Umgeni Interchange

Vision

The time of integration and vibrance has arrived in what used to be a vehicle dominated hub with desolate office space is now transformed into the city's leading energy saving node. The energy transition is due to the area's circular functionality with the surrounding form. The eThekwini Local Area Plan indicates the areas use as part of a sports and leisure layer within the Inner city of Durban as various sports stadiums, malls and entertainment destinations are located in and around the area. This indicates the large amount of energy in circulation in and around the area providing for the coordination and interrelation of activities within the area drawing precedent and stretching designs from the beach promenade to enhance the design of the area to promote a sense of community.

The transition is led by space activations where the youth will be invited to such space for events and social gatherings as that is the presiding cultural trends hence by way of familiarity the space shall be transformed. Other nodes of significance such as Florida Rd, Suncoast Entertainment Casino and the Moses Mabhida stadium will be used to influence movement in the area through bicycle rides, Segway's and carts, all that is familiar for the people.

It Is with agency that the city has designed Next Gen Building Typologies to bridge the housing gap for students, young professionals and families. To enhance choice and opportunity within the city we propose a multi-use leisure node. The notion stems from the 15-minute city and understanding that the young population of Durban are always on the move for locations with more employment options, namely the city's business district or Mhlanga, the north of Durban. In this we draw building designs and placement practices as young populations gravitate towards locations that offer a variety of services and most importantly jobs. In the event that a telecoms/ Digital marketing company is interested in the site it will guarantee a wide range of traction and response from all citizens in particular the youth. Therefore, in the provision of housing we propose that the businesses that occupy the space employ residents within that space and pay for the services and infrastructure of the area at the aid of the city. To incentivise businesses the city will subsidize the land and provide green infrastructure solutions to mitigate the cost on waste management infrastructure, the city will also facilitate the monitoring of all urban gardens in place.

Building Designs include concrete structures with creeping ivy plants on grey surfaces and vines on bricks. The building includes natural lighting, saving on light energy use.

To assist with the training and facilitation of waste management infrastructure there will be community programmes that assist with the transition of waste management practices /Water use. WSUD principles allow for a more circular flow of water use. Therefore, we promote the use of permeable water retention structures and gardens. Flush systems are connected to urban roof top gardens towards a holistic water saving reticulation method. This would also translate into looking at water as a source of energy.

Action Plan 1

Mixed-Use Commercial, Retail, and Affordable Housing Block in Flood-Prone Durban

This design concept proposal aims to address the unique challenges posed by flood-prone Durban while creating an accessible, inclusive, sustainable and resilient mixed-use development. Our concept aims to create a vibrant, flood-resilient development that enhances the safety, functionality, and attractiveness of the area. The proposal includes a combination of commercial spaces, retail outlets, and affordable housing units to promote economic growth and cater to the housing needs of the community.

A desktop site analysis of the site has been conducted which has assisted the team to understand its flood patterns, water drainage systems, and flood risk areas. Our site is a greenfield, meaning that a good portion of the investment needs to go towards the allocation of bulk systems such as water, sanitation, drainage and so on. As the development is in a flood-prone city, developing strategies to mitigate the impact of flooding on the proposed development is crucial. This will be unpacked in the sections below.

Elevation and Foundation Design Considerations:

The design of the building should have an elevated ground floor level to minimize the risk of flood damage to the commercial and retail spaces as those spaces are likely to occupy the first 2 floors of our proposed buildings. Some considerations included having parking on the basement floors in order to accommodate the consumers of the retail stores, workers of both the retail and commercial spaces and clients of the latter. Flood-resistant construction techniques need to be considered and incorporated when constructing the building, such as raised foundation and flood-proofing measures, to ensure the safety and durability of the structure. Another important building-related proposal to consider is using materials that are derived sustainably for the foundation and also the general building.

Resilient Landscaping:

Integrate resilient landscaping elements, such as rooftop gardens (to address food security in the block), solar panels (for energy generation due to loadshedding), and bioswales (landscape features that collect polluted stormwater runoff, soak it into the ground, and filter out pollution). The latter feature will help absorb and filter excess water, reducing the strain on the existing drainage infrastructure and minimizing flood risks. Another good alternative to bioswales are rain gardens. The site could consider a mix of both.

Flexible Ground Floor Spaces:

Plan the ground floor to accommodate flexible spaces that can easily adapt to flood conditions. Consider incorporating removable or water-resistant barriers, modular partitions, and movable fixtures to allow for quick reconfiguration and protection of valuable assets during flood events.

Flood Emergency Preparedness:

An emergency response plan specific to flooding scenarios, including evacuation routes, designated emergency assembly points, and flood-specific safety measures needs to be created for the site. We have witnessed the tragedy of Durban floods before so knowing what to do during floods is very important for the occupiers of the building. Flood detection systems may be installed, backup power generators, and flood-resistant infrastructure to ensure the safety and well-being of the occupants during flood events.

Mixed-Use Design:

We have allocated the upper floors from the 3rd floor of the building for affordable housing units, offering a mix of one-bedroom, two-bedroom, and three-bedroom apartments. Communal spaces will be added to our site, such as rooftop gardens, playgrounds, and community centers, to foster a sense of community and provide recreational areas for residents. Another good consideration would be for a school (pre-school) to be added to the building considering the density of our building and the fact that we attract people who work in our space, consumers who purchase goods from our space and those who live within it. We hope to create a space that caters to the needs of the community, and that would be a central place to do a lot of things (convenience).

Retail and Commercial Spaces:

The retail and commercial spaces will be on the 1st and 2nd floor, with an emphasis on flood-resistant materials and fixtures as those are the first two floors (and basement) that would be directedly impacted by the flood. Incorporating flood-proofing measures, such as watertight doors, raised electrical outlets, and elevated storage areas, to protect goods and equipment during flooding would be critical for our site. The retail and commercial spaces (could be extended to 3 floors) will be the major generators of funds in the space as the rest of the building is an affordable housing space.

Sustainable Design:

Sustainable design features need to be integrated throughout the development, including energy-efficient systems, solar panels, rainwater harvesting, and waste management systems. (precedent: waste system overseas that takes waste underground and transports it?) Locally sourced and recycled materials will be priorities in our project, as well as passive cooling and natural ventilation techniques as Durban is a very humid region, to reduce the environmental impact and

enhance the development's resilience. This will assist in less people feeling the need to waste energy on central cooling system as those consume a lot. The commercial and retail spaces should however have central cooling.

Public Participation/Community Engagement:

Engaging with the local community, stakeholders, and authorities throughout the design process is important for our site as these are the people who will be interacting with our space. We aim to conduct public consultations and workshops to gather input, address concerns, and ensure the development aligns with the needs and aspirations of the community. This section will also be covered during the EIA processes but because we are a youth that cares, we could conduct workshops with the community prior to breaking ground, therefore allowing the community to voice out their concerns and ideas for the space.

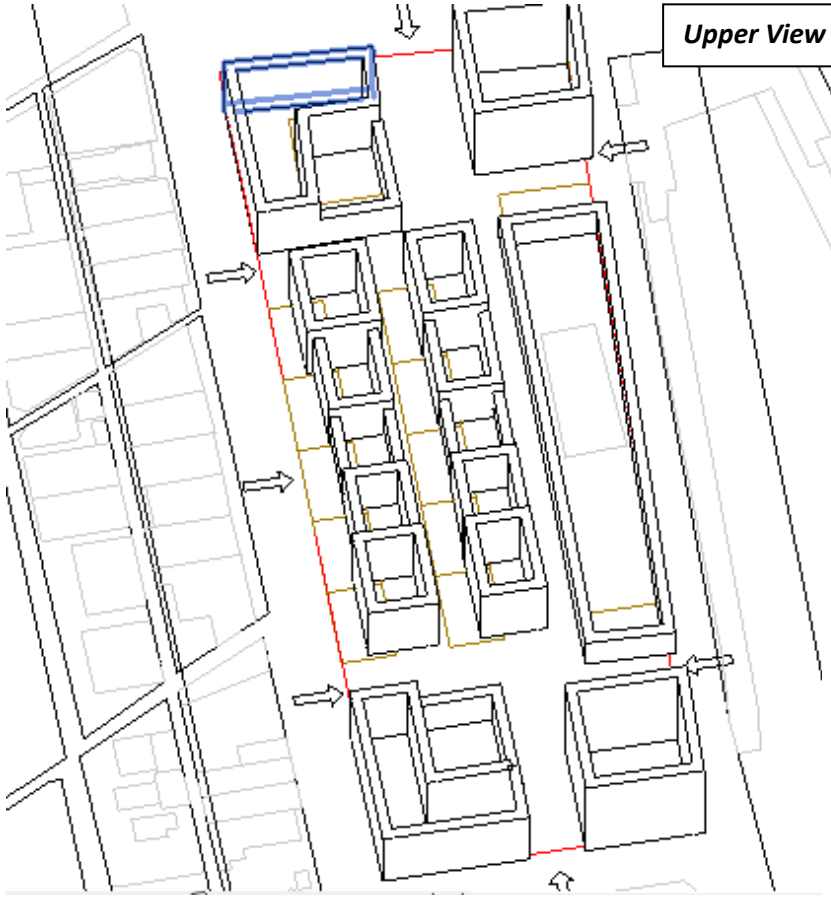
Collaboration with Experts:

Collaborating with flood mitigation experts, architects, engineers, and town planners experienced in designing for flood-prone areas. Also collaborating with interest groups that focus on climate mitigation would be great. Draw on their expertise to optimize the design, incorporate the latest flood-resistant technologies, and ensure compliance with relevant building codes and regulations.

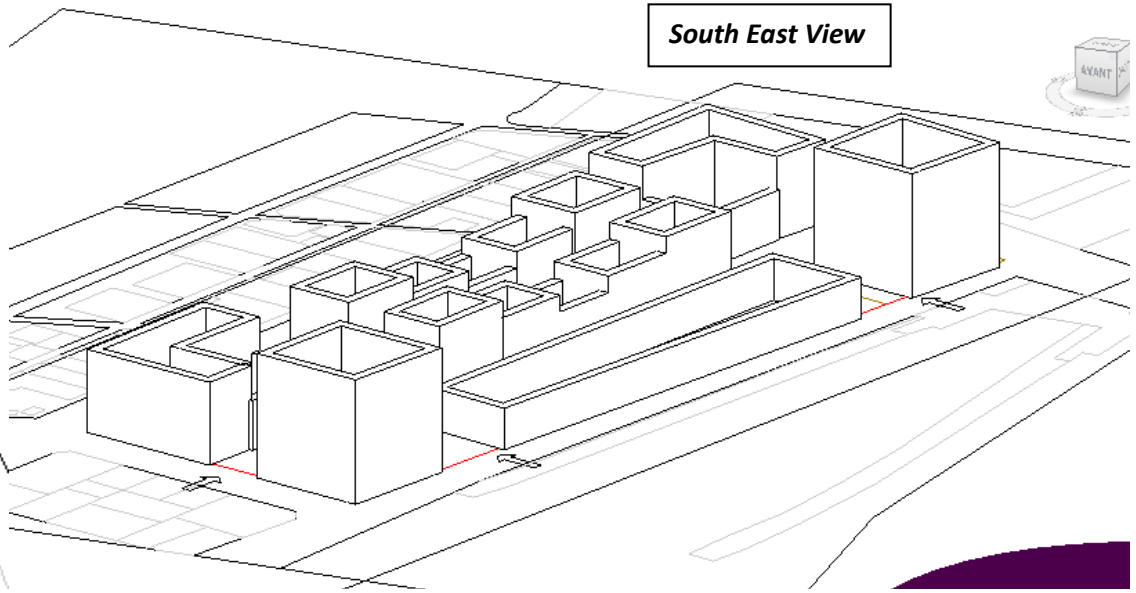
In Conclusion:

By implementing these design strategies, this mixed-use development will serve as a model for sustainable, flood-resistant architecture in Durban. It will provide a safe and vibrant space for commerce, retail, and affordable housing while mitigating the risks associated with flooding. **(Still working on it).**

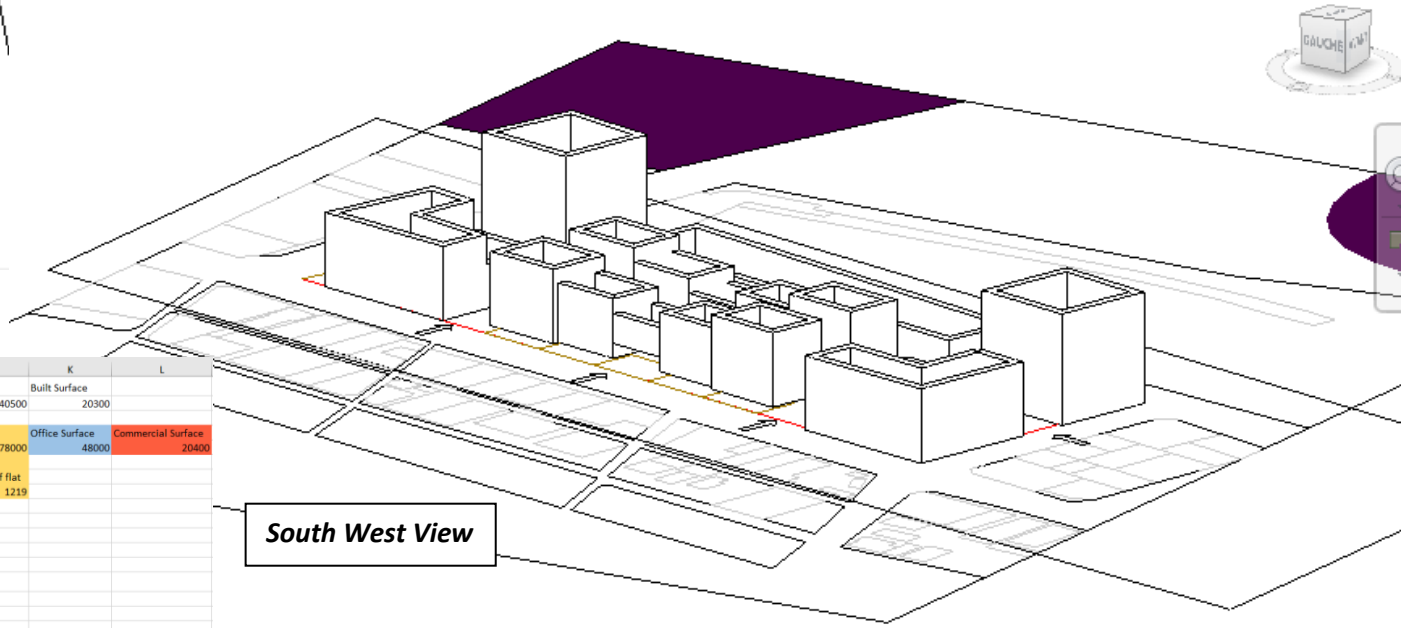
Possible Building Design 1.1
(Note: Concept Plans to be added) Showing The Analysis and Integration strategy from Suncoast beach side leading to Umgeni Site)



Upper View



South East View



South West View

Building Description

	A	B	C	D	E	F	G	H	I	J	K	L
1	Building 1			Building 2			Building 3			Total Surface	Built Surface	
2	Height	30	3m each floor	Height	30		Height	30		40500	20300	
3	Ground Floor	3000		Ground Floor	4800		Ground Floor	3000				
4	1st Floor	3000		1st Floor	4800		1st Floor	3000		Housing Surface	Office Surface	Commercial Surface
5	2nd Floor	3000		2nd Floor	6000		2nd Floor	3000		78000	48000	20400
6	3rd Floor	3000		3rd Floor	6000		3rd Floor	3000				
7	4th Floor	3000		4th Floor	6000		4th Floor	3000		Approx number of flat		
8	5th Floor	3000		5th Floor	6000		5th Floor	3000		1219		
9	6th Floor	1800		6th Floor	4800		6th Floor	1800				
10	7th Floor	1800		7th Floor	4800		7th Floor	1800				
11	8th Floor	1800		8th Floor	2400		8th Floor	1800				
12	9th Floor	1800		9th Floor	2400		9th Floor	1800				
13												
14	Building 4			Building 5			Building 6					
15	Height	45		Height	15		Height	45				
16	Ground Floor	1600		School	2275		Ground Floor	1600				
17	1st Floor	1600		Existing building	1000		1st Floor	1600				
18	2nd Floor	1600		New equipments	3025		2nd Floor	1600				
19	3rd Floor	1600					3rd Floor	1600				
20	4th Floor	1600		Built Surface	6300		4th Floor	1600				
21	5th Floor	1600					5th Floor	1600				
22	6th Floor	1600					6th Floor	1600				
23	7th Floor	1600					7th Floor	1600				
24	8th Floor	1600					8th Floor	1600				
25	9th Floor	1600					9th Floor	1600				
26	10th Floor	1600					10th Floor	1600				
27	11th Floor	1600					11th Floor	1600				
28	12th Floor	1600					12th Floor	1600				
29	13th Floor	1600					13th Floor	1600				
30	14th Floor	1600					14th Floor	1600				

Notes for Advisement

- The team is to advise on the appropriate approach to budget.
- Relevant Municipal By-laws are required for building specifications and layout design
- Stakeholder engagement, is it possible to set up a meeting for further advisement from locals
- Building plans indicate future possible access points leading to the site from the railway line, clarity on whether that would be required
- Team would like further advisement on Transport modes and the possibilities of adding bus stops near the site/traffic control