

Sewerage System

Sewage Generation

The sewage generation is approximately assumed to be 80% - 90 % of total net water supply has been considered excluding water infiltration. Refer table below for phase-wise sewage generation in Naya Raipur.

Sewage Generation in Naya Raipur

Phases / Year	Estimated Population	Water Supply Rate (lpcd)	Sewage Generation Rate (lpcd)	Cumulative Sewage Generation (MLD)	Cum Non Domestic Sewage Generation (MLD)	Cumulative Total Sewage Generation (MLD)
Phase I - 2011	150000	135	121.5	18.23	5.83	24.29
Phase II - 2026	458750	135	121.5	55.74	13.35	69.32
Phase III - 2041	616000	135	121.5	74.84	16.63	91.7

Considering the topography, the project area is proposed to be divided into six zones, each of which is proposed to have an independent sewer network & Sewage Treatment Plant. The overall sewerage system is proposed as follows:

Zone 1:

The zone is proposed to cater for 18 % of the total sewage generated in the project area, with proposed STP 1 located in Theme Park/Nature Resort. This zone includes Logistic hub, proposed railway station, Industrial area, Natural resort and Theme park, Integrated Freight complex and Residential area.

Zone 2:

The zone is proposed to cater for 10 % of the total sewage generated in the project area, with proposed STP 2 located near cantonment area. This zone includes Army, Sports village, NCC and Police academy, Cantonment area, International Cricket Stadium, Residential area, Health Complex, Facility complex, Education Complex and Commercial cum Business Complex.

Zone 3:

The zone is proposed to cater for 18 % of the total sewage generated in the project area, with proposed STP 3 located near Kotrabhata. This zone includes Residential area, Health Complex, Facility complex, Specialty Hospital and Commercial cum Business Complex.

Zone 4:

The zone is proposed to cater for 21 % of the total sewage generated in the project area, with proposed STP 4 located near Capital Complex. This zone includes Capital complex, HOD Buildings, Naya Rakhi Rehabilitation, Residential areas, Health Complex, Facility complex, Education Complex, Commercial cum Business Complex, Golf course and Botanical park.

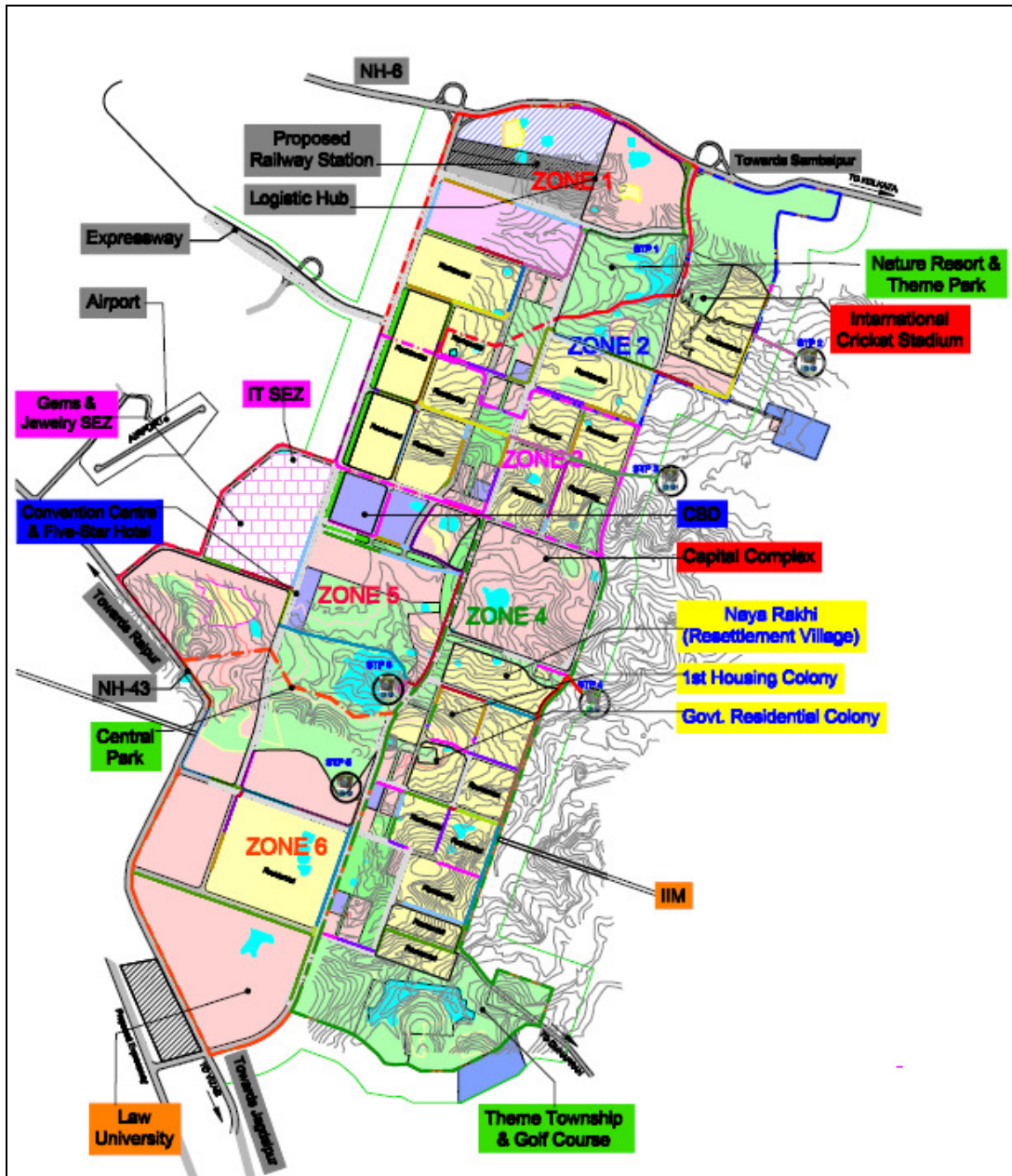
Zone 5:

The zone is proposed to cater for 15 % of the total sewage generated in the project area, with proposed STP 5 located in Central Park. This zone includes Special industry zone (Gems and Jewelry park and IT SEZ), CBD area, Socio Cultural area, Hotel Complex and Central Green park.

Zone 6:

The zone is proposed to cater for 18 % of the total sewage generated in the project area, with proposed STP 6 located near Central Park. This zone includes Residential area, Institutional and Research area, University Complex and Knowledge park.

The Length of sewerage collection network is 80528m. Diameter of sewerage collection system ranges between 200 mm to 800 mm & the material proposed is HDPE.



The drawing showing the six sewerage drainage zones

Sewage Treatment

Sewage Treatment shall be done through Swage Treatment Plant. The treatment based on Sequential Batch Reactor (SBR) to be adopted.

Six STPs of total 91.70 MLD capacities are proposed for Naya Raipur. The STPs shall be developed in modules in three phases.

Capacity of STP at different phase of development

Description	STP Capacity (MLD)		
	PHASE I	PHASE II	PHASE III
Zone 1	4.46	5.46	6.55
Zone 2	3.16	2.80	2.98
Zone 3	4.35	4.56	7.50
Zone 4	4.69	11.54	3.20
Zone 5	4.17	7.82	2.15
Zone 6	3.48	12.84	0.00
Total	24.29	45.02	22.38

Disposal Option

The Treated Sewage Effluent shall be utilized in any of the following uses so as to conserve and minimize the overall water requirement viz., land scaping, flushing and fire fighting. The Treated Sewage Effluent shall also be supplied to bulk industrial customers by pumping. The pipe material used for ring main is HDPE.

Length and Diameter of Ring Main

Zone No./ STP No.	Quantity of Recycled Water to be Pumped MLD	Locations of Reuse	Diameter of Ring Main (mm)	Length (m)
1	16.47	Recreational Areas	500	25.00
2	8.94	Green zones and Cantonment Area	355	1600.00
3	16.41	Green areas, public areas & community level parks	500	2350.00
4	19.43	Golf Course, along facility corridor, community level parks	630	2375.00
5	14.14	Central Green and adjacent community level parks	450	25.00
6	16.32	Central Green, Pond and CBD area greens	500	2700.00