

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. Mumbai has many old, dilapidated structures. They are very unsafe to retain. Many of them are in CRZ zones. Development of those by rehabilitating 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.

## **1.1 PREAMBLE**

We are aware that there are constraints on the availability of open land within the city limits coupled with fast growing demand for houses and shortage of housing stock. On the other hand that there are thousands of ageing buildings which are dilapidated and have reached a stage where it is not possible to carry out structural repairs and rehabilitation as the same are not economically viable. The redevelopment of cess dilapidated building has become a necessity since the problem of old and dilapidated buildings in the city of Mumbai grows more acute with each passing year and with each passing monsoon more and more building becomes dangerous and unfit for habitation. Hence, Mr. Vineet Rajkumar Mittal has identified business possibility in this field to provide space for accommodation.

## **1.2 NEED OF PROJECT**

Many buildings collapse each year, killing or injuring people. Many of these buildings are so run down that they are unrepairable and the only solution is to put them down totally and to reconstruct them. Government has floated various schemes wherein they have allowed incentive FSI for carrying out redevelopment schemes. Proposed redevelopment thus will help the existing tenants to get permanent, safe structure. At present they are residing in old building.

As per MCGM – Notice under section 354 of the Mumbai Municipal Corporation Act Notice No. KW/BF/354/235/SEB-I, dated – 11.11.2009 states that the 'Kusum Bungalow' is in ruinous condition, likely to fall and dangerous to any person occupying restoring to or passing by the same. Therefore redevelopment of such dilapidated building is proposed to provide safe structure to the tenants.

The photographs of the existing building are given in Figure 1.1 below.



**Figure 1.1: Photographs of Existing Buildings at Proposed Site**

### 1.3 APPLICABILITY OF CRZ NOTIFICATION

As per DP Remarks & Plan (Vide Letter No. CHE/36/DPWS/K/W dated - 28.05.2015) the land under reference falls within CRZ-II zone, as per the Coastal Zone Regulation Notification 6th January 2011. According to Para 4 (d) of CRZ Notification 2011, the proposal for the construction in the areas falling in CRZ-II shall be approved by the concerned State or Union territory Planning authorities. In accordance with this notification one can obtain recommendations from the concerned CZMA and subsequently CRZ clearance accord on the basis of requisite documents like Form I, CZMP map, DP plan etc.

### 1.4 IDENTIFICATION OF PROJECT PROPONENT

Mr. Vineet Rajkumar Mittal has proposed redevelopment of a residential building on subjected land. The details of the project proponent are given in Table 1.1.

**Table-1.1: Details of Contact Person**

Sr. No.	Particular	Details
1	Name of Developer	Mr. Vineet Rajkumar Mittal
2	Name of Contact person	Mr. Vineet Rajkumar Mittal
3.	Designation of Contact person	Owner
4.	Contact No	9892703663
5.	Email	Satish_sharma@welspunenergy.com
6.	Address	Gandhigram Road, Near Iskon Temple, Juhu, Mumbai-400 049

### 1.5 LOCATION OF THE PROJECT

The proposed project admeasuring about 1459.37 Sq. m. is located on Plot bearing CTS No 1066, FP No 30E, of TPS Santacruz, T/154, Juhu Tara Road, Koliwada Naka, Juhu, Mumbai-400 049. The Google image of the proposed site is given in Figure 1.2 and Location of Proposed Project on CZMP is given in Figure 1.3.





Figure 1.2: Location of Proposed Project on Google Image



Figure 1.3: Location of Project site on CZMP

1.6 DESCRIPTION OF PROJECT SITE

The proposed project has existing access road from Juhu Tara Road and HB Gawde Marg. The environmental features are illustrated in given Table 1.2 given below.

Table-1.2: Environmental Setting of Proposed Project

Sr. No.	Particulars	Details
1	Latitude	19°05'9.45" N
2	Longitude	72°49'35.19" E
3	Elevation above MSL	6.585 m
4	Climatic Conditions	Maximum Temperature :34.4 °C Minimum Temperature :17.5 °C Annual Rainfall :2567.5 mm
5	Present land use at the proposed site	Residential zone as per D.P Remarks
6	Transport Connectivity	
A	Nearest Highway	Western Express Highway-1.8km-E
B	Nearest Railway Station	Santacruz Railway Station- 1.64 km-E
C	Nearest Road	Juhu Tara Road-0.5km-N
7	Social Aspect	
A	Nearest School/College	<ul style="list-style-type: none"> <li>•SNDT Women's University-0.4km-NE</li> <li>•L.S. Raheja college of Arts and Commerce-0.6km-E</li> <li>•Podar International School-1.1km-SE</li> <li>•Guru Harkishan High School-0.8km-S</li> </ul>
B	Nearest Hospital	Nanavati Hospital- 1.77 km-NE
C	Nearest Fire Station	Fire Station - 3.1km - N
D	Nearest Police Station	Santacruz Police Station- 0.8 km-E
8	Hills/Valleys	Nil
9	Ecologically sensitive zones within 15-km distance	CRZ - II
10	Seismic Zone	Zone – III

## 1.7 PROJECT LAYOUT

The proposed project is a redevelopment project which comprises 1 building, configurations of the building is; 3 Basements + Stilt floor + 9<sup>th</sup> Upper floor. The block plan of the proposed project is shown in Figure 1.4.

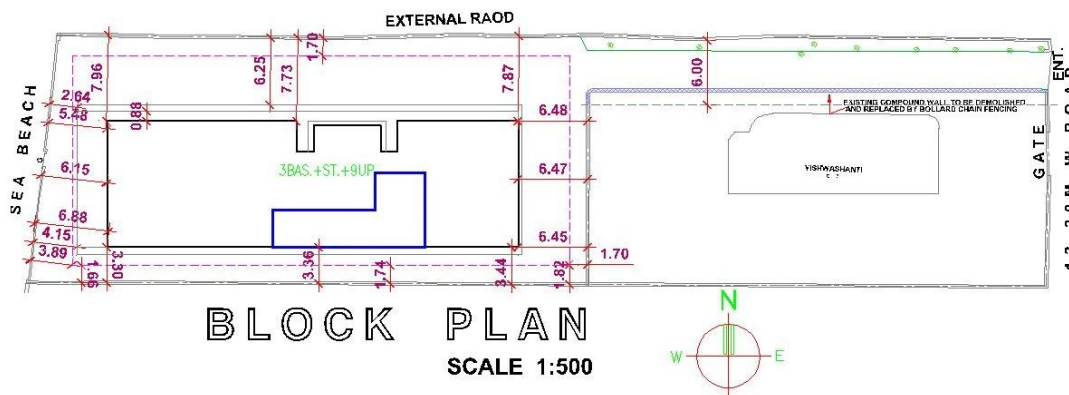


Figure 1.4: Block Plan of the Proposed Site

## 1.8 BRIEF DESCRIPTION OF PROJECT

The brief description of the proposed project is given Table 1.3.

**Table 1.3: Brief description of the project**

#	Particular	Details
1	Project Type	Residential
2	Location	
	CTS No	CTS No 1066, FP No 30E, of TPS Santacruz, T/154
	Village	Juhu
	Tehsil	Andheri
	District	Mumbai
	State	Maharashtra
3	Site fall under CRZ I/II/III	CRZ - II
4	Distance of proposed building from HTL	16 m (approx.), Adjacent to HTL
5	Proposed Plot Area	1459.37 Sq. m.
6	Permissible FSI	1.00
7	FSI consumed	2.00
8	Proposed BUA	<ul style="list-style-type: none"> <li>▪ 2918.74 Sq. m.</li> <li>▪ Add Fungible Built up Area 35% : 1021.56</li> <li>▪ Total Built up Area (Permissible): 3940.30 Sqm</li> <li>Total Built up Area (Proposed):- 3753.62 Sqm</li> </ul>
9	No. of Building	1 Building (Residential)
10	Configuration of proposed Buildings	3 Basements + Stilt floor + 9 <sup>th</sup> Upper floor
11	Population	52 no.
12	Water	
a.	Source	MCGM
b.	Total water requirement	6 KLD
c.	Total sewer generation	5 KLD
d.	Mode Of Disposal	Wastewater generated on site will be connected to the existing Municipal Sewer line.
13	Solid Waste Generation	21 kg/day
a.	Mode of Disposal	Solid waste will be handed over to the MCGM waste collecting vehicles.
14	Power	
a.	Requirement	Maximum Demand: 350 KW
b.	Source	Reliance Energy and Tata Power
c.	Project cost	106.13 cr.

20	Parking Details	Parking Required: 29 Nos. Parking Provided: 29 Nos.
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## 2.0 DESCRIPTION OF THE ENVIRONMENT

### 2.1 METEOROLOGICAL

<i>Relative Humidity</i>	<i>Temperature</i>	<i>Rainfall</i>
Climate of district Mumbai can be generally classified as warm and moderately humid. Relative humidity ranges from 32 % in April to 82 % in July.	Annual Mean Maximum Temperature: 34.4 °C Annual Mean Minimum Temperature: 17.5 °C	Total Mean Annual Rainfall: 2567.5 mm

### 2.2 AMBIENT AIR QUALITY

The range of average values of the pollutants is as below.

Parameters	Range of Pollutants Present	Unit
SO <sub>2</sub>	19.0 – 29.0	µg/m <sup>3</sup>
NO <sub>x</sub>	26.5 – 42.0	µg/m <sup>3</sup>
RSPM	78.0 – 168.0	µg/m <sup>3</sup>

### 2.3 NOISE LEVEL

#### *Day Time Noise Levels [(L<sub>day</sub>)]*

The noise levels ranged between 48.20 dB (A) to 74.60 dB (A).

#### *Night Time Noise Levels (L<sub>night</sub>)*

The noise levels ranged between 25.99 dB (A) to 51.15 dB (A).

### 2.5 WATER QUALITY

#### Ground Water Quality:

Parameters	Units
pH	7.8
Suspended Solids	40.0 mg/L
TDS	280 mg/L
Conductivity	300 µs/cm
Chloride	302 mg/L
Hardness	200 mg/L

### 2.5 DEMOGRAPHY AND SOCIO –ECONOMIC PROFILE

Ward	Area	Land Area	Households	Population	Density/Km <sup>2</sup>
K/W	Santacruz	23.28 Sq. Km	1.38 lakhs Approx.	6.94 Lakhs Approx. (Census 2001)	29810 Approx.

Source: <http://www.mcgm.gov.in/irj/portal/anonymous/qlwardkw>

### 3.0 ANTICIPATED ENVIRONMENTAL IMPACTS & MITIGATION MEASURES

#### 3.1 WATER SUPPLY AND WASTE WATER MANAGEMENT

##### **Construction Phase:**

##### **Water Supply:**

During construction phase, water will be supplied by MCGM for drinking and other domestic purposes of the construction labors and by tankers to be used for construction. Total water requirement during the construction phase is about 50 CMD. Water will be utilized for domestic use of construction laborers and for construction activity.

##### **Waste water generation:**

Waste water during the construction phase will be sewage generation, estimated as 8 CMD (80% of water supplied). The details of Water Requirement and Waste generation during Construction Phase are given in Table 1.4.

**Table 1.4: Water Requirement and Waste generation during Construction Phase**

Sr. No.	Purpose	Source	Quantity (m <sup>3</sup> /day)	Waste water generated (m <sup>3</sup> /day)
1.	Domestic use of construction workers	MCGM	0.5	0.4 (@80% of water supply)
2.	Construction activity	Tanker water	10	--
	<b>Total</b>		<b>10.5</b>	<b>0.4</b>

##### **Management:**

1. Temporary toilets would be made available for construction workers. It would be directly connected to the existing municipal sewer line for disposal of wastewater.
2. Care will be taken to ensure that the water used for construction purposes does not accumulate on the site to prevent breeding of mosquitoes.

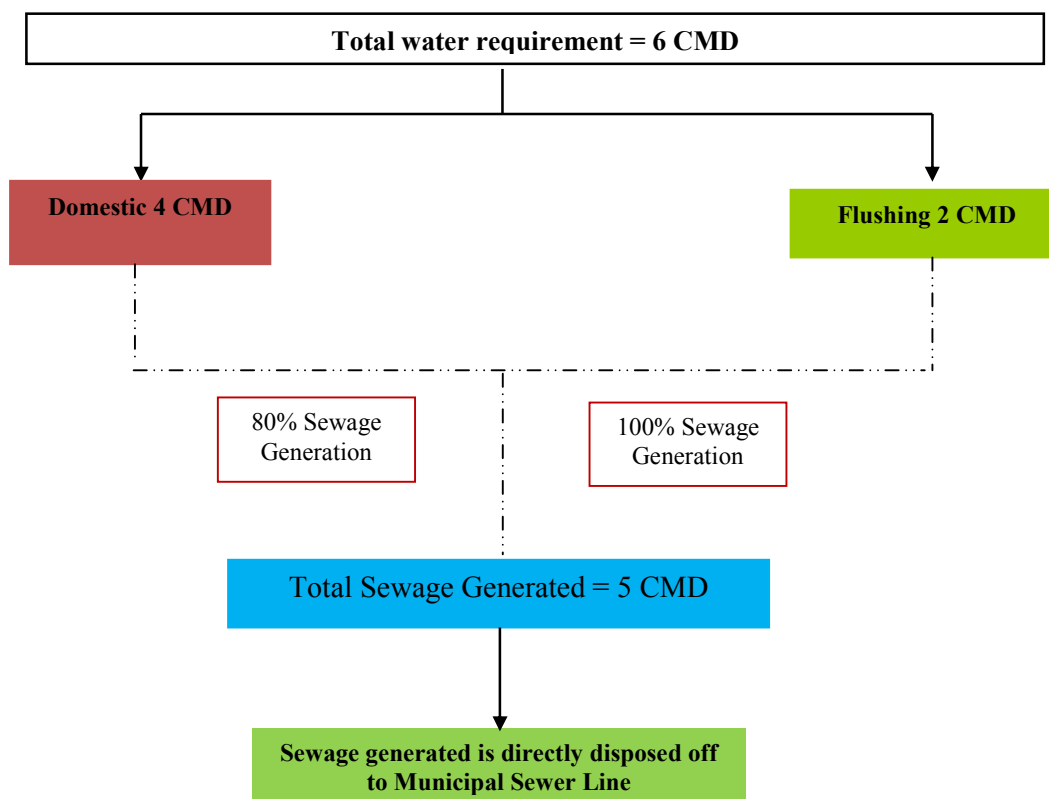
##### **Operation Phase:**

The average water consumption for residential buildings has been calculated as 135 liters per capita per day (as prescribed by the National Building Code of India 2005, Part 9, Section 1, Page No. 19). During operation phase, water supplied by MCGM would be used for domestic purpose and for other purposes like flushing.



**Table 1.5: Water Requirement during Operation Phase**

Type	Population	Domestic		Flushing	
		Standard (CMD)	Quantity (CMD)	Standard (CMD)	Quantity (CMD)
Residential	40	90	4.00	45	2.00
Visitors	4	20	0.08	25	0.10
Servants	8	20	0.16		0.20
Total	52	6			


**Figure 1.5: Water Balance**

Sewage line will be collected to existing municipal sewer line.

### 3.2 SOLID WASTE GENERATION AND MITIGATION MEASURES

#### Construction stage

During the construction stage, construction waste would be generated which would include debris, concrete, steel and other metals, bricks, pallets, packaging and paper products, railings, door and window casings, fixtures, tiles, furnishings etc.

**Operation stage**

During operation phase, solid waste will be generated @ 0.4 Kg/day for residential purposes. The details of solid waste generated during operation phase are given in Table 1.6.

The main solid waste generated from the proposed project is due to consumption of food materials, plastic, packing material and paper. The solid waste will be disposed off into the garbage collecting vehicles of the local authorities.

**Table 1.6. Solid Waste Calculation during operation phase**

Type	Population	Standard (kg/day/person)	Quantity (kg/day)	Solid Waste Generation (Kg/day)	
				Biodegradable waste (60 %)	Non- biodegradable waste (40%)
Residential	40	0.45	18	11	7
Visitors	4	0.45	2	1	1
Servants	8	0.1	1	0	0
<b>Total</b>	<b>50</b>		<b>21</b>	<b>13</b>	<b>8</b>

**3.3 POWER REQUIREMENT****During Construction Phase:**

Power required for the general purpose will be approx. 100 KW & shall be taken from Local Authority from the existing connection.

**During Operational Phase:**

**Source of Power** – Reliance Energy/Tata Power

**Maximum Demand** – 350 KW

The same will be operated for essential power requirements such as fire lifts, water pumps and passage lighting etc. As in Mumbai there is hardly any power failure is observed.

The building will have following energy saving measures

- External lighting is proposed on Renewable energy.
- LED lights will be used with energy saving CFL & T5 fluorescent tube with electronic chocks.
- Selection of Energy efficient equipment (5 STAR RATED).
- All vertical fenestration will be as per ECBC.

### **3.4 AIR & NOISE POLLUTION & CONTROL MEASURES**

The sources of air & noise pollution are D. G. sets and vehicular movement and honking. By implementing appropriate mitigation measures these effects are expected to become insignificant.

### **3.5 FIRE FIGHTING MEASURES**

For protection of the facility against fire, all the units will be equipped with any one or a combination of the following fire fighting systems:

- Hydrant system;
- Smoke detector, and smoke alarm system
- Fire Detection and alarm system; and
- Different types of fire extinguishers.
- Provision of refuge area
- Precautions will be taken as per NBC & C.F.O NOC

For storage of water for fire fighting in case of emergency, a firewater underground tank will be provided. This will serve the fire fighting needs of the project.

## **4.0 ENVIRONMENTAL MONITORING PROGRAMME**

### **4.1 Environmental Monitoring**

The Post Project Monitoring to be carried out at the project site will be as mentioned below:

#### **➤ Air Pollution and Meteorological Aspects**

Both ambient air quality and stack emissions shall be monitored. The ambient air quality shall be monitored once in three months by engaging the services of the laboratory approved by SPCB/MoEF.

#### **➤ Wastewater Quality**

The wastewater generated from sanitation shall be monitored once in a month for physico-chemical characteristics and results reported to SPCB. The treated water from STP shall be monitored once in a month for physico-chemical characteristics and results.

#### **➤ Noise Levels**

Noise levels shall be monitored once in three months.

**Environmental Monitoring Plan**

<b>During Construction Phase</b>				
	<b>Item</b>	<b>Parameters</b>	<b>Frequency</b>	<b>Location</b>
1.	Ambient Air Quality	SPM,RSPM,SO <sub>2</sub> NOX , HC & CO	Quarterly	At major construction area. ( total 1 station )
2.	Noise Level	Equivalent noise Level dB (A)	Daily	At major construction area. ( total 1 station )
3.	Drinking Water	Analysis of water for physical, chemical, biological parameters.	Quarterly	Municipal supply
<b>During Operation Phase</b>				
	<b>Item</b>	<b>Parameters</b>	<b>Frequency</b>	<b>Location</b>
1.	Ambient Air Quality	SPM,RSPM,SO <sub>2</sub> NOX , HC & CO	Quarterly	Total 1 station
2.	Noise Level	Equivalent noise Level dB (A)	Quarterly	Total 1 station
3.	Drinking Water	Analysis of water for physical, chemical, biological parameters	Quarterly	Municipal supply

**5.0 Environment Health and Safety**

All the safety and security measures shall be observed at constructions 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.

**Safety Measures Onsite**

- 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 safely 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 m 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 5.0 mtrs when the structures get raised above the required height from the ground.

## **6.0 Additional Studies**

### **Disaster Management Plan**

This provision is applicable in the present case only to safety and fire hazard because it is a small residential unit. The only hazards envisaged here are from fire either due to short circuit or gas cylinder in the kitchen of individual houses. There are no other manmade disasters expected. We have not considered here the natural disasters like flooding, earth quake etc.

Normal safety plans and precautions are expected to be in place as per CFO and MCGM guidelines. To maintain the ecological balance and check any probable harmful effect, proper EMP, good housekeeping around project site, have been suggested.

The fire safety measures followed will be:

- Underground and overhead water storage tank for fire fighting.
- Exit sign & Emergency escape route sign shall be provided
- Fire pumps, Sprinkler pumps with jockey pumps to be provided
- Pressurized wet risers at mid-landing in the duct adjoining each staircase with hydrant outlet and hose reel on each floor



- Portable extinguisher and bucket filled with sand shall be kept in Electric meter room, Lift machine room and entire parking.
- Automatic smoke detection & Fire alarm system
- Provision of Refuge Area
- Fire escape staircases, fire lift & fire safety doors as per DC Regulations and in the line with NBC 2005

The Disaster Management Plan studies include:

- Identification of the major hazards to people and the environment;
- Assessment of the risks
- Develop warning system wherever possible
- Develop manpower and measures to prevent / control the risks
- Make advance preparations to face the disaster, minimize the losses, provide help to affected people
- Planning to recover from the effects of the hazard.

## **7.0 LANDSCAPING AND GREENBELT DEVELOPMENT**

Adequate land will be available for open spaces and other non-building purposes area will be taken for green cover / lawn development in the proposed facility. Suitable plant species of local varieties will be planted with adequate spacing and density for their fast growth and survival.

## **8.0 PROJECT BENEFITS**

The project proponent seems to be safety conscious and alert about good housekeeping and is environment friendly. We may conclude as under:

- Proposed Redevelopment project is in Juhu, Santacruz area of Mumbai. The site under reference is affected by CRZ-II zone. Thus property attracts the CRZ legislation, which is reflected in CZMP plan.
- The proponents are following all the Firefighting safety rules and regulations as prescribed by M.C.G.M. and CFO regulations.
- Building will be designed to meet requirements of seismic zone III - Earthquake resistant.

- Ambient Air Quality of the project site will be within the permissible limit as prescribed by National Ambient Air Quality Standards.
- The solid waste will be disposed off into the garbage collecting vehicles of the local authorities.
- Air, water, Noise, soil parameters will be studied during construction as well as after construction to minimize the environmental impact by taking proper precautionary measures.
- No significant impact is seen on flora and fauna.
- Fly-ash will be used in concrete work.
- The project will generate employment opportunities during construction stage and also at operational phase.
- Proposed buildings have considered energy efficient lighting.