

**PROPOSED RESIDENTIAL PLOTTED COLONY UNDER DDJAY
MEASURING 5.620 ACRES
AT SECTOR-37D GURGAON**

**ESTIMATE
FOR
PROVIDING WATER SUPPLY, SEWERAGE, STORM WATER DRAINAGE,
ROADS, HORTICULTURE, STREET LIGHTING &
FIRE SERVICE
IN
PLOTTED COLONY BEING DEVELOPED
BY
M/S ROSE BUILDING SOLUTIONS PVT. LTD.**

JANUARY 2022

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ESTIMATE FOR PROVIDING EXTERNAL DEVELOPMENT WORK IN RESIDENTIAL PLOTTED COLONY MEASURING 5.620 ACRES (LICENSE NO. 111 OF 2021 DATED 17/12/2021) IN SECTOR-37D, GURGAON BEING DEVELOPED BY ROSE BUILDING SOLUTIONS PVT. LTD.

1. INTRODUCTION

Gurgaon Town is an important town of Haryana State situated on Delhi – Jaipur Highway at a distance of approximately 30 Kms. from Delhi. Being in the National Capital Region, the town has fast developing tendency and potential. Further it has also started sharing the growing industrial load of Delhi and Faridabad. In order to relieve the growing pressure of population in Delhi, it has been decided by the Haryana Govt. to establish various sectors in Gurgaon. Keeping in view, the above facts, a residential plotted colony under DDJAY has been planned on total plot area measuring 5.620 Acres (LIC No. 111 of 2021 dated 17/12/2021), in Sector-37D, Gurgaon.

2. WATER SUPPLY

At present the source of water supply in this area is tubewell as the underground water is potable. Provision of 1 No. tubewell has been made within the boundary limits of this residential plotted colony for initial stage and the tubewell will be abundant as & when sufficient canal-based water supply is provided from HUDA. The installation of tubewell will be as approval from competent authority. It has been proposed to construct 1 no underground tank of capacity 130 KL, for domestic purposes and 50 KL as static storage for fire-fighting purposes. The underground tanks will be filled up from the proposed 01 no. tubewell.

3. DESIGN

The scheme has been designed for approximately 1512 persons considering 18 persons for each plot. The rate of water supply has been taken as 155.25 litres per capita per day (lpcd). Besides the above necessary provisions of water for area under open spaces and green belts @25 KL per acre has also been included. Additional requirements of water for community building, commercial building and milk booth have also been taken into account.

3.1 UNDER GROUND STORAGE, PUMP CHAMBERS & PUMPING MACHINERY

It has been proposed to install a pumping station next to underground tank. At pumping station, there would be two pumping systems each comprising two pumps, one working and one standby. The provision for Diesel Generating set as a stand-by source of power in case of any electricity failure has also been made. Provision is also made for chlorination of water before distribution.

3.2 DISTRIBUTIONS SYSTEM

The Distribution System for this development area has been designed @ 18 persons per plot with water supply @ 155.25 litre/head/day @ 3.0 times, the average rate of flow on 'Hazen William' formula with C-100 necessary provision for laying D.I. / C.I. pipes conforming to relevant ISI standards along with valves and specials has been made in this estimate.



3.3 RISING MAIN

Rising mains from HUDA water main on sector road to water works have also been designed and provision for 100mm i/d D.I. / C.I. Pipeline has been made in the estimate.

4. SEWERAGE SCHEME

The sewerage network of the plotted development shall be connected to the proposed Sewage Treatment plant (STP). The treated effluent will be used for landscape irrigation. Surplus effluent will be discharged into the sewerage system being planned by HUDA on the Sector Road.

The sewerage system has been designed for 3 times of average DWF. It has been assumed that 75% of domestic water supply shall find its way into the proposed sewer. All the sewer upto 400 mm dia. have been designed to run half-full. Necessary design statement for the entire sewerage system has been prepared and attached. Sewer lines have been designed for a minimum self cleansing velocity of 0.75 M/sec. S.W. pipes will be used for sewer lines. All the manholes and related appurtenances shall be constructed as per standard design.

5. STORM WATER DRAINAGE

The design rainfall intensity has been considered as ¼" per hour for the proposed development. The average co-efficient of run-off has been considered as 0.5 for the proposed development. Pipe drains formed of minimum 400 mm dia R.C.C. NP3 pipe has been proposed for the storm water drainage. Road Gully Chambers will collect the storm water from the surface and discharge into the manholes through 300 mm dia. R.C.C. NP3 pipes. The internal storm water drains shall be connected to the proposed storm water drainage system of the surrounding plotted development, which ultimately gets connected to peripheral departmental storm water drainage system on sector road. The velocity of water in the pipe has been considered as a minimum of 0.60 M/sec. all the pipes are considered as running full. Necessary design statement for the entire storm water drainage system has been prepared and attached.

6. SPECIFICATIONS

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

7. RATE

The estimate has been based on the present market rates with escalation.

8. COST

The total cost of the scheme, including cost of all services works out of **Rs. 368.86 lacs** including 3% contingencies and 49% Departmental Charges.



**REPORT ON DESIGN CALCULATION FOR RESIDENTIAL PLOTTED COLONY AREA
MEASURING 5.620 ACRES AT SECTOR-37D, GURGAON**

A. DAILY REQUIREMENT OF WATER

I. a) RESIDENTIAL BUILDINGS

Total No. of Plots	=	84
Population @ 18 person for Plot,	=	84 x 18
Total population	=	1512 persons
Total water requirement @ 155.25 lpcd	=	1512 x 155.25
	=	2,34,738 litres/day
	=	235 KL/Day

II WATER REQUIREMENT FOR OTHER BUILDINGS

a) Commercial Building 0.225 Acre @ 25 KL/Acre	=	6 KL/Day
b) Community Building 0.562 Acre @ 25 KL/Acre	=	14 KL/Day
c) Milk Booth- 1No.@ 1KL/Day	=	1 KL/day

TOTAL FOR II = 21 KL/Day

III. AREA UNDER PARK

0.886 Acre @ 25 KL/Day	=	22 KL/Day
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IV. AREA UNDER ROADS

0.89 Acre @ 5 KL/Acre	=	5 KL/Day
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V. FIRE FIGHTING REQUIREMENT

Water requirement for fire fighting	=	100 x Sq. root (P)/ 3
Where, 'P' is population in 1000	=	100 x Sq. root (1.512)/ 3
Hence, fire fighting requirement	=	41 KL/Day
Say	=	50 KL/Day

Hence, total daily requirement	=	I + II + III + IV
	=	235 + 21 + 22 + 5
	=	283 KL/Day



B. TUBEWELL

Assumed discharge of each tubewell	=	18 KL/Hour	
Total No. of tubewell required considering 16 hours of pumping every day	=	<u>283</u>	
		18 x 16	
	=	0.98	
Add 10% standby	=	0.10	
Total	=	1.08	i.e, 2 Nos.

Provide 2 nos. of tubewell with a discharge
Capacity of 18 KL/Hour.

Since the water is to be supplied by HUDA through canal filtration scheme, till that time, it is proposed to install 1 nos. tubewell. More tubewells will be installed if required till the HUDA water supply scheme start functioning.

C. PUMPING MACHINERY FOR TUBEWELL

Since the water supply is from canal filtration to be provided by HUDA. We will provide tubewells commencements with increase in population till HUDA supply is available in near future. We will be providing, therefore 1 no. of tubewell for domestic use and if required additional tubewells will be bored subsequently.

Av. Spring Level	=	35.00 M	
Av. Fall in S.L.	=	3.00 M	
Depression Head	=	6.00 M	
Friction loss in main	=	3.00 M	
		<u> </u>	
Total	=	47.00 M,	

Motor Rating for the Tubewell pump is calculated as follows.

$$\frac{18,000 \times 47.00 \times 1}{60 \times 60 \times 0.6 \times 75}$$

= 5.22
Say 7.50 BHP (commercial)

Hence, provide one submersible clear water pump with a flow of 18 cum/hr. at 47.00 M head and the motor rating should be 7.50 HP.

M. Selvam


D. PUMPING MACHINERY FOR BOOSTING WATER

It is proposed a ring main on the periphery of the plotted development. The details of pumping machinery for plotted development is given as below:

I) FOR FRESH WATER SUPPLY:

Pumping Machinery for Plotted Development

Daily demand for Apartment Buildings = 256,000 litres

Fresh water demand for Apartment Buildings = $\frac{2}{3}^{\text{rd}}$ of total domestic water demand
= 170,667 litres

i) Pumping rate assuming 8 hours of pumping per day

$$= \frac{170,667}{8 \times 60 \times 60}$$
$$= \mathbf{5.93 \text{ litres per second.}}$$

ii) Pumping head

a) Suction head	=	0.0 M (positive suction)
b) Static head	=	5.0 M
c) Residual head	=	22.0 M (Minimum residual pressures at ferrule points for four storey Building)
d) Frictional head loss	=	18.0 M
Total	=	45.0 M

Hence, provide two pumps (1W+1S) with a discharge of 5.93 litres per second at 45.0 M head of each pump

$$\text{BHP of Motor} = \frac{45 \times 5.93}{0.6 \times 0.9 \times 76.04}$$
$$= \mathbf{6.50}$$

Say = **7.50 B.H.P**

II) FOR RECYCLED WATER SUPPLY FOR FLUSHING:

Pumping Machinery for Plotted Development

Daily demand for Apartment Buildings = 256,000 litres

Fresh water demand for Apartment Buildings = $\frac{1}{3}^{\text{rd}}$ of total domestic water demand
= 85,333 litres

iii) Pumping rate assuming 8 hours of pumping per day

$$= \frac{85,333}{8 \times 60 \times 60}$$



	=	2.96 litres per second.
iv) Pumping head		
a) Suction head	=	0.0 M (positive suction)
b) Static head	=	4.0 M
c) Residual head	=	22.0 M (Minimum residual pressures at ferrule points for four storey Building)
d) Frictional head loss	=	18.0 M
Total	=	45.0 M

Hence, provide two pumps (1W+1S) with a discharge of 2.96 litres per second at 45.0 M head of each pump

BHP of Motor	=	$\frac{45 \times 2.96}{0.6 \times 0.9 \times 76.04}$
	=	3.24
Say	=	4.0 B.H.P

E. UNDERGROUND TANK

Total daily domestic water requirement	=	256 KL
Water Requirement for Fire Fighting	=	50 KL*
	=	<u>306 KL</u>
Say	=	310 KL

*100 x Sq. root (Population in thousand)	=	100 x Square. root (1.512)/ 3
	=	41 KL

Say 50 KL

Overall capacity of underground tanks taking 18 hours storage for freshwater requirement	
171X18/24	= 128 KL

Say 130 KL

It is proposed to construct UGT of 130 KL (Domestic) and 50 KL (Fire) for the residential plotted colony of 5.620 Acre.

Overall capacity of underground tanks taking 18 hours storage for flushing water requirement	
85X18/24	= 64 KL

Say 70 KL



F. DESIGN OF RISING MAINS FOR UG TANKS FROM COLONY SUPPLY MAIN:

Daily requirement	=	256 KL
Requirement @ 1.2 times assuming the reservoir will be filled in 16 hrs.	=	307.2 KL
Loss of head per 1000 M for 307.2 KL in 100 MM i/d pipe	=	9.81 M
Length of rising main (From HUDA rising main to UGR)	=	175 M
Add equivalent length for fittings	=	35 M
Total head loss in 210 M	=	2.06 M

G. DIESEL GENERATING SET (FOR BOOSTING ARRANGEMENT)

Pumping Set 1 No. 7.5 HP each for Domestic Water	=	7.5 H.P.
Pumping Set 1 No. 4.0 HP each for Flushing Water	=	4.0 H.P.
Lightening etc.	=	2.5 H.P.
Total	=	14.0 H.P.
Capacity of D.G.s = 14 x 0.746 x 1.5	=	15.67 KVA
Add 10% extra	=	1.57
Total	=	17.24
SAY		20 KVA

CAPACITY OF S.T.P.

Capacity of S.T.P. = 0.75 x 256 =	=	192 KLD
SAY	=	200 KLD



**RESIDENTIAL PLOTTED COLONY AREA MEASURING 5.620 ACRES AT SECTOR-37D,
GURGAON**

FINAL ABSTRACT OF COST

SUB WORK NO. I	WATER SUPPLY	Rs. 84.84 LACS
SUB WORK NO. II	SEWERAGE	Rs. 69.86 LACS
SUB WORK NO. III	STORM WATER DRAIN	Rs. 28.50 LACS
SUB WORK NO. IV	ROAD & FOOTPATHS	Rs. 76.15 LACS
SUB WORK NO. V	STREET LIGHTING	Rs. 8.63 LACS
SUB WORK NO. VI	HORTICULTURE	Rs. 2.51 LACS
SUB WORK NO. VII	MAINTENANCE CHARGES for 10 years including resurfacing of roads after 1 st 5 years & 2 nd 5 years m/c. (as per HUDA norms)	Rs. 98.37 LACS <hr/> Rs. 368.86 LACS <hr/>

Development Cost per Acre = 368.86 / 5.620 = Rs. 65.63 Lac per Gross Acre



**RESIDENTIAL PLOTTED COLONY AREA MEASURING 5.620 ACRES AT SECTOR-37D,
GURGAON**

ABSTRACT OF COST OF SUB-WORK NO. I (WATER SUPPLY)

SUB HEAD NO. I	HEAD WORKS	Rs.	24.00 Lacs
SUB HEAD NO. II	PUMPING MACHINERY	Rs.	8.00 Lacs
SUB HEAD NO. III	DISTRIBUTION SYSTEM FOR FRESH WATER SUPPLY	Rs.	11.99 Lacs
SUB HEAD NO. IV	DISTRIBUTION SYSTEM FOR FLUSHING WATER SUPPLY	Rs.	7.56 Lacs
SUB HEAD NO. V	RISING MAIN	Rs.	3.73 Lacs

Rs. 55.28 Lacs

ADD : 3% Contingencies & P.E. Charges

Rs. 1.66 Lacs

Rs. 56.94 Lacs

ADD : 49% Departmental Charges, price
escalation, unforeseen, administration
charges

Rs. 27.90 Lacs

Rs. 84.84 Lacs

(TOTAL C.O TO SUMMARY)



**RESIDENTIAL PLOTTED COLONY AREA MEASURING 5.620 ACRES AT SECTOR-37D,
GURGAON**

SUB WORK NO. I SUB HEAD NO. I		WATER SUPPLY HEAD WORKS AMOUNT (RS.)			
S.No.	Description	Qty.	Unit	Rate	Amount
1.	Boring and installing 510 mm i/d tubewells with reverse rotary rig complete with pipe and strainer to depth of about 80m complete in all respect	1	No.	4,00,000	4,00,000/-
2.	Construction of boundary wall, gate around the tubewells site and water works etc.	1	No.	50,000	50,000/-
3.	Provision of footpath hedges and lawns at Water Works / Tubewells site	L.S.			1,00,000/-
4.	Construction of Chowkidar Quarters, completed with P.H. services and electricity fittings etc.	L.S.			1,00,000/-
5.	Provision for rising mains, connecting tubewells with water main and Bye-Pass arrangements	L.S.			1,00,000/-
6.	Construction of 1 No. Boosting arrangement and underground tank of total 250 KL capacity (UG Tank of 180 KL capacity including 50 KL for fire and 70 KL for flushing)	250	KL	3000	7,50,000/-
7.	Construction of Boosting Chamber of Suitable size	L.S.			4,00,000/-
8.	Boosting Machinery i) 2 Nos. 5.93 LPS at 45 mtrs head- 7.5 BHP (For Fresh Water supply)	2	No.	1,00,000	2,00,000/-
	ii) 2 Nos. 2.96 LPS at 45 mtrs head- 4.0 BHP (For Recycled Water supply)	2	No.	1,00,000	2,00,000/-
9.	Provision for Carriage for material and other unforeseen items	LS			1,00,000/-
					Rs. 24,00,000/-
					Say 24.00 Lacs

(C.O. TO ABSTRACT OF COST SUB WORK NO. I)



**RESIDENTIAL PLOTTED COLONY AREA MEASURING 5.620 ACRES AT SECTOR-37D,
GURGAON**

SUB WORK NO. I		WATER SUPPLY			
SUB HEAD NO. II		PUMPING MACHINERY			
S.No.	Description	Qty.	Unit	Rate	Amount
1.	Providing and installing electrical driven submersible pumping set capable of delivering about 18 KL water per hour against a total head of 47 mtrs. Complete with motor and other accessories complete in all respects	1	No.	2,00,000	2,00,000/-
	NOTE: The power supply to the submersible tubewell pumps and the booster pumps is to be provided from two sources one from the electric substation and another from the standby diesel generators being provided in the Colony for the essential services.				
2.	Provision for 20 KVA DG Set as standby @ Rs. 10,000/ KVA	L.S.			2,00,000/-
3.	Providing for chlorination plant complete in all respect	1	No	100,000	1,00,000/-
4.	Provision for making foundations and erection of pumping machinery.	L.S		50,000	50,000/-
5.	Provision for pipes valves and specials inside the pump chamber and boosting chambers	L.S		100,000	1,00,000/-
6.	Provision for electric services connection including electric fittings for tubewells chambers and boosting chamber etc. Including cost of transformer	L.S.			1,00,000/-
7.	Provision for carriage of materials and other unforeseen items.	L.S.			50,000/-

Rs. 8,00,000/-

Say 8.00 Lacs

(C.O. TO ABSTRACT OF COST SUB WORK NO. I)



**RESIDENTIAL PLOTTED COLONY AREA MEASURING 5.620 ACRES AT SECTOR-37D,
GURGAON**

SUB WORK NO. I		WATER SUPPLY			
SUB WORK NO. III		DISTRIBUTION SYSTEM FOR FRESH WATER SYPPLY			
S.No.	Description	Qty.	Unit	Rate	Amount
1.	Providing, laying, jointing and testing C.I./ D.I. lines including cost of excavation, specials etc. complete in all respect				
	D.I. / C.I. PIPE				
	100 mm i/d	700	M	1,200	8,40,000/-
2.	Providing and fixing sluice valve including cost of surface boxes & masonry chambers etc. complete				
	100 mm i/d	8	No.	12,000	96,000/-
3.	Providing and fixing scour valves and including cost of bricks masonry chamber	8	No.	10,000	80,000/-
4.	Providing and fixing indicating plates for sluice valves and air valves	8	No.	1,000	8,000/-
5.	Provision for carriage of material		LS		50,000/-
6.	Provision for cutting of roads & making good to its original conditions and other unforeseen items		L.S.		50,000/-
7.	Provision for fire hydrant including cost of brick masonry chamber complete in all respect.		L.S.		75,000/-

Rs. 11,99,000/-

Say 11.99 Lacs

(C.O. TO ABSTRACT OF COST SUB WORK NO. I)



**RESIDENTIAL PLOTTED COLONY AREA MEASURING 5.620 ACRES AT SECTOR-37D,
GURGAON**

SUB WORK NO. I		WATER SUPPLY			
SUB WORK NO. IV		DISTRIBUTION SYSTEM FOR FLUSHING WATER SYPPPLY			
S.No.	Description	Qty.	Unit	Rate	Amount
1.	Providing, laying, jointing and testing pipelines conforming uPVC pipe 6 kg/cm ² Class-IV (IS:4985) including cost of excavation, specials etc. complete in all respect				
	90 mm OD	565	M	900	5,08,500/-
2.	Providing and fixing sluice valve including cost of surface boxes & masonry chambers etc. complete				
	80 mm i/d	7	No.	10,000	70,000/-
3.	Providing and fixing scour valves and including cost of bricks masonry chamber	7	No.	10,000	70,000/-
4.	Providing and fixing indicating plates for sluice valves and air valves	7	No.	1,000	7,000/-
5.	Provision for carriage of material and unforeseen items	LS			50,000/-
6.	Provision for cutting of roads & making good to its original conditions	L.S.			50,000/-

Rs. 7,55,500/-

Say 7.56 Lacs

(C.O. TO ABSTRACT OF COST SUB WORK NO. I)

M. S. Singh


**RESIDENTIAL PLOTTED COLONY AREA MEASURING 5.620 ACRES AT SECTOR-37D,
GURGAON**

SUB WORK NO. I

WATER SUPPLY

SUB HEAD NO. V

RISING MAIN FROM HUDA

S.No.	Description	Qty.	Unit	Rate	Amount
1.	Providing, laying, jointing and testing D.I. / C.I. Pipes including cost of excavation complete				
	100 mm i/d	175	M	1,200	2,10,000/-
2.	Providing and fixing sluice valves including cost of surface boxes and masonry chambers, indication plates etc. complete				
	100 mm i/d	1	No.	12,000	12,000/-
3.	Providing and fixing indicating plates with sluice valves	1	No.	1,000	1,000/-
4.	Provision for carriage of materials.	L.S.			50,000/-
5.	Provision for cutting of roads and making good of its original conditions	L.S.			50,000/-
6.	Provision for connection from HUDA Main	L.S.			50,000/-

Rs. 3,73,000/-

Say Rs. 3.73 Lacs

(C.O. TO ABSTRACT OF COST SUB WORK NO. I)



**RESIDENTIAL PLOTTED COLONY AREA MEASURING 5.620 ACRES AT SECTOR-37D,
GURGAON**

SUB WORK NO. II		SEWERAGE (INTERNAL SEWER)			
S.No.	Description	Qty.	Unit	Rate	Amount
1.	Providing, lowering, jointing & cutting salt glazed stone ware pipe and spls. Into trenches including cost of excavation, bed concrete, cost of manholes, etc. complete in all respect.				
	i) 200 mm dia i/d S.W. pipes Av. Depth upto 2 M	680	M	1,400	9,52,000/-
	ii) 200 mm dia i/d S.W. pipes Av. Depth 2 M to 4 M	100	M	1,600	1,60,000/-
2.	Provision for providing oblique junction etc.	L.S.			40,000/-
3.	Provision for temporary timbering etc.	L.S.			50,000/-
4.	Provision for lighting watching etc.	L.S.			50,000/-
5.	Provision for cutting the road and carriage of materials etc. and other unforeseen charges, vent pipe etc.	L.S.			50,000/-
6.	Provision for making connection with existing lines	L.S.			50,000/-
7.	Provision for 200 KLD STP	L.S.			32,00,000/-
				Rs.	45,52,000/-
Add 3% Contingencies & P.E. Charges				Rs.	1,36,560/-
				Rs.	46,88,560/-
Add 49% Departmental Charges, price, Escalation, unforeseen, administration charges				Rs.	22,97,394/-
				Rs.	69,85,954/-
Say 69.86 Lacs					

(C.O. TO FINAL ABSTRACT OF COST)

M. Bahadur



**RESIDENTIAL PLOTTED COLONY AREA MEASURING 5.620 ACRES AT SECTOR-37D,
GURGAON**

STORM WATER R.C.C. PIPE DRAIN

SUB WORK NO. III		STORM WATER DRAIN RCC PIPE DRAIN			
S.No.	Description	Qty.	Unit	Rate	Amount
1.	Providing lowering, cutting and jointing salt glazed RCC NP3 pipes and specials into trenches, including cost of excavation, bed concrete cost of manholes etc. complete in all respects				
	a) 400 mm dia i/e R.C.C. Pipe AV. Depth Upto 2 M	540	M	1,750	9,45,000/-
2.	Provision for road gullies with pipe connection	L.S.			1,00,000/-
3.	Rain Water Harvesting Pit for 5.620 acres@ 1.00 lac per acre				5,62,000/-
3.	Provision for lighting, watching and temporary diversion	L.S.			1,00,000/-
4.	Provision for cutting of roads and carriage of materials etc. and other unforeseen items	L.S.			1,00,000/-
5.	Provision for making connection with existing system	LS.			50,000/-
					<hr/>
				Rs.	18,57,000/-
	Add 3% contingencies & P.E. Charges			Rs.	55,710/-
					<hr/>
				Rs.	19,12,710/-
	Add 49% Departmental Charges, price, Escalation, unforeseen, administration Charges			Rs.	9,37,228/-
					<hr/>
				Rs.	28,49,938/-
					<hr/>

Say Rs. 28.50 Lacs

(C.O. TO FINAL ABSTRACT OF COST)

M. S. Singh


**RESIDENTIAL PLOTTED COLONY AREA MEASURING 5.620 ACRES AT SECTOR-37D,
GURGAON**

SUB WORK NO. IV

ROADS AND FOOTPATHS

AMOUNT (RS.)

1.	Provision for leveling and earth filling as per site conditions 5.620 Acres @ 100000/- per acre	Rs.	5,62,000/-
2.	GSB =300 MM stone aggregate 250 mm 50 mm thick...BM..... 20 mm thick M.S.S.. 3600 sq. m. @ Rs. 1000/- per sq. m.	Rs.	36,00,000/-
3.	Providing for Kerbs & Channels of C. Conc. 1 : 2 ½ : 5 with base concrete and pointing etc. 1200 @ Rs. 500/-	Rs	6,00,000/-
4.	Provision for cement concrete pavement 1:2:4 with base concrete 1:8:16 complete in all respects L.S.	Rs.	50,000/-
5.	Provision for Indicator Board, Guide Map & making parking arrangements	Rs.	50,000/-
6.	Provision for demarcation burji, carriage of material and unforeseen items	Rs.	1,00,000/-
		Rs.	49,62,000/-
	ADD : 3% Contingencies & P.E. Charges	Rs.	1,48,860/-
		Rs.	51,10,860/-
	Add 49% Departmental Charges, price, Escalation, unforeseen, administration Charges	Rs.	25,04,321/-
		Rs.	76,15,181/-

Say Rs. 76.15 Lacs

(C.O. TO FINAL ABSTRACT OF COST)



**RESIDENTIAL PLOTTED COLONY AREA MEASURING 5.620 ACRES AT SECTOR-37D,
GURGAON**

SUB WORK NO. V

STREET LIGHTING

AMOUNT (RS.)

Providing street lighting with underground on roads as per standard H.S.E.B. Specifications

Total Area: 5.620 Acres

5.620 acres @ Rs. 100,000/- per acre

Rs. 5,62,000/-

ADD: 3% contingencies & P.E. Charges

Rs. 16,860/-

Rs. 5,78,860/-

Add 49% Departmental Charges, price, Escalation, unforeseen, administration Charges

Rs. 2,83,641/-

Rs. 8,62,501/-

Say Rs. 8.63 Lacs

(C. O. TO FINAL ABSTRACT OF COST)



**RESIDENTIAL PLOTTED COLONY AREA MEASURING 5.620 ACRES AT SECTOR-37D,
GURGAON**

SUB WORK NO. VI

ESTIMATE FOR DEVELOPMENT OF LAWNS & PLANTATION OF ROAD SIDE TREES

AMOUNT (RS.)

1. Development of Lawn Areas

- a) Trenching the ordinary soil upto depth of 60 cm including removal and stacking of serviceable material and disposing of by spreading and levelling within a lead of 50 m and making up the trenched area of proper levels by filling with earth or earth mixed with manure before and after flooding trench with water including cost of imported earth and manure
- b) Rough dressing of turfed area.
- c) Grassing with 'Doob Grass' including watering and maintenance of lawns for 30 days till the grass forms a thick lawn free from weeds and fit for moving in rows 7.5 cm apart in either direction including provision for hedges and barbed wire, fencing around park

0.886 acres organized green @ Rs. 100,000/-
per acre

Rs. 88,600/-

2. Providing tree guards and planting trees along road at 12 M interval

No. of Trees = 100 Nos.

Cost analysis of planting trees:

- Excavation	:	Rs.	30.00
- Manure	:	Rs.	60.00
- Tree Planting	:	Rs.	60.00
- Tree Guards	:	Rs.	600.00

Total Rs. 750.00

100 Nos. @ Rs. 750/- each

Rs. 75,000/-

Rs. 1,63,600/-

Rs. 4,908/-

Add 3% contingencies & P.E. Charges

Rs. 1,68,508/-

Add 49% Departmental Charges, price,
Escalation, unforeseen, administration
Charges

Rs. 82,569/-

TOTAL

Rs. 2,51,077/-

Say Rs. 2.51 Lacs

(C.O. TO FINAL ABSTRACT OF COST)



**RESIDENTIAL PLOTTED COLONY AREA MEASURING 5.620 ACRES AT SECTOR-37D,
GURGAON**

SUB WORK NO. VII

MAINTENANCE OF SERVICES

AMOUNT (RS.)

1.	Provision for maintenance charges for water supply, sewerage, drainage, roads, street-light, horticulture etc. complete including operation and establishment charges as per HUDA norms after completion		
	5.620 acres @ Rs. 5,00,000/- per acre	Rs.	28,10,000/-
2.	Provision for resurfacing of roads after five years of 1st Phase		
	3600 sq.m @ Rs.400/- per sq.m.	Rs.	14,40,000/-
3.	IIInd Phase after five years of 1st Phase		
	One layer of 10mm thick 53 to 22.4 mm guage complete of 75 mm thick WBM specification and aggregate to MOT specification, Table 500-9 and Table 400-6, Grading Number 3 with 20 mm thick pre-mix carpet.		
	3600 sq. m. @ Rs. 600/- per sq.m.	Rs.	21,60,000/-
		Rs.	64,10,000/-
	Add: Contingencies @ 3%	Rs.	1,92,300/-
		Rs.	66,02,300/-
	Add: Departmental Charges @ 49%	Rs.	32,35,127/-
		Rs.	98,37,427/-
			Say 98.37 Lacs

(C.O. TO FINAL ABSTRACT OF COST)



DESIGN STATEMENT — SEWERAGE
FOR ROSE BUILDING SOLUTIONS PVT. LTD. AT SECTOR-37D, GURGAON - AREA MEASURING 5.620 ACRES

S.NO.	SEWER LINE MARKED AS	NO OF PLOT SERVED		POPULATION AS PER PERSON/ PLOT	DISCHARGE IN LTS HEAD/DAY IN KLD	ADDITIONAL DISCHARGE FROM COMMUNITY, COMMERCIAL & M.B IN KLD	TOTAL DISCHARGE IN CUSECS 75% OF 3 TIMES	SIZE OF SEWER IN LINE MM	DESIGN VELOCITY IN FT/SEC.	DESIGN DISCHARGE IN CUSECS	LENGTH OF SEWER IN LINE IN MTS	GRADIENT	FALL IN LINE		INVERT LEVEL		DEPTH OF LINE		AVG. DEPTH	REMARKS		
		SELF	BRANCH										UPPER END	LOWER END	UPPER END	LOWER END	UPPER END	LOWER END				
1	2																					
1	N1 - N2	12		216	33.53	21	54.53	200	2.50	0.330	138	1/190	16	17	18	19	20	21	22	23	24	
			TOTAL																			
2	N2.1 - N2	12		216	33.53	0	33.53	200	2.50	0.330	54	1/190	0.28	100.30	100.30	99.40	99.40	99.12	0.90	1.18	1.04	CL
3	N2 - N6	2	24	468	72.66	21	93.66	200	2.50	0.330	18	1/190	0.09	100.30	100.30	98.67	98.67	1.63	1.72	1.67	CL	
4	N3 - N4	25		450	69.86		69.86	200	2.50	0.330	110	1/190	0.58	100.30	100.30	99.40	98.82	0.90	1.48	1.19		
5	N4.1 - N4	2		36	5.69	21	26.59	200	2.50	0.330	9	1/190	0.05	100.30	100.30	99.40	99.35	0.90	0.95	0.92	CL	
6	N4 - N5	3	27	540	83.84	0	83.84	200	2.50	0.330	33	1/190	0.20	100.30	100.30	98.82	98.62	1.48	1.68	1.58		
7	N5.1 - N5	23		414	64.27	21	85.27	200	2.50	0.330	110	1/190	0.58	100.30	100.30	99.40	98.82	0.90	1.48	1.19	CL	
8	N5 - N6	5	53	1044	162.08	21	183.08	200	2.50	0.330	41	1/190	0.22	100.30	100.30	98.62	98.41	1.68	1.89	1.79		
9	N6 - STP	0	84	1512	234.74	21	255.74	200	2.50	0.330	100	1/190	0.53	100.30	100.30	98.41	97.88	1.89	2.42	2.16		



**DESIGN STATEMENT — STORM WATER DRAINAGE
FOR ROSE BUILDING SOLUTIONS PVT. LTD. AT SECTOR-37D, GURGAON - AREA MEASURING 5.620 ACRES**

S.NO.	DRAIN LINE MARKED AS	LENGTH OF DRAIN IN Metre	AREA TO BE SERVED			DISCHARGE @ 1/4" PE OF RAINFALL/H OUR AND 0.5 IN MM RUNNOFF COF. CUSECS	SIZEITY OF DRAIN IN MM	DESIGNED VELOCITY IN FT/SEC	DESIGNED DISCHARGE IN CUSECS	GRADIENT	FALL IN METERS	GROUND/FORMA TION LEVEL			BED LEVELS			DEPTH OF LINE		AVG. DEPTH	REMARKS
			SELF ACRE	BRANCH ACRE	TOTAL ACRE							UPPER END	LOWER END	UPPER END	LOWER END	UPPER END	LOWER END	UPPER END	LOWER END		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
1	N1 - N2	103	1.11	0.00	1.11	0.14	400	2.50	2.75	1/570	0.18	100.30	100.30	99.30	99.12	1.00	1.18	1.09			
2	N2.1 - N2	20	0.18	0.00	0.18	0.02	400	2.50	2.75	1/570	0.04	100.30	100.30	99.30	99.26	1.00	1.04	1.02	CL		
3	N2 - N3	38	0.20	1.29	1.49	0.19	400	2.50	2.75	1/570	0.07	100.30	100.30	99.12	99.05	1.18	1.25	1.21		CL	
4	N3.1 - N3	103	1.16	0.00	1.16	0.15	400	2.50	2.75	1/570	0.18	100.30	100.30	99.30	99.12	1.00	1.18	1.09		CL	
5	N3 - N4	62	0.21	2.65	2.86	0.36	400	2.50	2.75	1/570	0.11	100.30	100.30	99.05	98.94	1.25	1.36	1.30			
6	N4.1 - N4	63	0.91	0.00	0.91	0.11	400	2.50	2.75	1/570	0.11	100.30	100.30	99.30	99.19	1.00	1.11	1.06	CL		
7	N4 - N5	130	1.64	3.77	5.41	0.68	400	2.50	2.75	1/570	0.23	100.30	100.30	98.94	98.72	1.36	1.58	1.47			
8	N5 - OUTFALL	20	0.20	5.41	5.61	0.71	400	2.50	2.75	1/570	0.04	100.30	100.30	98.72	98.68	1.58	1.62	1.60			



**DESIGN STATEMENT— FRESH WATER SUPPLY
FOR ROSE BUILDING SOLUTIONS PVT. LTD. AT SECTOR-37D, GURGAON - AREA MEASURING 5.620 ACRES**

S.NO.	LINE	NO OF PLOT SERVED			POPULATI ON ON 18 PERSONIP LOT	REQUIRE 155.25 ENT LTS PER HEAD PER DAY IN KLD	REQUIRE ENT IN COMMUNIT AL & M.B. IN KLD	TOTAL REQUIRE ENT IN KLD	TOTAL FRESH REQUIRE ENT (23RD OF Total Water Requireme nt. (KLD)	PEAK REQUIRE ENT 3 TIMES	SIZE OF PIPE MM IN MTS.	LOSS OF PIPE HEAD IN MTS. 1000 MTS.	LOSS OF TOTAL HEAD IN LOSS IN MTS.	HYDRAULIC LEVELS		GROUNDIF ORMATION LEVEL AT LOWER END	TERMINAL LEVEL AT LOWER END	REMARKS	
		SELF	BRANCH	TOTAL										UPPER END	LOWER END				
1	2	3	4	5	6	7	8	9		10	11	12	13	14	15	16	17	18	19
1	2-1	11 M.B. + Commer. + Commun.	—	11	198	30.74	21	51.74	34.49	103.48	100	130	0.62	0.08	138.94	138.86	100.00	38.86	
2	2-2.1	12	—	12	216	33.53		33.53	22.36	67.07	100	61	0.28	0.02	138.94	138.92	100.00	38.92	
3	6-2	5	23 M.B. + Commer. + Commun.	28	504	78.25	21	99.25	66.16	198.49	100	41	2.06	0.08	139.02	138.94	100.00	38.94	
4	4-3	25		25	450	69.86		69.86	46.58	139.73	100	111	1.08	0.12	138.81	138.69	100.00	38.69	
5	4-4.1	2		2	36	5.59		5.59	3.73	11.18	100	22	0.01	0.00	138.81	138.81	100.00	38.81	
6	5-4	4	27	31	558	86.63		86.63	57.75	173.26	100	38	1.60	0.06	138.87	138.81	100.00	38.81	
7	5-5.1	23		23	414	64.27		64.27	42.85	128.55	100	112	0.92	0.10	138.87	138.77	100.00	38.77	
8	6-5	2	54	56	1008	156.49	50	206.49	137.66	412.98	100	19	8.01	0.15	139.02	138.87	100.00	38.87	
9	PLANT ROOM -6	0	84 M.B. + Commer. + Commun.	84	1512	234.74	21	255.74	170.49	511.48	100	82	11.90	0.98	140.00	139.02	100.00	39.02	



**DESIGN STATEMENT — FLUSHING WATER SUPPLY
FOR ROSE BUILDING SOLUTIONS PVT. LTD. AT SECTOR-37D, GURGAON - AREA MEASURING 5.620 ACRES**

S.NO.	LINE	NO OF PLOT SERVED		POPULATION ON PLOT	REQUIREMENT OF 155.25 LTRS PER HEAD PER DAY IN KLD	REQUIREMENT OF COMMERCIAL & M.B. IN KLD	TOTAL REQUIREMENT IN KLD	TOTAL RECYCLED REQUIREMENT (1/3RD OF Total Water Requirement) (KLD)	PEAK RECYCLED REQUIREMENT (3 TIMES)	SIZE OF PIPE IN MM	LENGTH OF PIPE IN MTS.	LOSS OF HEAD IN MTS. / 1000 MTS.	HYDRAULIC LEVELS			TERMINAL LEVEL AT LOWER END	REMARKS	
		SELF	BRANCH										TOTAL	UPPER END	LOWER END			TERMINAL LEVEL AT LOWER END
1	2-1	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1	2-1	11	—	11	198	30.74	21	51.74	17.25	80	131	0.51	0.07	138.55	138.48	100.00	38.48	
		M.B. + Comm er. + Comm un.		M.B. + Comm er. + Comm un.														
2	2-2.1	12		12	216	33.53		33.53	11.18	80	62	0.23	0.01	138.55	138.54	100.00	38.54	
3	5-2	7	23	30	540	83.84	21	104.84	34.95	80	60	1.87	0.11	138.66	138.55	100.00	38.55	
		M.B. + Comm er. + Comm un.		M.B. + Comm er. + Comm un.														
4	4-3	25		25	450	69.86		69.86	23.29	80	112	0.88	0.10	138.61	138.51	100.00	38.51	
5	4-4.1	2		2	36	5.59		5.59	1.86	80	21	0.01	0.00	138.61	138.61	100.00	38.61	
6	5-4	4	27	31	558	86.63		86.63	28.88	80	38	1.32	0.05	138.66	138.61	100.00	38.61	
7	STP-5	23	61	84	1512	234.74	21	255.74	85.25	80	137	9.77	1.34	140.00	138.66	100.00	38.66	
		M.B. + Comm er. + Comm un.		M.B. + Comm er. + Comm un.											STP Plant Room at 35.0			



MATERIAL DETAIL -- SEWERAGE
FOR ROSE BUILDING SOLUTIONS PVT. LTD. AT SECTOR-37D,
GURGAON - AREA MEASURING 5.620 ACRES

S.NO.	SEWER LINE MARKED AS	SIZE OF SEWER LINE IN MM	LENGTH OF SEWER LINE IN MTRS.	AVG. DEPTH	LENGTH OF LINE IN MTRS.	
					0-2M	2-4M
					200MM DIA	
1	N1 - N2	200	138	1.26	138	
2	N2.1 - N2	200	54	1.04	54	
3	N2 - N6	200	18	1.67	18	
4	N3 - N4	200	110	1.19	112	
5	N4.1 - N4	200	9	0.92	7	
6	N4 - N5	200	38	1.59	38	
7	N5.1 - N5	200	110	1.19	110	
8	N5 - N6	200	41	1.80	41	
9	N6 - STP	200	100	2.17		100
10	STP - OUTFALL	200	162	1.00	162	
TOTAL LENGTHS (in MTRS.)					680	100

680
Meter 100 Meter



**MATERIAL DETAIL — STORM WATER DRAINAGE
FOR ROSE BUILDING SOLUTIONS PVT. LTD. AT SECTOR-37D,
GURGAON - AREA MEASURING 5.620 ACRES**

S.NO.	DRAIN LINE MARKED AS	SIZE OF DRAIN LINE IN MM	LENGT H OF DRAIN LINE IN MTS.	AVG. DEPTH	LENGTH OF LINE IN MTRS.		
					400MM DIA		
					0-2M	2-4M	
1	N1 - N2	400	103	1.09	103		
2	N2.1 - N2	400	20	1.02	20		
3	N2 - N3	400	38	1.21	38		
4	N3.1 - N3	400	103	1.09	103		
5	N3 - N4	400	62	1.30	62		
6	N4.1 - N4	400	63	1.06	63		
7	N4 - N5	400	130	1.47	130		
8	N5 - OUTFALL	400	20	1.60	20		
	TOTAL LENGTHS					539	

Say 540 Meter



**MATERIAL STATEMENT FOR FRESH WATER SUPPLY PIPES
— ROSE BUILDING SOLUTIONS PVT. LTD. AT SECTOR-37D,
GURGAON - AREA MEASURING 5.620 ACRES**

S.NO.	LINE MARKED AS	SIZE OF PIPE MM	LENGTH OF PIPE IN MTS.	LENGTH OF LINE IN MTRS.	
				100MM DIA	150MM DIA
1	2-1	100	130	130	
2	2 - 2.1	100	61	61	
3	6 - 2	100	41	41	
4	4 - 3	100	111	111	
5	4 - 4.1	100	22	22	
6	5 - 4	100	38	38	
7	5 - 5.1	100	112	112	
8	6 - 5	100	19	19	
9	PLANT ROOM - 6	100	82	82	
FROM TUBEWELL				79	
TOTAL LENGTHS				695	0

Say, 700 Meter

100 mm Dia Water Supply Line from HUDA mains

175 M



**MATERIAL STATEMENT FOR FOR RECYCLED (FLUSHING)
WATER SUPPLY PIPES
— ROSE BUILDING SOLUTIONS PVT. LTD. AT SECTOR-37D,
GURGAON - AREA MEASURING 5.620 ACRES**

S.NO.	LINE MARKED AS	SIZE PIPE MM	OF IN	LENGTH OF PIPE IN MTS.	LENGTH OF LINE IN MTRS.	
					80MM DIA	100MM DIA
1	2 - 1	80		131	131	
2	2 - 2.1	80		62	62	
3	5 - 2	80		60	60	
4	4 - 3	80		112	112	
5	4 - 4.1	80		21	21	
6	5 - 4	80		38	38	
7	STP - 5	80		137	137	
TOTAL LENGTHS					561	

Say, 565 Meter



**MATERIAL STATEMENT FOR ROAD — ROSE BUILDING SOLUTIONS PVT.
LTD. AT SECTOR-37D, GURGAON - AREA MEASURING 5.620 ACRES**

S.NO.	ROAD	LENGTH OF ROAD IN METERS		REMARKS
		9 M WIDE	12 M WIDE	
1	(1)	243		
2	(2)	135		
3	(3)	111		
4	(4)	65		
5	(5)		14	
TOTAL		554	14	
Add 5% for curves		28	1	
TOTAL LENGTHS		582	15	

Road Width (M)	Length in M (6 M wide)	Mettalled width (M)	Mettalled width (Sq.m)	kerb & Channels Fixing QTY.	No. of Trees	Paved path on both side of 9M & 12M road
9 m wide road	582	6	3490	two side 1164	97	1746
12 m wide road	15	7	103	two side 30	3	75
		Total	3593	1194	100	1821

Say 3600 sq.m. Say 1200

Say 1825
sq.m.

M. Sah

