

PROJECT REPORT
OF
SIGNATURE GLOBAL CITY 93
BY
SIGNATURE BUILDERS PRIVATE LIMITED

BRIEF DETAILS OF THE PROJECT

1.	Name of the project	Signature Global City 93
2.	Name of the promoter/applicant	Signature Builders Pvt. Ltd.
3.	Name of the license holder	Rohtas Singh, Om Prakash, Satyabir, Raj Kumar, Santraj, Jai pal Yadav, Birham Prakash, Rajiv Yadav, Satpal, Smt. Asarfi, Ramesh Kumar, Yogesh, Munesh Yadav, Sahil, Priyanka, Atro Devi, Rajdulari, Satnarayan Ritu, Meena Devi, Preeti Yadav, Nikita Yadav and Yesha Developers LLP, Yesha Developers LLP
4.	Location of the project	Village –Wazirpur, Sec-93,Distt. Gurugram, Haryana
5.	Registered address	1310, 13 th Floor, Dr. Gopal Das Bhawan, 28 Barakhamba Road New Delhi-110001
6.	Status of the project	New Project
7.	Nature of the project	Residential Independed Floors
8.	Planning area	GMUMC 2031
9.	Type of zone	Hyper potential Zone
10.	Web address of the project on the website of the promoter	www.signatureglobal.in
11.	Email address for communication regarding project	compliance@signatureglobal.in
12.	Total licensed area of the project	17.31875
13.	Area applied for registration	17.31875
14.	Date of very first license of the project	License No. 210 of 2022 dated22/12/2022

DETAILS OF PROJECT COST

S.NO	DETAILS	AMOUNT IN LAKHS
1.	Land cost as per registration	22021.96
2.	Conversion charges	0
3.	License fee	0
4.	External Development Charges (as per LOI)	0
5.	Cost of construction	0
6.	Cost of Infrastructure	0
7.	Infrastructure Development Charges(as per LOI)	0
8.	Other Cost	14137.01
	Total Cost	82394.45

Revenue from Project

		For the project as a whole	
Component	Average Rate	Carpet Area(Sqft)	Estimated sale proceeds
Apartments/plots	13825.50sqft	870259.93/ sqft	120317.79
Commercial	24000.00/ sqft	35222.28/Sqft	8453.35
Community facilities	NA	NA	NA
Garages	NA	NA	NA
Estimated total sale proceeds		128771.14	
Total cost		82394.45	
Return from the project		46376.69	

M/s Signature Builders Pvt. Ltd.

CONCEPTUAL PLAN

w.r.t.

**AFFORDABLE PLOTTED COLONY UNDER
DDJAY PROJECT (17.31875 acres)**

At

**VILLAGE- WAZIRPUR, SECTOR-93,
GURUGRAM, HARYANA**

For

M/S SIGNATURE BUILDERS PVT. LTD.

January, 2023

Schedule: 8(a), Category: B
Built Up Area – 1,47,768.388 m²



QCI Certificate no. NABET/EIA/2124/RA0213

PREPARED BY

GRASS ROOTS RESEARCH & CREATION INDIA (P) LTD.

(Accredited by QCI/NABET, Approved by MoEFCC, GoI, ISO 9001:2015 Certified Co.)

F-374 & 375, Sector-63, Noida, U.P.

Ph.: 0120- 4044630, Telefax: 0120- 2406519

Email: md@grc-india.com, eia@grc-india.com

Website: <http://www.grc-india.com>

GRC INDIA TRAINING & ANALYTICAL LABORATORY

(Accredited by NABL, Recognized by MoEF&CC, GoI)

A unit of GRC India

Contents

S. NO.	DESCRIPTION	PAGE Nos.
1.	Introduction	89
2.	Site location & surroundings	89
3.	Project Cost	89
4.	Connectivity	89-91
5.	Area statement	91
6.	Population density	92
7.	Water requirement & Supply system	93-96
8.	Wastewater requirement & Sewage treatment technology	96-100
9.	Rain water harvesting	100-103
10.	Parking Facilities	103
11.	Power requirement	104
12.	Solid Waste Generation	104-109
13.	Green Area	109
14.	Details of Construction Materials	110
15.	Materials used for construction & their U value	111
16.	List of machinery used during construction	111-112

CONCEPTUAL PLAN

INTRODUCTION

The Affordable Plotted Colony Project under DDJAY is to be developed by M/s Signature Builders Pvt. Ltd. The project site is located at village Wazirpur, Sector 93, Gurugram, Haryana on a land measuring of 17.31875 acres.

The company has vast experience in planning and construction of Residential & Commercial projects. The project facilities include:

- Plotted Development
- Community facilities
- Commercial facilities

SITE LOCATION AND SURROUNDINGS

The project site is located at village Wazirpur, Sector 93, Gurugram, Haryana on a land measuring of 17.31875 acres. The geographical co-ordinates of project site are 28°24'39.06"N and 76°55'46.93"E.

PROJECT COST

Total Project cost is INR 810.00 crores.

CONNECTIVITY

The Nearest Highway is NH-48 which is 4.5 km (South) away from project site, NH-248A is 11.6 km towards East direction, SH-26 is 8.3 km towards SW direction, Western Peripheral Expressway is 5.9 km towards West direction, SH-15A is 6.7 km towards North direction, Hayatpur site Road is 0.2 km towards West direction & MDR-136 is 6.8 km towards North direction. The nearest Railway Station being Garhi Harsaru Train Station is about 2.8 km (North) away from the project site. Indira Gandhi International Airport is at 19.7 km (NE) from project site.

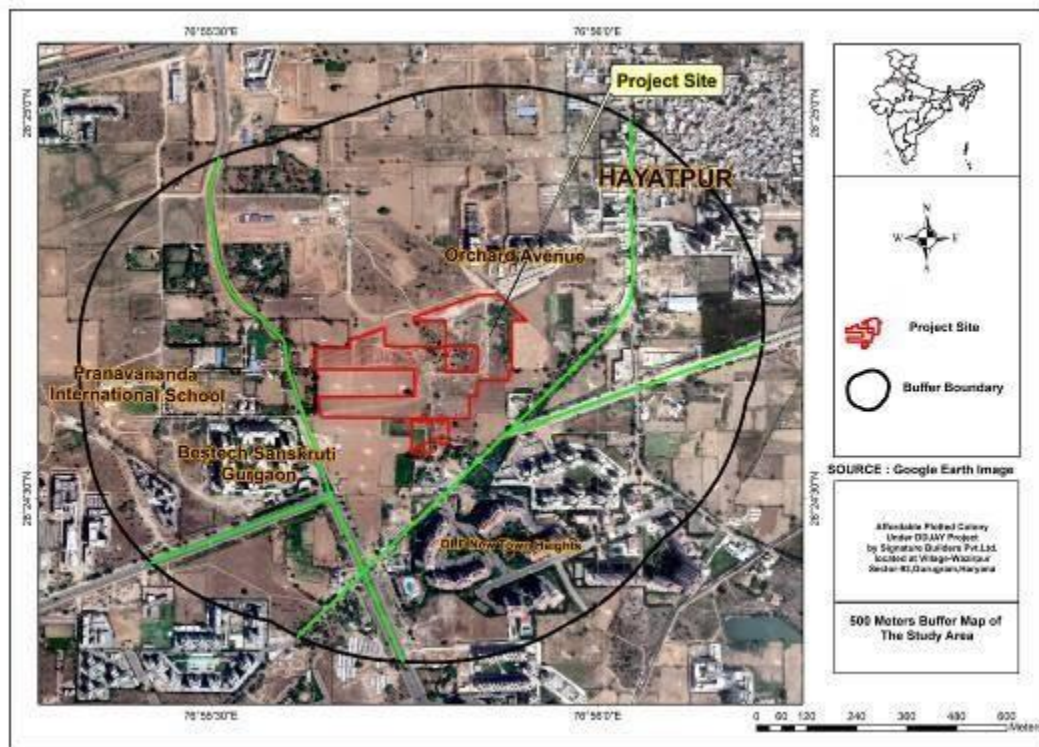


Fig.1: Location of the Project Site on 500 m Buffer Map

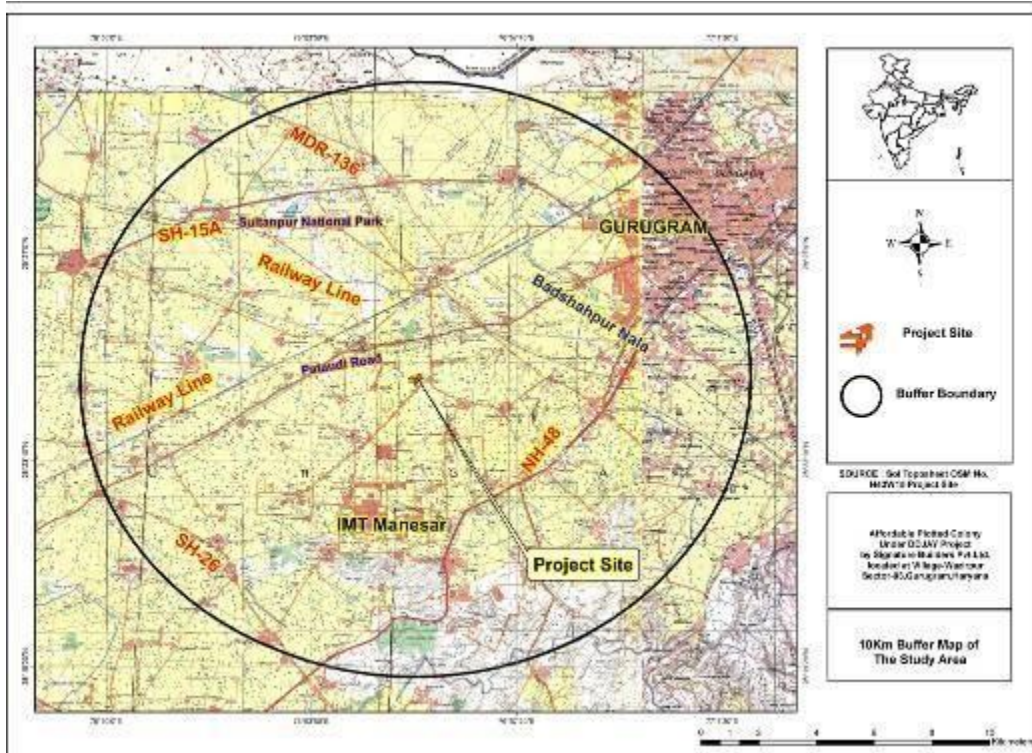


Fig. 2: SOI Toposheet Showing 10 km radius around Project site

AREA STATEMENT

The total area of project site is 70,086.383m² (17.31875 acres). The detailed area statement along with brief details of the project is provided below in **Table 1:**

Table 1: Detailed Area Statement

S. No.	Particulars	Area (in m²)
1.	Total Plot area	70,086.383
	Area fall under 24m wide service	457.294
	Net Plot Area	69,629.089
2.	Permissible area	45,556.149
	• Residential (@61% of Plot Area)	42,752.694
	• Commercial (@4% of Plot Area)	2,803.455
	• Community (@10% of Plot Area)	7,008.638
3.	Proposed area	37,653.236
	• Residential (@49.72% of Plot Area)	34,849.781
	• Commercial (@4% of Plot Area)	2,803.455
	• Community (@10.00% of Plot Area)	7,009.000
4.	Permissible FAR	96909.467
	• Residential (@2.64 of the proposed residential area)	92003.421
	• Commercial (@1.75 of the proposed commercial area)	4906.046
5.	Proposed FAR	96,210.42
	• Residential (@2.62 of the proposed residential area)	91306.426
	• Commercial (@1.749 of the proposed commercial area)	4,903.993
6.	Total NON-FAR Area	51,557.968
	• Basement	29,545.341
	• Services	1200.00
	• Stilt Area	20,812.627
7.	Total Built up area (5+6)	1,47,768.388
8.	Proposed Landscape Area (@7.78% of the plot area)	5,456.185

POPULATION DENSITY

The total population of proposed project will be 6,810 persons. The detailed population break-up is given below in Table 2:

Table 2: Population Break-up

S. No.	Description	No's of Plots	DUs Or area in sq.m	PPU	Total Population
1.	Residential	250		18 persons per plot	4,500
2.	Maintenance Staff	5% of residential population			225
3.	Visitors	10 % of residential population			450
4.	Commercial		4,903.993 m ²	3 Sqm/ person	1,635
	• Staff (10%)				164
	• Visitors (90%)				1,471
Grand Total Population					6,810

WATER REQUIREMENT & SUPPLY SYSTEM

During operation phase, the source of water supply will be GMDA. The total water requirement for the project will be approx. 449 KLD out of which domestic water demand is 433 KLD. The fresh water requirement will be 312 KLD. The water calculation is given below in Table 3 & 4.

Table 3: Calculations for Daily Water Demand

S.No.	Description	Occupancy	Rate of water demand (lpcd)		Total Water Requirement (KLD)		
A.	Domestic Water		Fresh	Flushing	Fresh	Flushing	Total
	• Residents	4,500	65	21	292.5	94.5	387
	• Staff (Maintenance,	389	25	20	9.725	7.78	17.505

	and Commercial facilities)						
	• Visitors (Maintenance, and Commercial facilities)	1,921	5	10	9.605	19.21	28.815
					311.83 KLD say 312 KLD	121.49 KLD say 121 KLD	433.32 KLD say 433 KLD
Total Domestic Water = 433 KLD							
B.	Horticulture	5,456.185 m²	3 l/sqm		16.37 KLD say 16 KLD		
Grand Total (A+B) = 449 KLD							

TABLE 4: WASTE WATER CALCULATIONS

Domestic Water Requirement	449 KLD
• Fresh	312 KLD
• Flushing	121 KLD
Waste water generated [@80% fresh + 100% flushing]	250+ 121 = 371 KLD
STP Capacity (at 1.25 times of W.W generated)	465 KLD

The water balance diagrams for different seasons are shown below:

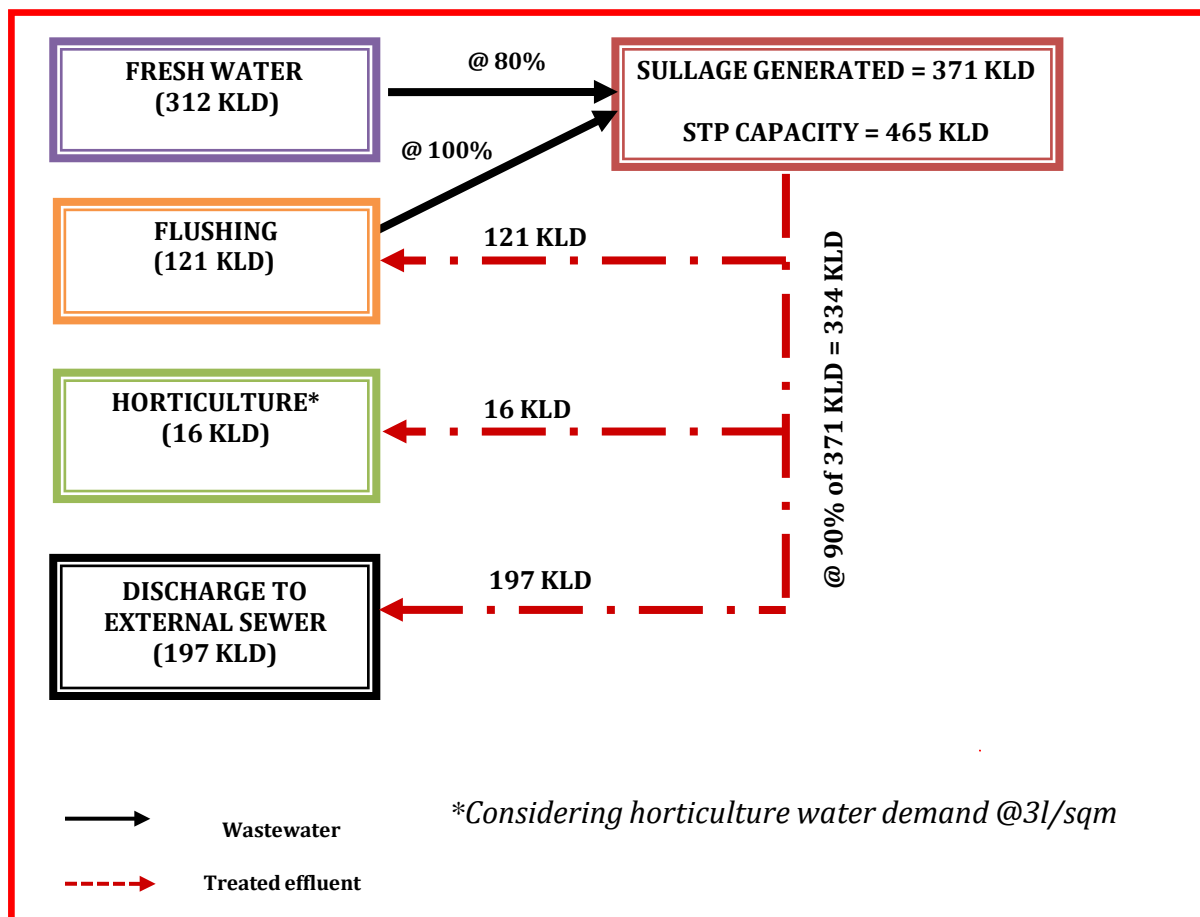


Figure 3: Water Balance Diagram (Summer Season)

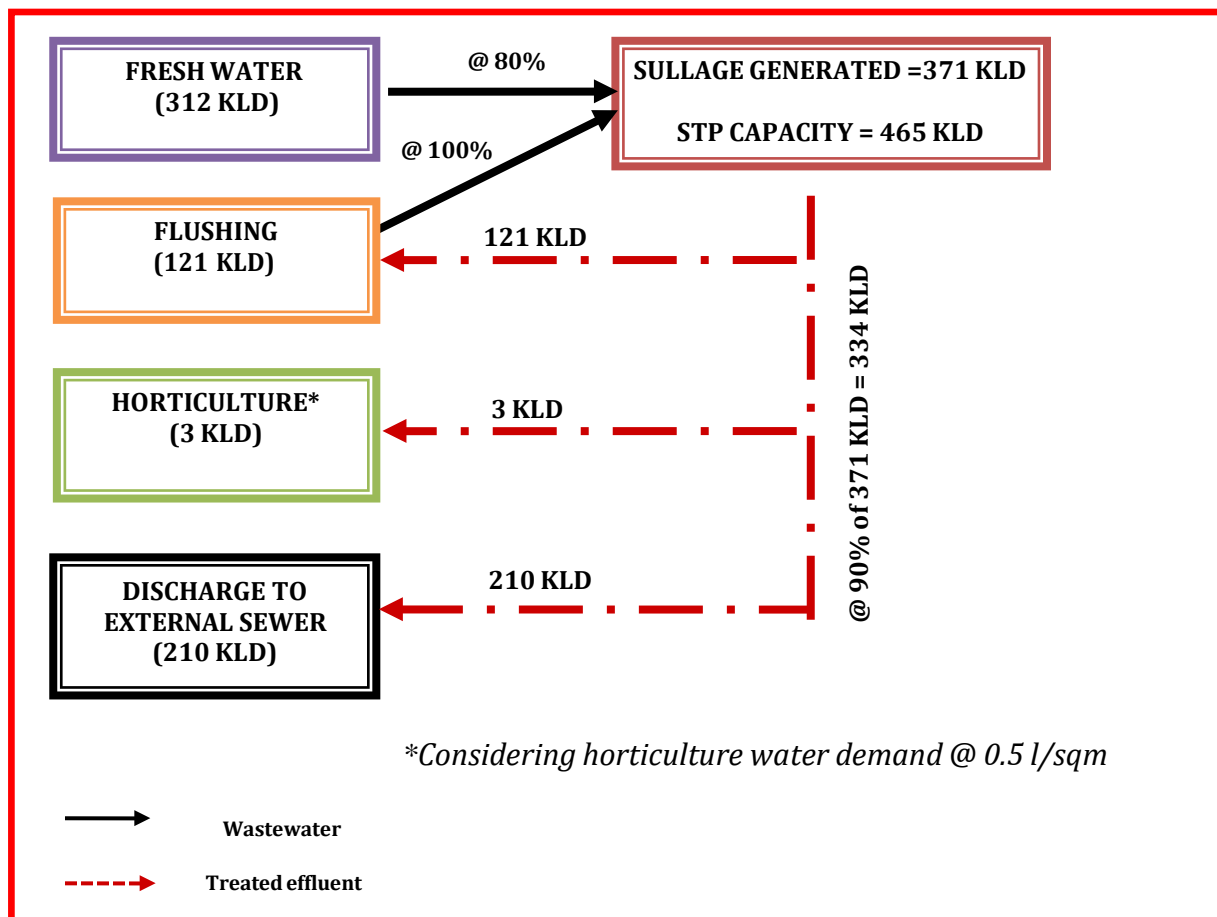


Figure 4: Water Balance Diagram (Monsoon Season)

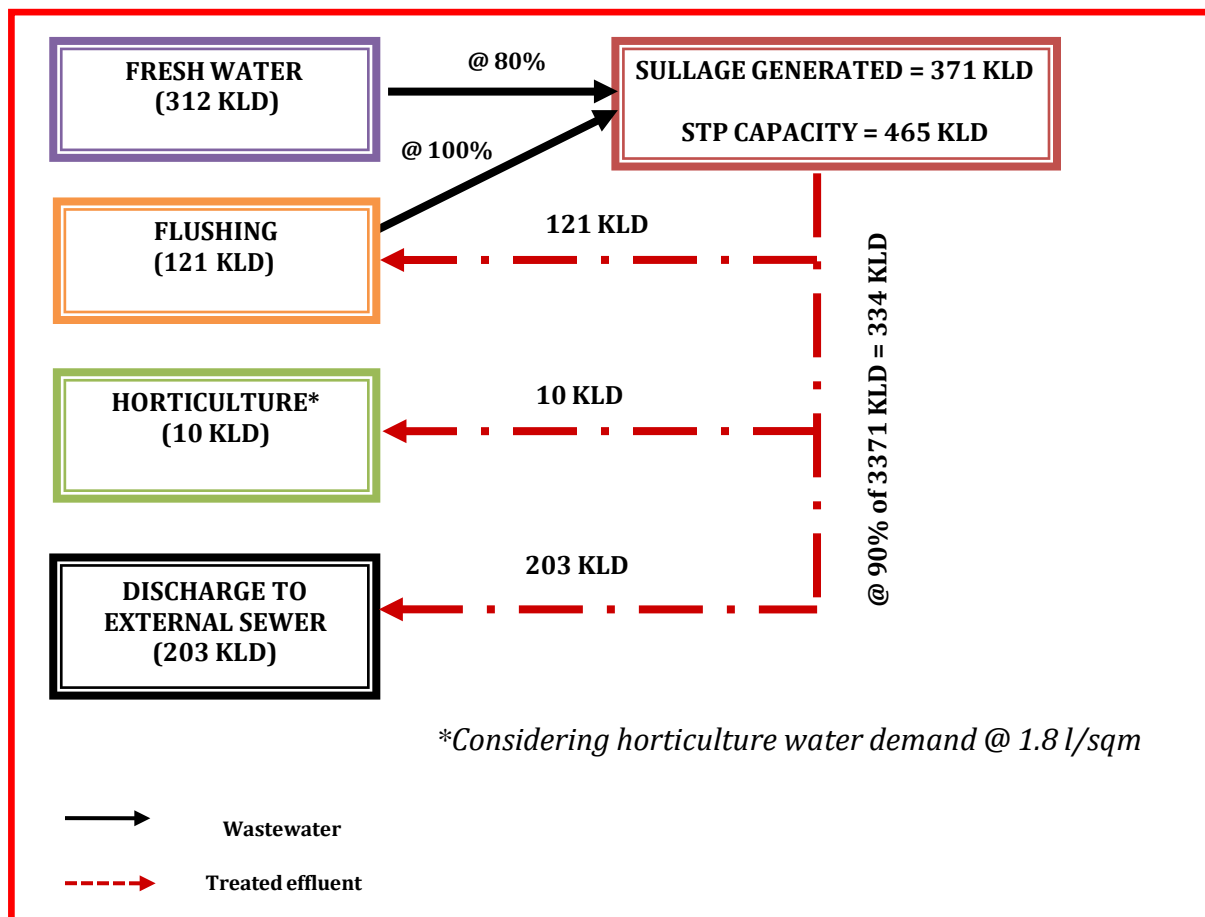


Figure 5: Water Balance Diagram (Winter Season)

Sullage Generation & Treatment

It is expected that the project will generate approx. 371 KLD of wastewater. The wastewater will be treated in onsite STP of 465 KLD capacity. The treated effluent will be reused for flushing & horticulture. Surplus treated effluent will be discharged to external sewer.

SEWAGE TREATMENT PLANT

SBR TECHNOLOGY

Sewage Treatment plant is provided for treating the wastewater generated from the project. This facility is installed not only for complying the legal requirement of Pollution

control board, but also to ensure that the treated water is efficiently treated and reused for gardening flushing and DG cooling.

a. Sullage Details

(a)	Duration of flow to STP	:	24 hours
(b)	Temperature	:	Maximum 32°C
(c)	pH	:	6.5-8.5
(d)	Colour	:	Mild
(e)	T.S.S. (mg/l)	:	200-450 mg/l
(f)	BOD ₅ (mg/l)	:	250-400 mg/l
(g)	COD (mg/l)	:	600-800 mg/l

b. Final discharge characteristics

(a)	pH	:	6.5 to 8.5
(b)	B.O.D.	:	<10 mg/l
(c)	C.O.D.	:	<20 mg/l
(d)	Total Suspended Solids	:	<10 mg/l

The alignment and slope of the sewer line will follow the road network, drains or natural ground surface and will be connected to the trunk sewers. The discharge point will be a treatment plant, a pumping station, a water course or an intercepting sewer. Pumping stations would be provided at places where the natural slope of the terrain is insufficient to permit gravity flow or the cost of excavation is uneconomical to do the same.

Description of Process:

The Plant will be based on Sequential Batch Reactor Technology popularly known as SBR Technology. Unlike various processes of treatments the raw sewage as obtained for the treatment undergoes Physio-Chemical & Biological Treatments. The first part of PhysioChemical treatment is the Primary Treatment to the raw sewage, which covers the physical activities like screening, de-gritting, flow measurement, flow distribution etc. The plant will be designed in accordance with the characteristics of influent and effluent

as provided and according to the guidelines of CPHEEO Manual, published by the Govt. of India.

The detailed description of individual units & their functions are given below.

- **Raw Sewage Pumping Station:** As per the requirement of the plant, the Raw Sewage Pumping Station is designed to handle average, peak and lean flows. The Coarse Screen Chamber is provided ahead of sump. Screens will be provided in the Coarse Screen Chamber to screen the raw influent. Necessary hand operated sluice gate shall be provided to isolate the screen when it is under maintenance. The Screened sewage is then allowed to flow to the Raw Sewage Collection Sump. The detention time stipulated as per the tender is adopted for the hydraulic design of wet well. The necessary pumps will be provided to pump the screened raw sewage for further treatment. The common rising main is provided to carry the sewage from raw sewage sump to Primary units.
- **Primary Units:** The first unit of Primary treatment is the Inlet Chamber, in which the discharge from Common rising main through Raw Sewage Pumps is received. The inlet chamber is mainly used to control the velocity of raw influent and also for its smooth distribution of flow to the fine screen channel. The fine screen channel will be equipped with manual screen & mechanical screen as required designed for peak flow velocity. Necessary hand operated sluice gate shall be provided at upstream of the chamber to isolate the screen when it is under maintenance. The screenings is conveyed to the disposal through a belt conveyor and further it is to be disposed off by suitable arrangement. The screened influent then flows to the Grit chambers where the heavy inorganic matter is separated. The Grit free waste thus obtained will flow to SBR basin. At this stage physical treatment of raw influent known as Primary Treatment completes.

SBR Process: SBR is a SEQUENTIAL BATCH REACTOR process. It provides highest treatment efficiency possible in a single step biological process. SBR – System is operated in a batch reactor mode which eliminates all the inefficiencies of the continuous processes. A batch reactor is a perfect reactor, which ensures 100% treatment. Two modules are provided to ensure continuous treatment. The complete process takes place in a single reactor, within which all biological treatment steps take place sequentially. No

additional settling unit / secondary clarifier is required! The complete biological operation is divided into cycles. Each cycle is of 3 – 5 hrs duration, during which all treatment steps take place.

Explanation of cyclic operation: A basic cycle comprises:

- Fill-Aeration (F/A)
- Settlement (S)
- Decanting (D)

A Typical Cycle During the period of a cycle, the liquid is filled in the SBR Basin up to a set operating water level. Aeration Blowers are started for aeration of the effluent. After the aeration cycle, the biomass settles under perfect settling conditions. Once Settled the supernatant is removed from the top using a DECANter. Solids are wasted from the tanks during the decanting phase.

These phases in a sequence constitute a cycle, which is then repeated.

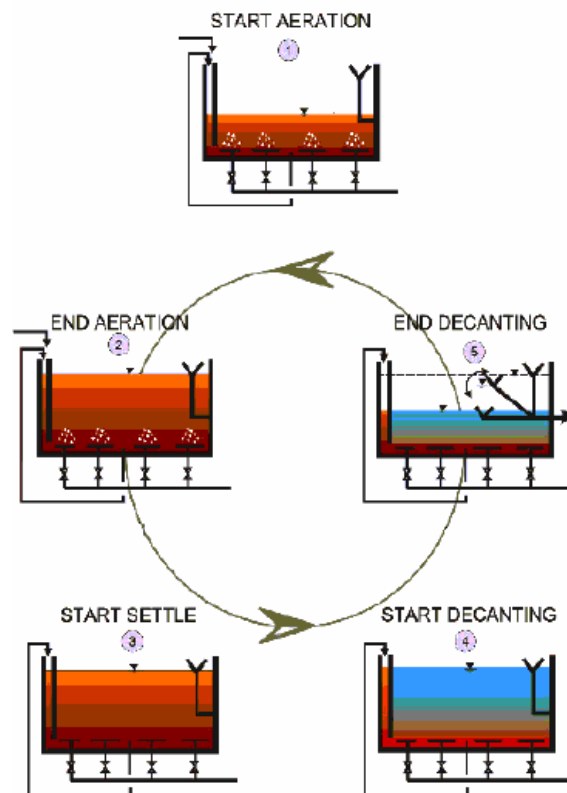


Figure 2-6 Sewage Treatment Scheme

Chlorine Contact Tank:

The Effluent from the SBR basins will be collected in Chlorine Contact Tank .The supernatant thus collected will get disinfected in Chlorine Contact Tank by adding suitable dose of chlorine and finally it is discharged.

Sludge Handling System:

The sludge as collected from SBR basins is collected into sludge sump and conveyed to centrifuge unit for dewatering the same. The necessary centrifuge feed pumps & Centrifuges will be provided. There will be an arrangement of dosing polyelectrolyte if necessary.

RAIN WATER HARVESTING

The storm water collection system for the premises shall be self-sufficient to avoid any collection/stagnation and flooding of water. The amount of storm water run-off depends upon many factors such as intensity and duration of precipitation, characteristics of the tributary area and the time required for such flow to reach the drains. The drains shall be located near the carriage way along either side of the roads. Taking the advantage of road camber, the rainfall run off from roads shall flow towards the drains. Storm water from various plots/shall be connected to adjacent drain by a pipe through catch basins. Therefore, it has been calculated to provide 19 rainwater harvesting pits at selected locations, which will catch the maximum run-off from the site.

- 1) Since the existing topography is congenial to surface disposal, a network of storm water pipe drains is planned adjacent to roads. All building roof water will be brought down through rain water pipes.
- 2) Proposed storm water system consists of pipe drain, catch basins and seepage pits at regular intervals for rain water harvesting and ground water recharging.
- 3) The peak hourly rainfall of 90 mm/hr shall be considered for designing the storm water drainage system.

Rain water harvesting has been catered to and designed as per the guideline of CGWA. Peak hourly rainfall has been considered as 90 mm/hr. The recharge pit of 3m diameter

and 2.5m depth is constructed for recharging the water. Inside the recharge pit, a recharge bore is constructed having adequate diameter and depth. The bottom of the recharge structure will be kept 5 m above this level. At the bottom of the recharge well, a filter media is provided to avoid choking of the recharge bore. Design specifications of the rain water harvesting plan are as follows:

- Catchments/roofs would be accessible for regular cleaning.
- The roof will have smooth, hard and dense surface which is less likely to be damaged allowing release of material into the water. Roof painting has been avoided since most paints contain toxic substances and may peel off.
- All gutter ends will be fitted with a wire mesh screen and a first flush device would be installed. Most of the debris carried by the water from the rooftop like leaves, plastic bags and paper pieces will get arrested by the mesh at the terrace outlet and to prevent contamination by ensuring that the runoff from the first 20 minutes of rainfall is flushed off.
- No sewage or wastewater would be admitted into the system.
- No wastewater from areas likely to have oil, grease, or other pollutants has been connected to the system.

Calculations for storm water load:

Green Area = 5,456.185 m²

Paved Area = Net Plot Area – [{Area under residential + commercial area+ community}
+ Green Area]
= 69,629.089 – [{34,849.781 + 2,803.455 + 7,009.00 } + 5,456.185]
= 69,629.089 – 50,118.421
= 19,510.668 m²

Runoff Load

Green Area = 5,456.185 × 0.09 × 0.2
 = 98.211 m³/hr

Paved Area = 19,510.668 × 0.09 × 0.7
 = 1,229.172 m³/hr

Total Runoff Load = $98.211 + 1,229.172 \text{ m}^3/\text{hr}$
 $= 1,327.383 \text{ m}^3/\text{hr}$

Taking 15 minutes Retention Time, Total volume of storm water = $1,327.383 / 4$
 $= 331.846 \text{ m}^3$

Taking the effective dia and depth of a Recharge pit 3m and 2.5m respectively, Volume of a single Recharge pit = $\pi r^2 h = 3.14 \times 1.5 \times 1.5 \times 2.5 = 17.66 \text{ m}^3$

Hence No. of pits required = $331.846 / 17.66 = 18.79$ Pits say 19 pits

Total no. of pits proposed = 19 pits.

- There will be a provision in allotment letter for saleable area that the individual plot owner will provide rain water harvesting pit in their plots.

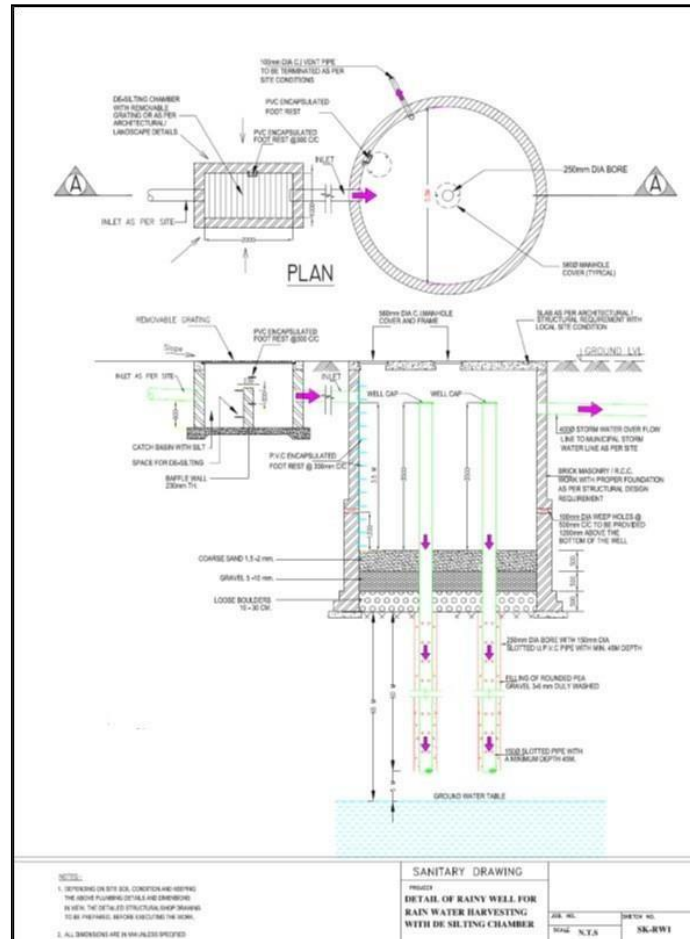


Figure 7: Rain Water Harvesting Pit.

PARKING FACILITIES

Adequate provision will be made for car/vehicle parking at the project site. There shall also be adequate parking provisions for visitors so as not to disturb the traffic and allow smooth movement at the site.

For plotted development the parking shall be within the plots by the individual plot owners.

POWER REQUIREMENT

The power supply will be supplied by Dakshin Haryana Bijli Vitran Nigam (DHBVN). The total maximum demand is estimated as 2011 kVA.

POWER BACK UP

There will be provision of DG sets of total capacity 1500 KVA for power back up in the Affordable Plotted Colony Project. The DG sets will be equipped with acoustic enclosure to minimize noise generation and adequate stack height for proper dispersion.

SOLID WASTE GENERATION

Solid waste would be generated both during the construction as well as operation phase. The solid waste expected to be generated during the construction phase will comprise of excavated materials, used bags, bricks, concrete, MS rods, tiles, wood etc. The following steps are proposed to be followed for the management solid waste:

- Construction yards are proposed for storage of construction materials.
- The excavated material such as topsoil and stones will be stacked for reuse during later stages of construction
- Excavated top soil will be stored in temporary constructed soil bank and will be reused for landscaping of the group housing project.
- Remaining soil shall be utilized for refilling / road work / rising of site level at locations/ selling to outside agency for construction of roads etc.

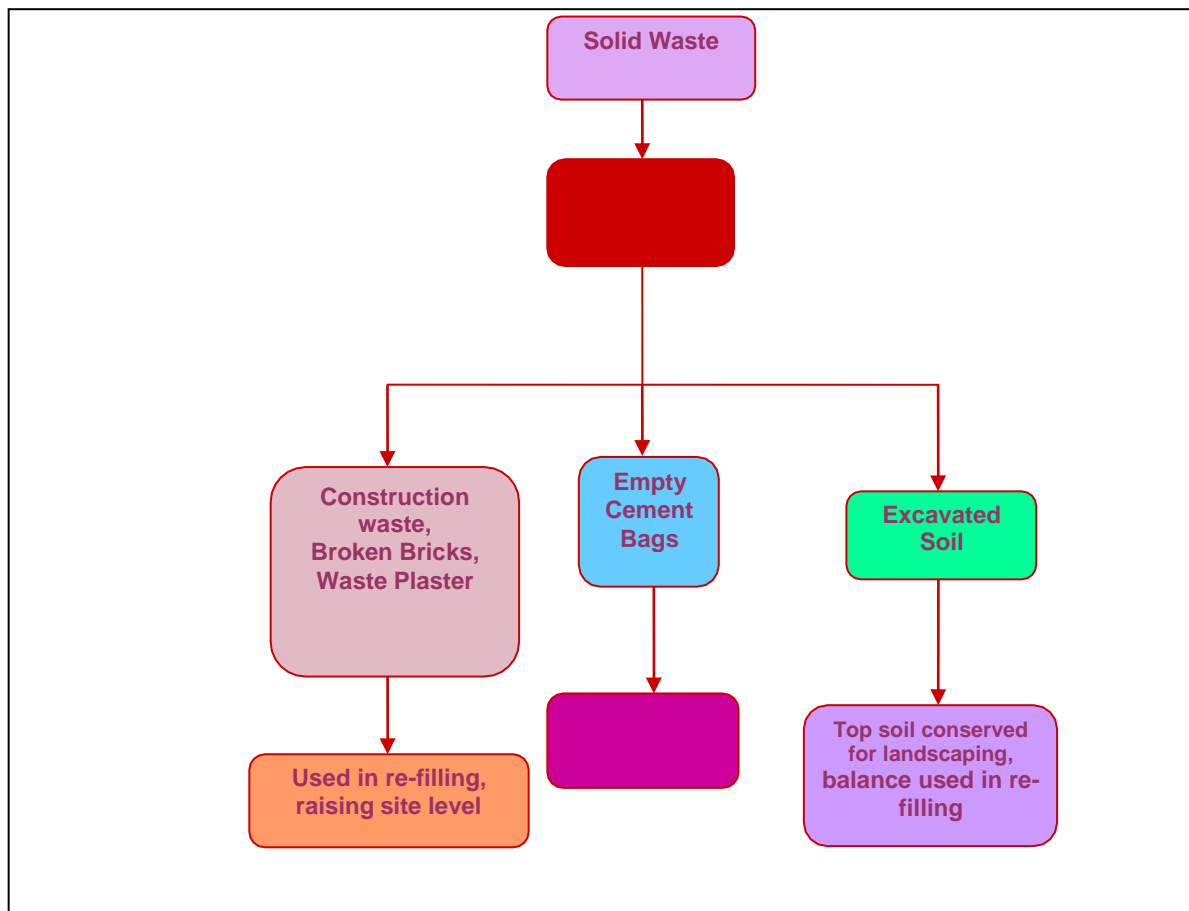


Figure 8: Solid Waste Management Scheme (Construction Phase)

During the operation phase, waste will comprise domestic as well as horticultural waste. The solid waste generated from the project shall be approx. 2,705 kg per day (@ 0.5 kg per capita per day for residents, 0.3 kg per capita per day for the staff members, @ 0.15 kg per capita per day for the visitor, and landscape waste @ 0.2 kg/acre/day). Following arrangements will be made at the site in accordance to Municipal Solid Waste (Management and Handling) Rules, 2000 and amended Rules, 2016:

Table 5: Calculation of Solid Waste Generation

S. No.	Description	Occupancy	Waste Generated (kg/capita/day)	Waste Generated (kg/day)
1.	Domestic Solid Waste			
	• Residents	4,500	0.5	2,250
	• Staff (Maintenance, and Commercial facilities)	389	0.3	116.7
	• Visitors (Maintenance, and Commercial facilities)	1,921	0.15	288.15
2.	Horticultural Waste (1.348 acre)		@ 0.2 kg/acre/day	0.269
3.	STP Sludge		Waste Water generated x 0.35 x B.O.D difference/1000	50.09
Total Solid Waste Generation= 2,705.209 kg/day say 2,705 kg/day				

❖ **Collection and Segregation of waste**

1. A door to door collection system will be provided for collection of domestic waste in colored bins from household units.
2. The local vendors will be hired to provide separate colored bins for dry recyclable and Bio-Degradable waste.
3. For commercial waste collection, adequate number of colored bins (Green and Blue & dark grey bins– separate for Bio-degradable and Non Bio-degradable) are proposed to be provided at the strategic locations of the commercial area.
4. Litter bin will also be provided in open areas like parks etc.

❖ **Treatment of waste**

• **Bio-Degradable waste**

1. Bio-degradable waste will be subjected to composting by organic waste converter and the compost will be used as manure.
2. STP sludge is proposed to be used for horticultural purposes as manure.

3. Horticultural Waste is proposed to be composted and will be used for gardening purposes.

- Recyclable wastes

- i. Grass Recycling – The cropped grass will be spread on the green area. It will act as manure after decomposition.
- ii. Recyclable wastes like paper, plastic, metals etc. will be sold off to recyclers.

- ❖ Disposal

Recyclable and non-recyclable waste will be disposed through a local agency. Solid waste management scheme is depicted in the following figure:

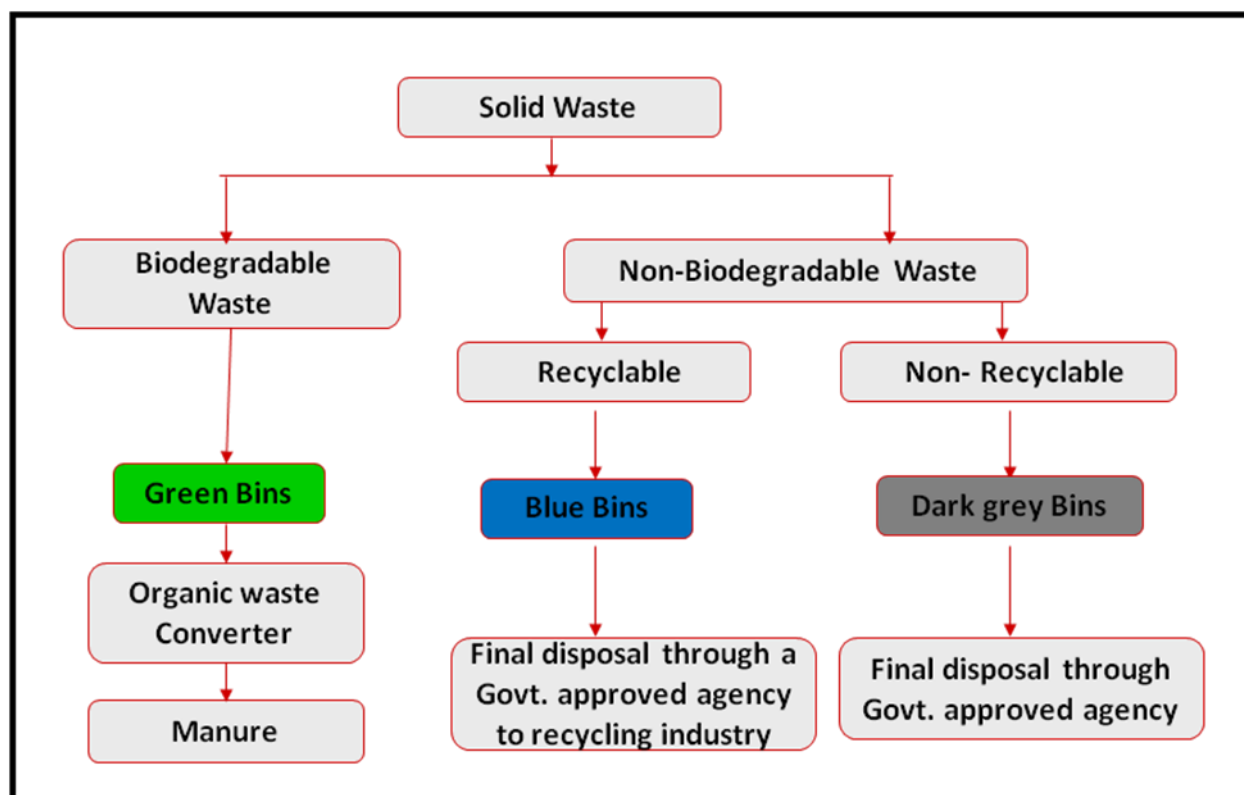


Figure 9: Solid Waste Management Scheme (Operation Phase)

Organic Waste Converter

A waste converter is a machine used for the treatment and recycling of solid and liquid refuse material. A converter is a self-contained system capable of performing the following functions: pasteurization of organic waste; sterilization of pathogenic or

biohazard waste; grinding and pulverization of refuse into unrecognizable output; trash compaction; dehydration



Figure - 10: Organic Waste Converter

Benefits of organic waste converter:

1. Large quantity of solid waste is converted to manure in a very short period
2. This manure can be sold as compost to farmers, or used for gardening
3. Machine requires less space and the efficiency is high
4. Manpower and maintenance is very less
5. This is one of the latest techniques of managing solid waste.

Use of Organic waste converter:

A typical Organic Waste Converter - 300 (Dim. 3m × 4m) is used for composting waste 120 kg/batch or 3,000 kg/day & it requires electricity of about 13.5 HP.

No. of batches /day = $3,000/120 = 25$

Biodegradable Waste to be converted = 60% of total solid waste generated = 2,705 *

0.6 = 1,623 kg/day

Taking 20% higher = 2,029.6 kg

No. of batches to convert 2,029.6 kg = $2,029.6/120 = 16.91$ say 17 batches

Operation Cost-monthly per capita:

The operating cost of OWC - 300 = 1, 80,000 INR/month

Cost/day = $1, 80,000/30$

= 6000/-

1 batch/day cost = $6000/25$

= 240 INR

Cost for 12 batch/day = $17 \times 240/-$

= 4,080/-

Monthly operating cost = $30 \times 3,840$

= Rs. 1,22,400/- per month

Population of the project (Residents) = 6,810

Per capita cost/ month= Monthly operating cost/ population of the project (i.e., 6,810)

= $1,22,400/6,810$

= **17.97 say INR 18**

Area proposed for the OWC = 100 Sq.m

GREEN AREA

Total green area measures 5,456.185 m² i.e. 7.78% of the plot area (Shelter belt, Avenue plantation and lawn). Evergreen tall and ornamental trees like *Acacia leucophloea*, *Acacia nilotica*, *Acacia senegal*, etc. have been proposed to be planted inside the premises.

Table 6: Plant Species with Local Names

ROADSIDE & PERIPHERAL PLANTATION		
S. No.	Botanical Name	Common Name
1.	<i>Acacia leucophloea</i>	Raunj
2.	<i>Acacia nilotica</i>	Kikar
3.	<i>Acacia senegal</i>	Khairi

4.	<i>Albizzia lebbek</i>	Siris
5.	<i>Azadirachata indica</i>	Neem
6.	<i>Anogeissus pendula</i>	Dhauk
7.	<i>Bombax ceiba</i>	Semal
8.	<i>Boswellia serrata</i>	Salai
9.	<i>Butea monosperma</i>	Dhak
10.	<i>Cassia fistula</i>	Amaltas
11.	<i>Cordia dichotoma</i>	Lasura
12.	<i>Dalbergia sissoo</i>	Shisham
13.	<i>Holoptelia integrifolia</i>	Papri
14.	<i>Kigelia pinnata</i>	Kigelia
15.	<i>Melia azedarach</i>	Bakain
16.	<i>Pongamia pinnata</i>	Papri, Karanj
17.	<i>Prosopis cineraria</i>	Jand, Jandi
18.	<i>Salvadora oleoides</i>	Jal
19.	<i>Terminalia arjuna</i>	Arjun
20.	<i>Bauhinia variegata</i>	Kachnar

DETAIL OF CONSTRUCTION MATERIAL

List of building materials being used at site:

1. Coarse sand
2. Fine sand
3. Stone aggregate
4. Stone for masonry work
5. Cement
6. Reinforcement steel
7. Pipe scaffolding (cup lock system)
8. Bricks
9. CLC fly ash blocks

10. Crazy (white marble) in grey cement
11. P.V.C. conduit
12. MDS, MCBs
13. PVC overhead water tanks
14. 2 1/2" thick red colour paver tiles
15. PPR (ISI marked)
16. PVC sullage lines
17. S.W. sewer line up to main sewer
18. PVC rain water down take
19. Stainless steel sink in kitchen
20. Joinery hardware- ISI marked

MATERIALS USED FOR CONSTRUCTION & THEIR U VALUE

Type of Construction	U values(in W/m ² deg C)
WALLS:	
Brick:	
Plastered both sides - 114 mm	3.24
Solid , Unplastered - 228 mm	2.67
Plastered both sides - 228 mm	2.44
Concrete,ordinary,Dense:	
- 152 mm	3.58
- 203 mm	3.18
Concrete block, cavity,250 mm (100+50+100), outside rendered,inside plastered:	
Aerated Concrete blocks	1.19
Hollow Concrete block, 228 mm,single skin,outside rendered, inside plastered:	
Aerated Concrete blocks	1.70
Roofs Pitched :	
Tiles or Slates on boarding and felt with plaster ceiling.	1.70
Roofs Flat :	
Reinforced concrete slab, 100 mm, screed 63-12 mm, 3 layers bituminous felt.	3.35
Floors :	
Concrete on ground or hardcore fill	1.13
+ Grano,Terrazzo or tile finish	1.13
+ Wood block finish	0.85
WINDOWS :	
Exposure South , Sheltered:	
Single glazing	3.97
Double glazing 6 mm space	2.67

LIST OF MACHINERY USED DURING CONSTRUCTION

- (i) Dumper
- (ii) Concrete mixer with hopper
- (iii) Excavator
- (iv) Concrete Batching Plant

- (v) Cranes
- (vi) Road roller
- (vii) Bulldozer
- (viii) RMC Plant
- (ix) Tower Cranes
- (x) Hoist
- (xi) Labor Lifts
- (xii) Pile Boring Machines
- (xiii) Concrete pressure pumps
- (xiv) Mobile transit mixer

-----X-----