

**PROPOSED RESIDENTIAL PLOTTED COLONY
(DDJAY - 2016) AREA MEASURING 3.25 ACRES
(LICENSE NO. 5 OF 2023) IN ADDITION TO 7.35
ACRES (LICENSE NO. 126 OF 2022) IN TOTAL AREA
MEASURING 10.625 ACRES BEING DEVELOPED BY
GCC INFRA AT SECTOR - 88A, GURUGRAM,
HARYANA.**

SUBMISSION REPORT ON SERVICES ESTIMATES/PLAN

CLIENT:

M/S GCC INFRA.

ARCHITECT:

CREATIVE LINE

ARCHITECTS, INTERIOR DESIGNERS & PLANNERS

STUDIO: 2ND FLOOR, SHRI HITH PLAZA, C-25, SEC-13

VASUNDHARA, GHAZIABAD, UTTAR PRADESH.

CONSULTANT:

PKV CONSULTING ENGINEERS (P) LTD.

PUBLIC HEALTH & FIRE SERVICES

815- C, DDA FLATS, SHAHDARA, DELHI – 110 093

PLOTTED DDJAY COLONY AT GURUGRAM

SUBMISSION REPORT

Estimate for providing external services i. e. water supply, sewerage and storm water drainage irrigation system for landscaping, road and street lighting for **Proposed Residential Plotted Colony (DDJAY - 2016) area measuring 3.25 Acres (License no. 5 of 2023) in addition to 7.35 Acres (License no. 126 of 2022) in total area measuring 10.625 Acres being developed by GCC INFRA at Sector - 88A, Gurugram, Haryana.**

Report on Complex:

The proposed site for complex is located in Gurugram, Haryana. The above-mentioned housing is being developed and constructed by M/S GCC INFRA.

WATER SUPPLY:

At present the source of water supply in this area is borewell. As the underground water is potable, provision for one number of Borewells have been made in this estimate. It has been proposed to construct underground tanks of capacity as per attached details, and at location for domestic purpose. The underground tanks will be fed from the borewells and HUDA supply, from there water will be pumped to plots proposed. The water supply system has been designed as per the Hazen Willian formula.

DESIGN:

The scheme has been designed for population of approx. 3276 persons considering 18 persons for each plot. The rate of water supply per head/day has been taken as 135 liters per head per day as per HUDA Norms including flushing water supply.

PUMPING EQUIPMENTS:

It has been proposed to install pumping set as described with standby of equal capacity. The provision for standby generating set has also been provided in case of any electricity failure.

SEWERAGE SCHEME:

This scheme is designed for sewer connecting to Master Sewer of HUDA Main Scheme. The Sewerage System has been marked on the respective plans.

Sewer lines have been designed for three times average D.W.F. in relation to water supply demand. It has been assumed that about 75% of the domestic water supply shall find its way into the proposed sewer. Sewer lines shall be laid to a gradient maintaining minimum 2.46 ft./Sec self-cleaning velocity. Sewer line up to 400 mm dia. has been designed to run half full and above 400 mm dia. has been designed to run three fourth full at peak flow. Necessary provision for laying S.W./RCC pipe sewer line, construction of required number of manholes etc., have been made in the estimate.

Necessary design statement for entire sewerage system has been prepared and attached with estimate. Manning's formula has been used on the design of sewerage system.

PLOTTED DDJAY COLONY AT GURUGRAM

STORM WATER DRAINAGE:

It is proposed to lay underground RCC pipe drains with required number of catch basins for disposal of storm water. The intensity of rain fall has been taken as 1/4" per hour. A minimum size of 400 mm RCC storm water line will be provided and designed as per Manning's formula.

SPECIFICATIONS:

The work will be carried out in accordance with the standard specifications of P.H. as laid down by the Haryana Govt./HUDA.

Road:

Roads have been provided to above zones and estimate is prepared as per revised specifications adopted by HUDA.

Street Lighting:

Provision for streets also has been made.

Horticulture:

Estimates and details of plantation, landscaping, signage, etc., has been included.

Rates:

The estimate has been prepared based on the present market rates.

Cost:

The total cost of the scheme, including cost of all services works out to be Rs. 933.12 lacs including 3% contingencies @ 49% departmental charges.

For M/s. GCC Infra

Authorised Signatory

PLOTTED DDJAY COLONY AT GURUGRAM

I. Design Calculation:(Part-I)

i) Domestic Water Requirement (Part-1)	
a) No. of Plots	182 Nos.
and population @18 person per plot	3276 Persons
Domestic water requirement 3042 person	442260 LPD
@ 135 LPD	
ii) Infra-structural facilities	
a) Community Facilities	32000 LPD
b) Commercial Shops	6500LPD
	Total = 38500 LPD
TOTAL WATER DEMAND (i + ii)	480760 LPD
	SAY 480KLD
	Flow to STP
	@75% of
	domestic water
	+ 100% of
	flushing water
	Supply=400
	KLD
	Say=400 KLD

PLOTTED DDJAY COLONY AT GURUGRAM

III. BOREWELLS :

Approx. discharge of borewells @22 KL /hr. and working 16 hrs/day.

a) Total water demand		= 322.00
b) Number of borewells 450/16/22		= 0.9148 nos.
c) Add 10% as standby		= 0.0915 nos.
	Total	= 1.00625 nos.
		= Say=1 no.

Since the entire water to the proposed development is to be supplied by HUDA from its scheme and it is yet to come-up, it is proposed to install 1 numbers of bore-wells.

IV. PUMPING MACHINERY FOR BOREWELLS:

a) Gross working head		= 70.00 mts.
b) Average fall in S.L.		= 5 mts.
c) Depression Head		= 5 mts.
d) Friction loss in main		= 10 mts.
	Total	= 90 mts.
		= Say=90.0 mts

$$\text{HP} = 22000 \times 60 \times 1/60 \times 60 \times 75 \times 0.6 = 12.22$$

$$\text{Say} = 12.5 \text{ HP}$$

V. U.G. TANK:

a) Daily demand (domestic)		= 322 KLD
b) 1/2 day demand	301/3	= 161 KLD
		Say=160 KL

PLOTTED DDJAY COLONY AT GURUGRAM

VII. BOOSTING MACHINERY-DOMESTIC:

i) Total Water Demand	= 322.0 KLD
ii) Pumping per hour @8 hours pumping/day	= 40.25 KLH = 670.833 LPM
Say	= 700 LPM
iii) Gross working head:	
Depth of pump room	= 5.00 meter
Frictional loss in	= 15.00 meter
Residual Pressure	= 5.00 meter
iv) Clear head required	= 20.00 meter
	Total = 25.00 meter
	Say = 45.00 meter
v) Motor HP = $630 \times 45 / 60/75/0.65$	= 11.66. HP
	Say = 12 HP

It is proposed to provide 3 nos. of pumping sets of 350 lpm discharge at 45 mtr. Head for entire complex of 2 working and other as standby.

VIII. BOOSTING MACHINERY-FLUSHING:

i) Total Water Demand	= 159.0 KLD
ii) Pumping per hour @8 hours pumping/day	= 19.875 KLH = 331.25 LPM
Say	= 350 LPM
iii) Gross working head:	
Depth of pump room	= 5.00 meter
Frictional loss in	= 15.00 meter
Residual Pressure	= 5.00 meter
iv) Clear head required	= 20.00 meter
	Total = 25.00 meter
	Say = 45.00 meter
v) Motor HP = $630 \times 45 / 60/75/0.65$	= 5.8. HP
	Say = 8 HP

It is proposed to provide 3 nos. of pumping sets of 175 lpm discharge at 45 mtr. Head for entire complex of 2 working and other as standby.

PLOTTED DDJAY COLONY AT GURUGRAM

VIII. CAPACITY OF DG SETS:

S.No.	Equipment	Qty	HP	Total HP
1.	Borewell	1	12.5	10.00
2.	Domestic Booster Pump		12.0	10.00
3.	Flushing Booster Pump		8.0	8.00
3.	STP		55.00	55.00
4.	External Lighting		5.00	5 HP
			Total	92.5 HP

KVA = $90 \times .746 \times 1.50 = 103.51$ KVA = **SAY 100 KVA**

It is proposed to add 80 KVA capacity for above said machinery to the main D.G. set for plots

Projet :- Proposed Residential Plotted Colony (DDJAY - 2016) area measuring 3.25 Acres (License no. 5 of 2023) in addition to 7.35 Acres (License no. 126 of 2022) in total area measuring 10.625 Acres being developed by GCC INFRA at Sector - 88A, Gurugram, Haryana.

Estimate For Providing Internal Services e.g. Water Supply, Sewerage & Strom Water Drainage etc.

	Capacity of Gen Set	Nos.	HP			
1	Tube Well Submersible Pumps	1	12.5	=	12.5	HP
2	Domestic Water Transfer Pumps	2	5	=	12	HP
3	Flushing Water Transfer Pumps	2	4	=	8	HP
4	STP	1	55	=	55	HP
5	Lighting			=	5	HP
					92.5	HP
	or	92.5	x 0.746 x 1.50		103.51	KVA
			Say		100.00	KVA
	Requirement of 100 KVA capacity will be added in to the main D.G. set to provide standby supply.					

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Estimate For Providing Internal Services e.g. Water Supply, Sewerage & Strom Water Drainage etc.

FINAL ABSTRACT OF COST

S.No.	Description	Amount (Lacs.)
1	Sub Work - I Water Supply Distribution System & Pumping Machinery	154.53
2	Sub Work - II Sewerage Scheme	141.82
3	Sub Work - III Storm Water Drainage	77.43
4	Sub Work - IV Roads & Footpath	228.42
5	Sub Work - V Street Lighting	40.77
6	Sub Work - VI - Horticulture	3.49
7	Sub Work - VII - Maintenance of Services for 10 years including resurfacing of roads after 1st 5 years & II phase i.e. 10 years of maintenance (as per HUDA norms)	286.68
Total		933.12
Area (Acre)		8.90
Cost Per Acre		104.81
(RUPEES Eight Crore Fifty Two Lacs Forty Two thousand only)		

Authorized Signatory

Sub Work - I (ABSTRACT OF COST)

	Amount (Lacs.)
Water Supply Distribution System & Pumping Machinery	
Sub head I. Water Supply (Head Works)	39.80
Sub head II. Water Supply Pumping machinery	26.60
Sub head III. Water Supply Distribution (Domestic & Flushing Water)	31.37
Sub head IV. Water Supply Irrigation	2.92
Total	100.69
Adding 3% for Contingencies & PE Charges	3.02
Total	103.71
Adding 49% departmental charges & price escalation etc, Unforeseen	50.82
Say	154.53
	Lacs

C.O to final abstract of cost

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Estimate For Providing Internal Services e.g. Water Supply, Sewerage & Strom Water Drainage etc.						
Sub Work I				(Head Works) Water Supply		
Sub Head No. I		Unit	Qty	Rate	Amount (in Lacs)	
S. No.	Description	Unit	Qty	Rate	Amount (in Lacs)	
1	Boring & installing tube well with rotary ring complete with 100mm dia pipe and strainer to a depth of about 120mts in all respect.	Nos.	1	1500000	15.00	
2	Provision of rising main, connecting tube well with water main and by pass arrangements.					
a	100mm dia CI/DI Pipe	Mtr.	100	1500	1.50	
3	Providing Tubewell submersible pumps capacity : 22000 LPH at 90 mtr head (12.5HP) (complete in all respect)	Nos.	1	200000	2.00	
4	Provision for carriage for materials and other un-foreseen items.	LS	-	-	0.50	
5	Provision for chlorination plant.	LS	-	-	1.00	
6	Construction of UG tanks 160 KL and 80 KL for Flushing in STP.	KL	240	4500	10.80	
7	Provision of construction of tube well chambers of size 1.5 x 1.5 x 1.5 mtrs for housing tube well	Nos.	1	100000	1.00	
8	Construction of staff quarters maintenance staff	LS	-	-	3.00	
9	Provision for Const. of boosting chamber of suitable size as per P.H. req.	LS	-	-	5.00	
(C.O. to Abstract of Cost of Sub Work No. I)					39.80	Lacs

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Estimate For Providing Internal Services e.g. Water Supply, Sewerage & Strom Water Drainage etc.

Sub Work I						
Sub Head No. II						Pumping Machinery
S. No.	Description	Unit	Qty	Rate	Amount (in Lacs)	
1	Providing & installing electricity driven pumping set capable of delivering 350 LPM for Each Pump of water against a total head of 45 m complete with motor and other accessories (For Domestic - 5 HP). (2W+1S)	Nos.	3	120000	3.60	
	175 LPM for Each Pump, 45 m Head, 4 HP for Flushing Water Transfer Pump (2W+1S)	Nos.	3	100000	3.00	
2	Provision for diesel engine generator set each for standby Arrangements for booster pump complete with gear head arrangements of following capacities.					
	1 No. - 100 KVA	LS	-	-	12.00	
3	Provision for making foundations & erection of pumping machinery.	LS	-	-	2.00	
4	Provision for pipes, valves & specials inside the pump chamber.	LS	-	-	2.00	
5	Provision for carriage for materials and other unforeseen items.	LS	-	-	2.00	
6	Provision for Electric Service connection incl. electric fittings for T.W chaush and cost of Transformer.	LS	-	-	2.00	
(C.O. to Abstract of Cost of Sub Work No. I)					26.60	Lacs

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Estimate For Providing Internal Services e.g. Water Supply, Sewerage & Strom Water Drainage etc.

Sub Work I		Water Supply				
Sub Head No. III		Distribution System / Rising Main				
		(Domestic & Flushing)				
S. No.	Description	Unit	Qty	Rate	Amount (in Lacs)	
1	Providing, laying, jointing and testing DI pipe lines including cost of excavation complete in all respects as per specification.					
1.1	100mm dia DI Pipe	Mtr.	1600.0	1460	23.36	
2	Providing, laying, jointing and testing of VC pipe line conforming to IS 4985 including cost of excavation etc. complete in all respect.					
2.1	80mm dia DI Pipe	Mtr.	140.0	900	1.26	
3	Providing, laying, jointing and testing pipe lines including cost of complete in all respects					
	(From HUDA supply)					
3.1	100 mm dia DI pipe line from main HSVP line to UGT.	Mtr.	212	1460	3.10	
4	Providing and fixing indicating plates for sluice valve and air valves	Nos.	5	1000	0.05	
5	Providing and fixing air release valve and scour valve.	Nos.	5	12000	0.60	
6	Provision for carriage for materials and other unforeseen items(L/S)	LS	-	-	2.00	
7	Providing for making water supply connection in HUDA (line)	LS	-	-	1.00	
(C.O. to Abstract of Cost of Sub Work No. I)					31.37	Lacs

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Estimate For Providing Internal Services e.g. Water Supply, Sewerage & Strom Water Drainage etc.

Sub Work I					Water Supply	
Sub Head No. IV					Irrigation	
S. No.	Description	Unit	Qty	Rate	Amount (in Lacs)	
1.	Providing, laying, jointing and testing UPVC pipe lien conforming to IS 4985 including cost of excavation etc. complete in all respect.					
a)	25 mm dia	Mtr.	95	300	0.29	
b)	32 mm dia	Mtr.	57	350	0.20	
c)	50 mm dia	Mtr.	133	450	0.60	
d)	65 mm dia	Mtr.	174	650	1.13	
2.	Providing and fixing 20 mm dia. Irrigation hydrant valve complete in all respect.	Nos.	6	3500	0.21	
3.	Provision for carriage of Material and other as foreseen Item	LS	-	-	0.5	
(C.O. to Abstract of Cost of Sub Work No. I)					2.92	Lacs

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Estimate For Providing Internal Services e.g. Water Supply, Sewerage & Strom Water Drainage etc.

Sub Work II					Sewerage Scheme	
S. No.	Description	Unit	Qty	Rate	Amount (in Lacs)	
1	Providing, laying and jointing DWC pipes as per specifications i/c excavation, bed conc, encasement /cradle section with C.C., also i/c testing etc and construction of man holes etc complete.					
a)	200 dia pipe for depth 0 to 3.0 m	Mtr.	804	1,800	14.47	
b)	300 dia pipe for depth 0 to 3.0 m					
	Over flow line 100mm Ø GI Pipe	Mtr.	180	1,075	1.94	
c)	Provision for carriage of pipes, road cuts & making good of roads.	LS	-	-	2.00	
d)	Provision for vent shafts	LS	-	-	2.00	
e)	Provision for centering & shuttering, shoring & barricading.	LS	-	-	1.00	
f)	Provision for watch & ward & lighting etc.	LS	-	-	1.00	
g)	Provision for temporary disposal arrangements	LS	-	-	5.00	
h)	Providing for Making connection with HUDA Master Sewer line	LS	-	-	1.00	
i)	Construction of STP Capacity 400 KLD.	KLD	400	16000	64.00	
	Total				92.41	
	Adding 3% for Contingencies				2.77	
	Total				95.18	
	Adding 49% departmental charges & price escalation etc				46.64	
	Total Carry Over to Final Abstract of Cost				141.82	Lacs

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Estimate For Providing Internal Services e.g. Water Supply, Sewerage & Strom Water Drainage etc.

Sub Work - III					Storm Water Drain	
S. No.	Description	Unit	Qty	Rate	Amount (in Lacs)	
1	Providing, laying and jointing S & S RCC, NP3 pipes with rubber ring joints as per specifications i/c excavation bed & cradle section cove, also manholes & testing etc complete.					
a)	400 dia RCC pipes Class NP 3	Mtr.	1058.00	2500	26.45	
b)	Provision for carriage of pipes, road cutting & road restoration etc.	LS	-	-	2.00	
c)	Provision of centering, shuttering shoring & barricading	LS	-	-	1.00	
d)	Provision for watch & ward & lightings etc	LS	-	-	1.00	
e)	For rain harvesting wells	Nos.	4	350000	14.00	
f)	Provision of temporary disposal arrangement for services till HUDA Services are made available	LS	-	-	2.00	
g)	Provision for S.W.D. connection with main on master road	LS	-	-	1.00	
h)	Provision for road gully with pipe connection 200mm dia	LS	-	-	3.00	
	Total				50.45	
	Adding 3% for Contingencies & PE Charges				1.51	
	Total				51.96	
	Adding 49% departmental charges & price escalation etc				25.46	
	Total Carry Over to Final Abstract of Cost				77.43	Lacs

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Estimate For Providing Internal Services e.g. Water Supply, Sewerage & Strom Water Drainage etc.

Sub Work IV					Road Work	
S. No.	Description	Unit	Qty	Rate	Amount (in Lacs)	
1	Provision for leveling, earth filling compaction as per specification as per site conditions	Acre	10.625	175000	18.59	
2	The necessary provision for construction of roads, parks etc Has been made in the estimate according to HUDA norms					
	The following specifications has been proposed :					
i	Construction of roads by providing granular sub base 200 mm as per MORT & H cs conforming to clause 401 grading –II 400.I					
ii	Providing and laying, spreading & compacting hand broken /crushed stone aggregate to wet mix conforming to physical requirement laid in 400 of MORT & H specification n in two layers (compacting to 25mm (125+125mm) by taking material 1:32 times of the (thickness of the layer) including premixing of material with water in mechanical mixer.					
iii	50 mm thick DBM					
iv	30 mm thick BC	Sq. mtr.	6855	1500	102.83	
3	Provision of kerbs and channels with C.C 1.5:3 complete in all respects	Mtr.	753	600	4.52	
4	Provision for making approach and pavement to each block of building	LS	-	-	5.00	
5	Cost of Parking / Pavement for Commercial area 50% area	Sq. mtr.	859.8265	1500	12.90	
6	Provision for traffic arrangement, guide maps, Plot indicators	LS	-	-	3.00	
7	Provision for carriage of materials & other unforeseen item	LS	-	-	2.00	
	Total				148.83	
	Add 3% contingencies and P L charges				4.47	
	Total				153.30	
	Add 49% departmental charges, price escalation. Unforeseen admn				75.12	
	Total Carry over to final abstract of cost				228.42	Lacs

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Estimate For Providing Internal Services e.g. Water Supply, Sewerage & Strom Water Drainage etc.						
Sub Work V						Street Lighting
S. No.	Description	Unit	Qty	Rate	Amount (in Lacs)	
1	Providing street lighting on roads as per standard specifications of HVPN approx. 8.903 acres	Acre	10.625	250000	26.56	
	Add 3% contingencies and PE Charges				0.80	
	Total				27.36	
	Add 49% Departmental charges, Price Escalation, Unforeseen Adm.				13.41	
	Total Carry Over to Final Abstract of Cost				40.77	Lacs
Sub Work VI						Horticulture
S. No.	Description	Unit	Qty	Rate	Amount (in Lacs)	
1	Development of lawn area					
a	Trenching the ordinary soil upto depth of 60 cm.Including removal & packing of serviceable material & disposing at a lead of 50 M and making up the trenched area to proper level by filling with earth mixed with manure before & after flooding trench with water including cost of imported earth & manure.					
b	Rough dressing of trenched area.					
c	Grassing including watering & maintenance of lawns free from weeds & fit for mowing in rows including hedges, shrubs & green belts (as per HUDA Norms)					
	0.797 acres @ Rs. 1.50 lacs / acre.	Acre	0.797	150000	1.20	
2	Provision of trees, guards and planting trees along road at 12M intervals. (350 / 12 = 30) x 2 = 60 Nos.)	Nos.	60	1800	1.08	
				Total	2.28	
	Add 3% contingencies and PE Charges				0.07	
				Total	2.34	
	Add 49% Departmental charges, Price Escalation, Unforeseen Adm.				1.15	
	Total Carry Over to Final Abstract of Cost			Total	3.49	Lacs
Sub Work VII						Maintenance Charges & Resurfacing of Roads
S. No.	Description	Unit	Qty	Rate	Amount (in Lacs)	
1	Provision for maintenance charges for water supply, sewerage, storm water drainage, roads, street light, horticulture etc. complete including operation & establishments charges as per HUDA norms after completion & resurfacing of roads after 10 years or 1st phase.					
	8.903 acres @ 8 lacs per acre	Per Acre	10.625	800000	85.00	
2	Provision for resurfacing & strengthening of road after five years of 1st phase with 50mm BM & 30mm BC	Sq. mtr.	6855	660	45.24	
3	Provision for resurfacing & strengthening of road after ten years of 2 nd phase with 50mm BM & 30mm BC	Sq. mtr.	6855	825	56.55	
				Total	186.80	
	Add 3% contingency & PE charges				5.60	
				Total	192.40	
	Add 49% Departmental charges, Price Escalation, Unforeseen Adm.				94.28	
	Total Carry Over to Final Abstract of Cost			Total	286.68	Lacs

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SUBJECT : WATER REQUIREMENT CHART. FOR DDJAY

SR. No.	Description	Total Number of DU Units	Population factor per Plot	Total Population	Domestic Water Requirement (LCPD)	Flushing Water Requirement (LCPD)	Total Domestic Water Requirement (LPD)	Total Flushing Water Requirement (LPD)
1.	PLOTS	182	18	3276	90	45	294840	147420
2.	Commercial	1719sqm		LS			4550	1950
3.	Community	4299.75qm		LS			22400	9600
4.	TOTAL						321790	158970
5.	CAP. OF UGT 1/2		160895					
5.1	UGT CAP.		160	KLD				
5.2	Say		160	KLD				
6.	CAP. OF STP 75% TOTAL Domestic Water Requirement & 100% of Total Flushing Requirement (25% losses due to evaporation & other factors)		400312.5					
7.	Say		400	KLD				

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1 TUBEWELL REQUIREMENT					
a)	Total Fresh Water Demand			322	KL
b)	Tubewells				
	Yield			22	KL / Hr.
	Working hours per day			16	hrs.
	No. of tube wells required			0.91	
	Say (1W+1S)			1.00	Nos.
2 Pumping machinery for Tube Wells					
a)	Gross working head			70	Meter
b)	Average fall in S.L.			5	Meter
c)	Depression Head			5	Meter
d)	Friction loss in main			10	Meter
	Total			90	Meter
	Discharge			22000	LPH
	Horse Power			12.22	HP
	$(HP=(22000 \times 90) / 60 \times 60 \times 75 \times 0.6)$				
	Say			12.5	HP
3 Underground Tank					
3.1	Total Domestic water demand daily			322	m3/day
i	Proposed underground tank for domestic use @ 50%			161.00	m3/day
	Say			160	m3/day
3.2	Total Flushing water demand daily			159	m3/day
i	Proposed underground tank for flushing use @ 50%			79.49	m3/day
	Say			80	m3/day
4 HUDA Main Water supply calculation					
a)	Required fresh water per day			322	m3/day
b)	Supply Duration			12	Hrs.
c)	Line flow rate			0.447	Cum / min
d)	Proposed line dia			100	mm
e)	Flow velocity			0.950	m/sec
f)	Friction head loss / 1000 m			3.84	Mtr.
g)	Length of line			125	Mtr.
h)	Total head loss			0.48	Mtr.

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5	Pumps For Domestic water Supply				
	Domestic water requirement per day			322	m3/day
	Pumping Duration per day			8	hrs.
	Depth of Pump Room			5	Mtr.
	Clear head required			20	Mtr.
	Residual Pressure			5	Mtr.
	Friction head loass			15	Mtr.
	Total head			45	Mtr.
	Discharge of pump			670.83	LPM
		No. of Working Pumps		2	Nos.
		Say		350	LPM
	Power Required ($HP=(300 \times 45) / 60 \times 75 \times 0.6$)			6	HP
It is proposed to provide domestic water transfer pumps (2W+1S) of capacity 350 LPM each at 45 mtr. Head of 5 HP each pump.					
6	Pumps For Flushing water Supply				
	Flushing water requirement per day			159	m3/day
	Pumping Duration per day			8	hrs.
	Depth of Pump Room			5	Mtr.
	Clear head required			20	Mtr.
	Residual Pressure			5	Mtr.
	Friction head loass			15	Mtr.
	Total head			45	Mtr.
	Discharge of pump			331.19	LPM
		No. of Working Pumps		2	Nos.
		Say		175	LPM
	Power Required ($HP=(200 \times 45) / 60 \times 75 \times 0.6$)			2.9	HP
	Say			4	HP
It is proposed to provide flushing water transfer pumps (2W+1S) of capacity 175 LPM each at 45 mtr. Head of 4 HP each pump.					

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MATERIAL STATEMENT (DOMESTIC WATER SUPPLY)

Node		Dia in MM	Length
From	To		Mtr.
U.G.T	RING MAIN	100	800.0
RING MAIN	DISTRIBUTION	80	70.0
TOTAL			870.0

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MATERIAL STATEMENT (FLUSHING WATER SUPPLY)

Node		Dia in MM	Length
From	To		Mtr
S.T.P	RING MAIN	100	800.0
RING MAIN	DISTRIBUTION	80	70.0
TOTAL			870.0

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MATERIAL STATEMENT (GARDENT HYDANRAT)

Node		Dia in MM	Length	Length in Mtr.			
From	To		Mtr	25 mm	32 mm	50 mm	65 mm
		25	95.0	95.0	0.0	0.0	0.0
		32	57.0	0.0	57.0	0.0	0.0
		50	133.0	0.0	0.0	133.0	0.0
		65	174.0	0.0	0.0	0.0	174.0
TOTAL			459.0	95.0	57.0	133.0	174.0

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MATERIAL STATEMENT (SEWERAGE SCHEME)

Node		Diameter	Length of Pipe	Pipe Qty.
From	To	mm	mtrs.	200 dia
S1	S2	200	17.0	17.0
S2	S3	200	18.0	18.0
S3	S4	200	19.0	19.0
S4	S5	200	19.0	19.0
S5	S6	200	19.0	19.0
S6	S7	200	19.0	19.0
S7	S8	200	19.0	19.0
S8	S9	200	19.0	19.0
S9	S10	200	5.0	5.0
S11	S12	200	18.0	18.0
S12	S13	200	17.0	17.0
S13	S14	200	17.0	17.0
S14	S15	200	17.0	17.0
S15	S16	200	17.0	17.0
S17	S18	200	15.0	15.0
S18	S19	200	15.0	15.0
S19	S20	200	15.0	15.0
S20	S21	200	15.0	15.0
S21	S22	200	15.0	15.0
S22	S16	200	9.0	9.0
S16	S23	200	17.0	17.0
S23	S24	200	15.0	15.0
S24	S10	200	15.0	15.0
S10	S25	200	13.0	13.0
S25	S26	200	19.0	19.0
S26	S27	200	11.0	11.0
S28a	S28	200	15.0	15.0
S28	S29	200	15.0	15.0
S29	S30	200	15.0	15.0
S30	S30a	200	13.0	13.0
S30a	S31	200	15.0	15.0
S31	S32	200	15.0	15.0
S32	S33	200	15.0	15.0
S33	S34	200	15.0	15.0
S34	S35	200	14.0	14.0
S35	S27	200	15.0	15.0
S27	S36	250	18.0	0.0
S36	S36a	250	17.0	0.0
S36a	S37	250	14.0	0.0
S37	S38	250	15.0	0.0
S38	S38a	250	15.0	0.0
S38a	S39	250	15.0	0.0
S39	S40	250	15.0	0.0
S40	S41	250	5.0	0.0
S42	S41	200	9.0	9.0
S41	S43	250	9.0	0.0
S43	S44	250	15.0	0.0
S45	S46	200	15.0	15.0
S46	S47	200	15.0	15.0
S47	S48	200	15.0	15.0
S48	S49	200	15.0	15.0

S49	S50	200	15.0	15.0
S50	S50a	200	15.0	15.0
S50a	S51	200	15.0	15.0
S51	S52	200	15.0	15.0
S52	S53	200	15.0	15.0
S53	S54	200	15.0	15.0
S54	S55	200	15.0	15.0
S55	S56	200	15.0	15.0
S56	S56a	200	15.0	15.0
S56a	S57	200	15.0	15.0
S57	S44	200	24.0	24.0
S44	S58	300	17.0	0.0
S58	S59	300	17.0	0.0
S59	S60	300	17.0	0.0
S60	S61	300	10.0	0.0
S61	S62	300	13.0	0.0
S62	STP	300	2.0	0.0
TOTAL				804.0

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MATERIAL STATEMENT (STORM WATER DRAIN)				
Node		Diameter	Length of Pipe	Pipe Qty.
From	To	mm	mtrs.	400 dia
D1	RW-1	400	10.0	10.0
D1	D2	400	14.0	14.0
D2	D3	400	16.0	16.0
D3	D4	400	16.0	16.0
D4	D5	400	14.0	14.0
D5	D6	400	15.0	15.0
D6	D7	400	16.0	16.0
D7	D8	400	16.0	16.0
D8	D9	400	16.0	16.0
D9	D10	400	15.0	15.0
D10	D11	400	17.0	17.0
D12	D13	400	15.0	15.0
D13	D14	400	15.0	15.0
D14	D15	400	15.0	15.0
D15	D16	400	15.0	15.0
D16	D16a	400	15.0	15.0
D16a	D17	400	5.0	5.0
D18	RW-2	400	10.0	10.0
D18	D19	400	15.0	15.0
D19	D20	400	15.0	15.0
D20	D21	400	15.0	15.0
D21	D22	400	15.0	15.0
D22	D23	400	15.0	15.0
D23	D17	400	15.0	15.0
D17	D24	400	5.0	5.0
D24	D25	400	15.0	15.0
D25	D26	400	15.0	15.0
D26	D11	400	10.0	10.0
D11	D27	400	7.0	7.0
D27	D28	400	19.0	19.0
D28	D29	400	17.0	17.0
D30a	D30	400	17.0	17.0
D30	D31	400	18.0	18.0
D31	D32	400	12.0	12.0
D32	D32a	400	15.0	15.0
D32a	D33	400	15.0	15.0
D33	D34	400	15.0	15.0
D34	D35	400	15.0	15.0
D35	D36	400	15.0	15.0
D36	D37	400	15.0	15.0
D37	D29	400	9.0	9.0
D29	D38	400	24.0	24.0
D38	RW-3	400	15.0	15.0
D38	D38a	400	15.0	15.0
D38a	D39	400	13.0	13.0
D39	D40	400	15.0	15.0
D40	D40a	400	15.0	15.0
D40a	D41	400	15.0	15.0
D41	D42	400	14.0	14.0
D43	D44	400	19.0	19.0
D44	D45	400	19.0	19.0
D45	D46	400	19.0	19.0
D46	D47	400	19.0	19.0
D47	D48	400	19.0	19.0
D48	D49	400	19.0	19.0
D49	D50	400	19.0	19.0

D50	D51	400	19.0	19.0
D51	D52	400	19.0	19.0
D52	D53	400	18.0	18.0
D53	D54	400	19.0	19.0
D54	D55	400	19.0	19.0
D55	D56	400	22.0	22.0
D57	RW-4	400	10.0	10.0
D57	D58	400	18.0	18.0
D58	D59	400	17.0	17.0
D59	D56	400	10.0	10.0
D56	D42	400	24.0	24.0
D42	D60	400	15.0	15.0
D60	O. FLOW	400	10.0	10.0
TOTAL				1058.0

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Sub Work IV					Road Work
MATERIAL STATEMENT (ROAD WORK)					
TAG	LENGTH (M)	WIDTH (M)	DRIVE WAY (M)	AREA	UNIT
R1	78.00	9		702	SQM.
R2	129.00	9		1161	SQM.
R3	275.00	9		2475	SQM.
R4	74.00	9		666	SQM.
R5	91.00	9		819	SQM.
R6	58.00	9		522	SQM.
R7	26.00	12		312	SQM.
R8	22.00	9		198	SQM.
TOTAL	753			6855	SQM.
Say	753			6855	SQM.