INTERNAL DEVELOPMENT DESIGN REPORT AND COST ESTIMATE FOR RESIDENTIAL GROUP HOUSING COLONY UNDER TRANSIT ORIENTED DEVELOPMENT (TOD) POLICY FOR MIX LAND USE COLONY (70% RESIDENTIAL+30%COMMERCIAL) MEASURING 4.85 ACRES (LICENSE No. 110 OF 2013 DATED 27.12.2013) IN SECTOR - 28, GURUGRAM.

#### REPORT

Gurugram town of Haryana State is situated on Delhi - Jaipur National Highway No.8 at a distance of 38 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. In order to relieve the growing pressure of population in National Capital of Delhi, it has been decided by the Haryana Government to establish various Sectors along with infrastructure facilities in Gurugram. This report is for Residential Group Housing colony under transit oriented development (TOD) policy for mix land use colony (70% Residential+30%Commercial) Measuring 4.85 Acres (License No. 110 of 2013 Dated 27.12.2013) in Sector - 28, Gurugram for SILVERGLADES INFRASTRUCTURE Pvt. Ltd.

## WATER SUPPLY SOURCE

At present the source of water supply in this area is borewell. It may be noted that HUDA is laying main water trunk lines in the vicinity of the development to supply potable water to the PROPOSED SITE and adjoining areas. Therefore, it is proposed to provide 3 Nos. of borewells as supplementary source to the HUDA water supply network As the underground water is potable, provision for three number of borewells have been made in this estimate. It has been proposed to construct underground tanks of capacity as per attached details, for domestic purpose. The underground tanks will be filled up from the proposed borewell or HUDA riser and the water will be pumped to the tanks proposed on the roof of the building. The building is being constructed for shopping areas, offices, auditorium, food courts, restaurants and residential units.

#### **DESIGN:**

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

### **PUMPING EQUIPMENTS**

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

# SEWERAGE SCHEME

This scheme is designed for sewer connecting to two nos, proposed STP within the complex. The sewerage system has been marked on the respective plans.

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MED consultant

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 75% of the domestic water supply shall find its way into the proposed sewer. Sewer lines shall be laid to a gradient maintaining minimum 2.46 ft/sec self cleaning velocity. Necessary provision for laying S.W pipe sewer line, construction of required number of manholes etc., have been made in the estimate.

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

## **STORM WATER DRAINAGE**

Storm water line from the proposed site will be connected to the existing storm drain.

# **SPECIFICATIONS**

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

#### Roads:

Cost of road has been taken in the estimate.

## **Street Lighting**

Provision for external lighting of proposed area 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:

The total cost of the scheme, including cost of all services works out to be Rs. 775 lacs (Rupees Seven Crores Seventy Five Lacs Only) including 3% contingencies @ 49% departmental charges.

#### For SILVERGLADES INFRASTRUCTURE Pvt.

**Authorized Signatory** 

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(MER consultant)

AND SHARMA Arch (Hons), M.C.A. CADE/18738, ANA/A-12796

# FINAL ABSTRACT OF COST

#### Amount in Rs. Lacs

	Rupees Seven crores seventy fire lacs only	y)
	SAY	775.00
	TOTAL	774.82
SUB WORK NO. VII	SERVICES & RESURFACING OF ROADS	78.58
SUB WORK NO. VI	PLANTATION & ROAD SIDE TREES	2.65
SUB WORK NO. V	STREET LIGHTING	7,45
SUB WORK NO. IV	ROAD WORK	57.90
SUB WORK NO. III	STORM WATER DRINAGE SYSTEM	39.31
SUB WORK NO. II	SEWERAGE	236.80
SUB WORK NO. I	WATER SUPPLY	352.13

# **AUTHORIZED SIGNATORY**

ANASO SHARWA 8. Arch (Hons), M.C.A. CAMSH8738, ABAVA-12790. (MEP consulant)

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SUB WORK No. 1

Water Supply

1.	Sub Head No. 01	Head Works	53,69,700.00
2.	Sub Head No. 02	Pumping Machinery	1,38,90,000.00
3.	Sub Head No. 03	Rising Main from HUDA	1,18,000.00
4.	Sub Head No. 04	Fire Piping	19,41,000.00
5.	Sub Head No. 05	Garden Irrigation Piping	16,26,000.00
		TOTAL	2,29,44,700.00
		Add 3% contingencies & PH Charges	6,88,341.00
ra marrimum and a toda		TOTAL Add 49% Departmental	2,36,33,041.00 1,15,80,190.09
		charges GRAND TOTAL	3,52,13,231.09
		SAY	Rs. 352.13 Lacs.

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-- TROUGH, M.C.A.
-- TROUGH AHAIA-12786

Sub Work No. I Sub Head No. 01		Water Supply Head Works Amount in Rs.	
1. Boring and installing 510 mm i/d borewell with reverse rotary rig Complete with pipe and strainer to a depth of about 120 metre 3 Nos. @ Rs. 3,50,000/- each.		1050000.00	
<ul> <li>2. Provision for rising mains, connecting borewells with water main and Bye-pass arrangements.</li> <li>a) 80 mm x 90 M @ Rs. 2100/- per RM</li> <li>b) 50 mm x 175 M @ Rs. 1000/- per RM</li> </ul>	Rs. Rs.	189000.00 175000.00	
<ul> <li>3. Provision of water supply risers to OHT from Pump room.</li> <li>a) 50 mm x 270 M @ Rs. 900/- per RM</li> <li>b) 65 mm x 240 M @ Rs. 1400/- per RM</li> <li>c) 80 mm x 375 M @ Rs. 1700/- per RM</li> <li>d) 100 mm x 335 M @ Rs. 2400/- per RM</li> </ul>		243000.00 336000.00 637500.00 804000.00	
<ul> <li>4. Providing and fixing valve:</li> <li>50 dia 1 Nos.@ Rs.3200/- per valve</li> <li>80 dia 2 Nos.@ Rs.3700/- per valve</li> <li>100 dia 3 Nos.@ Rs.5200/- per valve</li> </ul>	Rs. Rs. Rs.	3200.00 7400.00 15600.00	
5. Provision for carriage for materials L.S.	Rs.	25000.00	
6. Construction of U.G. tanks 1260 KL @ Rs.1400/KL	Rs.	1764000.00	
<ul> <li>7. Provision for Construction of tubewell chamber</li> <li>Size 1.50 x 1.50 x 1.50 M for housing</li> <li>Tubewell -3 nos. @ Rs. 40,000- each</li> </ul>	Rs.	120000.00	
TOTAL	Rs.	53,69,700.00	

(C.O. cost to final abstract of cost S.W. NO.1).







Sub Work No. 1 Sub Head No. 02

Water Supply **Pumping Machinery** 

		Amou	ınt in Rs.
1.	Providing and installing electricity driven submersible pumping Set capable of delivering about 14 KL / Hr. of water against a t Head of 98 M complete with motor and other accessories.		
	- 3 Nos. @ Rs. 50,000/-	Rs.	1,50,000.00
2.	Provision for diesel engine genset each for standby arrangement. For T.W. & Booster Pump complete with following capacities.		
	- 1 No. 100 KVA @ Rs. 8,50,000/-	Rs.	8,50,000.00
	Providing & installing pumping set of following capacity For fire protection mmercial block		
	- 180 lpm at 100m Head 2 Nos.@ Rs.1,00,000/- each [elect.]	Rs.	2,00,000.00
	- 2850 lpm at 100m Head 1 No.@ Rs. 5,00,000/-[diesel]	Rs.	5,50,000.00
	- 2850 lpm at 100m Head 2 Nos. @ Rs.3,30,000/- each[elect.]	Rs.	6,50,000.00
	- 700 lpm at 40m Head 1 Nos. @ Rs.1,10,000/- [elect.]	Rs.	1,10,000.00
	- 700 lpm at 40m Head 1 Nos. @ Rs.3,25,000/- [diesel]	Rs.	6,50,000.00
Re	sidential block		
	- 180 lpm at 160m Head 4 Nos.@ Rs.2,25,000/- each [elect.]	Rs.	9,00,000.00
	- 2850 lpm at 160m Head 2 Nos.@ Rs. 17,30,000/-[diesel]	Rs.	34,60,000.00
	- 2850 lpm at 160m Head 4 Nos.@ Rs.11,25,000/- each[elect.]		45,00,000.00
	- 1700 lpm at 40m Head 1 Nos. @ Rs.1,75,000/- [elect.]	Rs.	1,75,000.00
	- 1700 lpm at 40m Head 1 Nos. @ Rs.4,00,000/- [diesel]	Rs.	4,00,000.00
	Providing Boosting pumps:		
	- Domestic pump= Cap.150 LPM at 60M head, (3.5 HP)		
	2 Nos. @ Rs.95,000/-each	Rs.	1,90,000.00
	- Flushing pump= Cap.100 LPM at 60M head, (2.5 HP)		
	2 Nos. @ Rs.75,000/-each	Rs.	1,50,000.00
R	esidential block		
	- Domestic pump= Cap.150 LPM at 120M head, (7.0 HP)	-	4.05.000.00
	3 Nos. @ Rs.1,35,000/-each	Rs.	4,05,000.00
	- Flushing pump= Cap.150 LPM at 120M head, (7.0 HP) 2 Nos. @ Rs.1,35,000/-each	Rs.	2,70,000.00

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	TOTAL	Rs.	1,38,90,000.00
	Items etc. L/S	Rs.	50,000.00
9.	Provision for carriage of material and other unforeseen		,
8.	Provision for electric service connection including electrical Fittings for tube-well and boosting chamber etc.(lumpsum)	Rs.	60,000.00
	Chamber and boosting chamber.(lumpsum)	Rs.	60,000.00
7	Machinery (lumpsum) Provision for pipes, valves and specials inside the pump	Rs.	50,000.00
6.	Provision for making foundations and erection of Pumping	_	
5.	Provision for chlorination plant complete 2 nos. @ Rs.30,000/ Each	/- Rs.	60,000.00

(C.O. cost to final abstract of cost S.W. NO.1)

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1018, AUA/A-12706

MEP consultant)

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Sub-Work No. 1 Sub Head No. 03 Risin		Rising	Water Supply sing Main from HUDA		
			Amo	ount in Rs.	
	Providing, laying, jointing and testing CPVC pipe lines Including cost of excavation etc. complete in all respects.	•			
,	- 50 mm dia. 70 m @ Rs. 800/-M		Rs.	56000.00	
	Providing and fixing valves including cost of surface both And masonry chambers etc. complete in all respects.	xes			
	- 50mm i/d 2 Nos. @ Rs. 5000/- each		Rs.	10,000.00	
3.	Providing and fixing indicating plates for valves				
	and air valves 2 No.@ Rs. 1000/- each		Rs.	2000.00	
4.	Provision for carriage for materials and other				
	Unforeseen items (L/S)		Rs.	15,000.00	
	Provision for cutting of roads and making good to its original	ginal			
	<u> </u>	(L/S)	Rs.	15,000.00	
6.	Provision for making connection with HUDA line		Rs.	20,000.00	

Total

(C.O. cost to final abstract of cost S.W. NO.1).

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Sub-Work No. 1 Sub Head No. 04		r Supply Piping at in Rs.
<ol> <li>Providing, laying, jointing and testing MS pipe lines Including cost of excavation etc. complete in all respectives 150 mm dia. 585 m @ Rs. 2400/-M</li> <li>80 mm dia. 195 m @ Rs. 1400/-M</li> </ol>		14,04,000.00 2,73,000.00
<ul> <li>Providing and fixing valves including cost of surface And masonry chambers etc. complete in all respects.</li> <li>150mm i/d 4 Nos. @ Rs. 23000/- each</li> </ul>	boxes Rs.	92,000.00
3. Providing and fixing indicating plates for valve and air valves 4 Nos.@ Rs. 1000/- each	Rs.	4,000.00
4. External fire hydrants etc. 16 nos. @ Rs. 8,000/- each	Rs.	128,000.00
5. Provision for carriage for materials and other Unforeseen items(L/S)		
	Rs.	25,000.00
6. Provision for cutting of roads and making good to its Conditions. (L/S)	originai Rs.	15,000.00
Total	Rs.	19,41,000.00

(C.O. cost to final abstract of cost S.W. NO.1).

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Sub-Work No. 1 Sub Head No. 05 Water Supply Garden Irrigation Piping Amount in Rs.

1. Providing, laying, jointing and testing pipe lines conforming to IS:4955 Including cost of excavation etc. complete in all respects.

- 65 mm dia. 700 m @ Rs. 2100/-M

Rs. 14,70,000.00

- 25 mm dia. 20 m @ Rs.500/-M

Rs. 10,000.00

2. Providing and fixing ball valves including cost of surface boxes And masonry chambers etc. complete in all respects.

- 65 mm i/d 4 Nos. @ Rs. 15000/- each

Rs. 60,000.00

- 25 mm i/d 16 Nos. @ Rs. 3500/- each

Rs. 56,000.00

3 . Provision for carriage for materials and other Unforeseen items (L/S)

Rs. 15,000.00

4. Provision for cutting of roads and making good to its original Conditions.(L/S)

Rs. 15,000.00

Total

Rs. 16,26,000.00

(C.O. cost to final abstract of cost S.W. NO.1).

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Sub-V	Sub-Work No. II Sewerage Scheme Amount in Rs.		_
1.	Providing, jointing, cutting and testing SW pipe class "A" and lowering into trenches including cost of Excavation, bed concrete, cost of manholes etc.  Complete.  a) SW pipe 250 mm i/d  430M @ Rs. 3000/M	Rs.	12,90,000.00
2.	Provision for lighting and watching	Rs.	30000.00
3.	Provision for carriage of material (L.S)	Rs.	15000.00
<i>3</i> . 4.	Provision for making connection with HUDA sewer	Rs.	30000.00
5.	Sewage treatment plant		
•	- For Commercial - Capacity 100 KLD	Rs.	50,00,000.00
	- For Residential - Capacity 300 KLD	Rs.	90,00,000.00
6.	Provision for temporary disposal arrangement till such		, ,
	time HUDA services are made available	Rs.	65000.00
	TOTAL	Rs.	15430000.00
	Add 3% contingencies & PH charges	Rs	462900.00
	TOTAL	Rs.	15892900.00
	Add 49% Departmental charges, Price Escalation,		
	Unforeseen Admn.	Rs.	7787521.00
	Total	Rs.	23680421.00
•	Say	Rs.	236.80 Lacs

(C.O. to final abstract of cost).

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AMAND SHARMA B. Arch (Hons), M.C.A. 1788/28, AMANA 22/88

Sub-Work No. III		Storm Water Scheme Amount in Rs.		
1.	Providing, laying, RCC pipe class N manholes etc. complete in all respect a) 450 mm dia RCC pipe 15 M @ 10 b) 300 mm dia RCC pipe 125 M @ 20 c) 250 mm dia RCC pipe 245 M @ 30 c)	ts. 0000/M 4500/M	Rs. Rs. Rs.	1,50,000.00 5,62,500.00 7,35,000.00
2.	Provision for road gullies & connect	ing pipe L.S.	Rs.	4,50,000.00
3.	Provision for rainwater harvesting arrangements @ Rs. 1.0 lacs per acre for approx 4.85 acres.		Rs.	5,84,000.00
4.	Provision for timbering & shoring (L.S.)		Rs.	40,000.00
5.	Provision for lighting, watering and timbering drains & other unforeseen charges		Rs.	40,000.00
	Total		Rs.	25,61,500.00
	Add 3% contingencies & P.H. charg	ges	Rs.	76,845.00
	Total		Rs.	26,38,345.00
	Add 49% Departmental charges, Price Escalation, Unforeseen Admn.  TOTAL		Rs	12,92,789.05
			Rs.	39,31,134.05
(C.O.	cost to final abstract of cost).	Say	Rs.	39.31 Lacs

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Road work

Width in M.	Length in M.	Metalled Portion	Area	in Sq.M.
6.0	680	6.00	4080.	00
	Total Add 10 % for Curves Parking =30 x 5 x 2.5 = Grand Total		4080.00 408.00 375.00 <b>4863.00</b>	
		Say	4900	
			Amo	unt in Rs.
	or leveling earth and fil		Rs.	4,85,000.00
ii) Wearing mm gaua to MOT:	ost 100 mm thick (63-43 ed to to 75 mm thick Wispecifications (Table 40 Coat (Top Coat) 100 m ge compacted to 75 mm specifications (Table 40 hick premix carpet with M. @ Rs. 500/Sq.M.	BM conforming 10-6, Grading 2) am thick (53-22.4) a thick conforming 10-6, Grading 3)	Rs.	24,50,000.00
<ol> <li>Provision 1</li> <li>1650 M @</li> <li>Provision 1</li> <li>Provision 1</li> <li>Provision 1</li> </ol>	For kerbs and channels Rs. 350/M for making approach an for parking arrangemen for carriage of materials ontingencies and P.H. 6	s Total	Rs. Rs. Rs. Rs. Rs. Rs.	5,77,500.00 1,00,000.00 1,00,000.00 <u>60,000.00</u> 37,72,500.00 1,13,175.00 38,85,675.00
Add 49%	Departmental charges, l		Rs. <b>Rs.</b>	19,03,980.75 <b>57,89,655.75</b>
Carry Ov	er to Final Abstract o		Rs.	57.90 Lacs.

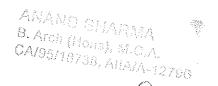
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AMAND SHAFWA , tob (Hons) M.C.A. : 3738, AIIA/A-12706 SE 11 66-14 //07

	······································		Street	Street Lighting	
1. P	Head No. 01 Providing street lighting on roads as per		Amor	<u>ınt in Rs</u> .	
	tandard specifications of HVPN approx 4.85 acres @100,000/acre		Rs.	4,85,000.00	
P	Add 3 % contingencies and P.H. Charge	s Total	Rs. Rs.	14,550.00 4,99,550.00	
	Add 49% Departmental charges, Price E Unforeseen Admn.	Scalation, Total	Rs. Rs.	2,44,779.50 7,44,329.50	
(	Carry Over to Final Abstract of cost	Say	Rs.	7.45 lacs	









Sub Work No. VI Sub-Head

Plantation & Road side Trees

# Total Landscape area - 2955 sqmt. Or 0.730 Acre Say 0.75 Acre

# Road side trees. (Amount in Rs)

#### 1. **Development of lawn areas**

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

Approx. 0.75 acres @ Rs. 100,000 per acre.

75,000.00 Rs.

Provision of trees, guards and planting trees along road at 2. 12 M intervals for 6m wide road

> Total Road Length = 750 MNo. of trees (750/12)x2 = 126

> > = 130.0 trees.Say

Cost Details.

Excavation = Rs. 30.00= Rs. 40.00Manure = Rs. 80.00Tree Plant = Rs.600.00Tree Guard = Rs.750.00Total

130 trees @ 750/tree

Rs. 97,500.00

Total Rs. 1,72,500.00

Add 3% contingencies Rs. 5,175.00

> Total Rs. 1,77,675.00

Add 49% Deptt. Charges, Price Escalation

Unforeseen, Admn.

Total

87,060,75 Rs.

Rs. 2,64,735.75 2.65 lacs SAY Rs.

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(C.O. to final abstract of cost)

Sub Work No. VII Sub-Head

# Services & Resurfacing of Roads

<b>Sl. No.</b> 1.0	Description Provision of MTC carges for W/S, SWD & Sewarage, Roads, Street Lighting, Horticulture etc.	Unit	Qty	Rate in Rs.	Amount in Rs.
a)	Complete in all aspect, including operational and establishment charges as per HUDA norms for 10 years completion.	Acre	4.85	500000.00	24,25,000.00
2.0	Provision of resurfacing of roads MTC one layer of 100 mm thick WBM compacted to 75 mm thick with 25mm thick premix carpet with seal coat.				
a)	Resurfacing of road after 5 yerar of MTC	Sq.m	4900	300.00	14,70,000.00
b)	Resurfacing of road after 5 yerar of MTC	Sq.m	4900	250.00	12,25,000.00
	Sub Total				51,20,000.00
	Add 3% contingencies & PH charges				1,53,600.00
	Sub Total				52,73,600.00
	Add 49% Departmental charges, Price Escalation, Unforeseen Admn.				25,84,064.00
	z xannı.			Total Say	78,57,664.00 78.58 lacs

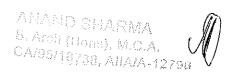
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B. Arch (Hons), M.C.A. ENGINEERING SERVICES CONSULTANTS 95/18738, AHA/A-12796

SE-14- OF 14 MEP CONDULTANT

TYPE OF ALCOHOLING   POTABLE   POT	ŒC	SUBJECT, POPULATION & WATER DEMAND CALCUL	ALCULATIONS						j
COMMERCIAL BLOCK         POTABLE         FLUSHING           Ground floor-Shops         Mercantile         3718.00         870         25         20         2175           Total population         Mercantile         783         5         10         3/15           Visitors @ 90%         Mercantile         783         5         10         3/15           First floor-Shops         Mercantile         781         25         20         2175           Staffs @ 10%         Mercantile         781         25         20         1/305           Staffs @ 10%         Mercantile         781         25         20         1/305           Staffs @ 10%         Mercantile         781         25         20         1/305           Second floor-Shops         Mercantile         3000,00         501         25         20         1/305           Second floor-Shops         Mercantile         3000,00         501         25         20         1/305           Second floor-Staturant         Assembly         4509         5         10         2.255           Second floor-Restaurant         Assembly         1150.00         501         4773         55         15         15/360 <t< th=""><th>s. NO.</th><th>UNITNÀME</th><th>TYPE OF OCCUPANCY</th><th>TOTAL BUILT UP AREA IN SQ. M. (DATA GIVEN BY ARCH.)</th><th>POPULATION</th><th>WATER REQU PER (LE</th><th>IREMENT PER SON CD)</th><th>WATER DEMAND (LPD)</th><th>MATER DEMAND (LPD)</th></t<>	s. NO.	UNITNÀME	TYPE OF OCCUPANCY	TOTAL BUILT UP AREA IN SQ. M. (DATA GIVEN BY ARCH.)	POPULATION	WATER REQU PER (LE	IREMENT PER SON CD)	WATER DEMAND (LPD)	MATER DEMAND (LPD)
COMMERCIAL BLOCK         Ground floor-Shops         Mercantile         \$218.00         870         \$25         20         2,175           Total population         Total population         Mercantile         \$73         \$25         20         2,175           Visitors @ 90%         First floor-Shops         Mercantile         4560.00         761         25         20         1,978           First floor-Shops         Mercantile         4560.00         761         25         20         1,978           Statis @ 10%         Mercantile         664.9         5         10         3,425           Statis @ 10%         Mercantile         3000.00         501         25         20         1,293           Visitors @ 90%         Mercantile         3000.00         501         25         20         1,233           Visitors @ 10%         Visitors @ 10%         4560.00         501         25         20         1,233           Visitors @ 10%         Visitors @ 10%         4560.00         501         25         10         2,235           Visitors @ 10%         Visitors @ 10%         Visitors @ 10%         4560.00         501         25         10         1,233           Visitors @ 10%         Titud						POTABLE	HUSHING		
Cound floor-Shops         Mercantile         870         670         2175         P           Total population         5218.00         870         25         20         2175         175           Steffs (910%         Mercantile         783         5         10         3915         175           First floor-Shops         Mercantile         456.00         761         25         20         1,703           Staffs (910%         Mercantile         76.1         25         20         1,703         1,703           Second floor-Shops         Mercantile         3000.00         501         25         20         1,703           Second floor-Shops         Mercantile         3000.00         501         25         20         1,703           Second floor-Shops         Mercantile         3000.00         501         25         20         1,753           Second floor-Stops         Assembly         Assembly         360.1         25         20         1,253           Total population         Assembly         1150.00         639         5         10         2,4602           Total population         Assembly         1150.00         639         5         15         1,528 <td>1</td> <td>COMMERCIAL BLOCK</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	1	COMMERCIAL BLOCK							
Total population         \$218.00         \$70         \$25         \$20         \$2175	a)	Ground floor-Shops	Mercantile						
Staffs @ 10%         87         25         20         2175           Visitors @ 90%         Wetcortile         783         5         10         3,915           First floor-Shops         Mercantile         4560.00         761         25         20         1,903           Total population         Second floor-Shops         Mercantile         3000.00         501         25         20         1,903           Second floor-Shops         Mercantile         3000.00         501         25         20         1,253           Visitors @ 90%         Second floor-Stops         Mercantile         3000.00         501         25         20         1,253           Staffs @ 10%         Second floor-Restaurant         Assembly         501         25         20         1,253           Second floor-Restaurant         Assembly         900.00         501         25         20         1,253           Total population         Assembly         1150.00         639         5         15         19,289           Total population         Assembly         1150.00         639         5         15         19,289           Third floor-Restaurant         Assembly         612.00         341         55		Total population		5218.00	820				
Visitors @ 90%         Mercantile         783         5         10         3,915           First floor-Shops         Mercantile         456.00         76.1         25         10         3,915           Steffe 8 10%         Mercantile         76.1         25         20         1,903         1,903           Steffe 8 10%         Mercantile         76.1         25         20         1,903         425           Second floor-Shops         Mercantile         300.00         50.1         25         10         3,425           Steffe 90%         Mercantile         300.00         50.1         25         20         1,523         1,225           Steff 800%         Mercantile         300.00         50.1         25         10         2,255         1,253         1,		Staffs @ 10%			87	22	20	2,175	
First floor-Shops         Mercartile         456.00         761         25         20         1,908           Sedfs @ 10%         Sedfs @ 10%         76.1         25         20         1,908         1,908           Second floor-Shops         Mercartile         664.9         50.1         25         10         3,425           Second floor-Shops         Mercartile         3000.00         50.1         25         20         1,535           Second floor-Shops         Mercartile         3000.00         50.1         25         20         1,253           Staffs @ 10%         Second floor-Residuant         Assembly         50.0         50.1         25         10         2,255           Second floor-Residuant         Assembly         900.00         50.1         55         15         19,289           Inotal population         Assembly         1130.00         639         5         15         24,602           Inotal population         Assembly         612.00         34.1         25         10         24,602           Inotal population         Assembly         612.00         34.1         25         10         5,968           Inotal population         Assembly         612.00         3		Visitors @ 90%			783	5	10	3,915	
Total population         456.00         761         25         20         1,903           Secind floor-Shops         Mercantile         76.1         25         20         1,903           Second floor-Shops         Mercantile         3000.00         50.1         25         10         3,425           Total population         Second floor-Restaurant         Assembly         450.9         5         10         2,255         10         2,255         1,253         1,2450         1,2450         1,246	2	First floor-Shops	Mercantile						
Staffs @ 10%         76.1         25         20         1,903           Visitors @ 90%         Mercantile         684.9         5         10         3,425           Second floor-Shops         Mercantile         300.00         501         25         10         3,425           Staffs @ 10%         501         25         20         1,233         1,233         1,233           Visitors @ 90%         500         501         25         20         1,235         1,233           Visitors @ 10%         500         501         25         10         2,235         2,235           Visitors @ 10%         500         501         501         2,235         2,235         2,235           Second floor-Restaurant         Assembly         1150,00         501         55         15         19,289           Intrid floor-Restaurant         Assembly         447.3         55         15         19,289           Diversity @ 70%         70%         447.3         55         15         24,602           Intrid floor-Road courts         Assembly         612.00         341         25         10         5,688           Fourth floor-Auditorium         Assembly         Assembly         <		Total population		4560.00	761				
Visitors @ 90%         Mercantile         684.9         5         10         3,425           Second floor-Shops         Mercantile         3000.00         501         25         10         1,253           Staffs @ 10%         Salfs @ 10%         50.1         25         20         1,253         1,253           Visitors @ 90%         Assembly         900.00         501         6         10         2,255         1           Second floor-Restaurant         Assembly         150.00         501         6         15         19,289         1         1,253         1		Staffs@10%			76.1	25	20	1,903	
Second floor-Shops         Mercantile         3000.00         501         A		Visitors @ 90%			684.9	5	10	3,425	
Total population         500,000         501         25         20         1,253           Staffs @ 10%         450,0         50.1         25         20         1,253           Visitors @ 90%         Second floor-Restaurant         Assembly         900,00         501         0         2,255           Total population         Total population         Assembly         1150,00         639         15         19,289           Total population         Assembly         1150,00         639         15         24,602           Total population         Assembly         612,00         341         15         24,602           Total population         Assembly         612,00         341         15         24,602           Total population         Assembly         612,00         341         15         24,602           Diversity @ 70%         Assembly         612,00         341         10         5,968           Fourth floor-Auditorium         Assembly         Assembly         25         5         10         5,968           Extra filt floor to 9th floor-offices         Business         4170,00         418         25         0         10,450	0	Second floor-Shops	Mercantile						
Staffs @ 10%         50.1         25         20         1,253           Visitors @ 90%         Assembly         Assembly         450.9         5         10         2,255         20           Second floor-Restaurant         Assembly         900.00         501         5         10         2,255         10           Third floor-Restaurant         Assembly         1150.00         639         5         15         19,289           Total population         Assembly         612.00         341         5         15         24,602           Total population         Assembly         612.00         341         5         15         24,602           Total population         Assembly         612.00         341         5         10         5,968           Fifth floor offices         Business         Business         4170.00         418         25         10         2910           Total population         Assembly		Total population		3000.00	501				
Second floor-Restaurant         Assembly         501         5         10         2,255         10         2,210         2,255         10         2,210         2,	Γ	Staffs @ 10%			50.1	25	20	1;253	
Second filoor-Restaurant         Assembly         501         55         15         19,289           Total population         Assembly         447.3         55         15         19,289           Third floor-Restaurant         Assembly         1150.00         639         7         15         14,08           Total population         Diversity @ 70%         Assembly         447.3         55         15         24,602           Total population         Assembly         612.00         341         2         10         5,968           Pourth floor-Auditorium         Assembly         612.00         38.7         25         10         5,968           Fourth floor-Auditorium         Assembly         Esc. seats         582         5         10         2,910           Fifth floor to 9th floor-offices         Business         Esc. seats         5         10         2,910         10,450           Total population         Total population         4170.00         418         25         10         10,450         10,450	Γ	Visitors @ 90%			450.9	5	10	2,255	
Assembly         501         55         15         19,289           Assembly         447.3         55         15         19,289           Assembly         447.3         55         15         24,602           Assembly         612.00         341         55         15         24,602           Assembly         612.00         341         55         10         5,968           Assembly         238.7         25         10         5,968           Business         4170.00         418         25         10         2,910	ਓ	Second floor-Restaurant	Assembly						
Assembly         447.3         55         15         19,289           Assembly         447.3         55         15         24,602           Assembly         612.00         341         5         16         24,602           Assembly         612.00         341         5         10         5,968           Assembly         Assembly         582         5         10         5,968           Business         4170.00         418         25         10         2,910	Γ	Total population		00:006	501				
Assembly         639         639         639         24,602           Assembly         447.3         55         15         24,602           Assembly         612.00         341         0         0         0           Assembly         4ssembly         238.7         25         10         5,968         0           Assembly         582         5         10         2,910         0         0         0           Business         4170.00         418         25         20         10,450         0	T	Diversity @ 70%			350.7	55	15	19,289	
Assembly         612.00         639         55         15         24,602           Assembly         612.00         341         23         10         5,968           Assembly         238.7         25         10         5,968         10           Business         4170.00         418         25         10         2,910	(e)	Third floor-Restaurant	Assembly						
Assembly         447.3         55         15         24,602           Assembly         612.00         341         25         10         5,968           Assembly         238.7         25         10         5,968         2           Business         4170.00         418         25         10         2,910		Total population		1150.00	639				
Assembly         612.00         341         6         7         6         7         6         7         6         7		Diversity @ 70%			447.3	55	15	24,602	
612.00         341         612.00         341         5968         65.968         65.968         65.968         65.968         65.910		Third floor-Food courts	Assembly						
Assembly         238.7         25         10         5,968           Business         582         5         10         2,910           4170.00         418         25         20         10,450		Total population		612.00	341				
Assembly         582         5         10         2,910           Business         4170.00         418         25         20         10,450	1	Diversity @ 70%			238.7	25	10	5,968	
Business         582         5         10         2,910           4170.00         418         25         20         10,450	ଘ	Fourth floor-Auditorium	Assembly						
Business         4170.00         418         25         20         10,450		582 seats			582	3	10	2,910	
4170.00 418 25 20 10,450	T	Fifth floor to 9th floor-offices	Business						
	<u> </u>	Total population		4170.00	418	25	20	10,450	





		28,080		28,080			43,680		1,680		8,280	109,800	115
		56,160		56,160			87,360		3,360		16,560	219,600	230
		09		09			09		09		45		
		120		120			120		120		06		
		468		468			728		28		184		
												DEMAND	6
	Residential		Residential		Residential					Residential		 TOTAL WATER DEMAND	SAY IN (M3)
RESIDENTIAL BLOCK	3 BHK BLOCK-S+26 (TOWER-1)	78 Dwelling units @ 6 persons/DU	3 BHK BLOCK-S+26 (TOWER-2)	78 Dwelling units @ 6 persons/DU	4 BHK BLOCK-S+28	1st floor to 26th floor	104 Dwelling units @ 7 persons/DU	27th floor to 28th floor- Pent house	4 Dwelling units @ 7 persons/DU	EWS	46 Dwelling units @ 4 persons/DU		
II	(e)		ρĵ		O	j)		ίij		Θ			





(a)	Yield	14	KL/Hr
<u>a</u>	Working Hours per Day	16	Hours per Day
<b>②</b>	Total water demand = Commercial + Residential=80+230=310	310	m³/day
ਿਦ	Number of Tube wells required.	1.38	
	(Water Demand/Discharge/Hours working	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
(e)	Add 5% as standby	0.07	
	Total	1.45	Nos.
	Say	3.00	Nos.
	(Water to the proposed development is to be supplied by HUDA and it is proposed to install the tube-wells for augmentation/standby purposes)	dby purposes).	
	PUMPING MACHINERY FOR TUBEWELLS		
(a)	Gross Working Head	08	Meters
æ	Average fall in S.L	2	Meters
ত	Depression Head	9	Meters
<b>(</b> p)	Friction loss in main	10	Meters
	Total	86	Meters
Ì			
(e)	Discharge	15000	LPH
(£)	Horse Power	9.0741	HP
	$HP = (15000 \times 98 \times 1)/(60 \times 60 \times 75 \times 0.6)$		
	Say	10.00	HP
8.3	IV. UNDER GROUND		
(a)	Total water demand (Daily for Domestic purposes)-Commercial=80m3 + Residential=230m3 = 310m3	310	m³/day
(p)	Proposed underground tanks for domestic use. (One day Storage)	310	m
(5)	Minimum Separate Static Storage for fire fighting purpose provided - Commercial=450m3 + Residential=500m3 = 950m3	950	m
	TOTAL	1260	m <sup>3</sup>
			-





1)	I) COMMERCIAL			
(a)	Daily Domestic Water Demand		80	m³/day
(q)	Discharge per hour @ 12 hr. pumping / day		6.67	m³/Hour
			120.0	LPM
(c)	No. of Working pump	-	1.0	
(q)	Proposed Pump discharge (Working)		120.00	LPM
		Say	150.00	LPM
	Transformations and the second			
	GIOSS WOLKING ATEAU			
(a)	Suction lift - positive suction		9	Meters
<b>a</b>	Frictional Loss in Mains & Specials		10	Meters
(၁)	Max Clear Head required		42	Meters
	Total		58	Meters
		Say	09	Meters
(g)	H.P. of each pump required		3.33	HP
	Pump H.P.			
	Say		3.50	Ή
П)	RESIDENTIAL			
(a)	Daily Domestic Water Demand		230	m³/day
(g)	Discharge per hour @ 12 hr. pumping/day		19.17	m³/Hour
	Say		320.0	LPM
(c)	No. of Working pump		2.0	
(d)	Proposed Pump discharge (Working)		160.00	LPM
		Say	150.00	LPM
	Gross Working Head			
(a)	Suction lift – positive suction		9	Meters
æ	Frictional Loss in Mains & Specials		10	Meters
(0)	Max Clear Head required		101.5	Meters
	Total		117.5	Meters
		Say	120	Meters
(g)	H.P. of each pump required		6.67	HP
	Pump H.P.			
	Const		1	CI.





(e)         Dialy Flushing Water Decembed         \$ 50         m²/day           (e)         Dialy Flushing Water Decembed         \$ 4.17         m²/day           (e)         No. of Working pump         \$ 4.17         m²/day           (d)         Proposed Pump disclarge (Working)         \$ 5.9         1.0M           (e)         Succion lift - positive saction         \$ 6.9         Meters           (f)         Excitonal Loss in Mains & Specials         \$ 6         Meters           (g)         Mac Clear Head required         \$ 6         Meters           (g)         Mac Clear Head required         \$ 6         Meters           (g)         Mac Clear Head required         \$ 8         Meters           (h)         Hit.P. of each pump required (Fump H.P.)         \$ 5.2         HP           (h)         Hit.P. of each pump required (Fump H.P.)         \$ 5.2         HP           (h)         Hit.P. of each pump required (Fump H.P.)         \$ 5.2         HP           (h)         Disappeach Pump discharge (Working)         \$ 1.00         Meters           (h)         Disappeach Pump discharge (Working)         \$ 1.00         Meters           (c)         No. of Working Head         \$ 1.00         Meters           (e)	V-(B)	BOOSTING MACHINERY (Flushing Supply Pumps from STP) COMMERCIAL BLOCK			
Discharge per hour @ 12 hr pumping/ day   417   6944   6	(a)	Daily Flushing Water Demand		50	m³/day
No. of Working pump   69.44     Proposed Pump discharge (Working)   69.44     Cooss Working Head   60.044     Suction III positive suction   7 case   60.044     Frictional Loss in Mains & Specials   7 case	( <b>4</b> )	Discharge per hour @ 12 hr. pumping/day		4.17	m³/Hour
No of Working pump   1				69.44	LPM
Ptroposed Furne discharge (Working)   6944     Circos Working Head     Circos Working Head     Circos Working Head     Max Clear Head required (Pump HLP)   2.22     RESIDENTIAL BLOCK   2.23   2.25     RESIDENTIAL BLOCK   2.24   2.25     Daily Hushing Water Demand   2.25   2.25     Daily Hushing Water Demand   2.25   2.25     Discharge per hour @ 12 hr. pumping/day   2.25   2.25     Discharge per hour @ 12 hr. pumping	(c)	No. of Working pump		Ŧ	
Gross Working Head         Say         100           Suction lift - positive section         6         42           Max Clear Head required (Pump H.P.)         100         42           Max Clear Head required (Pump H.P.)         5xy         60           Daily Fluxibity Water Demand         115         22           Daily Fluxibity Water Demand         115         115           Discharge per hour © 12 hr. pumping/day         116         115           Proposed Fump discharge (Working)         116         115           Proposed Fump discharge (Working)         116         115           Proposed Fump discharge (Working)         116         116           Max Clear Head         5xyction lift - positive section         5xy         150           Frictional Loss in Mains & Specials         Max Clear Head required         10th 117         10th 117           Max Clear Head required         10th 117         10th 117         10th 117           Max Clear Head required         10th 117         10th 117         10th 117           Max Clear Head required         10th 117         10th 117         10th 117           Max Clear Head required         10th 117         10th 117         10th 117	(p)	Proposed Pump discharge (Working)		69.44	LPM
Gross Working Head         6           Suction lift - positive saction         6           Frictional Loss in Mains & Specials         10           Max Clear Head required         7           H.P. of each pump required (Fump H.P.)         58           B.B. DENTIAL BLOCK         58           Dally Flushing Water Demand         115           Discharge per hour © 12 hr, pumping / day         115           No. of Working pump         115           Proposed Fump discharge (Working)         159,72           No. of Working pump         159,72           No. of Working pump         150           Restormed and discharge (Working)         59           Suction lift - positive suction         6           Ericktonal Loss in Mains & Specials         100           Max Clear Head required         100.5           H.P. of each pump required (Pump H.P.)         6,67           H.P. of each pump required (Pump H.P.)         5ay			Say	100	LPM
Suection lift - positive suction   6   2   2   2   2   2   3   3   3   3   3					
Suction lift – positive suction         6           Max Clear Head required         42           Max Clear Head required (Pump H.P.)         589           H.P. of each pump required (Pump H.P.)         2.22           RESIDENTIAL BLOCK         589         2.5           Daily Flushing Water Demand         115           Daily Flushing Water Demand         115           Discharge per hour @ 12 hr. pumping/day         9.53           No. of Working pump         15           Proposed Pump discharge (Working)         15           Suction lift – positive suction         5sp           Suction lift – positive suction         6           Suction lift – positive suction         6           Max Clear Head required         10tal           Max Clear Head required         10tal           H.P. of each pump required (Pump H.P.)         6.67           Say         7.0		Gross Working Head			
Suction lift - positive suction         6           Nav Clear Head required         10           Max Clear Head required         7 total           H.P. of each pump required (Pump H.P.)         Sap           H.P. of each pump required (Pump H.P.)         5ap           RESIDENTIAL BLOCK         5ap           Daily Flushing Water Chemand         115           Discharge per hour © 12 hr. pumping / day         115           Proposed Pump discharge (Working)         1153/72           Proposed Pump discharge (Working)         5ap           Frictional Loss in Mains & Specials         100           Max Clear Head required         1015           Max Clear Head required (Pump H.P.)         667           H.P. of each pump required (Pump H.P.)         667					
Frictional Loss in Mains & Specials         10           Max Clear Head required         42           H.P. of each pump required (Pump H.P.)         Say         60           RESIDENTIAL BLOCK         \$2.22         \$2.22           Dealty Flushing Water Demand         115         \$2.22           Discharge per hour @ 12 hr. pumping/day         \$1.35         \$2.55           No. of Working pump         \$1.50         \$2.55           Proposed Pump discharge (Working)         \$2.50         \$2.55           Gross Working Head         \$2.50         \$2.50           Exciton lift - positive saction         \$2.50         \$2.50           Max Clear Head required         \$2.50         \$2.50           Max Clear Head required (Pump H.P.)         \$6.77         \$2.50           H.P. of each pump required (Pump H.P.)         \$6.75         \$2.50	(e)	Suction lift – positive suction		9	Meters
Max Clear Head required         Total         42           H.P. of each pump required (Pump H.P.)         Say         60           H.P. of each pump required (Pump H.P.)         Say         2.22           RESIDENTIAL BLOCK         Say         2.5           Daily Flushing Water Demand         115         9.58           Discharge per hour © 12 hr, pumping/day         9.58         155           No. of Working pump         I Share         1.59.72           No. of Working pump         Say         150           Proposed Pump discharge (Working)         Say         150           Suction lift - positive suction         Say         100           Frictional Loss in Mains & Specials         101         101.5           Max Clear Head required         Total         117.5           Max Clear Head required         Total         117.5           Hi.P. of each pump required (Pump H.P.)         667           Right of each pump required (Pump H.P.)         687	<b>(£)</b>	Frictional Loss in Mains & Specials		10	Meters
Total         58         100 <td>(g)</td> <td>Max Clear Head required</td> <td></td> <td>42</td> <td>Meters</td>	(g)	Max Clear Head required		42	Meters
Say         60           H.P. of each pump required (Pump H.P.)         2.22           RESIDENTIAL BLOCK         2.23           RESIDENTIAL BLOCK         115           Daily Flushing Water Demand         115           Discharge per hour © 12 hr. pumping / day         9.58           No. of Working pump         115           Proposed Pump discharge (Working)         119.72           Proposed Pump discharge (Working)         119.72           Suction lift - positive suction         5ay         150           Frictional Loss in Mains & Specials         101         66           Max Clear Head required (Pump H.P.)         667         1775           H.P. of each pump required (Pump H.P.)         667         170           Say         7.0         187		TO	otal	28	Meters
H.P. of each pump required (Pump H.P.)         \$22           RESIDENTIAL BLOCK         \$15           Daily Flushing Water Demand         \$15           Discharge per hour © 12 hr. pumping/day         \$159.72           No. of Working pump         \$159.72           Proposed Pump discharge (Working)         \$159.72           Proposed Pump discharge (Working)         \$159.72           Socious Working Head         \$150.72           Suction lift- positive suction         \$67           Max Clear Head required         \$10.5           Max Clear Head required (Pump H.P.)         \$22           H.P. of each pump required (Pump H.P.)         \$22           H.P. of each pump required (Pump H.P.)         \$25           H.P. of sach pump required (Pump H.P.)         \$25		S	Say	96	Meters
RESIDENTIAL BLOCK   115   11	(h)	H.P. of each pump required (Pump H.P.)		2.22	HIP
RESIDENTIAL BLOCK         115           Daily Fushing Water Demand         115           Discharge per hour @ 12 hr. pumping / day         115           Discharge per hour @ 12 hr. pumping / day         115           No. of Working pump         11           Proposed Pump discharge (Working)         159,72           Proposed Pump discharge (Working)         5sq           Gross Working Head         150           Gross Working Head         6           Suction lift - positive suction         6           Exittional Loss in Mains & Specials         101.5           Max Clear Head required         101.5           Max Clear Head required (Pump H.P.)         667           H.P. of each pump required (Pump H.P.)         667           H.P. of each pump required (Pump H.P.)         667					
RESIDENTIAL BIOCK           Daily Flushing Water Demand         115           Daily Flushing Water Demand         9.58           Discharge per hour @ 12 hr. pumping / day         159.72           No. of Working pump         159.72           Proposed Pump discharge (Working)         5say         150           Gross Working Head         6         10           Friction lift - positive suction         6         10           Frictional Loss in Mains & Specials         101.5         25ay         120           Max Clear Head required         104.5         25ay         120           H.P. of each pump required (Pump H.P.)         6.67         6		S	Say	2.5	HP
Daily Flushing Water Demand       115         Doily Flushing Water Demand       158.72         Discharge per hour @ 12 hr. pumping / day       189.72         No. of Working pump       159.72         Proposed Pump discharge (Working)       5ay       150         Gross Working Head       6         Suction lift - positive suction       6       10         Frictional Loss in Mains & Specials       101       101.5         Max Clear Head required       107.5       107.5         Max Clear Head required (Pump H.P.)       6.67       667         H.P. of each pump required (Pump H.P.)       8ay       7.0	(11)	RESIDENTIAL BLOCK			
Discharge per hour ® 12 hr. pumping / day       9.58         No. of Working pump       159.72         Proposed Pump discharge (Working)       28ay       159.72         Broposed Pump discharge (Working)       28ay       150         Coss Working Head       150       160         Suction lift - positive suction       6       10         Frictional Loss in Mains & Specials       100       101.5         Max Clear Head required       107.5       107.5         Max Clear Head required (Pump H.P.)       6.67       20         H.P. of each pump required (Pump H.P.)       25ay       7.0	(a)	Daily Flushing Water Demand		115	m³/day
No. of Working pump       159.72         Proposed Pump discharge (Working)       1         Gross Working Head       5say       150.72         Gutton lift - positive suction       6       10         Erictional Loss in Mains & Specials       10       10         Max Clear Head required       70.15       2         Max Clear Head required (Pump H.P.)       6.67       2         H.P. of each pump required (Pump H.P.)       5say       7.0       2	(p)	Discharge per hour @ 12 hr. pumping / day		9.58	m³/Hour
No. of Working pump       IO. of Working pump       1				159.72	LPM
Proposed Pump discharge (Working)       159.72       150         Gross Working Head       Frictional Loss in Mains & Specials       6 Section lift - positive suction         Frictional Loss in Mains & Specials       10       6         Max Clear Head required       101.5       101.5         Max Clear Head required (Pump H.P.)       5ap       120         H.P. of each pump required (Pump H.P.)       6.67       6	(c)	No. of Working pump		1	
Say       150         Gross Working Head         Suction lift - positive suction         Erictional Loss in Mains & Specials       6         Max Clear Head required       101.5         Max Clear Head required       101.5         H.P. of each pump required (Pump H.P.)       6.67         H.P. of each pump required (Pump H.P.)       5ay	(p)	Proposed Pump discharge (Working)		159.72	LPM
Gross Working Head       Gross Working Head         Suction lift - positive suction       6         Frictional Loss in Mains & Specials       10         Max Clear Head required       101.5         Max Clear Head required       101.5         H.P. of each pump required (Pump H.P.)       6.67         H.P. of each pump required (Pump H.P.)       5ay       7.0			Say	150	LPM
Gross Working Head         6           Suction lift - positive suction         6           Frictional Loss in Mains & Specials         10           Max Clear Head required         101.5           Max Clear Head required         101.5           H.P. of each pump required (Pump H.P.)         5ay         120           H.P. of each pump required (Pump H.P.)         5ay         7.0					
Suction lift – positive suction       6         Frictional Loss in Mains & Specials       10         Max Clear Head required       101.5         Max Clear Head required       107.5         H.P. of each pump required (Pump H.P.)       5ay       120         H.P. of each pump required (Pump H.P.)       6.67		Gross Working Head			
Frictional Loss in Mains & Specials     10       Max Clear Head required     101.5       Max Clear Head required     101.5       H.P. of each pump required (Pump H.P.)     5ay     120       H.P. of each pump required (Pump H.P.)     6.67	(3)	Surfice 1st - norther curities		4	Motoro
Max Clear Head required       Total       101.5         Total       117.5         Say       120         H.P. of each pump required (Pump H.P.)       6.67         Say       7.0	(€	Frictional Loss in Mains & Snerials	-	101	Meters
H.P. of each pump required (Pump H.P.)  Say 120  6.67  Say 7.0	(6)	Max Clear Head required	+	101.5	Meters
H.P. of each pump required (Pump H.P.)  6.67  8ay 120  6.67  8ay 7.0			ital	117.5	Meters
H.P. of each pump required (Pump H.P.)       6.67             Say       7.0		35.	Say	120	Meters
7.0	(F)	H.P. of each pump required (Pump H.P.)		29'9	HP
7.0					
		\$6	say	7.0	HP





(e)			ë		_			
(a)	Discharge in Inm		MANAGE	Tockev	Fire	Sprinkler Wat	Water	Water curtain
(e)	Discharge in Inm					<b>,</b>	curtain	(Diesel)
1	הופרוומו לבי זהו זלמווים למווים ל		2850	180	2850	2850	700	200
à	Head in meters		100	100	100	100	40	40
Ç	HP			10	120	120	10	
ਚ	Quantity in Nos.		1	2	1	Ī	1	17
	***************************************							
	RESIDENTIAL BLOCK		Diesel	Jockey	Fire	Sprinkler	Water curtain	Water curtain (Diesel)
a)	Discharge in Ipm		2850	180	2850	2850	1700	1700
(q	Head in meters		160	160	160	160	40	40
<u>ن</u>	HP			15	150	150	25	
9	Quantity in Nos.		2	4	2	2	1	1
VI.	GENERATING SETS							
1	HP of Tube well pump						10.00	
			• • •					
7	HP of Domestic Pump							
æ	Commercial block						3.50	
(q	Residential block						7.00	
3	HP of Flushing Pump							
a)	Commercial block						2.50	
િ	Residential block						00'2	
4	HP of Jockey Pump							
(e)	Commercial block		-				20.00	
(q	Residential block	ALL CANADAMAN, TO PARAMANET TO THE PARAMANET AND		X:			90.09	
1			Total				110.00	HP
			in KW		AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA		83.60	KW
			in KVA				104.50	KVA





# SUBJECT; WATER SUPPLY PIPES SHEET

		50mm dia	65mm dia	80mm dia	100mm dia
S. No.	Line Designation	(Length in M)	(Length in M)	(Length in M)	(Length in M)
1.0	WATER SUPPLY				
1.1	COMMERCIAL BLOCK				
1.1.1	Domestic water supply	51			138
1.1.2	Flushing water supply		****	18	
1.1.3	Soft water supply	18		120	
1,2	RESIDENTIAL BLOCK				
1.2.1	Domestic water supply		200	3:1	196
1,2,2	Flushing water supply	200	38	204	
	TOTAL	269	238	373	334
	SAY	270 m	240 m	375 m	335 m
2.0	MUNICIPAL LINE		***************************************		
2.1	MUNICIPAL LINE - UGT				
	(COMMERCIAL BLOCK)	35			
2.2	MUNICIPAL LINE - UGT				İ
	(RESIDENTIAL BLOCK)	34			
	TOTAL	69			
	SAY	70 m			
3.0	BOREWELL LINE				
3.1	BOREWELL LINE - UGT		***************************************		
	(COMMERCIAL BLOCK)			87	
3.2	BOREWELL LINE - UGT				]
	(RESIDENTIAL BLOCK)	173			
	TOTAL	173		87	
	SAY	175 m		90 m	

4.0 Ball Valves/Butterfly valves

1

2

3





(70% RESIDENTIAL+30%COMMERCIAL) MEASURING 4.85 ACRES (LICENSE No. 110 OF 2013 DATED 27.12.2013) IN SECTOR - 28, GURUGRAM

# SUBJECT: MATERIAL SHEET FOR EXTERNAL FIRE FIGHTING

C MI	** ***		4	1
S. No.	Node No		150 mm d.a	80 mm dia
			(Length in M)	(Length in M)
	COMMERCIAL BLOCK			
1	PUMP ROOM	F1	5	
2	F1	F3	6	
3	F2	F3	9	
4	F3	F4	117	
5	F4	F5	59	1
6	F5	F6	117	
	RESIDENTIAL BLOCK			
1	PUMP ROOM	F7	5	
2	F7	F9	4	
3	F8	F9		36
4	F9	F11	2	/
5	F10	F11		15
6	F11	F12	55	<u> </u>
7	F12	F14	17	
8	F13	F14	12	
9	F14	F16	10	
10	F15	F16		67
11	F16	F18	41	
12	F17	F18		29
13	F18	F19	124	
14	F19	F20		46
	TOTAL		583	193
	SAY		585 m	195 m

FIRE HYDRANT VALVE=16 NOS.





(70% RESIDENTIAL+30%COMMERCIAL) MEASURING 4.85 ACRES (LICENSE No. 110 OF 2013 DATED 27.12.2013) IN SECTOR - 28, GURUGRAM

# SUBJECT: MATERIAL SHEET FOR GARDEN HYDRANT

S. No.		le No		ugta (m)
			75mm dia	25mm dia
OMMER	CIAL BLOCK			
1	STP	GH1	7	
2	GH1	GH2	52	1
3	GH2	GH3	82	2
4	GH1	GH4	129	3
RESIDENT	TAL BLOCK		Account of the second s	
			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	***************************************
1	STP	GH5	19	
2	GH5	GH3	47	1
3	GH5	GH6	108	2
4	GH6	GH7	100	3
5	GH7	GH8	119	3
6	GH8	GH4	37	1
	TOTAL		700	16
	SAY		700 m	20 m

GARDEN HYDRANT VALVE=16 NOS.

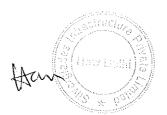


110 SHARWA 6. Augh (Hond), M.C.A. CA/95/18738, ABA/A-12796

(70% RESIDENTIAL+30%COMMERCIAL) MEASURING 4.85 ACRES (LICENSE No. 110 OF 2013 DATED 27.12.2013) IN SECTOR - 28, GURUGRAM

# SUBJECT: SEWERAGE SYSTEM SHEET

s.	Sewer Line	Size of Pipe	Length of Line
No.		and the min	Meters
	Commercial block		
1	S1 – S2	250	24
2	S2 – S4	250	19
3	S3 <b>-</b> S4	250	13
4	S4 – STP	250	2
	Residential block		414 1 May 21, 242 10, 244, 244, 244, 244, 244, 244, 244, 24
1	S5 - S6	250	: 78
2	S6 - S7	250	93
3	S7 - S9	250	78
4	S8 - S9	250	117
5	S9 - STP	250	3
	Total 250 1	Dia Pipe	427
	Say	Y	430 m





(70% RESIDENTIAL+30%COMMERCIAL) MEASURING 4.85 ACRES (LICENSE No. 110 OF 2013 DATED 27.12.2013) IN SECTOR - 28, GURUGRAM

# SUBJECT: DRAINAGE SYSTEM MATERIAL SHEET

S. No.	Line No.	250mm dia pipe (Lenth in M)	300mm dia pipe (Lenth in M)	450mm dia pipe (Lenth in M)
	COMMERCIAL BLOCK		**************************************	
1	SD-1 TO RWH-8	22	And the state of t	_
2	RWH-8 TO RWH-7	33	**	
3	RWH-7 TO SD-03	Aw	14.	_
4	SD-2 TO RWH-5	24	he	
5	RWH-5 TO RWH-6	35	18	
6	RWH-6 TO SD-03	-	1.7	
7	SD-03 TO EXTERNAL DRAIN	-		6
	RESIDENTIAL BLOCK	-	-	
1	SD-04 TO RWH-01	40		_
2	RWH-01 TO RWH-02	27	34	_
3	RWH-02 TO RWH-03	-	37	_
4	RWH-03 TO SD-06	-	1	_
5	SD-05 TO RWH-04	30		
6	RWH-04 TO SD-06	32	411	_
7	SD-06 TO EXTERNAL DRAIN	-		7
	Total	243.00	121.00	13.00
	SAY	245m	125m	15m



AHAND SHARINA B. Arch (Hons), M.C.A. CA/95/18738, ANA/A-12796

(70% RESIDENTIAL+30%COMMERCIAL) MEASURING 4.85 ACRES (LICENSE No. 110 OF 2013 DATED 27.12,2013) IN SECTOR - 28, GURUGRAM

# SUBJECT: MATERIAL SHEET FOR ROAD WORK

.No.	o. Node No		Road Length	
			6m wide	9m wide
1.	R1	R2	15	_
2	R2	R3	43	
3	R3	R4	14	_
4	R4	R5	167	_
5	R5	R6	80	_
	R2	R7	39	
	R7	R8	34	-
	R8	R9	13	
	R3	R8	35	
	R4	R9	35	-
	R9	R10	76	a Programme of the control of the co
	R10	R11	80	
	R11	R7	49	_
	TOTAL		(0)	
SAY			680	-
OA1			680 m	_

Hante (New Dellin)

MMAND SHARMA

B. Arch (Roos), M.C.A.

CAUSH MITTER, ANAIA-12796