



BLURRED BORDERS & BINDING PATHS

A phenomenological path for People

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for guiding me through
this thesis.

Blurred borders & Binding paths

A phenomenological path for People

by

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ABSTRACT

The Thesis is a proposal of an elevated pedestrian network system as a choice to connect two distinct districts, the old city of Brno and the new proposed South quarter. This network system serves a dual purpose of both physically and socially connecting the two districts.

Land use allotted for transportation includes road systems, pavements and pedestrian bridges that predominantly possess a single function. At ground level, the pedestrian pavement system has limited space designated mainly for public movement however, in the case of a pedestrian bridge it could behave as a multi-use space than just a transition line. Its ability to blur the edge between two districts forming a single uniform path and also the availability of an ample amount of space provides scope for public movement and also creative, social use and commerce.

In a district that houses a railway station such as the South Quarter, questions could arise. Will the entire district be activated. Will it solely serve the purpose of transitional ground between the other districts and the railway station. Will there be a hindrance to the flow of pedestrians given the excessive vehicular movement which is a possibility due to the presence of a railway station? How can we create a direct line between the original stopping point (old railway station) for pedestrians to the proposed stopping point (new railway station)?

Thus, Can a bridge behave as a destination space and a transitional artery? Can it aid with the activation of areas within the district? Will it create grounds for a slow-paced, creative, safe, community-led programme. How can a bridge perform efficiently as a transitional path while also functioning as a form with the scope to efficiently grow within the district?

*Social well being
Soft mobility
Incremental design
Pedestrian walkway
Public destination*



Details :

Czech Republic

South Moravian

Brno-City (the second largest city in the Czech Republic)

Confluence of Svatka and Svitava

49°11'33"N 16°36'30"E

Founded : ca. 1000

Statutory city : 230.18 km² (88.87 sq mi)

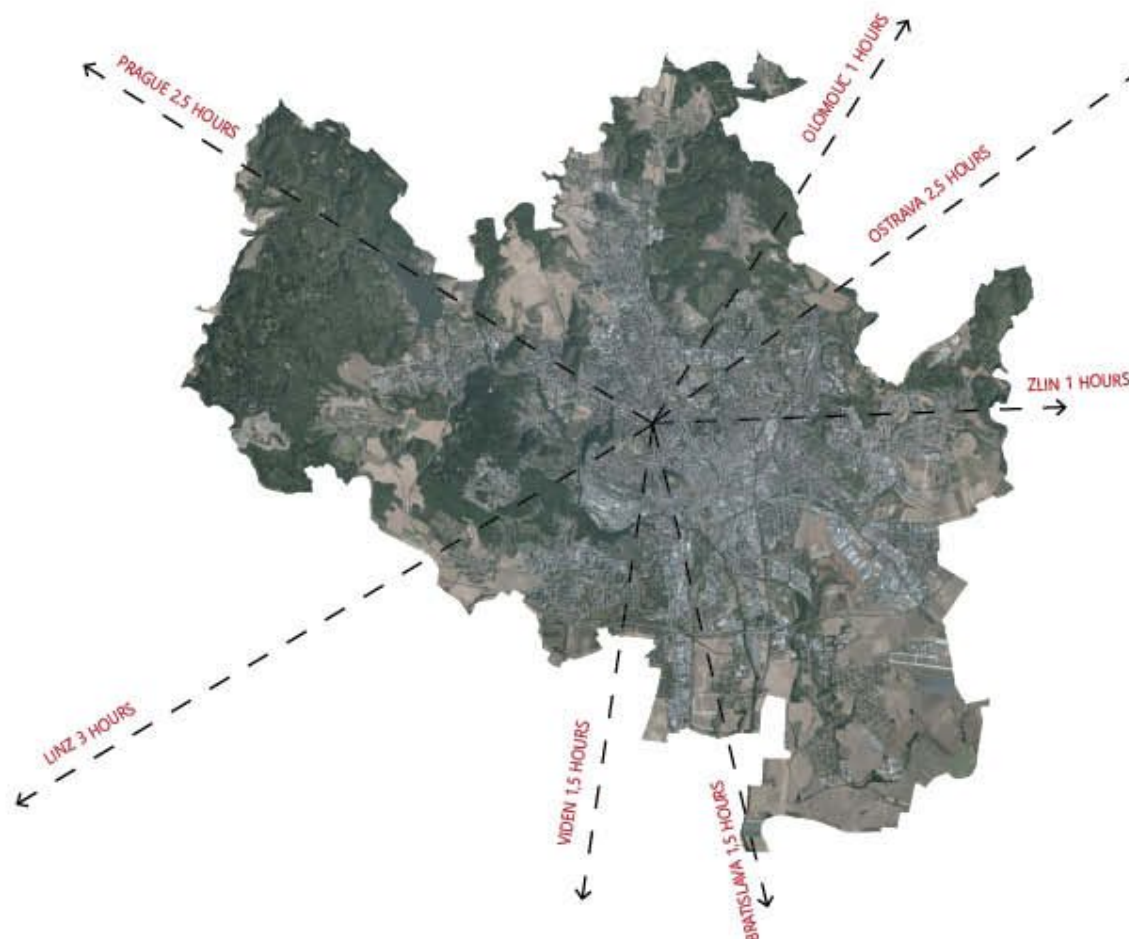
Population (2021-01-01) :

- Statutory city 382,405
- Density 1,700/km² (4,300/sq mi)
- Metro 605,988
- Residents 3,80,000

Education : 14 universities (city of students)

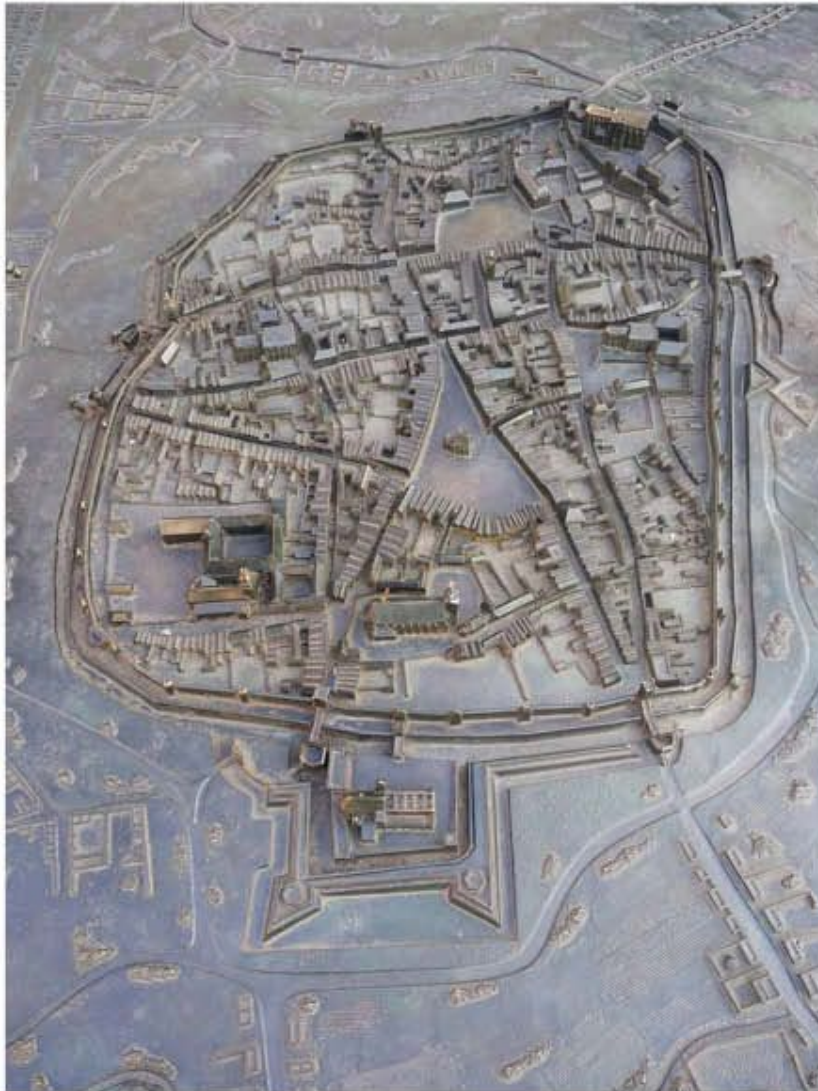
- Student population approx. 90,000

"Moravský Manchester" (textilní průmysl)



BRNO IN BRIEF

Brno History



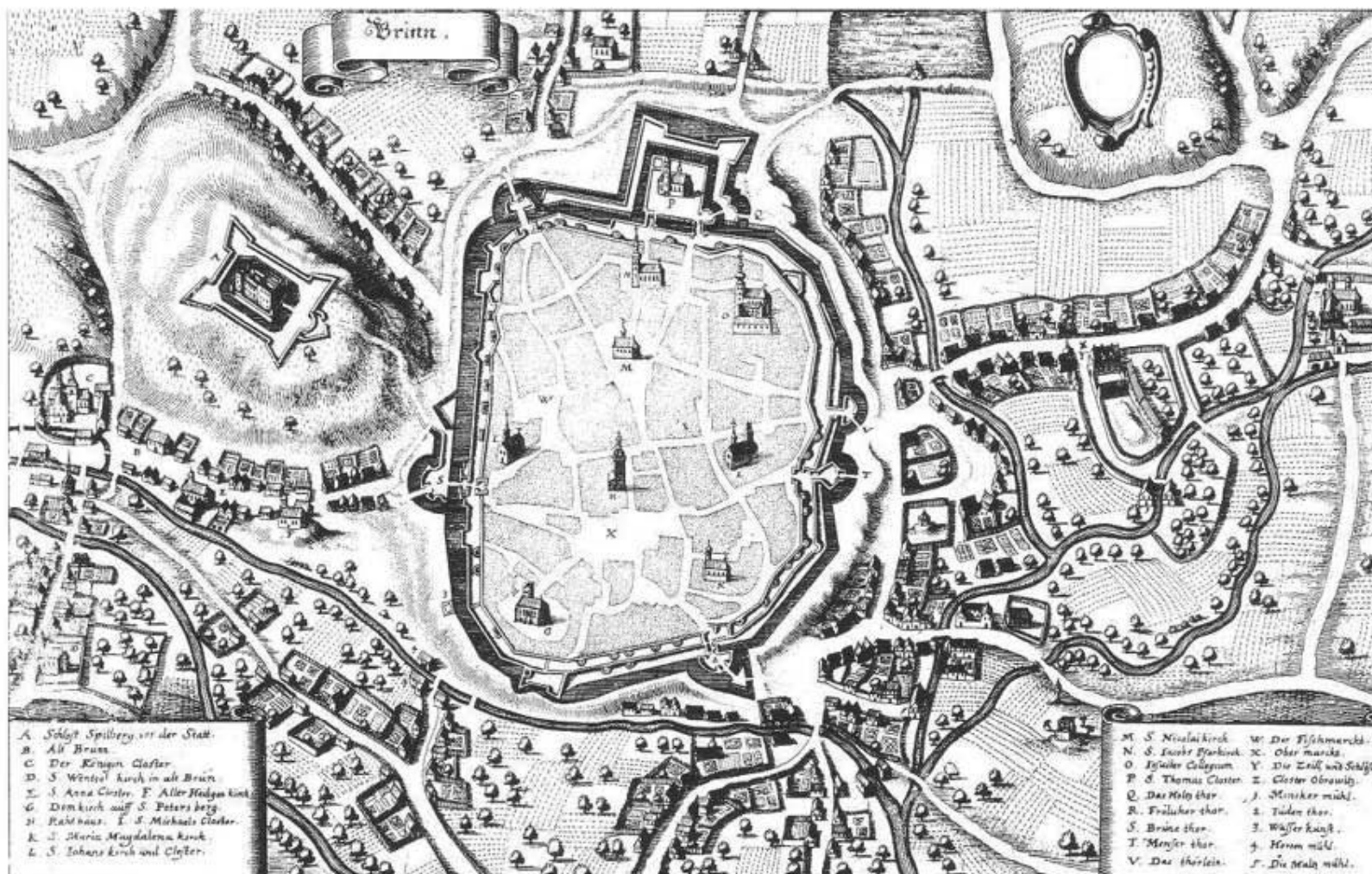
Brno is the largest Moravian city. Recognised as a town in the year 1243 by the king of Bohemia Wenceslaus II. At the centre of the main square a romanesque rotunda was situated which later became a Basilica. In the 11th century, a settlement developed around the castle and this laid the foundation of the fortified city. It is a fortified town & was the centre of all the important events right up to the 14th century in Moravia, nobles resided here, as also the Moravian Margraves. It was home to markets and later churches, monasteries and hospitals were founded. Over the 18th century, Brno developed into an industrial prime area. There was the presence of multiple factories, textile, culture and theatre.

Cathedral

In 1777, Brno was the seat of Bishopric and the church of Saint Peter & Paul atop Petrov Hill became a cathedral.

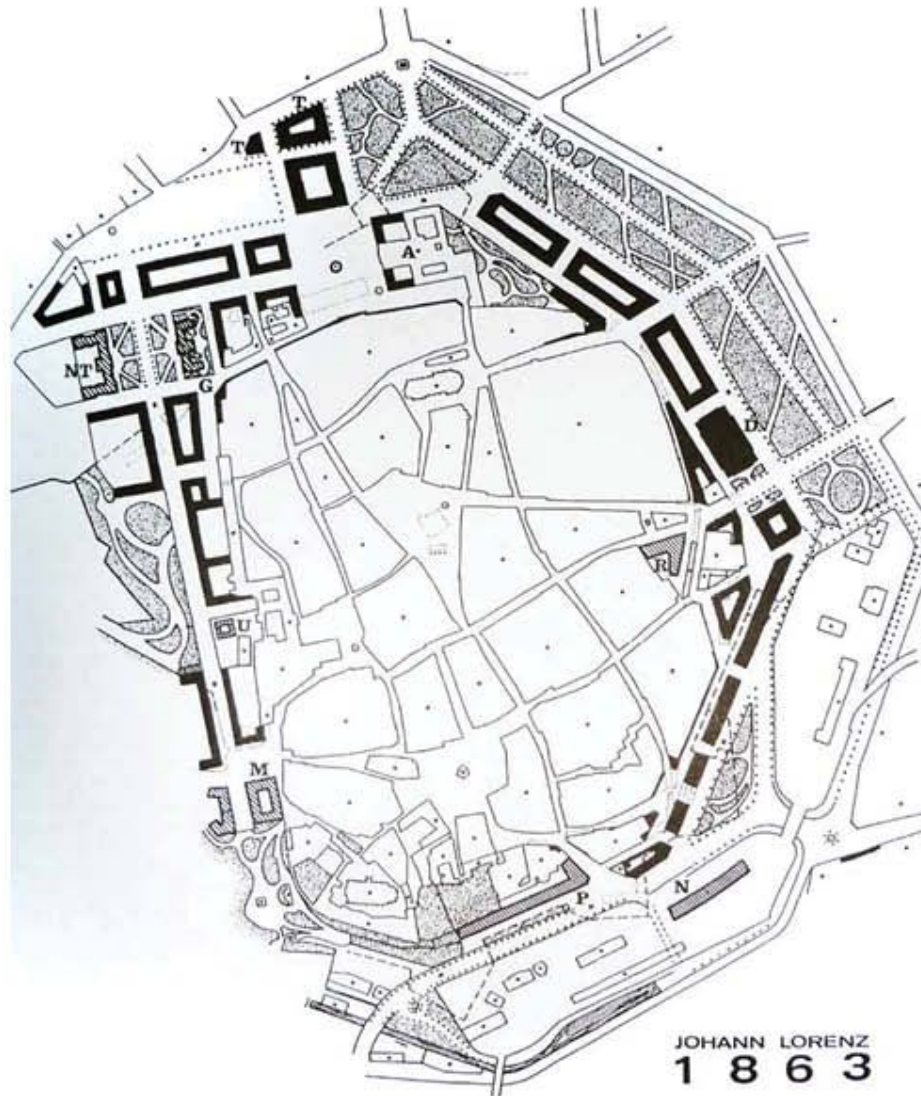
Ringstrasse

1960's, Brno was the industrial metropolis of Austro - Hungarian monarchy. Looking at Vienna a local roundabout was constructed in 1861.



Brno with watercourses

Brno Evolution



Reconstruction of the appearance of the Brno Obrany

Brno 1863

A - dicasterial buildings, D - new theater, G - German grammar school, M - Městský dvůr, N - railway station, NT - German technology, P - hotel Padovec, R - German realka, R - main axis of circular class, T - market, U - Business academy
black: designed buildings and street lines, hatched: 1860 buildings already existing, dotted: street lines for regulation, dotted areas: designed sets, intermittently:

the course of the inner bastion fortifications, according to the original elaborated by Karel Kuča.

Brno 1749



Brno 1824



Brno 1860



Brno 1876 - 1878

BRNO
1879

Brno 1879

Brno 1909

Brno 1957

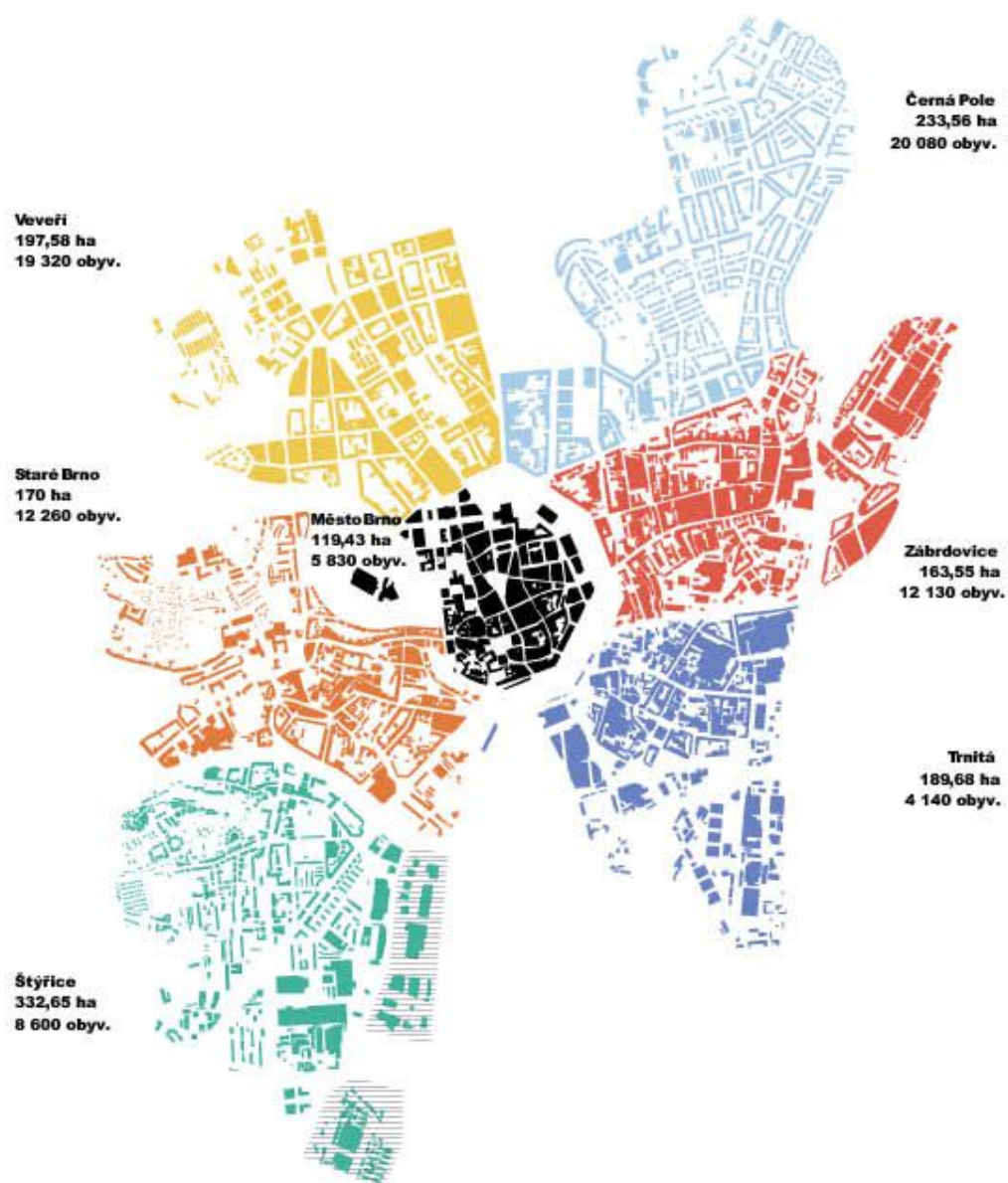
City Structure



City districts of the statutory city of Brno

Brno is the second-largest city in the Czech Republic with a population of approx. 3,70,000 residents and the larger metropolitan area 800,000 residents. It is the geographical and administrative centre of South Moravia. Brno borders Austria and Slovakia in the Southeast.

In the 19th and 20th century, Brno was leading in urbanisation. Due to the large concentration of textile it was known as the Austrian manchester. Later 1918 - 1989 there was a further increase in other industrial sectors such as machinery engineering and chemical industries. (Mulic'ek & Toušek, 2004)



Central Part Character

Public Facility



- Theaters, Cinemas and Concert halls**
- Cinema
 - Theater with a permanent stage
 - Multiplex cinema
 - Multiplex cinema - intention
 - Concert hall
 - Concert hall - intention



- Museum & Gallery**
- Important museums
 - Important exhibition galleries



- Special Sites**



- Public Administration**
- Republican institutions
 - Republican institutions - judiciary
 - Regional institutions



- Libraries**
- Moravian Provincial Archive
 - Moravian Regional Library
 - Jiriho Mahen Library (kJm)
 - Affiliates kJm



- Churches and Prayers**
- churches
 - prayer houses and spiritual centers
 - churches / spiritual centers - intention



- Social Care**
- Homes for the elderly
 - Nursing homes
 - Special purpose houses
 - Specific social centers
 - Nursing homes / nursing homes -intention



- Healthcare**
- Hospital
 - University Hospital
 - Selected outpatient facilities
 - Hospitals for the long-term sick
 - Nursery - the founder of the city



Kindergartens



Elementary School



Office Space
 ● Selected Administrative Centers
 ○ Administrative Centers - Plan, Construction



Retail
 ● Shopping centers
 ● Selected large retail units
 ○ Shopping centers - the intention



High Schools and Colleges
 ● High schools
 ● Universities - The seat of the school
 ○ Colleges - Faculties



Research Centers



Funeral
 ● Crematorium
 ● Cemetery
 ● Jewish cemetery
 ○ Cemetery - intention

The growth of Brno city is mainly by the great influx of migrating population, with an observation of a decline in the local population. It can be assumed that this model will continue in the coming years. It is obvious that young people in particular have higher jobs mobility and more often they move to study or work opportunities that big cities offer.

Brno, together with Prague, has the highest share of university students (24%). The largest number of university students live in the city part of Brno-center (14.4 thousand, ie 27.5% of the population of this city district), but the highest share of university students in the population is in Brno-Utechov (42.3%).

Just Útechov, together with Medlánky and Ivanovice are the city districts where university is the most frequently completed level of education resident. In Chřelich and Turaněch, the most numerous group consists of persons with secondary education without a GCSE (including apprentices). In the other 24 parts of Brno, the share of people predominates with a high school diploma.

In big cities like Brno, there are obvious differences from national values. For example, the number of increased single-parent families.

In Brno, compared to the national average by about 6% greater occupancy of houses, it is around 92%. Higher apartment buildings have an occupancy (99% of them are occupied, occupancy of family flats is around 90-93%).

The Brno housing stock consists of 77% flats in residential housing houses and 22% flats in family houses. In the last decades also saw an increase in the housing stock, when it declined supply of family houses and increased supply in residential houses.

The family home has a maximum of 5 or more rooms while apartments are most three-room. As for the number of people living in these stories, for family houses it is usually 2.8 people, for flats then 2.2. These values suggest that single-family homes.

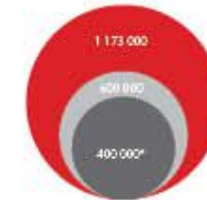
There is a present demand for housing observed from the studies.

POČET OBYVATEL : POPULATION

Počet obyvatel Brna celkem	377 448
z toho:	
muži	181 935
ženy	195 513
Předproduktivní věk (0 – 14)	54 482
Produktivní věk (15 – 64)	248 709
Poproduktivní věk (65 +)	74 230
Počet obyvatel Brna včetně občin	400 004*
Počet obyvatel brněnské aglomerace	609 114**

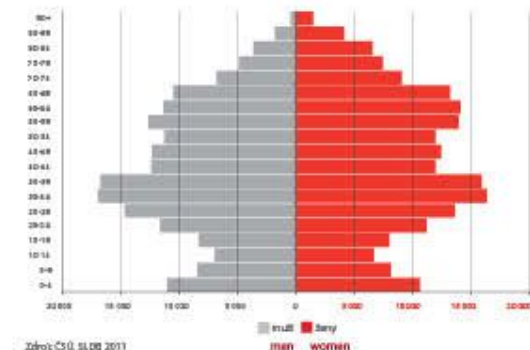
Zdroje: ČSÚ, data k 31. 12. 2014, * Ministerstvo vnitra ČR, data k 1. 1. 2015, ** ČSÚ, SRD 2011

South-Moravian region
agglomeration
Brno town



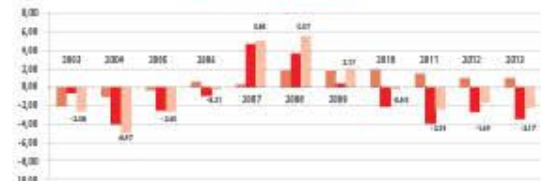
Zdroje: ČSÚ, * MV ČR, 2014

VĚKOVÁ PYRAMIDA : AGE PYRAMID



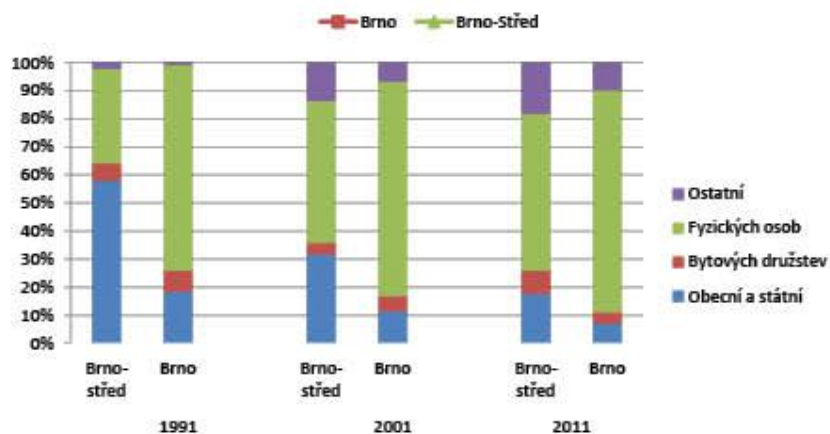
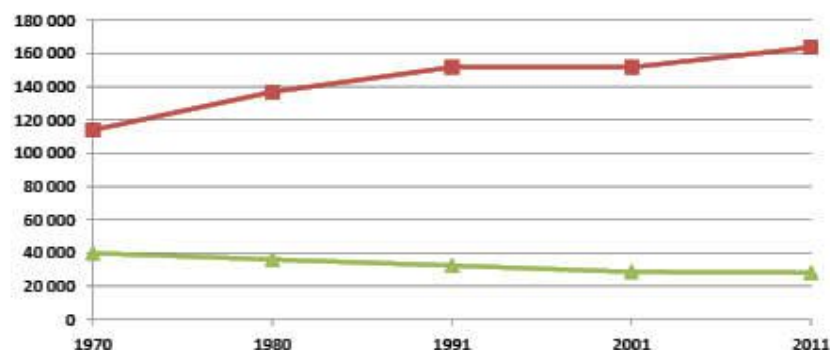
Zdroj: ČSÚ, SRD 2011

PŘÍRŮSTEK OBYVATEL : INCREASE POPULATION



■ přirozený přírůstek
na 1000 obyvatel
■ přírůstek stěhováním
na 1000 obyvatel
■ celkový přírůstek
na 1000 obyvatel

natural addition
per 1000 inhabitants
increase by moving
per 1000 inhabitants
total increment
per 1000 inhabitants

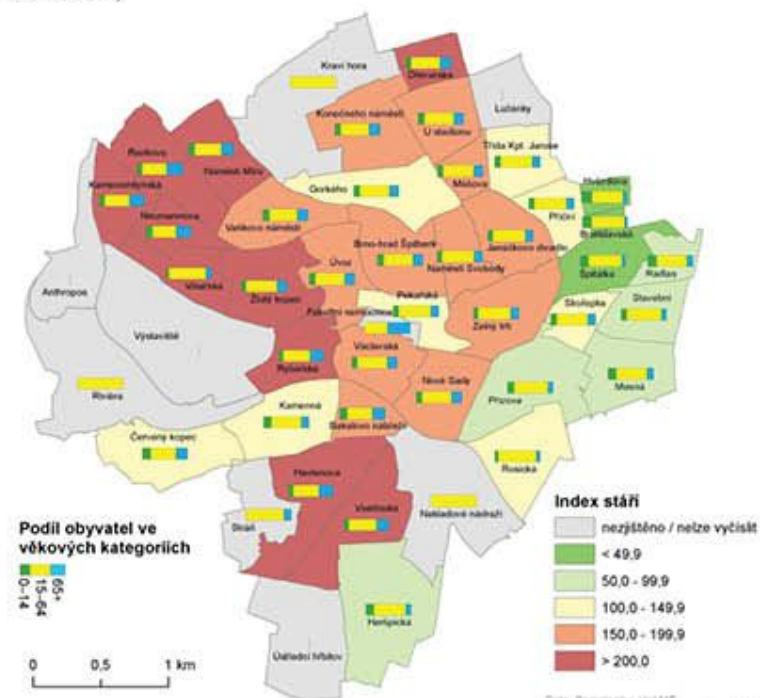


Development of the number of inhabitants registered in the Brno-střed district in the years 2008–2017, Pramen: ČSÚ

Development of the share of ownership forms of houses in the Brno-střed district and in the city
Brno in the years 1991–2011

VĚKOVÁ STRUKTURA TRVALE BYDLÍCÍCH OBYVATEL ZSJ MČ BRNO-STŘED

(stav k březnu 2016)

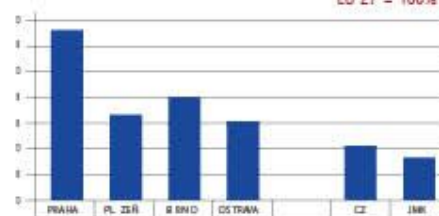


Age structure of the population according to the basic settlement units of the Brno-střed district
Pramen: Registr obyvatel MČz



Zdroj: Průzkum zaměstnanosti v Jihomoravském kraji k 31. 12. 2014

HDP NA OBYVATELE, EU 27 = 100 % : GDP PER POPULATION, EU 27 = 100% EDUCATED



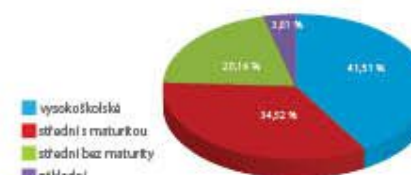
Zdroj: expertní výpočet ČSÚ, 2014, (data za rok 2011)

PRACOVNÍ SÍLA (EKONOMICKY AKTIVNÍ OBYVATELÉ) : WORKFORCE (ECONOMICALLY ACTIVE POPULATION)

Jihomoravský kraj	Brno
623 833	217 608

Zdroj: ČSÚ, k 1. 1. 2013

STRUKTURA ZAMĚSTNANOSTI PODLE NEJVYŠŠÍHO DOSAŽENÉHO STUPNĚ VZDĚLÁNÍ : EMPLOYMENT STRUCTURE BY THE HIGHEST LEVEL ACHIEVED EDUCATION



Zdroj: Průzkum zaměstnanosti v Jihomoravském kraji k 31. 12. 2014

PRŮMĚRNÉ NÁJMY : AVERAGE RENTALS

	měsíc / m ²
Malobchodní prostory	560–840 Kč
Kancelářské prostory	280–340 Kč
Výrobní prostory	110–140 Kč

Zdroj: realitní kanceláře, lokalita 1A, 2014

PROSTORY PRO PODNIKÁNÍ : BUSINESS PREMISES

Malobchodní prostory	328 000 m ²
Kancelářské prostory	390 000 m ²

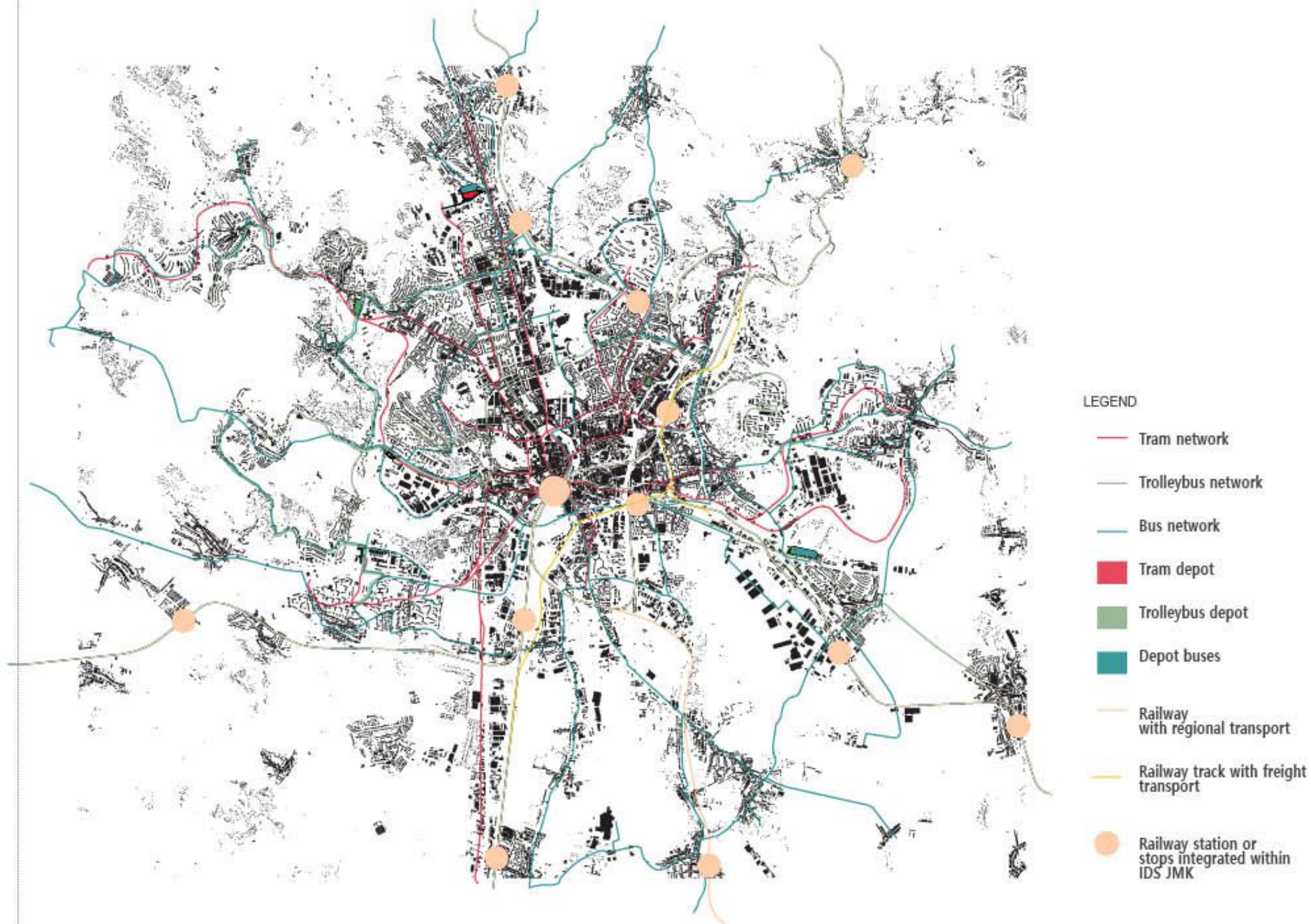
Zdroj: Cushman & Wakefield, 2013

Economy

From a comparison of the values of the decline of economically active people among other Czech cities, this value is declining the slowest in Brno (along with Prague).

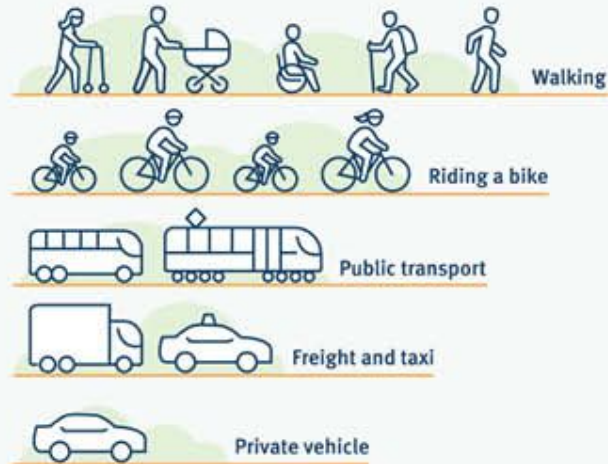
The reason is especially the sectoral structure of employment. In these in two cities, sectors are significantly more often represented information and communication activities, finance and insurance, scientific and technical activities. He works with public administration and education in these sectors about a third of employed, mostly highly skilled, retired workers age compared to manual workers.

Most Brno residents work in services.



Transport in the city

Sustainable transport hierarchy



Sustainable transport heirarchy

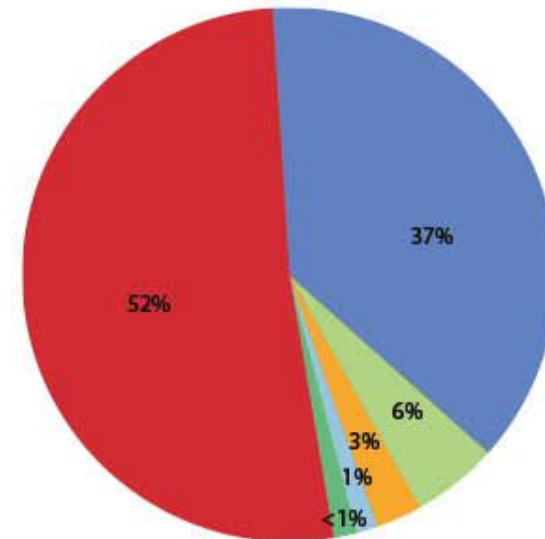
Brno had managed to stand up and develop quiet well and being successful in the industry, university, technology etc. Brno is home to approx. 90,000 students and houses 14 universities. Thus Brno has a life filled with people of different perspective and youth. Many initiatives have been made for the integration of foreigners. City of Brno's Integration of Foreigners II Project Begins With A Focus On Education, brnodaily.com.

Other aspects regarding social progression are initiatives created to provide municipal housing for those that are homeless. With the hope that the homeless population will be able to receive required aid for the integration into local society too. HOUSING FIRST FOR FAMILIES IN BRNO, hf.socialnibydleni.org.

The Concept of Preventing and Tackling Homelessness Issues in the Czech Republic until 2020

Another key aspect to the further development of Brno is the sustainable mobility plan. BRNO Mobility Plan, mobilitabrno.cz

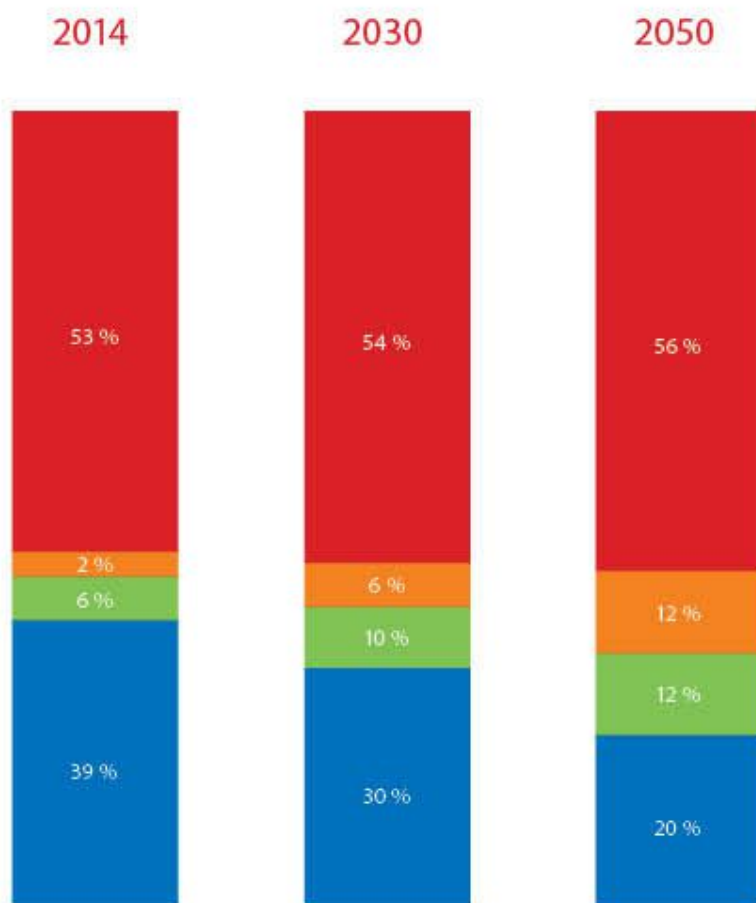
BRNO IS A CITY EASY TO LIVE IN (EVEN WITHOUT A CAR)



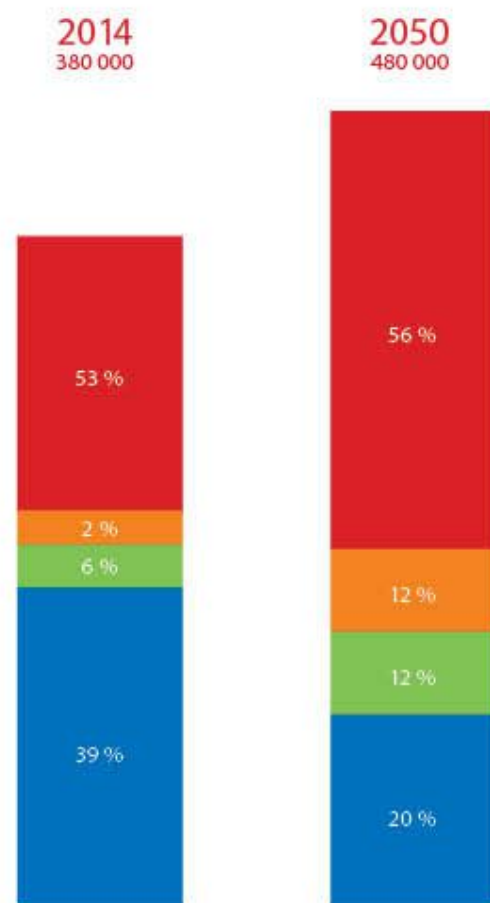
Regular transport for work or study

- Public transport (vhd)
- Individual car transport (iad)
- On foot
- Combination of iad and vhd
- Bicycle
- Combination of vhd and wheels

the way people move in the city was described by sociological research ordered in 2014 by the City of Brno.



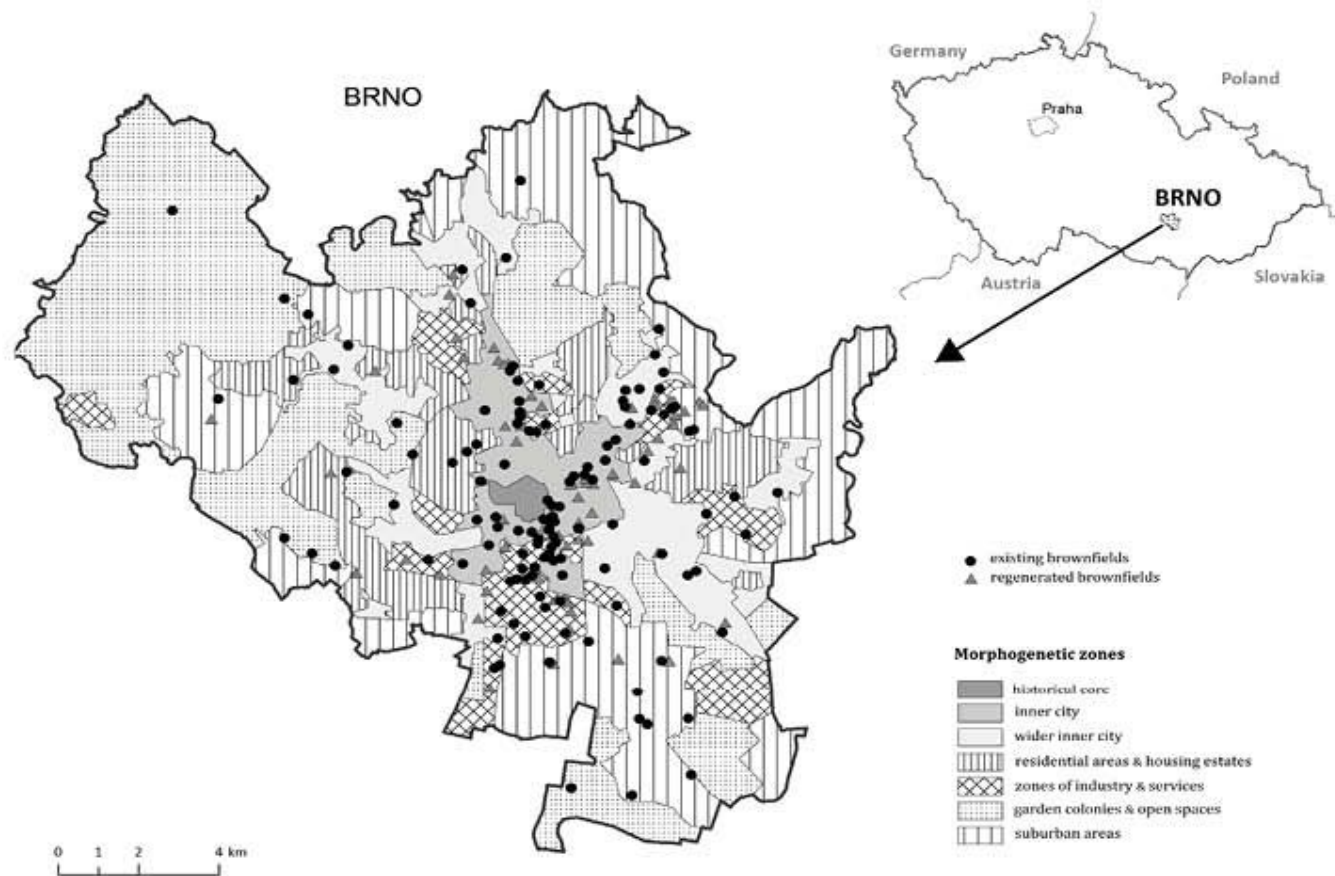
Vision and strategic objective of the mobility plans/
Modal split development



Vision and strategic objective of the mobility plans/
Modal split development regarding the number of inhabitants

**BRNO IS A CITY EASY TO LIVE IN
(EVEN WITHOUT A CAR)**

Brownfield



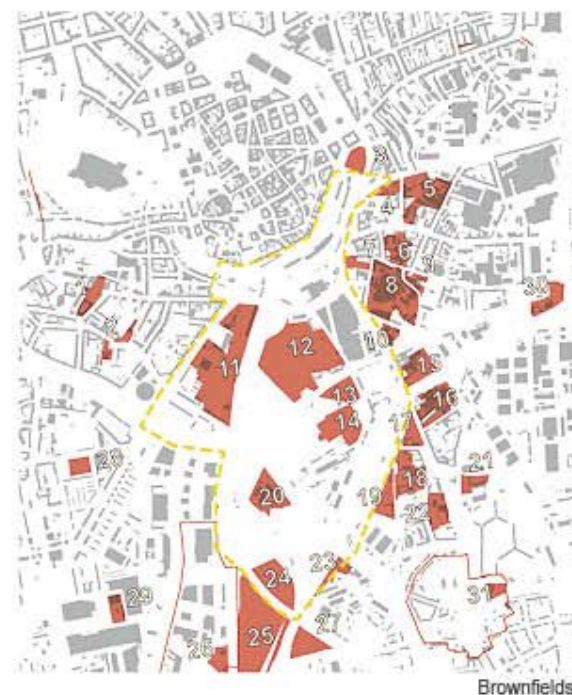
The spatial distribution of brownfields: Brno City morphogenetic zones.

INTRODUCTION TO THE SOUTH QUARTER

Old

New proposed





- 1 Complex at Hybešova Street
- 2 The area around Křídlovická Street
- 3 Area near the main railway station
- 4 Premises of the former Technical Services Brno
- 5 Former Mosilana, Křenová
- 6 Bývalý Dřevopodnik s.p.
- 7 Former Hotel Metropol
- 8 Former Wool
- 9 Area along Mlýnská Street
- 10 Territory near Zvonarka
- 11 Area along Nove Sady Street - below the Maia complex America
- 12 The territory of the South Center between Uheřna streets, Abandoned, Thomy
- 13 Unused parking lot near Zvonarka
- 14 Former IMPORTFLORA s.r.o.
- 15 Premises of the former FSIK METAL
- 16 UXA Foundry
- 17 Former apartment block Plotní
- 18 Area at the Railway and Freight Station
- 19 Devastated area at the freight station
- 20 Unfinished construction of a polyclinic
- 21 The area delimited by Dornych Street and the Ponávka River
- 22 Areál SBK s.r.o.
- 23 Railway siding at the Styrian embankment
- 24 Former gardens defined by the track
- 25 Czech Railways landfill, at Bidiaky Street
- 26 Area by the railway, Pražákova street
- 27 Former Centroxov, FINTREX
- 28 Former transport center of Vojtov
- 29 Premises at Strážní Street
- 30 Locality Masná - Křenová
- 31 Former mill

Site Analysis



Unused area : 1,05,090sqm
 Unused Urban area : 62,498sqm
 Urban greenery : 37,594sqm
 Identified green area : 84,725sqm

Existing land use plan

- Identified green area
- Urban greenery
- Unused urban area
- Unused area
- Industrial area
- Parking area

The land use & amenities of the existing situation were analysed to explain the excessive space designated for parking & garages. Possibly a reason could be that it was an outcome of the brownfields that exist in this plot.

To observe whether the amount of surface area of green was maintained in the proposal or increased & also which amenities would stay essential even after the redesign of the plot.

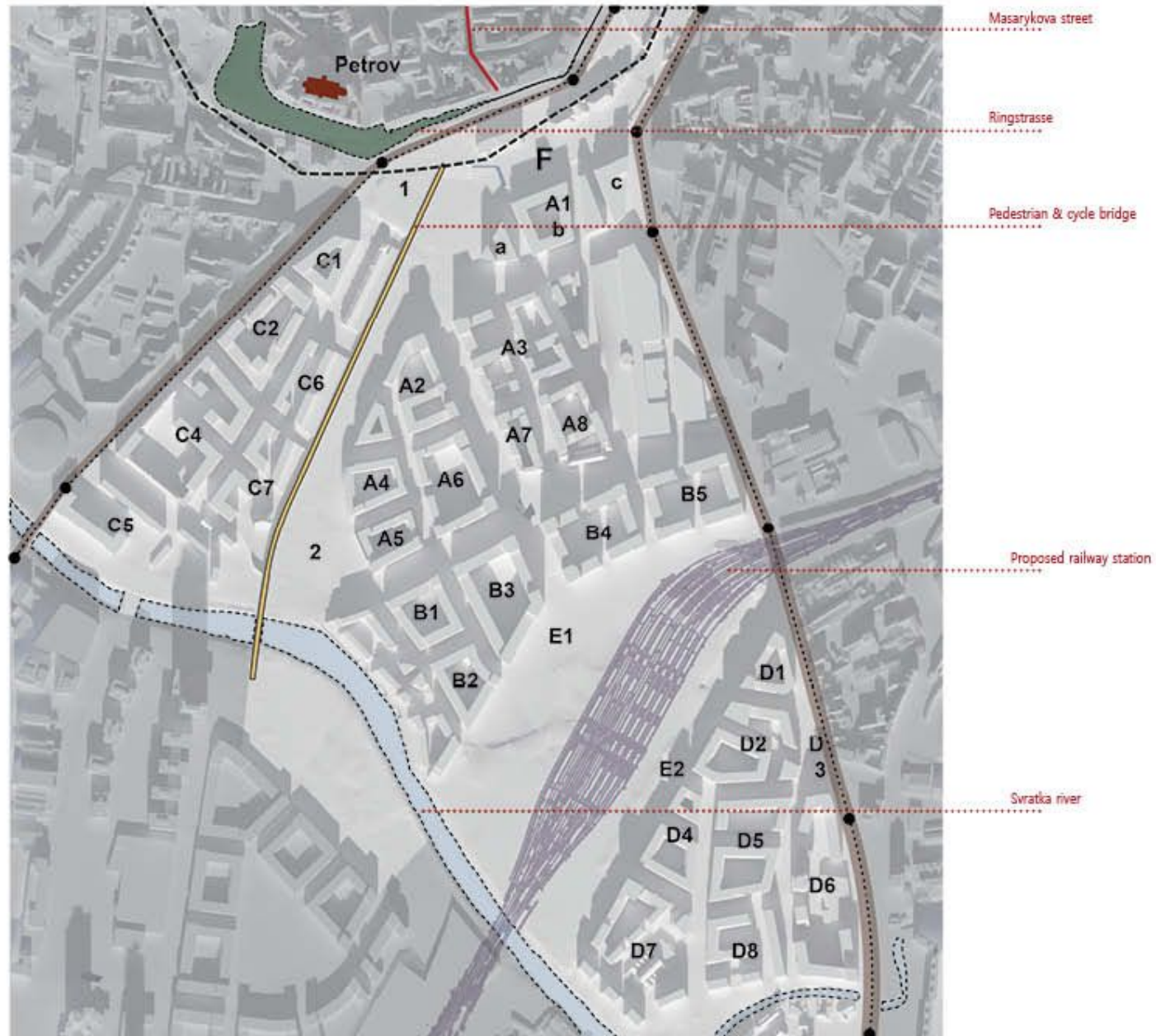
Existing amenities available

- Commercial
- Residential
- Gallery
- Civic
- Company
- Storage
- Banks
- Industrial
- Sport
- Restaurant
- Petrol pump
- ATM
- Garage
- Empty
- Post off.
- Accom.
- Waste site



Existing Bus stand

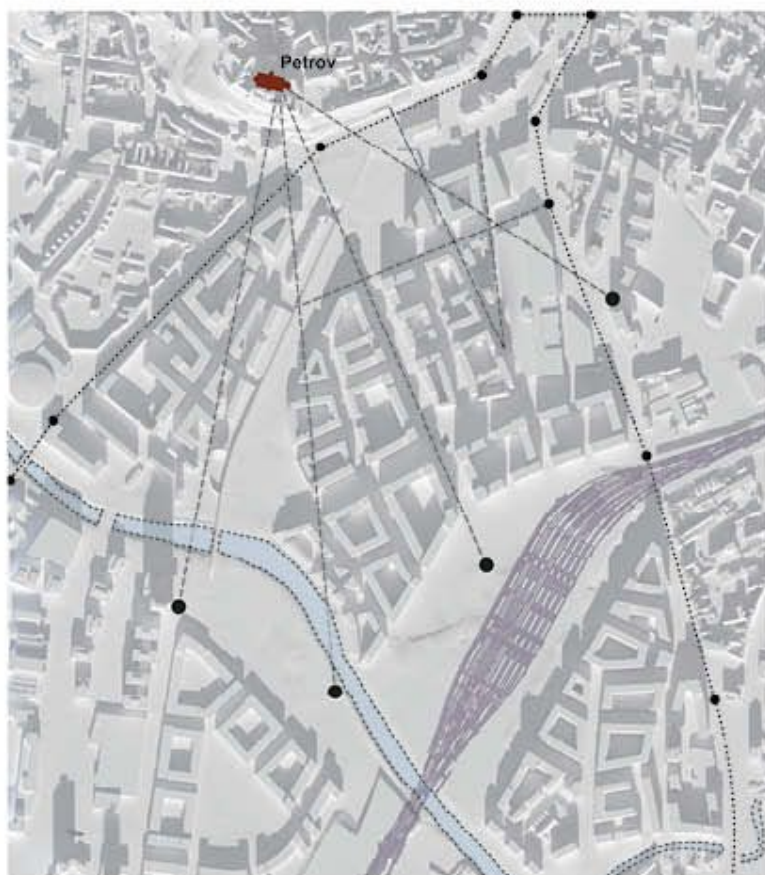
**Influencing character : barriers, blocks, green
(District level)**



Proposed railway station with forecourt E1 & back court E2 Ringstrasse of the old Brno city, Svratka river, Proposed bridge

Boundary





Axis : Viewing lines from the Cathedral of St Peter & Paul, Petrov



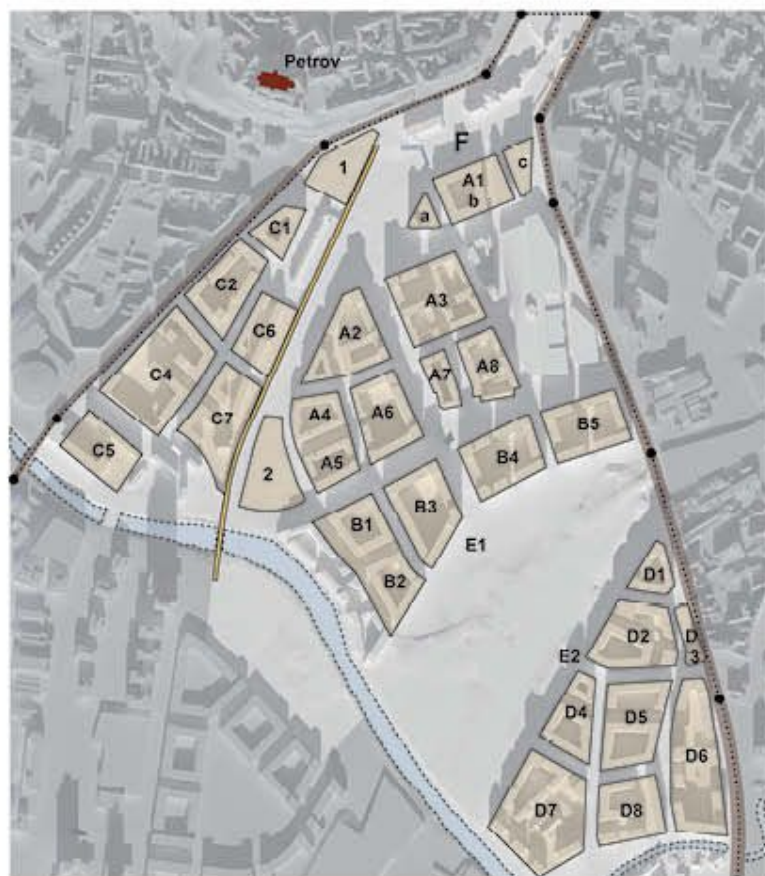
Links : 6 bridges connecting the plot to the other. Main are the three from the railway station and the cycle bridge



Green public space : Proposed public green space 92,848sqm



Green space & paving area: Proposed green space 5,22,628 sqm
(30% of built area), Pavement 1,60,166 sqm



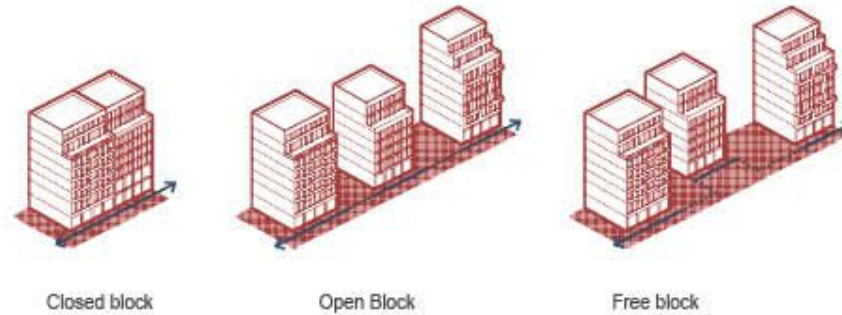
Blocks : Total area under built space is 4,02,812 sqm,
Block size max 90m to 150m



Building Line

■ Closed line
■ Open line
■ Free line

■ Built

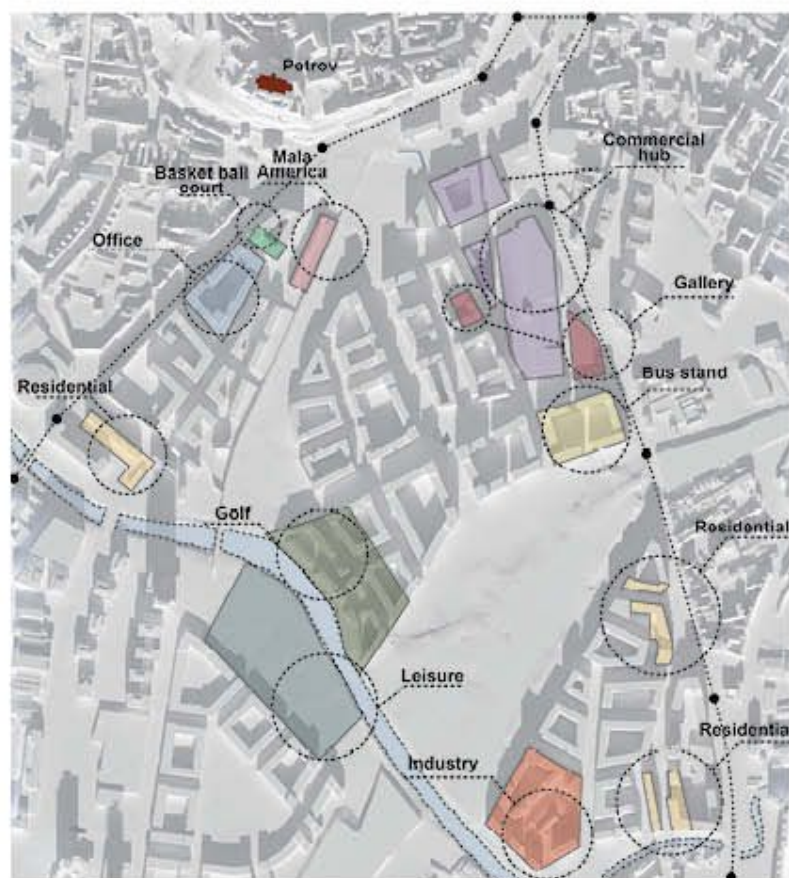


Block size : The blocks sizes are within the range of 90m - 150m. Thus some can be considered as super blocks. For such blocks having breaks for footpaths & secondary roads is sensible.

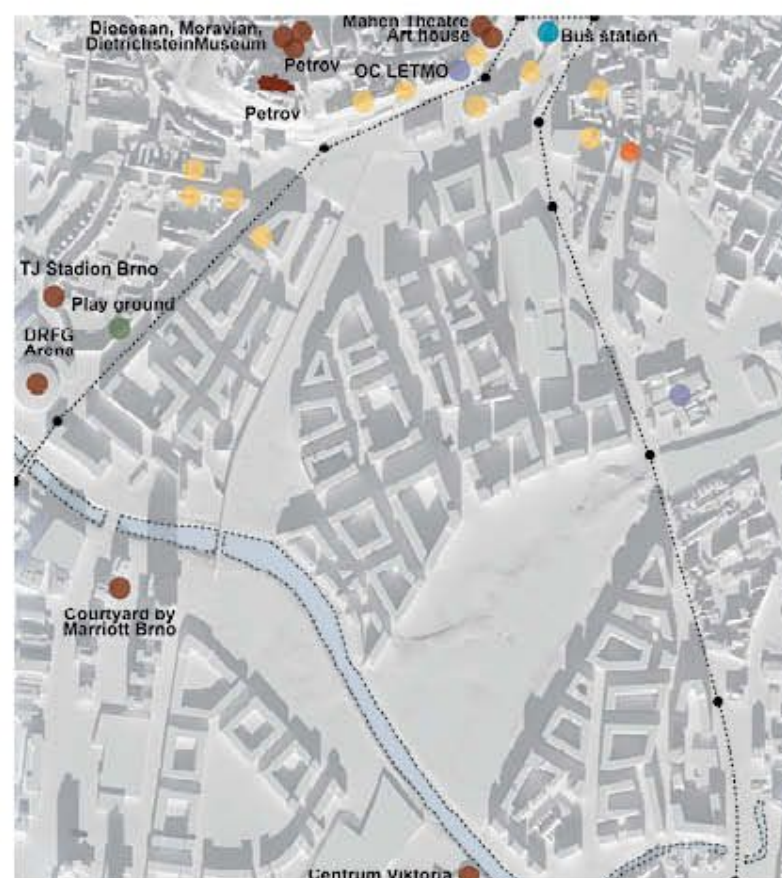
The building line plan depicts that the central main boulevard will have a completely closed line however this seems impossible considering a person walking the entire stretch that is a max 140m per block along the boulevard. In addition apart from block A3 the rest of the blocks have no break or opening towards the main boulevard.



Green area : The green space is considerable and surpasses the amount of existing green area. However, the green space within the buildings is mostly cut off from the public due to proposed building lines. Thus an intervention where the lines are changed from closed to open would allow the freedom of movement and create shorter paths for walking to different destinations.



Existing Amenities: Inside boundary & Outside boundary



Amenities

Zoning



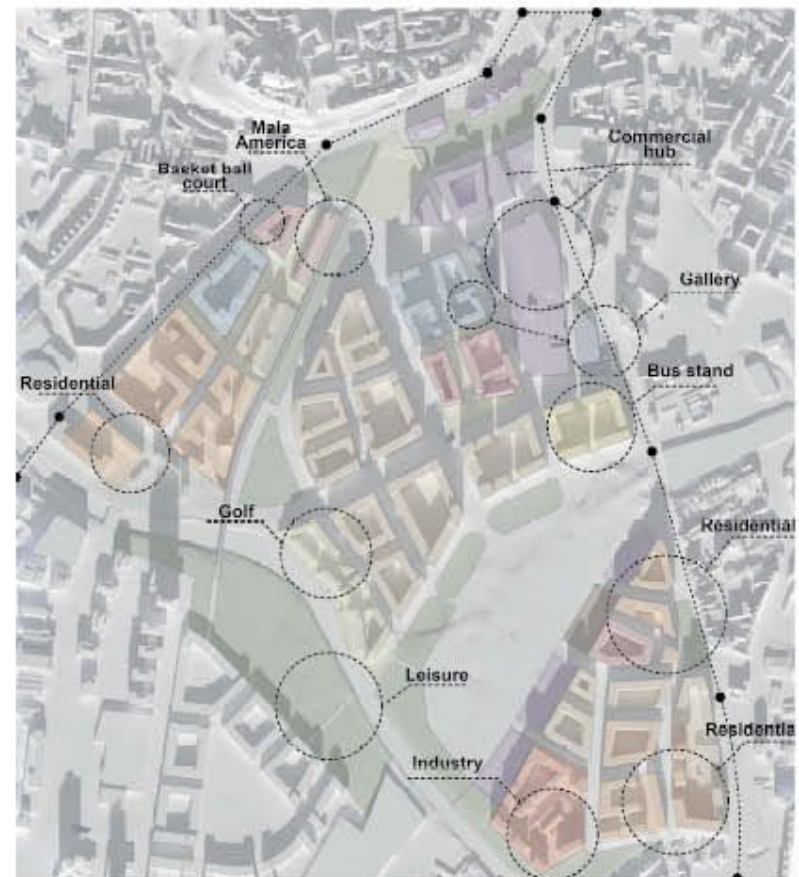
New Zoning of Plot

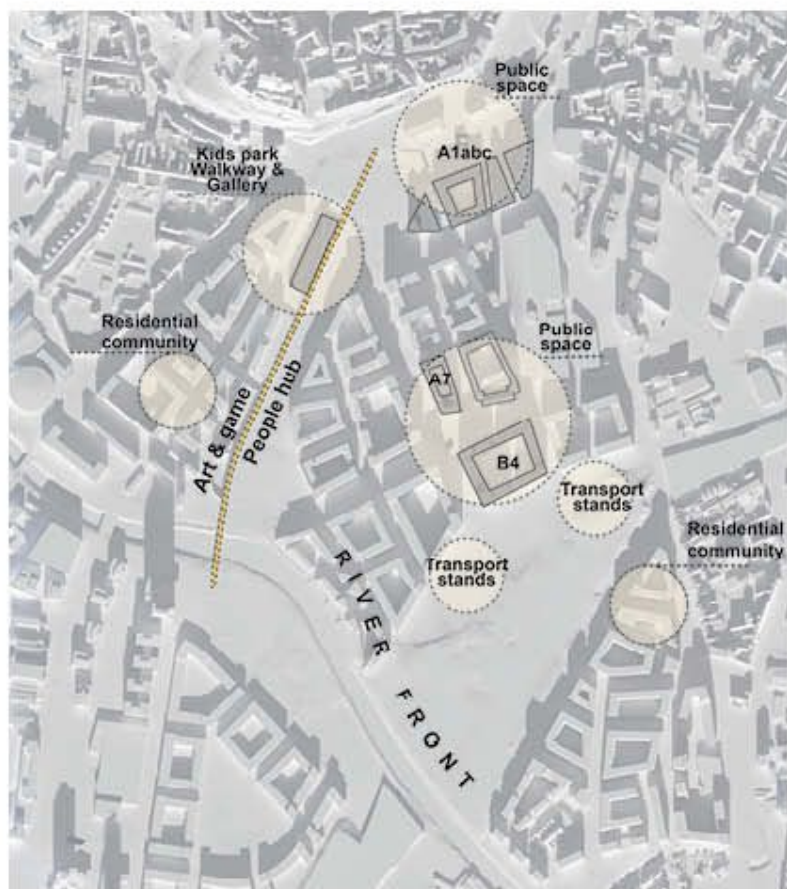
Public
Residential
Recreational green

Exhibit
Office & mix
Industrial

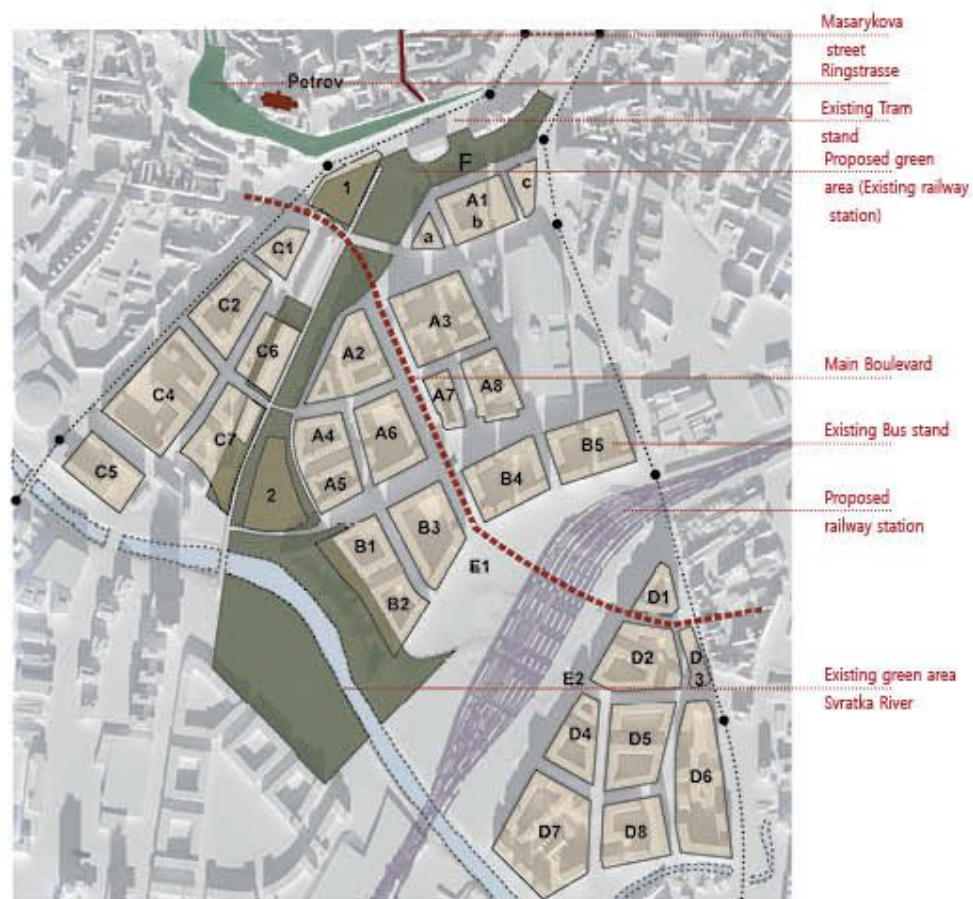
Commercial
Open public

Parking
Mix use
(commercial, office, hotel, residential)

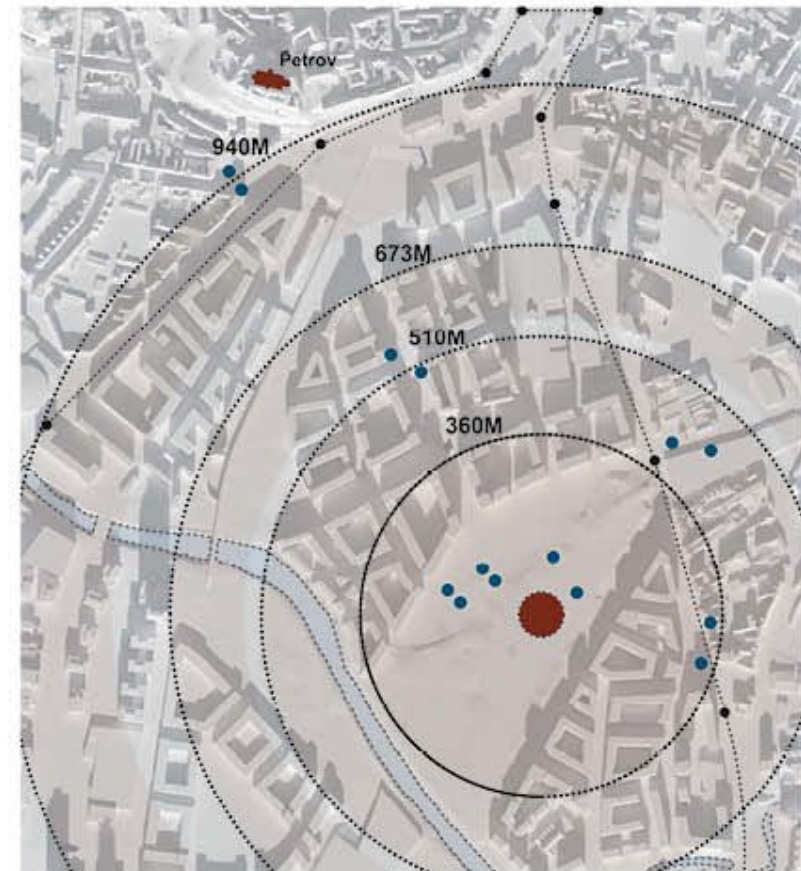
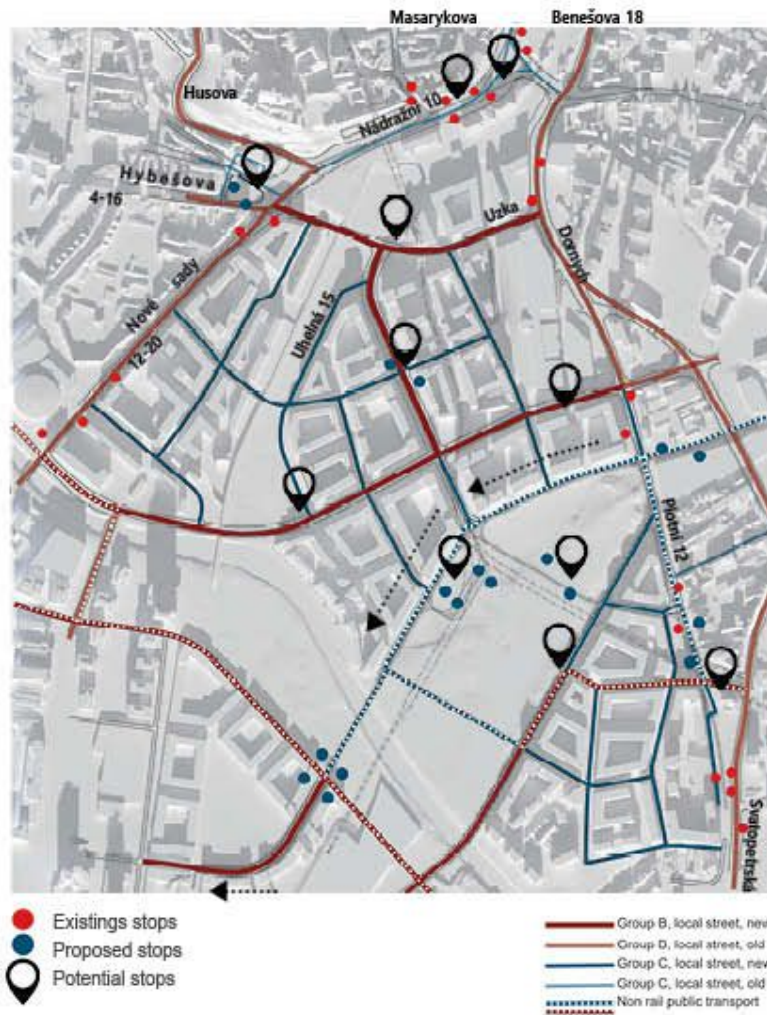




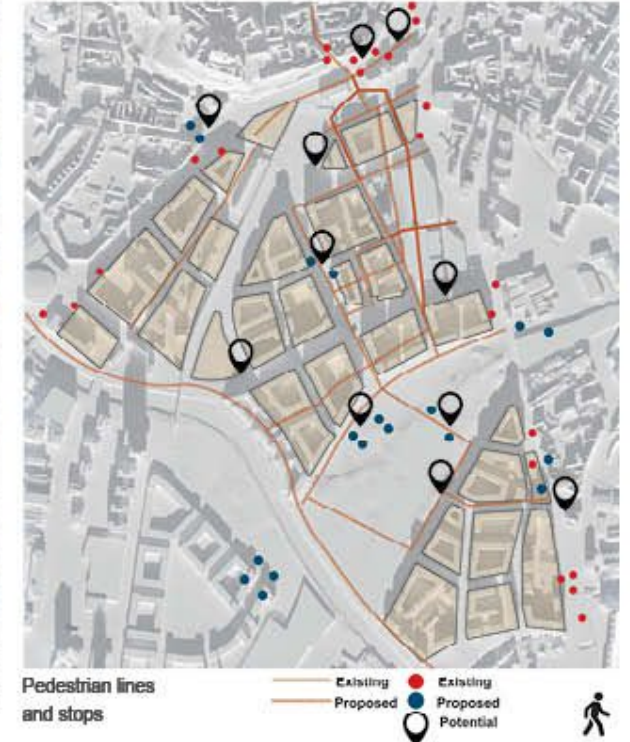
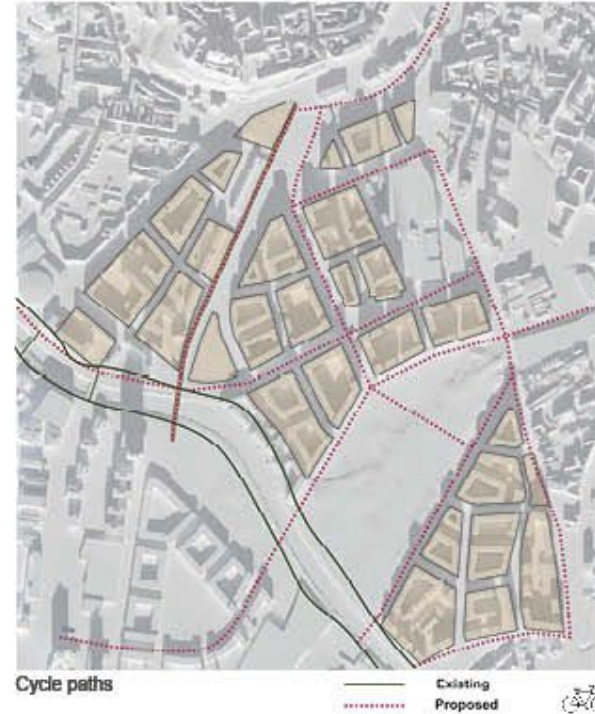
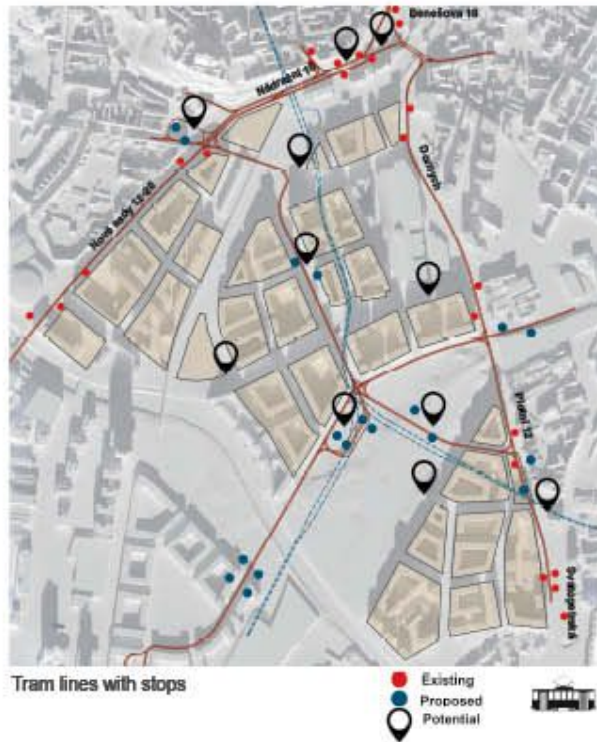
Possible proposals for the plot based on block & green space

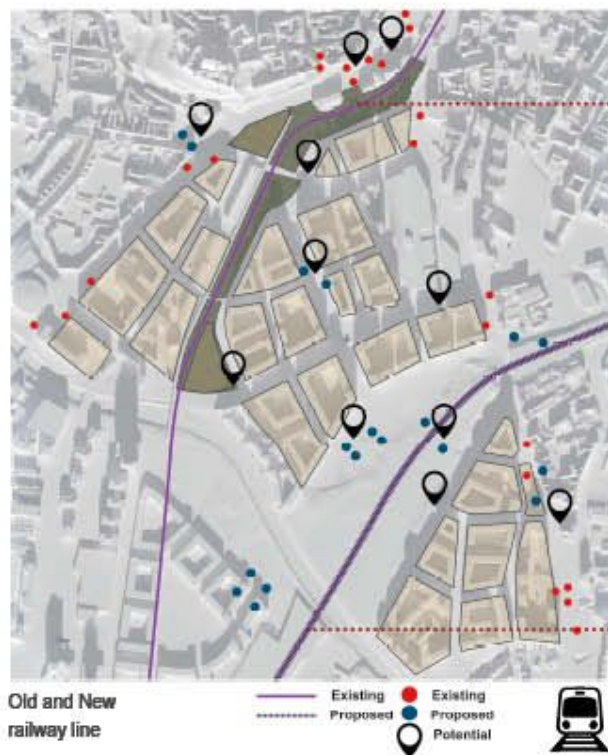


Road Network



Distance of proposed stops from new railway station & first border





Brno Main train station (existing)



Brno Lower train station (Proposed main station)

Distance 900m, 15 minutes walk

Railway station (old & new)

Development of the city of Brno & railway junction



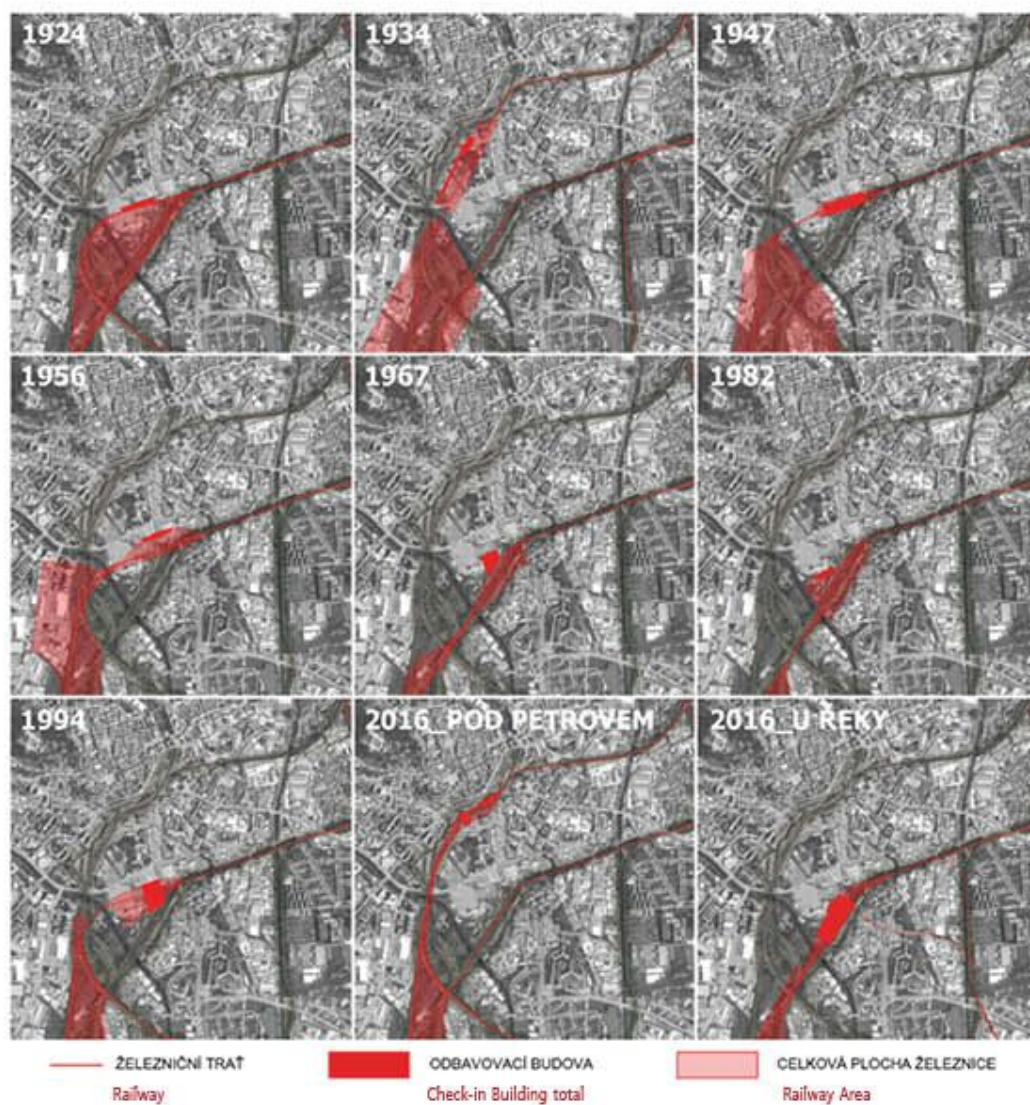
1976



1997



2003



Planned positions of the Brno station 1924 - 2016

BLURRED BORDERS & BINDING PATHS

The new proposed South Quarter district will be an extension of the existing Brno Metropolis. The district lies near the old Brno city. Both the old Brno city and the proposed district are approximately 3,50,000 sqm each. The plot of land offers a lot of flexibility in terms of design approach and a unique setting. It harbours the new railway station that lies in the centre of the plot.

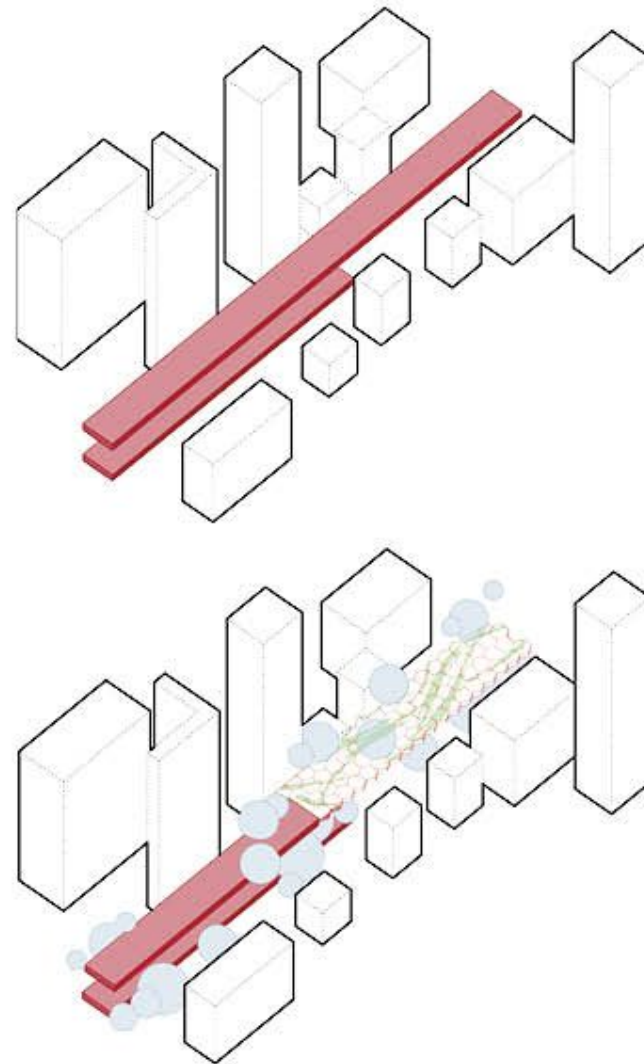
The new district offers scope for an improved version of city planning, more commerce and will host several people of varied backgrounds. Along with all the liabilities the new plot offers, it also hosts issues. Specifically concerning the convenience of movement of people and public transport from the old city to the proposed station location. Since the district inhabits an essential means of transport that is the railway station, one can predict a large influx of vehicular traffic and larger road spans. Thus it begs us to ask some questions how will a person navigate through this comfortably and safely? Will the district be used just as a transitional path between the Old City and the station? How can we create an identifiable line that merges the old and the new as one single path for public flow?

Thus the thesis is a proposal of a pedestrian bridge. The pedestrian bridge will serve a dual purpose that is safe comfortable transition while creating social condensers as stopping points that could possibly solve the issue of public movement and public use of the district.

In this manner, we cater to three kinds of outdoor necessity for people that is essential movement, optional movement and social movement. Therefore can a bridge house the main path and in addition other activities? Can it help people to reach a destination faster, safely or more relaxed, enjoying different experiences and activities on the way?

The bridge could merge with public buildings providing easy access to main social sites apart from solely creating a clean line between the railway station and city centre. Secondly, a bridge housing social condensers provide scope for multilevel free movement, commerce and experimentation with creative ideas.

It could provide the scope for incremental, modular design. Modularity provides the scope of sustainable production of the parts of the bridge while incremental design provides scope for growth as the district develops.



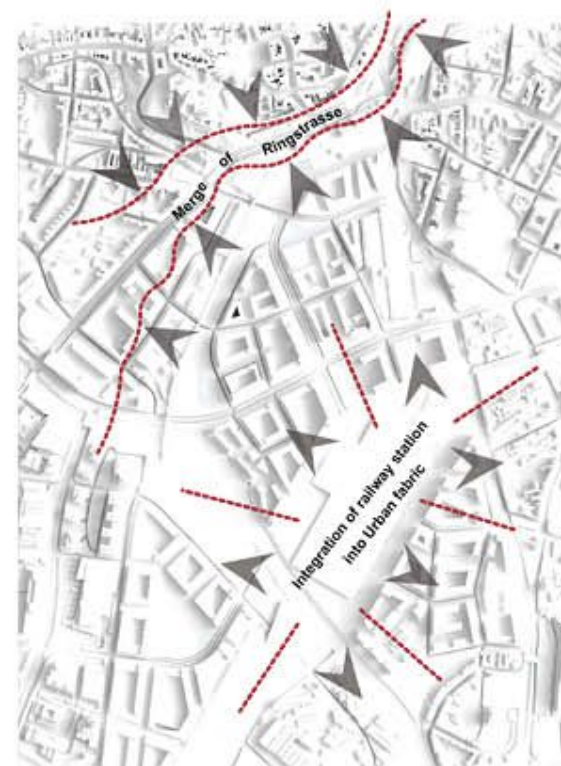
A Linear path with levels, circulation, activities, green space & connection to coinciding buildings.



Radiate



Extend



Merge

Designing relationships through an interconnection of multiple environments to sustain the district. Thus how can physical space facilitate this

People Centric Design & Soft Mobility

As Theorist Kevin A Lynch states "people attract other people".

Designing a space based on a person will create a more welcoming place for other people. This would inculcate the idea of comfort, safety, convenience, freedom, liberty, imagination and memory in one district.

"PEOPLE FIRST DESIGN"

Physical space
•Infrastructure
•Streets and public open spaces

Life
•Behavior and use of patterns
•Culture
•Commerce, exchange, free

People 1st design
•Time
•Social interactions
•Discoveries

Obesogenic

adj. tending to
cause obesity
Tending to cause obesity
"an obesogenic environment"

Why are public spaces important ?

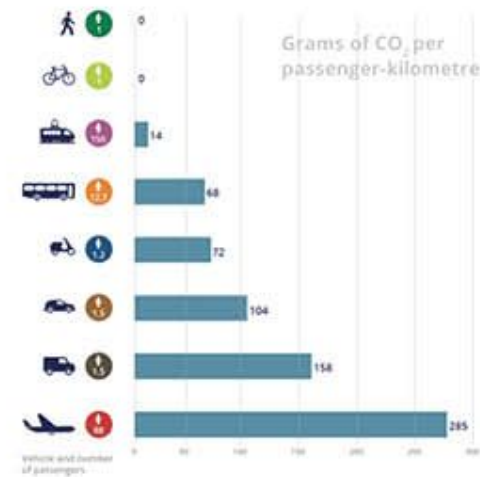
Economy and Safety

- The working class spend up to 1/3 of their income on mobility.
- 50km per hour itself there is an 80% chance that a pedestrian will die, while if a pedestrian is hit by a car moving at 30 km per hour, it is a 95% chance of surviving.

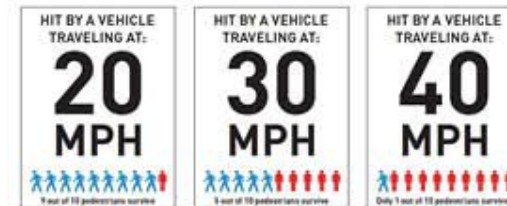
Environment and Health

- In the 21st century cities will account for
 - 90% global population growth
 - 80% global carbon dioxide
 - 75% global energy use

- 65% chance of an obese generative society



Carbon dioxide emissions from passenger transport



Travelling speed and pedestrian survival



Precedent Study



FR-EE Proposes to Restore Mexico City Avenue with Cultural Corridor Chapultepec (Unrealised)

It introduces a people centric design to solve the congested avenue into a multi modal roadway with a promenade that houses commercial and cultural activities.

The Luchtsingel / ZUS, Rotterdam, Netherlands (Realised)

The bridge connects three districts connecting to existing buildings, railway etc along with a new public space within the bridge. Thus introducing open public spaces in a three dimensional format.

HighLine, New York (Realised)

It is a pedestrian green oasis built over an old transport track. It houses a number of public spaces, eateries etc.



Lujiazui circular bridge, China (Realised)

This bridge connects the financial centres the shopping centres across the road network below thereby giving safe passage to pedestrians.



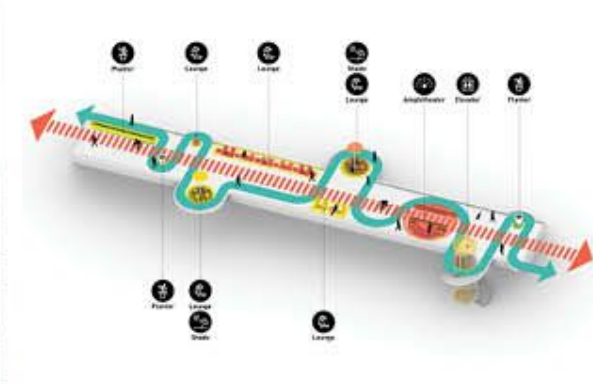
MVRDV skygarden, DMP, Seoul, Korea (Realised)

The skygarden serves as a plant village housing around 160 species and species of plants. It is a vibrant approach to creating an interesting cultural rich program.



High Loop, 100 architects, Jing'an District, Shanghai (Unrealised)

It is a proposal for the renovation of the Puji Road pedestrian bridge, connecting two districts. It was introduced to improve urban mobility through soft mobility means.



Space syntax

Space syntax is a set of techniques for analysing spatial layouts and human activity patterns in buildings and urban areas.

Linking : space <----> society

Where How?? <----> People - location, move, adapt, develop, talk about it.

- 1) Space is not a background to human activity but is intrinsic to it.
- 2) Space is first and foremost configurational. Relationship between spaces, room, corridor, public square etc.

Published in 1984, Hillier's first book, "The Social Logic of Space" sets out a theory of space – specifically, a theory of spatial layout: how the layout and connectedness of spaces in buildings and in cities influences the ways in which these places are used by people. Then, how these patterns of use have social, economic and environmental implications.

- 1) Representations of space : geometrically derived : segments, axial line, isovist, convex space. functionally defined : room, corridor, floor plan, streets.
- 2) Analysis of spatial relations : Relationships between spatial elements result from their configuration.

- Connectivity (how many streets a street is connected to)
 - Integration (ease of access)
 - Choice (measures passing flow)
 - Intensity (amount of use)
 - Step depth (number of segments of turns to reach destined segment)
 Outcome process of centrality urban movement intelligibility



DepthMapX

depthmapX is a multi-platform software platform to perform a set of spatial network analyses designed to understand social processes within the built environment.

Relationships between spatial elements result from their configuration.

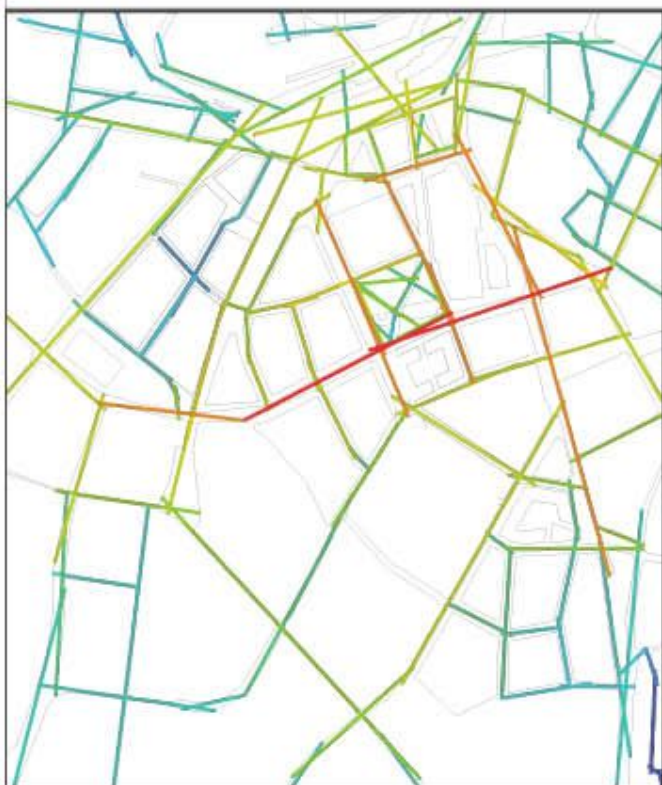
- Connectivity (how many streets a street is connected to)
- Integration (ease of access) - Choice (measures passing flow)
- Intensity (amount of use)
- Step depth (number of segments of turns to reach destined segment)



Plot F

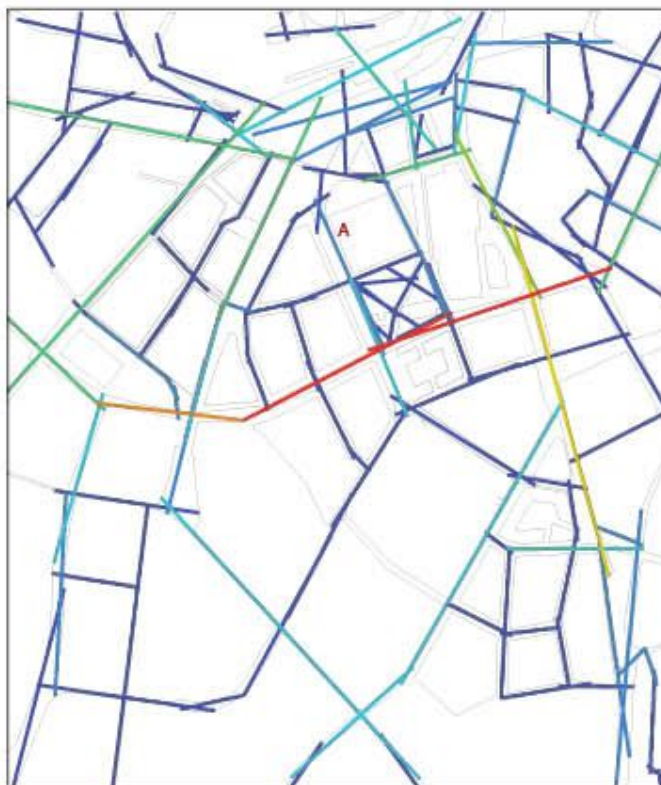
VISIBILITY

Of the site without the bridge. One can observe that plot F is a bright red indicating it as a favourable location. This is where the proposed bridge begins.



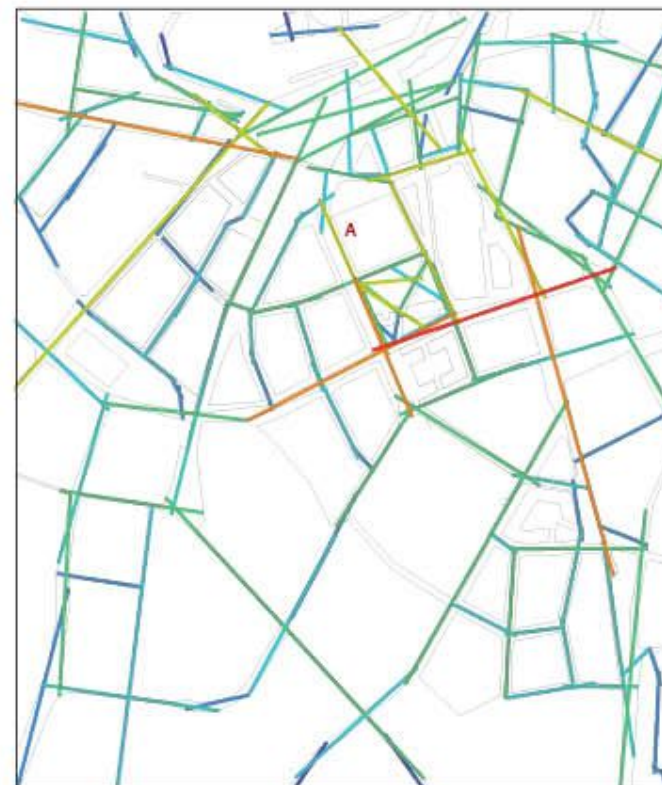
INTEGRATION

The proposed road network plans seem to be sufficiently connected. Here we observe that the central line that is 42 3 Opustena is highlighted red with the surrounding paths orange. It explains that this central point is the most integrated part of the project and thus the square of the proposed bridge is situated here.



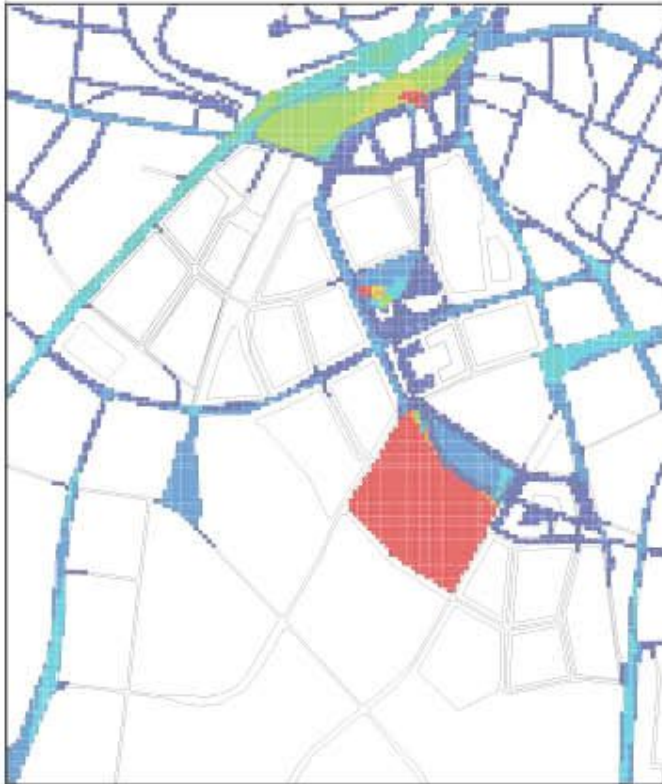
CHOICE

the choice indicates that the roads do not work as favourable paths for people or cyclists to move along. The majority of the road network is marked in blue. The central spine too does not seem to be a path of choice, marked as A.



CONNECTION

The main central spine marked as A shows scope for a good connection, however, it is not sufficiently connected to the plot F and Masarykova street. This will cause a more tiring and undesirable point of crossing. Here again the the central plot has the most amount of connection. We all see that the rear end plot has a decent connection too.



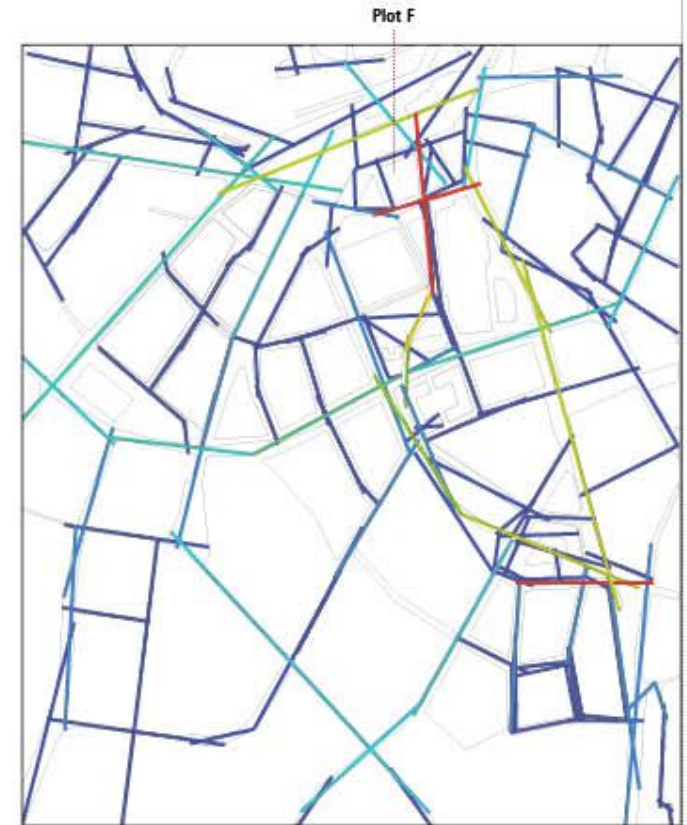
VISIBILITY

The visibility of spaces in the quarter increases with the introduction of the bridge. We observe that spots selected as main intervention sites of the bridge coincide with the increase of visibility.



INTEGRATION

The bridge improves the integration of streets. There is a strong red indicator present near the proposed entry of the bridge. It is also observed that well-integrated street loops are formed. This provides answers to decisions concerning the placement of public transport circuits.



CHOICE

Choice also has a large improvement with the plot F turning into a very favourable site for public movement.



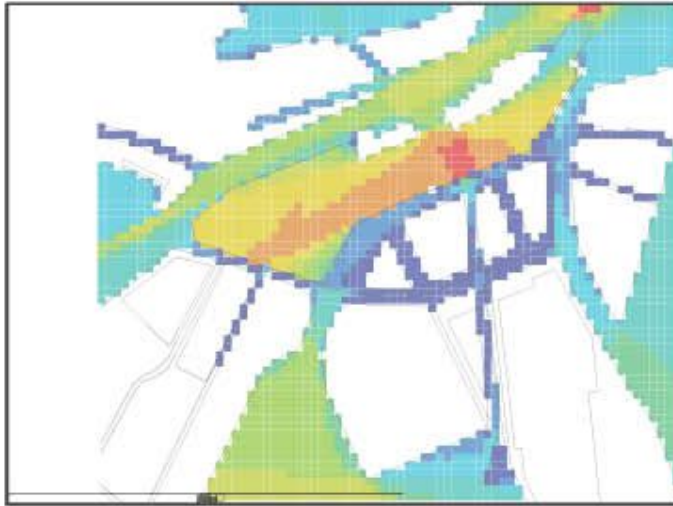
CONNECTION

Overlapping connections are created. The central part of the quarter is quiet connected to the main sites.

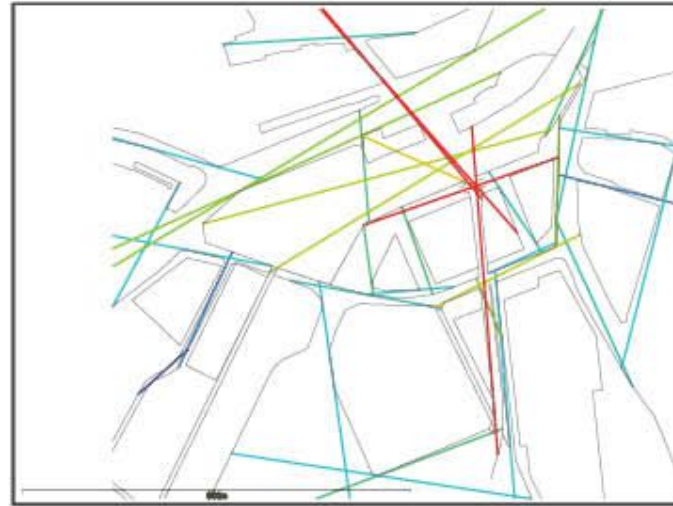


STUDY OF SITES : A, B, C

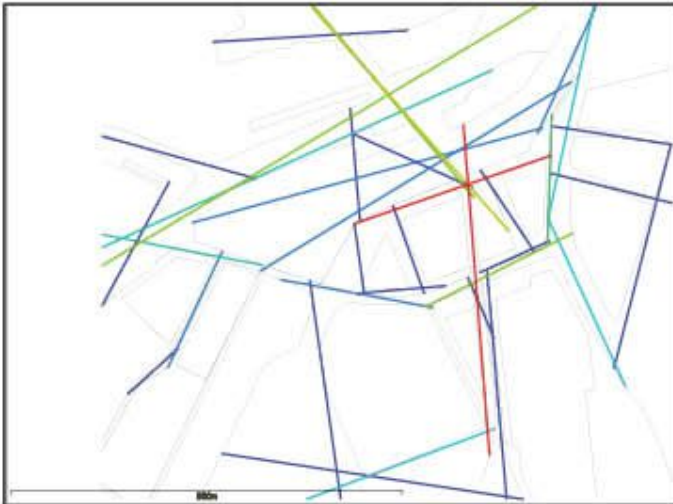
The study explains the effect the bridge has on the given site concerning the movement of people either walking, cycling or using some form of non motorised transport. It also provides information to create better public transport circuits, mainly the tram lines. Such a study aids the project in integrating ideas such as people oriented design along with modular and incremental design.



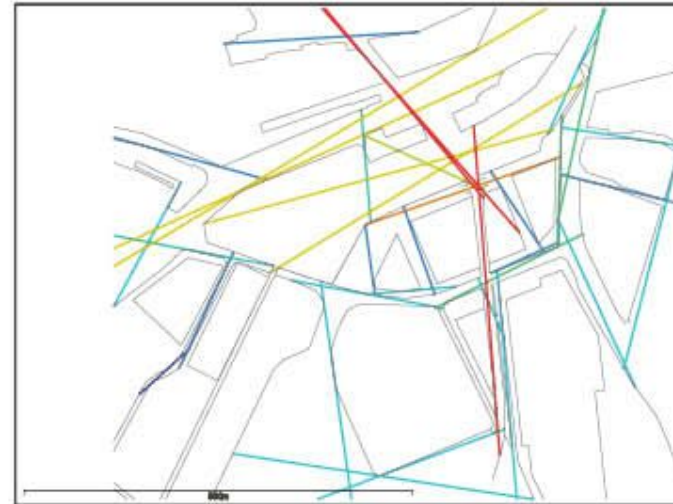
VISIBILITY Site 1



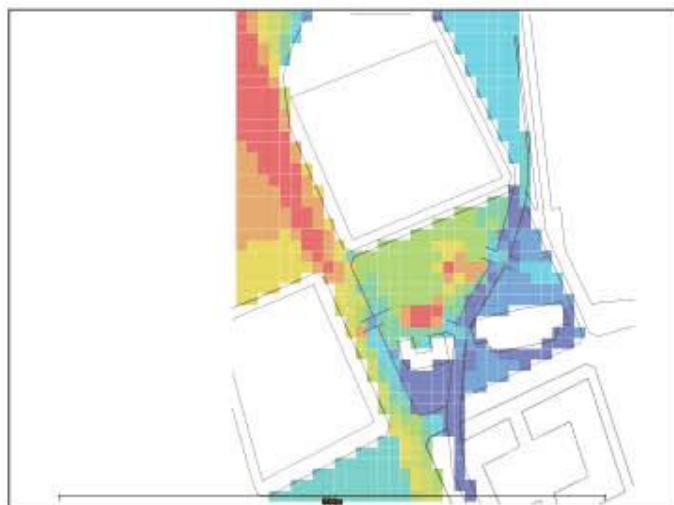
INTEGRATION Site 1



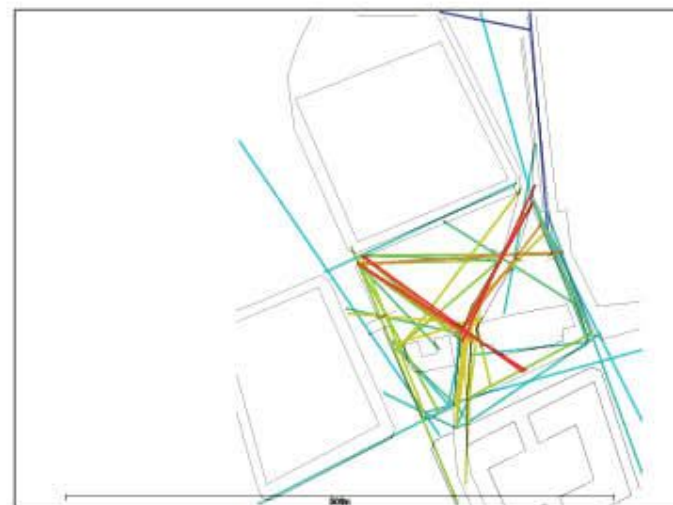
CHOICE Site 1



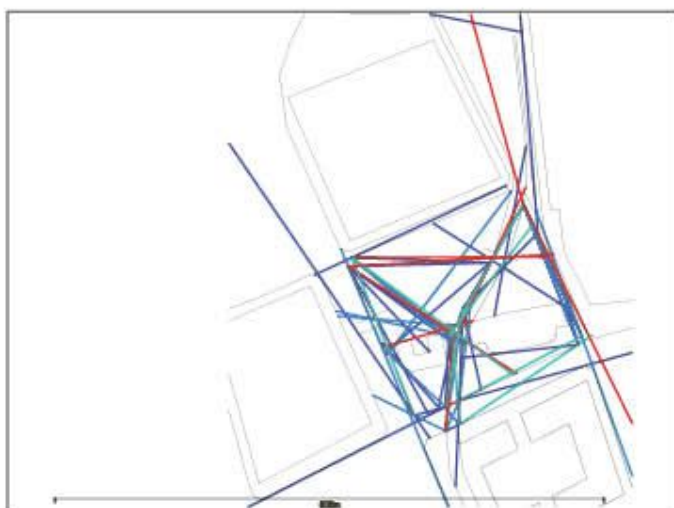
CONNECTION Site 1



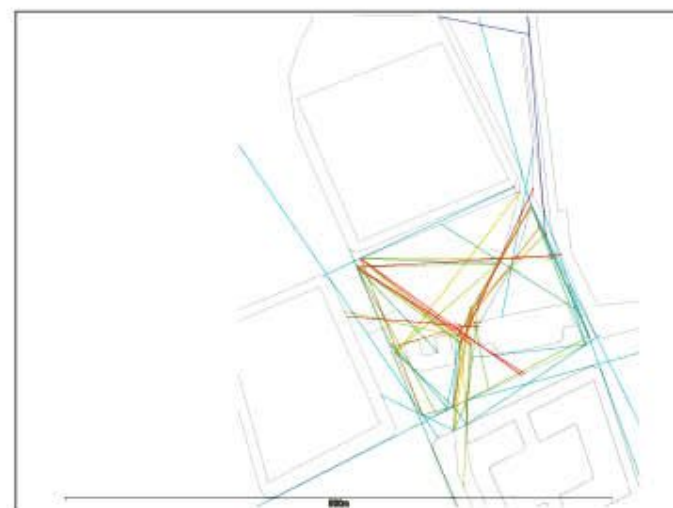
VISIBILITY Site 2



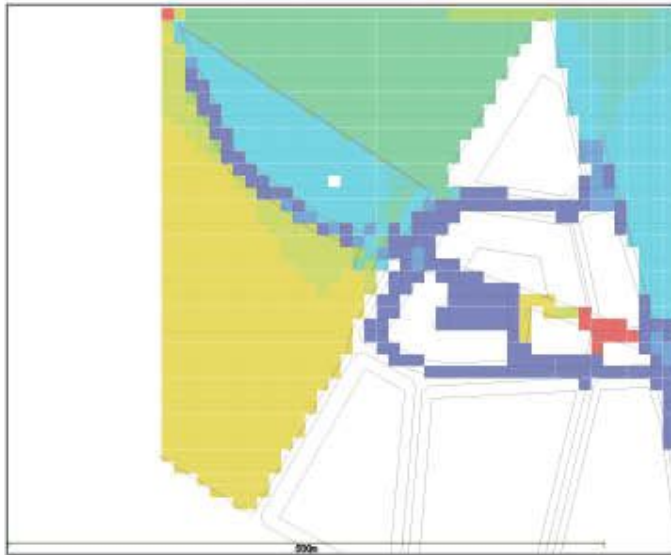
INTEGRATION Site 2



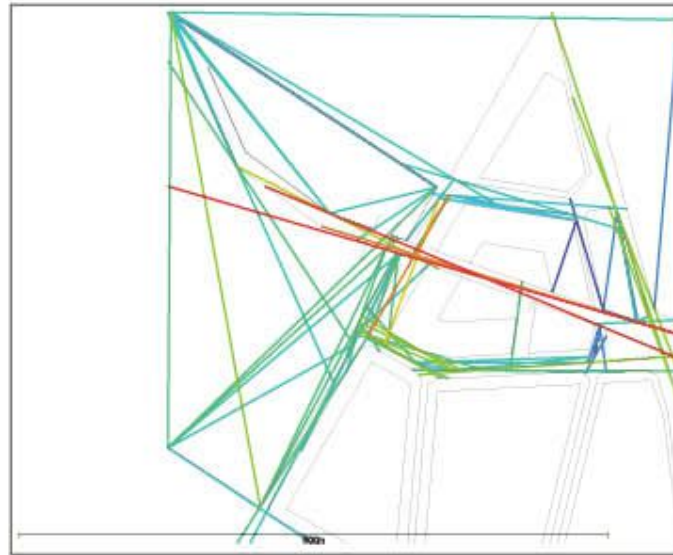
CHOICE Site 2



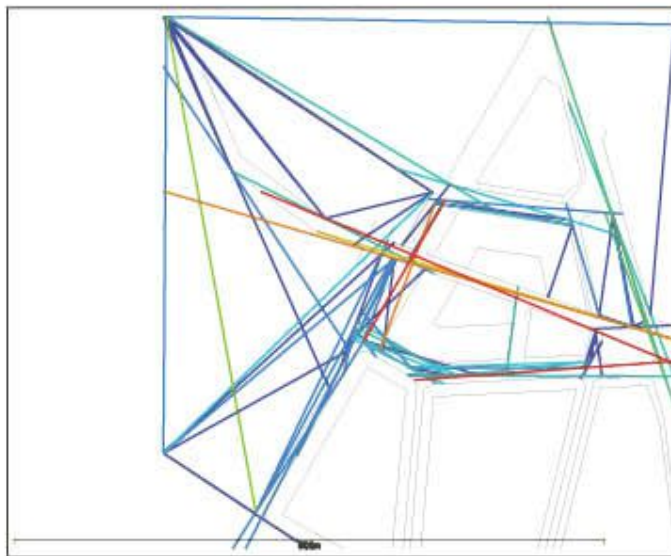
CONNECTION Site 2



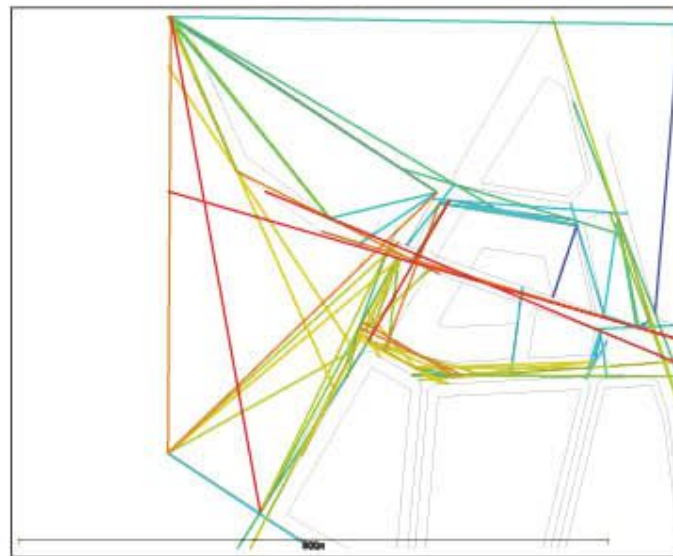
VISIBILITY Site 3



INTEGRATION Site 3



CHOICE Site 3



CONNECTION Site 3

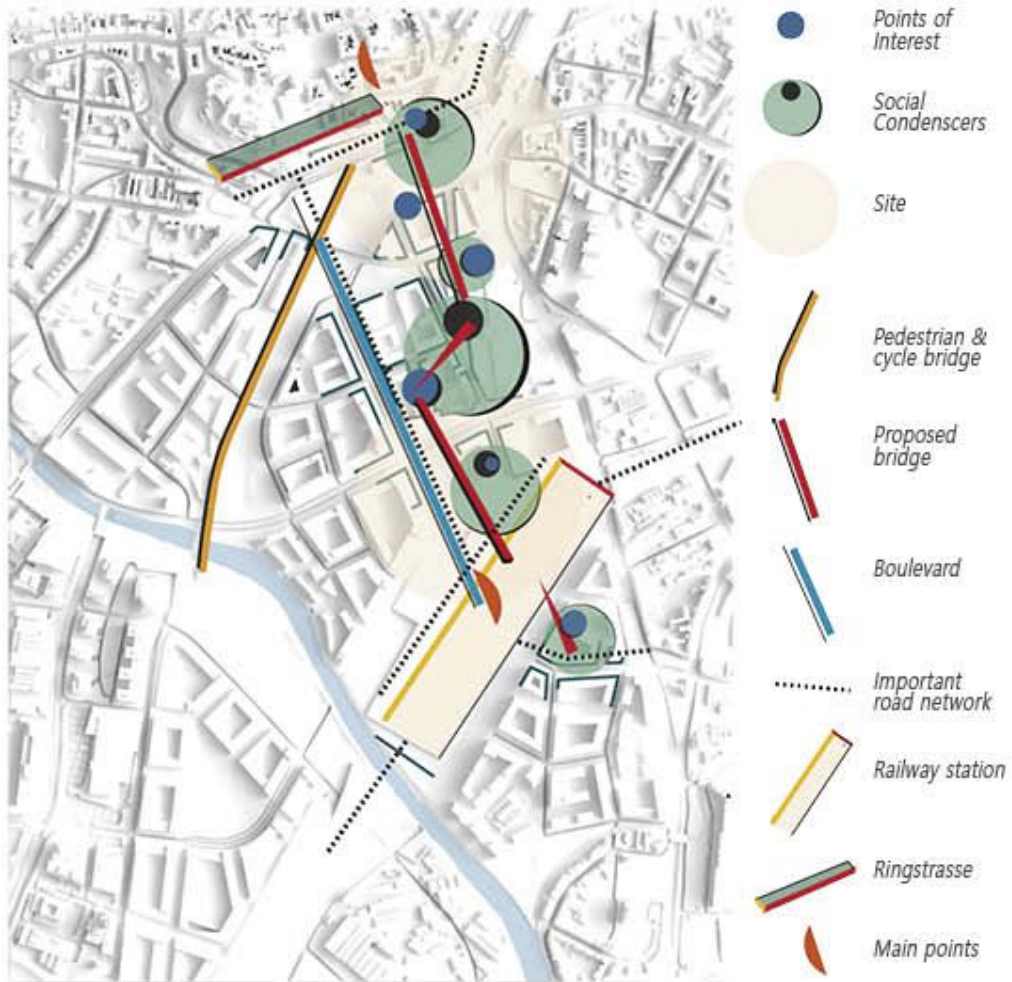
One can observe that site 1 has a distinct point which is marked in red for all the parameters. Thus this will be the starting point of the bridge. In the integration and choice map, this path is the most ideal to serve as a direct connection to the existing Masarykova street of the old city.

Site 2 shows the scope of the plot creating a square within the centre of the project. It is divided into a non-visible side that can serve as parking while a large visible part that can serve for many events, activities or even the extension of the bridge built form. The other parameters support the good visible and physical connectivity of the square

While site 3 also indicates excellent connectivity with the railway station. Decent visibility is also present. The part of the bridge also has the scope to create more secluded areas for the bridge.

Depthmapx provides support to the choice of sites and also how the sites could possibly be designed. It also aids in the ideas that the project dwells in such as human-centric design.

SITE SELECTION



1. Masarykova street



2. Plot F



1. 2. Masarykova street towards plot F

Refer to previous page

3. Trinitì building



3. Parking and pedestrian road of Trinitì



5. Existing bus station



5. Towards plot with the square



5. Area near square

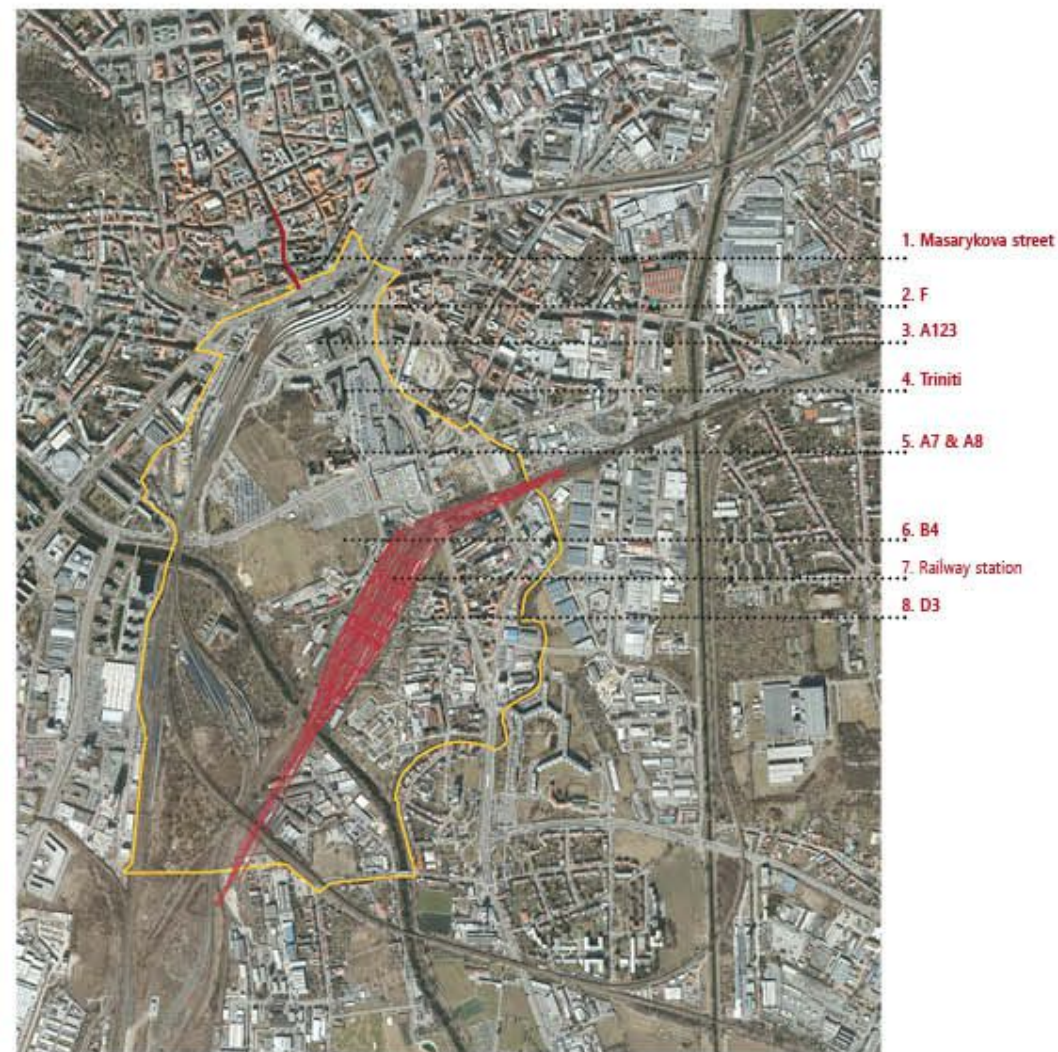


7. Proposed entry area of new railway station

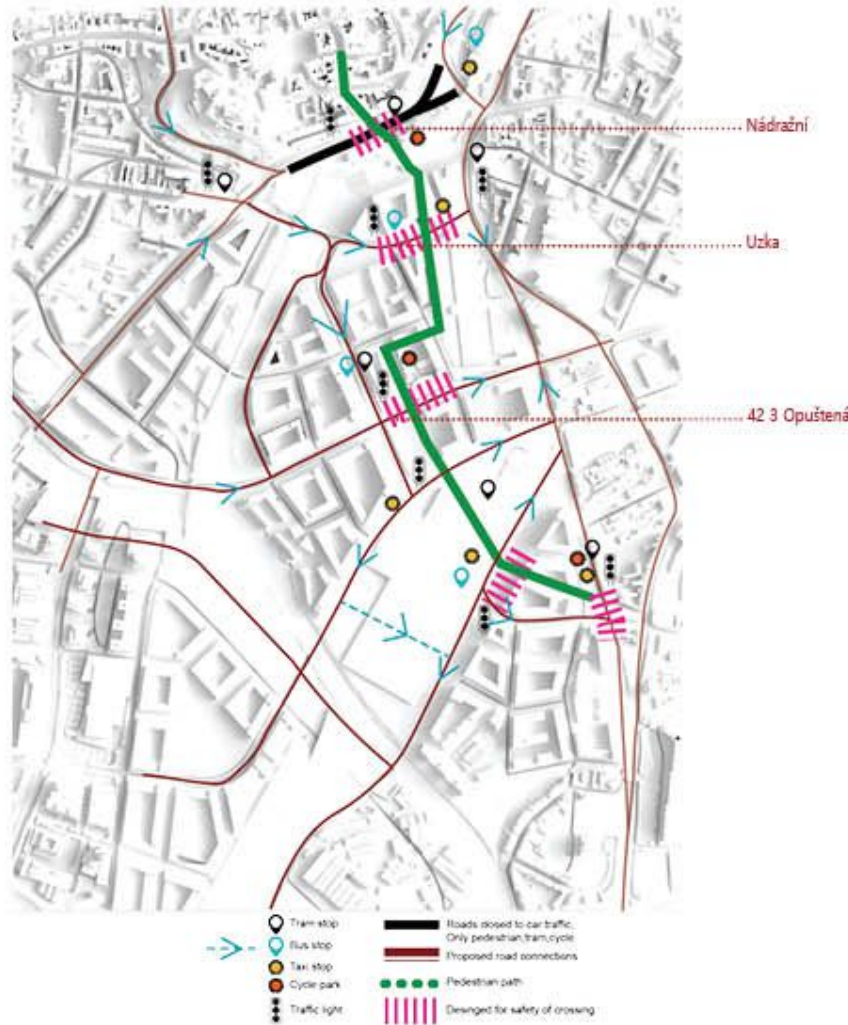
SITE SELECTION

	PLOT F, A123	TRINITI BUILDING	A7, A8
STRENGTH	Proximity to Masarykova street. Mix used area. Availability of green spaces.	Existing exhibition space. Proximity to existing super center. Presence of pedestrian path.	Large area to work with. Presence of green area. Situated at the center of the proposed district.
WEAKNESS	Not yet developed space. Flanked between two existing busy roads.	Small intervention. Requires changes to existing building.	Presence of civic building. Near proposed major roads.
OPPORTUNITY	Future interventions in the new proposed plan. Proximity to proposed pedestrian & cycle bridge	Possibility of converting existing building floor into a upper level mini square/ market.	Possibility to perform as a square. Availability of multi level building for the bridge.

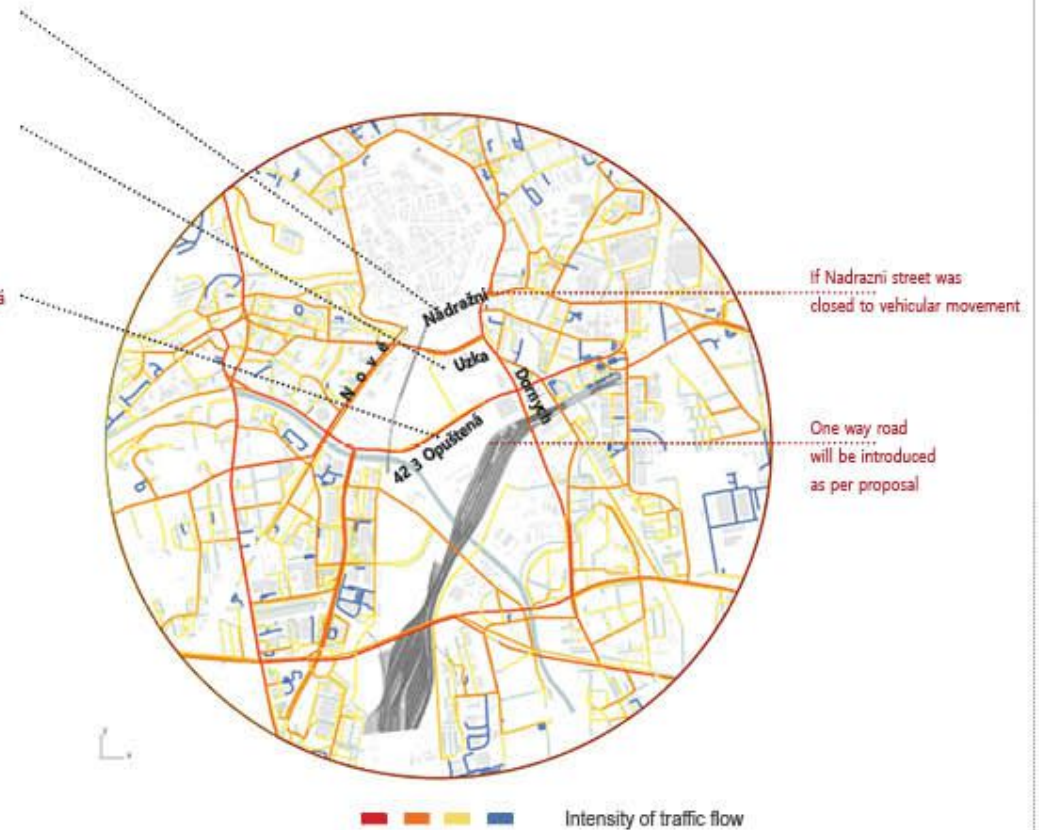
B4	D3
Transition space	Creates a connection to the railway station. Thus activating the back portion of the district. Within the space exist green area and also a path designated only to people and cyclists.
Very little scope for intervention that influences the experience.	—
Possibility to work in co operation with the building it resides in.	It can work as a passage for the flanking public buildings plus house activities within itself.



ROAD NETWORK



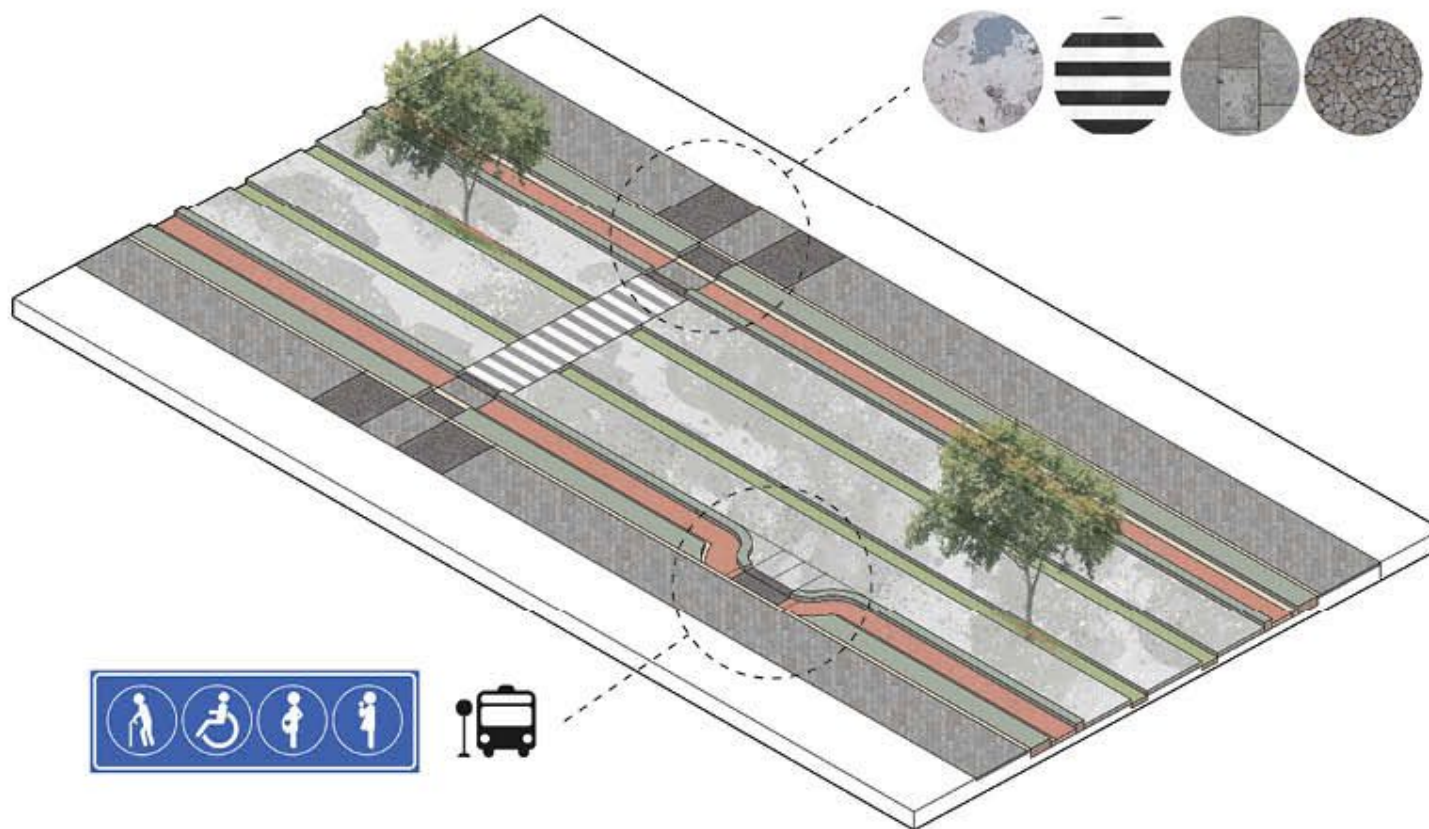
- * Traffic will be redirected towards the new station.
- * Shutting down Nádražní to vehicular movement apart from the existing city tram stand.



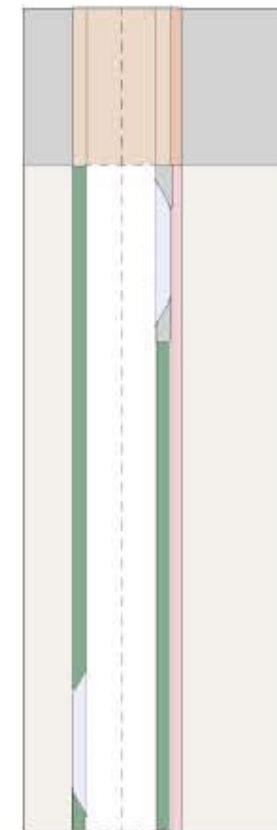
If Nádražní street is shutdown then the traffic load will be taken up by Uzka, Domych, 42 3 Opustěná roads. Which are predicted to have the highest traffic flow. (street analysis .gh). Thus it would make sense to introduce cross walks, bus stops, taxi stops where the over head bridge coincides with these streets.



Site & green

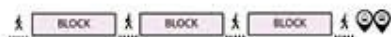
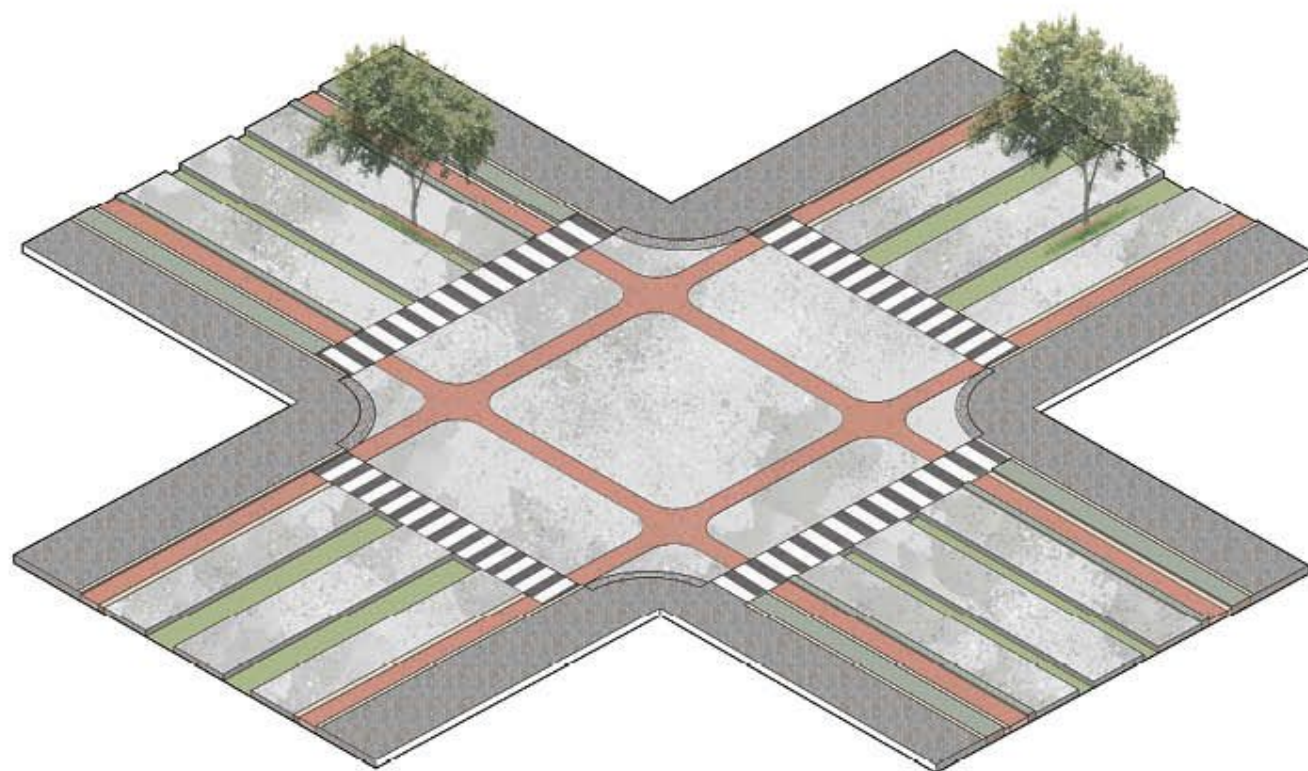


Inclusivity (People of priority) : Movement & Navigation
 Textured pavement to read the road and crossings
 Bus stop with an additional pedestrian waiting space

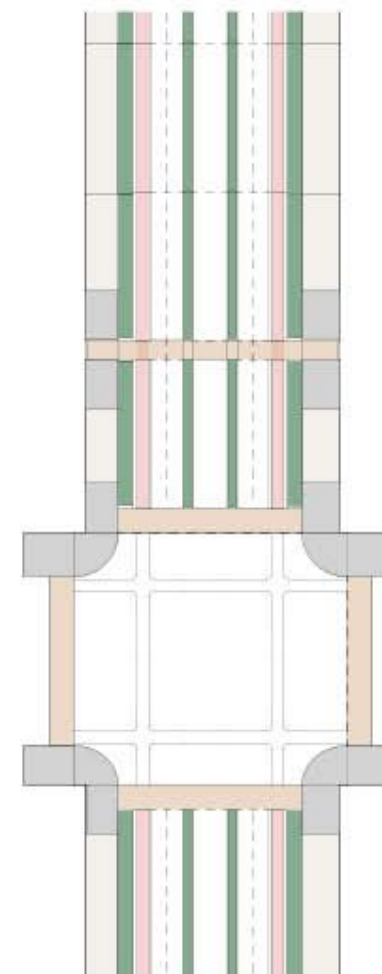


The treatment for the street Uzka.
 54m wide (proposed by Brmo) near A2 & Triniti.





Crosswalks : Safety & Choice
Multiple crosswalks to solve the issue of
very wide roads.



The treatment for the main boulevard 54m wide-
ar square (proposed by Brno) 51.5m wide.



DESIGN STRATEGY



Phase 1

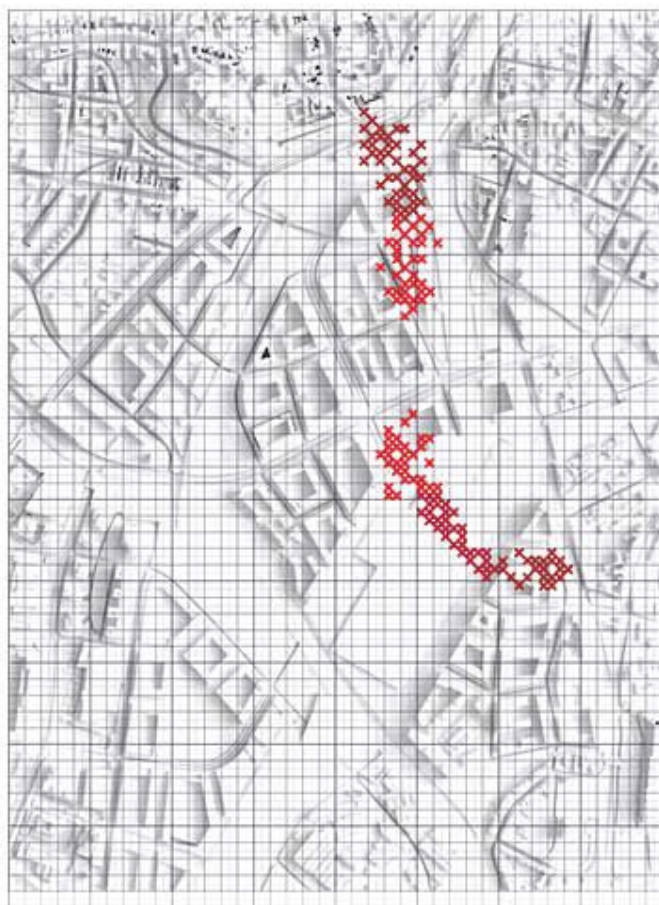


Phase 2

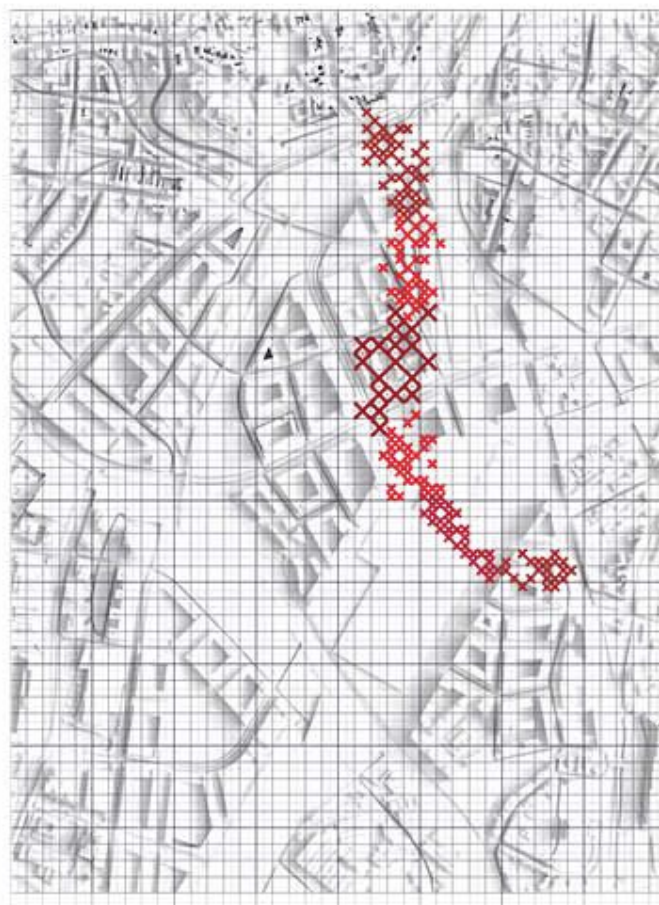
The pedestrian bridge in a way serves as an extension of the existing Masarykova street of the old city of Brno. The bridge intentionally intersects buildings of interest that will possibly inhabit public and commercial activities. The bridge could be considered as a prototype of a new built form. It will house multiple activities that provide the social well being of the district and create a community for creativity and entertainment. This path will also intersect with principal public transport sites and stops along with the road network.

Initial construction phases of the bridge should materialize simultaneously with the construction of the railway station.

A modular and incremental method of building is adopted for manoeuvring cost-effective and partial sustainable needs.



Phase 3



Phase 4



Possible growth



The Red Bridge



People's memory

THE BINDING RIBBON

The bridge is meant to cater to the needs of the people of the city. To activate spaces and provide safe passage to their destinations. Yet the bridge works as a destinational built form with an ever-changing plan. The concept was to extend Masarykova street right through the new proposed south quarter into a bridge that spans a length of approximately 1.337km.

Inspired by the yellow brick road from the movie the Wizard of Oz. Red is the colour chosen that would dominate the bridge. It creates a visually distinct path. As red is an iconic colour it serves as an indicator and evokes emotion.

The bridge is designed to grow vertically and horizontally. The incremental value of the bridge gives it scope to develop based on what the users of the bridge require and prefer creating a very detailed built-form. A bridge designed based on frequently used functions and activities makes it more desirable and thus memorable. The goal is that a user remembers the paths of the bridge without even looking at it, therefore to an extent visual signage becomes secondary.

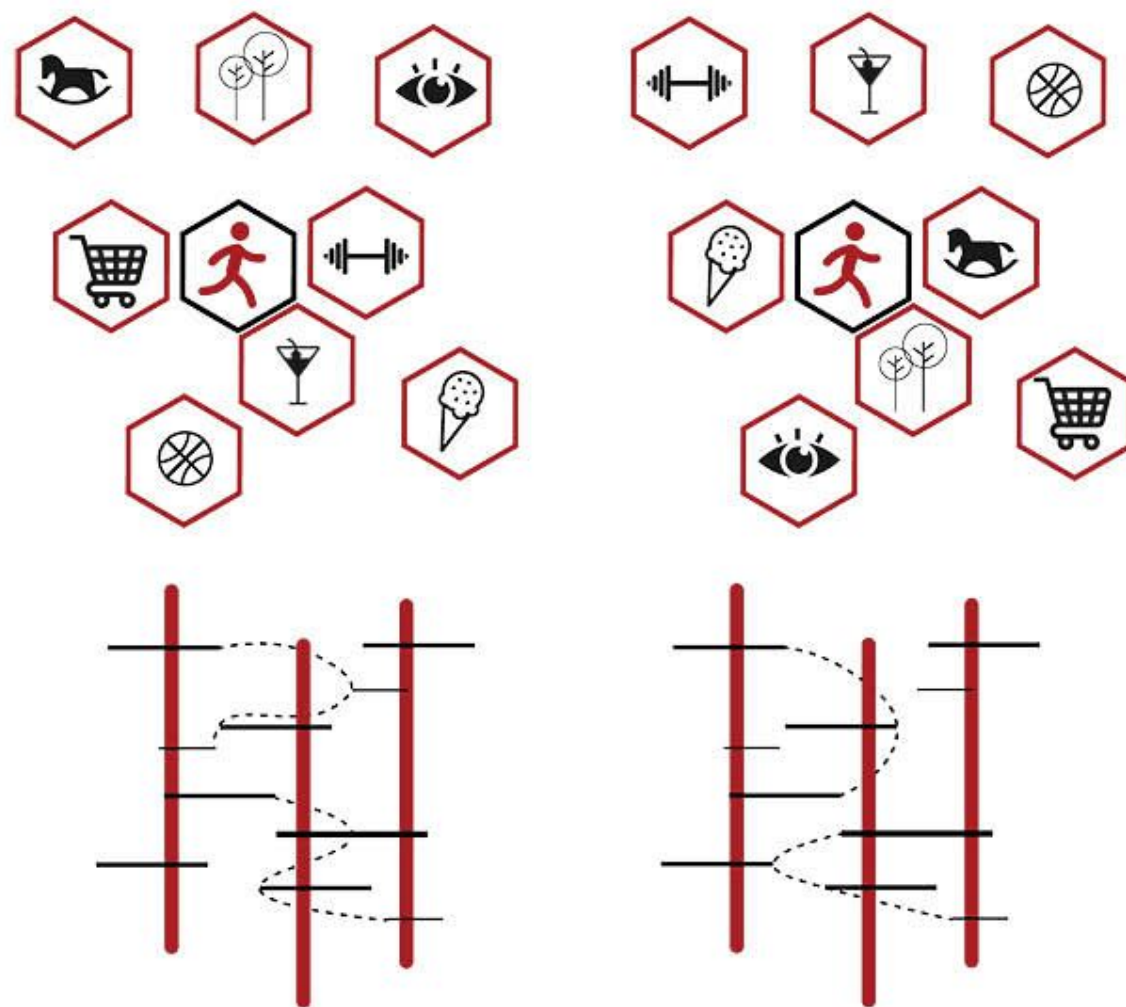
The bridge consists of spaces, some closed, some open and some semi-open. It aims to accentuate the space not only through visual aesthetics but also through atmosphere specifically sound, coolness and tactile feel. Visually the columns change at each site. Allowing each site to have its own character and creating an interesting journey.

The scope of the platform is quite vast. If space is designated as a gym then the platforms are designed for a gym. But if the spaces changes in function such as a playground, the platforms are replaced by new ones suiting a playground. Thus leaving the plan of the bridge open for change.

Circulation points can also move as per change.

With the introduction of the bridge, people have a safer passage to the proposed station. The station itself could cater to bridge ways on either side of its built form that connects to the proposed thesis bridge. In this way, there is potential for the activation of the immediate vicinity of the station as a social hub with commerce, leisure etc.





Change in function & change in circulation



The Elements & the people



Basic representation :
Hexagon element
Column element



The two main elements used in the project are a hexagonal platform and a fluted column.

The principal properties both the elements have to possess are incremental ability, modularity, flexibility for design.

All the circulation will happen around or within the geometry of these two elements.

The hexagon platform can be closed, open, perforated, available in varied colours & textures. A single unit can be compounded to sustainably and cost-effectively materialise the bridge. Units can be also easily 3D printed. Pertinent requirements to facilitate good human design such as tactile detail, colours, lighting and safety measures can be installed. A hexagon can be scaled or even broken into smaller triangular units, providing the choice of incremental growth.

The fluted columns serve as open walls, shading units and planters. They act as pillars around which most of the circulation is present. The fluted columns can be designed in multiple ways providing each intervention with its character. Therefore they provide visual aid and identity (navigation). There is a scope for the sustainable use of the columns. The fanned shape helps in the collection and storage of runoff water. Weatherproof cladding can function as a covering for the columns. Example: ETFE. While other columns could be of concrete. They also provide scope for multi level, open and enclosed sections of the bridge. Again the columns too can be sustainably manufactured.

Elements

Hexagon



The main hexagon used has 6 sides of 4m in length and is 40cm thick.

There is the introduction of different sizes of hexagons: 5m, 10m, 20m for flooring and floor light instalments each of its own texture, and larger platforms of 4m are present in the main square. The platforms firstly possess the function of providing flexibility for replacement of damaged units, production of precise numbers or even reasons such as a change in function of the site. Secondly, the platforms serve as tactile surfaces for navigation, either the platform has a texture imprinted on it or the hexagon is scaled to define paths and functions. The hexagon can define the spaces that are set up on the bridge however they do not dictate the shape of a space strictly.



Textures can be applied to the hexagons for purpose of navigation.



It is easy to break down the hexagon element.



Lighting fixture

Scaleable to create interesting path both for navigation and also other purposes such as lighting features. It also aids in navigation and designated spaces as per their function eg: the entry of a building, beginning of a circulation shaft.



Combination of different forms of the hexagon can lead to large or smaller unit being built that fit precisely with the original unit size.



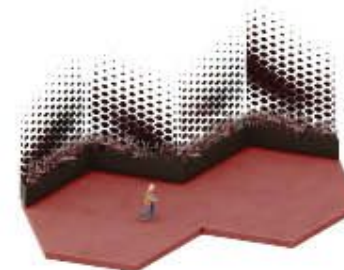
Seating, reading & resting space.



Kiosks



Performance spaces



Tactile screens as shade and protection for spaces that can be used as platforms for a playground or art features etc.



Administrative needs and general stores and a water feature. Such structures will be designated places such as entries, exits or the main square.



Hexagons creating the spaces for circulation and stores of commercial purpose. The rooms are mainly 5.4 m tall that provides sufficient overhead clearance height to fit in a mezzanine floor for cafes, workshop rooms etc. (mainly seen in the square).

Column



The columns vary in size from 5.4m columns to 40 meters. Each type of column has a function. The main functions are load-bearing, shading, circulation and collection of run off water. Columns differ in appearance as per the site they are situated in.



The two main columns of the square are the white column that forms the enclosure and the black column that forms the semi-enclosed area. Both have a base of 1m. The white column (40m ht) is made of two parts, that is the pillar and the top roofing shell created with materials such as fibreglass. The black columns (25m, 23m, 20m) is mainly ribbed with a hollow centre, this is to allow runoff water to be collected underground. The pillar has transparent skin that could be ETFE.



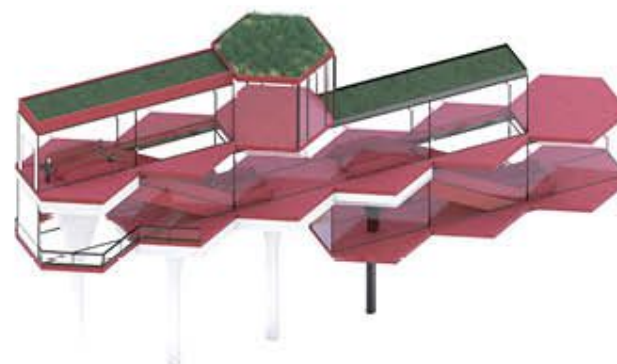
Apart from the escalators and elevators available in the square, there is the presence of spiral stairways enclosed within a screen. The circulation system is placed at the edges of the project and snakes around the columns. Thus the units fit within a single hexagon and are supported by the column thus they are easily replaceable and moveable.



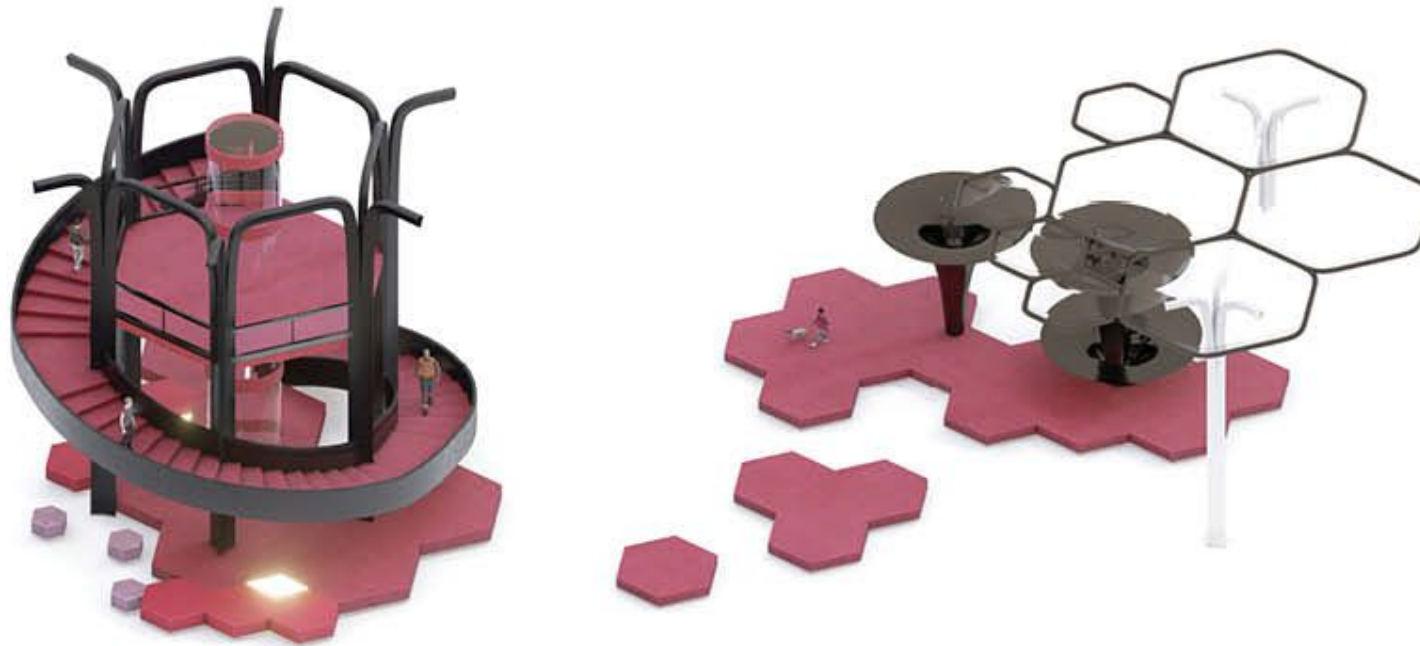
The black columns are used for multiple functions, such as circulation, supporting platforms.



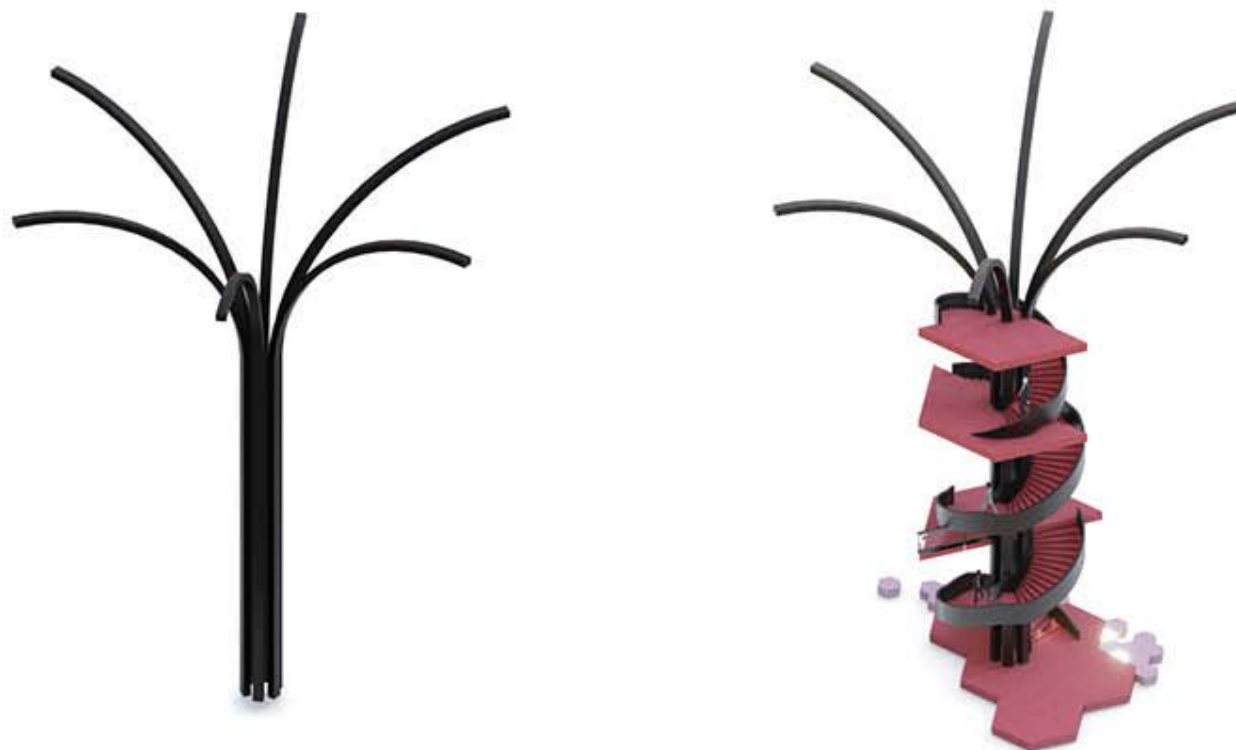
The is also the presence of simple columns that work are loadbearing columns or planter tops.



Columns supporting the escalators.



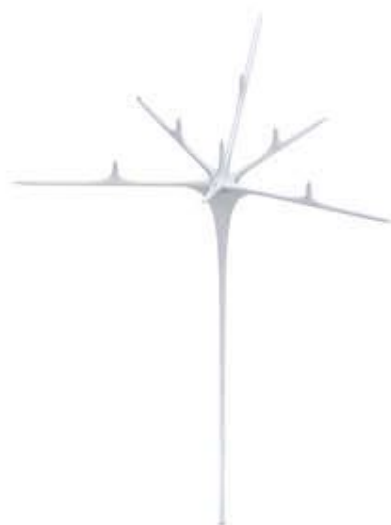
The front entrance of the bridge consists of two spiral stairways that connect the top platform to the lower ground area (7m ht). The columns simply work as support and are of a height of 12m. The brown columns are used as wall features for planters. They run along the entire length of the plot F platform. The flooring is made up of multiple hexagons that work as navigation units and inserted flooring lights.



The 25m tall columns for the enclosed space of A2. The column is kept simple to provide scope for growth of the floors and addition of circulation units.



The main feature of plot D3 is the white columns that differ in height but fit with the standard size hexagon of the bridge. It serves multiple purposes, that is, water collection, lighting, planters, supporting circulation and creating small semi-enclosed spaces. It consists of a simple hexagon shapes pillar with a Ferro - cement shell top. The shell top has guttering and plants can be grown of it.



There is also the presence of load-bearing columns (white, image 3) and columns that tie the hexagon mesh together (white, image 2). The black columns act as lighting and platers and vary in height, while the supporting columns are 12 m in height.

Chunks & Archetype

An Experience

An archetype is a basic form that is placed and combined with multiple versions of its self to create interesting spaces and blocks. In the project, we can consider the roof, wall and floor as the basic archetype for the selected elements that is the platform and column that will materialise into the built form of the bridge. While in terms of space we can consider whether portions of the bridge are enclosed, semi-open, open or ground-level square.

We see that the columns in the project work as the roofing (shading), the walls (structural part), while the hexagon platform works as roofing and flooring. Thus we can observe that certain values that these archetypes should possess are its ability to create a cluster, the expression of the cluster and how will the public perceive these clusters??

Having the basic elements serve as the initial step to creating versions of them we are able to produce chunks that work as functional spaces and entities but also possess an experience. In terms of the functionality of a space, the experience plays a huge role too. This further strengthens the memorable aspect of the chunk of space. Which aids in the navigational, comforting and enjoyable properties of the chunk. In this manner, the public does not only depend on visual aid to navigate through an area but also the experience of an area. This questions whether the elements and their archetypes have the ability to create motion, weight, substance when placed together as a chunk? How will the chunks be experienced by people in relative time and will it aid the bridge to be more usable and flexible? Will this help the more global goal of creating a bridge for the public?



W. Eugene Smith. A Life in Photography
: Experience of ones surroundings



Gjon Mili (1904-1984)
Nude Descending a Staircase
: developing mindful and bodily memory of ones surroundings



Place . Experience . Thought . Emotion . Memory

CHUNK 1 : Site 1, Plot F

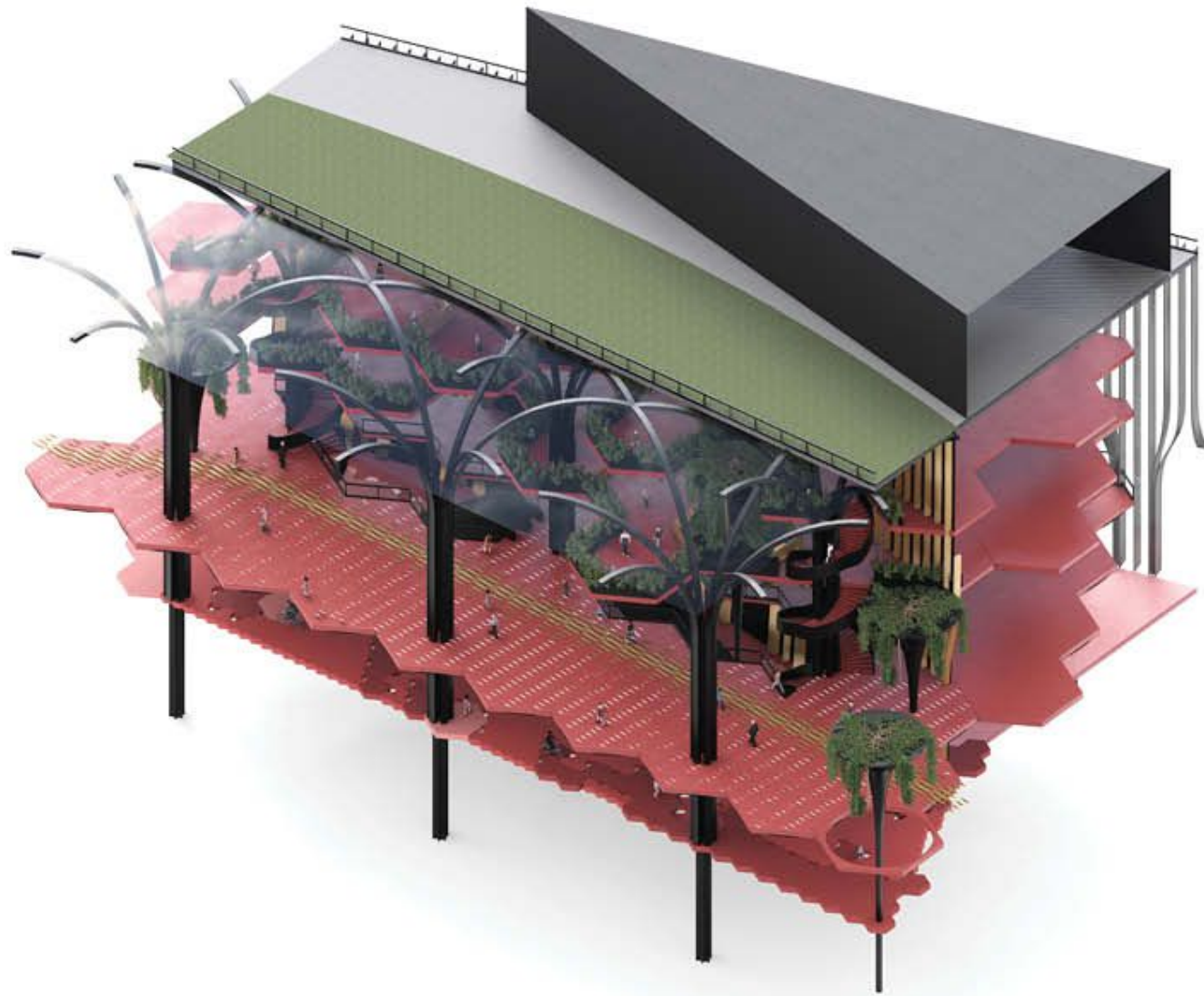


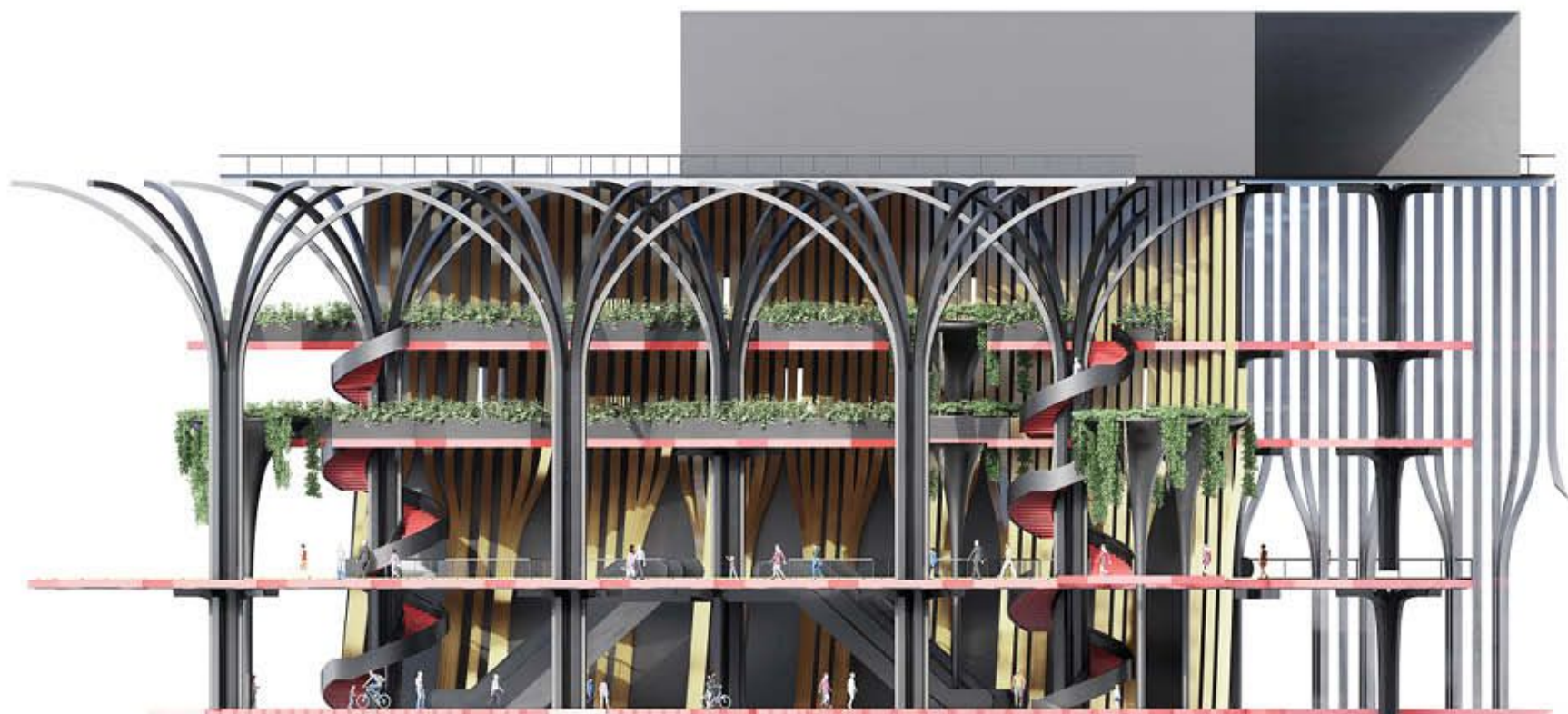


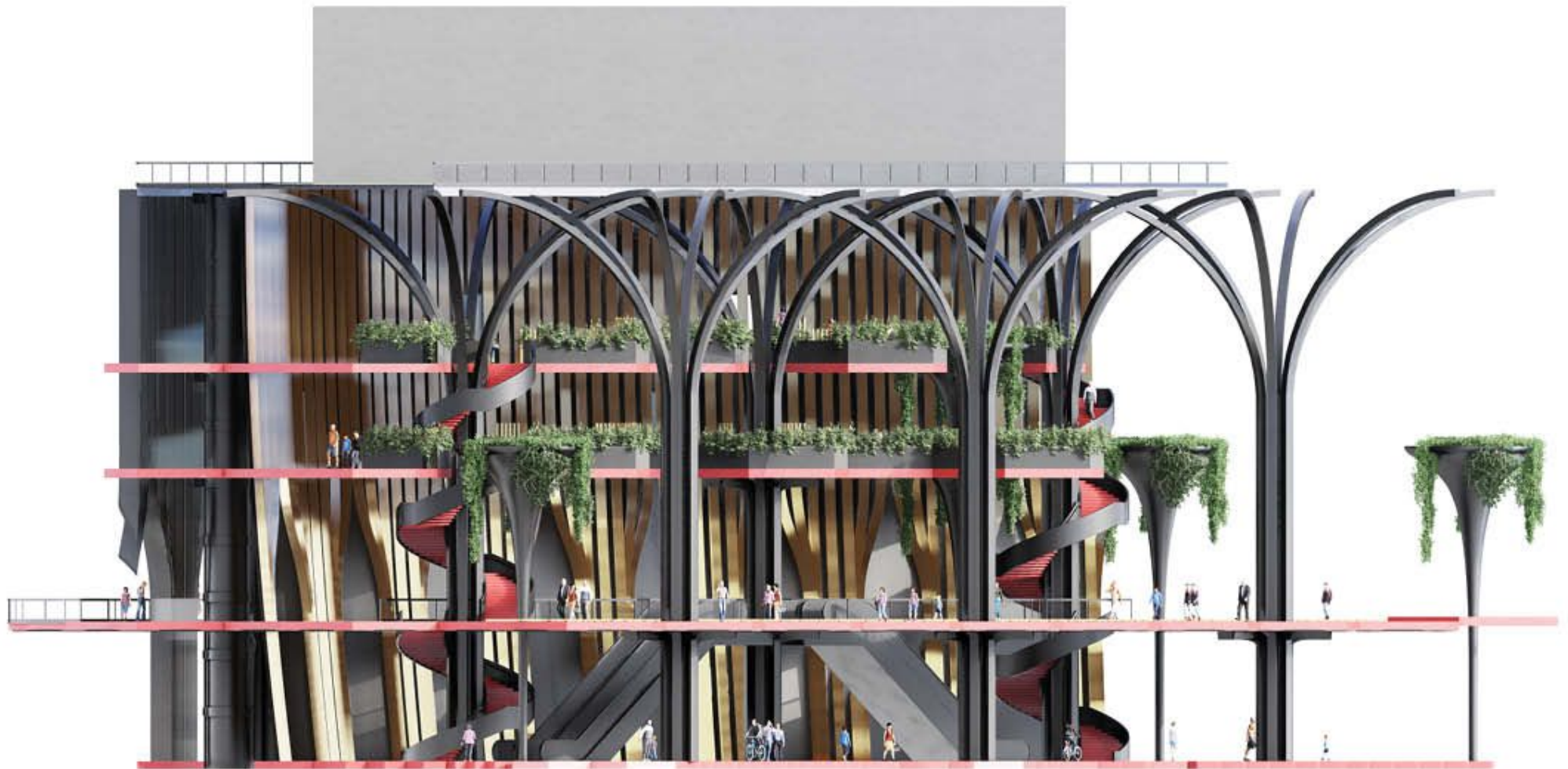


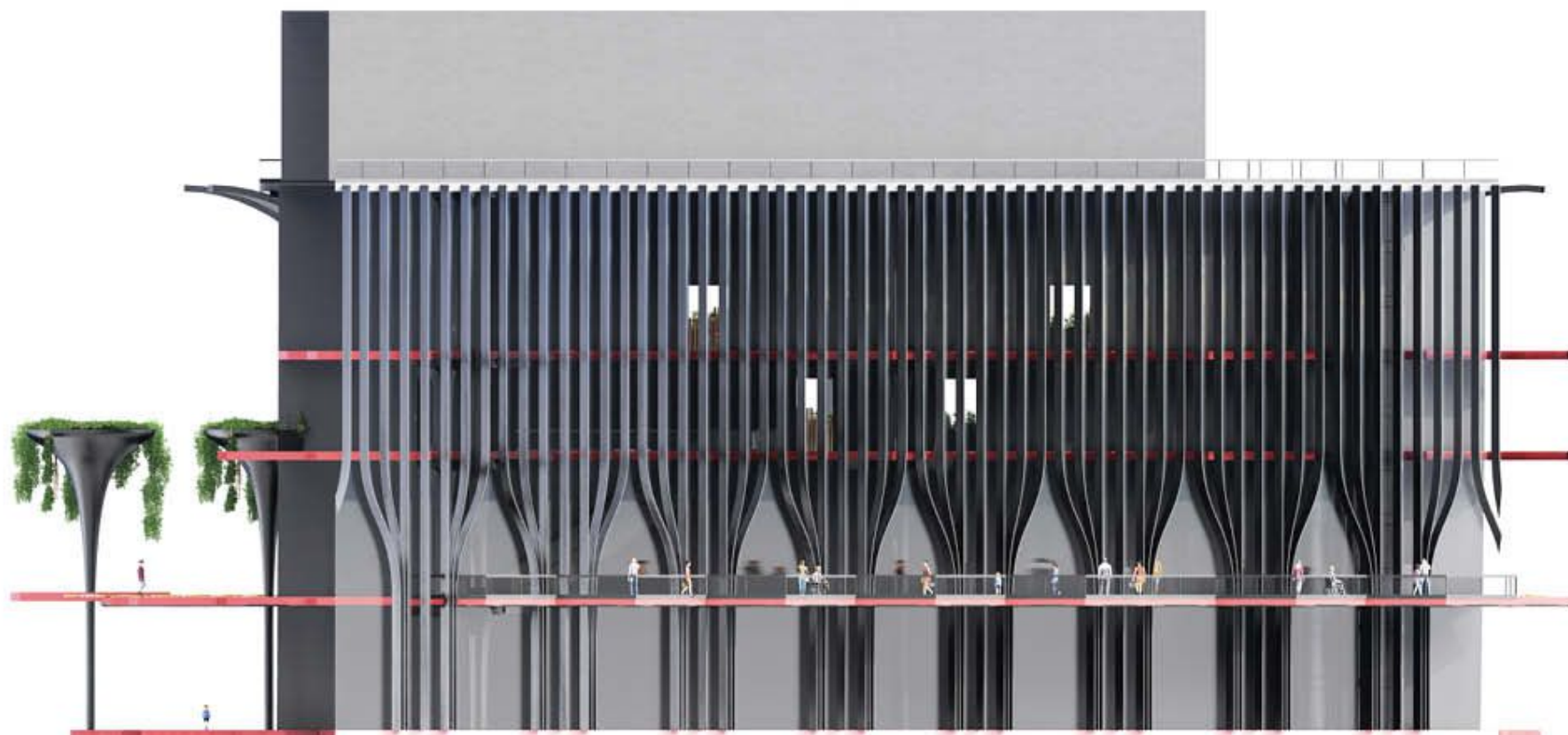


CHUNK 2 : Site 1, A2

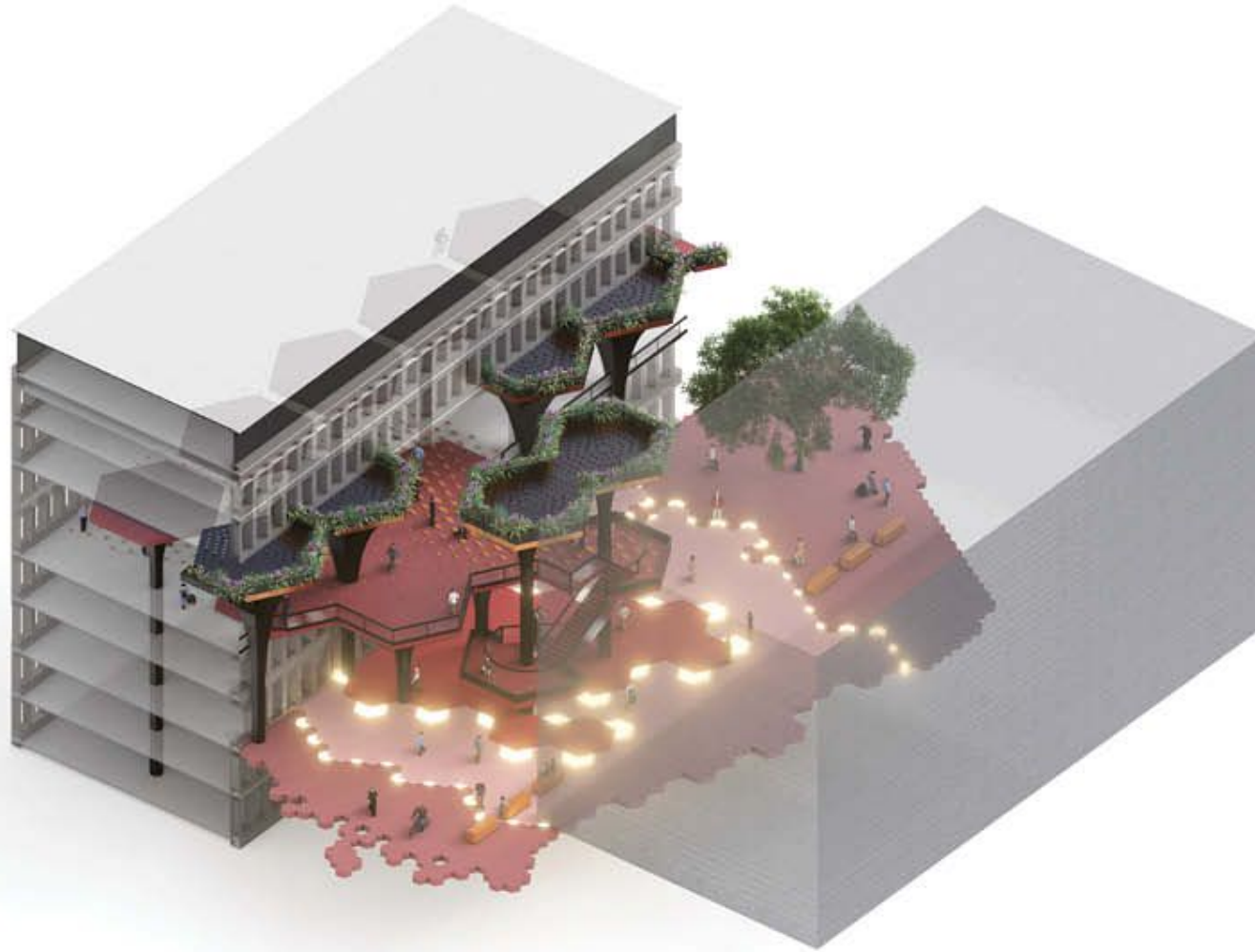






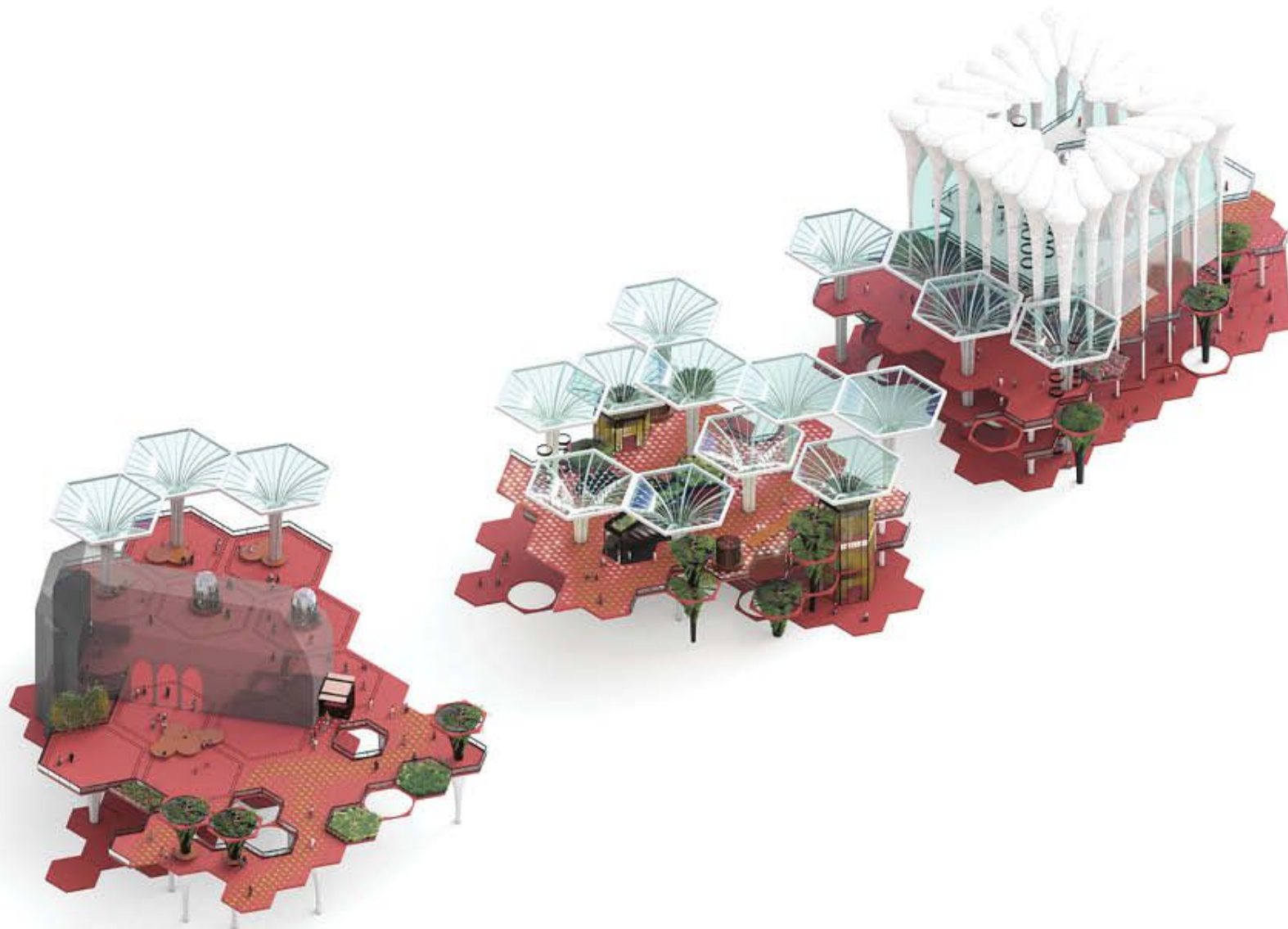


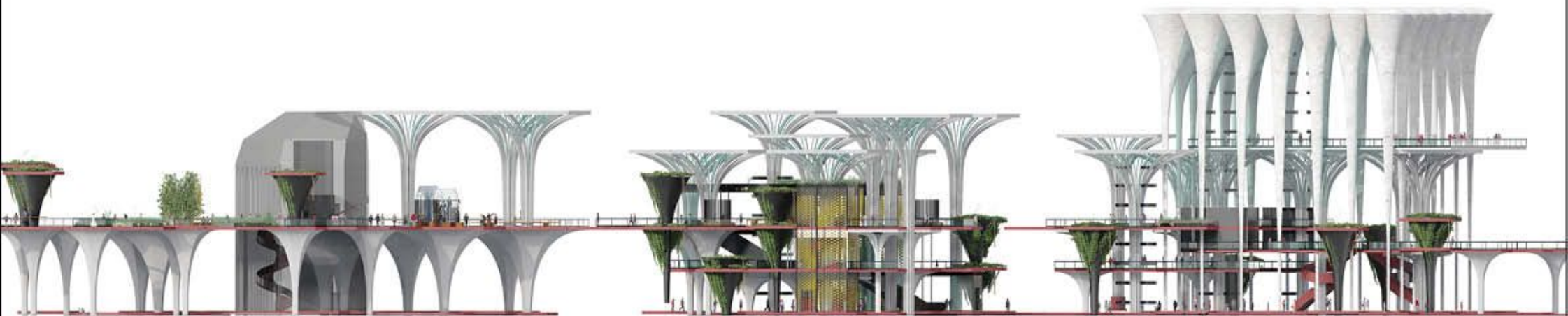
CHUNK 3 : Site 1, Trinitati



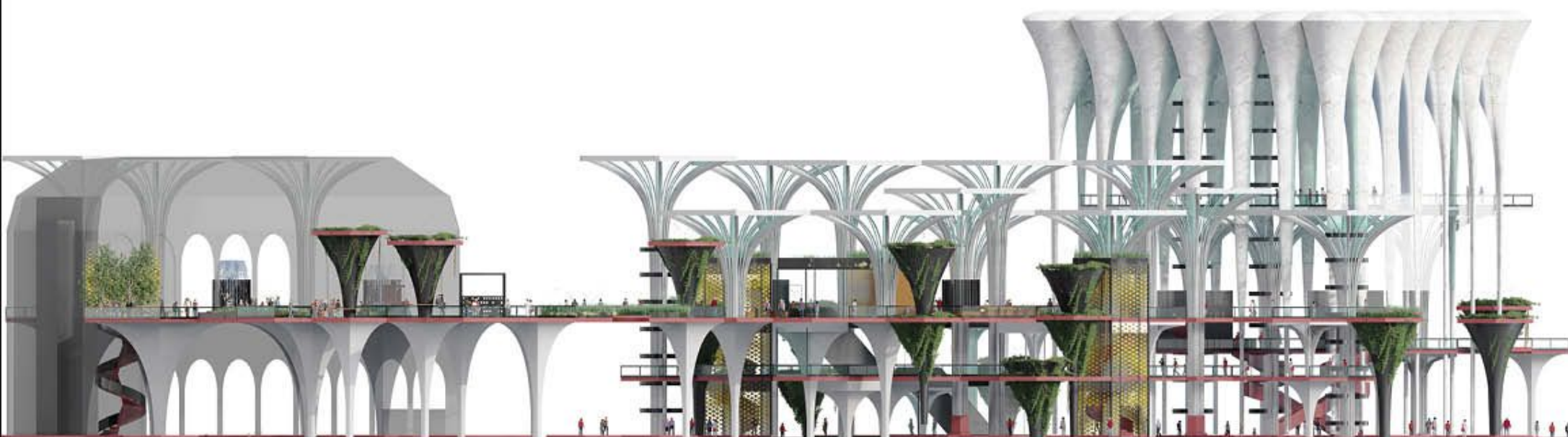


CHUNK 4 : Site 2, Square

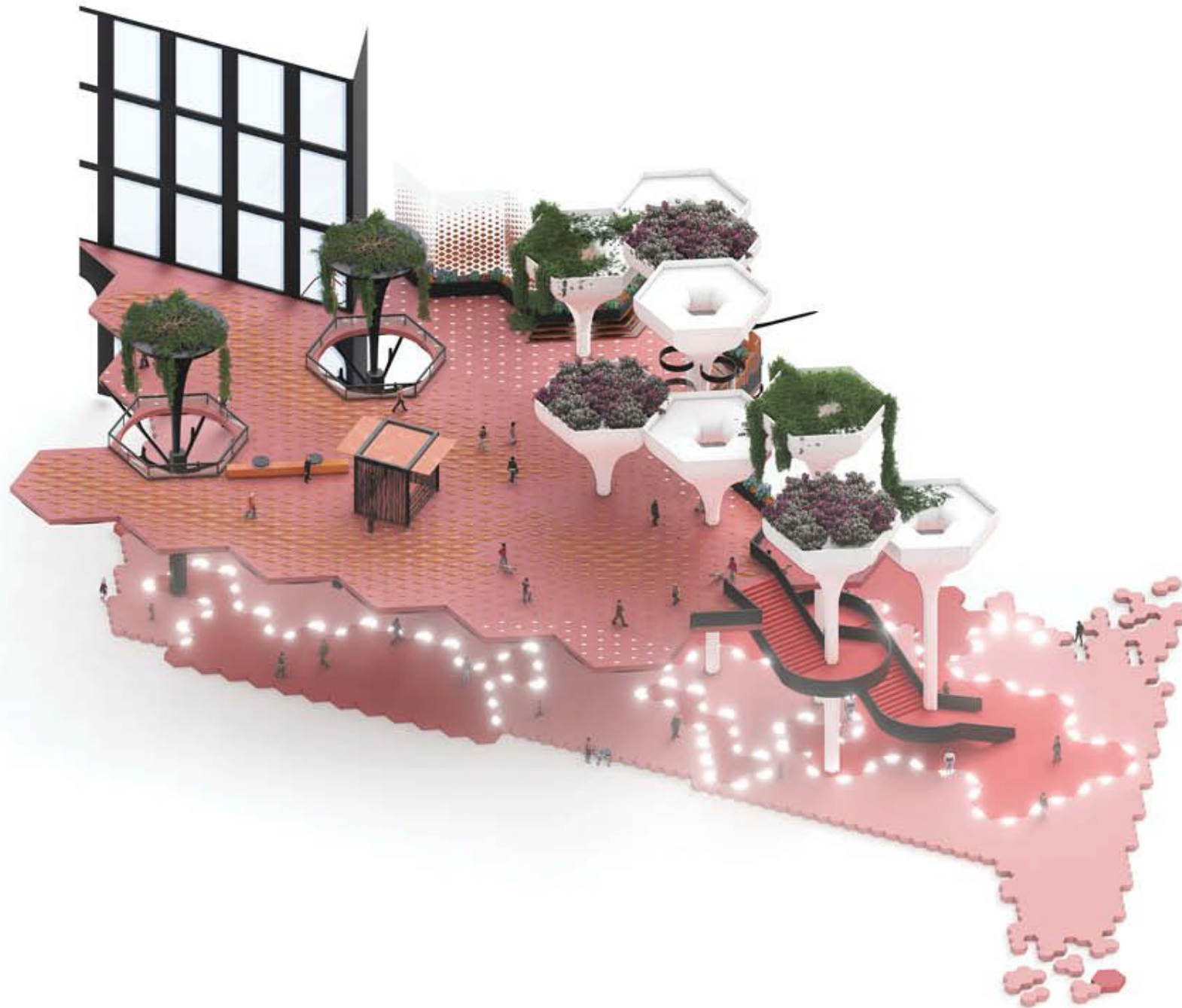








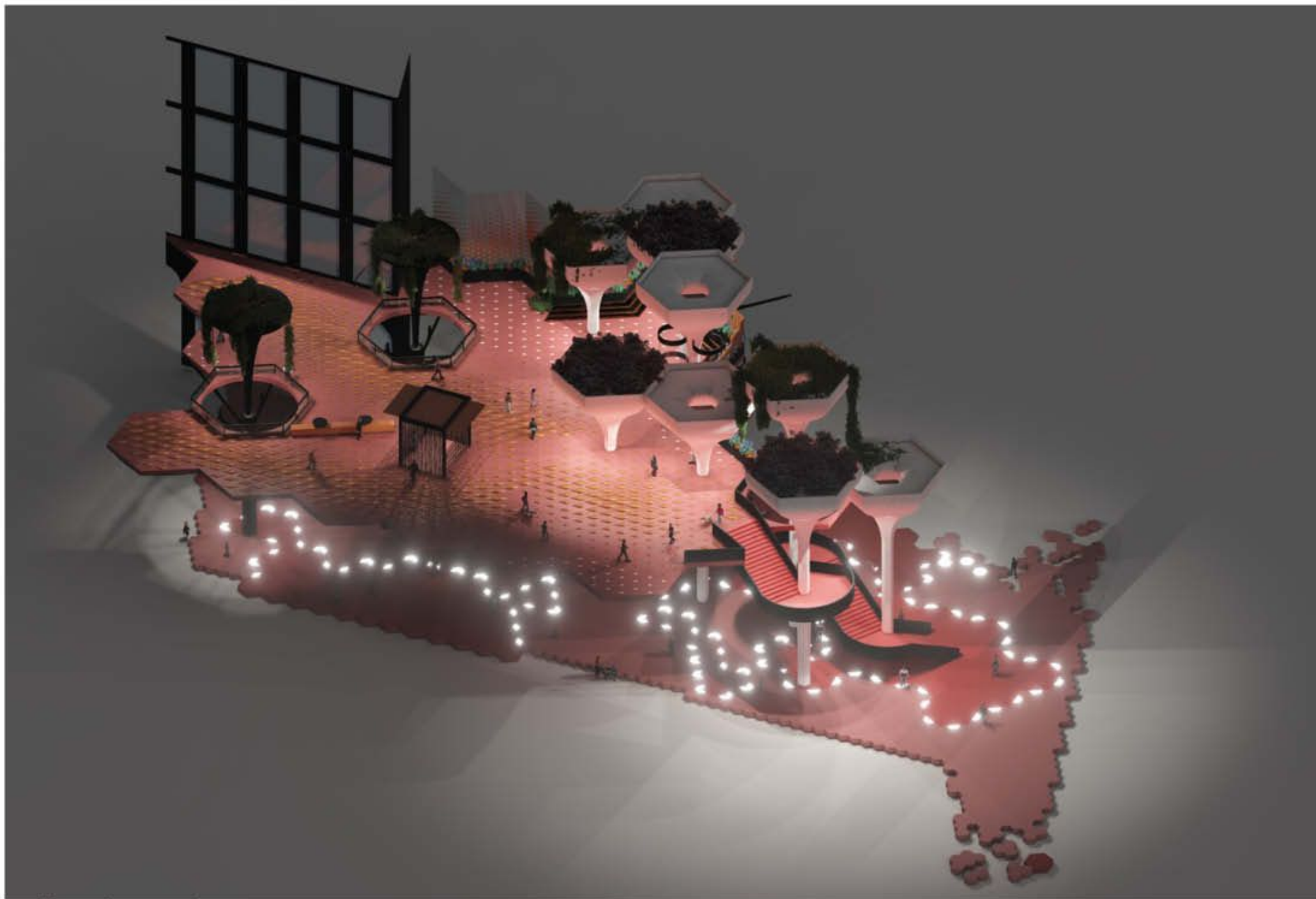
CHUNK 5 : Site 3, D3





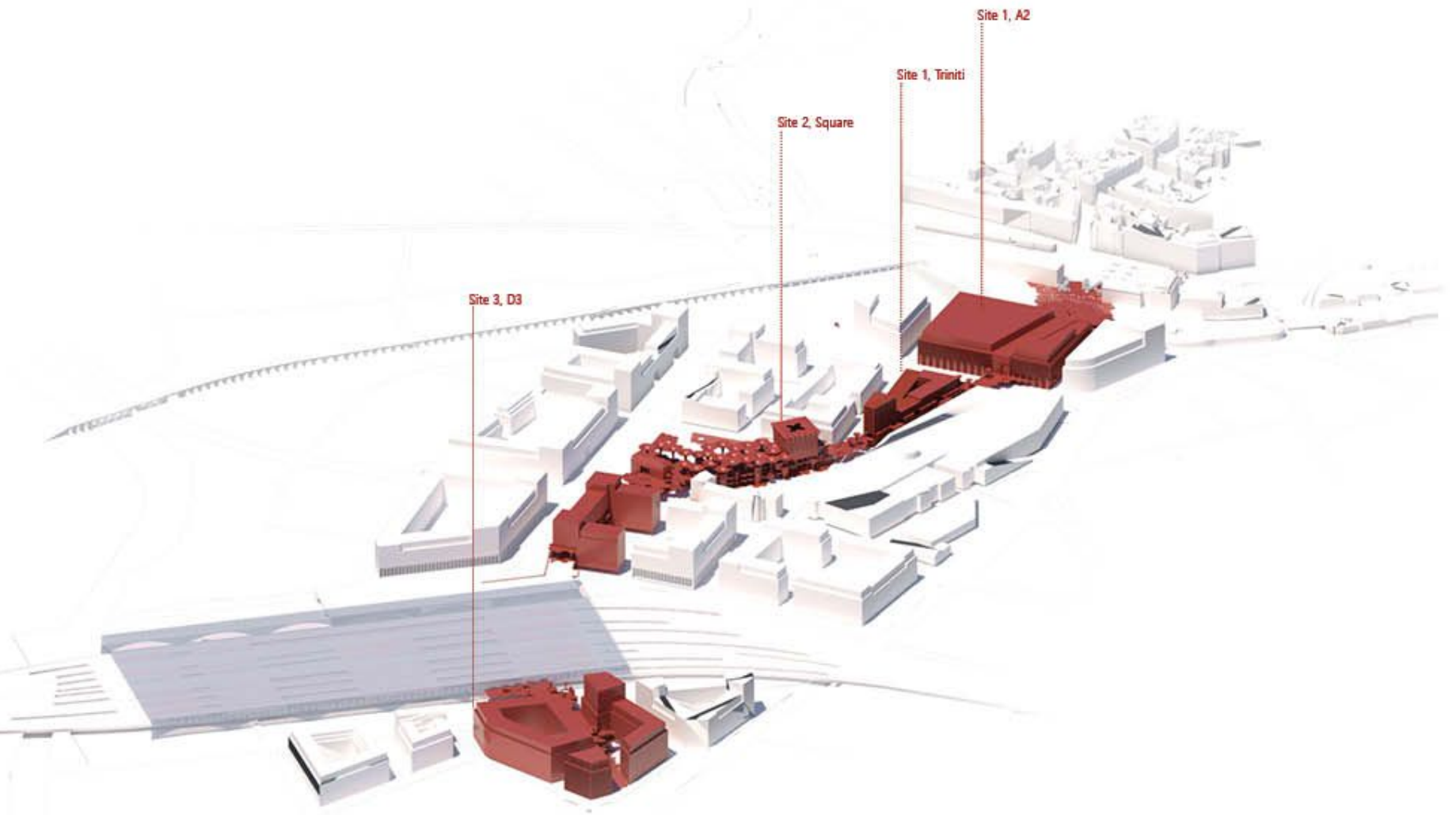






THE RED BRIDGE

Drawings and plans



MONOCHROME REPRESENTATION OF THE BRIDGE 1.337KM

The project is divided into three main sites and consists of four important. Given below are the plans and sections of each building intersected or created.

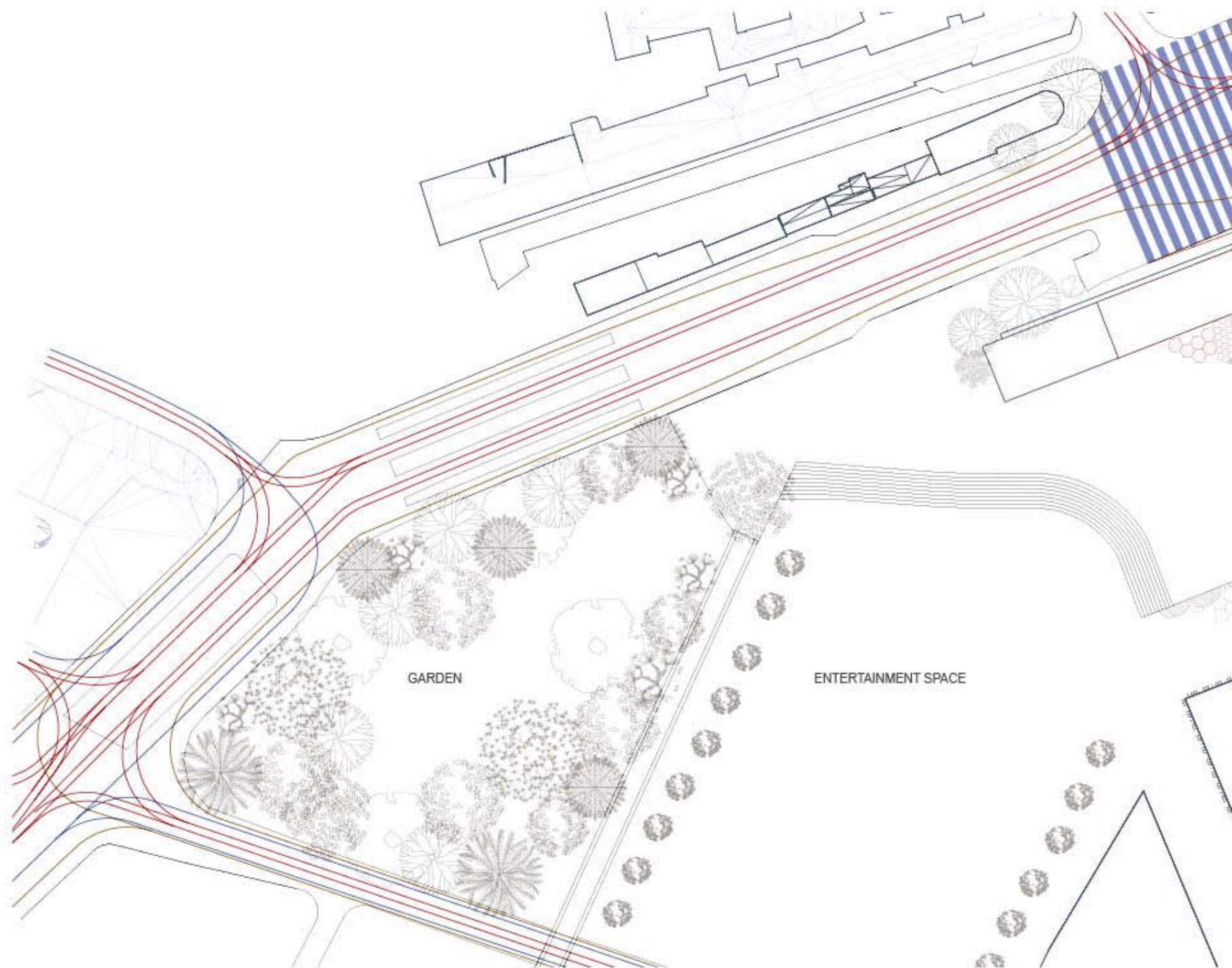
SITE 1 - Plot F & A2, Triniti

SITE 2 - Square

SITE3 - Plot D3

The bridge spans a length of 1.337km and at an average height of 7m. It penetrates the entire length of the quarter. This is mainly done to avoid the opposite side of the railway station to be neglected and lead to a formation of a back alley situation. Thus the site is completely activated by the bridge.

Site 1 : Plot F, A2 (Entry, Enclosed bridge)





PLOT F

A2

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Site 1 : Plot F : 9800sqm approx.

Consists of the entrance of the project. It has a system of circulation consisting of two spiral stairways and elevators as there is a height difference of 7m. Furthermore, the trail from Masarykova street to the beginning of the bridge is detailed with varied scaled pavers that form visual and tactile indicators for cycle paths, circulation and also serve to create space for floor light features.

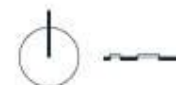
Building A2, a triangular building inhabits plot F. This is where the major part of the intervention takes place. It is a completely enclosed portion of the bridge. With open plans to provide scope for change in function. The space is treated with finning to create perforation and has a balconette for two floors for multi-level connections. The floor below the bridge serves as an enclosed public path that connects the two buildings.

The entire bridge is supported by columns that serve as load-bearing units and contribute to the aesthetics of the bridge along with the colour of the bridge.

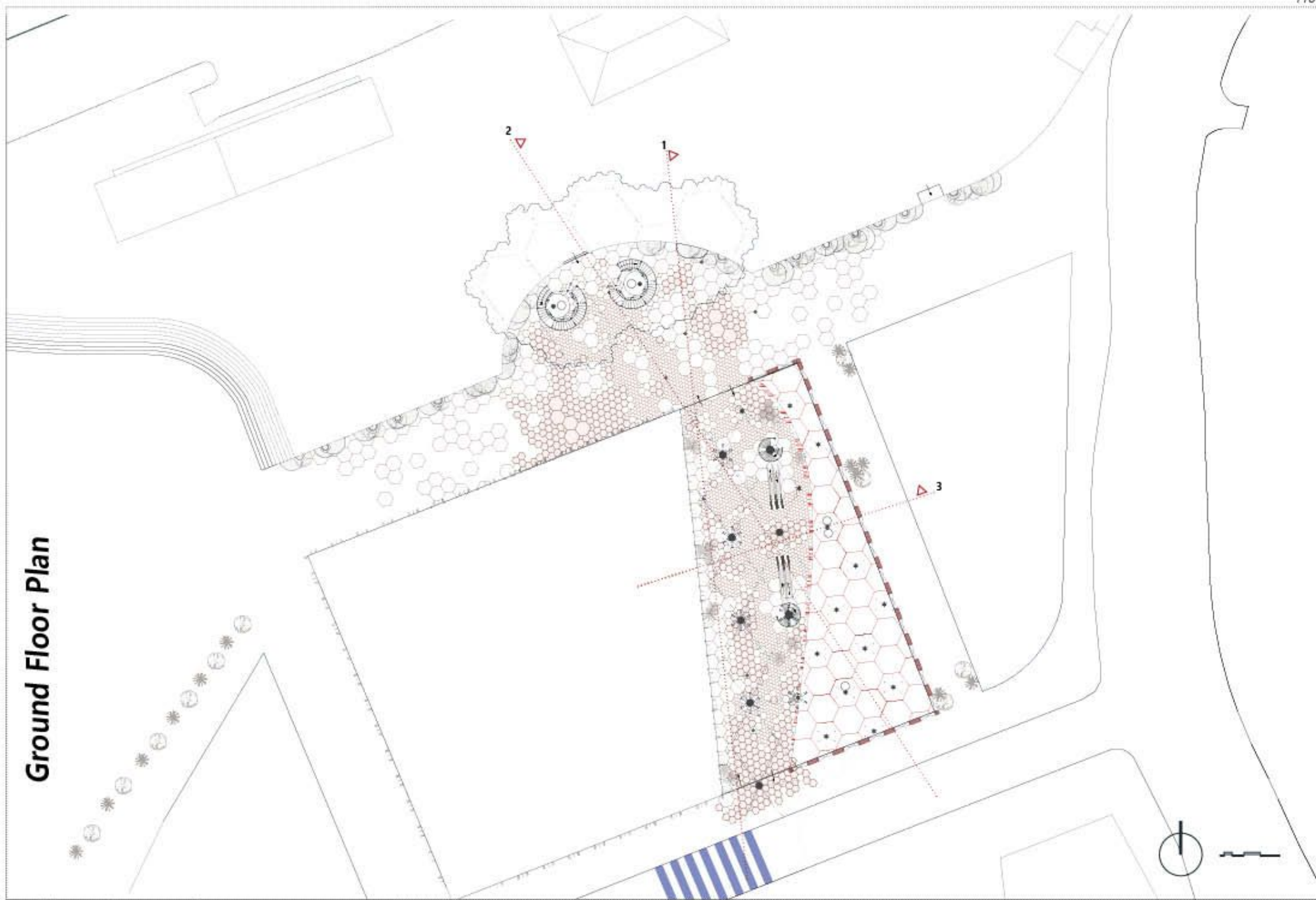
The Nadrazni road that lies between Masarykova street and the bridge will remain as the main tram stand and will only be accessible for pedestrian and cycle movement. There is the possibility for bus lines.

Given in the plans are the transport lines of tram, bus and car in red, blue and brown respectfully.

The main feature is the paving, which indicates the entrances, columns and circulation points at ground level. The curved wall creates a vacant space that forms the main area for different forms of circulation between the levels.

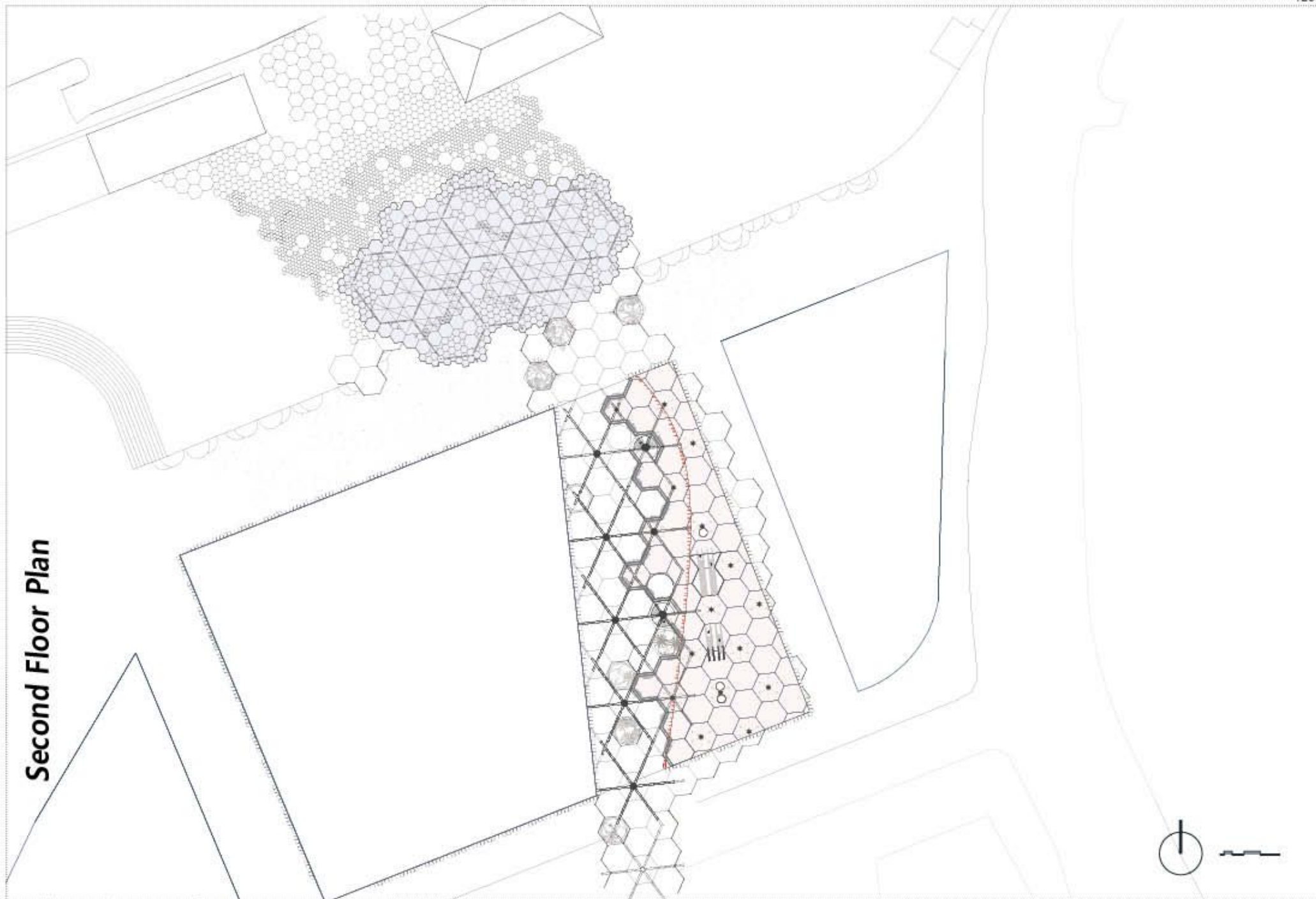


Ground Floor Plan





Second Floor Plan



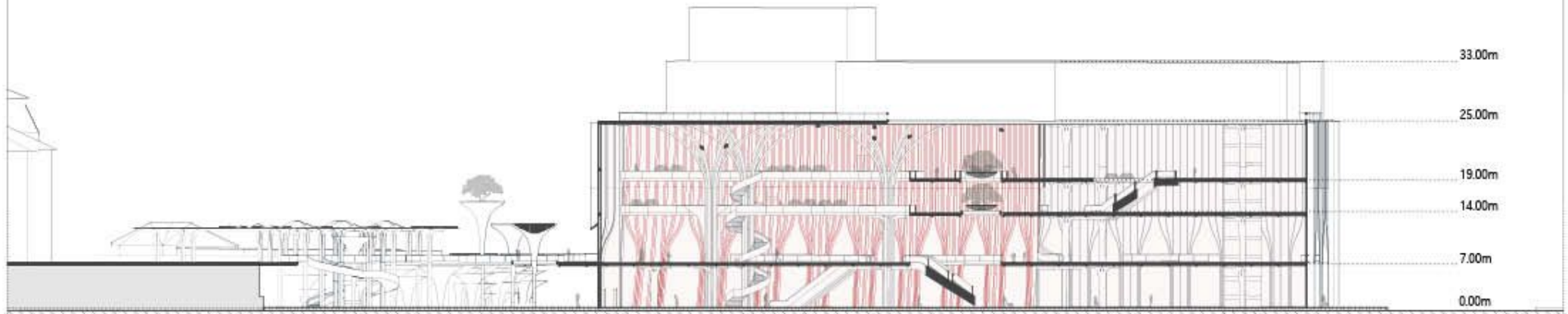
Second Floor plan

Third Floor Plan

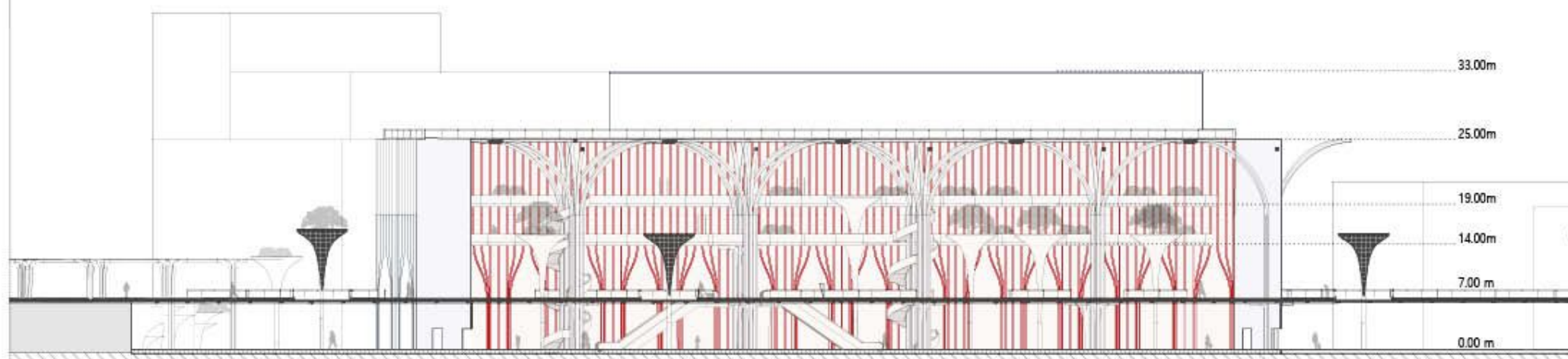


Roof Plan

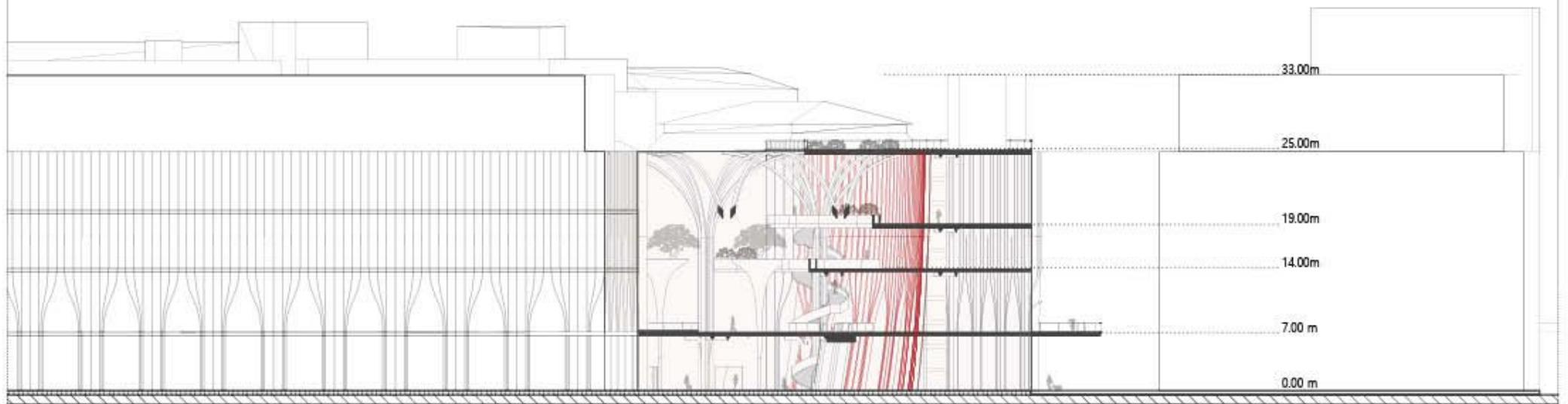




Section 1

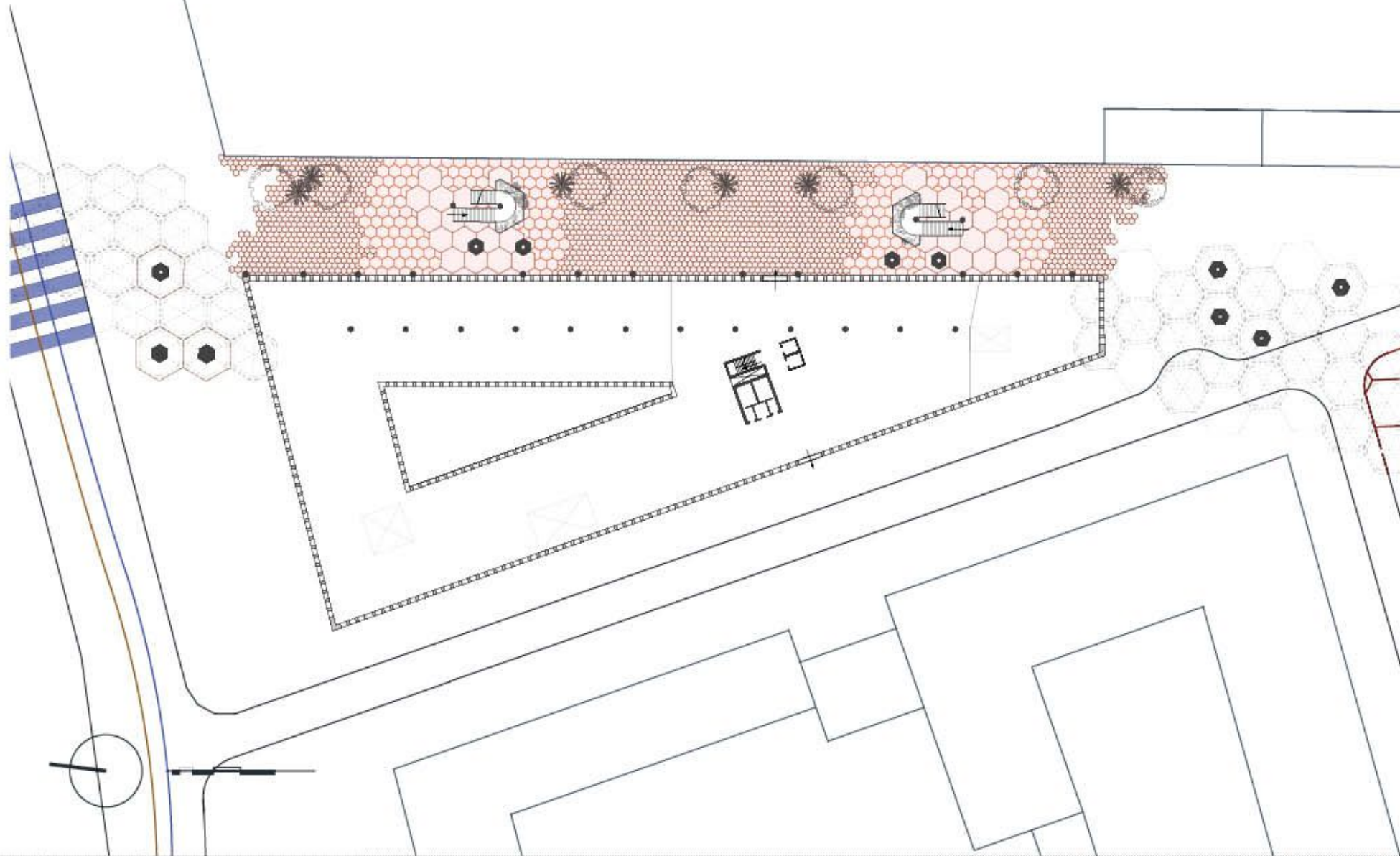


Section 2



Section 3

Site 1 : Trinity (Semi open bridge)

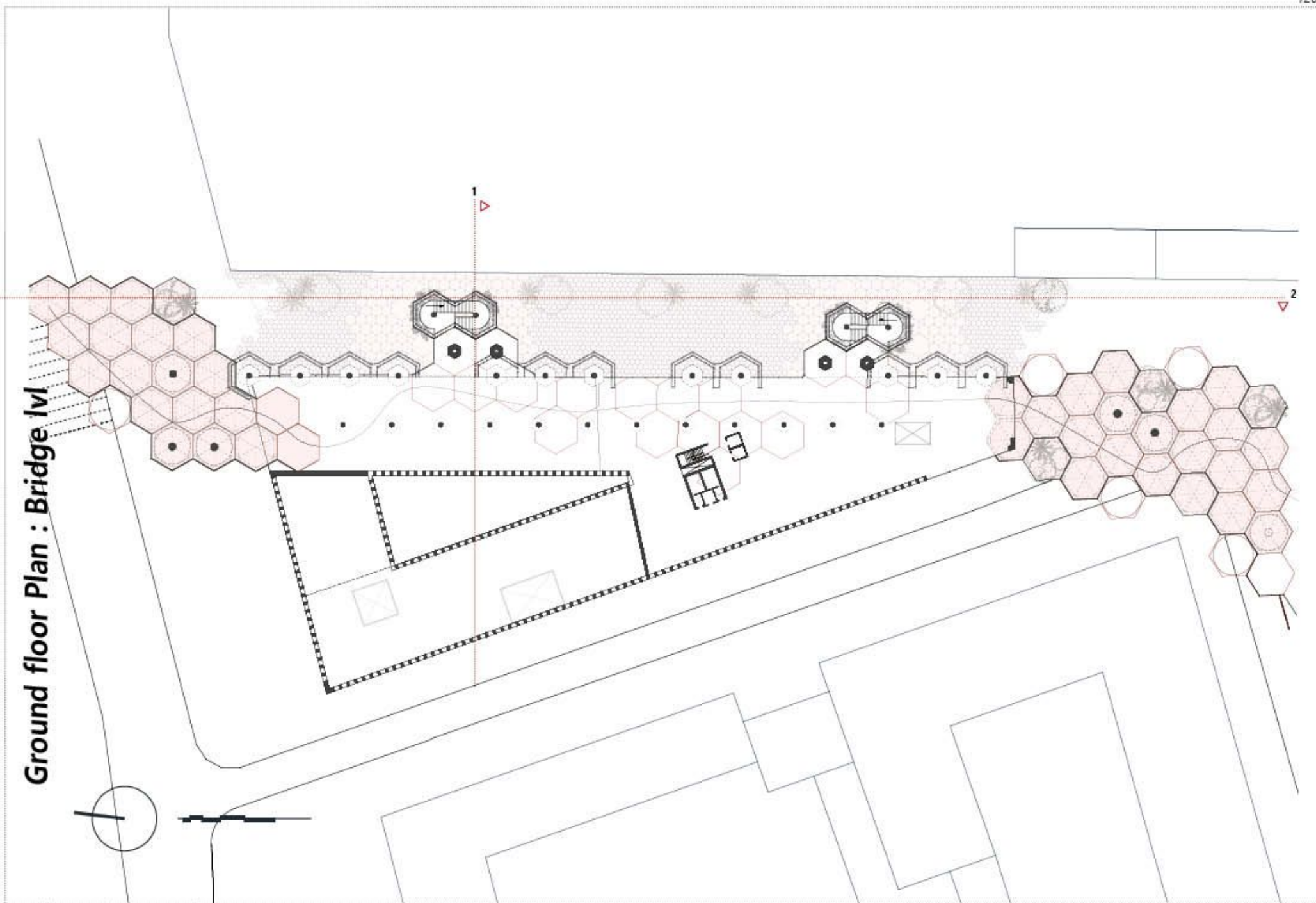


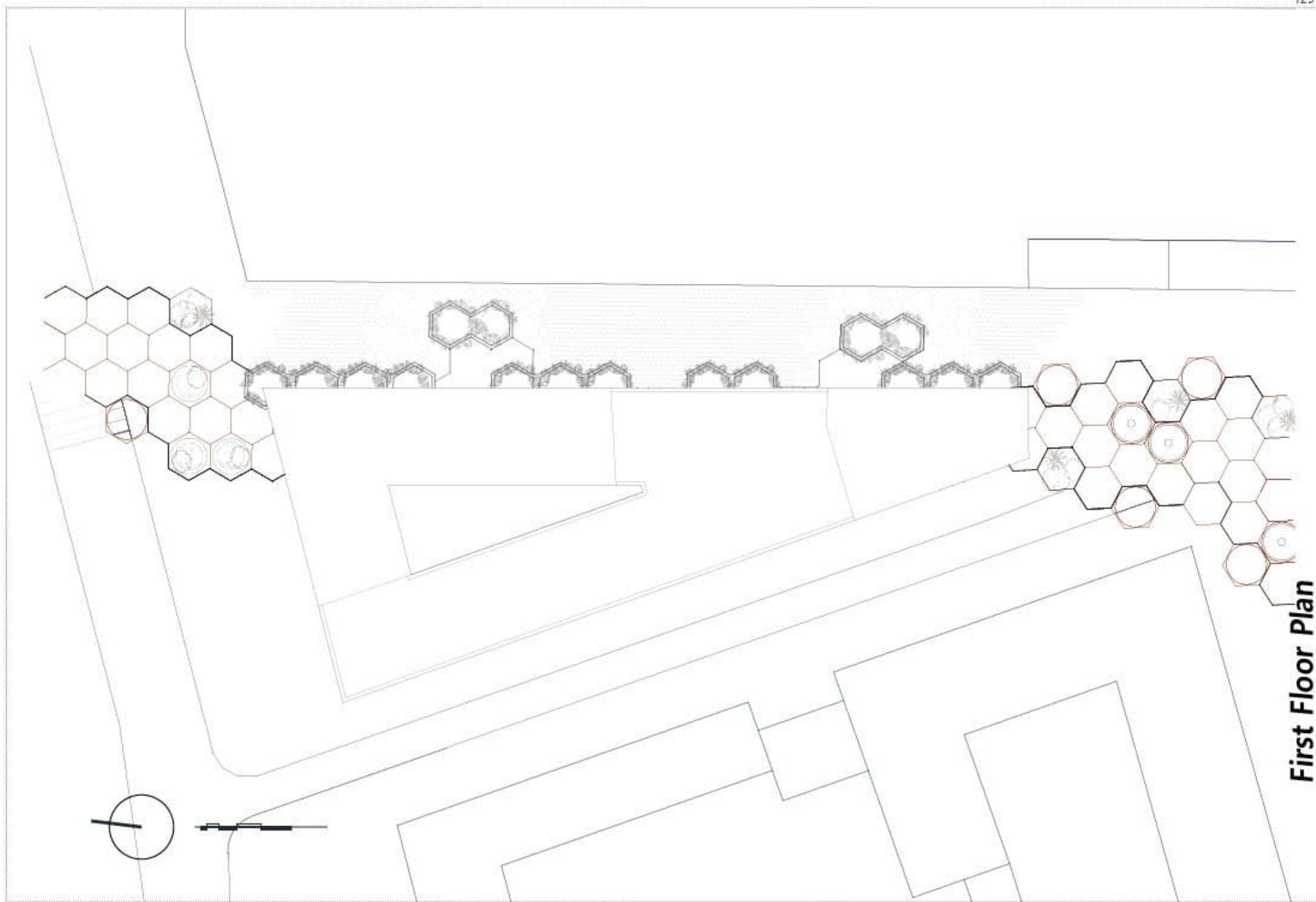
Site 1 : Trinité building : 388.5 sqm

The building exists at present. It is mainly an office building. Here we introduce the idea that two floors of the building are dedicated to the bridge. The existing circulation shaft and washroom in the building at the level of the bridge form a relief point. The street flanking this building is mainly dedicated to pedestrian movement and used for parking thus it is favourable to place a circulation point here. The floor of the bridge in the Trinité building is semi-enclosed. It suits functions such as cafes, organic markets and space for solo musicians to perform for the public.

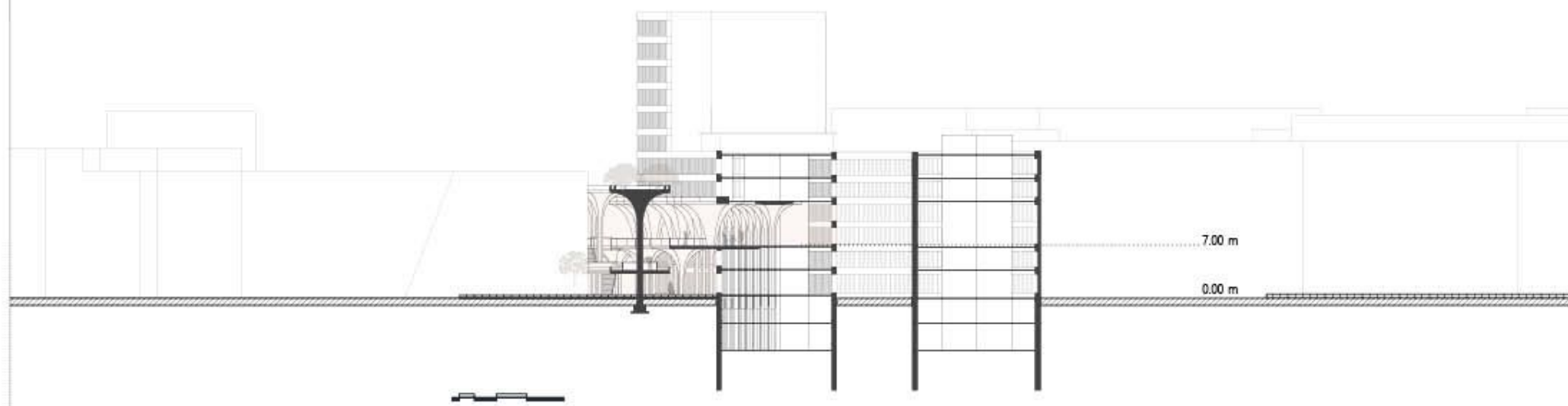
This building is connected to the enclosed A2 intervention of the bridge. It also acts as a connector between the first part of the bridge and the square. The road between A2 and Trinité will consist of bus stops and a large crossing as the road is about 54m wide. Thus there is scope for it to be a pickup and drop off site through bus transport.

Ground floor Plan : Bridge lvl

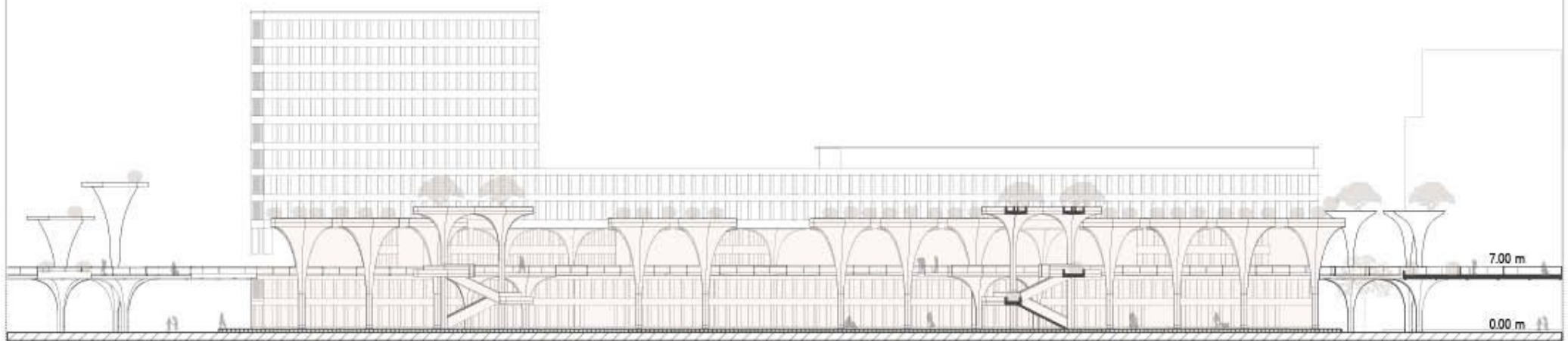




First Floor Plan

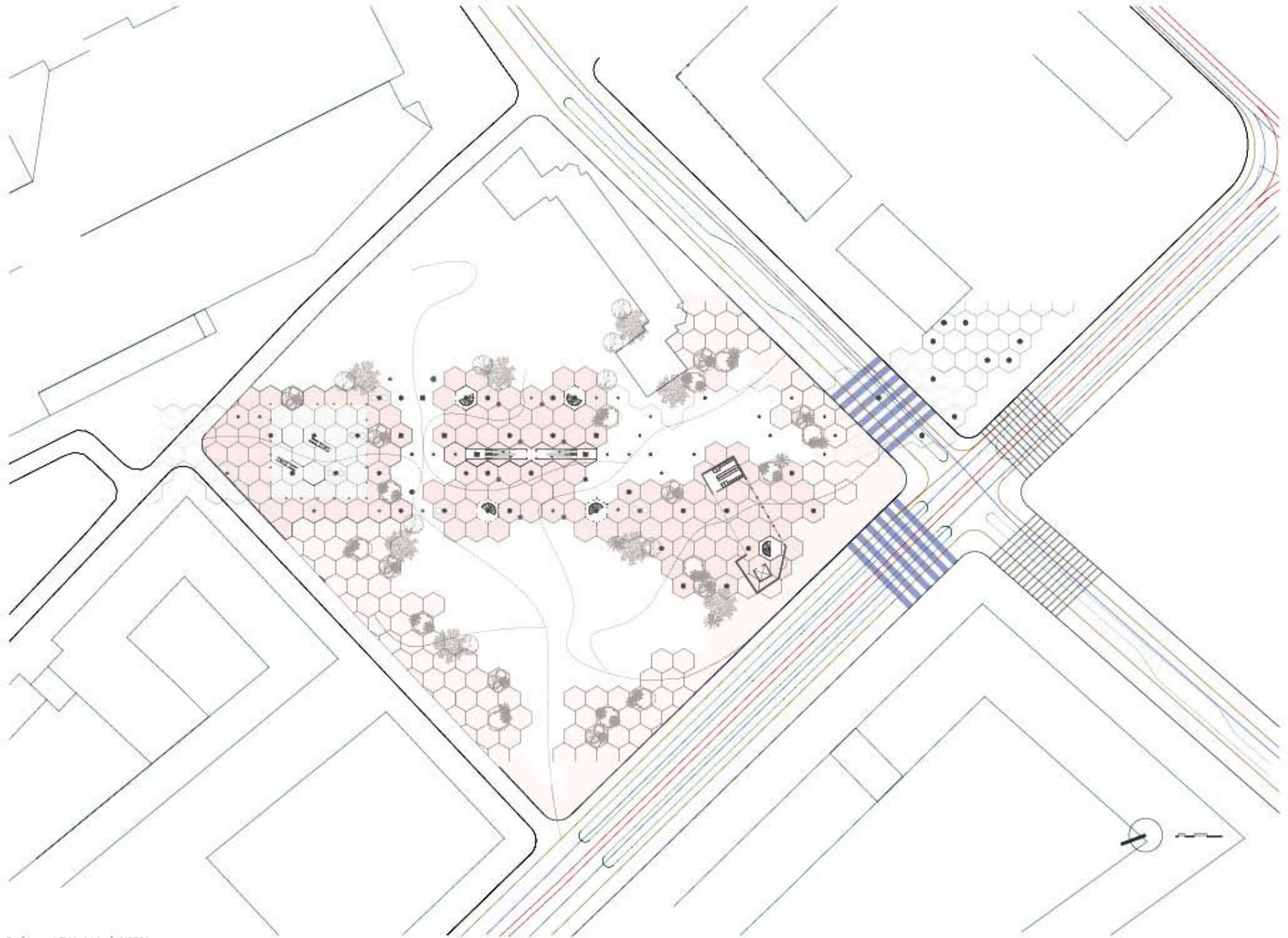


Section 1



Section 2

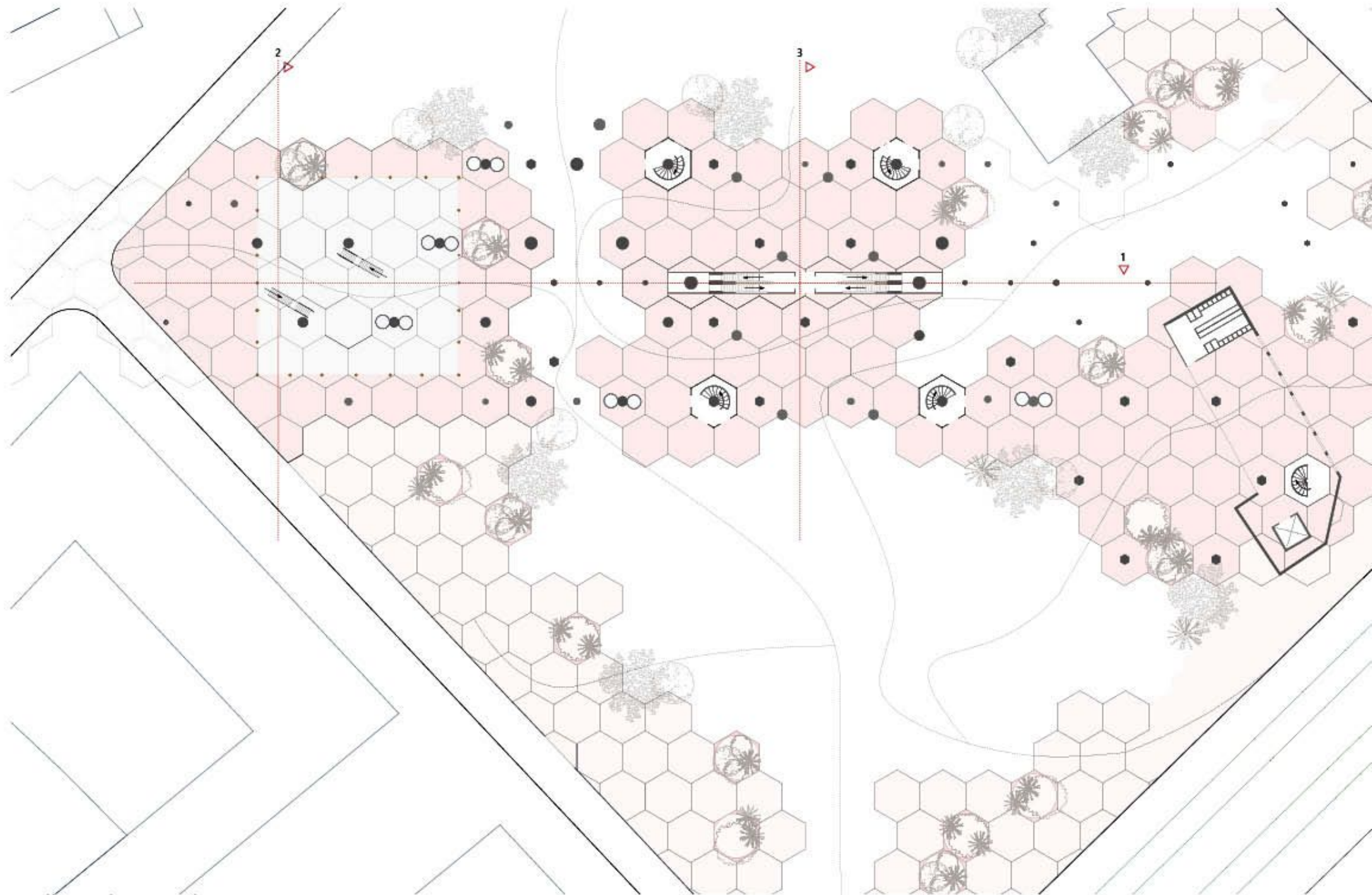
Site 2 : Square (Enclosed,semi-open,open bridge)

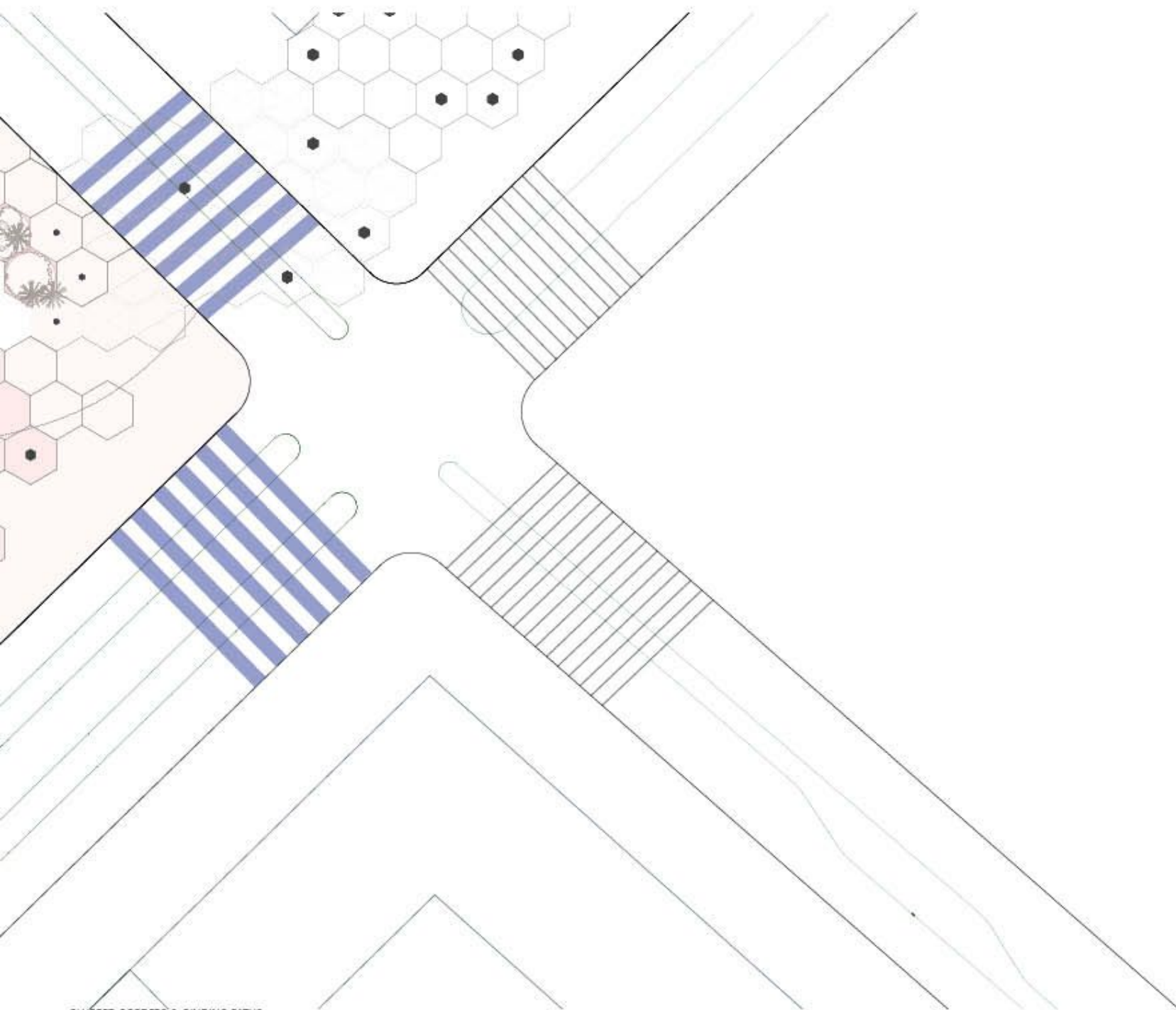


Site 2 : The Square : 2647sqm

The square is the main building of the whole bridge. It contains and enclose, semi-enclosed and open area. The enclosed site is the point of a 3.8 level difference between the two floors of the main bridge platform and houses a gallery space. The open-closed spaces aid in creating atmosphere and echo. While the semi-enclosed space consists of three floors that contain commerce, circulation and entertainment. The floors are kept open with a simple standardised framework of walls to provide the choice of change. Thus the floors can be either used for commerce, a theatre, leisure etc. The ground floor is treated with hexagon platforms too to create a sort of landscape for the square.

An old existing building is fused with the bridge. Its main function is to contain some programmes that will stay permanent. Such as washrooms, cafes and information offices.

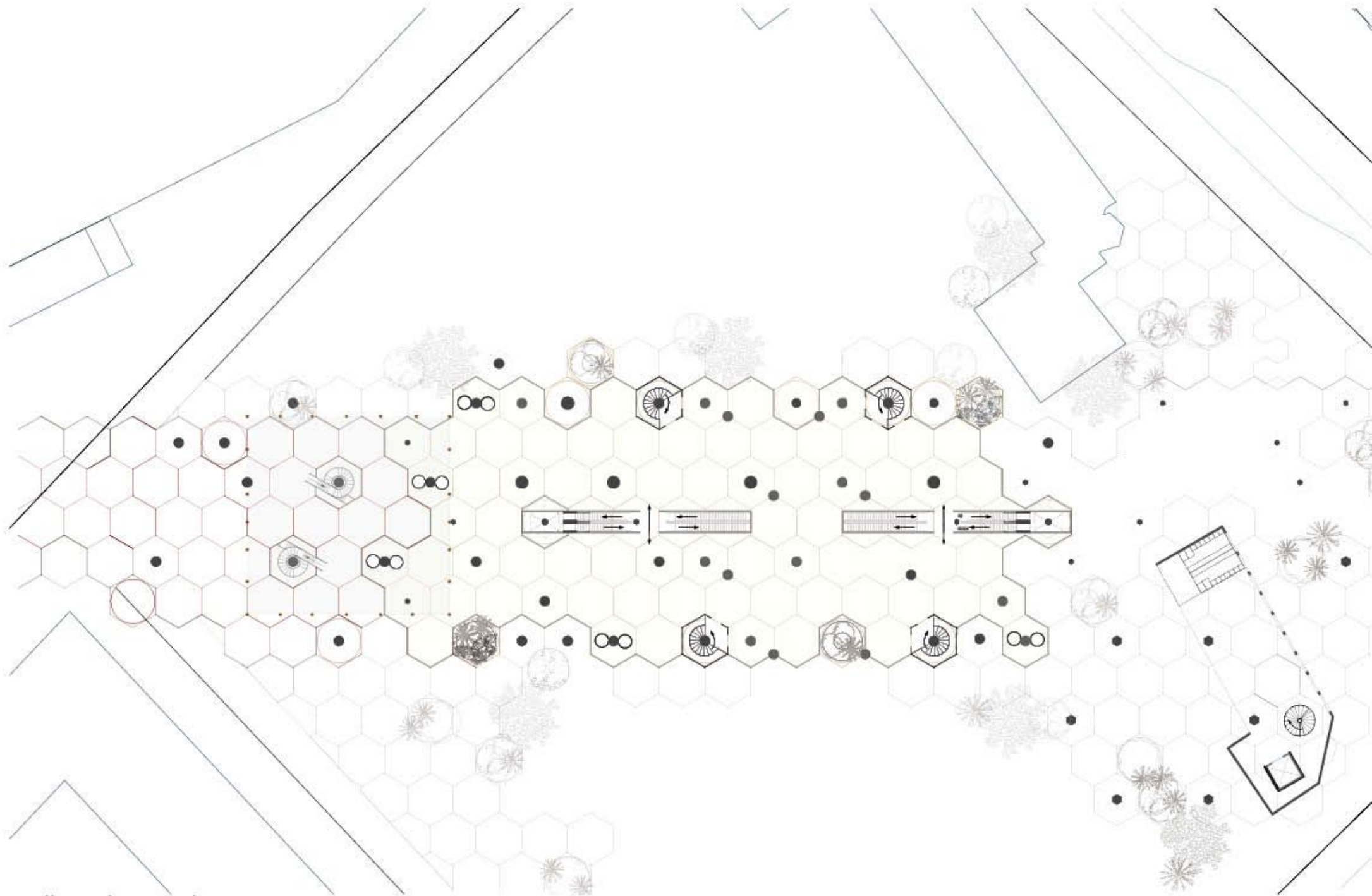




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Ground Floor Plan

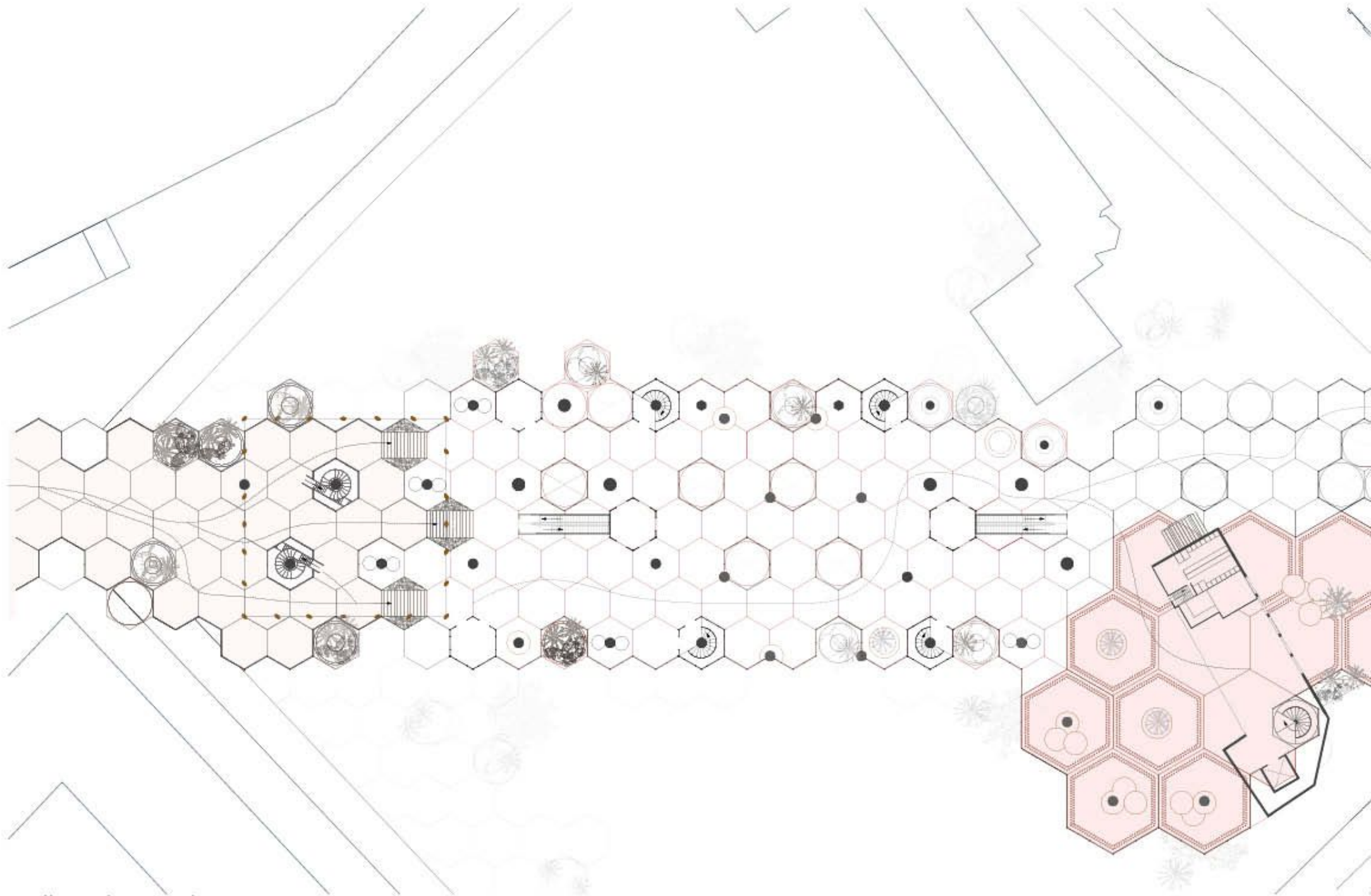




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First Floor Plan

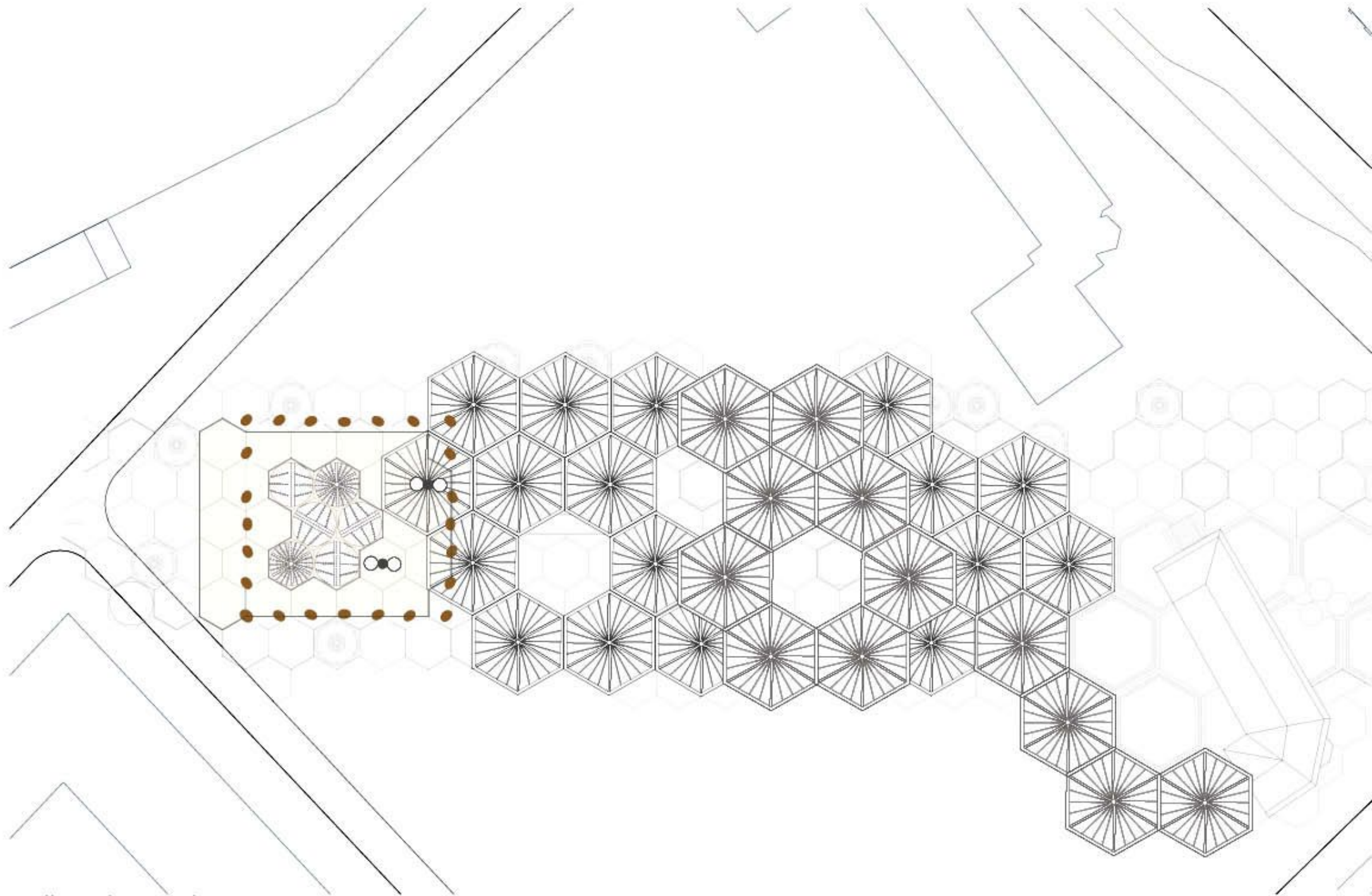


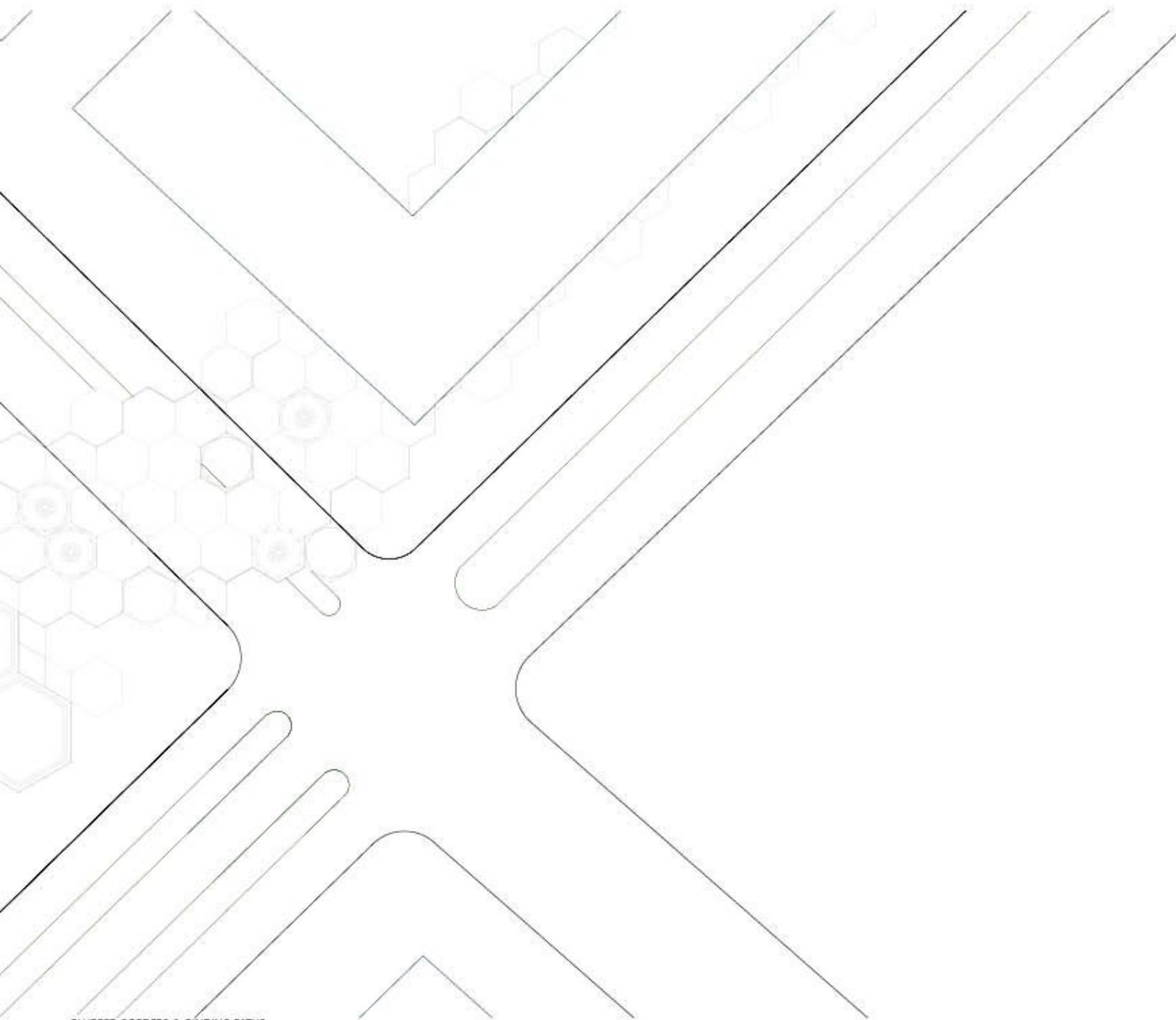


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Second Floor Plan : Bridge IVI

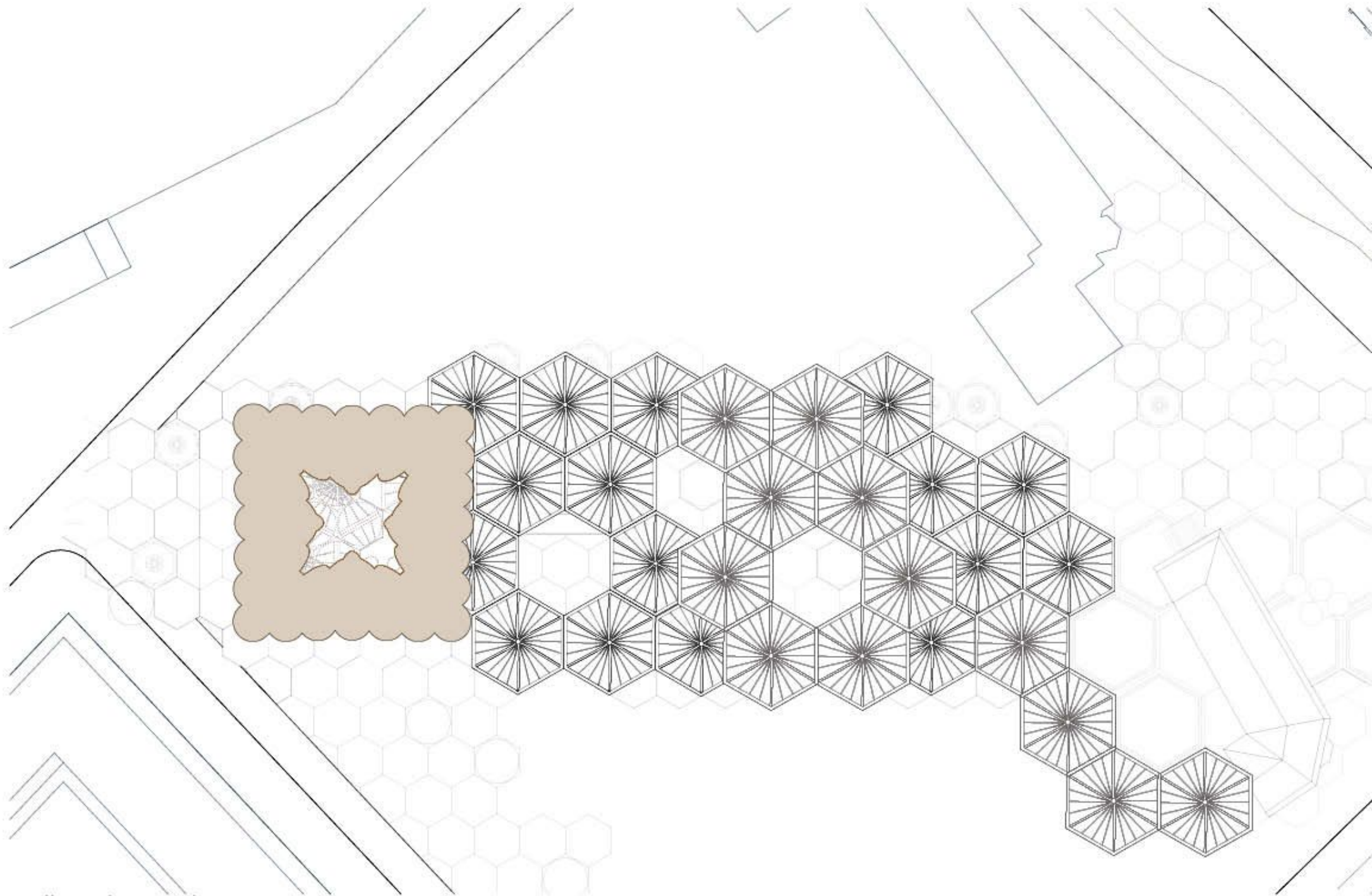


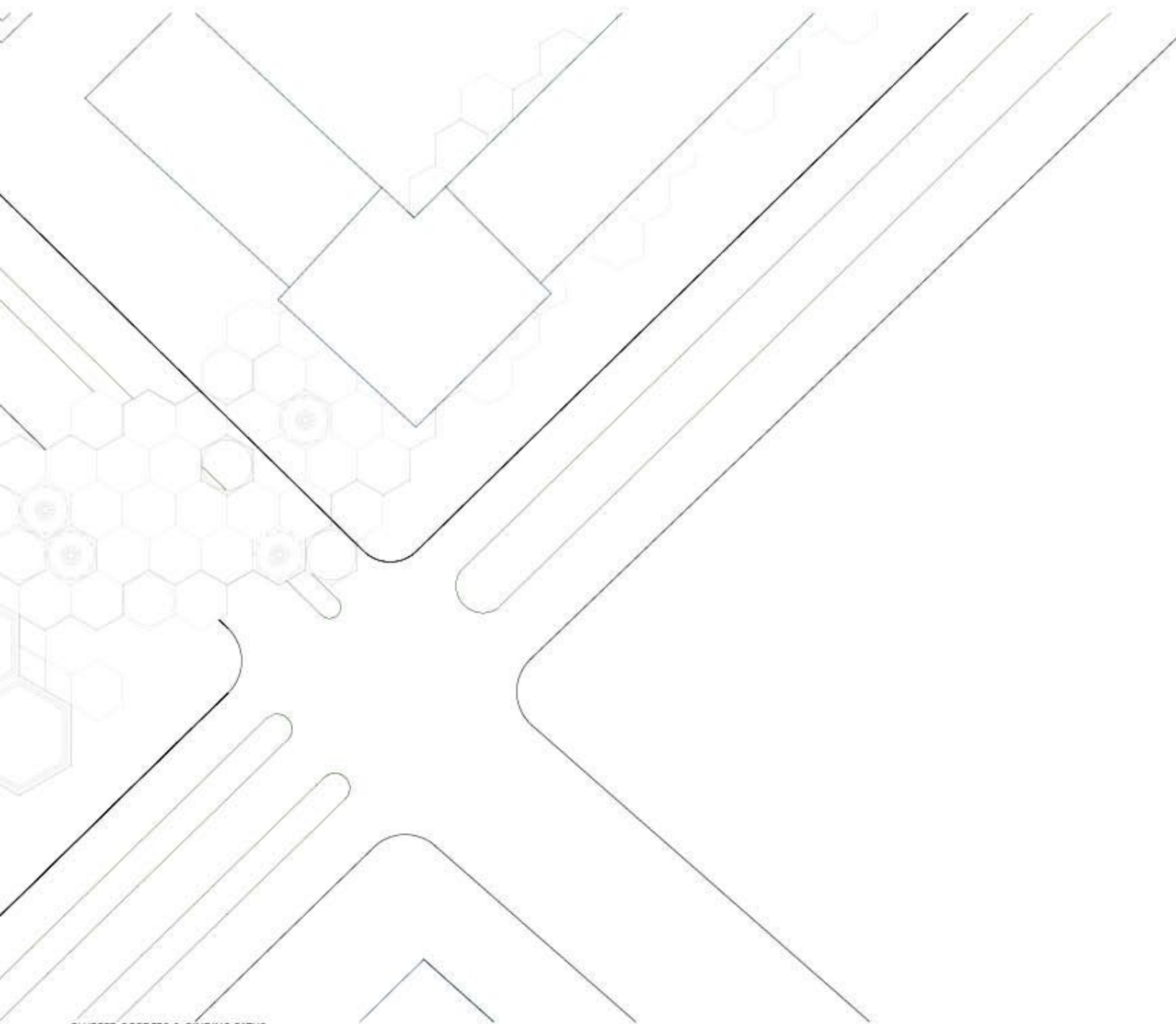


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Third Floor plan

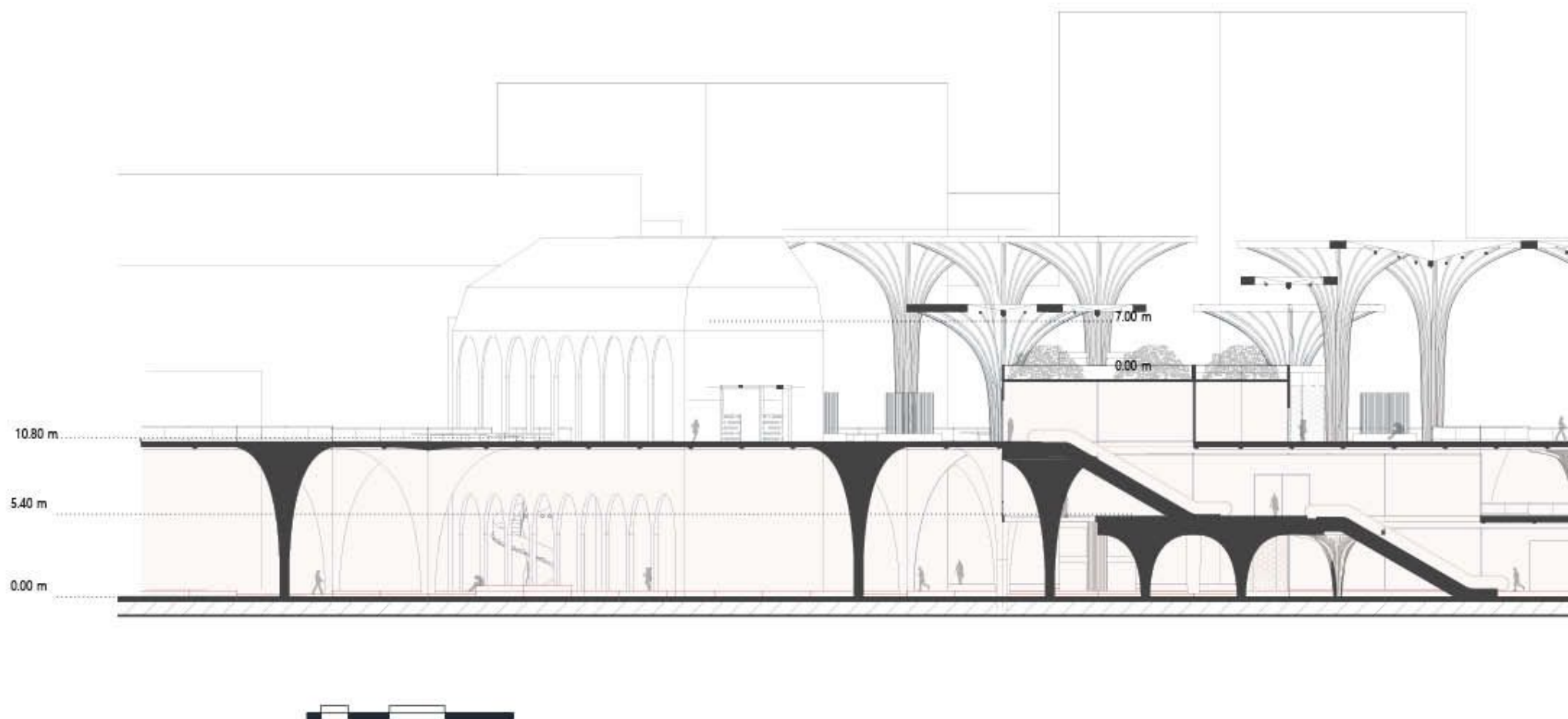


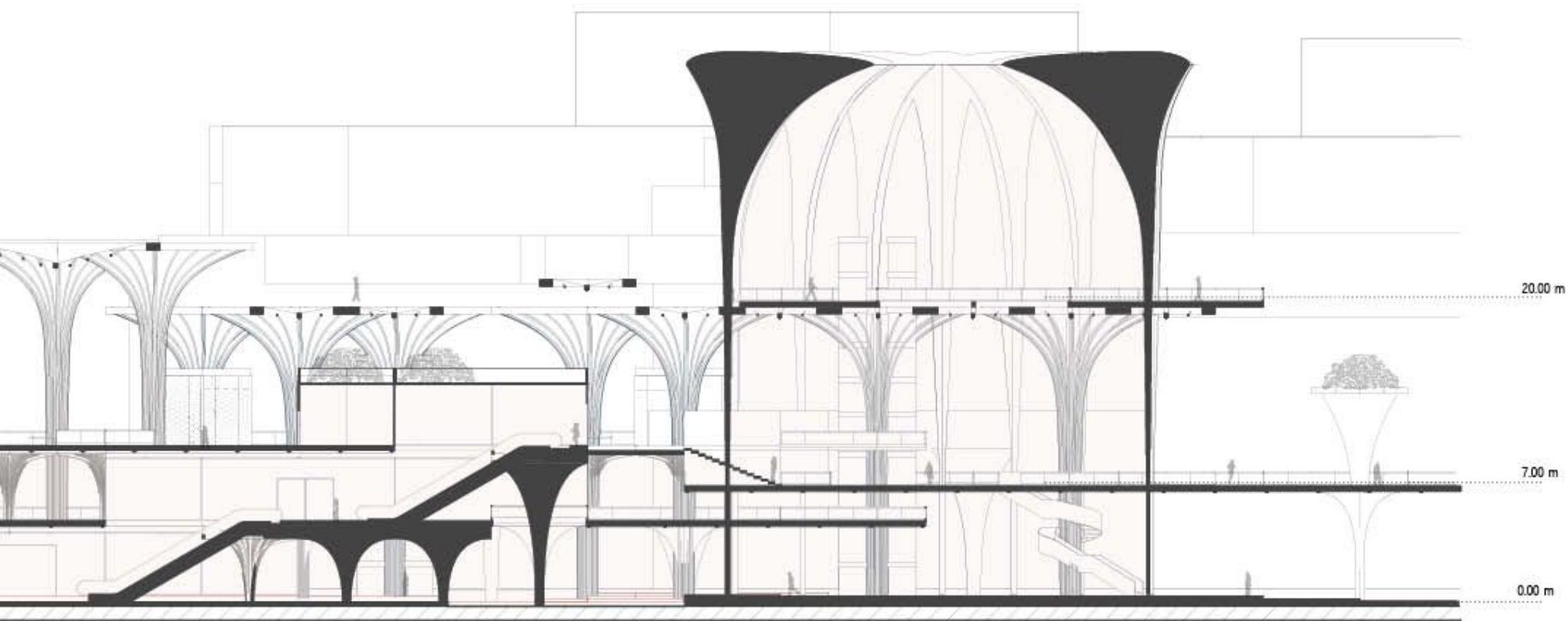


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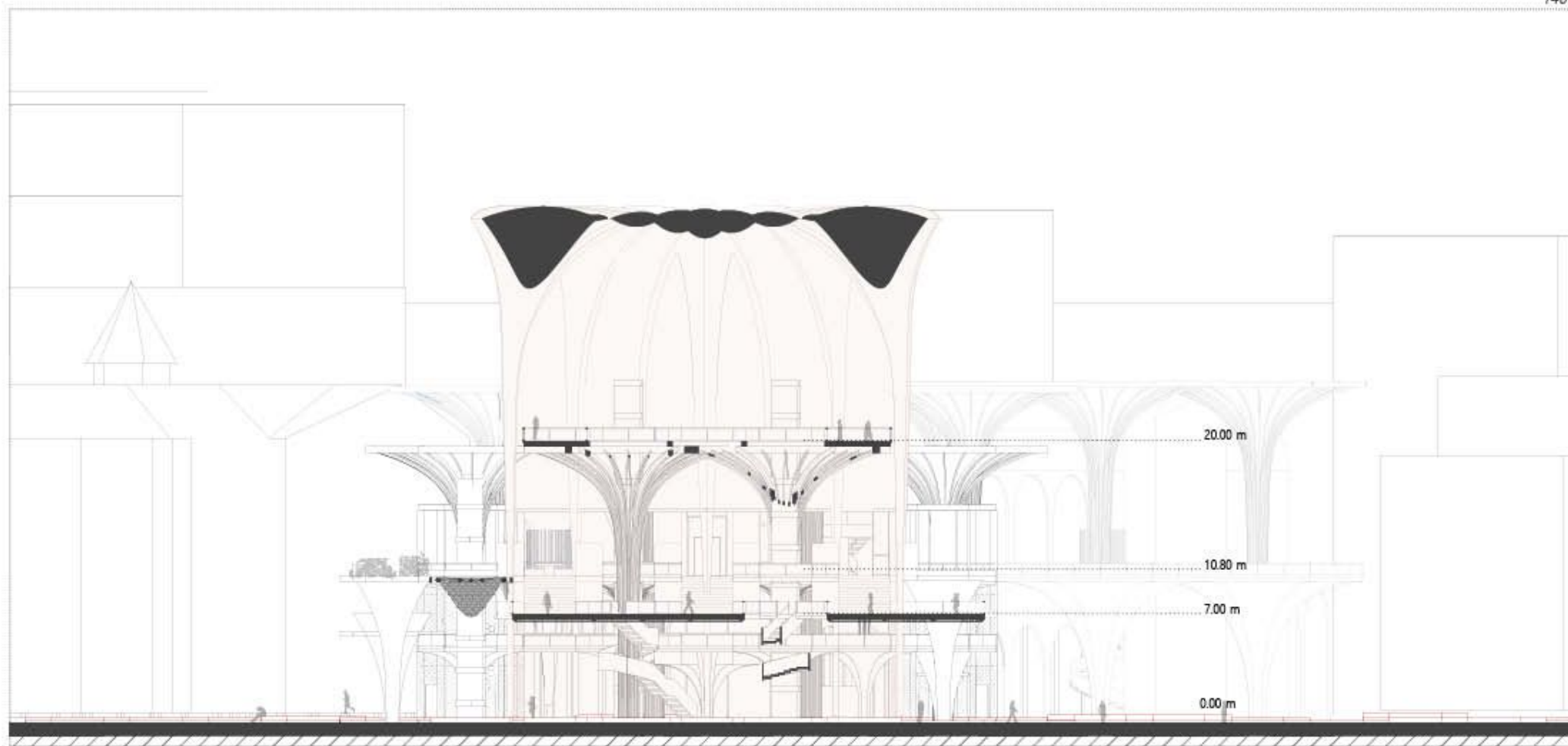


Roof Plan



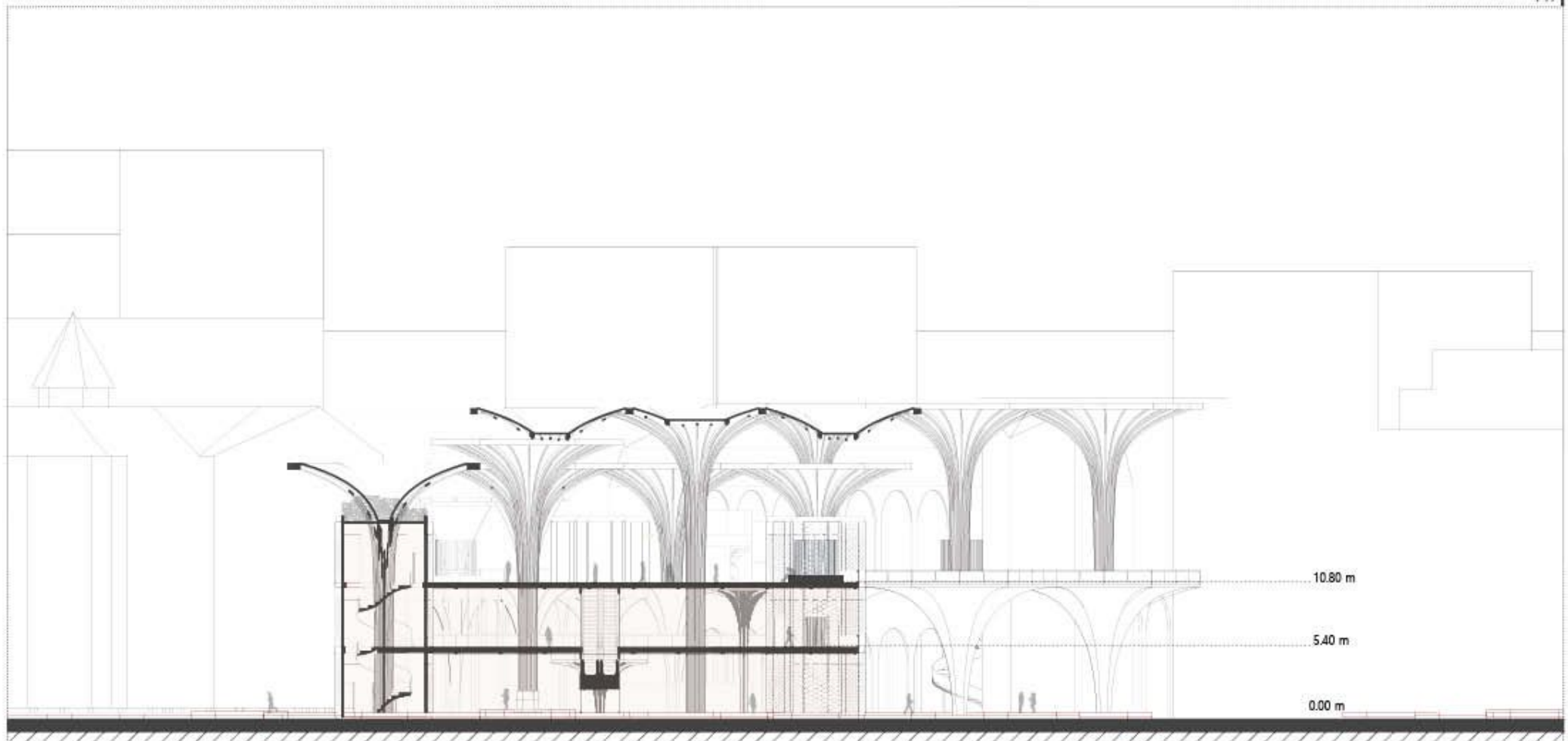


Section 1



Section 2





Section 3

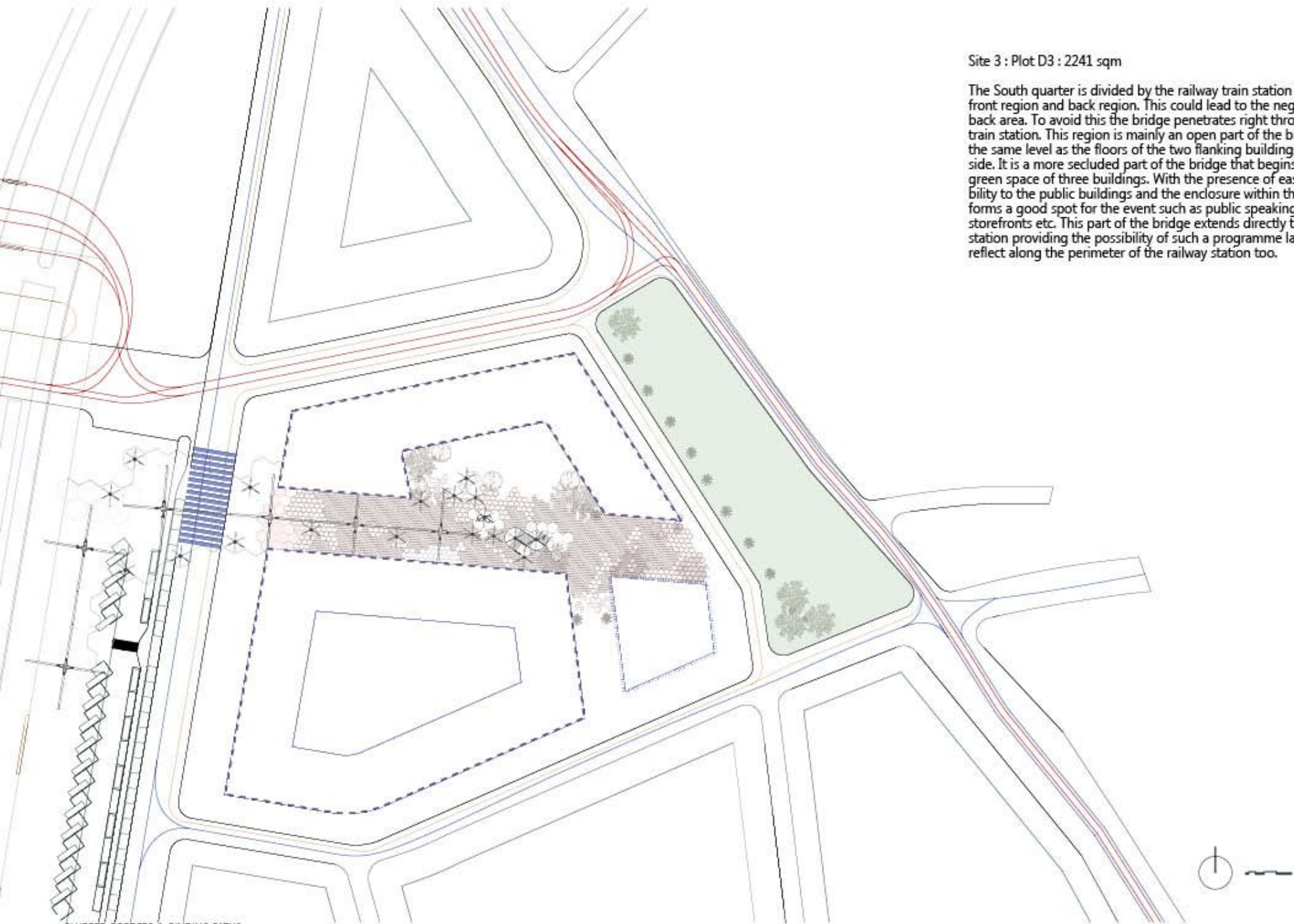
Site 3 : Pot D3 (open bridge)

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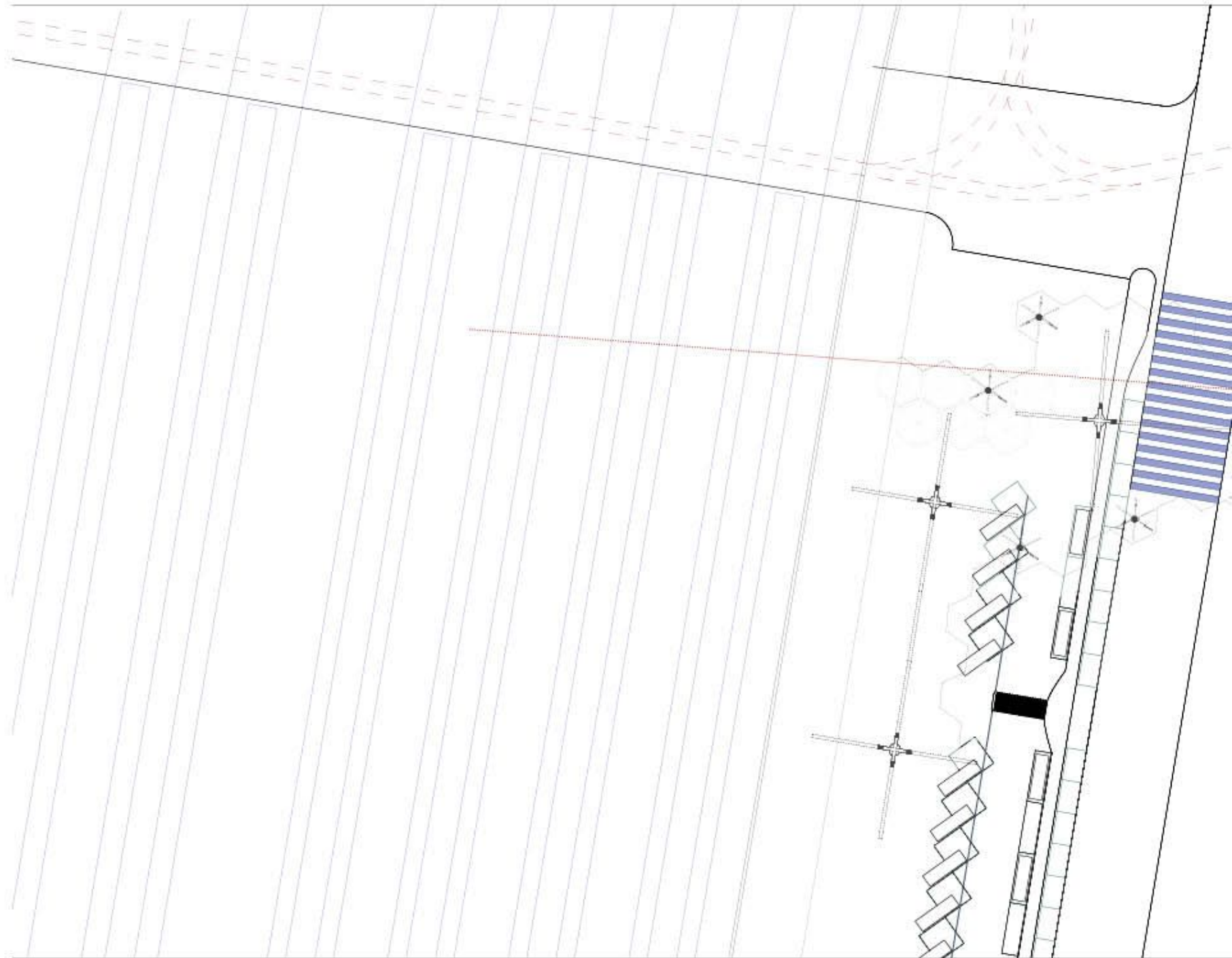


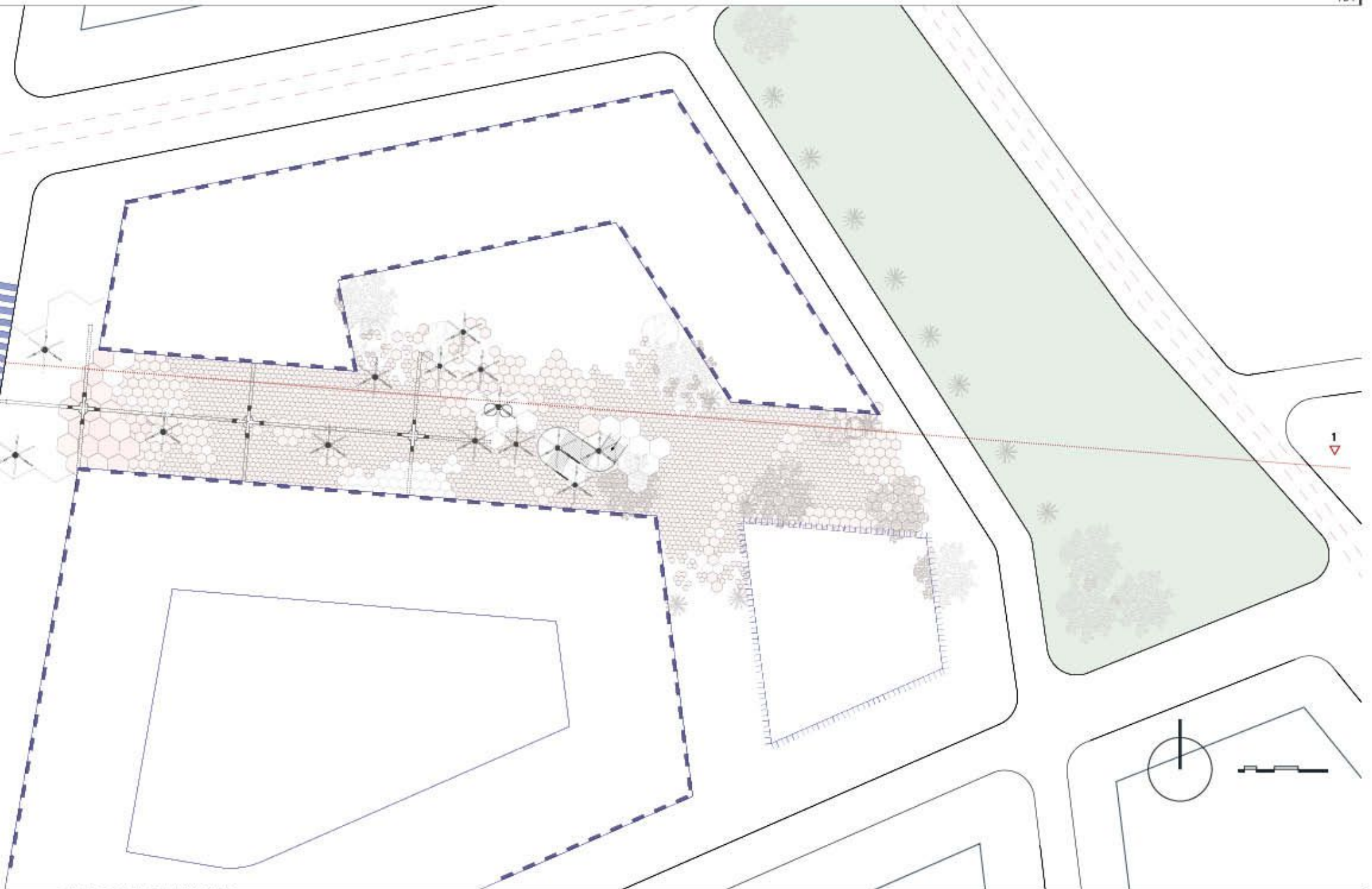
Site 3 : Plot D3 : 2241 sqm

The South quarter is divided by the railway train station into a front region and back region. This could lead to the neglect of the back area. To avoid this the bridge penetrates right through the train station. This region is mainly an open part of the bridge at the same level as the floors of the two flanking buildings on either side. It is a more secluded part of the bridge that begins within the green space of three buildings. With the presence of easy accessibility to the public buildings and the enclosure within them, site 3 forms a good spot for the event such as public speaking, eateries, storefronts etc. This part of the bridge extends directly to the train station providing the possibility of such a programme language to reflect along the perimeter of the railway station too.

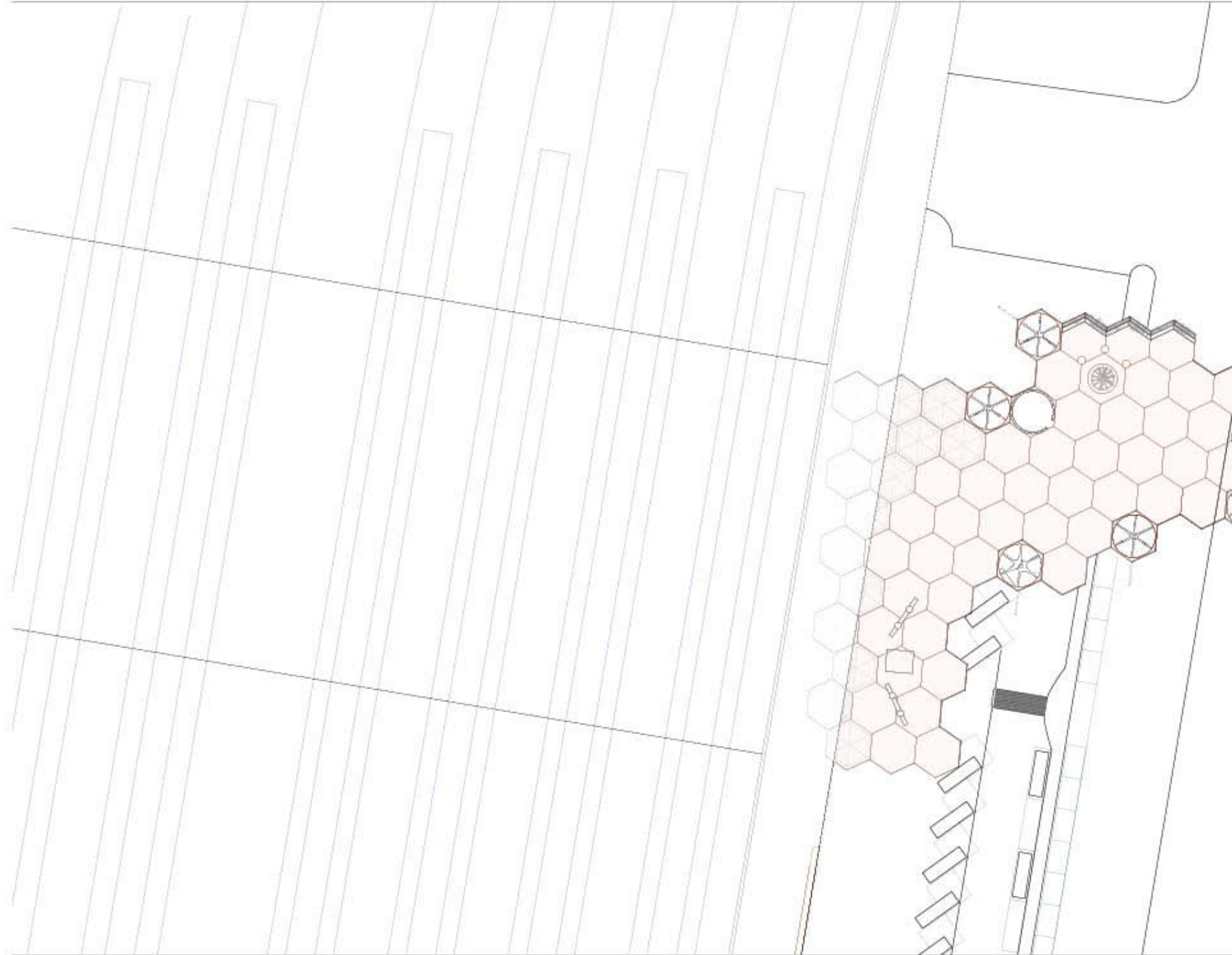


Ground Floor Plan

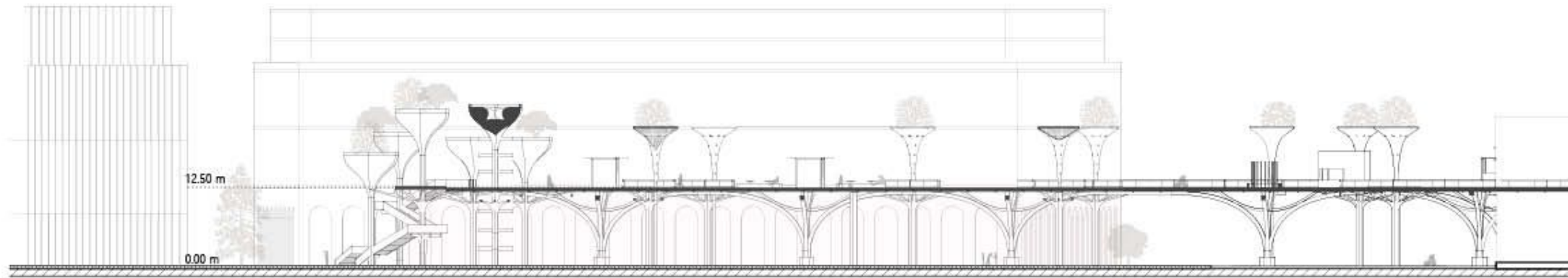




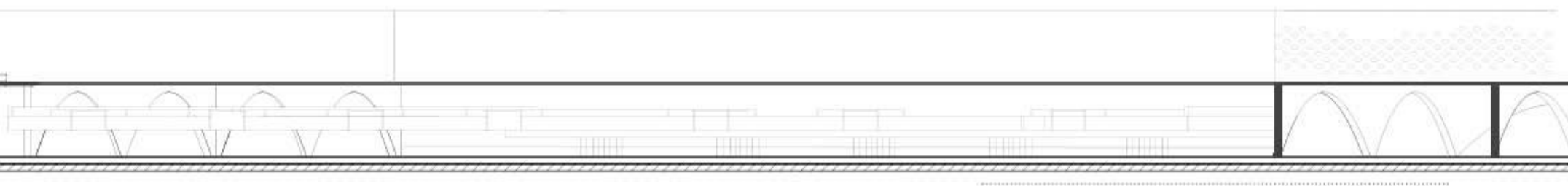
First Floor Plan : Bridge Ivl





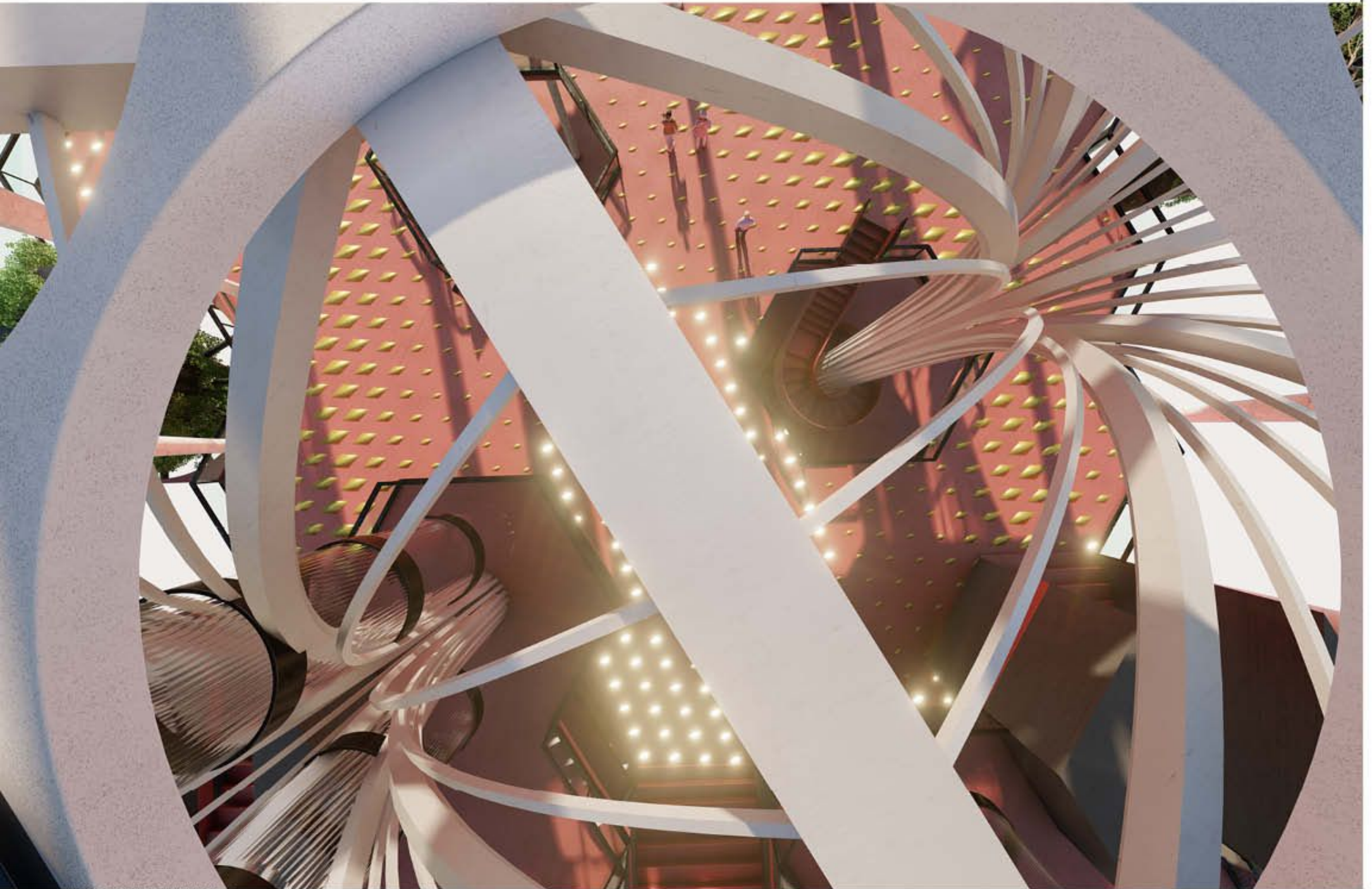


Section 1



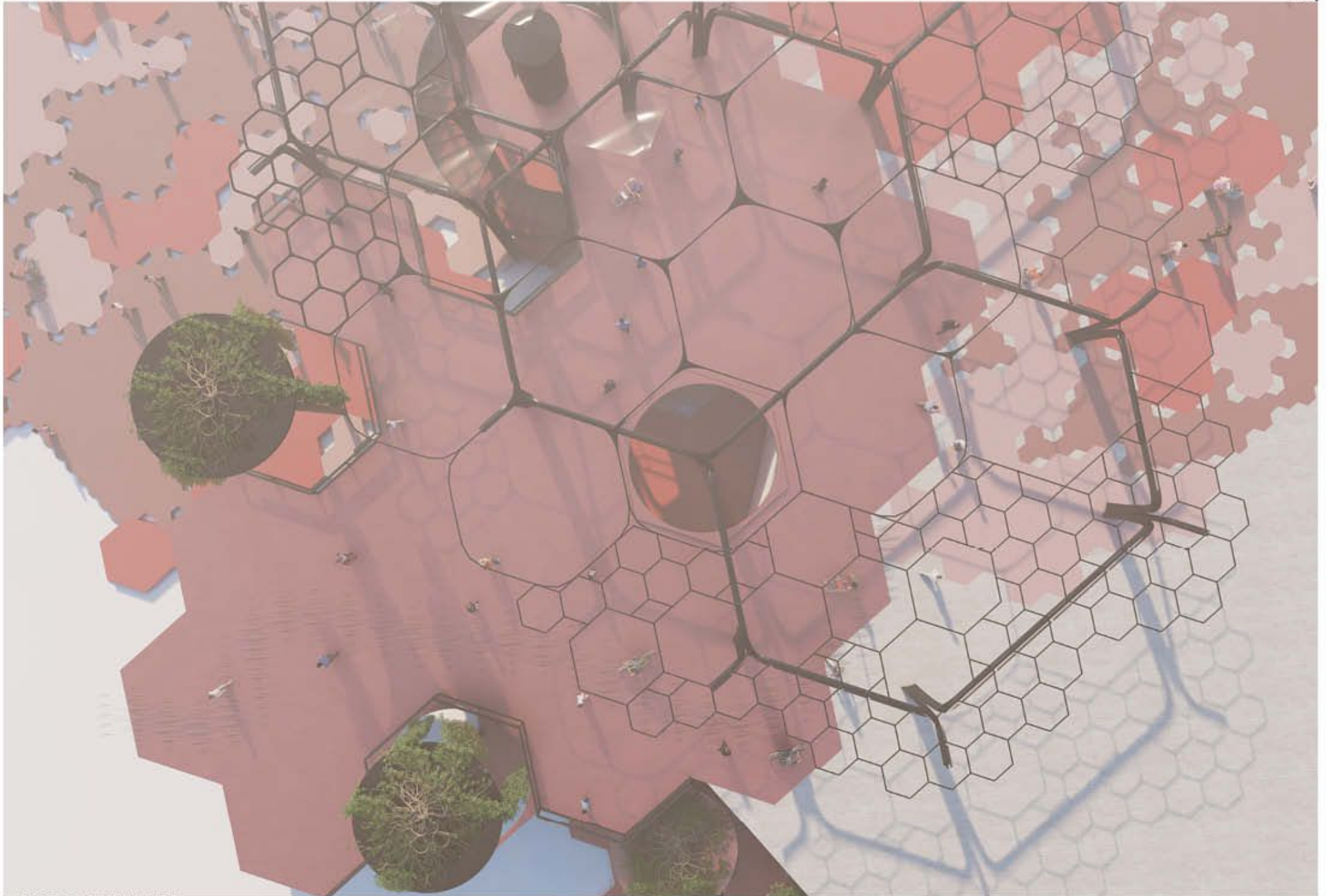
VIEWS OF THE BRIDGE



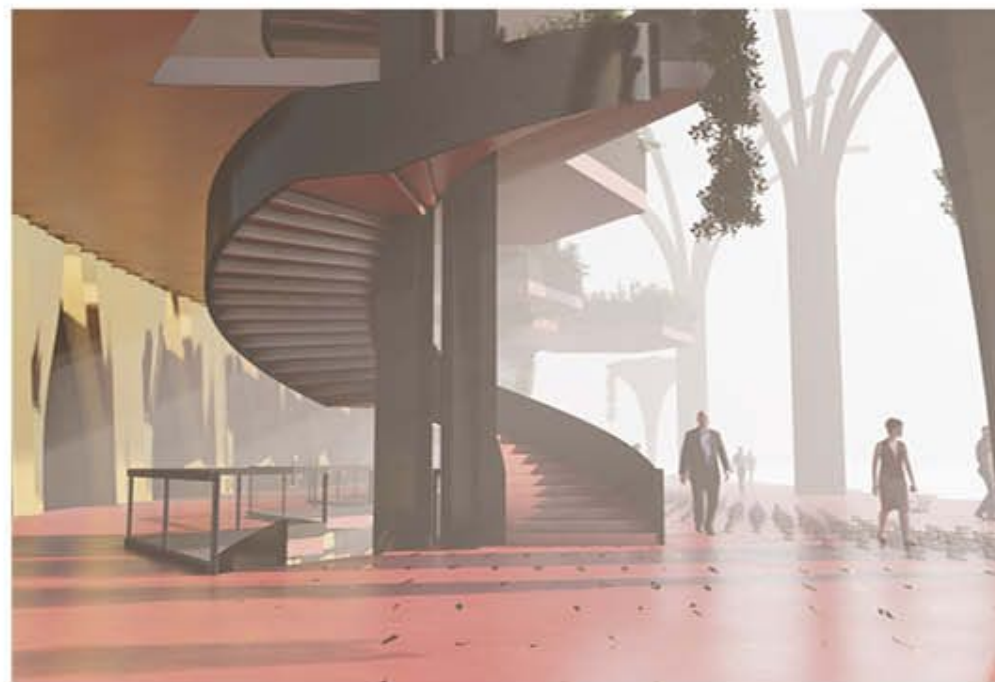




VIEWS : Site 1 **Plot F**



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VIEWS : Site 1 A2

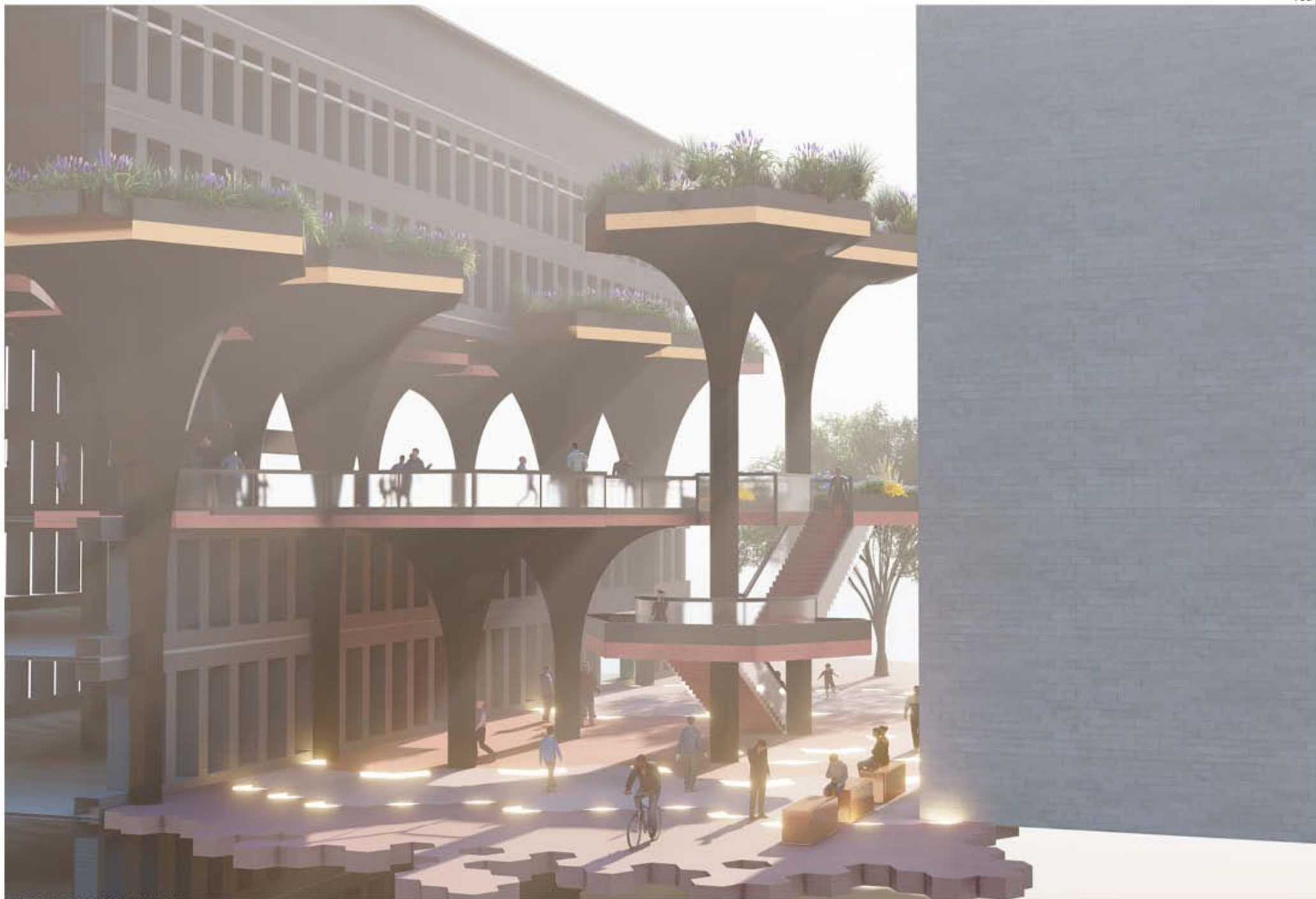


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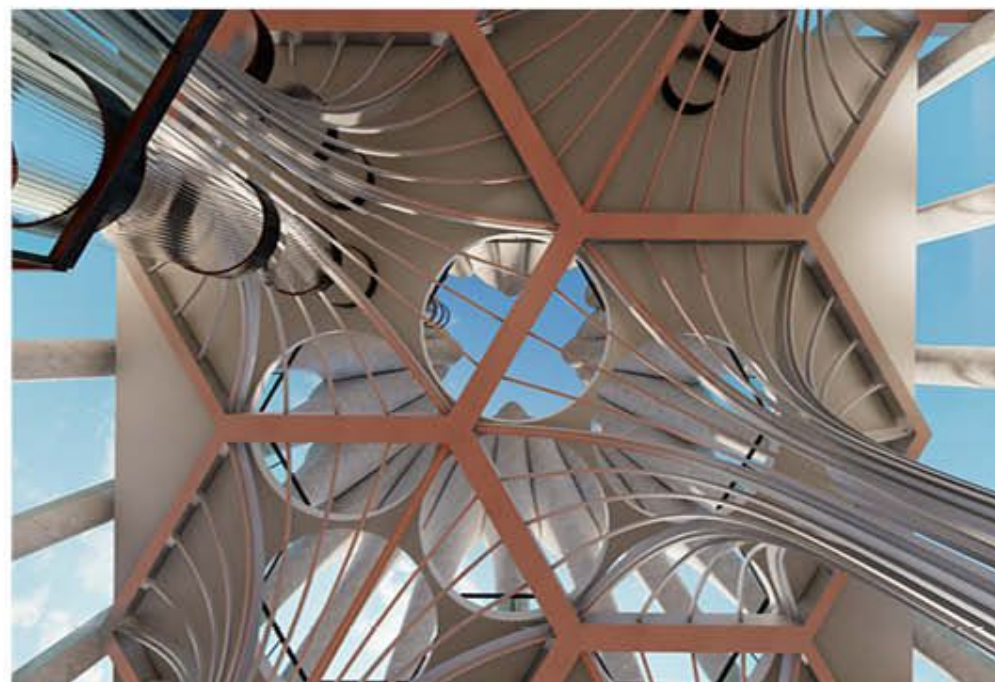
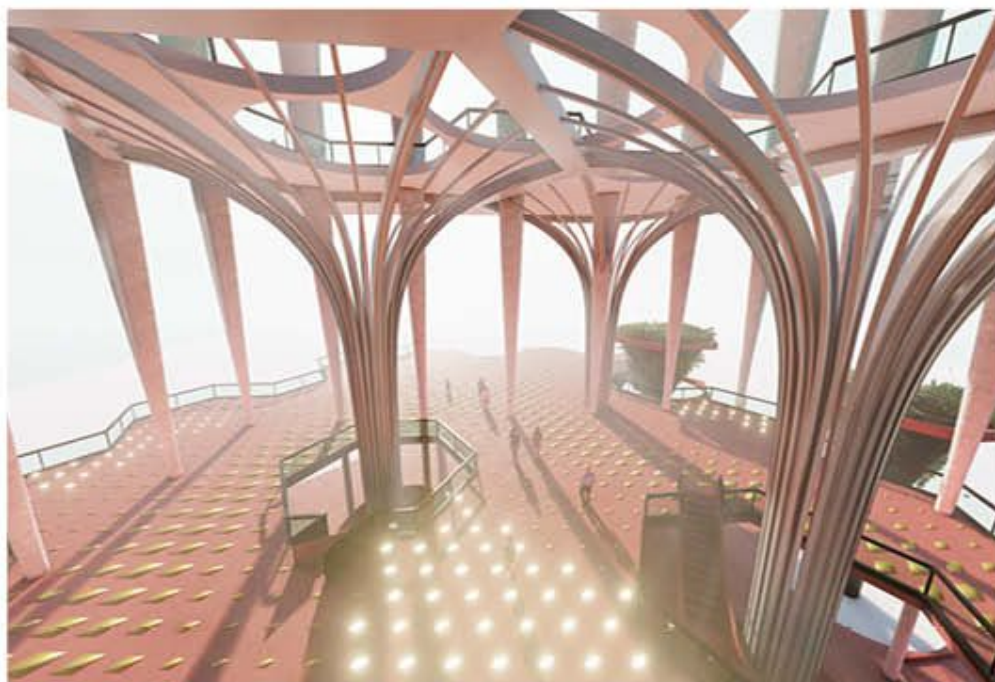


VIEWS : Site 1

Triniti



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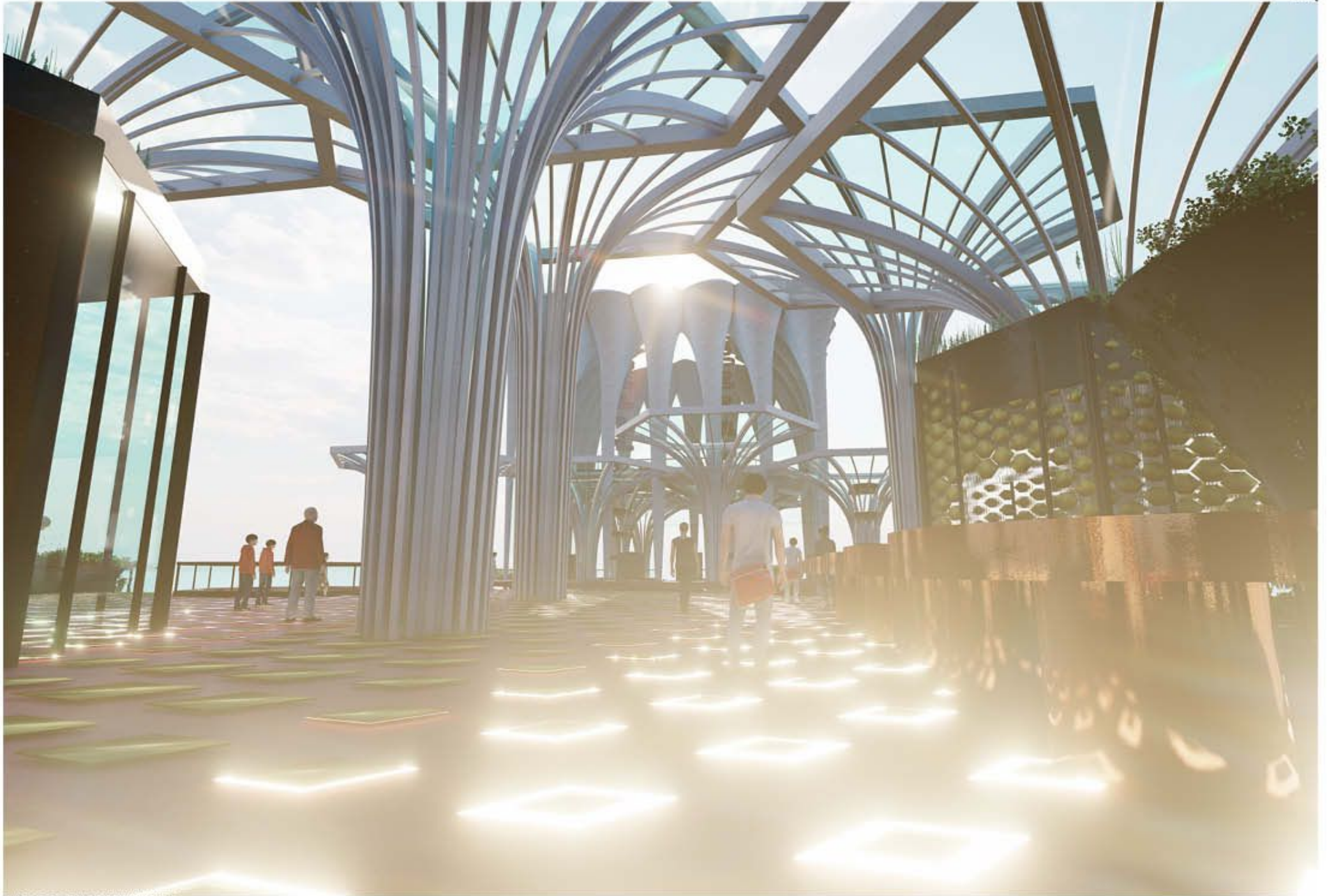
VIEWS : Site 2 Square : enclosed



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VIEWS : Site 2 Square : semi-open



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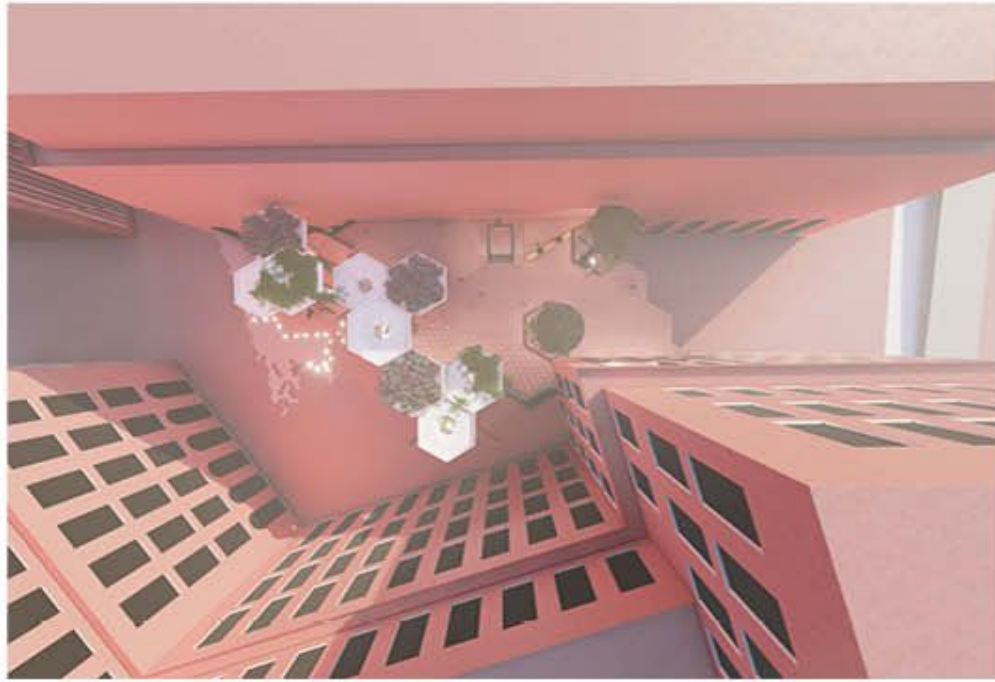


VIEWS : Site 2

Square : open

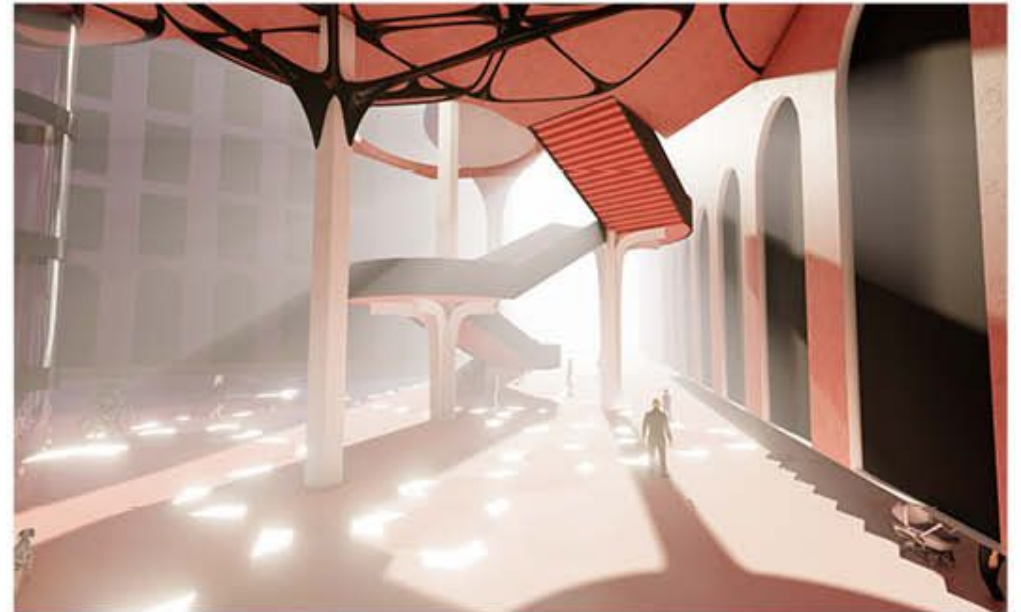


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VIEWS : Site 3 D3

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