

Contract NGNC-01: Part Design and Construction of Elevated Viaduct and 5 elevated stations viz NOIDA SEC -122, NOIDA SEC-123, GR.NOIDA SEC-4, ECOTECH-12,GR.NOIDA SEC-2 , (excluding Architectural finishing Works and PEB works of stations) from Chainage 0.00 m to Chainage 9605 m of Noida -Greater Noida Metro Rail Project.



NOIDA METRO RAIL CORPORATION (NMRC) LIMITED

CONTRACT NO: NGNC-01

TENDER DOCUMENTS

VOLUME - 6

BILL OF QUANTITIES (BOQ)

**Noida Metro Rail Corporation (NMRC) Limited
Block-III, 3rd Floor, Ganga Shopping Complex, Sector-29, Noida -201301,
District Gautam Budh Nagar, Uttar Pradesh, India**

BILL OF QUANTITIES PREAMBLE

1. The Bill of Quantities shall be read in conjunction with Instructions to tenderers, General and Special Conditions of Contract, Notice Inviting Tenders, Technical Specifications and Conceptual/Layout Drawings.
2. Schedule 'A' of Bill of Quantities comprises of scope of work under Lump sum contract as detailed in clause 1.1.1 of NIT and ER. The tenderer has to quote a single lump sum amount against Schedule 'A'. Payment will be made as per Schedule for on account stage payment enclosed as Annexure 1 of Schedule 'A'.
3. Schedule 'B' consists of structural works of stations. The tenderer has to quote percentage above/below at par the rates against schedule B.
4. (a) Schedule 'C' consists of, plumbing & drainage work.

(b) Schedule C-1 consists of NDSR items for the plumbing & drainage work. The tenderer has to quote percentage above/below/at par the rates against Schedule C-1.

(c) Schedule C-2 : consists of DSR items for the Plumbing and drainage work. The tenderer has to quote percentage above/below/at par the rates against Schedule C-2.

(d) Schedule C3 consist of NDSR items for Utility works.
5. Schedule 'D' consists of Misc items like tree cutting, barricading, traffic marshals which are not covered in any other schedule of payment. The tenderer has to quote percentage above/below/at par the rates against Schedule D.
6. Schedule 'E' consists of any DSR-2018 items for works that have not been covered in any other schedule of payment. The tenderer has to quote percentage above/below/at par the rates against Schedule E.
7. The rates and prices to be tendered in the Unit Priced Bill of Quantities of schedule B, C, D & E are for completed and finished items of work and complete in all respects. Tree cutting/transplantation items shall be carried out with prior approval of forest authorities. Demolition of existing structures shall be carried out without making any damage to adjacent structures, utilities and with all safety measures. It will be deemed to include cost of all plants, labour, supervision, materials, transport, all temporary works, erection, maintenance, utility identification, contractor's profit and establishment/overheads, together with preparation of design and drawings, all general risks, insurance liabilities, compliance of labour laws and obligations set out or implied in the contract. For taxes and duties refer clause C2.5 of ITT.

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- 8 If the tenderer fails to quote rates against any item, the tender may be treated as incomplete and non-responsive and shall be rejected.
- 9 Tenderers shall quote their offer in Indian Rupees (₹) only for all schedules.
- 10 Errors will be corrected by the employee for any arithmetic errors in computation or summation as per contract conditions.
- 11 All the rates and amounts should be filled both in figures and words. In case of any discrepancy between the two, the value provided in words shall be treated as sacrosanct.
- 12 All columns in the Bill of Quantities shall be filled in indelible ink or type written and the total tender amount shown in the bottom. The person authorised to sign on behalf of the Tenderer shall sign in full with company seal and date at the bottom of all pages and at the end of schedules 'A', Annexure – 1 and Schedule B, Schedule C and Schedule D & Schedule E.
- 13 The Schedule of Payment/Specified in Annexure-1 of Schedule 'A' is purely for the purpose of releasing 'on account payments' for the work executed under the 'Lump Sum' component of the work. The work executed against the BOQ items in Schedule B, C, D & E would be paid on measurement basis.
- 14 The cost of work is for scope of work defined in Employers Requirement.
- 15 The payment under the Payment Schedule will cover all work specified in the tender drawing and/or provided in the scope of work. The Schedule of Payment will not get modified due to alterations of any type so far as the modifications/alterations are within the scope of work and/or provided for in the tender drawings.
- 16 The Contractor may raise their 'On Account' payments on monthly basis as per the status of work on the last day of the respective month.
- 17 In case of DSR item the description is given in brief and detailed description of item should be as given in DSR 2018 published by CPWD.
- 18 The tenderers are advised to quote the price inclusive of all central/state/local taxes, duties, levies, cess and all other incidental charges required to fulfil the tender conditions including statutory deduction viz., TDS towards Income Tax / GST/Labour cess etc. after considering clause C2.4, C2.5 & C2.6 of ITT

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S.No.	Schedule	Description	Quoted Amount in Indian Rupees (in figures)
1.	Schedule "A"	Price for scope of Works under lump sum contract	
2.	Schedule "B"	Structural Works of stations.	
3.	Schedule "C"	Plumbing works NDSR & (DSR 2018 items), utility works	
4	Schedule "D"	Misc. items	
5	Schedule "E"	Any Other DSR 2018 items	
	Total amount:		
	Rebate if any		
	Total after rebate		

Signature of the Authorised Signatory of
The tender with Company Seal

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Schedule A (Annexure I)
SCHEDULE FOR AN ACCOUNT PAYMENTS UNDER LUMP SUM PORTION

The payment would be governed by the stage payment Schedule as detailed below:

Scope of work under Lump sum has been defined in Employers Requirement

Overall percentage of 100% i.e. quoted lumpsum price has been divided in Two Heads. The Percentage breakup of cost component for Head A-1 General is 5% of lumpsum quoted price. Head A-2 Viaduct is 95% of lumpsum quoted price.

S.No.	Description of items	Payable Unit	%age break up of lump-sum quoted price	Percentage break up of each sub head
			X	Y
HEAD A-1 GENERAL			5.00%	
Sub Heads				
A-1.1	Soil Investigation, building condition survey and monitoring scheme, if any, construction of site office	LS		10.00%
A-1.2	Batching Plant, site laboratory, submission of quality, safety, environment and public health manuals duly approved by the employer and submission of instrumentation scheme and traffic diversion schemes, if any	LS		15.00%
A-1.3	Submission of utility identification report after actual trenching and making good etc complete and submission to utility owning agency	LS		5.00 %
A-1.4	Submission of quarterly audit report of safety, quality and environment and public health and Action Taken on non-compliance of non-conformance report and its closure during last month. NOTE To be paid quarterly on pro-rata basis for submission of quarterly audit report.	LS		10.00 %
A-1.5	Making new road/strengthening of existing road/service road for management of traffic during contract period and maintenance of these roads as well as maintenance of other roads in construction area during contract period. This includes footpath & street lights etc. also. NOTE: To be paid quarterly on pro-rata basis.	LS		30.00%
A-1.6	Reinstatement/Restoration of Road, Footpath, Services, Street light, Signalling etc. for final handing over to concerned authorities after completion of work. NOTE: In case of handing over of Roads in phases, the payment shall be made on pro-rata basis.	LS		30.00%
	Total			100.00%

NOTE: The value of each sub-head shall be 'X' multiplied by the respective percentage of 'Y' e.g. for subhead A-1.1 the value is 5% of lump-sum price x by 10%.

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S.No.	Description of Items	Payable Unit	%age Breakup of lumpsum quoted price	Percentage break up of each Sub Head
			X	Y
Head A-2 Viaduct			95.00%	
Sub Heads				
A-2.1	Foundation			
A-2.1.1	Piling	Per pile Group		19.00%
A-2.1.2	Pile Caps	Per pile cap		8.00%
A-2.2	Piers including Pier caps, crash barrier & shear keys/stoppers	Per pier		12.00%
A-2.3	Casting of Girder	Per span		34.00%
A-2.4	Erection of girder including stressing, grouting etc, all complete	Per span		14.00%
A-2.5	Load Test of Span As per Specification	Per span		1.00%
A-2.6	Bearing – Supply and fixing for all spans NOTE – 50 % on supply and 50% on fixing	Per span		1.00%
A-2.7	Completion of the work in all respects including railing, RCC cable through & covers, G.I. Brackets for cable, earthing, manholes, ground water recharging etc.	Per span		3.00%
A-2.8	Providing & Fixing Expansion Joints	Per span		1.50%
A-2.9	Payments on cleaning of the site in all respects and handing over to System contractor for working	Per span		1.50%
A-2.10	All other balance works to complete the entire work as per the scope & specifications – handing over of viaduct to DMRC submission of as building drawings to be paid along with final bill	Per span		5.00%
	Total			100.00%

Note: For Viaduct including Viaduct in Station area

- (i) The value of each sub-head shall be 'X' multiplied by the respective percentage in 'Y' e.g. for subhead A-2.1.1 the value is 95% of lump-sum quoted price x by 19%.
- (ii) In case of variation in the length of viaduct on either side i.e. increase or decrease, the total value of viaduct i.e. 'X' will get modified accordingly on prorate basis, Track supporting structures in station area (i.e viaduct in station area from pile foundation to U/C Girder) (185m each) are included in the Viaduct lump-sum quoted price.
- (iii) The successful contractor will submit a quantity schedule for the work as per the details finalised by them for the components listed above. Unit payment of the items shall be governed by the Quantity schedule within the total % payment specified against that item. For example, if there are 'N' no of pile groups in the viaduct, the payment due on completion of individual pile group would be $0.95 \times 0.19 \times Y/N$.
- (iv) The quantity schedule after being approved by the Engineer will be used by for making all the stage payments. The Contractor should note that while stage payment will be governed by the quantity schedule, total cost of the 'Lump Sum' component would remain unchanged for the specialised work subject to adjustment for the length of the viaduct.

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ANNEXURE 13A

PROFORMA FOR STATEMENT OF MINOR DEVIATIONS

(Refer Clause C 2.2 and C15.1 of ITT)

- The following are the particulars of minor deviations from the requirements of the Tender Document:

Sr. No	Clause	Deviations	Price adjustment for each deviation/s

Note :

- The Tenderer shall indicate price adjustment against each deviation in Annexure 13A of BOQ. This price is the price which the tenderer shall reduced from this tender price if deviation(s) is/are accepted by the Employer.
- Where there is no deviation, the statement should be returned duly signed with an endorsement indicating 'No Deviations'. In case, Performa of deviations is not submitted or submitted as blank, it will be construed that the tenderer has not proposed any deviations from tender documents.
- If the tenderer proposes deviations in tender documents, and/or any other terms and conditions of the tender, other than in this Annexure, it will have no effect.

**Signature of authorized signatory
On behalf of Tenderer**

<u>BOQ SUMMARY</u>					
S. No.	Description	Basic Amount	Percentage quoted by the tenderer above/below/at par the total amount of sub-schedule (in %age)		Quoted Amount (INR)
			in fig.	In Words	
1	Schedule A	Lump Sump	N/A	N/A	
2	Schedule B	638,517,571.17			
3	Schedule C1	6,923,980.00			
4	Schedule C2	6,769,560.00			
5	Schedule C3	6,291,591.22			
6	Schedule D	73,471,207.98			
7	Schedule E	21,100,000.00			
8	Rebate If any				
	Total After Rebate		(in figure)		
9			(in Words)		

Signature of the Authorized Signatory with Company seal

"SCHEDULE -A"

S.No	Item
A	B
	Alignment and Formation
1	Contract NGNC-01: Part Design and Construction of Elevated Viaduct and 5 elevated stations viz NOIDA SEC -122, NOIDA SEC-123, GR.NOIDA SEC-4, ECOTECH-12,GR.NOIDA SEC-2 , (excluding Architectural finishing Works and PEB works of stations) from Chainage 0.00 m to Chainage 9605 m of Noida -Greater Noida Metro Rail Project.
	TOTAL

The Tenderer to furnish:

(1) Total quoted Contract Amount (Lump Sum) for schedule 'A' in words

Rupees

.....

.....

and

In figures ₹

.....

(2) Monthly 'On account' stage payment shall be made as per Annexure-1 of schedule 'A'. All the %age of payment are on the basis of Lump Sum amount quoted above in schedule A

Authorized Signatory
Signature of the Authorized Signatory with Company seal

Schedule B					
Abstract of Summary of Schedule B					
S. No.		Description	BOQ Amount (in Rupees)	Percentage Quoted by Tenderer above/below/at par the total amount of sub-schedule (in %)	Quoted amount
1	Schedule B	Structural Work of FIVE Stations Excluding viaduct in station portion (ITEM RATE)	638,517,571.17		
Total (in figure)					
In words:					
Signature of the Authorized Signatory with Company seal					

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SUMMARY OF SCHEDULE B (STRUCTURAL WORKS)

Item	Schedule	Description	Amount (Rs)
1	2	3	4
1	B-01	Pile Foundations	190,690,387.48
2	B-02	Concrete - Plain and Reinforced	103,205,579.48
3	B-03	Reinforcement	241,285,566.15
4	B-04	Structural Steel Works	39,922,125.00
5	B-05	Miscellaneous	2,104,735.46
6	B-06	Platform	61,309,177.60
		Total	638,517,571.17

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SCHEDULE B

S.No.	Description of Items	Unit	Rate	Quantity	Amount
SCHEDULE -B1 PILE FOUNDATIONS					
1	Providing and installing cast-in-situ vertical bored piles of approximate depth as per drawing and with M35/20 where "35" is the grade of concrete (using Ordinary Portland cement 53) incl all operations such as installation and shifting of piling rig etc, in all soil strata along elevated section and "20" is the "nominal maximum aggregate size". 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, top cutted portion of pile at dumping ground for all leads . 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. Rate shall include provision of four MS Steel pipes of 60mm outer Diameter , 2.9mm thick (light) as per IS:1239 in 25% of pile at the time of casting to be used for cross-hole sonic test. Pipes shall extend from cut-off 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. The item includes drilling and socketing in hard rock at required depth including casing upto required depth, Including casing as required.				
	For 1000 mm dia Pile				
	(i) By hydraulic rigs using partial depth casing with bentonite/polymer	RM	14789.61	3988.00	58980964.68
	For 1200 mm dia Pile				
	(i) By hydraulic rigs using partial depth casing with bentonite/polymer	RM	21297.04	3988	84932595.52
2	Carrying out initial 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 (including reaction piles/soil/rock anchors, if any) for the kentledge load. (Cost of pile is paid in item 1 to 2)				
	(ii) 800/1000 mm dia pile (2.5 times the theoretical design vertical load capacity of 400/580t , The test arrangements to be designed shall cater for additional 25% above test load)	Nos.	1431000.40	9	12879003.60
4	Carrying out initial 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 (include reaction piles/ soil/ rock anchors, if any) for the kentledge load. (Cost of pile is paid in item 1 to 2)				
	800/ 1000 mm dia pile (2.5 times the theoretical design lateral load capacity of 40t)	Nos.	79499.70	9	715497.30
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.				

	800/1000 mm dia pile (1.5 times the theoretical design vertical load capacity of 500t)	Nos.	478619.4	9	4307574.60
6	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.				
	800/ 1000 mm dia pile (2.5 times the theoretical design lateral load capacity of 40 t)	Nos.	43872.8	9	394855.20
7	Non destructive integrity testing of cast in situ piles of 800mm/1000 mm/1200 mm dia and as per specifications, and submitting reports.	Nos.	3179.5	260	826670.00
8	Integrity pile test using cross hole sonic logging as per the provision of ASTM standard D6760, as per drawings & technical specifications.	Nos.	4797.4	65	311831.00
	Providing M 35/20 concrete (using cement as per technical specifications) for following concrete works:				
9	Pile cap / Tie beams including excavation through existing concrete and water bound macadam road /bituminous road / cement road of all thicknesses including dismantling other structures, dead utilities etc. and soil including dewatering, pumping and bailing out water, strutting and shoring etc. This item also includes formwork and backfilling in foundation including watering, compacting with a vibratory plate compactor and loading, leading and disposal of surplus excavated material using lockable and covered trucks so as to ensure that during transportation the carried material does not spill out. Max lead to dumping ground will be all leads (average anticipated lead will be 10km). 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. And rate shall include back filling using coarse sand.	Cum	7283.27	3754	27341395.58
TOTAL AMOUNT OF SCHEDULE -B1					190690387.48

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SCHEDULE B

S.No.	Description of Items	Unit	Rate	Quantity	Amount
SCHEDULE -B2 Concrete - Plain and Reinforced					
1	Providing and laying in position cast-in-situ design cement concrete mix of M15/20 grade, including cost of shuttering if any etc. PCC below foundations, pilecaps, tie beams, basement, underground water tanks, slab on grade, raft slabs, retaining wall etc. in complete as per approved drawings.	CUM	4782	208	994656.0
2	Providing and laying in position cast-in-situ design cement concrete mix of M-35/20, M-45/20 grade for reinforced cement concrete structural elements at all levels including centering, shuttering, deshuttering,propping, staging, scaffolding, necessary tools, plants, machinery and all related operations etc. for all heights using plywood/ steel material for shuttering & steel props. Rate shall include cost of providing grooves, chamfers, moulding, cutout etc. in formwork & using required dosage of admixture in concrete for obtaining required workability as per approval of Engineer. The work will include vibration of concrete, curing protecting from damage, bailing/pumping out water if required, levelling of ground, making site good and placing in position of necessary fixtures, insert plates, sleeves for various purposes, shear connectors etc. complete as per drawings, specifications and as directed by the Engineer. Reinforcement shall be paid separately. Note:- Some inserts fabricated by other agencies which have to be incorporated in the pilecap, columns/pedestals, beams, slabs etc would have to be handed over to the contractor for placement and fixing in the reinforcement cage / shuttering before concreting. No payment will be made for such inserts.				
3	M-45/20 for piers, Columns (rectangular, circular or square as per execution drawing or as approved by the engineer) at all levels.	Cum	8145	1902	15491790.00
4	M-35/20 for Beam, Slab at all levels.covering slabs for underground water tank /basement, chajja slab, staircase slab including steps, Landing, Stinger beam, sill, floor beams, cantilever beam, inverted beams, gutter beams, lintels, copings, facias, parapet, drop pardis, railing, mullions, cornices etc. for profiles, pillars, Beams for compound wall, retaining walls etc. at all levels	Cum	7540.28	10850	81812038.00
5	M-35/20 for basement wall, ancillary building wall and also including approved make & quantity of waterproofing compound in concrete, providing PVC water stops at construction joints & hydro testing of tank as per direction of Engineer.	Cum	7010.14	637	4465459.18
6	Providing M 35/20 concrete for Reinforced concrete crash barrier over pile cap all round the pier as specified in drawings, incl. centering, shuttering, scaffolding and all related operations as required to complete the work. The item includes pedestal supporting crash barrier. 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	7010.10	63	441636.30
TOTAL AMOUNT OF SCHEDULE -B2					103205579.48

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SCHEDULE B

S.No.	Description of Items	Unit	Rate	Quantity	Amount
SCHEDULE - B3 Reinforcement					
1	Providing TMT reinforcement steel of Fe-500 grade, from approved list of supplier, including straightening, cutting, bending, tying, lap/butt welding, placing, binding with GI binding wire 18 SWG in all structural heights and depths complete as per drawings, specifications and directions of Engineer. The scope of work will also include application of one coat of cement slurry inhibitor solution as per manufacturer's instruction approved by the Engineer-in-charge. (1kg cement with 600cc inhibitor solution, petent no. 109784/67)	MT	63379.45	3807	241285566.15
TOTAL AMOUNT OF SCHEDULE -B3					241285566.15

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SCHEDULE B

S.No.	Description of Items	Unit	Rate	Quantity	Amount
SCHEDULE - B4 Structural Steel Works					
1	Providing, fabricating to required profile and shape, transporting, erecting and fixing in position structural steel work including procurement of all raw steel materials, bolts, nuts & washer incl. its testing, allowance for all types of wastages, strightening, cutting, bending of section wherever specified, drilling holes, bolting provision of necessary tools etc.Work under this item would generally cover all structural steel work. for roof in the stations; including roof portals; purlins; runner gutters etc; in the station steel roof structure (but excluding down take pipes and sheeting on roof as per specifications) along with provision for all fixing E&M; OHE and Signalling/Telecommunications equipments in the station steel roof streuture.Work to include all intermediate stages of activities not define herein, but otherwise implied for total completion of work.Cost to include but not limited to, all materials including wastages, all consumables, fasteners of all types for both temporary works including staging, scaffolding, tools, plant and equipment, and additional costs of all incidentals and necessary testing of material etc including cost of painting as per specifications. It includes all type of structural work including FOB.	MT	106459	375	39922125.00
TOTAL AMOUNT OF SCHEDULE -B4					39922125.0

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SCHEDULE B

SCHEDULE - B5 Miscellaneous

S.No.	Description of Items	Unit	Rate	Quantity	Amount
1	Supplying and fixing GI Expansion Fasteners (appx. exposed length 300mm) of approved make, including testing for fixing into already constructed RCC structure.				
	a) 12mm dia	Nos.	187.11	313	58565.43
	b) 16mm dia	Nos.	502.18	313	157182.34
	c) 20mm dia	Nos.	998.98	313	312680.74
2	Supplying & fixing Rebar Fasteners (approx. exposed length 300mm) of approved make, including the cost of rebars and testing for fixing into already constructed RCC structure.				
	a) 8mm dia	Nos.	141.94	625	88712.50
	b) 12mm dia	Nos.	329.05	625	205656.25
	c) 16mm dia	Nos.	1033.40	625	645875.00
3	NON SHRINK GROUT				
	Proving and pouring non-shrink grout for grouting of holding down bolts of columns and under base plates etc. complete as directed by Engineer.	cum	53573.42	10.00	535734.20
4	DRAINAGE				
	Providing and fixing 160 mm dia UPVC (Working pressure 6 kg/spcm) pipes in central columns with 3 mm size slots depth as per drawings & direction of Engineer in charge complete in all respects. Cost shall include approval from Ground Water Authority.	Rm	1003.29	100	100329.00
	TOTAL AMOUNT OF SCHEDULE -B5				2104735.46

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SCHEDULE B

S.No.	Description of Items	Unit	Rate	Quantity	Amount
SCHEDULE -B6 Platform					
1	Providing, precasting and curing precast post tensioned concrete I Beam/Girder of M45 grade (Including all shuttering and other arrangements). 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	10177.37	830	8447217.10
2	Transporting and erection of these I-Beams into completed structures conforming to required a rades and dimensions comuiete as per drawn and specifications. The payment schedule for item no. 1 & 2 will be as follow: (i) On submission of Method statement, i.e detailed design, working drawings of casting yard, framework. Staging, stacking yard. EOT cranes etc, and approval of the same by Engineer – 0.5% of accepted amount for item no (1) (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 I-Beam and its approval 15% of accepted amount for item no. 1 (iii) Providing and casting I-Beam as detailed in item no. 1 – 50% of accepted rate for item no. 6 till the amount paid vide I & ii above is adjusted, thereafter at accepted rates. (iv) 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. 1 (v) Mobilisation of cranes, trailers. Etc., and erection of one I-Beam – 10% of accepted amount of item no. 1 for mobilizing all erection equipments. (vi) Transporting and erecting in position as detailed in items no. 2 – 40% of accepted rates for amount of items no. 2 till the amount paid vide (iv) & (v) above is adjusted	MT	1739.88	2070	3601551.60
3	Supplying and post threading uncoated stress-relieved low relaxation steel comforming IS:14268, class2 in I-beams including providing 85mm ID (12K15) corrugated HDPE duct (both sides) 2.3mm thick with couplers & vent pipes, spacers anchorages, stressing using 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				
	Strands	MT	141005.27	270	38071422.90
	Corrugated HDPE duct-85mm ID	Rm	180.31	600	108186.00
	Anchorages for 12K 15 cable	Nos	7387.20	1500	11080800.00
TOTAL AMOUNT OF SCHEDULE -B6					61309177.60

Schedule 'C'

Abstract of Summary of Schedules C1 , C2 & C3					
S. No.		Description	BOQ Amount (INR)	Percentage quoted by the tenderer above/below/at par the total amount of sub-schedule (in %age)	Quoted Amount (INR)
1	Schedule C1	PLUMBING WOKRKS For 5 elevated stations viz NOIDA SEC -122, NOIDA SEC-123, GR.NOIDA SEC-4, ECOTECH-12,GR.NOIDA SEC-2 NDSR ITEMS	6,923,980.00		
2	Schedule C2	PLUMBING WOKRKS For 5 elevated stations viz NOIDA SEC -122, NOIDA SEC-123, GR.NOIDA SEC-4, ECOTECH-12,GR.NOIDA SEC-2 DSR ITEMS	6,769,560.00		
3	Schedule C3	Civil utilities for 5 elevated stations viz NOIDA SEC -122, NOIDA SEC-123, GR.NOIDA SEC-4, ECOTECH-12,GR.NOIDA SEC-2	6,291,591.22		
Total (in figure)			19985131.22		

Total in words: _____

Signature of the Authorized Signatory with Company seal

SCHEDULE- C-1 SUMMARY OF SCHEDULE C1: NDSR ITEMS ARCHITECTURAL FINISHING AND PLUMBING WOKRKS (NDSR ITEMS)		
Sub-Head	Description	Amount (Rs.)
SUMMARY PART: PLUMBING WORKS NDSR ITEMS		
10	SANITARY INSTALLATION	
11	WATER SUPPLY	
12	DRAINAGE	
13	RAIN WATER PIPES	
14	PUMPS	
	TOTAL OF PLUMBING WORKS	6,923,980.00
TOTAL AMOUNT FOR SCHEDULE-C1		
		6,923,980.00

SCHEDULE C

S.No.		Description of Items	Unit	Rate	Quantity	Amount (Rs.)
SCHEDULE C1 Plumbing works (NDSR)						
		Plumbing Works				
1	10.1	Providing and fixing C.P. brass towel rail 24" as per approved	Each	819.02	As Per Site Requirement	
2	10.2	Providing and fixing C.P. brass twin robe hooks as per approved make.	Each	859.97		
3	10.3	Providing and fixing, ABS plastic body liquid soap dispenser with push lever assembly complete with soap refill as per approved make.	Each	859.97		
4	10.4	Providing and fixing S.S. hinged grating, 6mm thick with frame (Neer Cat. No. - NRG 7009 approved equivalent) including setting in floor with cement mortar 1:3.	Each	538.10		
5	10.5	Providing and fixing white glazed vitreous china division plates for urinals of size 680x 300 mm as per approved make.	Each	1842.81		
6	10.6	Providing and fixing grab bar 600mm as per approved make.	Each	1474.25		
		Soil Waste & Vent Pipes And Fittings				
7	10.7	Providing and fixing centrifugal cast iron, soil, waste and vent pipes including all fittings (plain or access door) (NECO or RIF make conforming to IS 3989 : 1984 or approved equivalent make) e.g. bends, junctions, cowls, offsets, access pieces etc., jointing with dripseal joints as per drawing, fixed with C.I. clamps (NECO make conforming to IS 1729 or approved equivalent make) fixed in cement concrete blocks of size 10x10x10cms in 1:2:4 mix (1 cement : 2 coarse sand : 4 stone aggregate 20 mm nominal size) including cutting holes in wall/floors and making good wherever required complete as directed by Engineer in charge. Note: The length of soil, waste and vent pipes will be measured along centre line of pipe and fitting including joints, nothing extra will be payable for any kind of fittings, clamps, dripseal and jointing.				
	(a)	150 mm dia	Metre	2767.24		
8	10.8	Providing and fixing 100mm dia G.I. Inlet fitting of standard design and as shown in drawing with two-three inlets, suitable for 32mm to 50mm G.I. Pipes and 75mm to 100mm outlet.	Each	737.12		
9	10.9	Providing and fixing CP Brass floor cleanout plug NEER Cat. No. NCO 8001 as per drawing complete with G.I. Socket jointed to drainage pipe outlet with lead caulked joint.				
	(a)	100 mm dia	Each	1170.04		
	(b)	150 mm dia	Each	2064.57		
		TOTAL OF SANITARY INSTALLATION				
	11.0	WATER SUPPLY				
10	11.1	Providing and fixing G.I. pipes complete with G.I. fittings and clamps including cutting and making good the walls etc.,				
		Exposed on Wall				
	(a)	65mm nominal bore				
11	11.2	Painting G.I. pipes and fittings with synthetic enamel paint over a ready mixed priming coat, both of approved quality for new work	Metre	724.83		
	(a)	65mm nominal bore				
12	11.3	Concealed pipe including painting with anti-corrosive paint, cutting chases and making good the wall.	Metre	18.43		
	(a)	25mm nominal bore				
	11.4	Providing and fixing lever operated gun metal ball valve with SS ball.	Metre	398.04		

13	(a)	20mm nominal bore			
	(b)	25mm nominal bore	Each	380.83	
	(c)	32mm nominal bore	Each	614.27	
	(d)	40mm nominal bore	Each	982.81	
	(e)	50mm nominal bore	Each	2986.77	
	(f)	65mm nominal bore	Each	1965.66	
14	11.5	Providing and fixing 600mm long puddle flanges fabricated out of 6mm thick M.S. plates along with flanges of suitable size properly fixed in walls and top slabs of underground and overhead tanks.	Each	7752.91	
	(a)	32mm dia pipe - 4.05 mm thck			
	(b)	40mm dia pipe - 4.05 mm thck	Each	234.00	
	(c)	50mm dia pipe - 4.50 mm thck	Each	588.90	
	(d)	65mm dia pipe - 4.65 mm thck	Each	351.00	
	(e)	80mm dia pipe - 4.85 mm thck	Each	702.02	
	(f)	100mm dia pipe - 5.40 mm thck	Each	877.53	
	(g)	150mm dia pipe - 5.40 mm thck	Each	1170.04	
	(h)	250mm dia pipe - 6.0 mm thck	Each	2106.07	
15	11.6	Providing & fixing MS vent pipe complete with 2 Nos. bends & painting with enamel paint all complete.	Each	4711.24	
	(a)	100 mm dia			
		Water Treatment System	Each	3930.84	
16	11.7	Providing and fixing skid mounted vertical MSRL Dual Media pressure filter fabricated from IS 226/2062 plate 5mm thick for shell and 6mm thick M.S. plate for dished ends complete with initial charge of filter media, face piping and valves accessories, painting, testing and commissioning complete (for domestic water supply system).			
		Capacity 9000 lph.			
		Flow through rate 10000 lph/m2			
		Working pressure 2.5 kg./cm2			
	(a)	Design pressure 4 kg./cm2			
17	11.8	Providing & fixing chlorination system consisting of electronic metering type dosing pump, 80W motor of working pressure 3 kg/sqcm similar to ASIA-LMI make complete including suppling and fixing of necessary polythene inter-connecting pipe of 15mm dia, PVC valves, PVC/HDPE dosing tank of 100 litres capacity.	Each	153567.78	
18	11.9	Providing and fixing bulk water meter with direct reading dial in KL, all internal parts and strainer in gun metal/brass.	Each	26186.27	
	(a)	50mm dia			
19	11.10	Providing and fixing direct reading rate of flow Rota Meter	Each	9214.06	
	(a)	50mm dia for 9000 lph rate of flow			
20	11.11	Providing and fixing gun metal dial type pressure gauge (150mm dia) of rating 0-10 kg./cm2 with gun metal isolating cock pig and connecting pipe.	Each	15356.77	
21	11.12	Supply, assembly, erection, testing and commissioning of UV treatment unit for water supply filter (Alfaa make or approved make).	Each	1228.54	
	(a)	Suitable for flow rate 9000 lph			
		TOTAL OF WATER SUPPLY SYSTEM	Each	79855.25	
	12.0	DRAINAGE			
22	12.1	Providing and laying cement concrete 1:5:10 (1 cement : 5 fine sand: 10 graded stone aggregate 40 mm nominal size) upto haunches of RCC pipes including bed concrete as per specifications.			
	(a)	450mm dia RCC Pipe			
		TOTAL OF DRAINAGE SYSTEM	Metre	1228.54	

As Per Site Requirement

	13.0	RAIN WATER PIPES				
23	15.1	Providing, fixing, welded joints and testing of heavy class M.S. ERW black pipes as per relevant IS 1239/3589 with special accessories tees, elbows, flanged joints, rubber insertion, nuts, bolts, washers or welded joint with flange joints on bends, including fixing the pipe with suitable flat iron strip clamps/brackets structural members dash fastner,civil breakage,making good the same etc. painting with a primer coat and two coats of approved shade of enamel paint etc. complete as required.				
	(a)	100 mm dia - 5.4 mm thck	Metre	1758.21		
	(b)	150 mm dia - 5.4 mm thck	Metre	2733.25		
	(c)	200 mm dia - 6.0 mm thck	Metre	3940.20		
	(d)	300 mm dia pipe - 6.0 mm thck	Metre	6388.11		
24	15.2	Providing and fixing cast iron gratings for water collection chamber.				
	(a)	225x225mm -	Each	552.84		
	(b)	300x300mm -	Each	737.12		
		TOTAL OF RAIN WATER PIPES				
	14.0	PUMPS				
		Pumping System				
25	14.1	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, 150mm dia pressure gauge, GM isolation cock and cement concrete foundation with plaster complete as required.				
	(a)	Filter Feed pumps - Raw Water Pumps				
		Pump capacity - 150 lpm				
		Head - 30 m				
		RPM - 2900	Each	88338.03		
	(b)	Treated water pumps - Domestic Water Pumps				
		Pump capacity - 150 lpm				
		Head - 50 m				
		RPM - 2900	Each	107877.71		
	(c)	Flushing water transfer pumps - Flushing Water Pumps				
		Pump capacity - 200 lpm				
		Head - 50 m				
		RPM - 2900	Each	100155.44		
26	14.2	Providing, fixing and commissioning non clog type mono block submersible drainage pumps suitable for handling solids of 12 mm size with totally water and dust proof motor as specified complete with motor control panel and float switch, inclusive of all terminations and earthing required all complete as per specifications.				
	(a)	Capacity 300 lpm & Head 10 m	Each	52651.00		
27	14.3	Providing and fixing Transistorised liquid level controllers with low voltage Relays and Seamless Steel probes and PVC shroud, 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 panels to be including in the rate).				

As Per Site Requirement

	(a)	For Domestic Filter feed pumps.			As Per Site Requirement	
		To start domestic filter feed pumps at low water level in domestic treated water under ground tank and stop at high water level in treated water tank and stop at low water level in domestic raw water tank.	Set	24570.85		
	(b)	For Domestic 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 under ground tank.	Set	24570.85		
	(c)	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 under ground tank.	Set	24570.85		
28	14.4	Design, manufacture, supply, installation, testing and commissioning of the following integrated, cubicle type, dead front, extensible, sheet steel control panel, to the foundation. The panel shall be suitable 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 equipment like motor starters, pump motors etc. including making end terminations etc. The following components and accessories shall be mounted within each control panel. (Note all wiring and cables will be FRLS wires and cables) (Panel shall be of Vendors approved by DMRC).				
	(a)	One No. 100 amps TPN incoming MCCB complete with the following:				
	(i)	1 No. 0-500 volts 96x96 sq. mm voltmeter with selector switch and shall be protected by 2 amps MCB's. (1 set)				
	(ii)	0-200 amps 96x96 square mm ammeter with selector switch and 300/5 CT's. (1 set)				
	(iii)	Phase indicating lights with toggle switches and shall be protected by 2 amps MCB's. (3 sets)				
	(b)	150 amps TPN tinned copper bus bars with heat shrinkable insulation sleeve.				
	(c)	Outgoing Feeders/Starters.				
	(i)	16 amps TPN MCB with DOL starter with built-in SPP each suitable for 2 HP for filter feed pumps (2 nos).				
	(ii)	32 amps TPN MCB with DOL starter with built-in SPP each suitable for upto 5 H.P. for domestic treated water pumps (4 nos).				
	(iii)	16 amps TPN MCB outgoing feeder suitable for 2-3 HP submersible drainage pumps panel (2 nos).				
	(iv)	32 amps TPN MCB with built-in SPP each suitable for 5 HP tubewell pump & drainage pump panels (4sets)				
	(v)	Spares				
	Note :					
	(a)	All switch gear/panels shall be suitable for 10 KA rating.				
	(b)	All outgoing will have 96 sq. mm size ammeter and CT.				
	(c)	All starter will have spare 10 amps 230 V coil auxiliary contractor for building Automation system.				

	(d)	All starter units for pumps to be provided with 3 level liquid level contractor.			As Per Site Requirement	
	(e)	Lamps.				
	(f)	All pumps to be provided with duty selector switch.				
	(g)	All pumps to be provided with sequence timer 220/440 V AC/DC and alternate working of pumps between 6 to 8 hours or alternate use of pumps after one service in sequence.				
	(h)	All pumps to be provided with over load relay.				
	(i)	All starter to be provided with single phase preventor.				
	(j)	Necessary cable alleys for space switches, level controller internal wiring and copper earthing of all equipment shall also be included. All switch gears/control gears shall be motor duty rating.	Set	368562.70		
29	14.5	Supplying and laying the PVC insulated & sheathed FRLS Armoured cables of 1.1 K.V.Copper Conductor including supplying and making and termination with brass compression glands:				
	(a)	3 Core x 2.5 sq.mm	Metre	163.79		
	(b)	3 Core x 4 sq.mm	Metre	198.89		
30	14.6	Fabricating and installing following size of perforated G.I. cable trays including horizontal and vertical bends, reducers, tees, cross members and other accessories as required and duly suspended from the ceiling with G.I. suspenders including painting, etc, as required.				
	(a)	150mm width x 50mm depth x 2.0 mm thickness.	Metre	409.51		
		Suction And Delivery Pipes And Valves For Water Supply Pumps				
31	14.7	Providing and fixing G.I. suction & delivery headers / pipes for water supply pumps (IS:1239 heavy class) with G.I. Fittings (bends, tees, reducers, plugs, union, flange & blank flanges etc) and clamps and jointing with teflon tape or hold tite including chase cutting and making good the walls, floors etc. wherever required.				
	(a)	50 mm nominal bore	Metre	921.41		
	(b)	65 mm nominal bore	Metre	1056.54		
	(c)	80 mm nominal bore	Metre	1375.96		
	(d)	100 mm nominal bore	Metre	1658.53		
32	14.8	Painting for G.I./MS Pipes with two or more coats of synthetic enamel paint of approved quality and shade over a coat of approved primer coat as directed including surface preparation (Shade as per pipe colour code)				
	(a)	50 mm nominal bore	Metre	49.14		
	(b)	65 mm nominal bore	Metre	61.43		
	(c)	80 mm nominal bore	Metre	79.85		
	(d)	100 mm nominal bore	Metre	92.13		
33	14.9	Providing and fixing lever operated gun metal ball valve with SS ball.				
	(a)	50mm nominal bore	Each	4607.03		
	(b)	65mm nominal bore	Each	6265.56		
34	14.10	Providing and fixing C.I. wafer type Butterfly valves conforming to PN 10 / 13095 with nuts, bolts, washers, 3mm thick insertion rubber gasket and two matching flanges as per table 'E' etc. complete.				
	(a)	50 mm nominal bore	Each	3624.19		
	(b)	65 mm nominal bore	Each	4668.46		
	(c)	80 mm nominal bore	Each	5528.44		
	(d)	100 mm nominal bore	Each	6326.99		
35	14.11	Providing and fixing C.I. Double flanged horizontal type non-return valve of PN 1.6 to IS:5312 including nut, bolts, 3mm thick compressed asbestose, gasket, companion flanges as per table 'E'.				
	(a)	50 mm nominal bore	Each	3992.77		

36	14.12	Providing and fixing suction strainer with M.S. flanged connection 1000mm long, fabricated from 16 gauge Brass sheet with 3mm slots.		
	(a)	100mm nominal bore	Each	7985.52
		Tubewell And Tubewell Pumps		
37	14.13	Geo Hydrological Survey of site using resistivity method to assess the ground water potentials and select the best possible location for tubewell for 3500 GPH yield.	Job	22113.75
38	14.14	Boring/drilling 350mm diameter bore in all classes of soil,murrum,disintegrated or soft rock including making strata charts, transportation, installation, removal of tools & plants after completion of work all as per directions of the Engineer-in-Charge upto 130m depth (by ODEX /DTH drilling rig method)	M	2002.28
	14.14.1	Extra over item 37.2 for boring in hard rock	M	588.90
39	14.15	Supplying, assembling lowering and fixing in vertical position		
	(a)	Mild steel blind pipe complete with sockets and having wall thickness not less than 5.2 mm with threaded socketed ends as required and painting outside with two coats of anti-corrosive paint of approved brand and manufacturer all complete as per directions of the Engineer. Jindal / TT Swastic or equivlant make.		
	(i)	200 mm dia	M	3533.43
	(b)	Slotted Mild Steel pipe complete with sockets and having wall thickness not less than 5.2 mm and slots 1.5mm to 2 mm with threaded socketed ends as required and painting outside with two coats of anti corrosive paint of approved manufacturer all complete as per direction of the Engineer. Jindal / TT Swastic or equivlant make.		
	(i)	200 mm dia nominal bore	M	4122.33
40	14.16	Providing and fixing Casing Shoe, well cap clamp and welding complete	Set	5958.42
41	14.17	Development of tube well to stabilisation and sand free discharge of water with Air compressor complete as per directions of the Engineer.		
	(a)	For a period upto 50 hours.	Hrs.	1105.69
42	14.18	Providing and fixing single / multistage submersible tubewell pump suitable for 150mm bore with stainless steel casing, NORYL impeller, stainless steel shaft and built in non return valve coupled with submersible squirrel cage motors suitable for 145V \pm 10% volts. 3 phase, 50 cycles AC supply.		
		Capacity 200 lpm		
	(a)	Head 50m , 5.0 HP	No.	35101.20
43	14.19	50mm dia GI column pipe of Jindal / TT Swastic make heavy class duly flanged.	mtr.	675.70
44	14.20	Providing and fixing gunmetal pressure gauge (100mm dia) of rating (0-10 kg/cm ²) with gunmetal isolating cock and connecting pipe.	No.	1474.25
45	14.21	Providing and fixing 50mm cable clips with nuts & bolts.	Nos.	73.71
46	14.22	Providing and fixing 50mm dia supporting clamps with nuts and bolts.	Pair	859.97
47	14.23	Providing and fixing 3C - 6 sq.m submersible cable.	M	245.72
48	14.24	Providing and fixing Butterfly valve of cast body with stainless steel disc and stainless steel stem, teflon bushing and niterite o'rings.		
	(a)	50mm dia	No.	2702.79
49	14.25	Providing and fixing steel wire rope 6mm dia complete with wire rope clamps for safety of pump set.	M	122.85

As Per Site Requirement

[illegible]

50	14.26	Supplying & laying 1.1KV grade aluminium conductor PVC insulated and PVC sheathed armoured cables including 8 SWG GI earth wire on surface/cable trays as required.			As Per Site Requirement	
	(a)	3 Core - 6sq.mm	M	614.27		
51	14.27	Providing and fixing dust and vermin proof motor control panel fabricated from 14 SWG MS sheet with stove enamelled paint and comprising of: (for Tubewell pumps)				
	(a)	One feeder of 63 ampere 4 Pole ELCB.				
	(b)	One fully automatic DOL starter with push buttons and indicating lights.				
	(c)	One panel type volt meter 96mm square with Rotary selection switch for reading voltage between phase and neutral or incoming feeder.				
	(d)	Three Neon Phase indicating lights on the incoming Main.				
	(e)	One Ampere meter 96mm square panel type of appropriate range.				
	(f)	Etched plastic identification plates for all switch gears.				
	(g)	Space for liquid level controller.				
	(h)	All internal wiring should be colour coded from incoming main to switchgear, starters, meters, indicating lights. (Compartment light with minimum front area 1.50sqm & 0.30m deep)	No.	31942.10		
52	14.28	Supplying and Poring in Tubewell P- gravel around bore.	cum	2826.74		
53	14.29	Testing of tubewell water after boring in approved lab. for drinking proposes and submitting the report to DMRC.	each	17667.17		
		PLUMBING WORKS: -	LS	989140	7	6923980
		TOTAL COST OF NDSR ITEMS PLUMBING WORKS: -				6923980
TOTAL AMOUNT OF SCHEDULE - C1						6923980

SCHEDULE C2 PLUMBING WORKS (DSR Items)						
S.No.		Description of Items	Unit	Rate	Quantity	Amount (Rs.)
1		Lump sum provision for all the items for Plumbing works marked * in the columns of Qunatity in this BOQ	LS	967080	7	6769560
TOTAL AMOUNT OF SCHEDULE - C2						6769560

SCHEDULE C3 (Civil Utilities)						
S.No.		Description of Items	Unit	Rate	Quantity	Amount (Rs.)
(Civil Utilities)						
1		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				
		150 mm diameter	metre	378.02	64	24193.28
		250mm dia pipe	metre	561.56	64	35939.84
		300mm dia pipe	metre	667.31	32	21353.92
		400mm dia pipe	metre	1185.11	7	8295.77
		450mm dia pipe	metre	1227.66	7	8593.62
		600mm dia pipe	metre	1886.46	96	181100.16
		900mm dia pipe	metre	3510.36	64	224663.04
2		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				
		600 mm dia pipe	metre	2990.13	64	191368.32
		450 mm dia pipe	metre	1845.13	96	177132.48
		400 mm dia pipe	metre	1458.5	7	10209.5
		300 mm dia pipe	metre	1033.18	7	7232.26
		250 mm dia pipe	metre	593.16	64	37962.24
3		Plugging of water main with baloon of adequate size by inflating with air compressor including transportation of air compressor at site				
		400 mm dia	job	12722.64	1	12722.64
		600 mm dia	job	19083.35	1	19083.35
4		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.				
		300 mm dia pipe	job	2096.74	3	6290.22
		600mm dia pipe	job	7475.33	3	22425.99
5		Plugging the total stormwater 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.				
		150 mm dia pipe	job	523.88	1	523.88
		250 mm dia pipe	job	1456.17	1	1456.17
		300 mm dia pipe	job	2096.74	7	14677.18
		600 mm dia pipe	job	7475.33	2	14950.66
		900 mm dia pipe	job	16820.09	2	33640.18
6		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 watermain at interconnection point / Y-tee/ valve) including cost of dewatering.				
		upto 300 mm dia	each	14586	3	43758
		400 - 600 mm dia	each	18232.5	7	127627.5

7		Supply and installation of MS pipe (6 mm thick) with 750 Micron 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.				
		250 mm dia(6mm thick)	mtr	14586	7	102102
		600 mm dia (10mm thick)	mtr	53482	7	374374
		Providing and laying of 100 mm GI pipe, medium class, Jindal make, with all accessories like bends, sockets, etc all complete	Mtrs.	565.21	3	1695.63
8		P/L of MS pipe of 10 mm wall thickness on agreed line and grade (as per IS: 3589 and made from steel conforming 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/DDA's/RDA's 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 and 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.				
9		900mm dia pipe by trenchless technology	per metre	65637	13	853281
10		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.				
		Pipes made up of MS sheet(6mm to 12mm th.)	Kg	69.54	3214	223501.56
11		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.				
		Specials made up of MS sheet(6mm to 12mm th.)	Kg	81.86	321	26277.06
12		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				

		600 mm dia pipe	mtr	9116.25	32	291720
13		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				
		300 mm dia pipe	mtr	182.33	4	729.32
		400 mm dia pipe	mtr	243.1	4	972.4
		600 mm dia pipe	mtr	301.44	64	19292.16
14		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, generally conforming to IS: 5312, Falnge flat face drilled to ISI 538 Part IV & VI/BS 10 Table "D"	Each	142268.2	2	284536.4
15		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				
		400 mm dia	Each	90019.93	1	90019.93
		600 mm dia	Each	206670.8	1	206670.8
16		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 lessPU coating of nominal 750 microns and nominal 1000 microns on exterior and interior surface respectively of approved make/used by railway/DDA/RDA 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				
17		, 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.				
		1400 mm dia pipe by Trenchless technology	Mtr	126187.13	7	883309.91

18	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.	Mt	29208.47	13	379710.11
19	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 wrapping 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	Meter	44670.5	13	580716.5
20	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	85.96	643	55272.28
21	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 gided 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	173052.49	4	692209.96
TOTAL AMOUNT OF SCHEDULE C3					6291591.22

<u>Schedule 'D'</u>			
Abstract of Summary of Schedules D (Miscellaneous Items)			
S. No.	Description		BOQ Amount (INR)
1	Schedule D	Miscellaneous Items	73,471,207.98
Total (in figure)			

Total in words: _____

Signature of the Authorized Signatory with Company seal

Contract NGNC-01: Part Design and Construction of Elevated Viaduct and 5 elevated stations viz NOIDA SEC -122, NOIDA SEC-123, GR.NOIDA SEC-4, ECOTECH-12,GR.NOIDA SEC-2 , (excluding Architectural finishing Works and PEB works of stations) from Chainage 0.00 m to Chainage 9605 m of Noida -Greater Noida Metro Rail Project.

SCHEDULE D (Detail of Misc. Works.)

S.No.	Description of Items	Unit	Rate	Quantity	Amount (Rs.)
1	<p>Surveying at Grid of 5m x 5m covering an area of approximately 100 m beyond on each side of station for verifying alignment and station foot print, marking vertical & horizontal clearances and establishing triangular points and bench mark for the construction of station building, and matching it with the alignment of the approaches at station ends including correction, if any, complete. The payment schedule shall be as follows:</p> <p>a) Payment as 50% of total cost of item on checking and verification of all control points and submission of drawings.</p> <p>b) Payment of 40% of total cost of item equally distributed over the duration of the contract and will be paid on pro-rata basis.</p> <p>c) Payment of 10% of total cost of item on satisfactory completion of work in final bill.</p>	LS	258911.1	4	1035644.4
2	Submit colour photographs of the works as directed by the Engineer and supply at monthly intervals, or as instructed by the Engineer. One set shall comprise eight negatives with three copies of positives of each negative of size not less than 225 x 175 mm each.	Per set	4346.49	52	226017.48
3	Supply of video CDs of 180 minutes duration comprising one master copy and one extra copy showing the progress of works as directed by Engineer.	Per set	16295.84	26	423691.84
4	Cutting, transporting of trees, stacking and handing over to the concerned department as per the instruction of Engineer Incharge				
	Girth up to 30 cm	Each	728.86	36	26238.96
	Girth 31 cm to 50 cm	Each	1068.68	36	38472.48
	Girth 51 cm to 75 cm	Each	1295.28	36	46630.08
	Girth 76 cm to 125cm	Each	2260.19	36	81366.84
	Girth more than 125cm	Each	3705.79	7	25940.53
5	Transplanting the marked trees of various species and girth to the place shown by Engineer/Engineer's representative within a lead of 1.5 km, with all tools, plants, man & machinery and necessary preparation such as Preparation of earth ball of tree roots of desired depth & diameters				
	Dislodging, lifting, transportation and transplanting tree from original place to the new place including all arrangement, T&P Labour etc. for successfully completing the work. The work will include				
	Excavating pits of adequate size, arranging loose soil, mixing of manure, fertilizer, insecticides etc. to ensure survival of the trees being transplanted.				

	Maintenance of tree i.e. watering, manuring, soil heaping, Spray of insecticides for six months. All above operations shall be executed as per specification				
	Girth up to 30 cm	Each	8685.58	36	312680.88
	Girth 31 cm to 50 cm	Each	11000.00	36	396000
	Girth 51 cm to 75 cm	Each	14356.72	36	516841.92
	Note: Stage wise payment for the work will be as following (i) 30% after tree trasplanted (ii) 40% after sprouting & establishment of trees. (iii) 30% after completion of maintenance period of one year. (iv) This is being biological work, it is undestood				
6	Providing 2.0 mt high temporary barricade and arrangement of traffice diversion such as traffic signals during construction at site, for day and night as per requirement and drawings. During construction barricading and arrangement of traffic diversion has to be kept continously and maintained properly till the completion of all the activities. Local shifting of barricading along with all accesseries including indicators, illuminitors & delinators etc at a particular station may be required during execution and may require for traffic management. Nothing shall be paid extra for this local shifting	RM	2841.24	10714	30441045.36
7	Providing 1.0 mt high temporary barricade and arrangement of traffice diversion such as traffic signals during construction at site, for day and night as per requirement and drawings. During construction barricading and arrangement of traffic diversion has to be kept continously and maintained properly till the completion of all the activities. Local shifting of barricading along with all accesseries including indicators, illuminitors & delinators etc at a particular station may be required during execution and may require for traffic management. Nothing shall be paid extra for this local shifting	RM	2815.10	714	2009981.4
	Note : The payment schedule for item No. 6 shall be as follows: Note: Payment stages (i) 70% on installation (ii) 30% on removal/ shift				
	Traffic signals, signage's & other traffic aids (as per IRC specification)				
8	Providing & fixing of retro-reflective traffic sign boards as per IRC recommendations and ISI approved.	Sqm.	14379.84	214	3077285.76
9	Providing and fixing and maintaining the road infrastructure during executions, refixing as where required.				
	Road delineator	Each	4418.19	143	631801.17
	Portable signages	Each	8982.49	50	449124.5
	Reflective lights	Each	3757.15	179	672529.85
	Traffic Conces.	Each	3165.61	286	905364.46
	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.				

10	In-Charge	Shift	751.20	1479	1111024.8
	Supervisor	Shift	540.22	4307	2326727.54
	Traffic Guards	Shift	345.53	80357	27765754.21
	Note : The deployment to be done with prior approval of DMRC. The personnel at (a), (b) & (c) above should be familiar with traffic rules and regulations.				
11	Providing ,fabricating to required profile & shape	MT	135863.36	7	951043.52
	TOTAL AMOUNT OF SCHEDULE D				73471207.98

"Schedule-E"			
WORK TO BE EXECUTED UNDER DSR-2018			
The tenderer has to quote a single percentage above/below/at par for following items			
S.No.	Description	Unit	Basic Amount
1	All works under DSR 2018 like Utility diversion such as sewer, storm water drain/ water supply line etc. Construction of Employer's site office if required, any other contingencies/items which is not covered in BOQ and covered in DSR 2018	LS	21,100,000.00

Total Amount in Words

Authorized Signatory

Signature of the Authorized Signatory with Company seal