up to 2xD (2.4 m) for 1200 mm dia pile	RM	50	9635.00	481750.00
	(iii) Extra over (i) above for drilling and Socketing in rock (UCS less than 12.5MPa) with total socketting length beyond 2xD (2.4 m) for 1200 mm dia pile	RM	30	8030.00	240900.00
v	For 1500mm dia Pile				
	(i) By hydraulic rigs using partial depth temporary casing and polymer	RM	1760	24835.00	43709600.00
	(ii) Extra over (i) above for drilling and Socketing in rock (UCS from 12.5Mpa to 50MPa) with total socketting length up to 2xD (3.0 m) for 1500 mm dia pile	RM	10	12550.00	125500.00
	(iii) Extra over (i) above for drilling and Socketing in rock (UCS less than12.5 MPa) with total socketting length beyond 2xD (3.0 m) for 1500mm dia pile	RM	10	15060.00	150600.00
vi	Extra over concrete item 1.1 above for using M50/20 concrete (cement as per technical specification) instead of M40/20 concrete.	cum	1000	556.00	556000.00
1.2	Providing and fixing permanent Mild steel liner (of required thickness or as directed by engineer-in-charge) for 600/800/1000/1200 /1500 mm dia bored cast-in-situ piles where ever required as per the approved construction drawings and directions of engineer-in-charge all complete and applying a priming coat of approved steel primer as per technical specifications	MT	1150	85390.00	98198500.00
	Measurement :-				

Item	Description	As per BOQ			
		Unit	Est. Qty	Unit Rate (Rs.)	BOQ Amount (Rs)
	The payment of liner shall be made in MT as per the area of the MS plate provided in liner multiplied by standard weight coefficient or actual weight, whichever is less . The measurement will be made for the length of liner provided correct to one centimeter upto soffit of pile cap.				
1.3	Carrying out initial vertical load tests as per relevant IS Codes including all arrangements for measuring deflections and submitting reports as per specification. This includes making of pile head ready for testing at the desired level, supporting / reaction arrangement (including reaction piles/soil/rock anchors, if any) for the kentledge load. (Cost of pile to be tested is paid in item 1.1).				
	(i) 1500 mm dia pile (3 times the theoretical design vertical load capacity of 1300 t , The test arrangements to be designed shall cater for additional 25% above test load)	Nos.	2	2931510.00	5863020.00
	(ii) 1200 mm dia pile (3 times the theoretical design vertical load capacity of 1012 t , The test arrangements to be designed shall cater for additional 25% above test load)	Nos.	5	1879170.00	9395850.00
	(iii) 1000 mm dia pile (3times the theoretical design vertical load capacity of 800 t , The test arrangements to be designed shall cater for additional 25% above test load)	Nos.	5	1445520.00	7227600.00
	(iv) 800 mm dia pile (3times the theoretical design vertical load capacity of 400 t , The test arrangements to be designed shall cater for additional 25% above test load)	Nos.	2	1153455.00	2306910.00
	(v) 600 mm dia pile (3 times the theoretical design vertical load capacity of 300t , The test arrangements to be designed shall cater for additional 25% above test load)	Nos.	2	1153455.00	2306910.00
	Note: For every addition/reduction of 50 tonne or part thereof for the vertical load for which the Piles will be tested, addition/ reduction of Rs. 98438 for every 50 MT or part thereof over the accepted rate for item no.1.3 above shall be effected.				
1.4	Carrying out initial lateral load tests as per relevant IS Codes including all arrangements for measuring deflections and submitting reports as per specification and approved drawing. This includes making of pile head ready for testing at the desired level, supporting / reaction arrangement (include reaction piles/ soil/rock anchors, if any) for the kentledge load. (Cost of pile is paid in item 1.1).				
	(i) 1500 mm dia pile (2.5 times the theoretical design lateral load capacity of 12 t)	Nos.	2	225500.00	451000.00
	(ii) 1200 mm dia pile (2.5 times the theoretical design lateral load capacity of 10 t)	Nos.	5	144550.00	722750.00

Item	Description	As per BOQ			
		Unit	Est. Qty	Unit Rate (Rs.)	BOQ Amount (Rs)
	(iii) 1000 mm dia pile (2.5 times the theoretical design lateral load capacity of 8 t)	Nos.	5	80305.00	401525.00
	(iv) 800 mm dia pile (2.5 times the theoretical design lateral load capacity of 7.2 t)	Nos.	2	46995.00	93990.00
	(v) 600 mm dia pile (2.5 times the theoretical design lateral load capacity of 6 t)	Nos.	2	46995.00	93990.00
	Note : The accepted rate shall remain unchanged for variation in test load of ± 25% than the test load stipulated above in item no. 1.4 above.				
1.5	Carrying out static routine vertical load tests as per relevant IS Codes including all arrangements for measuring deflections and submitting reports. This includes making of pile head ready for testing at the desired level, supporting / reaction arrangement (incl. reaction piles/soil/rock anchors, if any) for the kentledge load.				
	(i) 1500 mm dia pile (1.5 times the theoretical design vertical load capacity of 1300 t.)	Nos.	1	1302895.00	1302895.00
	(ii) 1200 mm dia pile (1.5 times the theoretical design vertical load capacity of 1012 t.)	Nos.	21	835190.00	17538990.00
	(iii) 1000 mm dia pile (1.5 times the theoretical design vertical load capacity of 800 t.)	Nos.	9	642450.00	5782050.00
	(iv) 800 mm dia pile (1.5 times the theoretical design vertical load capacity of 400 t.)	Nos.	4	512645.00	2050580.00
	(v) 600 mm dia pile (1.5 times the theoretical design vertical load capacity of 300 t.)	Nos.	4	512645.00	2050580.00
	Note : The accepted rate shall remain unchanged for variation in test load of ± 25% than the test load stipulated above in item no. 1.5 above.				
1.6	Carrying out dynamic routine vertical load tests as directed by the Engineer-in-charge including all arrangements for measuring deflections and submitting reports. This includes making of pile head ready for testing at the desired level, supporting / reaction arrangement (incl. reaction piles/soil/rock anchors, if any) for the kentledge load.				
	(i) 1500 mm dia pile (1.5 times the theoretical design vertical load capacity of 1300 t.)	Nos.	1	501115.00	501115.00
	(ii) 1200 mm dia pile (1.5 times the theoretical design vertical load capacity of 1012 t.)	Nos.	21	321225.00	6745725.00
	(iii) 1000 mm dia pile (1.5 times the theoretical design vertical load capacity of 800 t.)	Nos.	9	321225.00	2891025.00
	(iv) 800 mm dia pile (1.5 times the theoretical design vertical load capacity of 400 t.)	Nos.	4	256340.00	1025360.00

Item	Description	As per BOQ			
		Unit	Est. Qty	Unit Rate (Rs.)	BOQ Amount (Rs)
	(v) 600 mm dia pile (1.5 times the theoretical design vertical load capacity of 300 t.)	Nos.	4	256340.00	1025360.00
	Note : The accepted rate shall remain unchanged for variation in test load of ± 25% than the test load stipulated above in item no. 1.6 above.				
1.7	Carrying out static routine lateral load tests as per relevant IS Codes including all arrangements for measuring deflections and submitting reports. This includes making of pile head ready for testing at the desired level, supporting / reaction arrangement (incl. reaction piles/ soil/ rock anchors, if any) for the kentledge load.				
	(i) 1500 mm dia pile (1.5 times the theoretical design lateral load capacity of 12 t)	Nos.	1	225500.00	225500.00
	(ii) 1200 mm dia pile (1.5 times the theoretical design lateral load capacity of 10 t)	Nos.	21	144550.00	3035550.00
	(iii) 1000 mm dia pile (1.5 times the theoretical design lateral load capacity of 8 t)	Nos.	9	80305.00	722745.00
	(iv) 800 mm dia pile (1.5 times the theoretical design lateral load capacity of 7.2 t)	Nos.	4	46990.00	187960.00
	(v) 600 mm dia pile (1.5 times the theoretical design lateral load capacity of 6 t)	Nos.	4	46990.00	187960.00
	Note : The accepted rate shall remain unchanged for variation in test load of ± 25% than the test load stipulated above in item no. 1.7 above.				
1.8	Non destructive integrity testing of cast in situ piles of 600/800/1000/1200/1500mm dia and as per specifications, and submitting reports. (Payment shall be made for number of piles tested)	Nos.	1567	3210.00	5030070.00
1.9	Integrity pile test using cross hole sonic logging for 600/800/1000/1200/1500 mm diameter pile as per the provision of ASTM standard D6760, as per drawings & technical specifications. (Payment shall be made for number of piles tested)	Nos.	439	4845.00	2126955.00
1.10	Excavating Trial Pit of 1 m x 5 m, up to bottom of pile cap at pile cap locations in all types of strata to find out underground utilities as directed by Engineer-in-charge.	Nos.	387	1070.00	414090.00
1.11	Carrying out Ground Penetrating Radar (GPR) survey with appropriate equipments and relevant specifications to locate underground utilities upto 6m depth of 5m x 5m grid at the location as directed by Engineer-in-charge. Cost should include preparation of report and drawings both in soft and hard copy.	sqm	3610	130.00	469300.00

Item	Description	As per BOQ			
		Unit	Est. Qty	Unit Rate (Rs.)	BOQ Amount (Rs)
1.12	Providing and laying M15/20 grade plain cement concrete (PCC) for minimum 75 mm thickness below pile cap/tie beam/open foundation/Under ground water tank/grade slab/raft/ramp foundation etc. Rate shall include preparing surface to receive PCC, shuttering and the cost of required dosage of admixture in concrete for obtaining required workability as per specifications and approval of Engineer-in-charge.	cum	995	4930.00	4905350.00
1.13	Providing and laying M40/20 grade reinforced cement concrete (cement as per technical specifications) for pile cap (part of the foundation) including excavation through existing ground in concrete and water bound macadam road/bituminous road/cement concrete road of all thicknesses, soft and stiff clays including dismantling piles above cut off level and other structures, dead utilities etc. including dewatering, pumping and bailing out water, shuttering & shoring etc.The item includes disposal of earth, muck, slush released from piles, top cut portion of pile using lockable and covered trucks so as to ensure that during transportation the carried material does not spill out, at contractor's own disposal ground for all leads and lifts.This item also includes cost involved in curing, required dosage of admixture in concrete for obtaining required workability as per specifications & approval of Engineer-in-charge, providing shoring on all sides of excavated ground or road, all formwork and backfilling with suitable material in foundation in layers including watering, compacting with a vibratory plate compactor. Reinforcement shall be paid separately. Measurement shall be considered only for the total volume of pile cap concrete (excluding PCC below pile cap) as per the approved drawings.				
	(a) Backfilling with coarse sand	cum	20688	7480.00	154746240.00
	(b) Deduction over (a) above for back filling with excavated material	cum	4905	-665.00	-3261825.00
	Note : The disposal of cut pile heads shall be done as per the provision in Particular Conditions.				

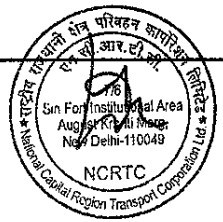
Item	Description	As per BOQ			
		Unit	Est. Qty	Unit Rate (Rs.)	BOQ Amount (Rs)
1.14	Providing M40/20 concrete (cement as per technical specification) for open foundation, grade beams, tie beams, basement slab, ancillary building foundation slab, retaining wall bottom slab etc including excavation through existing ground and water bound macadam road/bituminous road/cement concrete road of all thicknesses, soft and stiff clays including dismantling other structures, dead utilities etc. including dewatering, pumping and bailing out water. This item also includes cost involved in curing, required dosage of admixture in concrete for obtaining required workability as per specifications & approval of Engineer-in-charge, providing shoring on all sides of excavated ground or road, all formwork and backfilling with suitable material in foundation in layers including watering, compacting with a vibratory plate compactor and loading, leading and disposal of surplus excavated material using covered trucks so as to ensure that during transportation the carried material does not spill out, at contractor's own disposal ground for all leads. Reinforcement shall be paid separately.				
a	Back filling with coarse sand	cum	1376	7950.00	10939200.00
b	Deduction over (a) above for back filling with excavated material	cum	97	-665.00	-64505.00
	Sub Total - Foundations:				**971673245**
VS02	**IN-SITU CONCRETE WORKS**				
2.1	Providing and laying M40/20 grade cement concrete (cement as per technical specification) for reinforced cement concrete crash barrier/pier/ bund wall protection all-round the viaduct/station piers/portal piers etc. leaving a gap of 25mm minimum between and following the pier shape exactly on at grade road and stitch concrete of parapet etc. as specified in drawings, including centering, shuttering, scaffolding, curing, making grooves, logo etc, if any , as per drawing and all related operations as required to complete the work.The gap shall be filled with compressible filler board of high density as directed by Engineer-in-charge/as per approved drawings .Reinforcement shall be paid seprately. Rate shall also include the cost of required dosage of admixture in concrete for obtaining required workability and cost of compressible fibre board as per specification and approval of Engineer-in-charge.	cum	1312	7880.00	10338560.00

Item	Description	As per BOQ			
		Unit	Est. Qty	Unit Rate (Rs.)	BOQ Amount (Rs)
2.2	Providing M55/20 concrete (cement as per technical specification) for Viaduct & Station piers of all heights (standard pier, portal pier, cantilever piers, Pier for Depot Line, Piers for cross-over structures, abutment stem and stem wall) incl. shuttering, scaffolding, making grooves, logo etc, if any , as per drawing and all related operations as required for completing the work. Pier and pier head to be cast in separate stages as indicated in specifications. Reinforcement shall be paid separately. Rate shall include cost of using required dosage of admixture in concrete for obtaining required workability as per approval of Engineer-in-charge. Note: The shape of pier may be square/rectangularb/circular/Eliptical/Double-D etc. with **grooves. The grooves shown in the drawing may undergo changes during detailed design.**	cum	15481	9255.00	143276655.00
2.3	Providing M55/20 concrete (cement as per technical specification) for Portal girder (integral to pier) including centering, steel shuttering, scaffolding, making grooves, logo etc, if any , as per drawing and all related operations as required to complete the work as specified in drawings. Reinforcement shall be paid separately. Rate shall include cost of using required dosage of admixture in concrete for obtaining required workability as per approval of Engineer-in-charge.	cum	1643	9255.00	15205965.00
2.4	Providing M55/20 concrete (cement as per technical specification) for cantilever pier cap/Normal pier cap viaduct including centering, steel shuttering, scaffolding, making grooves, logo etc, if any , as per drawing and all related operations as required to complete the work as specified in drawings. Reinforcement shall be paid separately. Rate shall include cost of using required dosage of admixture in concrete for obtaining required workability as per approval of Engineer-in-charge.	cum	4419	9255.00	40897845.00
2.5	Providing M55/20 concrete (cement as per technical specification) for Pedestals and Shear Key/Seismic Stopper including centering, steel shuttering, scaffolding and all related operations as required to complete the work as specified in drawings. Reinforcement shall be paid separately. Rate shall include cost of using required dosage of admixture in concrete for obtaining required workability as per approval of Engineer-in-charge.	cum	380	9255.00	3516900.00
2.6	(a) Extra over item 2.2 (or 2.5 and item 3.1, 3.10 and 3.13 for Using Microsilica in M55/20 or M60/20 grade of Concrete.	kg	438460	25.00	10961500.00
	(b)Extra over concrete item 2.4 and. 2.5 above for using M60/20 concrete (cement as per technical specification) instead of M55/20 concrete.	cum	87	1320.00	114840.00

Item	Description	As per BOQ			
		Unit	Est. Qty	Unit Rate (Rs.)	BOQ Amount (Rs)
2.7	Providing M 40/20 concrete (cement as per technical specification) for structural elements at all levels like floor slabs, track slabs, chajja slabs, floor beams, cross beams, cantiliver beams, inverted beams, gutter beams, shafts, walls, stair case slab including steps, sills, lintels, copings, pits etc., including centering, steel shuttering, scaffolding and all related operations as required to complete the work as specified in drawings. Reinforcement shall be paid separately. Rate shall include cost of using required dosage of admixture in concrete for obtaining required workability as per approval of Engineer-in-charge. Rate shall include using of steel material for shuttering with suitable pads required for architectural finishes & steel props including of providing grooves, chamfers, moulding, cutout etc. with suitable arrangement in the formwork (Doka or equivalent), placing in proper position with all types of inserts (contractor's or those provided by others), shear connectors etc. complete as per drawings, specifications and as directed by the Engineer-in-charge. The rate shall also include construction joints as per specification and providing approved wire mesh/weld mesh at such location as approved by Engineer-in-charge or as shown in drawings.	cum	14500	7880.00	114260000.00
i	(a) Deduction for Providing M35/20 instead of M40/20 covered under item 2.7 above.	cum	1000	-115.00	-115000.00
ii	(b) Deduction for Providing M30/20 instead of M40/20 covered under item 2.7 above.	cum	500	-235.00	-117500.00
2.8	Providing M 55/20 concrete (cement as per technical specification) in deck slab over Precast I-Beams/Steel beams/truss & cross girder including centering, steel shuttering, scaffolding and all related operations as required to complete the work as specified in drawings. Rate includes provision of sacrificial formwork for casting of slab. Reinforcement shall be paid separately. Rate shall include cost of using required dosage of admixture in concrete for obtaining required workability as per approval of Engineer-in-charge.	cum	4886	9255.00	45219930.00
	Sub Total - In situ Concrete Works:				**383559695**
VS03	**PRECAST CONCRETE FOR SUPERSTRUCTURE**				

Item	Description	As per BOQ			
		Unit	Est. Qty	Unit Rate (Rs.)	BOQ Amount (Rs)
3.1	Providing M55/20, Casting and Curing Precast RCC box girders/segments of all simply supported standard/special spans (straight or curved), spans upto 37m with segment of various lengths, in the casting yard including provision of shear connector for secondary pour concrete (rail plinths), bolt holes for fixation of handrails and OHE mast, lifting the segments from the mould and shifting the same to the stacking yard. (Note: The cost shall be inclusive of the cost of casting yard,gantry,moulds,providing cutouts wherever specified, Curing arrangements as required, all handlings etc. complete). Reinforcement , anchorages and sheathing shall be paid separately. Rate shall include cost of using required dosage of admixtures in concrete for obtaining required workability as per approval of Engineer. It may be noted that inner shutter for the special spans shall be different from the standard spans.	cum	49303	10580.00	521625740.00
	Note: The payment schedule for Item No. 3.1 shall be as follows:-				
	(i) On submission of Method statement, i.e detailed design,working drawings of casting yard, formwork, staging, stacking yard, EOT cranes and approval of the same by Engineer-0.5% of accepted amount for item no. 3.1				
	ii) Providing Casting yard,formwork, staging, stacking yard, batching plant, covered sheds for casting beds, installation of T & P etc.,curing arrangement & casting of one mock up segment and its approval - 5% of accepted amount for item no. 3.1				
	(iii) Providing and casting pre-cast segment in simply supported spans as detailed above-50% of accepted rate for item 3.1 till the amount paid vide as above in (i) and (ii) is adjusted, thereafter at accepted rates.				
	(a) Extra for Providing M60/20 instead of M55/20 covered under item 3.1 above.	cum	49303	515.00	25391045.00
3.2	Transporting precast Box girder/RCC segments of simply supported span (special as well as standard) from the casting yard to work site, launching or erection in postion on launching girder supports,installation of Spherical/POT PTFE bearings supplied by the Employer as per the manual of bearing manufacturer under the supervision of bearing manufacturer , including the cost of temporary supports, launching girder, erection equipment, transporting etc. applying epoxy-based bonding agent on end surfaces of segments including temporary bar prestressing required during its curing period and positioning on bearings etc as directed by the Engineer.	MT	123258	1850.00	228027300.00
	Note: The payment schedule for Item No. 3.2 shall be as follows:-				

Item	Description	As per BOQ			
		Unit	Est. Qty	Unit Rate (Rs.)	BOQ Amount (Rs)
	(i) Fabrication, erection, full load testing of Launching Girder and mobilisation of cranes, trailors, etc. and erection of one pre-cast segment- 10% of accepted amount of item no.3.2 for mobilizing of all launching girder.				
	(ii) Transporting and launching in position pre-cast segments of simply support span as detailed above- 50% of accepted rate for item no. 3.2 till the amount paid vide (i) above is adjusted thereafter at accepted rates.				
3.3	Static Load Test of Segmental Box Girder span – Load testing of full Box Girder span including arrangements for applications of serviceable vertical load for measuring deflection and calculating rotations and submitting a report upto maximum load of 600 T. The sequence of placement, position of loading, means of loadings to be applied on structure during test, additional measures to be carried out (such as temperature measures) shall be as directed by the Engineer-in-charge. The rate shall include the cost of 25% variation of load. Note: The scheme of load testing shall be given by contractor and approved by Engineer-in-charge.	Nos.	4	360190.00	1440760.00
3.4	Static Load Test of Composite span – Load testing of full Superstructure span at site, erected in position, including arrangements for applications of serviceable vertical load for measuring deflection and calculating rotations and submitting a report upto maximum load of 600 T. The sequence of placement, position of loading, means of loadings to be applied on structure during test, additional measures to be carried out (such as temperature measures) shall be as directed by the Engineer-in-charge. The rate shall include the cost of 25% variation of load. Note: The scheme of load testing shall be given by contractor and approved by Engineer-in-charge.	Nos.	1	360190.00	360190.00
3.5	Static Load Test of Steel composite span – Load testing of full Superstructure span at site, erected in position, including arrangements for applications of serviceable vertical load for measuring deflection and calculating rotations and submitting a report upto maximum load of 1800 T. The sequence of placement, position of loading, means of loadings to be applied on structure during test, additional measures to be carried out (such as temperature measures) shall be as directed by the Engineer. The rate shall include the cost of 25% variation of load. Note: The scheme of load testing shall be given by contractor and approved by Engineer-in-charge.	Nos.	2	1080580.00	2161160.00



Item	Description	As per BOQ			
		Unit	Est. Qty	Unit Rate (Rs.)	BOQ Amount (Rs)
3.6	Providing, pre-casting and curing precast concrete (cement as per technical specification) Parapet of M40/20 grade for PSC Box girder /PSC I-Girder/Steel composite girder/cross-over structures. Reinforcement shall be paid separately. Rate shall include cost of using required dosage of admixture in concrete for obtaining required workability as per approval of Engineer-in-charge. (Note : The cost shall be inclusive of the cost of moulds, providing cut outs, making grooves, logo etc, if any , as per drawing, inserts where specified, curing arrangements as required, all handling for precast concrete elements in an approved manner etc. complete). (Note : The Transportion, erection & installation of these parapets shall be paid under item no. 3.8)	cum	1698	10370.00	17608260.00
3.7	"Extra over item 3.6 for providing and mixing multi dimensional graded fibrillated (interconnected bundles of fibres that open up during the mixing process) 100% virgin polypropylene fibres in the concrete @ 0.9 kg of fibres percum of concrete. Fibrillated polypropylene fibres shall have a specific gravity of 0.91 and shall be manufactured to comply with EN 14889–2:2006 class Ib and ASTM C 1116-97 Type III	cum	6881	415.00	2855615.00
3.8	Transporting and erection & installation of these parapets for cross-over structures into completed structures conforming to required lines and level, grades and dimensions complete as per drawings and specifications for all leads and lifts.	MT	5495	1454.00	7989730.00
3.9	Providing M25/10 concrete(cement as per technical specification) casting, curing, transporting, installing precast cable trough cover slab over trough/drains/sumps and all other locations as called for etc. complete cast to profile and the thickness as required and/or as directed, cured, hoisted and installed at all stages (Note : The cost shall be inclusive of the cost of moulds, providing cutouts , inserts where specified, curing arrangements as required, all handling, transporting, placing, aligning, providing temporary supports and stays for precast concrete elements in an approved manner etc. complete). Reinforcement shall be paid separately.Rate shall include cost of using required dosage of admixture in concrete for obtaining required workability as per approval of Engineer-in-charge.	cum	25	10605.00	265125.00

Item	Description	As per BOQ			
		Unit	Est. Qty	Unit Rate (Rs.)	BOQ Amount (Rs)
3.10	Providing M55/20 concrete(cement as per technical specification) for casting, pre-stressing and curing of precast Solid/U-Section Portal Pier Caps supporting superstructure, Normal pier cap supporting structure, in-situ connection with pier, in-situ concrete inside U-section, making grooves, logo etc, if any , as per drawing. The item includes lifting the pier caps from the mould and shifting the same to the stacking yard.The item includes provision of holes for lifting and filling of holes after erection using non-shrink cement mortar. (Note : the cost shall be inclusive of the cost of casting yard, gantry, moulds, providing cutouts where specified, curing arrangements as required, all handling, non-shrink cement mortar/concrete, temporary support etc. complete). Reinforcement, anchorages and sheathing shall be paid separately. Rate shall include cost of using required dosage of admixture in concrete for obtaining required workability as per approval of Engineer-in-charge.	cum	141	10580.00	1491780.00
3.11	Extra over concrete item 3.10 above for using M60/20 concrete (cement as per technical specification) instead of M 55/20 concrete in precast Solid/U-Section Portal Pier Caps	cum	50	1320.00	66000.00
	The payment schedule for item no. 3.10 & 3.11 shall be as follows:				
	(i) On submission of Method statement, i.e detailed design, working drawings of casting yard, formwork, staging, stacking yard, EOT cranes etc. and approval of the same by Engineer - 0.5% of accepted amount for item no. 3.10 & 3.11				
	(ii) Providing Casting Yard, formwork, staging, stacking yard, batching plant, covered shed for casting beds, installation of T & P etc., curing arrangement and casting of one mock up pier cap and its approval - 15% of accepted amount for item no. 3.10 & 3.11				
	(iii) Providing and casting pre-cast pier cap as detailed in item no. 3.10 & 3.11- 50% of accepted rate for item no. 3.10 & 3.11 till the amount paid vide i & ii above is adjusted, thereafter at accepted rates.				
	(iv) The balance amount for item no. 3.10 & 3.11 shall be paid after satisfactory completion of work as approved by Engineer.				
3.12	Transporting precast solid/U-Section Portal pier cap from the casting yard to work site, erection in position, installation of Spherical/POT PTFE bearings supplied by NCRTC as per the manual of bearing manufacturer under the supervision of bearing manufacturer, including the cost of all temporary supports, erection equipment, lifting cranes, transporting etc, positioning and fixing on pier as directed by the Engineer.	MT	250	1660.00	415000.00

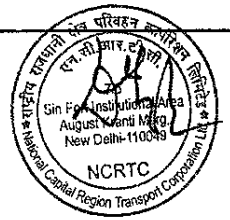
Item	Description	As per BOQ			
		Unit	Est. Qty	Unit Rate (Rs.)	BOQ Amount (Rs)
	The payment schedule for item no. 3.12 shall be as follows:				
	(i) On submission of Method Statements, i.e., detailed design and shop drawings for all temporary equipments and approval of the same by the Engineer in charge - 0.5% of accepted amount for item no. 3.12.				
	(ii) Mobilisation of cranes, trailers etc. and erection of one pre-cast pier cap - 10% of accepted amount of item no. 3.12 for mobilizing all erection equipments.				
	(iii) Transporting and erecting in position as detailed in items no. 3.12 - 40% of accepted rates for amount of item no. 3.12 till the amount paid vide (iv) & (v) above is adjusted thereafter at accepted rates.				
	(iv) The balance amount for item no. 3.12 shall be paid after satisfactory completion of work as approved by Engineer.				
3.13	Providing, pre-casting and curing precast post tensioned concrete (cement as per technical specification) I-Beam of M55/20 grade for superstructure/portal Beams .Reinforcement shall be paid separately. Rate shall include cost of using required dosage of admixture in concrete for obtaining required workability as per approval of Engineer	cum	17900	10190.00	182401000.00
	The payment schedule for item no. 3.13 shall be as follows:				
	(i) On submission of Method statement, i.e detailed design, working drawings of casting yard, formwork, stagging, stacking yard, EOT cranes etc. and approval of the same by Engineer - 0.5% of accepted amount for item no. 3.13				
	(ii) Providing Casting Yard, formwork, stagging, stacking yard, batching plant, covered shed for casting beds, installation of T & P etc., curing arrangement and casting of one mock up I-Beam and its approval - 15% of accepted amount for item no. 3.13				
	(iii) Providing and casting I-Beam as detailed in item no. 3.13 - 50% of accepted rate for item no. 3.13 till the amount paid vide i & ii above is adjusted, thereafter at accepted rates.				

Item	Description	As per BOQ			
		Unit	Est. Qty	Unit Rate (Rs.)	BOQ Amount (Rs)
3.14	Transporting and erection of these I-Beams into completed structures conforming to required lines, installation of Spherical/POT PTFE bearings supplied by Employer as per the manual of bearing manufacturer under the supervision of bearing manufacturer and as directed by the Engineer, grades and dimensions complete as per drawings and specifications.	MT	44750	1660.00	74285000.00
	The payment schedule for item no. 3.14 shall be as follows:				
	(i) On submission of Method Statements, i.e., detailed design and shop drawings for all temporary equipments and approval of the same by the Engineer - 0.5% of accepted amount for item no. 3.14				
	(ii) Mobilisation of cranes, trailors, etc. and erection of one I-Beam - 10% of accepted amount of item no. 3.14 for mobilizing all erection equipments.				
	(iii) Transporting and erecting in position as detailed in items no. 3.14 - 40% of accepted rates for amount of item no. 3.14 till the amount paid vide (iv) & (v) above is adjusted thereafter at accepted rates.				
3.15	Static Load Test of PSC I girder span – Load testing of full Superstructure span on site, erected in position, including arrangements for applications of serviceable vertical load for measuring deflection and calculating rotations and submitting a report upto maximum load of 550 T. The sequence of placement, position of loading, means of loadings to be applied on structure during test, additional measures to be carried out (such as temperature measures) shall be as directed by the Engineer. The rate shall include the cost of 25% variation of load. Note: The scheme of load testing shall be submitted by contractor and approved by the Engineer.	Nos.	1	360190.00	360190.00
	Sub Total - Precast Concrete Works:				**1066743895**
VS04	**REINFORCING & PRESTRESSING STEEL**				
4.1	Providing TMT reinforcement steel of Fe-500D grade, from approved supplier, handling, straightening, cutting, bending, tying, lap welding, placing in position including 1.2mm dia.18 gauge GI binding wire in diamond form at each reinforcement junction in all structural concrete at all heights and depths with all leads complete as per specifications and as directed including welding involved towards stray current protection effects as per the system approved by Engineer in charge.	MT	26985	62290.00	1680897518.70
	Note:				

Item	Description	As per BOQ			
		Unit	Est. Qty	Unit Rate (Rs.)	BOQ Amount (Rs)
	(i) No extra payment will be made for lap joint welding in all structural members including Piles.				
	(ii) For other structural members, lap joints are permitted for bar diameter <= 25 mm as directed by Engineer in charge. However no extra payment shall be made for the lap, the cost of which is deemed to be included in the rates.				
	(iii) The cost quoted should cover all welding and providing mechanical couplers, etc., complete.				
4.2	Supplying and post threading uncoated stress-relieved low relaxation steel conforming to IS :14268 , Class-2 in already positioned precast segments for all simply supported spans, normal/cantilever/portal pier cap, PSC box/I-beams for superstructure/portal beams including providing 107mm ID (for 19K15) or 86mm ID (for 12K15), corrugated HDPE duct (both sides) -3.3mm thick in case of 19K15 & 2.8mm thick in case of 12K15 with couplers & vent pipes, spacers, anchorages, stressing using 19K15 or 12K15 system and grouting, epoxy protection of anchorages, sealing of PT anchorage recess with concrete (same grade as structure) and all related operations to complete the work as per drawing and technical specification				
i	(i) Strands	MT	2482	134595.00	334064790.00
ii	(ii) Corrugated HDPE duct - 107mm ID	RM	100056	230.00	23012880.00
iii	(iii) Corrugated HDPE duct - 86mm ID	RM	22892	170.00	3891640.00
iv	(iv) Anchorages for 19K15 cable.	Nos.	6637	9715.00	64478455.00
v	(v) Anchorages for 12K15 cable.	Nos.	1893	7050.00	13345650.00
4.3	Providing and installing welded wire mesh as per IS:1566, straightening, cutting, tying, placing in precast cable trough and cover slab complete as per drawing.	MT	10	82500.00	825000.00
	Sub Total - Reinforcing & Prestressing Steel:				**2120515934**
VS05	**STRUCTURAL STEEL**				

Item	Description	As per BOQ			
		Unit	Est. Qty	Unit Rate (Rs.)	BOQ Amount (Rs)
5.1 (a)	Supply, fabrication and erection of fabricated steel girder work of Grade E 410 B0 confirming to IS 2062-2011 (with all latest amendments) fully killed and fully normalised, at appropriate location using various structural steel sections including M S plates etc. as per approved drawing for Composite Girder including cutting, bending, drilling holes with necessary welding, HSFG bolts tightened by torque wrench as per drawings, supply of necessary templates including painting etc. complete for fixing accessories such as bolts and nuts etc. complete duly providing necessary scaffolding arrangements and metalizing and painting the girder in accordance with Indian Railway Standard Specifications for Fabrication and Erection of Steel Girder Bridges (Refer clause No. 39.2.2 for flooring system and 39.2.3 for other components) and any other incidental work as required with all leads and lifts etc. complete, installation of Spherical/POT PTFE bearings supplied by Employer as per the manual of bearing manufacturer under the supervision of bearing manufacturer, and as directed by Engineer.The launching scheme has to be submitted by the contractor using sufficient capacity cranes (Minimum 3 nos.) and get it approved by Employer. When girder is to be erected over railway line then each girder is to be launched in a line/power block of 60 to 75 minutes with proper frame to avoid toppling during launching. The girders so placed will be temporarily braced with bolts and nuts before freeing from the frame. Bursting of line block will invite penalty. Note: In case of superstructure over railway line, all steel girders with bracings together shall be launched using push & pull methodology.	MT	4287	129150.00	553666050.00
	(All labour, materials, tools and plants, consumables such as welding rods etc. shall be arranged by the contractor)				
	Payment stages:				
	40 %of Stage Payement of Item 5.1 : On Procurement & testing of steel quantities on receipt in fabrication work-shop against documentry evidence of purchase from approved supplier subject to a maximum of quantaties as indicated in approved fabrication drawing & also as indicated in schedule.				
	20% of Stage Payment of item 5.1: On completion of fabrication of steel work quantities & testing of fabricated members including painting as per specification and its approval by Engineer in Charge.				
	5 %of Stage Payment of Item 5.1: On Transportation and receipt of fabricated material in good condition at site. approval of Engineer in charge regarding physical receipt of fabricated materials in good condition.				
	35 %of Stage Payment of Item 5.1: On Final Erection.				

Item	Description	As per BOQ			
		Unit	Est. Qty	Unit Rate (Rs.)	BOQ Amount (Rs)
5.1 (b)	Supply, fabrication and erection of launching nose, additional temporary strengthing of Superstructure attached to temporary loading platform if any for launching of special crossing span (steel composite), as per drawing to be prepared/ proof-checked by Contractor as per terms of contract and approved by Employer (cost includes all nut, bolt etc) Release steel shall be property of Contractor and shall be retained and removed by Contractor after completion of work.	MT	644	44000.00	28336000
5.2	Structural Steel for Insert Plates/Fasteners, Cover plates, Cable Trays inserts, cable tray brackets, Earthing etc.				
i	Providing, fabricating and erecting structural steel members for steel platform for emergency evacuation for cross-over structures. The item consists of plates profiled to required shape, inserts, plates with welded hold fasts, insert plates with welded hold-fasts, internal threaded sleeves including HSFG bolts tightened by torque wrench. and primer coat and three coats of enamel paint of approved make and color	MT	5	94015.00	470075.00
ii	Providing, fabricating and erecting all structural steel inserts for cable trays inserts, cable tray brackets, connection of OHE mast, steel brackets including all connections over pier cap for fixing street light brackets, earthing arrangement consisting of plates with welded hold fast, welded headed nuts , internal threaded sleeves , studs in the form of U- bars, bolts (class 8.8) etc. All structural steel shall be Hot Dip galvanized conforming to IS-802 (Part II), IS:53548 and IS:4759 and the mass of zinc coating shall not be less than 650 g/m^2.	MT	122	109685.00	13381570.00
	Note: Some inserts fabricated by other agencies which have to be incorporated in the precast spans / piers / pile cap / pile would have to be handed over to the contractor for placement and fixing in the reinforcement cage / shuttering before concreting. No extra payment will be made for such inserts.				
iii	Providing, fabricating and erecting structural steel (Mild steel) hand railing consisting of tubular or rolled sections profiled to required shape, inserts, plates with welded hold fasts for walk-way, insert plates with welded hold-fasts, internal threaded sleeves including HSFG bolts tightened by torque wrench and primer coat and three coats of epoxy paint (as per technical specification) of approved make and colour.	MT	478	101855.00	48686690.00



Item	Description	As per BOQ			
		Unit	Est. Qty	Unit Rate (Rs.)	BOQ Amount (Rs)
iv	Providing & fixing straight /tapered steel plate including sand blasting, galvanisation etc. on the soffit of all Girders by epoxy glue as per technical specification & drawings. The rate shall include straight /tapered steel plate including all other equipment's, tools, water, electricity, safety net all around (to prevent falling of objects on road) etc. complete in all respects as per the directions of Engineer/ Technical specification.	MT	47	94015.00	4418705.00
	Sub Total - Structural Steel:				**648959090**
VS06	**BEARINGS**				
6.1	Elastomeric bearings				
	(i) For horizontal bearings below Concrete I beams/Steel Beams – Providing, fitting and fixing in position true in line and level elastomeric bearings, complete in all respect with all components, materials, equipments etc. as per technical specification except cost of steel wedges, which will be paid as per item 5.2 (i)	cucm	10000	1.40	14000.00
	ii) Providing, lifting, installation, fitting and fixing in position true in line and level elastomeric bearings including stainless steel plate, all inserts including non shrink cementitious/epoxy grout for fixing the bearings complete in all respect with all components for the shear key system as per specifications and drawings.	cucm	10000	1.40	14000.00
	Note: The rate of bearing includes the rates for all type of testing of bearing as per technical specification and no additional rate & cost will be paid for bearing used in testing.				
	Sub Total - Bearings:				**28000**
VS07	**BRICK/BLOCK WORK**				
7.1	Providing and fixing precast cement concrete solid block in 1:1.5:3 (1 cement : 1.5 coarse sand : 3 graded stone aggregate 20 mm nominal size)) including hoisting, and setting in position with cement mortar 1:3 (1 cement : 3 coarse sand), including the cost of required centering, shuttering etc. complete: for all height and floor including stagging/ scaffolding etc. nothing shall be paid extra on any account.	cum	1382.25	10150.00	14029837.50
7.2	Brickwork with common burnt clay FPS (non-modular) bricks of class designation 7.5 in foundation & plinth in cement mortar 1:6 (1 cement : 6 coarse sand)	cum	600	4750.00	2850000.00

Item	Description	As per BOQ			
		Unit	Est. Qty	Unit Rate (Rs.)	BOQ Amount (Rs)
7.3	Brickwork with common burnt clay FPS (non-modular) bricks of class designation 7.5 in super structure above plinth level up to all floor levels in all shapes and size in cement mortar 1:6 (1 cement : 6 coarse sand) including stagging/ scaffolding etc. nothing shall be paid extra on any account	cum	600	5585.00	3351000.00
7.4	Half brickwork with common burnt clay FPS (non-modular) bricks of class designation 7.5 in super structure above plinth level up to all floor levels in all shapes and size in : cement mortar 1:4 (1 cement : 4 coarse sand) including stagging/scaffolding etc. nothing shall be paid extra on any account.	sqm	500	685.00	342500.00
7.5	Extra for providing and placing 2 nos 6 mm dia MS bars at every third course of half brick masonry	sqm	500	55.00	27500.00
7.6	Brick work with common burnt clay machine moulded perforated bricks of class designation 12.5 conforming to IS: 2222 in superstructure above plinth level up to all floor levels in cement mortar 1:6 (1 cement : 6 coarse sand)				
	(i) With Modular bricks	cum	10	5490.00	54900.00
	Sub Total - Brick/Block work:				**20655738**
VS08	**MISCELLANEOUS ITEMS**				
8.1	Drainage Work				
	(i) Viaduct portion – Providing & fixing of HDPE corrugated double wall rain water pipes in pier cap and down take pipes, bends, couplers, upper receiving cap etc. upto bottom of pier as specified in drawings.				
	(a) 100mm Dia	RM	100	382.00	38200.00
	(b) 150mm Dia	RM	2577	608.00	1566816.00
	(c) 200mm Dia	RM	2136	940.00	2007840.00
	(d) Upper receiving cap -(hot dipped galvanised @650 g/m^2 steel) for 150mm Dia pipe	Nos.	926	940.00	870440.00
	(e) Upper receiving cap -(hot dipped galvanised @650 g/m^2 steel) for 100mm Dia cleaning pipe	Nos.	10	940.00	9400.00
	(f) Upper receiving cap -(hot dipped galvanised @650 g/m^2 steel) for 200mm Dia pipe	Nos.	234	940.00	219960.00

Item	Description	As per BOQ			
		Unit	Est. Qty	Unit Rate (Rs.)	BOQ Amount (Rs)
8.2	Expansion Joints				
	(i) Strip Seal Joint – Providing and installing Single strip seal joint conforming to latest revisions of MoRTH circulars incl. provision of edge beams at end edges of precast diaphragm segments and cast in situ unit and all related operations as required to complete the work as specified in specifications. Gap for expansion joint installation up to 75mm & maximum variation in gap upto ± 50mm.	RM	1977	7755.00	15331635.00
	(ii) Omega (W) joint – Providing and installing omega joint conforming to IRC 83 - part II. The rate shall include casting of cast-in-situ plinth at edge of deck for fixing joint. Gap for expansion joint up to 75mm.	RM	880	4845.00	4263600.00
8.3	Noise Barriers				
	(i) Polycarbonate – Providing and installing polycarbonate noise barrier with all fixtures and all related operations as required to complete the work as specified in specifications.	sqm	5462	12500.00	68275000.00
	(ii) Metallic – Providing and installing mettalic noise barrier with all fixtures and all related operations as required to complete the work as specified in specifications.	sqm	100	10715.00	1071500.00
8.4	Supplying and addition of Bipolar Concrete Penetrating Corrosion Inhibiting Admixture(CPCIA) in all concrete items (except all PCC items) as per the technical specifications. Note: It does not include the admixture used in concrete for obtaining required workabiltiy which is already included in relevant items.	kg	252518	145.00	36615110.00
8.5	Supplying & Fixing GI Expansion Fasteners (approximate exposed length 300mm) of approved make including testing for fixing into already constructed RCC structure				
	a) 12 mm	Nos.	100	200.00	20000.00
	b) 16 mm	Nos.	100	530.00	53000.00
	c) 20 mm	Nos.	100	1060.00	106000.00
8.6	Supplying & Fixing Rebar Fasteners (approximate exposed length 300mm) of approved make including the cost of rebars and testing for fixing into already constructed RCC structure				

Item	Description	As per BOQ			
		Unit	Est. Qty	Unit Rate (Rs.)	BOQ Amount (Rs)
	a) 8 mm	Nos.	100	150.00	15000.00
	b) 12 mm	Nos.	100	350.00	35000.00
	c) 16 mm	Nos.	100	1095.00	109500.00
8.7	Providing and Installing in position approved building expansion joint at floor level between platform level slab, concourse level slab or all location as shown in approved drawings or at locations approved by Engineer consisting of aluminium extrusions, anti-skid serrated top plate (Straight/Curved) with vapour barrier, sealant etc. as per details and specifications or as approved by Engineer. Entire installation is to be carried out strictly in the presence of manufacturer's representative at all times. No extra payment will be made for providing thermocoal at expansion joint between columns/beams/slabs or locations shown in drawing at the time of construction of RCC elements.				
	Expansion /Contraction = +100mm/ -100mm Vertical seismic movement = +15mm/ -15mm	RM	200	8720.00	1744000.00
8.8	Providing and filling sheet covering over expansion joint with stainless steel sunken head screws as per design.				
	(i) Aluminium fluted strips 3.15mm thick and 150mm wide	RM	300	300.00	90000.00
	(ii) Aluminium fluted strips 3.15mm thick and 200mm wide	RM	300	420.00	126000.00

Item	Description	As per BOQ			
		Unit	Est. Qty	Unit Rate (Rs.)	BOQ Amount (Rs)
8.9	Providing, Installing and fixing in position holding down bolts of various sizes and lengths, as per drawings and instructions, including making of pockets in foundations, column heads, beams etc./ Providing, fabricating to required profile and shape, transporting, erecting and fixing in position MS members made of built-up sections/rolled or hollow structural steel sections to be used as fixtures/supports/hangers etc. for system/roofing contractors at any location or as directed by Engineer in charge./ Providing, fabricating, installing and fixing in position any additional structural connections for signages, gutters, or required by the system contractors using standard plate sections welded & built up section, tubes, square, rectangular pipe section, rolled sections such as angles, channels etc.	MT	10	130965.00	1309650.00
8.10	Supplying, pouring and packing non-shrink grout as per manufacturer's specifications under base plates of columns, trusses, portals etc. complete as per drawings and specifications, including cost of packing plates.	cum	125	56775.00	7096875.00
8.11	Polysulphide Sealent				
	a) Providing and applying Polysulphide sealent in 25mm gap includung back up material in the form of round shape polyethylene form at both faces of expansion joint in ramp portion	m	150	520.00	78000.00
	b) Providing and applying Polysulphide sealent includung back up material in the form of round shape polyethylene form at both faces of expansion joint in parapet				
	i)For 50mm gap at expansion joint location	m	500	1265.00	632500.00
	Sub Total - Miscellaneous items				**141685026**
	Total of Schedule -A				**5353820622**

CONTRACT DM/CN-COR-OF/049

BILL OF QUANTITIES
Package 1

SCHEDULE-B

Construction of Viaduct and Stations - General Works		
Item	Description	Amount (Rs.)
1	Sub-head G01: General	4,24,41,370
2	Sub-head G02: Geotechnical Works	92,21,100
3	Sub-head G03 :Traffic Signals, Signage etc.	3,14,68,750
4	Sub-head G04 :Road works	4,73,17,625
5	Sub-head G05 : Rain water Harvesting works	1,23,28,875
6	Sub-head G06 : Surveying	3,55,500
7	Sub-head G07 : DSR Items	5,00,00,000
	GRAND TOTAL OF SCHEDULE-B	19,31,33,220

SCHEDULE -B: GENERAL

Item	Description	As per BOQ			
		Unit	Est. Qty	Unit Rate (Rs)	BOQ Amount (Rs.)
G01	General				
1.1	Providing and fixing 2.0 m high temporary barricade and arrangement for traffic diversion such as traffic signals during construction at site, for day and night as per requirement and drawings. During construction barricading and arrangement for traffic diversion has to be kept continuously and maintained properly till the completion of all the activities. Local shifting of barricading along with all accessories including indicators, illuminators & delineators etc. at a particular station may be required during execution and for traffic management. Nothing extra shall be paid for local shifting.	RM	14166	1895.00	26844570.00
1.2	Providing and fixing 1.0 m high temporary barricade and arrangement for traffic diversion such as traffic signals during construction at site, for day and night as per requirement and drawings. During construction barricading and arrangement for traffic diversion has to be kept continuously and maintained properly till the completion of all the activities. Local shifting of barricading along with all accessories including indicators, illuminators & delineators etc. at a particular station may be required during execution and for traffic management. Nothing extra shall be paid for local shifting.	RM	800	945.00	756000.00
	Note : The payment schedule for item No. 1.1 and 1.2 shall be as follows:				
	(i) 70% on installation				
	(ii) 30% for proper maintenance (cleaning/lining/painting etc.) and shall be paid at the end of the work when barricade is removed or shifted to some other station/location and clearing the site by making it good.				
	(iii)The released barricades will be the property of the contractor and he is also responsible for shifting all such release materials away from the site.				
	(iv) While erecting barricade, the bottom gap between barricade and road should be plugged with cement concrete from inside.				
	(v) There should be minimum openings at the end of barricade to allow access of lorries and machine to site work area. Even these spacing should have proper opening/closing arrangements.				
	(vi) Adequate blinking lights and combination of continuous LED rope lighting on barricade during night time must be ensured. The cost of this item should include provision for power pack/ Genset etc. so as to ensure the blinking of lights in night time as long as barricades are in position at the work spot.				

Item	Description	As per BOQ			
		Unit	Est. Qty	Unit Rate (Rs)	BOQ Amount (Rs.)
	(vii) After completion of the entire work, the released barricades will be the property of the contractor and he is also responsible for shifting all such released materials away from the site.				
2	Submit colour photographs report including description of works to establish progress as directed by the Engineer-in-charge and supply at monthly intervals or as instructed by the Engineer-in-charge. One set shall comprise of soft copy and one hard copy of 72 photographs.	Per set	30	2505.00	75150.00
3	Supply of video DVDs of 180 minutes duration comprising one master copy and one extra copy showing the progress of works as directed by Engineer-in-charge.	Per set	30	9400.00	282000.00
4	Supply of video DVDs with commentary of entire works comprising of every activities starting from commencement of work to the end of the work duly editted at the completion of work as directed by Engineer-in-charge.	Per set	1	21650.00	21650.00
5	Providing furnished site offices & maintaining the same during the contract period as per the drawing and specifications, for the use of Engineer and his supporting staff; at least at two locations approved by Engineer-in-charge as per Specifications and to be retained until 30 days after the Taking over of works by the Engineer-in-charge. The payment for the item shall be as under:- a. Payment as 50% of total cost of item on providing furnished site offices. b. Payment as 40% of total cost of item equally distributed over the duration of contract and will be paid on pro-rata basis. c. Payment of 10% of total cost of the item on satisfactory completion of work along with the final bill. Note:The released office and furniture etc. shall be the property of contractor after vacation by engineer.	Per sqm of area	200	8855.00	1771000.00
6	Cutting, Removal, transporting, disposal of trees/handing over to the concerned department, as per the instructions of the engineer, of girth (measured at height of 1.0 m above ground level) including excavation, backfilling and levelling of the ground as directed and specified in technical specification.				
6.1	Up to 30 cm Girth	Nos.	500	135.00	67500.00
6.2	Beyond 30 cm. Girth up to and including 50 cm Girth	Nos.	500	155.00	77500.00
6.3	Beyond 50 cm. Girth up to and including 75 cm Girth	Nos.	500	585.00	292500.00
7	Removal and transplanting trees with all leads of girth (measured at height of 1.0 m above ground level) including excavation, backfilling and levelling of the ground as specified in technical specification and directed by engineer.				
7.1	Up to 30 cm Girth	Nos.	300	8925.00	2677500.00
7.2	Beyond 30 cm. Girth up to and including 50 cm Girth	Nos.	200	13840.00	2768000.00

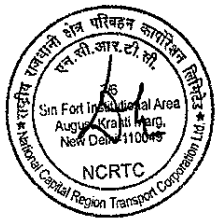
Item	Description	As per BOQ			
		Unit	Est. Qty	Unit Rate (Rs)	BOQ Amount (Rs.)
7.3	Beyond 50 cm. Girth up to and including 75 cm Girth	Nos.	200	22340.00	4468000.00
8	Planting saplings of Amaltas(Cassia fistula),Harshingar(Nyctanthes Arbor-Tristis),Kadamb(Neolamarckia Cadamba),Ashok(Polyalthia Longifulia),Khair Champa(Plumeria Obtusa),Kachnar(Bauhinia Purpurea) or as approved by engineer not less than 120 cm tall including digging the holes to the required size and depth, providing new cow dung/manure etc. maintaining the growth for six months including watering, uprooting weeds, applying pesticides etc. as and when required, replacing the sapling in case of loss etc. complete as per direction of engineer. (water and electricity shall be arranged by the contractor at his own cost.)	Nos.	5000	85.00	425000.00
9	Providing and fixing precoated galvanised iron profile sheets (size, shape and pitch of corrugation for 3m high barricading for casting yard as approved by Engineer 0.50 mm (+0.05%) total coated thickness with zinc coating 120 grams per sqm as per IS: 277, in 240 mpa steel grade, 5-7 microns epoxy primer on both side of the sheet and polyester top coat 15-18 microns. Sheet should have protective guard film of 25 microns minimum to avoid scratches during transportation and should be supplied in single length upto 12 metre or as desired by Engineer. The sheet shall be fixed using self drilling /self tapping screws of size (5.5x 55 mm) with EPDM seal, complete upto any pitch in horizontal/vertical or curved surfaces, excluding the cost of frame work and including cutting to size and shape wherever required. (The frame work for sheet fixing will be paid extra as per DSR/ G07 item).	sqm	3300	550.00	1815000.00
	Note: The rate include maintaining the barricading sheets, cleaning, repainting, if required, for entire duration of casting yard.				
	Payment schedule:				
	(i) 70% on installation				

Item	Description	As per BOQ			
		Unit	Est. Qty	Unit Rate (Rs)	BOQ Amount (Rs.)
	(ii) 30% for proper maintenance (cleaning/lining/painting etc.) and shall be paid at the end of the work when barricade is removed and clearing the site by making it good.				
	(iii) After completion of the entire work, the released barricades will be the property of the contractor and he is also responsible for shifting all such released materials away from the site.				
10	Provision of a tow away crane with driver, helper and required accessories on demand as per approval of Engineer,for lifting ,dragging ,towing of the break down vehicles from the road to clear traffic jams.	Per occassion	100	1000.00	100000.00
	Sub Total - General:				**42441370.00**
G02	**GEOTECHNICAL WORKS**				
1	Drilling 150 mm dia boreholes in all types of soil including mobilisation of machinery, conducting all SPT, Vane shear test, collection of undisturbed and disturbed samples, setting up machinery, shifting of machinrey, barricading etc. Including all lab/field tests & report preparation (pile foundation recommendations including safe pile capacities, pile settlement calculations, etc incorporating all field and laboratory testing) as per IRC: 78/IS codes.	m	8000	1095.00	8760000.00
2	Drilling Nx size boreholes in all kinds of rock including mobilisation of machinery, collection of samples, working platform ,barricading ,shifting etc. Including all labs/ field tests & report preparation (pile foundation recommendations including safe pile capacities, pile settlement calculations, etc incorporating all field and laboratory testing) as per IRC: 78/IS codes.	m	145	3180.00	461100.00
	Sub Total- Geotechnical Works:				**9221100.00**

राष्ट्रीय राजधानी क्षेत्र परिवहन कार्पोरेशन लिमिटेड
एन.सी.आर.टी.सी.
Sin Fon Institutional Area
August Kranti Marg,
New Delhi-110049
NCRTC
National Capital Region Transport Corporation Ltd.

Item	Description	As per BOQ			
		Unit	Est. Qty	Unit Rate (Rs)	BOQ Amount (Rs.)
G03	**TRAFFIC SIGNALS, SIGNAGE ETC.**				
1	Traffic signals, signages & other traffic aids (as per IRC specification)				
1.1	(i) Providing & fixing of retro-reflective traffic sign boards as per IRC recommendations and ISI approved.	sqm	600	9590.00	5754000.00
	(ii) Providing and fixing and maintaining the road infrastructure during executions, refixing as and where required.				
1.2	(a) Road delineator	Each	300	2945.00	883500.00
	(b) Portable Signages	Each	300	5990.00	1797000.00
	(c) Reflective lights	Each	350	2505.00	876750.00
	(d) Traffic cones	Each	500	2110.00	1055000.00
2	Deployment of adequate manpower for 8 hrs. shift for day and night management of traffic in intersection, roadway influenced by contractor and traffic diversions at various levels.				
2.1	Incharge	Shifts	2095	500.00	1047500.00
2.2	Supervisor	Shifts	10500	410.00	4305000.00
2.3	Traffic Guards	Shifts	42000	375.00	15750000.00
	Note : The deployment to be done with prior approval of Employer. The personnel at 2.1, 2.2 & 2.3 above should be familiar with traffic rules and regulations.				
	Sub Total - Traffic Signals, Signages etc:				**31468750**

Item	Description	As per BOQ			
		Unit	Est. Qty	Unit Rate (Rs)	BOQ Amount (Rs.)
G04	ROAD WORKS				
1	Providing & construction of flexible pavement consisting of 200 mm thick granular sub-base (As per Cl.401), 250 mm thick WMM (As per Cl.406), 50 mm BM (As per Cl.504);90 mm thick Dense Bituminous Macadam (As per Cl.507) and 40 mm thick Bituminous Concrete As per Cl.509 of MoRTH Specification respectively, duly excavating the ground to the required depth, preparation of subgrade by filling with contractor's good quality own earth, levelling, compaction etc. as indicated in the tender drawing including matching the top BC layer with the existing Bituminous surface of adjacent lane etc. complete. Item also includes providing and laying prime coat with bituminous emulsion @ 6.0-9.0 kg/10 sqm over WMM surface (As per Cl.502) and tack coat for BM, DBM and BC (As per Cl. 503). All clauses referred above are of MoRTH specifications.	sqm	12200	3820.00	46604000.00
	Rate shall also include the lane marking of road with thermoplastic paint and maintenance of roads upto end of construction.				
2	Providing M25/10 grade cement concrete (cement as per technical specification) for cement concrete kerb on median as specified in drawings, including centering, shuttering, curing and all related operations as required to complete the work.	cum	50	10605.00	530250.00
3	Construction of Median and Island with Soil Taken from Borrow Areas to be arranged by the Contractor				
	Construction of median (excluding Kerb)and Island above road level with approved material brought from borrow pits, spread, sloped and compacted as per clause 408 of MoRTH specifications	cum	75	305.00	22875.00
4	Steel Railing in Median				
	a) Tubular Steel Railing on Medium Weight steel channel (ISMC series) 100 mm x 50 mm (Providing, fixing and erecting 50 mm dia steel pipe railing in 3 rows duly painted on medium weight steel channels (ISMC series) 100 mm x 50 mm, 1.2 metres high above ground, 2 m centre to centre, complete as per approved drawings) as per clause 809 of MoRTH specifications.	m	100	1605.00	160500.00
	Sub Total - Road Works:				**47317625.00**
G05	RAIN WATER HARVESTING				



Item	Description	As per BOQ			
		Unit	Est. Qty	Unit Rate (Rs)	BOQ Amount (Rs.)
1	Construction of rainwater harvesting well consisting of 4.5 m internal dia, 4.5 m deep with 1 no. 200 mm nominal dia PVC plain screen pipe with ribs conforming to IS:12818-1992, upto sub soil water table,including boring etc. Earth work excavation upto required depth, brick masonry 75 class brick in cement mortar 1:4 foundation concrete 1:4:8, 150 mm thick RCC top slab with steel reinforcement, centering and shuttering 1 no. pre cast RCC EHD manhole cover & frame, with 6 mm thick plastic encapsulated foot rest at the rate of 300 mm c/c, 400 mm thick fine sand and 600 mm thick stone aggregate(6 mm to 40 mm nominal size), at bottom level complete as per detail drawings, nothing extra will be paid.	Each	10	154060.00	1540600.00
	PUMPS				
2	Providing, fixing, testing and commissioning of vertical in line type pump set with SS casing. SS impeller and SS shaft suitable for operation on 400/440 volts, 3 phase 2900 RPM,TEFC electric motor mounted on a common channel base plate with coupling guard, 1500 mm dia pressure gauge,GM isolation cock and cement concrete foundation with plaster complete as required.				
2.1	Filter Feed Pumps-Raw	Each	10	59490.00	594900.00
	Pump capacity-150 lpm				
	Head -50 m				
	RPM -2900				
2.2	Treated Water Pumps	Each	10	72650.00	726500.00
	Pump capacity-150 lpm				
	Head -50m				
	RPM -2900				
2.3	Water Transfer Pumps	Each	10	67450.00	674500.00
	Pump Capacity-200 lpm				
	Head -50m				
	RPM -2900				

Item	Description	As per BOQ			
		Unit	Est. Qty	Unit Rate (Rs)	BOQ Amount (Rs.)
3	Providing fixing and commissioning non clog type mono block submersible Drainage pump suitable for handing solids of 12mm size with totally water and dust proof motor as specified complete with motor control panel and flot switch, inclusive of all termination and earthing required all complete as per specifications				
	Capacity 300 lpm & Head 10m	Each	10	35460.00	354600.00
4	**BORING OF TUBEWELL**				
4.1	Construction of borewell all complete compirising with Boring/Driling 350 mm dia bore in all classes of soil,murrum,disingrated or soft or rock including making starta charts, transportation, installation, removal of tools and plants after completion of work all as per direction of engineer up to 130 m depth	m	400	1350.00	540000.00
4.2	Extra over item 4.1 for boring in hard rock	m	10	400.00	4000.00
4.3	Supplying assembling,lowering and fixing 200 mm dia casing blind MS pipe complete with socket and having wall thickness not less than 6 mm with treated socket end as required and painting outside with the two coats anti-corrosive paint of approved brand and manufacture all complete as per direction of engineer.	m	400	2380.00	952000.00
4.4	Supplying, assembling, lowering and fixing 200 mm dia slotted MS pipe Complete with socket and having wall thickness not less than 6 mm and slots 1.5 mm to 2 mm with treated socketed ends as required and painting outside with two coats of anti-corrosive paints of approved manufacture all complete as per specification of direction of engineer.	m	400	2775.00	1110000.00
4.5	Supplying and filling pea gravel filter fill between bore and pipe assembly	cum	50	1905.00	95250.00
4.6	Cleaning & Developing of borewell by air compressor for atleast 60 hrs. and conducting yield test as per IS-2800 Part-III.	Hrs.	600	275.00	165000.00
4.7	Testing water samples from the well for biological and chemical contents	Each	20	11900.00	238000.00
5	Providing and fixing single/multistage submersible tubewell pump suitable for 150 mm bore with stainless steel casing, NORYL Impeller, stainless steel shaft built in non return valve coupled with submersible squirrel cage motor suitable for 145V +/- 10% volts, 3 phase, 50 cycle AC supply.				
	Capacity 200 lpm				
5.1	Head 100m , 5.0 HP	Nos.	10	23640.00	236400.00
6	Providing and fixing of 200 mm dia tail plug with all required specials complete as per direction of the Engineer.	Set	10	590.00	5900.00

Item	Description	As per BOQ			
		Unit	Est. Qty	Unit Rate (Rs)	BOQ Amount (Rs.)
7	Providing and fixing Transistorised liquid level controllers with low voltage Relays and stainless steel probes and PVC shrouds, including necessary wiring and conduiting from probes to display panel/motor control panels and to provide Audible alarm for low level for each underground tank. (The cost of all required cabling from probes to motor control panel to be including in the rate).				
7.1	For Filter Feed Pumps				
	To start domestic filter feed pumps at low water level in domestic treated water underground tank and stop at high water level in treated water tank and stop at low water level in domestic raw water tank.	Set	4	16545.00	66180.00
7.2	For Domestic over Head Tank				
	To Start pump at low water level in overhead tank and stop at high water level in over head tank and low water level in underground tank.	Set	10	16545.00	165450.00
7.3	For Flushing over head Tank				
	To start pump at low water level in overhead tank and stop at high water level in overhead tank and low water level in underground tank.	Set	4	16545.00	66180.00
8	Providing and fixing C.I. Wafer Type Butterfly Valves conforming to PN 10/13095 with nuts, bolts,washers, 3 mm thick insertion ruber, gasket and two matching flanges complete as per M&W specification.				
8.1	50 mm dia	Each	20	2325.00	46500.00
8.2	65 mm dia	Each	10	2995.00	29950.00
8.3	80 mm dia	Each	10	3545.00	35450.00
8.4	100 mm dia	Each	4	4060.00	16240.00
9	Providing and fixing CI double flanged "Y" type strainer of the following sizes with nuts, bolts, gasket etc complete in all respects as described in the M&W specifications				
9.1	100 mm dia	Each	10	7645.00	76450.00
10	Providing and fixing MS vent "U" type pipe complete with painting with enamel paint all complete as per direction of Engineer.				
10.1	100 mm dia	Each	20	2520.00	50400.00

Item	Description	As per BOQ			
		Unit	Est. Qty	Unit Rate (Rs)	BOQ Amount (Rs.)
11	Design, Manufacture, Supply, Installation, Testing & Commissioning of following integrated cubicle type extensible type sheet steel control panel to the foundation. The panel shall be for 415 Volts, 50 cycles, 4 wire supply. Quoted price shall be including with 25mm thick rubber mats, wiring, cabling of approved size, control wiring and copper earthing from control panel to various equipments like motor, starters, pump motors etc including making end termination etc.. The following components and accessories shall be mounted with in each control panel				
	1 no. 100 amps TPN incoming MCCB complete with the following:				
	1 no. 0-500 volts 96 x 96 Sqmm ammeter with selector switch and shall be protected by 2 MCB's (1 set)				
	1 No. 0-200 amps 96 x 96 Sqmm ammet with selector switch and 300/5CT's(1 set)				
	Phase indicating lights with a toggle switches and shall be protected by 2 amps MCB's(3 sets)				
	150 amps TPN tinned copper bus bar with the heat shrinkable insulation sleeve.				
	Outgoing Feeders/Starters.				
	16 amps TPN MCB with DOL starter with built- in SPP each suitable for 3HP for domestic treatment water pump (2 nos.)				
	32 amps TPN MCB with DOL starter with built-in SPP is suitable for 3HP for domestic treated water pumps(2 nos.)				
	16 amps TPN MCB outgoing feeder suitable for 2-3 HP Submersible drainage pumps panel (2 nos.)				
	32 amps TPN MCB with built-in SPP each suitable for 5 HP tubewell pumps and drainage pump panel(4 sets)				
	Spares				
	63 amps TPN MCB-2 No's				
	32 amps TPN MCB-2No's				
	All Switchgear/panel shall be suitable for 10 KA amps rating				
	All outgoing will have 96 sqmm size ammeter and CT				
	All starter will have spare 10 amps, 230V, coil auxilary contractor for build in automation system				

Item	Description	As per BOQ			
		Unit	Est. Qty	Unit Rate (Rs)	BOQ Amount (Rs.)
	All starter units for pumps to be provided with 3 level liquid level contractor				
	LAMPS				
	All pumps to be provided with duty selector switch				
	All pumps to be provided with sequence timer 220/440V AC/DC and alternator working of pumps between 6 to 8 Hrs or alternator use of pumps after 1 services sequence				
	All pumps to be provided with overload relay.				
	All starters to be provided with single phase preventor				
	Necessary cable alleys for phase switches. Level controller internal wiring and copper earthing of all equipment shall be included. All Switchgear/controlgear shall be motor duty rating				
	All complete as above	Set	5	248205.00	1241025.00
12	Supplying and laying the PVC insulated and sheathed XLPE armoured cables of 1.1 KV aluminium conductor including supplying and making and terminating with brass compression glands				
12.1	3 core 4 sqmm	m	300	110.00	33000.00
12.2	3 core 6 sqmm	m	300	135.00	40500.00
13	Fabricating and installing following size of perforated MS cable trays including horizontal and Vertical bends, reducers, Tees, crossmember and other accessories as required and duly suspended from the ceiling with MS suspender including painting etc. as required				
13.1	150mm width x 50mm depth x 1.6mm thickness	m	150	275.00	41250.00
14	Designing, Manufacturing, Providing, Installation and Commission of Fully automatic package type Automatic Sewage Treatment Plant based on SBR (Sequential Batch Reactor) with air Diffuser - to be placed below ground with Sewage handling capacity as follows cum/Day. The raw Sewage collection sump with double bar screen shall be a part of STP. The STP shall be designed with water retaining tanks in suitable material and coating, removable manholes covers, including, necessary chemical dosing as required by the manufacturer's design. All the equipment, piping, pumps, blowers and electrical are to be housed in a plant room also to be included. Plant room & each treated water tanks shall also be built to keap below ground and shall share the same plant room. Unit shall be complete in all respect including following and Electrical panels, Associate cabling, Containment Pump etc:				
	Screening ,oil and grease removal, collection cum equalization and transfer of waste water to STP				

Item	Description	As per BOQ			
		Unit	Est. Qty	Unit Rate (Rs)	BOQ Amount (Rs.)
	- Primary treatment of waste water for removal of excess SS				
	- Biological treatment of waste water from SAFF technology.				
	- Secondary clarification of biologically treated waste water.				
	- Dis-infection of treated water using sodium hypochlorite.				
	- Reuse of treated water in horticulture, plantation followed by tertiary treatment.				
	- Sludge holding, drying and disposal or reuse as wet manure in extra area.				
	20 KLD	Each	2	1591325.00	3182650.00
	Sub Total - Rain Water Harvesting:				**12328875**
GO6	**SURVEYING**				
1	Verifying / Detailed survey, if required, along the corridor shall be carried out with the following details:	KM	9	39500.00	355500.00
	a) Establishing GPS stations at an interval not more than 2-2.5 Km with one pair at the interval of not more than 200-250 m. The GPS station shall be located on permanent structure or providing and fixing concrete pillar 600 mm x 600 mm x 1000 mm or on building roof free from any displacement disturbance. Stainless Steel (SS) Plate 100 mm x 100 mm x 4 mm with center punch shall be fixed on the top of the station. GPS instrument accuracy shall be minimum horizontal 5 mm + 0.5 ppm and vertical 10 mm + 0.5 ppm in static observation. The base line measurement shall be based on minimum 4 hrs. static observations and other observations shall be with minimum 2 hrs. Static observations.				
	b) Closed traversing shall be carried out storing in total station Angle and Distance from GPS to GPS with an accuracy of 1: 50000 by observing minimum 3 sets of face right and 3 set of face left. Stations shall be established at an interval not more than 200 m. Closing error shall be distributed with least square method in commercial software compatible to the intrument used for traversing. The same commercial software shall be supplied to NCRTC. Traverse pillar shall be established on permanent structure or providing and fixing concrete pillar 400mm x 400mm x 600mm along the alignment. Total station raw data, calculations shall be submitted to the employer along with before and after adjustment co-ordinates in tabular form.				

Item	Description	As per BOQ			
		Unit	Est. Qty	Unit Rate (Rs)	BOQ Amount (Rs.)
	c) Detailed Topographical survey shall be carried out with adjusted traverse co-ordinates. All surface features, ground levels, all underground and over-ground utilities shall be taken. Total Station raw data and calculations shall be submitted to Employer for No Objection. Drawings, raw data and calculations shall be submitted in soft and hard copy.				
	d) A closed circuit leveling shall be run along the entire route. Maximum length of each loop shall not be more than 5 Km. The accuracy of the leveling will be $12\sqrt{k}$, where the k is length of the leveling loop . Digital leveling instrument shall be used to establish bench mark. Raw data from digital level shall be submitted along with adjusted and unadjusted levels in tabular form.				
	e) For Viaduct portion, survey has to be done from boundary line to boundary line or 50m from each side of alignment, whichever is smaller. For station location, survey at Grid of 5m x 5m covering an area of approx. 100m beyond each side of station including area covering entry/exit structure, split concourse, property development etc. for verifying alignment and station footprint, making vertical & horizontal clearances and establishing triangular points and bench mark of the construction of station building, and matching it with the alignment of the approaches at station ends including correction, if any.				
	f) Establish all control points, traverse, bench mark and TBM. Fixing and Validating Centre line of corridor, GAD and pier locations duly considering feasibility of the pier locations on account of physical site constraints, utilities (by physical verification) and on the basis of Geotechnical Investigation Reports, vertical & horizontal clearances and establishing traverse points and bench mark for the elevated section including modifications, if any, as per drawings. No extra amount will be paid to redo or to re-establish any of the survey points. The work shall be maintained during the Contract Period including the extended contract period till the completion of the work. Rate includes all survey work including preparation of revised GAD in consultation with the Engineer. However, physical verification of utilities and Geotechnical investigations will be paid separately under relevant Schedules.				
	NOTE :				
	i. Digital leveling instrument to be used for the work shall have the minimum accuracy of the order of ± 0.3 mm per km double run with least count not more than 0.01 mm				
	ii.Total station instrument shall have minimum accuracy for:				
	a) Angle measurements (Hz, V) of the order of 1"				

Item	Description	As per BOQ			
		Unit	Est. Qty	Unit Rate (Rs)	BOQ Amount (Rs.)
	b) Distance measurement of the order of 1mm+2ppm				
	iii. Payment at 50% of total cost of the item on checking and verification of all control points and submission of drawings and approval of the same by the employer.				
	iv. Payment at 40% of total cost of the item equally distributed over the duration of the contract and will be paid on pro-rata basis.				
	v. Payment at 10% of total cost of the item on satisfactory completion of work along with the final bill.				
	Sub Total - Surveying:				**355500.00**
G07	**DSR Items**				
1	Misc DSR Items Covered in DSR 2016 but not mentioned in Schedule A, B, & C	LS			**50000000**
	Sub Total - DSR Items:				**50000000**
	TOTAL OF SCHEDULE-B				**193133220**

CONTRACT DM/CN/COR-OF/049

BILL OF QUANTITIES
Package 1

SCHEDULE-C
Shifting/Rearranging of Utilities

Item	Description	Amount (Rs)
	Provisional sum for the cost of shifting/rearranging of utilities to be paid as per the rates detailed below	
1	Annexure A: Electrical Utilities	30,00,000
2	Annexure B: Telecom.Utilities	20,00,000
3	Annexure C: Civil Utilities	3,00,00,000
	GRAND TOTAL OF SCHEDULE-C	3,50,00,000

ANNEXURE.A

Electrical Utilities.

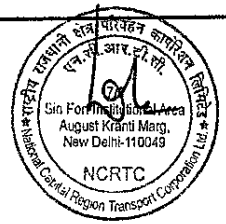
Item. No.	Description	Unit	Unit Rate (Rs.)
1	LAYING OF PIPES BY TRENCHLESS BORING		
	Supply of HDPE pipe confirming to PN4 as specified the sizes given below, boring of road areas by using trench –less method and laying of HDPE pipe properly continuously joined		
	63mm	Mtr	545.61
	75mm	Mtr	630.48
	110mm	Mtr	727.48
	160mm	Mtr	1697.45
	200 mm	Mtr	1818.70
	250mm	Mtr	2182.44
2	LAYING OF PIPES BY OPEN TRENCHING METHOD		
	Supply of HDPE pipe confirming to PN4 as specified the sizes given below, laying of HDPE pipe properly continuously joined, by Open Trench method of laying		
	63mm	Mtr	363.74
	75mm	Mtr	484.99
	110mm	Mtr	645.03
	160mm	Mtr	727.48

Item. No.	Description	Unit	Unit Rate (Rs.)
	200mm	Mtr	848.73
	250mm	Mtr	982.10
3	Supply at the site of work of LT, PVC insulated, armoured, Aluminium conductor cables as per IS1554/Part-I /1988 with up to date amendment & specified in the specifications of the sizes given below, laying of cables in existing pipes in all types of areas normal (soil, footpath, road etc). As directed by engineer in charge, including testing and commissioning of cables etc as required		
	1.1KV PVC 4x95sqmm	Mtr	691.10
	1.1KV PVC 4x70sqmm	Mtr	521.40
	1.1KV PVC 4x25sqmm	Mtr	247.30
	1.1KV PVC 4x16 sqmm	Mtr	186.70
	1.1KV PVC 4x10 sqmm	Mtr	150.60
	1.1KV PVC 2x25 sqmm	Mtr	151.60
	1.1KV PVC 2x10sqmm	Mtr	124.90
4	Supply at the site of work of HT, XLPE insulated, armoured, Aluminium conductor cables as per IS-7098/Part-II /1985 with up to date amendment & specified in the specifications of the sizes given below, laying of cables in existing pipes in all types of areas (normal soil, footpath, road etc). As directed by engineer in charge, including testing and commissioning of cables etc as required		
	11KV XLPE3X300 sqmm	Mtr	2399.47

Item. No.	Description	Unit	Unit Rate (Rs.)
5	Supply at the site of work of HT, XLPE insulated, armoured, Aluminium conductor cables as per IS-7098/Part-II/1985 with up to date amendment & specified in the specifications of the sizes given below, laying of cables in trenches in all types of areas (normal soil, footpath, road etc) by excavation with laying arrangement with stand cushion and brick/brick tiles or shaped RCC cover protection as required/approved by utility owing agency at the required depth including refilling of trenches, testing & commissioning of cables etc as required		
	11KV XLPE3X300 sqmm	Mtr	2698.95
6	Supply at the site of work of LT, PVC insulated, armoured, Aluminium conductor cables as per IS-1554/Part-I/1988 with up to date amendment & specified in the specifications of the sizes given below, laying of cables in trenches in all types of areas (normal soil, footpath, road etc) by excavation with laying arrangement with stand cushion and brick/brick tiles or shaped RCC cover protection as required/approved by utility owing agency at the required depth including refilling of trenches, testing &commissioning of cables etc as required		
	1.1KV PVC 4x95 sqmm	Mtr	809.93
	1.1KV PVC 4x70 sqmm	Mtr	624.42
	1.1KV PVC 3.5x70 sqmm	Mtr	569.86
	1.1KV PVC 4x25sqmm	Mtr	323.73
	1.1KV PVC 4x16 sqmm	Mtr	258.26
	1.1KV PVC 4x10 sqmm	Mtr	218.24
	1.1KV PVC 2x25 sqmm	Mtr	219.46
	1.1KV PVC 2x10 sqmm	Mtr	190.36

Item. No.	Description	Unit	Unit Rate (Rs.)
7	Supply at the site of work of HT, XLPE insulated, armoured, Aluminium conductor cables as per IS-7098/Part-II/1985 with up to date amendment & specified in the specifications of the sizes given below, laying of additional cables in same trenches of required width in all types of areas (normal soil, footpath, road etc) by excavation with laying arrangement with stand cushion and brick/brick tiles or shaped RCC cover protection as required/approved by utility owing agency at the required depth including refilling of trenches, testing &commissioning of cables etc as required		
	11KV XLPE3X300 sqmm	Mtr	2671.06
8	Supply at the site of work of LT, PVC insulated, armoured, Aluminium conductor cables as per IS-1554/Part-I/1988 with up to date amendment & specified in the specifications of the sizes given below, laying of additional cables in same trenches of required width in all types of areas (normal soil, footpath, road etc) by excavation with laying arrangement with stand cushion and brick/brick tiles or shaped RCC cover protection as required/approved by utility owing agency at the required depth including refilling of trenches, testing & commissioning of cables etc as required		
	1.1KV PVC 4x95 sqmm	Mtr	788.10
	1.1KV PVC 4x70 sqmm	Mtr	602.60
	1.1KV PVC 3.5x70sqmm	Mtr	544.40
	1.1KV PVC 4x25sqmm	Mtr	301.90
	1.1KV PVC 4x16 sqmm	Mtr	236.43
	1.1KV PVC 4x10 sqmm	Mtr	196.42
	1.1KV PVC 2x25 sqmm	Mtr	197.63
	1.1KV PVC 2x10sqmm	Mtr	168.53

Item. No.	Description	Unit	Unit Rate (Rs.)
9	Supply at the site of work of LT, XLPE insulated, armoured, Aluminium conductor cables as per IS-7098/Part-I /1988 with up to date amendment & specified in the specifications of the sizes given below, laying of cables in existing pipes in all types of areas normal soil, footpath, road etc).. As directed by engineer in charge, including testing and commissioning of cables etc as required		
	1.1KV XLPE 3.5x240sqmm	Mtr	1411.31
	1.1KV XLPE 3.5x185 sqmm	Mtr	1106.98
	1.1KV XLPE 3.5x150sqmm	Mtr	896.01
	1.1KV XLPE 3.5x120 sqmm	Mtr	759.00
	1.1KV XLPE 3.5x95 sqmm	Mtr	617.15
10	Supply at the site of work of LT, XLPE insulated, armoured, Aluminium conductor cables as per IS-7098/Part-I/1988 with up to date amendment & specified in the specifications of the sizes given below, laying of additional cables in same trenches of required width in all types of areas (normal soil, footpath, road etc) by excavation with laying arrangement with stand cushion and brick/brick tiles or shaped RCC cover protection as required/approved by utility owing agency at the required depth including refilling of trenches, testing &commissioning of cables etc as required		
	1.1KV XLPE 3.5x240sqmm	Mtr	1583.48
	1.1KV XLPE 3.5x185 sqmm	Mtr	1247.63
	1.1KV XLPE 3.5x150sqmm	Mtr	1016.05
	1.1KV XLPE 3.5x120 sqmm	Mtr	863.28
	1.1KV XLPE 3.5x95 sqmm	Mtr	708.08



Item. No.	Description	Unit	Unit Rate (Rs.)
11	Supply at the site of work of LT, XLPE insulated, armored, Aluminium conductor cables as per IS-7098/Part-I/1988 with up to date amendment & specified in the specifications of the sizes given below, laying of cables in trenches in all types of areas (normal soil, footpath, road etc) by excavation with laying arrangement with stand cushion and brick/brick tiles or shaped RCC cover protection as required/approved by utility owing agency at the required depth including refilling of trenches, testing & commissioning of cables etc as required.		
	1.1KV XLPE 3.5x240sqmm	Mtr	1608.94
	1.1KV XLPE 3.5x185 sqmm	Mtr	1273.09
	1.1KV XLPE 3.5x150 sqmm	Mtr	1041.51
	1.1KV XLPE 3.5x120 sqmm	Mtr	885.10
	1.1KV XLPE 3.5x95 sqmm	Mtr	729.91
12	Supply, Making, Testing and Commissioning of Complete Straight Through Joint as Specified in the Specification including Provision of Lugs/Ferrules for Jointing the HT/LT, XLPE/PILCA/PVC insulated cables, excavation of Pits, sand Cushioning, Protective Covering Refilling of Jointing Pit etc as Required by Utility Owing Agency of Following Sizes and Type:		
	11KV H.S. Type 3 x 300 sqmm	Set	17859.64
	LT 1.1KV cast resin comp. Type 3.5x240	Set	1933.88
	LT 1.1KV cast resin comp. Type 3.5x185	Set	1581.06
	LT 1.1KV cast resin comp. Type 3.5x150	Set	1541.05
	LT 1.1KV cast resin comp. Type 3.5x120	Set	1481.63
	LT 1.1KV cast resin comp. Type 3.5x95	Set	1018.47
	LT 1.1KV cast resin comp. Type 4x95	Set	1018.47

Item. No.	Description	Unit	Unit Rate (Rs.)
	LT 1.1KV cast resin comp. Type 4x70	Set	1018.47
	LT 1.1KV cast resin comp. Type 4x25	Set	710.51
	LT 1.1KV cast resin comp. Type 4x16	Set	632.91
	LT 1.1KV cast resin comp. Type 4x10	Set	632.91
	LT 1.1KV cast resin comp. Type2x25	Set	632.91
	LT 1.1KV cast resin comp. Type 2x10	Set	544.40
	LT 1.1KV cast resin comp. Type 3.5CX70	Set	1018.47
13	Supply, Making, testing & Commissioning of Complete Heat Shrinkable Type Indoor/Outdoor type and end Termination as Specified in the Specifications including provision of Lugs/Ferrules for Termination of XLPE insulated cable including making Hole in the Switch Board, Clamping, Supporting complete as required by Utility owing agency of Following Sizes:		
	INDOOR TERMINATIONS		
	11 KV H.S. Type 3X300 Sq. Mm	Set	6429.71
	OUTDOOR TERMINATIONS		
	11 KV H.S. Type 3X300 Sq. Mm	Set	9636.69
14	DISMANTLING (Taking Out From Ground) of Cables		
	Dismantling (taking out from ground) the following rating & sizes of XLPE/PILCA/PVC cables, without damaging the cables, by excavation in all types of area (normal soil, foot-path, road etc.) with refilling excavated trenches. This also includes handing over of dismantled cable (if not relayed) to concerned utility owning agency		
	11KV Cables of all Type and Sizes above 120 Sqmm	Mtr	41.22
	LT Cables of all Type and Sizes 120 Sqmm and above	Mtr	30.31

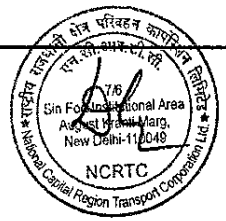
Item. No.	Description	Unit	Unit Rate (Rs.)
	LT Cables of all Type and Sizes less than 120 Sqmm	Mtr	25.46
15	Dismantling and removing existing structures, posts, etc of HT/LT lines and transportation and stacking of all materials at suitable locations as per instructions including digging out loading and unloading on to lorries, of poles, lines and all materials without damaging the same.	M	50.92
16	Dismantling and removing existing structures, posts, etc of transformer installations and transportation and stacking of all materials at suitable locations as per instructions including digging out loading and unloading on to lorries, etc of poles, transformers, and all materials without damaging the same.	No	6073.25
17	Dismantling and shifting of RMU at various locations and re- erecting, including foundation works and earthing.	No	30311.68
18	Supply and erection of LT distribution pillar boxes over cable ducts on the sides of roads. The box shall be fabricated out of 14 swg CRCA sheet, fully compartmentalised, common cubicle frame work, free standing type dust and vermin proof and water proof suitable for outdoor application(IP-65) and powder coated, with 2 nos 250A, 4 pole extra current limiting type, isolation duty MCCB set at 200A, 35KA , as incomers, operating iduvidually with mechanical castel key interlocking for receiving supply from the duplicate cable feeders, with 4 nos 4 pole extra current limiting type, isolation duty MCCB, 125 A 25 KA as outgoings meant for connecting to individual metering panels located at consumer prmises, through cables, the boxes shall be provided with air insulated , 250A colour coded TPN aluminium bus bars wih all rigid interconnections and with a set of indicator lamps with suitable control fuses and duplicate earth connections using 40 mm GI pipes and no: 6 SWG GI wire, including cost of all materials and labour as per standard specifications and directions of utility officer/Engineer.	No	133367.73

Item. No.	Description	Unit	Unit Rate (Rs.)
19	Supply and erection of LT distribution panel boards to be erected in consumer's premises. The boards shall be fabricated out of 16swg CRCA sheet, fully compartmentalised, common cubicle frame work, free standing type dust and vermin proof and suitable for outdoor application(IP-65) and powder coated, with 1 nos 125A, 25KA 4 pole extra current limiting type, isolation duty MCCB as incomer and 8nos 4 pole extra current limiting type, isolation duty MCCB, 63A ,25 KA as outgoings, and provision for accommodating energy meter with sealing facility . The boards shall be provided with air insulated , 125A colour coded TPN aluminium bus bars wih all rigid interconnections and with a set of indicator lamps with suitable control fuses and duplicate earth connections using 40 mm GI pipes and no: 6 SWG GI wire, including cost of all materials and labour as per standard specifications and directions of utility officers/Engineer.	No	60527.57
20	Supply and erection of ring main units, CTC type for replacing tapping DP structures of HT circuits, and for CSS, on RCC 1:2:4 foundations using foundation bolts and giving connections, etc complete including cost off all materials and labour, as per standards and directions of officer/Engineer.	No	810428.70
21	Supply and erection of ring main units, ADD ON type for replacing tapping DP structures of HT circuits, on RCC 1:2:4 foundations.	No	256679.26
22	Supply, installation, Testing and commissioning of CSS (Compact Switching Station) – 11 KV, 990 KVA, consisting of Transformer one vacuum/SF6 breaker for transformer control, LT panel with I/C ACB, and O/G, MCCBs (8 N0s) enclosed in 2 mm thick weather proof GS enclosure including construction of necessary foundation, using, foundation bolts, etc, complying with IS 1330 and as per specifications of KS E Board, and directions of officers/engineer.	No	3479780.29
23	Fitting and erecting one HT TW/RSJ/Rail Single Pole in position, including fitting cros sarm, digging and back filling pit in ordinary soil, drawing sufficient length of GI earthing leads to the ground for earthing (excluding provision of earthinging).	No	680.19

Item. No.	Description	Unit	Unit Rate (Rs.)
24	Fitting and erecting one HT PSC/RCC Single Pole in position, including fitting cross arm, digging and back filling pit in ordinary soil, drawing sufficient length of GI earthing leads to the ground for earthing (excluding provision of earthing).	No	1200.34
25	Fitting and erecting one HT 'A' type Single Pole in position, including fitting cross arm,digging and back filling pit in ordinary soil, drawing sufficient length of GI earthing leads to the ground for earthing (excluding provision of earthing).	No	1520.43
26	Fitting and erecting one HT Four legged 'A' type Single Pole in position including fitting cross arm, digging and back filling pit in ordinary soil, drawing sufficient length of GI earthing leads to the ground for earthing (excluding provision of earthing).	No	2200.63
27	Fitting and erecting one HT Double Pole Structure using TW/RSJ/Rail pole in position including fitting 2 Nos channel cross arm, digging and back filling pit in ordinary soil, drawing sufficient length of GI earthing leads to the ground for earthing (excluding provision of earthing).	No	2136.37
28	Fitting and erecting one HT Double Pole Structure using PSC/RCC pole in position including fitting 2 Nos channel cross arm, digging and back filling pit in ordinary soil, drawing sufficient length of GI earthing leads to the ground for earthing (excluding provision of earthing).	No	3176.66
29	Fitting and erecting one HT Double Pole Structure using 'A' type pole in position including fitting 2 Nos channel cross arm, digging and back filling pit in ordinary soil, drawing sufficient length of GI earthing leads to the ground for earthing (excluding provision of earthing).	No	3816.85
30	Fitting and providing one HT Stay for 11 kV pole, including digging and back filling pit in ordinary soil.	No	494.69
31	Fitting and providing one Strut using HT pole, including digging and back filling pit in ordinary soil.	No	600.17

Item. No.	Description	Unit	Unit Rate (Rs.)
32	Fitting and providing one HT Fly stay for 11 kV pole using HT pole, including digging and back filling pits in ordinary soil drawing sufficient length of GI earth leads to the ground for earthing (excluding provision of earthing).	No	1229.44
33	Stringing of one km 11 kV line with ACSR Raccoon (3 conductors) after fitting insulators and giving jumper connections including cutting removing tree branches wherever necessary and conveyance of all materials (except poles) to an initial distance of 200 m from stacking place, after cutting and removing tree branches wherever necessary	km	12563.58
34	Fitting 3 Nos channel cross arm, AB switch, DO fuse, LA, HT & LT connections up to OH lines, etc. on existing DP structure, earthing the same using earth pipe, digging & back filling pit in ordinary soil (upto 5 Nos), provision for one set (3 Nos) of LT fuses. excluding mounting of Transformer on plinth but including erecting up of statutory fencing around the structure.	No	5296.06
35	Erecting one 100/150/160 kVA Transformer from any vehicle/Ground to existing DP and giving connections(including expenses for transporting transformer in lorry from any stores to site).	No	2610.44
36	Erecting one 100/150/160 kVA Transformer from any vehicle/Ground to existing Plinth and giving connections(including expenses for transporting transformer in from any stores to site).	No	2270.95
37	Erecting one 250/315/500 kVA Transformer from any vehicle/Ground to existing Plinth and giving connections(including expenses for transporting transformer in lorry from any stores to site).	No	3031.17
38	Installing One DTR Meter with box (Normally 40x25x100 size) on existing poles and giving the complete connections including conveyance of materials.	No	1340.99
39	Fitting one additional Fuse unit and giving connection from Transformer to fuse and fuse to LT OH line.	No	122.46

Item. No.	Description	Unit	Unit Rate (Rs.)
40	Erecting one LT TW/RSJ/Rail Pole in position including digging & back filling pit in ordinary soil.	No	420.73
41	Erecting one LT PSC/RCC Pole in position including digging & back filling pit in ordinary soil.	No	740.82
42	Providing Stay for LT poles including digging & back filling pit in ordinary soil.	No	334.64
43	Providing Strut using LT pole including digging and back filling pit in ordinary soil.	No	372.23
44	Providing Fly stay for LT pole using LTpole including digging and back filling pit in ordinary soil.	No	791.74
45	Stringing, shackling, fitting cross arms, insulators and binding, giving jumper connection etc using ACSR Rabbit for Phase and ACSR weasel for Neutral, for one km LT 3 ph 4 wire line including cutting removing tree branches wherever necessary and conveyance of all materials (except poles) from stacking place.	km	11003.14
46	Stringing, shackling, fitting cross arms, insulators and binding, giving jumper connection etc for one km additional conductor (ACSR Rabbit/Weasel) on existing LT line including cutting removing tree branches wherever necessary and conveyance of all materials (except poles) from stacking place.	km	2461.31
47	Stringing, shackling, fitting insulators (excluding fitting of cross arm) and binding, giving jumper connection etc, for one km additional conductor (ACSR Rabbit/Weasel) on existing LT line including cutting removing tree branches wherever necessary and conveyance of all materials (except poles) from stacking place.	km	1661.08
48	Fitting one set (3Nos) LT lightning arrestors in three phase line and giving connections excluding earthing	No	169.75



Item. No.	Description	Unit	Unit Rate (Rs.)
49	Supply and erecting PSC Poles in position including fittings, excavation and back filling of pits.	No	3394.91
50	Providing stay for poles including cost of materials and back filling of pits etc.	No	1200.34
51	Supply at site of ACSR Raccoon (6/1/4.09mm) conductor for 11 KV system,.	km	58602.17
52	Supply at site of ACSR Rabbit (6/1/3.35mm) conductor for 11 KV system,.	km	39445.19
53	Supply at site of ACSR Weasel (6/1/2.59mm) conductor for 11 KV system,.	km	25306.61
54	Supply at site any type of LT/HT poles with fittings	No.	3348.83
55	Supply at site of LT/HT, A type poles with fittings	No.	17280.08
56	Supply at site of LT/HT, four legged A type lattice poles with fittings	No.	68929.96
57	Providing earthing for poles and supports, pillarc boxes, panels, structures, transformers, etc including supply of materials, excavation, giving connection, laying lead wires, etc complete using 40 mm GI pipes 3 m long and GI wires of size upto No 6 SWG.	No	3622.85
58	Constructing Transformer plinth of size 1.5m x 1.5m x 1.5m on 1.8m x 1.8m x 0.75m basement inclusive of cost of all material. [Excavation 1.8m x1.8m x 0.75m, Random Rubble in CM(1:6) 1.8m x 1.8m x 0.75m + 1.5m x 1.5m x 1.5m, concrete(1:2:4, 20mm) 1.5m x1.5m x10cm, plaster CM(1:3) 12mm, 1.5m x 1.5m, Pointing CM(1:3) 1.5m x 1.5m x4 sides.]	No.	11969.47
	TOTAL		

Item. No.	Description	Unit	Unit Rate (Rs.)
	ANNEXURE.B -Telecom. Utilities.		
1	Supply & Provision of Polythene Insulated, Polythene sheathed Jelly filled (PIJF) copper conductor underground Armoured telephone cable as per DOT/BSNL Specification. No-G/CUG/01-02 Feb 96 (latest)		
a)	1200/6.5 lbs (0.5 mm)	Mtr	2788.67
b)	800/6.5 lbs (0.5 mm)	Mtr	1879.32
c)	400/6.5 lbs (0.5 mm)	Mtr	1303.40
d)	200/6.5 lbs(0.5 mm)	Mtr	636.55
e)	100/6.5 lbs (0.5 mm)	Mtr	363.74
f)	50/6.5 lbs (0.5 mm)	Mtr	187.93
g)	20/6.5 lbs (0.5 mm)	Mtr	84.87
2	Supply & Provision of Polythene Insulated, Polythene sheathed Jelly filled (PIJF) copper conductor underground Unarmoured telephone cable as per DOT Specification No-G/CUG/01-02 Feb 96 (latest)		
a)	1200/6.5 lbs (0.5 mm)	Mtr	2086.66
b)	800/6.5 lbs (0.5 mm)	Mtr	1408.89
c)	400/6.5 lbs (0.5 mm)	Mtr	977.25
d)	200/6.5 lbs(0.5 mm)	Mtr	476.50
e)	100/6.5 lbs (0.5 mm)	Mtr	272.81
f)	50/6.5 lbs (0.5 mm)	Mtr	140.65

Item. No.	Description	Unit	Unit Rate (Rs.)
g)	20/6.5 lbs (0.5 mm)	Mtr	63.05
3	Identification for working /non working cables.This includes cutting , testing & jointing etc. of different corrage at both ends & jointing of cables pair	pairs	2.42
4	Trenching and backfilling on footpath/cc/bitumunious dense carpeted road for identification of cables (1.5m x 1.5 m)	Mtr	515.30
5	Trenching and backfilling on footpath/cc/bitumunious dense carpeted road (.90m x1.0m)	Mtr	206.12
6	Supply and provision of GI pipe B class (100 mm)	Mtr	381.93
7	Supply and provision of Red stone slab (600x225x38)	Nos.	18.19
8	Supply & Provision of jointing kit		
a)	TSF-vi	Nos.	1576.21
b)	TSF-v	Nos.	1212.47
c)	TSF-iv	Nos.	848.73
d)	TSF-iii	Nos.	727.48
e)	TSF-ii	Nos.	394.05
9	Supply & Provision of Jointing material for jointing of copper cables	Nos.	1151.84
10	Making Jointing pit (3mX3m)	Nos.	727.48
11	Jointing of newly laid cable pairs	pairs	2.42
12	laying/slewing of cables of diff. Corrage (Cu.)		
a)	800 pair & above	Mtr	12.12

Item. No.	Description	Unit	Unit Rate (Rs.)
b)	Below 800 pair	Mtr	6.06
13	Supply & provision of 48 Fibre Optical Fibre Cable	Mtr	95.78
14	Supply & provision of 24 Fibre Optical Fibre Cable	Mtr	69.11
15	Joint Enclosure 48 Fibre	Nos.	836.60
16	Joint Enclosure 24 Fibre	Nos.	666.86
17	Making 48 F splice	Nos.	6668.57
18	Making 24 F splice	Nos.	4849.87
19	Laying of OFC cable	Mtr	12.12
20	Supply and Provision of HDPE pipe 32 mm dia (for subducting)	Mtr	24.25
21	Laying of Subduct (32 mm)	Mtr	6.06
22	Supply and Provision of 4 mm dia 3 strand polypropylene rope of ordinary grade	Mtr	2.42
23	Erection of BSNL Telephone Poles	Nos.	97.00
24	Construction of Joint Chamber for Joints and Pulling Pit	Nos.	4849.87
25	Construction of 110 mm PVC pipe cable duc		
a)	48 way	R Mtr.	7274.80
b)	24 way	R Mtr.	6062.34
c)	16 way	R Mtr.	5456.10
26	Construction of Manhole for Cable Duct	Nos.	133371.37

Item. No.	Description	Unit	Unit Rate (Rs.)
27	Supply & provision of 110 mm HDPE PN 10 (10 Kgf) pipe through trenchless technology	Mtr.	2121.82
28	Laying of cables through moling technology (at a depth of 1.75 m)	Mtr.	375.86
29	Shifting of BSNL Pillars	Job	133371.37
	Details of Duct Work		
	RATES FOR CABLE DUCT & MANHOLES		
	Non DSR items for Cable duct & Man Holes		
1	Providing & laying PVC pipes, complete with sockets with cable duct in standard formation or as specified by the Engineer-in-Charge and in alignment maintained by using spacers including jointing with solvent cement solution but excluding the cost of PVC spacers all complete as per BSNL specifications (finished length of pipes shall be measured for making payment) and the rates includes the cost of rodding, cleaning & performing mandrel test and to pass all the checks and tests prescribed in final acceptance testing schedule of BSNL:a) 110mm Outer Dia PVC pipe of 2.5mm wall thickness	mtr.	110.33
2	Providing and fixing Abs thermoplastic spacer 2.7mm thick in any colour other than black as per drawing & shall ensure 50mm gap between pipes as per drawing.		
a)	Double ended Spacer - 4-Ways	Nos.	54.56
b)	Single ended Spacer - 4-Ways	Nos.	52.14
3	Providing and fixing Abs thermoplastic expansion plug (110gm. Wt.) in ducts in any colour other than black all complete as per the direction of Engineer-in-Charger and as per BSNL drawing: a) 110 mm outer dia pipe.	Nos.	63.05

Item. No.	Description	Unit	Unit Rate (Rs.)
4	Providing and fixing 5mm thick (165gm.wt.) high density plastic material end caps in ducts in any colour other than black all complete as per the direction of Engineer–in –Charge and as per BSNL drawing:a) For 110mm outer dia pipe.	Nos.	2.42
5	Providing and laying 4mm dia 3 strand polypropelene rope of ordinary grade (as per IS:5175-1987) inside the pipe from manhole to manhole as per direction of Engineer-in-Charge.	One Running Meter.	2.42
6	Providing and laying polythene sheet of approved quality and weight not less than 1 Kg./10 Sqm. as per direction of Engineer-in-Charge. (The overlap shall not be less than 150mm wherever necessary).Polythene sheet to be wrapped all-round duct i/c fixing to the sides of soil by nailing etc. all complete. (Net area of polythene sheet ex. Overlapping) shall be measured for payment	Sq. Meter	18.19
7	Providing & fixing MS channel hot dip galvanized to a minimum coating wt. of 610 gm./Square meter of size ISMC-75 (wt. 6.80 Kg./Mtr.) including making holes of 14mm dia as desired by the Engineer-in-Charge in both the flanges of the channel for fixing brackets and holes of 17mm dia in the web of the channel at the required spacing for fixing the channel to the wall of the manholes with the help of expandable type of 12mm dia, 65mm long stainless steel dash fasteners and hold-in-Anchor bolt of approved size & quality complete as per the direction of Engineer-in-charge and as per drg. The rate includes the cost of channel, dash fastners, bolts, washers, making hole etc. and the labour involved in all the operations as stated above: a) 1600 mm long.	Nos.	611.08
8	Providing and fixing in Manhole base slab, MS galvanized pulling eyelet of 20mm dia and 1000mm long, fixed in position as per direction of Engineer-in Charge and as per BSNL Drawings.	Nos.	135.80

Item. No.	Description	Unit	Unit Rate (Rs.)
9	Providing and fixing sump cover assembly consisting of cover frame and grill as per drawing. The sump cover frame shall be manufacture red from 35x35x5mm galvanized MS angle section and shall have clear inside opening of 300x300mm having holdfast of MS flat of size 20x4mm, 150mm long including welding, the cover grill shall be approved factory make and made of steel fibre reinforced concrete of size 340x340x30mm thick and shall have 2mm thick galvanised plate all-round. The random distributed steel fibre shall be provided @ 0.75% by volume of concrete. The fibre shall be of medium tensile steel in accordance with IS 12592 (Pt1-1988).	Nos.	494.69
10	Providing & Fixing precast steel fibre reinforced concrete cover and frame for M/H of 690mm. Dia clear opening and shall be of approved factory make as per approved design & drg. Reinforced cement concrete of grade CU.M.0 conforming to IS 456-1978 shall be used and admixture confirming to is 9103-1979 shall be added to concrete mix. The manufacturing process shall be as per IS 12592 (Pt. 1, 1988). The random distributed steel fibre shall be provided at a rate of 0.75% by volume to concrete. The fibre shall be of medium tensile steel in accordance with IS 12592 (Pt 1 1988). The reinforcement as shown in drg. Shall be provided in the frame & cover and the same shall be welded to side lining of the cover. The galvanized MS Plate, Flat and Hooks as shown in the drg. Shall be provided in frame and cover for sidelining and lifting arrangement. The cover shall be able to withstand heavy duty loading conforming to classification HD-20 circular type as per IS-1726-1990. Suitable keyhole and PMT markings sunk cast on covers shall be made	Nos.	1658.65
11	Providing & fixing locking arrangement for Manhole as per drg. The locking arrangement shall be of galvanized MS Angles, square bars, flats, plate etc. The rate includes cost of materials, welding, drilling, galvanizing & labour for manufacturing and fixing to the Manhole wall etc.	Kilogram.	64.26
12	Painting of Manhole code number with black or red paint over white base, in size of 100mm and 10mm thick at the inside surface of all the opening in Manhole as per the direction of Engineer-in-Charge.	Nos.	53.35

Item. No.	Description	Unit	Unit Rate (Rs.)
13	Providing and fixing in Manhole walls MS galvanized ladder hooks of 16mm dia and 800mm long fixed in position as per the direction of Engineer-in-Charge and as per BSNL drawing.	Nos.	53.35
14	Providing and fixing steel work welded in built up section cable bearer for manhole/Handhole (including GI nut and bolts) as per drawing including cutting handling upto each manhole and fixing in position all complete as per the direction of Engineer-in-Charge in tees, angles, flats and channels). The end of the bolts shall be splitted into two parts and spreaded after fixing to avoid reopening and welding shall be continued on both side. All the above steel sections should be hot dip galvanized confirming to IS standard with minimum thickness of galvanizing conforming to 570gm/sqm. The wt. of section without galvanizing shall be considered for payment.	Kilogram.	69.11
15	Providing and fixing MS galvanized circular frame of 1100mm dia consisting of 75x4mm flat including providing of 3 Nos. (150x15x6mm) MS galvanized lugs including cutting holes in RCC neck, welding lugs to reinforcement and making good the holes with RCC (1:1.5:3) complete as per direction of Engineer-in-Charge.	Nos.	663.22
16	Disposal of surplus excavated materials/earth/rock etc. including loading, unloading and stacking all complete to the BSNL plot/dumping yard identified by the local bodies irrespective of all leads & lift as directed by Engineer-in-Charge .	Cu.M.	139.43
17	Dismantling of existing M/H & protection for existing OFC / copper cables	nos.	5971.40
18	Dismantling of existing cable duct & handling of cable including serviceable material & disposal of unserviceable materials	job	11536.62
	ANNEXURE.C.		
	Civil Utilities		
1	Taking out and transportation of C.I/M.S/P.S.C/H.S. pipes including dejointing and transportation upto all lifts and a lead of 5km. (The Scrap shall be the property of NCRTC)		

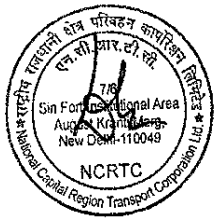
Item. No.	Description	Unit	Unit Rate (Rs.)
A a)	upto 300mm dia pipe line	Mtr	322.52
b)	upto 400-600 mm dia pipe line	Mtr	589.26
B	for interconnection point/Y-Tee/Valve		
a)	upto 300mm dia	Each	12158.62
b)	upto 400-600 mm dia	Each	31242.85
2	Providing and laying S&S NP-3 RCC, pipes manufactured by using sulphate resistant cement including jointing with rubber ring and filling joints with cement mortar 1:2		
a)	150 mm diameter	Mtr	458.31
b)	250mm dia pipe	Mtr	680.19
c)	300mm dia pipe	Mtr	808.72
d)	400mm dia pipe	Mtr	1436.77
e)	450mm dia pipe	Mtr	1487.70
f)	600mm dia pipe	Mtr	2286.71
g)	900mm dia pipe	Mtr	4255.76
3	Providing and laying S&S NP-4 RCC pipes manufactured by using sulphate resistant cement including jointing with rubber ring and filling joints with cement mortar 1:2		

Item. No.	Description	Unit	Unit Rate (Rs.)
a)	600 mm dia pipe	Mtr	3625.28
b)	450 mm dia pipe	Mtr	2237.00
c)	400 mm dia pipe	Mtr	1767.78
d)	300 mm dia pipe	Mtr	1252.48
e)	250 mm dia pipe	Mtr	718.99
4	Plugging of water main with baloon of adequate size by inflating with air compressor including transportation of air compressor at site		
a)	400 mm dia	Job	15425.01
b)	600 mm dia	Job	23137.51
5	Plugging the total sewerage from the existing sewer line so as to reduce the drainage of sewer line to minimum in wet and foul condition by placing gunny bags filled up with earth and stacked properly including supplying and laying the filled up gunny bags up to full length and required height as directed by Engineer and subsequent removal of the same after completion of the job to the entire satisfaction of the Engineer-in-charge, including pumping & bailing out of the water complete.		
a)	250 mm dia pipe	Job	1765.35
b)	300 mm dia pipe	Job	2541.33
c)	400 mm dia pipe	Job	4118.75

Item. No.	Description	Unit	Unit Rate (Rs.)
d)	450 mm dia pipe	Job	5098.42
e)	600mm dia pipe	Job	9063.19
f)	700mm dia pipe	Job	11790.03
6	Plugging the total storm water drain from the existing storm water line so as to reduce the drainage of storm line sewer line to minimum in wet and foul condition by placing gunny bags filled up with earth and stacked properly including supplying and laying the filled up gunny bags up to full length and required height as directed by Engineer and subsequent removal of the same after completion of the job to the entire satisfaction of the Engineer, including pumping & bailing out of the water complete.		
a)	150 mm dia pipe	Job	634.12
b)	250 mm dia pipe	Job	1765.35
c)	300 mm dia pipe	Job	2541.33
d)	400 mm dia pipe	Job	4520.08
e)	450 mm dia pipe	Job	5098.42
f)	600 mm dia pipe	Job	9063.19
g)	900 mm dia pipe	Job	20393.69

Item. No.	Description	Unit	Unit Rate (Rs.)
7	Providing lead caulked joints including the cost of pig lead supply and fixing of rubber gaskets welding, and cutting of MS pipes and specials, including the cost of H/P of T&P at site (For watermains at interconnection point / Y-tee/ valve) including cost of dewatering.		
a)	upto 300 mm dia	Each	17685.04
b)	400 - 600 mm dia	Each	22105.70
8	Supply and installation of MS pipe (6 mm thick) with 750 Micorn PV coating internally and 250 micron anti corrosive bituminous paint externally with a tolerance of 6" in gradient by trenchless technology method at an average depth of 5 mtrs below the road level including excavation & filling of pits, dewatering arrangements, supporting systems for soil, including the approval from the concerned department. The firm will also supply the test certificate w.r.t M.S. Pipe, design of PV coating etc. The work also involves under ground mapping of services, barricading, installation of flickering lights etc, clearing site in all respects after submitting CCTV survey report from u/s to d/s, connection manholes along with the site of drawing showing work complete in all respect.		
a)	250 mm dia(6mm thick)	Mtr	17685.04
b)	600 mm dia (10mm thick)	Mtr	64845.16

Item. No.	Description	Unit	Unit Rate (Rs.)
9	Providing and laying of 100 mm GI pipe, medium class, Jindal make, with all accessories like bends, sockets, etc all complete	Mtr	685.04
10	P/L of MS pipe of 10 mm wall thickness on agreed line andgrade (as per IS: 3589 and made from steel confirming to IS: 2062) the steel pipe surface internal and external shall be blasted to near white and then coated with solvent less P.U. coating of nominal 750 microns and nominal 1000 microns on exterior and interior surface respectively all approved/used by railway/concerned goverment department project for sewer and water lines with design and construction of Man holes at approximate 30 meter interval or required distance with trenchless construction technique below the water table preferably without the need of dewatering, Accuracy of level at required gradient/slope to be achieved by use of Laser/CCTV controlled by suitable equipment. .In the last pit, the equipment to be positioned at surface in a single traffic lane. The work shall be done in such a manner that it will not disturb the smooth movement of traffic . The item includes excavation of trenches and recovery pit andr backfilling after work completed at the site of work mobilization and demobilization of equipment consumable etc as needed to complete the work and cleaning of site complete including disposal of surplus earth within 10 km lead and making water and manhole connections.Traffic control arrangement and lighting display of sign board. Insurance of work man etc complete including removal of all hindrances, unforeseen items permission of other dept. (dept. shall only assist in getting permissions etc.) nothing extra shall be paid on this account to complete the job.		
a)	900mm dia pipe by trenchless technology	Mtr	79582.70
11	Providing and laying MS pipes/barels made out of required thickness MS plate Including painting with epoxy paint of approved quality outside and inside tested to a head of 15kg/cm square suitable for welding joints conforming to IS 3589-1981, IS 784-1974 including testing of the specified head as directed by the Engineer.		



Item. No.	Description	Unit	Unit Rate (Rs.)
a)	Pipes made up of MS sheet(6mm to12mm th.)	Kg	83.66
12	Providing and laying MS special such as tees, bends, collars, tails pieces etc made out of required thickness MS sheet including painting with epoxy paint of approved quality outside and inside tested to a head of 15kg/sqcm suitable for welding joints conforming to IS 3589-1981, IS 784-1974 including testing of the specified head as directed by the Engineer.		
13	Specials made up of MS sheet(6mm to 12mm th.)	Kg	99.42
14	Providing H.S. Pipe, made out of 6 mm thick MS plate with inside cement mortar lining of 25 mm thick and 25 mm thick outside coating as per IS :1916 of following diameter		
a)	300 mm dia pipe	Mtr	6336.35
b)	400 mm dia pipe	Mtr	8473.93
c)	600 mm dia pipe	Mtr	11052.85

Item. No.	Description	Unit	Unit Rate (Rs.)
15	Laying H.S. Pipe, made out of 6 mm thick MS plate with inside cement mortar lining of 25 mm thick and 25 mm thick outside coating as per IS :1916		
a)	300 mm dia pipe	Mtr	220.67
b)	400 mm dia pipe	Mtr	294.63
c)	600 mm dia pipe	Mtr	364.95
16	Providing and fixing 400 mm dia D/F non- return / check valve of PN 1.0 rating having Body/Door of CI Gr. 20, TRUNNION shaft AISI 410, Face & Seat ring of GM i.e. metal to metal seat & not Rubber to metal, generaly confirming to IS: 5312, Falnge flat face drilled to ISI 538 Part IV & VI/BS 10 Table "D" .	Each	172495.57
17	Providing and fixing CI D/F Sluice Valve with S&S (IS 6603 12 Sr 12) stain ang gun metal Parts confirming to IS 14846 of approved make/ of approved brand (withcap) in the existing pipe with bolts, nuts, rubber insertions etc. complete and as per the direction of Engineer		
a)	400 mm dia	Each	109146.28
b)	600 mm dia	Each	250581.77

Item. No.	Description	Unit	Unit Rate (Rs.)
18	P/L of MS pipe of 12 mm wall thickness on agreed line and grade (as per IS 3589 and made from steel confirming to IS 2062)the steel pipes surface internal and external shall be blasted to near white and then coated with solvent less PU coating of nominal 750 microns and nominal 1000 microns on exterior and interior surface respectively of approved make/used by railway/concerned goverment department in sewer and water line projects with design and construction of manholes at required distance. Pipe to be laid with trenchless construction technique. Accuracy of level at required gradient/slope to be achieved by use of laser /CCTV controlled by any suitable equipment. In the last pit the equipment to be positioned at surface in a single traffic lane for the work. The item includes excavation of trenches and recovery pits, excavated earth taken out and their backfilling after work completed at the site. Work includes mobilization and demobilization of equipment consumable etc as needed to complete the work and cleaning of site complete including disposal of surplus earth within 10 km lead and making water and manhole connections, traffic control arrangement, lighting of complete work site area, display of sign board. Insurance of work man etc complete including removal of all hindrances, unforeseen items permission of other deptt (deptt shall only assist in getting permissions etc.). Nothing extra shall be paid on this account to complete the job. The firm will also supply the test certificate w.r.t MS pipe design and P.U coating etc, during the execution of work. Dewatering of pit and making good by back filling in layers of 20 cm each as per the relevant CPWD specifications and disposal of surplus earth as per direction of Engineer-in charge. The firm has to make connections in the u/s and d/s manholes at the same existing invert level including necessary plugging in the existing line by dismantling and restoration of the connection manholes complete. Display of sign board. Insurance of work man etc complete including removal of all hindrances, unforeseen items permission of other deptt (deptt shall only assist in getting permissions etc.) nothing extra shall be paid on this account to complete the job.		
a)	1400 mm dia pipe by Trenchless technology	Mtr	152997.79

Item. No.	Description	Unit	Unit Rate (Rs.)
19	Supply and installation of 450 mm dia MS pipe of 10 mm wall thickness confirming to IS 2062 suitable for welding joints with 750 Micron P.U. coating internally and anti- corrosive bituminous paint on external surface, with tolerance of 6" in or gradient by trenchless technology method at an average depth of 4-4.5m below the road level including interconnection with existing chambers (with required excavation and its restoration including dewatering arrangement) including thrust pit and receiving pit and the supporting system of soil should be got approved from the department before execution. The trenchless has to be carried out below existing deep nallah below road, in sub-soil and existing services.The firm will also supply the test certificate w.r.t MS pipe design and P.U coating etc, during the execution of work. The work also involved necessary number of thrust pit and receiving pit as per the site condition to perform boring including road cutting under ground mapping of service. Dewatering of pit and making good by back filling in layers of 20 cm each as per the relevant CPWD specifications and disposal of surplus earth as per direction of Engineer-in-charge. The firm has to make connections in the u/s and D/S manholes at the same existing invert level including necessary plugging in the existing line by dismantling and restoration of the connection manholes complete.	Mtr	35414.32
20	Providing and Laying mild steel pipe 1500mm internal dia. made from 12mm thick MS Plate conforming to IS 2062, Interior lining with cement mortar and exterior surface treated with coating and wraping confirm to IS3589 2001, IS: 10221-1982, 11909-1986, specifications i/c all lead and lift complete as per direction of the Engineer-in-charge	Mtr	54160.90
21	Providing and Laying M.S. specials such as tees, bends, collars, tail piece etc. made out of required thickness of M.S. Plate i/c welding, painted with epoxy paint of approved quality outside and inside tested to a head of 15 Kg/ cm Sq. suitable for welding joints confirming to IS: 3589 , IS: 784-1978, 7322-1974 to specified head as directed by Engineer-in-charge	Kg	104.22

Item. No.	Description	Unit	Unit Rate (Rs.)
22	Providing and laying of 1500 mm dia. M.S. Pipe made up of 16mm thk. M.S. Plate as per IS2062 through trenchless technology by Specialized Laser guided Tunnel boring Machine with steering kit to cross the carriage way i/c maintain levels with the help of laser guided equipment, excavation of thrust & receiving pit side shoring, providing thrust bed & blocks, welding cutting the steel pipes surface internal & external painted with Epoxy paint on each face of pipe, filling back compaction disposal of surplus earth, i/c, generator, JCB, cranes, trenchless machine, jacks, hydraulic technology, testing etc. all material, Labour and T&P complete job as per direction of Engineer-in-charge.	Rm	209820.52