3732
24/7/14

To

The Executive Engineer,
HUDA, division IV
Gurgaon(Haryana)

Subject: Approval of Service plans / Estimates of group housing Colony of 11.5875 Acre (License No 37 of 2013) Village Gopal pur, sector 99A Gurgaon.

Sir,

1. Kindly refer to Director Town & Country Planning, Haryana, Chandigarh, memo no.10816 (copy enclosed), wherein building plans for group housing Colony of 11.5875 acres (license no. 37 of 2013), village, Gopal pur, sector 99A Gurgaon, have been approved.
2. As required, vide condition at aforesaid memo, we are submitting herewith 5(five) sets of drawings of service plans/ estimates in accordance with the approved Building Plans for approval by your office.
3. It is requested that the service plans/ estimates of group housing colony of 11.5875 Acre (License No 37 of 2013) Village Gopal pur, sector 99A Gurgaon. may kindly be approved at an early date.

Thanking you,

Your faithfully,

For M/S Hasta infrastructure Pvt.Ltd.

(SanjeevKapoor)
Authorized Signatory

Encl: As above

Copy of:

1. The Director General,
   Town & Country Planning, Haryana, Chandigarh.
2. The Chief Administrator, HUDA, Panchkula.
3. The Chief Engineer, HUDA, sector 6 Panchkula.
4. The SE-II, HUDA, Gurgaon.

Estimate received in the matter
as above
8/9/14

PROPOSED BUILDING PLAN FOR GROUP HOUSING COLONY AREA MEASURING 11.5875 ACRE

AT
GURGAON MANESAR URBAN COMPLEX, SECTOR-99A, HARYANA

SERVICE PLAN ESTIMATE
ON
PUBLIC HEALTH ENGINEERING SERVICES

Client

HASTA INFRASTRUCTURE PVT. LTD.
ATS Tower, Sector-135, Noida - 201301

Plumbing & Fire Suppression Consultant

PARADISE CONSULTANTS
Plot No.-103, Pocket-1, Jasola, Opp. Living Style Mall
New Delhi -110025

PROJECT REPORT / ESTIMATES FOR PROVIDING INTERNAL SERVICES e.g. WATER SUPPLY, FIRE, SEWERAGE & STORM WATER DRAINAGE ETC. IN RESPECT OF RESIDENTIAL PROJECT GROUP HOUSING, SECTOR-99A, GURGAON (HARYANA)

Gurgaon is located at 28°28'N 77°02'E28.47°N 77.03°E/28.47; 77.03. It has an average elevation of 220 metres (721 ft) Gurgaon district, comprising four blocks Pataudi, Sohna, Gurgaon and Farrukhnagar, was created on 15 August, 1979.On its north, it is bounded by the district of Rohtak and the Union Territory of Delhi. Faridabad district lies to its east. On its south, the district shares boundaries with the district of Mewat. To its west lies the district of Rewari and the State of Rajasthan.Gurgaon is situated between the Himalayas and Aravalis mountain ranges. It is surrounded on three sides by Haryana and to the east, across the river Yamuna by Uttar Pradesh. Its greatest length is around 13 miles and the greatest breadth is 17 miles. Delhi's altitude ranges between 213 to 305 meters above sea level.

GROUP HOUSING is a residential proposed between sector - 99A, at Gurgaon Manesar Urban Complex, Sector-89A, Haryana for development by **HASTA INFRASTRUCTURE PVT. LTD.**

Water Supply

1 **Source**

The source of water supply shall be HUDA water supply connection. It has been proposed to construct undergorund tanks of capacity as per attached detaileds for domestic and other purpose. The underground tanks will be filled up from the riser and then pumped to the overhead water tanks of each tower.

2 **Pumping Equipments**

It has been proposed to install pumping set as described with standby of equal capacity. The provision for standby generating set has been provided in case of any electricity failure. Generator will be provided separately or added to the capacity of main generator.

3 **Sewerage**

This scheme is designed for sewer connecting to the proposed sewage treatment. The sewerage system has been marked on the respective plans.

The sewer lines have been designed for 3 times average DWR in relation to the water supply demand assuming that 80% fo the domestic water supply shall find its way into the proposed sewer SW pipe sewers have been proposed designed to run half full. The sewers have been designed on 0.75 mtr. per second velocity ie. Self cleansing velocity. Necessary provisions for laying SW pipes manholes etc. has been made in this estimate.

Necessary design statement for entire sewerage system has been prepared and attached with estimate.

4	**Storm Water Drainage**
	The storm water drain is being designed to carry 6.25 mm rain fall per hour. Also suitable provisions are contemplated in our scheme to ensure better recharging of under ground water table in the area. RCC NP_3 pipe drain with minimum 400 mm dia is proposed in this area.
5	**Roads**
	Cost of road has been taken in the estimate
6	**Street Lighting**
	Provision for street lighting on surrounding area has been made.
7	**Horticulture**
	Estimates and details of plantation, landscaping, signage etc. has been included
8	**Specifications :**
	The work will be carried out in accordance with the standard specifications of PH as laid down by the HUDA/Haryana Government.
9	**Rates**
	Estimates for providing services in this site has been prepared on the recent HUDA rates.
10	**Cost**
	The total cost of development in this Project including various PH & B & R services works out to **Rs. 855.43 lacs** which includes 3% contingency and PE charges and 49% departmental charges also.
	The cost per gross acre for this phase works out to **Rs. 73.83 Lacs/acre** which covers the provision of services like water supply, sewerage, storm water drainage, roads, street lighting and plantations including plantations maintenance thereof as well as future expansion whatsoever indicated.
	Hasta Infrastructure Pvt. Ltd. **HASTA INFRASTRUCTURE PVT. LTD.** Authorised Signatory **Authorised Signatory**

Paradise Consultants

GROUP HOUSING, SECTOR-99A, GURGAON (HARYANA)

Area 11.5875 acre = 46892.87 sqm
Site area calculation = 11.4975 acre or 46528 sqm
FAR 1.75 = 81425.15 sqm
Far Consumed = 78606.48 sqm
Balance = 2818.67 sqm (for Future Development)

DESIGN CALCULATION

1	**Daily Domestic Water Requirement**				
	Nos. of Blocks				
	Apartment			522	Nos
	EWS			92	Nos
	Service Personnel			52	Nos
	Population @ 5 person per unit - Apartment			5	
	Population @ 5 person per unit - EWS			5	
	Population @ 2 person per unit - Service Personnel			2	
	Therefore population (Apartment)			2610	persons
	Therefore population (EWS)			460	persons
	Therefore population (Maintenance Personnel)			104	persons
	Total Population			**3174**	**persons**
			SAY	**3174**	**persons**
	Water requirement for apartmant		@	172.5	lpd.
				547515.00	lpd.
			or	**547.52**	**KLD (1)**
2	**Other Requirement**				
a.)	Nursery School	1	@	10000	lit/day
	Therefore daily water requirement			10000	lit/day
				10.00	KLD
b.)	No. of Community Building	1	@	25000	lit/day
	Daily water requirement lumpsum			25000	lit/day
	Therefore daily water requirement			25.00	KLD
c.)	No. of Convenient □Shopping	1	@	5000	lit/day
	Daily water requirement lumpsum			5000	lit/day
	Therefore daily water requirement			5.00	KLD
			Total	**40.00**	**KLD (3)**

3	Total Daily Water Requirement (1+2)	547.52 + 40 KL			587.52	KLD
i)	Domestic Water Requirement @	65%			381.88 ~~385.38~~	KLD
			Say		390.00	KLD
ii)	Flushing Water Requirement @	35%			205.63 ~~202.13~~	KLD
			Say		210.00	KLD
4	**Water usage from STP**					
a)	Area under Parks	3.55	acre			
	Daily water requirement			@ 25000		lit/acre/day
				88750.00		lit/day
					88.75	KLD
b)	Area under Roads					
	Daily water requirement		Lumpsum	25000		lit/acre/day
				25000		lit/day
					25	KLD
c)	Under Road+ Parks (a+b)		Total		113.75	KLD
			Say		120.00	KLD
d)	**Total treated water requirement [3 (ii) + c]**	210 + 120	=		330.00	KLD
	Total Daily Requirement [3 (i) + d]	390 + 330	=		720.00	KLD
			SAY		720.00	KLD

I	**Tubewell**				
	Assuming working hours of tubewells			16	hours
	Assuming discharge/hour of each tubewell			18	KL/hours
	Total fresh water demand			390.00	KLD
	No. of tubewells required	390.00	/16/18	~~2.17~~ 1.35	
	Add 10% standby			~~0.22~~	
			~~Total~~	~~2.38~~	
			Say	2.00	
	Provide 2 Nos. of tubewell with 18 KL/hour discharge.				
	However as it is expected that the water supply would be made avaible bu HUDA.It is proposed to install only 2 No. tubewell as standby / makeup source of water.				
II	**Pumping machinery for tubewell**				
	Gross working load		=	65.00	m
	Average fall in SL		=	3.05	m
	Depression head		=	6.10	m
	Friction loss in main		=	2.50	m
			=	76.65	m
		Say	=	**77.00**	m
	BHP = 18000x77x1/60x60x75x0.6		=	8.56	BHP
	With 60% efficiency	Say		10.0	BHP
III	**Underground Tank**				
	Daily fresh water requirement for domestic use			390.00	KLD
	Capacity of under ground tank				
	24 hours storage	390.00	x 24 / 24	390.00	KLD
	Fire Tank Capacity As/NBC Code 100 kld. But Proposed			400.00	
			Total	**790**	**KL**
	It is proposed to provide under ground tank of capacity **790 KL** which also includes **400 KL** capacity for fire fighting.				
	Both tanks will have Six compartments, two for fire, two for raw and the other two for domestic use. The water first enters the fire compartment, then over flows to the raw use compartment so that the water in the fire compartment shall remain fresh.				

FIRE WATER TANK	**400.00**	**KL**
TOTAL UG STORAGE (DOMESTIC + FLUSHING + HORTICULTURE)	**720.00**	**KL**
RAW WATER TANK	**150.00**	**KL**
DOMESTIC WATER TANK	**390.00**	**KL**
FLUSHING, HORTICULTURE & ROAD WASHING (PART OF STP)	**330.00**	**KL**

IV	**DOMESTIC WATER PUMPS - LOCATED IN PUMP ROOM**				
a.)	**Domestic Water Transfer Pumps**				
ii)	**For Towers, EWS, Community Building, Shopping & N. School**			390	
	Daily requirement for domestic use		=	~~385.38~~	KL
	Assuming 6 hours running 3 pumps (with one standby)			21.67	
	Discharge/hour	390 ~~385.38~~ / 6 / 3	=	~~21.41~~	KL/HR
	Head of pump			361.17 LPM	
	i) Suction lifts		=	0.0	m say 370
	ii) Friction loss in M<main & specials		=	10.0	m LPM
	iii) Residual head		=	5.0	m
	iv) Clear head		=	110.0	m
		$\frac{370 \times 125}{4500 \times 0.60}$ =	=	125.0	m
	BHP of motor	21.41 x1000x125/4500x60x0.6		17.12 ~~16.5~~	HP
		SAY	=	**20.0**	**HP**

Flushing water Transfer Pump

Daily requirement for flushing use = 205.63 KL
Horse 113.75 KL
319.38 KL
say = 320 KL

Assuming 6 hrs. running 3 pumps
with one standby. (3+1)

320/6X3 = 17.78 KLH. or
296.33 LPM
say = 300 LPM

Head of Pump = 125 mt

BHP of Motor = $\frac{300 \times 125}{60 \times 75 \times 0.06}$ = 13.89 HP

say 15 BHP.

5 PUMPS FOR FIRE PROECTION

	Pump Description	Location	Nos.	Discharge	Head	HP
i)	Diesel Driven Pump	Pump Room	1	2280	150.00	
ii)	Hydrant Pump	Pump Room	1	2280	150.00	130
iii)	Sprinkler Pump	Pump Room	1	2280	150.00	130
iv)	Jockey Pump	Pump Room	1	180	150.00	25

Capacity of Gen Set	Nos.	HP			
Domestic Water Transfer Pumps for Towers (3+1)	3	20.0	=	60	HP
EWS, Community, Shopping & N. School (3+1) Flushing Pump	3	15.0		45	HP
Fire Pump (Jockey)	~~1~~	25.0	=	25 ~~50~~	HP
Lighting T.W.	2	10.0	=	~~25~~	HP
				175 ~~135~~	HP
	175			195.83	
or	~~135~~	x0.746x1.50		~~151.07~~	KVA
		Say		~~160.00~~ 200	KVA

Requirement of ~~160~~ 200 KVA capacity will be added in to the main D.G. set to provide standby supply.

PROPOSED BUILDING PLAN FOR GROUP HOUSING COLONY AREA MEASURING 11.5875 ACRE

Estimate for Providing in Internal Development works for Housing for

HASTA INFRASTRUCTURE PVT. LTD.

		Amount (Lacs.)
Sub Work - I Water Supply	Rs 299.22 Lacs	~~282.20~~
Sub Work - II Sewerage	Rs 185.56 Lacs	~~124.37~~
Sub Work - III Storm Water Drainage	Rs 98.32 Lacs	~~102.03~~
Sub Work - IV Roads & Footpath	Rs 224.81 Lacs	~~150.70~~
Sub Work - V Street Lighting	Rs 46.45 Lacs	~~17.78~~
Sub Work - VI - Horticulture	Rs 12.78 Lacs	~~10.05~~
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)	315.22 Lacs	~~168.29~~
Total	1180.36	~~855.43~~

(RUPEES EIGHT CRORE FIFTY FIVE LACS FORTY THREE THOUSAND ONLY)

HASTA INFRASTRUCTURE PVT. LTD.

Rs 1180.36 Lacs Rs 101.86 Lacs

Dev Cost per Acre = ~~855.43~~ / 11.5875 = Say Rs. 73.50 Lacs/Acre

Hasta Infrastructure Pvt. Ltd.

Authorised Signatory

Authorized Signatory

Director
Town & Country Planning
Haryana, Chandigarh

Executive Engineer
HUDA Divn. No. 3
Gurgaon

Executive Engineer
HUDA Division No. 4
Gurgaon

Paradise Consultants
New Delhi

Checked subject to comments in forwarding letter No. 6139 Dt. 22/1/15 attached with the estimate

Executive Engineer (W)
for Chief Engineer
HUDA Panchkula

21/1/15

Superintending Engineer
HUDA Circle No. 1
Gurgaon

26/1/15

PROPOSED BUILDING PLAN FOR GROUP HOUSING COLONY AREA MEASURING 11.5875 ACRE

FINAL ABSTRACT OF REVISED COST

Amount (Lacs.)		Amount (Lacs.)	
Sub Head - (I) Head Works	Rs. 72.82 las	~~42.15~~ [illegible]	
Sub Head - (II) Pumping Machinery	Rs 68.50 las	~~72.95~~ [illegible]	
Sub Head - (III) Distribution System (Dom. + Flu.) and Rising main	Rs 27.32 las	~~31.2[illegible]~~ [illegible]	
Sub Head - (IV) Irrigation Scheme	Rs 4.27 las	~~14.00~~	
Sub Head - (V) Fire Scheme	Rs 22.07 las	~~23.51~~ [illegible]	
	Rs 194.98 las Total	~~183.88~~ [illegible]	
Add 3% Contingencies and PG Charges	Rs 5.84 las	~~5.52~~ [illegible]	
	Rs 200.82 Total	~~189.40~~ [illegible]	
Add 49% Departmental Charges, price escalation w/[illegible], [illegible]	Rs 98.40 las	~~92.80~~ [illegible]	
	Grand Total	~~282.20~~ [illegible]	
(CO to final abstract of cost)	Rs 299.22 las Say	~~282.20~~ [illegible]	

	Sub Work I Sub Head No. I				Water Supply Head Works	
S. No.	Description	Unit	Qty	Rate	Amount Rs. (lacs)	
1	Boring and installing 510 mm i/d tubewells with reverse/direct rotary rig complete with pipe strainer to a depth of about 80 m. complete.	Nos.	2	~~1000000/-~~ ~~10,00000~~ 500000.00 7.50	~~20.00~~ ~~15.00~~ 10.00 15.00 lacs	
2	Constructing pump chambers as per standard design of PWD PH/HUDA of size 1.50x1.50 m.	Nos.	2	100000.00	2.00	
1	Construction of boosting chambers of suitable size along with under ground tank of capacity **790 KL** pumping machinery and generating set etc. complete in all respects.					
	Details of boosting station					
i)	construction of boosting chamber	LS	-	-	7.50	
ii)	UG tank **790 KL** capacity incl. ~~400 KL~~ for fire fighting in two compartments @ ~~8000~~ 7 KL & 210 KL for Flushing near STP	KL	790 210 1000	~~4000/-~~ ~~3500/-~~ 3500/-	31.60 ~~27.65~~	
4	Provision for carriage of material and other unforeseen items.	LS	-	-	2.00	
5	Provision for facilites staff for Maintenance	LS	-	-	5.00	
	(C.O. to abstract of cost of Sub-work No.I)				~~68.10~~ ~~42.15 Lacs~~	
				Say ~~68.10~~	~~42.15 Lacs~~	

6) Provn for Pumping machinery for Pumping set with 18KL/HP. Discharge complete in all respect (10 HP)
2 Nos @ ₹ 2.00 lacs each — ₹ 4.00 lacs

7) Provn for rising main from T.W to UGT. and by Pass arrangement (4.0)
150 mm ϕ = 50 mtr @ ₹ 1575/-
100 mm ϕ = 122 mtr @ ₹ 1250/-
₹ 0.79 lacs
₹ 1.53 lacs
₹ 72,826/-

	Sub Work I				Water Supply
	Sub Head No. II				Pumping Machinery
S. No.	Description	Unit	Qty	Rate	Amount (in Lakhs)
1 (i)	Providing & installing electricity driven pumping set capable of delivering 370 LPM of water against a total head of 125 m complete with motor and other accessories (For Domestic - 20.0 HP). (3 working + 1 S.by)	Nos.	4	150000.00	6.00
1 (ii)	Providing & installing electricity driven pumping set capable of delivering 360 LPM of water against a total head of 125 m complete with motor and other accessories (For Flushing - 10.0 HP). (3+1)	Nos.	3	160000.00	4.80
2	Provision for diesel engine generator set each for standby Arrangements for booster pump complete with gear haed arrangements of following capacities.				
	1 No. - 160 KVA	Nos.	1	1800000.00	18.00
3	Providing & installing pumping set of following capacities for fire protection:				
i)	180 LPM @ 150 M Head (25 HP)	Nos.	1	250000.00	2.50
ii)	2280 LPM @ 150 M Head (130 HP) Hydrant	Nos.	1	900000.00	9.00
iii)	2280 LPM @ 150 M Head (130 HP) Sprinkler	Nos.	1	900000.00	9.00
iv)	2280 LPM @ 150 M Head (DG Pump)	Nos.	1	1200000.00	12.00
4	Provision for diesel engine genset stand bye arrangements for Tubewells.	Nos.	3	150000.00	4.50
5	Provision for cheap pressure type chlorination plant complete.	Nos.	3	15000.00	0.45
6	Provision for making foundations & erection of pumping machinery.	LS	-	-	2.50
7	Provision for pipes, valves & specials inside the pump chamber.	LS	-	-	1.00
8	Provision for electric services connection including electric fittings for tubewells chambers complete including cost of transformer.	LS	-	-	2.50
9	Provision for carriage for materials and other unforeseen items.	LS	-	-	1.00
	(C.O. to abstract of cost of Sub-work No.I)			Say	72.95

68.50 Lacs

Sub Work I — **Water Supply**
Sub Head No. III — **Distribution System/Rising Main**
(Dom + Plumbing)

S. No.	Description	Unit	Qty	Rate	Amount (Rs.)
1	Providing, laying, jointing & testing D.I. pipes including cost of excavation complete as per ISI marked.		1243		15.54 Lacs
i)	100 mm dia	M	~~993~~	1200.00	~~1191600.00~~
ii)	150 mm dia	M	~~434~~ 124	1575.00	~~683550.00~~ 2.90 Lacs
2	Providing, fixing & Testing Sluice valves including cost of complete in all respects.				1.20 Lacs
i)	100 mm i/d	Nos.	~~13~~ 2	10000.00	~~30000.00~~
ii)	150 mm i/d	Nos.	~~3~~ 3	15000.00	~~45000.00~~
iii)					
3	Providing, fixing & Testing Non Return valves (NRV) including cost of complete in all respects.				
i)	150 mm i/d	Nos.	3	16000.00	~~48000.00~~
5	Providing and fixing air valves and scour valves including cost of complete in all respects.	Nos.	2	10000.00	20000.00
6	Providing and fixing indicating plates for sluice valve, air valve etc.	Nos.	~~13~~ 13	1000.00	0.18 Lacs ~~13000.00~~
7	Provision for carriage of material	LS	-	-	~~150000.00~~ ~~200000~~ 0.50 Lacs
8	Provision for cutting the roads and making to its original conditions.	LS	-	-	~~150000.00~~ 200000
9	Making water supply connection. On master Rate	LS	-	-	~~250000.00~~ ~~250000~~ 0.50 Lacs
10	Provision for rising main from HUDA & Tube Well water supply line to UG Tank.				
i)	~~100~~ 150 mm i/d	M	~~50~~	~~950.00~~ 1350	~~47500.00~~ 67500
ii)	~~150~~ 100 mm i/d	M	~~347~~	~~1350.00~~ 750	~~468450.00~~ 337650
	(C.O. to abstract of cost of Sub-work No.I)				~~3127100.00~~
				Say	31.27 Lacs

150 mm ø Rising main from HUDA to UGT

150 mm = 225 mtr @ ₹ 1575/- mtr ₹ 3.55 Lacs

₹ 27.32 Lacs

	Sub Work I				Water Supply
	Sub Head No. IV				Irrigation
S. No.	Description	Unit	Qty	Rate	Amount (Rs.)
1	Providing, laying, jointing & testing uPVC pipe line confirming to IS 4985 including cost of Excavation etc. complete in all respect.				
i)	~~80 mm dia~~ connect to flushing line 20/25/32 range - Lin (2.5)	M	~~1543~~	~~800.00~~	~~1234400.00~~ 2-00
2	Providing and fixing 20mm dia Irrigation hydrant valve complete in all respect.	Nos.	34	~~4200.00~~ 3500	~~40800.00~~ 1.19 Lacs
3	Providing & fixing valve 25mm dia	Nos.	34	400.00	13600.00
4	Providing, fixing & Testing Sluice valves including cost of complete in all respects.				
i)	80 mm i/d	Nos.	1	4750.00	4750.00
5	Providing and fixing air valves and scour valves including cost of complete in all respects.	Nos.	1	4500.00	4500.00
6	Providing and fixing indicating plates for sluice valve, air valve etc.	~~Nos.~~ (2.5)	~~2~~	~~1000.00~~	~~2000.00~~ 0.25 Lacs
7	Provision for carriage of materials etc. and other unforsean charges	LS	-	-	~~50000.00~~ 0.10 Lacs
8	Provision for cutting of roads & making good to its in original condition	LS	-	-	50000.00
			Total		~~1400050.00~~ Rs 4.27 Lacs
			Say		~~14.00 Lacs~~

Sub Work I

Sub Head No. V — **Fire Scheme**

S. No.	Description	Unit	Qty	Rate	Amount (Rs.)
1	Providing, laying, jointing & testing M.S. pipes for fire ring main including cost of Fittings & excavation complete (as per ISI marked) in all respect.			1575/-	13.72 Lacs
a)	150 mm dia	M	871	1500.00	1306500.00
b)	100 mm dia	M	238	1000.00	238000.00
				10000/-	2.38 Lacs
2	Providing and fixing External Fire Hydrants complete with masonary chambers.	Nos.	19	7500.00	142500.00
				10000/-	1.90 Lacs
3	Providing & fixing valve			15000/-	0.45 Lacs
a)	150 mm dia	Nos.	3	20000.00	60000.00
b)	80 mm dia	Nos.	19	10000.00	190000.00
4	Providing, fixing & Testing Non Return valves (NRV) including cost of complete in all respects.				1.90 Lacs
i)	80 mm i/d	Nos.	19	5000.00	95000.00
5	Provision for cutting of roads and carriage of materials etc. and other unforsean charges	LS	-	-	100000.00
6	Provision for indication plates	Nos.	22 19	1000.00	0.22 Lacs 19000.00
7	Provision for carriage of material	LS	-	-	0.50 Lacs 200000.00
			Total		2351000.00
			Say		23.51 Lacs

Rs 22.07 Lacs

	Sub Work II			Sewerage Scheme	
S. No.	Description	Unit	Qty	Rate	Amount (Rs.)
1	Providing, lowering, jointing, cutting salt glazed stone ware pipes and specials into trenches including cost of excavation, bed concrete lot of manholes complete.				
i)	**250 mm i/d**				5.42 Lacs
a)	Average depth 1.5 m to 4.5 m	M	319	1500.00	~~478500.00~~
ii)	**300 mm i/d**				1.96 Lacs
a)	Average depth 1.5 m to 4.5 m	M	87	2250.00	~~195750.00~~
iii)	**400 mm i/d**				9.53 Lacs
a)	Average depth 1.5 m to 4.5 m	M	353	2700.00	~~847200.00~~
2	Provision for lighting, watching and temporary diversion of traffic	LS	-	-	100000.00
3	Provision for cutting of roads and carriage of materials etc. and other unforsean charges	LS	-	-	~~100000.00~~
4	Provision for connection with HUDA on master road (d.s)	LS	-	-	~~200000.00~~ 0.50 Lacs
5	Cost of **480 Kld** Sewerage Treatment Plant.	LS	-	-	~~5500000.00~~ 95.00 Lacs
6	Provision for CI / DI pipe 150 mm dia pipe from STP. To Huda Main Line.	M	350	1575 1950.00	~~682500.00~~ 5.51 Lacs
					~~8103950.00~~ 120.92
	Add 3% contingencies c/s PS. charges				~~243118.5~~ 3.62
					~~8347068.50~~ 124.54
	Add 49% Deptt. Charges, price escalation, unforsean adum charges.				~~4090063.565~~ 61.02
				Total	~~12437132.07~~ 185.56
	(C.O. to abstract of cost of Sub-work No. 1)			Say	~~124.37~~ 127.45 Lacs

	Sub Work - III			Storm Water Drain		
S. No.	Description	Unit	Qty	Rate	Amount (Rs.)	
1	Providing, lowering, jointing, cutting RCC NP_3 pipes and specials into trenches including cost of excavation cost of manholes, ventilating chambers etc. complete in all respects.					
i)	**250 mm i/d**					
a)	~~Average depth upto 1.5 m~~	~~M~~	~~750~~	~~1300.00~~	~~975000.00~~	
ii)	**400 mm i/d**					
a)	Average depth upto 1.5 m	M	0	1800.00	0.00	
b)	Average depth 1.5 m to 4.5 m	M	1449	~~2000.00~~ 2500	~~2898000.00~~ 36.23 Lacs	
iii)	**500 mm i/d**					
a)	Average depth upto 1.5 m	M	0	2050.00	0.00	
b)	Average depth 1.5 m to 4.5 m	M	10	~~2150.00~~ 3400/	~~21500.00~~ 0.34 Lacs	
2	Provision for Road Gully & Drain pipe 300 mmd	LS	-	-	250000.00	
3	Provision for cutting of roads and carriage of materials etc. and other unforseen items	LS	-	-	150000.00	
4	Provision for disposal arrangements Recharge Pit.	Nos	12	150000.00	1800000.00	
5	Provision for lighting, watching and temporary diversion of traffic, fencing & shoring	LS	-	-	500000.00	
6	Provision for connection with HUDA on master road (L.S)				0.50 Lacs	
i)	500 mm i/d	~~M~~	~~25~~	~~2150.00~~	~~53750.00~~	
					~~6648250.00~~	64.07 Lacs
	Add 3% contingencies on PE charges				~~199447.50~~	1.92 Lacs
					~~6847697.50~~	
	Add 49% Deptt. Charges, price escalation, Admn charges, Unforseen.				~~3355371.78~~	65.99 Lacs
			Total		~~10203069.28~~	32.33 Lacs
		SAY			~~102.03 Lacs~~	
	(C.O. to abstract of cost of Sub-work No. 1					98.32 Lacs

PROPOSED BUILDING PLAN FOR GROUP HOUSING COLONY AREA MEASURING 11.5875 ACRE

	Sub Work IV				Road Work	
S. No.	Description	Unit	Qty	Rate	Amount (Rs.)	
1	Provision for leveling & earth filling as per site condition 11.5875 acre @ ~~100000~~/acre	Acres	11.5875	~~100000~~ 1.25	~~1158750.00~~ 14.48 Lacs	
2	Construction of road by:- i) Providing GSB 300 mm thick. ii) 250 mm thick W.M.M. stone aggregate. iii) 50 mm thick B.M. iv) 20 mm thick ~~M.S.S. complete in all respect.~~ SDBC	Sq. mtr.	~~5172.0~~ 10925	~~850~~ 1000/-	~~4396200.00~~ 109.25 Lacs	
3	Provision for making approach and pavement to building block by providing concrete pavement or tiles. ~~Etc. 2278.0 sqm @ 500 / sqm.~~ (LS)	~~Sq. mtr.~~	~~2278.0~~	~~500~~	~~1139000.00~~ 10-00 Lacs	
4	Provision for parking arrangement 3975 sqm. @ 500/sqm	~~Sq. mtr.~~	~~3975.0~~	~~500~~	~~1987500.00~~	
5	Provision for kerb stone with complete specification. 1:1½:3	mtr.	~~730.0~~ 1460	600/	~~438000.00~~ 8.76 La	
6	Provision for Carriage of material	LS.		~~500000.00~~	~~600000.00~~ 2	
7	Provision for traffic lighting and guide map/ indicators	LS.		200000.00	200000.00	
			Total		~~9819450.00~~	146.49
	Add 3% contingencies ~~on~~ PE. Charges				~~294583.50~~	4.39
						150.88
					~~10114033.50~~	73.93
			Total		~~101.14 Lacs~~	
	Add 49 % department charges, price escalation				~~49.56 Lacs~~	
	Wages, Return Charges	SAY			~~150.70 Lacs~~	224.81 Lacs

	Sub Work V				Street Lighting	
S. No.	Description	Unit	Qty	Rate	Amount (Rs.)	
1	Supply, installation, testing and commissioning of Street Lighting GI Poles, Light Fixtures, Feeder Pillars, Cables & Wires including cable end terminations and Earthing Station etc. for Street Lighting on roads as per Standard Specs. of HVPN with CFL	per acre	11.5875	2.50 lacs ~~100000.00~~	28.97 lacs ~~1158750.00~~	
	Add 3% contingencies & PE charges				0.86 lacs ~~34762.50~~	
	Total				29.83 lacs ~~1193512.50~~	
	Add 49% Deptt. Charges, price escalation, unforseen, Adm. charges				14.62 lacs ~~584821.13~~	
			Total		44.45 lacs ~~1778334.00~~	
		SAY			~~17.78~~	~~Lacs~~

	Sub Work VI				Horticulture	
S. No.	Description	Unit	Qty	Rate	Amount (Rs.)	
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 prope level by filling with earth mixed with manure befor & after flodding 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) 14345.86 sqm					
						5.33 lacs
	3.55 acres @ Rs. ~~1.0 lacs.~~ 1.50 Lac	per acre	3.55	100000.00	~~355,000~~	
	400 trees @ Rs. 750/- each				~~300,000~~	3.00 La
					~~655000.00~~	8.33
	Add 3% contingency charges				~~19650.00~~	0.25
				Total	~~674650.00~~	
	Add 49% Deptt. Charges, price escalation, Unforseen				~~330578.50~~	8.58 La
	Return charges			Total	~~1005228.50~~	4.20 La,
			say		~~10.05~~ Lacs	12.78 La,

Cost details

Excavation = 30-

manure = 60-

Tree plant = 60-

Tree guard = 600-

@ 750-

	Sub Work VII				Maintenance Charges & Resurfacing of Roads	
S. No.	Description	Unit	Qty	Rate	Amount (Rs.)	
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.					
	11.5875 acres @ 5 lacs per acre	per acre	11.5875	500000.00	5793750	
2	Provision for resurfacing & strengthening of road after five years of Ist phase ~~5172 sqm @ 400/- per sqm~~	Sq. mtr.	10925 ~~5172.0~~	600	65.55 ~~2068800.00~~	
3	Provision for resurfacing & strengthening of road after ten years of 2nd phase ~~5472 sqm @ 600/- per sqm~~	Sq. mtr.	10925 ~~5172.0~~	750 ~~600~~	81.94 ~~3103200.00~~	
				Total	205.43 Lacs ~~10965750~~	
	Add 3% contingency & PE charges				6.16 Lacs ~~328972.5~~	
				Total	211.59 ~~11294722.5~~	103.68
	Add 49% Departmetal charges, Unforseen, price escalation, Admin. charges			Total	~~5534414.025~~ ~~16829136.53~~	315.22 Lacs
				say	~~168.29 Lacs~~	

PROJECT : PROPOSED BUILDING PLAN FOR GROUP HOUSING COLONY AREA MEASURING 11.5875 ACRE IN SECTOR

DOMESTIC WATER SUPPLY QUANTITY SHEET

S.No.	Line No	Length of Pipe mtr.	Dia of Pipe mtr.
1	*Pump Room - D1*	30.0	150
2.	D1 - D2	124.0	150
3.	D2 - D3	110.0	100
4.	D3 - D4	83.0	100
5.	D1 - D5	65.0	150
6.	D5 - D4	108.0	100
7.	D5 - D6	25.0	100
8.	D6 - D7	32.0	100
9.	D7 - D8	47.0	100
10.	D6 - D8	80.0	100
11.	D8 - D8a	12.0	100

FLUSHING WATER SUPPLY QUANTITY SHEET

1	*STP - F1*	30.0	150
2.	F1 - F2	108.0	100
3.	F2 - F3	80.0	100
4.	F1 - F4	185.0	150
5.	F4 - F3	111.0	100
6.	F4 - F5	25.0	100
7.	F5 - F6	32.0	100
8.	F6 - F7	47.0	100
9.	F5 - F7	80.0	100
10.	F7 - F7a	13.0	100

S.No.	Line No	Length of Pipe mtr.	Dia of Pipe mtr.
HUDA WATER SUPPLY QUANTITY SHEET			
1	**HUDA Water Supply Line**	225.0	150 ~~150~~
TUBE WELL WATER SUPPLY QUANTITY SHEET			
1	TUBE WELL 01 - T1	112.0	100
2.	TUBE WELL 02 - T1	10.0	100
3.	T1 - UGT.	50.0	150

Description	Length in (MTR)	Pipe Dia (MM)
Domestic & Flushing Water Supply line	~~993.0~~ 184	100
Domestic & Flushing Water Supply line	~~434.0~~ 1243	150

Description	Length in (MTR)	Pipe Dia (MM)
Municipal Water Supply line	225.0	150 ~~150~~
Tube Well Water Supply line	122.0	~~150~~
Tube Well Water Supply line	50.0	~~100~~ 150
100 Dia Valve	3	Nos.
150 Dia Valve	5	Nos.
150 Dia Non Return Valve	3	Nos.
Air Valve	2	Nos.

PROJECT : PROPOSED BUILDING PLAN FOR GROUP HOUSING COLONY AREA MEASURING 11.5875 ACRE IN SECTOR-99A

IRRIGATION WATER SUPPLY QUANTITY SHEET

S.No.	Line No		Length of Pipe	Dia of Pipe
	From	To	mtr.	mm.
1	***STP.***	G1	18.0	80
2.	G1	G2	36.0	80
3.	G2	G3	205.0	80
4.	G3	G4	83.0	80
5.	G4	G5	125.0	80
6.	G5	G6	138.0	80
7.	G6	G7	222.0	80
8.	G7	G8	200.0	80
9.	G8	G9	186.0	80
10.	G8	G9	112.0	80
11.	G9	G10	67.0	80
12.	G10	G7	20.0	80
13.	G10	G11	131.0	80
Irrigation Water Supply line			**1543.0**	**80**
Garden Hydrant			**34**	**Nos.**
80 Dia Valve			**1**	**Nos.**
Air Valve			**1**	**Nos.**

PROJECT : PROPOSED BUILDING PLAN FOR GROUP HOUSING COLONY AREA MEASURING 11.5875 ACRE IN SECTOR

FIRE QUANTITY SHEET

S.No.	Line No		Length of Pipe	Dia of Pipe
	From	To	mtr.	mtr.
1	*UGT.*	B1	15.0	150
2.	B1	B2	140.0	150
3.	B2	B3	110.0	150
4.	B3	B4	153.0	150
5.	B4	B5	190.0	150
6.	B5	B6	93.0	150
7.	B6	B1	100.0	150
8.	Fire Brigade Inlet Connection		35.0	150
9.	Fire Brigade Withdrawl Connection		35.0	150

80 mm Dia Pipe	**238.0**	**mtr.**
150 mm Dia Pipe	**871.0**	**mtr.**

External Fire Hydrant	**19**	**Nos.**
80 Dia Valve	**19**	**Nos.**
150 Dia Valve	**3**	**Nos.**
80 Dia Non Return Valve	**19**	**Nos.**

PROJECT : PROPOSED BUILDING PLAN FOR GROUP HOUSING COLONY AREA MEASURING 11.5875 ACRE IN SECTOR-99A

TITLE - SEWERAGE QUANTITY SHEET

S.No.	Line No.		Length	Pipe Dia		Depth			Excavation Depth	EXCAVATION			
						Start	End	Avg.		0.0 - 1.5	1.5 - 3.0	3.0 - 4.5	4.5 - 6.0
	From	To	(mtr.)	(mm)	(mtr.)	(mtr.)	(mtr.)	(mtr.)	(cum.)	(mtr.)	(mtr.)	(mtr.)	(mtr.)
1	S1	S2	82.0	250	0.250	1.50	1.96	1.73	108.24	0.0	82.0	0.0	0.0
2.	S2	S3	87.0	300	0.300	1.96	2.35	2.16	149.54	0.0	87.0	0.0	0.0
3.	S3	S4	153.0	400	0.400	2.35	2.83	2.59	353.90	0.0	153.0	0.0	0.0
4.	S4	S5	168.0	400	0.400	2.83	3.38	3.11	457.65	0.0	0.0	168.0	0.0
5.	S5a	S5	237.0	250	0.250	1.00	2.12	1.56	286.33	0.0	237.0	0.0	0.0
6.	S5	S6	22.0	400	0.400	3.38	3.37	3.37	64.63	0.0	0.0	22.0	0.0
7.	S6	*S.T.P*	10.0	400	0.400	3.37	3.39	3.38	29.44	0.0	0.0	10.0	0.0
Total			**759.0**						**1450.0**	**0.0**	**559.0**	**200.0**	**0.0**

Excavation Depth				
	(0.0 - 1.5)	(1.5 - 3.0)	(3.0 - 4.5)	(4.5 - 6.0)
250 mm Dia pipe	0.0	319.0	0.0	0.0
300 mm Dia pipe	0.0	87.0	0.0	0.0
400 mm Dia pipe	0.0	153.0	200.0	0.0

PROJECT : PROPOSED BUILDING PLAN FOR GROUP HOUSING COLONY AREA MEASURING 11.5875 ACRE IN SECTOR-99A

TITLE : STORM WATER QUANTITY SHEET

S.No.	Line No.		Length	Size of Pipe		Depth			Excavation Depth	EXCAVATION		
						Start	End	Avg.		0.0 -1.5	1.5 - 3.0	3.0 - 4.5
	From	To	(mtr.)	(mm)	(mtr.)	(mtr.)	(mtr.)	(mtr.)	(cum.)	(mtr.)	(mtr.)	(mtr.)
1	A1	A2	109.0	400	0.400	1.80	1.92	1.86	235.51	0.0	109.0	0.0
2.	A2	D.C.01	7.0	400	0.400	1.92	1.93	1.93	15.59	0.0	7.0	0.0
3.	D.C.01	R.P.01	3.0	400	0.400	1.93	1.94	1.94	6.71	0.0	3.0	0.0
4.	R.P.01	A3	9.0	400	0.400	1.80	1.82	1.81	18.97	0.0	9.0	0.0
5.	A3	A4	112.0	400	0.400	1.82	1.91	1.86	242.37	0.0	112.0	0.0
6.	A4a	A4b	135.0	400	0.400	1.80	2.04	1.92	299.49	0.0	135.0	0.0
7.	A4b	D.C.02	10.0	400	0.400	2.04	2.05	2.05	23.46	0.0	10.0	0.0
8.	D.C.02	R.P.02	2.0	400	0.400	2.05	2.06	2.06	4.71	0.0	2.0	0.0
9.	R.P.02	A4c	4.0	400	0.400	1.80	1.71	1.76	8.22	0.0	4.0	0.0
10.	A4c	A4	37.0	400	0.400	1.71	1.68	1.69	73.80	0.0	37.0	0.0
11.	A4	D.C.03	2.0	400	0.400	1.91	1.92	1.91	4.43	0.0	2.0	0.0
12.	D.C.03	R.P.03	2.0	400	0.400	1.92	1.92	1.92	4.44	0.0	2.0	0.0
13.	R.P.03	A5	2.0	400	0.400	1.80	1.80	1.80	4.20	0.0	2.0	0.0
14.	A5	A6	108.0	400	0.400	1.80	1.94	1.87	234.71	0.0	108.0	0.0
15.	A6	D.C.04	3.0	400	0.400	1.94	1.95	1.95	6.74	0.0	3.0	0.0
16.	D.C.04	R.P.04	2.0	400	0.400	1.95	1.95	1.95	4.50	0.0	2.0	0.0
17.	R.P.04	A7	3.0	400	0.400	1.80	1.81	1.80	6.31	0.0	3.0	0.0
18.	A7	A8	90.0	400	0.400	1.81	1.92	1.86	194.78	0.0	90.0	0.0
19.	A8	D.C.05	2.0	400	0.400	1.92	1.93	1.92	4.45	0.0	2.0	0.0
0.	D.C.05	R.P.05	2.0	400	0.400	1.93	1.93	1.93	4.46	0.0	2.0	0.0
21.	R.P.05	A9	3.0	400	0.400	1.80	1.81	1.80	6.31	0.0	3.0	0.0
22.	A9	A10	90.0	400	0.400	1.81	1.89	1.85	193.43	0.0	90.0	0.0
23.	A10	D.C.06	2.0	400	0.400	1.89	1.90	1.89	4.39	0.0	2.0	0.0
24.	D.C.06	R.P.06	2.0	400	0.400	1.90	1.90	1.90	4.40	0.0	2.0	0.0
25.	R.P.06	A11	3.0	400	0.400	1.80	1.81	1.80	6.31	0.0	3.0	0.0
26.	A11	A12	82.0	400	0.400	1.81	1.92	1.86	177.30	0.0	82.0	0.0
27.	A12	D.C.07	2.0	400	0.400	1.92	1.92	1.92	4.44	0.0	2.0	0.0
28.	D.C.07	R.P.07	3.0	400	0.400	1.92	1.93	1.93	6.68	0.0	3.0	0.0
29.	R.P.07	A13	3.0	400	0.400	1.80	1.81	1.80	6.31	0.0	3.0	0.0
30.	A13	A14	56.0	400	0.400	1.81	1.86	1.83	119.53	0.0	56.0	0.0

PROPOSED BUILDING PLAN FOR GROUP HOUSING COLONY AREA MEASURING 11.5875 ACRE

S.No.	Line No.		Length	Size of Pipe		Depth			Excavation Depth	EXCAVATION		
						Start	End	Avg.		0.0 -1.5	1.5 - 3.0	3.0 - 4.5
	From	To	(mtr.)	(mm)	(mtr.)	(mtr.)	(mtr.)	(mtr.)	(cum.)	(mtr.)	(mtr.)	(mtr.)
31.	A15	A16	100.0	400	0.400	1.80	1.98	1.89	218.77	0.0	100.0	0.0
32.	A16	D.C.8	2.0	400	0.400	1.98	1.98	1.98	4.55	0.0	2.0	0.0
33.	D.C.8	R.P.08	2.0	400	0.400	1.98	1.98	1.98	4.56	0.0	2.0	0.0
34.	R.P.08	A17	2.0	400	0.400	1.80	1.80	1.80	4.20	0.0	2.0	0.0
35.	A17	A18	148.0	400	0.400	1.80	1.96	1.88	323.13	0.0	148.0	0.0
36.	A18	D.C.09	2.0	400	0.400	1.96	1.97	1.96	4.53	0.0	2.0	0.0
37.	D.C.09	R.P.09	2.0	400	0.400	1.97	1.97	1.97	4.54	0.0	2.0	0.0
38.	R.P.09	A19	3.0	400	0.400	1.80	1.81	1.80	6.31	0.0	3.0	0.0
39.	A19	A20	92.0	400	0.400	1.81	1.91	1.86	198.35	0.0	92.0	0.0
40.	A20	D.C.10	7.0	400	0.400	1.91	1.92	1.91	15.49	0.0	7.0	0.0
41.	D.C.10	R.P.10	5.0	400	0.400	1.92	1.93	1.92	11.12	0.0	5.0	0.0
42.	R.P.10	A21	3.0	400	0.400	1.80	1.81	1.80	6.31	0.0	3.0	0.0
43.	A21	A22	88.0	400	0.400	1.81	1.92	1.86	190.30	0.0	88.0	0.0
44.	A22	D.C.11	2.0	400	0.400	1.92	1.92	1.92	4.44	0.0	2.0	0.0
45.	D.C.11	R.P.11	2.0	400	0.400	1.92	1.93	1.92	4.45	0.0	2.0	0.0
46.	R.P.11	A23	6.0	400	0.400	1.80	1.81	1.81	12.63	0.0	6.0	0.0
47.	A23	A14	70.0	400	0.400	1.81	1.93	1.87	152.04	0.0	70.0	0.0
48.	A14	D.C.12	20.0	400	0.400	1.93	1.97	1.95	45.02	0.0	20.0	0.0
49.	D.C.12	R.P.12	3.0	400	0.400	1.97	1.97	1.97	6.81	0.0	3.0	0.0
50.	R.P.12	***To Huda***	10.0	500	0.500	1.90	1.41	1.66	21.52	0.0	10.0	0.0
51.	**Catch Basin Line**		750.0	250	0.250	0.60	0.70	0.65	605.63	750.0	0.0	0.0
	Total		**2209.0**						**3772.0**	**750.0**	**1459.0**	**0.0**

Excavation Depth

	(0.0 - 1.5)	(1.5 - 3.0)	(3.0 - 4.5)
250 mm Dia pipe	750.0	-	-
400 mm Dia pipe	0.0	1449.0	0.0
500 mm Dia pipe	0.0	10.0	0.0

PROJECT : PROPOSED BUILDING PLAN FOR GROUP HOUSING COLONY AREA MEASURING 11.5875 ACRE IN SECTOR-

TITLE : ROAD QUANTITY SHEET

AREA OF METALLED ROAD (A)

S.NO.	ROAD NO.	LENGTH (In Sq. Mt.)	WIDTH		TOTAL AREA (In Sq. Mt.)
1	R1	14.00	8.48		118.76
2.	R2	5.95	4.83		28.72
3.	R3	4.90	4.83		23.66
4.	R4	14.00	7.61		106.60
5.	R5	14.00	3.13		43.86
6.	R6	3.57	3.47	0.50	6.20
7.	R7	5.06	3.47	0.50	8.78
8.	R8	3.99	6.53	0.50	13.04
9.	R9	3.87	6.53	0.50	12.65
10.	R10	11.72	7.53		88.20
11.	R11	44.09	7.53		331.87
12.	R12	7.02	3.45		24.19
13.	R13	8.52	8.39	0.50	35.74
14.	R14	2.63	8.30		21.85
15.	R15	2.41	7.33		17.64
16.	R16	4.21	4.29	0.50	9.04
17.	R17	4.21	3.59		15.09
18.	R18	4.50	6.57	0.50	14.78
19.	R19	4.50	5.43		24.42
20.	R20	4.50	6.57	0.50	14.78
21.	R21	4.21	3.58		15.09
22.	R22	2.86	3.26	0.50	4.65
23.	R23	4.29	4.21	0.50	9.04
24.	R24	47.32	7.53		356.33
25.	R25	5.96	5.86	0.50	17.44
26.	R26	3.15	3.84	0.50	6.05
27.	R27	4.85	9.78	0.50	23.70
28.	R28	9.68	4.50		43.58
29.	R29	5.14	9.78	0.50	25.11
30.	R30	82.40	7.50		617.96
31.	R31	4.85	9.78	0.50	23.70
32.	R32	4.50	9.68		43.58

33.	R33	3.18	5.68	0.50	9.04
34.	R34	5.68	1.96		11.11
35.	R35	6.70	9.46	0.50	31.67
36.	R36	8.45	1.59		13.44
37.	R37	60.35	7.50		452.63
38.	R38	2.75	3.13	0.50	4.31
39.	R39	76.93	7.50		576.97
40.	R40	4.57	2.64	0.50	6.03
41.	R41	125.88	7.50		944.07
42.	R42	12.73	8.27	0.50	52.64
43.	R43	46.65	7.50		349.90
44.	R44	4.22	6.53	0.50	13.78
45.	R45	2.84	2.11		6.01
46.	R46	5.21	6.41		33.39
47.	R47	4.38	6.41		28.10
48.	R48	3.03	5.22		15.81
49.	R49	3.03	2.08		6.29
				TOTAL	**4701.26**
				ADD 10% FOR CURVES	**470.126**
				TOTAL METALLED ROAD AREA (A)	**5171.386**
				SAY	**5172.000**

PROPOSED BUILDING PLAN FOR GROUP HOUSING COLONY AREA MEASURING 11.5875 ACRE

AREA OF HARD PAVED (For Fire Tender Movement) (B)					
S.NO.	ROAD NO.	LENGTH (In Sq. Mt.)	WIDTH		TOTAL AREA (In Sq. Mt.)
1	A	37.84	6.00	1.00	227.06
2.	B	4.00	6.00	0.50	12.00
3.	C	5.88	6.00	0.50	17.64
4.	D	12.44	6.00	1.00	74.66
5.	E	18.36	6.00	1.00	110.18
6.	F	17.99	6.00	1.00	107.95
7.	G	17.56	6.00	1.00	105.37
8.	H	15.26	6.00	1.00	91.55
9.	J	17.36	6.00	1.00	104.14
10.	K	20.74	6.00	1.00	124.44
11.	L	76.79	6.00	1.00	460.71
12.	M	4.52	6.00	0.50	13.56
13.	N	10.33	6.00	0.50	30.99
14.	P	54.13	6.00	1.00	324.78
15.	Q	4.82	6.00	0.50	14.46
16.	R	12.46	6.00	0.50	37.37
17.	S	35.66	6.00	1.00	213.97
				TOTAL	2070.83
				ADD 10% FOR CURVES	207.08
				TOTAL HARD PAVED AREA (B)	2,277.92
				SAY	2278.000

AREA UNDER CAR PARKING (C)

NO. OF CARS ON SURFACE = 278 NO.

AREA UNDER CAR PARKING = 5 X 2.5 X 278 = ~~3975~~ 3475 SQM

TOTAL AREA UNDER CAR PARKING (C) ~~3975~~ 3475 SQM

TOTAL AREA OF ROADS = A + B + C = 5172 +2278 +~~3975~~ 3475 = ~~11425~~ 10925 SQM

PROJECT : PROPOSED BUILDING PLAN FOR GROUP HOUSING COLONY AREA MEASURING 11.5875 ACRE IN SECTOR-99A

TITLE :- TUBE WELL WATER DESIGN CHART

S.NO	Line No.		Average Demand	Peak Demand @ 1.5 Times	Flow Rate	Length of Pipe	Head Loss mtr./ mtr.	Total Head Loss	Velocity	Dia of Pipe
	From	To	lph.	lph.	lpm.	mtr.	mtr.	mtr.	m/sec	mm
1	Tube Well 01	T1	18.00	27.00	450.00	112.0	0.018	2.04	0.954	100
2.	Tube Well 02	T1	18.00	27.00	450.00	10.0	0.018	0.18	0.954	100
3.	T1	*UGT.*	36.00	54.00	900.00	50.0	0.009	0.46	0.848	150
Total Length of branch lines						172.0	mtr.			

ECT : PROPOSED BUILDING PLAN FOR GROUP HOUSING COLONY AREA MEASURING 11.5875 ACRE IN SECTOR-99A

) Riser Calculation Sheet)

stic Water Supply Design Calculation For Towers, EWS, Community Building, Shopping & N. School

.ine No.	Probable demand (lps)	Assumed pipe dia. (mm)	Head loss (mtr./mtr.)	Pipe length (mtr.)	Eq. Length fitts (%)	Eq. Length (mtr.)	Total length (mtr.)	Head loss line (mtr.)	Head loss prog (mtr.)	Velocity (m/sec)	Pump Head Available in basement	Residual Head Available at terrace	Residual Head Available at inlet of tank	Tower Height From Pump Room To OHT	Building Name
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
· Room - D1	17.842	150	0.013	30.0	5	1.50	31.50	0.395	0.395	1.009	125.00	124.60	-	-	-
D1 - D2	8.866	150	0.003	124.0	5	6.20	130.20	0.448	0.843	0.501	124.60	123.76	-	-	-
D2 - D3	5.803	100	0.011	110.0	5	5.50	115.50	1.305	2.149	0.738	123.76	121.61	6.61	115.00	Tower - 5 & 6
D3 - D4	2.896	100	0.003	83.0	5	4.15	87.15	0.272	2.420	0.369	121.61	119.19	4.19	115.00	Tower - 4
D1 - D5	14.935	150	0.009	65.0	5	3.25	68.25	0.616	1.012	0.845	124.60	123.59	8.59	115.00	Tower - 2
D5 - D4	5.959	100	0.012	108.0	5	5.40	113.40	1.346	2.358	0.758	123.59	121.23	6.23	115.00	Tower - 3 & Com.
												Used PRV For	Com. Bld. & Shopping		Bld. & Con. Shopping
D5 - D6	5.913	100	0.012	25.0	5	1.25	26.25	0.307	1.319	0.753	123.59	122.27	-	-	-
D6 - D7	5.913	100	0.012	32.0	5	1.60	33.60	0.393	1.712	0.753	122.27	120.56	-	-	-
D7 - D8	3.063	100	0.003	47.0	5	2.35	49.35	0.171	1.883	0.390	120.56	118.68	3.68	115.00	Tower - 1
D6 - D8	2.851	100	0.003	80.0	5	4.00	84.00	0.255	1.574	0.363	122.27	120.70	-	-	-
8 - D8a	2.851	100	0.003	12.0	5	0.60	12.60	0.038	1.921	0.363	118.68	116.76	86.76	30.00	EWS & N. School
													Used PRV		

Flow Rate	17.842	lps	
	1070.5	LPM	
(3 W + 1 S)	356.8	LPM	
Maximum Building Height	105	m	
Pump Head	125.00	m	
Pump HP	16.5	HP	
Say	20.0	HP	

lushing Water Supply Design Calculation For Towers, EWS, Community Building, Shopping & N. School

Line No.	Probable demand (lps)	Assumed pipe dia. (mm)	Head loss (mtr./mtr.)	Pipe length (mtr.)	Eq. Length fitts (%)	Eq. Length (mtr.)	Total length (mtr.)	Head loss line (mtr.)	Head loss prog (mtr.)	Velocity (m/sec)	Pump Head Available in basement	Residual Head Available at terrace	Residual Head Available at inlet of tank	Tower Height From Pump Room To OHT	Building Name
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
STP - F1	9.358	150	0.004	30.0	5	1.50	31.50	0.120	0.120	0.529	125.00	124.88	-	-	-
F1 - F2	3.125	100	0.004	108.0	5	5.40	113.40	0.407	0.527	0.398	124.88	124.35	9.35	115.00	Tower - 5 & 6
F2 - F3	1.559	100	0.001	80.0	5	4.00	84.00	0.083	0.610	0.198	124.35	123.74	8.74	115.00	Tower - 4
F1 - F4	6.719	150	0.002	185.0	5	9.25	194.25	0.400	0.519	0.380	124.88	124.36	9.36	115.00	Tower - 2
F4 - F3	2.135	100	0.002	111.0	5	5.55	116.55	0.207	0.726	0.272	124.36	123.63 Used PRV For	8.63 Com. Bld. & Shopping	115.00	Tower - 3 & Com. Bld. & Con. Shopping
F4 - F5	2.935	100	0.003	25.0	5	1.25	26.25	0.084	0.603	0.373	124.36	123.76	-	-	-
F5 - F6	2.935	100	0.003	32.0	5	1.60	33.60	0.107	0.711	0.373	123.76	123.05	-	-	-
F6 - F7	1.649	100	0.001	47.0	5	2.35	49.35	0.054	0.765	0.210	123.05	122.28	7.28	115.00	Tower - 1
F5 - F7	1.286	100	0.001	80.0	5	4.00	84.00	0.058	0.662	0.164	123.76	123.10	-	-	-
F7 - F7a	1.286	100	0.001	13.0	5	0.65	13.65	0.009	0.775	0.164	122.28	121.51	91.51 Used PRV	30.00	EWS & N. School

Flow Rate	**9.358**	lps	
	561.5	LPM	
(2 W + 1 S)	**280.7**	LPM	
Maximum Building Height	105	m	
Pump Head	**125.00**	m	
Pump HP	13.0	HP	
Say	**15.0**	HP	

CT : PROPOSED BUILDING PLAN FOR GROUP HOUSING COLONY AREA MEASURING 11.5875 ACRE IN SECTOR-99A

: HYDRAULIC SEWAGE DESIGN CHART

Line No.		Gross Water Requirement (Load on Line)	Sewage Flow (Self Load on Line) LPD	Sewage Flow (Self Load on Line) KLD	Previous Load	Progressive Discharge	Progressive Discharge (Average)	Progressive Discharge (Peak)	Infiltration @ 25% Av. Discharge	Total Discharge	Length	Pipe Size	Slope (1 in)	Fall	Velocity	Capacity of Pipe	Formation Road Levels at Start	Invert Levels at Start	Formation Road Levels at End	Invert Levels at End	Manhole Depth at Start	Manhole Depth at End	Average Depth
From	To	(lps.)	80%	1000	(kld.)	(kld.)	(lps.)	(lps.)	(lps.)	(lps.)	(mtr.)	(mm)	(mm)	(mtr.)	(m/s) (v)	(lps.)	(mtr.)	(mtr.)	(mtr.)	(mtr.)	(mtr.)	(mtr.)	(mtr.)
S1	S2	191125	152900	152.90	0.00	152.90	1.77	5.31	0.44	5.75	82.0	250	190	0.43	0.76	18.70	214.540	213.04	214.570	212.61	1.50	1.96	1.73
S2	S3	203550	162840	162.84	152.90	315.74	3.65	10.96	0.91	11.88	87.0	300	250	0.35	0.75	26.51	214.570	212.61	214.610	212.26	1.96	2.35	2.16
S3	S4	96240	76992	76.99	315.74	392.73	4.55	13.64	1.14	14.77	153.0	400	370	0.41	0.75	46.93	214.610	212.26	214.680	211.85	2.35	2.83	2.59
S4	S5	96600	77280	77.28	392.73	470.01	5.44	16.32	1.36	17.68	168.0	400	370	0.45	0.75	46.93	214.680	211.85	214.770	211.39	2.83	3.38	3.11
S5a	S5	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	237.0	250	190	1.25	0.76	18.70	214.900	213.90	214.770	212.65	1.00	2.12	1.56
S5	S6	0	0	0.00	470.01	470.01	5.44	16.32	1.36	17.68	22.0	400	370	0.06	0.75	46.93	214.770	211.39	214.700	211.33	3.38	3.37	3.37
S6	*S.T.P*	0	0	0.00	470.01	470.01	5.44	16.32	1.36	17.68	10.0	400	370	0.03	0.75	46.93	214.700	211.33	214.700	211.31	3.37	3.39	3.38

a Used:

tor is considered as 3 times for population upto 20,000 persons & above 20,000 person peak factor is considered 2.5 times.

(m/s)=(1/n)x(A/P)^(2/3)*(1/slope)^.5

'or RCC pipe (Manning's Coefficient)

of x-section of pipe in sqm.

ed Perimeter in m

of pipe(lps) =Area of x-section of pipe in sqm x velocity in m/s x1000x1/2(Sewers are designed to run half full)

ation Used:

rt level of pipe

ll supply level

-rmation Road Level

nection Level

CT : PROPOSED BUILDING PLAN FOR GROUP HOUSING COLONY AREA MEASURING 11.5875 ACRE IN SECTOR-99A
ON SEWAGE LINES

ame of Sewer Line		Residential Sewage Load						Non Residential Sewage Load		Residential + Non Residential Load		
		Main & EWS Apartment	Population @ 5 persons / Unit	Water Reuirement @ 172.5 Ltr/day/Person	Service Person	Population @ 2 persons / Unit	Water Reuirement @ 172.5 Ltr/day/Person	Amenity	Water Reuirement @ Lumsum / day	Gross Water Requirement (Load on Line)	Sewage Flow (Self Load on Line)	Sewage Flow (Self Load on Line)
		Unit	Nos.	lpd.	Unit	Nos.	lpd.	sqm.	lpd.	lpd.	lpd.	kld.
From	To		5	172.5	-	2	172.5	-	-	-	80%	1000
S1	S2	210	1050	181125	0	0	0	Nursary School -1	10000	191125	152900	152.90
S2	S3	236	1180	203550	0	0	0	-	0	203550	162840	162.84
S3	S4	56	280	48300	52	104	17940	Cumminity Building & Convenient Shopping	30000	96240	76992	76.99
S4	S5	112	560	96600	0	0	0	-	0	96600	77280	77.28
S5a	S5	0	0	0	0	0	0	-	0	0	0	0.00
S5	S6	0	0	0	0	0	0	-	0	0	0	0.00
S6	*S.T.P*	0	0	0	0	0	0	-	0	0	0	0.00
		614	**3070**	**529575**	**52**	**104**	**17940**		**40000.00**	**587515.00**	**470012.00**	**470.01**

CT : PROPOSED BUILDING PLAN FOR GROUP HOUSING COLONY AREA MEASURING 11.5875 ACRE IN SECTOR-22A

:- HYDRAULIC STORM WATER DESIGN CHART

Line No.		Length	Catchment Area (Sqm.)			Discharge @ 6.25 mm / hr rainfall	Pipe dia	Slope 1 in	Velocity m/sec.	Capacity of pipe	Fall in line	Levels at start (mtr.)			Levels at End (mtr.)			Manhole Depth		
																		Depth (mtr.)		Avg.
From	To	(mtr.)	Self	Progg.	Total	60% runoff (lps)	(mm)	(mm)	m/sec.	lps.	mtr.	FRL	FSL	IL.	FRL	FSL	IL.	Start	End	Depth
A1	A2	109.0	3740.0	0.0	3740.0	3.90	400	570	0.60	75.63	0.19	214.900	213.50	213.10	214.830	213.31	212.91	1.80	1.92	1.86
A2	D.C.01	7.0	0.0	3740.0	3740.0	3.90	400	570	0.60	75.63	0.01	214.830	213.31	212.91	214.830	213.30	212.90	1.92	1.93	1.93
D.C.01	***R.P.01***	3.0	0.0	3740.0	3740.0	3.90	400	570	0.60	75.63	0.01	214.830	213.30	212.90	214.830	213.29	212.89	1.93	1.94	1.94
R.P.01	A3	9.0	0.0	3740.0	3740.0	3.90	400	570	0.60	75.63	0.02	214.830	213.43	213.03	214.830	213.41	213.01	1.80	1.82	1.81
A3	A4	112.0	3840.0	3740.0	7580.0	7.90	400	570	0.60	75.63	0.20	214.830	213.41	213.01	214.730	213.22	212.82	1.82	1.91	1.86
A4a	A4b	135.0	4630.0	0.0	4630.0	4.82	400	570	0.60	75.63	0.24	214.925	213.53	213.13	214.925	213.29	212.89	1.80	2.04	1.92
A4b	D.C.02	10.0	0.0	4630.0	4630.0	4.82	400	570	0.60	75.63	0.02	214.925	213.29	212.89	214.925	213.27	212.87	2.04	2.05	2.05
D.C.02	***R.P.02***	2.0	0.0	4630.0	4630.0	4.82	400	570	0.60	75.63	0.00	214.925	213.27	212.87	214.925	213.27	212.87	2.05	2.06	2.06
R.P.02	A4c	4.0	0.0	4630.0	4630.0	4.82	400	570	0.60	75.63	0.01	214.925	213.53	213.13	214.830	213.52	213.12	1.80	1.71	1.76
A4c	A4	37.0	1270.0	4630.0	5900.0	6.15	400	570	0.60	75.63	0.06	214.830	213.52	213.12	214.730	213.45	213.05	1.71	1.68	1.69
A4	D.C.03	2.0	0.0	13480.0	13480.0	14.04	400	570	0.60	75.63	0.00	214.730	213.22	212.82	214.730	213.21	212.81	1.91	1.92	1.91
D.C.03	***R.P.03***	2.0	0.0	13480.0	13480.0	14.04	400	570	0.60	75.63	0.00	214.730	213.21	212.81	214.730	213.21	212.81	1.92	1.92	1.92
R.P.03	A5	2.0	0.0	13480.0	13480.0	14.04	400	570	0.60	75.63	0.00	214.730	213.33	212.93	214.730	213.33	212.93	1.80	1.80	1.80
A5	A6	108.0	3710.0	13480.0	17190.0	17.91	400	570	0.60	75.63	0.19	214.730	213.33	212.93	214.680	213.14	212.74	1.80	1.94	1.87
A6	D.C.04	3.0	0.0	17190.0	17190.0	17.91	400	570	0.60	75.63	0.01	214.680	213.14	212.74	214.680	213.13	212.73	1.94	1.95	1.95
D.C.04	***R.P.04***	2.0	0.0	17190.0	17190.0	17.91	400	570	0.60	75.63	0.00	214.680	213.13	212.73	214.680	213.13	212.73	1.95	1.95	1.95
R.P.04	A7	3.0	0.0	17190.0	17190.0	17.91	400	570	0.60	75.63	0.01	214.680	213.28	212.88	214.680	213.27	212.87	1.80	1.81	1.80
A7	A8	90.0	3090.0	17190.0	20280.0	21.13	400	570	0.60	75.63	0.16	214.680	213.27	212.87	214.640	213.12	212.72	1.81	1.92	1.86
A8	D.C.05	2.0	0.0	20280.0	20280.0	21.13	400	570	0.60	75.63	0.00	214.640	213.12	212.72	214.640	213.11	212.71	1.92	1.93	1.92
D.C.05	***R.P.05***	2.0	0.0	20280.0	20280.0	21.13	400	570	0.60	75.63	0.00	214.640	213.11	212.71	214.640	213.11	212.71	1.93	1.93	1.93
R.P.05	A9	3.0	0.0	20280.0	20280.0	21.13	400	570	0.60	75.63	0.01	214.640	213.24	212.84	214.640	213.23	212.83	1.80	1.81	1.80
A9	A10	90.0	3090.0	20280.0	23370.0	24.34	400	570	0.60	75.63	0.16	214.640	213.23	212.83	214.570	213.08	212.68	1.81	1.89	1.85

Line No.		Length	Catchment Area (Sqm.)			Discharge @ 6.25 mm / hr rainfall	Pipe dia	Slope 1 in	Velocity m/sec.	Capacity of pipe	Fall in line	Levels at start (mtr.)			Levels at End (mtr.)			Manhole Depth		
																		Depth (mtr.)		Avg.
From	To	(mtr.)	Self	Progg	Total	60% runoff (lps)	(mm)	(mm)	m/sec.	lps.	mtr.	FRL	FSL	IL	FRL	FSL	IL	Start	End	Depth
A10	D.C.06	2.0	0.0	23370.0	23370.0	24.34	400	570	0.60	75.63	0.00	214.570	213.08	212.68	214.570	213.07	212.67	1.89	1.90	1.89
D.C.06	***R.P.06***	2.0	0.0	23370.0	23370.0	24.34	400	570	0.60	75.63	0.00	214.570	213.07	212.67	214.570	213.07	212.67	1.90	1.90	1.90
R.P.06	A11	3.0	0.0	23370.0	23370.0	24.34	400	570	0.60	75.63	0.01	214.570	213.17	212.77	214.570	213.16	212.76	1.80	1.81	1.80
A11	A12	82.0	2820.0	23370.0	26190.0	27.28	400	570	0.60	75.63	0.14	214.570	213.16	212.76	214.540	213.02	212.62	1.81	1.92	1.86
A12	D.C.07	2.0	0.0	26190.0	26190.0	27.28	400	570	0.60	75.63	0.00	214.540	213.02	212.62	214.540	213.02	212.62	1.92	1.92	1.92
D.C.07	***R.P.07***	3.0	0.0	26190.0	26190.0	27.28	400	570	0.60	75.63	0.01	214.540	213.02	212.62	214.540	213.01	212.61	1.92	1.93	1.93
R.P.07	A13	3.0	0.0	26190.0	26190.0	27.28	400	570	0.60	75.63	0.01	214.540	213.14	212.74	214.540	213.13	212.73	1.80	1.81	1.80
A13	A14	56.0	1920.0	26190.0	28110.0	29.28	400	570	0.60	75.63	0.10	214.540	213.13	212.73	214.500	213.04	212.64	1.81	1.86	1.83
A15	A16	100.0	3430.0	0.0	3430.0	3.57	400	570	0.60	75.63	0.18	214.700	213.30	212.90	214.700	213.12	212.72	1.80	1.98	1.89
A16	D.C.8	2.0	0.0	3430.0	3430.0	3.57	400	570	0.60	75.63	0.00	214.700	213.12	212.72	214.700	213.12	212.72	1.98	1.98	1.98
D.C.8	***R.P.08***	2.0	0.0	3430.0	3430.0	3.57	400	570	0.60	75.63	0.00	214.700	213.12	212.72	214.700	213.12	212.72	1.98	1.98	1.98
R.P.08	A17	2.0	0.0	3430.0	3430.0	3.57	400	570	0.60	75.63	0.00	214.700	213.30	212.90	214.700	213.30	212.90	1.80	1.80	1.80
A17	A18	148.0	5080.0	3430.0	8510.0	8.86	400	570	0.60	75.63	0.26	214.700	213.30	212.90	214.600	213.04	212.64	1.80	1.96	1.88
A18	D.C.09	2.0	0.0	8510.0	8510.0	8.86	400	570	0.60	75.63	0.00	214.600	213.04	212.64	214.600	213.03	212.63	1.96	1.97	1.96
D.C.09	***R.P.09***	2.0	0.0	8510.0	8510.0	8.86	400	570	0.60	75.63	0.00	214.600	213.03	212.63	214.600	213.03	212.63	1.97	1.97	1.97
R.P.09	A19	3.0	0.0	8510.0	8510.0	8.86	400	570	0.60	75.63	0.01	214.600	213.20	212.80	214.600	213.19	212.79	1.80	1.81	1.80
A19	A20	92.0	3160.0	8510.0	11670.0	12.16	400	570	0.60	75.63	0.16	214.600	213.19	212.79	214.540	213.03	212.63	1.81	1.91	1.86
A20	D.C.10	7.0	0.0	11670.0	11670.0	12.16	400	570	0.60	75.63	0.01	214.540	213.03	212.63	214.540	213.02	212.62	1.91	1.92	1.91
D.C.10	***R.P.10***	5.0	0.0	11670.0	11670.0	12.16	400	570	0.60	75.63	0.01	214.540	213.02	212.62	214.540	213.01	212.61	1.92	1.93	1.92
R.P.10	A21	3.0	0.0	11670.0	11670.0	12.16	400	570	0.60	75.63	0.01	214.540	213.14	212.74	214.540	213.13	212.73	1.80	1.81	1.80
A21	A22	88.0	3020.0	11670.0	14690.0	15.30	400	570	0.60	75.63	0.15	214.540	213.13	212.73	214.500	212.98	212.58	1.81	1.92	1.86
A22	D.C.11	2.0	0.0	14690.0	14690.0	15.30	400	570	0.60	75.63	0.00	214.500	212.98	212.58	214.500	212.98	212.58	1.92	1.92	1.92
D.C.11	***R.P.11***	2.0	0.0	14690.0	14690.0	15.30	400	570	0.60	75.63	0.00	214.500	212.98	212.58	214.500	212.97	212.57	1.92	1.93	1.92

Line No.		Length	Catchment Area (Sqm.)			Discharge @ 6.25 mm / hr rainfall	Pipe dia	Slope 1 in	Velocity m/sec.	Capacity of pipe	Fall in line	Levels at start (mtr.)			Levels at End (mtr.)			Manhole Depth		
																		Depth (mtr.)		Avg.
From	To	(mtr.)	Self	Progg.	Total	60% runoff (lps)	(mm)	(mm)	m/sec.	lps.	mtr.	FRL	FSL	IL	FRL	FSL	IL	Start	End	Depth
R.P.11	A23	6.0	0.0	14690.0	14690.0	15.30	400	570	0.60	75.63	0.01	214.500	213.10	212.70	214.500	213.09	212.69	1.80	1.81	1.81
A23	A14	70.0	2400.0	14690.0	17090.0	17.80	400	570	0.60	75.63	0.12	214.500	213.09	212.69	214.500	212.97	212.57	1.81	1.93	1.87
A14	D.C.12	20.0	0.0	45200.0	45200.0	47.08	400	570	0.60	75.63	0.04	214.500	212.97	212.57	214.500	212.93	212.53	1.93	1.97	1.95
D.C.12	***R.P.12***	3.0	0.0	45200.0	45200.0	47.08	400	570	0.60	75.63	0.01	214.500	212.93	212.53	214.500	212.93	212.53	1.97	1.97	1.97
R.P.12	**To Huda**	10.0	0.0	45200.0	45200.0	47.08	500	770	0.60	117.98	0.01	214.500	213.10	212.60	214.000	213.09	212.59	1.90	1.41	1.66

ı Used:

'm/s)=(1/n)x(A/P)^(2/3)*(1/slope)^.5

or RCC pipe (Manning's Coefficient)

of x-section of pipe in sqm.

ed Perimeter in m

of pipe(lps) =Area of x-section of pipe in sqm x velocity in m/s x1000x1/2(Storm water are designed to run full flow)

ation Used:

T level of pipe

l supply level

rmation Road Level

nection Level

OFFICE OF THE SUPERINTENDING ENGINEER, HUDA CIRCLE NO-I GGN

To,

The Chief Engineer-I,
HUDA Panchkula.

Memo No. 23608 **Dated:** 30-12-2014

Sub.: - **Approval of Service Plan / Estimate in respect of License No. 37 of 2013 dated 03.06.2013 granted for development of Group Housing Colony over an area measuring 11.5875 Acre in Sector – 99A, Gurgaon being developed by M/s Hasta Infrastructure Pvt. Ltd.**

A/C Rs.909.59Lacs.

The Service Plan / Estimates in respect of License No. 37 of 2013 dated 03.06.2013 granted for development of Group Housing Colony over an area measuring 11.5875 Acre in Sector – 99A, Gurgaon being developed by M/s Hasta Infrastructure Pvt. Ltd. has been checked and corrected wherever necessary submitted herewith for execution and as well as for bank guarantee purpose subject to the following comments:

1. **EXTERNAL DEVELOPMENT CHARGES**
The colonizer / developer will have to pay the proportionate cost of the external development charges for setting up Group Housing Colony for the service like water supply, sewerage, storm water drainage, roads, bridges, community building, street lighting, horticulture and maintenance thereof etc. on gross acreage basis as and when determined by HUDA. These charges will be modifiable as and when approved / supplied by the authority / state govt. and will be binding upon the colonizer.

2. **DENSITY AREA POPULATION**
The scheme has been designed considering 05 persons per flat and 02 Persons for servant. Total, population of the colony work out to 3174 Persons. This may be checked and confirmed by DGTCP office that overall density taken as above is correct and overall density of sector is maintained according to the final development plan of Gurgaon town. The category wise area shown on the plans and proposed density of population thereof has been treated to be correct for the purpose of estimation / services.

3. All Technical notes and comments incorporated in this estimate in two sheets will also apply. Copies of these are also appended as annexure 'A'.

4. The title and name of license may be examined by the DGTCP office.

5. **STREET LIGHTING**
The wiring system of street lighting will be underground and the specifications of the street lighting fixtures etc. will be as per relevant standards of HVPNL. CFL lamps shall be provided to meet with the requirement of HVPNL and as well Environment.

6. **FIRE FIGHTING**
Provision made in the estimate has been checked for estimation purpose. However, it may be made clear to the colonizer that the appropriate provision for firefighting arrangement as required in the NBC/ISI should also be provided by the colonizer and fire safety certificate should be obtained by the colonizer from the competent authority before undertaking any construction. The colonizer will be solely responsible for fire safety arrangement.

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7. **AIR TRAFFIC RULES/REGULATIONS**

The Group Housing Complex consist the construction of multistory building, RCC water tank has been proposed on the top of the building. The total height of the building and top of the water tank above ground level has not been defined / indicated on the plans. The violation of Air Traffic Rules / Regulations and height of the building may be examined by your office.

8. The layout for setting up of Group Housing Colony in an area of 11.5875 Acres supplied by DTCP, HR, Chandigarh have been considered to be correct for the purpose of estimation / services only.

9. The External Master services for the new area is being planned and yet to be provided however, the internal services of the Colony in Sector – 99A, Gurgaon complex is proposed to be connected with the master services laid / yet to be planned by HUDA on Sector Dividing road. The details of services proposed in service plan estimates to be connected are as under: -

a) **Water supply** – 02 No. Tube Wells has been taken in this estimate and 150mm dia water supply line with provision of Automatic Flow Control Meter has been proposed to be connected with the water supply line of HUDA laid / to be laid on Master Road. Location of C.W.T. & Pump House etc. shown in park should be checked by DGTCP office. For carrying out the construction underground water will not be used and also show the source from where the water supply will be taken for construction purpose.

b) **Sewerage** – For the disposal of sewerage, firm has provided sewage treatment plant of 480 KLD capacity in this complex. Treated water has been proposed to be utilized to irrigate the landscape area & for excess sewage from the STP shall be disposed off into master sewer line laid / to be laid on Master Road. STP shall be provided at site as per MBBR or Equivalent Technology.

c) **Storm Water Drainage** – Internal storm water drainage system has been proposed to construct underground pipe drain which will be connecting rain water harvesting system for recharge aquifer and surplus storm water will be allowed to flow to the HUDA drain along Master Road.

10. Since recycled water will be used for flushing purposes also, dual distribution system and plumbing system shall be used. In order to avoid any accidental unintended use the following precautions shall be taken:-

a. Recycle water pipes, Fittings, Appurtenances, valves, taps, meters and hydrants will be of Red color or painted red.

b. Sign and symbols signifying and clearly indicating "Recycle Water" "Not Fit for Drinking" be stamped/fixed on outlets, Hydrants, Valves both surface and subsurface, Covers and at all conspicuous places of recycle distribution system.

c. Detectable Marker tapes of red color bearing words 'Recycle Water' should be fixed at suitable interval on pipes.

d. Octagonal covers, red in color or painted Red and words "Recycle Water-Not fit for Drinking" embossed on them should be used for recycled water.

e. All connections from Recycle system should be distinguishable from connections of potable supply.

f. No cross connection to be made or allowed between recycle water system and potable water system.

g. The underground and overhead tanks should have "Recycle Water-Not fit for Drinking" and other warning signs embossed/marked on them. All tanks of recycle system shall be Square in shape.

h. No connection of any kind, except for inlet to cisterns, shall be made from Recycled water pipe.

i. Potable water and recycled water supply lines will be laid on opposite berms of road. Recycled water lines will be above Sewer lines. Wherever unavoidable and if all pipes are required to be laid on same side of road, these will be located from the ground surface in order of descending quality.

j. Potable water shall be above recycled water which should be above sewer. Minimum clear vertical separation between a potable water line and a recycled water line shall be one foot and If not possible then readily identifiable sleeve should be used.

k. Irrespective of immediate availability or non-availability of reclaimed / recycled water, every owner of a house / apartment/flat, Group Housing Societies, Commercial Complexes, and Institutional Buildings in this colony / licensed area will follow the dual plumbing system so as to receive recycled water separately from potable supply, boosting and utilizing it.

l. All plumbing pipes fittings, valves will be of Red color or painted red. In case of embedded pipes, Marker Tapes of Red color at suitable intervals shall be fixed. The underground and overhead tanks should have "Recycle Water-Not fit for Drinking" and other warning signs embossed/marked on them. All tanks of recycle system shall be Square in shape.

m. If scour outlet is required, the same shall be provided at a place away from easy access and shall preferably be locked.

n. Recycle water pipes and potable water pipes will be fixed in separate chases and a minimum horizontal distance of 6" will be maintained between them. In case of cross over, suitably colored/taped sleeve shall be used.

o. It is the responsibility of Colonizer/Developer to supply adequate quantity of Recycle water for flushing. In cases of deficit in recycle water of proper quality or if it is temporarily unavailable or when recycle water is not available, potable water will be used for meeting recycle water demand also.

11. It may be made clear to the colonizer that he will be fully responsible to make the arrangement for water supply, disposal of sewerage after treatment and storm water drainage till such time these are made available by HUDA and all link connection with the external system will be done by the colonizer/firms at his own cost. The colonizer will have to be ensure that the sewerage and storm water drainage to be laid by them will be connected by gravity with the master service laid/to be laid by HUDA/state govt. in this area as per their scheme. Any permission required from HSPCB or any other agency for disposal of sewage / SWD will be sought by colonizer.

12. The correctness of the levels of the colony will be sole responsibility of the colonizers for integrating the internal sewer/storm water drainage of the colony by gravity of the master services.

13. It may be made clear to the colonizer that roof top rain harvesting system shall be provided by them as per Central Ground Water Authority norms / Haryana Govt., notification and the same will be kept operational / maintained all the time. Arrangement for segregation of first rain not to be entered into the system shall also be made by the firm / colonizer.

14. The service estimate as received has been checked in this office with the consideration that layout plans appended in the services estimate has been checked & approved by competent authority.

15. The estimate do not includes the provision of electrification of the colony. However, it may be made clear to colonizer that the supervision charges and O & M charges shall be paid by them directly to the HVPNL.

16. The provision for underground water tank and sewerage treatment plant has been proposed. Thus, it may be made clear to the firm that the appropriate space for providing underground water tank and sewerage treatment plant shall be provided and the design and drawing be got approved before execution of work.

17. The proposed complex is abutting on 12M service road. Thus it may be made clear to the firm that the land under service road shall be transferred to HUDA for construction of service road and the proportionate cost for the same shall be paid by them.

18. The colonizer will be sole responsible for the construction of various structures such as RCC underground tank etc. according to the standard specifications good quality and its workmanship. The structural stability responsibility will entirely rest upon rest upon the colonizer.

19. In case some additional structures are required to be constructed and decided by HUDA at a later stage, the same will be binding upon the colonizer.

20. It may be made clear to the colonizer that he will not make the connection with the master services i.e. water supply, sewerage, storm water drainage, without prior approval of the competent authority.

21. In case of 24 Mtrs. wide road, if it is decided by the Govt. that master services be extended on 24 Mtrs. wide internal circulation road, additional amount at rates as decided by the authority will recoverable over and above the EDC.

22. The formation level of internal roads should match with the Sector Roads. Similarly other services of colonizer like Water Supply, Sewerage and Storm Water Drainage level etc. should also be fixed in integration of levels of EDC services of Water Supply, Sewerage & Storm Water Drainage etc. which shall be ensured by the colonizer.

23. The common services of HUDA on 24Mtr. wide road are yet to be laid. The lines laid by the colonizer for connecting two pockets across 24M wide road is temporary arrangement. Which may be dismantled and re-laid by the colonizer at his own cost to suit the levels and other parameters of services to be laid by HUDA at later stage.

24. **COMMON SERVICES**

The estimate does not includes the common services like water supply, storage tank on the top of the building block, the plumbing work etc. and will be part of the building works.

25. The firm will provide solar water heating system as per the guidelines issued by the Haryana Govt. / Ministry of Environment, Govt. of India.

26. **CONSTRUCTION ACTIVITY OF PROJECT: -**

1. It is clearly stated that the firm shall not be allowed to carry out the construction with underground water.
2. The firm shall also show the source from where the water supply will be taken for construction purpose.

The information on these points i.e. 1 & 2 should be taken before the approval of Service Estimate

27. The estimated cost of various services to be provided by the colonizer for the development of internal services has been checked and corrected for purpose of Bank Guarantee and works out as under:

Sr. No.	Description	Amount (Rs. in Lacs)
1.	Water Supply	333.29
2.	Sewerage Scheme	127.45
3.	Storm Water Drainage	102.03
4.	Roads and Footpath	150.70
5.	Street Lighting	17.78
6.	Horticulture	10.05
7.	Maintenance of service for ten years including resurfacing of road after 1st five years and 2nd five years of maintenance (as per HUDA norms)	168.29
	Total	**909.59**

$$\text{Dev. Cost as Acre} = \frac{909.59}{11.5875} = \textbf{Rs.78.50Lacs Per Gross Acre}$$

Three copies of the estimate along with Plans and proposal as received are submitted herewith duly corrected and signed for further necessary action.

It is requested to get 03 (Three) Copies of the approved estimate / service plans from the colonizer for distribution amongst the field station.

DA/- Estimate in Triplicate
Along with Plans

SUPERINTENDING ENGINEER,
HUDA CIRCLE – I, GURGAON

Endst No. **Dated:**

A copy of the above is forwarded to the Executive Engineer, HUDA Div. No. III, Gurgaon for information w.r.t. his office memo No. 34685 dated 24.12.2014.

SUPERINTENDING ENGINEER,
HUDA CIRCLE – I, GURGAON.

FORM LC –V
(See Rule 12)
HARYANA GOVERNMENT
TOWN AND COUNTRY PLANNING DEPARTMENT

License No. 37 **of 2013**

This License has been granted under the Haryana Development and Regulation of Urban Areas Act, 1975 & the Rule 1976, made there under to Hasta Infrastructure Pvt. Ltd., 296 Forest Lane, Sainik Farms, Neb Sarai, New Delhi-110068 for setting up of RESIDENTIAL GROUP HOUSING COLONY on the land measuring 11.5875 acres in the revenue estate of village Gopalpur, Sector 99A, Gurgaon – Manesar Urban Complex.

1. The particulars of the land wherein the aforesaid Group Housing Colony is to be set up are given in the Schedule annexed hereto and duly signed by the Director General, Town & Country Planning, Haryana.

2. The License granted is subject to the following conditions:

   a) That the Group Housing Colony area is laid out to conform to the approved layout plan and development works are executed according to the designs and specifications shown in the approved plan.

   b) That the conditions of the agreements already executed are duly fulfilled and the provisions of Haryana Development and Regulation of Urban Areas Act, 1975 and the Rules 1976 made there under are duly complied with.

3. That you will construct 24 mtrs wide internal circulation road passing through your site at your own cost and the portion of road shall be transferred free of cost to the Government.

4. That the portion of Sector/Master plan road which shall form part of the licensed area shall be transferred free of cost to the Government in accordance with the provisions of Section 3(3)(a)(iii) of the Haryana Development and Regulation of Urban Areas Act, 1975.

5. That the licensee will not issue any advertisement for sale of flats/office/floor area in colony before the approval of layout plan/building plan.

6. That you will have no objection to the regularization of the boundaries of the license through give and take with the land that HUDA is finally able to acquire in the interest of planned development and integration service. The decision of the competent authority shall be binding in this regard.

7. That you shall obtain approval/NOC from competent authority to fulfill the requirement of notification dated 14-09-2006 of Ministry of Environment & Forest, Government of India and clearance from the PLPA, 1900 before starting the development works of the colony.

8. That the developer will use only CFL fittings for internal lighting as well as campus lighting.

9. That you shall convey the 'Ultimate Power Load Requirement' of the project to the concerned power utility, with a copy to the Director, with in two months period from the date of grant of license to enable provision of site in your land for Transformers/Switching Station/Electric Sub-Stations as per the norms prescribed by the power utility in the building plan of the project.

10. That you shall make arrangement for water supply, sewerage, drainage etc, to the satisfaction of the competent authority till the external services are made available from the external infrastructure to be laid by HUDA.

11. That you shall provide the rain water harvesting system as per Central Ground Water Authority Norms/ Haryana Government notification as applicable.

12. That you shall provide the Solar Water Heating System as per by HAREDA and shall be made operational where applicable before applying for an occupation certificate.

13. That at the time of booking of the flats in the licensed colony, if the specified rates of plots/flats do not include IDC/EDC rates and are to be charged separately as per rates fixed by the Government from the plots/flats owners, you shall also provide details of calculations per sq. mtrs./per. sq. ft. to the allottee while raising such demand from the plots/flats owners.

14. That you shall abide with the policy dated 03.02.2010 related to allotment of EWS Flats/Plots.

15. That you shall deposit the labour cess, as applicable as per Rules before approval of building plans.

16. The license is valid up to 02/6/2017.

Dated; The 03/6/2013.
Chandigarh

(ANURAG RASTOGI, IAS)
Director General, Town & Country Planning
Haryana, Chandigarh
Email: tcphry@gmail.com

Endst. No. LC-2806-JE (VA)-2013/ 41562 Dated: 4/6/13.

A copy along with a copy of schedule of land is forwarded to the following for information and necessary action: -

1. Hasta Infrastructure Pvt. Ltd., 296 Forest Lane, Sainik Farms, Neb Sarai, New Delhi-110068 alongwith a copy of agreement, LC-IV B & Bilateral Agreement and Zoning Plan.
2. Chairman, Pollution Control Board, Haryana, Sector-6, Panchkula.
3. Chief Administrator, HUDA, Panchkula.
4. Chief Administrator, Housing Board, Panchkula alongwith copy of agreement.
5. Managing Director, HVPN, Planning Directorate, Shakti Bhawan, Sector-6, Panchkula.
6. Joint Director, Environment Haryana – Cum-Secretary, SEAC, Paryavaran Bhawan, Sector -2, Panchkula.
7. Addl. Director Urban Estates, Haryana, Panchkula.
8. Administrator, HUDA, Gurgaon.
9. Chief Engineer, HUDA, Gurgaon.
10. Superintending Engineer, HUDA, Gurgaon along with a copy of agreement.
11. Land Acquisition Officer, Gurgaon.
12. Senior Town Planner, Gurgaon alongwith a copy of Zoning Plan.
13. Senior Town Planner (Enforcement), Haryana, Chandigarh.
14. District Town Planner, Gurgaon along with a copy of agreement & Zoning Plan.
15. Chief Accounts Officer O/o DGTCP, Haryana.
16. Accounts Officer, O/o Director General, Town & Country Planning, Haryana, Chandigarh along with a copy of agreement.

(P.P. SINGH)
District Town Planner (HQ)
For Director General, Town & Country Planning
Haryana Chandigarh

To be read with Licence No. 37 of 2013/3 6 2013

Detail of the land owned by Hasta Infrastucture Pvt. Ltd. Distt. Gurgaon.

Village	Rect No.	Killa No.	Area K-M
Gopalpur	47	21/1	1-7
	46	25/3	5-8
	49	3	7-8
		4/1	4-0
		4/2	1-0
	48	10/1	4-0
		1/2	3-8
		10/2	1-1
		1/3	2-12
	47	21/2	0-10
	48	1/1	1-8
	49	5/3	2-0
	46	21	8-0
		22/1/1	5-10
		18/1	7-8
		23/2/1	7-0
		24/1	0-6
		24/2	7-5
		25/1	0-6
		23/2/2	0-8
		24/3	0-9
		25/4	0-7
		25/2	3-19
		19/1	2-12
		12/2	2-8
		13/1	0-6
		13/2	5-18
		11/2	0-13
		12/1/2	0-9
		19/2	5-8
		Total	**92-14 or 11.5875 Acres**

Director General
Town and Country Planning,
Haryana, Chandigarh