

RECLAIMING THE RIVER

A NEW VISION TOWARDS BORDER VACUUMS

GLOBAL HOUSING

GRADUATION STUDIO

2015 -16 / P4

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'The grand building in the distance is the Sheraton Addis, one of the most deluxe hotels in all of Africa—a study in contrasts.'

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1 RESEARCH

1.1 CONTEXT

MORE THAN 90% OF ADDIS ABABA'S INHABITANTS LIVE IN SLUM AREAS.

--- UN-HABITAT(2012)

1.2 PROBLEM STATEMENT I

UNMET DEMANDS FOR AFFORDABLE HOUSING

SLUMS - REASON

95% Humanity increase in developing countries



Rapid urbanization (scale and velocity)



Overurbanization: reproduction of poverty, no supply of jobs



Housing shortage: Government rarely supply more than 20% new house



Slum emerge: people turn to self-built shanties, informal rentals or sidewalks



1.2 PROBLEM STATEMENT I

UNMET DEMANDS FOR AFFORDABLE HOUSING

SLUMS - PROBLEM

- Overcrowding
- Poor living condition
- Poor sanitation
- Inadequate access to safe water
- Insecurity of tenure
- lack of public space and community facilities



CURRENT STRATEGY - CONDOMINIUMS ?

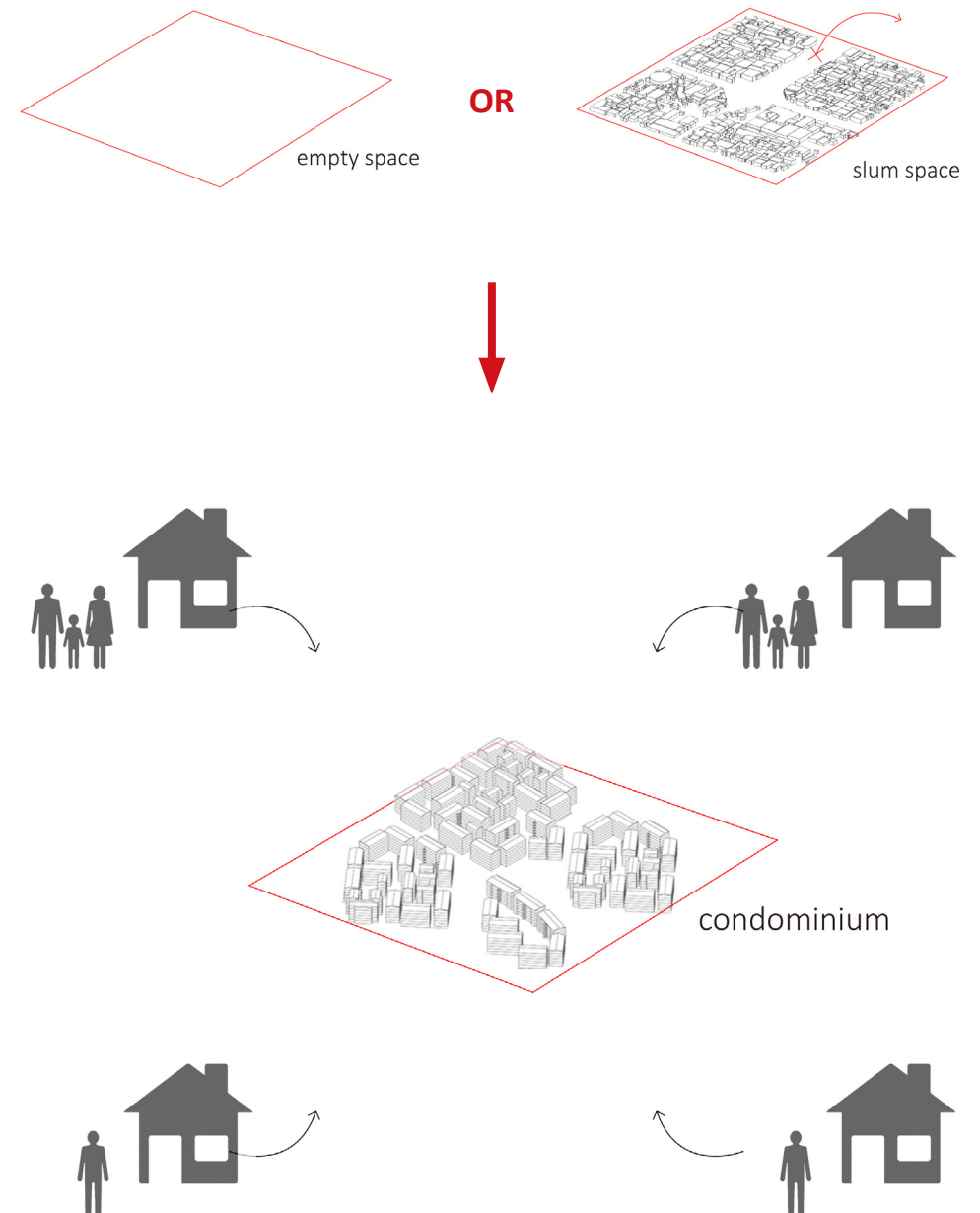


1.2 PROBLEM STATEMENT I

UNMET DEMANDS FOR AFFORDABLE HOUSING

CURRENT STRATEGY - CONDOMINIUMS

- Large scale, sustainable solution
- Creates jobs in construction
- Cross-subsidy scheme increase affordability
- Equal chances due to lottery system
- Possibility of creating new community



1.2 PROBLEM STATEMENT I

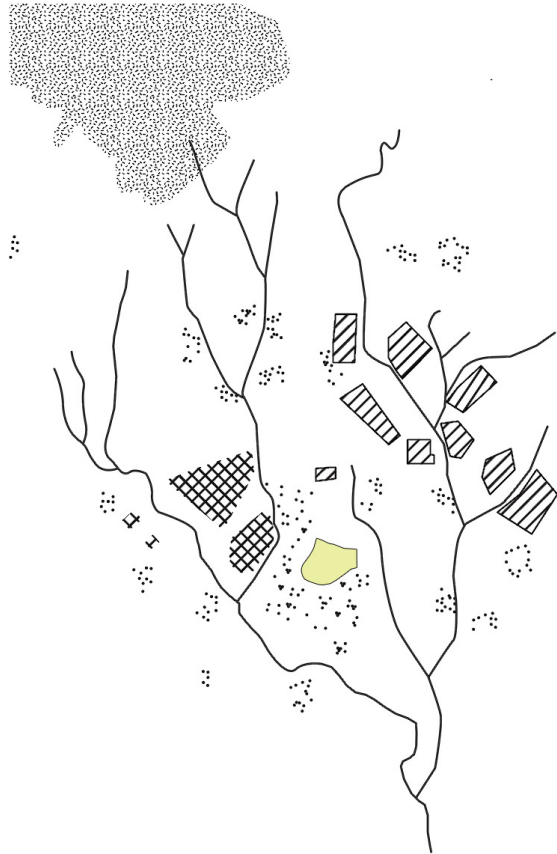
UNMET DEMANDS FOR AFFORDABLE HOUSING

CONDOMINIUMS - PROBLEM

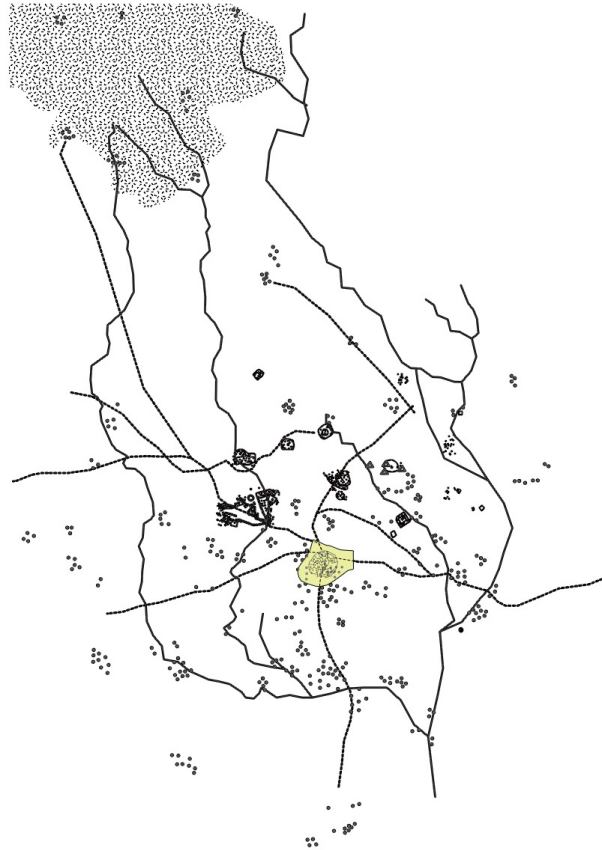
- Homogeneous solution nationally
- Nonhuman scale of empty open space
- Neglect customs and native ways of use
- Residents not engaged



1.2 PROBLEM STATEMENT II



1880s



1890s



1900-1920

ONE OF THE IMPORTANT ELEMENTS OF URBAN TRANSFORMATION - RIVER

1.2 PROBLEM STATEMENT II

UNDERDEVELOPED RIVER BANKS

Nowadays, there are a large number of slums that locate at the waterfronts in Addis. Compared with slums in other areas, the living condition near the rivers can be even worse.



1.2 PROBLEM STATEMENT II



'BORDERS TEND TO FORM VACUUMS OF USE ADJOINING THEM.'

On the one hand, the rivers run across the entire city, forming **A MASSIVE BORDER** that **HINDERS THE COMMUNICATION** between two sides. With **FEWER USERS, FEWER PURPOSES & DESTINATIONS** at hand, the rivers and their perimeters become **A DESERTED AND NEGATIVE BORDER VACUUM**, and further evolve into **A DOMESTIC DUMP** for the residents in the surrounding neighbourhoods.

On the other hand, **THE STENCH AND POLLUTED WATER** have further intensified the border effect along the rivers, which sets up **A VICIOUS CIRCLE**.

1.2 PROBLEM STATEMENT III

FRACTURED INFRASTRUCTURE

The border effect along rivers reveals a severe fracture of urban infrastructure layers.

The river valley is left uncovered by urban traffic network and inaccessibility means declining.



1.2 PROBLEM STATEMENT III

FRACTURED INFRASTRUCTURE

Meanwhile, water system is another key link in urban infrastructure. While Addis is now still suffering from the shortage of water supply, poor water management strategies, including incomplete sewage treatment and flood control, aggravate the water crisis and riverine ecological stress.



1.3 RESEARCH QUESTION

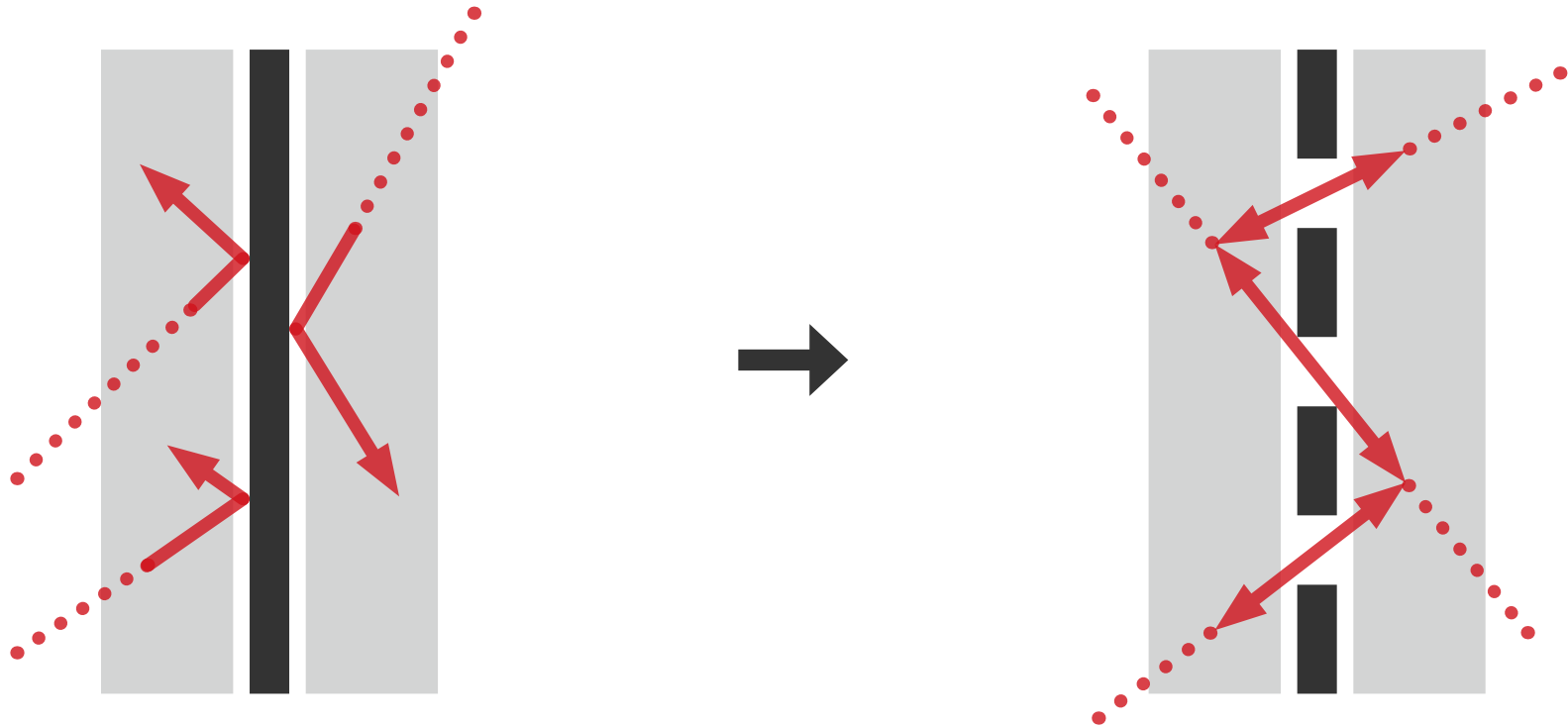
HOW TO RESPOND TO THE HOUSING DEMANDS OF THE RESIDENTS FROM RIVERINE SLUMS WHILE AT THE SAME TIME PRESERVING AND REDEFINING THE EXISTING SOCIAL IDENTITY IN ADDIS?

HOW TO BREAK THE NEGATIVE BORDER AND INJECT THE URBAN SPACE ALONG THE RIVERS WITH NEW ENERGY?

2 CONCEPT

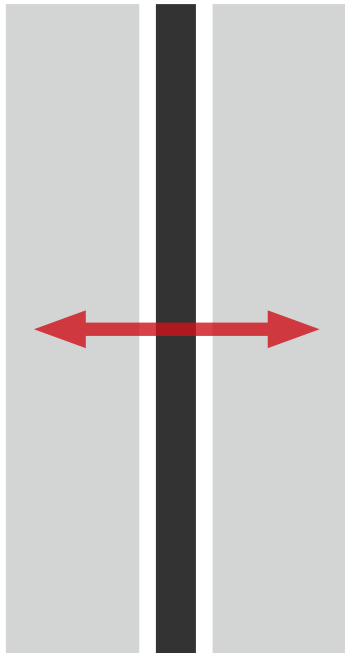
FROM GAP TO SEAM

2.1 FROM GAP TO SEAM

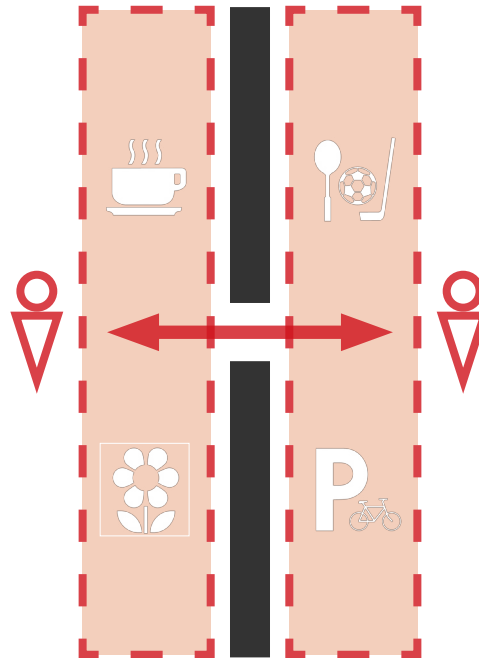


THE CONCEPT IS TO ACT AS THE 'STITCHES' BETWEEN THE EXISTING **GAP** TO TRANSFORM IT INTO A **SEAM**.

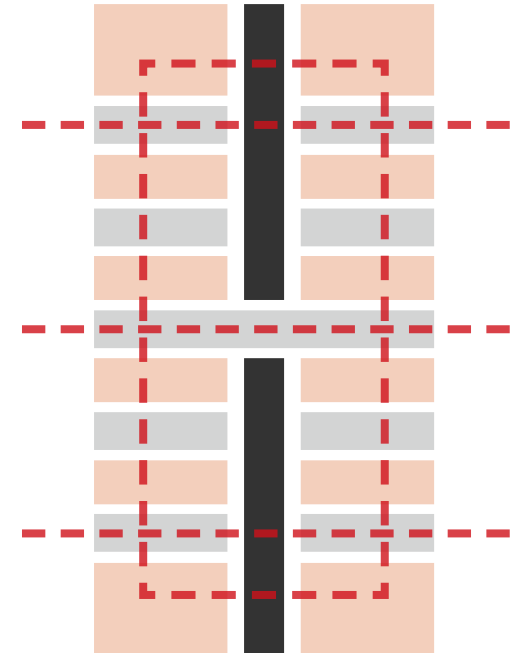
2.1 FROM GAP TO SEAM



STEP 1 CONNECT
BORDER

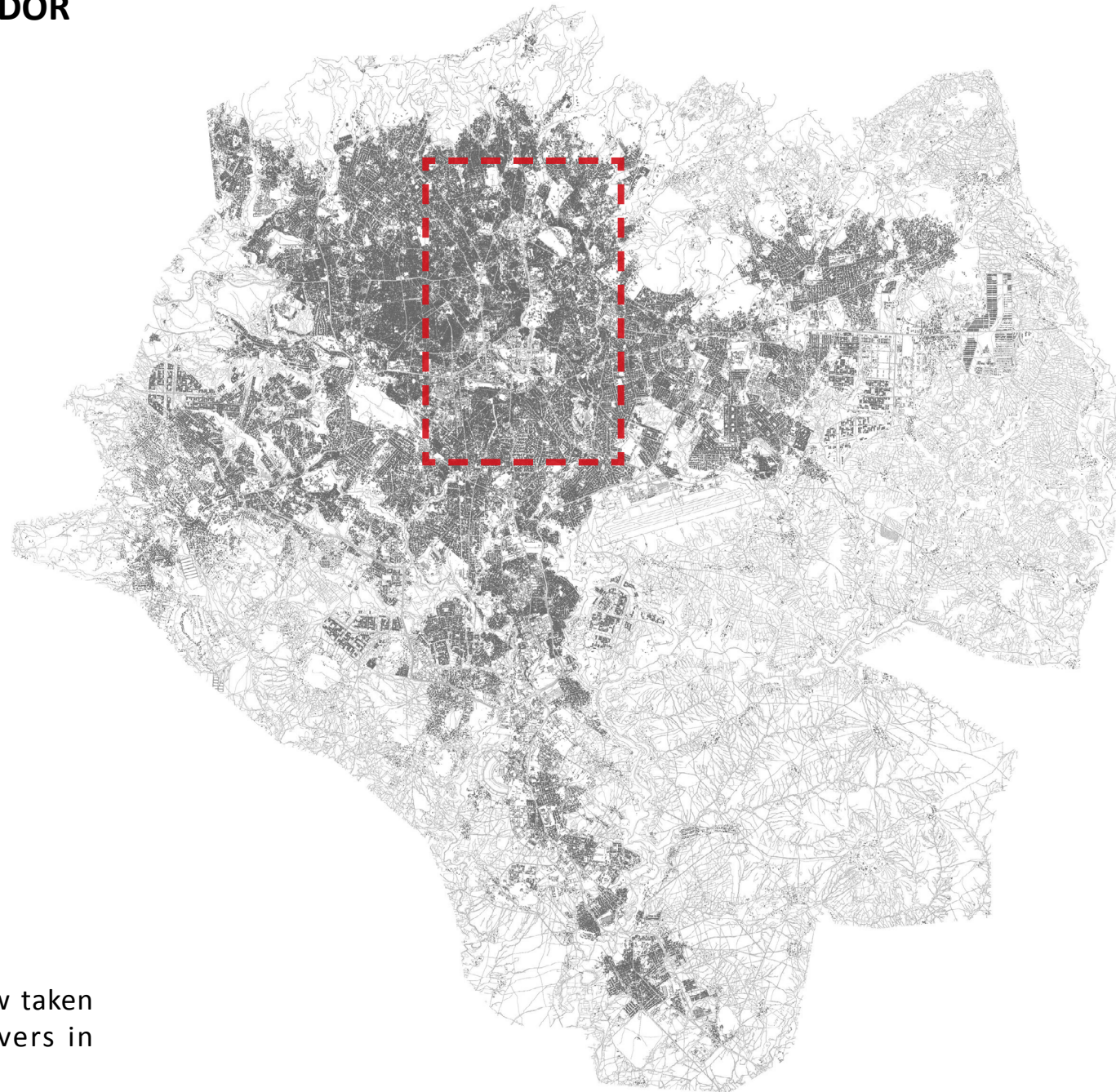


STEP 2 ACTIVATE
LIVING/PUBLIC SPACE



STEP 3 INTEGRATE
INFRASTRUCTURE

2.2 URBAN GREEN CORRIDOR



CLEANING-UP

The Addis government has now taken measures cleaning up the rivers in downtown areas.

2.2 URBAN GREEN CORRIDOR

LEGAL FRAMEWORK - BUFFER ZONE

'According to the master plan of the city (2002), a distance of 10-15m (in the inner city) and 100-150m (in expansion areas) from both sides of the river should be reserved as a buffer zone. The buffer zone is expected to develop as urban green corridor.'



2.2 URBAN GREEN CORRIDOR

BANTYKETU

The Bantyketu river, as a main river that running across the downtown area, is picked as the study object here.



2.2 URBAN GREEN CORRIDOR

BANTYKETU - BOND

From the map, it acts as a bond that links several parks, squares and urban agricultural experimental fields.

Kechenie
Medhanealem
Orthodox
Cemetery

Ethio-Korea
Park

Africa Park

Meskel Square

Agricultural
Field

European
Union Peacock
Park



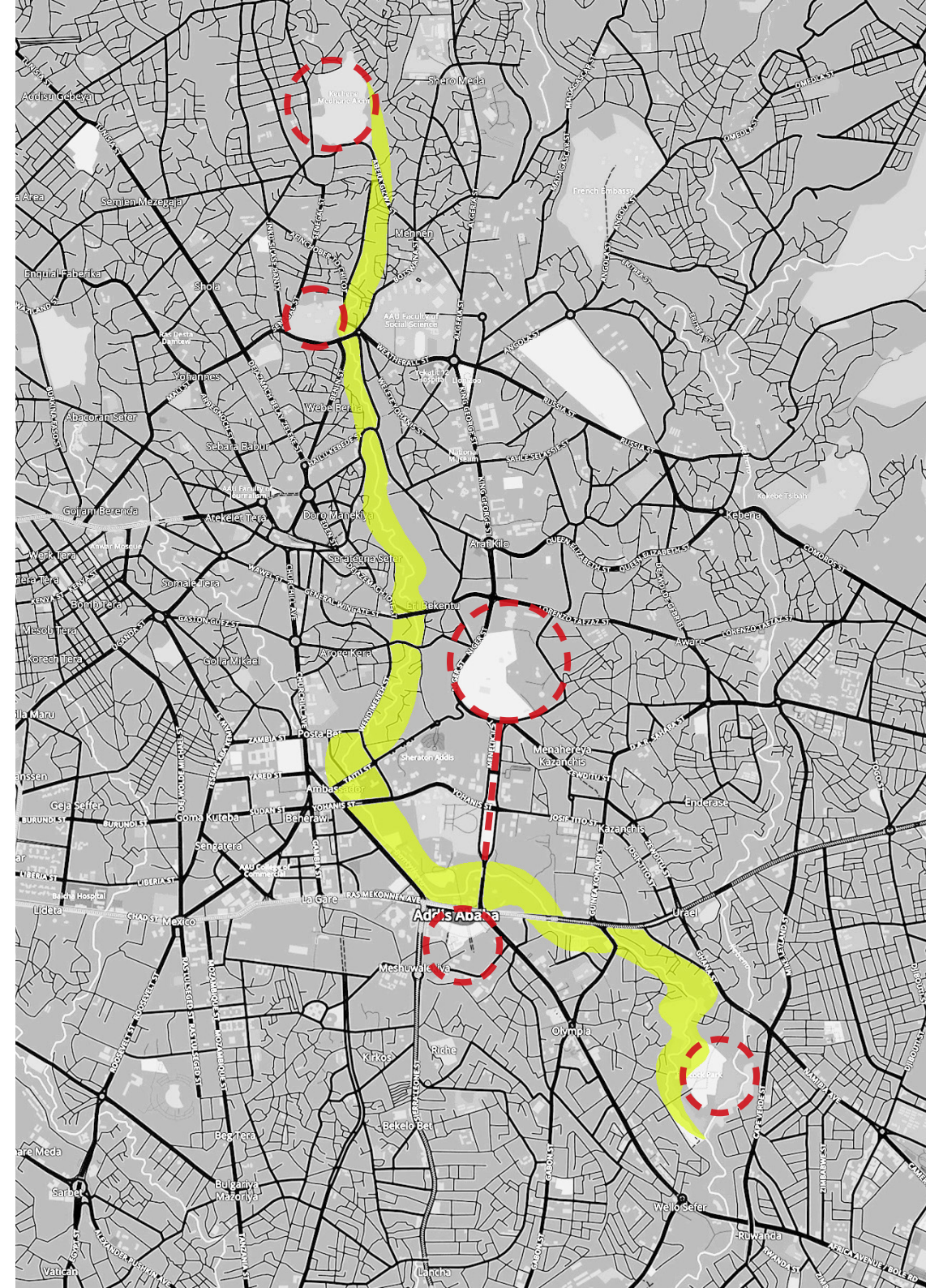
2.2 URBAN GREEN CORRIDOR

BANTYKETU - A LINEAR CITY PARK

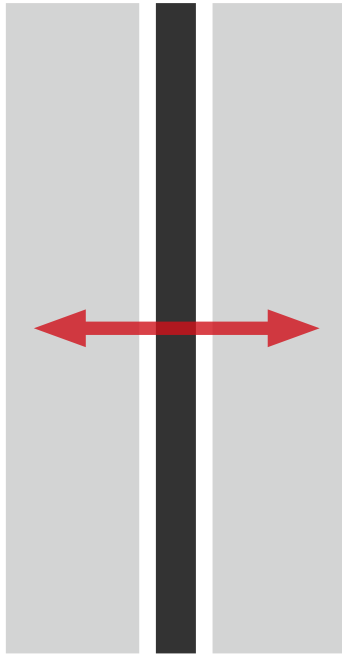
The idea is to extend the riverbank buffer zone to the whole urban grey zone and to link the existing urban green space together.

This riverine green corridor helps to stabilize the ecological climate along the river system and to exert its environmental advantages to the whole city as green infrastructure.

Moreover, a unique type of linear city public space is created, which may add more content to the urban identity of Addis.



2.2 URBAN GREEN CORRIDOR

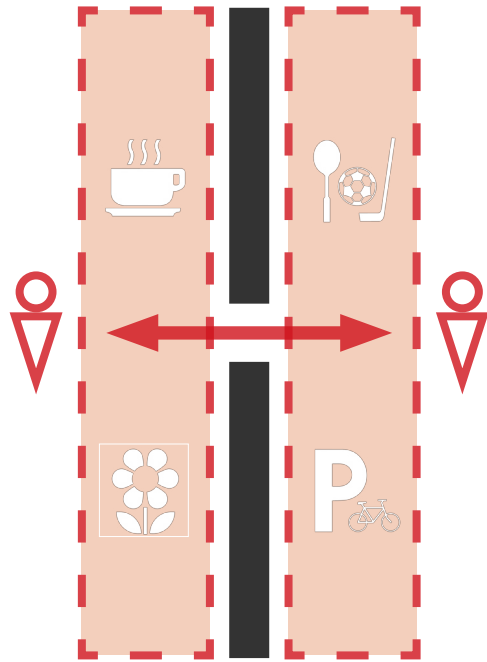


STEP 1 CONNECT

Creating direct pedestrian connections between dead ends to increase riverside accessibility and complete the road network.



2.2 URBAN GREEN CORRIDOR

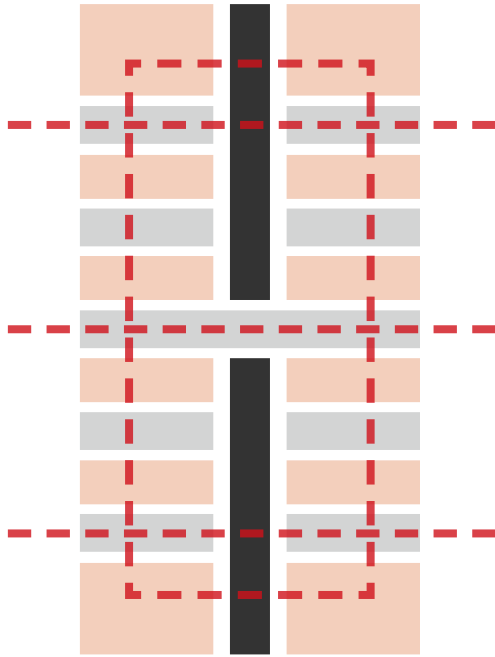


STEP 2 ACTIVATE

Introducing living and social activities at strategic points on perimeters, the waterfront areas will be charged with more users and destinations.



2.3 SITE - PIAZZA

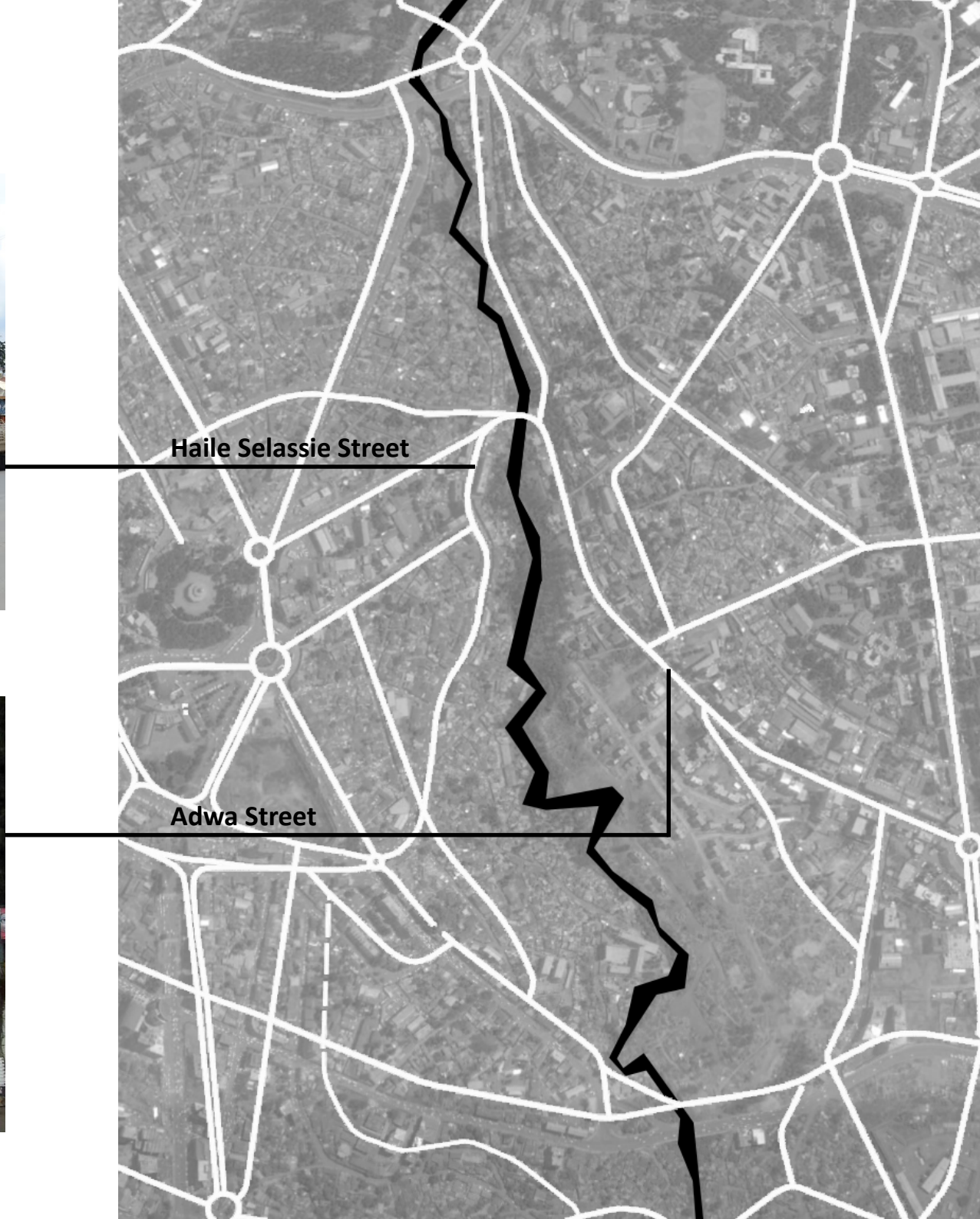


STEP 3 INTEGRATE

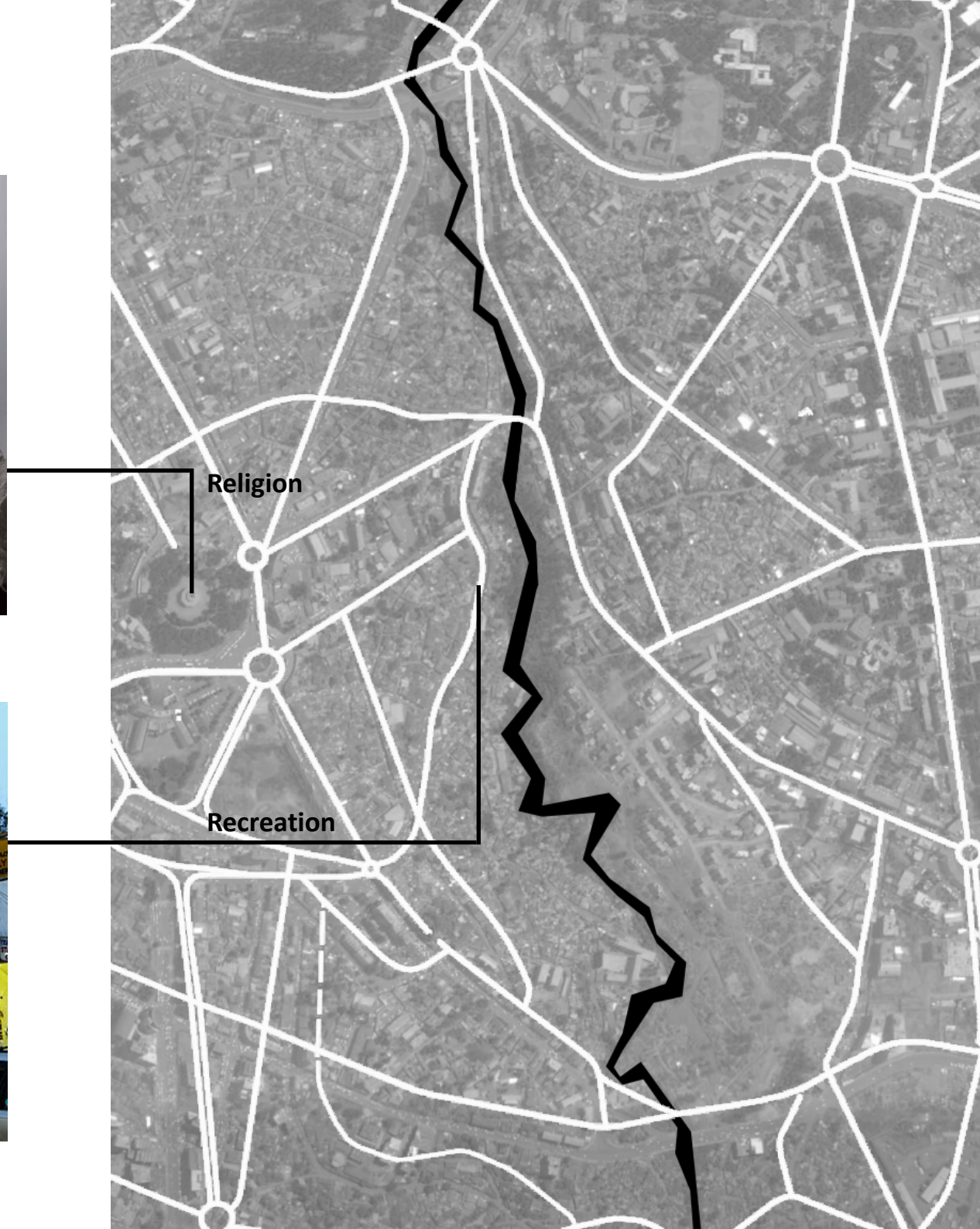
Piazza, locating in the **HEART** of Addis, is an old neighborhood with a wealth of **HISTORICAL ATTRACTIONS, NATIVE FEATURES AND COLLECTIVE MEMORY.**



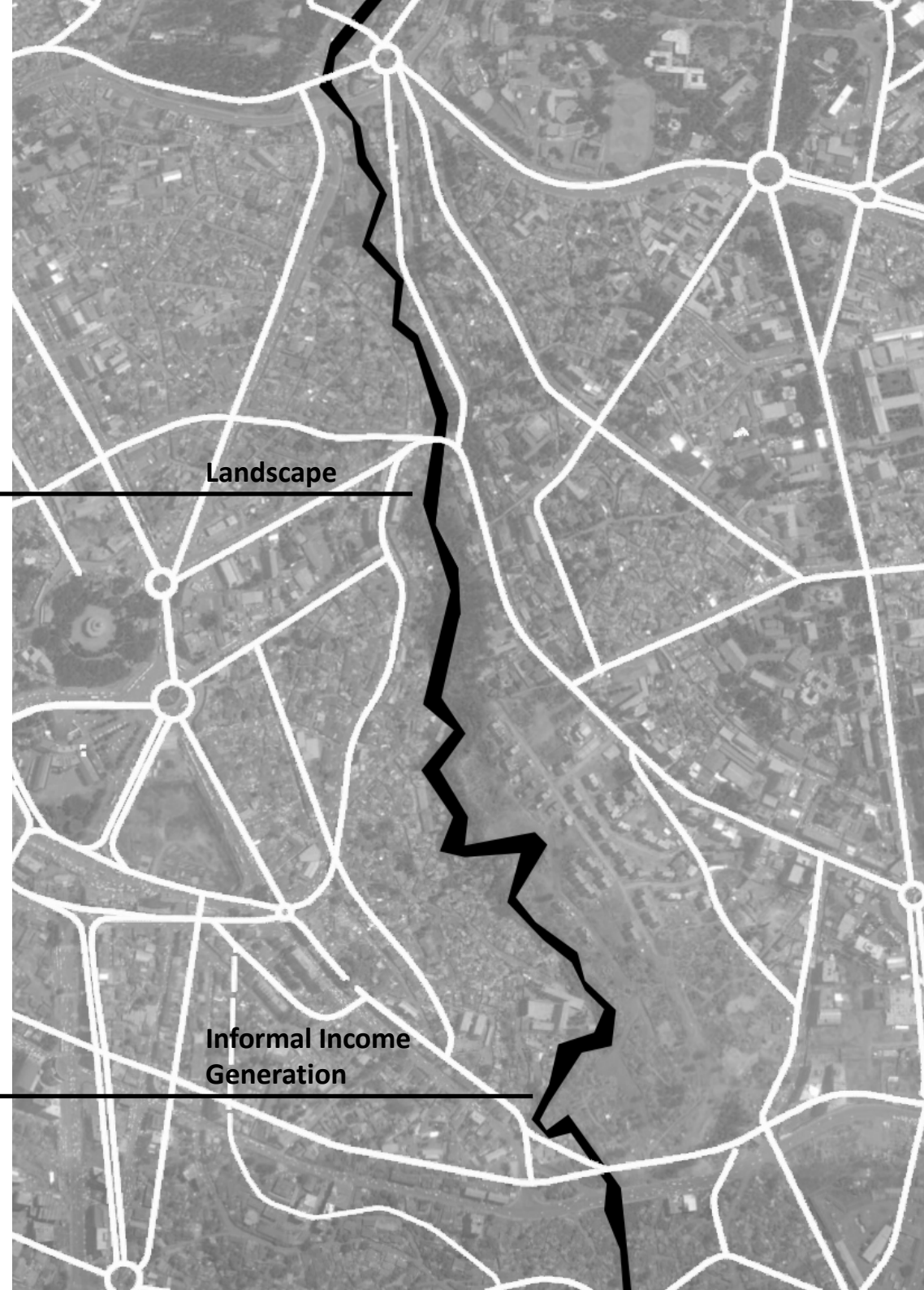
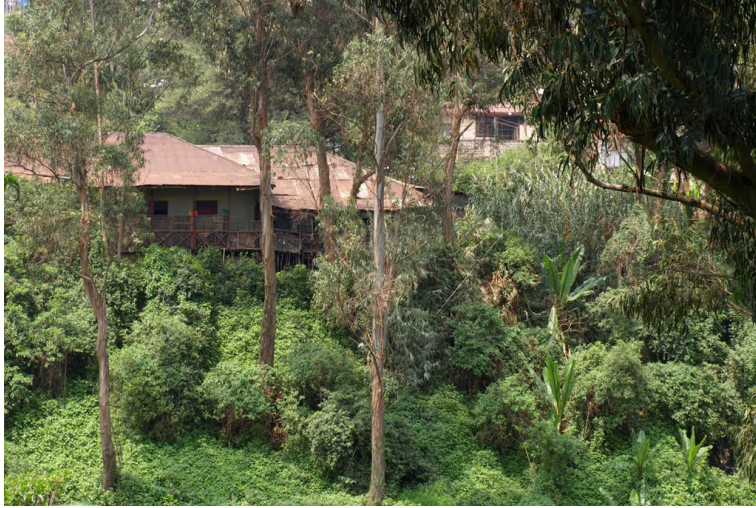
2.3 SITE - PIAZZA



2.3 SITE - IDENTITY



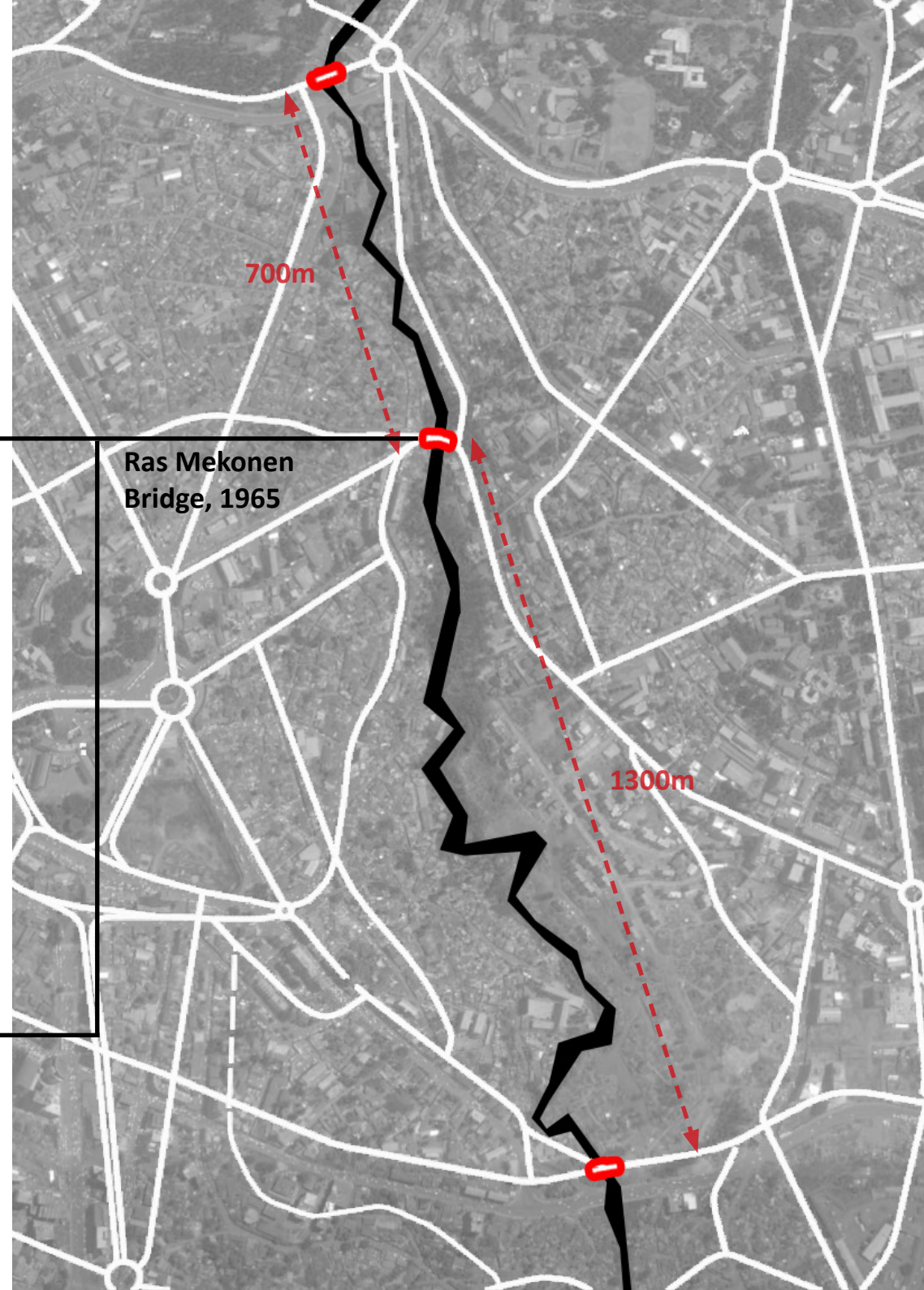
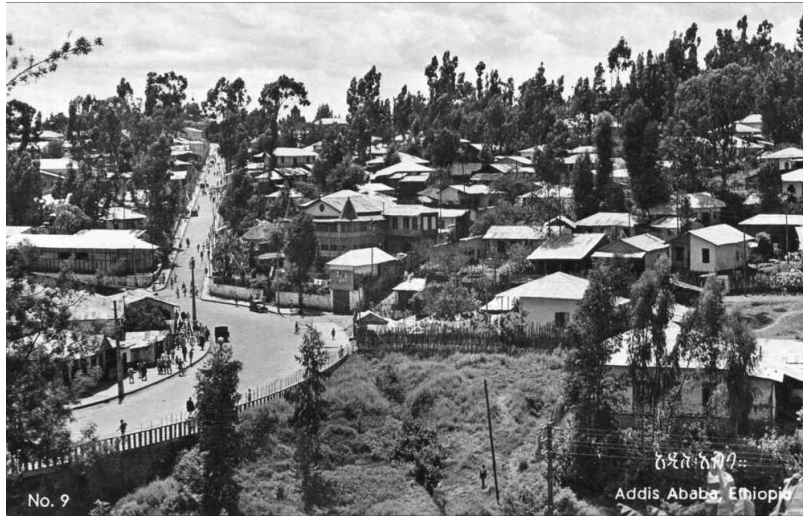
2.3 SITE - IDENTITY



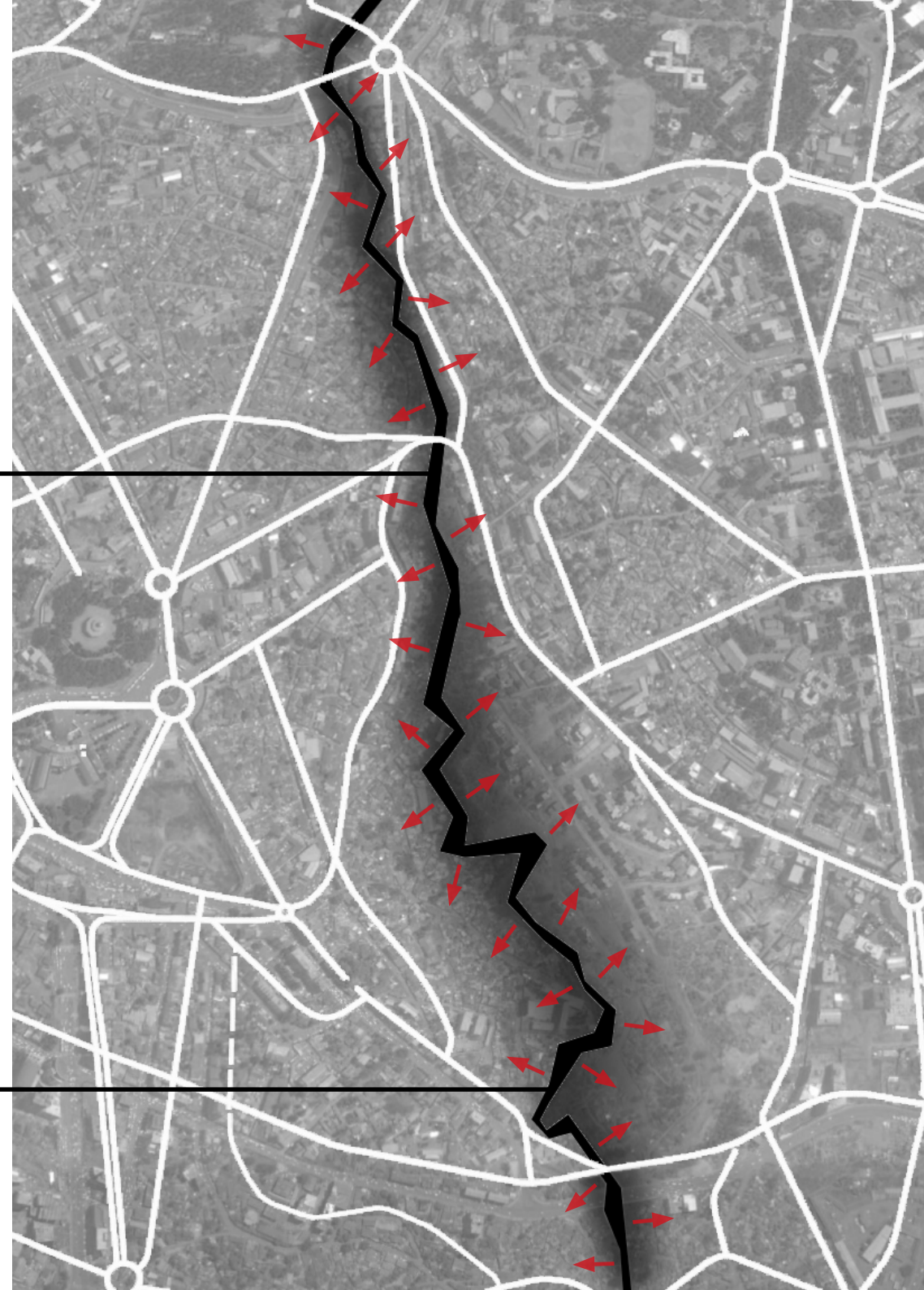
Landscape

Informal Income
Generation

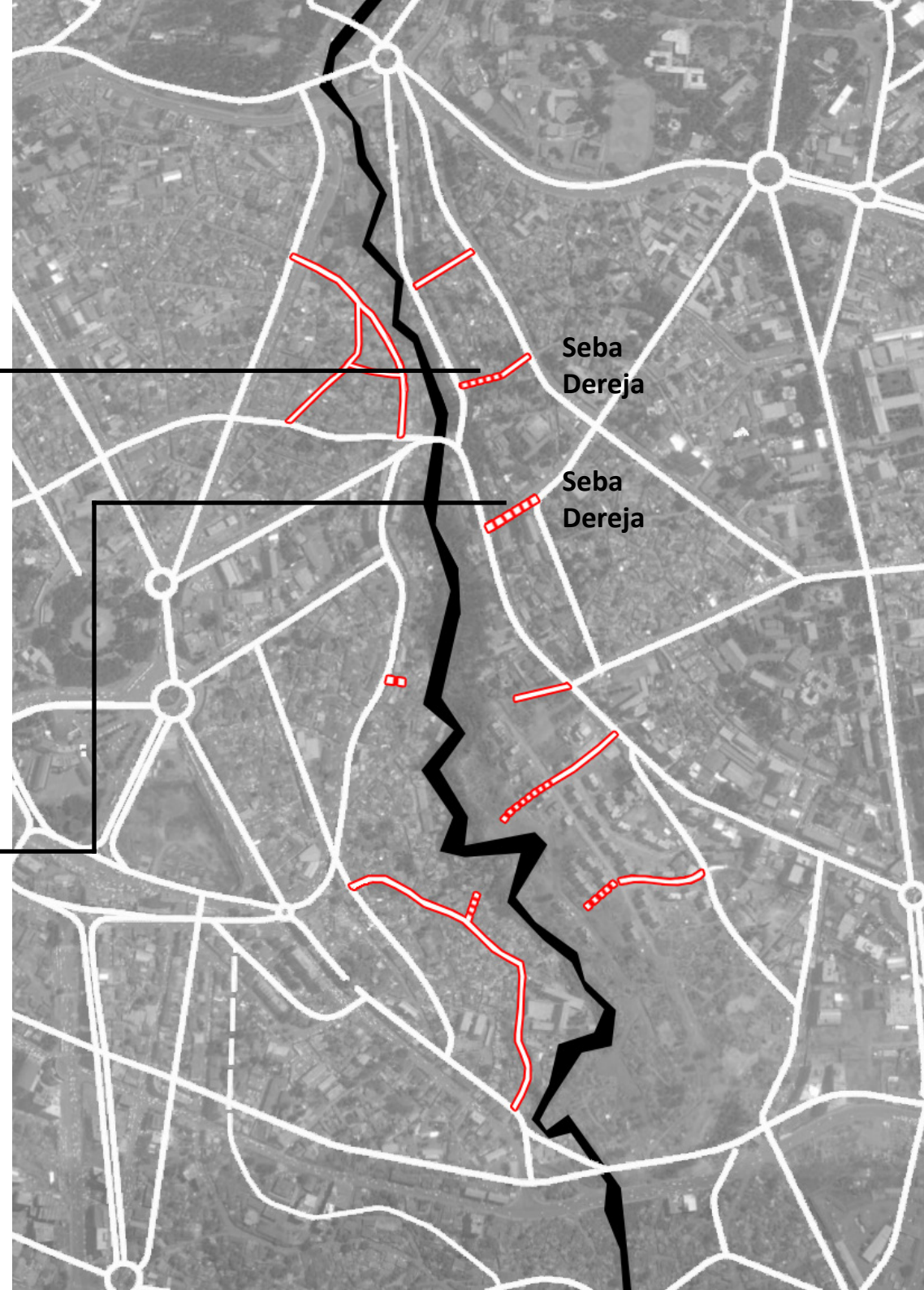
2.3 SITE - BANTYKETU RIVER



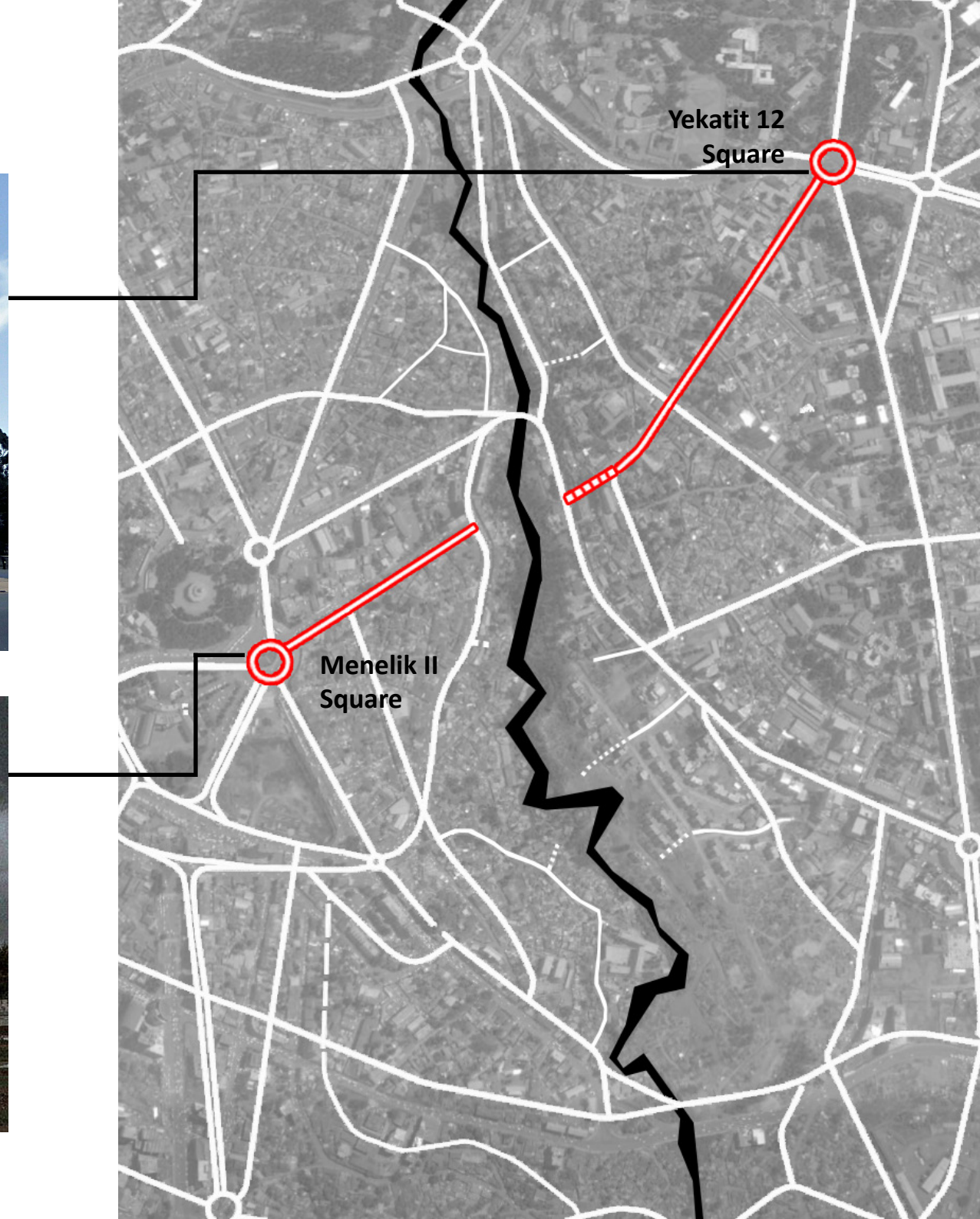
2.3 SITE - BANTYKETU RIVER



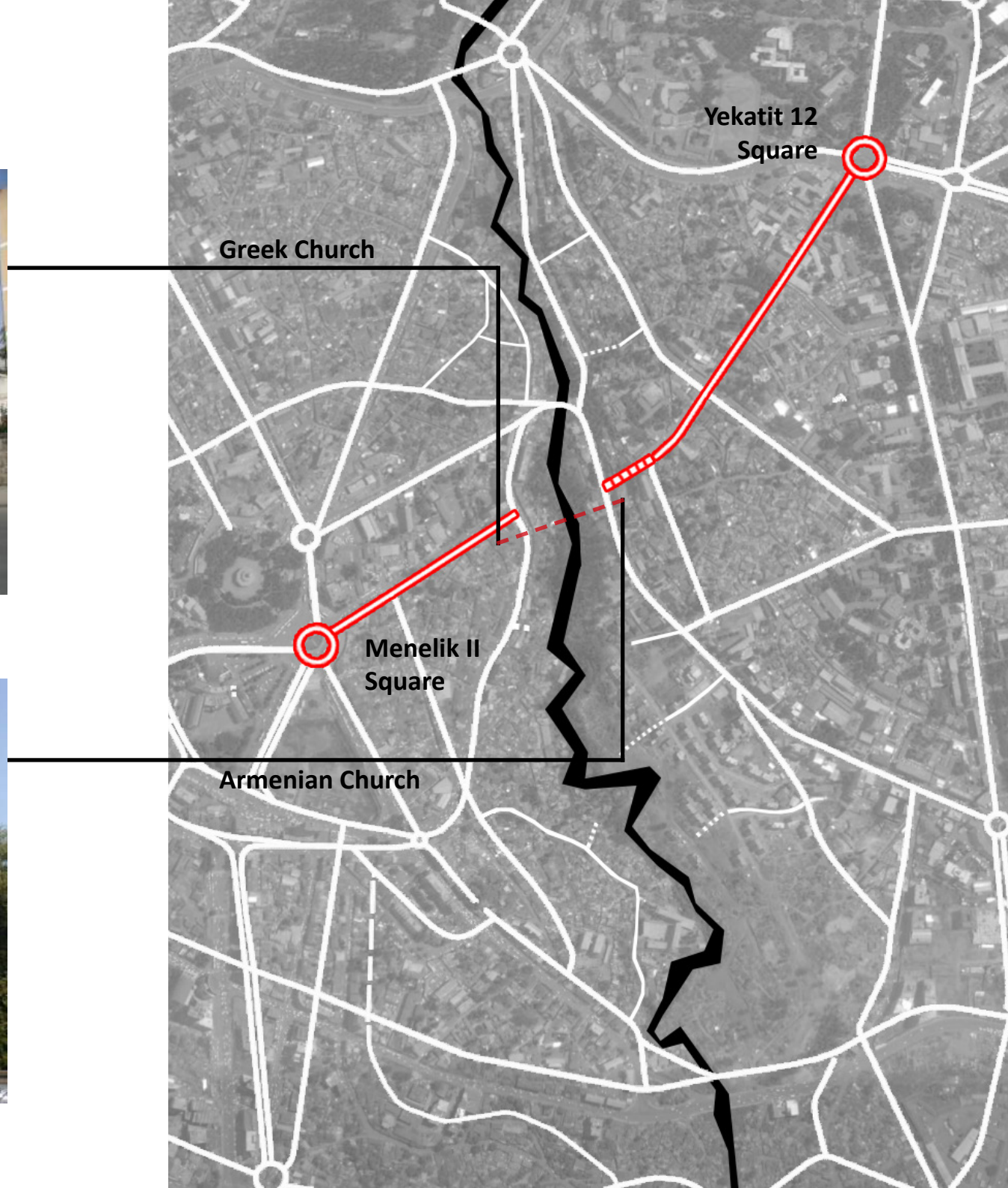
2.3 SITE - DEAD ENDS



2.3 SITE - AXIS

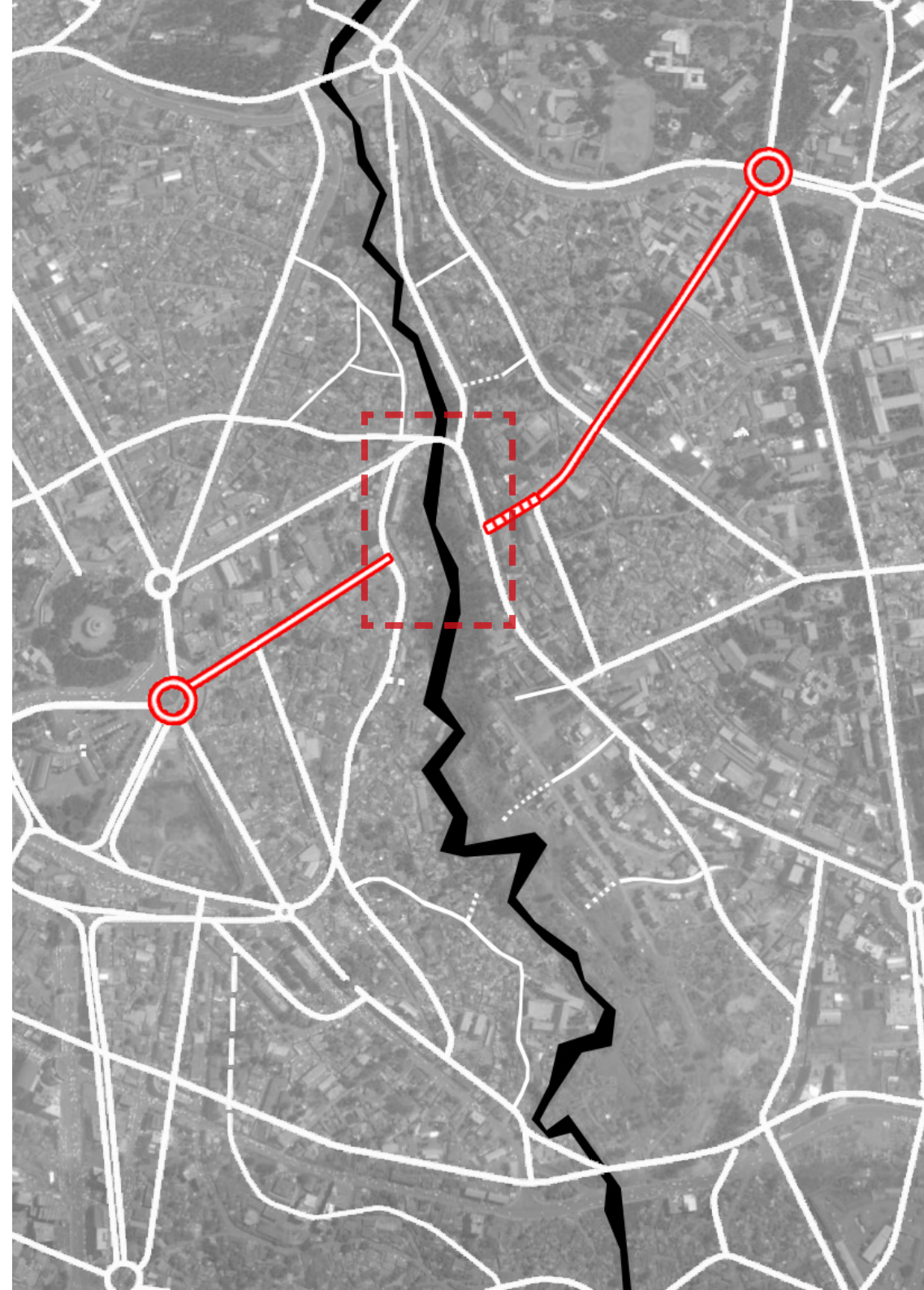


2.3 SITE - AXIS



2.3 SITE

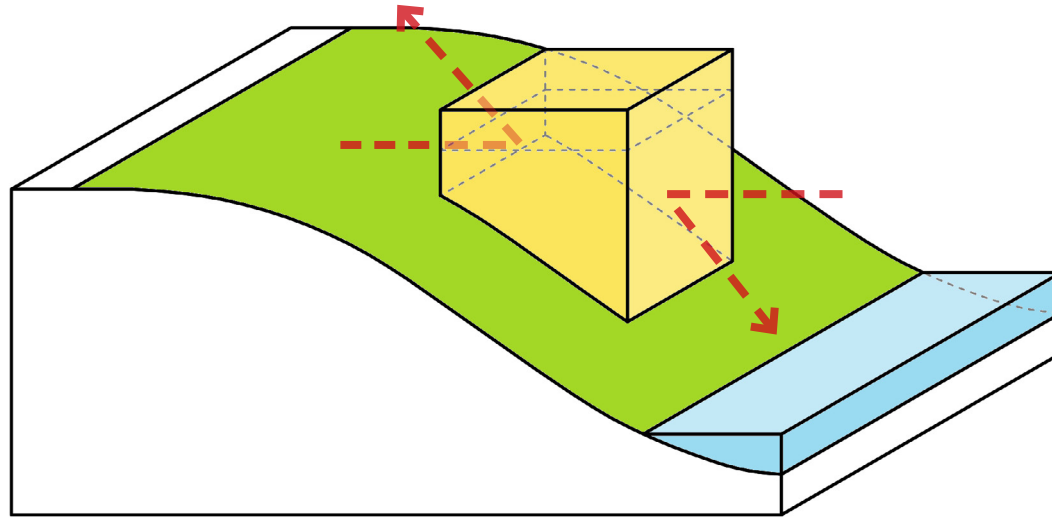
Here, the part of Bantyketu river banks in the middle of axis from Menelik II square to Yekatit 12 square is seen as a typical example to illustrate with its unique context.



3 STRATEGY

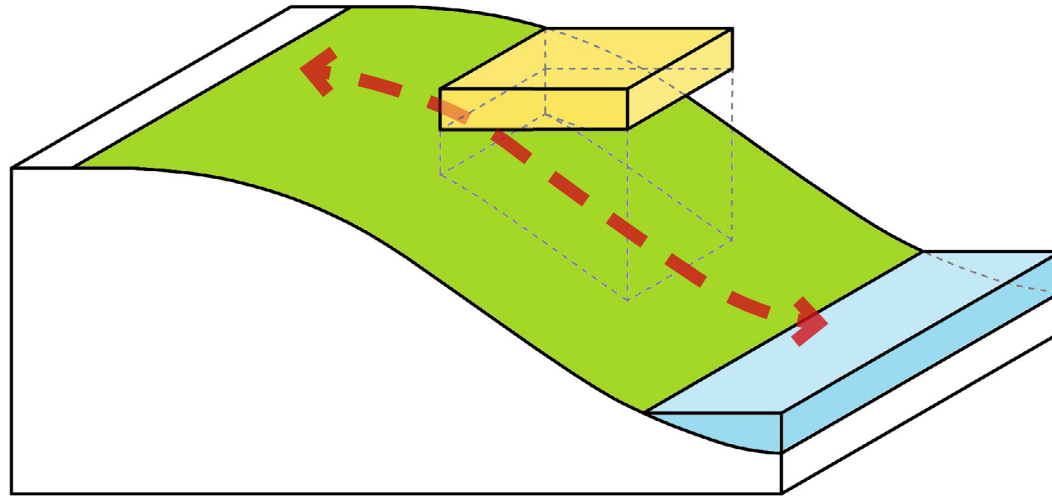
IN-BETWEEN LAYER
A CONTINUOUS URBAN INTERFACE

3.1 IN-BETWEEN LAYER



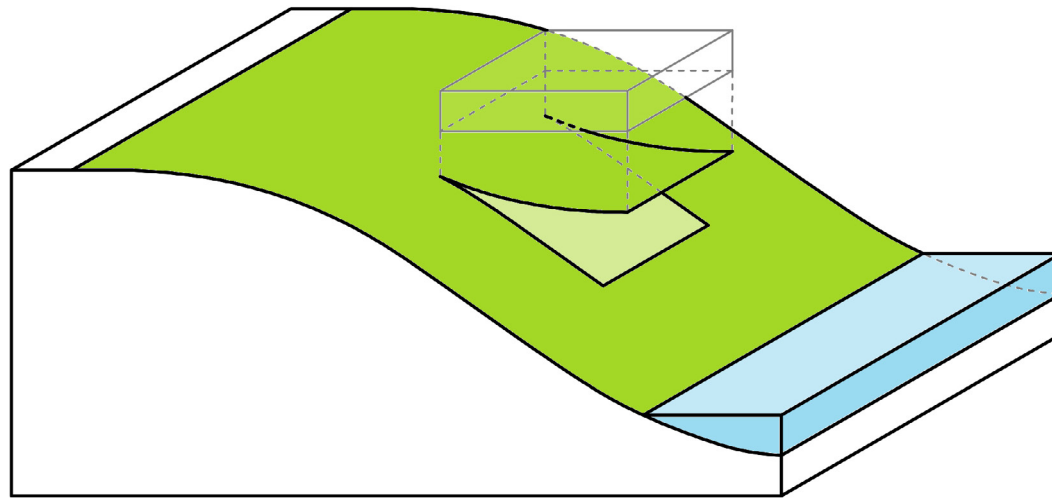
3.1.1 A NEW BARRIER

3.1 IN-BETWEEN LAYER



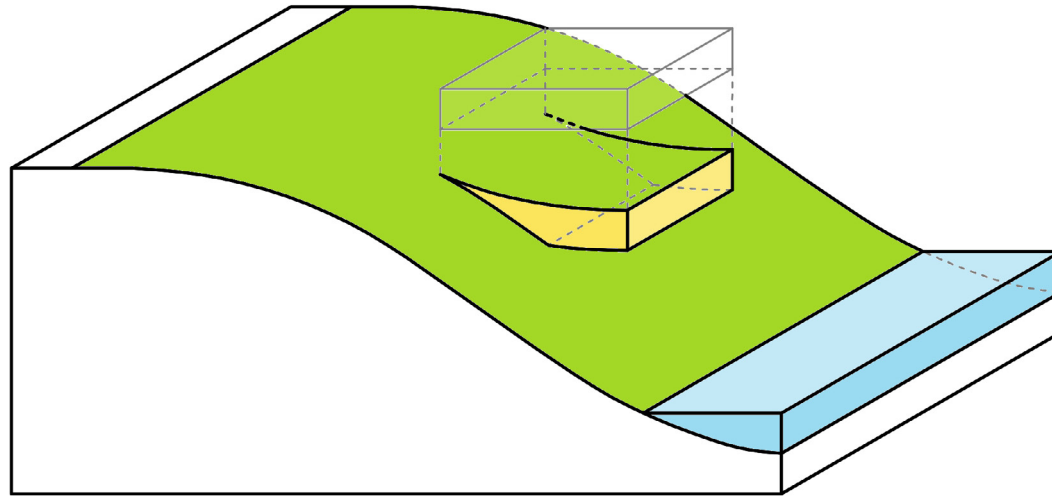
3.1.2 CUT OUT THE LOWER PART TO ENSURE A CONTINUOUS URBAN INTERFACE

3.1 IN-BETWEEN LAYER



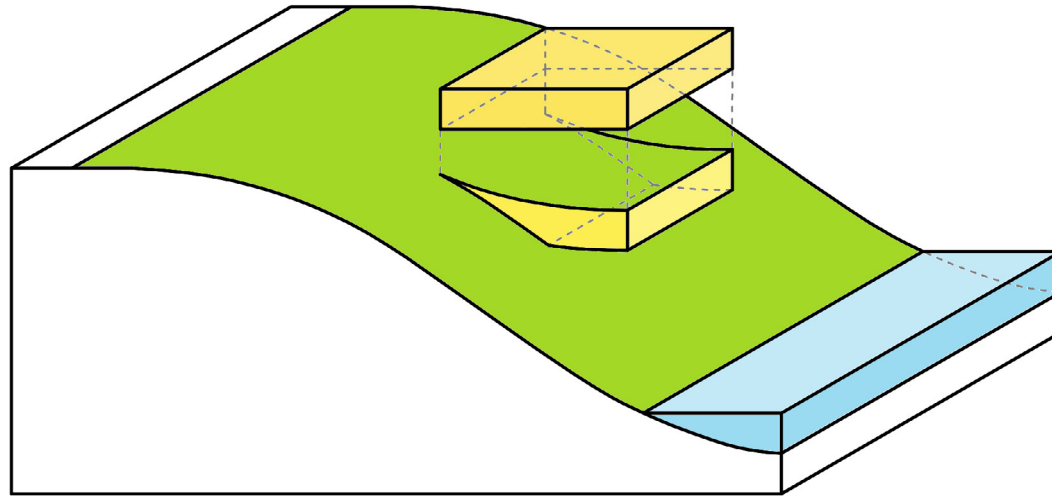
3.1.3 LIFT UP PART OF THE SLOPING SURFACE TO CREATE A PLATFORM FOR ACTIVITIES

3.1 IN-BETWEEN LAYER



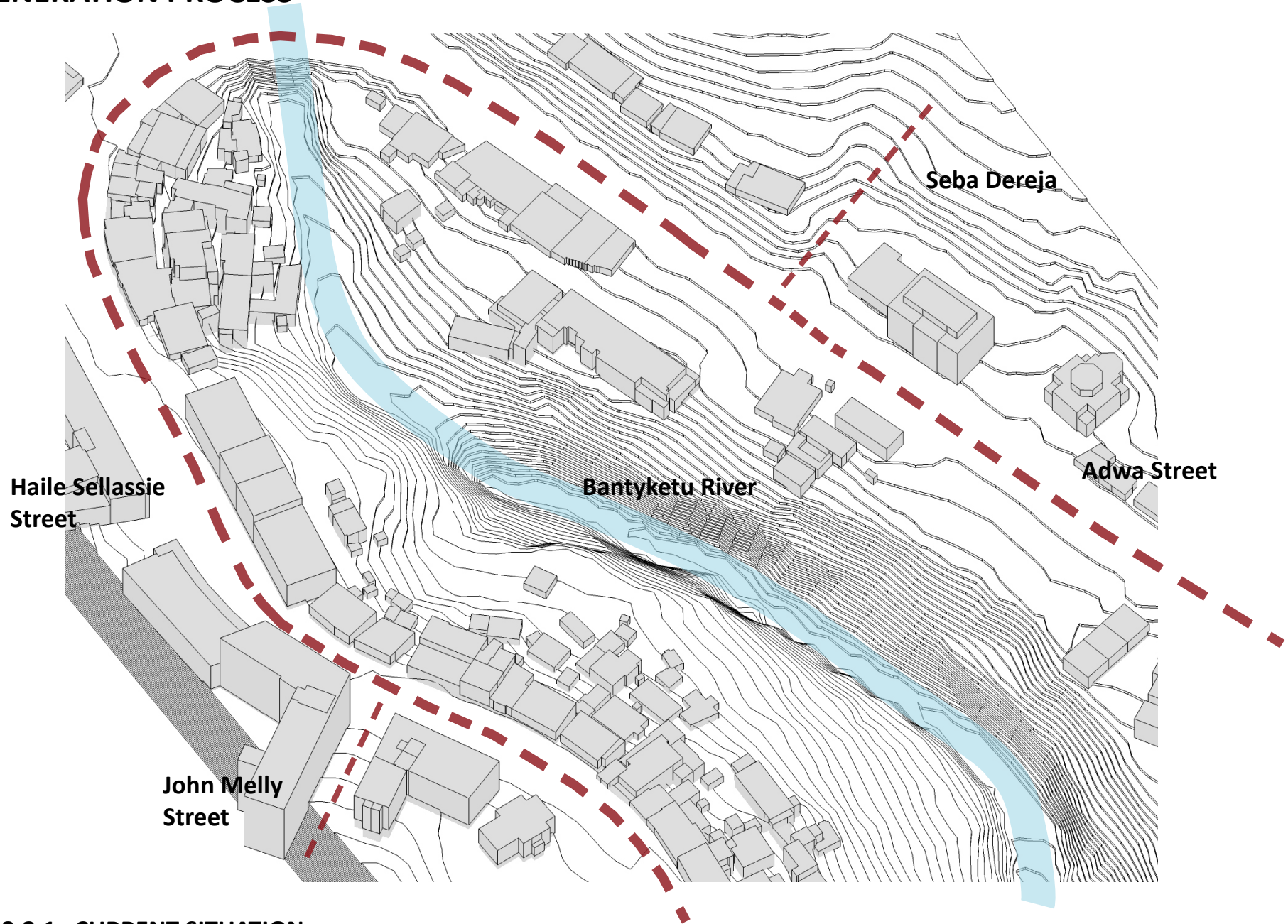
3.1.4 INSERT BOTTOM VOLUMES FOR CLOSER CONTACT WITH THE RIVER

3.1 IN-BETWEEN LAYER



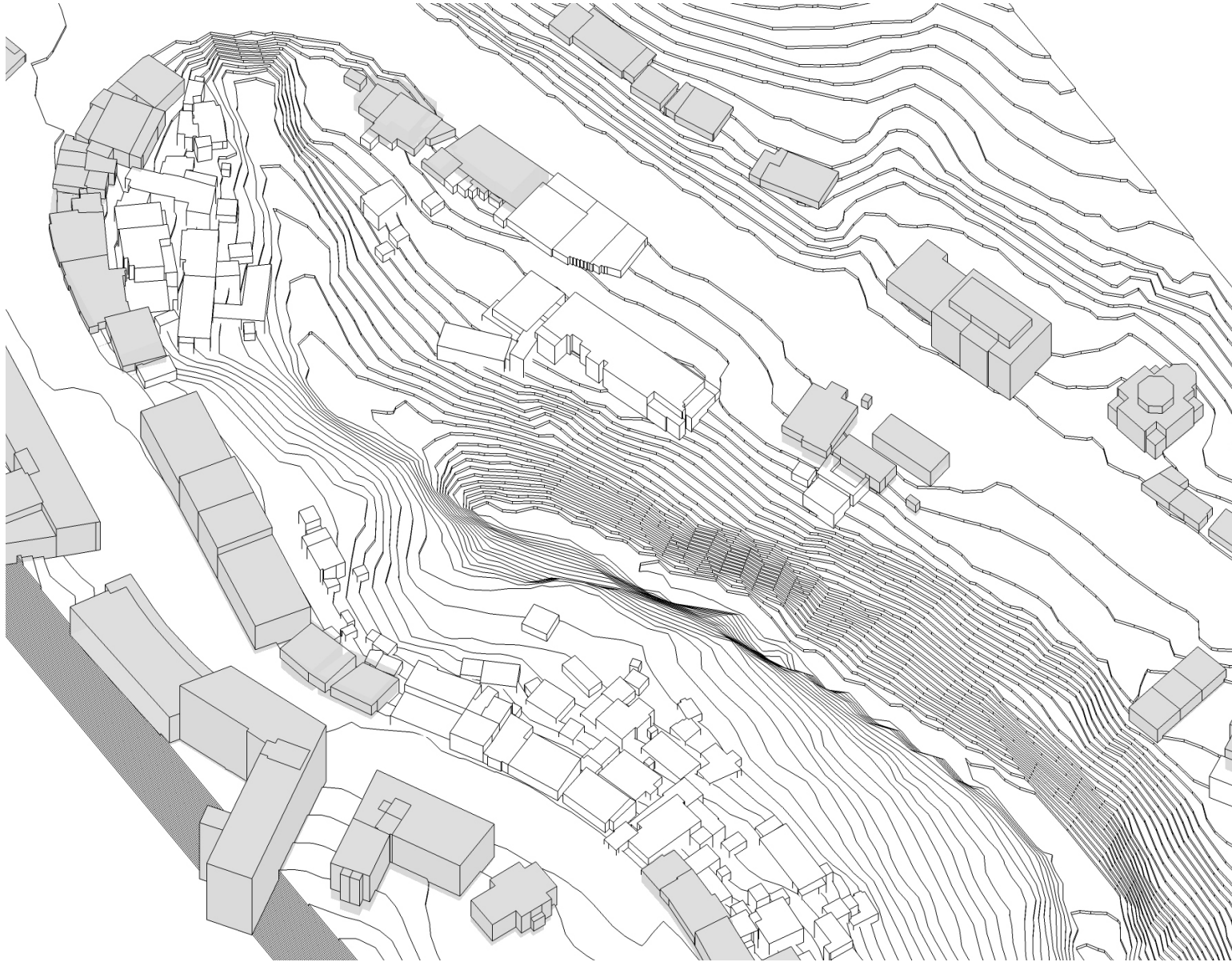
3.1.5 THE BOTTOM VOLUMES ACT AS A BASE FOR THE FLOATING ONES

3.2 GENERATION PROCESS



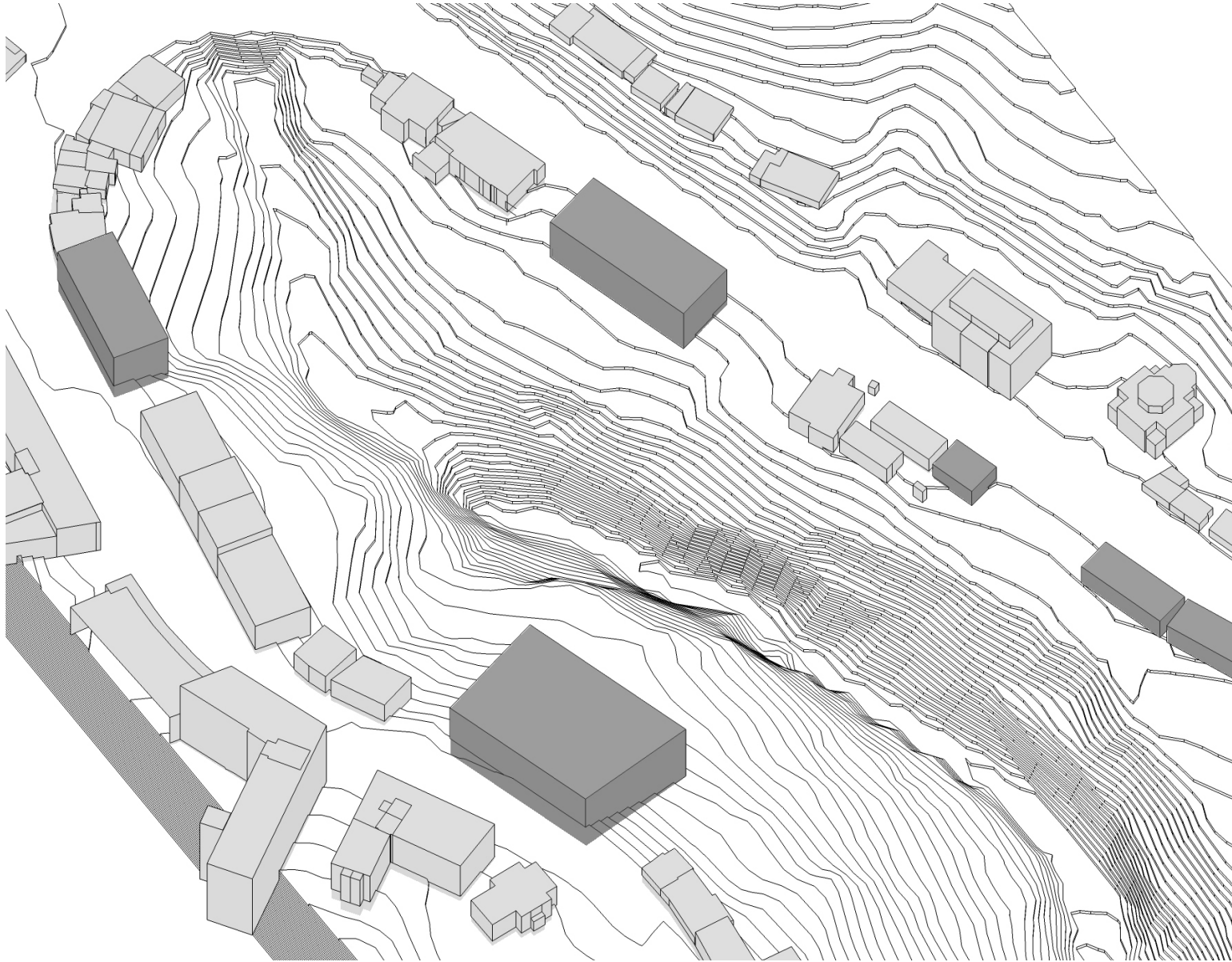
3.2.1 CURRENT SITUATION

3.2 GENERATION PROCESS



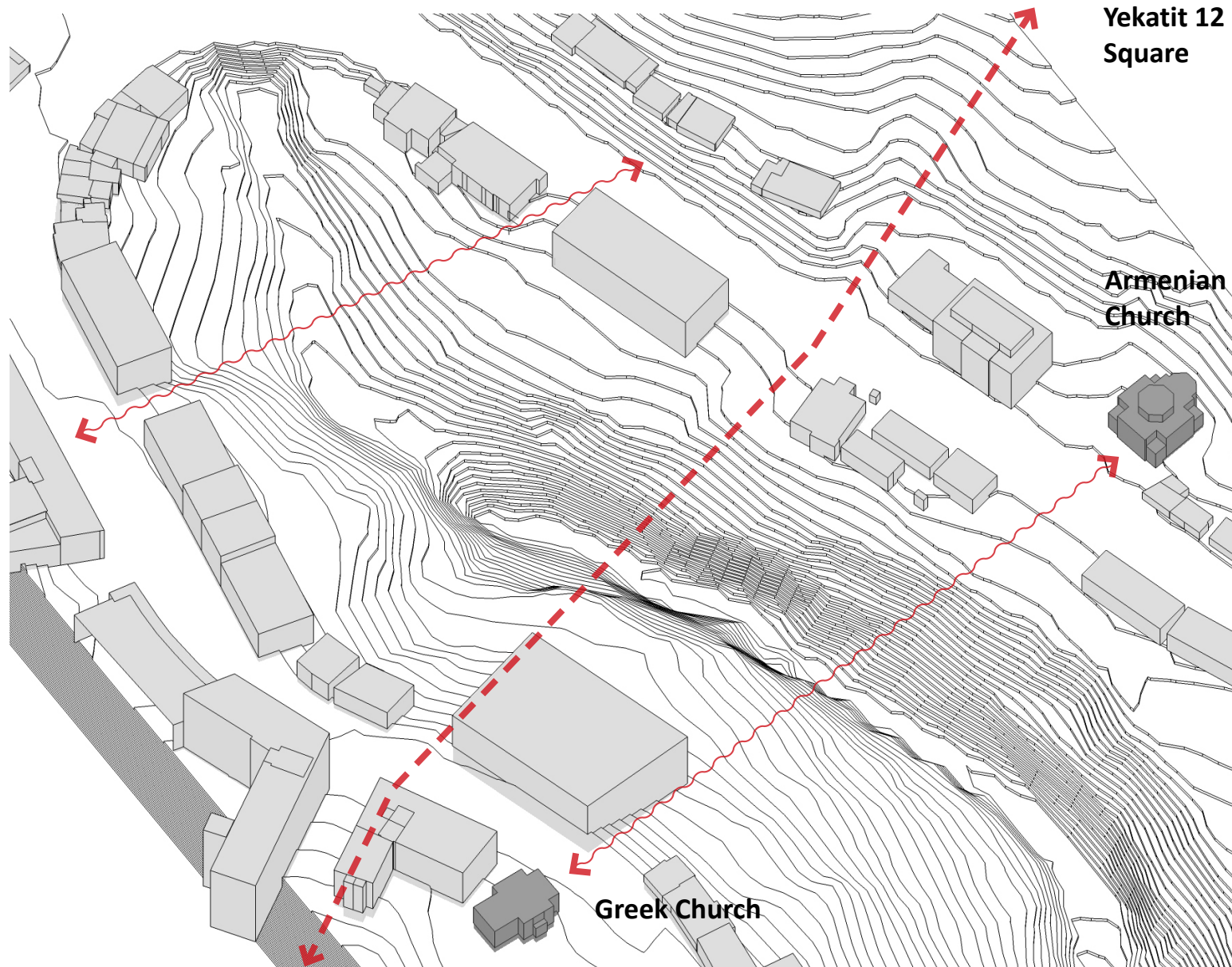
3.2.2 BUILDINGS ALONG THE MAIN STREETS ARE TO BE KEPT

3.2 GENERATION PROCESS



3.2.3 BUILDINGS ADDED TO GUARANTEE A COMPLETE STREET PROFILE

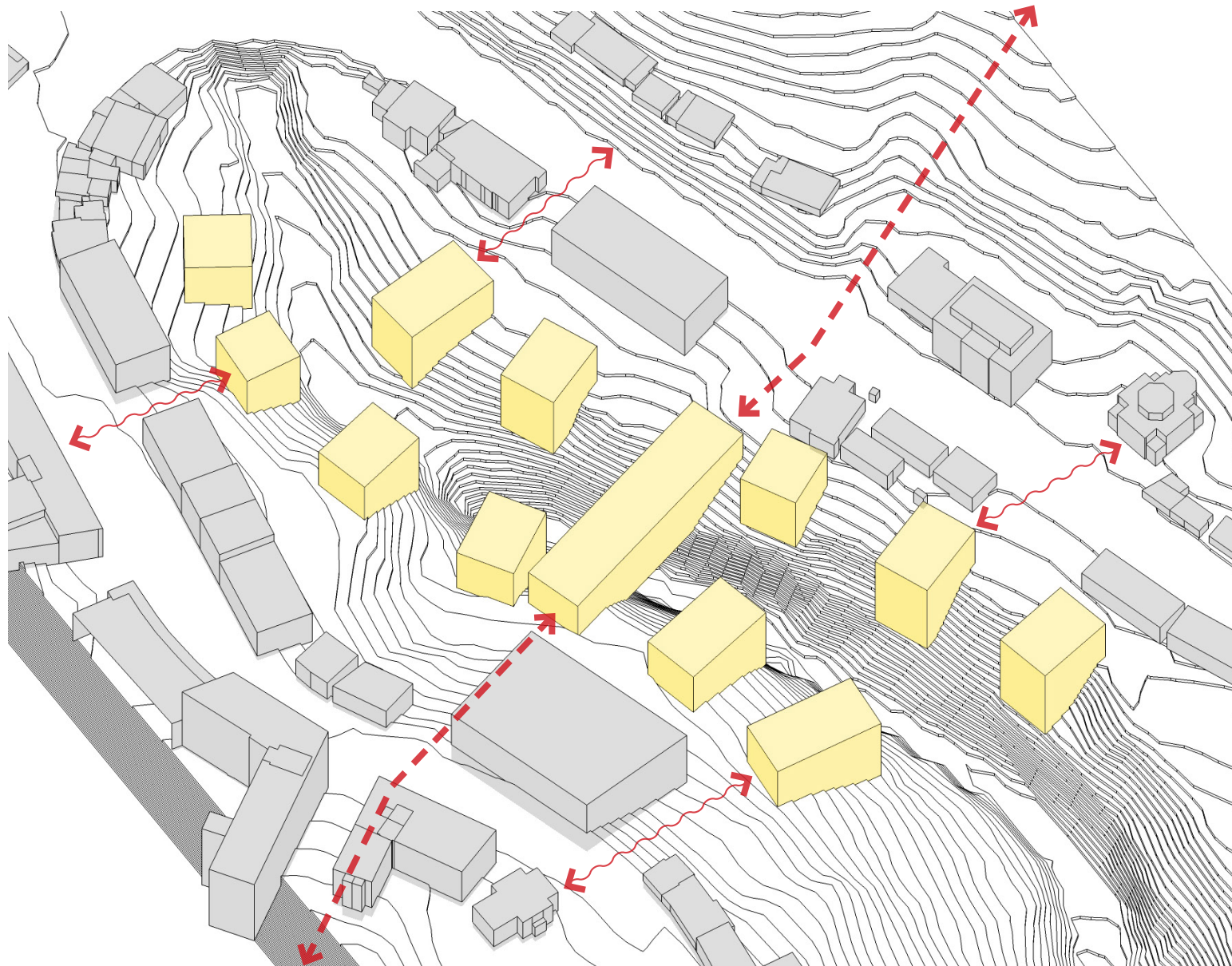
3.2 GENERATION PROCESS



3.2.4 AXES

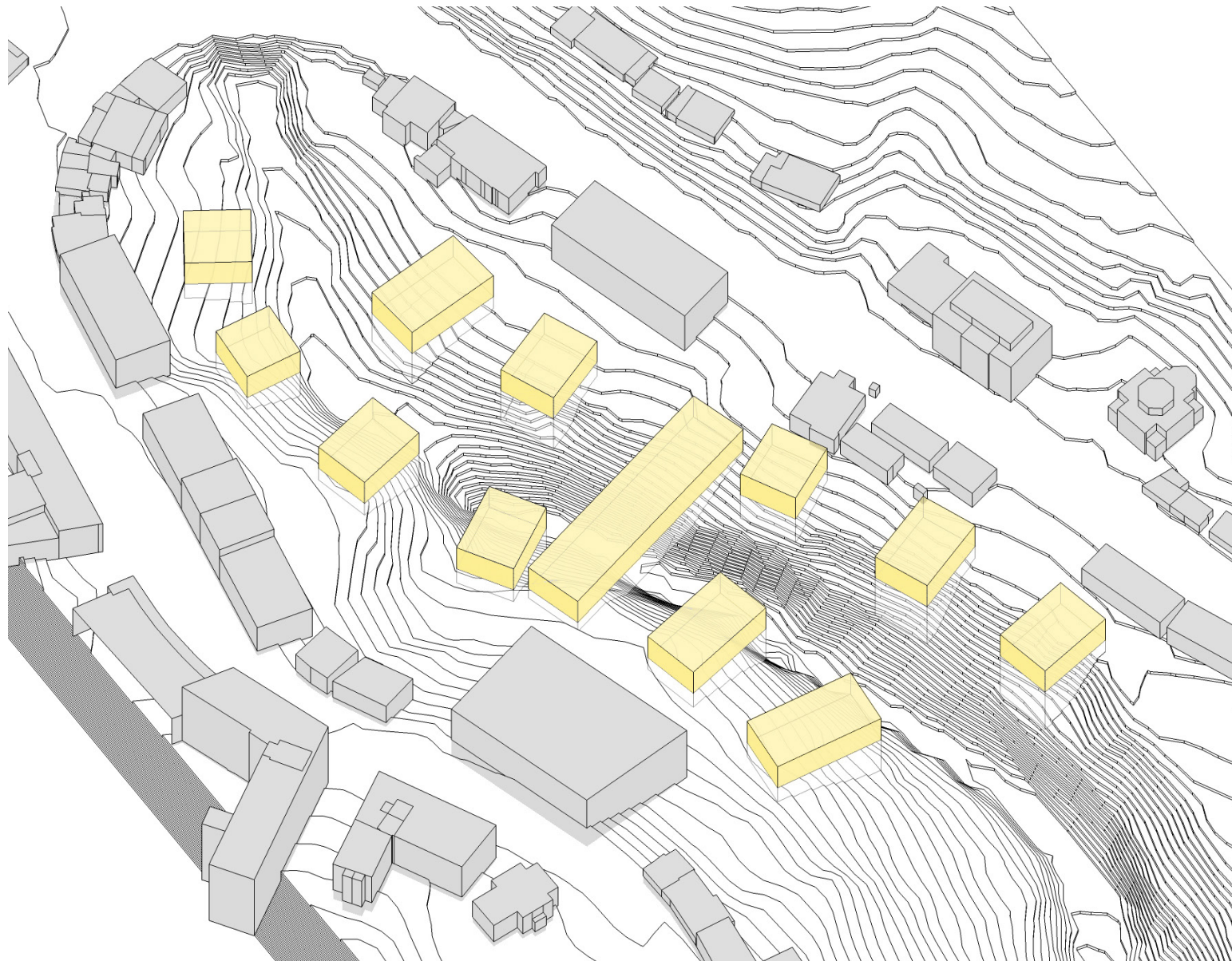
Menelik II Square

3.2 GENERATION PROCESS



3.2.5 NEW BARRIERS TO THE SITE

3.2 GENERATION PROCESS



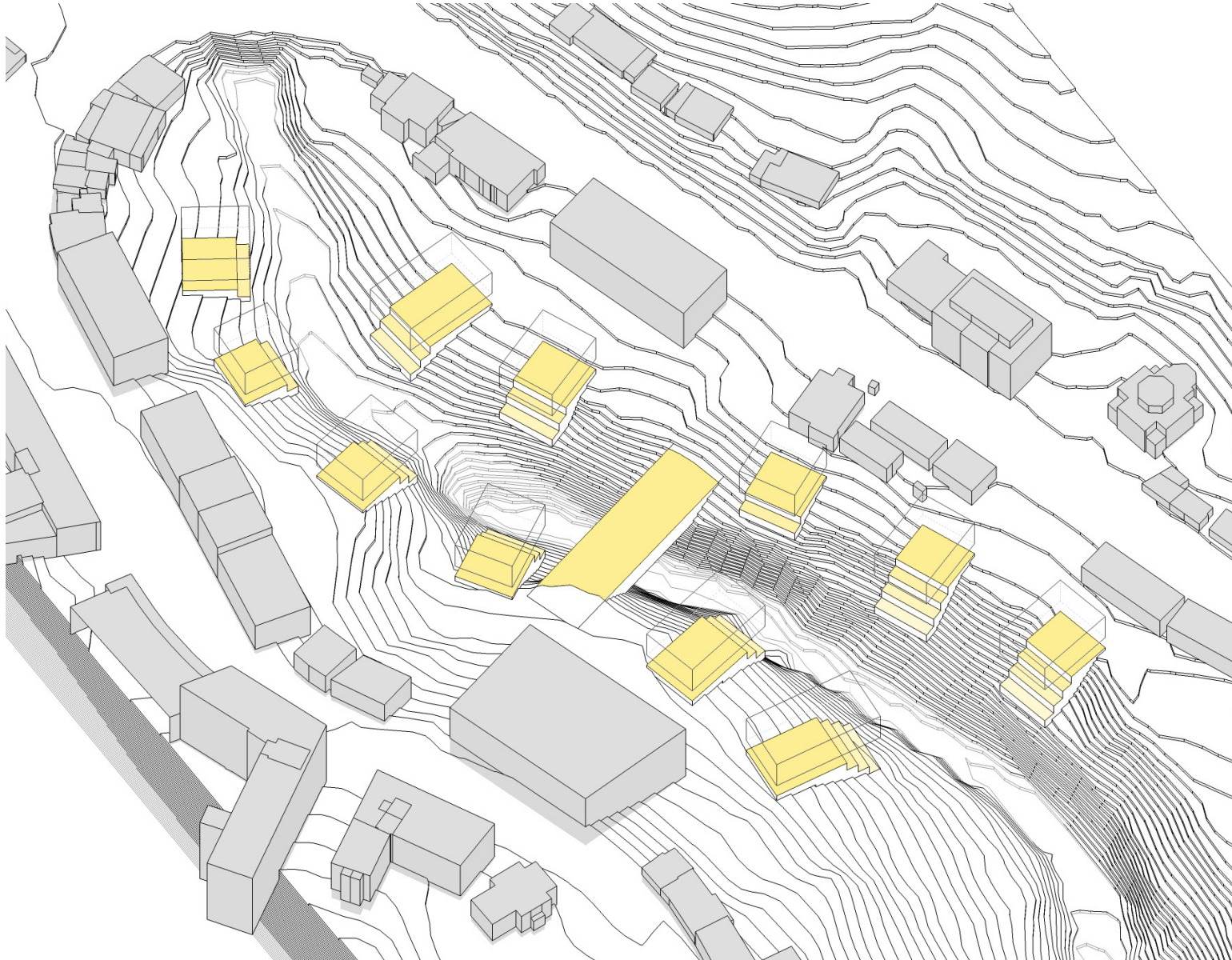
3.2.6 CUT OUT THE BOTTOM PART TO MAINTAIN A CONTINUOUS URBAN INTERFACE

3.2 GENERATION PROCESS



3.2.7 AN EXTENSION OF URBAN FRINGE ACCORDING TO THE AXES AND TOPOGRAPHY

3.2 GENERATION PROCESS



3.2.8 ADAPT THE LOWER VOLUMES TO THE SITE IN A CASCADE

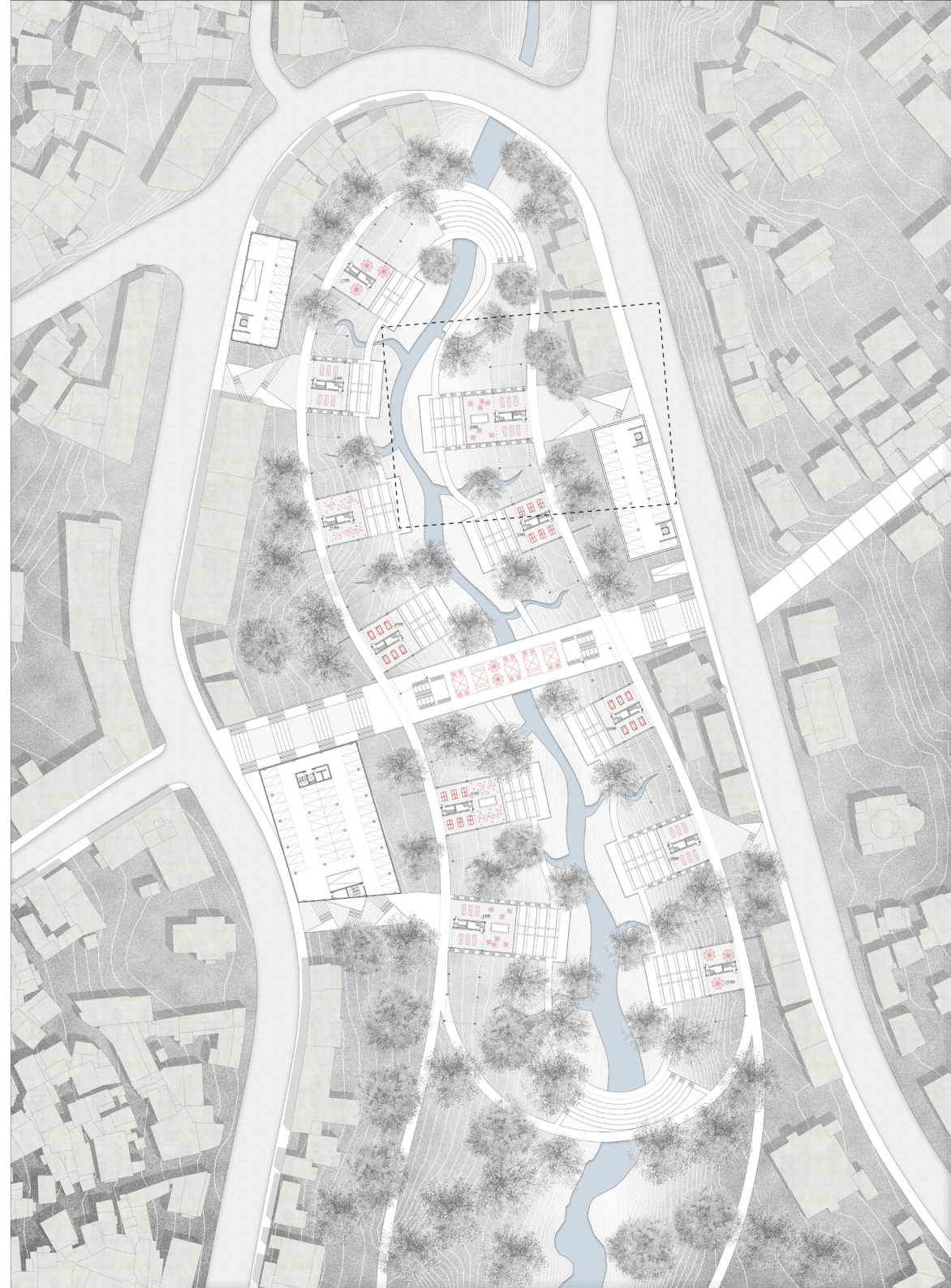
3.2 GENERATION PROCESS



3.2.9 ADJUST THE UPPER VOLUMES PARALLEL TO THE RIVER

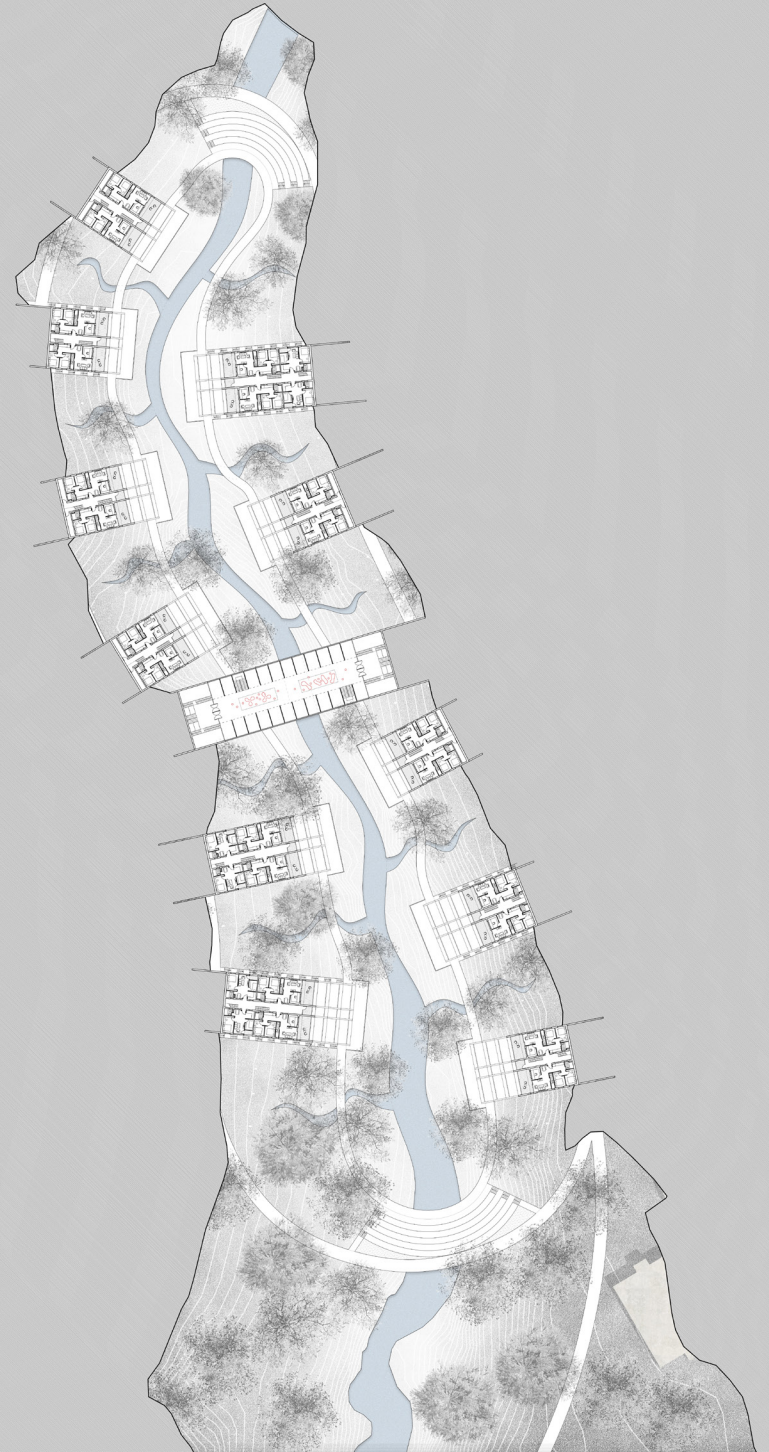
3.3 MASTER PLANNING

ENTRANCE LEVEL / PLAN



3.3 MASTER PLANNING

LOWER LEVEL / PLAN



3.3 MASTER PLANNING

UPPER LEVEL / PLAN



3.4 TYPICAL UNIT

+3.000

+2.000

+1.000

0.000

-12.000

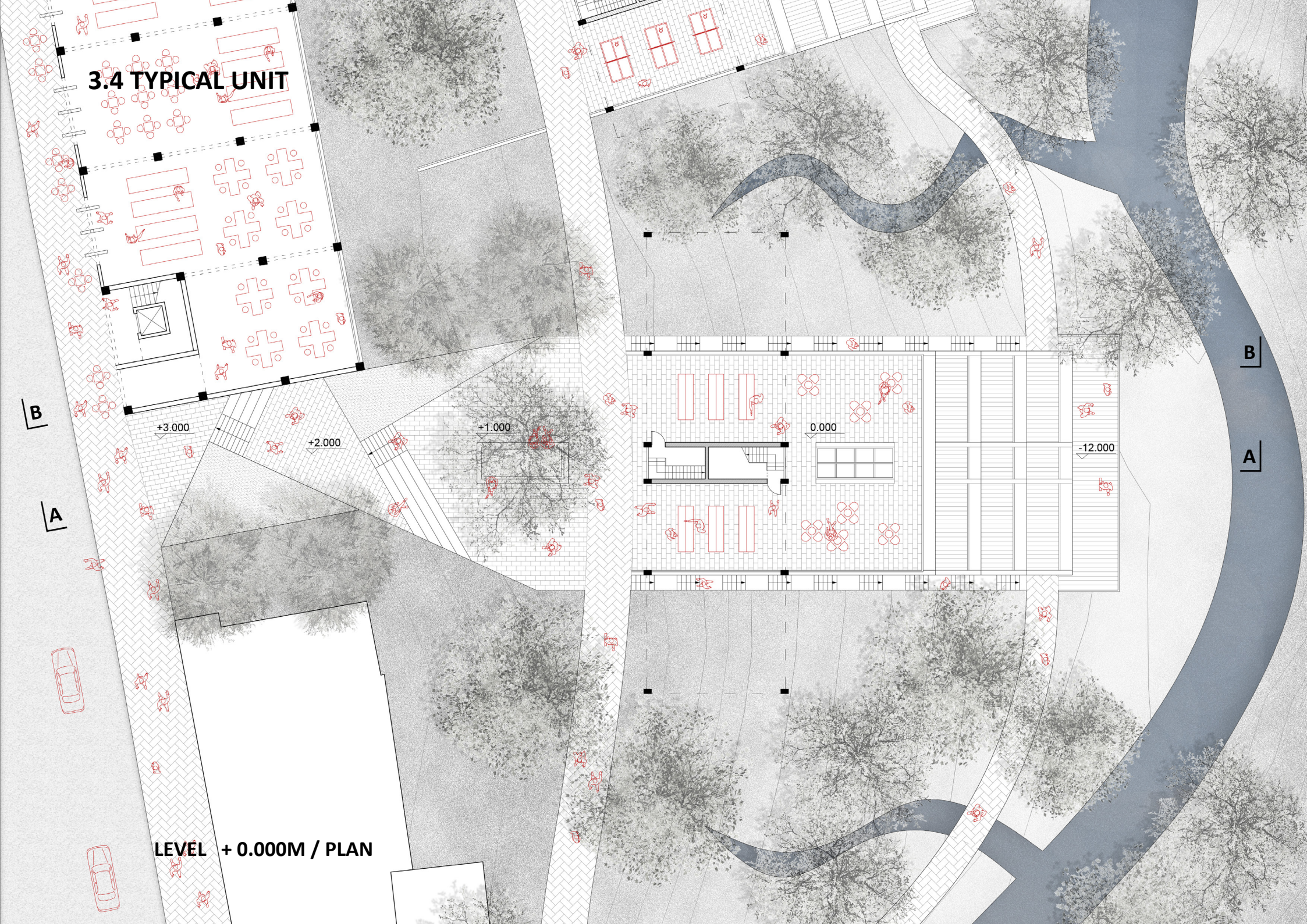
LEVEL + 0.000M / PLAN

B

A

B

A

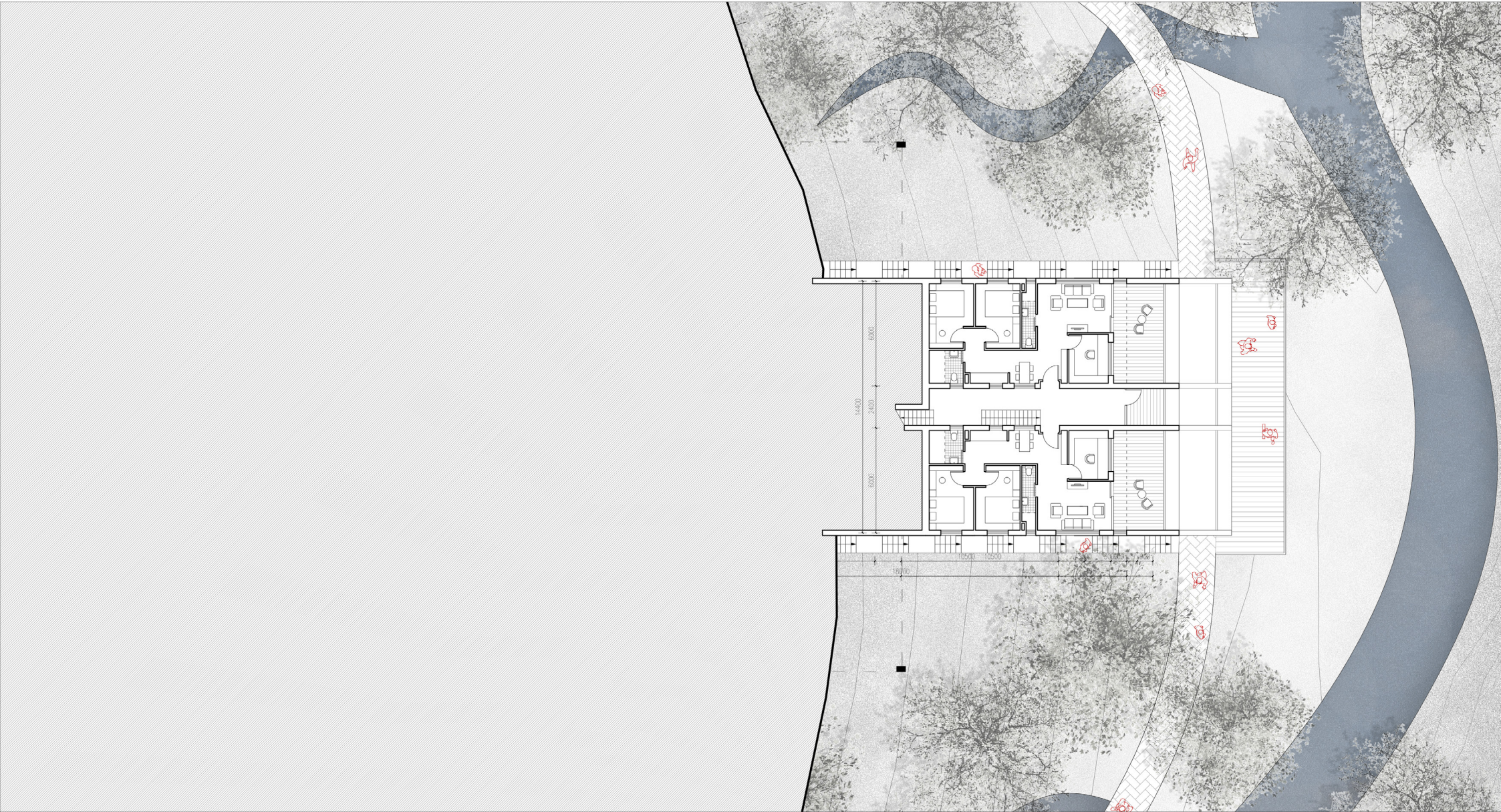


3.4 TYPICAL UNIT



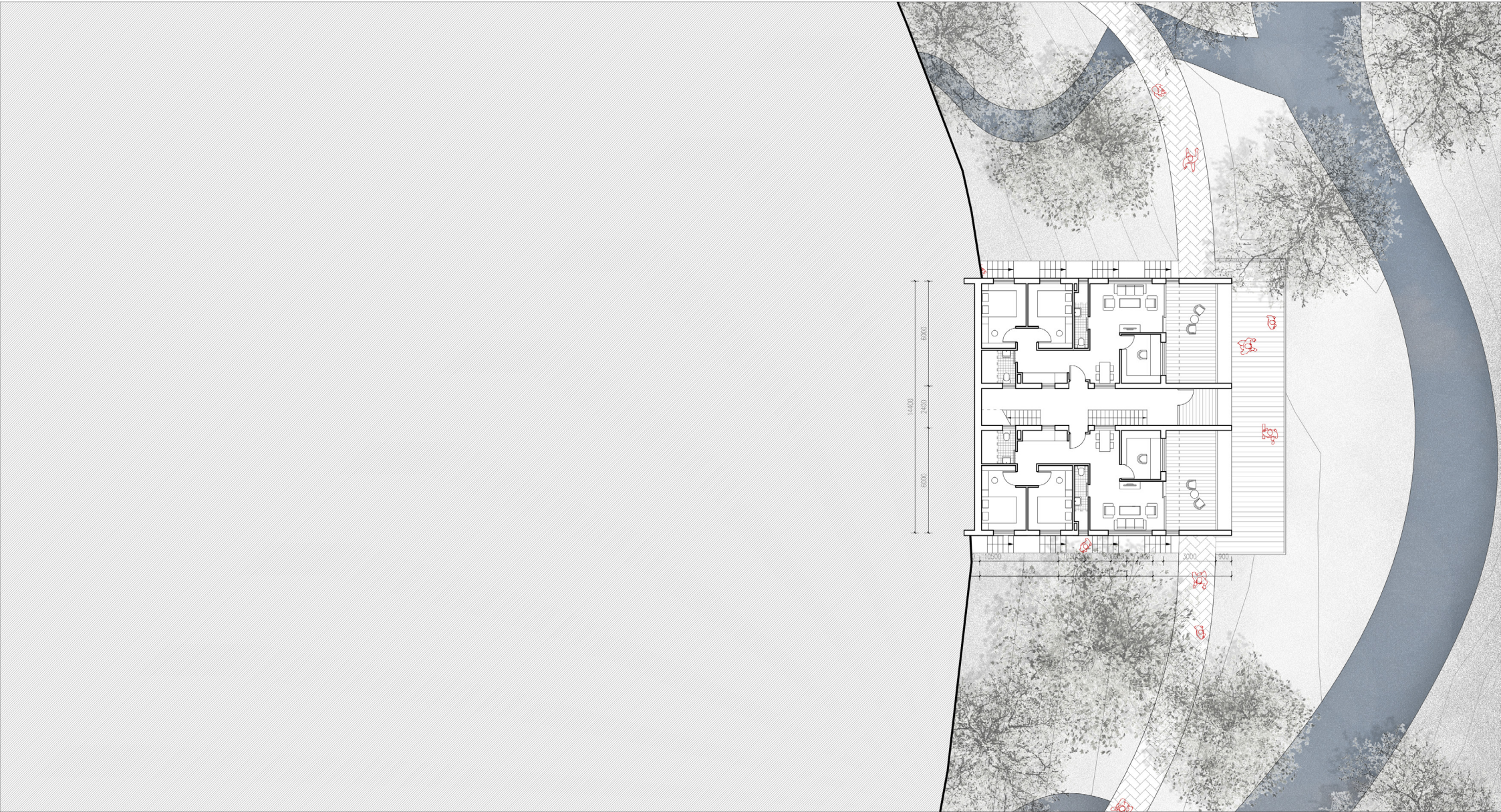
LEVEL - 3.000M / PLAN

3.4 TYPICAL UNIT



LEVEL - 6.000M / PLAN

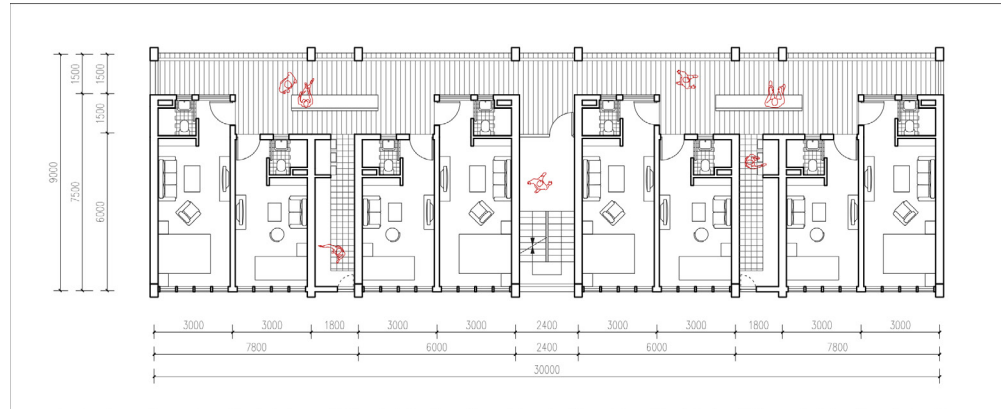
3.4 TYPICAL UNIT



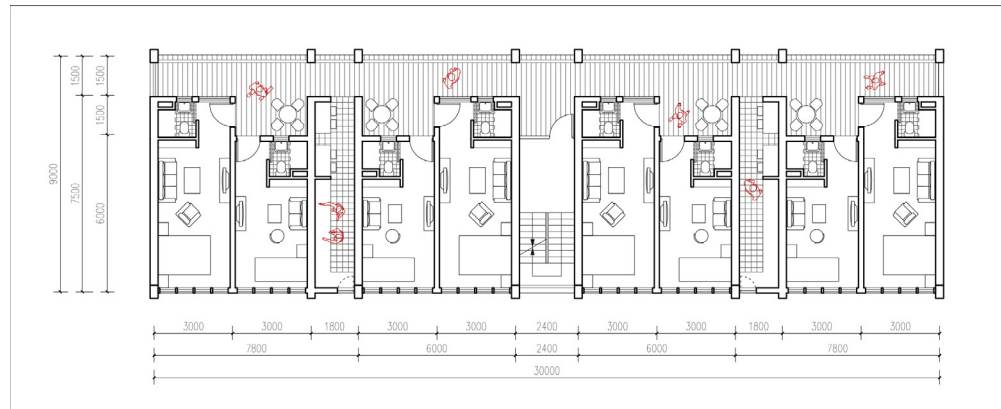
LEVEL - 9.000M / PLAN

3.4 TYPICAL UNIT

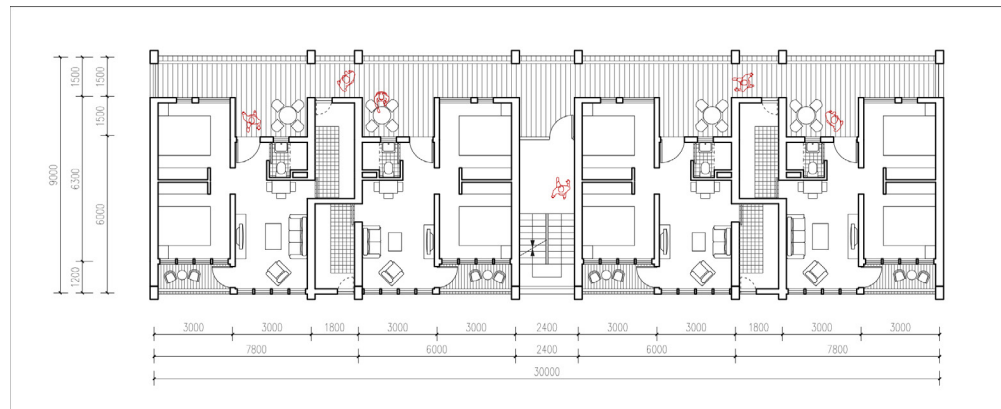
LEVEL + 3.500M / PLAN



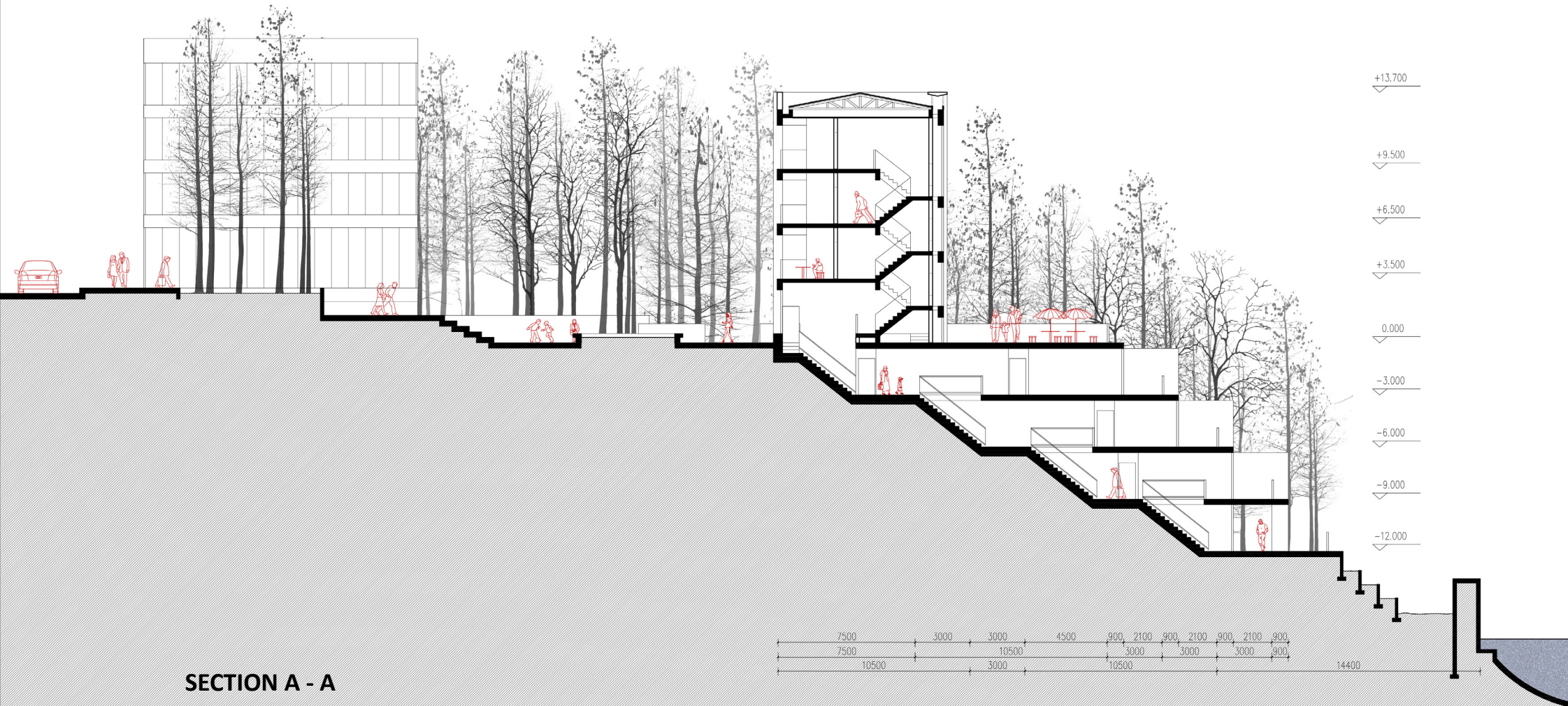
LEVEL + 6.500M / PLAN



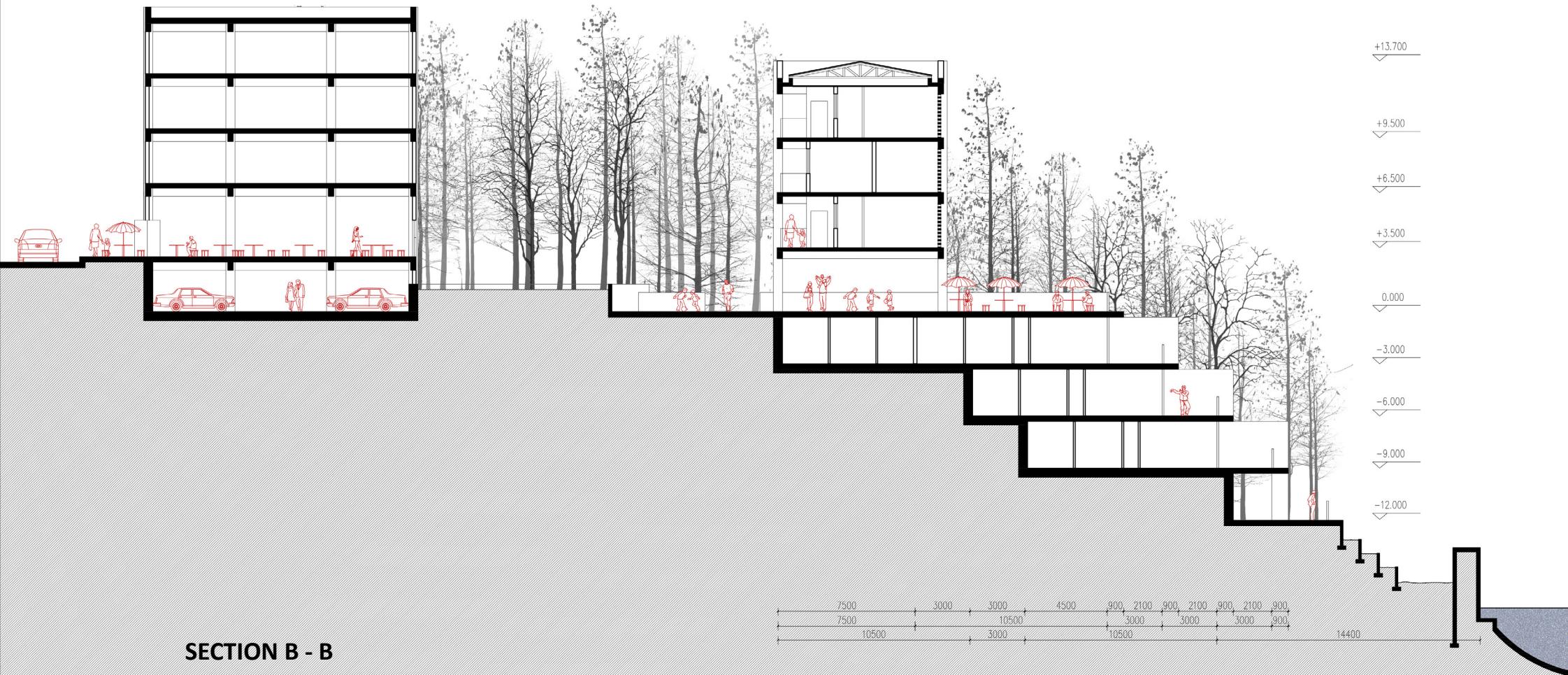
LEVEL + 9.500M / PLAN



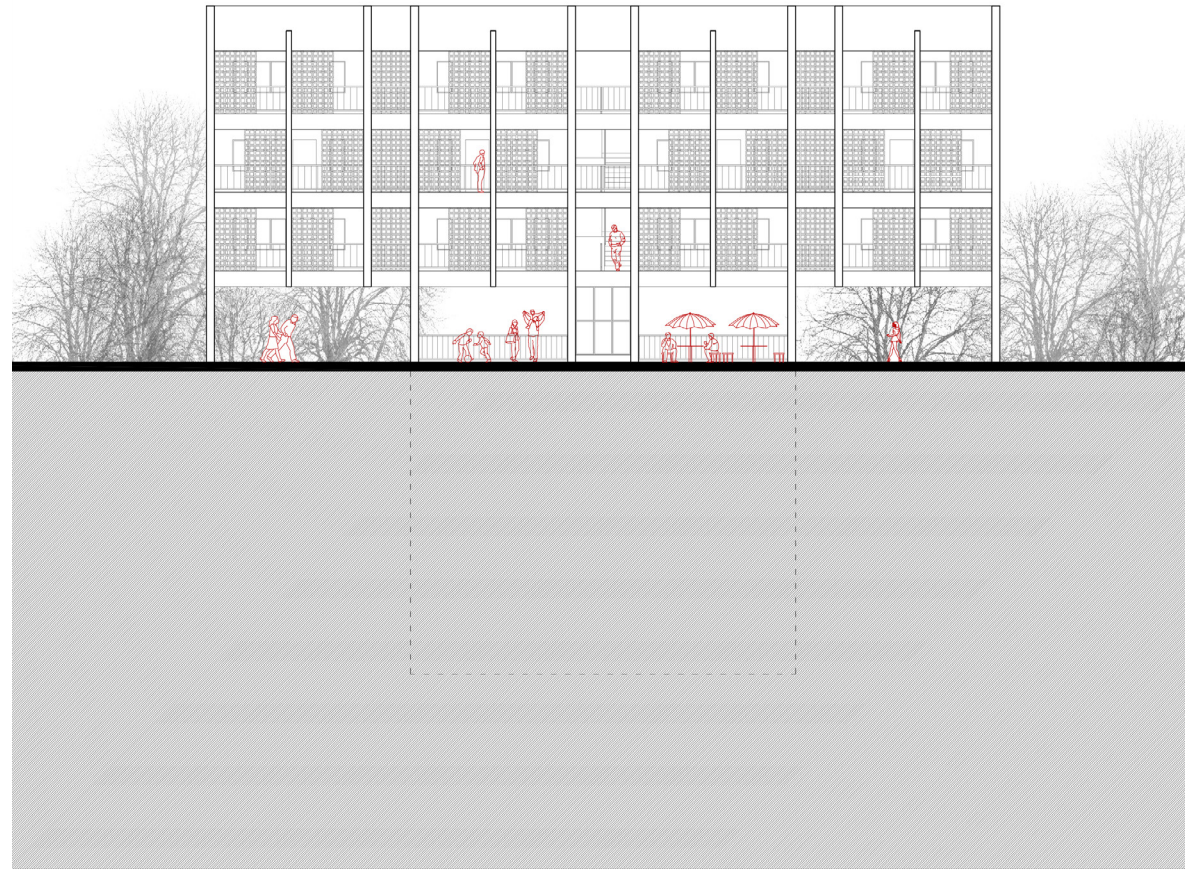
3.4 TYPICAL UNIT



3.4 TYPICAL UNIT

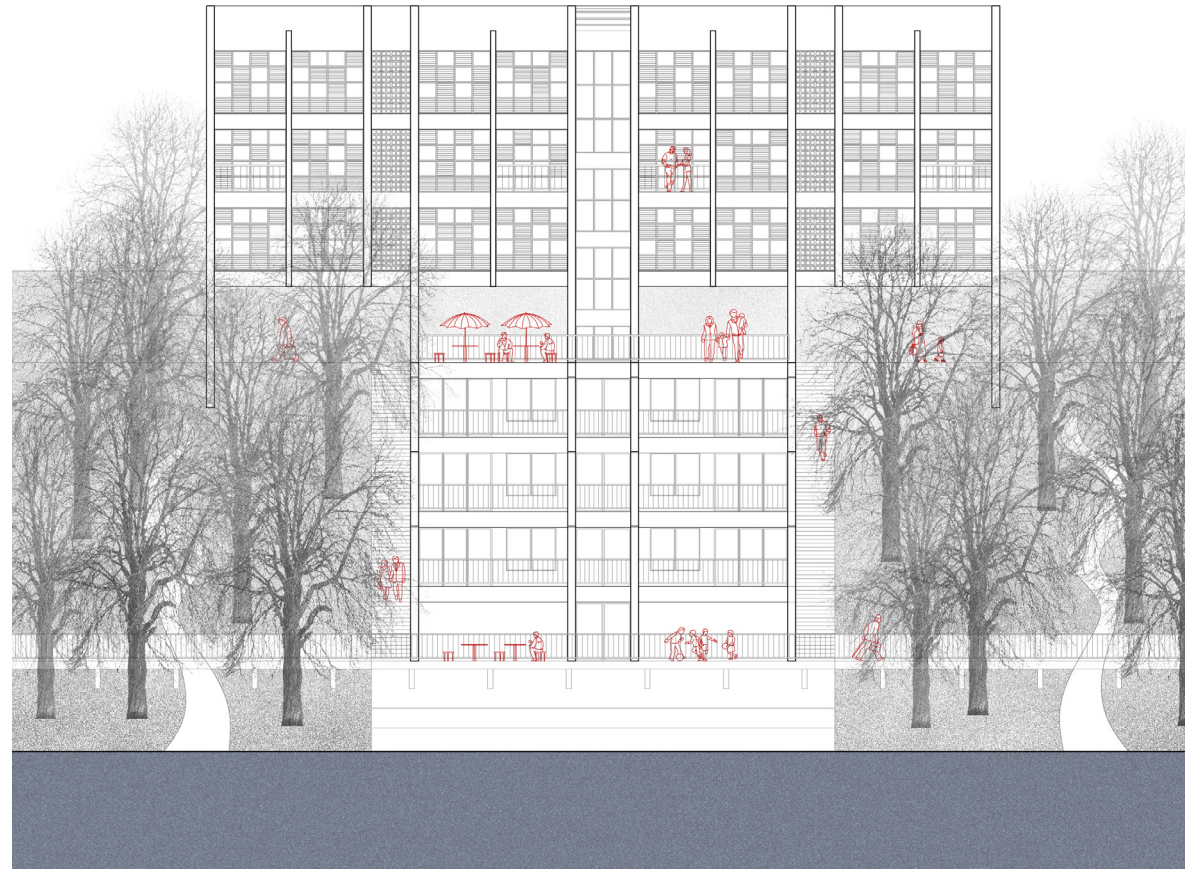


3.4 TYPICAL UNIT



EAST FACADE / FACING THE STREET

3.4 TYPICAL UNIT

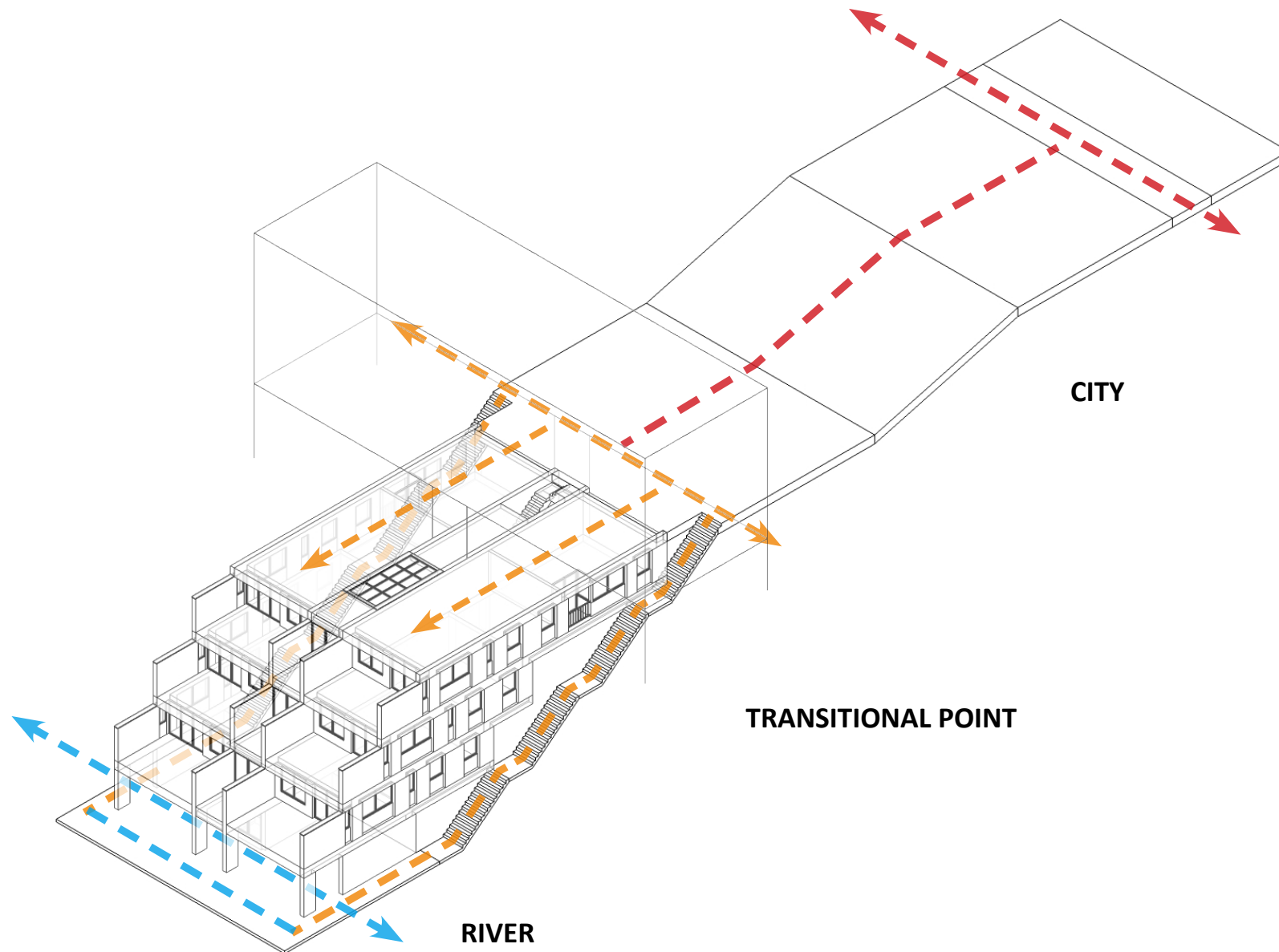


WEST ELEVATION / FACING THE RIVER

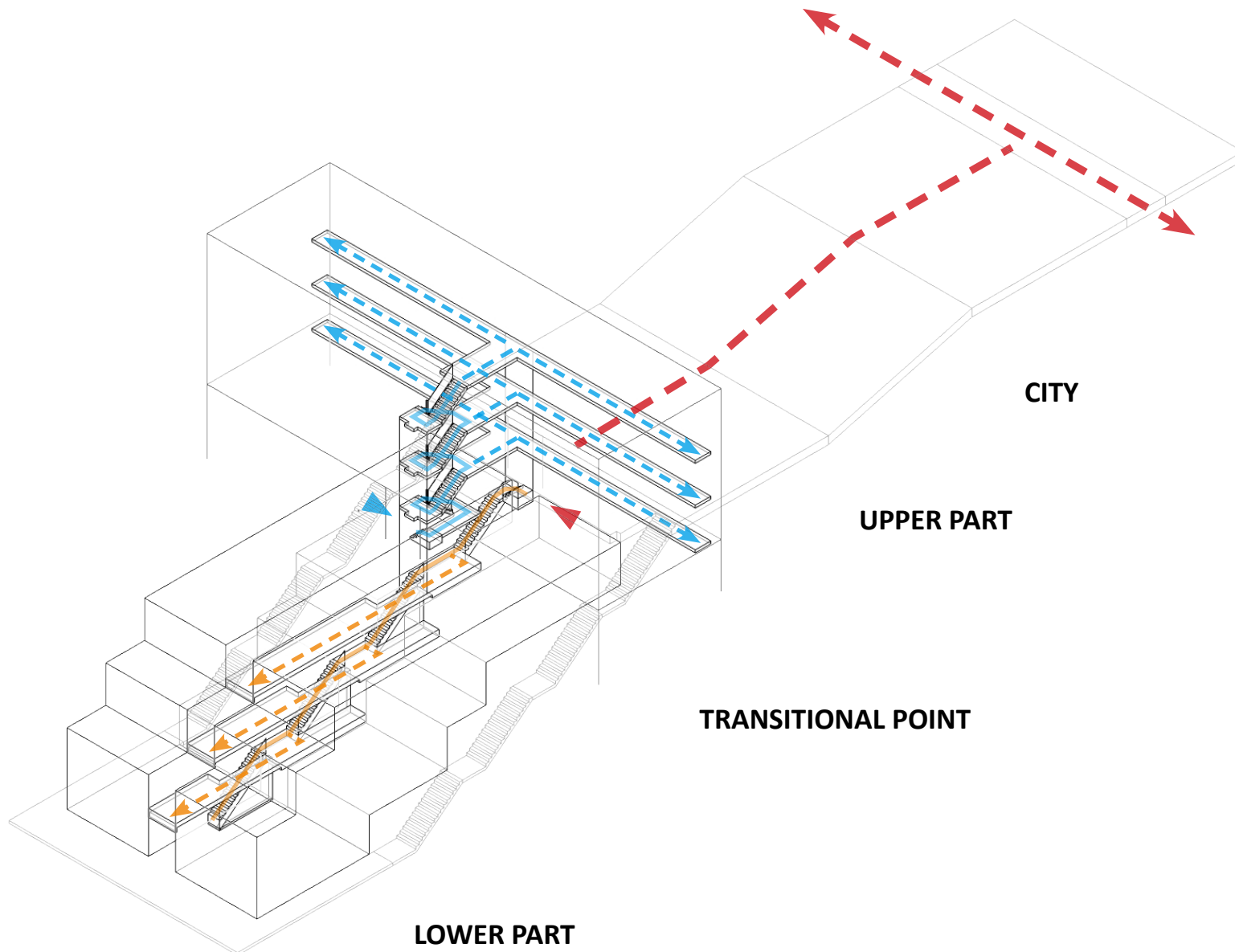
3.4 TYPICAL UNIT / INDEX - 262 UNITS / HECTARE

SITE AREA	13000M2
BUILT AREA:	5400M2
PUBLIC OPEN:	7600M2
PUBLIC TERRACE:	540 M2
COMMUNAL TERRACE:	2870 M2
PRIVATE TERRACE:	1432 M2
PARKING:	500
CONSTRUCTION AREA	15710M2
COMMERCIAL:	540M2
CULTURAL & EDUCATION:	540M2
STORAGE:	252M2
1 BEDROOM DWELLING:	4536M2
2 BEDROOM DWELLING:	2052M2
3 BEDROOM DWELLING:	4290M2
OTHERS:	3000M2
FAR	1.21
DWELLING	340 UNITS
1 BEDROOM DWELLING:	224 UNITS
2 BEDROOM DWELLING:	50 UNITS
3 BEDROOM DWELLING:	66 UNITS
DWELLING DENSITY	262 UNITS / HECTARE

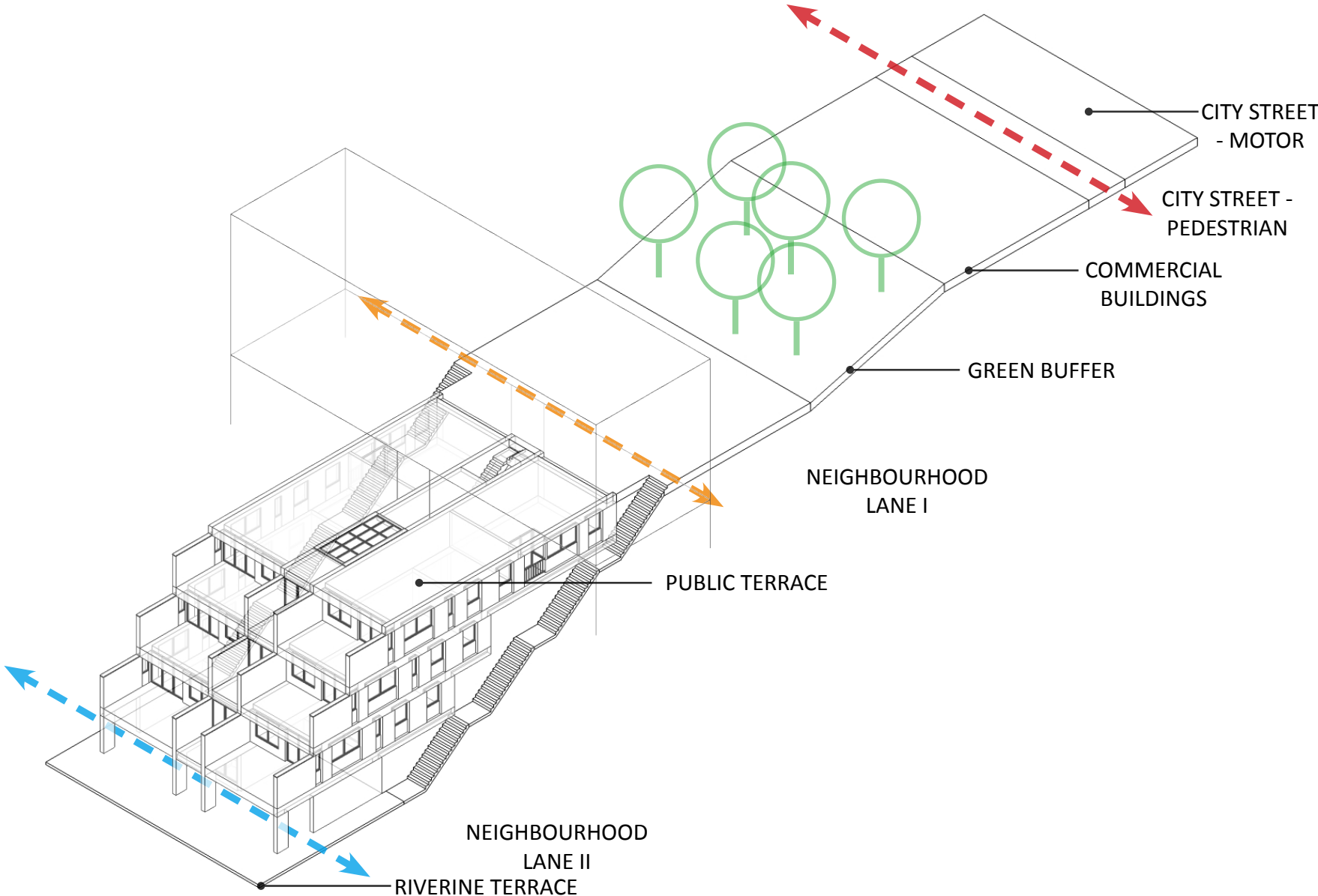
3.4 TYPICAL UNIT / EXTERNAL CIRCULATION



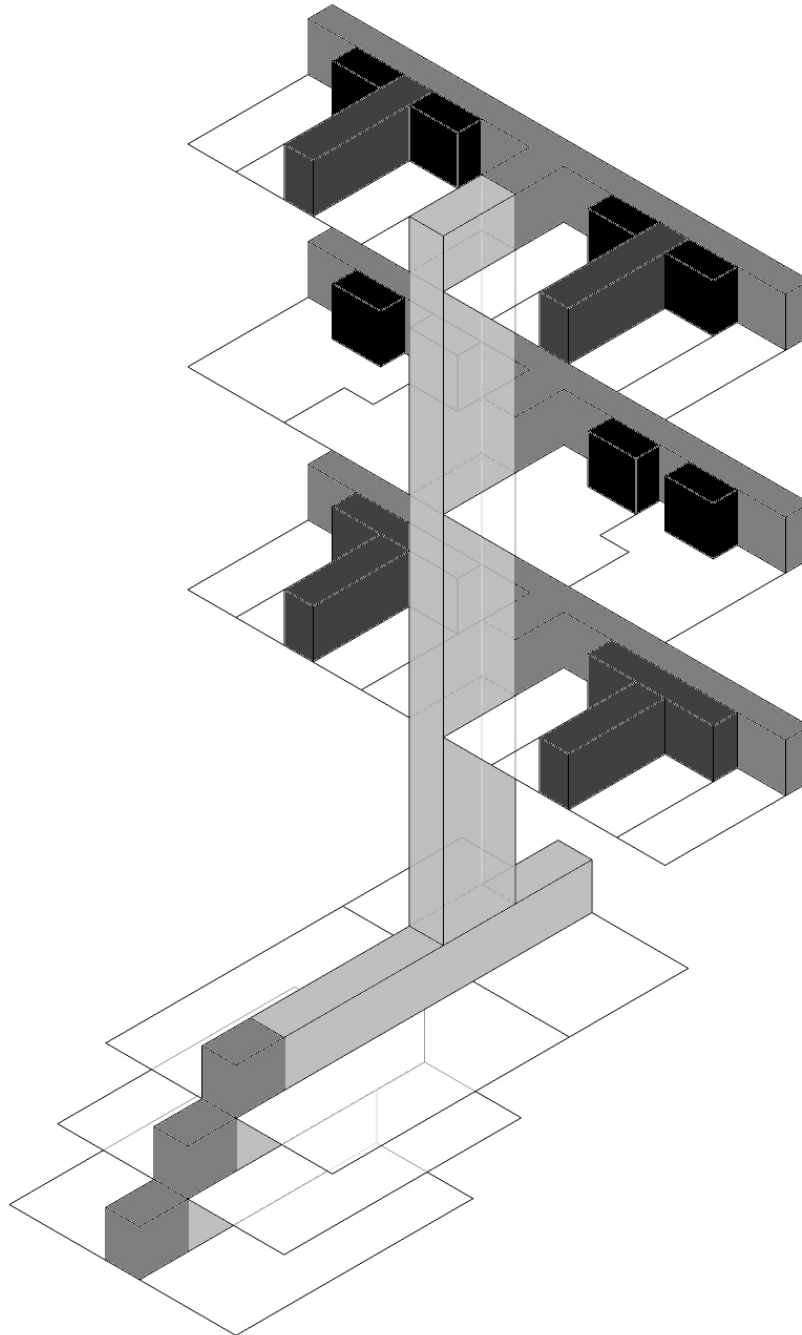
3.4 TYPICAL UNIT / INTERNAL CIRCULATION



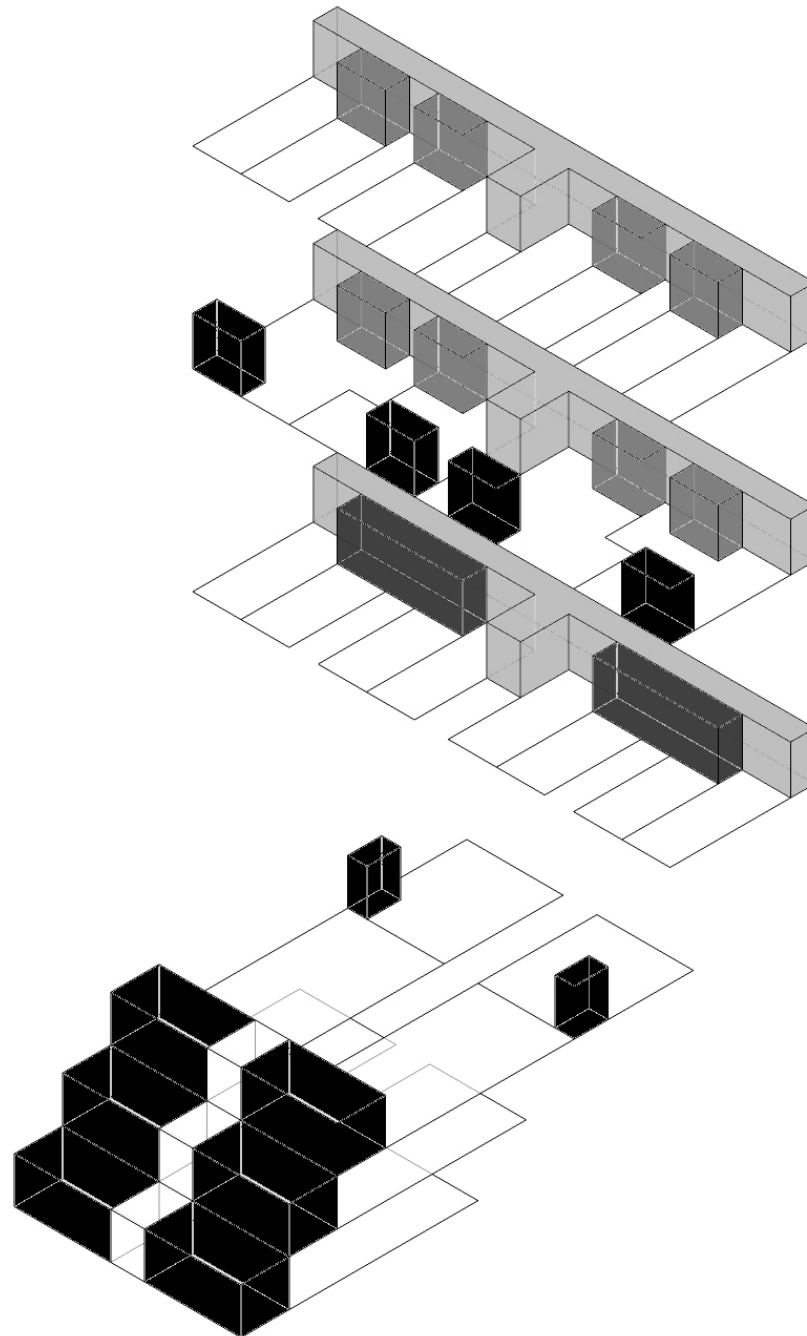
3.4 TYPICAL UNIT / SPATIAL SEQUENCE



3.4 TYPICAL UNIT / COMMUNAL SPACE

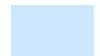
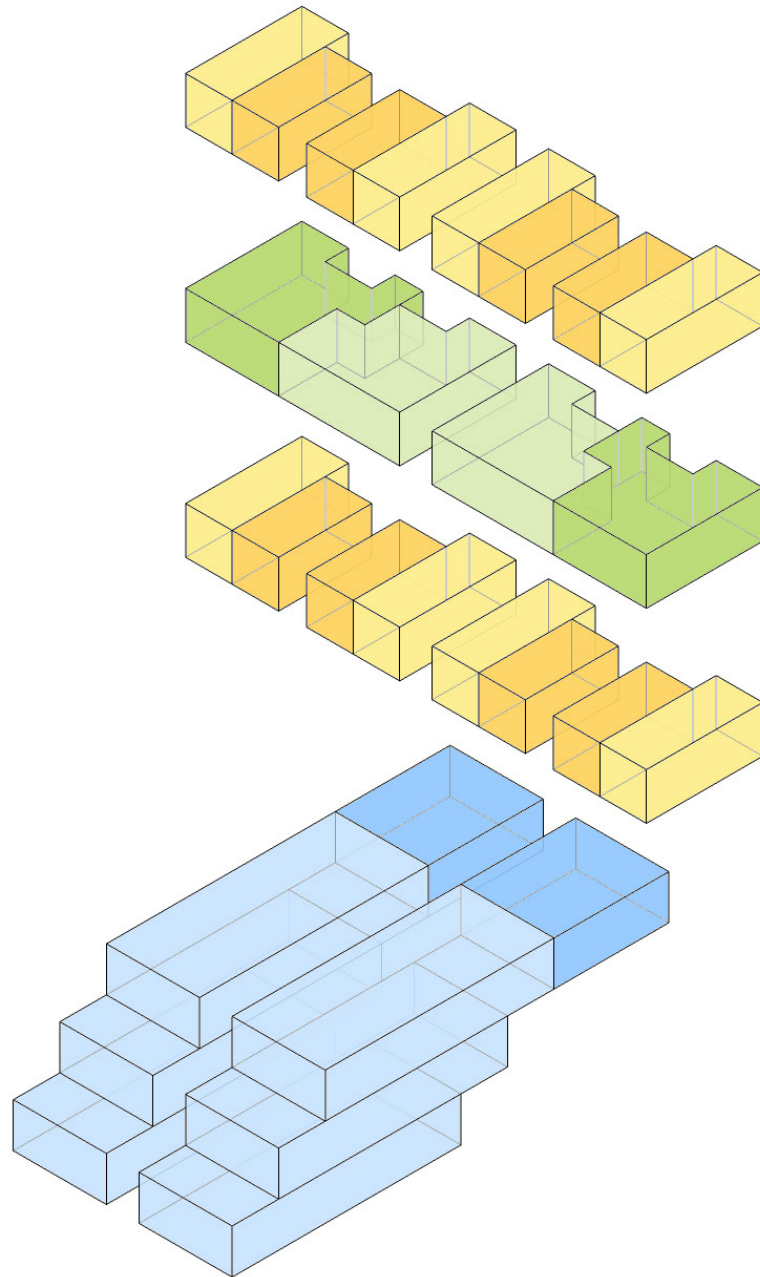


3.4 TYPICAL UNIT / OUTDOOR SPACE



- WHOLE FLOOR
- CLUSTER
- SMALLER CLUSTER
- PRIVATE

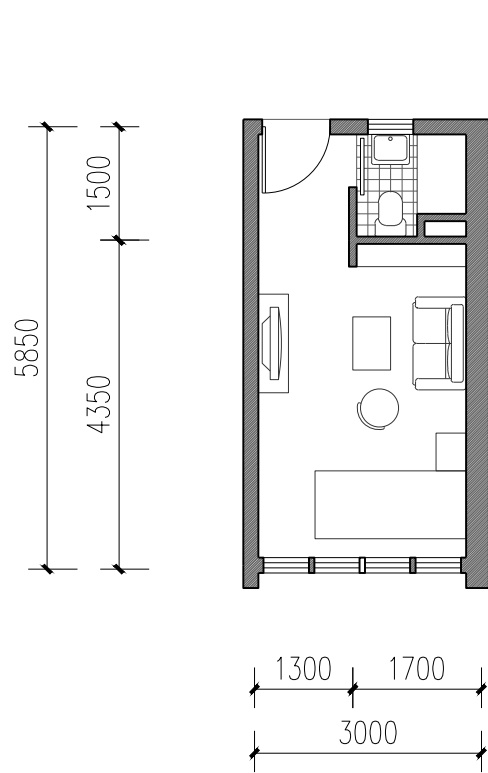
3.4 TYPICAL UNIT / HOUSE TYPE



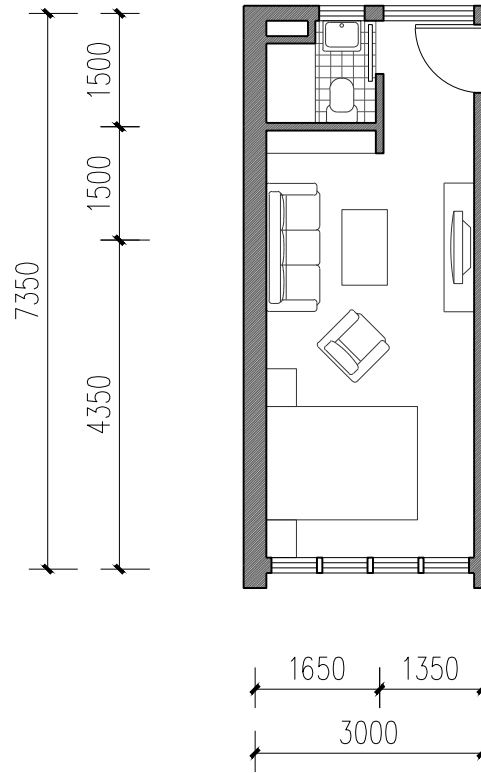
3.4 TYPICAL UNIT / HOUSE TYPE - ONE BEDROOM APARTMENT



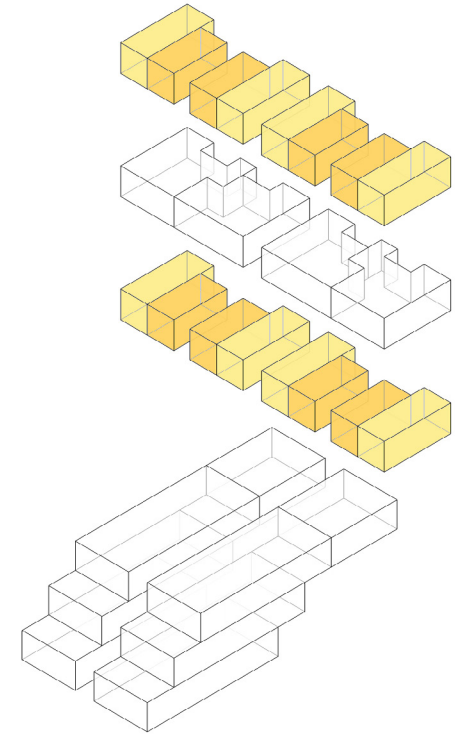
3.4 TYPICAL UNIT / HOUSE TYPE - ONE BEDROOM APARTMENT



TYPE A 18M²
112 UNITS



TYPE B 22.5M²
112 UNITS

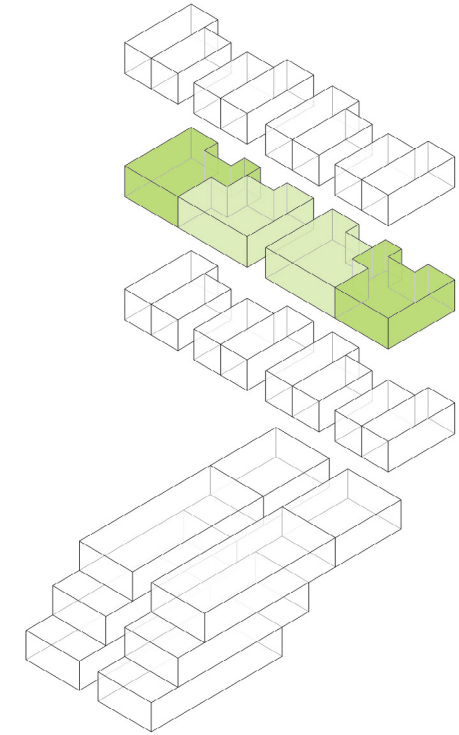
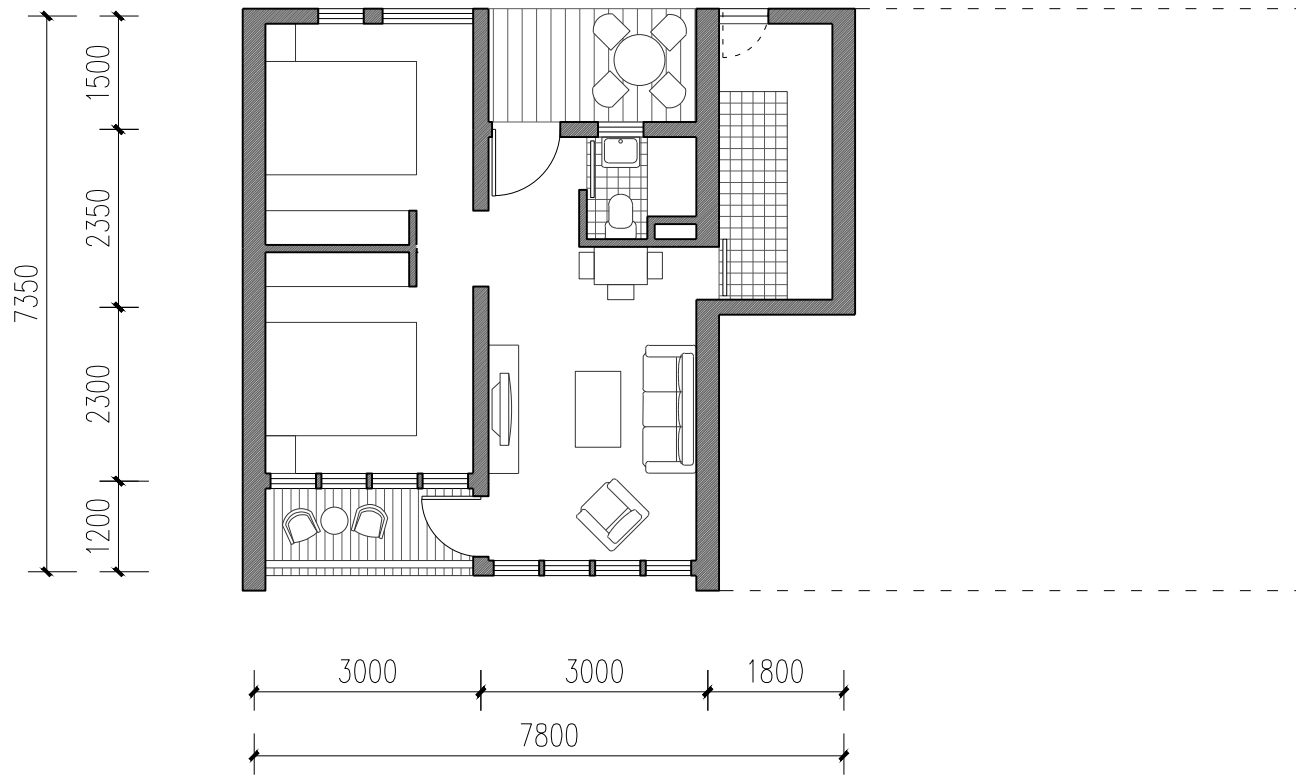


HOUSING TYPE / PLAN

3.4 TYPICAL UNIT / HOUSE TYPE - TWO BEDROOM APARTMENT



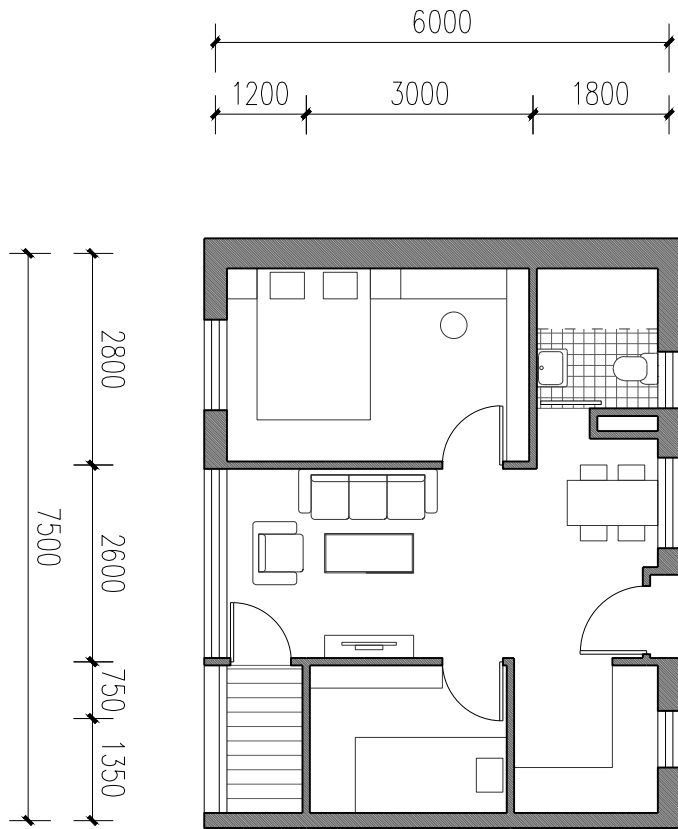
3.4 TYPICAL UNIT / HOUSE TYPE - TWO BEDROOM APARTMENT



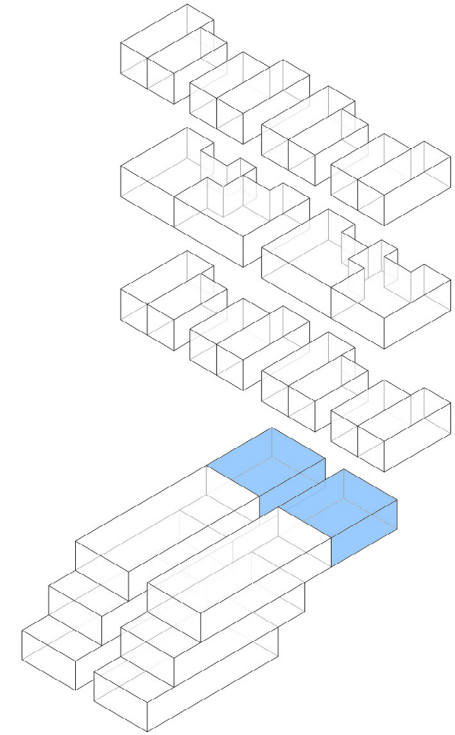
TYPE C-1 37.4M²+3.6M²Terrace
22 UNITS

TYPE C-2 37.4M²+3.6M²Terrace
22 UNITS

3.4 TYPICAL UNIT / HOUSE TYPE - TWO BEDROOM APARTMENT



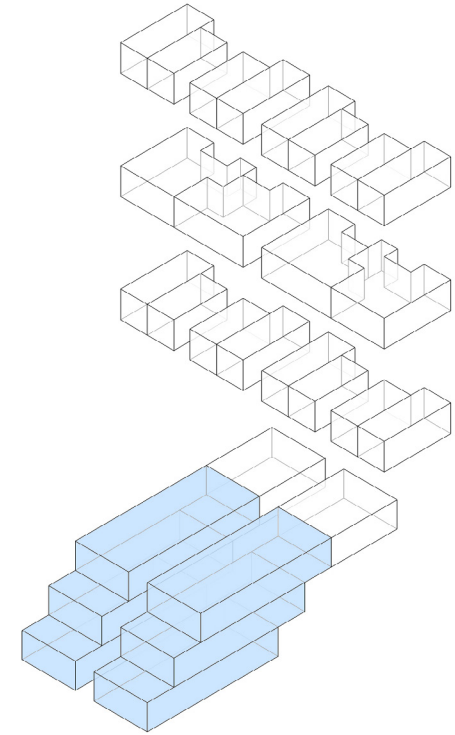
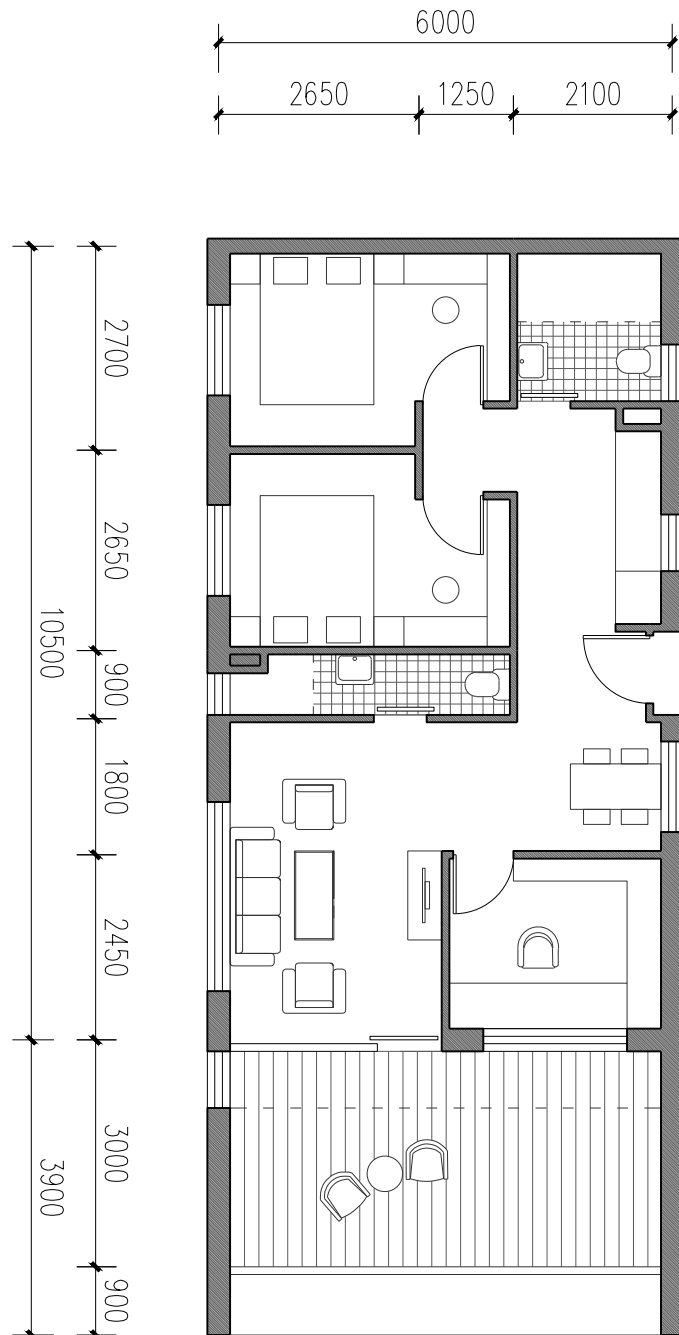
TYPE D 42.5M²+2.5M² Terrace
6 UNITS



3.4 TYPICAL UNIT / HOUSE TYPE - THREE BEDROOM APARTMENT

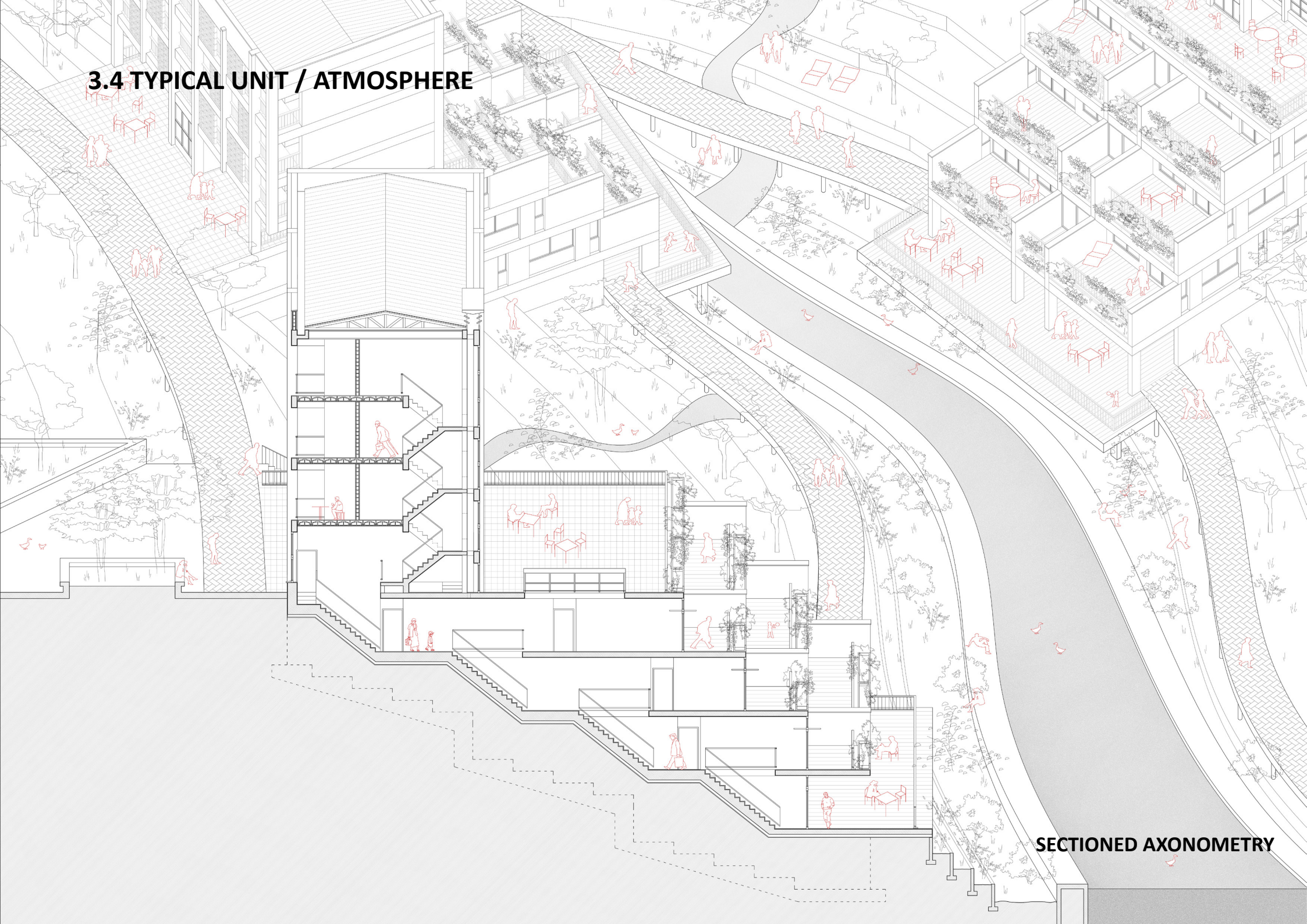


3.4 TYPICAL UNIT / HOUSE TYPE - THREE BEDROOM APARTMENT



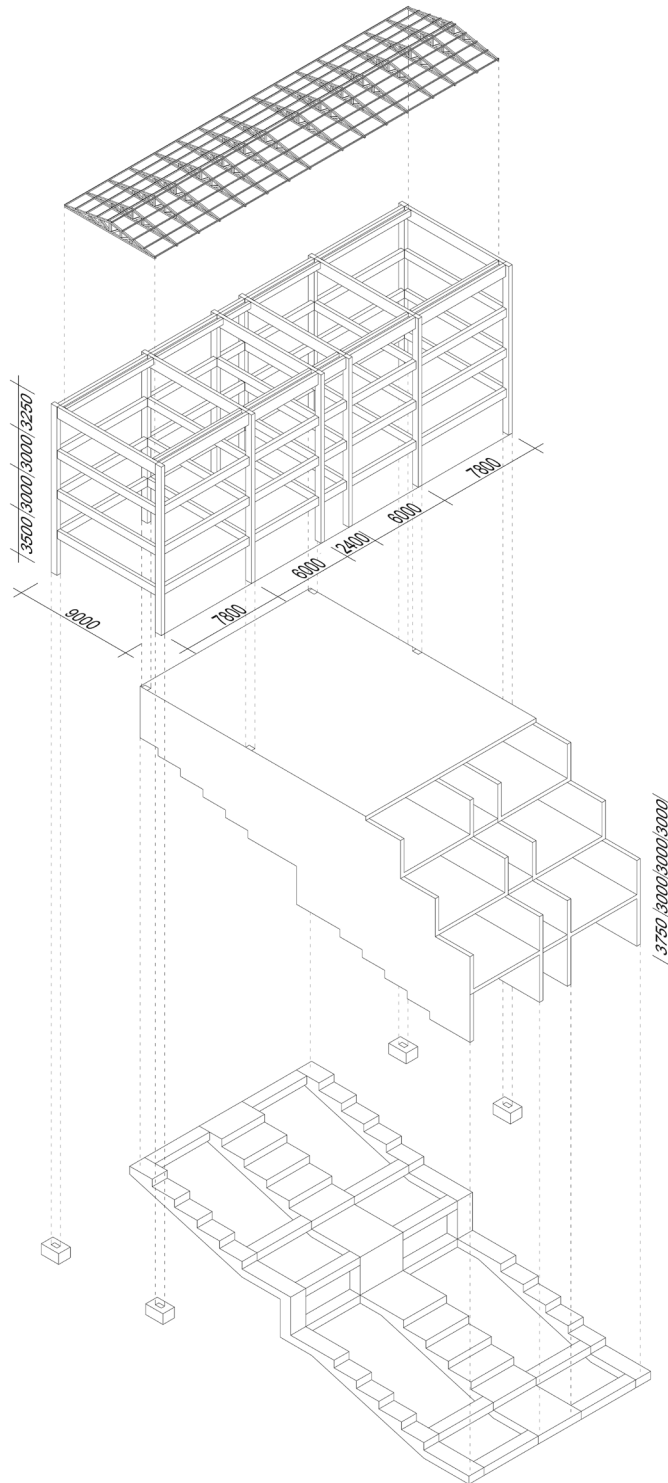
TYPE E 65M²+12M² Terrace
6 UNITS

3.4 TYPICAL UNIT / ATMOSPHERE



SECTIONED AXONOMETRY

3.4 TYPICAL UNIT / STRUCTURE



EUCALYPTUS TRUSS

CONCRETE FRAME STRUCTURE

CONCRETE STRUCTURAL WALLS

STEPPED FOUNDATION

3.4 TYPICAL UNIT / CLIMATE

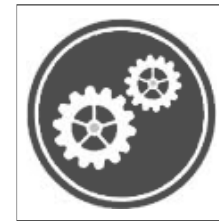
LOW-TECH POINTS:



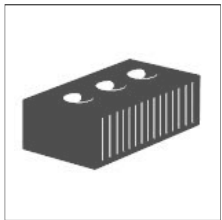
ENERGY SOURCE:
SOLAR ENERGY



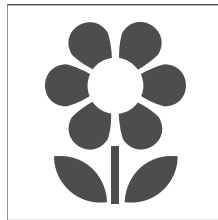
RAINWATER
COLLECTION



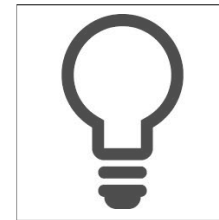
MECHANISM
REDUCTION



NATURAL, LOCAL
MATERIALS

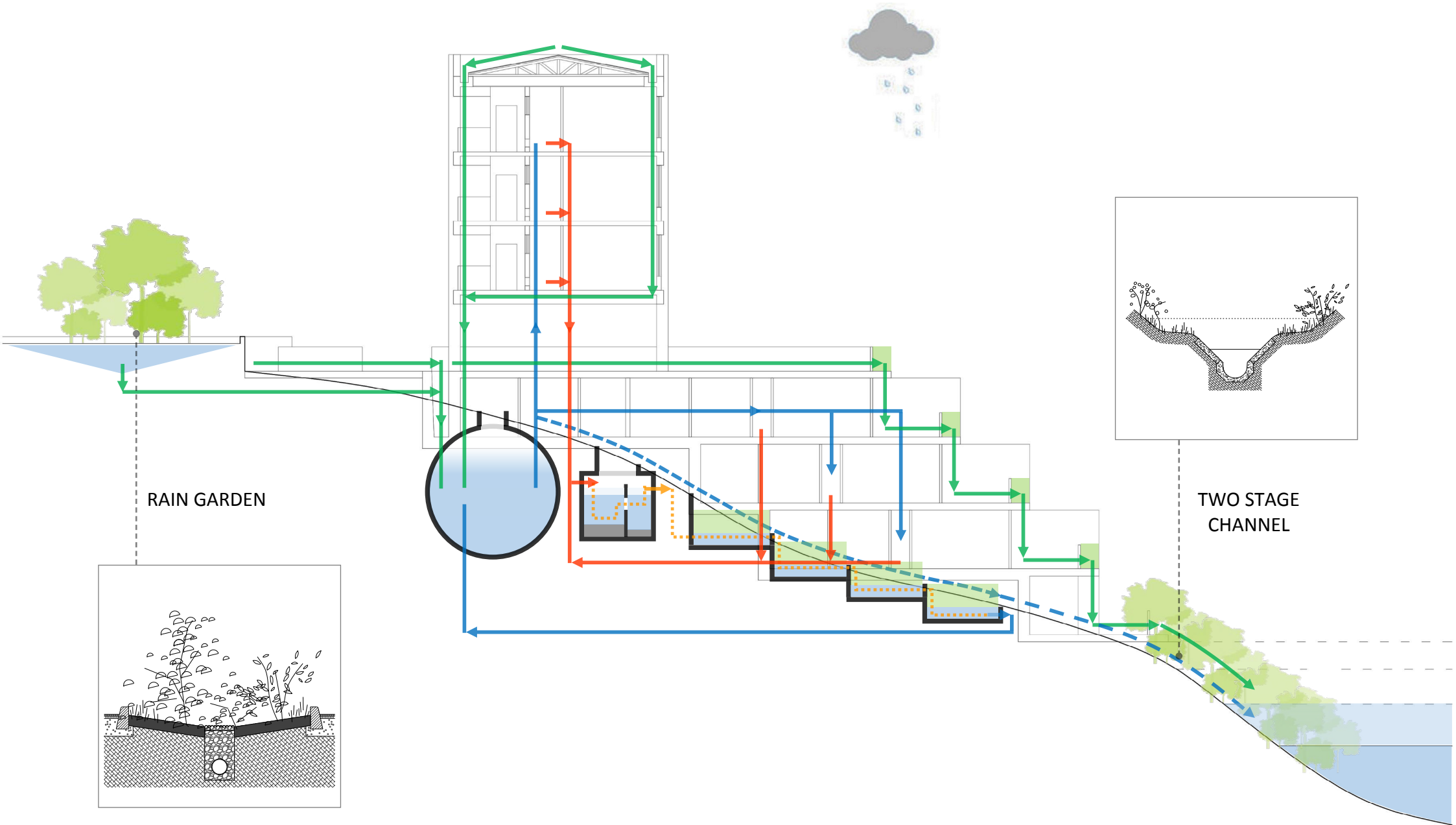


GREENING

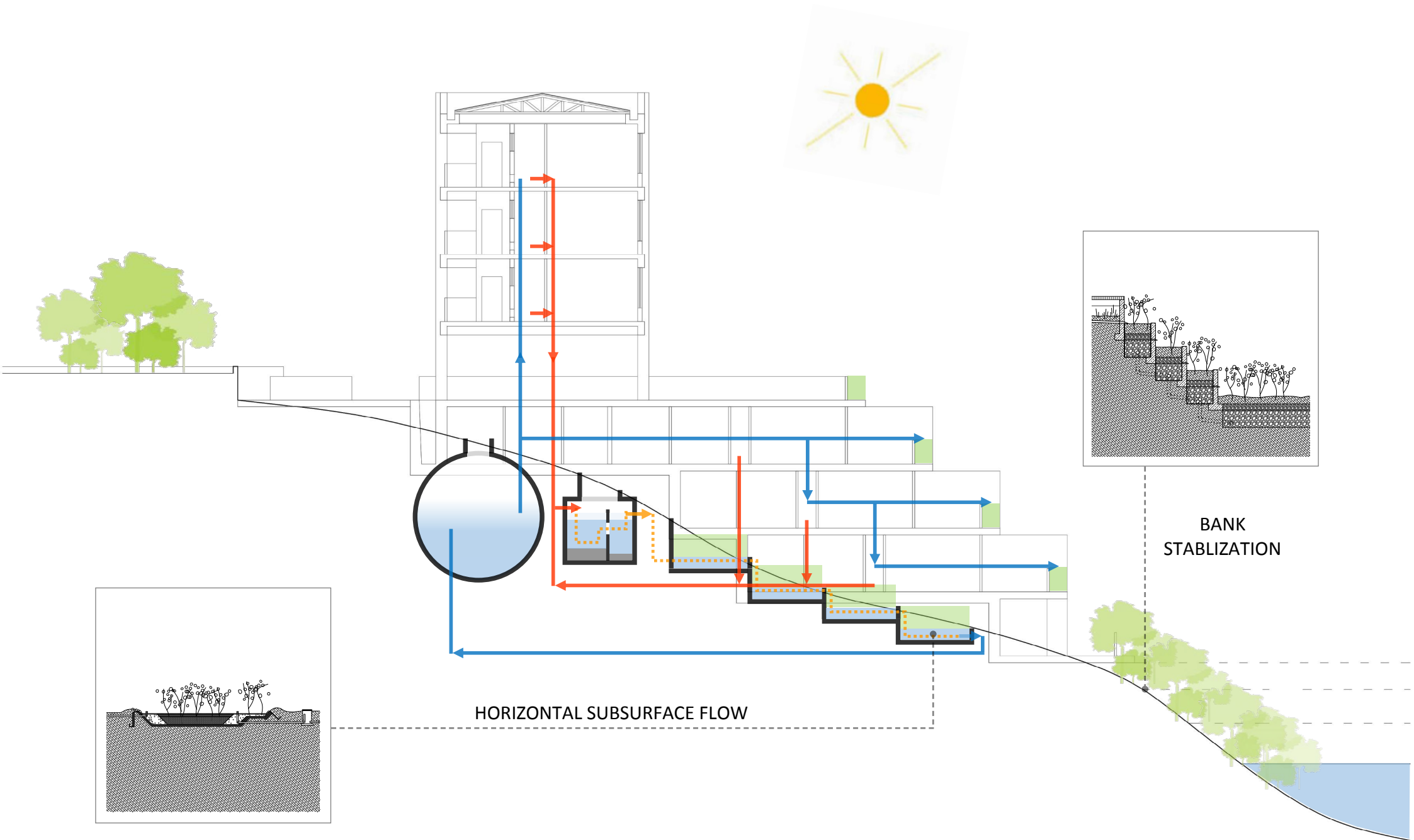


ARTIFICIAL LIGHTING
REDUCTION

3.4 TYPICAL UNIT / CLIMATE - WATER MANAGEMENT / RAINY SEASON

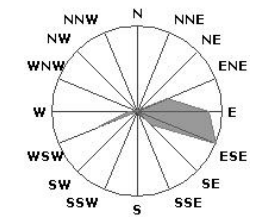


3.4 TYPICAL UNIT / CLIMATE - WATER MANAGEMENT / DRY SEASON



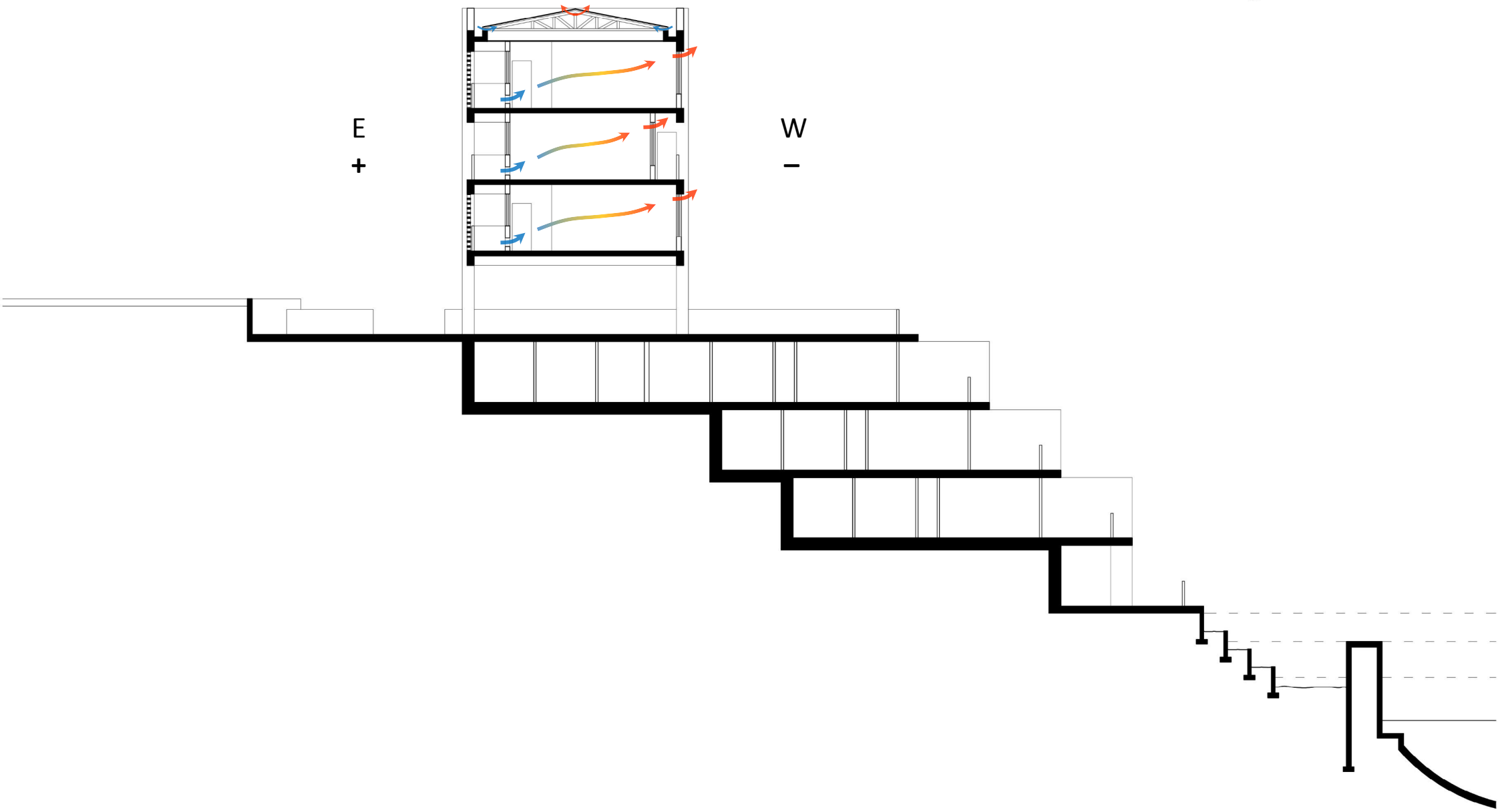
3.4 TYPICAL UNIT / CLIMATE - VENTILATION

Prevailing Wind



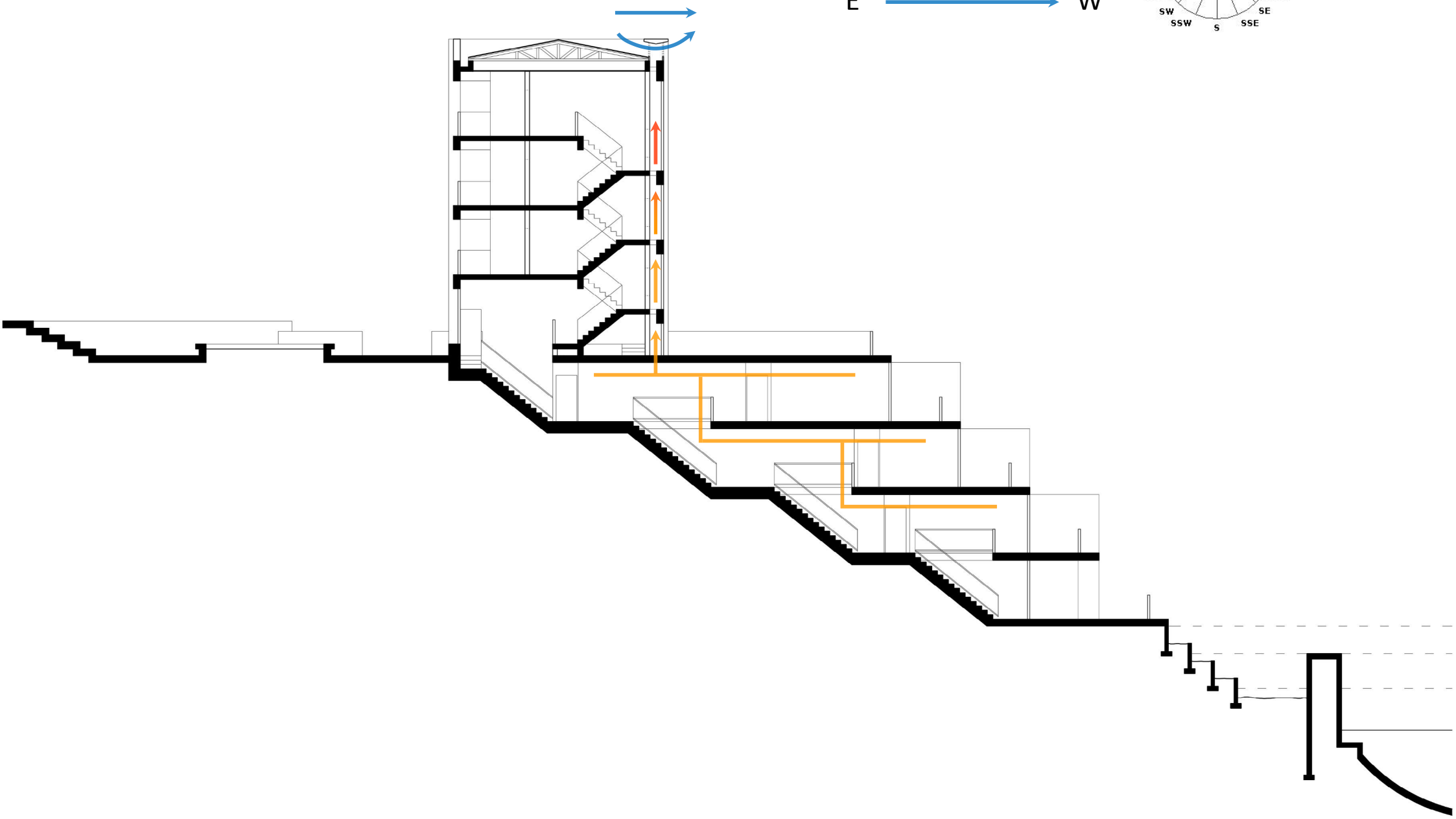
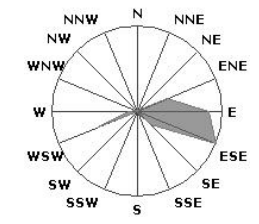
E
+

W
-

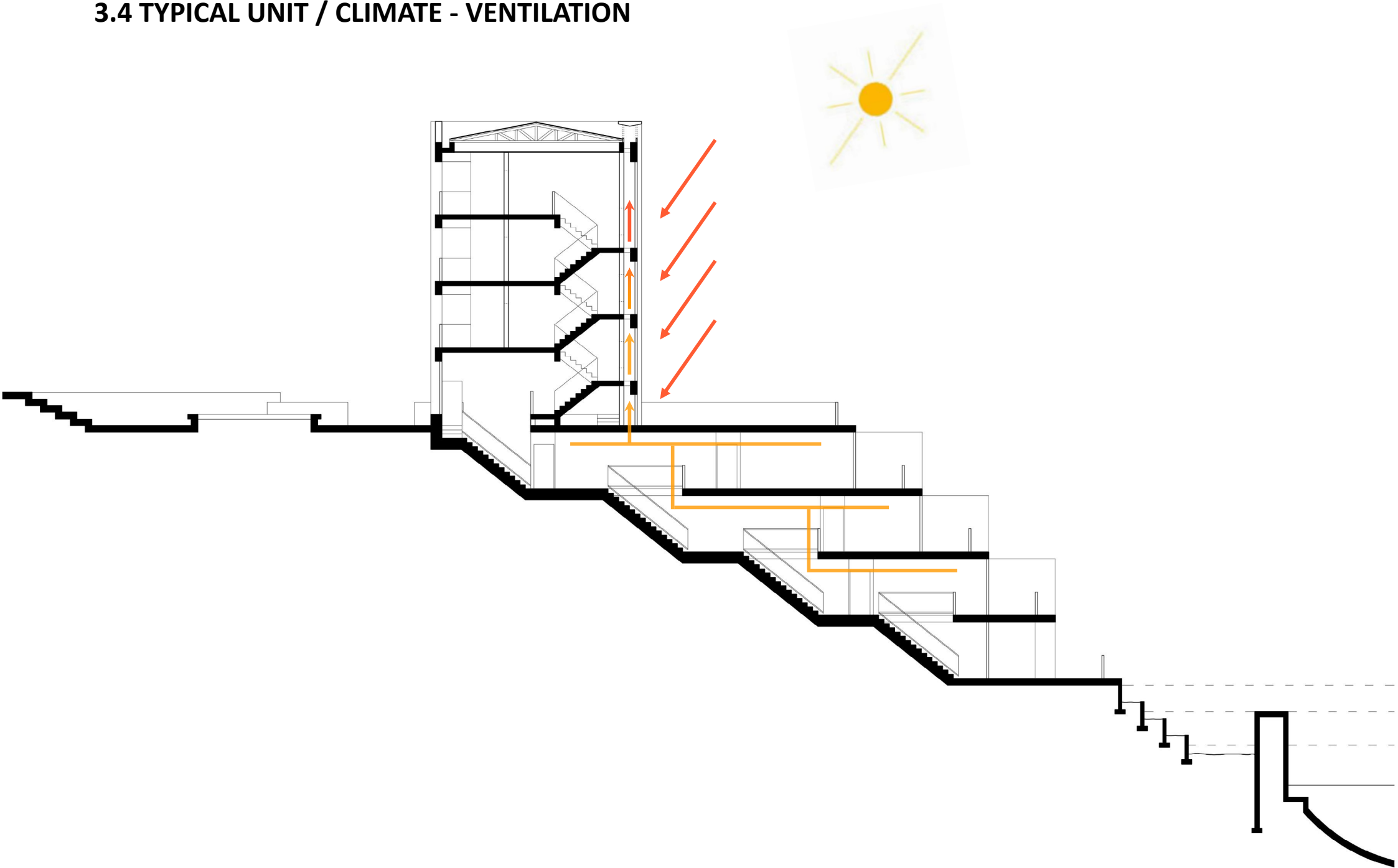


3.4 TYPICAL UNIT / CLIMATE - VENTILATION

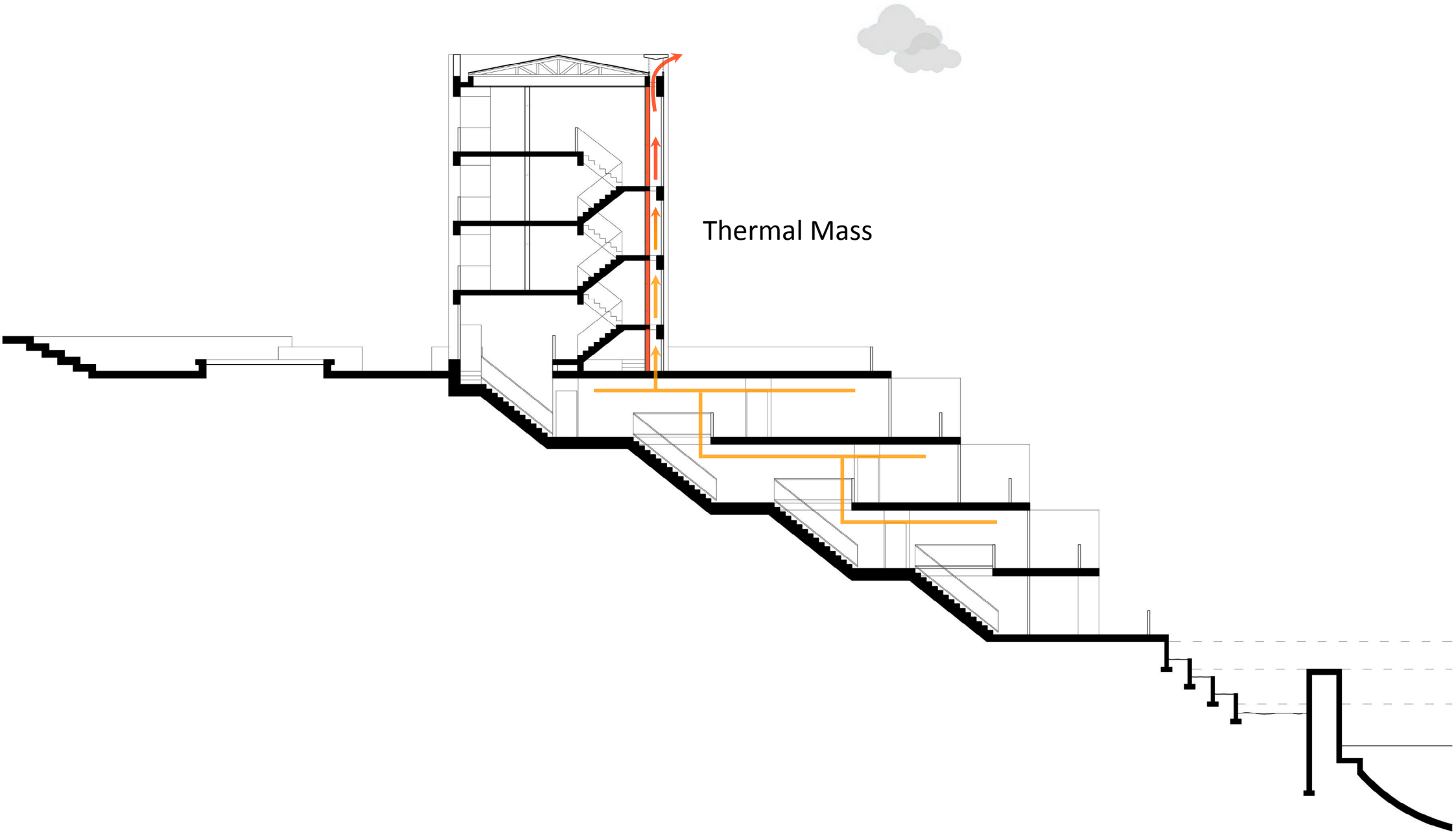
Prevailing Wind



3.4 TYPICAL UNIT / CLIMATE - VENTILATION



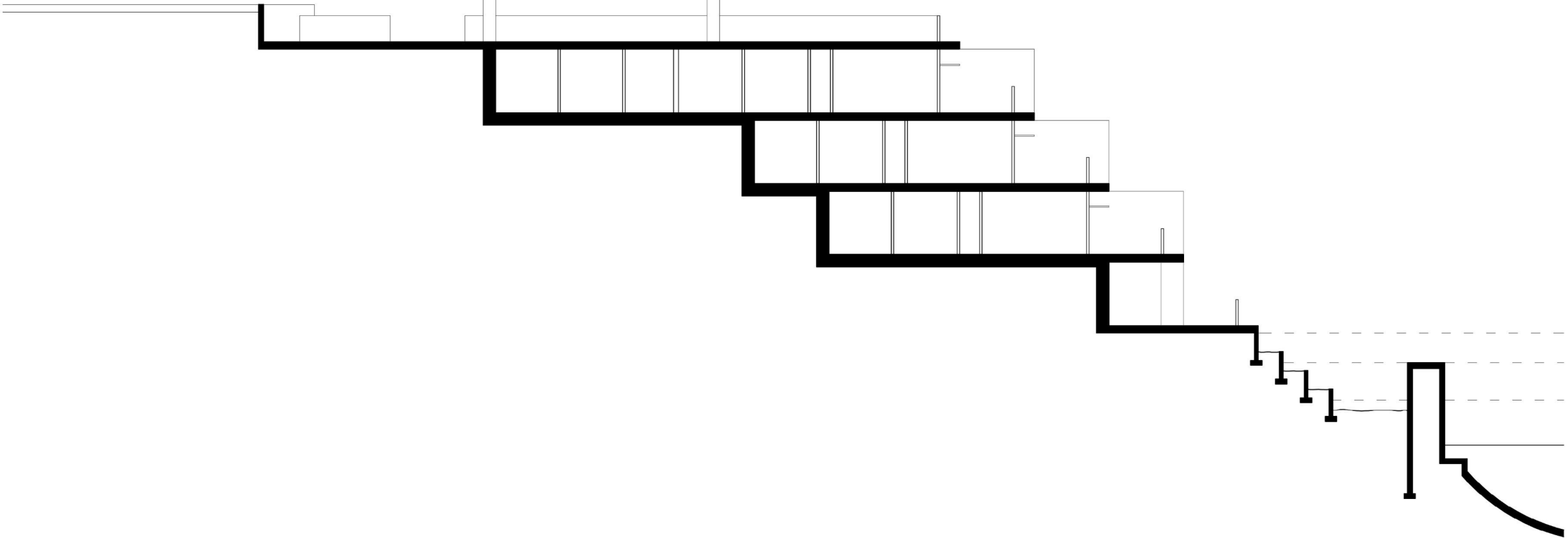
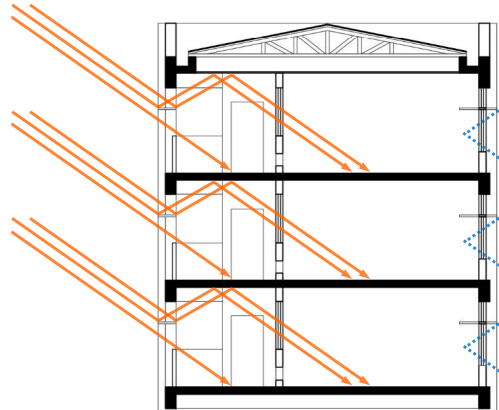
3.4 TYPICAL UNIT / CLIMATE - VENTILATION



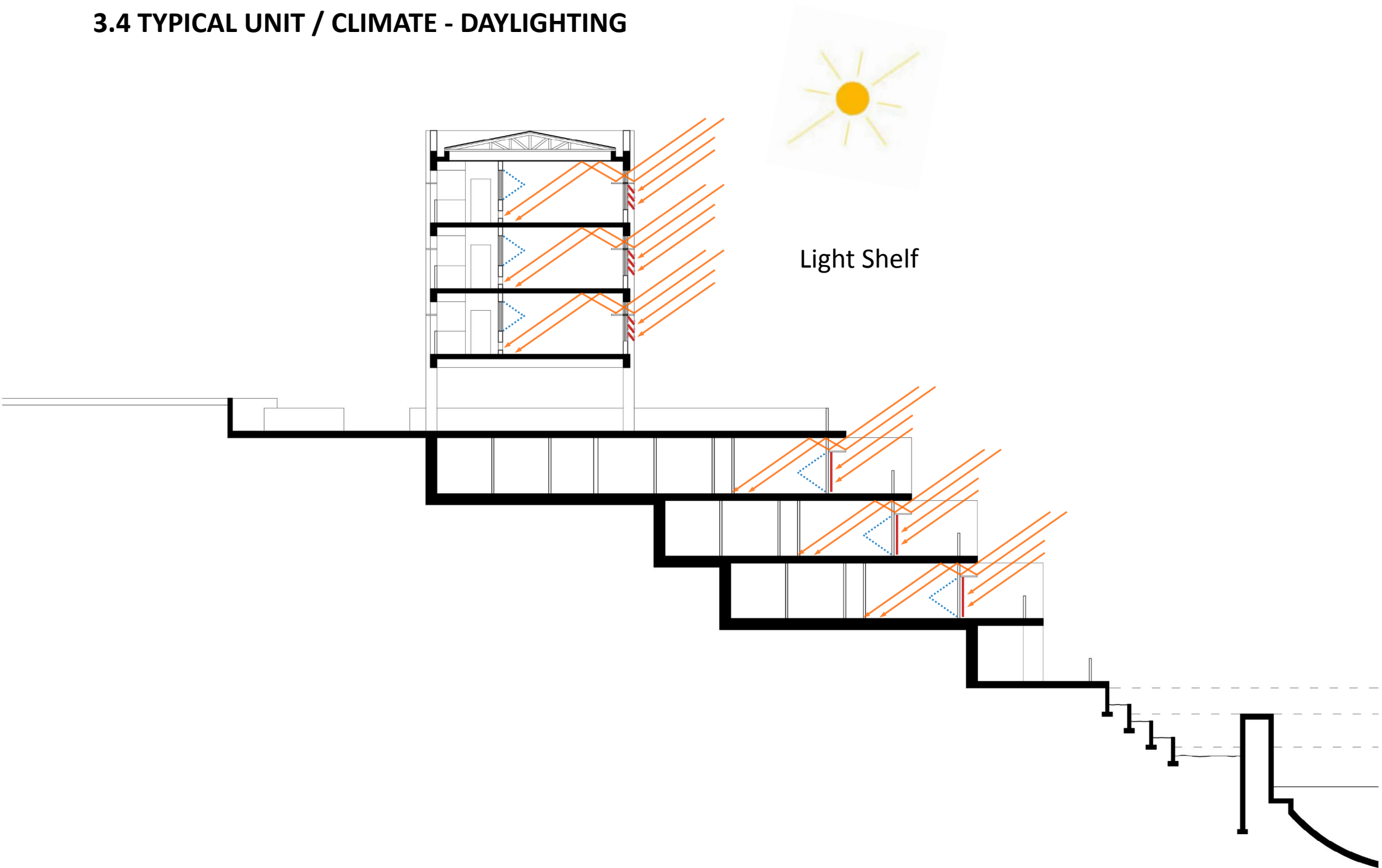
3.4 TYPICAL UNIT / CLIMATE - DAYLIGHTING



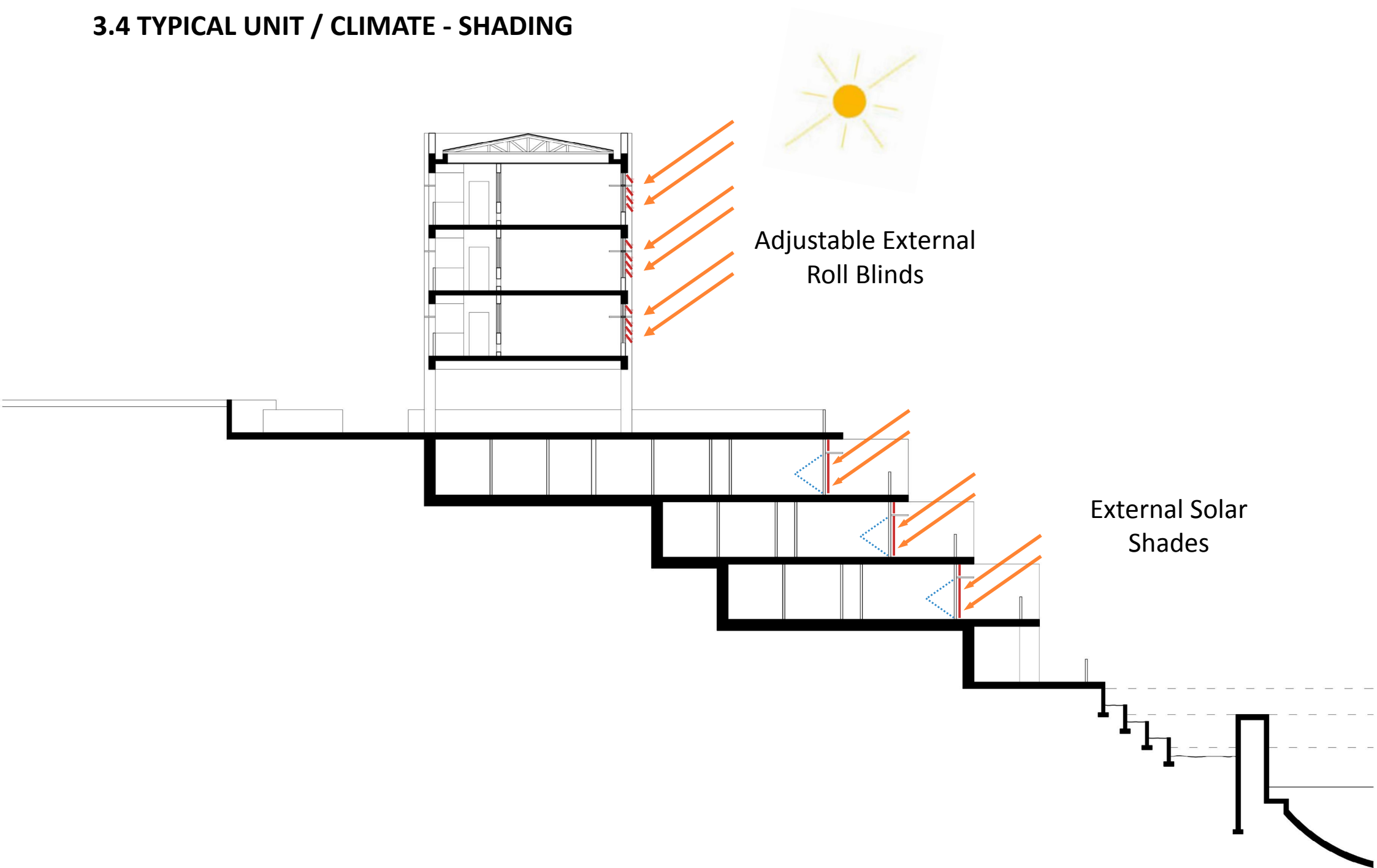
Light Shelf

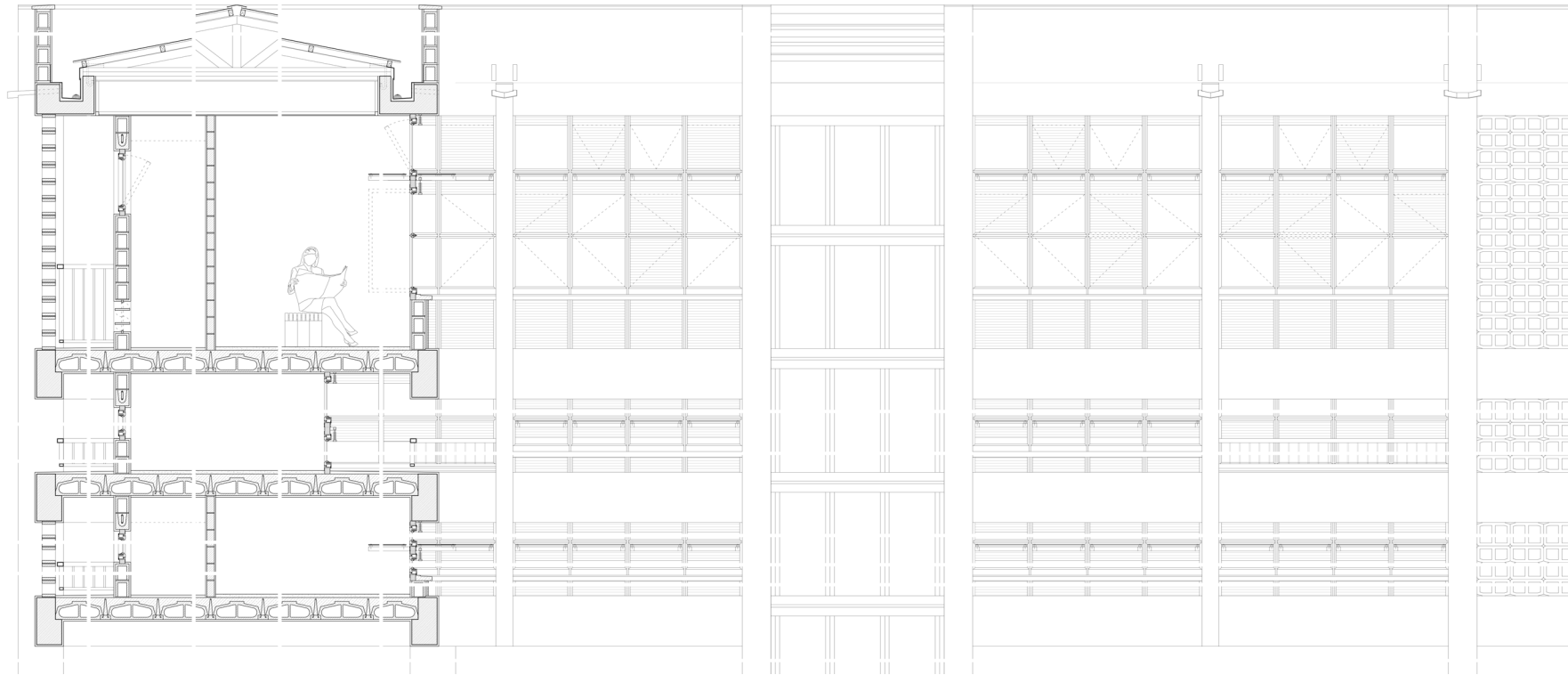


3.4 TYPICAL UNIT / CLIMATE - DAYLIGHTING



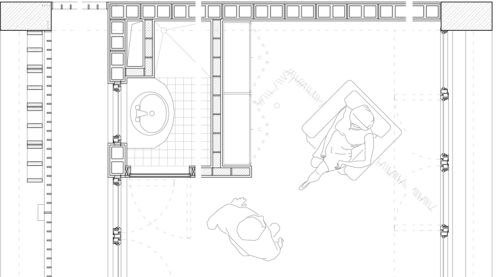
3.4 TYPICAL UNIT / CLIMATE - SHADING





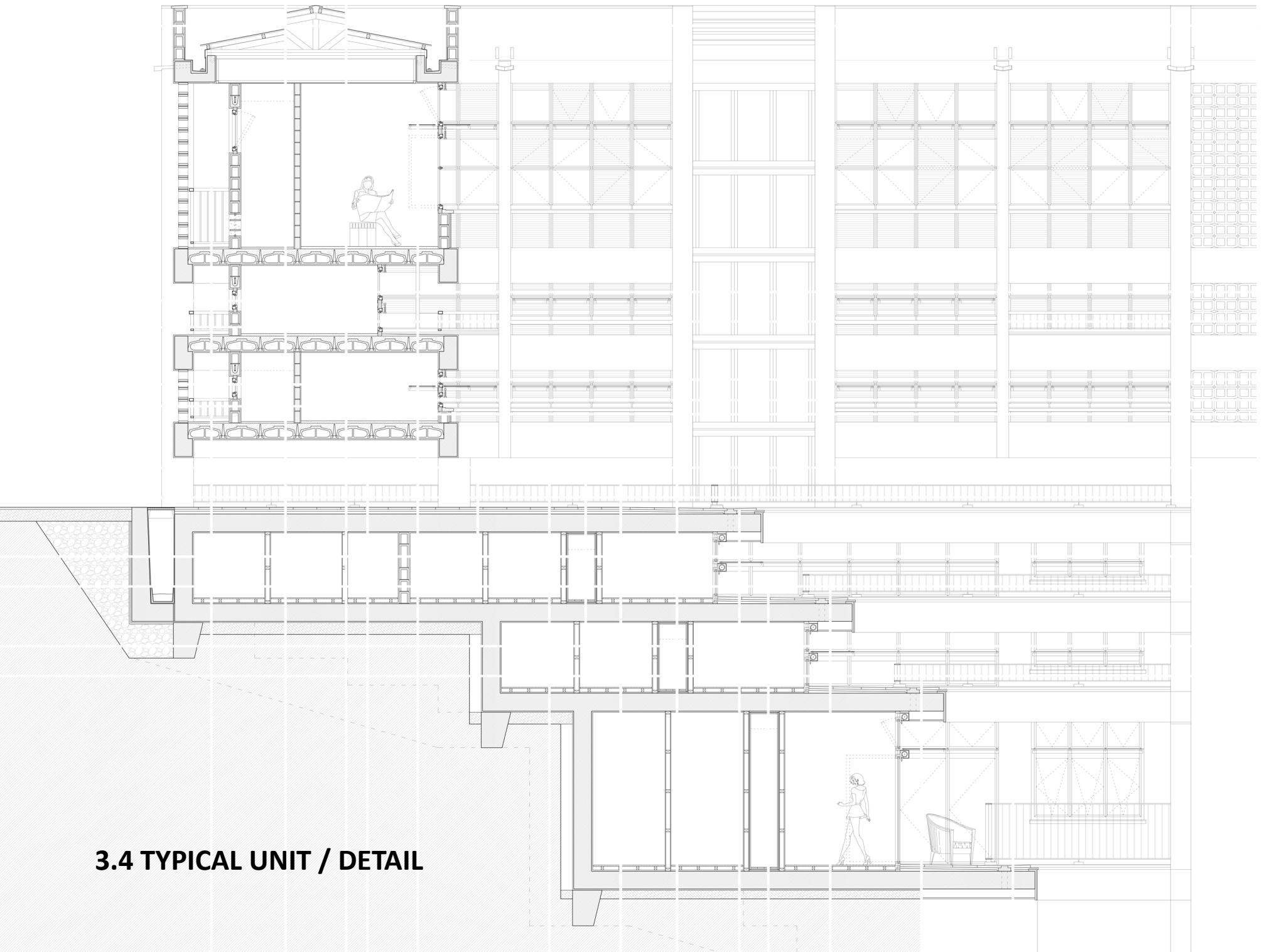
VERTICAL SECTION

ELEVATION VIEW

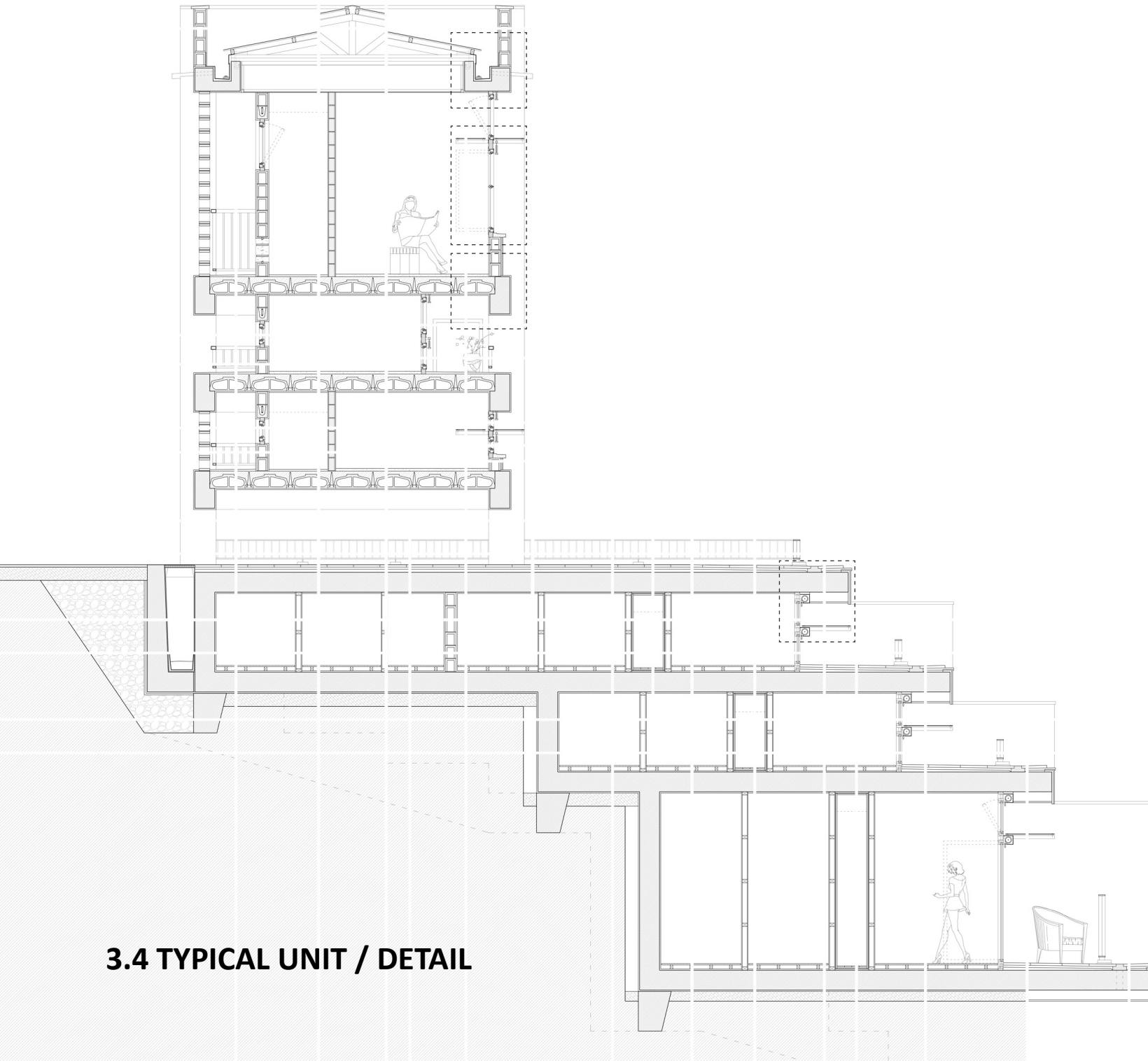


HORIZONTAL SECTION

3.4 TYPICAL UNIT / DETAIL



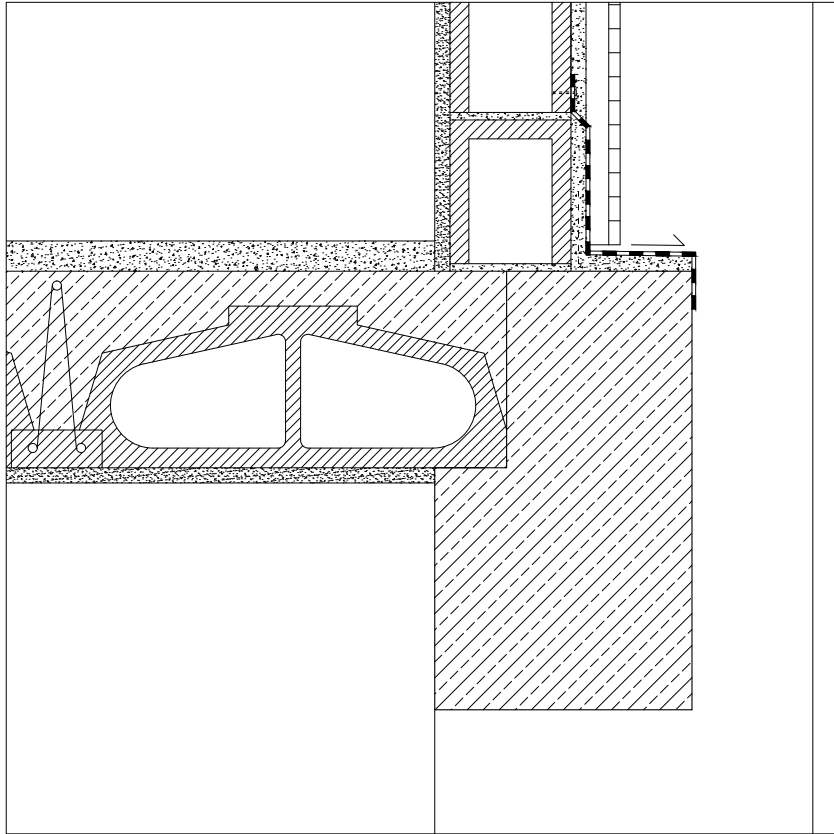
3.4 TYPICAL UNIT / DETAIL



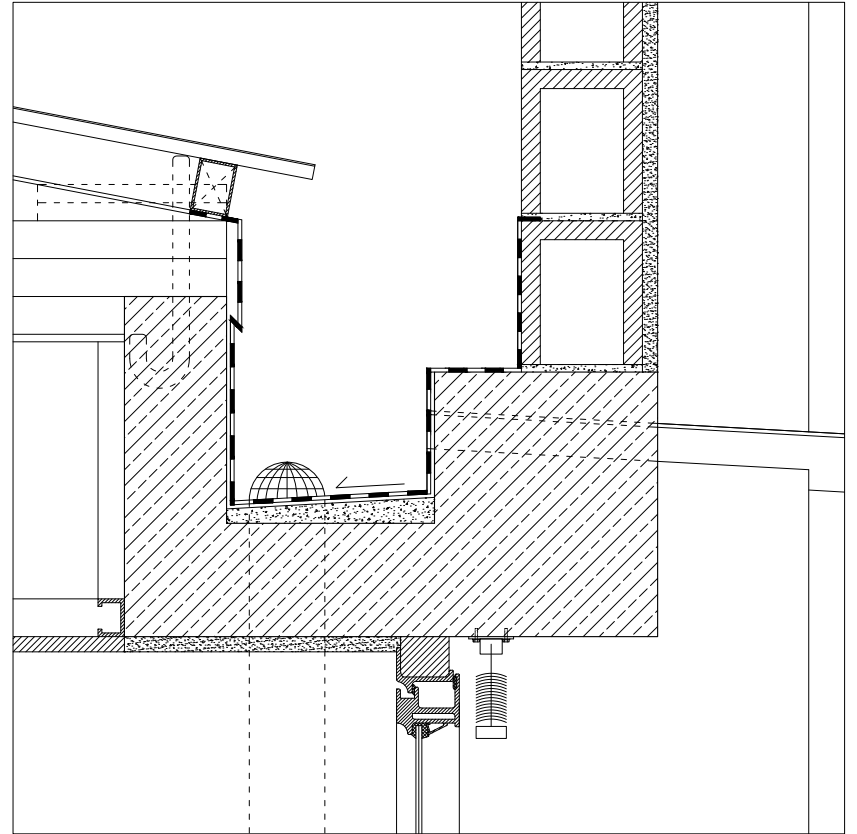
3.4 TYPICAL UNIT / DETAIL



3.4 TYPICAL UNIT / DETAIL

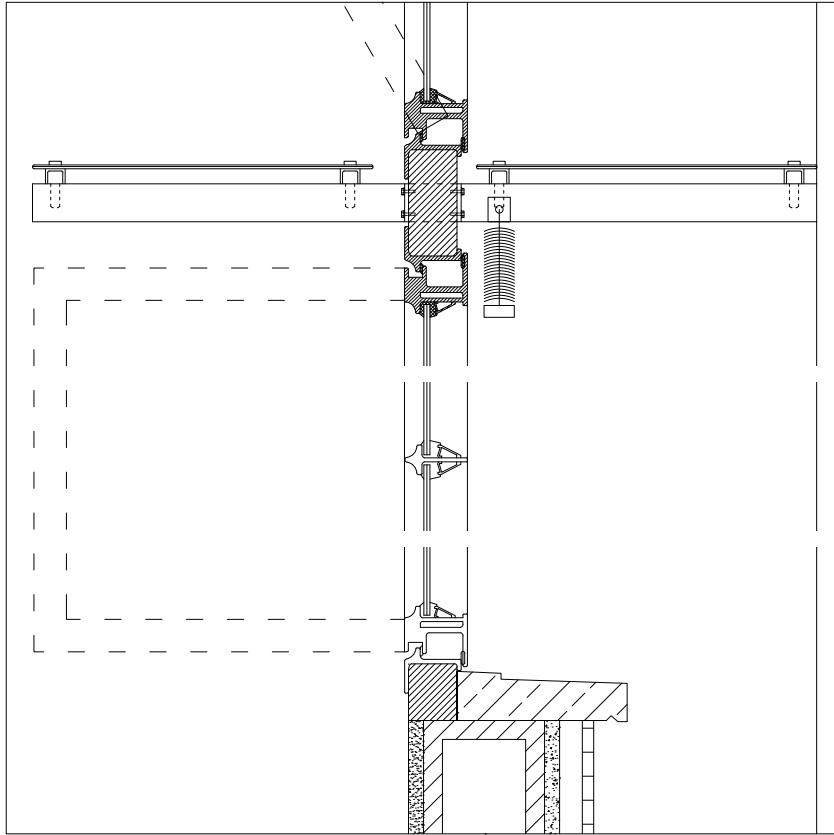


VER. DETAIL

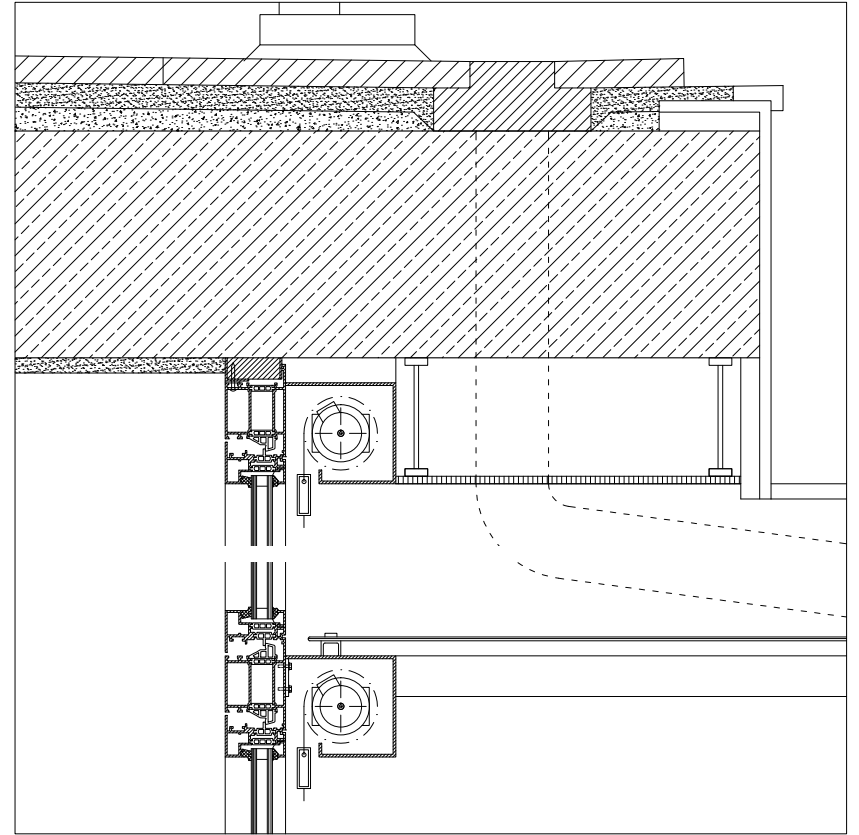


VER. DETAIL

3.4 TYPICAL UNIT / DETAIL



VER. DETAIL

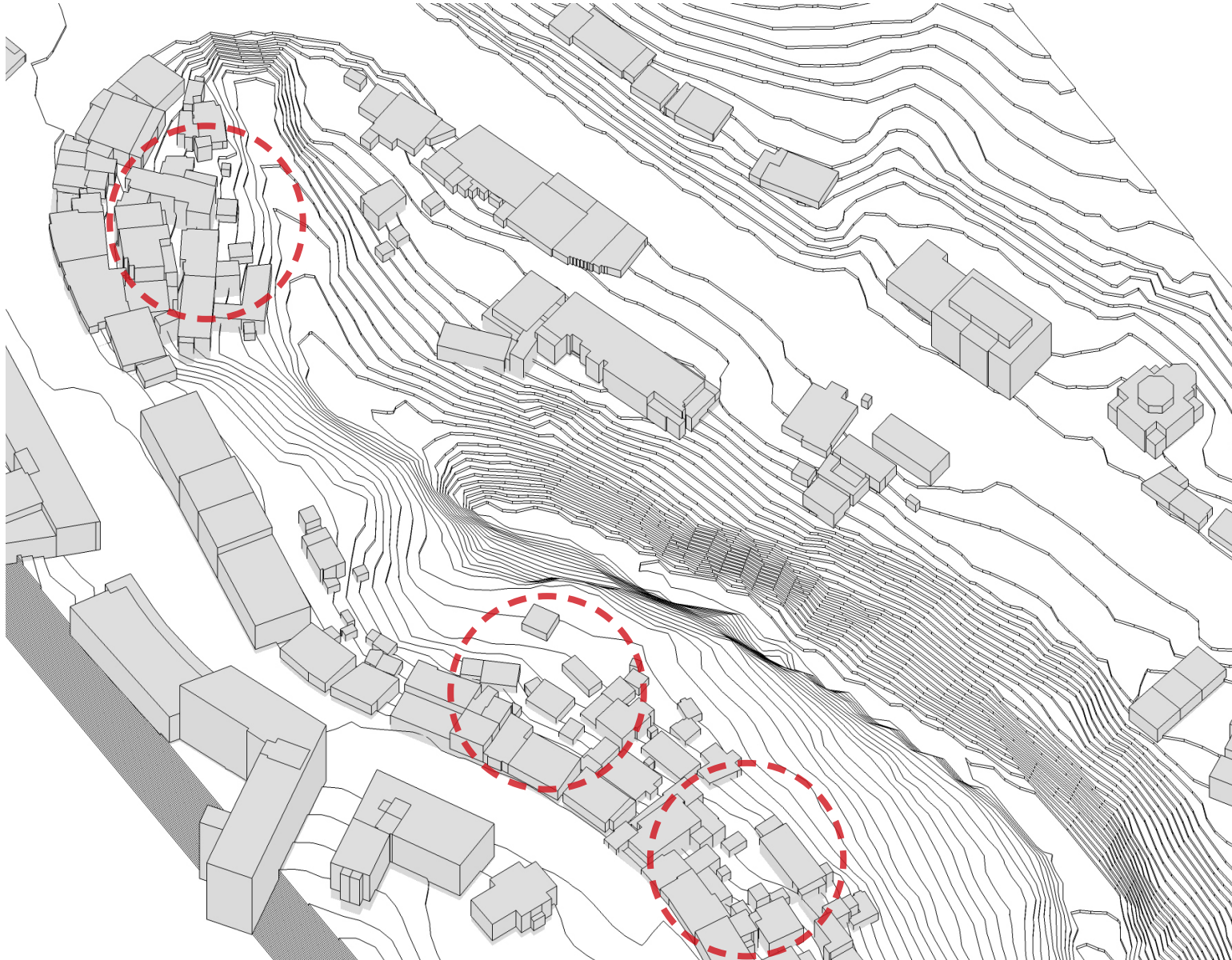


VER. DETAIL

4 REFLECTION

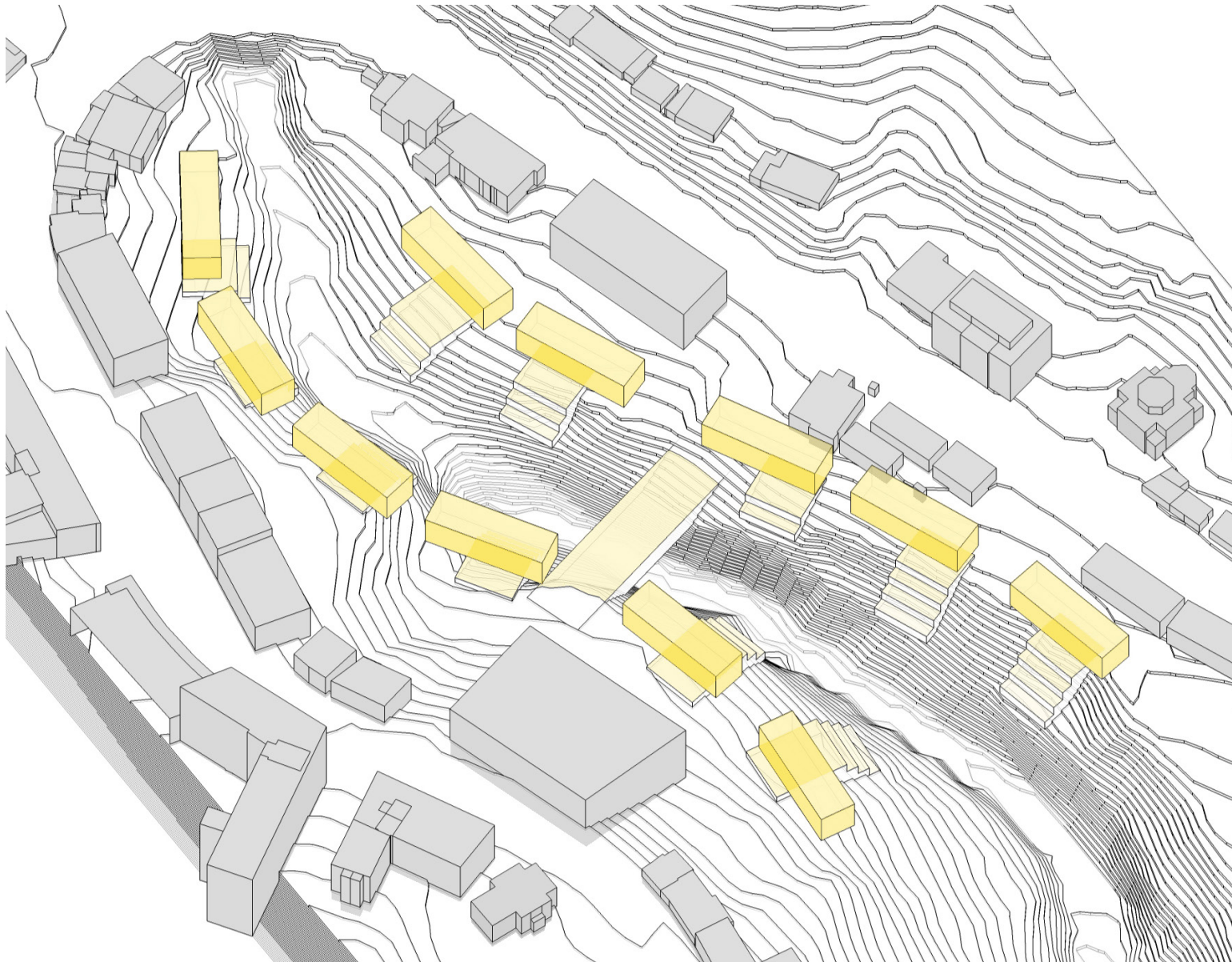
BEFORE - AFTER

4.1 DENSITY



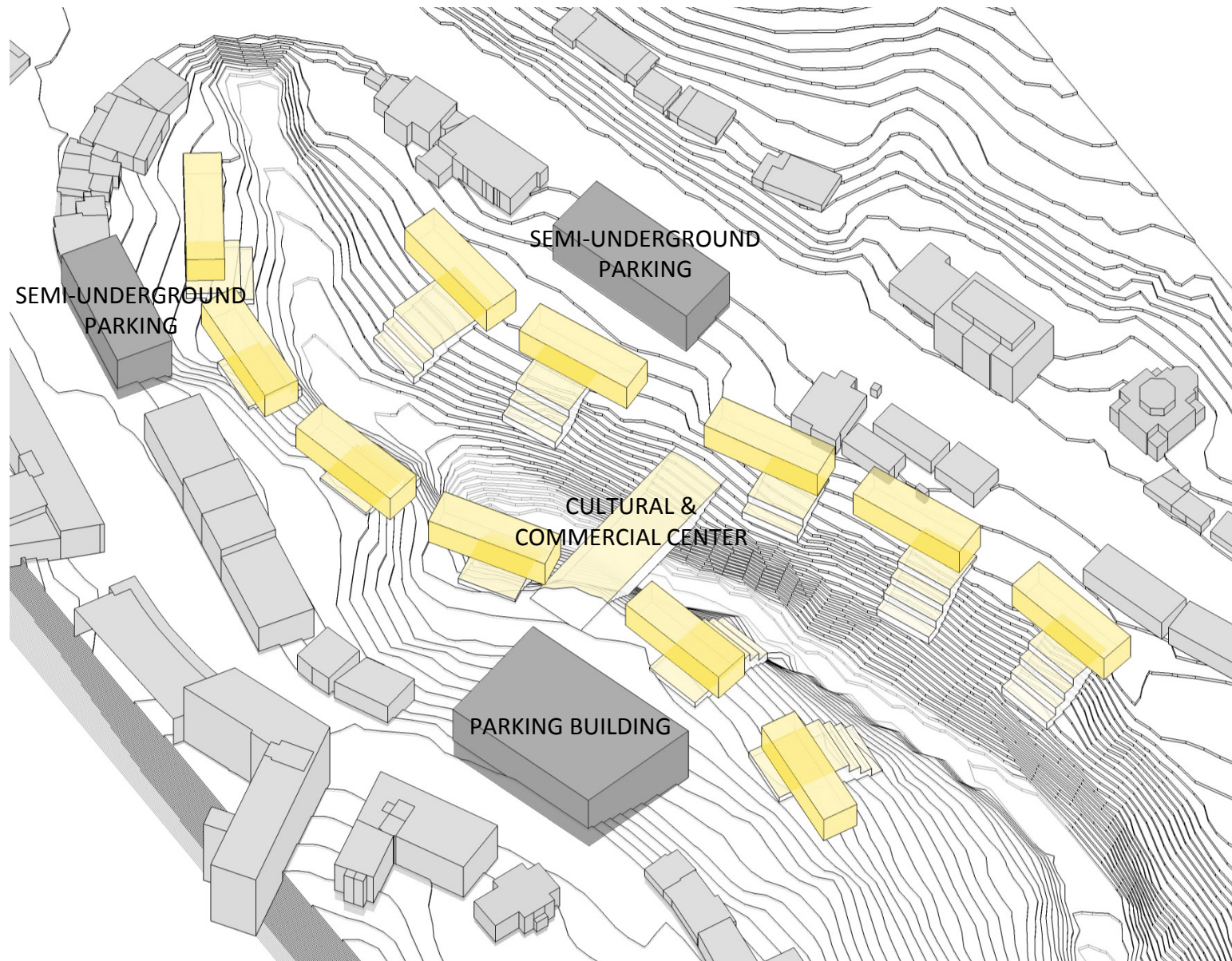
BEFORE - APPROXIMATELY 5 UNITS / HECTARE

4.1 DENSITY



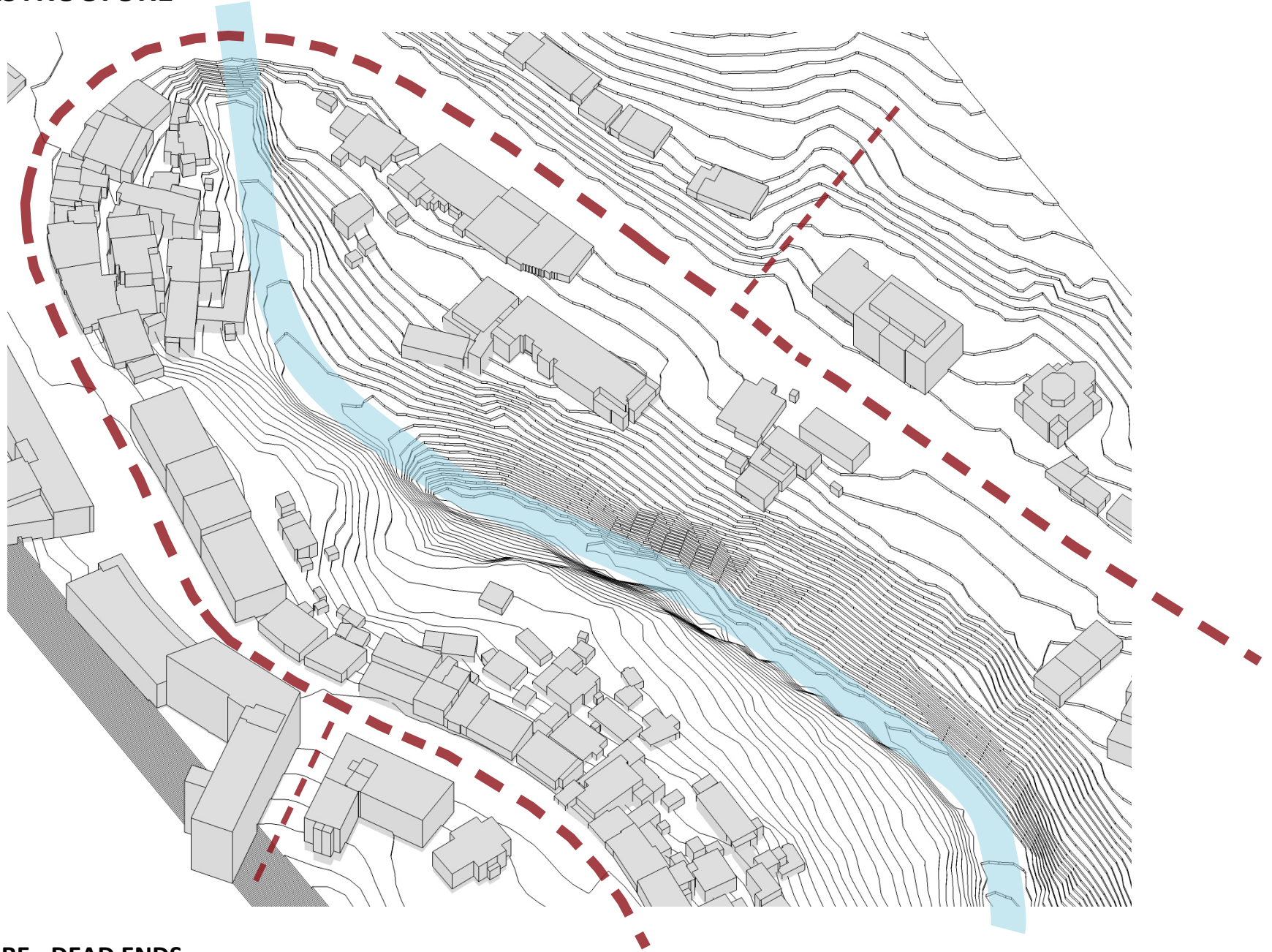
AFTER - 262 UNITS / HECTARE

4.1 DENSITY



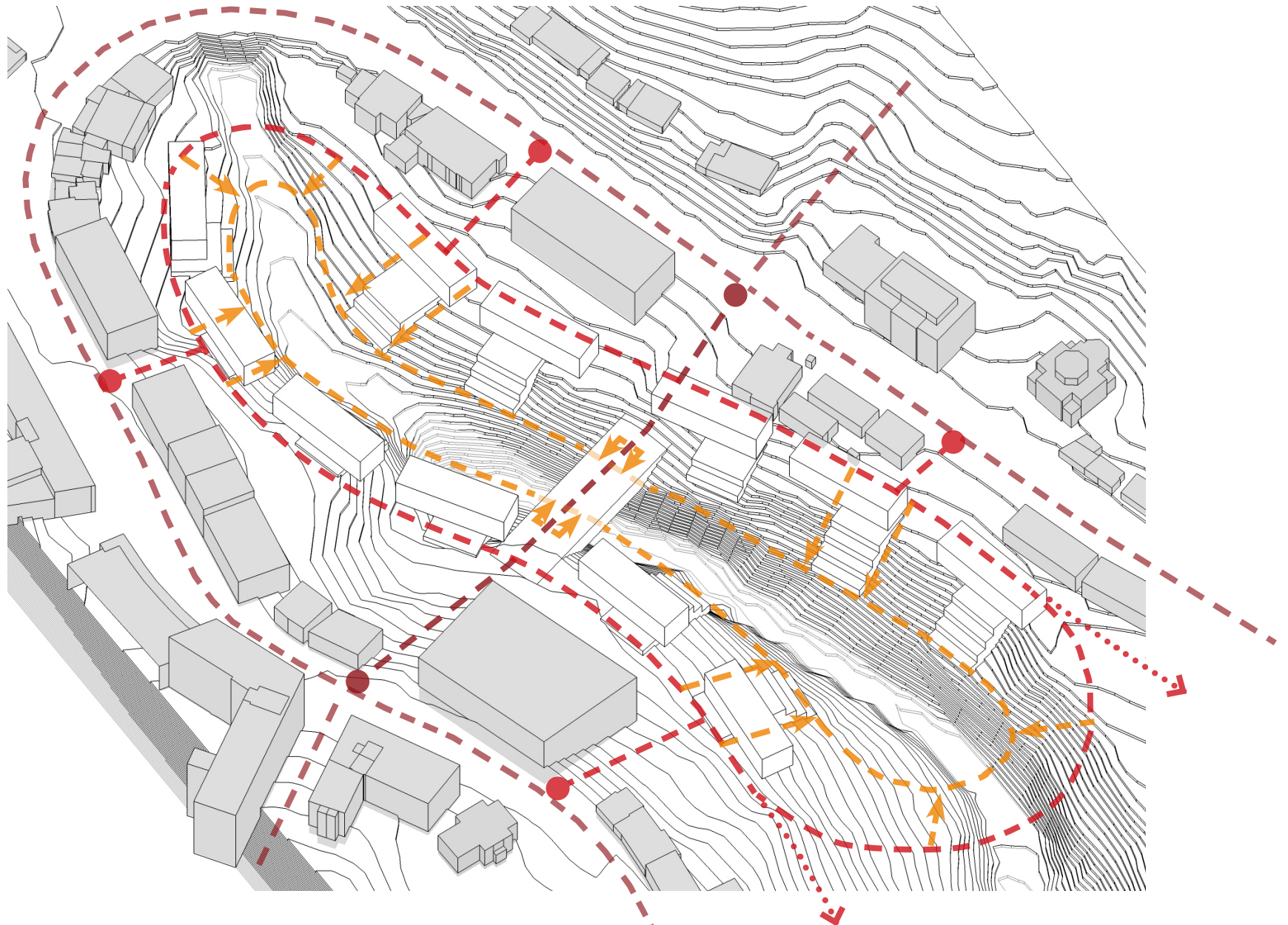
AFTER - FUNCTION DISTRIBUTION

4.2 INFRASTRUCTURE



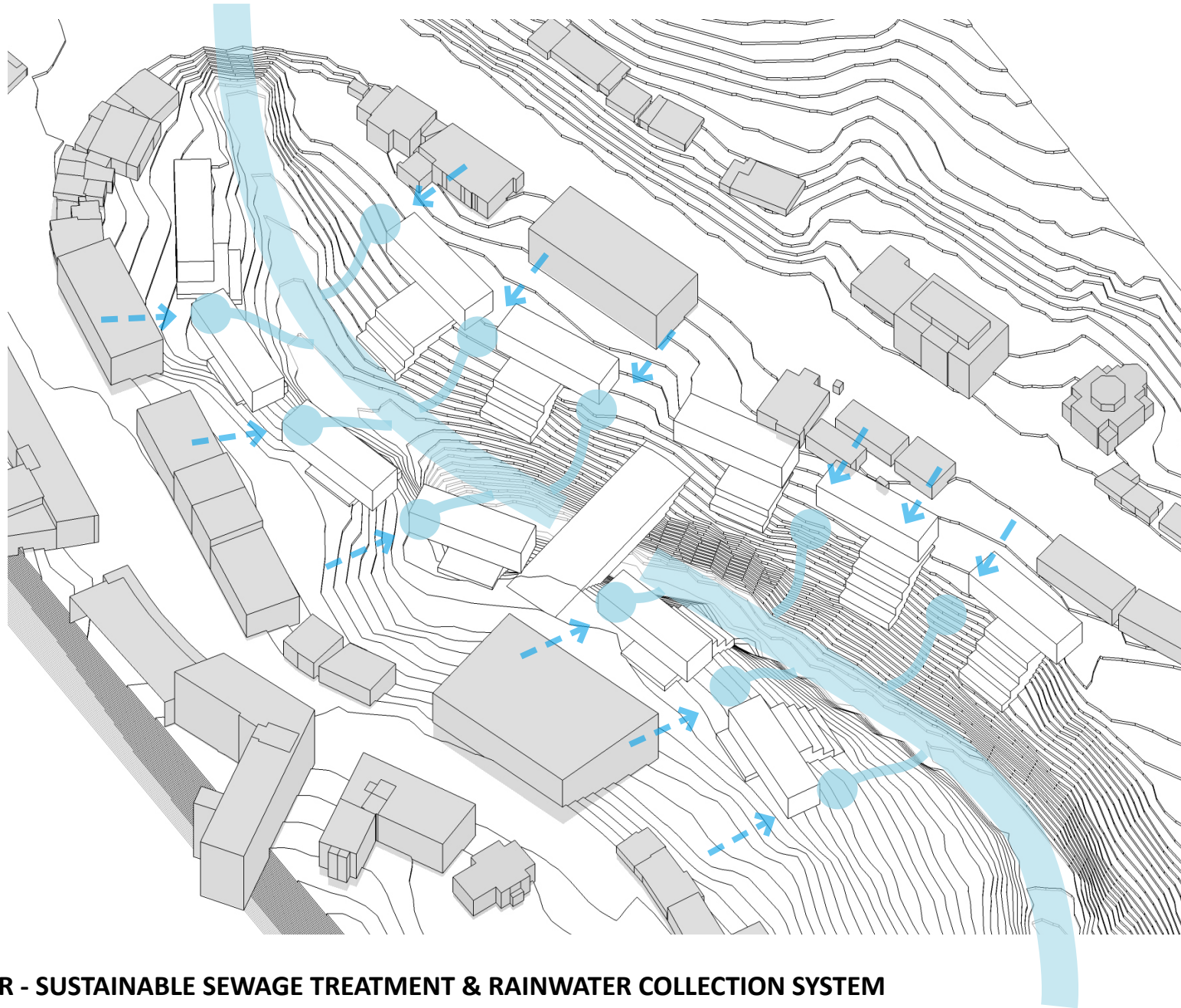
BEFORE - DEAD ENDS

4.2 INFRASTRUCTURE



AFTER - COMPLETE PEDESTRIAN SYSTEM INTEGRATED INTO URBAN FABRIC

4.2 INFRASTRUCTURE



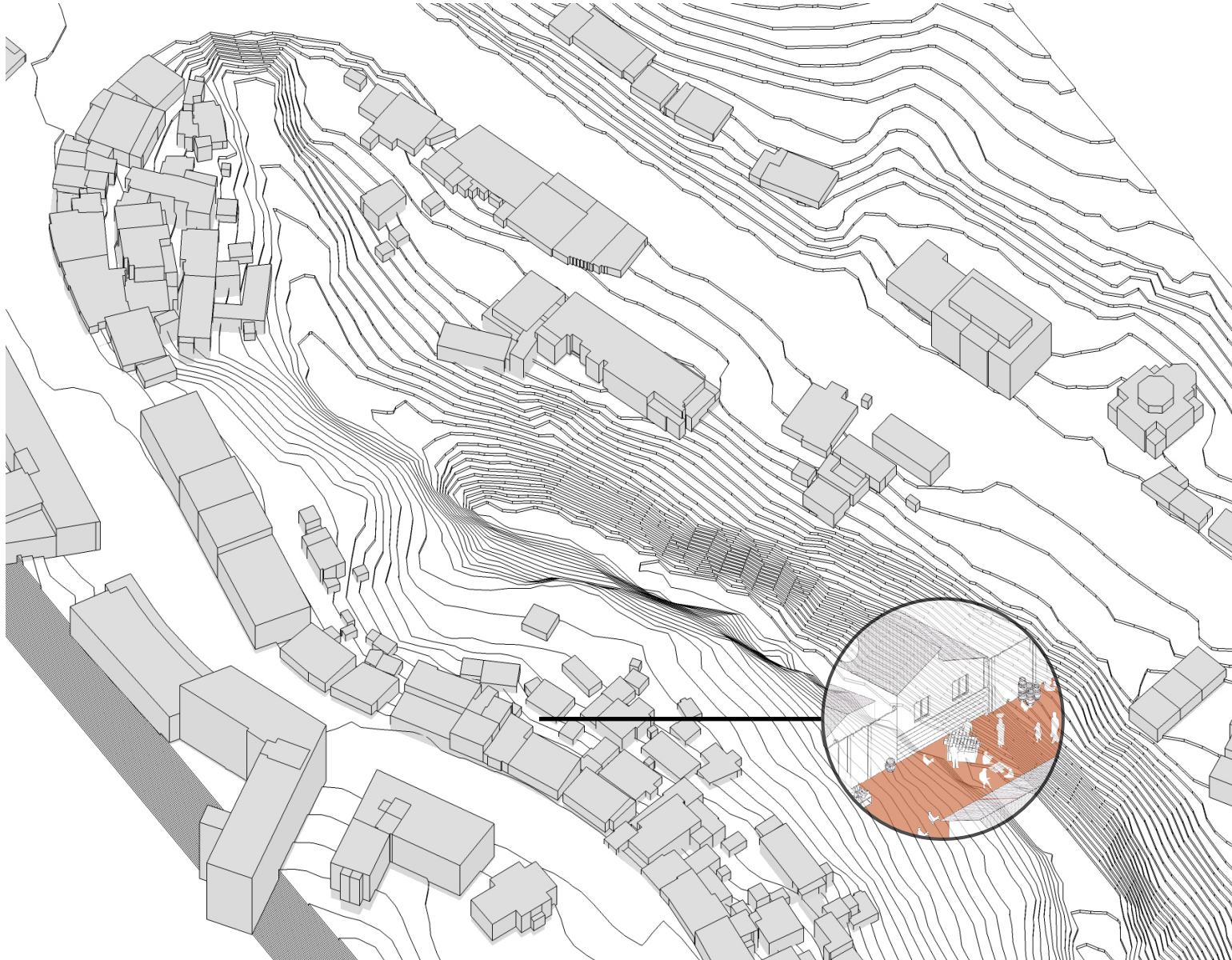
AFTER - SUSTAINABLE SEWAGE TREATMENT & RAINWATER COLLECTION SYSTEM

4.2 INFRASTRUCTURE



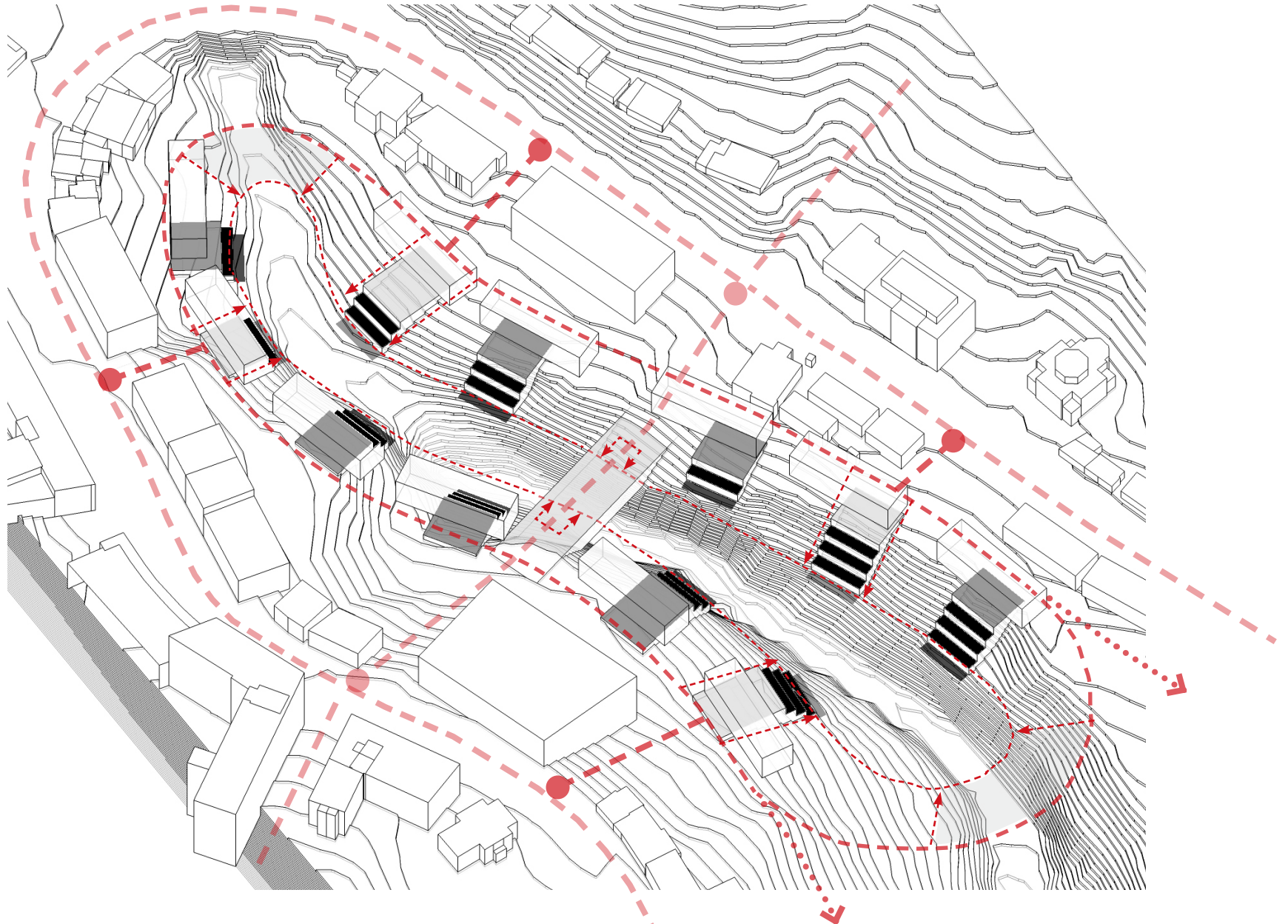
AFTER - GREEN BELT & BOTANICAL GARDENS

4.3 HIERARCHY



BEFORE - SINGLE LAYER OF PUBLIC SPACE CARRY ALMOST ALL KINDS OF ACTIVITIES IN A CHAOS

4.3 HIERARCHY



AFTER - PLATFORMS IN A CLEAR GRADIENT FROM PUBLIC TO PRIVATE AS THE HEIGHT DECREASES

4.4 IDENTITY - PLACEMAKING



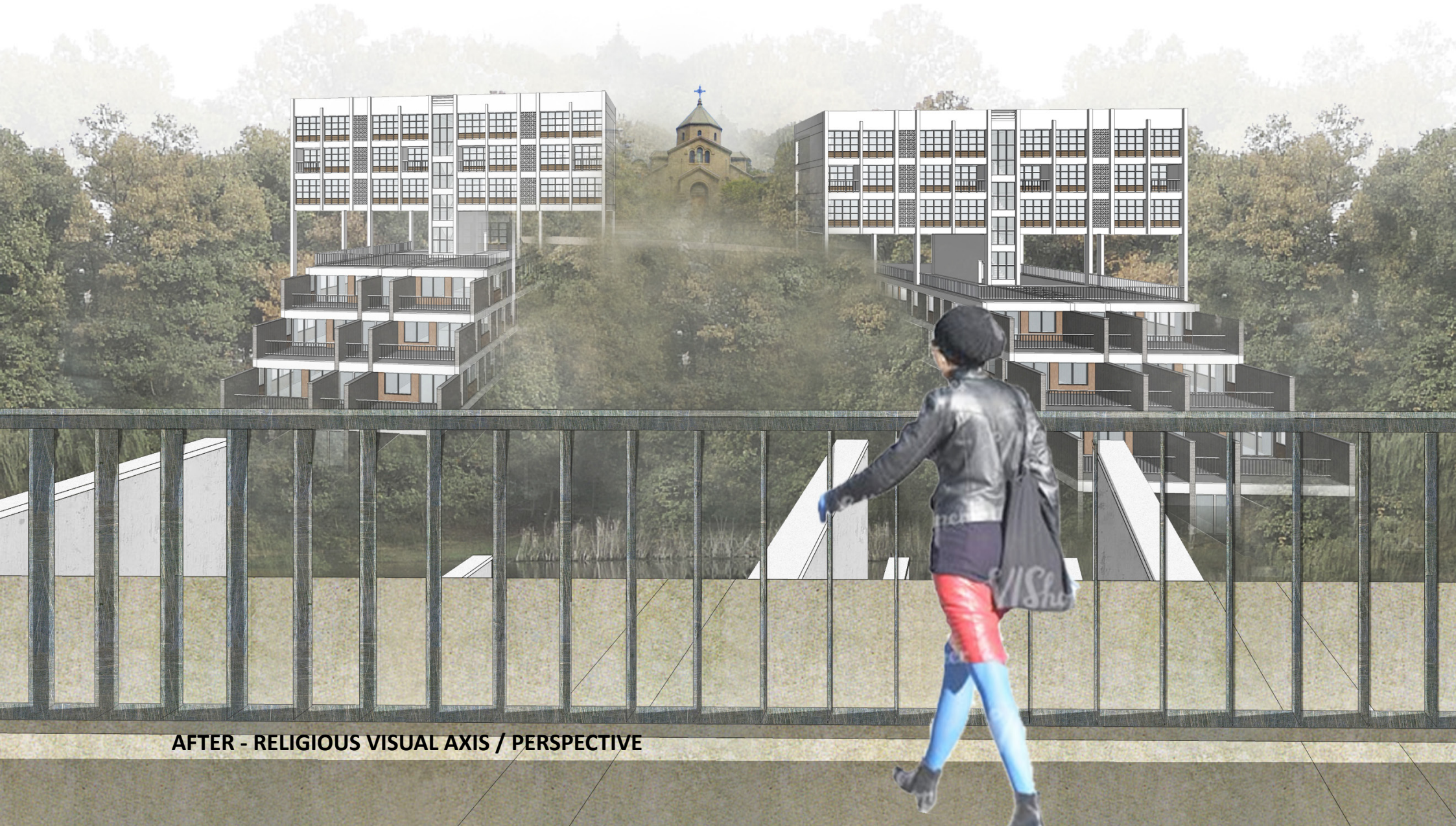
BEFORE - DESERTED URBAN GREY ZONE WITH TRASH AND STENCH

4.4 IDENTITY - PLACEMAKING



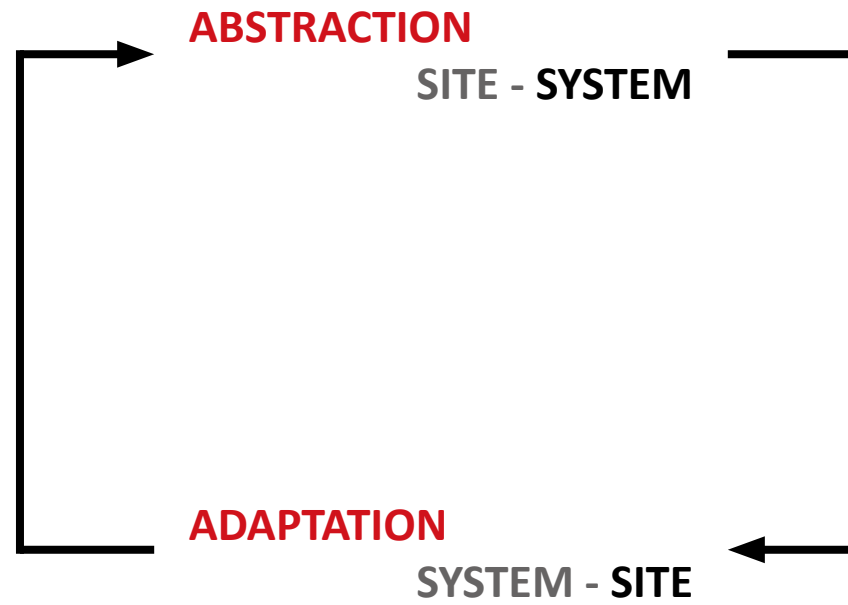
AFTER - PEDESTRIAN LANES / PERSPECTIVE

4.3 IDENTITY - PLACEMAKING



AFTER - RELIGIOUS VISUAL AXIS / PERSPECTIVE

4.5 CONCLUSION



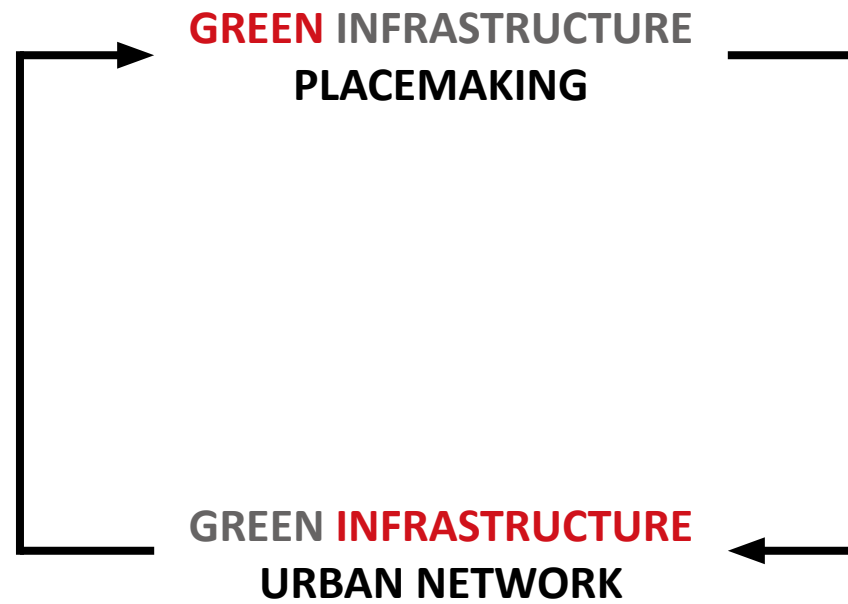
4.5 CONCLUSION

THE 'STITCH' CONCEPT

may be adapted to other similar circumstances along the rivers in Addis with its flexibility. They are positioned as a mixed housing complex targeted for the relocation of slums along the river and the middle class.



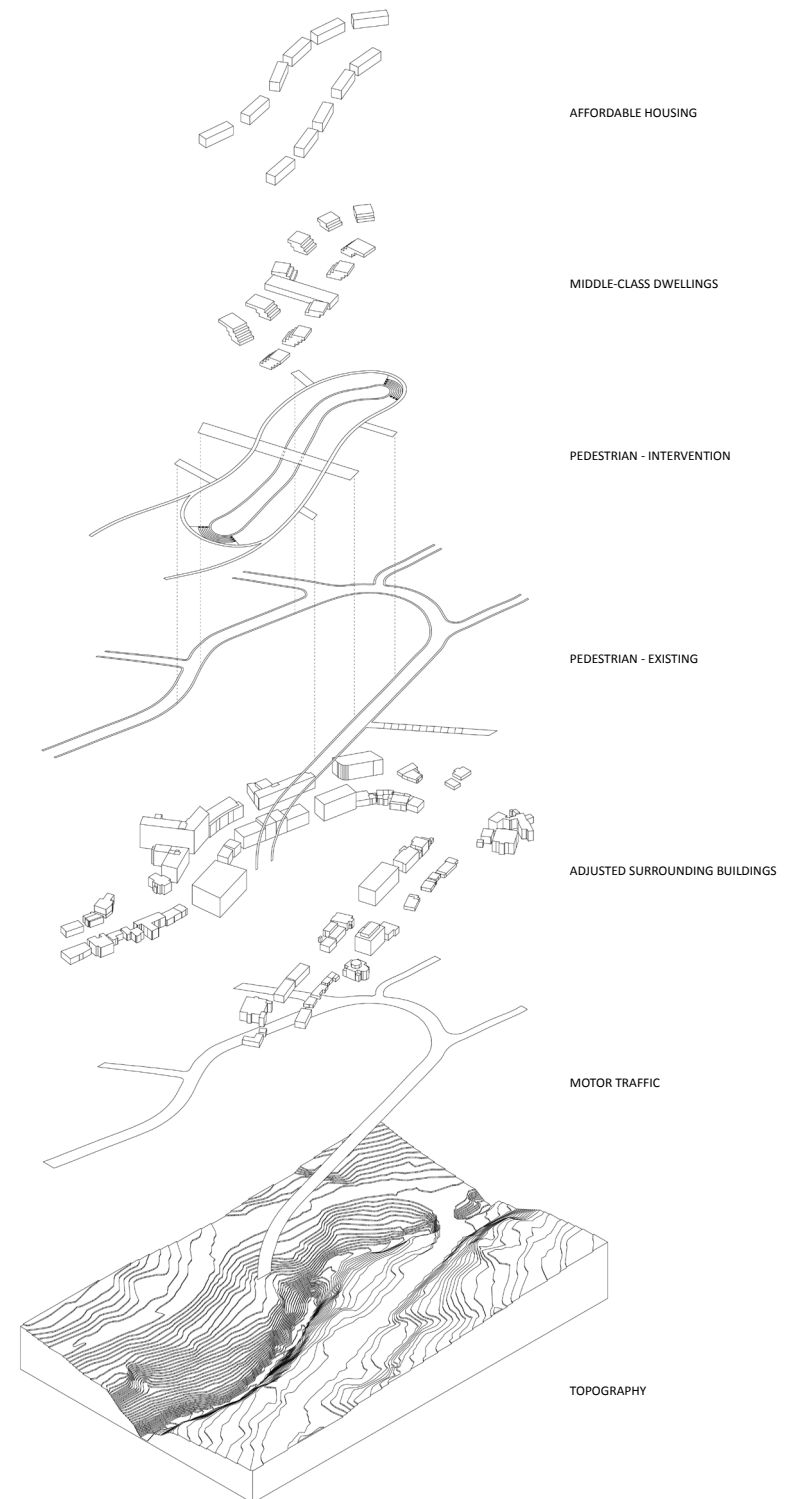
4.5 CONCLUSION



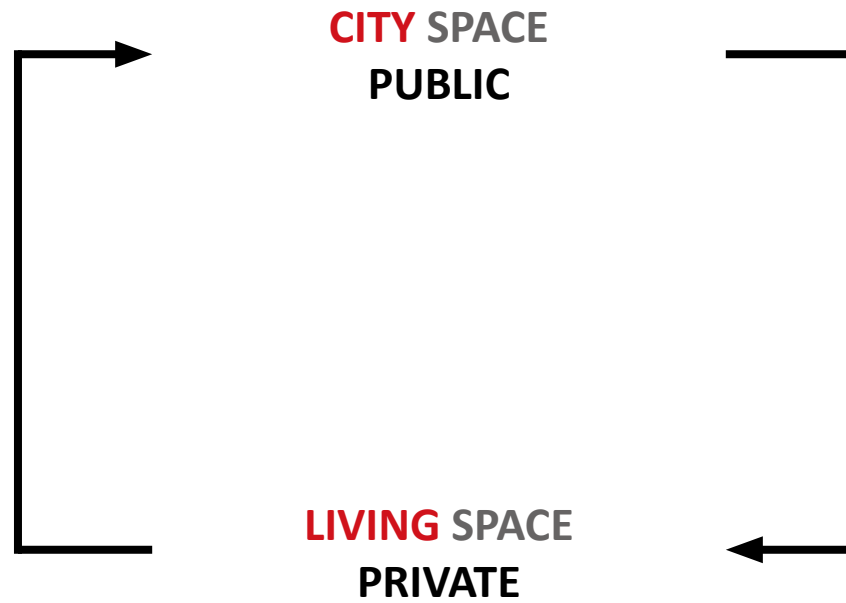
4.5 CONCLUSION

INTERWEAVING OF URBAN LAYERS

On the one hand, initiatives introducing the users and activities to the renovated site helps to activate the site and turn the urban grey fringe into **PLACE**, which **EXPANDS THE CITY IN AN INNOVATIVE WAY**. On the other hand, rivers, as an important component of **GREEN INFRASTRUCTURE**, will again play an active role in environmental and social benefits. The renovated urban layer integrates into the existing urban fabric and further **COMPLETES THE URBAN INFRASTRUCTURE NETWORK**, which can be a crucial link for social identity.



4.5 CONCLUSION

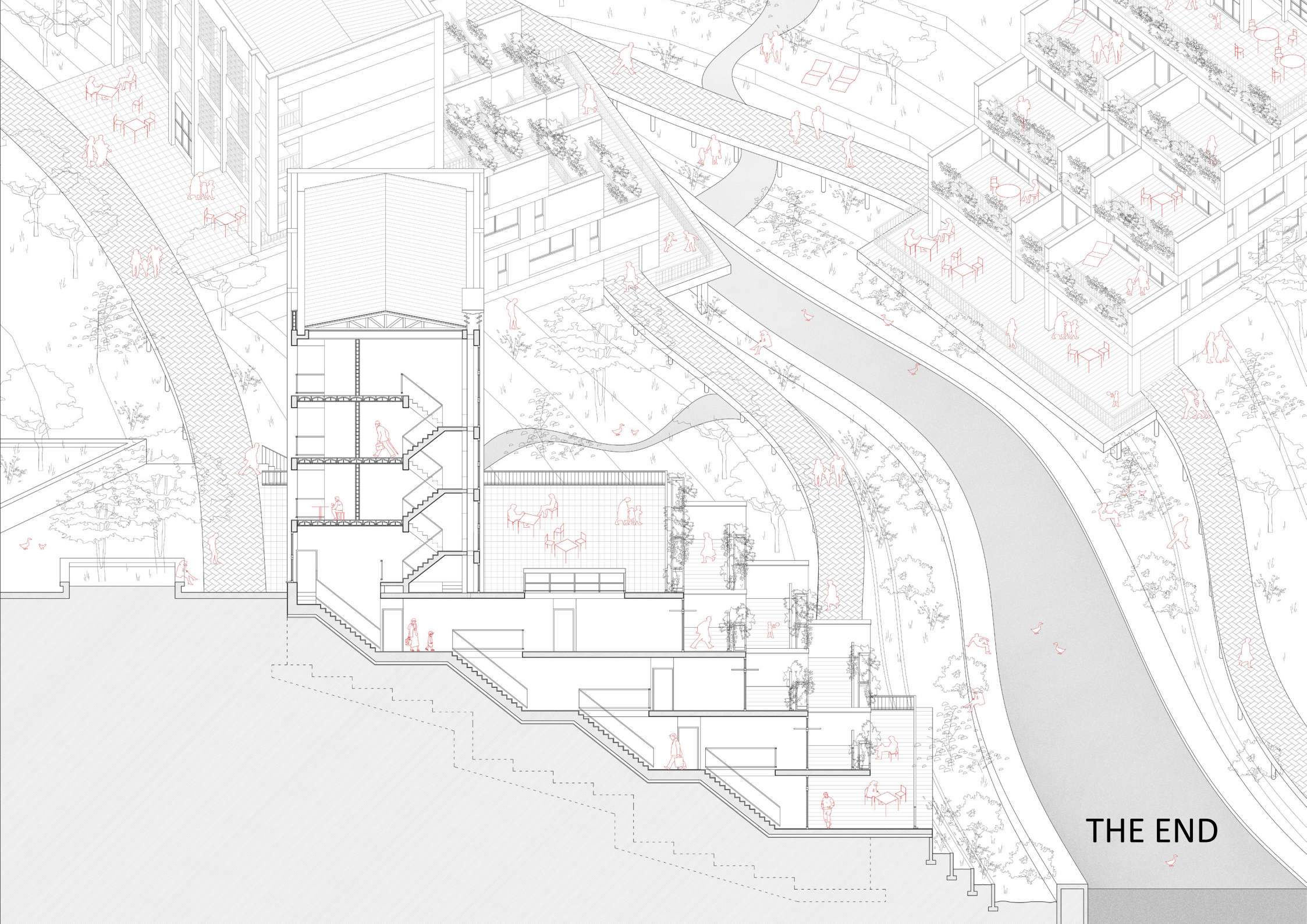


4.5 CONCLUSION

CITY SPACE & LIVING SPACE

Many urban development plan nowadays provide a lot of compact point buildings, with huge structures intrude massively into the urban fabric. They may tower up high and create impenetrable, insurmountable walls in the middle of the city space as real barriers. Considering the traditional living and social contact pattern, my design is quite the opposite by providing possibilities for making contact with the outside space and the urban environment, which gives the feeling of **LIVING IN THE MIDDLE OF THE CITY**. City space and living space **INTERMESH RATHER THAN CONTRADICT**. The in-between layer guarantee **THE CONTINUOUSNESS BOTH IN CITY SPACE AND URBAN LIFE**. It is accessible to a lot of people, and privacy for living is still ensured by soft borders such as greening and a clear definition of spatial hierarchy.





THE END