

**PROPOSED AFFORDABLE PLOTTED
COLONY UNDER DEEN DAYAL JAN AWAS
YOJNA-2016 OVER AN AREA MEASURING
10.4125 ACRES
AT
VILLAGE SOHNA, SECTOR- 07, BALUDA
RD, SOHNA RURAL, HARYANA**

**SERVICE PLAN ESTIMATE
FOR
PUBLIC HEALTH ENGINEERING SERVICES WORK**

Client

M/S N.B. BUILDCON PVT. LTD.

Architect

RUBY JAIN

MEP Services Consultant

PARADISE CONSULTANTS

Plot No. 96, Pocket – 1, Jasola Vihar, New Delhi - 110025

PROJECT REPORT / ESTIMATES FOR PROVIDING INTERNAL SERVICES e.g. WATER SUPPLY, FIRE, SEWERAGE & STORM WATER DRAINAGE ETC. IN RESPECT OF PROPOSED AFFORDABLE PLOTTED COLONY UNDER DEEN DAYAL JAN AWAS YOJNA-2016 OVER AN AREA MEASURING 10.4125 ACRES IN VILLAGE SOHNA, SECTOR- 07, BALUDA RD, SOHNA RURAL, HARYANA

Sohna is a town and a municipal committee in the Gurgaon district of Haryana, India. It is on the highway from Gurgaon to Alwar near a vertical rock. Sohna tehsil is part of Ahirwal Region. It has an average elevation of 212 m (696 ft). Gurgaon district is divided into 4 subdivisions each headed by a Sub-Divisional Magistrate (SDM): Gurgaon, Sohna, Pataudi and Badshahpur. A master plan for the town was introduced in 2012. Divided into 38 sectors, the plan covers residential, commercial, institutional, industrial, transport, communications, utilities, public and semi-public use, open spaces and agricultural and conservation zones.

PROPOSED AFFORDABLE PLOTTED COLONY UNDER DEEN DAYAL JAN AWAS YOJNA-2016 OVER AN AREA MEASURING 10.4125 ACRES is a residential proposed between **IN VILLAGE SOHNA, SECTOR- 07, BALUDA RD, SOHNA RURAL, HARYANA** for development by **M/S N.B. BUILDCON PVT. LTD.**

Water Supply

1

The source of water supply shall be HUDA water supply connection. It has been proposed to construct underground tanks of capacity as per attached details for domestic and other purpose. The underground tanks will be filled up from the riser and then pumped to the overhead water tanks of each plot.

i.) Source

The source of water supply in this area is tubewells as the underground water is sweet and fit for human consumption, moreover, the water is available at reasonable depth. The average yield of tubewell with 60'-80' strainer will be about 26000 lph per hour. The recharging of under ground water table in this belt is stated to be good. However still we shall resort to rain water harvesting system to keep up the recharging system. The number of tubewells required for the above area has been worked out to 02 Nos and the tubewells will be bored in tune with growth of demand to avoid absence of the tubewells.

ii.) Design

The scheme has been designed for population of 3168 persons in 10.4125 Acre. The rate of water supply per head per day has been taken assumed as 172.5 litres per head per day as per HUDA norms. In addition to above necessary provision of water for Community building, Commercial building, parks etc. have been taken into account for calculating the maximum number of tubewell water required.

iii.) Pumping Equipments

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

iv.) Under Ground Storage

Underground storage tank provision has been made, which caters for the present and a lot of future requirement as well as fire fighting requirement. The water for domestic water compartment shall overflow from the fire compartment so that the water in the fire compartment also remains fresh.

v.) **Boosting Station**

The boosting station is being planned near UGSR catering to the above requirement.

vi.) **Distribution System**

The distribution systems for this development are has been designed to supply @ 172.5 Litres per head per day @ 3 times the average rate of flow on 'Hazen Willima' formula with C-100. Necessary provision for laying D.I. pipes only conforming to relevant IS standards along with valves and specials has been made in this estimate. The minimum terminal head at any point in this system will be about 21.00 metres so that it can serve the S+4 stories construction envisaged in the plan. Minimum pipe diameters for distribution are kept as 100 dia.

vii.) **Rising Mains**

Rising mains from HUDA water main on sector road to water works have also been designed and provision for D.I. pipe line (dia as/design) has been made in this estimate.

2 **Sewerage**

This scheme is designed for sewer connecting to the proposed sewage treatment plant. The sewerage system has been marked on the respective plans.

The sewer lines have been designed for 3 times average DWR in relation to the water supply demand assuming that 80% fo the domestic water supply shall find its way into the proposed sewer SW pipe sewers have been proposed designed to run half full. The sewers have been designed on 0.75 mtr. per second velocity ie. Self cleansing velocity. Necessary provisions for laying SW pipes manholes etc. has been made in this estimate.

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

3 **Storm Water Drainage**

The storm water drain is being designed to carry 45 mm rain fall per hour. Also suitable provisions are contemplated in our scheme to ensure better recharging of under ground water table in the area. RCC NP₃ pipe drain with minimum 400 mm dia is proposed in this area.

4 **Roads**

Cost of road has been taken in the estimate.

5 **Street Lighting**

Provision for street lighting on surrounding area has been made.

5 **Horticulture**

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

7 **Specifications :**

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

8 **Rates**

Estimates for providing services in this site has been prepared on the recent HUDA rates.

9 **Cost**

The total cost of development in this Project including various PH & B & R services works out to **Rs. 899.69 lacs** which includes 3% contingency and PE charges and 49% departmental charges also.

The cost per gross acre for this phase works out to **Rs. 86.41 Lacs/acre** which covers the provision of services like water supply, sewerage, storm water drainage, roads, street lighting and plantations including plantations maintenance thereof as well as future expansion whatsoever indicated.

M/S N.B. BUILDCON PVT. LTD.

Authorised Signatory

**PROPOSED AFFORDABLE PLOTTED COLONY UNDER DEEN DAYAL JAN AWAS YOJNA-2016
OVER AN AREA MEASURING 10.4125 ACRES IN VILLAGE SOHNA, SECTOR- 07, BALUDA RD,
SOHNA RURAL, HARYANA**

DESIGN CALCULATION FOR UNDER GROUND WATER TANK (UGT.)

Total No. of Plots		176 Nos.		
Population per plot		18 persons		
1	Therefore population	3168 persons		
	SAY	3168 persons		
Water requirement for plots (General)		@ 155.00 Lpd.		
		Domestic @ 65 %	Flushing @ 35 %	
Water requirement for plots (General)		@ 105.00	50.00 Lpd.	
		332640	158400 Lpd.	
		or 332.64	158.40 Kld.	
2	Visitors @ 10%	317.00 persons		
Water requirement		@ 15.00 Lpd.		
		Domestic	Flushing	
Water requirement		@ 5.00	10.00 Lpd.	
		1585	3170 Lpd.	
		or 1.59	3.17 Kld.	
3	Commercial (1685.5130 Sq.m)	1685.513 sq.m		
		@	3	sq.m/per
Total Population		562		
Staff @ 10%		56	-	- Person
Visitors @ 90%		506	-	- Person
Per Person Water Requirement			Domestic	Flushing
Staff		45.00	25.00	20.00 Lpd.
Visitors		15.00	5.00	10.00 Lpd.
Daily Water Requirement				
Staff		2528.27	1404.59	1123.68 Lpd.
Visitors		7584.81	2528.27	5056.54 Lpd.
		3.93	6.18 Kld.	
4	Community Facility	0.00 sq.m		
		@	1.8	sq.m/per
Population		0		
Staff @ 10%		0	-	- Person
Visitors @ 90%		0	-	- Person
Per Person Water Requirement			Domestic	Flushing
Staff		45.00	25.00	20.00 Lpd.
Visitors		15.00	5.00	10.00 Lpd.
Daily Water Requirement				
Staff		0.00	0.00	0.00 Lpd.
Visitors		0.00	0.00	0.00 Lpd.
		0.00	0.00 Kld.	

5	Filter Backwash (Assumed Lumsum)	@	10.00	0.00 Kld.
6	Total Water Requirement (1+2+3+4+5)	Total	348.16	167.75 Kld.
7	Area under Parks (in Acre)	0.7809		
	Daily water requirement	@	-	25000 Ltr./Acre
			-	19522.5 Lpd.
			0.00	19.52 Kld.
8	Area under Roads	0.00		
	Daily water requirement	@	-	10000 Ltr./Acre
			0.00	0 Lpd.
		Total	0.00	0.00 Kld.
	(7+8)	Total	0.00	19.52 Kld.
I	Total daily requirement			
	a) For Domestic+Flushing use (1+2+3+4+5)		348.16	167.75 Kld.
	b) Under Road+ Parks (7+8)		0.00	19.52 Kld.
	Total Daily Requirement		348.16	187.27 Kld.
		SAY	350.00	190.00 Kld.
II	Tubewell			
	Assuming working hours of tubewells			8 Hours
	Assuming discharge/hour of each tubewell			26 KL/Hours
	Total domestic demand			348.16 Kld.
	No. of tubewells required	348.16 /26/8		1.67
		Say		2.00 Nos.
III	Pumping machinery for tubewell			
	Gross working load	=		45.00 Mtr.
	Average fall in SL	=		3.05 Mtr.
	Depression head	=		6.10 Mtr.
	Friction loss in main	=		2.50 Mtr.
		=		56.65 Mtr.
		Say	=	60.00 Mtr.
	BHP = $26000 \times 60 \times 1 / 60 / 60 / 75 / 0.6$	=		9.63 HP
	With 60% efficiency	Say		10.00 HP
IV	Underground Tank			
	Daily requirement for domestic use	=		348.16 Kld.
	Capacity of under ground tank			
	24 hours storage	348.16 x 24 / 24		348.16 Kld.
		Say	=	350.00 Kld.
		TOTAL		350.00 KLD
	It is proposed to provide under ground tank of capacity 350 KL			

Tanks will have Four compartments, two for raw and the other two for domestic use. The water first enters the raw compartment, then over flows to the domestic use after filtration.

It is proposed to provide the under ground tank of following capacity :

Capacity of Raw Water Tank-01	90.00 Kld.
Capacity of Raw Water Tank-02	90.00 Kld.
Capacity of Domestic Water Tank-01	90.00 Kld.
Capacity of Domestic Water Tank-02	90.00 Kld.
	UGT

V BOOSTING MACHINERY

UG. Tank

Daily requirement for domestic use	=	348.16 Kld.
Assuming 4 hours pumping	3 pumps (with one standby)	
Discharge/hour	348.16 / 4 / 3 =	29.01 KL/Hours
Head of pump		
i) Suction lifts	=	0.0 Mtr.
ii) Friction loss in M<main & specials	=	7.0 Mtr.
iii) Clear head	=	18.0 Mtr.
iv) Residual head	=	5.0 Mtr.
	=	30.0 Mtr.
BHP of motor		5.37 HP
	=	6.00 HP

UG. Tank

Daily requirement for flushing use	=	187.27 Kld.
Assuming 4 hours pumping	2 pumps (with one standby)	
Discharge/hour	187.27 / 4 / 2 =	23.41 KL/Hours
Head of pump		
i) Suction lifts	=	0.0 Mtr.
ii) Friction loss in M<main & specials	=	5.0 Mtr.
iii) Clear head	=	18.0 Mtr.
iv) Residual head	=	5.0 Mtr.
	=	28.0 Mtr.
BHP of motor		4.05 HP
	=	5.00 HP

Gen Set

	Nos.	HP	
Pumps for UG. Tank (Domestic water supply)	3	6.0	18 HP
Pumps for UG. Tank (Flushing water supply)	2	5.0	10 HP
Tubewell	2	10.0	20 HP
Lighting			= 25 HP
			73 HP
or	73 x 0.746x1.5		81.69 KVA
	Say		90.00 KVA

VI Sewage Treatment Plant Capacity (STP.)			
Gross Domestic+Flushing water requirment / day			515.91 Kld.
Sewage flow 80% of total load			412.73 Kld.
Capacity of STP			413.00 Kld.
Proposed STP Capacity (KLD)			420.00 Kld.
	Say		420.00 Kld.
			STP

Estimate for Providing in Internal Development works for

M/S N.B. BUILDCON PVT. LTD.

Description	Amount (Lacs.)
Sub Work - I Water Supply System	236.20
Sub Work - II Sewerage System	103.63
Sub Work - III Storm Water Drainage System	63.99
Sub Work - IV Roads & Footpath	183.84
Sub Work - V Street Lighting	15.98
Sub Work - VI - Horticulture	21.74
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)	274.33

Total	899.69
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(RUPEES EIGHT CRORES SIXTY LACS FOURTY ONE THOUSAND ONLY)

COST PER ACRE

86.41 Lacs

M/S N.B. BUILDCON PVT. LTD.

Authorized Signatory

FINAL ABSTRACT OF REVISED COST		
Description		Amount (Lacs.)
Sub Head - (I) Head Works		61.30
Sub Head - (II) Pumping Machinery		36.30
Sub Head - (III) Distribution System		53.27
Sub Head - (IV) Irrigation Scheme		3.03
	Total	153.90
Add 3% Contingencies		4.62
	Total	158.52
Add 49% Departmental Charges		77.68
	Grand Total	236.20
(CO to final abstract of cost)	Say	236.20

Sub Work I Sub Head No. I				Water Supply Head Works	
S. No.	Description	Unit	Qty	Rate (Rs.)	Amount Rs. (lacs)
1	Boring and installing 510 mm i/d tubewells with reverse/direct rotary rig complete with pipe strainer to a depth of about 80 m. complete.	Nos.	2	500000.00	10.00
2	Constructing pump chambers as per standard design of PWD PH/HUDA of size 1.50x1.50 m.	Nos.	2	100000.00	2.00
1	Construction of boosting chambers of suitable size along with under ground tank & pumping machinery and generating set etc. complete in all respects.				
	Details of boosting station				
i)	construction of boosting chambers	Nos.	1	750000.00	7.50
ii)	construction of UG tank (Dom. & flushing)	KL	540	7000.00	37.80
4	Provision for carriage of material and other unforeseen items.	LS	-	-	2.00
5	Provision for facilities staff for Maintenance	LS	-	-	2.00
	(C.O. to abstract of cost of Sub-work No.I)				61.30 Lacs
				Say	61.30 Lacs

Sub Work I			Water Supply		
Sub Head No. II			Pumping Machinery		
S. No.	Description	Unit	Qty	Rate (Rs.)	Amount (in Lakhs)
1	Providing and installing electricity driven electro or submersible pumping set capable of delivering about 26 KL water per hour against a total head of 60 M complete with motor and other accessories.	Nos.	2	160000.00	3.20
2	Providing & installing electricity driven pumping set capable of delivering 480 LPM of water against a total head of 35 m complete with motor and other accessories (For Domestic - 6.0 HP).	Nos.	4	200000.00	8.00
2	Providing & installing electricity driven pumping set capable of delivering 420 LPM of water against a total head of 35 m complete with motor and other accessories (For Flushing - 5.0 HP).	Nos.	3	160000.00	4.80
3	Provision for diesel engine generator set each for standby Arrangements for booster pump complete with gear haed arrangements of following capacities.				
i)	90 KVA	Nos.	1	900000.00	9.00
4	Provision for diesel engine genset stand bye arrangements for Tubewells.	Nos.	2	150000.00	3.00
5	Provision for cheap pressure type chlorination plant complete.	Nos.	2	15000.00	0.30
6	Provision for making foundations & erection of pumping machinery.	LS	-	-	3.00
7	Provision for pipes, valves & specials inside the pump chamber.	LS	-	-	2.00
8	Provision for electric services connection including electric fittings for tubewells chambers complete including cost of transformer.	LS	-	-	1.50
9	Provision for carriage for materials and other unforeseen items.	LS	-	-	1.50
(C.O. to abstract of cost of Sub-work No.I)				Total	36.30
				Say	36.30

Sub Work I Sub Head No. III		Water Supply Distribution System/Rising Main			
S. No.	Description	Unit	Qty	Rate (Rs.)	Amount (Rs.)
1	Providing, laying, jointing & testing D.I. K-7 pipes including cost of excavation complete as per ISI marked. (For Domestic & Tube Well water supply line)				
i)	100 mm dia	M	3194	1200.00	3832800.00
ii)	150 mm dia	M	83	1575.00	130725.00
2	Providing, laying and Jointing GI pipes and fittings conforming to IS:1239 (heavy class) complete with GI fittings (union and clamps including cutting holes in wall and making good the same in cement mortar 1 : 2 including pipe supports with walls and ceilings including pipe supports with galvanised MS slotted angle iron angles, clamps, nuts, bolts complete including cutting and making good the floors and walls where required complete of outer diameter.				
i)	25mm dia nominal bore	M	34	320.00	10880.00
ii)	32mm dia nominal bore	M	118	550.00	64900.00
iii)	40mm dia nominal bore	M	100	650.00	65000.00
iv)	50mm dia nominal bore	M	172	780.00	134160.00
v)	65mm dia nominal bore	M	80	950.00	76000.00
vi)	80mm dia nominal bore	M	110	1100.00	121000.00
3	Providing, fixing & Testing butterfly valves including cost of complete in all respects.				
i)	100 mm i/d	Nos.	9	10000.00	90000.00
ii)	150 mm i/d	Nos.	3	15000.00	45000.00
4	Providing, fixing & Testing Non Return valves (NRV) including cost of complete in all respects.				
i)	100 mm i/d	Nos.	3	14000.00	42000.00
5	Providing and fixing air valves and scour valves including cost of complete in all respects.	Nos.	6	10000.00	60000.00
6	Providing and fixing indicating plates for sluice valve, air valve etc.	Nos.	21	1000.00	21000.00
7	Provision for carriage of material	LS	-	-	150000.00
8	Provision for cutting the roads and making to its original conditions.	LS	-	-	200000.00
9	Making water supply connection.	LS	-	-	200000.00
10	Provision for rising main from HUDA water supply line to UG Tank.				
i)	100 mm i/d	M	70	1200.00	84000.00
	(C.O. to abstract of cost of Sub-work No.I)			Total Say	5327465.00 53.27 Lacs

Sub Work I Sub Head No. IV				Water Supply Irrigation	
S. No.	Description	Unit	Qty	Rate (Rs.)	Amount (Rs.)
1	Providing, laying, jointing & testing uPVC pipe line confirming to IS 4985 including cost of Excavation etc. complete in all respect.				
i)	75 OD	M	10	650.00	6500.00
ii)	40 OD	M	56	450.00	25200.00
iii)	32 OD	M	387	320.00	123840.00
iv)	25 OD	M	96	260.00	24960.00
2	Providing and fixing 20 mm PVC RQRC hydrant valve with PVC lid complete in all respect.	Nos.	8	1200.00	9600.00
3	Providing & fixing 20 mm PVC Keys for hydrant valve complete in all respects.	Nos.	4	400.00	1600.00
4	Providing, fixing & Testing Butter fly valves including cost of complete in all respects.				
i)	65 mm i/d	Nos.	1	4750.00	4750.00
5	Providing and fixing air valves and scour valves including cost of complete in all respects.	Nos.	1	4500.00	4500.00
6	Providing and fixing indicating plates for sluice valve, air valve etc.	Nos.	2	1000.00	2000.00
7	Provision for carriage of materials etc. and other unforeseen charges.	LS	-	-	50000.00
8	Provision for cutting of roads & making good to its in original condition.	LS	-	-	50000.00
				Total	302950.00
				Say	3.03 Lacs

Sub Work II		Sewerage Scheme			
S. No.	Description	Unit	Qty	Rate (Rs.)	Amount (Rs.)
1	Providing, lowering, jointing, cutting DWC/ RCC NP ₃ pipes and specials into trenches including cost of excavation, bed concrete lot of manholes complete.				
i)	200 mm i/d				
a)	Average depth 0.0 m to 1.5 m	M	541	1250.00	676250.00
b)	Average depth 1.5 m to 4.5 m	M	497	1350.00	670950.00
ii)	300 mm i/d				
a)	Average depth 0.0 m to 1.5 m	M	0	1450.00	0.00
b)	Average depth 1.5 m to 4.5 m	M	15	1750.00	26250.00
2	Provision for lighting, watching and temporary diversion of traffic	LS	-	-	100000.00
3	Provision for cutting of roads and carriage of materials etc. and other unforeseen charges.	LS	-	-	100000.00
4	Provision for connection with HUDA.	LS	-	-	100000.00
5	Cost of 420 Kld Sewerage Treatment Plant.	LS	-	-	5000000.00
6	Provision for CI / DI pipe from STP. To Huda Main Line.				
i)	150 mm dia pipe.	M	50	1575.00	78750.00
					6752200.00
	Add 3% contingencies				202566
					6954766.00
	Add 49% Deptt. Charges				3407835.34
				Total	10362601.34
	(C.O. to abstract of cost of Sub-work No. 1)			Say	103.63 Lacs

Sub Work - III		Storm Water Drain			
S. No.	Description	Unit	Qty	Rate (Rs.)	Amount (Rs.)
1	Providing, lowering, jointing, cutting RCC NP ₃ pipes and specials into trenches including cost of excavation cost of manholes, ventilating chambers etc. complete in all respects.				
i)	400 mm i/d				
a)	Average depth upto 1.5 m	M	709	1900.00	1347100.00
b)	Average depth 1.5 m to 4.5 m	M	158	2250.00	355500.00
ii)	500 mm i/d				
a)	Average depth 1.5 m to 4.5 m	M	112	2850.00	319200.00
iii)	600 mm i/d				
a)	Average depth 1.5 m to 4.5 m	M	170	3250.00	552500.00
iv)	700 mm i/d				
a)	Average depth 1.5 m to 4.5 m	M	10	3650.00	36500.00
2	Provision for Road Gully & Drain.	LS	-	-	250000.00
3	Provision for cutting of roads and carriage of materials etc. and other unforeseen items	LS	-	-	250000.00
4	Provision for disposal arrangements Recharge Pit.	Nos	4	200000.00	800000.00
5	Provision for lighting, watching and temporary diversion of traffic	LS	-	-	100000.00
6	Provision for connection with HUDA.				
i)	500 mm i/d (Average depth 1.5 m to 4.5 m)	M	60	2650.00	159000.00
					4169800.00
	Add 3% contingencies				125094.00
					4294894.00
	Add 49% Deptt. Charges				2104498.06
				Total	6399392.06
				SAY	63.99 Lacs
	(C.O. to abstract of cost of Sub-work No. 1				

PROPOSED AFFORDABLE PLOTTED COLONY UNDER DDJAY 10.4125 ACRES IN VILLAGE SOHNA, SECTOR- 07, HARYANA

Sub Work IV				Road Work	
S. No.	Description	Unit	Qty	Rate (Rs.)	Amount (Rs.)
1	Provision for leveling & earth filling as per site condition 10.4125 acre @ 100000/acre	Acres	10.4125	150000	1561875.00
2 a	Construction of Metalled road by:- i) Providing GSB 200 mm thick. ii) 250 mm thick W.M.M. stone aggregate. iii) 50 mm thick B.M. iv) 20 mm thick M.S.S. complete in all respect.	Sq. mtr.	2670.0	1200	3204000.00
2 b	Construction of Road by Paver - i) Providing GSB 200 mm thick. ii) 250 mm thick W.M.M. stone aggregate. iii) 80 mm thick CC paver block	Sq. mtr.	3390.0	1200	4068000.00
3	Provision for footpath with paver blocks of design mix concrete. (1006 x 1.20 = 1207.2 sqm)	Sq. mtr.	1207.20	750	905400.00
4	Provision for Pavement in shopping Area i.e. 50% of the area.	Sq. mtr.	842.8	750	632100.00
5	Provision for kerb stone with complete specification (1006 x 2 = 2012 rmt)	mtr.	2012.0	600	1207200.00
6	Provision for Carriage of material & unforeseen items,demarcation etc.	L.S.		200000.00	200000.00
7	Provision for traffic lighting and guide map/ indicators	L.S.		200000.00	200000.00
				Total	11978575.00
Add 3% contingencies					359357.25
					12337932.25
				Total	123.38 Lacs
Add 49 % department charges					60.46 Lacs
				SAY	183.84 Lacs

Sub Work V				Street Lighting	
S. No.	Description	Unit	Qty	Rate (Rs.)	Amount (Rs.)
1	Providing street lighting on internal roads as per standard specifications of HVPNL with CFL	per acre	10.4125	100000.00	1041250.00
	Add 3% contingencies				31237.50
				Total	1072487.50
	Add 49% Deptt. Charges				525518.88
				Total	1598006.00
				SAY	15.98 Lacs

Sub Work VI			Horticulture		
S. No.	Description	Unit	Qty	Rate (Rs.)	Amount (Rs.)
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)				
	10.4125 acres @ Rs. 1.0 lacs.	per acre	10.4125	100000.00	10,41,250
	500 trees @ Rs. 750/- each				3,75,000
					1416250.00
	Add 3% contingency charges				42487.50
				Total	1458737.50
	Add 49% Deptt. Charges				714781.38
				Total	2173518.88
				Say	21.74 Lacs

Sub Work VII				Maintenance Charges & Resurfacing of Roads	
S. No.	Description	Unit	Qty	Rate (Rs.)	Amount (Rs.)
1	Provision for maintenance charges for water supply, sewerage,storm water drainage, 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.				
	10.4125 acres @ 5 lacs per acre	per acre	10.4125	500000.00	5206250
2	Provision for resurfacing & strengthening of road after five years of Ist phase @ 600/- per sqm	Sq. mtr.	9049.0	600	5429400.00
3	Provision for resurfacing & strengthening of road after ten years of 2 nd phase @ 800/- per sqm	Sq. mtr.	9049.0	800	7239200.00
				Total	17874850.00
Add 3% contingency & PE charges					536245.50
				Total	18411095.50
Add 49% Departmetal charges					9021436.795
				Total	27432532.3
say					274.33 Lacs

<u>WATER SUPPLY QUANTITY SHEET</u>				
<u>DOMESTIC WATER SUPPLY QUANTITY SHEET</u>				
S.No.	Line No		Length of Pipe	Dia of Pipe
	From	To	mtr.	mtr.
1	<i>UGT.</i>	D1	10.0	150
2.	D1	D2	38.0	150
3.	D2	D3	21.0	100
4.	D3	D3a	38.0	40
5.	D3	D4	9.0	100
6.	D4	D5	40.0	100
7.	D5	D6	9.0	100
8.	D6	D6a	2.0	100
9.	D6a	D6b	62.0	50
10.	D6	D7	21.0	100
11.	D7	D7a	110.0	80
12.	D7	D8	37.0	100
13.	D8	D8a	125.0	100
14.	D8	D9	9.0	100
15.	D8a	D9	135.0	100
16.	D9	D10	40.0	100
17.	D10	D11	9.0	100
18.	D10	D12	121.0	100
19.	D12	D11	113.0	100
20.	D11	D11a	17.0	25
21.	D2	D13	115.0	100
22.	D13	D14	9.0	100
23.	D14	D4	138.0	100
24.	D14	D15	40.0	100
25.	D15	D5	138.0	100
26.	D15	D16	9.0	100
27.	D16	D16a	32.0	100
28.	D16a	D16b	80.0	65
29.	D16a	D6a	105.0	100
30.	D16	D17	75.0	100
31.	D13	D17	152.0	100

S.No.	Line No		Length of Pipe	Dia of Pipe
	From	To	mtr.	mtr.
<u>FLUSHING WATER SUPPLY QUANTITY SHEET</u>				
1	<i>STP.</i>	F1	10.0	150
2.	F1	F2	60.0	100
3.	F2	F3	21.0	100
4.	F3	F3a	38.0	32
5.	F3	F4	9.0	100
6.	F4	F5	40.0	100
7.	F5	F6	9.0	100
8.	F6	F6a	2.0	100
9.	F6a	F6b	62.0	40
10.	F6	F7	21.0	100
11.	F7	F7a	110.0	50
12.	F7	F8	37.0	100
13.	F8	F8a	125.0	100
14.	F8	F9	9.0	100
15.	F8a	F9	135.0	100
16.	F9	F10	40.0	100
17.	F10	F11	9.0	100
18.	F10	F12	121.0	100
19.	F12	F11	113.0	100
20.	F11	F11a	17.0	25
21.	F2	F13	115.0	100
22.	F13	F14	9.0	100
23.	F14	F4	138.0	100
24.	F14	F15	40.0	100
25.	F15	F5	138.0	100
26.	F15	F16	9.0	100
27.	F16	F16a	32.0	100
28.	F16a	F16b	80.0	32
29.	F16a	F6a	105.0	100
30.	F16	F17	75.0	100
31.	F13	F17	152.0	100

S.No.	Line No		Length of Pipe	Dia of Pipe
	From	To	mtr.	mtr.
<u>TUBE WELL WATER SUPPLY QUANTITY SHEET</u>				
1	TUBE WELL 01	T1	121.0	100
2.	TUBE WELL 02	T1	5.0	100
3.	T1	UGT	25.0	150
<u>HUDA WATER SUPPLY QUANTITY SHEET</u>				
1	MUNICIPAL LINE	UGT	70.0	100
Description			Length in (MTR)	Pipe Dia (MM)
Domestic & flushing Water Supply line			34	25
Domestic & flushing Water Supply line			118	32
Domestic & flushing Water Supply line			100	40
Domestic & flushing Water Supply line			172	50
Domestic & flushing Water Supply line			80	65
Domestic & flushing Water Supply line			110	80
Domestic, flushing & Tube Well Water Supply line			3194	100
Domestic, flushing & Tube Well Water Supply line			83	150
Description			Length in (MTR)	Pipe Dia (MM)
Municipal Water Supply line			70.0	100
100 Dia Valve			9	Nos.
150 Dia Valve			3	Nos.
100 Dia Non Return Valve			3	Nos.
Air Valve			6	Nos.

IRRIGATION WATER SUPPLY QUANTITY SHEET				
S.No.	Line No		Length of Pipe	Dia of Pipe
	From	To	mtr.	OD
1	STP	G1	10.0	75
2.	G1	G2	32.0	40
3.	G2	G3	61.0	32
4.	G3	G4	37.0	32
5.	G4	G5	43.0	25
6.	G1	G6	24.0	40
7.	G6	G7	50.0	32
8.	G7	G8	239.0	32
9.	G8	G9	53.0	25
Irrigation Water Supply line			96.0	25
Irrigation Water Supply line			387.0	32
Irrigation Water Supply line			56.0	40
Irrigation Water Supply line			10.0	75
Garden Hydrant			8	Nos.
80 Dia Valve			1	Nos.
Air Valve			1	Nos.

TITLE - SEWERAGE QUANTITY SHEET												
S.No.	Line No.		Length	Pipe Dia		Depth			EXCAVATION			
	Start	End				Avg.	0.0 - 1.5	1.5 - 3.0	3.0 - 4.5	4.5 - 6.0		
-	From	To	(mtr.)	(mm)	(mtr.)	(mtr.)	(mtr.)	(mtr.)	(mtr.)	(mtr.)	(mtr.)	(mtr.)
1	S1	S2	102.0	200	0.200	1.20	1.52	1.36	102.0	0.0	0.0	0.0
2.	S2a	S2	23.0	200	0.200	1.75	1.82	1.79	0.0	23.0	0.0	0.0
3.	S2	S3	50.0	200	0.200	1.82	1.93	1.88	0.0	50.0	0.0	0.0
4.	S3a	S3	113.0	200	0.200	1.20	1.50	1.35	113.0	0.0	0.0	0.0
5.	S3	S4	38.0	200	0.200	1.93	2.00	1.96	0.0	38.0	0.0	0.0
6.	S4a	S4b	35.0	200	0.200	2.00	2.11	2.05	0.0	35.0	0.0	0.0
7.	S4c	S4b	66.0	200	0.200	1.20	1.41	1.30	66.0	0.0	0.0	0.0
8.	S4b	S4	23.0	200	0.200	2.11	2.18	2.14	0.0	23.0	0.0	0.0
9.	S4	S4	45.0	200	0.200	1.20	1.34	1.27	45.0	0.0	0.0	0.0
10.	S4	S4	108.0	200	0.200	2.18	2.67	2.42	0.0	108.0	0.0	0.0
11.	S4	S4	58.0	200	0.200	1.20	1.38	1.29	58.0	0.0	0.0	0.0
12.	S4	S4	103.0	200	0.200	1.88	2.30	2.09	0.0	103.0	0.0	0.0
13.	S4	S4	75.0	200	0.200	1.20	1.38	1.29	75.0	0.0	0.0	0.0
14.	S4	S4	40.0	200	0.200	2.30	2.48	2.39	0.0	40.0	0.0	0.0
15.	S4	S4	82.0	200	0.200	1.20	1.41	1.30	82.0	0.0	0.0	0.0
16.	S4	S4	42.0	200	0.200	2.48	2.61	2.54	0.0	42.0	0.0	0.0
17.	S4	S4	35.0	200	0.200	2.61	2.72	2.66	0.0	35.0	0.0	0.0
18.	S4	S4	15.0	300	0.300	2.82	2.85	2.83	0.0	15.0	0.0	0.0
Total			1053.0						541.0	512.0	0.0	0.0
Excavation Depth												
Description		(0.0 - 1.5)	(1.5 - 3.0)	(3.0 - 4.5)	(4.5 - 6.0)							
200 mm Dia pipe		541.0	497.0	0.0	0.0							
250 mm Dia pipe		0.0	0.0	0.0	0.0							
300 mm Dia pipe		0.0	15.0	0.0	0.0							
400 mm Dia pipe		0.0	0.0	0.0	0.0							

TITLE : STORM WATER QUANTITY SHEET											
S.No.	Line No.		Length	Size of Pipe		Depth			EXCAVATION		
						Start	End	Avg.	0.0 -1.5	1.5 - 3.0	3.0 - 4.5
-	From	To	(mtr.)	(mm)	(mtr.)	(mtr.)	(mtr.)	(mtr.)	(mtr.)	(mtr.)	(mtr.)
1.	A1	A2	120.0	400	0.400	1.40	1.59	1.50	120.0	0.0	0.0
2.	A2	D.C.01	7.0	400	0.400	1.59	1.61	1.60	0.0	7.0	0.0
3.	D.C.01	R.P.01	7.0	400	0.400	1.61	1.62	1.62	0.0	7.0	0.0
4.	R.P.01	A3	7.0	400	0.400	1.40	1.41	1.41	7.0	0.0	0.0
5.	A3	A4	62.0	400	0.400	1.41	1.54	1.48	62.0	0.0	0.0
6.	A4	D.C.02	5.0	400	0.400	1.54	1.55	1.55	0.0	5.0	0.0
7.	D.C.02	R.P.02	5.0	400	0.400	1.55	1.56	1.56	0.0	5.0	0.0
8.	R.P.02	A5	5.0	400	0.400	1.40	1.41	1.41	5.0	0.0	0.0
9.	A5	A6	70.0	400	0.400	1.41	1.40	1.41	70.0	0.0	0.0
10.	A8	A9	75.0	400	0.400	1.40	1.50	1.45	75.0	0.0	0.0
11.	A9	A10	10.0	400	0.400	1.50	1.52	1.51	0.0	10.0	0.0
12.	A10a	A10	28.0	400	0.400	1.40	1.41	1.40	28.0	0.0	0.0
13.	A10	A11	112.0	400	0.400	1.52	1.65	1.59	0.0	112.0	0.0
14.	A11a	A11	58.0	400	0.400	1.40	1.52	1.46	58.0	0.0	0.0
15.	A11	A6	49.0	500	0.500	1.75	1.83	1.79	0.0	49.0	0.0
16.	A6	A7	42.0	600	0.600	1.93	1.98	1.95	0.0	42.0	0.0
17.	A12	A13	80.0	400	0.400	1.40	1.56	1.48	80.0	0.0	0.0
18.	A13	D.C.03	7.0	400	0.400	1.56	1.58	1.57	0.0	7.0	0.0
19.	D.C.03	R.P.03	5.0	400	0.400	1.58	1.59	1.58	0.0	5.0	0.0
20.	R.P.03	A14	5.0	400	0.400	1.40	1.41	1.41	5.0	0.0	0.0
21.	A14	A15	10.0	400	0.400	1.41	1.43	1.42	10.0	0.0	0.0

S.No.	Line No.		Length	Size of Pipe		Depth			EXCAVATION		
						Start	End	Avg.	0.0 -1.5	1.5 - 3.0	3.0 - 4.5
-	From	To	(mtr.)	(mm)	(mtr.)	(mtr.)	(mtr.)	(mtr.)	(mtr.)	(mtr.)	(mtr.)
22.	A15a	A15	20.0	400	0.400	1.40	1.44	1.42	20.0	0.0	0.0
23.	A15	A16	48.0	400	0.400	1.44	1.49	1.46	48.0	0.0	0.0
24.	A16a	A16	121.0	400	0.400	1.40	1.60	1.50	121.0	0.0	0.0
25.	A16	A17	48.0	500	0.500	1.70	1.72	1.71	0.0	48.0	0.0
26.	A17	A18	104.0	600	0.600	1.82	1.94	1.88	0.0	104.0	0.0
27.	A18	A7	24.0	600	0.600	1.94	1.97	1.96	0.0	24.0	0.0
28.	A7	<i>D.C.04</i>	5.0	700	0.700	2.08	2.08	2.08	0.0	5.0	0.0
29.	<i>D.C.04</i>	<i>R.P.04</i>	5.0	700	0.700	2.08	2.09	2.08	0.0	5.0	0.0
30.	<i>R.P.04</i>	To External	15.0	500	0.500	1.50	1.52	1.51	0.0	15.0	0.0
Total			1159.0						709.0	450.0	0.0
Excavation Depth											
Description			(0.0 - 1.5)	(1.5 - 3.0)	(3.0 - 4.5)						
400 mm Dia pipe			709.0	158.0	0.0						
500 mm Dia pipe			0.0	112.0	0.0						
600 mm Dia pipe			0.0	170.0	0.0						
700 mm Dia pipe			0.0	10.0	0.0						

PROPOSED AFFORDABLE PLOTTED COLONY UNDER DDJAY 10.4125 ACRES IN VILLAGE
SOHNA, SECTOR- 07,HARYANA

TITLE : ROAD QUANTITY SHEET					
AREA OF ROAD					
S.NO.	ROAD NO.	LENGTH	WIDTH	-	TOTAL AREA
-	-	(In Rm. Mt.)	(In Rm. Mt.)	-	(In Sq. Mt.)
METALLED ROAD (BITUMENIUS SURFACE)					
1	R-1	125.00	6.00		750.00
2	R-2	138.00	6.00		828.00
3	R-4	138.00	6.00		828.00
TOTAL		401.00		.	2406.00
ADD 10% FOR CURVES					240.6
TOTAL					2646.60
SAY					2670.00
CC PAVER BLOCK SURFACE ROAD					
4	R-3	119.00	6.00		714.00
5	R-4a	43.00	6.00		258.00
6	R-5	136.00	6.00		816.00
7	R-6	77.00	6.00		462.00
8	R-7	138.00	6.00		828.00
TOTAL		513.00		.	3078.00
ADD 10% FOR CURVES					307.8
TOTAL					3385.80
SAY					3390.00
Total Road Length		914.00			
ADD 10% FOR CURVES		91.4			
TOTAL		1005.40			
SAY					

PROJECT : PROPOSED AFFORDABLE PLOTTED COLONY UNDER DEEN DAYAL JAN AWAS YOJNA-2016 OVER AN AREA MEASURING 10.4125 ACRES IN VILLAGE SOHNA, SECTOR- 07, HARYANA										
S.No.	Line No.		Average Demand	Peak Demand @ 1.5 Times	Flow Rate	Length	Head Loss	Total Head Loss	Velocity	Pipe Dia
-	From	To	kph.	lph.	lpm.	mtr.	mtr./ mtr.	mtr.	m/sec	mm
1	Tube Well 01	T1	23.17	34.76	579.27	121.0	0.029	3.51	1.229	100
2.	Tube Well 02	T1	23.17	34.76	579.27	5.0	0.029	0.15	1.229	100
3.	T1	UGT.	46.34	69.51	1158.53	25.0	0.015	0.36	1.092	150

PROJECT : PROPOSED AFFORDABLE PLOTTED COLONY UNDER DEEN DAYAL JAN AWAS YOJNA-2016 OVER AN AREA MEASURING 10.4125 ACRES IN VILLAGE SOHNA, SECTOR- 07, HARYANA

TITLE : HYDRAULIC DESIGN CHART FOR MUNICIPAL WATER SUPPLY CONNECTION LINE FROM HUDA

S.No	Line No.		Average Demand		Peak Demand @ 1.5 Times	Flow Rate	Pipe Length	Head Loss	Total Head Loss	Velocity	Pipe Dia
-	From	To	kld.	kl/hr.	lph.	lpm.	mtr.	mtr./ mtr.	mtr.	m/sec	mm
1	<i>HUDA</i>	<i>UGT.</i>	370.73	16.9	25.3	421.3	70.0	0.016	1.13	0.894	100

Note : HUDA supply line calculation has been done as / 22 hours.

PROJECT : PROPOSED AFFORDABLE PLOTTED COLONY UNDER DEEN DAYAL JAN AWAS YOJNA-2016 OVER AN AREA MEASURING 10.4125 ACRES IN VILLAGE SOHNA, SECTOR- 07, HARYANA**TITLE : DOMESTIC WATER SUPPLY HYDRAULIC CHART**

S.No.	Line No						Plots (EWS)			Water Req. for Non Resi. Plots.		Total water Requirement	Domestic Water Req. @ 65 %																															
	From	To	No. of plots	Nos.	Population @ 18 persons / Plot.	Water Requirement /day/person @	Nos.	Pop. @ 9 per / Plot	Water Req./day/ per	Type of Building	Basis of Water Requirement	Residential & Non Residential Building	Residential & Non Residential Building	Average Demand	Peak Demand @ 3 Times	Flow Rate	Length of Pipe	Head Loss	Total Head Loss	Velocity	Dia of Pipe	Ground Level at start	Hydraulic Level at start	Head at start	Ground level at End	Hydraulic level at End	Head at End																	
-	-	-		-	18.0	155	-	9	155	-	Lumpsum	lpd.	lpd.	kld.	kld.	lpm.	mtr.	mtr./mtr.	mtr.	mtr./sec	mtr.	mtr.	mtr.	mtr.	mtr.	mtr.																		
1	UGT.	D1	0	176	3168	491040	0	0	0	-	23500	514540	334451	334.45	1003	697	10.0	0.00475	0.05	0.657	150	0.000	23.00	23.00	0.000	22.95	22.95																	
2.	D1	D2	0	176	3168	491040	0	0	0	-	0	491040	319176	319.18	958	665	38.0	0.00436	0.17	0.627	150	0.000	22.95	22.95	0.000	22.79	22.79																	
3.	D2	D3	0	88	1584	245520	0	0	0	-	0	245520	159588	159.59	479	332	21.0	0.00870	0.18	0.705	100	0.000	22.79	22.79	0.000	22.60	22.60																	
4.	D3	D3a	5	5	90	13950	0	0	0	-	0	13950	9068	9.07	27	19	38.0	0.00372	0.14	0.250	40	0.000	22.60	22.60	0.000	22.46	22.46																	
5.	D3	D4	0	83	1494	231570	0	0	0	-	0	231570	150521	150.52	452	314	9.0	0.00780	0.07	0.665	100	0.000	22.60	22.60	0.000	22.53	22.53																	
6.	D4	D5	2	81	1458	225990	0	0	0	-	0	225990	146894	146.89	441	306	40.0	0.00746	0.30	0.649	100	0.000	22.53	22.53	0.000	22.24	22.24																	
7.	D5	D6	0	81	1458	225990	0	0	0	-	0	225990	146894	146.89	441	306	9.0	0.00746	0.07	0.649	100	0.000	22.24	22.24	0.000	22.17	22.17																	
8.	D6	D6a	0	81	1458	225990	0	0	0	-	0	225990	146894	146.89	441	306	2.0	0.00746	0.01	0.649	100	0.000	22.17	22.17	0.000	22.15	22.15																	
9.	D6a	D6b	5	5	90	13950	0	0	0	-	0	13950	9068	9.07	27	19	62.0	0.00126	0.08	0.160	50	0.000	22.15	22.15	0.000	22.08	22.08																	
10.	D6	D7	0	76	1368	212040	0	0	0	-	0	212040	137826	137.83	413	287	21.0	0.00663	0.14	0.609	100	0.000	22.17	22.17	0.000	22.03	22.03																	
11.	D7	D7a	12	12	216	33480	0	0	0	-	0	33480	21762	21.76	65	45	110.0	0.00064	0.07	0.150	80	0.000	22.03	22.03	0.000	21.96	21.96																	
12.	D7	D8	5	59	1062	164610	0	0	0	-	0	164610	106997	107.00	321	223	37.0	0.00415	0.15	0.473	100	0.000	21.96	21.96	0.000	21.81	21.81																	
13.	D8	D8a	14	45	810	125550	0	0	0	-	0	125550	81608	81.61	245	170	125.0	0.00251	0.31	0.361	100	0.000	21.81	21.81	0.000	21.49	21.49																	
14.	D8	D9	0	45	810	125550	0	0	0	-	0	125550	81608	81.61	245	170	9.0	0.00251	0.02	0.361	100	0.000	21.81	21.81	0.000	21.78	21.78																	
15.	D8a	D9	14	31	558	86490	0	0	0	-	0	86490	56219	56.22	169	117	135.0	0.00126	0.17	0.248	100	0.000	21.49	21.49	0.000	21.32	21.32																	
16.	D9	D10	6	25	450	69750	0	0	0	-	0	69750	45338	45.34	136	94	40.0	0.00085	0.03	0.200	100	0.000	21.32	21.32	0.000	21.29	21.29																	
17.	D10	D11	0	25	450	69750	0	0	0	-	0	69750	45338	45.34	136	94	9.0	0.00085	0.01	0.200	100	0.000	21.29	21.29	0.000	21.28	21.28																	
18.	D10	D12	14	11	198	30690	0	0	0	-	0	30690	19949	19.95	60	42	121.0	0.00018	0.02	0.088	100	0.000	21.28	21.28	0.000	21.26	21.26																	
19.	D12	D11	4	7	126	19530	0	0	0	Commercial (1685.5sqm)	0	19530	12695	12.69	38	26	113.0	0.00008	0.01	0.056	100	0.000	21.26	21.26	0.000	21.25	21.25																	
20.	D11	D11a	4	4	72	11160	0	0	0	-	0	11160	7254	7.25	22	15	17.0	0.02430	0.41	0.513	25	0.000	21.25	21.25	0.000	20.83	20.83																	
21.	D2	D13	6	88	1584	245520	0	0	0	-	0	245520	159588	159.59	479	332	115.0	0.00870	1.00	0.705	100	0.000	22.79	22.79	0.000	21.79	21.79																	
22.	D13	D14	0	88	1584	245520	0	0	0	-	0	245520	159588	159.59	479	332	9.0	0.00870	0.08	0.705	100	0.000	21.79	21.79	0.000	21.71	21.71																	
23.	D14	D4	18	70	1260	195300	0	0	0	-	0	195300	126945	126.95	381	264	138.0	0.00569	0.79	0.561	100	0.000	21.71	21.71	0.000	20.92	20.92																	
24.	D14	D15	0	70	1260	195300	0	0	0	-	0	195300	126945	126.95	381	264	40.0	0.00569	0.23	0.561	100	0.000	21.71	21.71	0.000	21.48	21.48																	
25.	D15	D5	18	52	936	145080	0	0	0	-	0	145080	94302	94.30	283	196	138.0	0.00328	0.45	0.417	100	0.000	21.48	21.48	0.000	21.03	21.03																	
26.	D15	D16	0	52	936	145080	0	0	0	-	0	145080	94302	94.30	283	196	9.0	0.00328	0.03	0.417	100	0.000	21.48	21.48	0.000	21.45	21.45																	
27.	D16	D16a	0	52	936	145080	0	0	0	-	0	145080	94302	94.30	283	196	32.0	0.00328	0.11	0.417	100	0.000	21.45	21.45	0.000	21.35	21.35																	
28.	D16a	D16b	10	10	180	27900	0	0	0	-	0	27900	18135	18.14	54	38	80.0	0.00126	0.10	0.190	65	0.000	21.35	21.35	0.000	21.25	21.25																	
29.	D16a	D6a	11	31	558	86490	0	0	0	-	0	86490	56219	56.22	169	117	105.0	0.00126	0.13	0.248	100	0.000	21.35	21.35	0.000	21.21	21.21																	
30.	D16	D17	10	21	378	58590	0	0	0	-	0	58590	38084	38.08	114	79	75.0	0.00061	0.05	0.168	100	0.000	21.45	21.45	0.000	21.41	21.41																	
31.	D13	D17	18	18	324	50220	0	0	0	-	0	50220	32643	32.64	98	68	152.0	0.00046	0.07	0.144	100	0.000	21.79	21.79	0.000	21.72	21.72																	
176																															1859				5.4505									

S.No.	Line No						Plots (EWS)			Water Req. for Non Resi. Plots.		Total water Requirement	Domestic Water Req. @ 65 %														
	From	To	No. of plots	Nos.	Population @ 18 persons / Plot.	Water Requirement /day/person @	Nos.	Pop. @ 9 per / Plot	Water Req./day/ per	Type of Building	Basis of Water Requirement	Residential & Non Residential Building	Residential & Non Residential Building	Average Demand	Peak Demand @ 3 Times	Flow Rate	Length of Pipe	Head Loss	Total Head Loss	Velocity	Dia of Pipe	Ground Level at start	Hydraulic Level at start	Head at start	Ground level at End	Hydraulic level at End	Head at End
Daily requirement for domestic use 334.45 KLD Assuming 4 hours pumping Flow Rate 1393.546 LPM No. of Pumps (3 W + 1 S) 464.5 LPM Say 480.0 LPM Maximum Building Height 18 m Pump Head 30.00 m Pump HP 5.2 HP Say 6.0 HP																											

PROJECT : PROPOSED AFFORDABLE PLOTTED COLONY UNDER DEEN DAYAL JAN AWAS YOJNA-2016 OVER AN AREA MEASURING 10.4125 ACRES IN VILLAGE SOHNA, SECTOR- 07, HARYANA**TITLE : FLUSHING WATER SUPPLY HYDRAULIC CHART**

S.No.	Line No						Plots (EWS)			Water Req. for Non Resi. Plots.		Total water Requirement	Flushing Water Req. @ 35 %															
	From	To	No. of plots	Nos.	Population @ 18 persons / Plot.	Water Requirement /day/person @	Nos.	Pop. @ 9 per Plot	Water Req./day/ per	Type of Building	Basis of Water Requirement	Residential & Non Residential Building	Residential & Non Residential Building	Average Demand	Peak Demand @ 3 Times	Flow Rate	Length of Pipe	Head Loss	Total Head Loss	Velocity	Dia of Pipe	Ground Level at start	Hydraulic Level at start	Head at start	Ground level at End	Hydraulic level at End	Head at End	
-	-	-		-	18.0	155	-	9	155	-	Lumpsum	lpd.	lpd.	kld.	kld.	lpm.	mtr.	mtr./mtr.	mtr.	mtr./sec	mtr.	mtr.	mtr.	mtr.	mtr.	mtr.	mtr.	
1	STP.	F1	0	176	3168	491040	0	0	0	-	82500	573540	200739	200.74	602	418	10.0	0.00185	0.02	0.394	150	0.000	23.00	23.00	0.000	22.98	22.98	
2.	F1	F2	6	170	3060	474300	0	0	0	-	0	474300	166005	166.01	498	346	60.0	0.00936	0.56	0.733	100	0.000	22.98	22.98	0.000	22.42	22.42	
3.	F2	F3	0	85	1530	237150	0	0	0	-	0	237150	83003	83.00	249	173	21.0	0.00259	0.05	0.367	100	0.000	22.42	22.42	0.000	22.37	22.37	
4.	F3	F3a	5	5	90	13950	0	0	0	-	0	13950	4883	4.88	15	10	38.0	0.00351	0.13	0.211	32	0.000	22.37	22.37	0.000	22.23	22.23	
5.	F3	F4	0	83	1494	231570	0	0	0	-	0	231570	81050	81.05	243	169	9.0	0.00248	0.02	0.358	100	0.000	22.37	22.37	0.000	22.34	22.34	
6.	F4	F5	2	81	1458	225990	0	0	0	-	0	225990	79097	79.10	237	165	40.0	0.00237	0.09	0.349	100	0.000	22.34	22.34	0.000	22.25	22.25	
7.	F5	F6	0	81	1458	225990	0	0	0	-	0	225990	79097	79.10	237	165	9.0	0.00237	0.02	0.349	100	0.000	22.25	22.25	0.000	22.23	22.23	
8.	F6	F6a	0	81	1458	225990	0	0	0	-	0	225990	79097	79.10	237	165	2.0	0.00237	0.00	0.349	100	0.000	22.23	22.23	0.000	22.22	22.22	
9.	F6a	F6b	5	5	90	13950	0	0	0	-	0	13950	4883	4.88	15	10	62.0	0.00118	0.07	0.135	40	0.000	22.22	22.22	0.000	22.15	22.15	
10.	F6	F7	0	76	1368	212040	0	0	0	-	0	212040	74214	74.21	223	155	21.0	0.00211	0.04	0.328	100	0.000	22.23	22.23	0.000	22.18	22.18	
11.	F7	F7a	12	12	216	33480	0	0	0	-	0	33480	11718	11.72	35	24	110.0	0.00202	0.22	0.207	50	0.000	22.18	22.18	0.000	21.96	21.96	
12.	F7	F8	5	59	1062	164610	0	0	0	-	0	164610	57614	57.61	173	120	37.0	0.00132	0.05	0.255	100	0.000	21.96	21.96	0.000	21.91	21.91	
13.	F8	F8a	14	45	810	125550	0	0	0	-	0	125550	43943	43.94	132	92	125.0	0.00080	0.10	0.194	100	0.000	21.91	21.91	0.000	21.81	21.81	
14.	F8	F9	0	45	810	125550	0	0	0	-	0	125550	43943	43.94	132	92	9.0	0.00080	0.01	0.194	100	0.000	21.91	21.91	0.000	21.90	21.90	
15.	F8a	F9	14	31	558	86490	0	0	0	-	0	86490	30272	30.27	91	63	135.0	0.00040	0.05	0.134	100	0.000	21.81	21.81	0.000	21.76	21.76	
16.	F9	F10	6	25	450	69750	0	0	0	-	0	69750	24413	24.41	73	51	40.0	0.00027	0.01	0.108	100	0.000	21.76	21.76	0.000	21.75	21.75	
17.	F10	F11	0	25	450	69750	0	0	0	-	0	69750	24413	24.41	73	51	9.0	0.00027	0.00	0.108	100	0.000	21.75	21.75	0.000	21.75	21.75	
18.	F10	F12	14	11	198	30690	0	0	0	-	0	30690	10742	10.74	32	22	121.0	0.00006	0.01	0.047	100	0.000	21.75	21.75	0.000	21.74	21.74	
19.	F12	F11	4	7	126	19530	0	0	0	Commercial (1685.5sqm)	0	19530	6836	6.84	21	14	113.0	0.00003	0.00	0.030	100	0.000	21.74	21.74	0.000	21.74	21.74	
20.	F11	F11a	4	4	72	11160	0	0	0		-	0	11160	3906	3.91	12	8	17.0	0.00772	0.13	0.276	25	0.000	21.74	21.74	0.000	21.60	21.60
21.	F2	F13	0	88	1584	245520	0	0	0		-	0	245520	85932	85.93	258	179	115.0	0.00276	0.32	0.380	100	0.000	22.42	22.42	0.000	22.10	22.10
22.	F13	F14	0	88	1584	245520	0	0	0	-	0	245520	85932	85.93	258	179	9.0	0.00276	0.02	0.380	100	0.000	22.10	22.10	0.000	22.08	22.08	
23.	F14	F4	18	70	1260	195300	0	0	0	-	0	195300	68355	68.36	205	142	138.0	0.00181	0.25	0.302	100	0.000	22.08	22.08	0.000	21.83	21.83	
24.	F14	F15	0	70	1260	195300	0	0	0	-	0	195300	68355	68.36	205	142	40.0	0.00181	0.07	0.302	100	0.000	22.08	22.08	0.000	22.01	22.01	
25.	F15	F5	18	52	936	145080	0	0	0	-	0	145080	50778	50.78	152	106	138.0	0.00104	0.14	0.224	100	0.000	22.01	22.01	0.000	21.86	21.86	
26.	F15	F16	0	52	936	145080	0	0	0	-	0	145080	50778	50.78	152	106	9.0	0.00104	0.01	0.224	100	0.000	22.01	22.01	0.000	22.00	22.00	
27.	F16	F16a	0	52	936	145080	0	0	0	-	0	145080	50778	50.78	152	106	32.0	0.00104	0.03	0.224	100	0.000	22.00	22.00	0.000	21.96	21.96	
28.	F16a	F16b	10	10	180	27900	0	0	0	-	0	27900	9765	9.77	29	20	80.0	0.01266	1.01	0.421	32	0.000	21.96	21.96	0.000	20.95	20.95	
29.	F16a	F6a	11	31	558	86490	0	0	0	-	0	86490	30272	30.27	91	63	105.0	0.00040	0.04	0.134	100	0.000	21.96	21.96	0.000	21.92	21.92	
30.	F16	F17	10	21	378	58590	0	0	0	-	0	58590	20507	20.51	62	43	75.0	0.00019	0.01	0.091	100	0.000	22.00	22.00	0.000	21.98	21.98	
31.	F13	F17	18	18	324	50220	0	0	0	-	0	50220	17577	17.58	53	37	152.0	0.00015	0.02	0.078	100	0.000	22.10	22.10	0.000	22.08	22.08	
176														1881				3.5581										

S.No.	Line No						Plots (EWS)			Water Req. for Non Resi. Plots.		Total water Requirement	Flushing Water Req. @ 35 %														
	From	To	No. of plots	Nos.	Population @ 18 persons / Plot.	Water Requirement /day/person @	Nos.	Pop. @ 9 per / Plot	Water Req./day/ per	Type of Building	Basis of Water Requirement	Residential & Non Residential Building	Residential & Non Residential Building	Average Demand	Peak Demand @ 3 Times	Flow Rate	Length of Pipe	Head Loss	Total Head Loss	Velocity	Dia of Pipe	Ground Level at start	Hydraulic Level at start	Head at start	Ground level at End	Hydraulic level at End	Head at End
Daily requirement for domestic use										200.74 KLD																	
Assuming 4 hours pumping																											
Flow Rate										836.413 LPM																	
No. of Pumps (2 W + 1 S)										418.2 LPM																	
Say										420.0 LPM																	
Maximum Building Height										18 m																	
Pump Head										28.00 m																	
Pump HP										4.3 HP																	
Say										5.0 HP																	

PROJECT : PROPOSED AFFORDABLE PLOTTED COLONY UNDER DEEN DAYAL JAN AWAS YOJNA-2016 OVER AN AREA MEASURING 10.4125 ACRES IN VILLAGE SOHNA, SECTOR- 07, HARYANA**TITLE : HYDRAULIC SEWAGE DESIGN CHART**

S.No.	Line No.		Gross Water Requirement (Load on Line)	Sewage Flow (Self Load on Line) LPD	Sewage Flow (Self Load on Line) KLD	Previous Load	Progressive Discharge	Progressive Discharge (Average)	Progressive Discharge (Peak)	Infiltration @ 25% Av. Discharge	Total Discharge	Length	Pipe Size	Slope (1 in)	Fall	Velocity	Capacity of Pipe	Levels at start (mtr)			Remark For Classing Sewer & Storm Water Line	Levels at End (mtr)			Manhole Start Depth	Manhole Start End	Average Depth
-	From	To	lpd.	80%	1000	kld.	kld.	lps.	lps.	lps.	lps	(mtr.)	(mm)	(mm)	(mtr.)	(m/s) (v)	lps	FRL	FSL	IL		FRL	FSL	IL	(mtr)	(mtr)	(mtr)
1.	S1	S2	61220	48976	48.98	0.00	48.98	0.57	1.70	0.14	1.84	102.0	200	320	0.32	0.76	23.84	200.100	199.10	198.90	-	200.100	198.78	198.58	1.20	1.52	1.36
2.	S2a	S2	5580	4464	4.46	0.00	4.46	0.05	0.16	0.01	0.17	23.0	200	320	0.07	0.76	23.84	200.100	198.55	198.35	Level drop	200.100	198.48	198.28	1.75	1.82	1.79
3.	S2	S3	16740	13392	13.39	53.44	66.83	0.77	2.32	0.19	2.51	50.0	200	320	0.16	0.76	23.84	200.100	198.48	198.28	-	200.050	198.32	198.12	1.82	1.93	1.88
4.	S3a	S3	100440	80352	80.35	0.00	80.35	0.93	2.79	0.23	3.02	113.0	200	320	0.35	0.76	23.84	200.100	199.10	198.90	-	200.050	198.75	198.55	1.20	1.50	1.35
5.	S3	S4	13950	11160	11.16	147.18	158.34	1.83	5.50	0.46	5.96	38.0	200	320	0.12	0.76	23.84	200.050	198.32	198.12	-	200.000	198.20	198.00	1.93	2.00	1.96
6.	S4	S5	8370	6696	6.70	158.34	165.04	1.91	5.73	0.48	6.21	35.0	200	320	0.11	0.76	23.84	200.000	198.20	198.00	-	200.000	198.09	197.89	2.00	2.11	2.05
7.	S5a	S5	22320	17856	17.86	0.00	17.86	0.21	0.62	0.05	0.67	66.0	200	320	0.21	0.76	23.84	200.000	199.00	198.80	-	200.000	198.79	198.59	1.20	1.41	1.30
8.	S5	S6	5580	4464	4.46	182.90	187.36	2.17	6.51	0.54	7.05	23.0	200	320	0.07	0.76	23.84	200.000	198.09	197.89	-	200.000	198.02	197.82	2.11	2.18	2.14
9.	S6a	S6	16740	13392	13.39	0.00	13.39	0.16	0.47	0.04	0.50	45.0	200	320	0.14	0.76	23.84	200.000	199.00	198.80	-	200.000	198.86	198.66	1.20	1.34	1.27
10.	S6	S7	58590	46872	46.87	200.75	247.62	2.87	8.60	0.72	9.31	108.0	200	320	0.34	0.76	23.84	200.000	198.02	197.82	-	200.150	197.68	197.48	2.18	2.67	2.42
11.	S8	S9	16740	13392	13.39	0.00	13.39	0.16	0.47	0.04	0.50	58.0	200	320	0.18	0.76	23.84	200.000	199.00	198.80	-	200.000	198.82	198.62	1.20	1.38	1.29
12.	S9	S10	55800	44640	44.64	13.39	58.03	0.67	2.02	0.17	2.18	103.0	200	320	0.32	0.76	23.84	200.000	198.32	198.12	Level drop	200.100	198.00	197.80	1.88	2.30	2.09
13.	S10a	S10	27900	22320	22.32	0.00	22.32	0.26	0.78	0.06	0.84	75.0	200	320	0.23	0.76	23.84	200.150	199.15	198.95	-	200.100	198.92	198.72	1.20	1.38	1.29
14.	S10	S11	22320	17856	17.86	80.35	98.21	1.14	3.41	0.28	3.69	40.0	200	320	0.13	0.76	23.84	200.100	198.00	197.80	-	200.150	197.87	197.67	2.30	2.48	2.39
15.	S11a	S11	33480	26784	26.78	0.00	26.78	0.31	0.93	0.08	1.01	82.0	200	320	0.26	0.76	23.84	200.200	199.20	199.00	-	200.150	198.94	198.74	1.20	1.41	1.30
16.	S11	S12	19530	15624	15.62	124.99	140.62	1.63	4.88	0.41	5.29	42.0	200	320	0.13	0.76	23.84	200.150	197.87	197.67	-	200.150	197.74	197.54	2.48	2.61	2.54
17.	S12	S7	16740	13392	13.39	140.62	154.01	1.78	5.35	0.45	5.79	35.0	200	320	0.11	0.76	23.84	200.150	197.74	197.54	-	200.150	197.63	197.43	2.61	2.72	2.66
18.	S7	STP.	0	0	0.00	401.63	401.63	4.65	13.95	1.16	15.11	15.0	300	550	0.03	0.76	53.62	200.150	197.63	197.33	-	200.150	197.60	197.30	2.82	2.85	2.83

PROJECT : PROPOSED AFFORDABLE PLOTTED COLONY UNDER DEEN DAYAL JAN AWAS YOJNA-2016 OVER AN AREA MEASURING 10.4125 ACRES IN													
LOAD ON SEWAGE LINES													
			Residential Sewage Load						Non Residential Load		Residential + Non Residential Load		
S.No.	Name of Sewer Line		Plots	Population for Plot @ 18 persons	Water Req. @ 155 Ltr/ day /Person	EWS	Population for Plot @ 9 persons	Water Req. @ 155 Ltr/ day /Person	Amenity	Water Reuirement @ Lumsum/day	Gross Water Requirement (Load on Line)	Sewage Flow (Self Load on Line) Lpd.	Sewage Flow (Self Load on Line) Kld.
-	From	To	Unit	18	155.00	Unit	9	155.00	-	lpd.	lpd.	80%	1000
1.	S1	S2	18	324	50220	0	0	0	Commecrial	11000.00	61220	48976	48.98
2.	S2a	S2	2	36	5580	0	0	0	-	0.00	5580	4464	4.46
3.	S2	S3	6	108	16740	0	0	0	-	0.00	16740	13392	13.39
4.	S3a	S3	36	648	100440	0	0	0	-	0.00	100440	80352	80.35
5.	S3	S4	5	90	13950	0	0	0	-	0.00	13950	11160	11.16
6.	S4	S5	3	54	8370	0	0	0	-	0.00	8370	6696	6.70
7.	S5a	S5	8	144	22320	0	0	0	-	0.00	22320	17856	17.86
8.	S5	S6	2	36	5580	0	0	0	-	0.00	5580	4464	4.46
9.	S6a	S6	6	108	16740	0	0	0	-	0.00	16740	13392	13.39
10.	S6	S7	21	378	58590	0	0	0	-	0.00	58590	46872	46.87
11.	S8	S9	6	108	16740	0	0	0	-	0.00	16740	13392	13.39
12.	S9	S10	20	360	55800	0	0	0	-	0.00	55800	44640	44.64
13.	S10a	S10	10	180	27900	0	0	0	-	0.00	27900	22320	22.32
14.	S10	S11	8	144	22320	0	0	0	-	0.00	22320	17856	17.86
15.	S11a	S11	12	216	33480	0	0	0	-	0.00	33480	26784	26.78
16.	S11	S12	7	126	19530	0	0	0	-	0.00	19530	15624	15.62
17.	S12	S7	6	108	16740	0	0	0	-	0.00	16740	13392	13.39
18.	S7	STP.	0	0	0	0	0	0	-	0.00	0	0	0.00
			176	3168	491040.00	0	0	0.00	-	11000.00	502040.00	401632.00	401.63

PROJECT : PROPOSED AFFORDABLE PLOTTED COLONY UNDER DEEN DAYAL JAN AWAS YOJNA-2016 OVER AN AREA MEASURING 10.4125 ACRES IN VILLAGE SOHNA, SECTOR- 07, HARYANA**TITLE : HYDRAULIC STORM WATER DESIGN CHART**

S.No.	Line No.		Length	Catchment Area (Sqm.)			Discharge @ 45 mm/hr rainfall	Pipe dia	Slope 1 in	Velocity m/sec.	Capacity of pipe	Fall in line	Levels at start (mtr.)			Levels at End (mtr.)			Manhole Depth		
-	From	To	(mtr.)	Self	Progg.	Total	60% runoff (lps)	(mm)	(mm)	m/sec.	lps.	mtr.	FRL	FSL	IL	FRL	FSL	IL	Start	End	Depth
1.	A1	A2	120.0	4800.0	0.0	4800.0	36.00	400	490	0.65	81.57	0.24	200.200	199.20	198.80	200.150	198.96	198.56	1.40	1.59	1.50
2.	A2	D.C.01	7.0	660.0	4800.0	5460.0	40.95	400	490	0.65	81.57	0.01	200.150	198.96	198.56	200.150	198.94	198.54	1.59	1.61	1.60
3.	D.C.01	R.P.01	7.0	0.0	5460.0	5460.0	40.95	400	490	0.65	81.57	0.01	200.150	198.94	198.54	200.150	198.93	198.53	1.61	1.62	1.62
4.	R.P.01	A3	7.0	0.0	2730.0	2730.0	20.48	400	490	0.65	81.57	0.01	200.150	199.15	198.75	200.150	199.14	198.74	1.40	1.41	1.41
5.	A3	A4	62.0	2680.0	2730.0	5410.0	40.58	400	490	0.65	81.57	0.13	200.150	199.14	198.74	200.150	199.01	198.61	1.41	1.54	1.48
6.	A4	D.C.02	5.0	590.0	5410.0	6000.0	45.00	400	490	0.65	81.57	0.01	200.150	199.01	198.61	200.150	199.00	198.60	1.54	1.55	1.55
7.	D.C.02	R.P.02	5.0	0.0	6000.0	6000.0	45.00	400	490	0.65	81.57	0.01	200.150	199.00	198.60	200.150	198.99	198.59	1.55	1.56	1.56
8.	R.P.02	A5	5.0	0.0	3000.0	3000.0	22.50	400	490	0.65	81.57	0.01	200.150	199.15	198.75	200.150	199.14	198.74	1.40	1.41	1.41
9.	A5	A6	70.0	2570.0	3000.0	5570.0	41.78	400	490	0.65	81.57	0.14	200.150	199.14	198.74	200.000	199.00	198.60	1.41	1.40	1.41
10.	A8	A9	75.0	2750.0	0.0	2750.0	20.63	400	490	0.65	81.57	0.15	200.150	199.15	198.75	200.100	199.00	198.60	1.40	1.50	1.45
11.	A9	A10	10.0	370.0	2750.0	3120.0	23.40	400	490	0.65	81.57	0.02	200.100	199.00	198.60	200.100	198.98	198.58	1.50	1.52	1.51
12.	A10a	A10	28.0	1030.0	0.0	1030.0	7.73	400	490	0.65	81.57	0.06	200.150	199.15	198.75	200.100	199.09	198.69	1.40	1.41	1.40
13.	A10	A11	112.0	4110.0	4150.0	8260.0	61.95	400	490	0.65	81.57	0.23	200.100	198.98	198.58	200.000	198.75	198.35	1.52	1.65	1.59
14.	A11a	A11	58.0	2130.0	0.0	2130.0	15.98	400	490	0.65	81.57	0.12	200.000	199.00	198.60	200.000	198.88	198.48	1.40	1.52	1.46
15.	A11	A6	49.0	1800.0	10390.0	12190.0	91.43	500	650	0.65	128.40	0.08	200.000	198.75	198.25	200.000	198.67	198.17	1.75	1.83	1.79
16.	A6	A7	42.0	1540.0	17760.0	19300.0	144.75	600	850	0.65	182.59	0.05	200.000	198.67	198.07	200.000	198.62	198.02	1.93	1.98	1.95
17.	A12	A13	80.0	2940.0	0.0	2940.0	22.05	400	490	0.65	81.57	0.16	200.100	199.10	198.70	200.100	198.94	198.54	1.40	1.56	1.48
18.	A13	D.C.03	7.0	260.0	2940.0	3200.0	24.00	400	490	0.65	81.57	0.01	200.100	198.94	198.54	200.100	198.92	198.52	1.56	1.58	1.57
19.	D.C.03	R.P.03	5.0	0.0	3200.0	3200.0	24.00	400	490	0.65	81.57	0.01	200.100	198.92	198.52	200.100	198.91	198.51	1.58	1.59	1.58
20.	R.P.03	A14	5.0	0.0	1600.0	1600.0	12.00	400	490	0.65	81.57	0.01	200.100	199.10	198.70	200.100	199.09	198.69	1.40	1.41	1.41
21.	A14	A15	10.0	370.0	1600.0	1970.0	14.78	400	490	0.65	81.57	0.02	200.100	199.09	198.69	200.100	199.07	198.67	1.41	1.43	1.42
22.	A15a	A15	20.0	740.0	0.0	740.0	5.55	400	490	0.65	81.57	0.04	200.100	199.10	198.70	200.100	199.06	198.66	1.40	1.44	1.42
23.	A15	A16	48.0	1760.0	2710.0	4470.0	33.53	400	490	0.65	81.57	0.10	200.100	199.06	198.66	200.050	198.96	198.56	1.44	1.49	1.46
24.	A16a	A16	121.0	4440.0	0.0	4440.0	33.30	400	490	0.65	81.57	0.25	200.100	199.10	198.70	200.050	198.85	198.45	1.40	1.60	1.50
25.	A16	A17	48.0	1760.0	8910.0	10670.0	80.03	500	650	0.65	128.40	0.07	200.050	198.85	198.35	200.000	198.78	198.28	1.70	1.72	1.71
26.	A17	A18	104.0	3820.0	10670.0	14490.0	108.68	600	850	0.65	182.59	0.12	200.000	198.78	198.18	200.000	198.66	198.06	1.82	1.94	1.88

																			Manhole Depth		
S.No.	Line No.		Length	Catchment Area (Sqm.)			Discharge @ 45 mm/hr rainfall	Pipe dia	Slope 1 in	Velocity m/sec.	Capacity of pipe	Fall in line	Levels at start (mtr.)			Levels at End (mtr.)			Depth (mtr.)		Avg.
-	From	To	(mtr.)	Self	Progg.	Total	60% runoff (lps)	(mm)	(mm)	m/sec.	lps.	mtr.	FRL	FSL	IL	FRL	FSL	IL	Start	End	Depth
27.	A18	A7	24.0	880.0	14490.0	15370.0	115.28	600	850	0.65	182.59	0.03	200.000	198.66	198.06	200.000	198.63	198.03	1.94	1.97	1.96
28.	A7	D.C.04	5.0	190.0	34670.0	34860.0	261.45	700	930	0.68	263.31	0.01	200.000	198.62	197.92	200.000	198.62	197.92	2.08	2.08	2.08
29.	D.C.04	R.P.04	5.0	0.0	34860.0	34860.0	261.45	700	930	0.68	263.31	0.01	200.000	198.62	197.92	200.000	198.61	197.91	2.08	2.09	2.08
30.	R.P.04	To Ext.	15.0	0.0	17430.0	17430.0	130.73	500	650	0.65	128.40	0.02	200.000	199.00	198.50	200.000	198.98	198.48	1.50	1.52	1.51
42190.0																					
Formula Used: Velocity(m/s)=(1/n)x(A/P)^(2/3)*(1/slope)^.5 n=.015 for RCC pipe (Manning's Coefficient) A=Area of x-section of pipe in sqm. P =Wetted Perimeter in m Capacity of pipe(lps) =Area of x-section of pipe in sqm x velocity in m/s x1000x1/2(Storm water are designed to run full flow)															Abbreviation Used: IL=Invert level of pipe FSL=Full supply level FRL=Formation Road Level CL=Connection Level						