SERVICE ESTIMATE, DESIGN REPORT AND CALCULATION OF PROPOSED SCO'S COMMERCIAL PLOTTED COLONY MEASURING 2.65 ACRES, FALLING IN SECTOR-71, VILLAGE BEGUMPUR KHATOLA, GURUGRAM, HARYANA

DEVELOPED BY **WHITE LAND CORPORATION PVT.LTD.**

Report

Gurgaon town of Haryana State is situated on Delhi - Jaipur National Highway No.8 at a distance of 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. In order to relieve the growing pressure of population in National Capital of Delhi, Haryana Urban Development Authority has already developed residential sector which are fully inhabited to an extent. Further to the increasing demand HUDA has planned to develop new sectors at outskirt of Gurgaon town.

2.650 acres Commercial colony scheme at Sec-71 Gurugram

This report and estimate is for approval of **2.65 Acres** Commercial colony scheme.

WATER SUPPLY

At present the source of water supply in this area is HUDA and optional bore well (If allowed by authority). As the underground water is potable, provision for required numbers (As per design) of Bore wells (If allowed by authority) have been made in this estimate. It has been proposed to construct underground tanks of capacity as per attached details and at location for domestic purpose and for fire protection. The underground tanks will be fed from the bore wells and HUDA supply, from there water will be supplied by set of variable frequency pump to each plot which is now a days universally adopted. The water supply system has been designed as per the Hazen William formula.

DESIGN

The scheme has been designed for population considering 3 sqm/person for Ground floor retail/shopping area, and 10 sqm/person for office floor . The rate of water supply per head/day has been taken as 45 liters per head per day for office and retail and 15 lpcd for floating population.

PUMPING EQUIPMENTS

It has been proposed to install pumping set as described with standby of equal capacity. Standby electric power requirement is added to the main DG Sets in case of electricity failure.

SEWERAGE SCHEME

Sewer line from proposed development will be connecting to a centralized Sewage treatment plant with a bypass to HUDA sewer to dispose excess sewage. The sewerage system has been marked on the respective plans.

Sewer lines have been designed for three times average D.W.F in relation to water supply demand. It has been assumed that about 80% of the domestic and 100% of flushing water supply shall find its way into the proposed sewer. Sewer lines shall be laid to a gradient maintaining minimum 2.46 ft./sec (0.75m/sec) self-cleaning velocity. Sewer line up to 400mm dia has been designed to run half full and above 400mm dia has been designed to run three fourth full at peak flow. Necessary provision for laying S.W/RCC pipe sewer line, construction of required number of manholes etc., has been made in the estimate.

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

STORM WATER DRAINAGE

We proposed to lay underground R.C.C. pipe drains with required number of catch basins, manholes and rainwater recharge pits with over flow to the Proposed HUDA storm drain on sector Road. The intensity of rain fall has been taken as ¼" per hour. R.C.C storm water line will be designed as per Manning's formula.

KULMEET SHANGARI
ARCHITECT
CA/97/21741

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

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

STREET LIGHITING

Provision for streets also has been made

HORTICULTURE

Estimates of plantation, landscaping, signage, etc., have been included

RATES

The estimate has been prepared based on the present market rates

COST

The total cost of the scheme, including cost of all services works out to be **Rs. 291.85** Lacs

Including 3% Contigencies & PE @ 49% Departmental

Area of commercial license as per development 2.65 Acre

Net cost per Acre 110.13 Lacs

For: **WHITE LAND CORPORATION PVT.LTD.**

Authorized Signatory

KULMEET SHANGARI
ARCHITECT
CA/97/21741

PLANS SUBMITTED HEREWITH FOR PROPOSED SCO'S COMMERCIAL PLOTTED COLONY MEASURING 2.65 ACRES, FALLING IN SECTOR-71, VILLAGE BEGUMPUR KHATOLA, GURUGRAM, HARYANA

DAILY WATER DEMAND & PUMPING SYSTEM (Annexure - 1)

S.No	Type	Area of each floor	No. of floor	Population/ Flat or Population/ Unit Area	Number of plots	Total Population	Domestic Water Requirement		Flushing Water Requirement		Gross Water	%age flow to Sewer		Flow to Sewer
							LPCD	LPD	LPCD	LPD	LPD	Domestic 85%	Flushing 95%	LPD
A	BLOCK A											85%	95%	
	PLOT A01													
	Retails	129.5	1	3 sq.m/P	1	43								
	Staff			10%		4	25	100	20	80	180	85	76	161
	Visitors			90%		39	5	195	10	390	585	166	371	537
	Retails	129.5	1	6 sq.m/P	1	22								
	Staff			10%		2	25	50	20	40	90	43	38	81
	Visitors			90%		20	5	100	10	200	300	85	190	275
	Office	129.5	3	10 sq.m/P	1	39	25	975	20	780	1755	829	741	1570
	PLOT A02-A10													
	Retails	129.5	1	3 sq.m/P	9	387								
	Staff			10%		39	25	975	20	780	1755	829	741	1570
	Visitors			90%		348	5	1740	10	3480	5220	1479	3306	4785
	Retails	129.5	1	6 sq.m/P	9	198								
	Staff			10%		20	25	500	20	400	900	425	380	805
	Visitors			90%		178	5	890	10	1780	2670	757	1691	2448
	Office	129.5	3	10 sq.m/P	9	351	25	8775	20	7020	15795	7459	6669	14128
	PLOT A11													
	Retails	129.5	1	3 sq.m/P	1	43								
	Staff			10%		4	25	100	20	80	180	85	76	161
	Visitors			90%		39	5	195	10	390	585	166	371	537
	Retails	129.5	1	6 sq.m/P	1	22								
	Staff			10%		2	25	50	20	40	90	43	38	81
	Visitors			90%		20	5	100	10	200	300	85	190	275
	Office	129.5	3	10 sq.m/P	1	39	25	975	20	780	1755	829	741	1570

KULMEET S... ARCHITECT CA/97/21741

B	**BLOCK B**													
	PLOT B01													
	Retails	**123**	**1**	3 sq.m/P	**1**	41								
	Staff			10%		4	25	100	20	80	180	85	76	161
	Visitors			90%		37	5	185	10	370	555	157	352	509
	Retails	**123**	**1**	6 sq.m/P	**1**	21								
	Staff			10%		2	25	50	20	40	90	43	38	81
	Visitors			90%		19	5	95	10	190	285	81	181	262
	Office	**123**	**3**	10 sq.m/P	**1**	36	25	900	20	720	1620	765	684	1449
	PLOT B02													
	Retails	**105**	**1**	3 sq.m/P	**1**	35								
	Staff			10%		4	25	100	20	80	180	85	76	161
	Visitors			90%		31	5	155	10	310	465	132	295	427
	Retails	**105**	**1**	6 sq.m/P	**1**	18								
	Staff			10%		2	25	50	20	40	90	43	38	81
	Visitors			90%		16	5	80	10	160	240	68	152	220
	Office	**105**	**3**	10 sq.m/P	**1**	33	25	825	20	660	1485	701	627	1328
	PLOT B03													
	Retails	**123**	**1**	3 sq.m/P	**1**	41								
	Staff			10%		4	25	100	20	80	180	85	76	161
	Visitors			90%		37	5	185	10	370	555	157	352	509
	Retails	**123**	**1**	6 sq.m/P	**1**	21								
	Staff			10%		2	25	50	20	40	90	43	38	81
	Visitors			90%		19	5	95	10	190	285	81	181	262
	Office	**123**	**3**	10 sq.m/P	**1**	36	25	900	20	720	1620	765	684	1449

ARCHITECT
CA/97/21741

C	**BLOCK C**													
	PLOT C01													
	Retails	**123**	**1**	3 sq.m/P	**1**	41								
	Staff			10%		4	25	100	20	80	180	85	76	161
	Visitors			90%		37	5	185	10	370	555	157	352	509
	Retails	**123**	**1**	6 sq.m/P	**1**	21								
	Staff			10%		2	25	50	20	40	90	43	38	81
	Visitors			90%		19	5	95	10	190	285	81	181	262
	Office	**123**	**3**	10 sq.m/P	**1**	36	25	900	20	720	1620	765	684	1449
	PLOT C02-C07													
	Retails	**105**	**1**	3 sq.m/P	**6**	210								
	Staff			10%		21	25	525	20	420	945	446	399	845
	Visitors			90%		189	5	945	10	1890	2835	803	1796	2599
	Retails	**105**	**1**	6 sq.m/P	**6**	108								
	Staff			10%		11	25	275	20	220	495	234	209	443
	Visitors			90%		97	5	485	10	970	1455	412	922	1334
	Office	**105**	**3**	10 sq.m/P	**6**	198	25	4950	20	3960	8910	4208	3762	7970
	PLOT C08													
	Retails	**125**	**1**	3 sq.m/P	**1**	42								
	Staff			10%		4	25	100	20	80	180	85	76	161
	Visitors			90%		38	5	190	10	380	570	162	361	523
	Retails	**125**	**1**	6 sq.m/P	**1**	21								
	Staff			10%		2	25	50	20	40	90	43	38	81
	Visitors			90%		19	5	95	10	190	285	81	181	262
	Office	**125**	**3**	10 sq.m/P	**1**	39	25	975	20	780	1755	829	741	1570

KULMEET SHANGARI
ARCHITECT
CA/97/21741

D	BLOCK D													
	PLOT D01													
	Retails	**98**	1	3 sq.m/P	**1**	33								
	Staff			10%		3	25	75	20	60	135	64	57	121
	Visitors			90%		30	5	150	10	300	450	128	285	413
	Retails	**98**	1	6 sq.m/P	**1**	16								
	Staff			10%		2	25	50	20	40	90	43	38	81
	Visitors			90%		14	5	70	10	140	210	60	133	193
	Office	**98**	3	10 sq.m/P	**1**	30	25	750	20	600	1350	638	570	1208
	PLOT D02-D07													
	Retails	**88**	1	3 sq.m/P	**6**	174								
	Staff			10%		17	25	425	20	340	765	361	323	684
	Visitors			90%		157	5	785	10	1570	2355	667	1492	2159
	Retails	**88**	1	6 sq.m/P	**6**	90								
	Staff			10%		9	25	225	20	180	405	191	171	362
	Visitors			90%		81	5	405	10	810	1215	344	770	1114
	Office	**88**	3	10 sq.m/P	**6**	162	25	4050	20	3240	7290	3443	3078	6521
	PLOT D08													
	Retails	**117**	1	3 sq.m/P	**1**	39								
	Staff			10%		4	25	100	20	80	180	85	76	161
	Visitors			90%		35	5	175	10	350	525	149	333	482
	Retails	**117**	1	6 sq.m/P	**1**	20								
	Staff			10%		2	25	50	20	40	90	43	38	81
	Visitors			90%		18	5	90	10	180	270	77	171	248
	Office	**117**	3	10 sq.m/P	**1**	36	25	900	20	720	1620	765	684	1449

KUL...
ARCHI...
CA/97/21741

E	**BLOCK E**													
	PLOT E01													
	Retails	**88**	**1**	3 sq.m/P	**1**	29								
	Staff			10%		3	25	75	20	60	135	64	57	121
	Visitors			90%		26	5	130	10	260	390	111	247	358
	Retails	**88**	**1**	6 sq.m/P	**1**	15								
	Staff			10%		2	25	50	20	40	90	43	38	81
	Visitors			90%		13	5	65	10	130	195	55	124	179
	Office	**88**	**3**	10 sq.m/P	**1**	27	25	675	20	540	1215	574	513	1087
	PLOT E02-E03													
	Retails	**88**	**1**	3 sq.m/P	**2**	58								
	Staff			10%		6	25	150	20	120	270	128	114	242
	Visitors			90%		52	5	260	10	520	780	221	494	715
	Retails	**88**	**1**	6 sq.m/P	**2**	30								
	Staff			10%		3	25	75	20	60	135	64	57	121
	Visitors			90%		27	5	135	10	270	405	115	257	372
	Office	**88**	**3**	10 sq.m/P	**2**	54	25	1350	20	1080	2430	1148	1026	2174
	PLOT E04													
	Retails	**88**	**1**	3 sq.m/P	**1**	29								
	Staff			10%		3	25	75	20	60	135	64	57	121
	Visitors			90%		26	5	130	10	260	390	111	247	358
	Retails	**88**	**1**	6 sq.m/P	**1**	15								
	Staff			10%		2	25	50	20	40	90	43	38	81
	Visitors			90%		13	5	65	10	130	195	55	124	179
	Office	**88**	**3**	10 sq.m/P	**1**	27	25	675	20	540	1215	574	513	1087
9	Filter Backwash Water							2901			2901			2901
Total Water Requirement								**44671**		**43580**	**88251**			**79829**
Say (KLD)						**3026**		**45**		**44**	**88**			**80**

KULMEET SHANGARI
ARCHITECT
CA/97/21741

Fire demand 100 * (P in thousand)^(1/3) only for Undrground static Reservior)	**145 KLD**	**150**	**Proposed 150 KL**
HortiCulture area (15% of total site area 10 Liter / Sqm. from STP	**16 KLD**	**15**	**Proposed 15 KLD**
STP capacity 95% Flushing + 85% Domestic (As per calculation)	**80 KLD**	**85**	**Proposed 85KLD**

Capacity of Tanks:

Capacity of under ground tank is on the basis of 1 day requirement and overhead on 1/2 day requirement.

	U.G. Tank	Location		Nos of Tank
Fire Tank (Proposed cap.)	150 KL	U.G. Plant Room		75 x 2
Dom. Water Tank	45 KL	U.G. Plant Room		45x1
Flu. Water Tank	45 KL	S.T. Plant Room		45x1
Irrigation Water Tank	15 KL	S.T. Plant Room		15X1
			Total	255 KL

ARCHITECT
CA/97/21741

Pump Calculation

1	Domestic water transfer pump		
1.1	**Pump Capacity**	**94 LPM**	(1w+1s)
a)	Total Demand	45 KLD	
b)	Daily working hours	8.0 Hrs	
c)	Required total pump capacity	93.8 LPM	
d)	Nos. of working pumps	1 Nos.	
1.2	**Pump Head**	**45 Mtr.**	Say
a)	Suction lift	2	
b)	Elevation height	25	
c)	Residual head	15	
d)	Frictional head loss (As per design sheet)	0.09	
1.3	**Pump HP**	**3.0 HP**	Say
a)	(Lpm*head (m)/75*60*.6(effi)	1.6	

3	Borewell & Pumping machinery (Borewells will be installed only if authorities Permits)			
3.1	**Number of borewell**	**1**	**Nos.**	
a)	Yield / Borewell	12	KL/Hr	
b)	Operational borewell per day	12	Hrs	
c)	Water requirement	45.0	KL	
d)	Required no. of borewell	0.313	Nos.	
e)	Added 10% as stand by	0.031	Nos.	
3.2	**Total head required**	**80 Mtr.**		Say
a)	Gross working Head	60		
b)	Average Fall in S.L.	5		
c)	Depression Head loss	5		
d)	Friction Loss in main	10		
3.3	**Pump HP for Main Electric pumps**	**7.5 HP**		Say
a)	(Lpm*head (m)/75*60*.6(effi)	5.9		

2	Flushing and horticulture water transfer pump		
2.1	**Pump Capacity**	**125 LPM**	(1w+1s)
a)	Total Demand	60 KLD	
b)	Daily working hours	8.0 Hrs	
c)	Required pump capacity	125.2 LPM	
d)	Nos. of working pumps	1 Nos.	
2.2	**Pump Head**	**45 Mtr.**	Say
a)	Suction lift	0	
b)	Elevation height	25	
c)	Residual head	15	
d)	Frictional head loss (As per design sheet)	0.30	
2.3	**Pump HP**	**5.0 HP**	Say
a)	(Lpm*head (m)/4500*.6(effi)	2.1	

				Total Power cons.
4	Capacity of DG Set			
a)	Domestic water transfer pump	1 Nos.	3.0 HP	3.0 HP
b)	Flushing and horticulture water transfer pump	1 Nos.	5.0 HP	5.0 HP
c	Borewells	1 Nos.	7.5 HP	7.5 HP
4.1	**Total HP required**			15.5 HP
a)	DG Capactiy 80% of total power			12.4 KVA
4.2	**DG Capacity**	**15 KVA**		

		Demand	Flow	Dia	Line length	F. Loss	Velocity	Total loss
5	HUDA water supply line calculation	KLPD	LPM	mm	Mtr	Mtr/Mtr	M/Sec	Mtr/Mtr
5.1	From Municipal conn. To UGT	45.0	93.75	65	105	0.006	0.5	0.608

KULMEET ... ARCHITECT CA/07/21741

FINAL ABSTRACT OF COST

Description	Total of sub work	3% Contigencies and PE charges	TOTAL	49% departmental charges price circulation & unforseen admin charges	Grand Total
Sub Work-1 Water Supply	4,658,750	139,763	4,798,513	2,351,271	7,149,784
Sub Work-2 Sewerage	2,050,750	61,523	2,112,273	1,035,014	3,147,286
Sub Work-3 Drainage	2,285,000	68,550	2,353,550	1,153,240	3,506,790
Sub Work-4 Road Works	3,900,025	117,001	4,017,026	1,968,343	5,985,368
Sub Work-5 Street Lighiting	662,500	19,875	682,375	334,364	1,016,739
Sub Work-6 Plantation	435,000	13,050	448,050	219,545	667,595
Sub Work-7 Services & Resurfacing of road	5,024,750	150,743	5,175,493	2,535,991	7,711,484
TOTALS	**Rs. 19,016,775**	**Rs. 570,503**	**Rs. 19,587,278**	**Rs. 9,597,766**	**Rs. 29,185,045**

Total Cost — **Rs. 29,185,045**

Area of commercial license 2.65 Acre

Amount per acre **Rs. 11,013,224**

For: WHITE LAND CORPORATION PVT.LTD.

Authorized Signatory

KULMEET SHANGARI
ARCHITECT
CA/97/21741

SUB WORK No. 1 **WATER SUPPLY**

S No.	Heads	Description	Amount
1	Sub Head 01	Bore well & rising Main	Rs. 1,708,000
2	Sub Head 2	HUDA Rising Mains	Rs. 324,500
3	Sub Head 03	Pumping and machinery	Rs. 1,325,000
4	Sub Head 04	Domestic Water supply and distribution	Rs. 866,250
5	Sub Head 05	Flushing and Irrigation System	Rs. 435,000
		TOTAL	**Rs. 4,658,750**

GULMEET SHANGARI
ARCHITECT
CA/97/21741

SUB WORK No. 1 **WATER SUPPLY**

Sub Head 01 **Bore well & rising Main**

S No.	Description	Amount
1	Boring and installing 450 mm i/d Bore well with reverse rotary rig complete with pipe and strainer to a depth of about 120 meter	Rs. 400,000
	1 Nos. @ Rs. 400,000 each.	
2	Provision for rising mains, connecting Bore wells with water main and bye-pass arrangements: for tank feeding.(DI Pipe)	
a)	80 mm dia 55 Mtr. @ Rs. 1,100	Rs. 60,500
3	Construction of UG Tank (In total) 255 KL @ Rs. 4,500 /-KL	Rs. 1,147,500
	Dom. and Fire tank 195	
	Flushing tank near STP 60	
4	Provision of unseen items/carriage of materials.	Rs. 50,000
5	Provision for construction of pump chamber of Size 1.5 x 5 x 1.5 m for Housing	
	Bore wells 1 Nos. @ Rs. 50,000	Rs. 50,000
Total of Sub Head 01	**Carried over to summary of Sub work - 1**	**Rs. 1,708,000**

MATERIAL STATEMENT OF BOREWELL RISING MAINS REFERS TO ANNEXURE 5A & 1

KULMEET SHANGARI
ARCHITECT
CA/97/21741

SUB WORK No. 1		WATER SUPPLY
Sub Head 2		**HUDA Rising Mains**
S No.	**Description**	**Amount**
1	1. Providing, laying, jointing and testing DI pipe lines Including cost of excavation etc. complete in all respects.	
a)	65 mm dia pipe 105 Mtr. @ Rs. 1,100	Rs. 115,500.00
2	Providing and fixing sluice valve including cost of surface boxes and masonary chambers etc. complete in all respects	
a)	65 mm dia pipe 1 Nos. @ Rs. 8,000	Rs. 8,000.00
3	Providing and fixing indicating plates for sluice valve and air valves	
a)	1 Nos. @ Rs. 1,000 each	Rs. 1,000.00
4	Provision for carriage for materials and other unforeseen items (L/S)	Rs. 50,000.00
5	Provision for cutting of roads and making good to its original conditions (L/S)	Rs. 50,000.00
6	Provision for making connection with HUDA on Master Road (L/S)	Rs. 100,000.00
Total of Sub Head 2	**Carried over to summary of Sub work - 1**	**Rs. 324,500.00**

MATERIAL STATEMENT OF HUDA MAINS REFERS TO ANNEXURE 5

KULM... ARCHITECT CA/07/21741

SUB WORK No. 1 **WATER SUPPLY**
Sub Head 3 **Pumping and machinery**

S No.	Description	Amount
1	Providing and installing electricity driven submersible pumping set capable of delivering about 12 KL/Hr of water against a total head of 80m complete with motor and other accessories	
	1 Nos. Rs. 100,000.00	Rs. 100,000.00
2	Providing & installing pumping set of following capacity for Water supply Booster Pumps	
a)	Capacity 100 LPM @ 45 mtr. Head 2 Nos. @ Rs. 100,000.00 each.	Rs. 200,000.00
3	Providing & installing pumping set of following capacity for Flushing Pumps	
a)	Capacity 125 LPM @ 45 mtr. Head 2 Nos. @ Rs. 100,000.00 each.	Rs. 200,000.00
4	Provisions for chlorination plant complete 1 Nos @ Rs. 100,000.00 each	Rs. 100,000.00
5	Provision for making foundations and erection of pumping machinery	Rs. 150,000.00
	L.S.	
6	Provision for pipes, valves and specials inside the boosting chamber L.S.	Rs. 150,000.00
7	Provision for electric service connection including electrical fittings for bore well and boosting etc. 1 Set	Rs. 175,000.00
8	Provision for carriage of material and other unforeseen items etc. L/S	Rs. 100,000.00
9	Provision for diesel engine Gen set each for standby arrangements for T.W. & booster pump complete with gear head arrangements of 15 KVA capacities – 1 No.	Rs. 150,000.00
	TOTAL CO to SUB WORK - 1	**Rs. 1,325,000.00**

KULMEET ... ARCHITECT CA/97/21741

SUB WORK No. 1 **WATER SUPPLY**

Sub Head 4 **Domestic Water supply and distribution**

S No.	Description	Amount
1	Providing, laying, jointing and testing DI/GI pipe lines including fittings etc. complete in all respects.**(Domestic)**	
a)	100 mm Pipe 365 Mtr @ Rs. 1,250	Rs. 456,250
2	Providing and fixing sluice valve including cost of surface boxes and masonry chambers etc. complete in all respects.**(Domestic)**	
e)	100 mm dia 5 Each @ Rs. 12,000	Rs. 60,000
3	Providing and fixing External Fire Hydrant complete in all respect.	
	5 Nos @ Rs. 15,000 Each	
4	Providing and fixing Air realese valve and scour valves.	
	2 Nos @ Rs. 10,000 Each	
5	Provision for indicating plates for sluice valve, hydrant and AV etc	
	2 Nos @ Rs. 1,000 Each	
6	Provision for carriage of materials and other unforeseen items	Rs. 350,000
	TOTAL CO to SUB WORK - 1	**Rs. 866,250.00**

MATERIAL STATEMENT OF DWS REFERS TO ANNEXURE 3

KOLMEZI SHANGARI
ARCHITECT
CA/97/21741

PLANS SUBMITTED HEREWITH FOR PROPOSED SCO'S COMMERCIAL PLOTTED COLONY MEASURING 2.65 ACRES, FALLING IN SECTOR-71, VILLAGE BEGUMPUR KHATOLA, GURUGRAM, HARYANA

Domestic Water supply hydraulic calculation

S No.	Line No	Plots	Self water demand (lpd)	branch water demand (lpd)	Total water demand ltr /day	Peak water demand@3 of daily water demand ltr /day	Peak Water Demand	Length of Pipe	Effective Length (actual length+ 25%)	Proposed line dia.	Velocity in m/sec	Frictional head losses	Total Frictional head losses	Fitting Loss @ 10% of pipe length	Total Head Loss	Commulative Frictional head losses	Remarks
			LPD	LPD	LPD	LPD	LPM	Mtr	Mtr	MM	Mtr/sec	Mtr/Mtr	Mtr			Mtr	
1	PR-D1	FB	2926.0	42135.0	45061.0	135183	93.9	20	25	100	0.239	0.00100	0.0249	0.00249	0.02744	0.08690	
2	D1-D2		1000.0	32795.0	33795.0	101385	70.4	14	18	100	0.179	0.00059	0.0102	0.00102	0.01127	0.05646	
3	D2-D5	C01-C08	9610.0	23185.0	32795.0	98385	68.3	42	53	100	0.174	0.00055	0.0291	0.00291	0.03199	0.04519	
4	D1-D3		3670.0	4670.0	8340.0	25020	17.4	32	40	100	0.044	0.00004	0.0018	0.00018	0.00193	0.00300	
5	D3-D4	D01-D08	4670.0		4670.0	14010	9.7	52	65	100	0.025	0.00001	0.0010	0.00010	0.00107	0.00107	
6	D4-D5				0.0	0	0.0	51	64	100	0.000	0.00000	0.0000	0.00000	0.00000	0.00000	
7	D5-D6			23185.0	23185.0	69555	48.3	9	11	100	0.123	0.00029	0.0033	0.00033	0.00361	0.01320	
8	D6-D10	B01-B03	3665.0	12880.0	16545.0	49635	34.5	31	39	100	0.088	0.00016	0.0060	0.00060	0.00665	0.00959	
9	D10-D11	A09-A11	4260.0		4260.0	12780	8.9	18	23	100	0.023	0.00001	0.0003	0.00003	0.00031	0.00031	
10	D10-D8A	A03-A08	8620.0		8620.0	25860	18.0	41	51	100	0.046	0.00005	0.0024	0.00024	0.00263	0.00263	
11	D6-D7			6640.0	6640.0	19920	13.8	32	40	100	0.035	0.00003	0.0012	0.00012	0.00127	0.00257	
12	D7-D8	E01-E04	3800.0	2840.0	6640.0	19920	13.8	31	39	100	0.035	0.00003	0.0011	0.00011	0.00123	0.00131	
13	D8-D9	A01&A02	2840.0		2840.0	8520	5.9	10	13	100	0.015	0.00001	0.0001	0.00001	0.00008	0.00008	

KUMAR
ARCHITECT
CA/97/21741

PLANS SUBMITTED HEREWITH FOR PROPOSED SCO'S COMMERCIAL PLOTTED COLONY MEASURING 2.65 ACRES, FALLING IN SECTOR-71, VILLAGE BEGUMPUR KHATOLA, GURUGRAM, HARYANA

Water supply hydraulic calculation (Annexure-3)

Material satement for Domestic water supply								
S No.	Line No	Length	Valves	Dia	65 mm	80 mm	100 mm	150 mm
1	Plant room to last point	365	5	100			365	
	TOTAL				0		365	0
	Valves				0	0	5	0

Annexure-5A (Bore well Supply)							
Bore well Material statement							
S No	Line No	Length		Dia	80 mm	100 mm	150 mm
1	1 Nos BW						
2	Main Line						
	Total				60	0	

Annexure-5 (HUDA Supply)						
Municipal suplly line material statement						
S No	Line No	Length	Dia	80 mm	100 mm	150 mm
1	Main-Pump	105	65			

Annexure-7 External Fire hydrant ring							
S No.	Line No	Length	EFH	Dia	80 mm	100 mm	150 mm
1	Main Line	520		150			520
2	EFH	47.5	19	80	47.5		
	Total		19		47.5	0	520

CA/97/21741

SUB WORK No. 1	WATER SUPPLY
Sub Head 5	Flushing and Irrigation System

S No.	Description	Amount
1	Providing, laying, jointing and testing pipes lines conforming to IS:4985 including cost of excavation etc. complete in all respects.	
a)	80 mm Pipe 354 Mtr @ Rs. 750	Rs. 265,500
b)	50 mm Pipe 50 Mtr @ Rs. 450	Rs. 22,500
C)	25 mm Pipe 20 Mtr @ Rs. 300	Rs. 6,000
2	Providing and fixing sluice valve including cost of surface boxes and masonry chambers etc. complete in all respects.	
a)	80 mm 4 Each @ Rs. 10,000	Rs. 40,000
b)	50 mm 1 Each @ Rs. 6,000	Rs. 6,000
c)	25 mm 5 Each @ Rs. 1,500	Rs. 7,500
3	Providing and fixing Garden Hydrant Chamber	
	5 Nos. @ Rs. 3,500 each	Rs. 17,500.00
4	Providing and fixing air release valve and scour valve	
	0 Nos. @ Rs. 5,000 each	Rs. 0.00
5	Indication plate for valve, hydrant AV etc	Rs. 20,000.00
4	Provision for carriage of materials and other unforeseen items	Rs. 50,000.00
	TOTAL CO to SUB WORK - 1	**Rs. 435,000.00**

MATERIAL STATEMENT OF IRRIGATION SUPPLY REFERS TO ANNEXURE 4 & 6

KULMEET SHANGARI
ARCHITECT
CA/97/21741

PLANS SUBMITTED HEREWITH FOR PROPOSED SCO'S COMMERCIAL PLOTTED COLONY MEASURING 2.65 ACRES, FALLING IN SECTOR-71, VILLAGE BEGUMPUR KHATOLA, GURUGRAM, HARYANA

Flushing Water supply hydraulic calculation

S No.	Line No	Plot number	Self water demand	Branch water demand	Total water demand ltr /day	Peak water demand@3of daily water demand ltr /day	Peak Water Demand	Length of Pipe	Effective Length (actual length+ 25%)	Proposed line dia.	Velocity in m/sec	Frictional head losses	Total Frictional head losses	Commulative Frictional head losses
			LPD	LPD	LPD	LPD	LPM	Mtr	Mtr	MM	Mtr/sec	Mtr/Mtr	Mtr	Mtr
1	STP-F1			59010.0	59010.0	177030	122.9	15	19	80	0.4889	0.0049	0.0914	0.31532
2	F1-F2			3970.0	3970.0	11910	8.3	18	23	80	0.0329	0.0000	0.0007	0.00202
3	F2-F3A	E01-E04	3970.0		3970.0	11910	8.3	31	39	80	0.0329	0.0000	0.0013	0.00128
4	F1-F5			55040.0	55040.0	165120	114.7	14	18	80	0.4560	0.0043	0.0750	0.22192
5	F5-F6			34780.0	34780.0	104340	72.5	9	11	80	0.2881	0.0018	0.0206	0.10491
6	F6-F9A	C01-C08	9980.0		9980.0	29940	20.8	43	54	80	0.0827	0.0002	0.0097	0.00975
7	F6-F7	gh	15000.0	9800.0	24800.0	74400	51.7	50	63	80	0.2055	0.0010	0.0612	0.07456
8	F7-F8	D01-D08	4900.0	4900.0	9800.0	29400	20.4	50	63	80	0.0812	0.0002	0.0110	0.01339
9	F8-F9B		4900.0		4900.0	14700	10.2	40	50	80	0.0406	0.0000	0.0024	0.00243
10	F5-F4	B01-B03	3820.0	16440.0	20260.0	60780	42.2	30	38	80	0.1678	0.0007	0.0252	0.04204
11	F4-F3B	A01-A08	11970.0		11970.0	35910	24.9	50	63	80	0.0992	0.0003	0.0159	0.01588
12	F4-A11	A09-A11	4470.0		4470.0	13410	9.3	18	23	80	0.0370	0.0000	0.0009	0.00092

KULMEET SHANGARI
ARCHITECT
CA/97/21741

PLANS SUBMITTED HEREWITH FOR PROPOSED SCO'S COMMERCIAL PLOTTED COLONY MEASURING 2.65 ACRES, FALLING IN SECTOR-71, VILLAGE BEGUMPUR KHATOLA, GURUGRAM, HARYANA

Material statement for Flushing water supply (Annexure-4)

S No.	Line No	Nos.	Length	Valves	Dia	32 mm	50 mm	65 mm	80mm	
1	STP to last point		354	5	80				354	
	Total					0.00	0.00	0.00	354.00	
	Valves			5		0.00	0.00	0.00	0.00	

Annexure-6 Garden hydrant ring

S No.	Line No		Length	GH	Dia	50 mm	25 mm	100 mm
1	Main Ring		50			50		
2	GH			5			20	
	Total			5		50	20	0

KULMEET SHANGARI
ARCHITECT
CA/07/21741

SUB WORK No. 2 **SEWERAGE SCHEME**

S No.	Description	Amount
1	Providing , jointing , cutting and testing RCC pipe and lowering into trenches including cost excatvation, bed concrete, cost of manhole etc.	
a)	150 mm dia 70 Mtr. @ Rs. 1,100 CI class LA (Bye Pass Line)	Rs. 77,000.00
b)	200 mm dia 327 Mtr. @ Rs. 1,250 RCC Pipe	Rs. 408,750.00
2	Provision for carriage of material (L.S)	Rs. 25,000.00
3	Provision for making connection with HUDA sewer on Master Road	Rs. 100,000.00
4	Provision for cutting of roads & making good to its original condition (L.S.)	Rs. 30,000.00
5	Provision for lighting and watering (L.S.)	Rs. 50,000.00
6	Providing STP of 85 KLD Rs. 16,000 per KLD	Rs. 1,360,000.00
	TOTAL CO to FINAL ABSTRACT OF COST	**Rs. 2,050,750.00**

MATERIAL STATEMENT OF SEWERAGE SCHEME REFERS TO ANNEXURE 2

KULMESH SHANGARI
ARCHITECT
CA/97/21741

PLANS SUBMITTED HEREWITH FOR PROPOSED SCO'S COMMERCIAL PLOTTED COLONY MEASURING 2.65 ACRES, FALLING IN SECTOR-71, VILLAGE BEGUMPUR KHATOLA, GURUGRAM, HARYANA

DESIGN STATEMENT OF SEWERAGE LINE

SI	LINE	Plot	Total Daily Water Requirement in Litre	Av. Sewer load 80% of Water Requirement	Peak Load @ 3X Av. Load	Subsoil Infiltration @25% of Av Load	Self Discharge	Branch Discharge	Total Discharge		Length of line	Dia of Pipe	Slope 1 IN	Fall in Line	Velocity In	Capacity of Pipe	CHECK FOR CARRYING CAPACITY	Levels at Start		Levels at End	
NO.	MH NO			Self														Ground Lvl. at Start	Invert Lvl at Start	Ground Lvl at End	Invert Lvl at End
				LPD	LPD	LPD	LPD	LPD	LPD	LPS	Mtr	MM		Mtr	m/sec	lps			mtr	mtr	mtr
1	S2-S3	c01-c08	19590	15672	47016	3918	50934	0	50934	0.59	42	200	145	0.29	0.75	11.81	OK	0.50	-0.73	0.40	-1.02
2	S3-S5	0		0	0	0	0	50934	50934	0.59	8	200	145	0.06	0.75	11.81	OK	0.40	-1.02	0.35	-1.07
3	S4-S5	D01-D08	19140	15312	45936	3828	49764	0	49764	0.58	85	200	145	0.59	0.75	11.81	OK	0.50	-0.50	0.35	-1.09
4	S5-S10	0		0	0	0	0	100698	100698	1.17	9	200	145	0.06	0.75	11.81	OK	0.35	-1.07	0.50	-1.14
5	S6-S8	a01-a09	26340	21072	63216	5268	68484		68484	0.79	53	200	145	0.37	0.75	11.81	OK	0.375	-0.63	0.35	-0.99
6	S7-S8	a10-a11	5820	4656	13968	1164	15132		15132	0.18	17	200	145	0.12	0.75	11.81	OK	0.35	-0.65	0.35	-0.77
7	S8-S10	b01-b03	7485	5988	17964	1497	19461	83616	103077	1.19	44	200	145	0.30	0.75	11.81	OK	0.35	-0.99	0.50	-1.29
8	S9-S10	E01-E04	7770	6216	18648	1554	20202		20202	0.23	38	200	145	0.26	0.75	11.81	OK	0.50	-0.50	0.50	-0.76
9	S10-STP	0	2926	2341	7022	585	7608	223977	231585	2.68	10	200	145	0.07	0.75	11.81	OK	0.50	-1.29	0.50	-1.36
	By pass connection								231585	2.68	70	150									

CA/87/21741

PLANS SUBMITTED HEREWITH FOR PROPOSED SCO'S COMMERCIAL PLOTTED COLONY MEASURING 2.65 ACRES, FALLING IN SECTOR-71, VILLAGE BEGUMPUR KHATOLA, GURUGRAM, HARYANA

Material statement for Sewerage (Annexure 2)

Towers Sewerqage MB								
S No.	*Line No*		*Length*	*Pipe Dia*	*200 mm*	*250 mm*	*300 mm*	*450 mm*
			Mtr	*mm*	*Mtr.*	*Mtr.*	*Mtr.*	*Mtr.*
1	s1	stp	306		327	0	0	0
TOTAL					**327**	**0**	**0**	**0**

STP Bye pass **CILA** **150mm** 70 **STP** **85** **KL**

KULMEET SHANGARI
ARCHITECT
CA/97/21741

SUB WORK No. 3	STORM WATER DRAINAGE

S No.	Description	Amount
1	Providing, laying, RCC pipe class NP-2 manholes etc. complete in all respects	
a)	250 30.00 Mtr. @ Rs. 2,000	Rs. 60,000.00
b)	400 mm dia 340.00 Mtr. @ Rs. 2,500	Rs. 850,000.00
c)	450 50.00 Mtr. @ Rs. 3,400	Rs. 170,000.00
2	Provision for lighting and watching and temporary diversion of traffic	Rs. 100,000.00
3	Provision for road gullies & connecting pipe L.S.	Rs. 150,000.00
4	Provision for rainwater harvesting arrangements (1 nos/acre)	
	Rs. 225,000.00 per RWH Recharge Pit 3 Nos.	Rs. 675,000.00
5	Provision for timbering & shoring (L.S.)	Rs. 80,000.00
6	Provision for road cutting and making it in good condition	Rs. 100,000.00
7	Provision for making connection with HUDA Mains.(L.S.) 1 Nos.	Rs. 100,000.00
8	Provision for carriage of materials (LS)	Rs. 100,000.00
	TOTAL CO to FINAL ABSTRACT OF COST	**Rs. 2,285,000.00**

MATERIAL STATEMENT OF STORM WATER DRAINAGE REFERS TO ANNEXURE 2a

KULMEET SHANGARI
ARCHITECT
CA/97/21741

PLANS SUBMITTED HEREWITH FOR PROPOSED SCO'S COMMERCIAL PLOTTED COLONY MEASURING 2.65 ACRES, FALLING IN SECTOR-71, VILLAGE BEGUMPUR KHATOLA, GURUGRAM, HARYANA

Drainage calculation

SL NO	NAME OF LINE	LENGTH	SELF AREA TO BE DRAINED IN	AREA IN ACRE			DISCHARGE IN CUM/SEC	DISCHARGE	Pipe Dia	SLOPE	VELOCITY	DISCHARGE CAPACITY	Check	GROUND LEVEL AT START	GROUND LEVEL AT END	FALL	INVERT LEVEL AT START	INVERT LEVEL AT END	DEPTH AT START	DEPTH AT END	RCP	REMARKS
		MTR	SQM	SELF	BRANCH	TOTAL	35 mm	IN LPS	400MM	1 IN	(m/sec)	IN LPS		MTR	MTR	MTR	MTR.	MTR	MTR.	MTR	NOS	
1	SW1-SW2	49	1351	0.33		0.33	0.012	11.82	400	450	0.68	85.11	OK	0.40	0.35	0.109	-0.800	-0.909	1.200	1.259		
2	SW2-SW4	31	855	0.21	0.33	0.55	0.019	19.29	400	450	0.68	85.11	OK	0.35	0.40	0.069	-0.909	-0.978	1.259	1.378		
3	SW3-SW4	50	1378	0.34		0.34	0.012	12.06	400	450	0.68	85.11	OK	0.50	0.40	0.111	-0.700	-0.811	1.200	1.211		
4	SW-4-SW5	9	248	0.06	0.89	0.95	0.034	33.52	400	450	0.68	85.11	OK	0.40	0.40	0.020	-0.978	-0.998	1.378	1.398		
5	SW5-SW6	9	248	0.06	0.95	1.01	0.036	35.70	400	450	0.68	85.11	OK	0.40	0.40	0.020	-0.998	-1.018	1.398	1.418		
6	SW6-SW12	22	607	0.15	1.01	1.16	0.041	41.00	400	450	0.68	85.11	OK	0.40	0.38	0.049	-1.018	-1.067	1.418	1.442		
7	SW7-SW8	26	717	0.18		0.18	0.006	6.27	400	450	0.68	85.11	OK	0.40	0.38	0.058	-0.800	-0.858	1.200	1.233		
8	SW8-SW11	28	772	0.19	0.18	0.37	0.013	13.02	400	450	0.68	85.11	OK	0.38	0.50	0.062	-0.858	-0.920	1.233	1.420		
9	SW-9-SW11	21	579	0.14		0.14	0.005	5.06	400	450	0.68	85.11	OK	0.50	0.50	0.047	-0.700	-0.747	1.200	1.247		
10	SW10-SW11	60	1654	0.41		0.41	0.014	14.47	400	450	0.68	85.11	OK	0.35	0.50	0.133	-0.850	-0.983	1.200	1.483		
11	SW-11-SW12	26	717	0.18	0.92	1.10	0.039	38.83	400	450	0.68	85.11	OK	0.50	0.38	0.058	-0.983	-1.041	1.483	1.416		
12	SW12-SW13	20	551	0.14	2.25	2.39	0.085	84.66	450	450	0.73	116.52	OK	0.38	0.30	0.044	-1.067	-1.111	1.442	1.411		
13	SW13-DISPOSAI	30	827	0.20	2.39	2.60	0.092	91.89	450	450	0.73	116.52	OK	0.30	0.30	0.067	-1.111	-1.178	1.411	1.478		
				2.596																		

KULMEET SHANGARI
ARCHITECT
CA/97/21741

PLANS SUBMITTED HEREWITH FOR PROPOSED SCO'S COMMERCIAL PLOTTED COLONY MEASURING 2.65 ACRES, FALLING IN SECTOR-71, VILLAGE BEGUMPUR KHATOLA, GURUGRAM, HARYANA

MATERIAL STATEMENT FOR STORM WATER DRAINAGE SYSTEM ANNEXURE-2a

SL NO	NAME OF LINE	LENGTH	PIPE DIA	450MM	550MM	600MM	700MM
		MTR	MM	MTR	MTR	MTR	MTR
Drainage MB							
1	SW1-SW2	49	400				
2	SW2-SW4	31	400				
3	SW3-SW4	58	400				
4	SW-4-SW5	9	400				
5	SW5-SW6	9	400				
6	SW6-SW12	22	400				
7	SW7-SW8	26	400				
8	SW8-SW11	28	400				
9	SW-9-SW11	21	400				
10	SW10-SW11	60	400				
11	SW-11-SW12	26	400				
12	SW12-SW13	20	450	20			
13	SW13-DISPOSAL	30	450	30			
TOTAL		339.00		50.00	0.00	0.00	0.00

KULMEET SHANGARI
ARCHITECT
CA/97/21741

SUB WORK No. 4 **ROAD WORK**

Width in meter	length in meter	Metalled Portion	Area in Sqm.
4	75.00	4	300.00
6	410.00	6	2460.00
5.5	70.00	5.5	385.00
Total	**555.00**		**3145.00**
		Add 5% for curves	**157.25**
		Total Area	**3302.25**

S No.	Description	Amount
1	Provision for leveling & earth filling as per site condition	
	Approx 2.65 Acre @ Rs. 100,000 per acre	Rs. 265,000.00
2a	Construction of roads by providing granular sub base 300 mm as per MORT & H specification conforming to clause 401 grading B 400.1	
2b	Providing ,laying,spreading & compacting hand broken/ crushed stone aggregate to met mix macadam conforming to physical requirement laid in 400 of 300 mm GSB 250 mm stone aggregate MORT &H specification in two layers (compacted to 250 mm (125+125) by taking material 1.32 times of the (thickness of the layer) including per mixing of material with water in mechanical mixer .	
2c	50 mm thick BM	
2d	20 mm thick mix seal surfacing	
	3302.25 Sqm @ Rs. 900 per sqm	Rs. 2,972,025.00
3a	Providing of kerbs and channel of CC (1:2.4) on both side of road	
	555.00 m @ Rs. 600 /M	Rs. 333,000.00
4	Provision for guide map and other unforeseen item L.S	
	lump sum basis	Rs. 80,000.00
5	Provision for making approch to each block and pavement L.S	
	lump sum basis	Rs. 100,000.00
6	Provision for traffic light arrangement L.S	Rs. 50,000.00
7	Provision for carriage of material & unforeseen items L.S	Rs. 100,000.00
	TOTAL CO to FINAL ABSTRACT OF COST	**Rs. 3,900,025.00**

MATERIAL STATEMENT OF ROAD NODS REFERS TO ANNEXURE 8

KULMEET SHANGARI
ARCHITECT
CA/97/21741

PLANS SUBMITTED HEREWITH FOR PROPOSED SCO'S COMMERCIAL PLOTTED COLONY MEASURING 2.65 ACRES, FALLING IN SECTOR-71, VILLAGE BEGUMPUR KHATOLA, GURUGRAM, HARYANA

ANNEXURE-8

SL NO	NAME OF LINE	Width	Road Length 6M	Road Length 5.5M	Road Length 4M
		MTR	M	M	M
Road MB					
1	R1	6.0	410.0	0.0	0.0
2	R3	4.0	0.0	0.0	75.0
3	R2	5.5	0.0	70.0	0.0
TOTAL			410.00	70.00	75.00

KULM... ...GARI
ARC...
CA/97...

SUB WORK No. 5 **Street Lighting**

S No.	Description	Amount
1	Providing street lightning on roads as per standard specifications of HVPN.	
	Approx 2.65 Acre @ Rs. 250,000 per acre	Rs. 662,500.00
	TOTAL CO to FINAL ABSTRACT OF COST	**Rs. 662,500.00**

ARCHITECT
CA/97/21741

SUB WORK No. 6	Plantation & Road side Trees

S No.	Description	Amount
1	**Development of Green areas**	
a	Trenching the ordinary soil up to dept of 60cm including removal and stacking serviceable material and disposing of by spreading and leveling within a lead of 50m and making up the trenches area to proper leads by filling with earth mixed with manure before and after flooding trench with water including cost of imported earth and manure.	
b	Rough dressing of roof area	
	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 m Apart in either direction	
	Approx. 2.65 Acres @ Rs. 150,000 per Acres	Rs. 397,500.00
2	**Planting Tree**	
a	Providing tress, guards and planting trees along road at 12 m inteval Total road length = 575 No of Tress = 47 say = 50 Cost Analysis of Planting Trees Excavation = 30 each Manure = 60 each Tree plants = 60 each Tree guards = 600 each = Rs.750 per tree	
	50 Trees @ Rs. 750 per tree	Rs. 37,500.00
	TOTAL CO to FINAL ABSTRACT OF COST	**Rs. 435,000.00**

AMEET BHANGAR
ARCHITECT
CA/07/21741

SUB WORK No. 7	M/C Charges for Services & Resurfacing of road

S No.	Description	Amount
1	Providing of M/C charges for water supply , strom water drainage, sewerage, Road, Street lighting, Horticulture etc. complete in all aspect, including Operational and establishment charges as per HUDA norms for 10 years completion	
	Approx. 2.65 Acres @ Rs. 650,000 per Acres	Rs. 1,722,500.00
2	Providing of resurfacing of roads after 5 years 100mm thick layer 100mm thick BUSG complete to 25mm thick premix carpet with seal cost	
	Approx. 3302.25 Sqm @ Rs. 400 per Sqm	Rs. 1,320,900.00
3	Providing of resurfacing of roads after 10 years with 25mm thick premix carpet with seal coat with mech.paver	
	Approx. 3302.25 Sqm @ Rs. 600 per Sqm	Rs. 1,981,350.00
	TOTAL CO to FINAL ABSTRACT OF COST	**Rs. 5,024,750.00**

ANGARI
ARCHITECT
CA/07/21741