URBAN RENEWAL CHALLENGES: A PERSPECTIVE ON REVITALISING "JANATA BAZAAR"

Nishanth.A.Patil[1]

[1]*Assistant Manager, Total Environment Building Systems Private Limited*

Abstract

It has been decades since Hubli's Janata Bazaar has witnessed renewal of any kind. The condition of the bazaar is alarming to say the least. In such a back drop we would like to put forth a proposal for a multi-modal infrastructure consisting of a stadia arrangement to house the resident vendors, a separate commercial hub for the resident traders and a shopping complex consisting of a G+4 structure with 2 levels of sub-surface dedicated parking arrangements all on the above mentioned premises. Throughout the proposal, utmost care has been taken to optimize the design of the structure by incorporating fusion of flat-slabs, lift slabs, cantilever overhangs, fibre-glass reinforced concrete wall systems. Pre-stressing is incorporated to enhance efficiency of long spans and irregular slab panels. The structure is again subdivided into 2-way slab sections to cater to masonry strip loads and rolling loads of the transport vehicle. Surprisingly enough, the capacity has been increased by 15% in the dedicated vendor space. We would like to suggest a PPP (Public-Private partnership) model to develop the premises, the Mall in particular and liaise with the district administration, and put forth our solution to the problem.

Keywords-*stadia; hub; mall; PPP; flatslabs; pre-stressing; capacity*

----------***----------

1. INTRODUCTION

Urban renewal is a strategy of area redevelopment in territories of moderate to high populace and urban area use. Jawaharlal Nehru National Urban Renewal Mission is a monumental modernisation plan set afloat by the Government of India under Ministry of Urban Development, envisaged at producing equitable, frugal, prudent and receptive cities by a well orchestrated scheme of enhancing the social and economic infrastructure in urban areas. [8]

In the wake of such an opportunity, we would like to float a proposal aimed at equitable development for the whole society. The site chosen is Janata Bazaar, situated at the heart of Hubli, a tier II city, which is baffled by crippled infrastructure facilities and a burgeoning population. A consensus must be sought between the needs of all these stakeholders, esp. the resident vendors and traders, before any sort of plan is brought forward.

1.1 Overview of Present Scenario

Hubli has an urban population of 13,49,563 (2011) with an area of 200.23 square kilometres. The economic growth has opened the largely untapped retail industry and has attracted investors. Hubli has an appreciable chunk of middle class and affluent population and a large population of students.
This well-heeled, brand-conscious population has made it the ideal destination for high end retailers, which explains the plethora of premium brands available in Koppikar road-Janata Bazaar tract of real estate.

Janata Bazaar located in the heart of the city is a prime hub for small time vendors and traders. It is spread over 1.76 acres of prime commercial land housing makeshift shops and a couple of buildings in dilapidated condition. Over the years the said market had been neglected due to lack of will shown by the authorities which explains the hideous condition that the market is in today. The market is plagued by problems such as poor fire safety, congestion, poor pedestrian circulation, and poor access for fire, police and paramedical services in case of calamity.

1.2 Why Address this Problem?

1. Hubli is looking to burst into the IT sector but the IT companies are sceptical to invest in Hubli due to lack of recreational avenues here. To enhance the buyer seller interface it is necessary to build an environment conducive to trade.
2. To cater to the changing lifestyle of the public.
3. To address the crippling infrastructure and justify the potential of the area, paving the way for urban renewal.

1.3 Site Particulars

Area = 7945 sqm
Width of access road = 15 m, abutted by roads of 10 m.
CTS No 1015/A
Coordinates: 15°20'58"N 75°8'18"E
Mean Temperature: 25-40^{o}C

2. PLANNING

2.1 Stakeholder Analysis

The stake holders are,
1. Resident vendors
2. Resident traders
3. Municipal Corporation
4. Citizens, customers in particular

5. Direct and Indirect beneficiaries

- A consensus must be sought between the needs of all these stakeholders, especially the resident vendors and traders, before any sort of plan is brought forward.
- Keeping this in hindsight, segregation of land along a tripartite manner i.e. Resident Occupation of Land, Land for the Proposed Mall and Land for Community Parking is sought after.
- It is suggested that the Resident Vendor and Trader space be spread along the horizontal plane, while Vertical Expansion is the only resort to make the project socially and economically viable, in the restricted land space.

2.2 Core Proposal

Tripartite approach: We have sought to address the problem statement by devising a three-element plan which consists of the following three components;

1. Vendor space: A stadia arrangement spread over 2181 sqm comprising of 85 nos of permanent shops of areas varying from 10.8 sqm to 12 sqm.

The incumbent also has a capacity to facilitate hawkers in a 2m cantilever stretch.

2. Trader space: Two separate pockets of land measuring 295 sqm and 315 sqm have been identified to house commercial premises for resident traders and other interested professionals.
3. A dedicated parking facility in the Vendor cum trader space, capable of housing 45 four wheelers.
4. Shopping mall: A futuristic commercial destination comprising of G+4 configuration, with 2 levels of sub-surface parking capable of housing 108 nos and 65 nos of four wheelers and two wheelers respectively.

The design is envisaged as a stepping stone for the renewal of the area comprising over Janata Bazaar, Idgah Maidan and NHAI premises.

At one end of the bow-string shaped parcel of land is situated the mall, envisaged to be a hub of activity, equipped with large anchor shops , retail boulevard , food court and fine dining restaurants , a dedicated entertainment zone and a 3-screen multiplex.

It envisioned that this parcel is pierced by an elevated overpass (about 200m long), to re-direct traffic from the Metropolitan Police Head-quarters to Old Bus Stand, thus segregating pedestrian and vehicular activity.

Also the space below the elevated stretch can be used for landscaping and social space.

2.3 Secondary Developmental Avenues

- Apart from rejuvenation of Janata Bazaar, developmental works might as well be undertaken in Idgah Maidan especially with respect to traffic congestion and management. As is evident the existing infrastructure is unable to cope with the burgeoning demand for parking space hence we put forth a proposition for a Multi Level car park to be constructed at the site.
- Widening of associated stretches of roads may also be undertaken keeping in mind the future trends of growth.
- Elevated Overpass

3. DESIGN PROCESS

3.1 Design Philosophy Adopted

The whole philosophy behind the idea is to liberate the existing space, make the place more interactive and accessible and in turn transform the inherent chaos at the market place into coherent seamless symphony.

1. Ease of mobility and freedom of variation in structural layout was a significant parameter to be satisfied, in order to attract retail clientele.
2. Prime importance was given to use of structurally efficient designs and materials.
3. Phasing of the project and ease of execution was equally important.
4. A marketing strategy and Special Incentive Package Schemes to ensure economic viability of the project was taken into outlook.

3.2 Brief Design Highlights

Inclusion of Flat slabs , use of pre-fabricated roof trusses , use of fibre-reinforced polymer concrete partition wall fixtures, use of pre-fabricated sanitation blocks, adoption of pre-stressed post-tensioning methodology for foundation and slab panels.

1. Small shop: less than 150sqm.
2. Medium shop: less than 500sqm.
3. Anchor shop: more than 500sqm.
4. Frontage provided: 60 m
5. Lift well: 3x2.5m.
6. Type of lift: capsule lift, 544kg capacity, i.e. 8 persons approx.
7. Size of commercial lift: 4.3x4.6m.
8. Commercial lift: 3000kg capacity. Escalators are at 30 degree inclination, spanning headroom of 3.5m.
9. Two doglegged stairs of width 4.5m, with rise of 150mm, and tread of 300mm [3].
10. Clear distance between soffit of slab and floor level is 3.75m.
11. Presence of lift cores along the prominent wind direction to enhance the lateral stability of the structure.

3.3 Why Flat Slabs?

- Faster construction.
- Simpler and minimalistic formwork, resulting in cheaper formwork cost.
- Reduce services and cladding costs.
- Flexibility for the occupier, thus accommodating changes in the internal layout.
- Easier routing of services.
- Lesser height of superstructure resulting from the exclusion of beams.

For E.g.:
For a Flat Slab of Panel Size: 8.5mX8.5m (adopted in the project), inclusion of beam results in a beam of depth of at least 600 m. Thus reduction of 600m in headroom occurs. Thus for a mall of 4 levels, a minimum increase in 4*600m i.e. 2.4 m in the building height occurs.

Thus, for the same building height, additional levels can be accommodated for a flat slab design.

3.4 Why Pre-Stressed Systems?

From practical considerations on the site, post-tensioning is proposed to be adopted.

- Longer spans (> 7 m) are easily achievable , reducing number of columns and related foundation preparation.[1]
- Economic solution to cater to large spans (> 7 m).Refer Fig 1
- Deflections free slabs (deflection is a critical serviceability parameter to be checked in flat slabs).
- Waterproof elements.
- Highest material efficiency achievable.
- Reduced section dimensions leads to reduced dead load and thus reducing column dimensions and a subsequent increase in net leasable area.

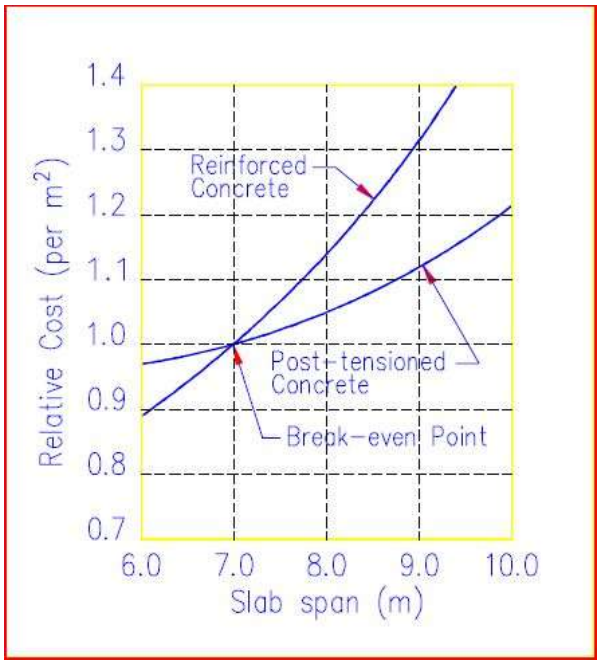

Fig 1, Relative cost v/s Slab span for RCC and PSC Structures

3.5 Non-Conventional Building Materials

1. Use of Fibre-reinforced concrete partition walls which have a dead load of 360 kg/m^2, helping to reduce effect of strip loads, which is much lower than conventional burnt brick masonry of dead load of the tune of 1800 kg/m^2 .
2. Use of pozzolanic admixture in concrete for lean concrete uses and in concrete mix designs.
3. Wind tunnel effect is utilized by channelling air through small controllable ducts into larger public spaces to increase wind speeds and lower cooling costs.
4. Bio-filtration septic tanks and cess pools are provided to reduce toxicity of sewage and aid in percolation into a controlled vegetative environment.

3.6 Safety Features

- Two fire exits (2m wide) situated within 20m of each extreme ends[5].
- Fire exits at every 3.6 m in the Multiplex arena[5].
- Detectors and sprinkler systems at 3m interval in the lobby area.
- The number of escalators is doubled to aid in dispersing the crowd.
- Appropriate amenities are provided for the differently - abled.

4. PRECAUTIONS

- Care must be taken to account and design for punching shear.[2]
- Early age strength assessment of concrete is necessary, esp. when post-tensioning is employed.[2]
- Check for deflections under strip and construction loads is mandatory.[2]
- Finite element analysis is necessary tool for designing and analyzing irregular geometry and large cut outs.
- Lateral Stability of the structure is one of the controlling factors influencing the choice of the slab design.

5. EXECUTION AND PHASING

5.1 Intimation

A 90 day notice will be given to the resident occupants for vacating the premises prior to commencement of construction activities.

5.2 Rehabilitation

In a project of such a nature, non engineering complexities such as rehabilitation must be carefully tackled. It was necessary to come up with a stop gap solution addressing the immediate problem of accommodation of around 40 traders and around 80 vendors presently occupying space at Janata Bazaar. In view of such a challenge, we put forth the following two options.

Option 1: Situated in close proximity to Janata Bazaar there is Idgah Maidan. This land is owned by HDMC. Presently it is being used illegally for parking by taxi operators, mass prayer is also held two times a year. We propose to house the vendors and traders at Idgah Maidan until the facility intended for them is completed. Ref Fig 2.

Fig 2, Pictorial representation of option 1.

(Fig 2 represents the rehabilitation scheme purported in option 1. The periphery of the Janata Bazaar sight is shown in **orange** colour. HDMC is considering a proposal to construct a multi-level parking lot at the sight shown in **pink colour**. This parking lot will be the rehabilitation site for vendors and traders of Janata Bazaar. The line marked in **grey** is a part of the auxiliary proposal to construct an elevated traffic path.)

Option 2: There already exists a proposal to build a multi level car park on the premises held by NHAI. Following the construction of the feature, the resident vendors and traders will be relocated there. Ref fig 3

5.3 Demolition

The proposal warrants the demolition of four buildings. Particular care should be taken during the procedure as the properties in question are sandwiched between private dwellings and commercial utilities. Ref Fig 2.

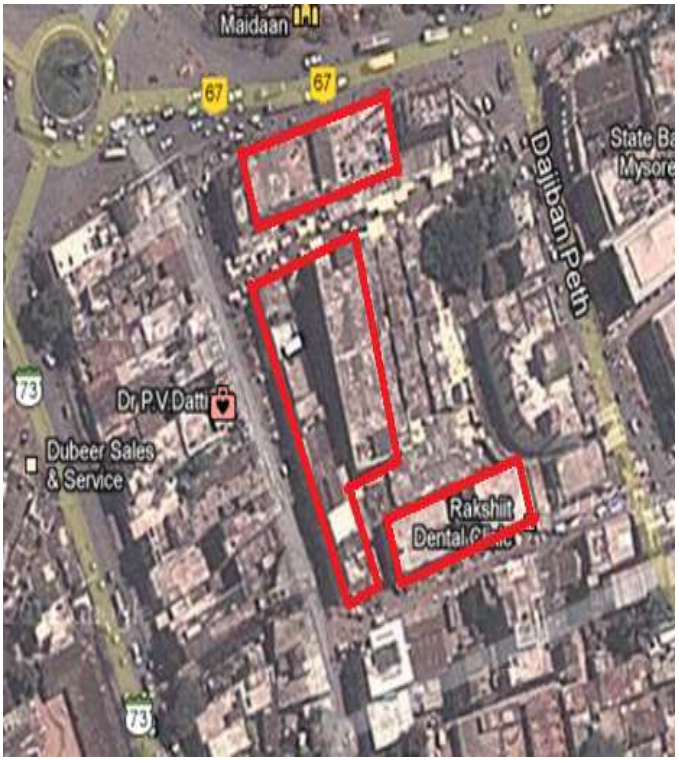

Fig 3, The buildings marked in red are to be demolished.

5.4 Construction

Phase 1: The construction will start with the stadia element intended for vendors and traders. The structure should be occupant ready within eight months with a cushion of one month.

Phase 2: It involves the construction of the shopping mall by the real estate developer. Since its completion rests solely in the interests of the developer, we can not anticipate its completion. Nevertheless with uninterrupted progress we might safely assume its completion within 18 months.

5.5 Maintenance

The structures proposed need very little upkeep through their service life provided compromising alterations are not made during its lifetime. To keep check of this, routine inspections must be carried out by the HDMC authorities especially structures provided for vendors and traders.

An interactive committee consisting of representatives of traders, vendors and HDMC must be formed to take care of maintenance works of the structure and collect the required corpus via taxation.

6. FINANCIAL FACET

The whole proposal is conceived around the prospect of revenue generation. The project itself will have a cascading effect on existing real estate in propinquity. It will act as a catalyst in initiating similar works in Hubli. It will instil confidence in prospective investors to invest in Hubli and buttress its crippling infrastructure.

6.1 Rough Estimate of Shopping Mall;[7]

Table 1. Estimation chart for proposed commercial mall

Particulars	Cost per sq ft in Rs (2011)	Cost per sq ft in % of total construction cost
Concrete works	880	40*
Excavation, footings, peripheral blockwork, ground beams & back fills to plinth	160.75	7.33
Block work and plastering	220	10
Wall & Floor finishes	440	20
Joinery works incl doors, windows & aesthetic entities	187.5	8.55
Plumbing services & sanitary fixtures	87.5	3.99
Compound wall, water tanks & septic tank	130	5.93
Electricals and other miscellaneous items	86.25	3.93
Total	**2192**	**100**

*provision for flat slab

6.2 Rough Estimate of Commercial Hub;

Table 2.: Estimation chart for proposed commercial hub

Particulars	Cost per sq ft in Rs (2011)	Cost per sq ft in % of total construction cost
Concrete works	360	32.43
Excavation, footings, peripheral blockwork, ground beams & back fills to plinth	130	11.71
Block work and plastering	120	10.81
Wall & Floor finishes	180	16.21
Joinery works incl doors, windows & shutters	150	13.51
Plumbing services & sanitary fixtures	60	5.40
Compound wall, water tanks & septic tank	80	7.20
Electricals and other miscellaneous items	30	2.70
Total	**1110**	**100**

(Approx cost of construction of shopping mall is Rs 44Crores* and commercial hub is Rs 3.8Crores*. The cumulative cost of construction is Rs 47.8Crores. *taking into consideration an average of 15% cost escalation.)

6.3 Rough Estimate Projected Revenue from Rental Premises of Commercial Mall;

As per survey conducted of the existing market rates and inputs collected from a practising architect, a rate analysis and estimation was conducted.

Table 3: Table showing existing rental rate trends

Area	Expected Rental Income IN 2011(Rs/sq.ft./month)
Anchor Shop with maximum frontage in prime location	90.00
Shop in Koppikar Road on Ground floor	60.00
Shop in Koppikar Road on First floor	48.00
Shop in Koppikar Road on Second floor	35.00

Based on these inputs, and considering a conservative rental of Rs 80 / sqft / month for the commercially leasable area,

The annual revenue works out to be Rs 10.52 crores.

Assuming savings of 40 % of the above mentioned amount, the initial construction cost can be retrieved in around 12 years, assuming nil change in rental rates.

7. CASE STUDY[7]

Akruti is one of the foremost Mumbai-based real estate developers with an eminent land bank, highly concentrated in the Mumbai suburban region. The developer has gradually augmented its land reserve principally through slum redevelopment and vacant land parcel acquisition, via financial arrangements ranging from outright purchases to public private partnership (PPP) projects.

Having constructed 5 million sq.ft. area since 1989, Akruti is on-course to develop in excess of 50 million sq.ft. saleable area under various projects by the end of 2011 via both the Slum Rehabilitation Scheme (SRS) and regular development rights. [7]

Table 4: Planned projects;

Segments	Saleable area (m sq.ft.) (2011)	No. Of projects (2011)
SRS		
Residential	1.4	07
Commercial	0.5	03
Retail	0.4	02
Non SRS		
Residential	1.5	04
Commercial	3.0	08
Retail	0.6	03
SEZ	16.0	05
Township	33.0	01

Table 5: Snapshot of Indicative Realisation and Rehabilitation Cost

Project	Expected Realisations (2011)(Rs/sq.ft.)	Cost of Rehabilitation (2011)(Rs/sq.ft.)
Worli-Tardeo	28000-39000	1650-2500
Bandra & BKC	26000-40000	1500-2300
Andheri	12000-20000	1400-1850
Jogeshwari	9000-15000	1150-1300
Sion-Matunga	13000-17000	1350-1600

8. CONCLUSION

1. With this project, we hope to suggest a viable and implementable solution to the poor infrastructure problems and justify the potential of the premises.
2. We would like to exemplify that a PPP model to develop the premises, the Mall in particular is the most viable option as is evident from the case study.
3. Optimization of the structure is an critical aspect of designing an efficient structure.
4. We would like to garner some more support and skills to work our way to an efficient design and better functional arrangements of the elements of the structure.
5. Post tensioning is an useful science, whose utilization has to be decided with great scrutiny, taking skilled supervision and economy into purview.
6. Since no hard core simulation of the structure was attempted in SAFE or FEM , only relying on codal provisions and formulae are misleading in the interpretation of the serviceability criteria.

ACKNOWLEDGMENT

A few words of gratitude in no way can describe our deeply felt indebtedness to the people involved in the successful completion of our project.

With great pleasure we acknowledge a deep sense of gratitude to Dr. S.S. Quadri for allowing us access to department facilities. We extend our sincere thanks to Prof. Aravind Galagali for his guidance throughout the project. We also thank Mr. Manjunath V Revankar for his valuable inputs.

REFERENCES

[1] Ed Cross ," *Post-Tensioning in Building Structures*".
[2] British Cement Association. "*Best Practice Guides for In-Situ Concrete Frame Building*", Published 2001, ISBN 0 7210 1579 4. Ref: 97.508.
[3] IS 456," *Plain and Reinforced Concrete - Code of Practice*",2000.
[4] IS 875 , PART I & II."*Code of practice for design loads for buildings and structures*",1987.
[5] "*National Building code of India*", 2005.
[6] HDMP Byelaws 2004.
[7] Neyha Srivastava,Prabhudas Lilladher Pvt Ltd, "*Akruti City , scaling new highs*",a company report on Industry: real estate, Dec 19, 2007
[8] Grant Thorton, *Appraisal of JnNURM: Final Report,* Vol. I, March-2011, India.

.

WORKING DRAWINGS AND TABLES

Table 6: AREA STATEMENT FOR PROPOSED MALL

FLOOR	USAGE INDEX	LEVEL (M)	FLOOR AREA (SQM	STAIRCASE/ LIFT (SQM)	CUT OUTS (SQM)	PARKING / SERVICES (SQM)	AREA CONSIDERED FOR FAR CALCULATIONS (SQM)
Basement	Parking	-8.10	3413.60	49.44	63.58	365.5	_
Lower Ground	Parking cum storage	-4.10	3413.60	49.44	75.58	391.05	373.19
Upper Ground	Commercial	0.75	2660	86.34	209.97	82.07	2281.62
First	Commercial	4.80	2882	86.34	209.97	82.07	1903.24
Second	Commercial	8.85	2882	86.34	209.97	82.07	1903.24
Multiplex Stall level	Commercial	12.9	2882	86.34	209.97	82.07	1903.24
Multiplex Floor level	Commercial	15.9	2882	86.34	824.93	82.07	1078.31
Terrace Level	Utility	23.1					TOTAL= 9442.84

Table7: AREA STATEMENT FOR COMMERCIAL HUB I.E. VENDOR SPACE

FLOOR	USAGE INDEX	LEVEL (M)	FLOOR AREA (SQM	STAIRCASE/ LIFT (SQM)	CUT OUTS (SQM)	PARKING/ SERVICES (SQM)	AREA CONSIDERED FOR FAR CALCULATIONS (SQM)
Lower Ground	Parking	-4.10	1650.32	-	-	1028.50	-
Upper Ground	Commercial	0.75	582.80	-	-	-	582.80
First	Commercial	3.75	560.28	-	-	-	560.28
Second	Commercial	6.75	328.14	-	-	-	328.14
							TOTAL= 1471.22

Table:8 DESIGN RESPONSES OF FLAT SLAB IN FLEXURE (Ref fig)

Size of slab panel	8.5m x 8.5m.
End Conditions	All four edges continuous
Assumed Material Properties	M25 , Fe 500
Clear span between columns	7.70m

Type	Magnitude	SOURCE
Live load	7.5kN/m2	[for retail shops IS 875- part II]
Dead load	(1/2)(0.225+0.3)*25 = 6.5625 kN/m2 ~ 7 kN/m2	[IS 875- part I]
Floor finish load	1kN/m2	[IS 875- part I]
False ceiling load	0.5 kN/m2	[IS 875- part I]
Mech & elect lines load	0.5 kN/m2	
Factored load	W= 16.5 kN/m2	

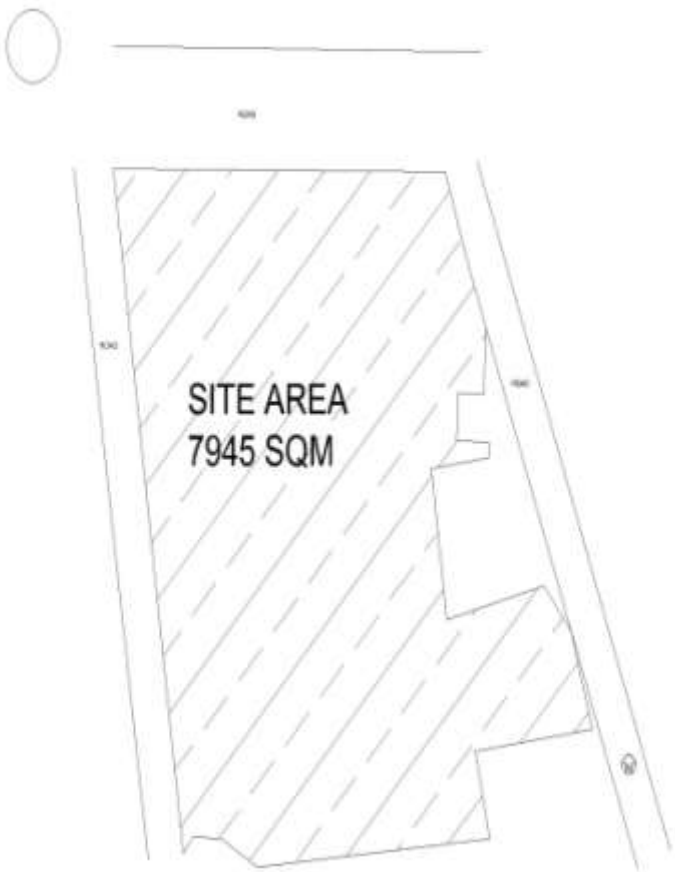

Fig 4. Site plan of Janata Bazaar.

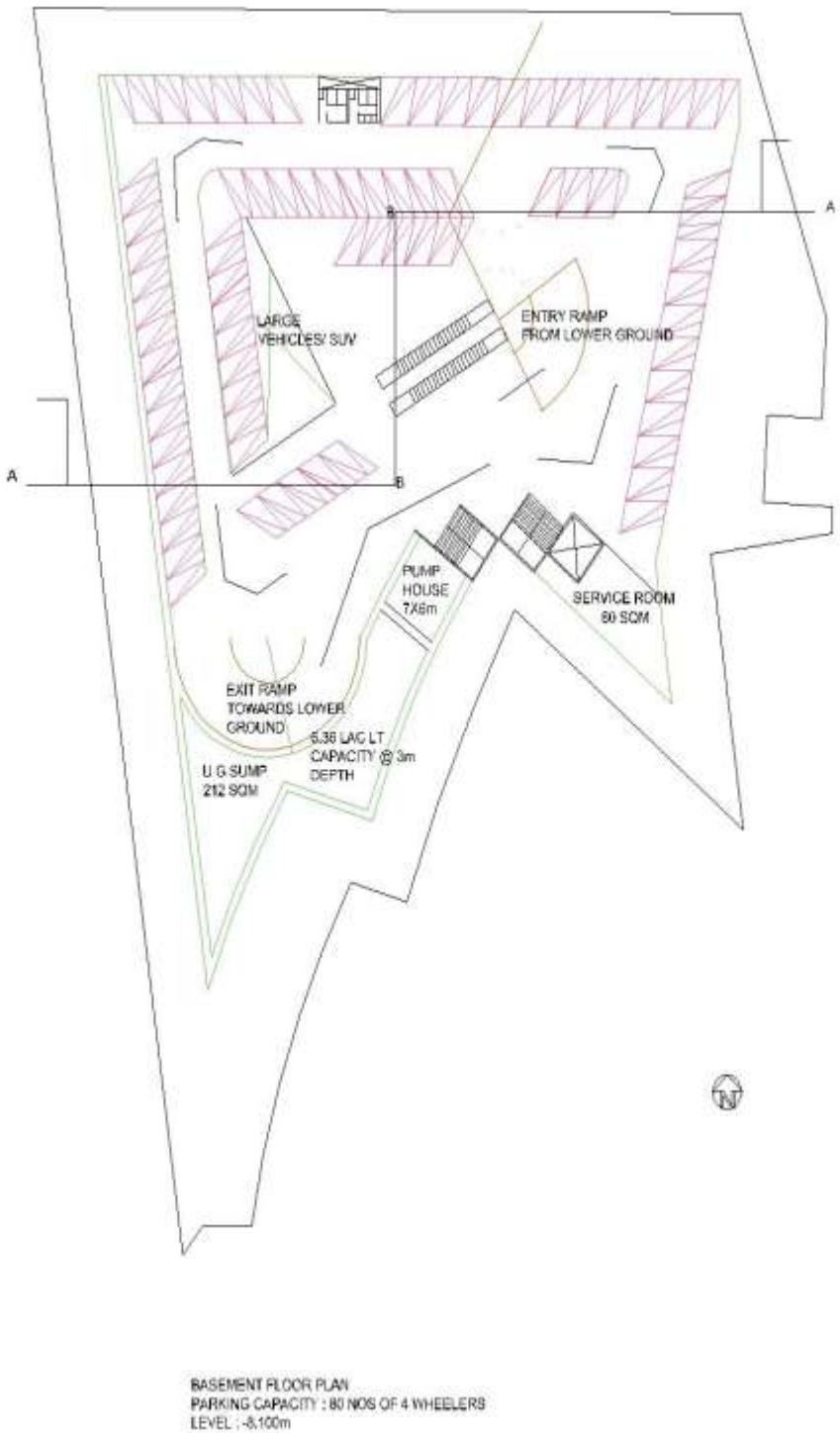

Fig 5. Basement Floor plan

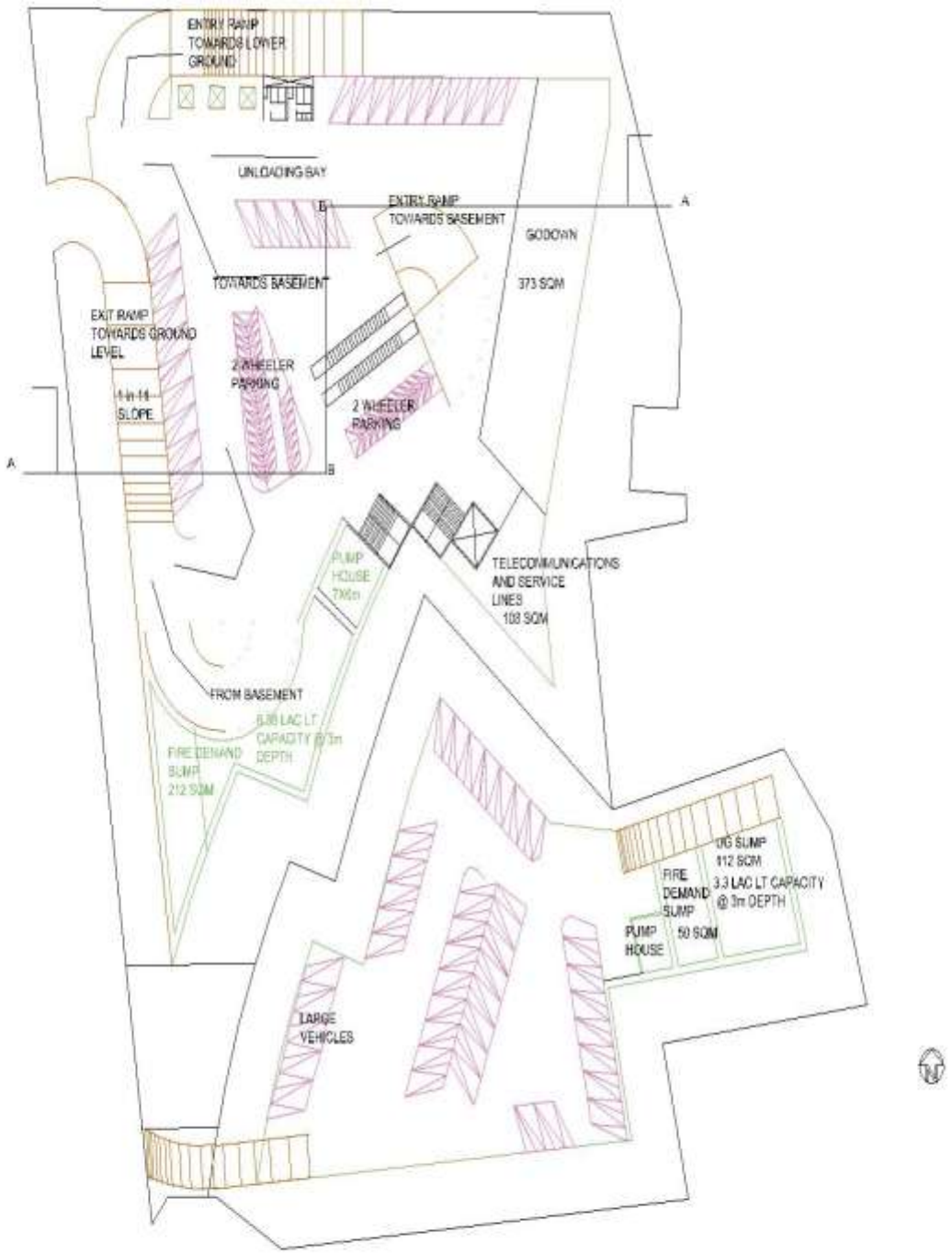

Fig 6. Lower Ground Floor plan.

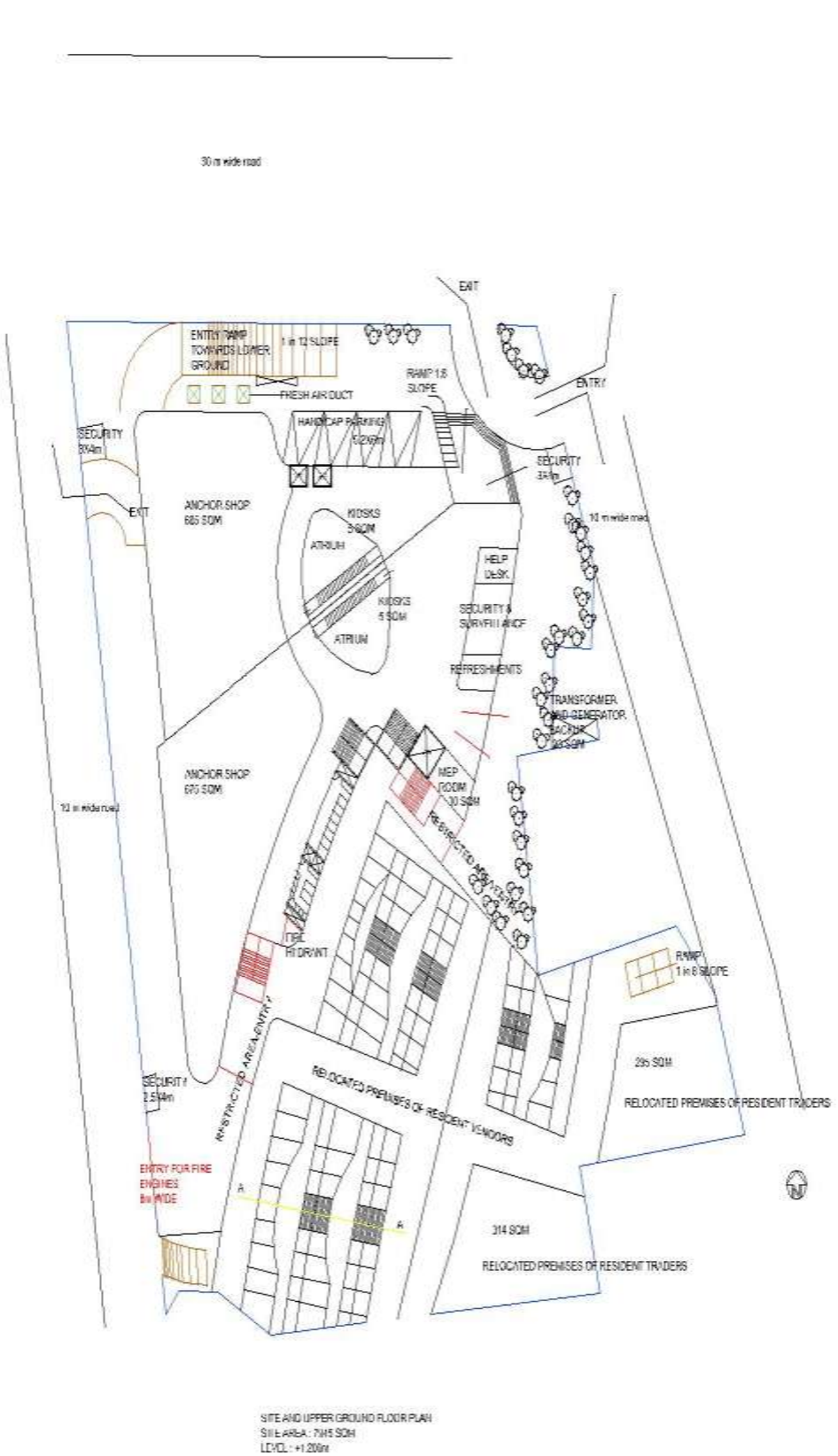

Fig 7. Upper Ground Floor plan

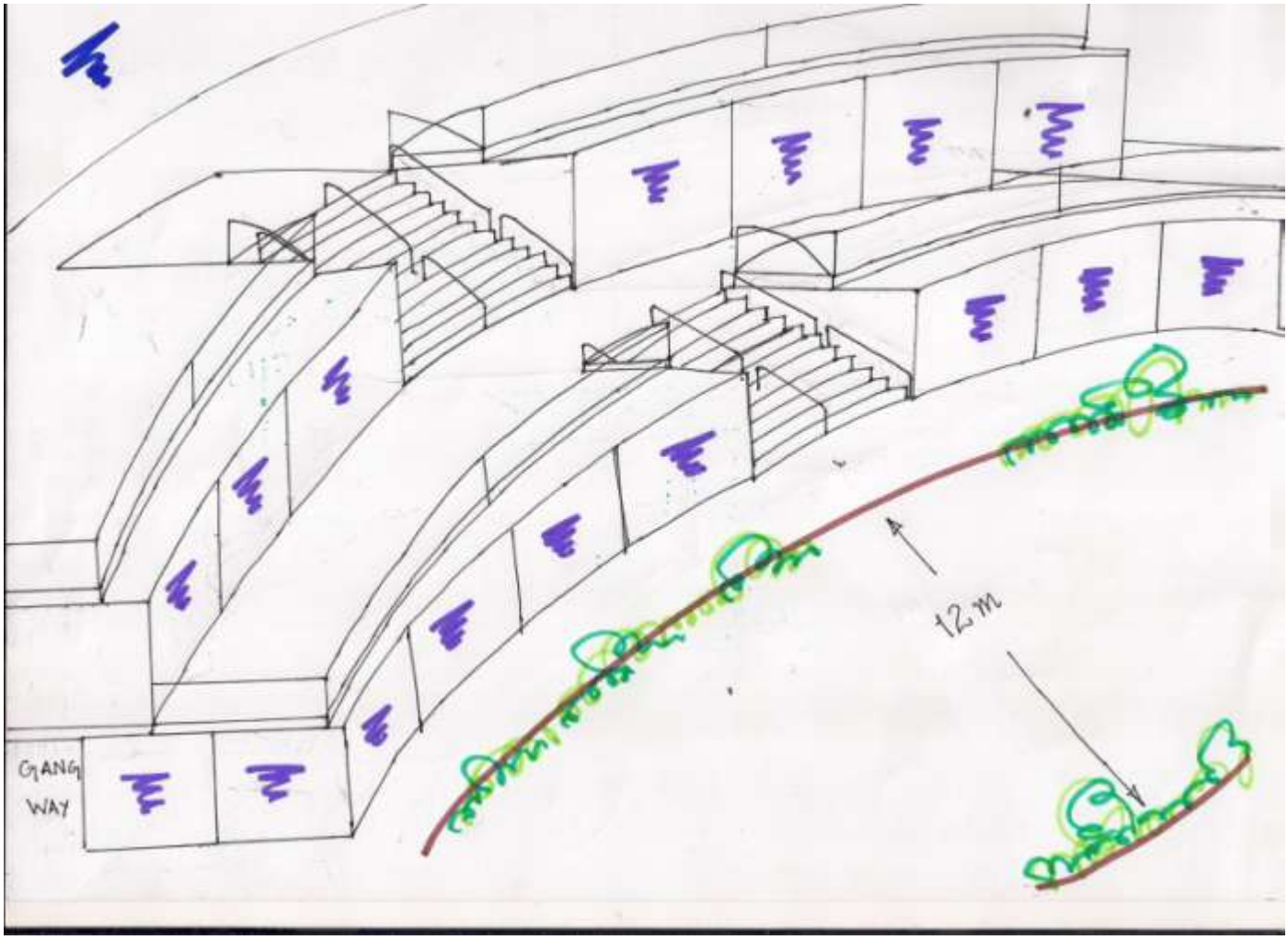

Fig 8. Artistic projection of the commercial hub i.e. stadia arrangement

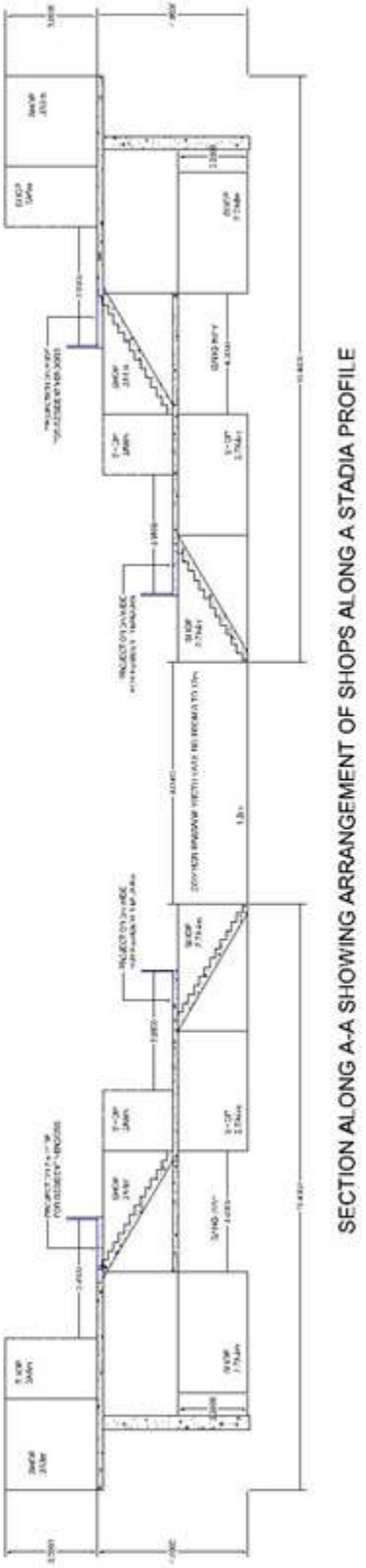

Fig 9. Tranverse section of the proposed structure