

EXECUTIVE SUMMARY

REDEVELOPMENT OF RESIDENTIAL CUM NON RESIDENTIAL PROJECT

AT

**C. T. S. NO. 27(A) OF SIDDHARTHA NAGAR,
AT MHADA LAYOUT, GOREGAON (W),
MUMBAI**

BY

M/S MARWIN CONSTRUCTION COMPANY

Mumbai the capital of Maharashtra is also the financial capital and the most populated city of India. Mumbai has grown in recent decades for many residential and commercial developments. Diminishing of Industrial zones and development of corporate offices, mall culture in very short period is one of the features of today's Mumbai.

The Mumbai has many old, dilapidated structures. They are very unsafe to retain. Many of them are in CRZ zones. Development of those by rehabilitant those tenants along with development of new flats to compensate the development charges will not be possible if extra FSI is not used. Because of CRZ conditions the FSI restriction makes those structures unattended.

But because of New CRZ notification 2011, it is possible to compensate development charges by developing these structures. The one of such project of unsafe, dilapidated building of residential use as declared dilapidated structure by office of P Ward is discussed here.

1. INTRODUCTION TO THE REPORT

Proposed redevelopment of plot bearing C.T.S. No. 27(A) of Siddhartha Nagar, at MHADA Layout, Goregaon (W), Mumbai and thereby obtain Environmental Clearance as per clause 33(6) of DCR – 1991 in force as on 6th January 2011. The scheme for the same is approved by MCGM under DCR 33(6). The Plot is occupied by existing one building structures of Ground + 3 upper floors structure, occupying 32 existing tenants/ occupants. The structure was declared as dangerous by the office of Executive Engineer, Housing, Bandra Division, Mumbai Board, of MHADA, dated 03.09.2010

As per MoEF Notification dated 6/1/2011, redevelopment of dilapidated, CESSSED and unsafe buildings in CRZ areas are permitted with special advantages, in which the project is planned as per DCR's in force as on 6/1/2011 and staircase/ lobby/ lift area is claimed free of FSI, as per clause 35(2)c of DCR 1991. The proposal is submitted for prior CRZ clearance, as per the requirement of

amended CRZ notification-2011 and the check list finalised by MCZMA vide Office Memorandum dated 02/07/2011.

Current development thus will help the existing tenants/ occupants to get permanent, safe structure. They were residing in unsafe building. Photos of the same are attached in annexure.

These old dilapidated structure is now proposed to be developed into one building, comprising of One Basement + Stilt + 1st to 20th upper floors for residential and commercial use including refuge area and car parking.

2. DESCRIPTION OF THE PROJECT

2.1 NATURE OF THE PROJECT

This is a proposal for development of residential building situated at C.T.S. No. 27(A) of Siddhartha Nagar, at MHADA Layout, Goregaon (W), Mumbai in CRZ-II belt, as the same is situated within 50 meters wide CRZ-II belt of Oshiwarah Nallah. The proposal is for redevelopment of dilapidated residential building, which is situated on the landward side of **existing Link Road in existence prior to 19/2/1991, as may be seen from CZMP of Mumbai as well as old 1967 DP of Mumbai.**

2.2 SIZE OF THE PROJECT

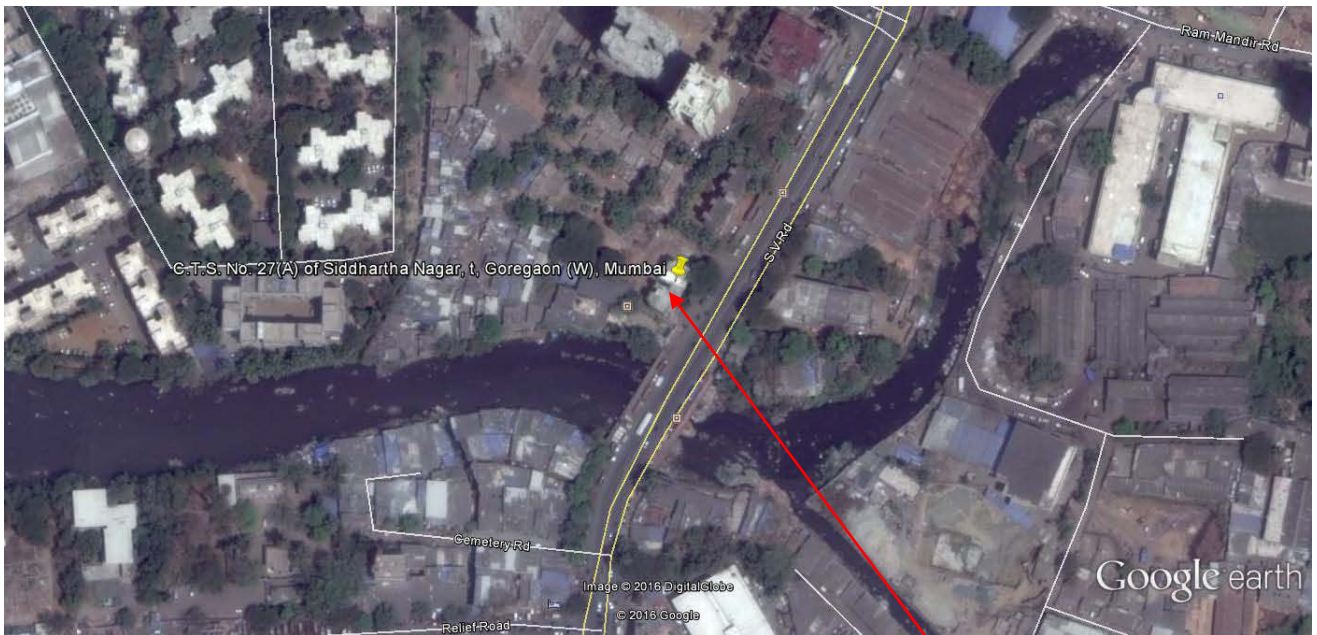
Area of the plot is 1198.01sq mtr. Cost of the Project is Rs. 59,13,46,682/- (Rupees Fifty Nine Crore Thirteen Lakh Forty Six Thousand Six hundred and Eighty Two Only)

2.3 LOCATION

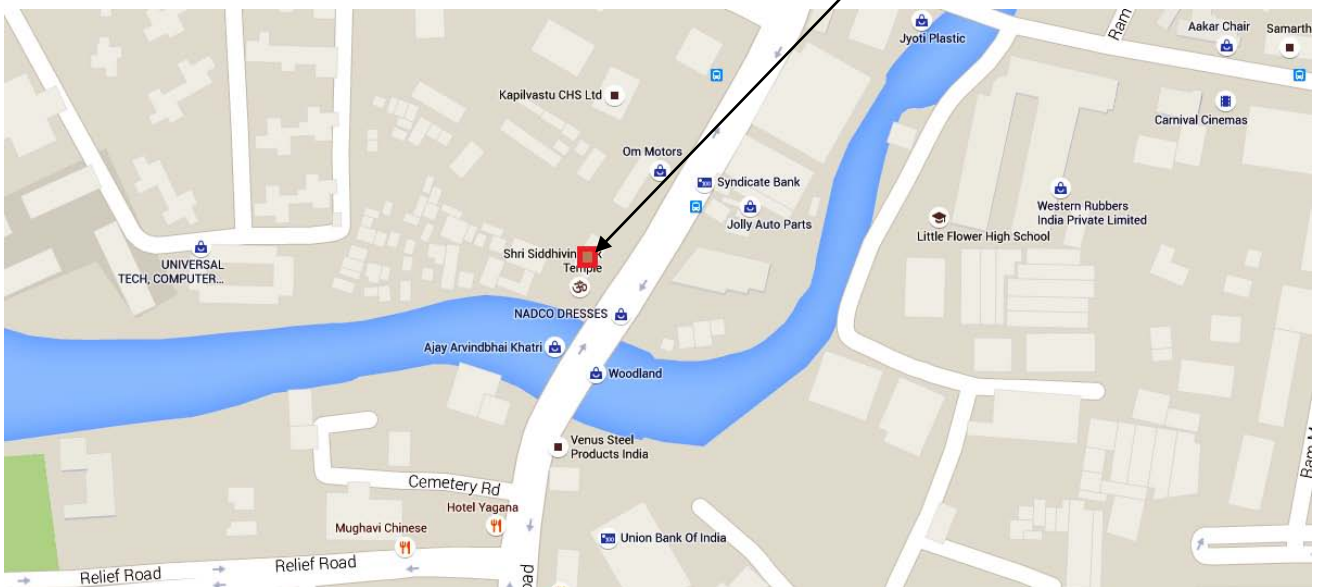
The C.T.S. No. 27(A) of Siddhartha Nagar, at MHADA Layout, Goregaon (W), Mumbai, is in the suburban part of the Mumbai city.

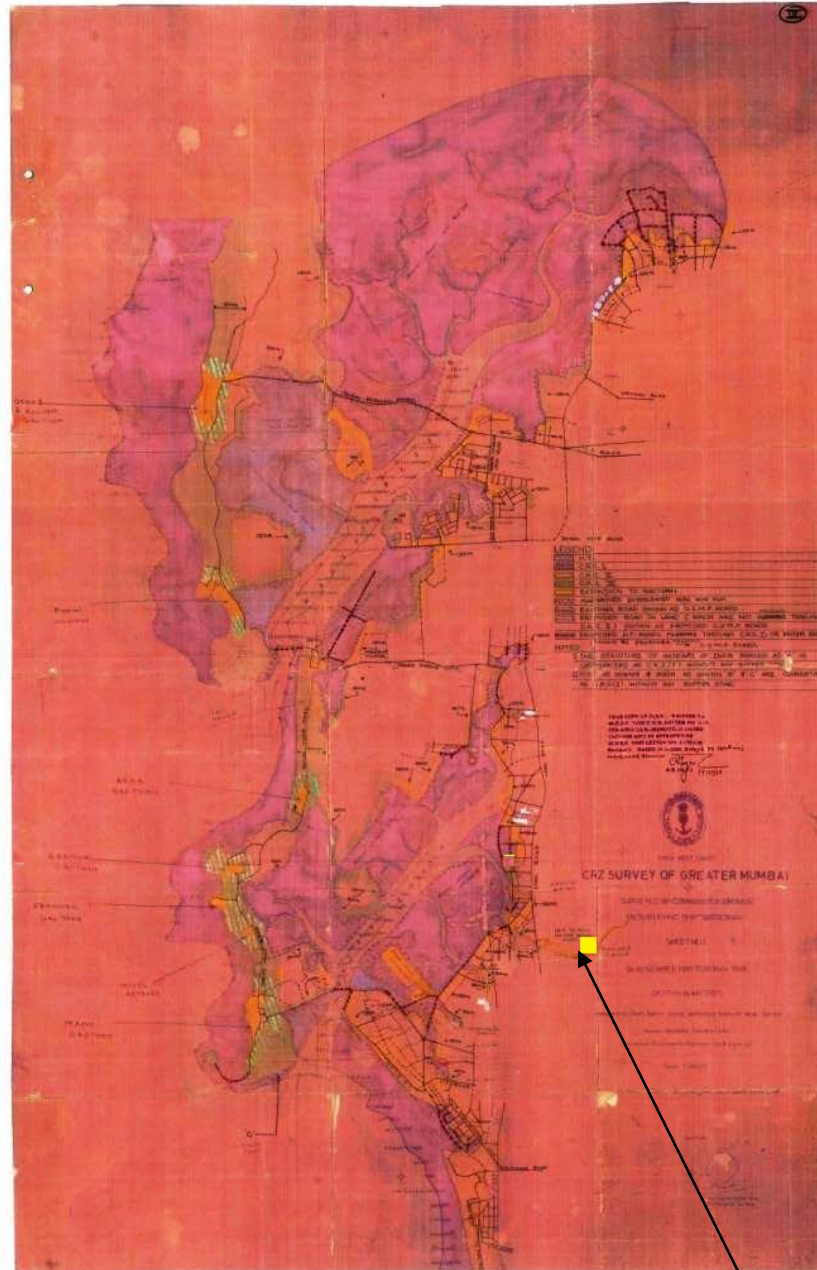
The nearest station is Jogeshwari Railway Station which is about 2.0 km away from the site. The nearest bus stop is Ram Mandir Bus Stop, which is 150 meters away from the site. The Sahara International Airport is about 9.0 km from the site under reference.

Google Earth Image of the site



SITE UNDER REFERENCE





SITE UNDER REFERENCE

CZMP Plan showing location of reference Plot

2.4 SITE DESCRIPTION

The site under reference is affected by CRZ-II zone and the property fall landward side of the existing Link Road which is reflected in CZMP plan. Thus property attracts the CRZ legislation as per CRZ 2011.

The development site does not fall or contain the environmentally sensitive areas as specified in the coastal Regulation zone notification. Total plot Area in CRZ is 1198.01 sq. mtrs. and the same area will be used for construction activity.

Town / Tehsil	: Mumbai
District	: Mumbai Suburban
State	: Maharashtra
Latitude	: 19° 09' 03.00"N
Longitude	: 72° 50' 36.43"E

2.5 PROPOSED DEVELOPMENT

2.5.1 AREA

	Description	Area
1	Area of Plot	1198.01 Sq. mtrs.
2	Deductions for	
	a) Road set back area	0.00 Sq. mtrs.
	b) Proposed Area	0.00 Sq. mtrs.
	c)Any Reservations	0.00 Sq. mtrs.
	c)___% Amenity space as per DCR 56/57	0.00 Sq. mtrs.
	Total (a+b+c)	
3	Balance area of plot (3-4)	1198.01 Sq. mtrs.
4	Deduction for	
	15% Recreation ground on Balance Plot Area	0.00 Sq. mtrs.
5	Net area of plot (1-2)	1198.01 Sq. mtrs.
6	Additions for F.S.I purpose	0.00 Sq. mtrs.
	2(a)100% for DP Road (restricted to 40% or 80% of “3” above)	0.00 Sq. mtrs.
	2(b) 100% for set-back (restricted to 40% or 80% of “3” above)	0.00 Sq. mtrs.
7	Total area (5+6)	1198.01 Sq. mtrs.
8	F.S.I Permissible	3.50
9	Floor space index credit available by	00.00 Sq. mtrs.
	9a) As per MHADA NOC No.	0.00 Sq. mtrs.

	9b) BUA to be allotted by MHADA	0.00 Sq. mtrs.
	9c) 0.33 FSI as per DCR 32	0.00 Sq. mtrs.
	9d) 0.67 FSI by development rights	0.00 Sq. mtrs.
10	Permissible floor area (7 x 8+9)	4193.04 Sq. mtrs.
11	Total Proposed Built up Area	4193.04 Sq. mtrs.
12	Gross Built Up Area	7580.00 Sq. mtrs.
13	FSI consumed on net holding	3.50
Parking Statement		
	Required Parking	56 Nos
	Provided Parking	57 Nos
	Building Structure	Basement + Ground Floor + 1 st to 20 th Floor
	Height of Building	66.90 meters

PROJECT DEVELOPMENT DETAILS

Proposed development		
1	Existing Structure	Existing one building structures of Ground + 3 upper floors occupying 32 existing tenants/occupants
2	Structure of Building	Basement + Ground Floor + 1 st to 20 th upper residential and non residential floors including refuge and parking area.
3	Tenements existing	32 nos.
4	Tenements proposed	87 nos. Residential tenements and 14 Non Residential tenements (Sale and Rehab)
5	Height of Building from Ground level	66.90 mtr
6	Parking required as per MCGM	56 nos.
7	Parking provided	57 nos.
8	Emergency Power supply (D.G. Nos. x KVa	1 no. 35 KVa
9	Area required for D.G sets	5 sq. mt
10	Salient features of the project	
	• Earthquake Resistance Building structure • Rain water Harvesting System in the complex • Energy Conservation; Provision of Solar water heating system. • Eco-Friendly Measures • Optimum use of Timber	

2.5.2 UTILITIES

The Utilities required during the construction phase are water, power, fuel and Labour.

i) **WATER :** (Expected Consumption – total 35 cum/day)

For Construction activities: 30 cum/day & For Domestic use: 5 cum/day

Water Balance (Construction Phase)				
Sr. No.	Consumption	Input m³/Day	Loss m³/Day	Effluent m³/Day
1.	Construction Activities	30	30 (Tanker consumption)	Nil
2.	Domestic (50 Site Workers)	5	1	4
Total		35	31	4

Anticipated Impacts-

- Increased water demand during construction phase for site preparation, water spraying for dust suppression, for construction activities, curing, domestic and other water requirements for labour and staff onsite
- Waste water disposal by construction labour and staff can lead to pollution.
- Water logging creates unsanitary conditions and mosquito breeding at site

Mitigation Measures –

- Wastage of water used for construction curing shall be avoided
- Proper management of channelization of water to avoid water logging at site.

Water Balance (Operation Phase)

Sr. No.	Component/ Head	Occupants	Water Requirement		Remarks
			Domestic	Flushing	
1	Total residential population	609	54.81	27.405	@ 90/45 lpcd
2	Total floating population*	113	2.26	2.825	@ 20/25 lpcd
3	Car washing	57	0.57 CMD		28 cars (@10L per car)
4	Total Quantity of Water Required	87.30 CMD			For a total population of 722 person.(Excluding car washing requirement)
5	Total Fresh Water Requirement	57.07 CMD			
6	Total Grey Water generation	45.65 CMD			44.97 CMD to Sewage Treatment plant (capacity 57 CMD) after 20% use loss and 1.5% evaporation losses
7	Sludge generated	0.90 CMD			-
8	Grey Water Treatment Plant treated recycled water	44.88 CMD			-

* - Floating population consists of drivers, servants, security personnel, etc.

1] Source: - Water will be available from Mumbai (MCGM) for domestic use and from Tanker for construction purpose

2] Storage: - Water for construction will be stored in open tank.

Drinking water will be stored in HDPE tank.

Anticipated Impacts

- Lowering the infiltration capacity and increased run off
- Increased run off, Water logging in the low lying areas
- Stress on existing water supply & generation of waste water.

Mitigation Measures

- Provision of storm water drainage system with adequate capacity & proper maintenance of storm water drainage
- Use of water efficient technologies to reduce water consumption
- Treatment of waste water in Grey Water Treatment Plant and recycling of treated water from grey water treatment plant for flushing, car washing, gardening, etc.

i) POWER**DURING CONSTRUCTION**

(Expected Consumption- about 0.3 MW)

1] An Electricity supply of 0.3 MW will be available from BEST. It is mainly required for some construction equipments, general lighting etc.

2] All Fire & Safety measures will be taken as appropriate and will be supervised by the Authority.

DURING OPERATION

Total Energy consumption: 0.59 MW

The electricity supply will be available from BEST/ TATA Undertaking.

ENERGY SAVING MEASURES

The following Energy Conservation Methods are proposed in the project:

- Solar & LED Lights for common area use.
- Use of Solar System for Hot water Requirement.
- DG sets will be kept 6m or more away from Buildings.

ii) FUEL**DURING CONSTRUCTION PHASE**

Diesel (5 L/day during excavation & 10 L/day post excavation).

All the equipment are electrically driven except JCB, poclain, and concrete mixers.

DURING OPERATION PHASE

Diesel will be required to run the D. G. Set in case of power failure. Hence the quantity of diesel consumed will vary depending upon the usage of D. G set.

1. Storage: Diesel and oil will be stored in drums / tins with proper identification mark/labels in identified areas only.
2. Fire and safety measures will be taken as per the guidelines from concerned authority.
3. All Safety and fire precautions will be followed.

iv) MANPOWER**DURING CONSTRUCTION PHASE**

(Expected Manpower – about 50)

Approximately 50 persons will be working during the peak time of construction phase. These persons will be on the project site during 0900 hrs. Except Security Personnel, who will be on the field round the clock for twenty – four hours.

DURING OPERATION PHASE**POPULATION**

There will be about 609 persons residing in the building and 113 will be non residential office staff including drivers, security, visitors, etc.

3. CONSTRUCTION PHASE

The type of Construction Materials, Equipments used during the construction phase and persons involved in various activities on the field affect the status of environment to a great extent. The impact of construction Activities on various components of environment on the on the project site and surrounding area is predicated in this section.

3.1 LIST OF MATERIALS

The Construction material required for the proposed redevelopment is given below.

Sr. No.	Item	Unit	Quantity	Source	Process
1.	Sand	CUM	2945	River bed	Nil
2.	Aggregate	CUM	6552	Quarry	Crushing
3.	Standard Bricks	Nos.	2371	Red Soil	Heating, Moulding
4.	Timber	M.T	108	Forest	Cutting & Trimming
5.	Construction Waste	Kg/Day	202	-	-

The basic engineering materials like aggregate, cement, sand and bricks/blocks will be purchased locally. However, finishing materials will be purchased keeping in mind the energy conservation aspect.

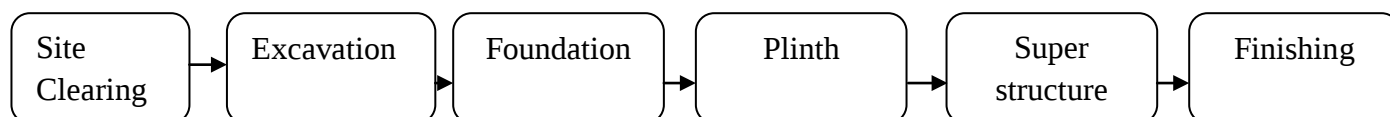
3.2 LIST OF EQUIPMENTS

The construction equipments required for the residential building is given below.

Sr. No.	Equipments	Numbers	Operation	Duration
1.	JCB, Poclain	1	Diesel	Short
2.	Dumpers	2	Diesel	Short
3.	Goods lifts / Personal lifts	1	Electric	Total
4.	Vibrators	4	Electric	Total
5.	Dewatering Pumps	1	Electric	Total
6.	Concrete Mixers	1	Electric	Total
7.	Wood Cutting Machine	1	Electric	Total
8.	Drill Machine	1	Electric	Total

3.3 CONSTRUCTION PROCEDURES

The outline of the construction procedure is described below schematically.



Note:

1] The project is expected to be completed within three years (Maximum) period.

Construction Parameters and Quality will be strictly adhered to as per the approved architectural design data/map. All the regulations of government authorities will be followed.

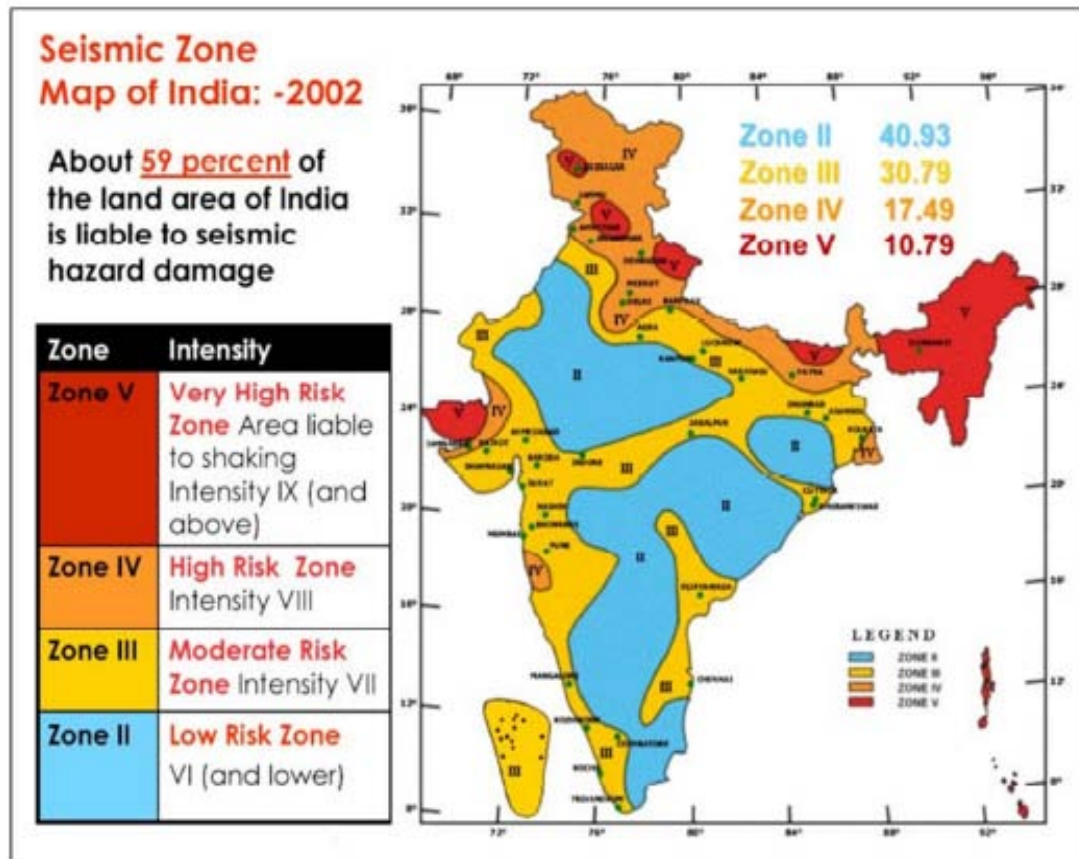
- 2] All the safety precaution will be observed as per the guidelines during the construction phase. Personal Protective Equipments (PPE) will be provided to all the personnel involved in the construction activities.
- 3] Site barricading by corrugated tin sheets up to height of 5.0 mtr will be done to protect the surrounding area of the project site from nuisance /dusting.
- 4] All electrical connections & cables will be checked by authorized persons to ensure the safety of workers on field.
- 5] Water sprinkling will be done, wherever required to reduce the dusting in atmosphere. Jute barricading along building / plot boundary shall be provided to minimize noise level from construction activities.
- 6] The safety and security officers shall supervise the site.
- 7] Safety helmets will be mandatory to all the persons present on the site during the construction activities.
- 8] Hand gloves and dust masks will be provided to persons handling construction materials during the operation.
- 9] Safety belts will be provided to the persons working at height during the operation.
- 10] Safety nets will be arranged at a height at about 5.0mtr. when the structures get raised above the required height from the ground.

3.4 SEISMICITY:

Seismic zone map was initially based on the amount of damage suffered by the different regions of India because of earthquakes. Following are the varied seismic zones of the nation,

- Zone - II: This is said to be the least active seismic zone.
- Zone - III: It is included in the moderate seismic zone.
- Zone - IV: This is considered to be the high seismic zone.
- Zone - V: It is the highest seismic zone.

Proposed project and Study Area comes under Seismic Zone III.



4. ENVIRONMENTAL CONCERNS

4.1 AIR POLLUTION

1] Source: - The source of Air Emissions is from the use of some equipment like concrete pumps, mixers, etc. These equipments consume Diesel as fuel during their operation. Carbon Monoxide, Hydrocarbons, Oxides of Nitrogen and Particulate Matter etc. will be the major pollutants.

Fugitive Emissions i.e. Emissions from construction activities will mainly consist of dust. Movement of Heavy & light vehicles, for loading and unloading of Construction Materials, transporting people, will also add on to source of emissions.

Parameter	Permissible Range	CPCB Limits	AVG Range Before Activity	During Activity
SPM ($\mu\text{g}/\text{m}^3$)	100 ~ 200	200	80-100	150-200
RSPM ($\mu\text{g}/\text{m}^3$)	50 ~ 100	100	20-30	50-100
SO ₂ ($\mu\text{g}/\text{m}^3$)	50 ~ 80	80	10-15	10-15
NO _x ($\mu\text{g}/\text{m}^3$)	40 ~ 80	80	5-10	5-10

Ref : 24 Hourly values as per Central Pollution Control Board, National Ambient Air Quality

Monitoring, Notification 11th April, 1994, Schedule 1.

4.2 AIR POLLUTION MITIGATION

Sr. No.	Source	Mitigation	
1.	Vehicle	i]	All the vehicles coming to the site will be ensured to be in good condition having PUC.
		ii]	Public awareness to use Green Fuel will be done.
2.	Solid Waste	i]	Proper segregation and collection of waste will be ensured.
		ii]	Location of loading and unloading will be fixed.
		iii]	Good Housekeeping practices will be ensured at the premises.
3.	Construction Activities	i]	Noise / Dust nuisance preventions by barricading site up to 5.0 meter height by GI Sheets
		ii]	Water sprinkling on dry site, sand.
		iii]	Maximum use of electrical driven construction equipments with regular maintenance.

4.3 WATER POLLUTION

1] **Use** : - The MCGM water will be used for domestic purpose i.e. drinking water for staff and laborers working on the field whereas bore well water/Tanker water will be used for various constructions activities like, Concreting, Plastering , Flooring & Finishing etc.

2] **Effluent** : - There will be no generation of effluent from construction activities as the water used for concreting; Plastering, Flooring and Finishing etc. will get evaporated during drying or curing

time. All the construction activities are physical in nature. The Domestic Effluent will be generated due to the persons working on the site who will require water for drinking, cleaning, bathing etc.

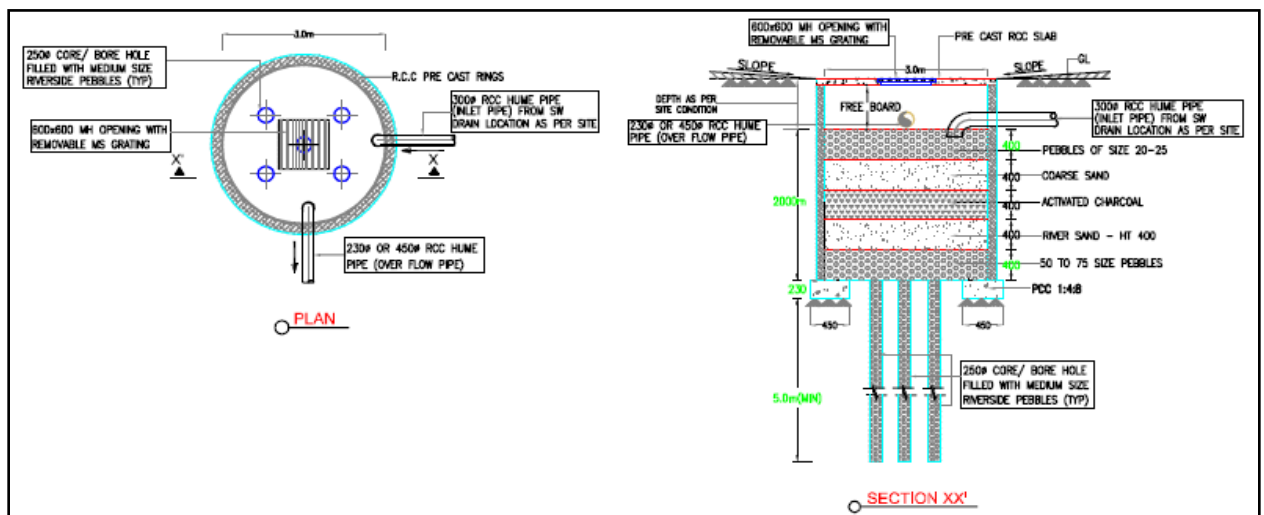
Sullage generated during operation phase will amount to 44.97 CMD which will be treated in the Grey Water Treatment Plant. The treated water will be used for non domestic purposes such as gardening, car washing, flushing etc.

3] **Treatment & Disposal:-**The Domestic Effluent generated in construction phase will be disposed off in existing MCGM Sewer.

4] **Rain Water Harvesting:** The plot is already covered with dilapidated existing one building structures of Ground + 3 upper floors structure occupying 32 existing tenants/ occupants. The same will be developed in Basement + Ground + 1st to 20th Upper Floor for Residential Building. The plot area is 1198.01 sq mtrs. Roof top rain water harvesting is proposed in the project. The permeable paver blocks are proposed along with 4 Recharge pit to increase the percolation of rain water into the soil rather than flowing to the drain.

*** (AS PER MOEF GUIDELINES)**

- **Percolation Pits: 4no. (0.5 * 0.5 * 2m)**



5] Storm Water Discharge:

Storm water drains will be constructed for proposed facility as per the norms. The Rain water recharge pits will help to reduce the runoff and reduce the load on external storm water drain.

4.4 NOISE POLLUTION

Location	Range dB (A)
	Day Time
National Ambient Air Quality Standards (For Residential Zone)	55

4.5 NOISE LEVEL MITIGATION

Sr. No.	Source	Mitigation
1.	Near Residential Areas	i] Site Barricading by corrugated tin sheets will be done to protect the surrounding area. ii) Construction Activity will be carried out during daytime only.
2.	Nearby Traffic	i] All the vehicles coming to the site will be ensured in good condition, having Pollution Under Check (PUC). ii] Smooth Roads will be maintained in a project site.
3.	Construction Equipments	i] All the equipments will be run during daytime only. ii] Lubricants will be applied to all the equipments at proper interval. Iii] Acoustic Enclosure will be provided for all the Equipments

2] It is evident from the nature of operation (i.e. construction) that the Concentration of suspended particulate matter would be higher than the other two parameters.

3] Control of Emission: - Proper precaution will be taken to reduce the particulate matter by water sprinkling on the dry site area, barricading the periphery by corrugated tin Sheets of 5.0 mtrs height to protect the surrounding area from dusting. The pollution generated will be controlled by, allowing vehicles that will comply to mass Emission Standard (Bharat Stage –II) stipulated by Central Pollution Control Board (CPCB)–Ministry of Environment & forest (MoEF), New Delhi. Also it will

be ensured that the vehicles will carry PUC certificate. To minimize air pollution efforts shall be made by use of equipments, which are electric power driven.

4.6 SOLID WASTE MANAGEMENT DURING OPERATIONAL PHASE

1] The project proponents have proposed provision for segregation and collection of biodegradable & non-biodegradable waste within the premises.

2] Solid transfer stations have been proposed for collection, sorting, segregation, storage & transportation of biodegradable and non-biodegradable waste.

CALCULATION FOR QUANTUM OF SOLID WASTE TO BE GENERATED IN THE BUILDING DURING OPERATIONAL PHASE:

- Total no of persons = 722 persons
- Generation of Total waste per person = 500 grams/day (as per Solid waste management study – Year - 2005 conducted by NEERI)
- Total solid waste generation will be $722 \times 500 \text{ gms/person/day} = 361.00 \text{ Kg}$
- Generation of organic waste = 30.84% of total waste (ref. Table 2 in next page)
- So total organic waste generated by the occupants = $361 \times 0.3084 \text{ grams} = 111.33 \text{ kg}$ by all occupants of the building.
- We will provide one bin of each capacity 5 kg at every landing.
- Dry waste will be collected separately in wheeled bins as required as per MCGM guideline and transported to common collection area by MCGM.
- **E-waste** : Shall be stored separately and disposed of to the recyclers authorized by MPCB

**Source: Municipal Solid Waste Management in India: Present Practices and Future Challenge,
Sunil Kumar,**

http://www.cd3wd.com/CD3WD_40/ASDB_SMARTSAN/Kumar.pdf

Table 1

Per Capita Quantity of Municipal Solid Waste in Indian Cities (NEERI, 1996)

Population Range (in million)	Average Per Capita Value kg/capita/per day
1.0 – 0.5	0.21
0.5 – 1.0	0.25
1.0 – 2.0	0.27
2.0 – 5.0	0.35
> 5.0	0.50

Table 2

Physico-chemical Characteristics of MSW in Indian Cities (NEERI, 1996)

Population range (in million)	Number of cities surveyed	Paper*	Rubber*, leather and synthetics	Glass*	Metals*	Total* compostable matter	Inert* material	Nitrogen* as Total Nitrogen	Phosphorous* as P ₂ O ₅	Potassium* as K ₂ O	C/N ratio	Calorific value in Kcal/kg
0.1 to 0.5	12	2.91	0.78	0.56	0.33	44.57	43.59	0.71	0.63	0.83	30.94	1009.89
0.5 to 1.0	15	2.95	0.73	0.35	0.32	40.04	48.38	0.66	0.56	0.69	21.13	900.61
1.0 to 2.0	9	4.71	0.71	0.46	0.49	38.95	44.73	0.64	0.82	0.72	23.68	980.05
2.0 to 5.0	3	3.18	0.48	0.48	0.59	56.67	49.07	0.56	0.69	0.78	22.45	907.18
>5	4	6.43	0.28	0.94	0.80	30.84	53.90	0.56	0.52	0.52	30.11	800.70

* All values are in percent, and are calculated on wet weight basis

+ All values are in percent, and are calculated on dry weight basis



A sample waste collection bin to be

Kept in lobby area



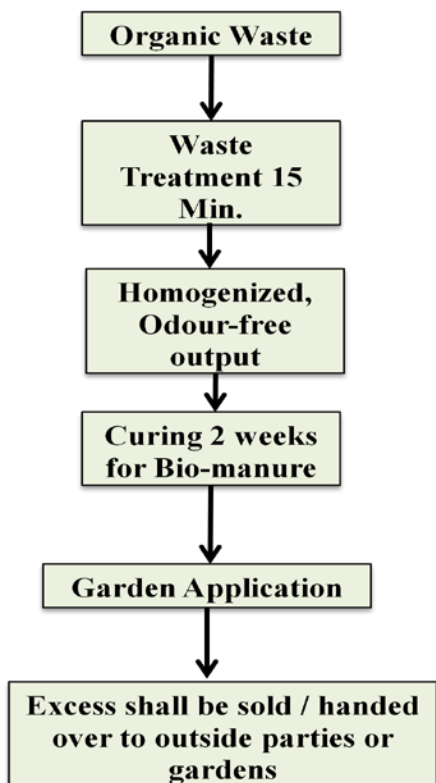
Wheeled bins with lid

120 ltr., 240 ltr., 360 ltr. capacity wheeled bins

Bins recommended by BMC to be used

for shifting the waste from building to common area

We will be using organic waste converter to create manure from the organic waste. Manure generated will be used for plantation and gardening purpose.



ORGANIC WASTE CONVERTER COMPOSTING PROCESS

5.7 CONSTRUCTION WASTE MANAGEMENT PLAN

Sr. no.	Item	Reuse/Recycle
1.	Excavated Soil	Formation and Filling of Road and garden top soil - within plot (RG area)
2.	Steel Metal	Scrap steel use for small size slab, pathway etc and balance will be sold as scrap for re-use.
3.	Red Bricks	Waterproofing at floor level for wet areas – terrace, toilets, etc

5. PROJECT SCHEDULE AND COST ESTIMATES

The Proposed Project is Redevelopment project and will be started as soon as all government NOC's and CRZ Clearance is received to start the work. The projected Date of Start is June 2017 while the Date of completion will be Jan 2020 if everything went as per planning.

6. TRAFFIC MANAGEMENT**6.1 CONSTRUCTION PHASE**

- Storage and Godown area will be properly identified.
- There will be about adequate wider space for movements of vehicles and parking.
- The area for loading and unloading will be located at proper demarcated location in the premises.
- Thus the traffic management on the project site will be easily and smoothly monitored without any hindrance to the regular flow of traffic on the main road.

6.2 OPERATIONAL PHASE

- About 57 cars per day are expected to be accommodated in the premises. The parking space will be provided in basement and under stilt / parking floors. There is ample car parking space in the building on all sides; there will be smooth movements of cars.
- There will be 6.0 mtrs wide approach road to the building from municipal road for movements of vehicles and parking.
- Traffic Management Plan system will be approved from concern MCGM Authority.
- Thus the traffic management will be easily and smoothly monitored without any hindrance to the regular flow of traffic on the main road.

7. ENVIRONMENTAL, HEALTH AND SAFETY

All the safety and security measures shall be observed at construction site. Safety precautions will be observed as per the guidelines during the construction phase. Personal Protective Equipments (PPE) will be provided to all the personnel involved in the construction activities. The project authorities will ensure use of safety equipments for workers during execution process. The safety and security officers shall supervise the site. Proper training will be given to workers and authorities to handle the hazard situation.

7.1 SAFETY MEASURES ON SITE

- 1] Parameters and Quality will be strictly adhered to as per the approved architectural design data/map. All the regulations of government authorities will be followed.
- 2] All the safety precaution will be observed as per the guidelines during the construction phase. Personal Protective Equipments (PPE) will be provided to all the personnel involved in the construction activities.

- 3] Site barricading by corrugated tin sheets up to height of 5.0 mtr will be done to protect the surrounding area of the project site from nuisance /dusting.
- 4] All electrical connections & cables will be checked by authorized persons to ensure the safety of workers on field.
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- 8] Hand gloves and dust masks will be provided to persons handling construction materials during the operation.
- 9] Safety belts will be provided to the persons working at height during the operation.
- 10] Safety nets will be arranged at a height at about 5.0 mtrs when the structures get raised above the required height from the ground.

8. BENEFITS OF THE PROJECT

- The proposed redevelopment will initiate redevelopment of surrounding old building.
- The surrounding area will also be developed from residential point of view.
- It will provide employment opportunities to the local people in terms of labour during construction and services personnel during operational phase.
- Modern sanitation and infrastructure facilities will have minimal impact on living condition of local people.
- The project will improve living standard and welfare of the area and local people.