

**DIRECTORATE OF TOWN & COUNTRY PLANNING, HARYANA**

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To

Ojos Developers Pvt. Ltd.,  
Upper Ground Floor, Amandeep Building,  
14, KG Marg, New Delhi-110001.

Memo No. LC-1846-JE (BR)-2016/2118

Dated: 3/10/2016

**Subject: Approval of service plan/estimates of commercial colony (Licence no. 131 of 2008 dated 28.06.2008) at sector-70, Gurgaon - Ojos Developers Pvt. Ltd.**

**Reference:** Chief Administrator, HUDA, Panchkula Memo No. CE-I/EE-(W)/CHD(G)/2016/5018 dated 18.04.2016 on the subject noted above.

The service plan/ estimates of Commercial Colony for which licence No. 131 of 2008 dated 28.06.2008 has been granted for an area measuring 2.425 acres in Sector-70 of GMUC, District Gurgaon, has been checked and corrected wherever necessary and are hereby approved subject to the following terms and conditions:-

1. You will have to pay the proportionate cost of external development charges for setting up of Commercial Colony for the services like water supply, sewerage, storm water drainage, roads, bridges, community building, street lighting and horticulture etc. on gross acreage basis as and when determined by HUDA. These charges will be modifiable and if modify the same will be binding upon you.
2. The Maintenance Charges for various services like water supply, sewerage, storm water drainage, Horticulture, roads, street lighting and resurfacing of roads etc. has been included in the estimate as per detail given in the estimate and the total cost works out to Rs. 381.82 Lacs. It may be made clear to you that you are liable to maintain the estate developed by yourself as per HUDA norms for ten years or till such time, the colony is taken over by the local authority/State Govt.
3. The scheme has been designed considering on person per 3 sqmt on street sales floor, one person per 6 sqmt on floor above street. One person per 1.5 sqmt for food court/ restaurant i.e. on 1<sup>st</sup>, 2<sup>nd</sup> & 3<sup>rd</sup> floor and one person per 10 sqmt for office use on upper floor i.e. 4<sup>th</sup> floor to 10<sup>th</sup> floor only. The category wise area as shown on the plans and proposed density of population thereof has been treated to be correct for estimation of services only.
4. **FIRE FIGHTING:-**

The provision made in the estimate has been checked for estimation purposes. However, it may be made clear to the colonizer that the appropriate provision for fire fighting arrangement as required in the NBC/ISI should also be provided by the colonizer and fire safety certificate should also be obtained by the colonizer from the competent authority before undertaking any consent. The colonizer will be solely responsible for fire safety arrangement.

5. All technical notes and comments incorporated in this estimate in two sheets will also apply. A copy of these is also appended as Annexure-'A'.

6. **STREET LIGHTING:-**

The provision for street lighting on acreage basis has been made. The street lighting, fixture and wiring etc. will be done as per HVPNL specifications, rules and regulations which will be highlighted in the covering letter. The above estimate does not include the provision for electrification.

7. **AIR TRAFFIC RULES/REGULATIONS:-**

The commercial project complex consists the construction of multi-storied building RCC water tank has been proposed on the top of the building. The total height of the building and top of the water tank above ground level has not been defined/indicated on the plans. The violation of Air Traffic Rules/Regulations and height of the building may be examined by your office.

8. You have proposed to make sewer/storm water system function through pumping up to initial STP/HUDA line. Therefore, it will be your responsibility to make the pumping arrangement and Maintenance Charges, thereof for sewerage & storm water disposal for all the time to come.

9. It may be made clear to you that you will not make the connection with the master services without prior approval of the competent authority, in writing.

10. For disposal of sewage of the colony, through existing treatment Plant in your colony. It may be made clear to you that you will be sole responsible for disposal of sewage of your colony as per requirement of HSPCB/Environment Department till such time the HUDA services are made available as per proposal of the Town. All the link connection with the HUDA services shall be made by you at your own cost.

11. The estimate does not include the provision of electrification of the colony. However, it may be made clear to you that the supervision charges, O & M charges shall be paid by you directly to the HVPNL Department.

12. For licenses at isolated placed or at places where HUDA has to acquire land and float sector, you will have to make their own arrangement by way of tube well after approval from Central Ground Water Board, with in your respective colonies, HUDA can make available the water only after HUDA sector, in which licensed area falls, is development. It is also subject to:-

- i. Availability of litigation & encroachment free land.
- ii. Permission within reasonable period from Central Ground Water Board, Forest and Environment Department.
- iii. Sufficient funds are made available for carrying out the External Development works.
- iv. Till the water supply and other services are made available by HUDA, the license will have to make their own arrangements, Tube wells can be bored with permission from Central Ground Water Board and other concerned authority for the purposes.
- v. HUDA shall supply the drinking water only to the license granted in the master plan area.

13. You have proposed to recycling water to be utilized for flushing purposes, thus it is made clear to you will made provision of separate flushing line, storage tank, metering system, pumping system and plumbing. It is further clarified to you that no tap or outlet of any kind will be provided form the flushing lines/plumbing lines for recycled water except for connection to the cistern of flushing tanks and any scouring arrangement. Even ablution taps should be avoided.

- i. Two Separate distribution system independent to each other, will be adopt one for potable water supply and second for recycled water. Home/office/business establishment will have been access to two water pipelines.
- ii. Potable water supply and SWD line will be laid on one side of berms and sewer lines and recycled water supply lines will be laid on opposite berms of road. Recycled water line will be above sewer lines. Wherever unavoidable and if all pipes of potable water supply, sewer and recycled water supply are required to be laid on same side of road. These will be located from the ground surface in order of descending quality. Potable water line shall be above recycled water line which should be above sewer. Minimum clear vertical separation between a potable water line and recycled water line shall be one foot if not possible then readily identifiable sleeve should be used.

**To avoid any accident use of recycled water for potable purposes all:-**

- a) Recycled water pipes, fitting, Appurtenances, valves, taps, meters, hydrants will be of Red Color or painted red.
- b) Sign and symbols signifying and clearly indicating "Recycle Water" "Not fit for Drinking" must invariably be stamped/fixed on outlets. Hydrants Valves both surface and subsurface, Covers and all conspicuous places of recycle distribution system.
- c) Detectable marker tapes of red color bearing words "Recycle Water" should be fixed at suitable interval on pipes.
- d) Octagonal covers, red in color or painted Red and words "Recycled Water Not fit for Drinking" embossed on them should be used for recycled water.

14. It may be made clear to you that there will be no pollution due to disposal of sewerage of your colony. The disposal of effluent should be in accordance to the standard norm, fixed by the Haryana State Pollution Control Board/Environment Deptt.

15. You will be responsible for the construction of various structures such as RCC UGT and OHSR; water/sewerage treatment plant etc. according to the standard specification, good quality workmanship and water tightness of all the structures.

16. It may also be clarified to the colonizer that he will be solely responsible to lay the services up to the external services laid/to be laid by HUDA on sector dividing road at respective locations/points.

17. The correctness of the levels of the colony will be solely your responsibility for integrating the internal sewer/storm water drainage of the colony by gravity with the master services. In case pumping is required the same will be provided & maintained by you for all the time to come.
18. In case it is decided by Govt. that HUDA/Govt. will construct 24 Mtrs. wide road and will extended master services on 24 Mtrs. internal circulation road then additional amount at rates as decided by the authority/Govt. will be recoverable over and above EDC from you.
19. You will get the road level/formation level of services fixed from the concerned Superintending Engineer before execution of work at site.
20. In case some additional structures are required to be constructed and decided by the HUDA at a later stage, the same will be binding upon you. Flow control valves will be installed preferably of automatic type on water supply connection with HUDA water supply line.
21. Level of the external services to be provided by HUDA i.e. water supply, sewage, will be proportionate of EDC deposited.
22. It may be made clear to you that the rain harvesting system shall be provided by you, as per Central Ground Water Authority norms/Haryana Govt. notification and the same will be kept operational/maintained all the time. Arrangement for segregation of first rain not to be entered into the system shall also be made by you.

A copy of the approved service plan/estimates and annexure 'A' are enclosed. You are requested to supply five additional copies of the approved service plan/estimates to the Chief Engineer, HUDA, Panchkula under intimation to this office.

DA/ as above.

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(S.K. Sehrawat)  
District Town Planner (HQ),  
For Director General, Town and Country Planning,  
Haryana, Chandigarh.

Endst. No. LC-1846-JE (BR)-2016/

Dated:

A copy is forwarded to the Chief Administrator, HUDA, Panchkula with reference to his Memo No. CE-I/EE(W)/CHD(G)/2016/5018 dated 18.04.2016 for information and necessary action please.

(S.K. Sehrawat)  
District Town Planner (HQ),  
For Director General, Town and Country Planning,  
Haryana, Chandigarh.

C.E. No. 5018  
Dated 18/4/16

**Annexure-A**

**SUB:-** Approval of Service plan estimate for Commercial Colony for an area measuring 2.425 acres area in Sec-70, Gurgaon Manesar Urban Complex being developed by M/S. Ojos developers Pvt. Ltd. (License No. 131 of 2008 dated 28.6.2008).

**Technical note and comments:-**

1. All detailed working drawings would have to be prepared by the colonizer for Integrating the internal services proposals with the master proposals of town.
2. The correctness of the levels will be the sole, responsibility of the colonizer for the integration of internal proposals, with the master proposals, of town and will be got confirmed before execution.
3. The material to be used shall the same specifications as are being adopted by HUDA and further shall also confirm to such directions, as issued by Chief Engineer, HUDA from time to time.
4. The work shall be carried out according to Haryana PWD specification or such specifications as are being followed by HUDA. Further it shall also confirm to such other directions, as are issued by Chief Engineer, HUDA from time to time.
5. The colonizer will be fully responsible to meet the demand of water supply and allied services till such time these are made available by State Government/ HUDA. All link connections with the State Government/ HUDA system and services will be done by the colonizer. If necessary extra tube-wells shall also be installed to meet extra demand of water beyond the provision according to EDC deposited.
6. Structural design & drawings of all the structures, such as pump chamber, boosting chamber, RCC OHSR underground tanks quarters, manholes chamber, sections of RCC pipes sewer and SW pipes, sewer, ventilating shafts for sewerage and Masonry Ventilation Chamber for Chamber for storm water drainage, temporary disposal/ arrangement etc. will be as per relevant I.S codes and PWD specifications; colonizer himself will be responsible for structural stability of all structures.
7. Potability of water will be checked and confirmed and the tube-wells will be put into operation after getting chemical analysis of water tested.

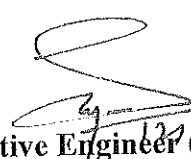
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Dated:-

8. Only C.I/D.I pipes will be used in water supply and flushing system, UPVC/HDPE pipe for irrigation purposes.
9. A minimum 100 i/d C.I/D.I, 200mm i/d SW and 400mm id RCC NP-3 pipes will be used for water supply, sewerage and storm water drainage respectively.
10. Standard X-section for S.W. pipes sewer, RCC pipes sewer etc. will be followed as are being adopted in Haryana Public Health Engineering Deptt. or HUDA.
11. The X-section, width of roads, will be followed as approved by the Chief Town Planner, Haryana, Chandigarh. The kerbs and channels will also be provided as per approved X-section and specifications.
12. The specifications for various roads will be followed as per IRC/MORTH specifications.
13. The wiring system of street lighting and specifications of street lighting fixture will be as per relevant standards.
14. This shall confirm to such other conditions as are incorporated in the approved estimate and the letter of approval.

For

  
Executive Engineer (W),  
Chief Administrator, HUDA,  
Panchkula

11/4/16

**SERVICE ESTIMATE, DESIGN REPORT  
AND CALCULATIONS OF  
INTERNAL DEVELOPMENT WORKS**

**FOR**

**"PROJECT-ROAD-3"  
A PROPOSED COMMERCIAL COMPLEX  
MEASURING 2.43 ACRES IN SECTOR-70,  
GURGAON MANESAR URBAN COMPLEX**

**DECEMBER- 2015**

**OWNER**

**M/S. OJOS DEVELOPERS PVT LTD.**



*Jasvinder Singh Khurana*

Jasvinder Singh Khurana  
Council of Architecture  
Registration No.: CA/92/15470





**SERVICE ESTIMATE, DESIGN REPORT AND CALCULATIONS OF INTERNAL  
DEVELOPMENT WORKS FOR THE PROPOSED COMMERCIAL COMPLEX  
MEASURING 2.43 ACRES IN SECTOR-70 AT GURGAON MANESAR URBAN  
COMPLEX, HARYANA BEING DEVELOPMENT BY  
M/S OJOS DEVELOPERS PVT LTD**

**REPORT**

Gurgaon town of Haryana State is situated on Delhi - Jaipur National Highway No.8 at a distance of 30 kms from Delhi. Being in the national capital Region, the town has fast developing tendency and potential. Further, it has also started sharing the growing Industrial load of Delhi. In order to relieve the growing pressure of population in National Capital of Delhi, Haryana Urban Development Authority has already developed residential sector which are inhabited to an extent. Further to the increasing demand HUDA has planned to develop new sectors at outskirts of Gurgaon town. This report and estimate is for approval of 2.43 acres Commercial building, Sector-70, Guragon Manesar Urban Complex, Haryana.

**WATER SUPPLY**

The source of water supply shall be HUDA water supply connection and this underground water is potable. It has been proposed to construct underground tanks of capacity as per attached details and at location for domestic purpose and for fire protection. The under ground tanks will be fed from HUDA supply main, from there water will be pumped to O.H tanks on the roof of the building through multistage pump sets for office areas and further distributed to the toilets and pantries by gravity and separate hydropneumatic system has been proposed for retail areas.

**DESIGN:**

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

**PUMPING EQUIPMENTS**

It has been proposed to install pumping set as described with standby of equal capacity. Standby electric power requirement is added to the main DG Sets in case of electricity failure and it shall be either provided separately or added to the capacity of main generator.

**SEWERAGE SCHEME**

Sewer line from proposed development will be connecting to propose HUDA Master Sewer. The sewerage system has been marked on the respective plans.

Sewer lines have been designed for 3.0 times average D.W.F in relation to water supply demand. It has been assumed that about 80% of the domestic water supply shall find its way into the proposed sewer. Sewer lines shall be laid to a gradient maintaining minimum 2.46 ft/sec (0.75 m/sec) self cleaning velocity. Sewer line up to 400 mm dia has been designed to run half full and above 400 mm dia has been designed to run three fourth full at peak flow. Necessary provision for laying S.W / RCC pipe sewer line, construction of required number of manholes etc. have been made in the estimate. The sewer line has been designed as per Manning's formulae.

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



  
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### STORM WATER DRAINAGE:

We are proposing to lay underground R.C.C pipe drains with required number of catch basins for disposal of storm water which will be connecting rain water harvesting system to recharge the aquifer and surplus storm water will be allowed to flow to the HUDA Master drain along the services road. The intensity of rain fall has been taken as  $\frac{1}{4}$ " (6.25mm) per hour and storm water line has been designed as per Manning's formulae.

### SPECIFICATIONS:

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

#### Roads:

Cost of road has been taken in the estimate.

#### Street Lighting:

Provision for streets lighting has been included.

#### Horticulture:

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

#### Rates:

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

#### Cost:

The total cost of the scheme, including cost of all services works out to be ~~Rs.204 lakhs~~ <sup>352.92</sup> ~~(Rupees TWO HUNDRED FOUR LAKHS)~~ <sup>381.82</sup> including 3% contingencies @ 49% departmental charges, price escalation, unforeseen & admin charges etc.

For OJOS DEVELOPERS PVT LIMITED

Authorized signatory

*Jasvinder Singh Khurana*

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Council of Architecture  
Registration No.: CA/92/15470

Jasvinder Singh Khurana



# I DESIGN CALCULATION:

## (i) Domestic Water requirement

SUBJECT : WATER CONSUMPTION SHEET								
S. No	DESCRIPTION	Total Builtup Area	Pop. per/sqmt	Total Pop.	Water Require. in LPCD	Total Water Requirement LPD	Domestic Require.	Flushing Require.
1	Retail SHOPPING AREA @ Ground Floor							
		3738		374		16830	10940	5890
a)	Fixed	3834	10	383	45	17,253	6,039	11,214
b)	Floating	3738	3	1246	15	18690	12148	6542
		3834		1278		19,170	6,710	12,461
2	Retail SHOPPING AREA @ Mezzanine Floor							
		927		94		4230	2750	1480
a)	Fixed	1010	10	101	45	4,545	1,591	2,954
b)	Floating	927	3	312	15	4680	3042	1638
		1010		337		5,050	1,768	3,283
3	Retail SHOPPING AREA @ First Floor							
		3176		318		14310	9302	5008
a)	Fixed	3272	10	328	45	14,724	5,153	9,571
b)	Floating	3176	6	530	15	7950	5168	2782
		3272		545		8,180	2,863	5,317
4	Retail SHOPPING AREA @ Second Floor							
		1040		104		4680	3042	1638
a)	Fixed	2565	10	257	45	11,543	4,040	7,503
b)	Floating	1040	6	173	15	2595	1687	908
		2565		428		6,413	2,244	4,168
5	Retail SHOPPING AREA @ Third Floor							
							3393	1822
a)	Fixed	1158	10	116	45	5,210	1,824	3,387
b)	Floating	1158	6	193	15	2,895	1,882	1,013
							1,013	1,882
6	Office AREA from 4 <sup>th</sup> to 10 <sup>th</sup> Floor							
		5410		541		24345	15824	8520
a)	Fixed	5085	10	509	45	22,883	8,009	14,874
b)	Floating	5410	10% of fixed	54	15	810	527	283
		5085		51		763	267	496



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7	Food Court AREA @ Second Floor							
a)	Fixed	1470	15	98	45	4,410	2,867	1,544
b)	Floating (Seats)	1470	1.5	980	70	68,600	44,590	24,010
8	Food Court AREA @ Third Floor							
a)	Fixed	540	15	36	45	1,620	1,053	567
b)	Floating (Seats)	540	1.5	360	70	25,200	16,380	8,820
9	Maintenance staff and security personel in the entire building (Peak hours 50 and non peak hours 50)	L.S		100	45	4,500	2,925	1,575
10	Filter backwash, water bodies, floor washing in the entire building in different areas including toilets, food court etc.	L.S				15,000	15,000	
	TOTAL					226565 -2,37,958	152520 -1,24,334	74048 -1,13,624
	SAY					238 -LPD KLD	155 -124 -LPD KLD	75 -114 -LPD KLD.

(B) Total of domestic and flushing requirement = 238 KLD  
SAY = 238 KLD

Domestic requirement = 155  
-124 KLD

Flushing requirement = 114 KLD

STP Capacity @ 80% of total water requirement = 190 KLD

SAY = 190 KLD

(ii) Horticulture water requirement (Organized Green) = 4 KLD

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(iii) Fire Fighting requirement	=	300 KLD
TOTAL WATER DEMAND (i+ii)	=	<del>230</del> + 4 = 234
(excluding fire fighting requirement)	=	<del>265</del> + 25 = 290 KLD
SAY	=	235 <del>290</del> KLD

## II. Summary & Source of water

(i) Domestic water (From Bore well / HUDA)	=	<del>124</del> KLD
(ii) Flushing water (From STP)	=	75 <del>114</del> KLD
(iii) Horticulture (From STP)	=	4 KLD

## III. Summary of UGT

(i) Domestic Raw water tank	=	100 KLD
(ii) Domestic Treated water tank	=	100 KLD
(iii) Fire fighting water tank	=	300 KLD (150x2)
(iii) Flushing & horticulture water tank (In STP)	=	100 KLD

Therefore it is proposed to construct under ground tank of Raw Water 100 KL (100 x1), Domestic water 100 KL (100x 1) Nos and fire fighting tank 300 KL (150 x 2) Nos at one location marked on site plan and flushing water 100 KL (100x1) no tank located in STP.

## FOR OFFICE AREA

(Office area = 5085 mt<sup>2</sup>) from Level 4 to 10

(i) No of Persons @ 10m <sup>2</sup> /person (Fixed)	=	<del>5085</del> /10
	=	508.5 Nos
Water required for <del>508.5</del> persons @ 45 lpcd	=	<del>22.8</del> KLD
Domestic requirement @ 35% of total requirement	=	15.82 <del>8.08</del> KLD
Flushing requirement @ 65% of total requirement	=	14.8 KLD
	=	8.52 or 9 KLD
(ii) No of Persons @ 10% of Fixed (Floating)	=	<del>508.5</del> x 10/100
	=	51 Nos
Water required for <del>51</del> persons @ 15 lpcd	=	<del>0.7</del> KLD
Domestic requirement @ <del>65</del> % of total requirement	=	<del>0.27</del> KLD
Flushing requirement @ <del>35</del> % of total requirement	=	0.46 KLD
	=	0.28
Total Domestic requirement for fixed & floating	=	8.35 KLD
	=	16.53 or 16 KLD
SAY	=	<del>9</del> KLD
	=	9.28
Total Flushing requirement for fixed & floating	=	15.26 KLD
	=	9.0
SAY	=	<del>16</del> KLD



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(A)	Total domestic water requirement	=	<sup>17</sup> <del>9</del> KL
(i)	Pumping @ 4 hours / day	=	<sup>17</sup> <del>9</del> / 4 = <sup>4.25</sup> 2.2 KL/hr or 70.83 LPM
	SAY	=	50 lpm

#### BOOSTING MACHINERY FOR DOMESTIC PUMP

(ii)	Gross working head		
(1)	Residual head	=	8 meter
(2)	Friction loss	=	15 meter
(3)	Static head required	=	60 meter
(a)	Building height	=	50 meter
(b)	Basement height	=	10 meter

TOTAL	=	83 meter
SAY	=	85 M

(vi)	HP	=	<sup>3.14</sup> <del>150</del> x 85 / 60 x 75 x 0.65 = 1.45 HP,	SAY	=	<sup>5.0</sup> <del>2</del> HP
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It is proposed to provide <sup>100</sup> 1 Nos. pumping sets of 50 lpm @ 85 Mtr. Head (1 Working + 1 Stand by) for Domestic Supply.

(B)	Total flushing water requirement	=	<sup>9</sup> <del>16</del> KL
(i)	Pumping @ 4 hours / day	=	<sup>9</sup> <del>16</del> / 4 = <sup>2.25</sup> 4 KL/hr 37.50
	SAY	=	<sup>50</sup> <del>75</del> lpm

#### BOOSTING MACHINERY FOR FLUSHING PUMP

(ii)	Gross working head		
(1)	residual head	=	8 meter
(2)	Friction loss	=	15 meter
(3)	Static head required	=	60 meter
(a)	Building height	=	50 meter
(b)	Basement height	=	10 meter

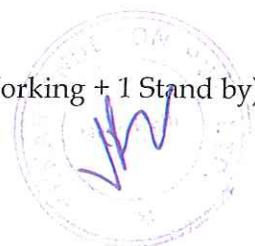
TOTAL	=	83 meter
SAY	=	85 M

(vi)	HP	=	<sup>50</sup> <del>75</del> x 85 / 60 x 75 x 0.65 = <sup>1.57</sup> 2.17 HP,	SAY	=	3.0 HP
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It is proposed to provide <sup>50</sup> 1 Nos. pumping sets of 75 lpm @ 85 Mtr. Head (1 Working + 1 Stand by) for Flushing Supply.



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FOR RETAIL, FOOD COURT AND OTHER AREA AREA

TOTAL AREA = 13849 SQM

- (A) Total domestic water requirement = <sup>138</sup>115 KL
- (i) Pumping @ 8 hours / day = <sup>138</sup>115 / 8 = <sup>17.25</sup>14.34 KL/hr <sup>287.50 lpm</sup>
- SAY = <sup>300</sup>250 lpm

**BOOSTING MACHINERY FOR DOMESTIC PUMP**

- (ii) Gross working head
- (1) Residual head = 15 meter
- (2) Friction loss = 10 meter
- (3) Static head required = 32 meter
- (a) Building height = 22 meter
- (b) Basement height = 10 meter

TOTAL = 57 meter

SAY = 60 M

- (vi) HP = <sup>300</sup> $\frac{250 \times 60}{60 \times 75 \times 0.65}$  = <sup>6.63</sup>5.12 HP, SAY = <sup>7.50</sup>7.50 HP

It is proposed to provide <sup>300</sup>1 Nos. pumping sets of <sup>300</sup>250 lpm @ 60 Mtr. Head (1 Working + 1 Stand by) for Domestic Supply.

- (B) Total flushing water requirement = <sup>66</sup>98 KL
- (i) Pumping @ 8 hours / day = <sup>66</sup>98 / 8 = <sup>8.25</sup>12.25 KL/hr = <sup>137.50 lpm</sup>
- SAY = 200 lpm

**BOOSTING MACHINERY FOR FLUSHING PUMP**

- (ii) Gross working head
- (1) residual head = 15 meter
- (2) Friction loss = 10 meter
- (3) Static head required = 32 meter
- (a) Building height = 22 meter
- (b) Basement height = 10 meter

TOTAL = 57 meter

SAY = 60 M

- (vi) HP = <sup>4.40</sup> $\frac{200 \times 60}{60 \times 75 \times 0.65}$  = <sup>4.40</sup>4.1 HP, SAY = 5 HP



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It is proposed to provide <sup>2</sup>1 Nos. pumping sets of 200 lpm @ 60 Mtr. Head (1 Working + 1 Stand by) for Flushing Supply.

### PUMPS FOR FIRE PROTECTION

S.NO.	PARAMETERS	LOCATION	PUMP SETS			
			Jockey	WC	Main	Diesel
(a)	Discharge in Lpm	Pump room	180	2280	2850	4500
(b)	Head in meters		110	45	110	110
(c)	HP		7.5	38	116	183
(d)	Quantity in Nos		2	1	2	1

### CAPACITY OF DG SETS.

S.NO.	EQUIPMENT	QTY	HP	Total HP
(1)	FIRE JOCKEY PUMPS	<del>2</del> 1	7.5	15
(2)	BOOSTER PUMPS (Domestic OFFICE)	<del>2</del> 1	2.0	<del>4</del> 5.0
(3)	BOOSTER PUMPS (Domestic OTHER AREA)	<del>2</del> 1	5.0	<del>10</del> 7.50
(4)	BOOSTER PUMPS (Flushing)	<del>2</del> 1	3.0	<del>6</del> 3.0
(5)	BOOSTER PUMPS (FLUSHING OTHER AREA)	<del>2</del> 1	5.0	<del>10</del> 5.0
	TOTAL			<del>45</del> 35.50
			*0.746	33.56 KW 26.48
		SAY	*1.5	50.34 KVA

It is proposed to add <sup>62.50</sup>50 KVA capacity for above said machinery to the main DG set. <sup>39.72</sup>39.72 SAY = 50 KVA

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PROPOSED -ROAD-3 (2.43 ACRES) AT SECTOR-70, GURGAON, HARYANA

FINAL ABSTRACT OF COST

S.No.	Descriptions	Amount in Rs. Lacs
SUB WORK NO. I	WATER SUPPLY SCHEME	<del>50.37</del> <del>120.80</del> 133.76
SUB WORK NO. II	SEWERAGE SCHEME	<del>17.95</del> <del>39.20</del> 60.02
SUB WORK NO. III	STORM WATER DRINAGE	<del>8.40</del> <del>10.30</del> 17.92
SUB WORK NO. IV	ROADS & FOOT PATHS	<del>37.33</del> 69.88
SUB WORK NO. V	STREET LIGHTING	<del>1.22</del> <del>2.43</del> 9.31
SUB WORK NO. VI	PLANTATION & ROAD SIDE TREES	<del>1.58</del> <del>3.16</del> 6.05
SUB WORK NO. VII	MTC CHARGES & RESURFACING OF ROADS	<del>16.11</del> <del>27.65</del> 84.94
<b>TOTAL</b>		<del>381.82</del> <del>132.95</del> <del>233.87</del>
Add 3% contingencies & P.H. Charges		<del>3.99</del> <del>7.02</del>
<b>TOTAL</b>		<del>136.94</del> <del>240.89</del>
Add 49% Departmental charges, price escalation, unforeseen,		<del>67.10</del> <del>118.03</del>
<b>TOTAL</b>		<del>204.04</del> <del>358.92</del>
SAY IN LAKHS	Dev. cost Rs 381.82 Lacs Area = 2.425	<del>204.04</del> <del>358.92</del> = Rs 157.45 Lacs
Deviation of Cost	83.966	<del>148.00</del>
Say	84.00	<del>148.00</del>
		Lakhs Per Acre
For REACH PROMOTORS (P) LTD		
AUTHORISED SIGNATORY		
PROPOSED - ROAD -3 (2.43 ACRES) AT SECTOR-70, GURGAON, HARYANA		
SUB WORK No. 1	Descriptions	Water Supply and Fire

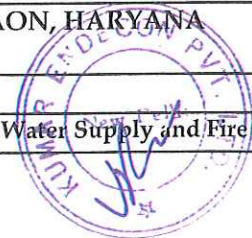
Director General  
Town & Country Planning,  
Haryana, Chandigarh



Superintending Engineer  
HUDA Circle-II, Gurgaon

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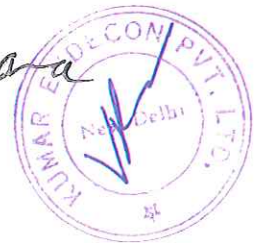
Executive Engineer  
HUDA, Division No.-VI  
Gurgaon

Head works <del>26,50,000</del>		
Sub Head No. 01	Water Supply & Fire Fighting Pumping	34,70,000.00 70.00 Lacs
	Pumping machines	
Sub Head No. 02	Rising Main From HUDA, water supply distribution lines (Domestic & Flushing)	6,37,800.00 <del>13,13,250</del> 7.99 Lacs
		<del>8,08,6250</del> 7.87 Lacs
Sub Head No. 03	Fire fighting Fire Rising Main	6,53,000.00
		<del>3,08,000</del> 1.26 Lacs
Sub Head No. 04	Water supply Irrigation System	2,76,200.00
		87.12 Lacs
TOTAL	Add 3% Contingency & P.E. Charge	50,37,000.00
		<del>120,79,8750</del> 2.61 Lacs
SAY IN LAKHS		<del>50.37</del> 89.73 Lacs
Add. 49% dep't, unforseen price escalation, Admn. Charge		
		<del>120.80</del> 43.97 Lacs
		<u>133.70 Lacs</u>

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	Sub -Work No. 1			Water Supply and Fire Fighting Pump Machinery	
	Sub -Head No. 01				
SL. NO	Description	Unit	Qty	Rate	Amount
1	Provision for diesel engine generator set each for standby arrangements for T.W & Booster pump complete in all respects with following capacities.				
	<del>62.50</del> 50 KVA 50 KVA (L.E.)	Each	1	<del>10,00,000</del> 4,50,000.00	<del>10,00,000</del> 5.00 la. 4,50,000
2	Providing and installing pumping set of following capacity for fire protection.				
(a)	180 lpm at 110m Head, 7.5 HP (Jockey Pump)	Each	2	<del>2,00,000</del> 125000.00	<del>5,00,000</del> 2,50,000 4.00
(b)	4500 lpm at 110m Head, 100 BHP (Diesel Pump)	Each	1	<del>10,00,000</del> 450000.00	<del>10,00,000</del> 4,50,000
(c)	2850 lpm at 110m Head, 116 HP (Electric Pump)	Each	2	<del>7,50,000</del> 225000.00	<del>15,00,000</del> 4,50,000
(d)	1620 lpm at 45 m Head, 38 HP (WCurtain Pump)	Each	1	<del>6,00,000</del> 180000.00	<del>6,00,000</del> 1,80,000
3	Providing and installing electricity driven pumping set for domestic and flushing supply capable of delivering following capacities of water complete with motor and other accessories.				
(a)	Domestic Supply, 50 lpm @ 85 mtr, 2 HP for office area (1+1)	2		<del>2,50,000</del> 35000.00	<del>2,00,000</del> 70,000
(b)	Domestic Supply, 250 lpm @ 60 mtr, 5 HP (other bldg) 1+1	2		<del>2,00,000</del> 100000.00	<del>4,00,000</del> 2,00,000 3.00
(c)	Flushing Supply, 75 lpm @ 85 mtr, 3 HP for office area	2		<del>1,00,000</del> 45000.00	<del>2,00,000</del> 90,000
(d)	Flushing Supply, 200 lpm @ 60 mtr, 5 HP	2		<del>1,00,000</del> 95000.00	<del>3,00,000</del> 1,90,000 2.00
4	Provision for chlorination plant complete.				
(a)		Each	1	<del>1,00,000</del> 30000.00	<del>1,00,000</del> 30,000
5	Construction of U.G tanks (4 Nos) 500kl including 300kl for Fire fighting & 100kl for Flushing near STP (500+100)				
(a)	Block	KL	600	<del>3500</del> 1500.00	<del>21,00,000</del> 9,00,000
6	Provision for making foundation and erection of pumping Machinery.			LS	<del>2,00,000</del> 50,000
7	Provision for pipes, valves and specials inside the pump chamber and boosting chamber.			LS	<del>1,00,000</del> 50,000



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8	Provision for electric service connection including electrical fitting for <del>tube-well and</del> boosting chamber etc. (lumpsum) including cost of transformer.	LS	2.50 <del>80,000</del> <del>4,00,000</del>
9	Provision for carriage of material and other unforeseen items.	LS	1.00,000 <del>30,000</del>
	<b>TOTAL</b>		<b>34,70,000</b> <del>96,50,000</del> 70.00

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	Sub -Work No. 1			Rising Main From HUDA, Water supply distribution lines (Domestic & Flushing)	
	Sub -Head No. 02				
SL.NO	Description	Unit	Qty	Rate	Amount
1	Providing , laying, jointing and testing of <del>GI</del> <sup>100</sup> pipe lines including cost of excavation etc. complete in all respects.				
(a)	<del>80</del> mm dia (HUDA)	Metre	80	750.00	60,000.00
2	Provision of water supply <del>risers</del> line to OHT/RETAIL TOP FLOOR from pump room / STP. ( <del>Down + Flushing</del> )				
(a)	<del>32</del> mm	<del>Metre</del>	<del>115</del>	<del>400.00</del> 200.00	<del>46,000.00</del> 23,000.00
(b)	<del>40</del> mm	<del>Metre</del>	<del>120</del>	<del>600.00</del> 250.00	<del>72,000.00</del> 30,000.00
(c)	<del>50</del> mm	<del>Metre</del>	<del>35</del>	<del>750.00</del> 300.00	<del>26,250.00</del> 10,500.00
(d)	100 mm	<del>155+145</del> Metre	<del>350</del> 250	<del>1200.00</del>	<del>3.75 Lacs</del> 3,00,000.00
3	Providing and fixing valves including cost of surface boxes and masonry chamber etc. completed in all respects.				
(a)	100 mm dia	Each	<del>111</del> 25	<del>12000.00</del> 6500.00	<del>66,000.00</del> 32,500.00
(b)	<del>50</del> mm dia	Each	<del>6</del>	<del>8000.00</del> 4200.00	<del>48,000.00</del> 25,200.00
(c)	<del>40</del> mm dia	Each	<del>6</del>	<del>6000.00</del> 3500.00	<del>36,000.00</del> 21,000.00
(d)	<del>32</del> mm	<del>Each</del>	<del>3</del>	<del>5000.00</del> 3200.00	<del>15,000.00</del> 9,600.00
4	Providing and fixing indicating plates for valve and air Valves.				
(a)		Each	<del>6</del>	<del>16,000.00</del> 1000.00	<del>96,000.00</del> 6,000.00
5	Provision for carriage for materials and other unforeseen items .			LS	1,00,000.00 35,000.00
6	Provision for cutting of roads and making good to its original conditions.			LS	4,00,000.00 50,000.00
7	Provision for making connection from HUDA Master line.				0.50 Lacs
(a)	<del>80</del> mm dia	<del>Each</del>	<del>1</del>	<del>280,000.00</del>	<del>2,80,000.00</del> 35,000.00
	TOTAL				13,13,250.00 6,37,800.00
					7.99 Lacs
	Material statement for HUDA Line				
S.No	Name of pipe line	Dia (MM)	Length		
1	HUDA line to UGT	<del>80</del> 100	80		



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2	Pump Room to OHT (Domestic Linefor office area)	40	120	
3	Pump Room to ring (retail top) (Domestic)	50	35	
2	STP to OHT (flushing Linefor office area)	32	115	
3	STP to ring (retail top) (flushing)	40	40	

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	Sub -Work No. 1		Fire fighting Fire Rising Main		
	Sub -Head No. 03				
SL . NO	Description	Unit	Qty	Rate	Amount
1	Providing , Laying , jointing and testing M.S pipes lines including cost of excavation etc. complete in all respect.				
(a)	150 mm	Metre	415	1200.00	4,98,000.00
(b)	80 mm	Metre	15	1000.00	15,000.00
2	Providing & fixing valves including cost of surface boxes and masonry chambers etc. complete in all respects.				
(a)	150 mm	Each	2	14000.00	28,000.00
3	Providing and fixing indicating plates for valve and air valves.				
(a)	Each		4	1000.00	4,000.00
4	Providing and fixing external fire hydrants etc. complete in all respects				
(a)	Each		8	1000.00	8,000.00
5	Provision for carriage for materials and other unforeseen items.			LS	30,000.00
6	Provision for cutting of roads and making good to its original conditions.			LS	50,000.00
	Total cost of Abstract of cost for Subwork No.1				6,53,000.00
	Material statement for Fire Line refer Annexure-"A"				7.87 lacs
	Sub -Work No. 1		Water supply Irrigation System		
	Sub -Head No. 04				
SL . NO	Description	Unit	Qty	Rate	Amount
1	Providing, Laying, Jointing and testing uPVC pipe line Confirming to IS : 4985 including cost of excavation etc. complete in all respect. (Garden Hydrant Line in Ground)				
(a)	25 mm dia	Meter	70	350	24,500.00
(b)	32 mm dia	Meter	65	400	26,000.00
(c)	40 mm dia	Meter	50	450	22,500.00
(d)	50 mm dia	Meter	100	530	53,000.00



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(e)	63 mm dia	Meter	60	700	42,000.00
3	Providing and fixing ball valves including cost of surface boxes and masonry chambers etc. complete in all respect.				
(a)	25 mm dia	Each	8	<del>3500/-</del> 400	<del>28000/-</del> 3,200.00
(b)	50 mm dia	Each	2	<del>5000/-</del> 1500	<del>10,000/-</del> 3,000.00
4	Providing and fixing air release valve.				
(a)		Each	2	1000	2,000.00
5	Provision for carriage of Material and other unforeseen Items.			LS	<del>0.10 laq</del> 35,000.00
6	Provision for cutting of roads and making good to its original conditions.			LS	<del>0.25 laq</del> 65,000.00
	TOTAL				<del>2,76,200.00</del> 2,76,200.00
	Material statement for GH Line refer Annexure-"B"				<del>1.26 laq</del>

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Sub -Work No. II		Sewerage System			
SL . NO	Description	Unit	Qty	Rate	Amount
1	Providing and fixing CI Spun pipes conforming to IS : 3989 excluding all fittings & drip seal joints, including painting, MS clamps and cutting holes in walls and floors where ever required and making good complete in all respects. (Pipes in ground & STP overflow bypass line)				
(a)	150 mm dia <i>See opposite page 8</i>	Meter	150	<del>1200</del> <i>1575</i>	<del>1,80,000.00</del> <i>2.36</i>
2	Provision for lighting and watching.			LS	<del>25,000.00</del> <i>4,25,000</i>
3	Provision for carriage of Material and other unforeseen Items.			LS	<del>40,000.00</del> <i>0.50</i>
4	Provision for making connection with HUDA Master sewer. <i>and cutting of road, &amp; making good to its in original</i>			LS	<del>150,000.00</del> <i>190</i>
5	Capacity of STP (210 KLD) <i>(Treatment up to Tertiary level)</i>			LS	<del>15,00,000.00</del> <i>30,00,000</i>
	TOTAL <i>Add 3% Contingency &amp; P&amp;B charges</i>			<del>39.11</del> <i>1.12</i>	<del>17,95,000.00</del> <i>39,90,000</i>
	SAY IN LAKHS <i>Add 49% depl't. price escalation charges, Admin. charges</i>			<del>19.74</del> <i>40.28</i>	<del>17.95</del> <i>32.20</i>
	Material statement for Sewer Line refer Annexure-"D"			<del>60.02</del> <i>Las</i>	
Sub -Work No. III		Storm Water System			
SL .NO	Description	Unit	Qty	Rate	Amount
1	Providing lowering, and laying jointing R.C.C pipe class NP-3 cutting specials manholes etc. Complete in all respect.				
(a)	<del>250 mm dia.</del>	<del>Metre</del>	<del>70</del>	<del>670</del> <i>1300</i>	<del>46,900.00</del> <i>81,000</i>
(b)	400 mm dia.	Metre	250	<del>1200</del> <i>1800</i> <i>2500</i>	<del>3,00,000.00</del> <i>4,50,000</i> <i>6.25 Las</i>
2	Provision for Road gully chambers & connecting pipe.			LS	<del>1,00,000.00</del>
3	Provision for rainwater harvesting arrangements @ Rs. 1.00 lacs per acre for approx 2.43 acres by providing recharging well.			LS	<del>2,43,000.00</del>
4	Provision for lighting watering and timbering drains & other unforeseen charges & carriage of materials.			LS	<del>1,50,000.00</del>
5	Provision for connection with HUDA 1 No. <i>on main road and cutting of road, making good to its in original condition</i>			LS	<del>1,50,000.00</del> <i>10,95,500</i>
	TOTAL <i>Add 3% Contingency &amp; P&amp;B charges</i>			<del>11.68</del> <i>0.35</i>	<del>8,59,900.00</del> <i>8.40</i>
	SAY IN LAKHS <i>Add 49% depl't. price escalation</i>			<del>12.03</del> <i>5.89</i>	<del>10.30</del> <i>17.92 Las</i>
	Material statement for Storm Line refer Annexure-"E"				



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Sub -Work No.IV		Roads and Footpaths			
Total Road Length (Metre)			<del>440.00</del> 237.50	Material statement)	
Total Road Area			<del>2340.00</del>	Sq.m	
Add 5 % for curves			<del>22.00</del> 11.9	= 2384 sqm	
Total for Kerb & Channel		388.50	462.00	Mtr	
Say			400.00	Mtr	
Parking = $(35 \times 5 \times 2.5) = 437.5 \text{ m}^2$		787.50	437.50		
Grand total		3171.50	2777.50	Sq.m	
Say			3000.00	Sq.m	
SL.NO	Description	Unit	Qty	Rate	Amount
1	Provision for leveling and earth filling as Per site condition,				3.64 Lacs
		Acre	2.430	100000	<del>2,43,000.00</del>
2	The necessary provision for construction of roads parking etc has been made in the estimate according to the HUDA norms the following specification has been proposed.				
(I)	Construction of roads by providing granular sub base 300 mm as per MORT & H specifications conforming to clause 401 grading -II 400.1				
(II)	Providing and laying spreading & compacting hand broken/crushed stone aggregate to wet mix conforming to physical requirement laid in 400 of MORT & H specification in two layers (Compacting to 250mm (125+125mm) by taking material 1:32 times of the (thickness of the layer) including premixing of material with water in mechanical mixer.				
(III)	50mm thick B.M				
(IV)	20mm thick mix seal surfacing (BC)				
(a)	Sqm		3000.00 3200	1000/- -900-	32.00 Lacs <del>27,00,000.00</del>
3	Provision for kerbs and channels				
(a)	Metre		400.00 m	600 /m	2,40,000.00
4	Provision for making approach and pavement to building.			LS	5,00,000.00
5	Provision for carriage of materials & other unforeseen Itmes.			(L.S.)	0.50 Lacs
	6) Provision for Traffic Light Control, Guard mags			(L.S.)	50,000.00
TOTAL					37,33,000.00
SAY IN LAKHS		Add 3% Contingency & PG charges			37.33
Material statement for Road refer Annexure-"C"					45.54 Lacs 1.36

Add 49% depl, price escalation, under cost  
Admin. charges

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46.90 Lacs  
22.98 Lacs  
69.88 Lacs

Sub -Work No.V		Street Lighting			
SL.NO	Description	Unit	Qty	Rate	Amount
1	Providing Street lighting on roads as per standard specification of HVPN. <i>with CFL</i>			<i>2.50 lac</i>	<i>6.07 lac</i>
(a)	Acre		2.430	<i>1,00,000</i> <i>50000</i>	<i>243,000</i> 1,21,500.00
	<b>TOTAL</b>				1,21,500.00
	<b>SAY IN LAKHS</b>				1.22

*Add 3% Contingency & P.L. Charge*

*Add 4% defft., price escalation  
unforeseen, Admin. Charge*

*2.43 lac*  
*0.18 lac*  
*6.25 lac*  
*3.06 lac*  
*9.31 lac*

*C.O.F. final abstract of cost*

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Sub -Work No.VI		Plantation and road side trees			
SL.NO	Description	Unit	Qty	Rate	Amount
1	Development of lawn areas				
(i)	Acres		2.430	<del>1,15,000</del> 50000	1,21,500.00
(a)	Trenching the ordinary soil up to dept of 60cm including removal and stacking serviceable material and disposing of by spreading and leveling within a lead of 50m and making up the trenches area to proper leads by filling with earth mixed with manure before and after flooding trench with water including cost of imported earth and manure.			1.50	<del>27,945.00</del> 3.64 Lacs
(b)	Rough dressing of turfed area				
(c)	Grassing with "Doob Grass" including watering and maintenance of lawns for 30 days till the grass forms a thick lawn, free from weeds and fit for moving in rows 7.5 m Apart in either direction including provision for hedges and barbed wire fencing around park 0.9 Acres @ 70000 per acre.				
2	Providing tress, guards and planting tress along road at 6.0 m internals for 6.0m wide road Total road length = 440M <b>370</b> No of Tress <b>370</b> = 440/12 = 37 no. <b>30.83</b> Say = 40  <u>Cost Analysis of Planting Trees</u> Excavation = 30.00 Manure = 60.00 Tree plants = 40.00 Tree <b>Guard</b> plants <b>600</b> = 40.00 Total = Rs. 900-per tree <b>750/-</b>				
(a)	Each		40 Nos	<del>900</del>	36,000.00
	TOTAL			<del>1,57,500.00</del>	3.94
	SAY IN LAKHS			<del>1.58</del>	0.12
	Sub -Work No. VII				4.06
					1.99
					6.05
SL.NO	Description	Unit	Qty	Rate	Amount
1	Provision for MTC charges for water supply, sewerage storm water drainage, roads, street light and horticulture complete in all respect.				
(a)	Acres		2.430	<del>25000.00</del>	60,750.00
2	Resurfacing of roads after Ist 5 Yrs, 50mm thick B.M & 25 mm thick P. carpet.				



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(a)	Sqm	3200 2385.00	600/- 200.00	19.20 Lacs 4,77,000.00
3	Provision for resurfacing of roads after 10 yrs. by providing 25mm thick premire carpet.			24.60 8,34,750.00
(a)	Sqm	2385.00	450.00	10,73,250.00
		3200	750/-	27,55,235 Lacs
	TOTAL	Add 3% Contingency & P.W. Charges		16,11,000.00
	SAY IN LAKHS			16.11

Add 49% deplt, price escalation  
unjurseen, Admin. Charges

57.10 Lacs  
27.93 Lacs  
84.94 Lacs

C o. to final abstract of cost

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# DESIGN CALCULATION FOR SEWERAGE SYSTEM

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PROJECT:- ROAD-3 COMMERCIAL COMPLEX AT GURGAON, HARYANA					
MATERIAL STATEMENT FOR SEWERAGE SYSTEM					
S.No	Manhole	Dia of Pipe	Length	Length of line In mtr.	
		(mm)	(mm)	<del>150</del>	200 <i>mm</i>
1	S1-S2	200	16	0	16
2	S2-S3	200	12		12
3	S3-S4	200	20		20
4	S4-S5	200	24		24
5	S5-S6	200	29		29
6	S6-S7	200	10		10
7	S7-S8	200	14		14
8	S8-S9	200	21		21
9	S9-S10	200	13		13
10	S10-S11	200	12		12
11	S11-S12	200	27		27
12	S12-S13	200	21		21
13	S13-S14	200	26		26
14	S14-S15	200	19		19
15	S15-S16	200	22		22
16	S16 to (STP)	200	45		45
17	BY Pass Line From STP	150	150	150	0
TOTAL			<del>481.0</del>	150.0	331.0
SAY			<del>490.0</del>	150.0	340.0

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Kumar Endecon  
"3 Roads"-Sewer (MS) - 2015

# PROJECT - ROAD -3 COMMERTIAL COMPLEX AT GURGAON, HARYANA

## DESIGN CALCULATION FOR STORM WATER DRAINAGE SYSTEM

SL NO	Reference Line	AREA SERVED (IN ACRE)			Runoff Assuming @ 1/4" Per Hour	TOTAL Discharge	FINAL Discharge (q)	Dia of Pipe	Slope	Velocity		Discharge Capacity Of Pipe (Q)	Length of Line	FALL	GROUND LEVEL		INVERT LEVEL		DEPTH OF LINE		Average Depth
		Self	Previous	Total						ft/sec	m/sec				Level At Start	Level At End	Level At Start	Level At End	Upper End	Lower End	
1	SD-1-SD-2	0.23	0.00	0.23	3.780	0.063	1.050	400	400	2.34	0.71	89.509	12	0.030	226.150	226.120	225.15	225.12	1.000	1.000	1.000
2	SD-2-SD-3	0.23	0.10	0.33	5.424	0.090	1.507	400	400	2.34	0.71	89.509	20	0.050	226.120	226.100	225.12	225.07	1.000	1.030	1.015
3	SD-3-RCP-1	0.33	0.10	0.43	7.068	0.118	1.963	400	400	2.34	0.71	89.509	7	0.018	226.100	226.080	225.07	225.05	1.030	1.028	1.029
4	SD-3-SD-4	0.43	0.10	0.53	8.712	0.145	2.420	400	400	2.34	0.71	89.509	24	0.060	226.080	226.040	225.05	224.99	1.028	1.048	1.038
5	SD-4-SD-5	0.53	0.10	0.63	10.355	0.173	2.876	400	400	2.34	0.71	89.509	28	0.070	226.040	226.020	224.99	224.92	1.048	1.098	1.073
6	SD-5-SD-6	0.63	0.15	0.78	12.821	0.214	3.561	400	400	2.34	0.71	89.509	10	0.025	226.020	225.980	224.92	224.90	1.098	1.083	1.090
7	SD-6-SD-7	0.78	0.15	0.93	15.286	0.255	4.246	400	400	2.34	0.71	89.509	14	0.035	225.980	225.960	224.90	224.86	1.083	1.098	1.090
8	SD-7-SD-13	0.93	0.20	1.13	18.574	0.310	5.159	400	400	2.34	0.71	89.509	21	0.053	225.960	225.950	224.86	224.81	1.098	1.140	1.119
8	SD-8-SD-9	0.23	0.20	0.43	7.068	0.118	1.963	400	400	2.34	0.71	89.509	26	0.065	226.000	225.990	225.00	224.94	1.000	1.055	1.028
9	SD-9-SD-10	0.43	0.20	0.63	10.355	0.173	2.876	400	400	2.34	0.71	89.509	21	0.053	225.990	225.980	224.99	224.94	1.000	1.042	1.021
10	SD-10-SD-11	0.63	0.20	0.83	13.643	0.227	3.790	400	400	2.34	0.71	89.509	27	0.068	225.980	225.970	224.98	224.91	1.000	1.058	1.029
11	SD-11-SD-12	0.83	0.20	1.03	16.930	0.282	4.703	400	400	2.34	0.71	89.509	12	0.030	225.970	225.960	224.97	224.94	1.000	1.020	1.010
12	SD-12-SD-13	1.03	0.12	1.15	18.902	0.315	5.251	400	400	2.34	0.71	89.509	16	0.040	225.960	225.950	224.96	224.92	1.000	1.030	1.015
13	SD-13-RCP-2	2.28	0.12	2.40	39.449	0.657	10.958	400	400	2.34	0.71	89.509	8	0.020	225.950	225.950	224.81	224.79	1.140	1.160	1.150

PROJECT:- ROAD-3 COMMERCIAL COMPLEX AT GURGAON, HARYANA					
MATERIAL STATEMENT FOR STORM WATER DRAINAGE SYSTEM					
S.No	R.C.C.Line	Dia of Pipe	Length	Length of line In mtr.	
		(mm)	(mm)	250	400 mm
1	SD-1-SD-2	400	12		12
2	SD-2-SD-3	400	20		20
3	SD-3-RCP-1	400	7		7
4	SD-3-SD-4	400	24		24
5	SD-4-SD-5	400	28		28
6	SD-5-SD-6	400	10		10
7	SD-6-SD-7	400	14		14
8	SD-7-SD-13	400	21		21
8	SD-8-SD-9	400	26		26
9	SD-9-SD-10	400	21		21
10	SD-10-SD-11	400	27		27
11	SD-11-SD-12	400	12		12
12	SD-12-SD-13	400	16		16
13	SD-13-RCP-2	400	<del>8</del> 10		18
<del>14</del>	CATCH BASIN		<del>70</del>	<del>70</del>	
TOTAL			316 248	70	248
SAY			<del>320</del>	<del>70</del>	250 <i>road</i>

250m

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Kumar Endecon  
 "3 Roads"-Storm (MS) - 2015

PROJECT:- ROAD-3 COMMERCIAL COMPLEX AT GURGAON, HARYANA DESIGN CALCULATION FOR DOMESTIC WATER SYSTEM (35% of 45.00 = 15.75)																
S. NO	Reference line	Popul. (Total No of Persons)	Total Requirement (In LPD)	Total Water Requirement. (In LPM)	Dia of Riser pipe (In MM)	Velocity m/ sec	Length of Line (In Mtr)	(S) Slope of pipe (m/ m)	Head Loss for line Length (In Mtr)	Fitting Loss @ 10% of pipe length (In Mtr)	Total Head Loss (In Mtr)	Ground Level (In Mtr)	Tank height from ground level (In Mtr)	U. End (In Mtr)	Head L. End (In Mtr)	Residual head at drawl point (In Mtr)
		(In Nos)	(In LPD)	(In LPM)	(In MM)	m/ sec	(In Mtr)	(In m/ m)	(In Mtr)	(In Mtr)	(In Mtr)	(In Mtr)	(In Mtr)	(In Mtr)	(In Mtr)	(In Mtr)
1	PUMP ROOM TO RING FOR RETAIL	1418Fixed & 4121 Floating	115000	240	50	2.000	200.0	0.161	32.113	3.211	35.324	0.000	25.000	25.000	60.324	15.00
1	PUMP ROOM TO OFFICE TERRACE (OHT)	510 Fixed & 51 Floating	9000.00	38	40	2.000	120.0	0.208	24.997	2.500	27.497	0.000	55.000	55.000	82.497	8.00

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PROJECT:- ROAD-3 COMMERCIAL COMPLEX AT GURGAON, HARYANA MATERIAL STATEMENT OF DOMESTIC WATER LINE					
S. No.	Reference Line	Dia of pipe	Length of Pipe	100 40mm	100 50mm
		(mm)	(m)		
1	PUMP ROOM TO RING FOR RETAIL	50	35		35
2	PUMP ROOM TO OFFICE TERRACE (OHT)	32	120	120	
	<b>TOTAL</b>		155.0	120.0	35.0
	<b>SAY</b>		160.0	120.0	35.0

$$120 + 35 = 155 \text{ mtr}$$

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Kumar Endecon  
 "3 Roads"-Domestic (MS) - 2015

**PROJECT:- ROAD -3 COMMERCIAL COMPLEX AT GURGAON, HARYANA**  
**DESIGN CALCULATION FOR FLUSHING WATER SYSTEM**

S. NO	Reference line	Popul. (Total No of Persons)	Total Water Require ment. (In LPD)	Total Water Require ment. (In LPM)	Dia of Riser pipe (In MM)	Velocity m/sec	Length of Line (In Mtr)	(S) Slope of pipe (m/m)	Head Loss for line Length (In Mtr)	Fitting Loss @ 10% of pipe length (In Mtr)	Total Head Loss (In Mtr)	Ground Level (In Mtr)	Tank height from ground level (In Mtr)	Terminal Head U. End (In Mtr)	Terminal Head L. End (In Mtr)	Residual head at drawl point (In Mtr)
1	STP TO RING (RETAIL TOP)	1418 Fixed & 4121 Floating	98000	204	40	2.000	25	0.208	5.208	0.521	5.728	0.000	43.350	48.350	54.078	15.00
1	STP TO OFFICE OHT	510 Fixed & 51 Floating	16000	67	32	2.000	115	0.270	31.079	3.108	34.187	0.000	43.350	48.350	82.537	8.00

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PROJECT:- ROAD -3 COMMERCIAL COMPLEX AT GURGAON, HARYANA MATERIAL STATEMENT OF FLUSHING WATER LINE						
S. No.	Reference Line	Dia of pipe (mm)	Length of Pipe (m)	Length of line In (m)		
				<del>100</del> 32mm	<del>100</del> 40mm	<del>100</del> 80mm
1	STP TO RING (RETAIL TOP)	<del>40</del> 100	<del>255</del>		25	<del>230 (FOR RING)</del>
1	STP TO OFFICE OHT	<del>32</del> 100	<del>115</del>	<del>115</del> 120		
	TOTAL			<del>115</del> 120		<del>230</del>
	SAY		<del>370</del>	<del>115</del> 120	25	230

$$120 + 25 = 145 \text{ m}$$

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Kumar Endecon  
"3 Roads"-Flushing (MS) - 2015



PROJECT:- ROAD -3 COMMERCIAL AT GURGAON, HARYANA					
MATERIAL STATEMENT FOR ROAD					
S. No.	Road Name (m)	Road Length (m)	5.0 M WIDE	6.00 M WIDE	7.00 M WIDE
1	R1 to R2	107		107	
2	R2 to R3	45		45	
3	R3 to R4	83		40	
4	R4 to R5	40		40	
5	R5 to R6	26		26	
6	R6 to R7	55		55	
7	R7 to R1	<del>73</del> 50			50
Total Length		<del>429</del> 363	0	313	50
SAY		370 m	0	320 m	50 m
Total Area		<del>2270.00</del>		1920 sqm	350 sqm

Total = 1920 + 350 = 2270 sqm.

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Kumar Endecon  
"3 Roads" - (MS-Road) -2015

PROJECT:- ROAD -3 COMMERCIAL AT GURGAON, HARYANA							
MATERIAL STATEMENT FOR GARDEN HYDRANT							
S. No.	Reference Line	Pipe Length (m)	Length of line In mtr. (uPVC pipe)				
			25mm	32mm	40mm	50 mm	63 mm
1	GH-1 to G-1	2	2				
2	G-1 to G-2	50	50				
3	GH-2 to G-2	2	2				
4	G-2 to G-3	30		30			
5	GH-3 to G-3	2	2	32			
6	G-3 to G-4	24			24		
7	GH-4 to G-4	2	2				
8	G-4 to G-5	23			23		
9	GH-5 to G-5	2	2				
10	G-5 to G-6	32				32	
11	GH-6 to G-6	2	2				
12	G-6 to G-7	22				22	
13	GH-7 to G-7	2	2				
14	G-7 to G-8	45	0			45	
15	GH-8 to G-8	2	2				
16	G8 to STP	60					60
	<b>TOTAL</b>	<b>302</b>	<b>66</b>	<b>62</b>	<b>47</b>	<b>99</b>	<b>60</b>
	<b>SAY</b>	<b>310</b>	<b>70</b>	<b>65</b>	<b>50</b>	<b>100</b>	<b>60</b>
	<b>GH</b>	<b>8</b>					

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HOT WATER REQUIREMENT AND ENERGY CONSERVATION FOR ROAD -3 COMMERCIAL COMPLEX AT SECTOR 70, GURGAON, HARYANA								
S.NO	No.of Persons	Population	Hot water required per head per day	Total hot water requirement	Solar hot water required at 20% of total hot water required	Average solar panel required on terrace (125 litre capacity)	Energy savings in KWH/day [(H.W demand X $\Delta T(45^{\circ}C)/860(Kcal./hour)\}$ X 90%(efficiency)]	Total energy saving (In KWH/day)
(a)	Office Areas - from 4 <sup>rd</sup> to 10 <sup>th</sup> Floor Plan							
	Total Area = 5085 sq.m	5085						
	Total Population @ 10m <sup>2</sup> / Person	509	15	7627.500	1525.500	12	71.84	71.84
	TOTAL	509		7627.50		12	SAY	75 KWH/day



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## 5.0 STORM WATER DRAINS:

(Designed on the basis of  $\frac{1}{4}$ " of Rain Fall)

### 1. Size of Drain/Drainage Pipe Proposed:

- |   |   |                          |
|---|---|--------------------------|
| (a) Maximum Size  | : | 400 mm dia               |
| (b) Minimum Size  | : | 250 mm dia               |
| 2. Total Length of Drain / pipe                         | : | 320 M                    |
| 3. I.L. at connecting Point of Huda Drain               | : |                          |
| 4. No. of Rain Water Harvesting Wells<br>/Recharge Pits | : | 2 Nos (With double bore) |

Recycling of treated water, Street Lighting, Horticulture and Landscaping etc: have been designed as per HUDA Norms.



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