Risk Assessment and Disaster Management Plan

For Proposed Residential Project

“Pinnakin”

At

Plot bearing S. No. 53/7, 54/3, 54/5/1 at Baner, Pune

Of

M/s. Kumar & Potnis Associates

1. BRIEF ABOUT THE PROJECT

M/s. Kumar & Potnis Associates is proposing residential Project 'Pinnakin' at S. No. 53/7, 54/3, 54/5/1, Village-Baner, Pune.

The silent feature of project is as follows:

Sr. No.	Particular	Details
A	**LAND AREA**	**Area (m^2)**
1	Total Plot Area	36,300.00 m^2
2	Deductions	15,535.53 m^2
3	Net Plot Area	20,764.77 m^2
4	F.S.I. Permissible	36,202.50 m^2
5	FSI Area	32,861.40 m^2
6	Non FSI Area	23,265.34 m^2
7	Proposed BUA	56,126.74 m^2
B	**WATER**	
I	**During Construction Phase**	
1	For Workers	10 m^3/day
2	Construction purposes	20 m^3/day (approx)
	Total	**30 m^3/day**
II	**During Operation Phase**	
1	Total water requirement	335 m^3/day
2	Fresh water requirement	193.5 m^3/day
3	Flushing water requirement	96.8 m^3/day
4	Landscaping requirement	45 m^3/day
5	Waste water generation	252 m^3/day
6	Treated wastewater	239 m^3/day
7	Recycled waste water	142 m^3/day
8	Excess treated water	97 m^3/day
C	**POWER**	

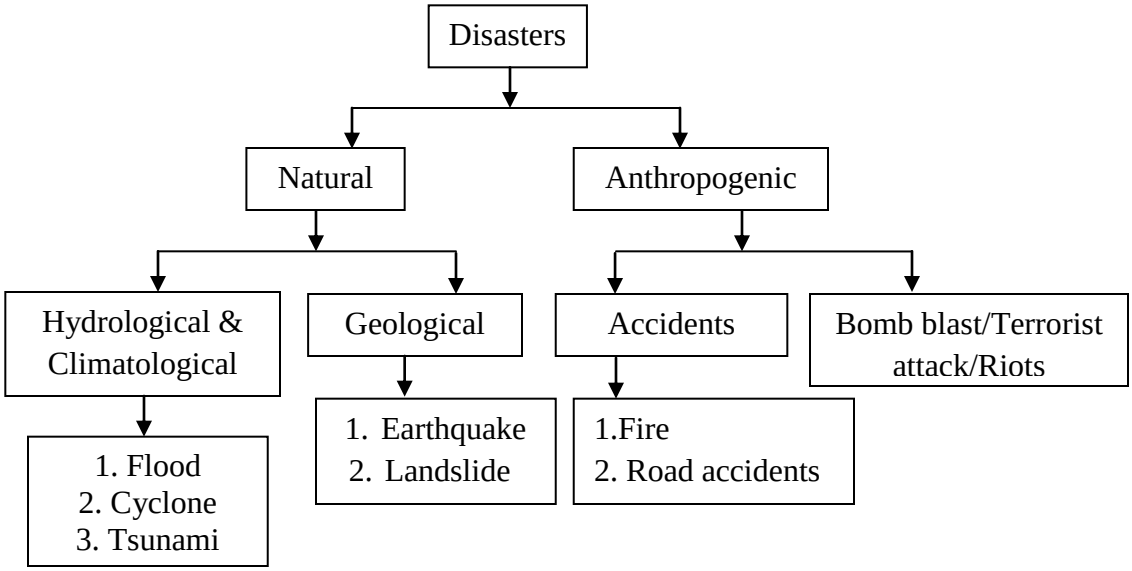
Sr. No.	Power Requirement	
1	Source of power supply: MSEB	
2	During Construction Phase a) Demand Load	85 KW
3	During Operation Phase, a) Demand Load	4,238 KVA
4	DG set as Power Back – up during operation phase	1 nos. x 125 KVA 2 nos. x 150 KVA
5	Fuel used	HSD

2. NEED OF DISASTER MANAGEMENT PLAN

A disaster is any event causing widespread destruction and distress, while disaster management is defined as the discipline of avoiding and dealing with disasters. Disasters could occur at different time affecting various aspects. Their impact could be short term as well as long term. Some of the impacts could be direct and other could be indirect or secondary. Therefore, detailed disaster management plan is utmost important for providing effective and timely relief in times of disaster through organized collaboration of various personnel and better use of available resources in a planned manner. Disaster management makes the occupants aware of the various disasters possible in a building, prevention & mitigation measures to be adopted and after-disaster procedures for building objects.

3. RISK & VULNERABILITY ASSESSMENT OF POTENTIAL DISASTERS AT PROJECT SITE

The identified disasters that can have its significant impact in project area are depicted below:



Floods:

- The proposed project site falls under residential zone and surrounded by majority of residential buildings. PP will provide proper storm water & drainage network to lower the chances of flooding.

Cyclones

- The proposed project site has a **moderate risk** to Cyclones and in the recent past, there have been no major cyclones in this region.

Earthquakes

- Proposed site falls in seismic zone-III which is a **'Moderate Damage Risk'** Zone. Also this area has not experienced major quakes in recent past.

- Still adequate precautionary measures will be adopted right at the designing and construction stage only.

Landslide: The project site & the surrounding residential complexes are on flat land. Apart from this no hills or slopes are observed at or around the project site, so there is **insignificant risk** of landslides due to heavy rains.

Fire Accidents

- Fire accidents could take place due to improper maintenance of electrical wiring, faulty wiring and gas leakage etc. Carelessness and inadequate fire-fighting facilities are one of the major factors for fire hazards.
- Therefore, proposed project is provided with essential Fire safety & fire-fighting measures are provided as per the NBC, 2005 guidelines Also the trained Disaster Management Planning (DMP) team will be formed as a primary line of defense till the Fire Brigade & Emergency services comes in action

Road Accidents

- The project has main Pashan Highway Side Road. The project has an internal road (6m wide) as a common access road for cars & public movement. Therefore, it has **moderate risk** of road accidents. Further to reduce risk of road accidents well designed parking plans, traffic movement & other necessary facilities are provided as per standard rules and regulations.

Terrorist Attack & Riots

- These disasters are manmade & are carried out to fulfill an obligatory intention by imposing pressure on system, public or nation.
- The current project location has no tourist locations or structures nearby which can attract the mob of people leading to declining the susceptibility of the said area from terrorist attack.
- However, the chances of having such activities cannot be neglected thus the DMP is provided with the necessary preparedness & preventive measures.

4. COMPONENT OF DISASTER MANAGEMENT PLAN

Disaster Management Plan has two components such as Disaster Mitigation/Hazard identification and Disaster Preparedness/response plan.

a. Disaster Mitigation: focuses on the lessening the hazard that causes the disaster and tries to eliminate or drastically reduce its direct effects before it strike. It mainly includes:

• Structural Assessment: comprises the set of physical laws and mathematics required to study and predicts the behavior of structures

• Non-Structural Assessment: deals with the seismic and cyclone vulnerability assessment of the building

• Resource Inventory: refers to the listing resources available within and around the project site to tackle any hazard

The project proponent/developer is playing main role in this component. Various effective mitigation measures are adopted by proponent at the time of project planning and designing to eliminate impacts of different types of disasters. The details are given below.

For Flood Mitigation: Surface water & drainage congestion due to inadequacy of natural or manmade drainage channels result in flooding. Therefore, developer will design its own storm water & drainage network. They will be regularly cleaned to avoid siltation. These networks will be connected to existing municipal sewer & drainage lines.

For Cyclone Mitigation: At the beginning only developer will appoint authorized party to test the structural stability of building in case of cyclones. Also time to time developer will assist the resident with planning for cyclone emergency. He will provide all possible help in communication & medical assistant in case of cyclones.

For Earthquake Mitigation: Design and choice of building materials have a major impact on a building's earthquake safety, therefore developer will strictly adhere to following building codes prescribed by Indian standards during construction phase.

Codes	**What it says**
IS:1893 (Part 2)	Elevated and Ground Supported Liquid Retaining Structures
IS:1893 (Part 3)	Bridges and Retaining Walls
IS:4326	Earthquake Resistant Construction
IS:13920	Ductile Detailing of Reinforced Concrete Structures
IS:13827	Earthen Dwellings
IS:13828	Low Strength Masonry Structures
IS:13935	Seismic Strengthening of Structures

Before occupancy developer will get structural audit of building conducted by a professional structural design engineer in terms of resistivity for seismic activity. While even after occupancy developer will help in repair of structural defects.

For Fire Accidents Mitigation: Developer will follow Nation Building Codes and Chief Fire Officer's NOC while constructing the proposed building. In each wing separate fire escape lift will be provided. At entry and exit, illumination light/ fluorescent markers will be provided by developer. Refuge area will be provided for easy evacuation.

To tackle the fire accidents effectively developer will provide adequate numbers of fire alarms, smoke detectors, heat detectors, portable fire extinguishers and proper lightening protection as per Indian standards near each staircase landing on every floor and lobby areas, near car parking lots, main switch board room, transformer, generator room, pump room, lift machine room etc.

Independent plumbing and fire consultant will be appointed to design effective fire protection network based on standards. Separate underground & overhead storage tank of adequate capacity will be provided in both buildings.

Fire tender movement with internal road of adequate width and turning radius will be designed for easy to limit the spread of fire, to provide escape and to provide access for fire-fighting equipment and vehicle. Properly laminated and framed sign boards and evacuation plan will be displayed at strategic locations. Building will be designed in such way that common corridor lobby at each floor shall be ventilated directly to outside air. All the electrical wiring of the proposed building would be made as per the Government standards. Also maintenance of these electrical wires would be carried out at regular intervals.

After formation of society a list of fire resistant materials would be provided to the society manager and concerned authority so that they can choose appropriate fire resistant materials for Interior decorative/Furnishings as per their budget. List of nearby fire stations and their road map would be displayed at lobbies and society office room and same will be maintained by concerned authority.

For Road Accidents Mitigation: To reduce the risk of road accidents separately designated entry & exit points with adequate width, 6 m wide internal roads having 7.5 m turning radius and proper open & basement parking arrangements will be provided for easy traffic movement.

For Combating Bomb threats/Terrorist attack: Building will be designed as per IS: 4991-1968 to resist effects due to blast. Security cameras would be provided at different locations of the premises. Professional agency will be appointed for overall building security and good housekeeping. Every lift would be provided with intercom facility.

Disaster Preparedness: Preparedness focuses on plans to respond to a disaster threat or occurrence. It takes into account an estimation of emergency needs and identifies the resources to meet these needs. It also involves preparation of well-designed plans to structure the entire post-disaster response and familiarizing the occupants through training and simulation exercises. Effective disaster preparedness requires on-site and off-site team co-ordination.

Onsite Emergency Preparedness Plan: It will consist of following points.

1. **Formation of Disaster Management Committee:** The Disaster Management Committee (DMC) will be formed by the developer/society members. This committee is headed by Society In-charge/Secretary and comprise of security in-charge, security guard, maintenance & service in charge, housekeeping staff, lift man etc. The Society In charge/Secretary will look after the complete process of DMC.

Roles and Responsibilities of DMC

- Look into the structural safety requirements of the building for various hazards (earthquake, fire, floods, cyclone, etc.). Get the buildings assessed for the hazards identified and take prompt remedial measures, as required.
- Updating the disaster management plan at regular intervals (at least once a year and after any significant disaster) to ensure that the plan is workable.
- Earmark fund arrangements for carrying out preparedness and mitigation measures in the building.
- Ensure adequate inspection, monitoring and control of all building life safety systems and equipment like internal communication systems, electrical systems, fire alarm system, smoke detectors, emergency power back up etc.
- Ensures that every incident is thoroughly documented and that required notifications and reports to the appropriate authorities are carried out
- Prepare & update list of resources like no. of first aid boxes, sprinklers, fire extinguishers, Torches, ladders etc. available in building in case of emergency
- Contacting emergency services (fire, police, ambulance) and utilities
- Implementing evacuation procedures
- Provide training to occupants on different aspects of Disaster/Risk Management

2. **Conducting Training Programmes & Mock Drills:** In every bi-annual meeting of society, the secretary will organize training programme to make the occupants aware about possible disasters that may occur in the project site. He further explains the precautionary measures to be taken, use of emergency and personal protective equipments, details of evacuation plan and location of all the reference documents and systems. During this training he will also introduce all the society members to DMC team and their duties. All the households will be provided with a copy of training material containing all the necessary information. Based on this initial awareness training mock drills will be organized by DMC at interval of six months to test the response of occupants in case of emergency condition.

3. **Emergency communication and medical Assistance:** In case of emergency it is very important to get timely medical, police and fire fighting help. Therefore, contact list of emergency services available in the vicinity of the project site like fire stations, hospitals, police stations etc. and their road map would be displayed at lobbies and society office room and same will be maintained by concerned authority. This list will must be updated periodically. Similarly the inventory of first aid kits will be prepared and maintain regularly on site.

Disaster Management Plan Budget: Society secretary will formulate the **s**eparate budget for DMP and will not combine it with building maintenance budget.