हरियाणा शहरी विकास प्राधिकरण
HARYANA SHEHRI
VIKAS PRADHIKARAN

Fax : 2564655
Website : www.hsvp.org.in
Email : cencrhsvp@ gmail.com
Address: C-3, HSVP , HQ Sector-6
Panchkula

C.E. No:
Dated:

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.
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 HSVP.
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.

Superintending Engineer (HQ),
For Chief Engineer-I, HSVP,
Panchkula.

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Website : www.hsvp.org.in
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HARYANA SHEHRI
VIKAS PRADHIKARAN

Address: C-3, HSVP , HQ Sector-6
Panchkula

C.E.I-No.
Dated:

Annexure-A

SUB:- Approval of service plan /estimate of Affordable Group Housing Colony measuring 9.1125 acres (License No. 11 of 2014 dated 10.6.2014 & No. 82 of 2018 dated 6.12.2018) in Sector-102, Gurugram Manesar Urban Complex being developed Nani Resort and Floriculture Pvt. Ltd.

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 HSVP and further shall also confirm to such directions, as issued by Chief Engineer, HSVP from time to time.
4. The work shall be carried out according to Haryana PWD specification or such specifications as are being followed by HSVP. Further it shall also confirm to such other directions, as are issued by Chief Engineer, HSVP 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/ HSVP. All link connections with the State Government/ HSVP 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.

SERVICE PLAN/ESTIMET FOR Affordable Group Housing Colony MEASURING 5.0 ACRE (LICENCE NO-11 OF 2014 DATED 10.06.2014) (LICENCE NO-82 OF 2014 DATED 06.12.2018 MEASURING OF 4.1125 ACRE) Village Dhankot, Sector-102 Gurugram

5.0 Acre + 4.1125 = 9.1125 Acre

BEING DEVELOPED BY
M/S NANI RESORT AND FLORICULTURE PVT. LTD.

REPORT

Gurugram town of Haryana State is situated on Delhi – Jaipur National highway No.8 at a distance of 30 km's. for Delhi. Being in the national capital region, the town has fast developing tendency and potential. Further, it has also started sharing the growing Industrial load of Delhi. In order to relieve the growing pressure of population in national capital of Delhi, Haryana Urban Development Authority has already developed residential sector which are fully inhabited to an extend. Further to the increasing demand HUDA has planned to develop new sectors at outskirt of Gurugram town. This report and estimate is for approval of 9.1125 acres Group Housing scheme of SEC-102, Gurugram.

WATER SUPPLY

At present the source of water supply in this area is bore well. As the underground water is potable, provision for two numbers of bore wells have been made in this estimate. It has been proposed to construct underground tanks of capacity as per attached details and at location for domestic purpose and for fire protection. The underground tanks will be fed from the bore wells and HUDA supply mains passing along sector dividing master road, from there water will be pumped to O.H. tanks on the roof of the buildings. The water supply system has been designed as per the Hazen William formula.

For Nani Resorts and Floriculture Pvt. Ltd.

Authorised signatory

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New Delhi-19

Number of units and towers are as follows:

OCCUPANCY / POPULATION ESTIMATION OF RESIDENTIAL & COMMERCIAL AREA

S.No.	Description of Tower or Area	No. of Floors in Each Tower	No. of Building	No. of Units or Area (sq.m.)	Person per Unit or Area	Total Population	Visitors & Floating Population	10% of Fixed Population of Toatal Population
	OCCUPANCY / POPULATION ESTIMATION OF RESIDENTIAL							
1	Tower - A	S + 14	1	224	5	1120	56	
2	Tower - B	S + 14	1	224	5	1120	56	
3	Tower - C	S + 14	1	224	5	1120	56	
4	Tower - D	S + 14	1	116	5	580	29	
5	Tower - E	S + 11	1	44	5	220	11	
6	Tower - F	S + 14	1	116	5	580	29	
7	Tower - H J	S + 14	1	116	5	~~580~~ 570	29	
8	Tower - K	S + 14	1	116	5	580	29	
9	Tower - G	S + 14	1	112	5	~~560~~ 580	28	
10	Tower - M	S + 14	1	~~112~~ 114	5	~~560~~ 570	28	
11	Tower - N	S + 9	1	~~8~~ 19	5	~~40~~ 95	2	
⇨	Total Occupancy / Population of Towers			~~1412~~ 1427 NO		~~7060~~ 7135 Person	353	
	OCCUPANCY / POPULATION ESTIMATION OF COMMERCIAL AREA							
12	Commercial Area at Ground Floor			1322.56	3	441	396	45
13	Community Area			184.32	1.4	132	118	14
14	Guard Room + Security + maintenance Staff							25
⇨	Total Occupancy / Population of Other Area					573	514	59

DESIGN

The scheme has been designed for population considering five persons for each main dwelling. The rate of water supply per head/day has been taken as 172.5 liters per head per day.

PUMPING EQUIPMENTS

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

SEWERAGE SCHEME

Sewer lines from proposed development will be connected to proposed master sewer on sector dividing road. The sewerage system has been marked on the respective plans. This scheme is designed for sewer connection the centralized sewage treatment plant to treat the sewage and to use for horticulture and flashing purpose and excess sewage line will be connected to proposed HUDA sewer passing along sector dividing master road.

Sewer lines have been designed for three times average D.W.F in relation to water supply demand. It has been assumed that about 75% of the domestic water supply shall find its way

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into the proposed sewer. Sewer lines shall be laid to a gradient maintaining minimum 0.75 ft/sec self cleaning velocity. Sewer line upto 400 mm dia has been designed to run half full. However, in the present case, the maximum dia works out to 250 dia laid at 1in 195 Creating Velocity of 0.75 ft./Sec for peak flow. Necessary provision for laying S.W./~~RCC~~ pipe sewer line, construction of required number of manholes etc. has been made in the estimate.

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

STORM WATER DRAINAGE

NP·3

We propose to lay under ground R.C.C. pipe drains with required number of catch basins, manholes and rainwater harvesting pits / wells. Over flow of storm water will be connected to the proposed HUDA storm drain on sector road. The intensity of rain fall has been taken as ¼" per hour. R.C.C. storm water line will be designed as per Manning's formula. We propose to construct underground pipe drain which will be connecting rain water harvesting system for recharge aquifer and surplus storm water will be allowed to flow to the HUDA drain along sector dividing master road.

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 lighting on surrounding area has been made.

Horticulture

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

Rates

The estimate has been based on the present market rates.

Cost

~~751.20~~ 1393.84
~~573.08~~

The total cost of the schemes, including cost of all services works out to be Rs. **594.69** Lacs including 3% contingencies and 49% departmental charges which include Price Escalation & Deptt. Charges.

For _____

Authorized signatory

For Nani Resorts [illegible] Pvt. Ltd.

Authorised signatory

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PROJECT : AFFORDABLE GROUP HOUSING COLONY VILLAGE DHANKOT SEC-102, GURUGRAM (HR)

ESTIMATE FOR PROVIDING INTERNAL SERVICES e.g. WATER SUPPLY, FIRE, SEWERAGE & STORM WATER DRAINAGE ETC. IN RESPECT OF RESIDENTIAL PROJECT GROUP HOUSING HAVING LICENCE NO.11 OF 2014 DATE 10-06-2014 MEASURING 5.0 ACRE AND LICENCE NO.82 OF 2018 DATE 06-12-2018 MEASURING 4.1125 ACRE, TOTAL AREA 9.1125 ACRE IN SECTOR 102.

FINAL ABSTRACT OF COST

		Amount (Lacs.)
Sub Work - I Water Supply ~~Distribution System & Pumping Machinery.~~	292.45	~~193.95~~ ~~267.80~~
Sub Work - II (A) Sewerage	233.81	~~134.98~~ ~~158~~ 163.25
Sub Work - III Storm Water Drainage	94.20	~~49.34~~
Sub Work - IV Roads & Footpath	279.17	~~81.06~~ 111.25
Sub Work - V Street Lighting	34.96	~~20.98~~
Sub Work - VI - Horticulture	6.40	~~5.06~~
Sub Work - VII - Maintenance of Services for 10 years including resurfacing of roads after 1st 5 years & II phase i.e. 10 years of maintenance (as per HUDA norms)	452.83	~~409.33~~ ~~133.20~~
Total	1393.84	~~594.69~~ ~~672.08~~ ~~751.20~~
Per Acre		~~65.26~~ ~~73.75 Lacs per Acre~~ ~~82.45~~

~~(RUPEES FIVE CRORE NINETY FOUR LAC SIXTY NINE THOUSAND ONLY)~~

Say Rs 1393.84 lacs

Per Cost @ 1393.84 lacs / 9.1125 AC = 152.95 lacs

M/S NANI RESORTS & FLORICULTURE PVT. LTD.

For Nani Resorts [illegible] Pvt. Ltd.

Authorised signatory

Authorized Signatory

Director
Town and Country Planning,
Haryana, Chandigarh

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New Delhi-19

Checked subject to comments in forwarding letter No. ..... Dt. ..... and notes attached with the estimate

Executive Engineer
HSVP Division No.V
Gurugram

Superintending Engineer (HQ)
for Chief Engineer HSVP
Panchkula
31/7/19

Superintending Engineer
HUDA Circle No. I,
Gurgaon 31.

Addl. Chief Engineer
HSVP, Gurugram

PROJECT : AFFORDABLE GROUP HOUSING COLONY VILLAGE DHANKOT SEC-102, GURUGRAM (HR)

ESTIMATE FOR PROVIDING INTERNAL SERVICES e.g. WATER SUPPLY, FIRE, SEWERAGE & STORM WATER DRAINAGE ETC. IN RESPECT OF RESIDENTIAL PROJECT GROUP HOUSING HAVING LICENCE NO.11 OF 2014 DATE 10-06-2014 MEASURING 5.0 ACRE AND LICENCE NO.82 OF 2018 DATE 06-12-2018 MEASURING 4.1125 ACRE, TOTAL AREA 9.1125 ACRE IN SECTOR 102.

Sub Work - I (ABSTRACT OF COST)

Water Supply Distribution System & Pumping Machinery	Amount (Lacs.)	
Sub head I. Water Supply & ~~Fire Fighting~~ Head works	68.75 ~~38.34~~	~~86.45~~
Sub head II. Water Supply Pumping machinery	52.0 ~~24.19~~	
Sub head III. Water Supply Distribution Dom./Rising main	34.04 ~~32.79~~	
Sub head IV. Water Supply Irrigation cum Flushing	15.44 ~~3.92~~	
Sub head V. Fire Scheme	20.37 ~~27.14~~	
Total	190.56 ~~126.38~~	~~174.49~~
Adding 3% ~~for~~ Contingencies Es PE charges	5.72 ~~3.79~~	~~5.24~~
Total	196.28 ~~130.17~~	~~179.73~~
Adding 49% departmental charges & price escalation etc	96.17 ~~63.78~~	~~88.07~~
Say	291.45 ~~193.95~~ Lacs	
Engineer, Admn	~~261.80~~	

C.O to find abstract of cost

For Nani Resorts and Horticulture Pvt. Ltd.

Authorised signatory

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PROJECT : AFFORDABLE GROUP HOUSING COLONY VILLAGE DHANKOT SEC-102, GURUGRAM (HR)

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	Sub Work I			Water Supply & Fire fighting		
	Sub Head No. I				Head	Works
S. No.	Description	Unit	Qty	Rate	Amount (in Lakhs)	
1	Boring & installing tubewell with rotary ring complete with 100mm dia pipe and strainer to a depth of about 120mts in all respect	Nos.	2	1000000 ~~200000~~	~~14.00~~ 20.0 ~~4.00~~	
2	Provision og rising main, connecting tube well with water main and by pass arrangements				3.0	
a	100mm dia UPVC Pipe	Mtr.	240	1250 ~~500~~	~~1.20~~	
3	Providing Tubewell submersible pumps capacity : 14000 LPH at 80 mtr head (~~7.5HP~~) 10 HP	Nos.	2	~~65000~~ 2.0	4.0 ~~1.30~~	
4	Provision for carriage for materials and other un-forseen items	LS	-	-	0.50	
5	Provision for chlorination plant	LS	-	-	1.00	
6	Construction of UG tanks 700 KLD incl. 450 + 250 KL 250 KL for fire and 250 KL for flushing	KLD	950 ~~1030~~ near STP	~~6500~~ ~~2800~~ 3500	~~28.84~~ 33.25	66.95
7	Provision of construction of tubewell chambers of size 1.5x1.5x1.5 mtrs for housing tubewell	Nos.	2	175000	3.50	
8	Const of boosting chamber of suitable size				5.0	
	(C.O. to abstract of cost of Sub-work No.I)				~~38.34~~	~~86.45~~

as per P.H. Dep. 68.78

For Nani Resorts and Floriculture Pvt. Ltd.

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PROJECT : AFFORDABLE GROUP HOUSING COLONY VILLAGE DHANKOT SEC-102, GURUGRAM (HR)

ESTIMATE FOR PROVIDING INTERNAL SERVICES e.g. WATER SUPPLY, FIRE, SEWERAGE & STORM WATER DRAINAGE ETC. IN RESPECT OF RESIDENTIAL PROJECT GROUP HOUSING HAVING LICENCE NO.11 OF 2014 DATE 10-06-2014 MEASURING 5.0 ACRE AND LICENCE NO.82 OF 2018 DATE 06-12-2018 MEASURING 4.1125 ACRE, TOTAL AREA 9.1125 ACRE IN SECTOR 102.

S. No.	Description	Unit	Qty	Rate	Amount	
	Sub Work I					
	Sub Head No. II			Pumping Machinery		
					(in Lakhs)	
1	Providing & installing electricity driven pumping set capable of delivering 850 LPM of water against a total head of 60m complete with motor and other accessories (For Domestic - 25 HP each). -Do- 500 lpm, 60m Head 12.50 HP for flushing water	Nos.	2+1 (~~2~~)	2.50 lacs (~~165000~~)	7.50 lacs (~~3.30~~)	
			2+1	1.00 lac	3.00 lacs	
2	Provision for diesel engine generator set each for standby Arrangements for booster pump complete with gear haed arrangements of following capacities			(L.S)	12.50 lacs	
	1 No. - 82.5 KVA	Nos.	1	~~540000~~	~~5.40~~	
3	Providing & installing pumping set of following capacities for fire protection:					
i)	180 LPM @ 88 M Head (10 HP)	Nos.	2	1.50 (~~114000~~)	3.00 (~~2.28~~)	
ii)	2280 LPM @ 88 M Head (75 HP) Hydrant	Nos.	2	6.00 (~~178000~~)	12.00 (~~3.56~~)	
iii)	2280 LPM @ 88 M Head (DG Pump) (97 HP)	Nos.	1 (~~2~~)	7.50 (~~345000~~)	7.50 (~~6.90~~)	
4	Provision for making foundations & erection of pumping machinery	LS	-	-	1.00	
5	Provision for pipes, valves & specials inside the pump chamber.	LS	-	-	2.00 (~~1.00~~)	
6	Provision for carriage for materials and other unforeseen items	LS	-	-	1.00 (~~0.75~~)	
7	Prov for electric service connection for boosting stn., T.W pump incl. cost of transformer (L.S)				2.50 la	
	(C.O. to abstract of cost of Sub-work No.I)				52.00 la (~~24.19~~)	

For Nani Resorts and Floriculture Pvt. Ltd.

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PROJECT : AFFORDABLE GROUP HOUSING COLONY VILLAGE DHANKOT SEC-102, GURUGRAM (HR)

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S. No.	Description	Unit	Qty	Rate	Amount	
	Sub Work I	Water Supply Distribution System /Rising Main				
	Sub Head No. III					
	Description	Unit	Qty	Rate	Amount	
i)	Providing, laying, jointing and testing pipe lines including cost of complete in all respects 100 mm dia ~~ASTM~~ pipe DI	Mt.	~~244~~ 524	~~1050~~ 1575	~~2,56,200~~ 8.19	
ii)	Providing, laying, jointing and testing pipe lines including cost of complete in all respects 80 mm dia ~~ASTM~~ pipe DI	Mt.	~~1905~~ 1383	~~700~~ 1251	~~13,33,500~~ 17.31	
iii)	~~Providing, laying, jointing and testing pipe lines including cost of complete in all respects 65 mm dia ASTM pipe~~	~~Mt.~~	~~880~~	~~620~~	~~5,45,600~~	
iv)	~~Providing, laying, jointing and testing pipe lines including cost of complete in all respects 50 mm dia ASTM pipe~~	~~Mt.~~	~~550~~	~~315~~	~~1,73,250~~	
v)	~~Providing, laying, jointing and testing pipe lines including cost of complete in all respects 40 mm dia ASTM pipe~~	~~Mt.~~	~~550~~	~~250~~	~~1,37,500~~	
	Prov for fixing sluice valve & air valve (L.S)				3.60	
vi)	Providing, laying, jointing and testing pipe lines including cost of complete in all respects 150 mm & 100 mm					
	(From HUDA supply)				1.25	
	100 mm dia pipe DI kg pipe	Mt.	100	1200	~~1,20,000~~	
	1.Providing and fixing indicating plates for sluice valve and air valces	Nos.	25	5000	~~1,25,000~~ 0.25	
	2. Providing and fixing air release valve and scour valve	Nos.	5	~~7500~~ 10000	~~37,500~~ 0.50	
	3. Provision for carriage for materials and other unforeseen items(L/S)	L/s			50,000	
	4.Providing for making water supply connection in HUDA (line) on master Road	L/s			5,00,000 2.00	
	Total Rs.				32,78,550	34.0 lacs
	Prov for cutting of roads & making good to tb in original condition (L.S)					
	Say				~~32.79~~	Lacs
	HUDA –A					
	Material Statement	HUDA -A				
	Line	A – U.G. Tank				
	Daily domestic demand – This include half days storage capacity of O.H.T. (in KL)	657				
	Length (Mtr.)	100				
	Dia (MM)	(100 MM)				
	Friction loss in line (M) L.S	5				
	Velocity (M/S)	1.5m				

For Nani Resorts and Floriculture Pvt. Ltd.

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PROJECT : AFFORDABLE GROUP HOUSING COLONY VILLAGE DHANKOT SEC-102, GURUGRAM (HR)

ESTIMATE FOR PROVIDING INTERNAL SERVICES e.g. WATER SUPPLY, FIRE, SEWERAGE & STORM WATER DRAINAGE ETC. IN RESPECT OF RESIDENTIAL PROJECT GROUP HOUSING HAVING LICENCE NO.11 OF 2014 DATE 10-06-2014 MEASURING 5.0 ACRE AND LICENCE NO.82 OF 2018 DATE 06-12-2018 MEASURING 4.1125 ACRE, TOTAL AREA 9.1125 ACRE IN SECTOR 102.

	Sub Work I					
	Sub Head No. IV	Water Supply irrigation / Flushing water line				
S. No.	Description	Unit	Qty	Rate	Amount	
1.	Providing, laying, jointing and testing UPVC pipe lien confirming to IS4985 including cost of excavation etc. complete in all respect.					
a) 2.4	25 mm dia (CPVC) Hydrant line	Mt.	~~200~~ (0.5)	~~150~~	~~30,000~~ 0.5%	
a) 1	~~65~~ mm dia SW Pipe	Mt.	1020	~~240~~ 125%	~~2,44,800~~ 12.75	
2.	Providing and fixing 20 mm dia. Irrigation hydrant valve complete in all respect. 34 Nos.@Rs 500/each	Nos.	34	3500	~~17,000~~ 1.19	
3.	Provision for carriage of Material and other as foreseen item				1,00,000	
	TOTAL				15.44 Lacs ~~3,91,800~~	
	Say					
	(C.O. to Abstract of Cost of Sub Work No. I)				~~3.92~~	Lacs

For Nani Resorts and Agriculture Pvt. Ltd.

Authorised signatory

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PROJECT : AFFORDABLE GROUP HOUSING COLONY VILLAGE DHANKOT SEC-102, GURUGRAM (HR)

ESTIMATE FOR PROVIDING INTERNAL SERVICES e.g. WATER SUPPLY, FIRE, SEWERAGE & STORM WATER DRAINAGE ETC. IN RESPECT OF RESIDENTIAL PROJECT GROUP HOUSING HAVING LICENCE NO.11 OF 2014 DATE 10-06-2014 MEASURING 5.0 ACRE AND LICENCE NO.82 OF 2018 DATE 06-12-2018 MEASURING 4.1125 ACRE, TOTAL AREA 9.1125 ACRE IN SECTOR 102.

	Sub Work I	Fire Scheme				
	Sub Head No. V					
S. No.	Description	Unit	Qty	Rate	Amount	
1.	Providing, laying, jointing and testing M.S. pipes lines for fire rising main including cost of fittings, valves, connection etc. complete in all respect.					
				1575	16.07	
	(i) 150 mm M.S. pipe line	Mt.	1020	~~1250~~	~~12,75,000~~	
					0.35 lacs	
	(ii) 80 mm i/d	Mt.	50	~~900~~	~~45,000~~	
2.	Providing and fixing sluice valve 150 mm dia	Nos.	2	~~12~~000	~~24,000~~	
					0.30	
3.	Providing and fixing fire hydrant	Nos.	~~25~~ ~~12~~	10000	~~12,60,000~~	
					2.52 lacs	
4.	Providing for carriage of material as other Unforeseen items (I. S)				1,00,000	
					0.27 lacs	
5	Providing for indication plates	Nos.	~~27~~ 25	1600	~~10,200~~	
	Total cost of abstract of cost for Subwork No.1					
					20.37 lacs	
	Total				~~27,14,200~~	
	Say				~~27.14 Lacs~~	
	(C.O. to Abstract of cost in sub work no –I)					

Fire Fighting External - Material Statement

Sl. No.	Name of Pipe Line	Dia (MM)	Length
1	Fire Main Ring (03 Hydrants)	150	~~740~~ 1020
2	Fire Hydrant 80 Dia	80	~~25.5~~ 50

For Nani Resorts and Horticulture Pvt. Ltd.

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PROJECT : AFFORDABLE GROUP HOUSING COLONY VILLAGE DHANKOT SEC-102, GURUGRAM (HR)

ESTIMATE FOR PROVIDING INTERNAL SERVICES e.g. WATER SUPPLY, FIRE, SEWERAGE & STORM WATER DRAINAGE ETC. IN RESPECT OF RESIDENTIAL PROJECT GROUP HOUSING HAVING LICENCE NO.11 OF 2014 DATE 10-06-2014 MEASURING 5.0 ACRE AND LICENCE NO.82 OF 2018 DATE 06-12-2018 MEASURING 4.1125 ACRE, TOTAL AREA 9.1125 ACRE IN SECTOR 102.

	Sub Work II	Sewerage Scheme				
S. No.	Description	Unit	Qty	Rate	Amount	
1	Providing, laying and jointing glazed stone ware pipes as per specifications i/c excavation, bed conc. encasement /cradle section with C.C., also i/c testing etc and construction of man holes etc complete.			1350		
a)	250 dia pipe for depth 0 to 3.0 m	Mt.	1359	~~1,100~~	~~14,94,900~~	1834650
b)	Provision for carriage of pipes, road cuts & making good of roads.	L.S.			2,00,000	
c)	Provision for vent shafts	L.S.			2,50,000	
d)	Provision for centring & shuttering, shoring & barricading.	L.S.			2,00,000	
e)	Provision for watch & ward & lighting etc.	L.S.			50,000	
f)	Provision for ~~temparary disposal arrangements~~ 150 mm dia over flow line from STP to HUDA line	L.S.			4,00,000	
g)	Providing for Making connection with HUDA Master Sewer line	LS			5,00,000	
h)	Constuction of STP Capacity 1000KLD upto dorking level			125	60,00,000	750000
	Total			152.35	~~87,94,900~~	~~10299400~~ 10634650.00
	Adding 3% for Contingencies PE shafts			4.57	~~2,63,847~~	~~308847~~ 319039.50
	Total			156.92	~~90,58,747~~	~~10603747~~ 10953689.50
				76.89		~~5367730.86~~
	Adding 49% departmental charges & price escalation etc			233.81 lac	~~44,38,786~~	~~5195836~~
					~~1,34,87,533~~	~~15799583~~ 16320998.00
	Say				~~134.98~~	Lacs
					~~135.00~~	

+63.25

For Nani Resorts [illegible] Pvt. Ltd.

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PROJECT : AFFORDABLE GROUP HOUSING COLONY VILLAGE DHANKOT SEC-102, GURUGRAM (HR)

ESTIMATE FOR PROVIDING INTERNAL SERVICES e.g. WATER SUPPLY, FIRE, SEWERAGE & STORM WATER DRAINAGE ETC. IN RESPECT OF RESIDENTIAL PROJECT GROUP HOUSING HAVING LICENCE NO.11 OF 2014 DATE 10-06-2014 MEASURING 5.0 ACRE AND LICENCE NO.82 OF 2018 DATE 06-12-2018 MEASURING 4.1125 ACRE, TOTAL AREA 9.1125 ACRE IN SECTOR 102.

	Sub Work - III	Storm Water Drain				
S. No.	Description	Unit	Qty	Rate	Amount	
1	Providing, laying and jointing S & S RCC pipes with rubber ring joints as per specifications i/c excavation bed & cradle section cove, also manholes & testing etc complete	NP 3			34.88	
a)	300 dia RCC pipes Class NP 3	Mt.	1395	~~1,050~~ 2500	~~14,64,750~~	
b)	Provision for carriage of pipes, road cutting & road restoration etc.	L.S.			2,50,000	
c)	Provision of centring, shuttering shoring & barricading	L.S.			2,50,000	
d)	Provision for watch & ward & lightings etc	L.S.			1,00,000	
e)	For rain harvesting wells	Nos.	5	150000	~~7,50,000~~ 12.50	
f)	Provision of temporary arrangement for services till HUDA Services are made available	L.S.			4,00,000 4.0	
	Total — h & i please see below				~~32,14,750~~	61.38 lacs
	Adding 3% for Contingencies				~~96,443~~	1.84 lacs
	Total				~~33,11,193~~	
						63.22 lac
	Adding 49% departmental charges & price escalation etc				~~16,22,484~~	30.98 lacs
					~~49,33,677~~	94.20 lac
	Say				~~49.34~~	Lacs

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h) Provision for storm water connection with sump — line on master road (LS) 1.0 lac

i) Provision for road gullies with pipe connection 300 mm d (LS) 3.00 lcs

4.0 lac

PROJECT : AFFORDABLE GROUP HOUSING COLONY VILLAGE DHANKOT SEC-102, GURUGRAM (HR)

ESTIMATE FOR PROVIDING INTERNAL SERVICES e.g. WATER SUPPLY, FIRE, SEWERAGE & STORM WATER DRAINAGE ETC. IN RESPECT OF RESIDENTIAL PROJECT GROUP HOUSING HAVING LICENCE NO.11 OF 2014 DATE 10-06-2014 MEASURING 5.0 ACRE AND LICENCE NO.82 OF 2018 DATE 06-12-2018 MEASURING 4.1125 ACRE, TOTAL AREA 9.1125 ACRE IN SECTOR 102.

Sub Work IV — Road Work

S. No.	Description	Unit	Qty	Rate	AMOUNT	
1	Provision for leveling, earth filling compaction as per specification as per site conditions	Acre	9.1125	~~75000~~ 1.50	~~6.83~~ 13.67	Lacs
2	The necessary provision for construction of roads, parks etc Has been made in the estimate according to HUDA norms					
	The following specifications has been proposed :					
i)	Construction of roads by providing granular sub base 800 mm as per MORT & H cs 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 n 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)	50 mm thick B.M.					
iv)	20 mm thick mix seal surfacing	Sqmt.	~~7869.5~~ 7870	~~550~~ 800 1200	~~43.28~~ 9.45 94.44	Lacs
3	Provision of kerbs and channels	Mt.	~~1375.50~~ 1375	~~400~~ 600	~~0.20~~ 8.25	Lacs
4	Provision for making approach and pavement to each block of building , Traffic Control	L.S.			~~1.5~~ 10.000	Lacs
5	Provision for parking arrangement (L.S.)	~~L.S.~~	8925 Sqm GnL		~~0.5~~ 1.85 53.55	Lacs
6	Provision for carriage of materials , Guide map	L/S			~~0.5~~ 2.00	Lacs
	Total			~~72.50~~	~~52.82~~	Lacs 181.91 Lacs
	Add 3% contingencies and P & charges			~~2.18~~	1.584	Lacs 5.45 Lacs
	Total			~~74.68~~	~~54.401~~	Lacs 187.36 Lacs
	Add 49% departmental charges, price escalation. Unforeseen admn			~~36.59~~	~~26.657~~	Lacs 91.81 Lacs
	Total			~~111.27~~	81.058	Lacs 279.17 Lacs
	Say (Carry over to final abstract of cost)			~~111.25~~	81.058	Lacs

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PROJECT : AFFORDABLE GROUP HOUSING COLONY VILLAGE DHANKOT SEC-102, GURUGRAM (HR)

ESTIMATE FOR PROVIDING INTERNAL SERVICES e.g. WATER SUPPLY, FIRE, SEWERAGE & STORM WATER DRAINAGE ETC. IN RESPECT OF RESIDENTIAL PROJECT GROUP HOUSING HAVING LICENCE NO.11 OF 2014 DATE 10-06-2014 MEASURING 5.0 ACRE AND LICENCE NO.82 OF 2018 DATE 06-12-2018 MEASURING 4.1125 ACRE, TOTAL AREA 9.1125 ACRE IN SECTOR 102.

	Sub Work V	Street Lighting				
S. No.	Description	Unit	Qty	Rate	Amount	
	1. Providing street lighting on roads as per standard specifications of HVPN approx. with CFL	Acre	9.1125	250000	~~13,66,875~~ 22.78	Lacs
	Add 3% contingencies and PC Charges			Rs.	0.68 ~~41,006~~	
	Total				~~14,07,881~~ 23.46 Lacs	
	Add 49% Departmental charges, Price Escalation, Unforeseen Adm			Rs.	~~6,89,862~~ 11.49 Lacs	
	Total				~~20,97,743~~ 34.95 Lacs	
	Carry Over to Final Abstract of Cost				~~20.98~~ Lakhs	

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PROJECT : AFFORDABLE GROUP HOUSING COLONY VILLAGE DHANKOT SEC-102, GURUGRAM (HR)

ESTIMATE FOR PROVIDING INTERNAL SERVICES e.g. WATER SUPPLY, FIRE, SEWERAGE & STORM WATER DRAINAGE ETC. IN RESPECT OF RESIDENTIAL PROJECT GROUP HOUSING HAVING LICENCE NO.11 OF 2014 DATE 10-06-2014 MEASURING 5.0 ACRE AND LICENCE NO.82 OF 2018 DATE 06-12-2018 MEASURING 4.1125 ACRE, TOTAL AREA 9.1125 ACRE IN SECTOR 102.

	Sub Work VI				Horticulture	
S. No.	Description	Unit	Qty	Rate	Amount	
1	Development of lawn area					
	a) Trenching the ordinary soil upto depth of 60 cm.Including removal & packing of serviceable material & disposing at a lead of 50 M and making up the trenched area to prope level by filling with earth mixed with manure befor & after flodding trench with water including cost of imported earth & manure					
	b) Rough dressing of trenched area.					
	c) Grassing including watering & maintenance of lawns free from weeds & fit for mowing in rows including hedges, shrubs & green belts (as per HUDA Norms)					
	1.4 acres @ Rs. 1.50 lacs/acre. 5563.20 sqm	per acre	1.40	150000	2,10,000	
2	Provision of trees, guards and planting trees along road at 12M intervals.	Tress	160	~~750~~ 1300	~~1,20,000~~ 2.08	
	Sub				~~3,30,000~~	4.18
	Add 3% contingency charges				~~9,900~~	0.12
				Total	~~3,39,900~~	4.30
	Add 49% Deptt. Charges, price escalation				~~1,66,551~~	2.10
	Unforseen, Delhi			Total	~~5,06,451~~	
			say		~~5.06~~	Lacs
						6.40

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Cost detail

excavation = 60.-
manure = 90.-
Tree plant = 150.-
Tree guard = 1000
1300

PROJECT : AFFORDABLE GROUP HOUSING COLONY VILLAGE DHANKOT SEC-102, GURUGRAM (HR)

ESTIMATE FOR PROVIDING INTERNAL SERVICES e.g. WATER SUPPLY, FIRE, SEWERAGE & STORM WATER DRAINAGE ETC. IN RESPECT OF RESIDENTIAL PROJECT GROUP HOUSING HAVING LICENCE NO.11 OF 2014 DATE 10-06-2014 MEASURING 5.0 ACRE AND LICENCE NO.82 OF 2018 DATE 06-12-2018 MEASURING 4.1125 ACRE, TOTAL AREA 9.1125 ACRE IN SECTOR 102.

	Sub Work VII				Maintenance Charges & Resurfacing of Roads	
S. No.	Description	Unit	Qty	Rate	Amount (Rs.)	
1	Provision for maintenance charges for water supply, sewerage, storm water draienage, roads, street light, horticulture etc. complete including operation & establishments charges as per HUDA norms after completion & resurfacing of roads after 10 years or 1st phase.				68.34	
	9.1125 acres @ 3.5 lacs per acre	per acre.	9.113	350000	31,89,375	
2	Provision for resurfacing & strengthening of road after five years of Ist phase	Sq. mtr.	7869.5 + 8925 = 16794	200 / 400 / 600	15,73,900 / 100.76	9147800
3	Provision for resurfacing & strengthening of road after ten years of 2nd phase	Sq. mtr.	7869.5 + 8925 = 16794	300 / 750	23,60,850 / 125.96	
				Total	71,24,125 / 295.06	8698096
	Add 3% contingency & PE charges				2,13,724 / 8.85	260960
				Total	73,37,849 / 303.91	8958965
	Add 49% Departmetal charges				35,95,546 / 148.92	4389893
				Total	1,09,33,395	13348858
			say		109.33 / 452.83 / 133.50	Lacs

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	PROJECT : AFFORDABLE HOUSING AT MANESAR, GURGAON.				
	PROJECT REPORT / ESTIMATES FOR PROVIDING INTERNAL SERVICES e.g. WATER SUPPLY, FIRE, SEWERAGE & STORM WATER DRAINAGE ETC. IN RESPECT OF RESIDENTIAL PROJECT GROUP HOUSING HAVING LICENCE NO.11 OF 2014 DATE 10-06-2014 MEASURING 5.0 ACRE AND LICENCE NO.82 OF 2018 DATE 06-12-2018 MEASURING 4.1125 ACRE, TOTAL AREA 9.1125 ACRE IN SECTOR 102 VILLAGE DHANKOT,				
1)					
a)	**Fire demand (as per NBC)**		**250**	KL	
b)	**Total Water Demand**		~~807~~	KL 805.87 ㎘ Say 807 ㎘	
c)	**Tubewells**				
	Yeild		14	Kl/hr	
	Working hours per day		16	hrs.	
	50% Total water demand		403.50	(Cum/Min)	
	No. of tube wells required		1.80		
	~~Add 10% as stand by~~		~~0.18~~		
	Total		1.98		
	Say		**2**	**Nos.**	
2					
a)	**Pumpng machinery for Tube Wells**				
b)	Gross working head		70	Meter	
	Average fall in S.L.		5	Meter	
c)	Depression Head		5	Meter	
d)	Friction loass in main		10	Meter	
e)	Total		90	Meter	
	Discharge		14000	LPM	
	Horse Power		~~6.38~~ 1.78	HP	
	(HP=~~(14000x1)/60x06075x0.6~~				
		14000 x 90 / 6676 x 75 x 0.60	10.0		
	Say		**7.5**	**HP**	
3	**Underground and overhead Tank**				
	Total Domestic water demand daily			807	m3/day
i	Proposed underground tank for domestic use(~~2~~/3 day storage)			403.50 ~~538~~	m3/day
ii	Proposed overhead tank for domestic use(1/~~3~~2 day storage)			403.50 ~~269~~	m3/day

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iii	Minimum static storage for Fire as per NBC	250	m3
		~~480~~	
4	Total flushing water demand	~~469~~	m3/day
iv	Proposed underground tank for flushing use(half day storage)	~~235~~ 240	m3/day
v	Proposed overhead tank for flushing use(1/~~3~~ 2 day storage)	~~156~~ 240	m3/day
5	**HUDA Main Water supply calculation**		
a)	Required fresh water per day	807	m3/day
b)	Supply Duration	20	Hrs.
c)	Line flow rate	0.67	Cum/min
	Proposed line dia	100	mm
	Flow velocity	0.8	m/sec
	friction head loss/1000m	13.31	Mtr.
	Length of line	100	Mtr.
	Total head loss	1.33	Mtr.
6	**Pumps For Domestic water Supply**		
	Domestic water requirement per day	807	m3/day
	Pumping Duration per day	~~14~~ 8	hrs. 1000.87 KLH/2 = 50.437 KLH or 840.62 LPM Say 850 LPM
	Clear head required	50	Mtr.
	Friction head loss	15	Mtr.
	Total head	65	Mtr.
	Discharge of pump	~~960.714~~ Say 960 850	LPM
		20.46	
	Power Required	~~21.4~~	HP
	Say	25	HP
	It is proposed to provide domestic water transfer pumps (2w+1s) of capacity ~~500~~ 850 LPM at ~~70~~ 65 mt. Head.		
7	**Pumps For Flushing water Supply** enc 1. Hydt. Reg.		

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	Flushing water requirement per day			469	m3/day
	Pumping Duration per day			14	hrs.
	Clear head required			45	Mtr.
	Friction head loass			15	Mtr.
	Total head loass			60	Mtr.
	Discharge of pump			558.333	Say 560 LPM
	Power Required			11.02	HP
	Say			11	HP
	It is proposed to provide flushing water transfer pumps (1w+1s) of capacity 560LPM at 60mt. Head.				

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Gen set

Tw 2×10 = 20 HP

Door Pump 2×25 = 50 HP

Flushing water Pump 2×12.50 = 25.0 HP

Lighting etc = 10.0 HP

105 HP

105 × 0.746 × 1.50 = 117.49 KVA

Add 10% extra = 11.75 KVA

129.24 KVA

Say = 130 KVA

PROVIDING INTERNAL DEVELOPMENT WORKS IN CONSTRUCTION OF PROPOSED AFFORDABLE GROUP HOUSING COLONY VILLAGE DHANKOT, (SECTOR -102) GURUGRAM, HARYANA, MEASURING 9.1125 ACRES IN PROJECT: DEVELOPED BY M/s. NANI RESORT AND FLORICULTURE PVT. LTD.

WATER DEMAND CALCULATION

	DESIGN CALCULATIONS				
No. of Units	No. of floors	No. of BLK	Units/ BLK	Total Units	Density
Tower A	Stilt +14	1BHK	68	68	340
		2BHK	156	156	780
Tower B	Stilt +14	1BHK	68	68	340
		2BHK	156	156	780
Tower C	Stilt +14	1BHK	68	68	340
		2BHK	156	156	780
Tower D	Stilt +14	1BHK	36	36	180
		2BHK	80	80	400
Tower I	Stilt +11	2 BHK	4	4	20
		3 BHK	40	40	200
Tower J	Stilt +14	3 BHK	116	116	580
Tower J	Stilt +14	3 BHK	114	114	570
Tower K	Stilt +14	3 BHK	116	116	580
Tower L	Stilt +14	3 BHK	116	116	580
Tower M	Stilt +14	3 BHK	114	114	570
Tower N	Stilt +12	3 BHK	19	19	95
	TOTAL DENSITY			1427	7135

For Nani Resorts and Floriculture Pvt. Ltd.

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DETAILS OF DAILY WATER CONSUMPTION

DOMESTIC WATER DEMAND

S.NO.	Description	Total water demand	Domestic Water	Flushing/ Recycled Water	Input to STP @80% of total water
1	Water requirement @ 172.5 Lit/person for residence(as per HUDA). Number of person per flat is 5. Total number flat is 1427. Total number of occupant is 7135. (112.5 litre Domestic because 60 litre flushing as per HUDA)	1230787.5	802687.5	428100	984630
2	Water requirement @ 15 Lit/person for 243 visitors of shop. Total area 1460.64 sq.mtr. occupant load @ 6 sq.mtr.10%/visitor (Dom. Water: 35%, Flushing: 65%)	3645	1275.75	2369.25	2916
3	Water requirement @ 45 Lit/person for 50 person (of Creche) .Total area 203.03 sq.mtr. occupant load @ 4 sq.mtr./person (Dom. Water: 35%, Flushing: 65%)	2250	788	1463	1800
4	Water requirement @ 45 Lit/person for 62 person (Community Hall) .Total area 186.02 sq.mtr. occupant load @ 3 sq.mtr./person (Dom. Water: 35%, Flushing: 65%)	2790	977	1814	2232
5	Water requirement @ 45 Lit/person for 90 person (Commercial) .Total area 905 sq.mtr. occupant load @ 10 sq.mtr./person (Dom. Water: 35%, Flushing: 65%)	4050	1418	2633	3240
6	Horticulture / Irrigation @ ~~4~~ 6.17 lit/sqmt/day. (for 5563 sqmt).	~~22252~~ 34324	-	~~22252~~ 34324	-
7	Domestic softener and filter backwash @10minute & double flow	10548	8058.8	10548 / 478881	8438
	Sub Total	~~1276322.5~~	~~807145~~	~~469178~~	~~1003256~~
	Total Domestic Water Requirement excluding Recycled water	1284749.80	807145		1000340
	Gross Water Requirement including Recycled water	1276323			
	Total STP Input	~~1003256~~ 1000340			
	STP Output @80% Utilization Factor	~~802605~~ 800272			
	STP CAPACITY 20% Higher	1000KLD			

For Nani Resorts and Hospitality Pvt. Ltd.

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PROJECT : AFFORDABLE GROUP HOUSING COLONY (VILLAGE DHANKOT)SEC-102, GURUGRAM (HR)

Formula used - Rational	
	Q = 10 C I A
C	Coefficient of Run off, Av. Value of 'C' taken as 0.9
I	Intensity of Rain Fall - 45 mm per hour
A	Area in Hectares

STORM WATER DESIGN

4-Mar-19

Sr.No	NODE NO.	Line Length (M)	Total Area (m2)	Total Area (Hectare)	Total Self Flow Q=10CIA (m3/Hr)	Contribution from other Area/ Line (M3/Hr)	Total Flow in Line (M3/ Hr)	Absorption in R.W.H.Pit (M3/ Hr) 20%	Balance Flow in Line (M3/ Hr) Flow after Absorption into R.W.H	Balance Flow in Line (M3/Sec)	Size of Pipe Dia in mm	Velocity (m/sec)	Gradient	Fall in MM	Ground Level in (+)MM	Invert at Start in (-) MM	Invert at End in (-)MM	Depth of M.H. in MM	Size of M.H.
1	2	3	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
2	MH - 1 to 2	21.200	578	0.058	18.207		18.207		18.207	0.005	400	0.77	1 in 350	61	450	-750	-811	1200	900 DIA
3	MH - 2 to 3	24.000	350	0.035	11.025	18.207	29.232		29.232	0.008	400	0.77	1 in 350	69	450	-811	-879	1261	900 DIA
4	MH - 3 to 4	17.800	301	0.030	9.482	29.232	38.714		38.714	0.011	400	0.77	1 in 350	51	450	-879	-930	1329	900 DIA
5	MH - 4 to 5	17.600	261	0.026	8.222	38.7135	46.935		46.935	0.013	400	0.77	1 in 350	50	450	-930	-980	1380	900 DIA
6	MH - 5 to 6	10.000	162	0.016	5.103	46.935	52.038		52.038	0.014	400	0.77	1 in 350	29	450	-980	-1009	1430	900 DIA
7	MH - 6 to 7	19.400	409	0.041	12.884	52.038	64.922		64.922	0.018	400	0.77	1 in 350	55	450	-1009	-1064	1459	900 DIA
8	MH - 7 to 8	23.800	250	0.025	7.875	64.9215	72.797		72.797	0.020	400	0.77	1 in 350	68	450	-1064	-1132	1514	900 DIA
9	MH - 8 to 9	17.900	215	0.022	6.773	72.7965	79.569		79.569	0.022	400	0.77	1 in 350	51	450	-1132	-1183	1582	900 DIA
10	MH - 9 to 10 I/C RWHP-01	18.700	325	0.033	10.238	79.569	89.807	17.961	71.845	0.020	400	0.77	1 in 350	53	450	-1183	-1237	1633	900 DIA
11	MH - 10 to 11	21.500	480	0.048	15.120	71.8452	86.965		86.965	0.024	400	0.77	1 in 350	61	450	-1237	-1298	1687	1200 DIA
12	MH - 11 to 12	19.600	438	0.044	13.797	86.9652	100.762		100.762	0.028	400	0.77	1 in 350	56	450	-1298	-1354	1748	1200 DIA
13	MH - 12 to 13	19.300	524	0.052	16.506	100.7622	117.268		117.268	0.033	400	0.77	1 in 350	55	450	-1354	-1409	1804	1200 DIA
14	MH - 13 to 14	20.700	499	0.050	15.719	117.2682	132.987		132.987	0.037	400	0.77	1 in 350	59	450	-1409	-1469	1859	1200 DIA
15	MH - 14 to 15	21.500	591	0.059	18.617	132.9867	151.603		151.603	0.042	400	0.77	1 in 350	61	450	-1469	-1530	1919	1200 DIA

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Sr.No	NODE NO.	Line Length (M)	Total Area (m2)	Total Area (Hectare)	Total Self Flow Q=10CIA (m3/Hr)	Contribution from other Area/ Line (M3/Hr)	Total Flow in Line (M3/ Hr)	Absorption in R.W.H.Pit (M3/ Hr) 20%	Balance Flow in Line (M3/ Hr) Flow after Absorption into R.W.H	Balance Flow in Line (M3/Sec)	Size of Pipe Dia in mm	Velocity (m/sec)	Gradient	Fall in MM	Ground Level in (+)MM	Invert at Start in (-) MM	Invert at End in (-)MM	Depth of M.H. in MM	Size of M.H.
1	2	3	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
16	MH - 15 to 16	19.000	210	0.021	6.615	151.6032	158.218		158.218	0.044	400	0.77	1 in 350	54	450	-1530	-1584	1980	1200 DIA
17	MH - 16 to 17	16.500	325	0.033	10.238	158.2182	168.456		168.456	0.047	400	0.77	1 in 350	47	450	-1584	-1631	2034	1200 DIA
18	MH - 17 to 23	17.000	210	0.021	6.615	168.4557	175.071		175.071	0.049	400	0.77	1 in 350	49	450	-1631	-1680	2081	1200 DIA
19	MH - 18 to 19	21.500	340	0.034	10.710		10.710		10.710	0.003	400	0.77	1 in 350	61	450	-750	-811	1200	900 DIA
20	MH - 19 to 20	25.500	193	0.019	6.080	10.71	16.790		16.790	0.005	400	0.77	1 in 350	73	450	-811	-884	1261	900 DIA
21	MH - 20 to 21	19.300	134	0.013	4.221	16.7895	21.011		21.011	0.006	400	0.77	1 in 350	55	450	-884	-939	1334	900 DIA
22	MH - 21 to 22	12.800	501	0.050	15.782	21.0105	36.792		36.792	0.010	400	0.77	1 in 350	37	450	-939	-976	1389	900 DIA
23	MH - 22 to 23	16.500	438	0.044	13.797	36.792	50.589		50.589	0.014	400	0.77	1 in 350	47	450	-976	-1023	1426	900 DIA
24	MH - 23 to 24	14.500	276	0.028	8.694	225.6597	234.354		234.354	0.065	400	0.77	1 in 350	41	450	-1023	-1065	1473	900 DIA
25	MH - 24 to 25 I/C RWHP-02	12.000	390	0.039	12.285	306.1989	318.484	63.697	254.787	0.071	400	0.77	1 in 350	34	450	-1680	-1714	2130	1200 DIA
26	MH - 25 to 26	16.600	247	0.025	7.781	341.75232	349.533		349.533	0.097	400	0.77	1 in 350	47	450	-1714	-1762	2164	1200 DIA
27	MH - 26 to 27	12.900	325	0.033	10.238	450.29502	460.533		460.533	0.128	400	0.77	1 in 350	37	450	-1762	-1799	2212	1200 DIA
28	MH - 27 to 28	15.000	452	0.045	14.238	577.80072	592.039		592.039	0.164	400	0.77	1 in 350	43	450	-1799	-1841	2249	1200 DIA
29	MH - 28 to 32	12.600	504	0.050	15.876	725.02542	740.901		740.901	0.206	400	0.77	1 in 350	36	450	-1841	-1877	2291	1200 DIA
30	MH - 29 to 30	22.000	273	0.027	8.600	892.50462	901.104		901.104	0.250	400	0.77	1 in 350	63	450	-750	-813	1200	900 DIA
31	MH - 30 to 31	25.000	258	0.026	8.127	1059.32232	1067.449		1067.449	0.297	400	0.77	1 in 350	71	450	-813	-884	1263	900 DIA
32	MH - 31 to 32	11.100	118	0.012	3.717	1235.90502	1239.622		1239.622	0.344	400	0.77	1 in 350	32	450	-884	-916	1334	900 DIA
33	MH - 32 to 33	17.300	215	0.022	6.773	1414.69272	1421.465		1421.465	0.395	400	0.77	1 in 350	49	450	-1877	-1927	2327	1500 DIA

For Nahi Resorts and Floriculture Pvt. Ltd.

Authorised signatory

Consultants Private Limited
666 Madhuban Building
55 Nehru Place
New Delhi-19

Sr.No	NODE NO.	Line Length (M)	Total Area (m2)	Total Area (Hectare)	Total Self Flow Q=10CIA (m3/Hr)	Contribution from other Area/ Line (M3/Hr)	Total Flow in Line (M3/ Hr)	Absorption in R.W.H.Pit (M3/ Hr) 20%	Balance Flow in Line (M3/ Hr) Flow after Absorption into R.W.H	Balance Flow in Line (M3/Sec)	Size of Pipe Dia in mm	Velocity (m/sec)	Gradient	Fall in MM	Ground Level in (+)MM	Invert at Start in (-) MM	Invert at End in (-)MM	Depth of M.H. in MM	Size of M.H.
1	2	3	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
34	MH - 33 to 34	15.000	443	0.044	13.955	1432.17522	1446.130		1446.130	0.402	400	0.77	1 in 350	43	450	-1927	-1970	2377	1500 DIA
35	MH - 34 to 35	15.000	415	0.042	13.073	1462.91922	1475.992		1475.992	0.410	400	0.77	1 in 350	43	450	-1970	-2013	2420	1500 DIA
36	MH - 35 to 36 I/C RWHP-03	14.000	180	0.018	5.670	1497.00222	1502.672	300.534	1202.138	0.334	400	0.77	1 in 350	40	450	-2013	-2053	2463	1500 DIA
37	MH - 36 to 37	19.200	576	0.058	18.144	1238.92978	1257.074		1257.074	0.349	400	0.77	1 in 350	55	600	-2053	-2107	2653	1500 DIA
38	MH - 37 to 38	14.600	323	0.032	10.175	1307.66278	1317.837		1317.837	0.366	400	0.77	1 in 350	42	600	-2107	-2149	2707	1500 DIA
39	MH - 38 to 39	20.700	318	0.032	10.017	1552.19098	1562.208		1562.208	0.434	400	0.77	1 in 350	59	600	-2149	-2208	2749	1500 DIA
40	MH - 39 to 40	20.200	210	0.021	6.615	1816.9951	1823.610		1823.610	0.507	400	0.77	1 in 350	58	600	-2208	-2266	2808	1500 DIA
41	MH - 40 to 41	17.600	205	0.021	6.458	2173.14292	2179.600		2179.600	0.605	400	0.77	1 in 350	50	600	-2266	-2316	2866	1500 DIA
42	MH - 41 to 42	10.800	524	0.052	16.506	2640.13294	2656.639		2656.639	0.738	400	0.77	1 in 350	31	600	-2316	-2347	2916	1500 DIA
43	MH - 42 to 43	16.000	244	0.024	7.686	3248.67766	3256.364		3256.364	0.905	400	0.77	1 in 350	46	600	-2347	-2393	2947	1500 DIA
44	MH - 43 to 44 I/C RWHP-04	15.000	591	0.059	18.617	4157.46778	4176.084	835.217	3340.867	0.928	400	0.77	1 in 350	43	600	-2393	-2436	2993	1500 DIA
45	MH - 44 to 45	16.500	210	0.021	6.615	4408.31674	4414.932		4414.932	1.226	400	0.77	1 in 350	47	700	-2436	-2483	3136	1500 DIA
46	MH - 45 to 46	17.000	325	0.033	10.238	5654.55376	5664.791		5664.791	1.574	400	0.77	1 in 350	49	700	-2483	-2531	3183	1500 DIA
47	MH - 46 to 47	21.500	210	0.021	6.615	7086.25648	7092.871		7092.871	1.970	400	0.77	1 in 350	61	700	-2531	-2593	3231	1500 DIA
48	MH - 47 to 53	20.000	340	0.034	10.710	8539.0012	8549.711		8549.711	2.375	400	0.77	1 in 350	57	700	-500	-557	1200	900 DIA
49	MH - 48 to 49	19.300	193	0.019	6.080	10025.7029	10031.782		10031.782	2.787	400	0.77	1 in 350	55	700	-557	-612	1257	900 DIA
50	MH - 49 to 50	12.800	134	0.013	4.221	11233.9202	11238.141		11238.141	3.122	400	0.77	1 in 350	37	700	-612	-649	1312	900 DIA
51	MH - 50 to 51	16.500	501	0.050	15.782	12495.215	12510.996		12510.996	3.475	400	0.77	1 in 350	47	700	-649	-696	1349	900 DIA

For Nani Resorts and ... Pvt. Ltd.

Authorised signatory

... Consultants Private Limited, 606 Madhuban Building, 55, Nehru Place, New Delhi-19

Sr.No	NODE NO.	Line Length (M)	Total Area (m2)	Total Area (Hectare)	Total Self Flow Q=10CIA (m3/Hr)	Contribution from other Area/ Line (M3/Hr)	Total Flow in Line (M3/ Hr)	Absorption in R.W.H.Pit (M3/ Hr) 20%	Balance Flow in Line (M3/ Hr) Flow after Absorption into R.W.H	Balance Flow in Line (M3/Sec)	Size of Pipe Dia in mm	Velocity (m/sec)	Gradient	Fall in MM	Ground Level in (+)MM	Invert at Start in (-) MM	Invert at End in (-)MM	Depth of M.H. in MM	Size of M.H.
1	2	3	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
52	MH - 51 to 52	17.000	303	0.030	9.545	13828.8337	13838.378		13838.378	3.844	400	0.77	1 in 350	49	700	-696	-745	1396	900 DIA
53	MH - 52 to 53	15.000	303	0.030	9.545	15400.5862	15410.131		15410.131	4.281	400	0.77	1 in 350	43	700	-745	-787	1445	900 DIA
54	MH - 53 to END I/C RWHP-05	5.000	255	0.026	8.033	15400.5862	15408.619	3081.724	12326.895	3.424	400	0.77	1 in 350	14	700	-2593	-2607	3293	1500 DIA
55	MH - 54 to 55	15.000	210	0.021	6.615	4408.31674	4414.932		4414.932	1.226	400	0.77	1 in 350	50	400	-800	-850	1200	900 DIA
56	MH - 55 to 56	15.000	325	0.033	10.238	5654.55376	5664.791		5664.791	1.574	400	0.77	1 in 350	31	400	-850	-900	1250	900 DIA
57	MH - 56 to 57	15.000	210	0.021	6.615	7086.25648	7092.871		7092.871	1.970	400	0.77	1 in 350	46	400	-900	-950	1300	900 DIA
58	MH - 57 to 58	15.000	340	0.034	10.710	8539.0012	8549.711		8549.711	2.375	400	0.77	1 in 350	43	400	-950	-1000	1350	900 DIA
59	MH - 58 to 59	15.000	193	0.019	6.080	10025.7029	10031.782		10031.782	2.787	400	0.77	1 in 350	47	400	-1000	1050	1400	900 DIA
60	MH - 59 to 60	20.000	134	0.013	4.221	11233.9202	11238.141		11238.141	3.122	400	0.77	1 in 350	49	400	1050	1100	1500	900 DIA
61	MH - 60 to 61	15.000	501	0.050	15.782	12495.215	12510.996		12510.996	3.475	400	0.77	1 in 350	61	400	1100	-800	1200	900 DIA
62	MH - 61 to 62	15.000	303	0.030	9.545	13828.8337	13838.378		13838.378	3.844	400	0.77	1 in 350	57	400	-800	-900	1200	900 DIA
63	MH - 62 to 63	15.000	303	0.030	9.545	15400.5862	15410.131		15410.131	4.281	400	0.77	1 in 350	55	400	-900	-950	1300	900 DIA
64	MH - 63 to 64	15.000	210	0.021	6.615	4408.31674	4414.932		4414.932	1.226	400	0.77	1 in 350	37	400	-950	-1000	1350	900 DIA
65	MH - 64to 65	15.000	325	0.033	10.238	5654.55376	5664.791		5664.791	1.574	400	0.77	1 in 350	47	400	-1000	1050	1400	900 DIA
66	MH - 65 to 66	15.000	210	0.021	6.615	7086.25648	7092.871		7092.871	1.970	400	0.77	1 in 350	49	400	1050	1100	1500	900 DIA
67	MH - 66 to 67	15.000	340	0.034	10.710	8539.0012	8549.711		8549.711	2.375	400	0.77	1 in 350	43	400	1100	1150	1550	900 DIA
68	MH - 67 to 68	20.000	193	0.019	6.080	10025.7029	10031.782		10031.782	2.787	400	0.77	1 in 350	14	400	1150	1200	1600	900 DIA
69	MH - 68 to 69	15.000	134	0.013	4.221	11233.9202	11238.141		11238.141	3.122	400	0.77	1 in 350	50	400	-800	-850	1200	900 DIA

For Navi Projects and Infrastructure Pvt. Ltd.

Authorised signatory

Engineering Consultants Private Limited
606 Madhuban Building
55, Nehru Place
New Delhi-19

Sr.No	NODE NO.	Line Length (M)	Total Area (m2)	Total Area (Hectare)	Total Self Flow Q=10CIA (m3/Hr)	Contribution from other Area/ Line (M3/Hr)	Total Flow in Line (M3/ Hr)	Absorption in R.W.H.Pit (M3/ Hr) 20%	Balance Flow in Line (M3/ Hr) Flow after Absorption into R.W.H	Balance Flow in Line (M3/Sec)	Size of Pipe Dia in mm	Velocity (m/sec)	Gradient	Fall in MM	Ground Level in (+)MM	Invert at Start in (-) MM	Invert at End in (-)MM	Depth of M.H. in MM	Size of M.H.
1	2	3	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
70	MH - 69to 70	15.000	501	0.050	15.782	12495.215	12510.996		12510.996	3.475	400	0.77	1 in 350	31	400	-850	-900	1250	900 DIA
71	MH - 70 to 71	15.000	303	0.030	9.545	13828.8337	13838.378		13838.378	3.844	400	0.77	1 in 350	46	400	-900	-950	1300	900 DIA
72	MH - 72 to 72	15.000	303	0.030	9.545	15400.5862	15410.131		15410.131	4.281	400	0.77	1 in 350	43	400	-950	-1000	1350	900 DIA
73	MH - 72 to 73	15.000	210	0.021	6.615	4408.31674	4414.932		4414.932	1.226	400	0.77	1 in 350	47	400	-1000	1050	1400	900 DIA
74	MH - 73 to 74	15.000	325	0.033	10.238	5654.55376	5664.791		5664.791	1.574	400	0.77	1 in 350	49	400	1050	1100	1500	900 DIA
75	MH - 74 to 75	15.000	210	0.021	6.615	7086.25648	7092.871		7092.871	1.970	400	0.77	1 in 350	61	400	1100	1150	1550	900 DIA
76	MH - 75 to 76	15.000	340	0.034	10.710	8539.0012	8549.711		8549.711	2.375	400	0.77	1 in 350	57	400	-800	-850	1200	900 DIA
77	MH - 76 to 77	15.000	193	0.019	6.080	10025.7029	10031.782		10031.782	2.787	400	0.77	1 in 350	55	400	-850	-900	1250	900 DIA
78	MH - 77 to 78	15.000	134	0.013	4.221	11233.9202	11238.141		11238.141	3.122	400	0.77	1 in 350	37	400	-900	-950	1300	900 DIA
79	MH - 78 to 79	15.000	501	0.050	15.782	12495.215	12510.996		12510.996	3.475	400	0.77	1 in 350	47	400	-950	-1000	1350	900 DIA
80	MH - 79 to 80	15.000	303	0.030	9.545	13828.8337	13838.378		13838.378	3.844	400	0.77	1 in 350	49	400	-1000	1050	1400	900 DIA
81	MH - 80 to 81	20.000	303	0.030	9.545	15400.5862	15410.131		15410.131	4.281	400	0.77	1 in 350	43	400	1050	1100	1500	900 DIA
82	MH - 81 to 82	15.000	210	0.021	6.615	4408.31674	4414.932		4414.932	1.226	400	0.77	1 in 350	14	400	1100	1150	1550	900 DIA
83	MH - 82 to 83	15.000	325	0.033	10.238	5654.55376	5664.791		5664.791	1.574	400	0.77	1 in 350	37	400	-800	-850	1200	900 DIA
84	MH - 83 to 84	15.000	210	0.021	6.615	7086.25648	7092.871		7092.871	1.970	400	0.77	1 in 350	47	400	-850	-900	1250	900 DIA
85	MH - 84 to 85	12.000	340	0.034	10.710	8539.0012	8549.711		8549.711	2.375	400	0.77	1 in 350	49	400	-900	-950	1300	900 DIA
86	TOTAL LENGTH	1395.800																	

For Nani Resorts and Floriculture Pvt. Ltd.

Authorised signatory

M/s Engineering Consultants Private Limited
606, Madhuban Building
55, Nehru Place
New Delhi-19

MATERIAL STATEMENT (STORM)

S. No.	Name of Storm Line	Dia in MM	Length in Mtr.
1	MH - 1 to 2	400	21.20
2	MH - 2 to 3	400	24.00
3	MH - 3 to 4	400	17.80
4	MH - 4 to 5	400	17.60
5	MH - 5 to 6	400	10.00
6	MH - 6 to 7	400	19.40
7	MH - 7 to 8	400	23.80
8	MH - 8 to 9	400	17.90
9	MH - 9 to 10 I/C RWHP-01	400	18.70
10	MH - 10 to 11	400	21.50
11	MH - 11 to 12	400	19.60
12	MH - 12 to 13	400	19.30
13	MH - 13 to 14	400	20.70
14	MH - 14 to 15	400	21.50
15	MH - 15 to 16	400	19.00
16	MH - 16 to 17	400	16.50
17	MH - 17 to 23	400	17.00
18	MH - 18 to 19	400	21.50
19	MH - 19 to 20	400	25.50
20	MH - 20 to 21	400	19.30
21	MH - 21 to 22	400	12.80
22	MH - 22 to 23	400	16.50
23	MH - 23 to 24	400	14.50
24	MH - 24 to 25 I/C RWHP-02	400	12.00
25	MH - 25 to 26	400	16.60
26	MH - 26 to 27	400	12.90
27	MH - 27 to 28	400	15.00
28	MH - 28 to 32	400	12.60
29	MH - 29 to 30	400	22.00
30	MH - 30 to 31	400	25.00
31	MH - 31 to 32	400	11.10
32	MH - 32 to 33	400	17.30
33	MH - 33 to 34	400	15.00
34	MH - 34 to 35	400	15.00
35	MH - 35 to 36 I/C RWHP-03	400	14.00

For Nani Resorts and Floriculture Pvt. Ltd.

Authorised signatory

Engineering Consultants Private Limited
603, Madhuban Building
55, Nehru Place
New Delhi-19

MATERIAL STATEMENT (STORM)

S. No.	Name of Storm Line	Dia in MM	Length in Mtr.
36	MH - 36 to 37	400	19.20
37	MH - 37 to 38	400	14.60
38	MH - 38 to 39	400	20.70
39	MH - 39 to 40	400	20.20
40	MH - 40 to 41	400	17.60
41	MH - 41 to 42	400	10.80
42	MH - 42 to 43	400	16.00
43	MH - 43 to 44 I/C RWHP-04	400	15.00
44	MH - 44 to 45	400	16.50
45	MH - 45 to 46	400	17.00
46	MH - 46 to 47	400	21.50
47	MH - 47 to 53	400	20.00
48	MH - 48 to 49	400	19.30
49	MH - 49 to 50	400	12.80
50	MH - 50 to 51	400	16.50
51	MH - 51 to 52	400	17.00
52	MH - 52 to 53	400	15.00
53	MH - 53 to END I/C RWHP-05	400	5.00
54	MH - 54 to 55	400	15.00
55	MH - 55 to 56	400	15.00
56	MH - 56 to 57	400	15.00
57	MH - 57 to 58	400	15.00
58	MH - 58 to 59	400	15.00
59	MH - 59 to 60	400	20.00
60	MH - 60 to 61	400	15.00
61	MH - 61 to 62	400	15.00
62	MH - 62 to 63	400	15.00
63	MH - 63 to 64	400	15.00
64	MH - 64to 65	400	15.00
65	MH - 65 to 66	400	15.00
66	MH - 66 to 67	400	15.00
67	MH - 67 to 68	400	20.00
68	MH - 68 to 69	400	15.00
69	MH - 69to 70	400	15.00
70	MH - 70 to 71	400	15.00
71	MH - 72 to 72	400	15.00

For Nani Resorts and Floriculture Pvt. Ltd.

Authorised signatory

Engineering Consultants Private Limited
606, Madhuban Building
55, Nehru Place
New Delhi-19

MATERIAL STATEMENT (STORM)

S. No.	Name of Storm Line	Dia in MM	Length in Mtr.
72	MH - 72 to 73	400	15.00
73	MH - 73 to 74	400	15.00
74	MH - 74 to 75	400	15.00
75	MH - 75 to 76	400	15.00
76	MH - 76 to 77	400	15.00
77	MH - 77 to 78	400	15.00
78	MH - 78 to 79	400	15.00
79	MH - 79 to 80	400	15.00
80	MH - 80 to 81	400	20.00
81	MH - 81 to 82	400	15.00
82	MH - 82 to 83	400	15.00
83	MH - 83 to 84	400	15.00
84	MH - 84 to 85	400	12.00
	TOTAL		**1395.8**

For Nani Resorts and Realtors Pvt. Ltd.

Authorised signatory

M.J. Engineering Consultants Private Limited
606, Madhuban Building
55, Nehru Place
New Delhi-19

PROJECT : AFFORDABLE GROUP HOUSING COLONY (VILLAGE DHANKOT)SEC-102, GURUGRAM (HR)

Total Water Supply (Av) as per Statement Annexure- I

Formula used for Velocity adopted - Mannings Equation

$V = \frac{1}{n} (D/4)^{2/3} (S)^{1/2}$

Value of n adopted for SW Pipes = 0.013

SEWERAGE CALCULATION SHEET

Sr. No.	Node No.	Length (Meter)	Water Requirement (KLD)	Total Sewage Generated Per day (80% for Sewage in KLD)			Peak = Av x 3 in KLD	Flow per second for area (LPS)	Pipe Dia of RCC HUME Pipes	Gradient (S)	Fall in MM	Velocity created in (V) m/s	Capacity of Pipe with 1/2 full pipe (LPS)	Ground Level (+mm)	Invert at Start in mm	Invert at End in mm	Depth of M.H.	Zize of M.H.
				Self	Previous	Total												
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
2	SMH - 1 to 2	20	0.5	0.400	-	0.400	1.2	0.014	250	1 in 200	100	0.86	21.07	600	-600	-700	1200	900 DIA
3	SMH - 2 to 3	21	1	0.800	0.400	1.200	3.6	0.042	250	1 in 200	105	0.85	21.07	600	-700	-805	1300	900 DIA
4	SMH - 3 to 4	20	0.5	0.400	1.200	1.600	4.8	0.056	250	1 in 200	100	0.85	21.07	600	-805	-905	1405	900 DIA
5	SMH - 4 to 5	19.5	0.5	0.400	1.600	2.000	6	0.069	250	1 in 200	98	0.85	21.07	600	-905	-1003	1505	900 DIA
6	SMH - 5 to 6	22	0.5	0.400	2.000	2.400	7.2	0.083	250	1 in 200	110	0.85	21.07	600	-1003	-1113	1603	900 DIA
7	SMH - 6 to 7	22.5	0.5	0.400	2.400	2.800	8.4	0.097	250	1 in 200	113	0.85	21.07	600	-1113	-1225	1713	1200 DIA
8	SMH - 7 to 8	20	0	0.000	2.800	2.800	8.4	0.097	250	1 in 200	100	0.85	21.07	400	-1225	-1325	1625	1200 DIA
9	SMH - 8 to 9	15	0	0.000	2.800	2.800	8.4	0.097	250	1 in 200	75	0.85	21.07	400	-1325	-1400	1725	1200 DIA
10	SMH - 9 to 10	15	0	0.000	2.800	2.800	8.4	0.097	250	1 in 200	75	0.85	21.07	400	-1400	-1475	1800	1200 DIA
11	SMH - 10 to 11	14	0	0.000	2.800	2.800	8.4	0.097	250	1 in 200	70	0.85	21.07	400	-1475	-1545	1875	1200 DIA
12	SMH - 12 to 13	16	48.3	38.640	2.800	41.440	124.32	1.439	250	1 in 200	80	0.85	21.07	450	-750	-830	1200	900 DIA
13	SMH - 13 to 14	14	48.3	38.640	41.440	80.080	240.24	2.781	250	1 in 200	70	0.86	21.07	450	-830	-900	1280	900 DIA
14	SMH - 14 to 15	14.5	48.3	38.640	80.080	118.720	356.16	4.122	250	1 in 200	73	0.86	21.07	450	-900	-973	1350	900 DIA
15	SMH - 15 to 16	9.5	48.3	38.640	118.720	157.360	472.08	5.464	250	1 in 200	48	0.86	21.07	450	-973	-1020	1423	900 DIA
16	SMH - 16 to 17	13.5	48.3	38.640	157.360	196.000	588	6.806	250	1 in 200	68	0.86	21.07	450	-1020	-1088	1470	900 DIA
17	SMH - 17 to 18	15.5	50.5	40.400	196.000	236.400	709.2	8.208	250	1 in 200	78	0.86	21.07	450	-1088	-1165	1538	900 DIA
18	SMH - 18 to 19	13.5	48.3	38.640	236.400	275.040	825.12	9.550	250	1 in 200	68	0.86	21.07	450	-1165	-1233	1615	900 DIA
19	SMH - 19 to 20	15.5	48.3	38.640	275.040	313.680	941.04	10.892	250	1 in 200	78	0.86	21.07	450	-1233	-1310	1683	1200 DIA
20	SMH - 20 to 21	14.5	0	0.000	313.680	313.680	941.04	10.892	250	1 in 200	73	0.86	21.07	450	-1310	-1383	1760	1200 DIA
21	SMH - 21 to 11	7	0	0.000	313.680	313.680	941.04	10.892	250	1 in 200	35	0.86	21.07	450	-1383	-1545	1833	1200 DIA
22	SMH - 11 to 22	16	0	0.000	313.680	313.680	941.04	10.892	250	1 in 200	80	0.86	21.07	400	-1545	-1625	1945	1200 DIA
23	SMH - 22 to 23	14	0	0.000	313.680	313.680	941.04	10.892	250	1 in 200	70	0.86	21.07	400	-1625	-1695	2025	1200 DIA
24	SMH - 23 to 24	14.5	0	0.000	313.680	313.680	941.04	10.892	250	1 in 200	73	0.86	21.07	400	-1695	-1768	2095	1200 DIA
25	SMH - 24 to 25	16	0	0.000	313.680	313.680	941.04	10.892	250	1 in 200	80	0.86	21.07	400	-1768	-1848	2168	1200 DIA
26	SMH - 25 to 26	5.2	0	0.000	313.680	313.680	941.04	10.892	250	1 in 200	26	0.86	21.07	400	-1848	-1874	2248	1200 DIA
27	SMH - 26 to 35	4.4	48.3	38.640	313.680	352.320	1056.96	12.233	250	1 in 200	22	0.86	21.07	400	-1874	-1896	2274	1200 DIA
28	SMH - 27 to 28	13.5	48.3	38.640	352.320	390.960	1172.88	13.575	250	1 in 200	68	0.86	21.07	450	-750	-818	1200	900 DIA
29	SMH - 28 to 29	13.5	48.3	38.640	390.960	429.600	1288.8	14.917	250	1 in 200	68	0.86	21.07	450	-818	-885	1268	900 DIA
30	SMH - 29 to 30	12.8	48.3	38.640	429.600	468.240	1404.72	16.258	250	1 in 200	64	0.86	21.07	450	-885	-949	1335	900 DIA
31	SMH - 30 to 31	14	48.3	38.640	468.240	506.880	1520.64	17.600	250	1 in 200	70	0.86	21.07	450	-949	-1019	1399	900 DIA
32	SMH - 31 to 32	13.5	48.3	38.640	506.880	545.520	1636.56	18.942	250	1 in 200	68	0.86	21.07	450	-1019	-1087	1469	900 DIA
33	SMH - 32 to 33	13.5	48.3	38.640	545.520	584.160	1752.48	20.283	250	1 in 200	68	0.86	21.07	450	-1087	-1154	1537	900 DIA
34	SMH - 33 to 34	14.5	0	0.000	584.160	584.160	1752.48	20.283	250	1 in 200	73	0.86	21.07	450	-1154	-1227	1604	900 DIA
35	SMH - 34 to 35	15	2.8	2.240	584.160	586.400	1759.2	20.361	250	1 in 200	75	0.86	21.07	450	-1227	-1896	1677	1200 DIA

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Sr. No.	Node No.	Length (Meter)	Water Requirement (KLD)	Total Sewage Generated Per day (80% for Sewage in KLD)			Peak = Av x 3 in KLD	Flow per second for area (LPS)	Pipe Dia of RCC HUME Pipes	Gradient (S)	Fall in MM	Velocity created in (V) m/s	Capacity of Pipe with 1/2 full pipe (LPS)	Ground Level (+mm)	Invert at Start in mm	Invert at End in mm	Depth of M.H.	Zize of M.H.
				Self	Previous	Total												
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
36	SMH - 35 to 36	11.7	0	0.000	586.400	586.400	1759.2	20.361	250	1 in 200	59	0.86	21.07	400	-1896	-1954	2296	1200 DIA
37	SMH - 36 to 37	16.2	0	0.000	586.400	586.400	1759.2	20.361	250	1 in 200	81	0.86	21.07	400	-1954	-2035	2354	1500 DIA
38	SMH - 37 to STP	18.7	0	0.000	586.400	586.400	1759.2	20.361	250	1 in 200	94	0.86	21.07	400	-2035	-2129	2435	1500 DIA
39	SMH - 38 to 39	5	0	0.000	586.400	586.400	1759.2	20.361	250	1 in 200	25	0.86	21.07	400	-800	-825	1200	900 DIA
40	SMH - 39 to 40	14.7	0	0.000	586.400	586.400	1759.2	20.361	250	1 in 200	74	0.86	21.07	400	-825	-899	1225	900 DIA
41	SMH - 40 to 41	15.1	0	0.000	586.400	586.400	1759.2	20.361	250	1 in 200	76	0.86	21.07	400	-899	-974	1299	900 DIA
42	SMH - 41 to 42	15	0	0.000	586.400	586.400	1759.2	20.361	250	1 in 200	75	0.86	21.07	400	-974	-1049	1374	900 DIA
43	SMH -42 to 43	13.5	0	0.000	586.400	586.400	1759.2	20.361	250	1 in 200	68	0.86	21.07	400	-1049	-1117	1449	900 DIA
44	SMH - 43 to 44	21	0	0.000	586.400	586.400	1759.2	20.361	250	1 in 200	105	0.86	21.07	400	-1117	-1222	1517	900 DIA
45	SMH - 44 to 45	24.7	0	0.000	586.400	586.400	1759.2	20.361	250	1 in 200	124	0.86	21.07	400	-1222	-1345	1622	900 DIA
46	SMH - 45 to 46	20	0	0.000	586.400	586.400	1759.2	20.361	250	1 in 200	100	0.86	21.07	400	-1345	-1445	1745	1200 DIA
47	SMH - 47 to 37	20	0	0.000	586.400	586.400	1759.2	20.361	250	1 in 200	100	0.86	21.07	400	-1445	-1545	1845	1200 DIA
48	SMH - 37 to STP	5	0	0.000	586.400	586.400	1759.2	20.361	250	1 in 200	25	0.86	21.07	400	-1545	-2129	1945	1200 DIA
49	SMH -STP to 48	5	0	0.000	586.400	586.400	1759.2	20.361	250	1 in 200	25	0.86	21.07	400	-2129	-2154	2529	1500 DIA
50	SMH - 48 to 49	18.5	0	0.000	586.400	586.400	1759.2	20.361	250	1 in 200	93	0.86	21.07	400	-2154	-2246	2554	1500 DIA
51	SMH - 49 to 50	20	0	0.000	586.400	586.400	1759.2	20.361	250	1 in 200	100	0.86	21.07	400	-2246	-2346	2646	1500 DIA
52	SMH - 50 to 51	20	0	0.000	586.400	586.400	1759.2	20.361	250	1 in 200	100	0.86	21.07	400	-2346	-2446	2746	1500 DIA
53	SMH - 51 to 52	17.5	0	0.000	586.400	586.400	1759.2	20.361	250	1 in 200	88	0.86	21.07	400	-2446	-2534	2846	1500 DIA
54	SMH - 52 to 53	20	0	0.000	586.400	586.400	1759.2	20.361	250	1 in 200	100	0.86	21.07	400	-2534	-2634	2934	1500 DIA
55	SMH - 53 to 54	21	0	0.000	586.400	586.400	1759.2	20.361	250	1 in 200	105	0.86	21.07	400	-2634	-2739	3034	1500 DIA
56	SMH - 54 to 55	25	0	0.000	586.400	586.400	1759.2	20.361	250	1 in 200	125	0.86	21.07	400	-2739	-2864	3139	1500 DIA
57	SMH - 55 to 56	9	0	0.000	586.400	586.400	1759.2	20.361	250	1 in 200	45	0.86	21.07	400	-2864	-2909	3264	1500 DIA
58	SMH - 56 to 57	27.5	0	0.000	586.400	586.400	1759.2	20.361	250	1 in 200	138	0.86	21.07	400	-2909	-3046	3309	1500 DIA
59	SMH - 57 to 58	30	0	0.000	586.400	586.400	1759.2	20.361	250	1 in 200	150	0.86	21.07	700	-3046	-3196	3746	1500 DIA
60	SMH - 58 to 59	15	0	0.000	586.400	586.400	1759.2	20.361	250	1 in 200	35	0.86	21.07	400	-800	-850	1200	900 DIA
61	SMH - 59 to 60	15	0	0	586.4	586.4	1759.2	20.36111111	250	1 in 200	35	0.85663338	21.07	400	-850	-900	1250	900 DIA
62	SMH - 60 to 61	15	0	0.000	584.160	584.160	1752.48	20.283	250	1 in 200	74	0.86	21.07	400	-900	-950	1300	900 DIA
63	SMH - 61 to 62	15	2.8	2.240	584.160	586.400	1759.2	20.361	250	1 in 200	76	0.86	21.07	400	-950	-1000	1350	900 DIA
64	SMH - 62 to 63	15	0	0.000	586.400	586.400	1759.2	20.361	250	1 in 200	75	0.86	21.07	400	-1000	1050	1400	900 DIA
65	SMH - 63 to 64	15	0	0.000	586.400	586.400	1759.2	20.361	250	1 in 200	68	0.86	21.07	400	1050	1100	1500	900 DIA
66	SMH - 64 to 65	12	0	0.000	586.400	586.400	1759.2	20.361	250	1 in 200	105	0.86	21.07	400	1100	-800	1200	900 DIA
67	SMH - 65 to 66	15	0	0.000	586.400	586.400	1759.2	20.361	250	1 in 200	124	0.86	21.07	400	-800	-900	1200	900 DIA
68	SMH - 66 to 67	15	0	0.000	586.400	586.400	1759.2	20.361	250	1 in 200	100	0.86	21.07	400	-900	-950	1300	900 DIA
69	SMH - 67 to 68	15	0	0.000	586.400	586.400	1759.2	20.361	250	1 in 200	100	0.86	21.07	400	-950	-1000	1350	900 DIA
70	SMH - 68 to 69	15	0	0.000	584.160	584.160	1752.48	20.283	250	1 in 200	25	0.86	21.07	400	-1000	1050	1400	900 DIA
71	SMH - 69 to 70	12	2.8	2.240	584.160	586.400	1759.2	20.361	250	1 in 200	25	0.86	21.07	400	1050	1100	1500	900 DIA

For Nani Resorts and Properties Pvt. Ltd.

Authorised signatory

Engineering Consultants Pvt. Ltd.
606, Madhuban Building
55, Nehru Place
New Delhi-19

Sr. No.	Node No.	Length (Meter)	Water Requirement (KLD)	Total Sewage Generated Per day (80% for Sewage in KLD)			Peak = Av x 3 in KLD	Flow per second for area (LPS)	Pipe Dia of RCC HUME Pipes	Gradient (S)	Fall in MM	Velocity created in (V) m/s	Capacity of Pipe with 1/2 full pipe (LPS)	Ground Level (+mm)	Invert at Start in mm	Invert at End in mm	Depth of M.H.	Zize of M.H.
				Self	Previous	Total												
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
72	SMH - 70 to 71	15	0	0.000	586.400	586.400	1759.2	20.361	250	1 in 200	93	0.86	21.07	400	1100	1150	1550	900 DIA
73	SMH - 71 to 72	12	0	0.000	586.400	586.400	1759.2	20.361	250	1 in 200	100	0.86	21.07	400	1150	1200	1600	900 DIA
74	SMH - 72 to 73	16	0	0.000	586.400	586.400	1759.2	20.361	250	1 in 200	100	0.86	21.07	400	-800	-850	1200	900 DIA
75	SMH - 73 to 74	15	0	0.000	586.400	586.400	1759.2	20.361	250	1 in 200	88	0.86	21.07	400	-850	-900	1250	900 DIA
76	SMH - 74 to 75	15	0	0.000	586.400	586.400	1759.2	20.361	250	1 in 200	74	0.86	21.07	400	-900	-950	1300	900 DIA
77	SMH - 75 to 76	15	0	0.000	586.400	586.400	1759.2	20.361	250	1 in 200	76	0.86	21.07	400	-950	-1000	1350	900 DIA
78	SMH - 76 to 77	15	0	0.000	584.160	584.160	1752.48	20.283	250	1 in 200	75	0.86	21.07	400	-1000	1050	1400	900 DIA
79	SMH - 77 to 78	15	2.8	2.240	584.160	586.400	1759.2	20.361	250	1 in 200	68	0.86	21.07	400	1050	1100	1500	900 DIA
80	SMH - 78 to 79	15	0	0.000	586.400	586.400	1759.2	20.361	250	1 in 200	105	0.86	21.07	400	1100	1150	1550	900 DIA
81	SMH - 79 to 80	15	0	0.000	586.400	586.400	1759.2	20.361	250	1 in 200	124	0.86	21.07	400	-800	-850	1200	900 DIA
82	SMH - 80 to 81	15	0	0.000	586.400	586.400	1759.2	20.361	250	1 in 200	100	0.86	21.07	400	-850	-900	1250	900 DIA
83	SMH - 81 to 82	15	0	0.000	586.400	586.400	1759.2	20.361	250	1 in 200	100	0.86	21.07	400	-900	-950	1300	900 DIA
84	SMH - 82 to 83	15	0	0.000	586.400	586.400	1759.2	20.361	250	1 in 200	25	0.86	21.07	400	-950	-1000	1350	900 DIA
85	SMH - 83 to 84	15	0	0.000	586.400	586.400	1759.2	20.361	250	1 in 200	25	0.86	21.07	400	-1000	1050	1400	900 DIA
86	SMH - 84 to 85	15	0	0.000	584.160	584.160	1752.48	20.283	250	1 in 200	93	0.86	21.07	400	1050	1100	1500	900 DIA
87	SMH - 85 to 86	15	2.8	2.240	584.160	586.400	1759.2	20.361	250	1 in 200	100	0.86	21.07	400	1100	1150	1550	900 DIA
88	SMH - 86 to 87	15	0	0.000	586.400	586.400	1759.2	20.361	250	1 in 200	100	0.86	21.07	400	-800	-850	1200	900 DIA
89	SMH - 80 to 88	15	0	0.000	586.400	586.400	1759.2	20.361	250	1 in 200	88	0.86	21.07	400	-850	-900	1250	900 DIA
	TOTAL LENGTH	1359																

For Nani Resorts and Horticulture Pvt. Ltd.

Authorised signatory

Consulting Consultants Private Limited
609, Madhuban Building
55, Nehru Place
New Delhi-19

PROJECT : AFFORDABLE GROUP HOUSING COLONY (VILLAGE DHANKOT) SEC-102, GURUGRAM (HR)

MATERIAL STATEMENT (SEWERAGE)

S. No.	Name of Sewerage Line	Dia in MM	Length in Mtr.
1	SMH - 1 to 2	250	20
2	SMH - 2 to 3	250	21
3	SMH - 3 to 4	250	20
4	SMH - 4 to 5	250	19.5
5	SMH - 5 to 6	250	22
6	SMH - 6 to 7	250	22.5
7	SMH - 7 to 8	250	20
8	SMH - 8 to 9	250	15
9	SMH - 9 to 10	250	15
10	SMH - 10 to 11	250	14
11	SMH - 12 to 13	250	16
12	SMH - 13 to 14	250	14
13	SMH - 14 to 15	250	14.5
14	SMH - 15 to 16	250	9.5
15	SMH - 16 to 17	250	13.5
16	SMH - 17 to 18	250	15.5
17	SMH - 18 to 19	250	13.5
18	SMH - 19 to 20	250	15.5
19	SMH - 20 to 21	250	14.5
20	SMH - 21 to 11	250	7
21	SMH - 11 to 22	250	16
22	SMH - 22 to 23	250	14
23	SMH - 23 to 24	250	14.5
24	SMH - 24 to 25	250	16
25	SMH - 25 to 26	250	5.2
26	SMH - 26 to 35	250	4.4
27	SMH - 27 to 28	250	13.5
28	SMH - 28 to 29	250	13.5
29	SMH - 29 to 30	250	12.8
30	SMH - 30 to 31	250	14
31	SMH - 31 to 32	250	13.5
32	SMH - 32 to 33	250	13.5
33	SMH - 33 to 34	250	14.5
34	SMH - 34 to 35	250	15
35	SMH - 35 to 36	250	11.7
36	SMH - 36 to 37	250	16.2

For Nani Resorts and Agriculture Pvt. Ltd.

Authorised signatory

Engineering Consultants Private Limited
606, Madhuban Building
55, Nehru Place
New Delhi-19

S. No.	Name of Sewerage Line	Dia in MM	Length in Mtr.
37	SMH - 37 to STP	250	18.7
38	SMH - 38 to 39	250	5
39	SMH - 39 to 40	250	14.7
40	SMH - 40 to 41	250	15.1
41	SMH - 41 to 42	250	15
42	SMH -42 to 43	250	13.5
43	SMH - 43 to 44	250	21
44	SMH - 44 to 45	250	24.7
45	SMH - 45 to 46	250	20
46	SMH - 47 to 37	250	20
47	SMH - 37 to STP	250	5
48	SMH -STP to 48	250	5
49	SMH - 48 to 49	250	18.5
50	SMH - 49 to 50	250	20
51	SMH - 50 to 51	250	20
52	SMH - 51 to 52	250	17.5
53	SMH - 52 to 53	250	20
54	SMH - 53 to 54	250	21
55	SMH - 54 to 55	250	25
56	SMH - 55 to 56	250	9
57	SMH - 56 to 57	250	27.5
58	SMH - 57 to 58	250	30
59	SMH - 58 to 59	250	15
60	SMH - 59 to 60	250	15
61	SMH - 60 to 61	250	15
62	SMH - 61 to 62	250	15
63	SMH - 62 to 63	250	15
64	SMH - 63 to 64	250	15
65	SMH - 64 to 65	250	12
66	SMH - 65 to 66	250	15
67	SMH - 66 to 67	250	15
68	SMH - 67 to 68	250	15
69	SMH - 68 to 69	250	15
70	SMH - 69 to 70	250	12
71	SMH - 70 to 71	250	15
72	SMH - 71 to 72	250	12
73	SMH - 72 to 73	250	16
74	SMH - 73 to 74	250	15
75	SMH - 74 to 75	250	15
76	SMH - 75 to 76	250	15

For Nani Resorts and Horticulture Pvt. Ltd.

Authorised signatory

M.J. Engineering Consultants Private Limited
606, Madhuban Building
56, Nehru Place
New Delhi-19

S. No.	Name of Sewerage Line	Dia in MM	Length in Mtr.
77	SMH - 76 to 77	250	15
78	SMH - 77 to 78	250	15
79	SMH - 78 to 79	250	15
80	SMH - 79 to 80	250	15
81	SMH - 80 to 81	250	15
82	SMH - 81 to 82	250	15
83	SMH - 82 to 83	250	15
84	SMH - 83 to 84	250	15
85	SMH - 84 to 85	250	15
86	SMH - 85 to 86	250	15
87	SMH - 86 to 87	250	15
88	SMH - 80 to 88	250	15
	Total		**1359**

For Nan... ...vt. Ltd.

Authorised signatory

M.J. Engineering Consultants Private Limited
906, Madhuban Building
55, Nehru Place
New Delhi-19

PROJECT : AFFORDABLE GROUP HOUSING COLONY (VILLAGE DHANKOT)SEC-102, GURUGRAM (HR)

MATERIAL STATEMENT FOR WATER SUPPLY DISTRIBUTION SYSTEM / RISING MAIN LINE

S.N.	Discription	No. of Floor	Unit	Pipe Dia (mm)					Remarks
				50 (mm)	40 (mm)	100 (mm)	80 (mm)	65 (mm)	
1	T- A	Stilt + 14	Mtr	54	54	15	120	80	150 mm
2	T- B	Stilt + 14	Mtr	54	54	15	120	80	
3	T- C	Stilt + 14	Mtr	54	54	15	120	80	
4	T- D	Stilt + 14	Mtr	54	54	15	120	80	
5	T- E	Stilt + 11	Mtr	44	44	5	120	80	
6	T- I	Stilt + 14	Mtr	54	54	15	120	80	
7	T- J	Stilt + 14	Mtr	54	54	15	120	80	
8	T- K	Stilt + 14	Mtr	54	54	15	120	80	
9	T- L	Stilt + 14	Mtr	54	54	15	120	80	
10	T- M	Stilt + 14	Mtr	54	54	15	120	80	
11	T- N	Stilt + 2	Mtr	20	20	5	120	80	
12	Pump Room To Tower		Mtr				~~585~~		525 mm
	TOTAL QUANTITY			~~550~~	~~550~~	~~145~~	~~1905~~ 1385	880	~~4030~~

For Nani Resorts [illegible] Pvt. Ltd.

Authorised signatory

Engineering Consultants Private Limited
608, Madhuban Building
55, Nehru Place
New Delhi-19

150 mm ϕ = 525 mm

100 mm ϕ = 1385 mm

Sub Work IV Road Work

Material statement for Road Work

ROAD AREA CALCULATION				
S.NO.	~~WIDTH~~ Length	~~LENGTH~~ Width	NOS.	AREA (SQ.M)
	ADDITIONS			
1	18.630	6.000	1	111.780
2	91.120	6.000	1	546.720
3	48.880	6.000	1	293.280
4	21.970	6.000	1	131.820
5	22.000	6.000	1	132.000
6	49.410	6.000	1	296.460
7	5.550	4.910	1	27.251
8	5.540	8.010	1	44.375
9	30.660	6.000	1	183.960
10	53.650	6.000	1	321.900
11	6.000	6.000	1	36.000
12	59.730	6.000	1	358.380
13	51.020	6.000	1	306.120
14	112.340	6.000	1	674.040
15	13.790	5.730	1	79.017
16	46.610	6.000	1	279.660
17	17.330	4.540	1	78.678
18	65.950	6.000	1	395.700
19	41.480	6.000	1	248.880
20	4.720	8.620	1	40.686
21	6.500	37.050	1	240.825
22	4.720	6.050	1	28.556
23	15.270	6.000	1	91.620
24	54.280	6.000	1	325.680
25	16.000	6.000	1	96.000
26	117.450	6.000	1	704.700
27	60.350	6.000	1	362.100
28	16.020	8.620	1	138.092
29	22.380	6.520	1	145.918
30	16.020	6.060	1	97.081
31	12.720	2.490	1	31.673
32	4.730	6.000	1	28.380
33	41.620	6.000	1	249.720
34	123.740	6.000	1	742.440
	1309.150			
TOTAL NON F.A.R. AREA				7869.492

Say 7870 sqm

Add 5% = 65.46

1374.60

For Nani Resorts and Horticulture Pvt. Ltd.

Say 1375 sqm

Authorised signatory

M/s Engineering Consultants Private Limited
606, Madhuban Building
55, Nehru Place
New Delhi-19

No of Car on surface = 714 Nos

2.50 x 5.00 x 714 = 8925 sqm

	PROJECT : AFFORDABLE GROUP HOUSING COLONY (VILLAGE DHANKOT)SEC-102, GURUGRAM (HR)		
	MATERIAL STATEMENT FOR IRRIGATION LINE		
S.NO.	DESCRIPTION	PIPE DIA(in mm)	LENGTH(in M)
1	GH1_2	65	30
2	GH2_3	65	30
3	GH3_4	65	30
4	GH4_5	65	30
5	GH5_6	65	30
6	GH6_7	65	30
7	GH7_8	65	30
8	GH8_9	65	30
9	GH9_10	65	30
10	GH10_11	65	30
11	GH11_12	65	30
12	GH12_13	65	30
13	GH13_14	65	30
14	GH14_15	65	30
15	GH15_16	65	30
16	GH16_17	65	30
17	GH17_18	65	30
18	GH18_19	65	30
19	GH19_20	65	30
20	GH20_21	65	30
21	GH21_22	65	30
22	GH22_23	65	30
23	GH23_24	65	30
24	GH24_25	65	30
25	GH25_26	65	30
26	GH26_27	65	30
27	GH27_28	65	30
28	GH28_29	65	30
29	GH29_30	65	30
30	GH30_31	65	30
31	GH31_32	65	30
32	GH32_33	65	30
33	GH33_34	65	30
34	GH34 _17	65	30
	TOTAL		
	PIPE DIA(in mm)	LENGTH (in M)	
	65mm Dia	1020	

For Nani Resorts and Agriculture Pvt. Ltd.

Authorised signatory

Engineering Consultants Private Limited
606, Madhuban Building
55, Nehru Place
New Delhi-19

PROJECT : AFFORDABLE GROUP HOUSING COLONY (VILLAGE DHANKOT)SEC-102, GURUGRAM (HR)

SUBHEAD : FLUSHING WATER SUPPLY SCHEME - DESIGN CALCULATION

HYDRAULIC STATEMENT OF FLUSHING WATER SUPPLY

S. NO.	STARTING NODE	ENDING NODE	VALUME OF WATER (CUM)	RUNNING HOURS	FLOW RATE (IN PIPE CUM/SEC)	DIA AS/LEA'S FORMULA (MM)	SELECTED DIA OF PIPE(MM)	CROSS-SECTIONAL AREA(SQMT)	VELOCITY (M/SEC)	LENGTH OF PIPE(M)	FIRICTION LOSE IN M./100M. (AS/DARCY-WEISBACH FORMULA)	FIRICTION LOSE (M)
1	OHT Tower - H	F - Z'	18	3	0.00167	32.65986	40	0.00126	1.32696	30	10.76962	3.23
2	OHT Tower - G	F - Z'	17	3	0.00157	32.13643	40	0.00126	1.25324	45	9.60624	4.32
3	OHT Tower - F	F - X	18	3	0.00167	32.65986	40	0.00126	1.32696	30	10.76962	3.23
4	F - X	F - P	53	3	0.00491	88.96717	100	0.00785	0.62515	50	0.95611	0.48
5	OHT Tower - K	F - V	1.5	3	0.00014	14.96709	25	0.00049	0.28309	25	0.78422	0.20
5	OHT Tower - J	F - T	17	3	0.00157	32.13643	40	0.00126	1.25324	50	9.60624	4.80
6	OHT Tower - I	F - R	18	3	0.00167	32.65986	40	0.00126	1.32696	26	10.76962	2.80
7	F - R	F - P	36.5	3	0.00338	87.20187	100	0.00785	0.43053	55	0.45346	0.25
8	OHT Tower - B	F - P	17	3	0.00157	32.13643	40	0.00126	1.25324	51	9.60624	4.90
9	F - P	F - N	53.5	3	0.00495	89.38584	100	0.00785	0.63105	50	0.97423	0.49
10	OHT Tower - B	F - N	17	3	0.00157	32.13643	40	0.00126	1.25324	27	9.60624	2.59
11	F - N	F - L	70.5	3	0.00653	84.83440	100	0.00785	0.83156	66	1.69174	1.12
12	OHT Tower - A	F - L	17	3	0.00157	32.13643	40	0.00126	1.25324	37	9.60624	3.55
13	F - L	F - J	87.5	3	0.00810	94.51080	100	0.00785	1.03208	50	2.60598	1.30
14	OHT Tower - A	F - J	17	3	0.00157	32.13643	40	0.00126	1.25324	25	9.60624	2.40
15	OHT Tower - E	F - H	7	3	0.00065	26.73169	32	0.00080	0.80631	50	4.97052	2.49
16	F - J	F - F	111.5	3	0.01032	81.28596	100	0.00785	1.31517	65	4.23161	2.75
17	OHT Tower - C	F - F	17	3	0.00157	32.13643	40	0.00126	1.25324	50	9.60624	4.80
18	F - F	F - D	128.5	3	0.01190	87.26291	100	0.00785	1.51569	85	5.62033	4.78
19	OHT Tower - C	F - D	17	3	0.00157	32.13643	40	0.00126	1.25324	50	9.60624	4.80
20	F - D	F - B	145.5	3	0.01347	92.85592	100	0.00785	1.71621	65	7.20579	4.68
21	OHT Tower - D	F - B	18	3	0.00167	33.06811	40	0.00126	1.32696	50	10.76962	5.38
22	F - B	STP Plant Room	163.5	3	0.01514	98.43215	100	0.00785	1.92852	85	9.09894	7.73

For Nani Resorts and Floriculture Pvt. Ltd.

Authorised signatory

PROJECT : AFFORDABLE GROUP HOUSING COLONY (VILLAGE DHANKOT)SEC-102, GURUGRAM (HR)

SUBHEAD : DOMESTIC WATER SUPPLY SCHEME - DESIGN CALCULATION

HYDRAULIC STATEMENT OF WATER SUPPLY

S. NO.	STARTING NODE	ENDING NODE	VOLUME OF WATER (CUM)	RUNNING HOURS	FLOW RATE (IN PIPE CUM/SEC)	DIA AS/LEA'S FORMULA(MM)	SELECTED DIA OF PIPE(MM)	CROSS-SECTIONAL AREA(SQMT)	VELOCITY (M/SEC)	LENGTH OF PIPE(M)	FRICTION LOSS IN M./100M. (AS/DARCY-WEISBACH FORMULA)	FRICTION LOSS (M)
1	OHT Tower-H	D - Y'	33	3	0.00306	44.22166	50	0.00196	1.55697	45	11.86133	5.34
2	OHT Tower- G	D - Y	32	3	0.00296	43.54648	50	0.00196	1.50979	30	11.15335	3.35
3	D - Y	D - W	65	3	0.00602	81.45807	100	0.00785	0.76669	50	1.43808	0.72
4	OHT TOWER - H	D - W	33	3	0.00306	44.22166	50	0.00196	1.55697	25	11.86133	2.97
5	D - W	D - O	98	3	0.00907	100.02083	100	0.00785	1.15593	50	3.26894	1.63
5	OHT Tower - K	D - U	2.5	3	0.00023	15.97524	25	0.00049	0.47181	26	2.17839	0.57
6	OHT Tower - J	D - S	32	3	0.00296	43.54648	50	0.00196	1.50979	55	11.15335	6.13
7	D- S	D - Q	34.5	3	0.00319	84.77912	100	0.00785	0.40694	51	0.40513	0.21
8	OHT Tower - I	D - Q	33	3	0.00306	44.22166	50	0.00196	1.55697	50	11.86133	5.93
9	D - Q	D - O	67.5	3	0.00625	83.00979	100	0.00785	0.79618	27	1.55083	0.42
10	OHT Tower - B	D - O	31.5	3	0.00292	43.20494	50	0.00196	1.48620	66	10.80753	7.13
11	D - O	D - M	165.5	3	0.01532	99.03236	100	0.00785	1.95211	37	9.32291	3.45
12	OHT Tower - B	D - M	31.5	3	0.00292	43.20494	50	0.00196	1.48620	50	10.80753	5.40
13	D - M	D - K	197	3	0.01824	85.08672	100	0.00785	2.32366	25	13.20955	3.30
14	OHT Tower - A	D - K	31.5	3	0.00292	43.20494	50	0.00196	1.48620	50	10.80753	5.40
15	D - K	D - I	228.5	3	0.02116	91.63719	100	0.00785	2.69521	65	17.77165	11.55
16	OHT Tower - A	D - I	31.5	3	0.00292	43.20494	50	0.00196	1.48620	50	10.80753	5.40
17	OHT Tower - E	D - G	13	3	0.00120	36.42915	40	0.00126	0.95836	85	5.61749	4.77
18	D - I	D - E	273	3	0.02528	100.16362	100	0.00785	3.22010	37	25.36768	9.39
19	OHT Tower - C	D - E	31.5	3	0.00292	43.20494	50	0.00196	1.48620	50	10.80753	5.40
20	D - E	D - C	304.5	3	0.02819	100.74721	100	0.00785	3.59165	25	31.55949	7.89
21	OHT Tower - C	D - C	31.5	3	0.00292	43.20494	50	0.00196	1.48620	50	10.80753	5.40
22	D - C	D - A	336	3	0.03111	105.83005	100	0.00785	3.96320	65	38.42678	24.98
23	OHT Tower - D	D - A	34	3	0.00315	44.88669	50	0.00196	1.60415	50	12.59109	6.30
24	D - A	Plant Room	370	3	0.03426	101.80091	100	0.00785	4.36424	85	46.59710	39.61
25												