INTERNAL DEVELOPMENT WORKS

DESIGN AND COST ESTIMATES

FOR

REVISED BUILDING PLAN OF COMMERCIAL COLONY MEASURING 4.2 ACRES (LICENCE NO.110 OF 2012 DATED 20-10-2012) IN SECTOR-83, GURGAON MANESAR URBAN COMPLEX BEING DEVELOPED BY: M/s S.V HOUSING PVT. LTD.

OWNER

M/s S.V HOUSING PVT. LTD.

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REPORT

Gurgaon town of Haryana State is situated on Delhi - Jaipur national Highway No.8 at a distance of 30 kms for Delhi. Haryana Government has established various residential & commercial sectors along with infrastructure facilities in Gurgaon. It is now proposed to develop a Commercial colony Measuring 4.2 Acres site at Sector 83, Gurugram.

WATER SUPPLY

Source of water supply in this area is HUDA water main. It has been proposed to construct underground tanks of capacity as per details given for domestic purpose. The underground tanks will be filled from the proposed HUDA main and water will be pumped to the O.H tanks proposed on the roof of the building. Flushing, irrigation & soft water demand of cooling tower makeup will be met from the treated effluent from sewage treatment plant located within development.

DESIGN

The scheme has been designed for population as given in attached population calculation.

PUMPING EQUIPMENTS

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

SEWERAGE SCHEME

This scheme is designed for sewer connecting to the sewage treatment plant of the development and excess water, if any, will be disposed off to the proposed HUDA sewer. The sewerage system has been marked on respective plans.

The sewer lines have been designed for three times average D.W.F in relation to water supply demand. It has been assumed that about 80% of the domestic water supply shall find its way into the proposed sewer. Sewer lines shall be laid to a gradient maintaining minimum 2.46 ft/sec self-cleaning velocity. Necessary provision for laying S.W/RCC pipe sewer line, construction of required number of manholes etc., have been made in the estimate.

Design statement for entire sewerage system has been prepared and attached with the estimate.

STORM WATER DRAINAGE

Rainwater precipitation of the proposed development will be collected through a series of catch basin /channels and piping and will be connected to the proposed Rainwater Harvesting System. Surplus water will be disposed off to HUDA storm water drainage system of the main colony. Intensity of rainfall has been taken as ¼" per hour.

SPECIFICATIONS

Development work will be carried out in accordance with the standard specifications of P.H as laid down by the Haryana Govt./HUDA/Haryana Building Code (HBC).

Roads:
Cost of road has been taken in the estimate.

Street Lighting
Provision for external lighting has been made.

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

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

Cost:
Total cost of the internal development scheme, including cost of all services, works out to be Rs. **698.05 Lakhs** including 3% contingencies @ 49% departmental charges.

Authorized Signatory

1. DESIGN CALCULATION :

1	2	3	4	5	6	7	8	9	10	11	12	13
Sl. No.	**Description**	**FAR in Sqm.**	**Area per Person**	**Total Population**	**Water Demand LPCD**	**Total Water Demand LPD**	**Domestic Water Demand LPCD**	**Total Domestic Water Demand LPD**	**Flushing Water Demand LPCD**	**Total Flushing Water Demand LPD**	**Treated Effluent Water Demand in LPD**	**Sewage Flow 80% of Total Water Demand in LPD**
1	**Ground Floor**											
1.1	Retail	5198.973	3	1733								
	Permanent Population		10%	174	45	7830	25	4350	20	3480	3480	6264
	Floating Population		90%	1559	15	23385	5	7795	10	15590	15590	18708
2	**First Floor**											
2.1	Retail	3287.633	6	548								
			10%	55	45	2475	25	1375	20	1100	1100	1980
			90%	493	15	7395	5	2465	10	4930	4930	5916
2.2	Restaurant	620.9	1.8	345								
	Permanent Population		30%	104	45	4658	25	2588	20	2070	2070	3726
	Floating Population		70%	242	70	16905	55	13283	15	3623	3623	13524
3	**Second Floor**											
3.1	Retail	657.558	6	110								
			10%	11	45	495	25	275	20	220	220	396
			90%	99	15	1485	5	495	10	990	990	1188

1	2	3	4	5	6	7	8	9	10	11	12	13
3.2	Food Court	777	1.8	432	35	15120	25	10800	10	4320	4320	12096
3.3	*Multiplex - No. of Seats*			955								
	Permanent Population		5%	48	45	2160	25	1200	20	960	960	1728
	Floating Population		100%	955	15	14325	5	4775	10	9550	9550	11460
4	**Third Floor**											
4.1	Restaurant	250	1.8	139								
	Permanent Population		30%	42	45	1877	25	1043	20	834	834	1501
	Floating Population		70%	97	70	6811	55	5352	15	1460	1460	5449
4.2	Food Court	645	1.8	359	35	12565	25	8975	10	3590	3590	10052
5	**4TH to 20th Floor**											
5.1	**Office**	15175.58	10	1518	45	68310	25	37950	20	30360	30360	54648
	Visitors @ 10% of Total Population		10%	152	15	2280	5	760	10	1520	1520	1824
6	Maintenance Staff			80	45	3600		1260		2340	2340	2880
7	Filter Back-Wash			L.S		7000		7000				7000
8	Horticulture	L.S				15000					15000	
	Total					**213675.00**		**111739.00**		**86936.00**	**101936.00**	**160340.00**

Total Water Demand	214	KLD
Total Domestic Water Demand	112	KLD
Total Flushing Water Demand	87	KLD
Recycled water For Irrigation	15	KLD
Total Non Domestic Water Demand	102	KLD
Flow To Sewer	161	KLD
Total recycled water Available per day (90% of waste water Generated)	145	KLD

Based on NBC 2016, 200KL Capacity plus 60 KL for water curtain and 60 KL for replenishment for one hour @ 1000 lpm as required by local Fire Brigade

Proposed Capacity - 400KL

IV. UNDER GROUND WATER TANKS

a) Total Domestic water demand 112 KL
Half day's requirement for (112/2) 56 KL

b) Total Flushing water demand 87 KL
Half day's requirement for (87/2) 43.5 KL

It is proposed to construct one set of Raw & Domestic water tanks of Capacity 300 KL and Fire Water Tank of 400 KL is proposed. Flushing, Irrigation & Soft water tanks of total capacity 470 KL is proposed. Total Capacity of underground water storage tank is 1170 KL.

V. BOOSTING MACHINERY

A. Domestic Water Transfer Pump to feed water tank at Terrace Floor:

- Daily Domestic demand 105 KLD
- Discharge per hour @ 8 hr. pumping / day 13.125 KL / hr.
218.75 LPM
SAY 220 LPM

Gross Working Head
- Suction lift – positive suction 0.00 Mtr.
- Friction Loss in Mains & Specials 20.00 Mtr.
- Clear Head required (Pump Room to OHT) 88.75 Mtr.
TOTAL **108.75 SAY 110 Mtr.**

Pump – HP = $\frac{220 \times 110}{60 \times 75 \times 0.75}$ 7.17 HP
Say 7.5 HP Each

It is proposed to provide 2 Nos. of pumps of 220 lpm discharge at 110 mtr. Head, (one pump working and one standby) for domestic purpose.

B. Flushing Water Transfer Pump to feed water tank at Terrace Floor:

- Daily Flushing demand 87.0 KLD
- Discharge per hour @ 8 hr. pumping / day 10.875 KL / hr.
181.25 LPM
SAY 185 LPM

- Gross Working Head
- Suction lift – positive suction 0.0 Mtr.
- Friction Loss in Mains & Specials 20.0 Mtr.
- Clear Head required (Pump Room to OHT) 98.05 Mtr.
TOTAL **118.05 Mtr**
SAY 120.00 Mtr.

Pump – HP = $\frac{185 \times 120}{60 \times 75 \times 0.75}$ 6.57 HP
Say 7.5 HP Each

It is proposed to provide 2 Nos. of pumps of 185 lpm discharge at 120 mtr. Head, (one pump working and one standby) for Flushing Water purpose.

C. Irrigation Pump

- Water Demand of Horticulture and Road Area 15 KLD
- Discharge per hour @ 2.5 hr. pumping / day 6 KL / hr.
  66.66 LPM
  SAY 100 LPM

Gross Working Head
- Suction lift – positive suction 0.0 Mtr.
- Friction Loss in Mains & Specials 10.0 Mtr.
- Clear Head required 25 Mtr.

TOTAL **35 Mtr. Say 40 Mtr.**

Pump – HP = $\frac{100 \times 40}{60 \times 75 \times 0.75}$ 1.185 HP
Say 3 HP Each

It is proposed to provide 2 Nos. of pumps of 100 lpm discharge at 40 mtr. Head, (one pump working and one standby) for Irrigation purpose.

VI. PUMPS FOR FIRE PROTECTION

S. No.	Parameters	Location	Pump Sets			
			Electrical Motor Driven Jockey Pump	Electrical Motor Main Pump (Hydrant & Sprinkler Pump)	Diesel driven pump	Electrical Motor Water Curtain Pump
a)	Discharge in LPM	Pump Room	180 lpm	2850 lpm	2850 lpm	930 lpm
b)	Head in meters		140	140	140	40
c)	HP		12.5	140	159 BHP	20 HP
d)	Quantity in Nos.		2	2	1	1

VII. GENERATING SETS:

HP of	Sump pump	= 8x2 x 3	= 48 HP
HP of	Domestic water transfer pump	= (1 W+ 1 S)	= 7.5 HP
HP of	Flushing water transfer Pump	= (1 W+ 1 S)	= 7.5 HP
HP of	Irrigation Pump	= (1 W+ 1 S)	= 3 HP
HP of	Jockey pump	= (10 x 1)	= 15 HP
	TOTAL		= 81 HP
			= 60.4 KW

Say = 61 Kw.

It is proposed to provide 80 KVA generating set separately or capacity will be added to the capacity of main generating set.

ESTIMATE FOR PROVIDING INTERNAL DEVELOPMENT WORKS FOR REVISED BUILDING PLAN OF COMMERCIAL COLONY MEASURING 4.2 ACRES (LICENCE NO.110 OF 2012 DATED 20-10-2012) IN SECTOR-83, GURGAON MANESAR URBAN COMPLEX BEING DEVELOPED BY: M/S S.V HOUSING PVT. LTD.

FINAL ABSTRACT OF COST

Amount in Rs. Lakhs

SUB WORK NO. I	WATER SUPPLY SCHEME	179.90
SUB WORK NO. II	SEWERAGE SCHEME	71.95
SUB WORK NO.III	STORM WATER DRAINAGE	36.83
SUB WORK NO.IV	ROADS WORK	173.05
SUB WORK NO.V	STREET LIGHTING	16.12
SUB WORK NO. VI	HORTICULTURE	3.53
SUB WORK NO. VI	MAINTENANCE COST AND RESURFACING OF ROAD	216.67
	TOTAL	**698.05**

(Rs. SIX HUNDRED NINTY EIGHT LAKHS FIVE THOUSAND ONLY)

For

AUTHORISED SIGNATORY

ESTIMATE FOR PROVIDING INTERNAL DEVELOPMENT WORKS FOR REVISED BUILDING PLAN OF COMMERCIAL COLONY MEASURING 4.2 ACRES (LICENCE NO.110 OF 2012 DATED 20-10-2012) IN SECTOR-83, GURGAON MANESAR URBAN COMPLEX BEING DEVELOPED BY: M/S S.V HOUSING PVT. LTD.

SUB WORK No. 1 Water Supply

1.	Sub Head No. 01	Head Works	77,23,000.00
2.	Sub Head No. 02	Pumping Machinery	25,50,000.00
3.	Sub Head No. 03	Rising Main	1,31,375.00
4.	Sub Head No. 04	Distribution System	1,81,700.00
5.	Sub Head No. 05	Fire Fighting Main	11,36,600.00
6.	Sub Head No. 06	Irrigation System	5, 16, 300.00
		TOTAL	**1,17,22,675.00**
		Add 3% contingencies & PH Charges	3,51,680.25
		TOTAL	**1,20,74,355.25**
		Add 49% Departmental charges	59,16,434.07
		TOTAL	**1,79,90,789.32**

Say 179.90 Lakhs.

Sub Work No. 1
Sub Head No. 01

	Water Supply Head Works Amount in Rs.
1. Providing Domestic Water Transfer Pumps for feeding Terrace OHT- Capacity 220 lpm at 110 M head , 2 Nos. @ Rs. 2,00,000/-each	Rs. 4,00,000.00
2. Providing Flushing Water Transfer Pumps For feeding Terrace OHT- Capacity 185 lpm at 120 M head , 2 Nos. @ Rs. 1,80,000/-each	Rs. 3,60,000.00
3. Providing Pumps for Irrigation - Capacity 100 lpm at 40 M head , 2 Nos. @ Rs. 90,000/-each	Rs. 1,80,000.00
4. Construction of U.G. tanks 1170 KL Rs. 5600 /KL	Rs. 65,52,000.00
5. Provision for unforeseen items / carriage of materials	Rs. 2,31,000.00
TOTAL	**Rs. 77,23,000.00**

(Total C/F to Summery of Sub Work 1)

Sub Work No. 1
Sub Head No. 02

Water Supply
Pumping Machinery
Amount in Rs.

1.	Provision for diesel engine genset for standby arrangements Water Transfer Pumps complete. of following capacities.	
	- 1 No. 80 KVA @ Rs.11,00,000/-	Rs.11,00,000.00
2.	Providing and installing pumping set of following capacities for Fire protection:	
	- 180 lpm at 140M head 2 Nos. @ Rs.1,25,000/-	Rs. 2,50,000.00
	- 2850 lpm at 140M head 2 Nos. @ Rs. 6,00,000/-	Rs. 12,00,000.00
	- 930 lpm at 40 M head 1 No. @ Rs. 1,50,000/-	Rs. 1,50,000.00
	-2850 lpm at 140M head 1 No. DG pump @ Rs.9,50,000/-	Rs. 7,50,000.00
3.	Provision for chlorination plant complete	
	- 1 No. @ Rs. 100000/-	Rs.1,00,000.00
4.	Provision for making foundations and erection of Pumping Machinery:	
	- 1 Sets. @ Rs. 1,00,000/- each	Rs. 1,00,000.00
5.	Provision for pipes, valves and specials inside boosting chamber.	
	1 sets @ Rs. 3,00,000/- each	Rs. 3,00,000.00
6.	Provision for carriage of material and other unforeseen Items etc. L/S	Rs. 1,00,000.00
	TOTAL	**Rs. 25,50,000.00**

(Total C/F to Summery of Sub Work 1)

Sub-Work No. 1 — Water Supply
Sub Head No. 03 — Rising Main from HUDA
Amount in Rs.

1.	Providing , laying , jointing and testing DI/GI pipe lines Including Cost of excavation etc. complete in all respects. - 50 mm dia. pipe 11 m @ Rs. 625/-	Rs. 6,875.00
2.	Providing and fixing valve including cost of surface box and masonary chamber etc. complete in all respects. - 50 mm i/d 1 Nos. @ Rs. 6000/-	Rs. 6,000.00
3.	Providing and fixing indicating plates for valve and air Valves. - 1 No. @ Rs. 1000/- each	Rs.1,000.00
4.	Providing and fixing air release valve and scour valve 1 No. @ Rs. 7500/- each	Rs.7,500.00
5.	Providing and fixing water meter on service main 1 Ns. @ Rs. 60,000/- each	Rs.60,000.00
6.	Provision for carriage for materials and other unforeseen items(L/S)	Rs. 40,000.00
7.	Provision for cutting of roads and making good to its original Conditions. (L/S)	Rs. 10,000.00
	Total	**Rs. 1,31,375.00**

(Total C/F to Summery of Sub Work 1)

Friction Loss calculation for HUDA Rising main:

S.No.	Line	Daily Demand (KL)	1 ½ Times Daily Demand (KL)	Length (Mtr.)	Pipe Dia (MM)	Total Friction Loss in line in Mtr.	Velocity ft./sec.
1	HUDA – UG Tank	112 KLD	168	11	50	0.66	1.48

Sub Work No. 1 — Water supply
Sub-Head No. 04 — Distribution System

Amount in Rs.

1.	Providing , Laying , jointing and testing G.I pipe line including Fittings, valves, cost of excavation etc. complete in all respect. Domestic Water Supply – G.I Pipe 80 mm, 104 M @ Rs. 800/-	Rs. 83,200.00
2.	Providing , Laying , jointing and testing G.I pipe line including Fittings, valves, cost of excavation etc. complete in all respect. Flushing Water Supply – G.I Pipe 65 mm, 65 M @ Rs. 600 /-	Rs. 39,000.00
3.	Provision for carriage of materials and other unforeseen items	Rs. 50,000.00
4.	Providing and fixing valve: - 65 mm dia 1 No. @ Rs. 4000/ - each - 80 mm dia 1 No. @ Rs. 5500/ - each	 Rs. 4,000.00 Rs. 5,500.00
Total		**Rs. 1,81,700.00**

(Total C/F to Summery of Sub Work 1)

Hydraulic Calculation for Domestic Water Supply															
Sl. No.	Node	Total Dom. Water Demand in LPD	Hours of Pumping @ 8 Hrs.	Water Demand in LPM	Length of Pipe in Mtr.	Head Loss in Mtr./ Mtr.	Slef Head Loss in Mtr./ Mtr.	Cumulative Head Loss in Mtrs.	Total Head Loss in Mtrs.	Ground Level at Starting	HL at Start	HL at End	Residual Head	Velocity in Mtr./Sec.	Size of Riser in MM
1	UGT-D1	105000	13125.0	218.75	104	0.014	1.473	0.000	0.98	0.15	110	109.02	108.87	0.72	80

Hydraulic Calculation for Flushing Water Supply															
Sl. No.	Node	Total Dom. Water Demand in LPD	Hours of Pumping @ 8 Hrs.	Water Demand in LPM	Length of Pipe in Mtr.	Head Loss in Mtr./ Mtr.	Slef Head Loss in Mtr./ Mtr.	Cumulative Head Loss in Mtrs.	Total Head Loss in Mtrs.	Ground Level at Starting	HL at Start	HL at End	Residual Head	Velocity in Mtr./Sec.	Size of Riser in MM
1	STP - FW1	87000	10875.0	181.25	65	0.027	1.787	0.000	1.18	0.15	120	118.82	118.67	0.91	65

Sub Work No. 1
Sub-Head No. 05 Fire Raising Main

Amount in Rs.

1.	Providing , Laying , jointing and testing M.S. pipes lines for fire rising main including cost of fittings, valves, connection etc. complete in all respect .			
	(i) 150 mm m.s. pipe line 248 m @ Rs. 1500/- per Mtr.	=	Rs.	3,72,000.00
	(ii) 100mm i/d 168 m @ Rs. 1200/ m	=	Rs.	2,01,600.00
	(iii) 80mm i/d 273 m @ Rs. 1000/ m	=	Rs.	2,73,000.00
3.	Providing & fixing valve			
	(i) 150 mm dia 1 Nos. @ Rs. 8000/- each	=	Rs.	8,000.00
	(ii) 80 mm dia 14 Nos. @ Rs. 6000/- each	=	Rs.	84,000.00
4.	Providing and fixing fire Hydrant 14 Nos. @ Rs. 7000/-	=	Rs.	98,000.00
4.	Providing for carriage of material (L.S.)	=	Rs.	1,00,000.00
Total			**Rs.**	**11,36,600.00**

(Total C/F to Summery of Sub Work 1)

Material Statement - Fire Hydrant

S.NO.	NODE		LENGTH OF PIPE			VALVE		FIRE
	FROM	TO	IN METRE					HYDRANT
			150 Dia.	100 Dia.	80 Dia.	80 DIA	150 DIA	
1	F23	F20	19				1	
2	F20	F22			25	1		1
3	F20	F18	15					
4	F18	F19			35	1		1
5	F18	F11	22					
6	F11	F16	45					
7	F16	F17			26	1		1
8	F16	F15	66			1		1
9	F15	F13		40				
10	F13	F14			7	1		1
11	F13	F12			37	1		1
12	F11	F8	23					
13	F08	F10		35		1		1
14	F10	F09			44	1		1
15	F08	F04	58					
16	F04	F02		26				
17	F02	F01			20	1		1
18	F02	F03			24	1		1
19	F04	F07		28				
20	F07	F06			7	1		1
21	F07	F05			27	1		1
22	F23	F25		39				
23	F25	F24			15	1		1
24	F25	F26			6	1		1
	TOTAL		**248**	**168**	**273**	**14**	**1**	**14**

Sub Work No. 1
Sub-Head No. 06

Water supply
Irrigation

1. Providing , Laying, Jointing and testing pipe line Conforming to IS 4985 including cost of excavation etc. complete in all respect.

   c) 90 OD 609 metre @ Rs. 700/- M = Rs. 4,26,300.00

2. Providing and fixing 20 mm dia. irrigation hydrant Valve complete in all respect.
   20 Nos. @ Rs. 2000/ each = Rs. 40,000.00

3. Provision for carriage of Material and other as foreseen Items. = Rs. 50,000.00

TOTAL **= Rs. 5, 16, 300.00**

(Total C/F to Summery of Sub Work 1)

Material Statement – Irrigation system

90 mm OD – Total Length 609 Mtr.

Irrigation Hydrant – 20 Nos

Sub-Work No. II — Sewerage Scheme

Amount in Rs.

1.	Providing & laying PVC "U" pipe conforming to IS: 15328-2003 SN-4 jointed with elastomeric Sealing ring or solvent cement complete in all respects including testing of joints and lowering into trenches including cost of Excavation, bed concrete, cost of manholes etc. Complete (Upto 2 Mtr Depth).		
	a) PVC "U" pipe 150 mm OD 15 M @ Rs. 1500/M (STP BYPASS)	Rs.	22,500.00
	b) PVC "U" pipe 200 mm OD 100 M @ Rs. 2400/M	Rs.	2,40,000.00
	c) PVC "U" pipe 250 mm OD 245 M @ Rs. 3200/M	Rs.	7,84,000.00
2.	Providing & laying PVC "U" pipe conforming to IS: 15328-2003 SN-4 jointed with elastomeric Sealing ring or solvent cement complete in all respects including testing of joints and lowering into trenches including cost of Excavation, bed concrete, cost of manholes etc. Complete (Above 2 Mtr Depth).		
	a) PVC "U" pipe 250 mm OD 5 M @ Rs. 3500/M	Rs.	17,500.00
3.	Provision for cartage of material	Rs.	90,000.00
4.	Provision for lighting and watching	Rs.	72,000.00
5.	Sewage Treatment Plant of capacity 320 KLD @ Rs. 10820/KLD	Rs.	34,62,400.00
	TOTAL	**Rs.**	**46,88,400.00**
	Add 3% contingencies & PH charges	Rs.	1,40,652.00
	TOTAL	Rs.	48,29,052.00
	Add 49% Departmental charges	Rs.	23,66,235.48
	Total	**Rs.**	**71,95,287.48**

(Total C/F to Summery of Sub Work II)

SAY Rs. 71.95 Lakhs

SEWERAGE SYSTEM

Material statement of pipe

SL NO	NODE NO.		Pipe Length in Mtr.			
			Upto 2 Mtr Depth		Above 2 Mtr Depth	
	FROM	TO	200 mm OD (PVC-U pipe)	250 mm OD (PVC-U pipe)	200 mm OD (PVC-U pipe)	250 mm OD (PVC-U pipe)
1	S1	S2	60			
2	S2	S3		150		
3	S4	S5	39			
4	S5	S6		71		
5	S6	S3		20		
6	S3	STP				5
		Total	**99**	**241**	**0**	**5**
		SAY	**100**	**245**		**5**

STP By Pass Line

Sl. No.	Node	Node		150 mm dia pipe
1	STP	HUDA		15
		Total		**15**

Subject :- Sewage Water Hydraulic Design Chart

Sl. No.	Node No.		Total Water Demand in LPD (X=X1 + X2)	Sewage Generation @80% of Total Water Demand (LPD) (A)	Peak Flow in LPS (B = (A x 3) / (24x3600))	Peak Flow in (cum/s)			Size of Pipe (in MM)	Velocity (in Mtr./Sec.)	Design Discharge (Q h) (in Cum/Sec.)	Length of Line (in Mtr.)	Slope	Fall (in Mtr.)	Ground	
						Self	previous	Total (q)							Start	I
1	S1	S2	36000	28800	1.0000	0.001	0.000	0.001	200	0.76	0.012	60	190	0.316	0.15	
2	S2	S3	33000	26400	0.9167	0.001	0.001	0.002	250	0.81	0.020	150	225	0.667	0.15	
3	S4	S5	29000	23200	0.8056	0.001	0.000	0.001	200	0.76	0.012	39	190	0.205	0.15	
4	S5	S6	33000	26400	0.9167	0.001	0.001	0.002	250	0.81	0.020	71	225	0.316	0.15	

Sub-Work No. III	Storm Water Scheme Amount in Rs.
1. Providing and laying R.C.C. pipe drain class NP-2 With required number of manholes, Excavation, etc complete	
A. For depth upto 2 Mtr.	
a. 250 mm dia. 145m @ Rs. 1400/m	Rs. 2,03,000.00
b. 350 mm dia. 10m @ Rs. 2250/m	Rs. 22,500.00
B. **For depth above 2 Mtr.**	
a. 350 mm dia. 110m @ Rs. 2400/m	Rs. 2,64,000.00
b. 400 mm dia. 195m @ Rs. 2700/m	Rs. 5,26,500.00
2. Provision for Road gully L.S	Rs. 2,00,000.00
3. Providing , Laying , jointing and testing G.I pipe line including Fittings, valves, cost of excavation etc. complete in all respect. Sump Riser Pipe – G.I Pipe 100 mm, 40 M @ Rs. 3600/-	Rs. 1,44,000.00
3. Provision for rain water harvesting arrangement @ Rs. 200,000/- per acre (4.2 Acres)	Rs, 8,40,000.00
4. Provision for unforeseen items	Rs, 2,00,000.00
Total	Rs. 24,00,000.00
Add 3% for contingencies and PH charges	Rs. 72,000.00
	Rs. 24,72,000.00
Add 49% Departmental charges	Rs. 12,11,280.00
TOTAL	**Rs. 36,83,280.00**
(Total C/F to Summery of Sub Work III)	**Say Rs. 36.83 Lakhs**

STORM WATER DRAINAGE SYSTEM

Material statement of pipe

SL NO	NODE NO.		Pipe Length in Meter					
	FROM	TO	Depth upto 2 Mtr.			Depth above 2 Mtr.		
			250 mm Dia	350 mm Dia	400MM Dia	250 mm Dia	350 mm Dia	400MM Dia
1	D1	D2	62					
2	D2	D3					110	
3	D3	D4						121
4	D5	D6	32					
5	D6	D7	48					
6	D7	D8		10				
7	D8	D4						60
8	D4	Huda						10
		TOTAL	**142**	**10**	**0**	**0**	**110**	**191**
		SAY	**145**	**10**			**110**	**195**

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Subject :- Storm Water Hydraulic Design Chart

SL NO	NODE NO.		LENGTH	SELF AREA TO BE DRAINED IN	AREA IN HACTARES			DISCHARGE IN CUM/HR RAIN INTENSITY =6.25mm	DISCHARGE	Pipe Dia	SLOPE	VELOCITY	GROUND LEVEL AT START	GROUN LEVEL A END
	FROM	TO	MTR	SQM	SELF	BRANCH	TOTAL	M3/HR	IN M3/SEC	MM	1 IN	M/SEC	MTR	MTR
1	D1	D2	62.0	2953	0.30		0.30	18.456	0.0051	250	300	0.606	0.150	0.150
2	D2	D3	110.0	2743	0.27	0.30	0.57	35.600	0.0099	350	400	0.657	0.150	0.150
3	D3	D4	121.5	1502	0.15	0.57	0.72	44.988	0.0125	400	500	0.642	0.150	0.150
4	D5	D6	32.0	950	0.10		0.10	5.938	0.0016	250	300	0.606	0.150	0.150
5	D6	D7	48.0	1610	0.16	0.10	0.26	16.000	0.0044	250	300	0.606	0.150	0.150

Sub-Work No. IV **Road Work**

Width in Meter	Length in Meter	Metalled Portion	Area in Sq.m.
6	586.00	5.00	2930
9	-	5.00	-
24	204	14.00	2856
		TOTAL	5786
		Add 10% for curves	578.6
		Car Parking	1112.5
		TOTAL	**7477.1 Sq.m**
			SAY 7480.00 Sq.m

Amount in Rs.

1. Provision for levelling & earth filling as per site conditions. 4.2 acres @ Rs. 2,21,000/- Rs. 9,28,200.00

2. i. Soling coat 100 mm thick (63-45) mm gauge compacted to 75 mm thick WBM conforming to MOT specification (Table 400-6, Grading No. 2).
   ii) Wearing coat (Top coat) 100mm thick(53-22.4)mm gauge (with double layer) compacted to 75mm thick conforming to MOT specifications (Table 400-6, Grading No. 3)
   iii) 25 mm thick pre-mix carpet with seal coat 7480 @ Rs. 1125/S.qm. Rs. 84,15,000.00

3. Provision for kerbs & channels of CC 1:2.5:5, 586m+(204*2) m @ Rs. 1300 / m Rs. 12,92,200.00

4. Provision for making approach and pavement to building Rs. 5,00,000.00

5. Provision for carriage of material Rs. 1,40,000.00

TOTAL	**Rs. 1,12,75,400.00**
Add 3% contingency & P.E. charges	Rs. 3,38,262.00
	Rs. 1,16,13,662.00
Add 49% deptt. Charges	Rs. 56,90,694.38
	Rs. **1,73,05,356.38**

(Total C/F to Summery of Sub Work IV)

Say **Rs. 173.05 Lakhs**

Road Work

Sl. No.	Road Marked	6 M	24 M
1	A	35	
2	B	52	
3	C	4	
4	D	10	
5	E	18	
6	F	6	
7	G	31	
8	H	7	
9	I	45	
10	J	7	
11	K	47	
12	L	5	
13	M	53	
14	N	7	
15	O	28	
16	P	4	
17	Q	98	
18	R	5	
19	S	16	
20	T	57	
21	U	46	
22	V	5	
23	W		204
	TOTAL	586	204

Surface Parking Area:

No. of Cars on surface = 89

Area = 5 x 2.5 x 89 = 1112.5 Sq.m.

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Sub Work No. V — Street Lighting

Amount in Rs.

Providing external lighting as per standard specifications of HVPN 4.2 acres @ Rs. 2,50,000 / acres.	Rs.	10,50,000.00
Add 3% contingencies & P.E. charges	Rs.	31,500.00
		10,81,500.00
Add 49% Departmental charges		5,29,935.00
TOTAL	Rs.	**16,12,435.00**

(Total C/F to Summery of Sub Work V)

Say : 16.12 Lakhs

Sub Work No. VI — Plantation & Road Side trees
Amount in Rs.

1. Development of Lawn Areas:

a) Trenching of ordinary soil upto depth of 60 cm i/c removal & stacking of serviceable material & disposing by spreading and levelling within a lead of 50 M and making up the trench area for proper levels by filling with earth or earth mixed with manure before and after flooding trench with water i/c cost of imported earth and manure

b) Rough dressing of turfed area.

c) Grassing with "DOOB GRASS" i/c watering and maintenance of lawns for 30 days till the grass forms a thick lawn, free from weeds and fit for mowing in row 7.5 cm part in either direction.

4.2 acres organized green @ Rs. 50,000 / acres — Rs. 2,10,000.00

2. Providing and planting trees along
Two side of 24 m wide road @ 12m interval
Total Road length — 204 (24 Mtr. Wide Road)

No. of trees (2*204/12) = 34

Cost Details:

Excavation	= 50
Manure	= 50
Tree Plant	= 50
Tree Guard	= 450
TOTAL	Rs. 600

34 Trees @ Rs. 600/- each — Rs. 20,400.00
TOTAL — **Rs 2,30,400.00**

Add 3% contingencies & P.H. charges — Rs. 6,912.00

Total — Rs. 2,37,312.00
Add 49% departmental charges — Rs. 1,16,282.88

Total — Rs. **3,53,594.88**

(Total C/F to Summery of Sub Work VI)

Say — **Rs. 3.53 Lakhs**

Sub Work No. VII Maintenance Cost and Resurfacing of Road

Amount in Rs.

1.	Provision for maintenance charge for Water supply, sewerage, storm water, Drainage, roads, street light, Hort. Etc. Complete including operation & Establishment charges as per HUDA Norms after completion. Area 4.2 Acre @ Rs. 3,00,000/-	12,60, 000.00
2.	Provision for resurfacing of roads after First five year of maintenance. Total Road area 7480 Sqmt.@ Rs. 700/-	52,36,000.00
3.	Provision for resurfacing of roads after 10 Years of MTC. Total Road area 7480 Sqmt. @ Rs. 250/-	18,70,000.00
	Total	**83,66,000.00**
	Add 3% contingencies & P.E. charges	2,50,980.00
		86,16,980.00
	Add 49% deptt. Charges	4222320.20
	TOTAL	**128,39,300.20**

(Total C/F to Summery of Sub Work VII)

Say : 128.39 Lakhs