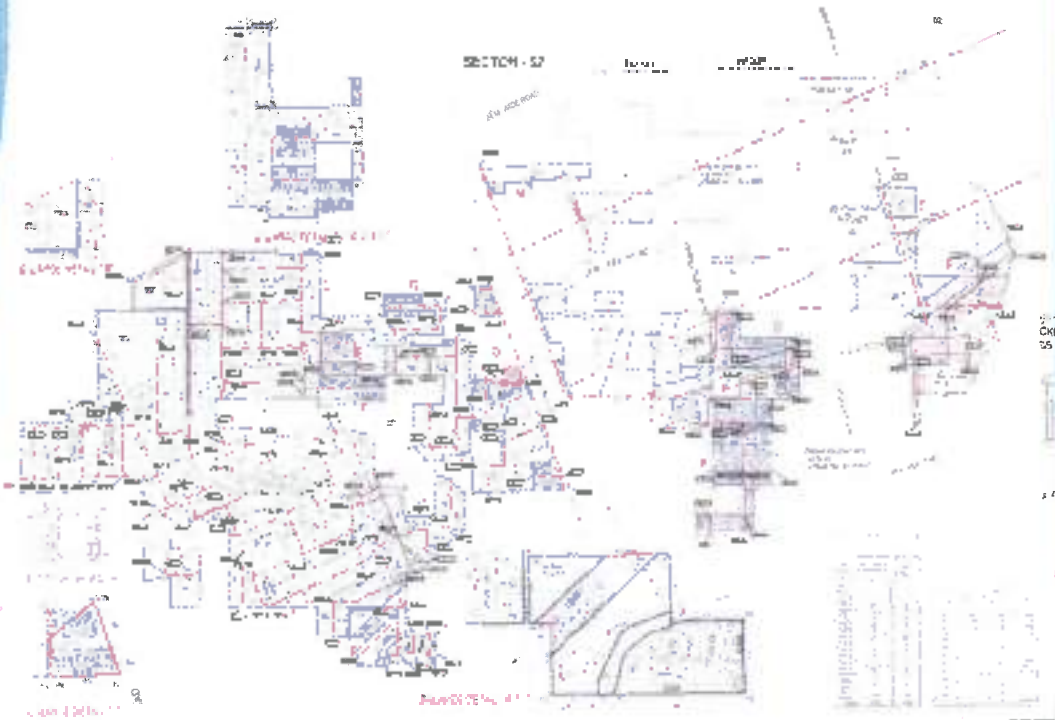


HUDA SUBMISSION



EMAAR
INDIA

Approval of Service Estimate for Development of
Eco-Friendly Infrastructure Services by M/S EMAAR
Land Ltd in 177.86 Acres in Sector 62-65 Gurgaon

Prepared by

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REPORT

**Submission Report on Development of Eco Friendly Infrastructure Services by
EMAAR India Ltd. in 177.86 Acre in Sector 62- 65 Gurgaon**

1 INTRODUCTION

- Gurgaon has been an important urban center in the neighborhood of Delhi. The town is known for automobile companies, modern commercial malls, cyber parks & software development center. The town is located only at 10 Km distance from the Indira Gandhi Airport, Delhi

1.2. Location

- Located on the south western border of Delhi, the district lies between 27 degree 39' and 28 degree 32' 25" latitude; and 76 degree 39' 30" and 77 degree 20' 45" longitude.

1.3. Development Proposal by EMAAR

- M/S EMAAR Land Ltd. has been authorized to develop a residential colony in Gurgaon Urban Complex, Sector-62-65, Gurgaon (195.240 Acres)
- License has already been granted to M/S EMAAR Land Ltd., to develop part of above area (102.741 Acres) Service Estimate approved for 102.741 Acre.
- Later on Authorities approved Estimate for 195.24 Acre. The area falls in Sector 62 & 65.
- Part of work stands Executed of new revised plan approved for 195.24 Acres

Table 1

Area Statement - Plotted Development Emerald Hills Gurgaon, Haryana

Description	Area	Unit	%
Original License Area (A)	195.2410	Acres	
De-license Area (B)	0.78675	Acres	
Proposed Area for NILP Migration (C)	31.9875	Acres	
Net License Area(D=A-(B+C)	162.4668	Acres	
Additional Applied License Area E	15.3938		
Total License Area(F=D+E)	177.8606		
Area under Group Housing (G)	9.53	Acres	
Area under Undetermined Use (H)	7.45	Acres	
Net Area for Plotted(F-G-H)	160.88	Acres	
Area under Plots (i)	71.16	Acres	44.23%
Area under Nursing Home (ii)	0.988	Acres	0.61%
Area under Commercial (iii)	6.44	Acres	4.00%
Total Saleable Area (i+ii+iii)	78.588	Acres	48.85%

- Revised Service Estimate is being submitted for 177.86 Acre area with breakup as under

Table 2

Area Statement - Plotted Development Emerald Hills Gurgaon, Haryana

Description	Area	Unit	%
Original License Area (A)	195.2410	Acres	
Delicense Area (B)	0.78675	Acres	
Proposed Area for NILP Migration (C)	31.9875	Acres	
Net License Area(D=A-(B+C)	162.4668	Acres	
Additional Applied License Area E	15.3938		
Total License Area(F=D+E)	177.8606		

- Part of work has been completed against original Approval and balance work is yet to be taken in Hand.
- Sector wise Area breakup of work already done & yet to be done is tabulated below

Table 3

Description	Acres
Total Work in Sector 65	127.12
Work Completed in Sector 65	120
Balance Work in Sector 65	7.12
Work yet to taken in Hand in Sector 62, Zone 1	28.77
Work yet to taken in Hand Sector 62, Zone -2	12.44
Sub Total	168.33
Group Housing	9.53
Grand Total	177.86

- Revised Service estimated is prepared in two parts
- Part 1 covering Area of Sector 65 where work has been completed.
- Part 2 covering Area Sector 65 & 62 where work is yet to taken in Hand.

2 ROADS

2.1. Soil Investigation Results (CBR Value)

- CBR Value : 6%

2.2. Design of road crust 120 Ac. Area (Completed work)

Based on data of C.B.R. Values 6% in the area the roads specifications proposed are approximately as under:-

12 m & 15 m Collector Streets

- Sub grade. Existing soil to be pulverized & mechanically compacted
- 200 mm GSB as per MORTH Specification
- 150 mm W.M.M. as per MORTH Specification
- 50 mm BM as per MORTH Specification No.5
- 20 mm MSS as per MORTH Specification No.510

18 m & 24 m wide road

- Sub grade. Existing soil to be pulverized & mechanically compacted
- 200 mm GSB as per MORTH Specification No.401
- 150 mm WMM as per MORTH Specification No.406
- 50 mm DBM as per MORTH Specification
- 25 mm SDBC as per MORTH Specification No.512

Detail of Road Lengths

Table -4

Description of Road	Total Length of Road (120 Acres)	Metalled Width	Road Crust Area (120 Acres)	Length of Kerb & Channel (120 Acres)	Pavement in Commercial Area in (120 Acres)	Foot Path (120 Acres)
	Mtrs	Mtrs	Sqm	Mtrs	Sqm	Sqm
24 M Wide Road	1688	14	23632	3376	13030.8	3376
18 M Wide Road	562	7	3934	562		1124
15 M Wide Road	3262	7	22834	3262		4893
12 M Wide Road	4780	7	33460	4780		7170
Total	10292		83860	11980	13030.8	16563

2.3. Design of road crust in area where work is yet to be taken in hand (57.86) Ac.



Based on data of C.B.R. Values 6% in the area the roads specifications proposed are approximately as under:-

12 m & 15 m Collector Streets

- f. Sub grade: Existing soil to be pulverized & mechanically compacted
- g. 200 mm GSB as per MORTH Specification
- h. 250 mm W.M.M. as per MORTH Specification
- i. 65 mm DBM as per MORTH Specification
- j. 30 mm BC as per MORTH Specification

18 m & 24 m wide road

- f. Sub grade: Existing soil to be pulverized & mechanically compacted
- g. 200 mm GSB as per MORTH Specification
- h. 225 mm WMM as per MORTH Specification
- i. 50 mm DBM as per MORTH Specification
- j. 30 mm BC as per MORTH Specification

Detail of Road Lengths

Table -5

Description of Road	Total Length of Road (7.12 Acres)	Total Length of Road (50.74 Acres)	Metalled Width	Crust Area (7.12 Acres)	Crust Area (50.74 Acres)	Length of Kerb & Channel (7.12 Acres)	Length of Kerb & Channel (50.74 Acres)	Foot Path (7.12 Acres)	Foot Path (50.74 Acres)
	Mtrs	Mtrs	Mtrs	Sqm	Sqm	Mtrs	Mtrs	Sqm	Sqm
24 M Wide Road	0	853	14	0	11942	0	1706	0	1706
18 M Wide Road	0	0	7	0	0	0	0	0	0
15 M Wide Road	99	0	7	693	0	99	0	148.5	0
12 M Wide Road	852	3165	7	5964	22155	852	3165	1278	4748
Total	951	4018		6657	34097	951	4871	1427	6454

3 WATER MANAGEMENT PLAN

- Water Management plan is tabulated below
- The plan has been sub divided sector wise in two parts showing work completed and balance work

Table -6

Water Management Plan		Total Water Demand	Fresh Water Demand	Recycled Water Demand	Estimated Waste Water Generation
Description	Acres	Litres	Litres	Litres	Litres
Total Work in Sector 65	127.12	2968229	1969769	998413	1975905
Work Completed in Sector 65	120	2702771	1783588	919138	1784340
Balance Work in Sector 65	7.12	265458	186181	79275	191565
Work yet to taken in Hand in Sector 62 Zone 1	28.77	760798	501953	258855	511044
Work yet to taken in Hand Sector 62, Zone -2	12.44	494076	385482	108631	349873
Sub Total	168.33	4223103	2857204	1365899	2836822
Group Housing	9.53	321638	257310	64328	270176
Grand Total	177.86	4544741	3114514	1430227	3106998

4 WATER SUPPLY

4.1. Source of Water Supply

- Main source of water supply is Canal base treated water being supplied by Haryana ban Development Authority.
- Accordingly, one independent water works has been constructed in Sector 65 for receiving bulk supply from the HSVP/Govt. agency.
- Two water works has been proposed in in Sector 62 since land packets are not inter connected for receiving bulk supply from the HSVP/Govt. agency .
- Till that time water shall be drawn from existing Tube wells /New Tube wells and carried through rising mains to U.G.T. at Water Works. Here after the water shall be pumped in to the distribution system for the colony in original service estimate.
- 1000 Mtr, 200 mm i/d pipe line is laid from HUDA sauce to WW1.
- It is proposed 200 mm i/d pipe 500 M length to be laid from W1 on HSVP main line up to WW2 in sector 62 & it is proposed 150 mm i/d pipe 625 M length to be laid from WW2 to WW3 for second packet in sector 62.
- For Grouping Housing area 9.53 Acres 100 mm i/d pipe line 330 Mtr is proposed.
- Part of additional area falls in sector 65 will be served from existing Water Works in Sector 65.



4.2. Daily Water Demand of 177.86 Acre Area

4.3. Total Area being developed in Sector 65

- Already approved area being developed in Sector 65: 120 Acres.
- Additional area being developed in Sector 65: 7.12 Acres.
- Total area being developed in Sector 65 : $120+7.12=127.12$ Acres

4.4. Total Area being developed in Sector 62

- Total area being developed in Sector 62: 50.74 Acres.
- Total area being developed in Sector 62 & 65: $=127.12+50.74=177.86$ Acres.

4.5. Water Demand of total area being developed in Sector 65 & 62

- Total Water Demand : 4223 KL
- Water Demand to meet from fresh water source is : 2857 KL
- Water Demand to meet from recycled treated water source is : 1365 KL

4.6. Water Demand of total area being developed in Sector 65

- Total Water Demand : 2968 KL
- Water Demand to meet from fresh water source is : 1970 KL
- Water Demand to meet from recycled treated water source is : 998 KL

4.7. Water Demand of area already developed in Sector 65

- Total Water Demand : 2703KL
- Water Demand to meet from fresh water source is : 1784KL
- Water Demand to meet from recycled treated water source is : 919 KL

4.8. Water Demand of area yet to develop in Sector 65

- Total Water Demand : 265 KL
- Water Demand to meet from fresh water source is : 186 KL
- Water Demand to meet from recycled treated water source is : 79 KL

Water Demand of total area being developed in Sector 62

Zone 1

- Total Water Demand : 760 KL
- Water Demand to meet from fresh water source is : 501kl
- Water Demand to meet from recycled treated water source is : 259 KL

Zone 2

- Total Water Demand : 494 KL
- Water Demand to meet from fresh water source is : 385 KL
- Water Demand to meet from recycled treated water source is : 109 KL

4.9. Fire Demand

- Fire Demand in Liters. $= (P)^{1/2} \times 100 \times 1000$
- (P is Population in thousands) $= (15.602)^{1/2} \times 100 = 395$ K Ltr.
- Fire Demand of Sector 65 $= 395 \times 133.10 / 177.86 = 295$ KL
- Fire Demand of Sector 62 Zone 1 $= 395 \times 31.35 / 177.86 = 70$ KL
- Fire Demand of Sector 62 Zone 2 $= 395 \times 13.41 / 177.86 = 30$ KL.
- (P is Population in thousands) $= (2.382)^{1/2} \times 100 = 154$ K Ltr.

4.10. Design of Tube wells in the Project site area.

- No of Tube wells = $1207/400 = 3.19$ Say 4 Nos.

4.11. Pumping Machinery for Tube wells

Average Spring level	=	25.00M	
Average fall in spring level	=	3.05 M	
Depression head	=	6.10 M	
Friction loss in main	=	2.50M	
Head up to UGT	=	36.65M,	Say 40 M
BHP = $25000 \times 40 \times 1 / (60 \times 60 \times 75 \times 0.60)$	=	6.17 BHP,	Say 10 BHP

4.12. Over Head Service Reservoir

- Capacity of OHSR 1/4th of daily demand

Over Head Tank in Sector -65

- Capacity of OHSR 1/4th of daily demand = $1971/4 = 493$ KL.
- Providing one no Over Head Service cum Balancing Reservoir of 400 kl. Capacity 30 mtrs height

4.13. Under Ground Tank

Under Ground Tank in Sector -65

- Capacity of Existing CWT @ 1/3 of daily demand = $1971/3 = 657$ KL
- Add for Fire Fighting Demand = 295 KL
- Net capacity Provided = $657 + 295 = 902$ KL

4.14. Under Ground Tank in Sector -62

Zone 1

- Capacity of CWT @ daily demand = 501 KL
- Add for Fire Fighting Demand = 70 KL
- Net capacity Provided = $501 + 70 =$ 571 KL ✓
- It is proposed to construct Under Ground tank of 500 KL. capacity To meet daily requirement
- For the firefighting demand other compartments of 100 KL Capacity.
- Three no. Underground storage reservoir 6Mx 5.4 Mx 5.2M SWD each for daily demand.
- One No. Underground storage reservoir 3.7Mx 4 Mx 5.2M SWD each for Fire demand

Zone 2

- Capacity of CWT of daily demand = 385 KL ✓
- Add for Fire Fighting Demand = 30 KL ✓
- Net capacity Provided = $385 + 30 =$ 415 KL
- It is proposed to construct Under Ground tank of 385 KL. capacity To meet daily requirement
- For the firefighting demand other compartments of 100 KL Capacity.
- Three no. Underground storage reservoir 6Mx 5.4 Mx 5.2M SWD each for daily demand

Zone 3 (Group Housing 9.53 Acres)

- Capacity of CWT @ 1 day of daily demand = 258 KL
- Add for Fire Fighting Demand = 154 KL
- Net capacity Provided = 258 + 154 = 412 KL
- It is proposed to construct Under Ground tank of 412 KL capacity To meet daily requirement
- One no. Underground storage reservoir ~~6Mx 5.4 Mx 5.2M~~ ^{7.30x5.8x5.20} SWD each Two Compartment for daily demand
- One no. Underground storage reservoir ~~6Mx 5.4 Mx 5.2M~~ ^{7.30x5.8x5.20} SWD each for Fire demand

4.15. Pumping Machinery

Pumping Machinery for Sector 65

- Daily Pumping Hour = 16
- Average pumping per Hour = $1971/16 = 124 \text{ KL}$
- Nos. of pumps proposed 3 Nos + 1 No. Stand bye
- Hourly pumping by one pump with overall efficiency 60%

Pumping Machinery for Sector 62

Zone 1

- Daily Pumping Hour = 16
- Average pumping per Hour = $508/16 = 33 \text{ KL}$
- Nos. of pumps proposed 3 Nos + 1 No. Stand bye
- Hourly pumping by one pump with overall efficiency 60% = $33/3/0.6 = 19 \text{ KL or } 5 \text{ Ltr PS}$
- Hence it is proposed to install 4 Nos. pumping set Horizontal Centrifugal / submersible type of 10LPS discharge each set against a head of 45 Mtr to meet average demand
- = $123/3/0.6 = 68.4 \text{ KL or } 19.0 \text{ Ltr PS}$
- Hence it is proposed to install 4 Nos. pumping set Horizontal Centrifugal / submersible type of 20LPS discharge each set against a head of 45 Mtr to meet average demand.

Zone 2

- Daily Pumping Hour = 16
- Average pumping per Hour = $388/16 = 24 \text{ KL}$
- Nos. of pumps proposed 3 Nos + 1 No. Stand bye
- Hourly pumping by one pump with overall efficiency 60% = $24/3/0.6 = 15 \text{ KL or } 5 \text{ Ltr PS}$
- Hence it is proposed to install 4 Nos. pumping set Horizontal Centrifugal / submersible type of 10LPS discharge each set against a head of 45 Mtr to meet average demand.

Zone 3 (Group Housing 9.53 Acres)

- Daily Pumping Hour = 16
- Average pumping per Hour = $258/16 = 16 \text{ KL}$
- Nos. of pumps proposed 1 Nos + 1 No. Stand bye
- Hourly pumping by one pump with overall efficiency 60% = $16/0.6 = 27 \text{ KL or } 10 \text{ Ltr PS}$
- Hence it is proposed to install 2 Nos. pumping set Horizontal Centrifugal / submersible type of 10LPS discharge each set against a head of 45 Mtr to meet average demand



4.16. Distribution Net Work

Table -7

Length of Fresh Water Distribution System					
	100 mm i/d	150 mm i/d	200 mm i/d	250 mm i/d	300 mm i/d
Total Length in 177.86 Acre Area Sector 65 & 62	13875	1445	581	183	443
Length in 120Acre Area in Sector 65 Work completed	8329	1445	581	183	443
Length in 7.12 Acre Area in Sector 65 New Work	750	220	0	0	0
Length in 28.77 Acre Area in Sector 62 Zone 1 New Work	3891	0	0	0	0
Length in 12.44 Acre Area in Sector 62 Zone 2 New Work	1655	0	0	0	0
Length in Group Hosing Area (9.53 Acre)	200				

5. Waste Water

5.1. Estimation of Waste Water Demand

- Estimated Generation of Waste Water 3100 KLitres

Table -8

Total in sector 65 & 62	Waste Water Generation in Liters	Waste Water Generation in Kilo Liters	STP Provided KL
Total Dis charge in sector 65			
at STP 1	1033993	1034	1000(Ex.)
at STP 2	398914	399	400(Ex.)
at STP 3	513728	514	450(Ex.)
Portable STP	25357	25	25(Ex.)
Total Discharge in sector 62 Zone 1			
STP 4	433337	433	630
Portable STP	7828	8	10
Total Dis charge in sector 62Zone 2			
STP5	423668	424	600
Total Dis charge in sector 62 (GH Area Zone 3			
Total	270176	270	270
Total	3106998	3107	3385

- Waste Water will be collected at three points in Sector 65 STP1, STP2 & STP 3.
- Waste Water will be collected at three points in Sector 62.
- Over-flow arrangement from proposed 3 Nos. STP has been included in the project



5.2. Design of Waste water Collection System

5.2.1. Pipe Sewer Length for Waste Water Collection System

Table -9

Waste Water Collection System		200 mm i/d	250 mm i/d	300 mm i/d	400 mm i/d
Total length in sector 65		M	M	M	M
STP 1	From Completed work area	3942	168	191	40
	From additional Area	255.00			
STP 2	From Completed work area	1274	102		
	From additional Area	400	268		
STP 3	From Completed work area	2322	66	66	
Portable STP		147			
Total length in sector 62					
STP 4	Zone 1	2268		138	
Portable STP	Zone 1	355			
STP5	Zone 2	1200		13	
	Zone 3 GH Area 9.53			200	
Total		12162	604	607	40

5.2.2. Pipe Line Length for Recycling System

Table -10

Total length in sector 65 & 62		Total	63mm i/d	75 mm o/d	90mm o/d	110 mm o/d	140 mm i/d	160 mm o/d	180 mm o/d
Total length in sector 65									
STP 1	From Completed work area	4520	3141	460	179	294	165	160	121
	From additional	173	173	0	0	0	0	0	0
STP 2	From Completed work area	1780	1140	447	73	0	100	20	0
	From additional	684	242	184	0	258	0	0	0
STP 3	From Completed work area	3206	2072.00	412.00	504.00	51.00	149.00	18.00	0.00
Total length in sector 62									
ZONE1	From Completed work area	3934	502.00	0.00	666.00	1781.00	793.00	183.00	9.00
Zone 2	From work area	1437	798.00	0.00	0.00	600.00	0.00	0.00	39.00
Zone 3	From Group Housing area				100	100			
Total			8068.00	1503.00	1522.00	3084.00	1207.00	381.00	169.00
						15934.00			

6 Storm Water Drainage & Recharge Wells

6.1. Planning of Storm Water Drainage System

- The following factors are taken into consideration for planning of the drainage system.
- The pattern of natural slope of the site, its extent and direction.
- The natural drainage system in the downstream area (outside the project area)
- The main source of Runoff are categorized as under
- Run off from Roof Top Area
- Run off from Road Top Area
- The Runoff will be collected through Drains/Pipes. These drains takes storm water into nearest lateral drains/Pipes and then into Trunk Drains/Pipes constructed in utility corridors, which ultimately takes the storm water to the disposal point.

6.2. Adopted Design Criteria

- External Storm water Drainage along Master Roads is provided to cater for rain fall up to Intensity@ 3.12 mm /Hr.

6.3. Storm Pipe/Drain of Internal Storm Water System

Table -11

Total length in sector 65 & 62		Connecting Pipe		Main Pipe								Total
Total length in sector 65		200 mm id	300 mm id	400 mm id	500 mm id	600 mm id	700 mm id	800 mm id	900 mm id	1000 mm id	1400 mm id	
Outfall 1	From Completed work area	1253	834	434	189	0	0	0	0	0	0	2710
	From additional	0	108	0	0	0	0	0	0	0	0	108
Outfall 2	From Completed work area	339	402	333	131	125	0	0	0	0	25	1355
	From additional	0	470	154	0	0	0	0	0	0	0	624
Outfall 3	From Completed work area	0	0	197	0	0	0	0	0	0	0	197
	From additional	0	0	0	0	0	0	0	0	0	0	0
Outfall 4	From Completed work area	1307	1702	1239	268	312	0	248	22	214	179	5491
	From additional	0	0	104	0	0	0	0	0	0	0	104
Total of completed work		2899	2938	2203	588	437	0	248	22	214	204	9753
Total Additional lines laid in sector 65		0	578	258	0	0	0	0	0	0	0	836
Outfall 5	Zone 1	2700	541	50.00	0.00	0.00	0.00	0.00	0.00	106.00	20.00	3417
Outfall 6	Zone 2	0.00	0.00	1262	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1419
Outfall 7	Zone 3											
Total				200								15468

6.4. Recharge Wells

- Total Rain Fall =596 mm
- Total Rain Fall occurs in 43.5 Hrs 43.5 in 36 days.
- Below Average Rain Fall occurs in 23.5 Hrs 43.5 in 14 days.
- Rainfall contributing towards Recharging =413.75 mm
- Total Tributary Area =195.24 Acres. The Breakup of Area is as under
- Residential Constructed , 414 Plots
- Residential Plotted (1239-414=825) Plots
- Road , UD & Green Area
- Commercial & Utility Area
- As per HUDA guidelines each plot owner will construct recharge well for each dwelling unit more than 100 Sqm Roof top Area. As an alternative it is proposed that separate Recharge wells of bigger size are provided in vicinity of constructed/ plotted area.
- Separate Recharge wells be provided for Road top area, UD & Green area

Residential Area (Constructed Area)

- Total Rain Fall =588 mm =0.588 M
- Runoff Factor =0.374
- Constructed Residential Area =122492 Sqm
- Total Quantum of Rain fall = Total Rainfall in mm/1000 * Runoff factor * Area in Sqm
- =588/1000 * 0.374 * 122492
- =26844 Cum
- Injection well is designed to take quantum of Average Rain fall only.
- Total Rain fall Hrs are 43.5 hrs. Out of which 20 hrs are when rainfall is more than or equal to average rainfall. & 23.5 hrs are for below average rain fall rainfall
- Total Rain Fall =20*13.52+23.5*6.1 =413.75 M
- Runoff Factor =0.374
- Constructed Residential =122492 Sqm
- Total Quantum of Rain fall = Total Rainfall in mm/1000 * Runoff factor * Area in Sqm
- =413.75/1000 * 0.374 * 122492
- =18956 Cum
- Total Quantum of Water injected by one well in 43.5 hrs = (19.2+20)*43.5 =1705 Cum
- No. of Injection well required =18956/1705 =11.11 =11 Nos

Road & Green Area

- Total Rain Fall =588 mm =0.588 M
- Runoff Factor =0.371
- Area =290593 Sqm
- Total Quantum of Rain fall = Total Rainfall in mm/1000 * Runoff factor * Area in Sqm
- =588/1000 * 0.371 * 290593 =63392 Cum
- Injection well is designed to take quantum of Average Rain fall only.
- Total Rain fall Hrs are 43.5 hrs. Out of which 26.5 hrs are when rainfall is more than or equal to average rainfall. & 17 hrs are for below average rain fall rainfall
- Total Rain Fall =20*13.52+23.5*6.1 =413.75 M

- Runoff Factor =0.371
- Balance Area =290593 Sqm
- Total Quantum of Rain fall =Total Rainfall in mm/1000*Runoff factor* Area in Sqm
- =413.75/1000*0.371*290593=44607 Cum
- Total Quantum of Water injected by one well in 43.5 hrs =(19.2+20)*43.5=1705Cum
- No. of Injection well required =44607/1705=26Nos
- Total Recharge Wells proposed =11+26=37 Nos.

7 HORTICULTURE / ARBORICULTURE

- Green area acts in the similar manner as lungs perform in human body. Hence its development is important for eco-friendly development.
- Fine grassing is proposed in all the parks.
- Shrubs and creepers will be provided at suitable places.
- Road side plantation will be carried out as per norms i.e. at 12 m c/c on foot paths.

7.1. Horticulture / Arboriculture

Table-12

Sr. No	Description	Total Qty. 120 Acre	Total Qty 57.86 Acres
1	Development Of Green Area	4.24	3.97
2	Road Side Plantation and plantation along the roads and above after distance of each 12 m	1715	829

8 STREET LIGHTING

- 150 Watt sodium Halide lamps have been proposed on 24 m road on both sides at 44 m distance in a staggered manner i.e. 20 m center to center
- 150 Watt sodium Halide lamps have been proposed on 18 m road on one side at 25m distance.
- At road junctions 70 Watt sodium Halide lamps have been proposed at 15 m distance.
- Height of tubular pole for 24 m, 18 m wide roads and road junctions will be 6.75 m above ground level and 1.25 m below ground level.
- It is proposed to provide CFL Lamp 15 mt. & 12 mt wide roads on one side @25 m c/c with height of pole above road level is 5.75 m. & with 1.5 m projection.
- The distance of pole from metalled edge is 1.40 m.
- Street Lights have been proposed at a spacing of 40mts on both sides of the 24 mts. wide roads i.e., these shall be located alternately for proper lighting on both sides. The actual spacing would thus be 20mts.

9 SPECIFICATIONS:

- The work will be carried out in accordance with the MORTH, HARYANA PWD & HUDA specification/ Guide lines.
- Specifications in detail has been submitted at time of calling tenders

10 RATES

- The Costing for providing services in this project has been prepared on the basis of recent market rates and II S.R

II COSTING

- The total cost of the project: ~~111.27~~ Cr. ^{120.85}
- The cost of development in this project comes out to be ~~41.28~~ Crs. & ~~71.35~~ Lakh per Acres. ^{50.63 87.50}

Table -13

Final Abstract of Cost of Sector 62, 65 Gurgaon,
Total Area=177.86 Acres (Already developed: 120 acres, Additional Area 57.86 Acre being developed by EMAAR India Ltd.

Sr. No.	Sub Work No.	Description	Total Cost 177.86	Total Cost 120.00	Total Cost 57.86
1	Sub Work No. 1	Roads	290513549 ³¹⁶⁰⁵⁶⁰⁷⁰	180277234	110236365 ¹²⁹⁷⁷⁸⁸³⁶
2	Sub Work No. 2	Water Supply	105953071 ¹²⁰¹⁷⁰⁷⁸³	67323056 ⁶⁹⁶²⁷¹⁰⁶	38628015 ⁵¹⁴³⁶⁴⁶
3	Sub Work No. 3	Waste Water & Recycling	124925555 ¹⁵⁰⁶⁵⁸²¹⁴	63180714	61744841 ⁸⁷⁴⁷⁷⁵⁰⁰
4	Sub Work No. 4	Storm Water Drainage	59740351 ⁶⁸⁵⁴²¹⁴²	38045566	21664685 ³⁰⁴⁹⁶⁵⁷⁶
5	Sub Work No. 4A	Recharge Wells Road, & Green Area	10457852 ^{1864371/-}	6752682	3705170 ⁴⁸¹¹⁶⁹⁰
6	Sub Work No. 4B	Additional Recharge Wells for Constructed Area	4605070 ⁵⁸⁵⁷³⁶⁶	2487830	2117240 ²⁷⁴⁹⁵³⁶
7	Sub Work No. 5	Horticulture works	5191813 ^{6336853/-}	2950077	2241736 ³⁵⁸⁶⁷⁷⁵
8	Sub Work No. 6	Lighting & Fittings	72682552 ^{72682552/-}	46041000	26641552
		Sub Total	674039763 ⁷⁴⁵⁸⁴⁸³²¹	407060158 ⁴⁰⁹³⁶²²⁰⁹	266979605 ³³⁶⁴⁸⁶¹¹⁰
9	Sub Work No. 7	(Maintenance of services including Resurfacing of roads after first 5 years & Second after 10 Year of maintenance)	438655526 ^{412622437/-}	292824671 ⁷⁹²⁸²⁴⁶⁷¹	145830856 ^{169797816/-}
		Sub Total	1112695289 ¹²⁰⁸⁴⁷⁰⁸¹⁸	699884829 ⁷⁰²¹⁸⁶⁸⁸⁰	412810461 ⁵⁰⁶²⁸³⁷³⁶
		Cost / Acre	6256018 ^{6794505/-}	5832374 ^{5851557/-}	7134643 ^{8150154/-}

COSTING

2nd Copy

Final Abstract of Cost of Sector 62, 65 Gurugram.

Total Area=177.86 Acres (Already developed: 120 acres. Additional Area 57.86 Acre being developed by KVAAR India Ltd.

Sr. No	Sub Work No.	Description	Total Cost 177.86	Total Cost 120.04	Total Cost 57.86
1	Sub Work No. 1	Roads	310056070 292673399	-	129778836/- 180277334
2	Sub Work No. 2	Water Supply	120770753 105953071	60627106	51143646 78620115
3	Sub Work No. 3	Waste Water & Recycling	150658214 144625555	63110714	87477500/- 13444441
4	Sub Work No. 4	Storm Water Drainage	68542142/- 49710751	31015500	30496576/- 21661083
5	Sub Work No. 4A	Rockings Wells Head, & Catchment Area	11564371/- 10457852	6752982	4811694/- 3705120
6	Sub Work No. 4B	Additional Rocking Wells for Constructed Area	523866/- 4605070	1467330	2749534/- 2717240
7	Sub Work No. 5	Manicure works	6336853/- 3193825	2950077	3386775/- 2241716
8	Sub Work No. 6	Lighting & Fittings	73082552	40041200	26041352
Sub Total			745868321/- 41039760	40930229/- 107060163	33648611/- 26075605
9	Sub Work No. 7	(Maintenance of services including Resurfacing of roads after first 5 years & Second after 10 Years of maintenance)	442622447/- 428695926	292824671	109797826/- 145600850
Sub Total			1208490568/- 1142693526	70218683/- 47981837	50658393/- 42211040
Cost / Acre			6786614	6132154	5134645
			6784505/-	5081557/-	8750154/-

Checked for service estimate only

Executive Engineer-III
Drainage Division, GMDA,
Gurugram

Executive Engineer-V
Sew. Division No. 1
GMDA, Gurugram

Executive Engineer-I
W/S Division, GMDA
Gurugram

Executive Engineer-I (epc)
Gurugram Metropolitan Development Authority
Gurugram

Deputy for General
Town & Country Planning
Haryana

Chief Engineer,
(Infra-II), GMDA
Gurugram

Cost Estimation of Sub Work No. 1

(Rupees)

S No	SUB HEAD NO. 1	Description	Qty	Unit	Adductal 57.8ed Acres	Total 57.8ed Acres	Rate for additional Area	Rate for additional Area	Annual in	Annual in	Annual in
1		Providing for leveling & earth filling includes providing good earth transportation from source to site, laying in layer rolling & watering & compaction to the desired specification complete as per MORT&H specifications for road & bridge works Class - 401 for all grade and lifts as per specifications	120 000	sq m	57.860	57.860	125000	150000	23670000	15000000	8679000
2		Providing for leveling & earth filling includes providing good earth transportation from source to site, laying in layer rolling & watering & compaction to the desired specification complete as per MORT&H specifications for road & bridge works Class - 401 for all grade and lifts as per specifications	120 000	sq m	57.860	57.860	125000	150000	23670000	15000000	8679000
3		Providing for leveling & earth filling includes providing good earth transportation from source to site, laying in layer rolling & watering & compaction to the desired specification complete as per MORT&H specifications for road & bridge works Class - 401 for all grade and lifts as per specifications	120 000	sq m	57.860	57.860	125000	150000	23670000	15000000	8679000
4		Providing for leveling & earth filling includes providing good earth transportation from source to site, laying in layer rolling & watering & compaction to the desired specification complete as per MORT&H specifications for road & bridge works Class - 401 for all grade and lifts as per specifications	120 000	sq m	57.860	57.860	125000	150000	23670000	15000000	8679000
5		Providing for leveling & earth filling includes providing good earth transportation from source to site, laying in layer rolling & watering & compaction to the desired specification complete as per MORT&H specifications for road & bridge works Class - 401 for all grade and lifts as per specifications	120 000	sq m	57.860	57.860	125000	150000	23670000	15000000	8679000
6		Providing for leveling & earth filling includes providing good earth transportation from source to site, laying in layer rolling & watering & compaction to the desired specification complete as per MORT&H specifications for road & bridge works Class - 401 for all grade and lifts as per specifications	120 000	sq m	57.860	57.860	125000	150000	23670000	15000000	8679000
7		Providing for leveling & earth filling includes providing good earth transportation from source to site, laying in layer rolling & watering & compaction to the desired specification complete as per MORT&H specifications for road & bridge works Class - 401 for all grade and lifts as per specifications	120 000	sq m	57.860	57.860	125000	150000	23670000	15000000	8679000
8		Providing for leveling & earth filling includes providing good earth transportation from source to site, laying in layer rolling & watering & compaction to the desired specification complete as per MORT&H specifications for road & bridge works Class - 401 for all grade and lifts as per specifications	120 000	sq m	57.860	57.860	125000	150000	23670000	15000000	8679000
9		Providing for leveling & earth filling includes providing good earth transportation from source to site, laying in layer rolling & watering & compaction to the desired specification complete as per MORT&H specifications for road & bridge works Class - 401 for all grade and lifts as per specifications	120 000	sq m	57.860	57.860	125000	150000	23670000	15000000	8679000
10		Providing for leveling & earth filling includes providing good earth transportation from source to site, laying in layer rolling & watering & compaction to the desired specification complete as per MORT&H specifications for road & bridge works Class - 401 for all grade and lifts as per specifications	120 000	sq m	57.860	57.860	125000	150000	23670000	15000000	8679000
11		Providing for leveling & earth filling includes providing good earth transportation from source to site, laying in layer rolling & watering & compaction to the desired specification complete as per MORT&H specifications for road & bridge works Class - 401 for all grade and lifts as per specifications	120 000	sq m	57.860	57.860	125000	150000	23670000	15000000	8679000
Sub Total											
Add 3 % Contingency charges											
Total											
Add 49% Charges on account of Population Over Head & Super Vision Charges											
Grand Total											

1500/-
17913000/-
17913000/-

1500/-
43218000/-
43218000/-

1000/-
13010000/-
13010000/-

1000/-
20303250/-
20303250/-

20203040/-
2060912/-
20809132/-
101963748/-
310056070/-

84563000
25761000
97099000
15678746/-
124178000

Abstract of Nash Work No. 2

(Water Supply)

SUB HEAD NO. 1

Water works, Boasting Station

SUB HEAD NO. 2

Pumping Machinery

SUB HEAD NO. 3

Distribution System & Rising Main

Total

Add 1 % Contingency charges

Total

Add 4% Charges on account of Escalation, Over Head & Supervision Charges

Grand Total

SUB HEAD NO. 1

Annually
work done
120 AcresTotal
Work in
Sector 65

Zone 1

Zone 2

Zone 3

Total Qty.

Water works, Boasting Station

Sr No	Description	120		112		24.77		11.44		8.53		175.86		Unit	Rate @	Rate for Additional Qty. Area	Amount in		Additional Amount
		Qty	Qty	Qty	Qty	Qty	Qty	Qty	Qty	177.86 Area	120 Area								
1	Boring & installing 21" dia. wells reverse rotary rigs complete with pipes & slaunch to depth of about 30 m. concrete	4								0	No	700000	440000		280000	280000	280000	0	
2	Construction of Pump Chamber	4								0	No	225000	210000		225000	210000	210000	0	
3	Construction of Boundary wall and gate around the water works	1								0	LS	200000	240000		240000	240000	240000	0	
4	Construction of Boundary wall and gate around the Tube-wells	1								0	LS	100000	120000		120000	120000	120000	0	
5	Development of campus of water works including construction of approach roads footpath hedger and development of lawn and plantation etc. complete at water works site	2								0	LS	100000	170000		170000	170000	170000	0	
6	Development of Tube well site including construction of approach roads footpath hedger and development of lawn and plantation etc. complete at tube well site	5								0	LS	100000	120000		120000	120000	120000	0	
7	Construction of RCC ORSR of following capacity including cost of main cast iron manholes, flow, scour pipe and subsequent complete wall respect with 30 m staging height	500								0	KL	3000	15000		15000	150000	150000	0	
8	Construction of Pumping Chamber	2								0	No	600000	720000		720000	720000	720000	0	
9	Construction of RCC Under Ground Class Water Storage Tank/Domestic Plant (inc. for flow compartments including inlet outlet & over flow)	900								0	KL	3500	6000		6000	1213200	715000	878200	
10	Provision for Luggage of materials and labor on/overseem Provision for Staff Quarters for Maintenance staff	2								0	LS	100000	120000		120000	200000	100000	100000	
	Area	7.5		7.00															
	140.23	4.4		8.80															
	501.91	6		6.00															
		21.90																	
Total Cost																			

Total Cost

24301500/- 83100000/- 6735000/-

27212000/- 9081000/-

SUB HEAD NO. 3

Pumping Machinery

Sl No	Description	Already work done 120 Acres	Total Work in Sector 65	Zone 1	Zone 2	Zone 3	Total Qty.	Unit	Rate	Rate for additional Qty. Acre	177.86 Acre	120 Acres	Additional Amount
		Qty	Qty	Qty	Qty	Qty	TotalQty						
		831100	7.12	18.77	12.44	9.53	877.86					Amount in	
1	Providing & Installing electrically driven submersible pump; Set capable of delivering about 18 M water per hour against head of 37 complete with motor and other accessories	4					4	Mt	200000	800000	800000	800000	0
2	Provision for generating cost of 22 kva	1					1	No	200000	200000	200000	200000	0
3	Provision for pressure type chlorination plant	4		2			2	No	100000	200000	400000	400000	240000
4	Provision for making foundations for machinery	4		2			2	No	25000	50000	100000	100000	60000
5	Provision for pipes & valves	4		2			2	No	50000	100000	200000	200000	120000
6	Cost of Pumping Machinery (3 No Horizontal centrifugal pumps 20 LPS at 37 M Head stand by 1 No Horizontal centrifugal pump 20 LPS at 17 M Head Total 4 pump and Generating Set of 125 KVA capacity complete in all respect As detailed Below 14 HP)	4		4			4	HP	250000 & 500000	300000 & 450000	980000/-	980000/-	820000/-
7	Line of Pumping Machinery 12 No Horizontal centrifugal pumps 10 LPS at 45 M Head 1 working & stand by 1 No					2	2	No			500000	500000	500000
8	Provision for Gen Set 125 Kva capacity	1		1			1	LS	100000	100000	100000	100000	100000
9	Provision for electric service connection including electric fitting for housing chamber etc including cost	1		1			1	LS	100000	100000	100000	100000	100000
10	Provision for grid connection	1		1			1	LS	100000	100000	100000	100000	100000
	Total									1602000	1602000	1602000	1602000

SUB HEAD NO. 3

Already work done 120 Acres
Total Work in Sector 65

Distribution Systems & Rising Main

Sl No	Description	Already work done 120 Acres	Total Work in Sector 65	Zone 1	Zone 2	Zone 3	Total Qty.	Unit	Rate	Rate for additional Qty. Acre	177.86 Acre	120 Acres	Additional Amount
		Qty	Qty	Qty	Qty	Qty	TotalQty						
1	Providing, supplying, laying and joining D.I. pipe (Class N-7) Plus coating outside the pipe and external lining inside including cost of excavation												
	(For Department)												
	100 mm id	8729	750	1841	1645	201	6896	Mt	1250	1500	20145250	10411350	9734000
	150 mm id	1445	223				220	Mt	1575	1000	3691675	2275675	415900
	200 mm id	581					11	Mt	2150	2380	1249150	1249150	0
	250 mm id	187					0	Mt	2610	3100	478165	478165	0
	300 mm id	443					0	Mt	1500	4700	550500	550500	0
2	Providing and fixing cast iron double flanged sluice valve flange by valves PN 16 marked with PN 18000 including cost of all joint of material, unloading, unloading, packing, handling etc complete in all respect of the work done to the Engineer in charge												
	100 mm id	14	1	3		2	6	Mt	2000	25000	30000	30000	15000
	150 mm id	2	2				2	Mt	5000	25000	175000	105000	20000
	200 mm id	2		1			1	Mt	20000	25000	45000	45000	55000
	250 mm id	2					0	Mt	24000	20000	72000	72000	0
	300 mm id	5		3			2	Mt	10000	25000	45000	45000	285000
3	Providing and fixing C.I. double flange valves marked with PN 18000 including unloading, loading, unloading, packing, handling, re-handling etc, drilling, tapping, screwing in valves complete in all respect of the work done to the Engineer in charge (100 mm id)	18		4	4		8	Mt	10000	25000	30000	30000	200000

4	Providing & fixing fire shutters door set marked conforming to specifications complete in all respects & Construction of base, meeting Hand for Sluice valves & fire hydrant including surface having provision for indicating Arrows plates for Sluice valve & fire hydrant	30	17	0	2	31	kg	1000	12.00	45000	75000	55000
5	Provision for Carriage of material	15	17	10	2	29	kg	1000	4500	72000	58000	34500
6	Provision for Carriage of material	2				1	LS	50000	10000	45000	10000	35000
7	Provision for Carriage of material	2				1	LS	20000	20000	60000	40000	20000
8	Provision for Raising man from Lake wall is (K.T)											
9	150 mm id	70		625		425	Mr	1575.70	1500	225000	115000	110000
	200 mm id	1000		500		100	Mr	7100.00	7000	144000	25000	129000
10	For Grouping showing Area 9.50 Acres											
	100 mm id			500		300	Mr	1100	1500	49500	0	49500
	Total									20718545	14722850	

~~35541395~~
 35441395/-

Abstract of Sub Work No. 3
(Waste Water Collection System)

No. of Sub Head	Name of Sub Head	Amount in 177 Bt Area	Amount in 120 Area	Additional Amount
Sub Head No. 1	Waste Water Collection & Sewage	88036580/-	37751600	54280790
Sub Head No. 2	Recycling of Treated Water	1051270	3416520	6714790
	Total Cost	98167860	41268120	60995580
	Add 7% Contingency charges	6871750	2898968	9770718
	Total	104839610	44167088	70766298
	Add 48% Charge on account of Escalation, Over Head & Supervision Charges	49854598/-	21277552	71132150
	Grand Total	154694208	65444640	141898448
	First Investment of Waste Water - Sewerage	150658254/-		87477509

SUBHEAD NO. 1

Already Work done 120 Acres
Total Work in Sector 65

Waste Water Collection System

Sr No	Description	120 Qty	1.12 Qty	28.15 Qty	11.44 Qty	4.53 Qty	Total Qty	Unit	Rate in 177 Bt Area	Rate in 120 Area	Additional Amount
1	Providing, suit placed stone ware pipes grade 'A' in standard length of 600 mm each pipe mounted with IS 651 and their lowering, cutting, joining and testing, including cost of excavation, bed concrete, Man holes joining materials as well as cartage loading, unloading, stacking, handling, rehandling etc., complete in all respects, at the discretion of Engineer in Charge										
	200 mm dia S.W Pipe										
	a) Average Depth from 2 M	214	1274	400	2175	2174	802	7623	1300		
	250 mm dia S.W Pipe										
	a) Average Depth 2 M to 4 M		102	258	46	330	268				
	300 mm dia S.W Pipe										
	a) Average Depth 2 M to 4 M			50	357	0	136	3	200		
4	100 mm dia S.W Pipe										
	a) Average Depth 2 M to 4 M			40	0		0				
2	Provision for rhinoceros junction	1	1				1	LS	50000	100000	50000
7	Provision for temporary Trenching	1	1				1	LS	100000	200000	100000
4	Provision for providing & fixing Vent shafts at suitable places as per requirement of Public Health Department	1	1				1	LS	50000	100000	50000
5	Points on the Sewerage Treatment Plant	1.875		0.61	0.60	0.35	1.46	MLD	13500000	4896400	3451500
6	Provision for cutting of roads and carriage for materials and other expenses charges etc	1	1				1	LS	50000	100000	50000
7	Providing for making connection with HUDA Sewer line for over flow from STP	2			1	1	3	LS	550000	1100000	550000
8	Providing for C/PD pipe for crossing National Highway & 400 mm Dia (Sustainable Agency (S.A))	1					1	LS	50000	100000	50000
	Total								71369465	37751600	33617165

88036580/- **50284990**

**Cost Estimation of Sub Work No. 4
(Storm Water Drainage)**

Sub Head No.1		Already work done 120 Area	Total Work in Section 65	Zone 1	Zone 2	Zone 3	Total Qty.	Storm Water Drainage					
		120	1.12	28.77	11.44	9.93	119.86						
Sr No	Description	Qty	Qty	Qty	Qty		Qty	Unit	Rate in	Rate in Additional Qty. Area	120 M. Area	120 Area	Additional Amount
Providing, Stamping, cutting and jointing 1000 R.P.S. pipe and spigots in all trenches including end of excavation, end of manholes, Road Curb, retaining chambers etc. complete in all respect.													
1	400 mm dia	2800	C	2730	0		2730	M	1200.00	1410	3360000	3478800	1288800
	400 mm dia	2016	S	541	0		1119	M	1500.00	1800	3450000	4407600	2047200
	400 mm dia	2174	S	50	1262	200	1570	M	2500.00	3000	10500000	5750000	5510000
	800 mm dia	369	S	0	0		0	M	3400.00	4080	13920000	13920000	0
	650 mm dia	457	S	0	0		0	M	4170.00	4884	17385000	17385000	0
	750 mm dia	0	S	0			0	M	5085.00	5102	0	0	0
	820 mm dia	318	S	0			0	M	6000.00	1200	13673400	12673400	0
	900 mm dia	22	S	0			0	M	7050.00	3402	15510000	15510000	0
	1100 mm dia	214	S	105			108	M	9050.00	10800	30873000	19267200	11605800
	1400 mm dia	204	S	20			20	M	10500.00	12000	25200000	21420000	2500000
2	Provision for laid gutters with pipe connection 300 mm & 11 S.	0						L.S	450000		450000	200000	
3	Provision for Storing & Trafficing, Lighting & Warning & temporary diversion of traffic	1						L.S	200000		200000	150000	105000
4	Provision for curing of road & making good to its original condition	1						L.S	250000		250000	120000	100000
5	Provision for temporary disposal arrangement	1						L.S	2500000		2500000	1400000	1400000
6	Provision for connection of proposed system with existing system	1						L.S	200000		200000	100000	100000
	GMDA									450000	100000	200000	
	Total Cost									4460000	24700000	14118000	19871500/-
	Add 1% Contingency charges									446000	2470000	14118000	19871500/-
	Sub Total									4906000	25130000	15529800	20858600/-
	Add 1% Charges in account of Inflation, Over Head & Super Work Charges									490600	25130000	15529800	20858600/-
	Grand Total									5396600	26643000	17082780	22944460/-

**Cost Estimation of Sub Work No. 4 A
(Recharge Well Head & Trench Area)**

Sr. No.	No. of Sub Head	Name of Sub Head	Recharge wells Road Area								
	Sub Head No. 1										
	Road & Green Area										
	Already work done 120 Area	Total Work in Section 65	Zone 1	Zone 2	Zone 3	Total Qty.				Recharge wells Road Area	
	120	7.12	28.77	12.44	9.53	177.86					
Sr. No.	Description	Qty	Qty	Qty	Qty	Qty	Unit	Rate in	Rate for additional Qty. Area	Amount in	Additional Amount
1	Construction of Recharge wells	14	7			7	Mts	150000	350000/-	520000/-	245000/-
2	Construction of Desling Chamber	14	7			7	Mts	81579	97395	771925	681364
	Sub Total								783245/-	481425/-	735524/-
	Add 3 % Contingency charges								22608/-	20428/-	241876
	Total								778739/-	701853/-	759711
	Add 40% Charges on account of escalation, Over Head & Super incense Charges								330304/-	740915/-	1500000
	Grand Total								1156437/-	1688768/-	3708170

**Cost Estimation of Sub Work No. 4 B
(Additional Recharge Well for Un-sprayed Area)**

Sr. No.	No. of Sub Head	Name of Sub Head										
1	Sub Head No.1	Recharge wells Road Area										
	Road & Green Area											
	Already work done 120 Area	Total Work in Section 65	Zone 1	Zone 2	Zone 3	Total Qty.	Recharge wells Road Area					
	120	7.12	28.77	12.44	9.53	177.86						
Sr. No.	Description	Qty	Qty	Qty	Qty	Qty	Unit	Rate in	Rate for additional Qty. Area	Amount in 177.86 Area	Amount in 120 Area	Additional Amount
1	Construction of Recharge wells	7	4			4	Mts	150000	350000/-	2450000/-	1400000/-	1000000/-
2	Construction of Desling Chamber	7	4			4	Mts	81579	97395	96262	571051	191279
	Sub Total								341263/-	209262	1621033	1791579
	Add 3 % Contingency charges								102379/-	96000	49132	537471
	Total								351501/-	309862	1670165	1845326
	Add 40% Charges on account of Escalation, Over Head & Super incense Charges								172358/-	151439	818145	904207
	Grand Total									4613010	2487810	3189240
									5237366/-			2749536/-

Cost Estimation of Sub Work No. 4

Idhar/Ghorat

Sr. No.	Sub Head No. 1	Already work done 120 Acres	Total Work in Sector 65	Zone 1	Zone 2	Zone 3	Total Qty.			Amount In			
Sr. No.	Description	Qty	Qty	Qty	Qty	Qty	Qty	Unit	Rate	Rate for additional Qty. Area	177.86 Acres	120 Acres	Additional Amount
1	DEVELOPMENT OF GREEN AREA: a) Trenching in ordinary soil up to depth of 60 cm i.e. removal and making of suitable material & disposing by spreading and levelling within a head of 50 M and making up the trench area for proper levels by filling with sand or earth mixed with manure before and after flooding trench with water excluding cost of improved earth and manure Area of Road												
	by Supply and stacking sludge at site including royalty and cartage Green Area	4.24		3.92			3.92	Acres	150000	180000	1350600	638020	716020
	C) Rough dressing of buffer area Grounse with 'DOOM GHAAS' i.e. washing & maintenance of lawn for 30 days till the grass forms a thick lawn free from weeds and its mowing on area 1.5 cm gap in either direction including provision for bridges and barbed wire around park												
	D) Maintenance of lawn or mowing of slopes for a period of 1 year												
2	Knot Side Plantation and plantation along the road and drive after distance of each 12 m												
	Detail of Cost												
i	Tree: Shisham = 60 No												
ii	Excavation = 30 No												
	Masonry = 60 No												
	Tree Guard = 440 No												
	Total Cost of 1 Tree = 750	1.15		1.29	670		670	No	750	1800	277845	1492200	
											206350	1280250	748100
											4129050	2206806	
											3362950	1921290	1460500
											123577	57668	66204
											4252921	1479618	2273024
											2484432	1479618	1414421
											2083931	979160	113772
											470551	979160	57215
	Total										588813	2950472	224154
	Add 5 % Contingency charges												
	Sub Total												
	Add 4% Charges on account of Lachhau Over Head & Supervision Charges												
	Grand Total										6636853	3386775	

Cost Estimate of Sub Work No. 6

Sheet Lighting & Fixings

Sub Work No. 6

Lighting & Fixings

Sl. No.	Description	Activity Work Item 175 Area	Total Work in Section 65	Zone 1	Zone 2	Zone 3	Total Qty.	Unit	Rate in	Rate for additional Qty. Activ	Amount in "		
		Qty.	Qty.	Qty.	Qty.	Qty.	Qty.				175 to Area	810 Area	Additional Amount
1	Provision for Street lighting on Road as per standard specifications-compliance in all respect (T.L.)	120	1.12	18.17	12.44	9.54	17.86	Area	250000	101000	47359453	32002000	87359453
	Total cost										47359453	32002000	87359453
	Add 1% Contingency charges										1420784	500000	1225784
	Sub Total										48780237	32502000	87880237
	Add 15% Charges on account of Escalation, Over Head & Super's work Charges										23867316	15141000	87617316
	Grand Total										72647552	48043000	26641552

Maintenance charges for 10 years & Resurfacing of Roads after 5 & 10 years

Sub Head No 1

Maintenance charges for 10 years & Resurfacing of Roads after 5 & 10 years

Sl No	Sub Head No 1	Already work done 120 Acres	Total Work In Section 05	Zone 1	Zone 2	Zone 3	Total Qty.	Unit	Rate in	Rate for 25.24 Acres	AMOUNT in		
Sl No	Description	Dry	Qty	Qty	Dry		Qty		Rate in	Rate for additional Dry Acres	120 Acres	120 Acres	Additional Amount
1	Provision for maintenance charges of Roads. As per supply, Sewerage, Storm water drainage, House wire, Street light etc. complete as per HUDA norms after maintenance	120.00	1.12	28.77	12.44	9.53	57.86	Acres	3000.00	750000	103395000/-	43396000/-	
2	Provision for Resurfacing of Roads after 5 years, 100 mm thick with 25 mm thick pre-mix super and seal coat with mechanical mixer	00001	0				0	Sqm	640.00		58174466	58174466	0
3	Provision for Resurfacing of Roads after 10 years, 100 mm thick pre-mix super with seal coat with mechanical mixer	00001	0				0	Sqm	710.00		12060882	12060882	0
4	Provision for Resurfacing of Roads after 5 years, 100 mm thick with 30 mm thick pre-mix super and seal coat with mechanical mixer			10754			40754	Sqm	750.00	150	30565500	30565500	0
	Provision for Resurfacing of Roads after 10 years, 100 mm thick pre-mix super with seal coat with mechanical mixer			40754			40754	Sqm	750.00	000	30678020	0	30678020
Total cost										3014486981/-	285824034	190602548	00001586
Add 1% Contingency charges										30482491/-	8474748	5714076	2850672
Sub Total										30482491/-	8474748	5714076	2850672
Add 10% Charges on account of Facilitation, Over Head & Super Gross Charges										310484897/-	106526625	106526625	00001065
Grand Total										462622497/-	242314671	147110000	

Design Statement for Road

Area Details of 120 Ac. Work											
Description of Road	Total Length of Road (120 Acres)	Metalled Width		Road Crust Area (120 Acres)	Length of Kerb & Channel (120 Acres)	Pavement in Commercial Area in (120 Acres)	Foot Path (120 Acres)		Street Light Poles (120 Acres)		
		Mtrs	Mtrs				Sqm	Sqm			
24 M Wide Road	1688	14		23632	3376	13030.8	3376		84		
18 M Wide Road	562	7		9934	562		1124		28		
15 M Wide Road	3262	7		22834	3262		4893		163		
12 M Wide Road	4780	7		33460	4780		7170		239		
Total	10292			83860	11980	13030.8	16863		514		

Area Details of (S.68+49.18) - 57.86 Ac. Work										
Description of Road	Total Length of Road (S.68 Acres)	Total Length of Road (Mtrs)	Total Length of Road (49.18 Acres)	Metalled Width	Crust Area (S.68 Acres)	Crust Area (49.18 Acres)	Length of Kerb & Channel (S.68 Acres)	Length of Kerb & Channel (49.18 Acres)	Foot Path (S.68 Acres)	Foot Path (49.18 Acres)
	Mtrs	Mtrs	Mtrs	Mtrs	Sqm	Sqm	Mtrs	Mtrs	Sqm	Sqm
24 M Wide Road	0	85		14	0	11942	0	1706	0	1706
18 M Wide Road	0	0		7	0	0	0	0	0	0
15 M Wide Road	99	0		7	693	0	99	0	148.5	0
12 M Wide Road	852	3165		7	5964	22155	852	3165	1278	4748
Total	951	4018			6657	34097	951	4871	1427	6454
									48	201

Design Statements for Road

S. No	Upper End Node	Lower End Node	Name of Road	Length of Road	Width of Road	Natural Surface Levels			Formation Levels		12 M Wide Road	15 M Wide Road	18 M Wide Road	24 M Wide Road
						Upstream Level	Downstream Level	Mtr	Upstream Level	Downstream Level				
1	2	3	4	5	6	7	8	Mtr	Mtr	Mtr	Mtr	Mtr	Mtr	Mtr
A BLOCK														
1	A	A1	A-A1	520	24	230.130	228.440		230.000	230.105	0	0	0	0
2	A1	B	A1-B	70	24	228.440	227.990		230.105	230.000	0	0	0	0
3	A1	A2	A1-A2	30	15	228.440	228.320		230.105	230.108	0	30	0	0
4	A3	A2	A3-A2	45	15	228.110	228.320		230.110	230.108	0	45	0	0
5	A3	A4	A3-A4	56	15	228.110	228.050		230.110	230.140	0	56	0	0
6	A4	A8	A4-A8	43	12	228.050	225.960		230.140	230.290	43	0	0	0
7	A4	A5	A4-A5	36	15	228.050	228.240		230.140	230.167	0	36	0	0
8	A5	A9	A5-A9	43	12	228.240	227.750		230.167	230.170	43	0	0	0
9	A5	A6	A5-A6	55	15	228.240	226.640		230.167	230.170	0	55	0	0
10	A6	A7	A6-A7	56	15	226.640	227.110		230.170	230.190	0	56	0	0
11	A7	A7	A7-A7	29	15	227.110	227.420		230.190	230.200	0	29	0	0
12	A6	A11	A6-A11	105	12	226.640	227.490		230.170	230.198	105	0	0	0
13	A7	A12	A7-A12	105	15	227.110	227.890		230.190	230.209	0	105	0	0
14	A12	A11	A12-A11	56	15	227.890	227.490		230.209	230.198	0	56	0	0
15	A11	A14	A11-A14	48	15	227.480	227.480		230.198	230.200	0	48	0	0
16	A14	A14	A14-A14	7	15	227.480	228.440		230.200	230.196	0	7	0	0
17	A14	A13	A14-A13	36	15	228.440	228.440		230.196	230.176	0	36	0	0
21	A13	A8	A8-A13	62	12	228.440	228.440		230.176	230.220	62	0	0	0
18	A13	A14	A13-A14	25	15	228.440	227.080		230.176	230.162	0	25	0	0
20	A14	A9	A9-A14	62	12	228.440	228.440		230.196	230.204	62	0	0	0
19	A14	A10	A14-A10	31	15	227.480	227.290		230.162	230.150	0	31	0	0
20	A3	A10	A3-A10	105	15	228.110	227.290		230.110	230.150	0	105	0	0
21	A10	A14	A10-A14	31	15	227.290	227.480		230.150	230.200	0	31	0	0
22	A	A10	A-A10	26	15	228.440	227.290		230.400	230.150	0	26	0	0
B BLOCK														
23	X	B6	X-B6	145	24	230.370	231.430		231.690	231.660	0	0	0	145
24	B6	D4	B6-B4	142	18	231.430	230.450		231.600	230.870	0	0	142	0
25	B4	D3	B4-B3	220	18	230.450	228.330		230.870	230.364	0	0	220	0

Sr No	Upper End Node	Lower End Node	Name of Road	Length of Road Mtr	Width of Road Mtr	Natural Surface Levels				Formation Levels		12 M Wide Road	15 M Wide Road	18 M Wide Road	24 M Wide Road
						Upstream Level	Downstream Level	Upstream Level	Downstream Level	Upstream Level	Downstream Level				
				Mtr	Mtr	Mtr	Mtr	Mtr	Mtr	Mtr	Mtr	Mtr	Mtr	Mtr	Mtr
26	B3	B1	B5-B1	124	18	228.530	228.520	230.164	230.146	0	0	0	0	0	0
27	B1	B9	B1-B9	36	24	228.520	227.950	230.146	230.200	0	0	0	0	0	76
28	B9	B10	B9-B10	48	12	227.950	228.440	230.200	230.175	48	48	0	0	0	0
29	B10	D11	B10-B11	24	12	227.880	227.880	230.175	230.170	24	24	0	0	0	0
30	B11	B12	B11-B12	33	12	227.880	227.720	230.170	230.164	33	33	0	0	0	0
31	B11	D13	B11-B13	117	12	227.880	228.060	230.170	230.180	117	117	0	0	0	0
32	B1	C26	B1-C26	37	24	228.520	227.900	230.146	230.140	0	0	0	0	0	27
33	C26	B	C26-B	57	24	227.900	227.990	230.140	230.000	0	0	0	0	0	27
34	D	B'	D-B'	59	24	231.990	228.370	230.000	230.100	0	0	0	0	0	59
35	B	B2	B-B2	136	15	227.990	228.670	230.000	230.150	0	0	136	0	0	0
36	B2	B3	B2-B3	25	15	228.670	228.770	230.150	230.240	0	0	75	0	0	0
37	B3	B7	D1-B7	74	12	228.330	228.140	230.164	230.165	74	74	0	0	0	0
38	B7	B8	B7-B8	189	12	228.140	229.660	230.165	230.180	189	189	0	0	0	0
39	B4	B17	B4-B17	76	18	230.450	231.040	230.960	230.964	0	0	0	0	36	0
40	B17	B18	B17-B18	46	15	231.060	231.360	230.964	230.973	0	0	46	0	0	0
41	B18	B19	B18-B19	63	15	231.360	231.850	230.973	231.080	0	0	63	0	0	0
42	B19	B20	B19-B20	37	15	231.850	231.950	231.080	231.300	0	0	37	0	0	0
43	B18	D22	B18-D22	90	12	231.360	230.760	230.973	230.921	90	90	0	0	0	0
44	D22	B27	D22-B27	92	12	230.760	227.890	230.921	230.857	92	92	0	0	0	0
45	B22	B21	D22-B21	94	15	230.760	228.950	230.921	230.794	0	0	94	0	0	0
46	B19	B28	B19-B28	183	15	231.850	227.680	231.030	230.990	0	0	183	0	0	0
47	B28	B29	B28-B29	24	15	227.680	227.760	230.990	230.993	0	0	24	0	0	0
48	B28	B27	B28-B27	63	15	227.680	227.890	230.990	230.857	0	0	63	0	0	0
49	B27	D26	B27-D26	61	15	227.850	227.940	230.857	230.660	0	0	61	0	0	0
50	B17	B16	B17-B16	48	15	231.060	230.450	230.954	230.954	0	0	48	0	0	0
51	B16	B15	B16-B15	71	15	230.450	228.740	230.954	230.682	0	0	71	0	0	0
52	B15	B14	B15-B14	31	15	228.740	228.510	230.682	230.683	0	0	31	0	0	0
53	B16	B21	B16-B21	90	12	230.450	228.950	230.954	230.794	90	90	0	0	0	0

Sr No	Upper End Node	Lower End Node	Name of Road	Length of Road Mtr	Width of Road Mtr	Natural Surface Levels		Furrowed Levels		12 M Wide Road	15 M Wide Road	18 M Wide Road	24 M Wide Road
						Upstream Level	Downstream Level	Upstream Level	Downstream Level				
					Mtr	Mtr	Mtr	Mtr	Mtr	Mtr	Mtr	Mtr	Mtr
81	C1	C6	C3-C6	70	15	228.360	228.940	230.160	230.180	0	70	0	0
82	C6	C12	C6-C12	21	12	228.950	228.960	230.180	230.184	21	0	0	0
83	C6	C1	C6-C1	124	12	228.950	228.560	230.180	230.187	124	0	0	0
84	C6	C7	C6-C7	32	15	228.950	228.950	230.180	230.190	0	32	0	0
85	C7	C8	C7-C8	61	15	229.960	229.080	230.190	230.200	0	61	0	0
86	C7	C9	C7-C9	118	12	229.960	229.500	230.190	230.210	118	0	0	0
87	C8	C1	C8-C1	128	15	229.080	229.110	230.200	230.220	0	128	0	0
88	C8	C10	C8-C10	58	12	229.080	229.480	230.200	230.225	58	0	0	0
89	C10	C11	C10-C11	21	12	229.480	228.950	230.225	230.228	27	0	0	0
90	C11	C15	C11-C15	134	12	228.950	228.240	230.228	230.350	114	0	0	0
91	C15	C16	C15-C16	66	12	228.240	228.250	230.350	230.360	66	0	0	0
92	C15	C18	C15-C18	145	12	228.240	229.550	230.350	230.410	145	0	0	0
93	C18	C14	C18-C14	67	24	229.550	228.810	230.410	230.400	0	0	0	67
94	C11	C13	C11-C13	229	12	228.950	227.420	230.228	230.350	220	0	0	0
95	C12	C23	C13-C23	68	12	227.420	227.420	230.350	230.150	68	0	0	0
96	C13	C14	C13-C14	45	12	227.420	228.310	230.150	230.400	45	0	0	0
97	B26	B26	B26-B26	40	12	227.940	227.940	230.660	230.663	40	0	0	0
98	B26	D12	B26-D12	188	12	227.940	228.310	230.663	230.674	168	0	0	0
99	B26	B76	B26-B76	61	12	227.940	228.000	230.663	230.675	61	0	0	0
100	B26	D12	B26-D12	76	12	228.040	228.000	230.675	230.690	76	0	0	0
101	D12	D11	D12-D11	101	12	228.310	229.000	230.674	230.720	101	0	0	0
102	D11	D13	D11-D13	48	12	229.000	229.050	230.720	230.742	48	0	0	0
103	D13	D14	D13-D14	129	12	229.000	228.250	230.742	230.800	129	0	0	0
104	D12	D10	D12-D10	60	12	228.310	228.340	230.674	230.532	60	0	0	0
105	D10	T49	D10-D9	38	12	228.310	228.360	230.532	230.600	33	0	0	0
106	D10	D8	D10-D8	76	12	228.340	228.470	230.532	230.540	76	0	0	0
107	D8	D7	D8-D7	33	12	228.470	228.550	230.510	230.600	33	0	0	0
108	D8	D5	D8-D5	62	12	228.470	229.000	230.510	230.490	62	0	0	0
109	D5	D6	D5-D6	37	14	229.000	229.000	230.490	230.500	0	37	0	0

Sr No	Upper End Node	Lower End Node	Name of Road	Length of Road	Width of Road	Natural Surface Levels				Formation Levels		12 M Wide Road	15 M Wide Road	.5 M Wide Road	24 M Wide Road
						Upstream Level	Downstream Level	Mtr	Mtr	Upstream Level	Downstream Level				
				Mtr	Mtr	Mtr	Mtr	Mtr	Mtr	Mtr	Mtr	Mtr	Mtr	Mtr	Mtr
110	D15	D15	D15-D15	125	15	229.000	229.500			230.400	230.450	0	225	0	0
111	D15	D2	D15-D2	65	15	229.500	228.810			230.450	230.400	0	255	0	0
112	D2	D1	D2-D1	25	15	228.810	228.840			230.490	230.625	0	25	0	0
113	D2	D3	D2-D3	62	12	228.810	228.740			230.490	230.530	62	0	0	0
114	D3	D4	D3-D4	95	12	228.740	228.470			230.530	230.728	95	0	0	0
114	D15	X2	D15-X2	32	12	229.500	229.500			230.450	230.745	32	0	0	0
115	X2	D15	X2-D15	34	12	229.500	229.500			230.746	231.061	34	0	0	0
116	D15	D15	D15-D15	73	12	229.500	229.500			231.061	231.207	72	0	0	0
117	D15	D16	D15-D16	55	12	229.500	228.810			231.061	231.570	55	0	0	0
118	D16	D16	D16-D16	42	12	228.810	228.810			231.570	231.654	42	0	0	0
119	D16	D16	D16-D16	57	12	228.810	229.970			231.570	232.10	57	0	0	0
120	D16	D17	D16-D17	73	12	229.970	230.120			0.000	232.110	72	0	0	0
121	D17	D22	D17-D22	107	12	230.120	230.810			232.110	232.200	107	0	0	0
122	D22	D22	D22-D22	65	12	230.810	230.810			232.200	232.187	65	0	0	0
123	D22	D22	D22-D22	25	12	230.810	230.810			232.200	232.203	25	0	0	0
123	D17	D18	D17-D18	94	24	230.120	228.780			232.110	230.800	0	0	0	94
124	D18	D21	D18-D21	140	12	228.780	228.970			230.800	230.950	140	0	0	0
124	D16	D24	D16-D24	183	12	229.970	229.830			0.000	231.500	185	0	0	0
125	D24	D25	D24-D25	62	12	229.830	230.000			231.500	231.425	62	0	0	0
126	D24	D27	D24-D27	51	12	229.830	230.000			231.500	231.475	51	0	0	0
127	D27	D26	D27-D26	43	12	230.000	230.130			231.475	231.450	43	0	0	0
128	D	E7	D-E7	45	24	228.670	229.300			230.300	230.350	0	0	0	45
129	E7	E2	E7-E2	108	12	229.300	228.970			230.350	230.125	108	0	0	0
130	D	E11	D-E11	111	24	228.670	228.890			230.300	230.380	0	0	0	111
131	E11	C14	E11-C14	17	24	228.890	228.970			230.380	230.400	0	0	0	17
132	E11	E2	E11-E2	45	15	228.890	228.970			230.380	230.425	0	45	0	0
133	E2	E8	E2-E8	59	12	228.970	229.540			230.425	230.435	59	0	0	0
134	E8	E9	E8-E9	21	12	229.540	229.880			230.435	230.440	21	0	0	0
135	E2	E3	E2-E3	45	15	228.970	229.240			230.425	230.450	0	45	0	0
136	E3	E4	E3-E4	25	15	229.240	229.780			230.450	230.420	0	25	0	0

Sr. No.	Upper End Node	Lower End Node	Name of Road	Length of Road	Width of Road	Natural Surface Levels				Formation Levels		12 M Wide Road	17 M Wide Road	18 M Wide Road	24 M Wide Road
						Upstream Level	Downstream Level	Min	Max	Upstream Level	Downstream Level				
				Mir	Mir	Mir				Mir	Mir	Mir	Mir	Mir	Mir
137	E4	E10	F4-E10	33	12	229.780	230.138			230.420	230.450	33	0	0	0
138	E10	E8	E10-E8	59	12	230.138	229.540			230.430	230.435	59	0	0	0
139	E4	E6	F4-E6	50	15	229.780	230.000			230.420	230.480	0	50	0	0
140	E5	E6	E5-E6	102	12	230.900	229.160			230.480	230.500	102	0	0	0
141	C18	E18	C18-E18	63	24	229.550	229.620			230.430	230.440	0	0	0	63
142	E18	E19	E18-E19	17	24	229.620	230.800			230.440	230.430	0	0	0	17
143	E19	E7	E19-E7	136	24	230.600	229.750			230.430	229.838	0	0	0	116
144	E19	E12	E19-E12	76	12	230.600	230.510			230.430	230.350	76	0	0	0
145	E12	E12'	E12-E12'	18	12	230.510	230.290			230.430	230.370	18	0	0	0
146	E12	E13	E12-E13	34	12	230.510	230.350			230.430	230.360	34	0	0	0
147	E13	E16	E13-E16	43	12	230.350	231.450			230.460	230.580	43	0	0	0
148	E13	E14	E13-E14	34	12	230.350	230.170			230.460	230.380	34	0	0	0
149	E14	E15	E14-E15	17	12	230.170	230.050			230.480	230.590	17	0	0	0
150	E14	E17	E14-E17	43	12	230.170	230.720			230.480	230.900	43	0	0	0
Sector 62															
151	F1	F2	F1-F2	139	12	236.500	236.500			236.500	236.431	139	0	0	0
153	F3	F2	F2-F3	123	12	236.500	236.000			236.700	236.431	123	0	0	0
152	F2	F2	F2-F2	7	12	236.000	236.000			236.431	236.417	7	0	0	0
154	F2	F4	F2-F4	37	12	236.000	236.290			236.417	236.343	37	0	0	0
155	F4	F4	F4-F4	7	24	236.290	236.290			236.343	236.329	0	0	0	7
156	F4	F4	F4-F4	149	12	236.290	236.750			236.329	236.071	129	0	0	0
157	F4	F5	F4-F5	42	24	236.290	234.500			236.320	235.979	0	0	0	42
158	F5	F6	F5-F6	63	24	234.500	235.000			235.979	235.664	0	0	0	63
154	F6	F7	F6-F7	113	12	235.000	236.500			235.664	236.505	113	0	0	0
160	F6	F8	F6-F8	78	24	235.000	234.500			235.664	235.274	0	0	0	78
161	F8	F9	F8-F9	48	12	234.500	234.500			235.274	235.034	48	0	0	0
162	F8	F10	F8-F10	102	24	234.500	234.000			235.274	234.764	0	0	0	102
163	F10	F11	F10-F11	40	12	234.000	231.000			234.764	234.554	40	0	0	0
164	F5	F12	F5-F12	295	24	234.500	230.330			235.979	234.504	0	0	0	295
G BLOCK															
165	G1	G2	G1-G2	28	12	234.000	234.500			234.700	234.686	28	0	0	0
166	G7	G3	G2-G3	50	12	234.500	234.500			234.686	234.651	50	0	0	0
167	G2	G4	G2-G4	36	12	234.500	234.500			234.686	234.658	36	0	0	0

Sr. No	Upper End Node	Lower End Node	Name of Road	Length of Road Mtr	Width of Road Mtr	Natural Surface Levels		Formation Levels		12 M Wide Road	15 M Wide Road	18 M Wide Road	24 M Wide Road
						Upstream Level	Downstream Level	Upstream Level	Downstream Level				
					Mtr	Mtr	Mtr	Mtr	Mtr	Mtr	Mtr	Mtr	Mtr
168	G4	G5	G4-G5	25	12	234.500	234.500	234.568	234.656	25	0	0	0
169	G4	G6	G4-G6	131	12	234.500	234.500	234.665	234.013	131	0	0	0
170	G6	G7	G6-G7	35	12	233.500	233.110	234.013	233.896	35	0	0	0
171	G6	G8	G6-G8	78	12	233.500	233.000	234.013	233.751	78	0	0	0
172	G7	G10	G7-G10	32	24	233.110	233.000	233.896	233.790	0	0	0	12
173	G7	G9	G7-G9	78	12	233.110	233.500	233.896	233.636	78	0	0	0
174	G7	G11	G7-G11	85	24	233.110	233.500	233.896	233.776	0	0	0	85
175	G7	G11	G7-G11	149	24	234.500	233.500	234.686	233.726	0	0	0	149
176	G12	G13	G12-G13	28	12	234.000	234.000	234.300	234.244	28	0	0	0
177	G13	G14	G13-G14	114	12	234.000	233.000	234.244	234.016	114	0	0	0
178	G13	G16	G13-G16	48	12	234.000	234.000	234.244	234.148	48	0	0	0
179	G16	G17	G16-G17	34	12	234.000	233.500	234.148	234.080	34	0	0	0
180	G16	G22	G16-G22	159	12	234.000	234.750	234.148	234.943	159	0	0	0
181	G17	G18	G17-G18	49	12	233.500	234.250	234.080	233.917	49	0	0	0
182	G17	G23	G17-G23	159	12	233.500	234.500	234.080	234.610	159	0	0	0
183	G18	G19	G18-G19	30	12	233.250	233.000	233.917	233.817	30	0	0	0
184	G19	G20	G19-G20	89	12	233.000	232.750	233.817	233.520	89	0	0	0
185	G18	G24	G18-G24	159	12	233.250	233.750	233.917	234.447	159	0	0	0
186	G21	G22	G21-G22	28	12	235.000	234.756	235.000	234.943	28	0	0	0
187	G22	G23	G22-G23	34	12	234.756	234.500	234.943	234.610	34	0	0	0
188	G24	G24	G23-G24	48	12	234.500	233.750	234.610	234.447	48	0	0	0
189	G24	G25	G24-G25	25	12	233.750	233.500	234.447	234.425	25	0	0	0
190	G24	G26	G23-G26	95	12	234.500	234.500	234.610	234.603	95	0	0	0
191	G26	G27	G26-G27	24	12	234.500	234.500	234.603	234.555	24	0	0	0
192	G26	G28	G26-G28	82	12	234.500	234.000	234.603	234.439	82	0	0	0
193	G28	G29	G28-G29	29	12	234.000	234.000	234.439	234.536	29	0	0	0
194	G14	G15	G14-G15	322	12	233.000	229.500	234.016	231.333	322	0	0	0
195	G15	G15	G15-G15	512	12	229.500	229.680	231.333	230.309	512	0	0	0
Total Length				15261						8797	3361	562	2541
Total Length in Sector-65				11243						5632	3361	562	1685
Actual Length of road in Sector-65 as per revised plan				964						462	99	0	0
Total Length in Sector-65 as per original proposal				11292						4780	3262	562	1688
Total Length in Sector-62				4018						3165	0	0	853
Total Road Length of 177.5 Ac				15261						8797	3361	562	2541

Detail of Area Emerald Hill Sector 62-65, Gurgaon, EM-008										Daily Water Requirement					Anticipated Waste Water Generation
Sr. No.	Description	Size of Plot		Area of each Unit / Plot	Plots	Total Persons	Water Allowance Ltrs./Capit a/Day	Water Requirement Ltrs./Day	Fresh Water Source		Recycled Water Source	Net Water Requirement contributing towards Waste Water Generation	Average Value at 75% of water contributing to waste water generation		
1	Residential (Plotted)	Width	Depth						% Use	Ltrs./Day				Ltrs./Day	
Category of Plots		M	M	Sq.m	Nos.	Nos.	Ltrs./Capit a/Day	Ltrs./Day	% Use	Ltrs./Day	% Use	Ltrs./Day	Ltrs./Day		
1.1	TYPE A	758	19.8	32	27	365	172.5	62876	80%	50301	20%	12575	57816		
1.2	TYPE A1	1130	21	45	12	162	172.5	27945	80%	22356	20%	5589	23474		
1.3	TYPE A2	1104	16.75	55.3	4	54	172.5	9315	80%	7452	20%	1863	7625		
1.4	TYPE A3	1177	18.4	83.5	2	27	172.5	4659	80%	3726	20%	932	3917		
1.5	TYPE B	500	15.24	27.43	93	1256	172.5	216574	80%	173259	20%	43315	181022		
1.6	TYPE C	400	12.2	27.43	118	1593	172.5	274793	80%	219834	20%	54939	230826		
1.7	TYPE C1	451	12	31.4	0	0	172.5	0	80%	0	20%	0	0		
1.8	TYPE D	351	10.69	27.43	209	2822	172.5	486709	80%	389367	20%	97342	408835		
1.9	TYPE D1	338	10.67	26.52	20	270	172.5	46575	80%	37260	20%	9315	46575		
1.10	TYPE E	151	8.45	14.95	24	324	172.5	55890	80%	44712	20%	11178	46948		
1.11	TYPE E1	181	8.4	18	104	1404	172.5	242190	80%	193752	20%	48438	203442		
1.12	TYPE E2	268	9	24.9	8	81	172.5	13973	80%	11178	20%	2795	11737		
1.13	TYPE E3	206	7.5	23	83	1121	172.5	193285	80%	154625	20%	38657	162350		
1.15	TYPE E4	181	10.2	14.82	6	106	172.5	18630	80%	14904	20%	3726	15629		
1.14	TYPE E5	184	7.5	20.5	25	351	172.5	60548	80%	48438	20%	12110	50830		
1.15	TYPE F	267	10.45	21.34	227	3065	172.5	528626	80%	421931	20%	105725	444046		
1.16	TYPE F1	267	9	24.98	26	351	172.5	60548	80%	48438	20%	12110	50860		
1.17	TYPE G (EWS)	60	4.56	11	62	558	135	75330	100%	75330	0%	0	60264		
1.18	TYPE G1 (EWS)	60	4	12.5	188	1692	135	278420	100%	278420	0%	0	182736		
Sub Total					1238	15602		2606884		2146257		460627	2177632		
Group Housing						2382.5	135	321638	80%	257910	20%	64828	270176		
2	Commercial Area			Acres	Nms.										
2.1	Commercial Area	16.125		6.44			25000	151000	80%	128800	20%	32200	161000		
4.9	Nursing Home			0.247	4		5000	20000	80%	16000	20%	4000	16000		
								191000.0		144800.0		36200.0	181000		
3	Community Area			Acres	Nos.										
3.1	Nursery School			0.20	4		10000	40000	80%	32000	20%	8000	40000		
3.2	Primary School			1.00	2		50000	100000	80%	80000	20%	20000	100000		
3.3	Primary School			0.50	1		50000	50000	80%	40000	20%	10000	50000		

Design Statement of Water Supply

S. No.	Name of Sull	Length of Pipe	Length in ICD original	Size	RESIDENTIAL PLOTS		Total Water Demand	Water Demand from Water Source	Design of Pipe Line					Length of Pipe Line					Sluice Valves				Fire Hydrant								
					Type A	Area sqm			Water Demand Recycled Water Source	Net Water Demanded (Total Water Demand - Total Recycled Water Demand)	Net Fresh Water Demanded (Total Water Demand - Total Recycled Water Demand)	Net Recycled Water Demand (Total Water Demand - Total Recycled Water Demand)	Estimated Water Consumption	Total Head Loss	Head Loss Pitches %	Termination Head	100 mm ID	150 mm ID	200 mm ID	250 mm ID	300 mm ID	100 mm ID	150 mm ID	200 mm ID	250 mm ID	300 mm ID	100 mm ID	150 mm ID	200 mm ID	250 mm ID	300 mm ID
1	2	3	4	5	No.	sqm	L	100% SPM	1450226	L	731727	483192417	m	m	m	m	m	m	m	m	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	
1	WW1-A14	20	37	300		C	755	76.0	683	I	0	0	0.055	0.055	29.94	0	0	0	0	20										1	
2	A14-A11	34		300		C	1239	129.0	1160	0	0	0	0.000	0.055	29.94	0	0	0	0	34											
3	A11-A6	114	97	300		C	46239	35967.0	12273	41918	35535	8384	33212	0.005	0.060	29.94	0	114	0	0	0	1									
4	A11-A12	64	57	300		C	2426	243.0	2184	0	0	0	1	0.172	0.221	29.97	0	0	0	0	64										
5	A12-A7	114	103	300		C	48654	35899.0	12726	44535	35467	8867	37241	0.106	0.337	29.47	0	0	0	0	114										
6	A7-A7	32	23	100		U	7945	5746.0	2200	7073	5659	1415	5942	0.000	0.537	29.47	23	0	0	0	0										
7	A7-A6	64	38	200		U	14156	9617.0	4510	11730	9384	2347	9834	0.165	1.498	29.30	0	0	0	0	64										
8	A6-A5	55	55	300		U	13815	9592.0	4523	11730	9385	2347	9834	0.140	0.838	29.16	0	0	0	0	55									1	
9	A5-A9	49	40	100		U	4273	2118.0	2155	2416	1912	483	2029	0.000	0.838	29.16	49	0	0	0	0										
10	A5-A4	36	26	200		U	15544	8115.0	7525	9516	7452	1863	7822	0.051	0.529	29.07	0	0	0	0	36										
11	A4-A8	49	40	100		U	4273	2118.0	2155	2416	1912	483	2029	0.000	0.929	29.07	49	0	0	0	0										
12	A4-A1	56	33	200		U	17853	9597.0	4257	11730	9385	2347	9832	0.140	1.069	28.93	0	0	0	0	56										
13	A3-A10	117	97	100		U	104453	80458.0	23995	108018	85015	20004	58015	0.247	1.316	28.68	117	0	0	0	0	1									
14	A10-A14	45	146	100		U	9416	5895.0	3523	7073	5659	1415	5942	0.003	319	28.68	45	0	0	0	0										
	A13-A14	22		100		U	834	83.0	751	0	0	0	0	0.001			22	0	0	0	0										
	A14-A13	57		100		U	1403	140.0	1263	0	0	0	0	0.000			57	0	0	0	0										
	A8-A15	68		100		U	7236	7984.0	3252	4659	3726	932	4913	0.000			68	0	0	0	0										
	A14-A14*	7		100		U	266	27.0	239	0	0	0	0	0.000			7	0	0	0	0										
	A3-A14*	68		100		U	7236	7984.0	3252	4659	3726	932	4913	0.000			68	0	0	0	0										
						U	0		0	0	0	0	0				0	0	0	0	0										
15	A3-A1	30	43	250		U	23577	16268.0	13088	11730	9384	2346	9834	0.469	1.538	28.46	0	0	0	0	30										
16	A10-A1	149	74	150		U	5648	565.0	5043	1	0	0	0	0.000	1.538	28.46	149	0	0	0	0	1									
17	A10-A	12	171	100		U	4587	459.0	4128	1	0	0	0	0.000	1.538	28.46	121	0	0	0	0										
18	A1-B	50	75	250		U	53027	40209.0	12725	50501	40600	10000	45001	0.270	1.808	28.19	0	0	0	50	0										
19	B-B	69		100		U	2610	262.0	2354	1	0	0	0	0.000	1.808	28.19	69	0	0	0	0										
20	B-B2	146		150		U	17254	9917.0	7327	11730	9384	2347	9834	0.023	1.831	28.17	146	0	0	0	0	1									
21	B2-U5	68		150		U	13890	11361.0	5530	16588	13811	3279	11767	0.004	1.835	28.17	68	0	0	0	0										
22	B-C25	47		250		U	1782	178.0	1604	1	0	0	0	0.226	2.044	27.96	0	0	0	47	0										
23	C25-C26	55	50	200		U	6743	3935.0	2808	9658	3727	932	1913	0.005	2.049	27.95	0	0	55	0	0	1									
24	C5-C25	73	73	200		U	16740	11355.0	5285	13913	11878	2735	11757	0.006	2.056	27.94	0	0	73	0	0										
25	C5-C2	134	134	150		U	52217	34255.0	15963	44333	35467	8867	17241	0.007	2.062	27.94	0	134	0	0	0	1									
26	C5-C5	70	80	150		U	8493	4104.0	4326	4659	3727	932	3913	0.008	2.064	27.94	0	70	0	0	0										
27	C6-C3	134	134	100		U	52908	18331.0	34570	16630	14904	3726	15649	0.014	2.071	27.92	134	0	0	0	0	1									
28	C6-C7	62	64	100		U	14080	9619.0	4461	11710	9344	2346	9831	0.020	2.084	27.92	62	0	0	0	0										
29	C7-C9	82	81	100		U	26395	18541.0	3455	25249	16630	4658	19562	0.009	2.193	27.91	82	0	0	0	0										
30	C7-C6	21	36	100		U	7859	5718.0	3131	7073	5658	1415	5941	0.010	2.184	27.92	21	0	0	0	0	1									
31	C26-B8	40	69	200		U	1517	152.0	1365	1	0	0	0	0.527	2.572	27.43	0	0	40	0	0										
32	B8-B3	118	107	200	3	1901	15864	6517.0	9327	7073	5658	1416	5942	0.628	3.200	2															

48	B17-B16	36	53	150	2	1263	6023	3063.0	2199	4659	3727	931	3912	0.377	4.741	25.26	0	16	0	0	0																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
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97	C3-C19	67	67	100	0	14098	9500.0	4997	11559	5246	2311	9703	0.009	4.815	35.18	67	0	0	0	0
98	C19-C20	81	800	100	0	17944	11483.0	5555	15974	11178	2795	11177	0.007	4.839	25.16	81	0	0	0	0
					0	0		0	0	0	0	0				0	0	0	0	
99	C3-C24	81	100	150	0	31016	22663.0	8552	21546	22356	3589	25474	0.381	5.234	24.79	0	81	0	0	0
					0	0		0	0	0	0	0				0	0	0	0	
100	C4-C8	137	174	100	0	26066	17218.0	8848	26873	16699	4875	17338	0.515	5.756	24.24	137	0	0	0	0
101	C8-C10	54	54	100	1	23299	16941.0	6358	20873	15698	4875	17338	0.197	5.956	24.04	54	0	0	0	0
102	C10-C11	38	34	100	0	2916	292.0	2624	1	0	0	0	0.083	6.038	23.96	38	0	0	0	0
					0	0		0	0	0	0	0				0	0	0	0	
103	C11-C13	129	106	100	0	17412	1743.0	85670	1	0	0	0	0.060	6.095	23.90	129	0	0	0	0
104	C13-C16	61		100	0	35870	18862.0	6738	23289	15631	4657	19562	0.007	6.105	23.89	61	0	0	0	0
105	C16-C18	31	104	100	0	32798	19750.0	12520	33671	13504	4726	19649	0.006	6.105	23.90	31	0	0	0	0
	C18-C18	102		100	0	5117	1187.0	3729	1251	1000	250	1550	0.000	6.099	23.90	102	0	0	0	0
	C18-C15	53		100	0	2109	201.0	1803	0	0	0	0	0.000	6.099	23.90	53	0	0	0	0
					0	0		0	0	0	0	0				0	0	0	0	
					0	0		0	0	0	0	0				0	0	0	0	
106	C11-C10	212	213	100	0	77199	56694.0	21204	69864	55895	13971	28665	0.174	6.212	23.79	212	0	0	0	0
					0	0		0	0	0	0	0				0	0	0	0	
107	C4-C20	64	67	150	0	16399	11421.0	4978	13973	11178	2795	11178	0.117	5.146	24.65	0	64	0	0	0
108	C20-C23	44	46	150	0	10983	7619.0	3364	9115	7452	1861	7825	0.084	4.923	25.08	0	44	0	0	0
109	C23-C13	75	77	150	0	17310	7551.0	4558	9316	7452	1861	7824	0.143	5.065	24.93	0	75	0	0	0
110	C12-C14	59	60	150	0	9137	5744.0	3393	6901	5520	1130	5797	0.100	5.312	25.69	0	59	0	0	0
					0	0		0	0	0	0	0				0	0	0	0	
111	C14-E11	15		150	0	569	57.0	512	0	0	0	0	0.005	4.459	25.54	0	15	0	0	0
112	E11-E2	40	41	100	0	1527	132.0	1384	1	0	0	0	0.103	4.356	25.44	40	0	0	0	0
113	E2-E2	94	121	100	0	44323	12964.0	11359	40360	32608	8152	34239	0.028	4.384	25.42	94	0	0	0	0
114</																				

WWS-G1	49	100	0	1358	136.0	16.2	1	0	0	1	2.276	1.276	27.32	49	0	0	0	0
G1-A7	152	100	0	5762	576.0	5183	1	0	0	0	0.2488	2.525	27.48	152	0	0	0	0
A7-G36	364	100	0	17727	1380.0	12417	0	0	0	0	0.5889	3.113	26.39	364	0	0	0	0
G26-G27	301	100	0	18057	9857.0	11399	4633	3726	921	3912	0.4712	3.584	26.42	301	0	0	0	0
G27-G28	341	100	0	102484	75593.0	26891	93349	74680	18670	75414	0.3361	3.920	26.08	341	0	0	0	0
			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
G1-G25	369	100	0	60255	34053.0	25001	41326	34260	8263	34713	0.1233	2.599	27.60	369	0	0	0	0
			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
G1-G12	79	100	0	12310	7751.0	4538	9116	7452	1863	4324	2.2389	4.764	25.34	79	0	0	0	0
			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
G2-G2	48	100	0	20430	15086.0	5063	18631	14904	3726	15649	0.0795	4.843	25.16	48	0	0	0	0
G2-G3	112	100	0	74266	56291.0	18475	59865	35398	13972	34685	0.1507	4.994	25.08	112	0	0	0	0
G3-G4	19	100	0	5379	3793.0	1380	4659	3726	932	1913	0.0601	4.994	25.03	19	0	0	0	0
G1-G4	57	100	0	18476	7663.0	1807	9115	7452	1863	7324	0.0611	4.995	25.00	57	0	0	0	0
			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
G2-G4	99	100	0	3733	375.0	3377	1	0	0	0	1.7046	6.899	23.30	99	0	0	0	0
			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
G4-G13	162	100	0	27891	13014.0	9875	28751	17490	4350	14270	0.0599	5.054	24.95	162	0	0	0	0
G5-G5	12	100	0	834	83.0	750	0	0	0	0	0.0000	4.995	25.00	12	0	0	0	0
L5-G16	50	100	0	25184	13820.0	6353	21289	18639	4657	19562	0.0657	5.001	25.00	50	0	0	0	0
			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
G4-G17	87	100	0	641	64.0	580	0	0	0	0	0.2276	5.222	24.78	87	0	0	0	0
G17-G18	83	100	0	20433	18945.0	7489	21287	18639	4658	19562	0.0214	5.243	24.76	83	0	0	0	0
G8-G8	22	100	0	833	84.0	750	0	0	0	0	0.0000	5.243	24.76	22	0	0	0	0
G15-G18	51	100	0	15906	11372.0	4514	13913	11179	2794	11737	0.0621	5.245	24.75	51	0	0	0	0
			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
G19-G17	39	100	0	1137	114.0	1023	0	0	0	0	0.3178	5.540	24.46	39	0	0	0	0
G19-G19	11	100	0	454	45.0	409	0	0	0	0	0.0611	5.541	24.46	11	0	0	0	0
G19-G23	133	100	0	26086	17341.0	8746	21345	16337	4209	17679	0.0121	5.553	24.45	133	0	0	0	0
G19-G9	48	100	0	1819	182.0	1617	0	0	0	0	0.4380	5.991	24.01	48	0	0	0	0
			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
G22-G10	128	00	0	25896	17321.0	8576	21344	16336	4210	17678	0.0136	6.005	24.00	128	0	0	0	0
G23-G22	61	100	0	2212	221.0	3081	0	0	0	0	0.0001	6.005	24.00	61	0	0	0	0
G24-G23	192	100	0	6277	728.0	6250	0	0	0	0	0.0002	6.005	24.00	192	0	0	0	0
G25-G24	163	100	0	6936	694.0	6243	0	0	0	0	0.0000	6.005	24.00	163	0	0	0	0
			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
G10-G11	34	100	0	10603	7541.0	7023	9314	7452	1863	7825	0.2995	6.290	23.75	34	0	0	0	0
G13-G11	38	100	0	57289	37602.0	32658	46575	37261	9315	39123	0.0376	6.288	23.71	38	0	0	0	0
G11-G13	40	100	0	18172	7638.0	3135	9315	7452	1863	7825	0.2256	6.511	23.49	40	0	0	0	0
G13-G13	34	100	0	10603	7541.0	7023	9314	7452	1863	7825	0.1415	6.655	23.34	34	0	0	0	0
G16-G15	98	100	0	29239	20796.0	8449	25530	20425	5106	21446	0.0125	6.668	23.33	98	0	0	0	0
G17-G15	21	100	0	795	80.0	716	0	0	0	0	0.0000	6.668	23.33	21	0	0	0	0
			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
G16-G15	98	100	0	52732	36426.0	13107	48418	39055	9761	41008	0.2645	6.920	23.08	98	0	0	0	0
G12-G14	49	100	0	11172	7638.0	3135	9315	7452	1863	7825	0.0044	6.924	23.08	49	0	0	0	0
G15-G12	30	100	0	12867	9458.0	3369	11730	9084	2146	9852	0.0009	6.925	23.08	30	0	0	0	0
			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
G14-G16	35	100	0	8199	5792.0	2609	7072	5659	1415	3941	0.0320	6.922	23.08	35	0	0	0	0
G16-G18	21	100	0	10110	7532.0	2579	9314	7452	1863	7825	0.0004	6.922	23.08	21	0	0	0	0
G19-G11	97	100	0	17497	11551.0	5967	13672	11179	2795	11737	0.0365	6.956	23.04	97	0	0	0	0
G20-G19	18	100	0	5340	3795.0	1546	4658	3727	932	2412	0.0003	6.956	23.04	18	0	0	0	0
G21-G19	90	100	0	22043	15246.0	6796	18630	14905	3726	15650	0.0136	6.970	23.02	90	0	0	0	0
G21-G21	19	100	0	10035	7525.0	2511	9315	7453	1863	7825	0.0004	6.970	23.02	19	0	0	0	0
			0	0	0	0	0	0	0	0	0	0	25.01	0	0	0	0	0
Sum			0	760798	501983	256355	408376.1869	486710.8165	121675.37	51044			3897	0	0	0	0	0

[illegible]

Design Statement for Waste Water

Design Statement of Waste Water Collection System - Emerald Hills Sector 62-65, Gurgaon																	
Sr. No	Line No.	Length of Sewer Line	Quantity waste water generation	Quantity of Waste Water generated			Quantity of Waste Water flow during peak hours	Discharge		Velocity	Flow	Size of sewer line	Slope	Length of Sewer Line	Fall	Formation Level	
				Self	Branch	Total	Total discharge @ 3 times Average Flow										Lower end
			L	KLD	KLD	KLD	KLD	MLD	Cu.m.	M/sec	Cu.m.	mm		M	M	M	M
1	2	3	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
	STP -I		3106997.85	3107.00													
1	D-C21	80	70873	70.87	0.00	70.87	212.62	0.21	0.0025	0.70	0.011	200	220	80	0.36	230.300	230.225
2	C21-C2	154	5795.46	5.80	70.9	76.67	230.0	0.23	0.0027	0.52	0.008	200	400	154	0.39	230.225	230.180
3	C2-C26	202	56804.69	56.80	76.7	133.47	400.4	0.40	0.0046	0.60	0.009	200	300	202	0.67	230.180	230.140
4	C26-B	70	0.61	0.00	133.5	133.47	400.4	0.40	0.0046	0.60	0.009	200	300	70	0.23	230.140	230.000
5	B-B	55	0.63	0.00	0.0	0.00	0.0	0.00	0.0000	0.60	0.009	200	300	55	0.18	230.100	230.000
6	B5-B	200	9853.50	9.85	0.0	9.85	29.6	0.03	0.0003	0.60	0.009	200	300	200	0.67	230.200	230.000
7	B-A1	91	42000.80	42.00	143.3	185.33	556.0	0.56	0.0064	0.70	0.011	200	220	91	0.41	230.000	230.105
8	A1-A3	65	9853.51	9.85	185.3	195.18	585.5	0.59	0.0068	0.70	0.011	200	220	65	0.30	230.105	230.110
9	A7-A5	124	15796.93	15.80	0.0	15.80	47.4	0.05	0.0005	0.74	0.012	200	200	124	0.62	230.200	230.167
	A14-A9	55	7828.21	7.83	0.0	7.83	23.5	0.02	0.0003	0.74	0.012	200	200	55	0.28	230.162	230.170
10	A9-A5	29	11883.67	11.88	7.8	19.71	59.1	0.06	0.0007	0.74	0.012	200	200	29	0.15	230.170	230.167
11	A5-A4	35	7825.08	7.83	35.5	43.33	130.0	0.13	0.0015	0.74	0.012	200	200	35	0.18	230.167	230.140
	A14-A8	55	3913.37	3.91	0.0	3.91	11.7	0.01	0.0001	0.74	0.012	200	300	55	0.28	230.196	230.220
12	A8-A4	29	2029.32	2.03	3.9	5.94	17.8	0.02	0.0002	0.74	0.012	200	200	29	0.15	230.220	230.140
13	A4-A3	55	9854.51	9.85	49.3	59.13	177.4	0.18	0.0021	0.74	0.012	200	200	55	0.28	230.140	230.110
14	A3-A10	83	84015.49	84.02	254.3	338.33	1015.0	1.01	0.0117	0.86	0.021	250	200	83	0.42	230.110	230.150
15	A7-A12	82	37240.73	37.24	0.0	37.24	111.7	0.11	0.0013	0.74	0.012	200	200	82	0.41	230.190	230.209
16	A12-A11	46	1.15	0.00	37.2	37.24	111.7	0.11	0.0013	0.56	0.009	200	350	46	0.13	230.209	230.198
17	A6-A11	82	35212.13	35.21	0.0	35.21	105.6	0.11	0.0012	0.84	0.013	200	155	82	0.53	230.170	230.198
18	A11-A10	145	0.29	0.00	72.5	72.45	217.4	0.22	0.0025	0.81	0.013	200	165	145	0.88	230.198	230.150
19	A10-A'	23	5941.64	5.94	410.8	416.72	1250.2	1.25	0.0145	0.61	0.015	250	400	23	0.06	230.150	230.000
20	A-A'	120	0.72	0.00	0.00	0.00	0.00	0.00	0.0000	0.74	0.012	200	200	120	0.60	230.000	230.000
21	A'-X1	35	0.47	0.00	416.7	416.73	1250.2	1.25	0.0145	0.64	0.023	300	450	35	0.08	230.000	231.690
22	B30-B24	166	58684.23	58.68	0.0	58.68	176.1	0.18	0.0020	0.65	0.010	200	255	166	0.65	231.100	230.650
23	B23-B24	22	0.00	0.00	0.0	0.00	0.0	0.00	0.0000	0.70	0.011	200	220	22	0.10	230.700	230.650
24	B24-B15	177	62596.55	62.60	58.7	121.28	363.8	0.36	0.0042	0.48	0.008	200	475	177	0.37	230.650	230.683
25	B14-B15	34	12732.68	12.73	0.0	12.73	38.2	0.04	0.0004	0.70	0.011	200	220	34	0.15	230.683	230.683
26	B15-B16	58	5795.53	5.80	134.0	139.81	419.4	0.42	0.0049	0.70	0.011	200	220	58	0.26	230.683	230.954
27	B26-B25	22	11736.24	11.74	0.0	11.74	35.2	0.04	0.0004	0.68	0.011	200	235	22	0.09	230.660	230.650
28	B24-B25	45	17533.73	17.53	0.0	17.53	52.6	0.05	0.0006	0.74	0.012	200	200	45	0.23	230.650	230.650
29	B25-B21	102	23474.08	23.47	29.3	52.74	158.2	0.16	0.0018	0.51	0.008	200	425	102	0.24	230.650	230.794
30	B22-B21	77	31299.07	31.30	0.0	31.30	93.9	0.09	0.0011	0.60	0.009	200	300	77	0.26	230.921	230.794
31	B21-B16	90	15649.80	15.65	84.0	99.69	299.1	0.30	0.0035	0.70	0.011	200	220	90	0.41	230.794	230.954

32	B16-B17	60	3912.20	3.91	239.5	243.41	730.2	0.73	0.0085	0.70	0.011	200	220	60	0.27	230.954	230.964
33	B28-B19	195	35210.75	35.21	0.0	35.21	105.6	0.11	0.0012	0.49	0.008	200	450	195	0.43	230.990	231.000
34	B19-B18	70	5940.61	5.94	35.2	41.15	123.5	0.12	0.0014	0.60	0.009	200	300	70	0.23	231.000	230.973
35	B26-B27	50	29269.94	29.27	0.0	29.27	87.8	0.09	0.0010	0.45	0.007	200	550	50	0.09	230.660	230.857
36	B29-B27	85	11737.52	11.74	0.0	11.74	35.2	0.04	0.0004	0.65	0.010	200	260	85	0.13	230.993	230.857
37	B27-B18	94	9853.15	9.85	41.0	50.86	152.6	0.15	0.0018	0.72	0.011	200	210	94	0.45	230.857	230.973
38	B18-B17	43	15649.11	15.65	92.0	107.66	323.0	0.32	0.0037	0.70	0.011	200	720	43	0.20	230.973	230.964
39	B17-B4	62	0.00	0.00	351.1	351.08	1053.2	1.05	0.0122	0.61	0.015	250	400	62	0.16	230.964	230.870
40	X-B6	126	28497.08	28.50	0.0	28.50	85.5	0.09	0.0010	0.52	0.008	200	400	126	0.32	231.690	231.660
41	B6-B4	127	31933.17	31.93	28.5	60.43	181.3	0.18	0.0021	0.52	0.008	200	400	127	0.32	231.660	230.870
42	B4-B3	223	27387.04	27.39	411.5	438.89	1316.7	1.32	0.0152	1.00	0.016	200	110	223	2.03	230.870	230.164
43	C-C1	70	10351.20	10.35	0.0	10.35	31.1	0.03	0.0004	0.52	0.008	200	400	70	0.18	230.185	230.175
44	C1-B13	22	7825.38	7.83	10.4	18.18	54.5	0.05	0.0006	0.49	0.008	200	450	22	0.05	230.175	230.180
45	B13-B11	110	5795.99	5.80	18.2	23.97	71.9	0.07	0.0008	0.70	0.011	200	220	110	0.50	230.180	230.170
46	B12-B11	16	9708.99	9.71	0.0	9.71	29.1	0.03	0.0003	0.70	0.011	200	220	16	0.07	230.164	230.170
47	B9-B11	31	5795.76	5.80	0.0	5.80	17.4	0.02	0.0002	0.70	0.011	200	220	31	0.14	230.200	230.170
48	B11-B2	77	1884.64	1.88	39.5	41.36	124.1	0.12	0.0014	0.70	0.011	200	220	77	0.35	230.170	230.150
49	B1-B2	70	13767.26	13.77	0.0	13.77	41.3	0.04	0.0005	0.70	0.011	200	220	70	0.32	230.146	230.150
50	B2-B3	27	5941.91	5.94	55.1	61.07	183.2	0.18	0.0021	0.74	0.012	200	200	27	0.14	230.150	230.164
51	B3-B7	116	0.51	0.00	500.0	499.97	1499.9	1.50	0.0174	0.73	0.026	300	350	116	0.33	230.164	230.165
52	B8-B7	134	117300.96	117.30	0.0	117.30	351.9	0.35	0.0041	0.70	0.011	200	320	134	0.61	230.180	230.165
53	B7-X1	40	0.00	0.00	617.3	617.27	1851.8	1.85	0.0214	0.61	0.022	300	500	40	0.08	230.165	231.690
54	X1-STP1	40	0.00	0.00	1034.0	1033.99	3102.0	3.10	0.0359	0.74	0.047	400	500	40	0.08	231.690	231.690
		4596	1033993	1033.99										4596			
	B28-B27	79	34196.65	34.20	0.0	34.20	102.6	0.10	0.0012	0.70	0.011	200	320	79	0.36	230.990	230.857
	B26-B26"	29	0	0.00	0.0	0.00	0.0	0.00	0.0000	0.70	0.011	200	220	29	0.13	230.660	230.675
	B27-B26"	69	0	0.00	34.2	34.20	102.6	0.10	0.0012	0.70	0.011	200	220	69	0.31	230.857	230.675
55	B26"-D12	163	34196.65	34.20	34.2	68.39	205.2	0.21	0.0024	0.70	0.011	200	220	163	0.74	230.675	230.674
56	D14-D13	115	46947.74	46.95	0.0	46.95	140.8	0.14	0.0016	0.74	0.012	200	200	115	0.58	230.800	230.742
57	D13-D11	40	0.00	0.00	46.9	46.95	140.8	0.14	0.0016	0.74	0.012	200	200	40	0.20	230.742	230.720
58	D11-D12	100	21445.45	21.45	46.9	68.39	205.2	0.21	0.0024	0.74	0.012	200	200	100	0.50	230.720	230.674
59	D12-D10	60	5795.62	5.80	136.8	142.58	427.7	0.43	0.0050	0.74	0.012	200	200	60	0.30	230.674	230.532
60	D9-D10	30	3912.41	3.91	0.0	3.91	11.7	0.01	0.0001	0.70	0.011	200	320	30	0.14	230.600	230.532
61	D10-D8	83	25358.32	25.36	146.5	171.85	515.6	0.52	0.0060	0.74	0.012	200	200	83	0.42	230.532	230.510
62	D7-D8	25	1912.41	3.91	0.0	3.91	11.7	0.01	0.0001	0.74	0.012	200	200	25	0.13	230.608	230.510
63	D8-D5	57	9708.59	9.71	175.8	185.47	556.4	0.56	0.0064	0.74	0.012	200	200	57	0.29	230.510	230.490
64	D6-D5	25	7824.42	7.82	0.0	7.82	23.5	0.02	0.0003	0.70	0.011	200	220	25	0.11	230.500	230.490
65	D5-D15	134	43035.74	43.04	193.3	236.33	709.0	0.71	0.0082	0.66	0.010	200	350	134	0.54	230.490	230.450
66	D4-D3	86	27387.20	27.39	0.0	27.39	82.2	0.08	0.0010	0.70	0.011	200	320	86	0.39	230.728	230.530
67	D3-D2	61	1.64	0.00	27.4	27.39	82.2	0.08	0.0010	0.70	0.011	200	320	61	0.28	230.530	230.490
68	D2-D15	54	23473.84	23.47	27.4	50.86	152.6	0.15	0.0018	0.70	0.011	200	320	54	0.25	230.490	230.450

69	D15-X2	42	15649.50	15.65	287.2	302.85	908.5	0.91	0.0105	0.70	0.011	200	220	42	0.19	230.450	230.746
70	D21-D18	140	23473.39	23.47	0.0	23.47	70.4	0.07	0.0008	0.70	0.011	200	220	140	0.64	230.950	230.800
71	D18-D17	91	15936.08	15.94	23.5	39.41	118.2	0.12	0.0014	0.70	0.011	200	220	91	0.41	230.800	232.110
	D22'-D22	60	13693.11	13.69	0.0	13.69	41.1	0.04	0.0005	0.70	0.011	200	220	60	0.27	232.203	232.200
72	D22-D17	131	13693.11	13.69	13.7	27.39	82.2	0.08	0.0010	0.70	0.011	200	220	131	0.60	232.200	232.110
73	D17-D16	72	0.58	0.00	66.8	66.80	200.4	0.20	0.0023	0.57	0.014	250	450	72	0.16	232.110	232.110
	D16-D16'	54	1	0.00	66.8	66.80	200.4	0.20	0.0023	0.57	0.014	250	450	54	0.12	232.110	231.570
	D16'-D16'	47	15649.50	15.65	0.0	15.65	46.9	0.05	0.0005	0.57	0.014	250	450	47	0.10	231.654	231.570
	D16'-X2'	65	0	0.00	82.4	82.45	247.3	0.25	0.0029	0.57	0.014	250	450	65	0.14	231.570	230.746
	X2'-X2'	82	13621.82	13.62	0.0	13.62	40.9	0.04	0.0005	0.57	0.014	250	450	82	0.18	230.746	230.746
74	X2'-X2	20	0	0.00	96.1	96.07	288.2	0.29	0.0033	0.57	0.014	250	450	20	0.04	230.746	230.746
75	X2-STP 2	30	0.00	0.00	398.9	398.91	1196.7	1.20	0.0139	0.57	0.014	250	450	30	0.07	230.746	230.746
		2044	398914	398.91										1867			
76	E6-E5	95	27385.83	27.39	0.00	27.39	82.16	0.08	0.0010	0.79	0.012	200	175	95	0.54	230.500	230.480
77	E5-E2	125	15649.92	15.65	27.39	43.04	129.11	0.13	0.0015	0.85	0.013	200	150	125	0.83	230.480	230.425
78	E10-E8	50	9853.18	9.85	0.00	9.85	29.56	0.03	0.0003	0.85	0.013	200	150	50	0.33	230.450	230.435
79	E8-E2	72	11738.00	11.74	9.85	21.59	64.77	0.06	0.0007	0.70	0.011	200	220	72	0.33	230.435	230.425
80	E7-E2	77	34238.62	34.24	0.00	34.24	102.7	0.10	0.0012	0.70	0.011	200	220	77	0.35	230.350	230.425
81	E11-E2	51	0	0.00	98.87	98.87	296.6	0.30	0.0034	0.70	0.011	200	220	51	0.23	230.425	230.380
82	E11-C14	18	0.00	0.00	98.87	98.87	296.60	0.30	0.0034	1.04	0.016	200	100	18	0.18	230.380	230.400
83	C21-C22	44	7824.01	7.82	0.00	7.82	23.47	0.02	0.0003	0.60	0.009	200	300	44	0.15	230.200	230.225
84	C22-C19	59	5796.08	5.80	7.82	13.62	40.86	0.04	0.0005	0.60	0.009	200	300	59	0.20	230.225	230.230
85	C3-C19	40	9708.32	9.71	0.00	9.71	29.12	0.03	0.0003	0.74	0.012	200	200	40	0.20	230.187	230.230
86	C19-C20	102	11737.30	11.74	23.33	35.066	105.20	0.11	0.0012	0.85	0.023	200	150	102	0.68	230.230	230.225
87	C6-C3'	93	15649.28	15.65	0.00	15.65	46.95	0.05	0.0005	0.70	0.011	200	220	93	0.42	230.180	230.187
88	C3'-C4	102	23473.70	23.47	15.65	39.12	117.37	0.12	0.0014	0.70	0.011	200	220	102	0.46	230.187	230.220
89	C8-C4	77	23474.97	23.47	0.00	23.47	70.42	0.07	0.0008	0.70	0.011	200	220	77	0.35	230.200	230.220
90	C4-C20	67	39124.43	39.12	62.60	101.72	305.17	0.31	0.0035	0.47	0.007	200	500	67	0.13	230.220	230.225
91	C20-C23	60	7824.84	7.82	136.79	144.61	433.84	0.43	0.0050	0.69	0.011	200	230	60	0.26	230.225	230.150
92	C23-C13	60	7824.38	7.82	144.61	152.44	457.3	0.46	0.0053	0.69	0.011	200	230	60	0.26	230.150	230.350
93	C9-C6'	135	29415.19	29.42	0.00	29.42	88.25	0.09	0.0010	0.54	0.008	200	375	135	0.36	230.210	230.180
94	C6'-C10	145	17533.55	17.53	29.42	46.95	140.85	0.14	0.0016	0.47	0.007	200	500	145	0.29	230.180	230.225
95	C10-C13	247	58684.57	58.68	46.95	105.63	316.9	0.32	0.0037	0.60	0.009	200	300	247	0.82	230.225	230.350
96	C13-C14	31	5796.67	5.80	258.07	263.87	791.60	0.79	0.0092	0.60	0.009	200	300	31	0.10	230.350	230.400
97	C14-C18	66	0	0.00	362.73	362.73	1088.20	1.09	0.0126	0.61	0.015	250	400	66	0.17	230.400	230.430
98	C16-C15	62	20611.65	20.61	0.00	20.61	61.83	0.06	0.0007	0.74	0.012	200	200	62	0.31	230.160	230.350
99	C15-C18	132	19849.17	19.85	20.61	40.46	121.38	0.12	0.0014	0.74	0.012	200	200	132	0.66	230.350	230.430
100	C18-X1	26	0.00	0.00	403.19	403.19	1209.58	1.21	0.0140	0.58	0.021	300	550	26	0.05	230.430	231.690

101	E17-E14	34	23427.91	23.33	0.00	23.33	69.98	0.07	0.0008	0.74	0.012	200	200	34	0.17	230.900	230.880
102	E14-E13	34	7776.29	7.78	23.33	31.10	93.31	0.09	0.0011	0.74	0.012	200	200	34	0.17	230.880	230.860
103	E16-E13	32	14580.30	14.58	0.00	14.58	43.74	0.04	0.0005	0.74	0.012	200	200	32	0.16	230.880	230.860
104	E13-E12	42	21383.60	21.38	45.68	67.07	201.20	0.20	0.0023	0.74	0.012	200	200	42	0.21	230.860	230.850
105	E12-E12	10	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.74	0.012	200	200	10	0.05	230.870	230.850
106	E12-E19	57	14488.71	14.49	67.07	81.56	244.67	0.24	0.0028	0.74	0.012	200	200	57	0.29	230.850	230.430
107	E-E19	79	14488.71	14.49	0.00	14.49	43.47	0.04	0.0005	0.74	0.012	200	200	79	0.40	229.838	230.430
108	E19-X3	90	14488.71	14.49	96.05	110.53	331.60	0.33	0.0038	0.74	0.012	200	200	90	0.45	230.430	231.690
109	X3-STP-3	40	0.00	0.00	513.7	513.73	1541.2	1.54	0.0178	0.58	0.021	300	550	40	0.07	231.690	231.690
		2454	513728	513.73													
110	D26-D24	75	13620.51	13.62	0.00	13.62	40.86	0.04	0.0005	0.74	0.012	200	200	75	0.38	231.450	231.500
111	D25-D24	62	11736.94	11.74	0.00	11.74	35.21	0.04	0.0004	0.74	0.012	200	200	62	0.31	231.425	231.500
112	D24-Portable STP	10	0.00	0.00	25.4	25.36	76.1	0.08	0.0009	0.74	0.012	200	200	10	0.05	231.500	231.500
		147	25357	25.36													
	G29-G28	27	3913.40	3.91	0.0	3.91	11.7	0.01	0.0001	0.74	0.012	200	200	27	0.14	234.536	234.439
	G28-G26	82	7825.25	7.83	3.9	11.74	35.2	0.04	0.0004	0.74	0.012	200	200	82	0.41	234.439	234.601
	G27-G26	25	3913.40	3.91	0.0	3.91	11.7	0.01	0.0001	1.04	0.016	200	100	25	0.25	234.555	234.603
	G26-G23	95	11737.23	11.74	15.7	27.39	82.2	0.08	0.0010	0.74	0.012	200	200	95	0.48	234.603	234.610
	G*16-G*16	22	0.00	0.00	0.0	0.00	0.0	0.00	0.0000	0.74	0.012	200	200	22	0.11	234.148	234.148
	G*16-G13	49	5868.68	5.87	0.0	5.87	17.6	0.02	0.0002	0.74	0.012	200	200	49	0.25	234.244	234.148
	G*16-G22	136	5868.68	5.87	5.9	11.74	35.2	0.04	0.0004	0.74	0.012	200	200	136	0.68	234.148	234.943
	G21-G22	32	7824.57	7.82	0.0	7.82	23.5	0.02	0.0003	0.74	0.012	200	200	32	0.16	235.000	234.943
	G22-G23	32	27388.18	27.39	19.6	46.95	140.9	0.14	0.0016	0.74	0.012	200	200	32	0.16	234.943	234.610
	G24-G23	41	7825.32	7.83	0.0	7.83	23.5	0.02	0.0003	0.74	0.012	200	200	41	0.21	234.447	234.610
	G23-G17	93	7825.32	7.83	82.2	89.99	270.0	0.27	0.0031	0.74	0.012	200	200	93	0.47	234.610	234.080
	G16-G17	34.5	19562.03	19.56	0.0	19.56	58.7	0.06	0.0007	0.74	0.012	200	200	34.5	0.17	234.148	234.080
	G17-G18	40	48832.53	48.83	109.6	158.38	475.2	0.48	0.0055	0.74	0.012	200	200	40	0.20	234.080	233.917
	G18-G19	32	-1	0.00	158.4	158.38	475.2	0.48	0.0055	0.74	0.012	200	200	32	0.16	233.917	233.817
	G25-G24	28.8	9853.07	9.85	0.0	9.85	29.6	0.03	0.0003	0.74	0.012	200	200	28.8	0.14	234.425	234.417
	G24-G18	97.7	39123.44	39.12	9.9	48.98	146.9	0.15	0.0017	0.74	0.012	200	200	97.7	0.49	234.447	233.917
	G18-G19	32	7824.89	7.82	49.0	56.80	170.4	0.17	0.0020	0.74	0.012	200	200	32	0.16	233.917	233.817
	G4-G5	29	17356.47	17.36	0.0	17.36	52.1	0.05	0.0006	0.66	0.010	200	250	29	0.12	234.656	234.668
	G4-G2	33	3912.19	3.91	0.0	3.91	11.7	0.01	0.0001	0.66	0.010	200	250	33	0.13	234.686	234.668
	G6-G4	133.39	0.00	0.00	21.3	21.27	63.8	0.06	0.0007	0.66	0.010	200	250	133.39	0.53	234.668	234.013
	G8-G6	81	19561.78	19.56	0.0	19.56	58.7	0.06	0.0007	0.66	0.010	200	250	81	0.32	233.753	234.013
	G6-G7	21	9134.90	9.13	40.8	49.97	149.9	0.15	0.0017	0.66	0.010	200	250	21	0.08	234.013	233.896
	G*15-G10	372	7824	7.82	0.0	7.82	23.5	0.02	0.0003	0.66	0.010	200	250	372	1.49	231.425	233.790
	G10-G7	159	43847.84	43.85	7.8	51.67	155.0	0.16	0.0018	0.66	0.010	200	250	159	0.64	233.790	233.896
	G7-G11	71	35356.89	35.36	101.6	136.99	411.0	0.41	0.0048	0.66	0.010	200	250	71	0.28	233.896	233.726
	G1-G2	30.5	-1	0.00	0.0	0.00	0.0	0.00	0.0000	0.74	0.012	200	200	30.5	0.15	234.700	234.656

Design Statement for Storm Water

			2836822	0.00													
	Total length in sector 65 & 62					13213.91		200 mm i/d	250 mm i/d	300 mm i/d	400 mm i/d						
	Total length in sector 65																
	STP 1	From Completed work area	1033993	1034	1000	4596		3942	168	191	40						
		From additional						255.00									
	at STP 2	From Completed work area	398914	399	400	1274		1274	102	0	0						
		From additional						400	268								
		at STP 3	513728	514	450	2454		2322	66	66	0						
		Portable STP	25357	25	25	147		147	0	0	0						
		Total Additional lines laid in sector 65															
	Total length in sector 62																
		STP 4	433337	433	630	2405		2268	0	138	0						
		Portable STP	7824	8	10	355		355	0	0	0						
		Zone 2															
		STP5	423668	424	600	1213		1200.40	0	13	0						
	GH Area Zone 3		270176	270	270												
		Total	3106998	3107	3385	12444		12162.91	604.00	407.00	40.00						

Appurtenances of Waste Water Collection System - Emerald Hills Sector 62-65, Gurgaon																	
Invert Level			Depth			Length of Sewer Pipe Line								No. of Man Holes			
Upper end	Lower end		Upper end	Lower end	Avg	200 mm i/d	Avg Depth	250 mm i/d	Avg Depth	300 mm i/d	Avg Depth	400 mm i/d	Avg Depth	200 mm i/d	250 mm i/d	300 mm i/d	400 mm i/d
M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	No.	No.
18	19	20	21	22	23	4	5	6	7	8	9	12	13	4	5	6	7
																1	
229.128	229.013		1.17	1.21	1.19	80	1.19							4			
229.013	228.628		1.21	1.55	1.38	154	1.38							8			
228.628	227.955		1.55	2.19	1.87	202	1.87							10			
227.955	227.721		2.19	2.28	2.23	70	2.23							4			
228.881	228.698		1.22	1.30	1.26	55	1.26							3			
228.986	228.319		1.21	1.68	1.45	200	1.45							10			
227.721	227.308		2.28	2.80	2.54	91	2.54							5			
227.308	227.012	226.957	2.80	3.10	2.95	65	2.95							3			
						0	0.00										
228.986	228.366		1.21	1.80	1.51	124	1.51							6			
229.262	228.956		0.90	1.21	1.06	55	1.06										
228.956	228.811		1.21	1.36	1.29	29	1.29							1			
228.366	228.191		1.80	1.95	1.88	35	1.88							2			
229.296	229.020		0.90	1.20	1.05	55	1.05										
229.020	228.875		1.20	1.26	1.23	29	1.23							1			
228.191	227.916	227.861	1.95	2.19	2.07	55	2.07							3			
						0	0.00										
226.957	226.542		3.15	3.61	3.38	0	0.00	83	3.38				0.00	0	4		
						0	0.00	0	0.00								
228.977	228.567		1.21	1.64	1.43	82	1.43	0	0.00					4			
228.567	228.436		1.64	1.76	1.70	46	1.70	0	0.00					2			
228.959	228.430		1.21	1.77	1.49	82	1.49	0	0.00					4			
228.430	227.551	227.496	1.77	2.60	2.18	145	2.18	0	0.00					7			
						0	0.00	0	0.00								
226.542	226.485		3.61	3.52	3.56	0	0.00	23	3.56				0.00	0	1		
228.800	228.200	228.100	1.20	1.80	1.50	120	1.50	0	0.00					6			
226.485	226.407	226.307	3.52	5.28	4.40	0	0.00	0	0.00	35	4.40		0.00	0		2	
						0	0.00	0	0.00	0	0.00						
230.100	229.449		1.00	1.20	1.10	166	1.10	0	0.00	0	0.00			8			
229.600	229.500		1.10	1.15	1.13	22	1.13	0	0.00	0	0.00			1			
229.449	229.076		1.20	1.61	1.40	177	1.40	0	0.00	0	0.00			9			
229.783	229.628		0.90	1.05	0.98	34	0.98	0	0.00	0	0.00			2			
229.076	228.813		1.61	2.14	1.87	58	1.87	0	0.00	0	0.00			3			
						0	0.00	0	0.00	0	0.00						
229.445	229.351		1.22	1.30	1.26	22	1.26	0	0.00	0	0.00			1			
229.575	229.350		1.08	1.30	1.19	45	1.19	0	0.00	0	0.00			2			
229.350	229.110		1.30	1.68	1.49	102	1.49	0	0.00	0	0.00	0		5			0
229.445	229.188		1.48	1.61	1.54	77	1.54	0	0.00	0	0.00			4			
229.110	228.701		1.68	2.25	1.97	90	1.97	0	0.00	0	0.00			5			

228.701	228.428		2.25	2.54	2.39	0	0.00	0	0.00	0	0.00						
						0	0.00	0	0.00	0	0.00						
229.676	229.243		1.31	1.76	1.54	195	1.54	0	0.00	0	0.00				10		
229.243	229.009		1.76	1.96	1.86	70	1.86	0	0.00	0	0.00				4		
229.550	229.459		1.11	1.40	1.25	50	1.25	0	0.00	0	0.00				3		
229.780	229.453		1.21	1.40	1.31	85	1.31	0	0.00	0	0.00				4		
229.453	229.005		1.40	1.97	1.69	94	1.69	0	0.00	0	0.00				5		
229.005	228.810	228.760	1.97	2.15	2.06	43	2.06	0	0.00	0	0.00				2		
						0	0.00	0	0.00	0	0.00						
228.428	228.273	228.323	2.54	2.60	2.57	0	0.00	62	2.57	0	0.00		0.00		0	3	
229.360	229.045		2.33	2.61	2.47	126	2.47	0	0.00	0	0.00				6		
229.045	228.728	228.728	2.61	2.14	2.38	127	2.38	0	0.00	0	0.00				6		
228.273	228.150		2.60	2.01	2.31	223	2.31	0	0.00	0	0.00				11	0	
						0	0.00	0	0.00	0	0.00						
229.185	229.010		1.00	1.17	1.08	70	1.08	0	0.00	0	0.00				4		
229.010	228.961		1.17	1.22	1.19	22	1.19	0	0.00	0	0.00				1		
228.961	228.461		1.22	1.71	1.46	110	1.46	0	0.00	0	0.00	0			6		0
228.886	228.813		1.28	1.36	1.32	16	1.32	0	0.00	0	0.00				1		
228.959	228.818		1.24	1.35	1.30	31	1.30	0	0.00	0	0.00	0			2		0
228.461	228.111		1.71	2.04	1.87	77	1.87	0	0.00	0	0.00				4		
228.961	228.643		1.18	1.51	1.35	70	1.35	0	0.00	0	0.00				4		
228.111	227.976		2.04	2.19	2.11	27	2.11	0	0.00	0	0.00				1		
						0	0.00	0	0.00	0	0.00						
227.976	227.645		2.19	2.52	2.35	0	0.00	0	0.00	116	2.35				0		6
228.966	228.357		1.21	1.81	1.51	134	1.51	0	0.00	0	0.00				7		
227.645	227.565	227.465	2.52	4.13	3.32	0	0.00	0	0.00	40	3.32				0		2
						0	0.00	0	0.00	0	0.00						
226.307	226.227		5.38	5.46	5.42	0	0.00	0	0.00	0	0.00	40	5.42		0		2
						3942		168		191		40					
						255											
230.090	229.731		0.90	1.13	1.01	79	1.01	0	0.00	0	0.00	0	0.00				
229.760	229.628		0.90	1.05	0.97	29	0.97	0	0.00	0	0.00	0	0.00				
229.731	229.417		1.13	1.26	1.19	69	1.19	0	0.00	0	0.00	0	0.00				
229.575	228.834		1.10	1.84	1.47	163	1.47	0	0.00	0	0.00	0	0.00		8		
229.700	229.125		1.10	1.62	1.36	115	1.36	0	0.00	0	0.00	0	0.00		6		
229.125	228.925		1.62	1.79	1.71	40	1.71	0	0.00	0	0.00	0	0.00		2		
228.925	228.425		1.79	2.25	2.02	100	2.02	0	0.00	0	0.00	0	0.00		5		
228.425	228.125		2.25	2.41	2.33	60	2.33	0	0.00	0	0.00	0	0.00		3		
229.400	229.264		1.20	1.27	1.23	30	1.23	0	0.00	0	0.00	0	0.00		2		0
228.125	227.710		2.41	2.80	2.60	83	2.60	0	0.00	0	0.00	0	0.00		4		
229.408	229.283		1.20	1.23	1.21	25	1.21	0	0.00	0	0.00	0	0.00		1		
227.710	227.425		2.80	3.06	2.93	57	2.93	0	0.00	0	0.00	0	0.00		3		
229.300	229.186		1.20	1.30	1.25	25	1.25	0	0.00	0	0.00	0	0.00		1		
227.425	226.889		3.06	3.56	3.31	114	3.31	0	0.00	0	0.00	0	0.00		7		
						0	0.00	0	0.00	0	0.00	0	0.00				
229.628	229.237		1.10	1.29	1.20	86	1.20	0	0.00	0	0.00	0	0.00		4		
229.237	228.960		1.29	1.53	1.41	61	1.41	0	0.00	0	0.00	0	0.00		3		
228.960	228.714		1.53	1.74	1.63	54	1.63	0	0.00	0	0.00	0	0.00		3		

						0	0.00	0	0.00	0	0.00	0	0.00				
226.889	226.698	226.648	3.56	4.05	3.80	42	3.80	0	0.00	0	0.00	0	0.00	2			
						0	0.00	0	0.00	0	0.00	0	0.00				
229.700	229.064		1.25	1.74	1.49	140	1.49	0	0.00	0	0.00	0	0.00	7			
229.064	228.650	228.600	1.74	3.46	2.60	91	2.60	0	0.00	0	0.00	0	0.00	5			
230.953	230.680		1.25	1.52	1.39	60	1.39	0	0.00	0	0.00	0	0.00				
231.000	230.405	230.355	1.20	1.71	1.45	131	1.45	0	0.00	0	0.00	0	0.00	7			
228.600	228.440		3.51	3.67	3.59	0	0.00	72	3.59	0	0.00	0	0.00	0	4		
						0	0.00	0	0.00	0	0.00	0	0.00				
228.440	228.320		3.67	3.25	3.46	0	0.00	54	3.46	0	0.00	0	0.00				
230.454	230.350		1.20	1.22	1.21	0	0.00	47	1.21	0	0.00	0	0.00				
228.320	228.176		3.25	2.57	2.91	0	0.00	65	2.91	0	0.00	0	0.00				
229.546	229.364		1.20	1.38	1.29	0	0.00	82	1.29	0	0.00	0	0.00				
228.176	228.131		2.57	2.62	2.59	0	0.00	20	2.59	0	0.00	0	0.00	0	1		
						0	0.00	0	0.00	0	0.00	0	0.00				
226.648	226.581		4.10	4.16	4.13	0	0.00	30	4.13	0	0.00	0	0.00	0	2		
			3.78	3.84	3.81	1274		102		0		0					
						400		268									
229.581	229.038		0.92	1.44	1.18	95	1.18	0	0.00	0	0.00	0	0.00	5			
229.038	228.205		1.44	2.22	1.83	125	1.83	0	0.00	0	0.00	0	0.00	6			
229.550	229.217		0.90	1.22	1.06	50	1.06	0	0.00	0	0.00	0	0.00	3			
229.217	228.889		1.22	1.54	1.38	72	1.38	0	0.00	0	0.00	0	0.00	4			0
229.150	228.800		1.28	1.55	1.41	77	1.41	0	0.00	0	0.00	0	0.00	4			0
228.205	227.973		2.18	2.45	2.31	51	2.31	0	0.00	0	0.00	0	0.00	3		0	
227.973	227.793	227.743	2.41	2.61	2.51	18	2.51	0	0.00	0	0.00	0	0.00	1			
						0	0.00	0	0.00	0	0.00	0	0.00				
229.000	228.853		1.20	1.37	1.29	44	1.29	0	0.00	0	0.00	0	0.00	2			
228.853	228.657		1.37	1.57	1.47	59	1.47	0	0.00	0	0.00	0	0.00	3	0		
228.987	228.787		1.20	1.44	1.32	40	1.32	0	0.00	0	0.00	0	0.00	2			
228.657	227.977		1.57	2.25	1.91	102	1.91	0	0.00	0	0.00	0	0.00	5			
						0	0.00	0	0.00	0	0.00	0	0.00				
228.980	228.557		1.20	1.63	1.41	93	1.41	0	0.00	0	0.00	0	0.00	5			
228.557	228.094		1.63	2.13	1.88	102	1.88	0	0.00	0	0.00	0	0.00	5			
229.000	228.650		1.20	1.57	1.38	77	1.38	0	0.00	0	0.00	0	0.00	4			
228.094	227.960		2.13	2.27	2.20	67	2.20	0	0.00	0	0.00	0	0.00	3	0		
						0	0.00	0	0.00	0	0.00	0	0.00				
227.960	227.699		2.19	2.53	2.36	60	2.36	0	0.00	0	0.00	0	0.00	3			
227.699	227.438		2.45	2.91	2.68	60	2.68	0	0.00	0	0.00	0	0.00	3			
						0	0.00	0	0.00	0	0.00	0	0.00				
229.010	228.650		1.20	1.53	1.36	135	1.36	0	0.00	0	0.00	0	0.00	7	0		
228.650	228.360		1.53	1.86	1.70	145	1.70	0	0.00	0	0.00	0	0.00	7	0		
228.360	227.537		1.86	2.81	2.34	247	2.34	0	0.00	0	0.00	0	0.00	12			
						0	0.00	0	0.00	0	0.00	0	0.00				
227.438	227.335	227.285	2.91	3.07	2.99	31	2.99	0	0.00	0	0.00	0	0.00	2			
227.285	227.120	227.070	3.12	3.31	3.21	0	0.00	66	3.21	0	0.00	0	0.00	0	3		
						0	0.00	0	0.00	0	0.00	0	0.00				
228.371	228.061		1.99	2.29	2.14	62	2.14	0	0.00	0	0.00	0	0.00	2			
228.061	227.401	227.301	2.29	3.03	2.66	132	2.66	0	0.00	0	0.00	0	0.00	7			
						0	0.00	0	0.00	0	0.00	0	0.00				
227.070	227.022		3.36	4.67	4.01	0	0.00	0	0.00	26	4.01	0	0.00	0		1	

						0	0.00	0	0.00	0	0.00	0	0.00				
229.004	228.834		1.90	2.05	1.97	34	1.97	0	0.00	0	0.00	0	0.00	2			
228.834	228.739		2.05	2.12	2.08	34	2.08	0	0.00	0	0.00	0	0.00	2			
229.136	228.976		1.74	1.88	1.81	32	1.81	0	0.00	0	0.00	0	0.00	2			
228.739	228.529		2.12	2.32	2.22	42	2.22	0	0.00	0	0.00	0	0.00	2			
229.670	229.620		1.20	1.23	1.21	10	1.21	0	0.00	0	0.00	0	0.00	1			
228.529	228.244		2.32	2.19	2.25	57	2.25	0	0.00	0	0.00	0	0.00	1	0		
228.638	228.243		1.20	2.19	1.69	79	1.69	0	0.00	0	0.00	0	0.00	4			
228.243	227.793	227.693	2.19	3.90	3.04	90	3.04	0	0.00	0	0.00	0	0.00	5	0		
						0	0.00	0	0.00	0	0.00	0	0.00				
227.022	226.950		4.67	4.74	4.70	0	0.00	0	0.00	40	4.70	0	0.00	0		2	
			3.39	3.46	3.42	2322		66		66		0					
230.350	229.975		1.10	1.53	1.31	75	1.31	0	0.00	0	0.00	0	0.00	4			
230.325	230.015		1.10	1.48	1.29	62	1.29	0	0.00	0	0.00	0	0.00	3			
229.975	229.925		1.53	1.58	1.55	10	1.55	0	0.00	0	0.00	0	0.00	1			
						147		0		0		0					
233.336	233.201		1.20	1.24	1.22	27	1.22	0	0.00	0	0.00	0	0.00				
233.239	232.829		1.20	1.77	1.49	82	1.49	0	0.00	0	0.00	0	0.00				
233.355	233.105	232.805	1.20	1.50	1.35	25	1.35	0	0.00	0	0.00	0	0.00				
232.829	232.354		1.77	2.26	2.01	95	2.01	0	0.00	0	0.00	0	0.00				
232.948	232.818		1.20	1.31	1.26	22	1.26	0	0.00	0	0.00	0	0.00				
233.044	232.799		1.20	1.35	1.27	49	1.27	0	0.00	0	0.00	0	0.00				
232.799	232.119		1.35	2.82	2.09	136	2.09	0	0.00	0	0.00	0	0.00				
233.800	233.640		1.20	1.30	1.25	32	1.25	0	0.00	0	0.00	0	0.00				
233.640	233.480		1.30	1.13	1.22	32	1.22	0	0.00	0	0.00	0	0.00				
						0	0.00	0	0.00	0	0.00	0	0.00				
233.247	233.042		1.20	1.57	1.38	41	1.38	0	0.00	0	0.00	0	0.00				
233.042	232.577		1.57	1.50	1.54	93	1.54	0	0.00	0	0.00	0	0.00				
232.948	232.776		1.20	1.30	1.25	35	1.25	0	0.00	0	0.00	0	0.00				
232.880	232.680		1.20	1.24	1.22	40	1.22	0	0.00	0	0.00	0	0.00				
232.680	232.520		1.24	1.30	1.27	32	1.27	0	0.00	0	0.00	0	0.00				
						0	0.00	0	0.00	0	0.00	0	0.00				
233.225	233.081		1.20	1.37	1.28	29	1.28	0	0.00	0	0.00	0	0.00				
233.081	232.593		1.37	1.32	1.34	98	1.34	0	0.00	0	0.00	0	0.00				
232.593	232.433		1.32	1.38	1.35	32	1.35	0	0.00	0	0.00	0	0.00				
						0	0.00	0	0.00	0	0.00	0	0.00				
233.456	233.340		1.20	1.33	1.26	29	1.26	0	0.00	0	0.00	0	0.00				
233.486	233.354		1.20	1.31	1.26	33	1.26	0	0.00	0	0.00	0	0.00				
233.340	232.806		1.33	1.21	1.27	133	1.27	0	0.00	0	0.00	0	0.00				
232.551	232.229		1.20	1.78	1.49	81	1.49	0	0.00	0	0.00	0	0.00				
232.229	232.145		1.78	1.75	1.77	21	1.77	0	0.00	0	0.00	0	0.00				
230.225	228.737		1.20	5.05	3.13	372	3.13	0	0.00	0	0.00	0	0.00				
232.145	231.509		1.64	2.39	2.02	159	2.02	0	0.00	0	0.00	0	0.00				
231.509	231.225		2.39	2.50	2.44	71	2.44	0	0.00	0	0.00	0	0.00				
						0	0.00	0	0.00	0	0.00	0	0.00				
233.500	233.348		1.20	1.31	1.25	31	1.25	0	0.00	0	0.00	0	0.00				

233.456	232.756		1.20	0.97	1.09	140	1.09	0	0.00	0	0.00	0	0.00				
231.225	231.025		2.50	2.99	2.75	40	2.75	0	0.00	0	0.00	0	0.00				
231.154	230.693					92	0.00	0	0.00	0	0.00	0	0.00				
231.025	230.965		2.99	3.05	3.02	12	3.02	0	0.00	0	0.00	0	0.00				
233.100	232.570		1.20	1.45	1.32	106	1.32	0	0.00	0	0.00	0	0.00				
230.693	230.451		3.32	3.37	3.34	48	3.34	0	0.00	0	0.00	0	0.00				
						0	0.00	0	0.00	0	0.00	0	0.00				
230.451	229.763		3.37	4.05	3.71	0	0.00	0	0.00	138	3.71	0	0.00				
						2267.51	0.00	0.00	0.00	137.50	0.00	0.00	0.00				
						0	0.00	0	0.00	0	0.00	0	0.00				
229.478	228.188		1.20	2.12	1.66	258	1.66	0	0.00	0	0.00	0	0.00				
228.188	227.793		2.12	2.95	2.53	79	2.53	0	0.00	0	0.00	0	0.00				
227.793	227.703		2.95	3.04	2.99	18	2.99	0	0.00	0	0.00	0	0.00				
						355.00		0.00		0.00		0.00					
235.300	235.003		1.20	1.43	1.31	119	1.31	0	0.00	0	0.00	0	0.00				
235.003	234.953		1.43	1.46	1.45	20	1.45	0	0.00	0	0.00	0	0.00				
234.953	234.623		1.46	1.88	1.67	132	1.67	0	0.00	0	0.00	0	0.00				
						0	0.00	0	0.00	0	0.00	0	0.00				
235.300	235.180		1.20	1.16	1.18	36	1.18	0	0.00	0	0.00	0	0.00				
234.871	234.161		1.20	2.18	1.69	142	1.69	0	0.00	0	0.00	0	0.00				
234.161	234.101		2.18	2.23	2.21	12	2.21	0	0.00	0	0.00	0	0.00				
234.101	233.831		2.23	2.15	2.19	54	2.19	0	0.00	0	0.00	0	0.00				
						0	0.00	0	0.00	0	0.00	0	0.00				
233.561	232.974		1.20	2.30	1.75	118	1.75	0	0.00	0	0.00	0	0.00				
234.074	233.972		1.20	1.30	1.25	20	1.25	0	0.00	0	0.00	0	0.00				
232.974	232.544		2.30	3.12	2.71	86	2.71	0	0.00	0	0.00	0	0.00				
235.405	234.745		1.20	0.92	1.06	132	1.06	0	0.00	0	0.00	0	0.00				
232.544	232.384		3.12	3.59	3.36	32	3.36	0	0.00	0	0.00	0	0.00				
232.384	231.984		3.59	1.87	2.73	62	2.73	0	0.00	0	0.00	0	0.00				
						0	0.00	0	0.00	0	0.00	0	0.00				
233.304	232.839		1.20	0.20	0.70	93	0.70	0	0.00	0	0.00	0	0.00				
231.853	231.678		1.20	2.83	2.01	35	2.01	0	0.00	0	0.00	0	0.00				
231.678	231.143		1.37	2.71	2.04	107	2.04	0	0.00	0	0.00	0	0.00				
231.143	231.081		2.71	2.77	2.74	0	0.00	0	0.00	13	2.74	0	0.00				
						1200.40		0.00		12.50		0.00					
						11507.91		336.00		407.00		40.00					

Design Statement for Recycling Water

Design Statement of Recycling of Treated Waste Water

Sr No	Upper End Node	Lower End Node	Length	Design of Pipe Line								Length of pipe							No of Sluice Valves							
				Net Water Demand			Total Water Demand	Head Loss per M	Total Head Loss	Head Loss Progressive	Terminal Head	63mm o/d	75 mm o/d	90mm o/d	110 mm o/d	140 mm o/d	160 mm o/d	180 mm o/d	63mm o/d	75 mm o/d	90mm o/d	110 mm o/d	140 mm o/d	160 mm o/d	180 mm o/d	
				Self KLD	Previous KLD	Total KLD	20 HRS LPM	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min	No.	No.	No.	No.	No.	No.	No.	No.
				m								Mtr	Mtr	Mtr	Mtr	Mtr	Mtr	Mtr								
1	2	3	3	6	7	8	4	5	6	7	8	9	10	11	12	13	14	15	17	18	19	20	21	22	23	
	STP 1																									
1	STP 1	X1	25	0.00	354.39	354.39	738.31	0.0026	0.065	0.065	24.94	0	0	0	0	0	0	25							1	
2	X1	A	96	0.44	0.00	0.44	1.01	0.0000	0.000	0.065	24.93	96	0	0	0	0	0	0	1							
3	X1	A1	96	4.37	349.54	353.90	737.30	0.0026	0.249	0.314	24.69	0	0	0	0	0	0	96							1	
				0.00								0	0	0	0	0	0	0								
4	A1	A3	67	0.19	89.44	89.92	187.34	0.0060	0.101	0.715	24.29	0	0	67	0	0	0	0								
5	A3	A10	91	24.60	3.76	28.36	59.08	0.0040	0.165	1.080	23.92	91	0	0	0	0	0	0	1							
6	A10	A15	26	3.76	0.00	3.76	7.83	0.0001	0.002	1.083	23.92	26	0	0	0	0	0	0	1							
				0.00								0	0	0	0	0	0	0								
7	A3	A4	53	4.55	56.53	61.08	127.25	0.0029	0.161	0.876	24.12	0	0	53	0	0	0	0								
8	A4	A8	35	2.41	0.80	3.21	6.69	0.0001	0.002	0.878	24.12	35	0	0	0	0	0	0								
9	A4	A5	36	8.02	45.30	53.32	111.08	0.0055	0.199	1.075	23.92	0	36	0	0	0	0	0	1							
10	A5	A9	35	0.80	0.80	1.60	3.35	0.0010	0.001	1.076	23.92	35	0	0	0	0	0	0	1							
				0.00																						
	A8	A14'	54	0.80	0.00	0.80	1.67	0.0000	0.00	0.878	24.12	54	0	0	0	0	0	0	0	0						
	A9	A14'	54	0.80	0.00	0.80	1.67	0.0000	0.00	1.076	23.92	54	0	0	0	0	0	0	0	0						
11	A5	A6	55	4.51	38.39	42.89	89.56	0.0057	0.203	1.278	23.72	0	55	0	0	0	0	0	1							
12	A6	A11	91	12.87	0.00	12.87	26.80	0.0009	0.085	1.363	23.64	91	0	0	0	0	0	0	1							
13	A6	A7	45	4.86	20.66	25.52	53.17	0.0033	0.149	1.427	23.57	45	0	0	0	0	0	0	1							
14	A7	A7	41	2.52	0.00	2.52	4.83	0.0000	0.001	1.428	23.57	31	0	0	0	0	0	0	1							
15	A7	A12	91	13.35	4.99	18.34	38.21	0.0018	0.163	1.590	23.41	91	0	0	0	0	0	0	1							
16	A12	A11	46	2.52	2.48	4.99	10.40	0.0002	0.007	1.598	23.40	46	0	0	0	0	0	0	1							
17	A11	A14	55	1.73	0.75	2.48	5.16	0.0000	0.002	1.600	23.40	55	0	0	0	0	0	0	1							
	A14	A13	65	0.75	0.00	0.75	1.55	0.0000	0.00	1.600	23.40	65	0	0	0	0	0	0	0	0						
				0.00								0	0	0	0	0	0	0								
18	A1	B	89	0.00	259.61	259.61	540.86	0.0026	0.230	0.544	24.16	0	0	0	0	0	89	0			1			1		
				0.00								0	0	0	0	0	0	0								
19	B	B2	131	13.46	5.86	19.31	40.23	0.0020	0.258	0.802	24.20	131	0	0	0	0	0	0	1							
20	B2	B5	77	5.86	0.00	5.86	12.20	0.0002	0.017	0.819	24.18	77	0	0	0	0	0	0								
				0.00								0	0	0	0	0	0	0								
21	B	C26	71	13.46	226.85	240.30	507.63	0.0022	0.159	0.703	24.30	0	0	0	0	0	71	0			1			1		
				0.00								0	0	0	0	0	0	0								
22	C26	C25	33	2.71	21.99	24.70	51.46	0.0034	0.103	0.806	24.19	33	0	0	0	0	0	0								
23	C25	C7	73	13.96	8.03	21.99	45.81	0.0025	0.183	0.989	24.01	73	0	0	0	0	0	0	1							
24	C7	C21	158	8.03	0.00	8.03	16.74	0.0004	0.061	1.050	23.95	158	0	0	0	0	0	0	1							
				0.00								0	0	0	0	0	0	0								
25	C26	B1	81	0.00	202.15	202.15	421.14	0.0031	0.128	0.831	24.17	0	0	0	0	41	0	0					1			
				0.00								0	0	0	0	0	0	0								
26	B1	B9	72	0.00	27.99	27.99	58.21	0.0017	0.121	0.952	24.05	0	72	0	0	0	0	0	1							
27	B9	B11	71	2.75	25.24	27.99	58.21	0.0039	0.278	1.230	23.79	71	0	0	0	0	0	0								
28	B11	B12	31	6.86	0.00	6.86	14.29	0.0003	0.009	1.259	23.76	31	0	0	0	0	0	0								
29	B11	B13	107	2.85	15.55	18.38	38.29	0.0013	0.193	1.423	23.58	107	0	0	0	0	0	0								
30	B13	C1	35	1.47	14.08	15.55	32.40	0.0013	0.046	1.469	23.51	35	0	0	0	0	0	0								
31	C1	C	130	14.08	0.00	14.08	29.15	0.0011	0.143	1.612	23.39	130	0	0	0	0	0	0								
				0.00								0	0	0	0	0	0	0								
32	B1	B5	124	17.63	156.52	174.16	362.83	0.0024	0.394	1.125	23.87	0	0	0	0	124	0	0								

[illegible]

[illegible]

103	C19	C9	66	11.94	0.00	11.94	24.87	0.0008	0.053	2.025	21.98	66	0	0	0	0	0	0								
100	C14	E11	7	11.94	44.28	56.22	117.13	0.0025	0.018	0.237	24.76	0	0	7	0	0	0	0								
101	E11	C	90	4.98	5.82	10.80	22.51	0.0007	0.063	0.299	24.70	93	0	0	0	0	0	0								
102	D	C	115	4.03	0.00	4.03	8.39	0.0001	0.012	0.112	24.69	115	0	0	0	0	0	0								
103	D	F7	50	1.80	0.00	1.80	3.74	0.0000	0.001	0.314	24.67	50	0	0	0	0	0	0								
104	E11	E2	40	5.31	28.17	33.48	69.75	0.0023	0.093	0.350	24.67	0	40	0	0	0	0	0								
105	E2	E7	92	1.80	0.00	1.80	3.74	0.0000	0.002	0.133	24.67	92	0	0	0	0	0	0								
105	E2	E4	80	4.97	7.40	12.37	25.76	0.0009	0.069	0.400	24.60	80	0	0	0	0	0	0								
106	E4	E5	41	3.70	3.70	7.40	15.41	0.0005	0.014	0.413	24.59	41	0	0	0	0	0	0								
107	E5	E6	100	3.70	0.00	3.70	7.71	0.0001	0.009	0.422	24.58	100	0	0	0	0	0	0								
108	E2	E8	41	0.19	13.42	14.01	29.18	0.0011	0.051	0.382	24.62	47	0	0	0	0	0	0								
109	E8	E10	67	1.57	5.92	7.50	15.61	0.0003	0.023	0.404	24.60	67	0	0	0	0	0	0								
110	E10	F4	39	5.92	0.00	5.92	12.34	0.0002	0.009	0.413	24.59	39	0	0	0	0	0	0								
111	E8	E9	33	5.97	0.00	5.92	12.34	0.0002	0.007	0.420	24.58	33	0	0	0	0	0	0								
			3206	275.023						Min Terminal break	21.98	2072	412	584	51	149	18	0	5	2	9	1	1	1	0	
	STP 4																									
	STP 4	G22'	9	0.00	128.34	128.84	268.42	0.0004	0.004	0.004	25.00	0	0	0	0	0	0	0								
	G22'	G22	28	0.00	128.34	128.84	268.42	0.0007	0.020	0.023	24.98	0	0	0	0	0	28	0								
	G22'	G10	92	0.00	0.00	0.00	0.00	0.0000	0.000	0.023	24.98	0	0	0	0	0	92	0								
												0	0	0	0	0	0	0								
	G22'	G23	63	1.18	127.66	128.84	268.42	0.0007	0.045	0.068	24.93	0	0	0	0	0	63	0								
	G23	G24	188	0.24	127.43	127.66	265.96	0.0013	0.251	0.319	24.68	0	0	0	0	188	0	0								
	G24	G25	192	9.44	117.99	127.43	265.47	0.0013	0.255	0.574	24.43	0	0	0	0	192	0	0								
	G25	G26	44	0.96	0.00	0.96	2.01	0.0000	0.000	0.574	24.42	0	0	0	0	44	0	0								
	G25	G1	369	0.96	116.06	117.03	243.81	0.0011	0.419	0.992	24.01	0	0	0	0	369	0	0								
								0.000				0	0	0	0	0	0	0								
	G1	A7	194	0.00	28.61	28.61	59.61	0.0005	0.052	1.045	23.96	0	0	0	194	0	0	0								
	A7	G26	365	14.31	14.31	28.61	59.61	0.0005	0.099	1.143	23.86	0	0	0	365	0	0	0								
	G26	G27	338	7.15	7.15	14.31	29.80	0.0001	0.025	1.369	23.82	0	0	0	338	0	0	0								
	G27	G28	255	7.15	0.00	7.15	14.90	0.0000	0.005	1.174	23.83	0	0	0	255	0	0	0								
								0.000				0	0	0	0	0	0	0								
	G1	G2	90	7.15	80.30	87.45	182.19	0.0021	0.193	1.185	23.82	0	0	0	90	0	0	0								
								0.000				0	0	0	0	0	0	0								
	G2	G2	20	28.14	27.22	55.36	115.33	0.0009	0.018	1.203	23.80	0	0	0	20	0	0	0								
	G2	G3	133	0.00	27.22	27.22	56.70	0.0002	0.033	1.236	23.76	0	0	0	133	0	0	0								
	G2	G3	72	0.00	0.00	0.00	0.00	0.0000	0.000	1.203	23.80	0	0	0	72	0	0	0								
	G3	G4	29	27.22	0.00	27.22	56.70	0.0002	0.007	1.243	23.76	0	0	0	29	0	0	0								
	G3	G5	32	0.00	0.00	0.00	0.00	0.0000	0.000	1.236	23.76	0	0	0	32	0	0	0								
							0.00					0	0	0	0	0	0	0								
	G2	G4	67	0.00	24.94	24.94	51.96	0.0006	0.037	1.222	23.78	0	0	67	0	0	0	0								
												0	0	0	0	0	0	0								
	G4	G5	137	19.16	5.78	24.94	51.96	0.0006	0.076	1.299	23.70	0	0	137	0	0	0	0								
	G5	G5	31	1.68	0.00	1.68	3.50	0.0000	0.001	1.299	23.70	11	0	0	0	0	0	0								
	G5	G6	63	4.10	0.00	4.10	8.55	0.0001	0.007	1.306	23.68	63	0	0	0	0	0	0								
	G7	G8	75	3.89	11.58	15.47	32.24	0.0001	0.006	0.006	24.99	0	0	0	75	0	0	0								
	G8	G8'	28	10.72	0.00	10.72	22.32	0.0007	0.019	0.025	24.97	28	0	0	0	0	0	0								
	G8	G13	39	0.87	0.00	0.87	1.80	0.0000	0.000	0.007	24.99	39	0	0	0	0	0	0								
												0	0	0	0	0	0	0								
	G7	G9	39	0.00	80.14	80.14	165.95	0.0013	0.071	0.071	24.93	0	0	0	39	0	0	0								
	G9	G9	10	0.67	7.92	8.59	17.89	0.0000	0.000	0.071	24.93	0	0	0	10	0	0	0								
	G9	G23	128	7.92	0.00	7.92	16.50	0.0000	0.003	0.075	24.93	0	0	0	128	0	0	0								
	G9	G10	50	0.87	70.68	71.55	149.06	0.0039	0.196	0.267	24.71	0	0	50	0	0	0	0								

	G10	G11	34	2.40	68.29	70.68	147.26	0.0038	0.130	0.398	24.60	0	0	0	0	0	0								
	G11	G12	99	9.24	0.00	9.24	19.25	0.0001	0.009	0.406	24.59	0	0	99	0	0	0								
	G11	G15	47	2.40	56.65	59.05	121.01	0.0027	0.129	0.527	24.47	0	0	47	0	0	0								
	G13	G15	34	7.55	7.19	14.74	30.70	0.0002	0.007	0.534	24.47	0	0	34	0	0	0								
	G15	G16	99	7.19	0.00	7.19	14.98	0.0001	0.006	0.540	24.46	0	0	99	0	0	0								
												0	0	0	0	0	0								
	G13	G14	99	13.17	28.74	41.91	87.31	0.0015	0.144	0.671	24.33	0	0	99	0	0	0								
	G14	G12	49	3.79	3.20	6.99	14.56	0.0001	0.015	0.686	24.31	49	0	0	0	0	0								
	G12	G15	22	3.20	0.00	3.20	6.66	0.0004	0.002	0.687	24.31	22	0	0	0	0	0								
												0	0	0	0	0	0								
	G14	G16	35	0.83	0.00	0.83	1.72	0.0000	0.000	0.671	24.33	35	0	0	0	0	0								
	G16	G18	21	0.00	0.00	0.00	0.00	0.0000	0.000	0.540	24.46	21	0	0	0	0	0								
												0	0	0	0	0	0								
	G14	G19	94	13.62	7.31	20.93	43.60	0.0023	0.215	0.886	24.11	94	0	0	0	0	0								
	G19	G20	18	3.79	0.00	3.79	7.89	0.0001	0.002	0.888	24.11	18	0	0	0	0	0								
	G19	G21	83	3.53	0.00	3.53	7.34	0.0001	0.007	0.893	24.11	83	0	0	0	0	0								
	G21	G21	19	0.00	0.00	0.00	0.00	0.0000	0.000	0.893	24.11	19	0	0	0	0	0								
			3934	224.45						Min Terminal head	21.69	502	0	664	1781	793	183	9	0	0	0	0	0	0	0
	STP5																								
	STP5	F1	79	0	330.56	330.56	688.66	0.0023	0.089	0.089	24.91	0	0	0	0	0	0	19							
	F1	F13	132	0	279.05	279.05	581.35	0.0184	2.423	2.512	22.49	0	0	0	132	0	0	0							
	F13	F14	47	279.049	0.00	279.05	581.35	0.0184	0.813	3.375	21.62	0	0	0	47	0	0	0							
	F13	F16	115	0	0.00	0.00	0.00	0.0000	0.000	2.512	22.49	0	0	0	115	0	0	0							
												0	0	0	0	0	0	0							
	F1	F2	109	3.73	47.78	51.51	107.31	0.0008	0.088	0.177	24.82	0	0	0	109	0	0	0							
	F2	F3	70	4.72	24.20	28.92	60.24	0.0003	0.019	0.196	24.80	0	0	0	70	0	0	0							
	F2	F5	57	0.00	18.86	18.86	39.29	0.0001	0.007	0.184	24.82	0	0	0	57	0	0	0							
												0	0	0	0	0	0	0							
	F3	F11	70	7.67	12.83	20.50	42.71	0.0001	0.010	0.206	24.79	0	0	0	70	0	0	0							
	F11	F4	71	0.00	0.00	0.00	0.00	0.0000	0.000	0.206	24.79	71	0	0	0	0	0	0							
	F11	F10	177	12.83	0.00	12.83	26.73	0.0009	0.164	0.370	24.65	177	0	0	0	0	0	0							
												0	0	0	0	0	0	0							
	F3	F4	98	3.70	0.00	3.70	7.70	0.0001	0.009	0.205	24.80	98	0	0	0	0	0	0							
	F3	F6	133	4.67	0.00	4.67	9.74	0.0001	0.019	0.203	24.80	133	0	0	0	0	0	0							
	F5	F7	38	7.13	7.06	14.19	29.56	0.0014	0.042	0.226	24.77	38	0	0	0	0	0	0							
	F7	F7	21	3.44	3.62	7.06	14.70	0.0003	0.006	0.232	24.77	21	0	0	0	0	0	0							
	F7	F9	127	0.00	0.00	0.00	0.00	0.0000	0.000	0.232	24.77	127	0	0	0	0	0	0							
	F7	F8	133	3.62	0.00	3.62	7.53	0.0001	0.012	0.244	24.76	133	0	0	0	0	0	0							
			1437	330.56		330.56				Min Terminal head	21.62	798	0	0	600	0	0	39	0	0	0	0	0	0	0
				Net Water Demand																					
		TOTAL	15734	1440								7653	1319	1422	2726	1207	381	169							

[illegible]

Estimation of Run off Design- Statement of Storm Water Collection System - Emerald Hills Sector 62-65, Gurgaon

Sr. No.	Line No.	Length Of Line	Tributary Area	Tributary Area			Total Area	Rain fall	Discharge	Velocity	Cap of pipe	Size of Storm Sewer line		Slope	Length of Storm Sewer Line	Fall	Depth			Connecting Pipe			Main Pipe										No. of Man Holes				Vent Shaft
				Soil	Grass	Tree											Upper end	Lower end	Averag e	200 mm id	300 mm id	400 mm id	500 mm id	600 mm id	700 mm id	800 mm id	900 mm id	1000 mm id	1200 mm id	400 mm dia	500 mm dia	600 mm dia	800 mm dia	1000 mm dia			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30								
1	E15-E14	15	955	955.00	0.00	955.00	0.18	3.12	0.83	0.608	16.417	300	Connecting pipe	300	15	0.05	1.13	0.80	1.06	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
2	E17-E14	45	2162	2162.00	0.00	2162.00	0.22	3.12	1.87	0.738	20.807	200	Connecting pipe	200	43	0.22	1.24	0.93	1.20	43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
3	E14-E13	34	1709	1709.00	3817.00	4826.00	0.48	3.12	4.18	0.738	20.807	250	Connecting pipe	250	34	0.17	0.95	1.58	1.27	34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
4	F16-F11	43	2162	2162.00	0.00	2162.00	0.22	3.12	1.87	0.608	16.417	300	Connecting pipe	300	43	0.14	0.82	0.94	0.88	43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
5	H13-H12	26	8307	8307.00	6988.00	8295.00	0.83	3.12	3.19	0.852	23.218	200	Connecting pipe	150	26	0.17	1.28	1.74	1.56	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
6	E12-E12	34	1709	1709.00	0.00	1709.00	0.17	3.12	1.48	0.603	16.417	200	Connecting pipe	300	34	0.13	0.89	0.89	0.84	34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
7	L12-E19	75	3770	3770.00	15004.00	13774.00	1.38	3.12	1.94	0.612	37.494	300	Connecting pipe	500	75	0.15	1.84	1.97	1.71	0	75	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
8	E-E19	108	5429	5429.00	0.00	5429.00	0.54	3.12	4.71	0.612	37.494	300	Connecting pipe	500	108	0.22	0.98	1.79	1.79	0	108	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
9	H19-H18	17	855	855.00	19203.00	20058.00	2.01	3.12	1.38	0.612	37.494	300	Connecting pipe	300	17	0.03	1.57	1.52	1.50	0	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
10	E18-C18	71	3369	3369.00	20058.00	23627.00	2.36	3.12	20.48	0.651	75.297	400	Main pipe	375	71	0.12	1.72	1.83	1.76	0	0	71	0	0	0	0	0	0	0	0	0	0	0	0	0		
			0	0.00				3.12									0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
11	C18-C15	867	8395	8395.00	0.00	8395.00	0.84	3.12	7.28	0.635	33.305	200	Connecting pipe	270	867	0.62	0.75	1.00	0.73	167	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
12	C16-C15	60	3015	3015.00	0.00	3015.00	0.30	3.12	2.61	0.522	14.218	200	Connecting pipe	400	60	0.15	0.75	0.89	0.82	60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
13	C15-C18	150	7500	7500.00	14111.00	18551.00	1.90	3.12	16.42	0.612	37.494	300	Connecting pipe	300	150	0.10	1.29	1.58	1.79	0	150	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
			0	0.00				3.12									0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
14	C18-C14	67	3368	3368.00	42578.00	45946.00	4.59	3.12	39.82	0.677	73.712	400	Main pipe	600	67	0.11	1.83	1.91	1.87	0	0	67	0	0	0	0	0	0	0	0	0	0	0	0	0		
15	C12-C14	234	11763	11763.00	0.00	11763.00	1.18	3.12	10.19	0.612	37.494	300	Connecting pipe	300	234	0.47	0.71	1.40	1.26	0	234	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
16	C14-D	121	6083	6083.00	57709.00	63792.00	6.38	3.12	55.29	0.689	185.743	500	Main pipe	800	121	0.15	2.70	2.96	2.94	0	0	0	121	0	0	0	0	0	0	0	0	0	0	0	0	0	
			0	0.00				3.12									0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
17	C9-C7	78	3921	3921.00	0.00	3921.00	0.39	3.12	3.40	0.882	24.033	200	Connecting pipe	140	78	0.56	0.85	1.23	0.96	78	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
18	E10-C7	73	3670	3670.00	0.00	3670.00	0.37	3.12	3.18	0.522	14.218	200	Connecting pipe	400	73	0.18	0.65	0.80	0.72	73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
19	C7-C6	60	3016	3016.00	7591.00	10607.00	1.06	3.12	9.19	0.664	40.667	300	Connecting pipe	425	60	0.14	1.33	1.16	1.29	0	60	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
20	C6-C3	134	6736	6736.00	10607.00	17343.00	1.73	3.12	15.01	0.645	39.522	300	Connecting pipe	450	134	0.30	1.45	1.76	1.81	0	134	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
21	C4-C3	73	3670	3670.00	0.00	3670.00	0.37	3.12	3.18	0.522	14.218	200	Connecting pipe	400	73	0.18	0.65	0.88	0.81	73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
22	C3-C19	68	3418	3418.00	21013.00	24431.00	2.44	3.12	21.17	0.741	80.747	400	Main pipe	300	68	0.14	1.86	2.08	1.95	0	0	68	0	0	0	0	0	0	0	0	0	0	0	0	0		
23	C16-C19	75	3770	3770.00	0.00	3770.00	0.38	3.12	3.27	0.522	14.218	200	Connecting pipe	400	75	0.19	0.75	0.84	0.83	75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
24	C19-C22	44	2212	2212.00	23201.00	24413.00	2.44	3.12	26.36	0.781	85.115	400	Main pipe	450	44	0.10	2.04	2.15	2.19	0	0	44	0	0	0	0	0	0	0	0	0	0	0	0	0		
25	C22-C17	42	2111	2111.00	30413.00	32524.00	3.25	3.12	28.19	0.829	90.278	400	Main pipe	400	42	0.11	2.03	2.29	2.19	0	0	42	0	0	0	0	0	0	0	0	0	0	0	0	0		
			0	0.00				3.12									0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
26	C8-C25	225	11311	11311.00	0.00	11311.00	1.15	3.12	9.80	0.605	18.943	200	Connecting pipe	300	225	0.75	0.69	1.39	1.04	225	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
27	C13-C23	65	3267	3267.00	0.00	3267.00	0.33	3.12	2.83	0.522	14.218	200	Connecting pipe	400	65	0.16	0.62	0.90	0.81	65	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
28	C23-C17	47	2363	2363.00	34578.00	36941.00	3.69	3.12	14.61	0.517	11.688	100	Connecting pipe	700	47	0.07	1.49	1.63	1.56	0	47	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
			0	0.00				3.12									0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
29	C17-D	43	2162	2162.00	49465.00	51627.00	5.16	3.12	14.71	0.580	146.404	500	Main pipe	500	43	0.09	2.46	2.50	2.42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
			0	0.00				3.12									0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			

Estimation of Run off Design-Statement of Storm Water Collection System - Emerald Hills Sector 62-05, Gurgaon

Sr No	Line No	Length of Line	Tributary Area	Tributary Area			Total Area	Rain Fall	Discharge	Velocity	Slope of pipe	Area of Storm Sewer type	Slope	Length of Storm sewer tube	No. of Manholes	Depth			Conveyance Pipe										No. of Manholes				Total Manholes
				Self	Branch	Total										200 mm id	300 mm id	400 mm id	500 mm id	600 mm id	800 mm id	1000 mm id	1200 mm id	1400 mm id	1600 mm id	1800 mm id	2000 mm id						
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	
57	D25-D24	68	3418	3418.00	0.00	3418.00	0.34	3.12	2.96	0.677	73.712	400	Main pipe	600	68	0.11	1.20	1.29	1.29	0	0	68	0	0	0	0	0	0	0	0	0	0	0
58	D26-D27	33	1658	1658.00	0.00	1658.00	0.17	3.12	1.44	0.677	73.712	400	Main pipe	600	33	0.06	0.76	0.87	0.87	0	0	33	0	0	0	0	0	0	0	0	0	0	0
59	D27-D24	71	3569	3569.00	1658.00	5227.00	0.52	3.12	4.53	0.677	73.712	400	Main pipe	600	71	0.12	0.87	1.01	0.94	0	0	71	0	0	0	0	0	0	0	0	0	0	0
60	OUTFALL	25	1256	1256.00	8643.00	9901.00	0.99	3.12	8.53	0.677	73.712	400	Main pipe	600	25	0.04	1.39	1.43	1.41	0	0	25	0	0	0	0	0	0	0	0	0	0	0
		197	9903	9903.00	9903.00			3.12								3.33	5.15	3.54		0	0	197	0	0	0	0	0	0	0	0	0	0	
		0						3.12																									
71	D2-C	140	7037	7037.00	0.00	7037.00	0.70	3.12	6.10	0.552	60.185	400	Main pipe	900	140	0.16	1.05	1.05	1.05	0	0	140	0	0	0	0	0	0	0	0	0	0	0
72	C-C4	161	8093	8093.00	7037.00	15130.00	1.51	3.12	13.11	0.552	69.425	400	Main pipe	900	161	0.18	1.35	1.32	1.14	0	0	161	0	0	0	0	0	0	0	0	0	0	0
			0	0.00				3.12												0	0	0	0	0	0	0	0	0	0	0	0	0	
73	C26-C25	46	2312	2312.00	0.00	2312.00	0.23	3.12	2.10	0.467	12.717	200	Connecting pipe	500	46	0.09	0.79	0.89	0.94	46	0	0	0	0	0	0	0	0	0	0	0	0	0
74	C25-C5	62	3116	3116.00	2312.00	5428.00	0.54	3.12	4.79	0.467	12.717	200	Connecting pipe	500	62	0.12	0.89	1.05	0.95	62	0	0	0	0	0	0	0	0	0	0	0	0	0
75	C6-C5	55	2764	2764.00	0.00	2764.00	0.28	3.12	2.49	0.467	12.717	200	Connecting pipe	500	55	0.11	0.89	0.78	0.73	55	0	0	0	0	0	0	0	0	0	0	0	0	0
76	C5-C2	136	6836	6836.00	5428.00	12264.00	1.50	3.12	13.02	0.612	37.494	300	Connecting pipe	500	136	0.27	1.05	1.32	1.11	0	0	136	0	0	0	0	0	0	0	0	0	0	0
77	C2-C2	52	2613	2613.00	0.00	2613.00	0.26	3.12	2.25	0.522	14.218	200	Connecting pipe	400	52	0.11	0.87	0.80	0.73	52	0	0	0	0	0	0	0	0	0	0	0	0	0
78	C22-C21	53	2664	2664.00	0.00	2664.00	0.27	3.12	2.31	0.603	15.417	200	Connecting pipe	300	53	0.14	1.30	1.15	1.08	53	0	0	0	0	0	0	0	0	0	0	0	0	0
79	C21-C21	37	1859	1859.00	0.00	1859.00	0.19	3.12	1.61	0.603	15.417	200	Connecting pipe	300	37	0.12	1.20	1.10	1.05	37	0	0	0	0	0	0	0	0	0	0	0	0	0
80	C21-C2	107	5378	5378.00	4523.00	9901.00	0.99	3.12	8.53	0.571	48.564	400	Connecting pipe	500	107	0.19	1.15	1.32	1.23	0	0	107	0	0	0	0	0	0	0	0	0	0	0
81	C2-C1	63	3166	3166.00	27502.00	30668.00	3.07	3.12	26.61	0.586	63.836	400	Main pipe	800	63	0.08	1.42	1.49	1.45	0	0	63	0	0	0	0	0	0	0	0	0	0	0
			0	0.00				3.12												0	0	0	0	0	0	0	0	0	0	0	0	0	
82	C1-B1	173	8696	8696.00	45838.00	54534.00	5.45	3.12	47.26	0.423	53.729	400	Main pipe	1500	173	0.12	1.30	1.38	1.33	0	0	173	0	0	0	0	0	0	0	0	0	0	0
			0	0.00				3.12												0	0	0	0	0	0	0	0	0	0	0	0	0	
83	A-A	220	11059	11059.00	0.00	11059.00	1.11	3.12	9.55	0.524	57.097	400	Main pipe	1000	220	0.22	0.87	1.09	0.94	0	0	220	0	0	0	0	0	0	0	0	0	0	0
84	A12-A	198	9953	9953.00	0.00	9953.00	1.00	3.12	8.61	0.517	31.498	300	Connecting pipe	200	198	0.23	0.88	0.95	0.94	0	0	198	0	0	0	0	0	0	0	0	0	0	0
85	A-A1	146	7339	7339.00	21012.00	28351.00	2.84	3.12	24.57	0.538	58.540	400	Main pipe	950	146	0.15	1.39	1.35	1.22	0	0	146	0	0	0	0	0	0	0	0	0	0	0
			0	0.00				3.12												0	0	0	0	0	0	0	0	0	0	0	0	0	
86	A12-A7	114	5730	5730.00	0.00	5730.00	0.57	3.12	4.97	0.426	11.674	200	Connecting pipe	600	114	0.19	0.78	0.85	0.86	114	0	0	0	0	0	0	0	0	0	0	0	0	0
87	A7-A7	22	1105	1105.00	0.00	1105.00	0.11	3.12	0.96	0.522	14.218	200	Connecting pipe	400	22	0.106	0.90	0.94	0.92	22	0	0	0	0	0	0	0	0	0	0	0	0	0
88	A7-A6	65	3267	3267.00	6835.00	10102.00	1.01	3.12	8.76	0.434	29.641	300	Connecting pipe	800	65	0.08	1.34	1.11	1.08	0	0	65	0	0	0	0	0	0	0	0	0	0	0
89	A11-A6	108	5429	5429.00	0.00	5429.00	0.54	3.12	4.71	0.522	14.218	200	Connecting pipe	400	108	0.27	0.73	1.00	0.93	108	0	0	0	0	0	0	0	0	0	0	0	0	0
90	A6-A5	55	2764	2764.00	13531.00	16295.00	1.63	3.12	15.86	0.612	37.494	300	Connecting pipe	500	55	0.11	1.11	1.21	1.15	0	0	55	0	0	0	0	0	0	0	0	0	0	0
91	A13-A9	52	2613	2613.00	0	2613	0.2613	3.12	2.2646	0.74048	83.8664	400	Main pipe	501	52	0.10	0.9	0.998	0.95	0	0	52	0	0	0	0	0	0	0	0	0	0	
92	A9-A5	49	2463	2463.00	2613.00	5076.00	0.51	3.12	4.40	0.522	14.218	200	Connecting pipe	400	49	0.12	1.30	1.12	1.06	49	0	0	0	0	0	0	0	0	0	0	0	0	0
93	A5-A4	36	1809	1809.00	23371.00	25180.00	2.52	3.12	21.82	0.524	57.097	400	Main pipe	1000	36	0.04	1.32	1.35	1.32	0	0	36	0	0	0	0	0	0	0	0	0	0	0
	A14-A3	52	2613	2613.00	0	2613	0.2613	3.12	2.2646	0.524057	57.0968	400	Main pipe	1000	52	0.05	1.40	1.47	1.44	0	0	52	0	0	0	0	0	0	0	0	0	0	0
94	A6-A4	49	2463	2463.00	2613.00	5076.00	0.51	3.12	4.40	0.718	20.107	200	Connecting pipe	200	49	0.25	0.89	0.85	0.71	49	0	0	0	0	0	0	0	0	0	0	0	0	0
95	A3-A2	58	2915	2915.00	30256.00	33171.00	3.32	3.12	28.75	0.524	57.097	400	Main pipe	1000	58	0.06	1.31	1.35	1.34	0	0	58	0	0	0	0	0	0	0	0	0	0	0
96	A10-A1	107	5378	5378.00	0.00	5378.00	0.54	3.12	4.66	0.522	14.218	200	Connecting pipe	400	107	0.27	0.73	0.95	0.84	107	0	0	0	0	0	0	0	0	0	0	0	0	0
97	A1-A1	83	4172	4172.00	38549.00	42721.00	4.27	3.12	37.02	0.524	57.097	400	Main pipe	1000	83	0.08	1.33	1.43	1.39	0	0	83	0	0	0	0	0	0	0	0	0	0	0
			0	0.00				3.12												0	0	0	0	0	0	0	0	0	0	0	0	0	

Estimation of Run off Design- Statement of Storm Water Collection System - Emerald Hills Sector 62-65, Gurgaon

Sl. No.	Line No.	Length (M) Lrs	Tributary Area	Tributary Area			Total Area	Rain Fall	Discharge	Velocity	Cap of pipe	Size of Storm Sewer Pipe		Slope	Length of Storm Sewer Pipe	F/F	Depth			Collecting Pipe				Main Pipe				No. of Man Holes				Vent Shaft				
				Self	Branch	Total						mm	mm				Upper end	Lower end	Average	200mm id	300mm id	400mm id	500mm id	600mm id	700mm id	800mm id	900mm id	1000mm id	1200mm id	400mm id	500mm id		600mm id	700mm id		
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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30							
98	A1-B	48	2412	2412.00	21072.00	23484.00	7.55	3.12	63.69	0.627	153.673	600	Main pipe	1200	48	0.01	1.85	1.50	1.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
99	B-B	69	3468	3468.00	0.00	3468.00	0.14	3.12	1.01	0.677	85.012	400	Main pipe	600	69	0.12	0.88	0.90	0.85	0	0	69	0	0	0	0	0	0	0	0	0	0	0	0	0	
100	B1-B2	63	3166	3166.00	0.00	3166.00	0.12	3.12	2.74	0.479	13.047	300	Connecting pipe	475	63	0.14	0.69	0.77	0.73	63	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
101	B2-B4	150	7540	7540.00	3166.00	10706.00	1.07	3.12	9.28	0.645	49.532	300	Connecting pipe	450	150	0.31	0.87	1.05	0.96	0	150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
102	B-B1	69	3468	3468.00	87658.00	91126.00	9.11	3.12	78.98	0.480	241.458	800	Main pipe	3000	69	0.02	1.37	1.74	1.65	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
103	B1-B2	94	4725	4725.00	14560.00	150385.00	15.03	3.12	110.33	0.480	241.458	300	Main pipe	3030	94	0.04	1.74	1.77	1.75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
104	B13-B11	173	5680	5680.00	0.00	5680.00	0.57	3.12	4.92	0.532	14.278	200	Connecting pipe	400	173	0.28	0.69	0.96	0.92	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
105	B14-B11	67	3368	3368.00	0.00	3368.00	0.24	3.12	2.92	0.522	14.278	200	Connecting pipe	400	67	0.17	0.69	0.85	0.77	67	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
106	B11-B2	77	3870	3870.00	9048.00	12918.00	1.29	3.12	1.20	0.537	32.844	300	Connecting pipe	650	77	0.12	1.06	1.16	1.11	0	77	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
107	B2-B3	22	1105	1105.00	161303.00	162408.00	16.44	3.12	142.47	0.520	330.519	900	Main pipe	3000	22	0.02	1.77	1.79	1.78	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
108	B4-B7	179	8998	8998.00	0.00	8998.00	0.60	3.12	7.83	0.517	31.638	300	Connecting pipe	700	179	0.26	0.79	1.03	0.91	0	179	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
109	B7-B3	76	3820	3820.00	8998.00	12818.00	1.28	3.12	11.11	0.517	31.638	300	Connecting pipe	600	76	0.13	1.03	1.13	1.08	0	76	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
110	B3-B4	214	10757	10757.00	177226.00	187983.00	18.80	3.12	162.92	0.516	405.318	1000	Main pipe	3500	214	0.06	1.79	2.56	2.18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
111	B30-B24	184	9249	9249.00	0.00	9249.00	0.92	3.12	8.02	0.541	33.340	300	Connecting pipe	640	184	0.29	1.81	1.72	1.81	0	184	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
112	B21-B24	21	552	552.00	0.00	552.00	0.06	3.12	0.48	0.558	34.227	300	Connecting pipe	600	11	0.02	0.84	0.75	0.82	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
113	B24-B25	90	4524	4524.00	9801.00	14325.00	1.43	3.12	12.42	0.568	61.940	400	Main pipe	650	90	0.11	1.82	1.43	1.58	0	0	90	0	0	0	0	0	0	0	0	0	0	0	0	0	
114	B25-B25	24	1205	1205.00	0.00	1205.00	0.12	3.12	1.05	0.722	14.218	200	Connecting pipe	400	24	0.06	0.85	0.91	0.84	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
115	B25-B21	81	4071	4071.00	15551.00	19602.00	1.96	3.12	16.99	0.732	121.165	500	Main pipe	730	81	0.11	2.03	2.28	2.16	0	0	0	81	0	0	0	0	0	0	0	0	0	0	0	0	
116	B22-B21	79	3971	3971.00	0.00	3971.00	0.40	3.12	3.44	0.522	14.218	200	Connecting pipe	400	79	0.20	0.84	0.75	0.75	79	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
117	B21-B15	90	4524	4524.00	23573.00	28097.00	2.81	3.12	24.35	0.664	112.953	500	Main pipe	640	90	0.11	2.28	2.55	2.42	0	0	0	90	0	0	0	0	0	0	0	0	0	0	0	0	
118	B14-B15	158	7942	7942.00	0.00	7942.00	0.79	3.12	6.88	0.632	37.494	300	Connecting pipe	600	158	0.32	0.71	1.06	0.87	0	158	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
119	B14-B15	19	955	955.00	0.00	955.00	0.10	3.12	0.83	0.522	16.401	200	Connecting pipe	400	19	0.05	0.97	0.47	0.41	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
120	B15-B15	78	3920	3920.00	8897.00	12817.00	1.28	3.12	11.11	0.612	37.494	300	Connecting pipe	500	78	0.16	1.06	1.48	1.26	0	78	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
121	B16-B17	17	1859	1859.00	40914.00	42773.00	4.28	3.12	37.07	0.768	188.210	600	Main pipe	600	17	0.05	2.34	2.51	2.54	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Estimation of Run off Design- Statement of Storm Water Collection System - Emerald Hills Sector 62-65, Gurgaon

Sl. No.	Line No.	Length of Line	Tributary Area	Tributary Area			Total Area	Main Fall	Discharge	Velocity	Cap of pipe	Size of Storm Sewer line		Slope	Length of Storm Sewer line	Fall	Depth			Connecting Pipe		Main Pipe										No. of Man Holes				Man Staff																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
				Self	Branch	Total						mm	mm				Upper md	Lower md	Average	200mm id	400mm id	800mm id	1000mm id	1200mm id	1400mm id	1600mm id	1800mm id	2000mm id	2200mm id	2400mm id	2600mm id	2800mm id	3000mm id																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
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Estimation of Run off Design- Statement of Storm Water Collection System - Emerald Hills Sector 62-65, Gurgaon

Sl. No.	Line No.	Length Of Line	Boundary Area	Urban Area			Total Area	Run Fall	Discharge	Velocity	Tapal pipe	Size of Storm Sewer line	Slope	Length of storm sewer line	Fall	Det-D			Connecting Pipe										Main Pipe					No. of Man-Holes					Vene Staff																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
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Total length in sector 65 & 62		Connecting Pipe		Main Pipe								Total
Total length in sector 65		200 mm id	300 mm id	400 mm id	500 mm id	600 mm id	700 mm id	800 mm id	900 mm id	1000 mm id	1200 mm id	
Outfall 1	From Completed work area	1253	834	434	189	0	0	0	0	0	0	2710
	From additional	0	108	0	0	0	0	0	0	0	0	108
Outfall 2	From Completed work area	119	402	264	131	125	0	0	0	0	25	1286
	From additional	0	470	154	0	0	0	0	0	0	0	624
Outfall 3	From Completed work area	0	0	197	0	0	0	0	0	0	0	197
	From additional	0	0	0	0	0	0	0	0	0	0	0
Outfall 4	From Completed work area	1307	1701	1139	268	312	0	218	22	114	179	5491
	From additional	0	0	104	0	0	0	0	0	0	0	104
Total of completed work		2899	2936	2134	588	437	0	248	22	214	204	9634
Total Additional lines laid in sector 65		0	578	158	0	0	0	0	0	0	0	836
Outfall 5	Zone 1											
		1700.00	541.50	59.00	0.00	0.00	0.00	0.00	0.00	106.00	20.00	3417
Outfall 6	Zone 2											
		0.00	0.00	1262.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1262.4
Total												15199

4491	5330	3510	908	562	0	248	22	214	229	141	38	22	0
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