P5

URBAN FOODSCAPES

Intersecting Flows

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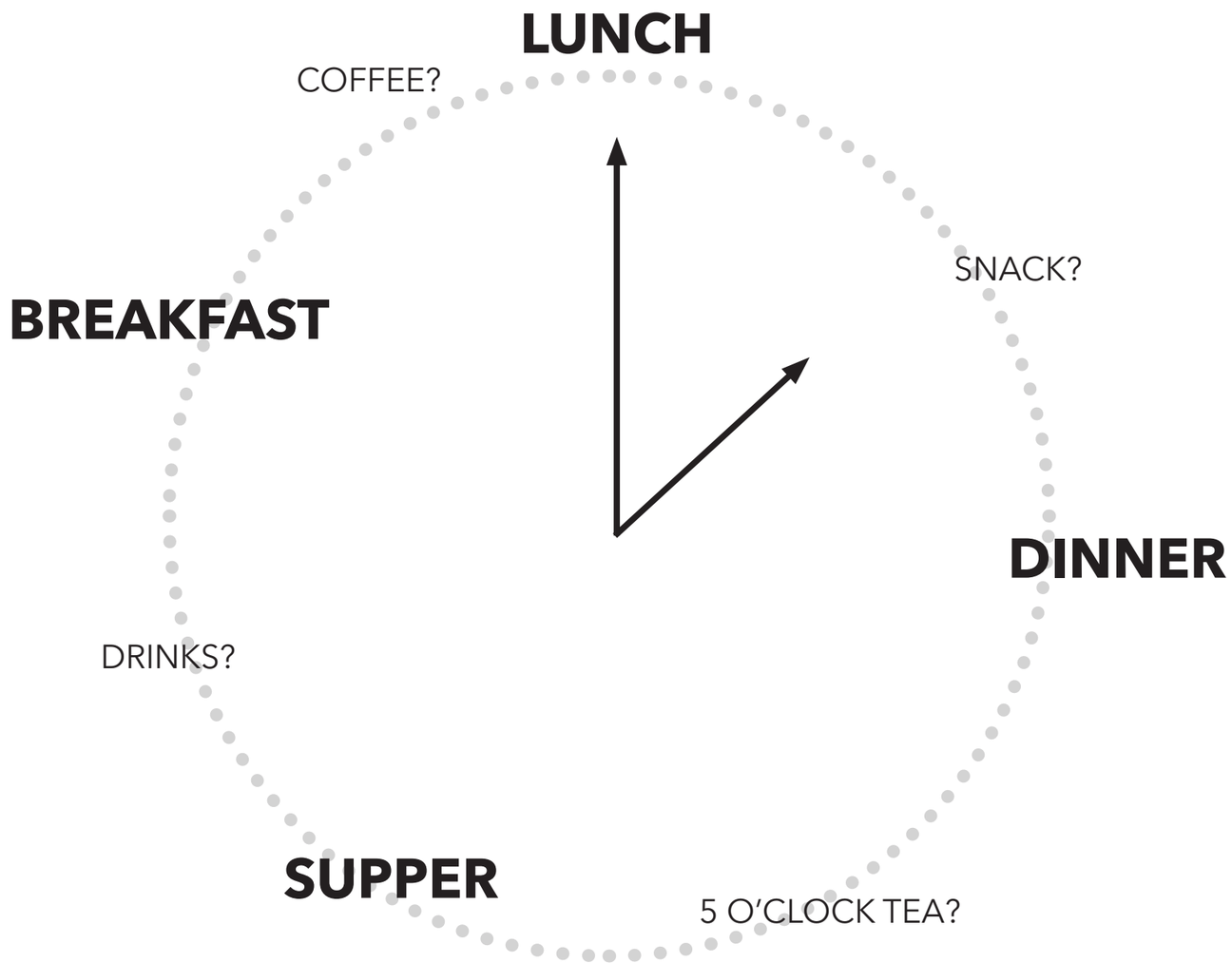
ADC 2021/22

'If the global future is **urban**, *as every indication suggests it is, we need to take an urgent look at what that means. Until now, cities have existed largely on their own terms,* **commanding resources** *and consuming them more or less at will. That is going to have to change. The feeding of cities has been arguably the greatest force* **shaping civilization**, *and it still is."*

- Carolyn Steel, "Hungry City"



RHYTHM OF THE DAY
CULTURAL MEDIUM

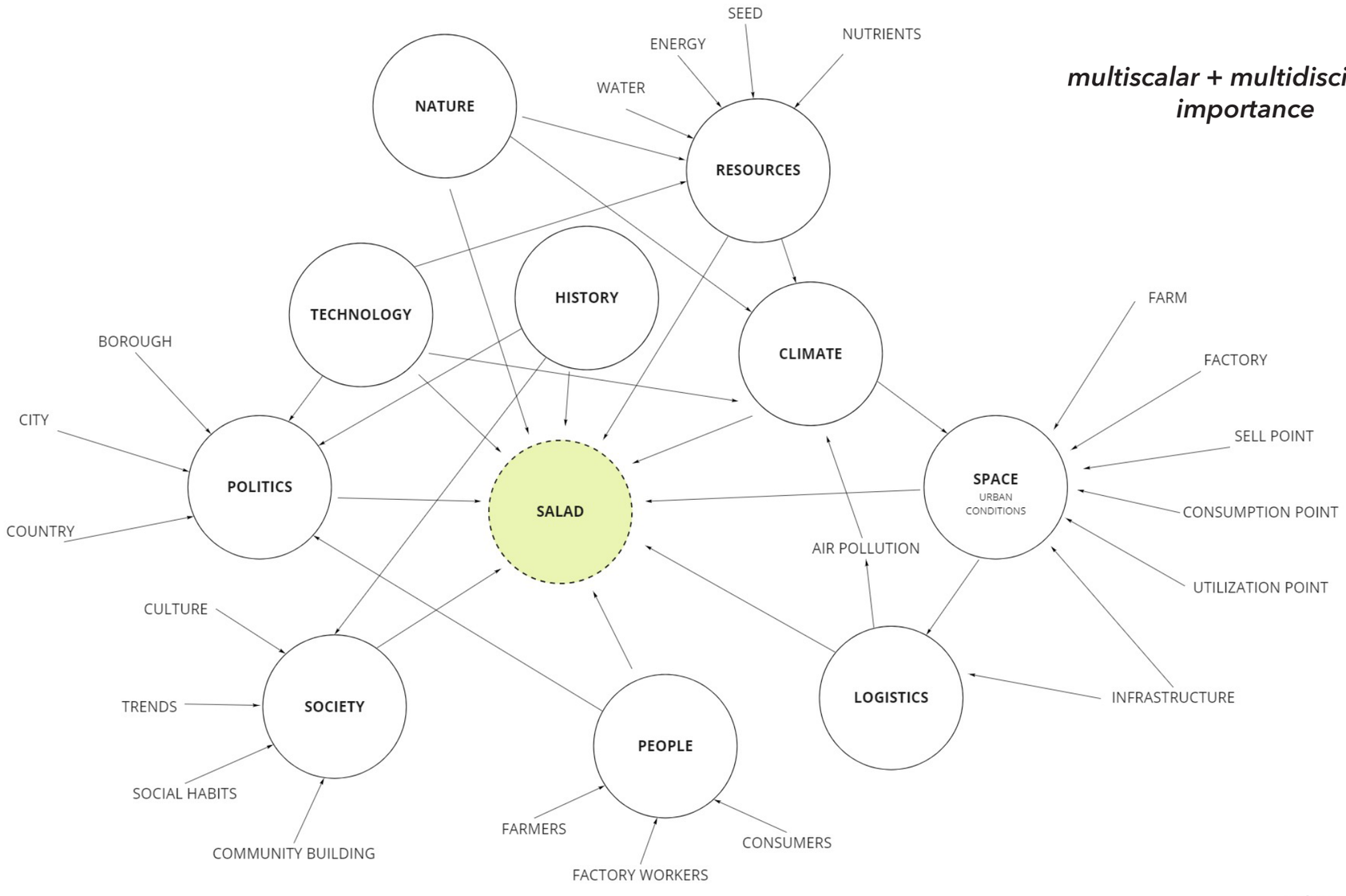
SOCIAL BINDER
CONSUMPTION

CUSTOMER CHOICES HAVE GLOBAL CONSEQUENCES

FOOD SUPPLY CHAIN

pre-industrial model → *industrial revolution* → *now*

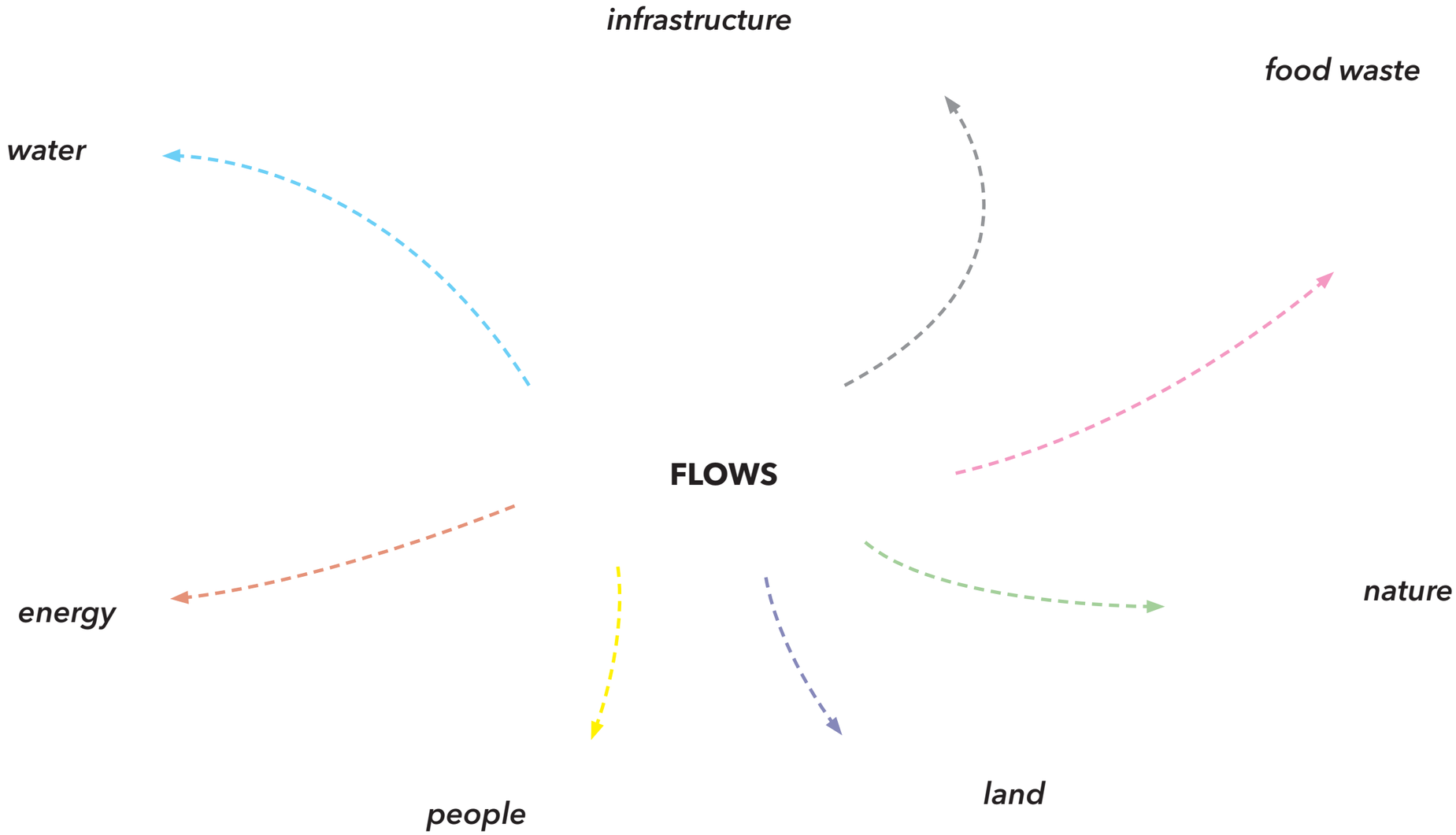
FOOD AS A TECHNOLOGICAL PRODUCT
EFFICIENCY AND GRADUAL DISSASSOCIATION



multiscalar + multidiscipinary importance

FOOD AS A COMPLEX ECOSYSTEM

INTERLINKED



INTERSECTING FLOWS
FOODSCAPE

infrastructure

41% of UK's food is imported
air pollution and greenhouse
emissions due to transport

water

70% of freshawater used in
farming

food waste

1.5-1.75m tonnes in London
1/3 of food bought is wasted
30% of all waste if food waste

FLOWS

energy

main source from fossil fuels

nature

55% of biodiversity decline

people

workforce disruptions
disconnected from food sources
malnourished + obese

land

mechanized assemblage
large scale industrial areas
leisure not production

WASTE
ECOLOGICAL DISASTER

How can **foodscapes be integrated into London's urban fabric** to enhance **social connections,** strengthen **food resilience** of boroughs, improve material and immaterial **flows** and take advantage of **underused spaces**?

1. Where do **flows** of water, energy, people, nature and logistics intersect and which are the most relevant for contemporary food production?

2. What would be the spatial consequence of **closing food-related cycles** and optimizing flows?

3. What are the **supplementary functions** that growing sites and exchange nodes can utilize to reduce food waste and close material loops?

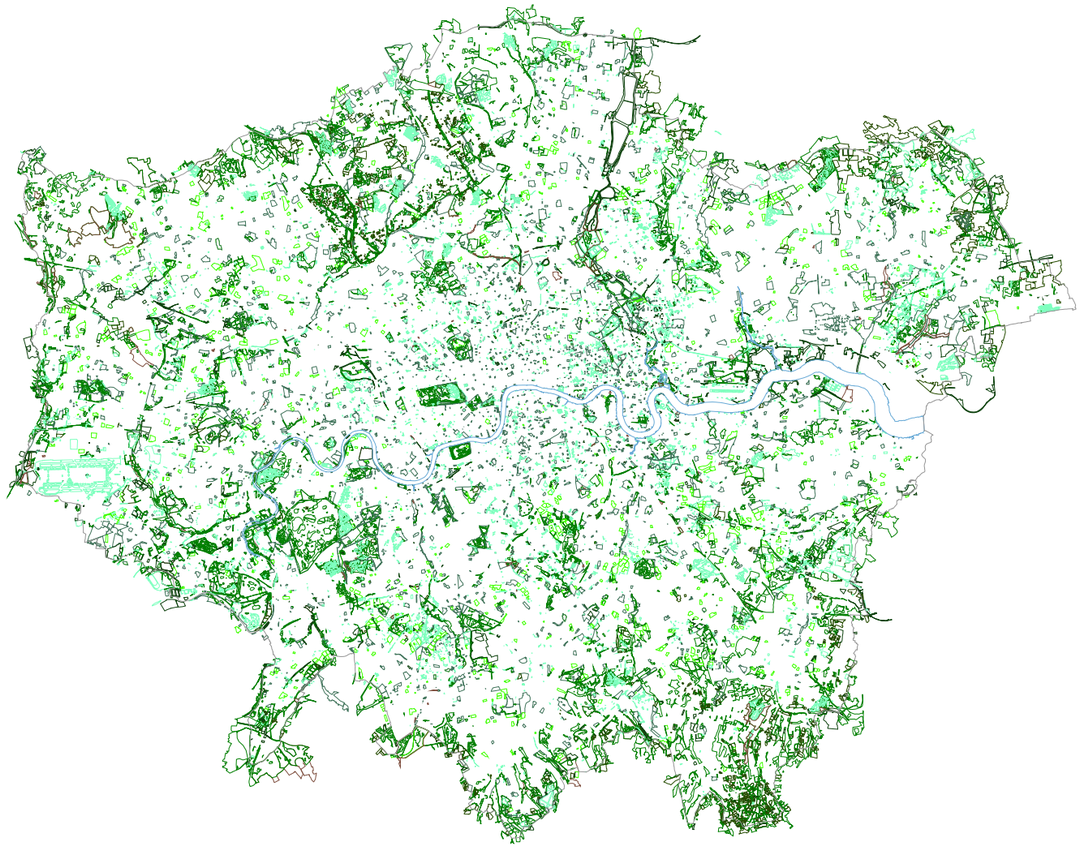
4. What **actions** need to be taken to **integrate productive landscapes** back into the city? What is the **optimal location** for them? What **new role** can they play in the urban environment?

5. Where are the **urban leftovers** that food production could utilize?

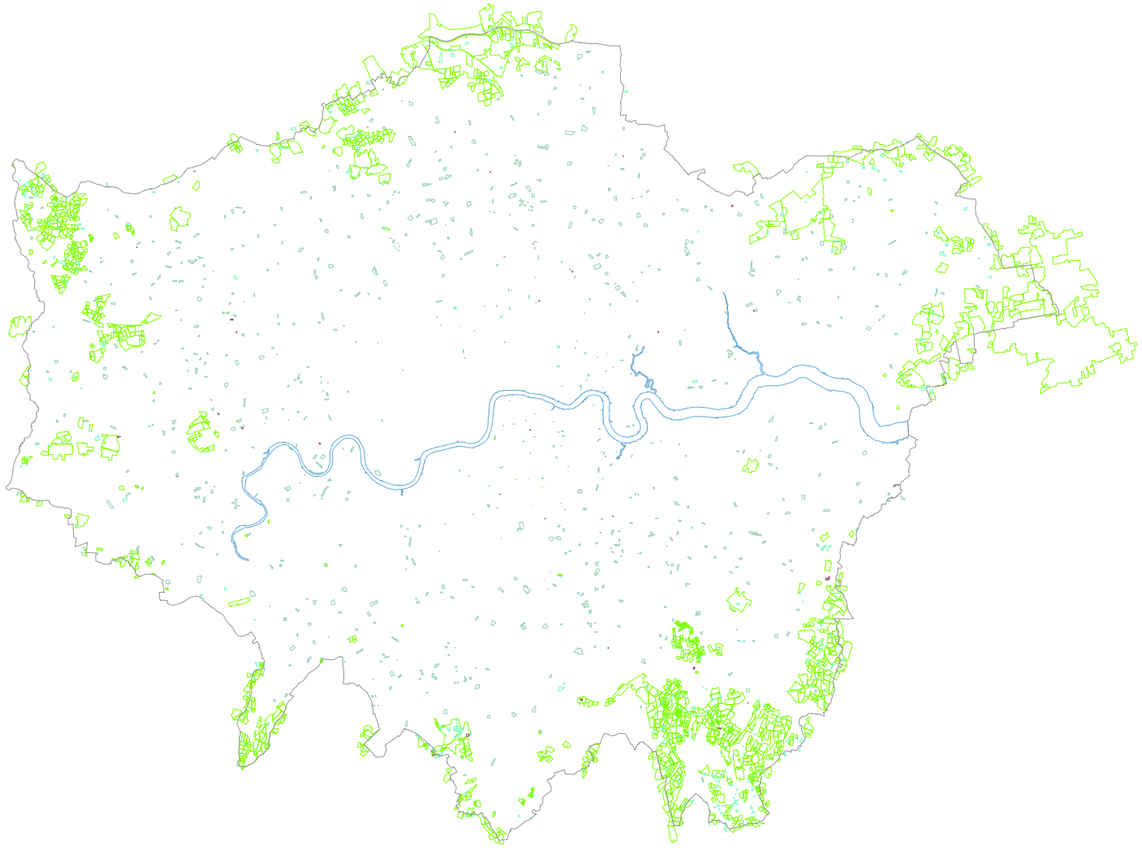
6. What would be the **middle ground** between large scale agricultural production and small-scale recreational farming?

7. What would be the spatial consequence of introducing **new types of infrastructure** (eg. drones, foodtubes) and new production and processing technologies (eg. aquaponics, biofuels)?

RESERACH QUESTION
FRAMEWORK

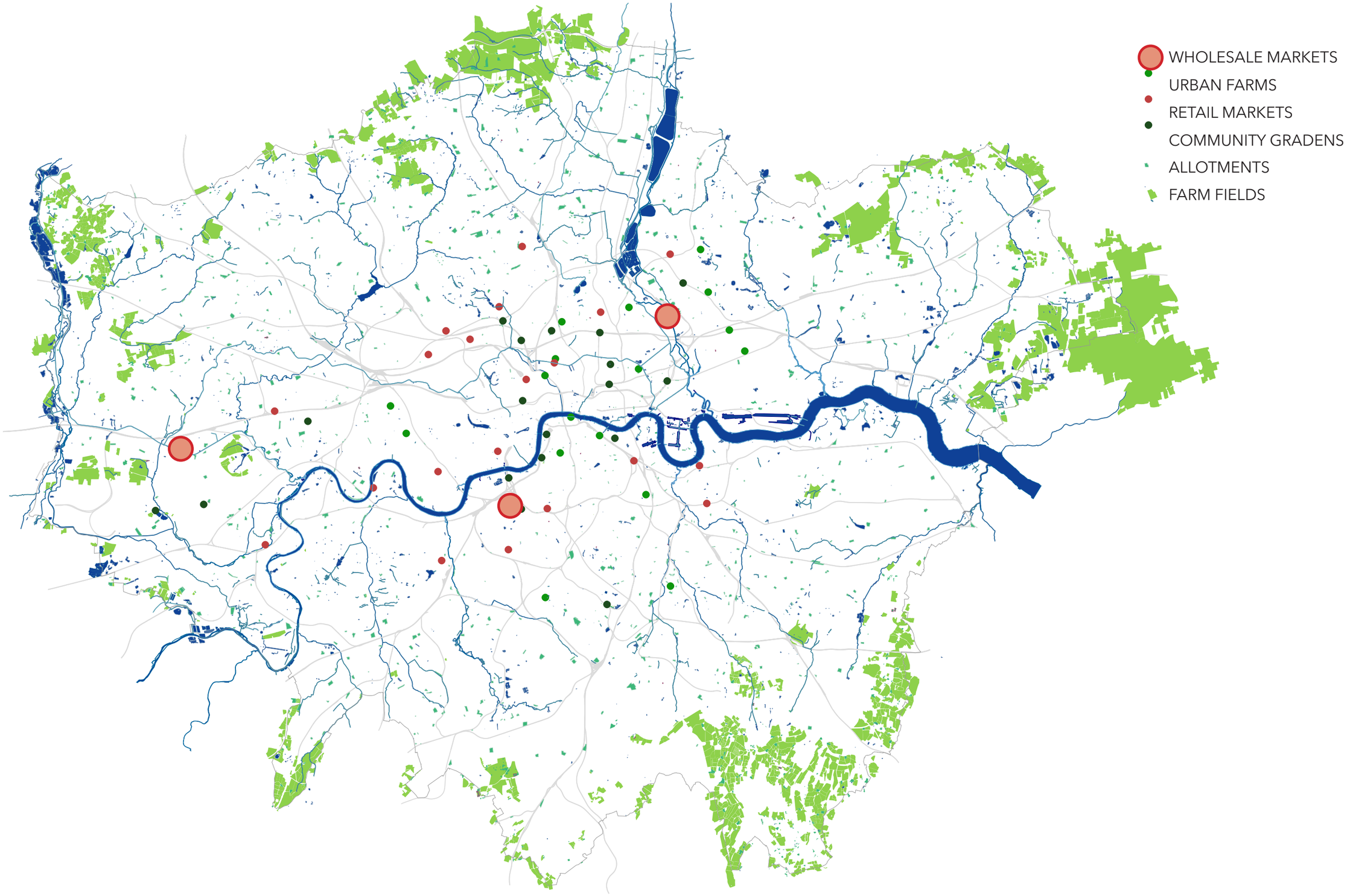


VISUAL GREEN
PARKS, BUSHES, GARDENS



PRODUCTIVE GREEN
FARMS, URBAN FARMS, ALLOTMENT GARDENS

HOW PRODUCTIVE IS LONDON?
LACK OF FOOD PRODUCTION AREAS IN THE CITY FABRIC



LONDON'S FARMING NETWORK
MAIN PRODUCTION AND RETAIL SITES

PERSONAL INVESTIGATION

TYPES OF PRODUCTION SITES AND EXCHANGE NODES

CITY FARM

Hackney City Farm

COMMUNITY GARDEN

Vauxhall Community Garden

ALLOTMENT

Vauhall Allotments

VERTICAL MASS PRODUCTION

Growing Underground

VERTICAL ON DEMAND

Sprigs Farm

VERTICAL MODULAR

Cradle-to-Plate

STREET MARKET

Leatherlane Market

RETAIL MARKET

Borough Market

WHOLESALE MARKET

Spitalfields Market

PERSONAL INVESTIGATION

TYPES OF PRODUCTION SITES AND EXCHANGE NODES

CITY FARM AS SOCIAL CONDENSER

+

VERTICAL FARM AS A PRODUCTION FACILITY

+

MARKET AS EXCHANGE / DISTRIBUTION HUB

URBAN FARMS
TAKEAWAY

SLOW

MIDDLE

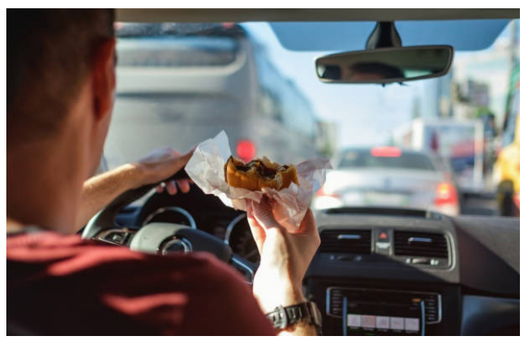
FAST

producing

?

buying

consuming



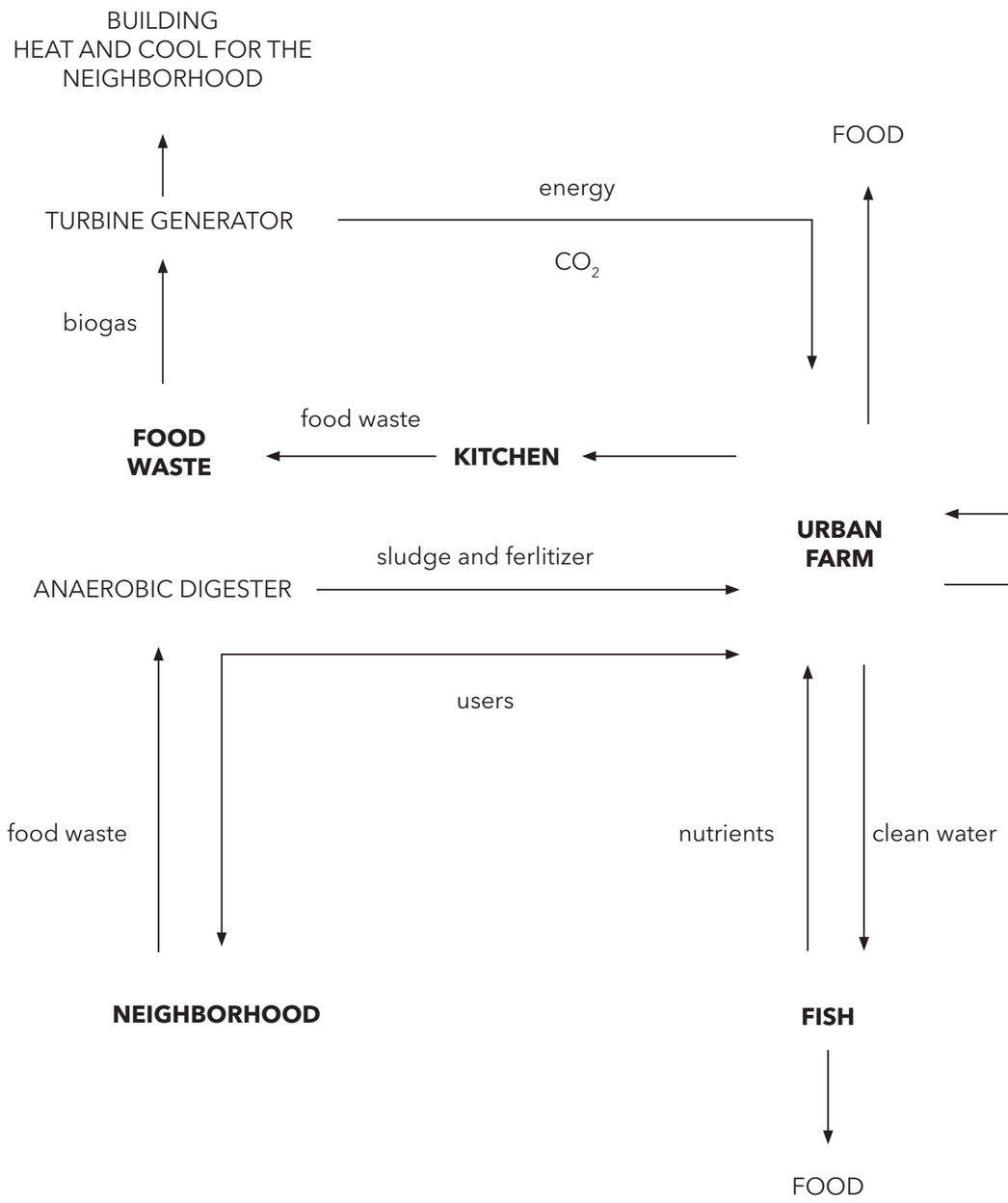
WHAT IS MISSING
MIDDLE URBAN FACILITY

NATURE - HUMANS - TECHNOLOGY

FOOD PRODUCTION
BALANCE

URBAN STRATEGY

TECHNOLOGY

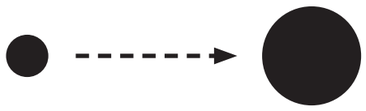


PEOPLE

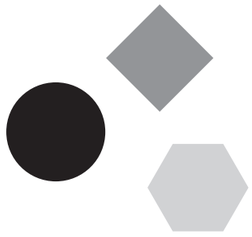
PROGRAM

BENEFITING FROM PROXIMITIES AND SYNERGIES

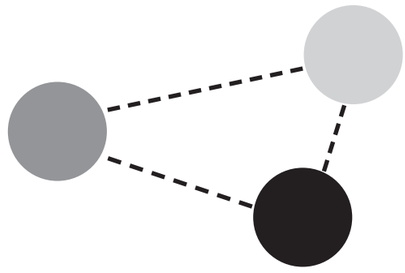
URBAN LOCATION



SCALEABILITY



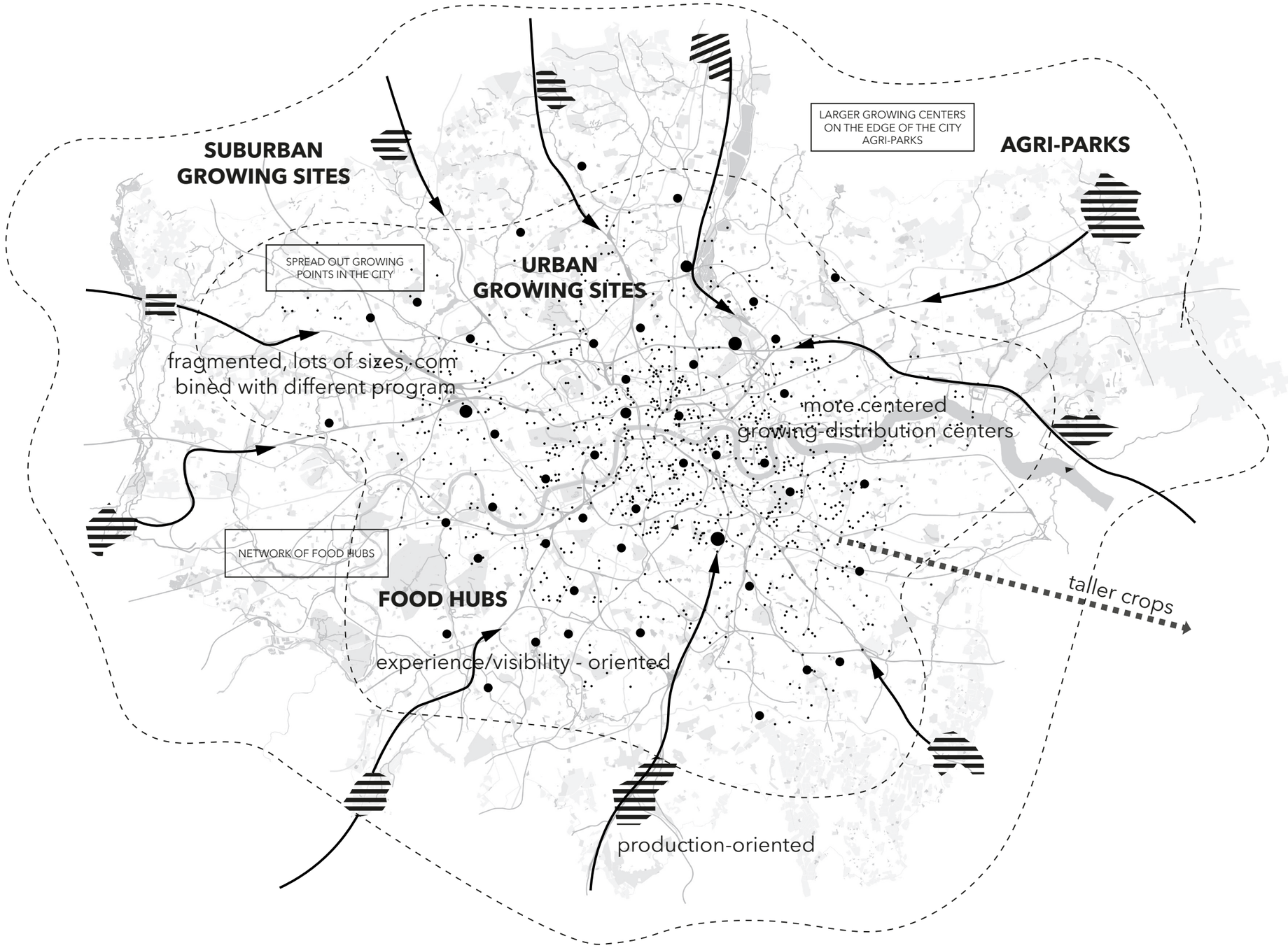
DIVERSITY

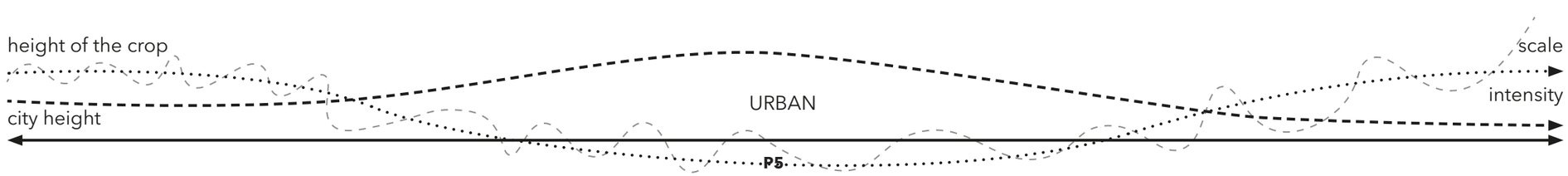


NETWORK

APPROACH
STRATEGY

FOODSCAPE NETWORK
DIAGRAM

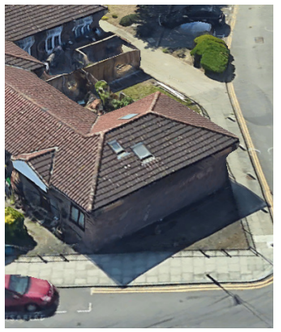




MULTISCALAR TRANSFORMATION
HACKNEY WICK

CITY

NEIGHBORHOOD



HOUSE

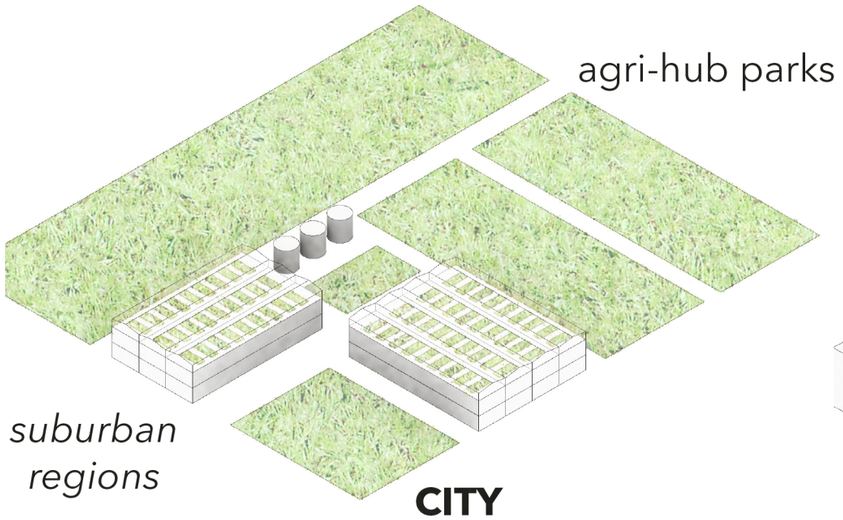
BOROUGH

BUILDING

FURNITURE

PUBLIC ---------- PRIVATE

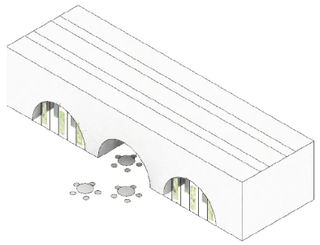
MULTISCALAR TRANSFORMATION
FILLING LEFTOVER SPACES FOR GROWING



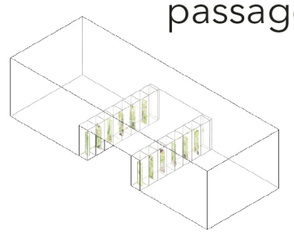
agri-hub parks

suburban regions

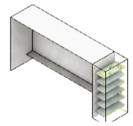
CITY



below infrastructure

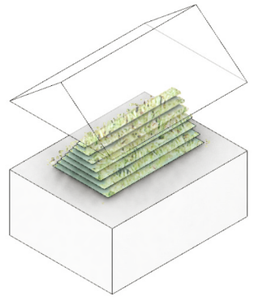


passage



bus stop

NEIGHBORHOOD



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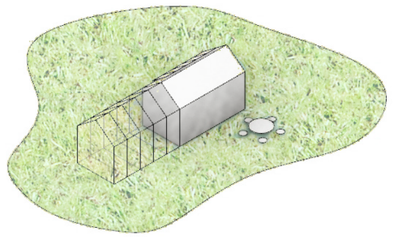
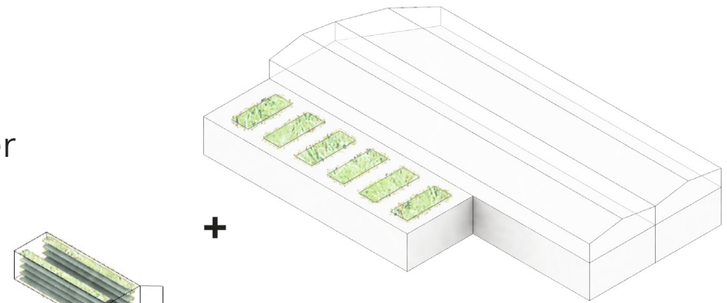
HOUSE



green squares

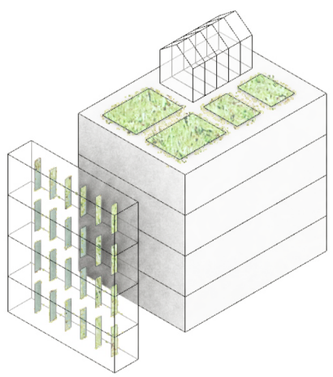


container farm

temporary growing sites

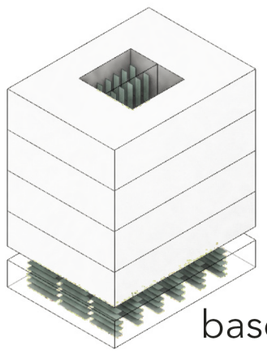
food hub

BOROUGH



rooftop

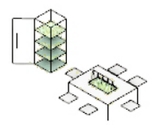
blank wall / infill



dark rooms

basement

BUILDING



integrated micro farms

FURNITURE

farming lifestyle

PUBLIC ---------- PRIVATE

URBAN STRATEGY
MAIN FOOD HUBS

GROWING

DINING

CORE

+

?

ADDITIONAL FUNCTIONS FOR THE NEIGHBORHOOD

INTERSECTIONS
ADDITIONAL FUNCTIONS / CLOSING LOOPS

base program		additional program		site consitions
GROWING FOOD	+	**HOUSING** growing community **MANUFACTURING / TEXTILE** growing mats **DESIGN / CRAFT** tableweare / packageing **UNIVERISTY** research lab educational center **WASTE** energy generator / packageing **NATURE** growing building materials **WATER** water purification plant	+	UNDERGROUND ABOVE / UNDER INFRASTRUCTURE PARK WATER
DINING restaurant community kitchen				

BOTTOM UP ---------► INITIATIVE ◄--------- **TOP DOWN**

CONSUMER

AUTHORITIES

EATING HABITS ◄--------- **FOOD HUB** ---------► **FOOD PRODUCTION**

NUTRITION CENTER

EDUCATION

HEALTH

FACILITY

PRIVATE

COMMUNITY

PUBLIC

PROSUMER

TRANSFORMATION
INITIATOR OF CHANGE

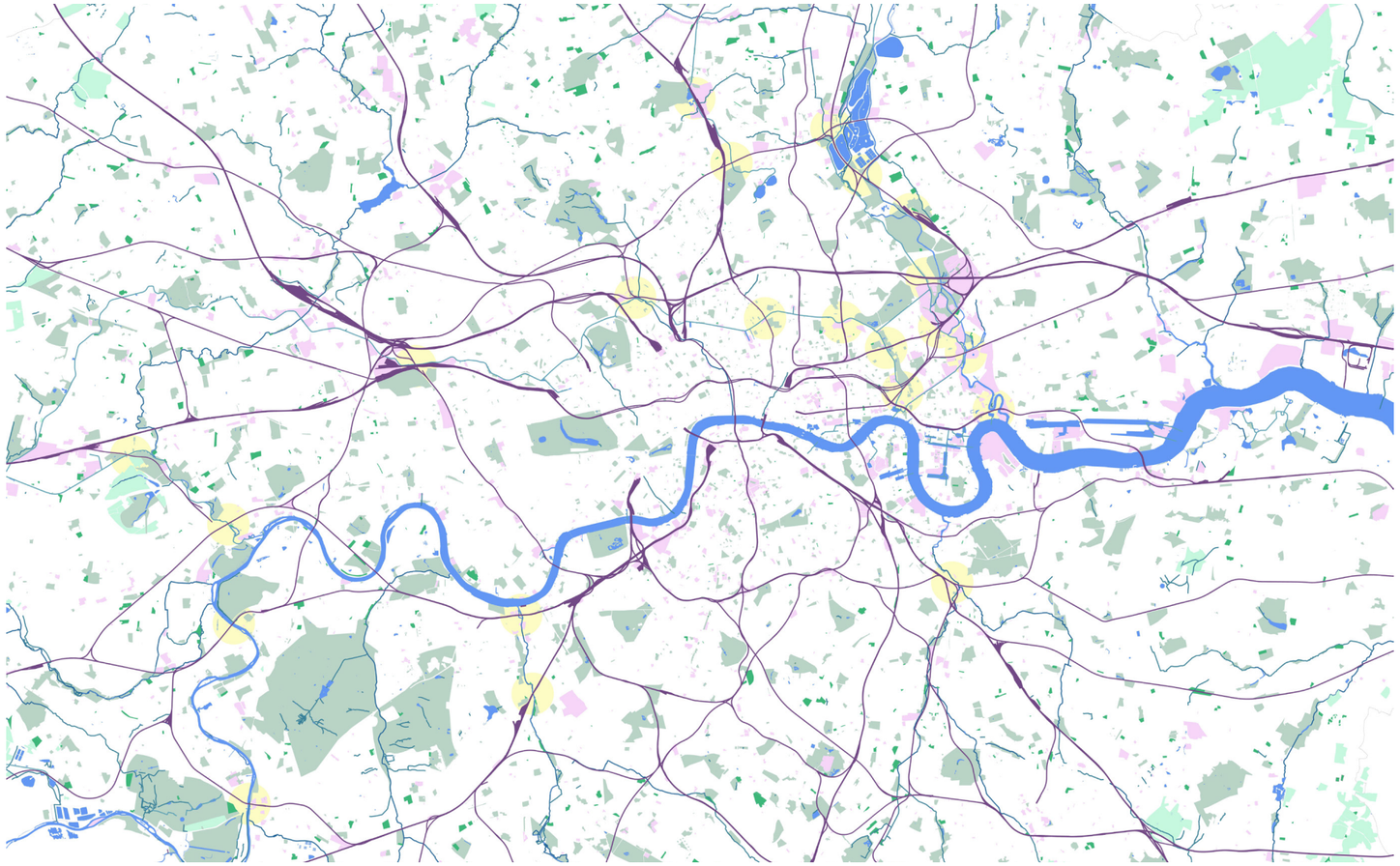
SITE

RAILWAYS +

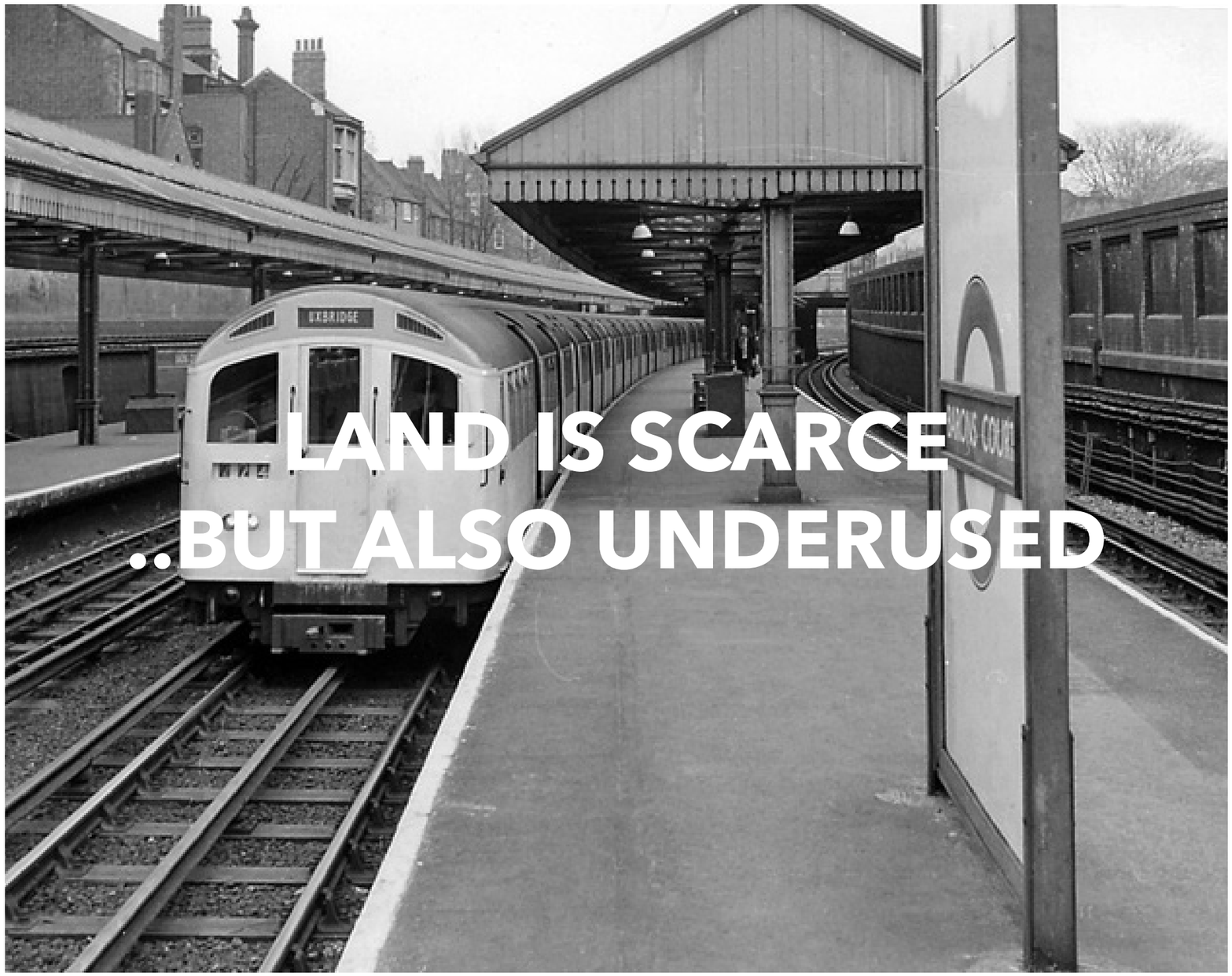
GREEN SPACES +

WATER +

BROWNFIELDS



SITE
OPPORTUNITY



LAND IS SCARCE ..BUT ALSO UNDERUSED

LAND

UNDERUSED AREAS AROUND RAILWAY

NETWORK RAIL

8 500 acres

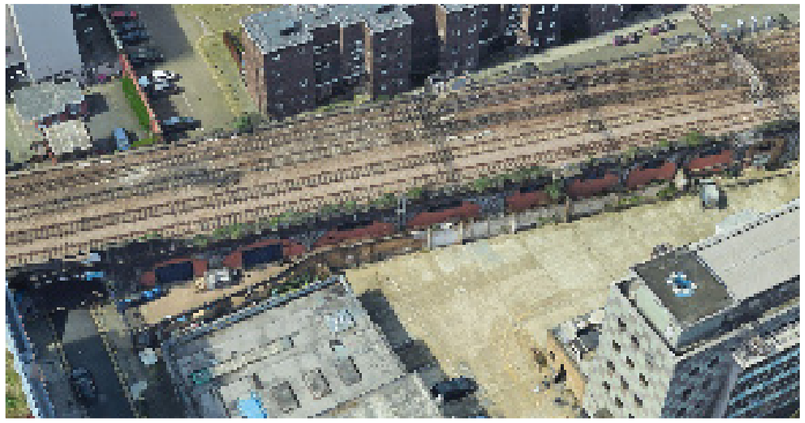
+

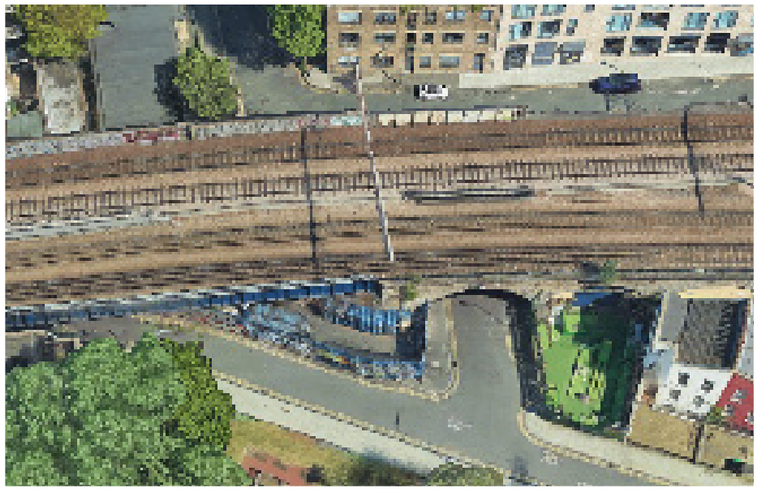
TRANSPORT OF LONDON

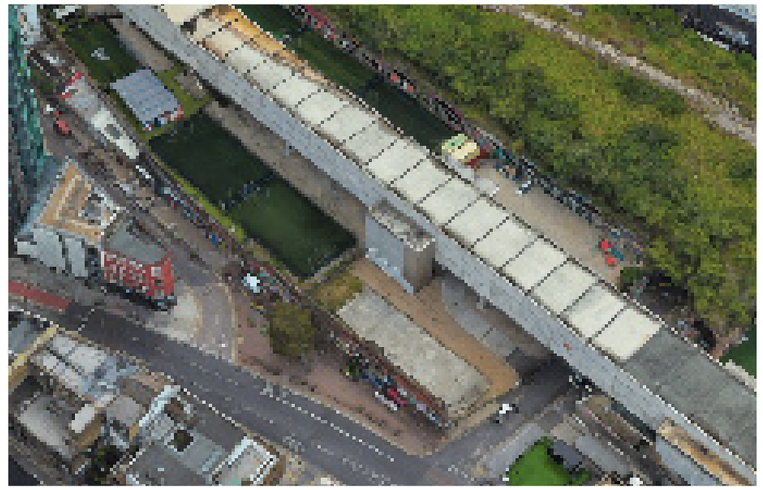
5 700 acres

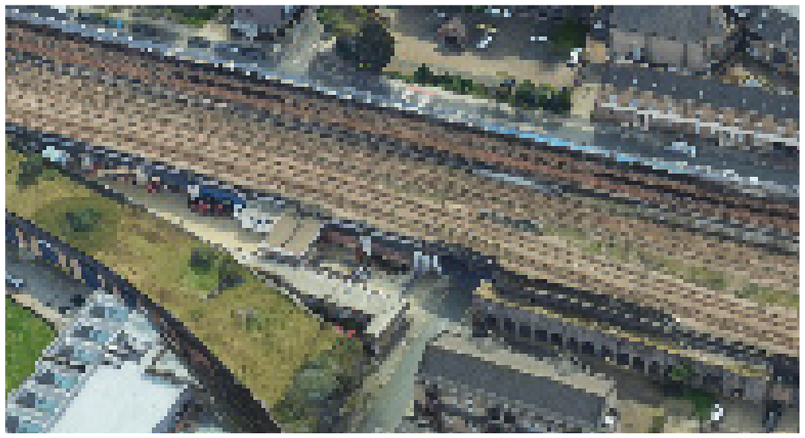
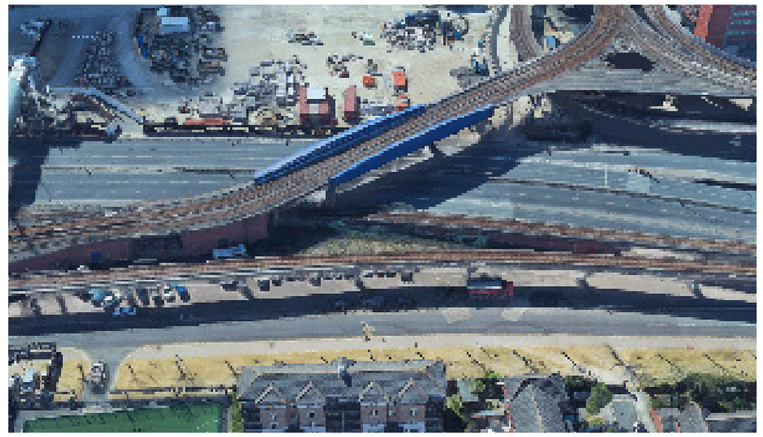
2,3% of London’s Land area

https://www.london.gov.uk/sites/default/files/housing_committee_-_homes_down_the_track_report.pdf





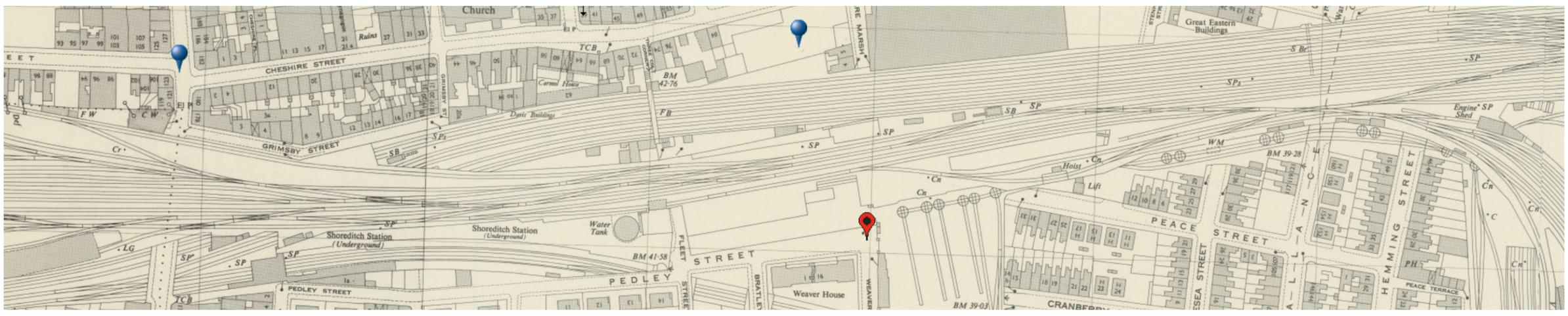



LAND

UNDERUSED AREAS AROUND RAILWAY

SHOREDITCH - BENTHAM GREEN RAILWAY SECTION

TOWER HAMLETS

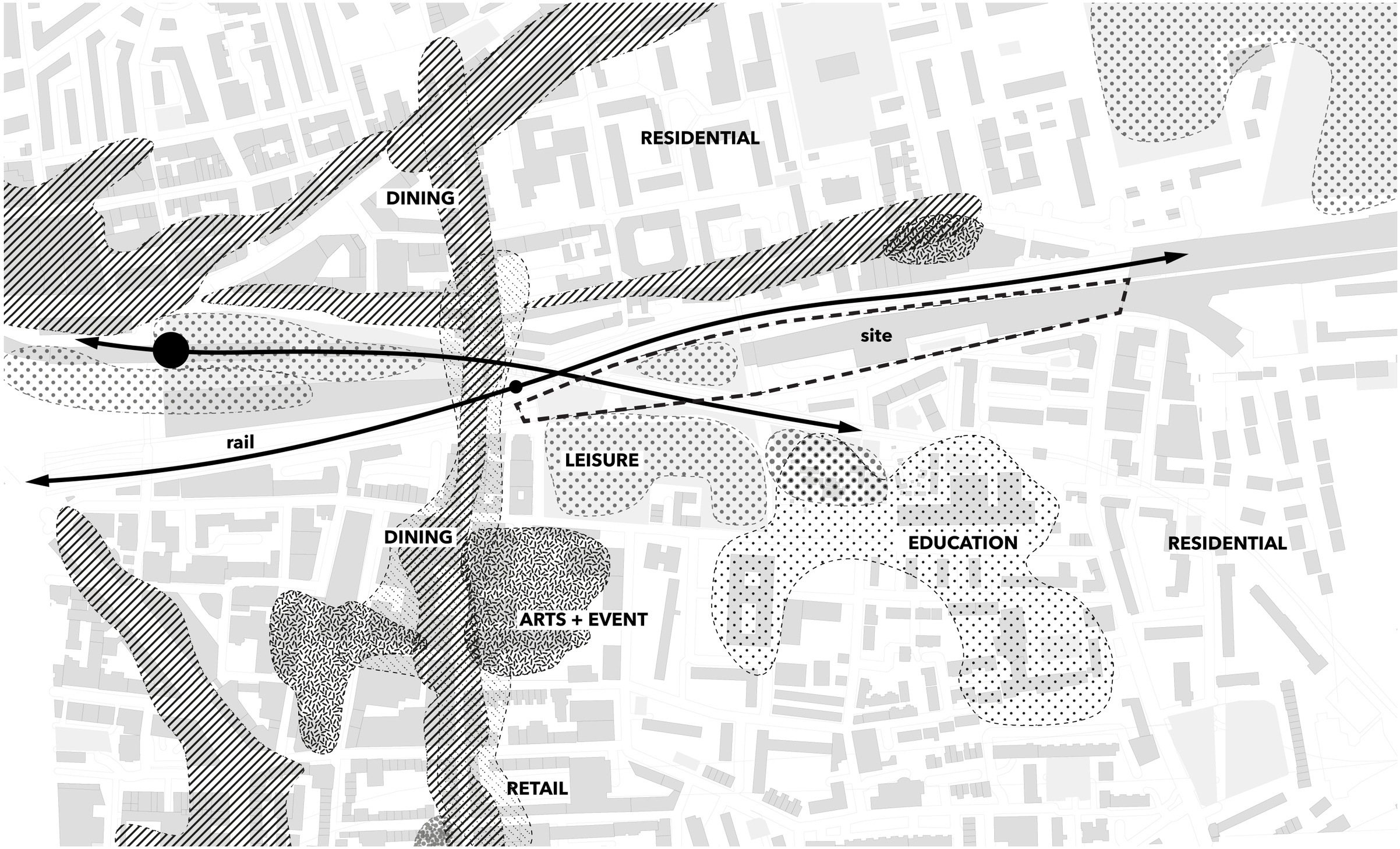


SHOREDTICH - BENTHAM GREEN RAILWAY SECTION

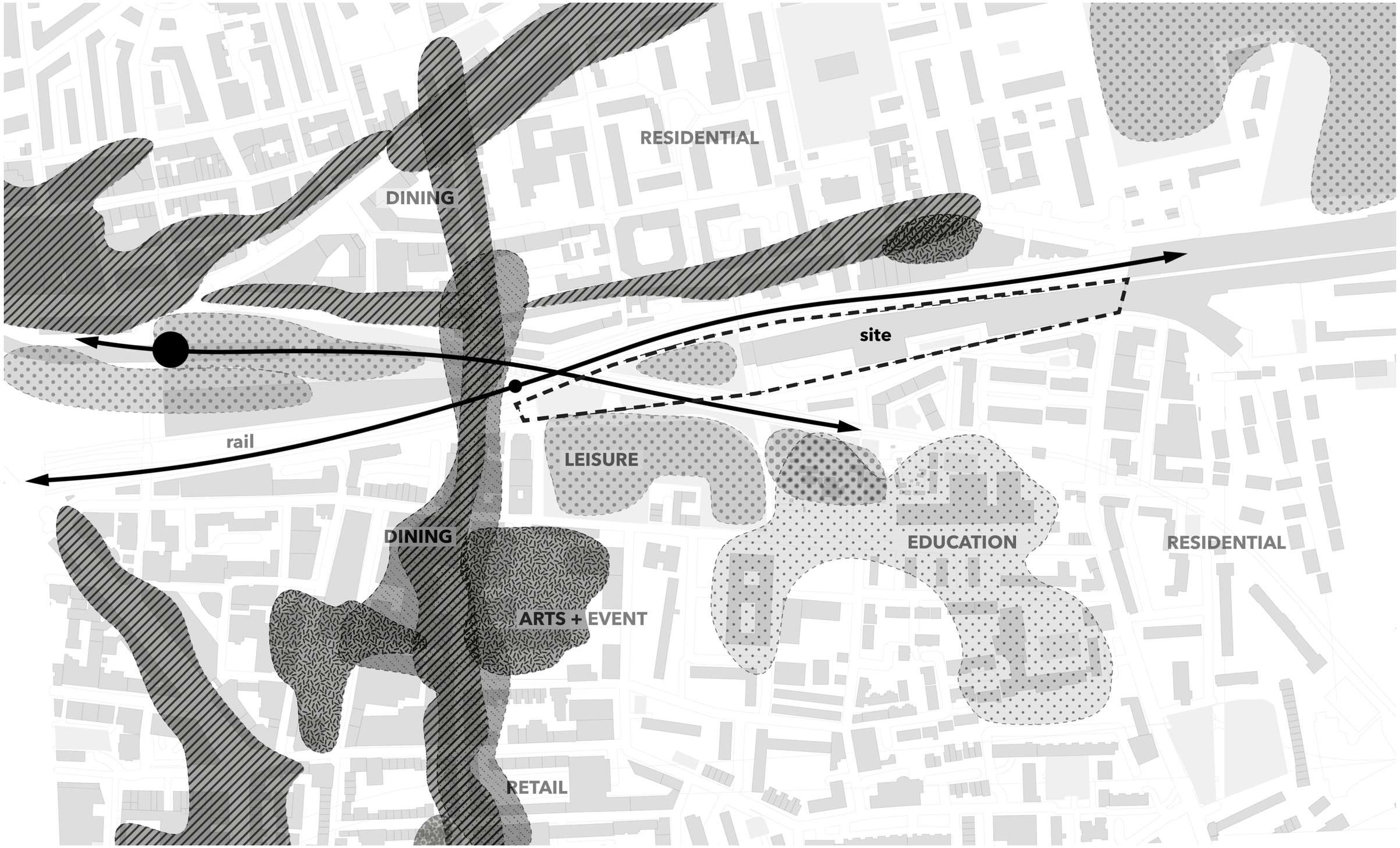
1860 - 1900 - 1950

SHOREDITCH - BENTHAM GREEN RAILWAY SECTION

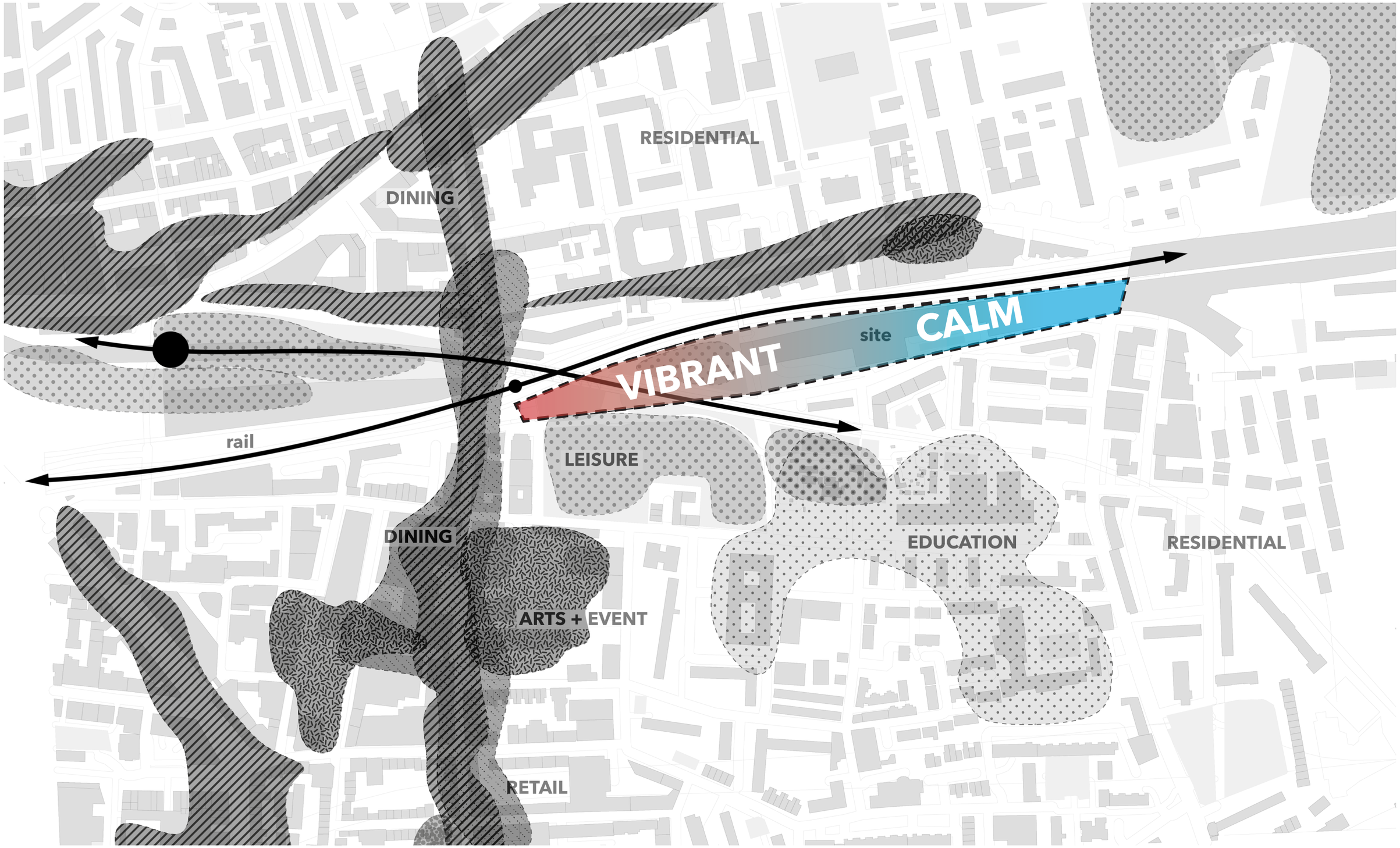
TOWER HAMLETS



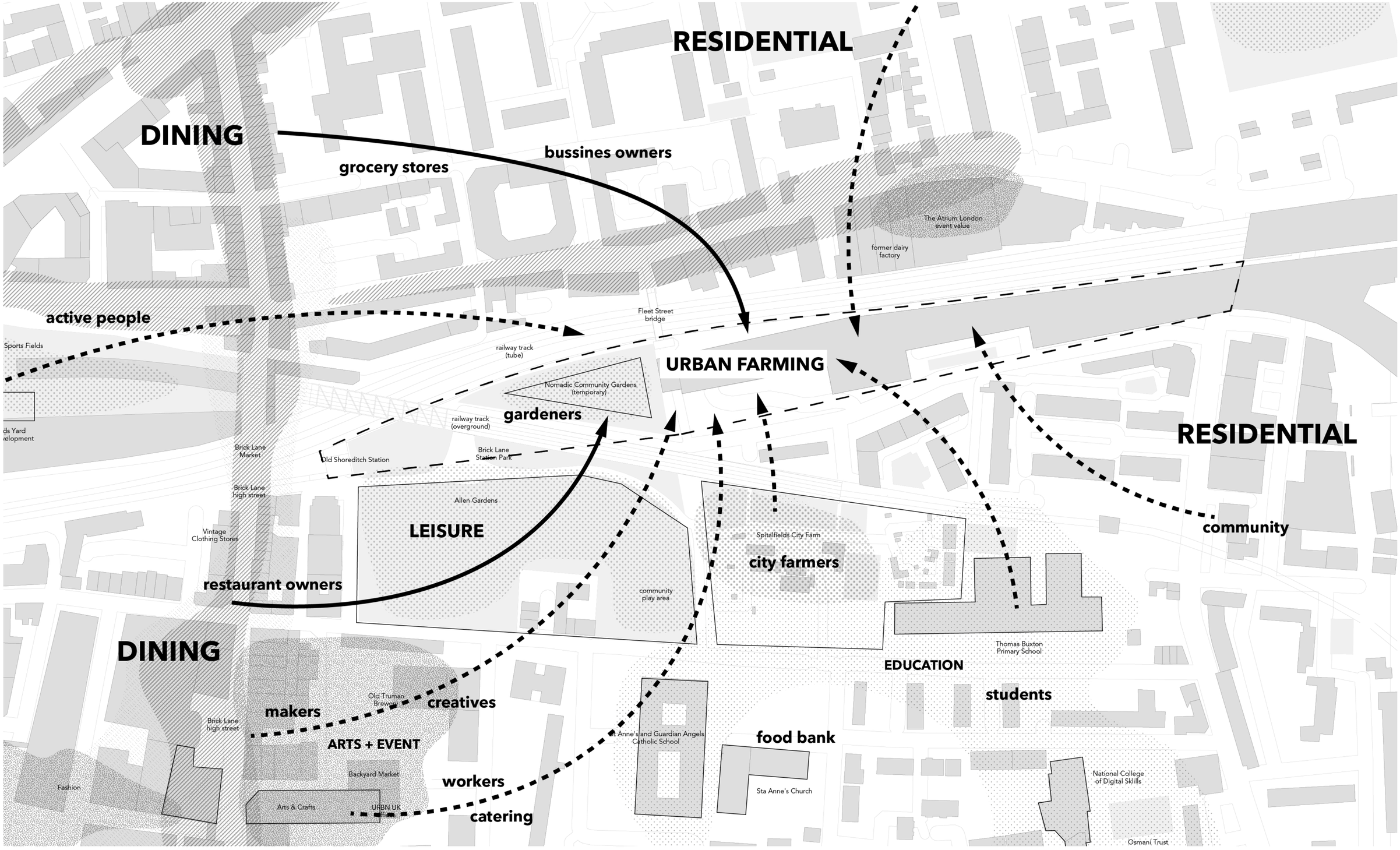
URBAN CONTEXT
SITE



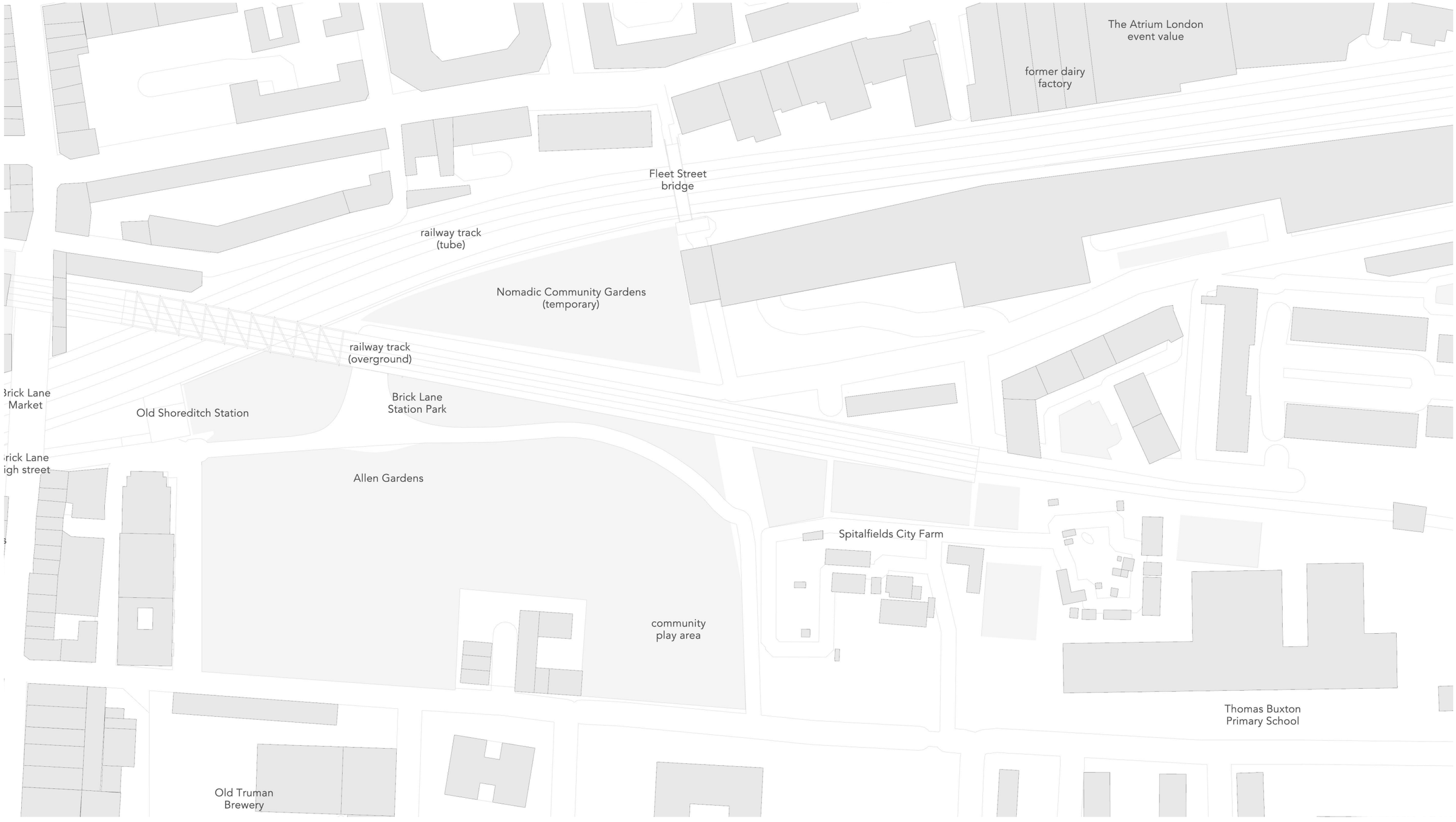
URBAN NOISE
SITE



CHARACTER
SITE

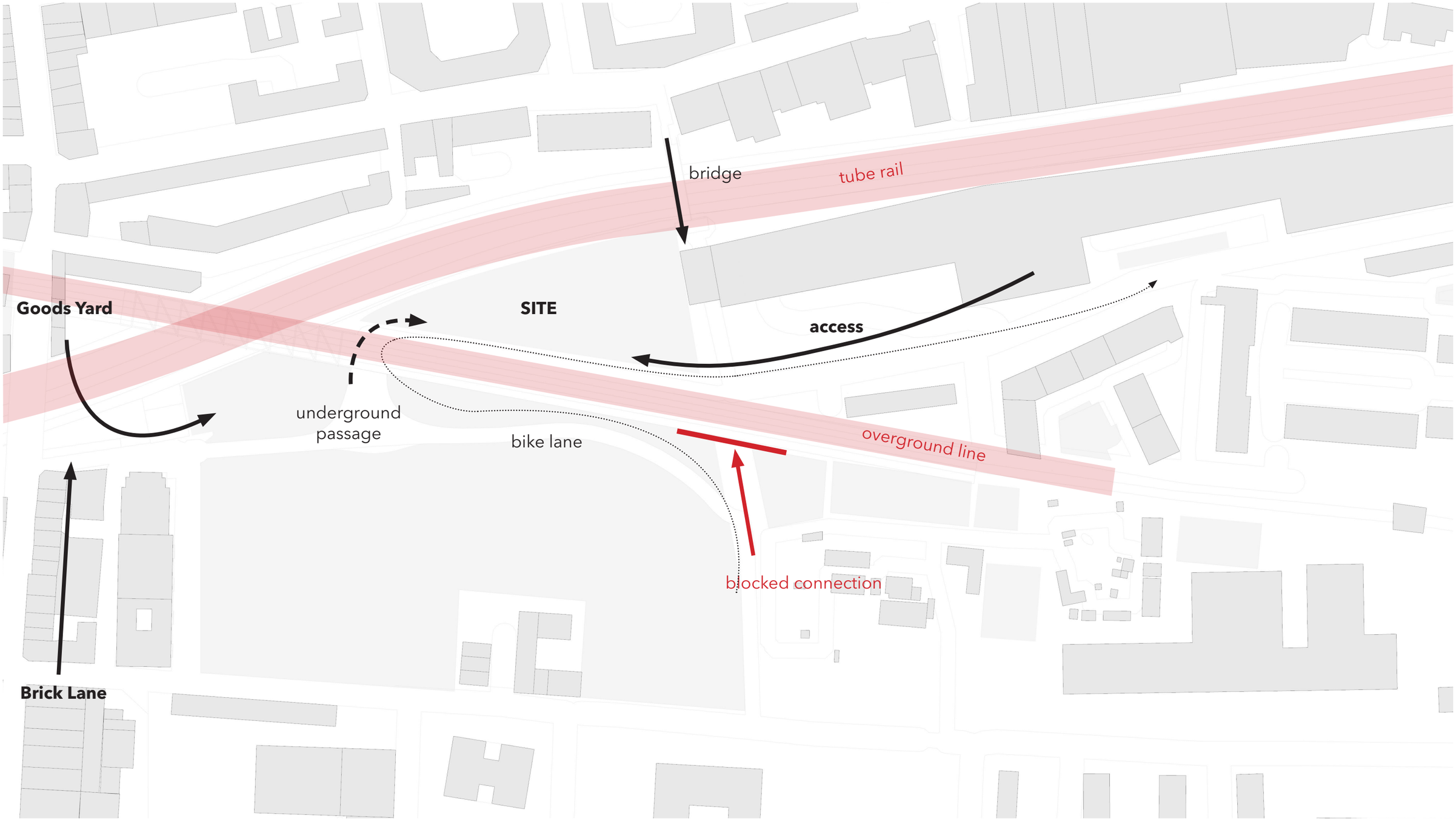

RESIDENTIAL
DINING
grocery stores
bussines owners
The Atrium London
event value
former dairy
factory
active people
Fleet Street
bridge
Sports Fields
railway track
(tube)
URBAN FARMING
Nomadic Community Gardens
(temporary)
railway track
(overground)
gardeners
RESIDENTIAL
Brick Lane
Market
Old Shoreditch Station
Brick Lane
Station Park
Brick Lane
high street
Allen Gardens
LEISURE
Vintage
Clothing Stores
Spitalfields City Farm
city farmers
community
restaurant owners
community
play area
DINING
Thomas Buxton
Primary School
EDUCATION
students
Old Truman
Brewery
creatives
makers
Brick Lane
high street
ARTS + EVENT
food bank
St Anne's and Guardian Angels
Catholic School
Backyard Market
workers
Fashion
Arts & Crafts
URBN UK
catering
Sta Anne's Church
National College
of Digital Skills
Osmani Trust

ACTORS
SITE



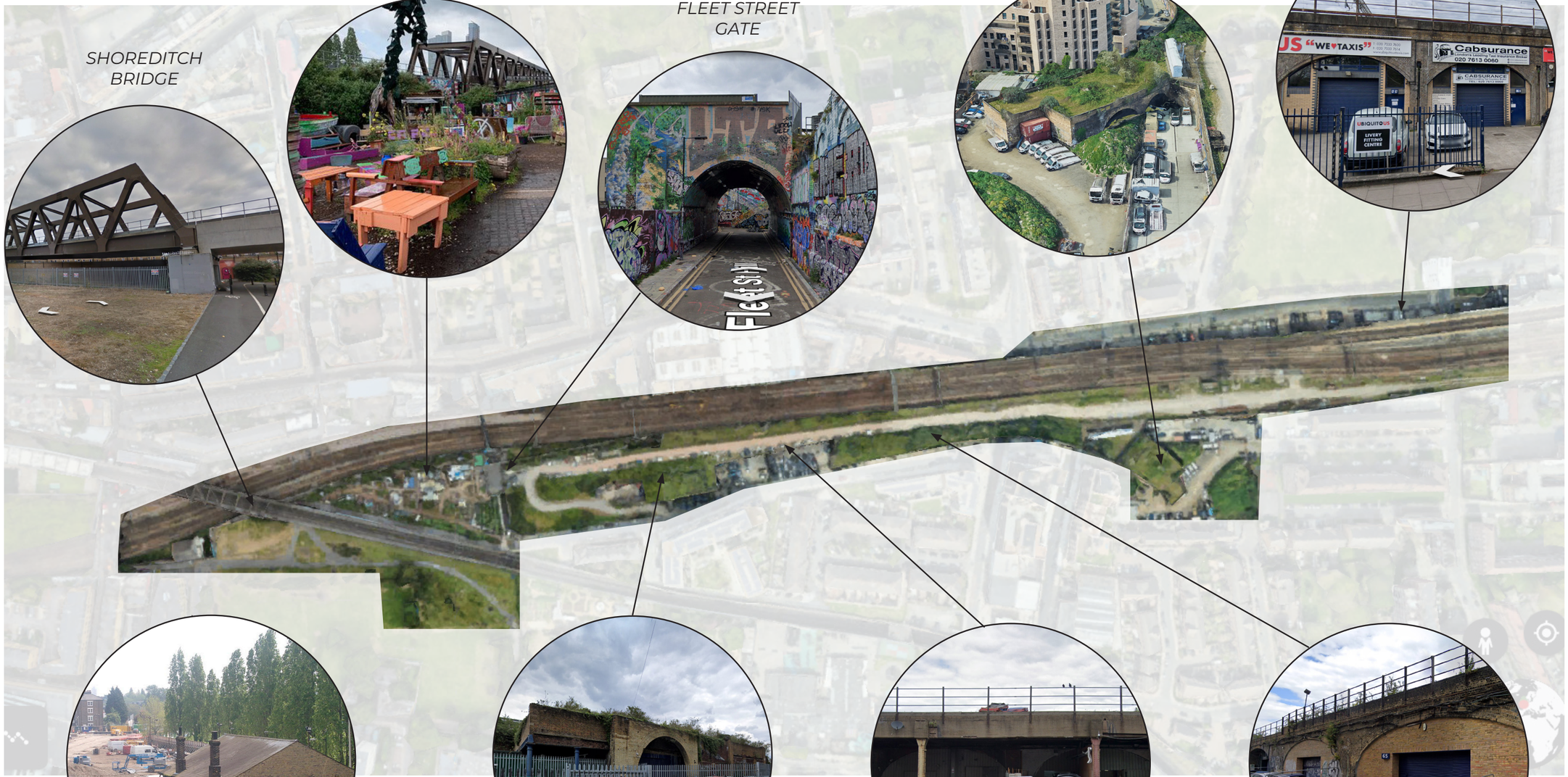
SITE CONSTRAINS / OPPORTUNITIES

SITE



SITE CONSTRAINS / OPPORTUNITIES

SITE



OLD SHOREDITCH STATION

FORMER GOODS DEPOT

ARCHES TYPE 1 PLAZA / PARKING

ARCHES TYPE 2

SHOREDITCH -BETHNAL GREEN RAILWAY SECTION

SITE HIGHLIGHTS

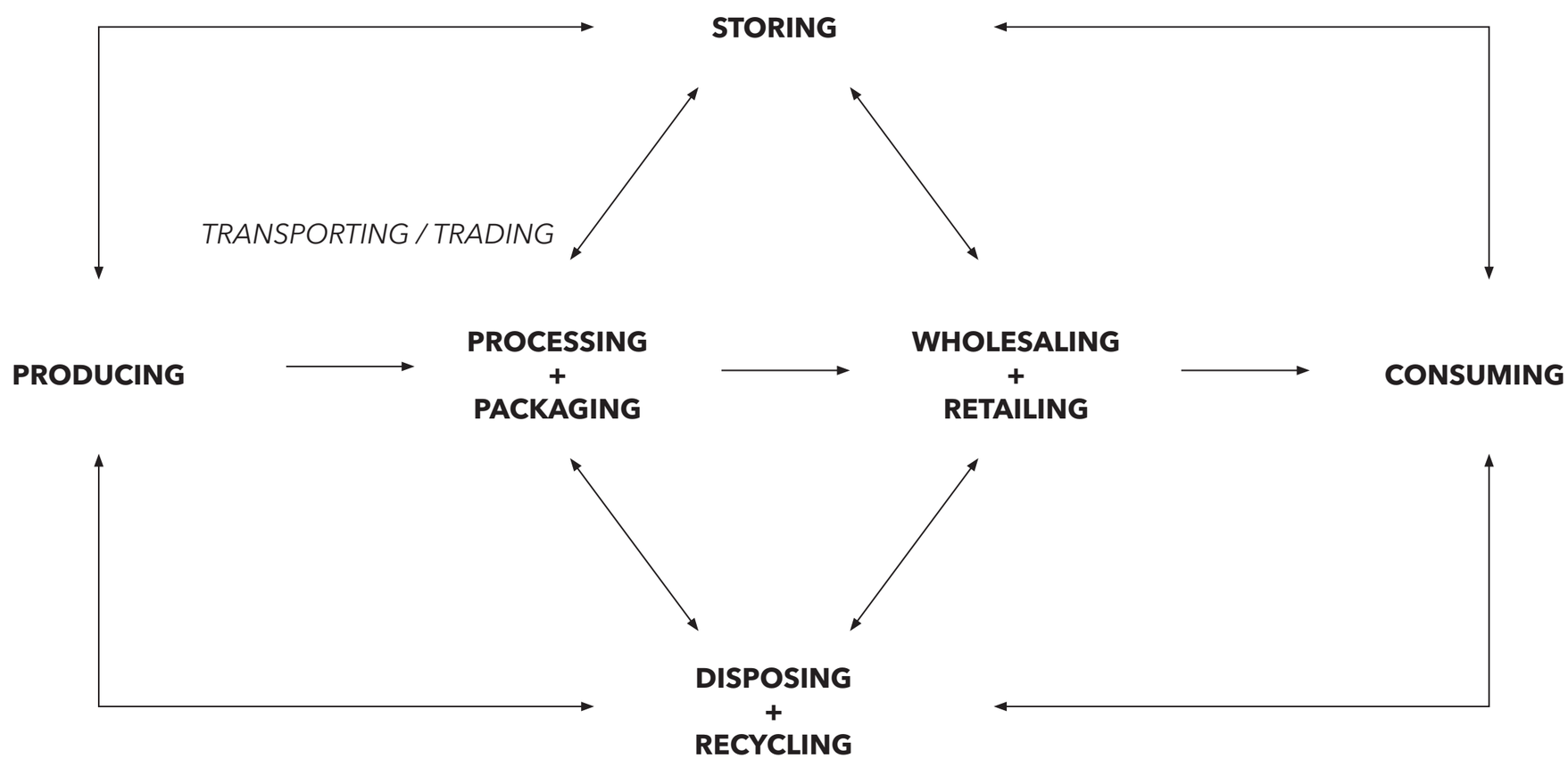
OLD SHOREDITCH STATION

RAILWAY PARK

FLEET STREET HILL SITE

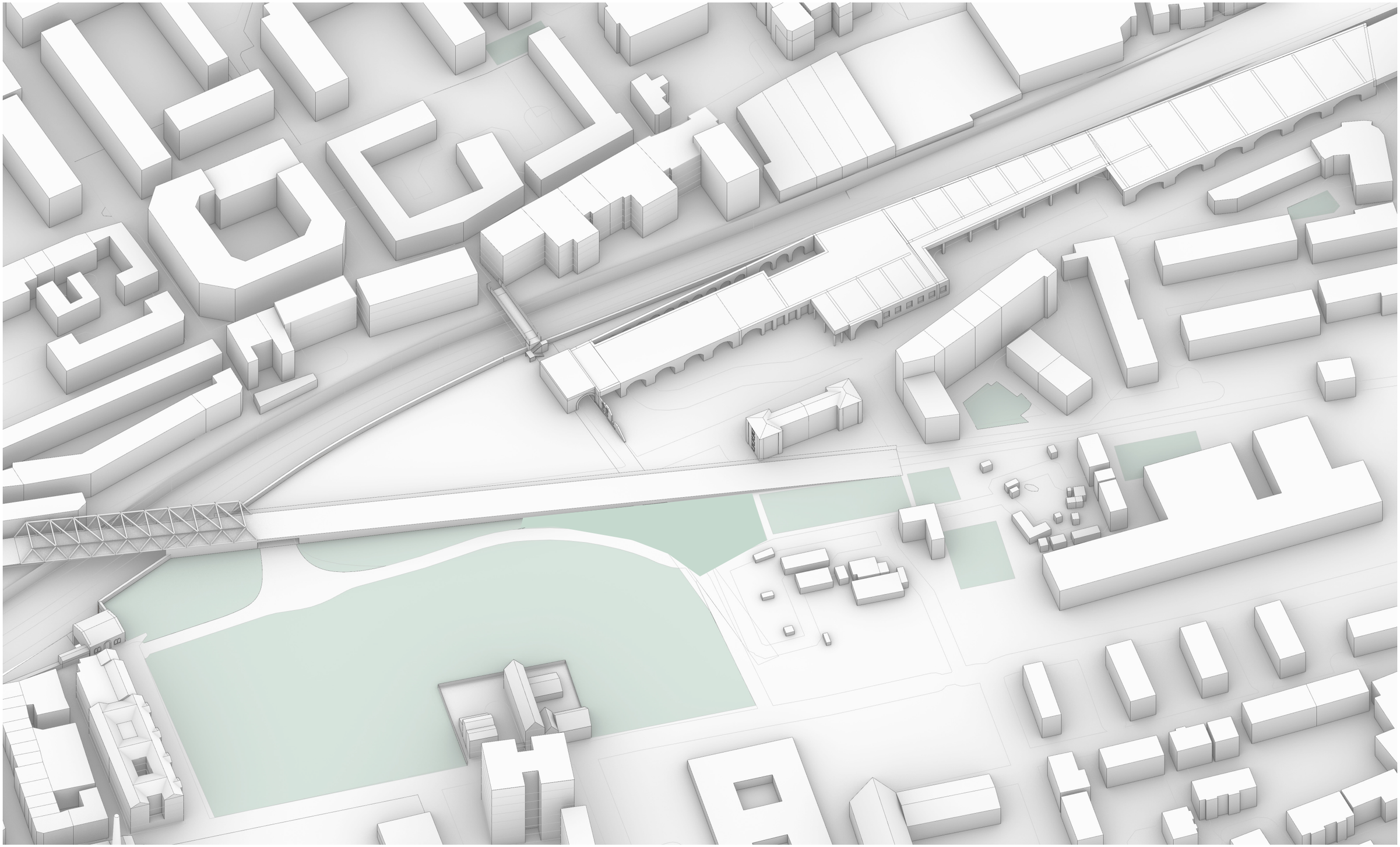
PEDLEY STREET ARCHES RAILWAY SIDE

CURRENT CONDITION
DISTRESS



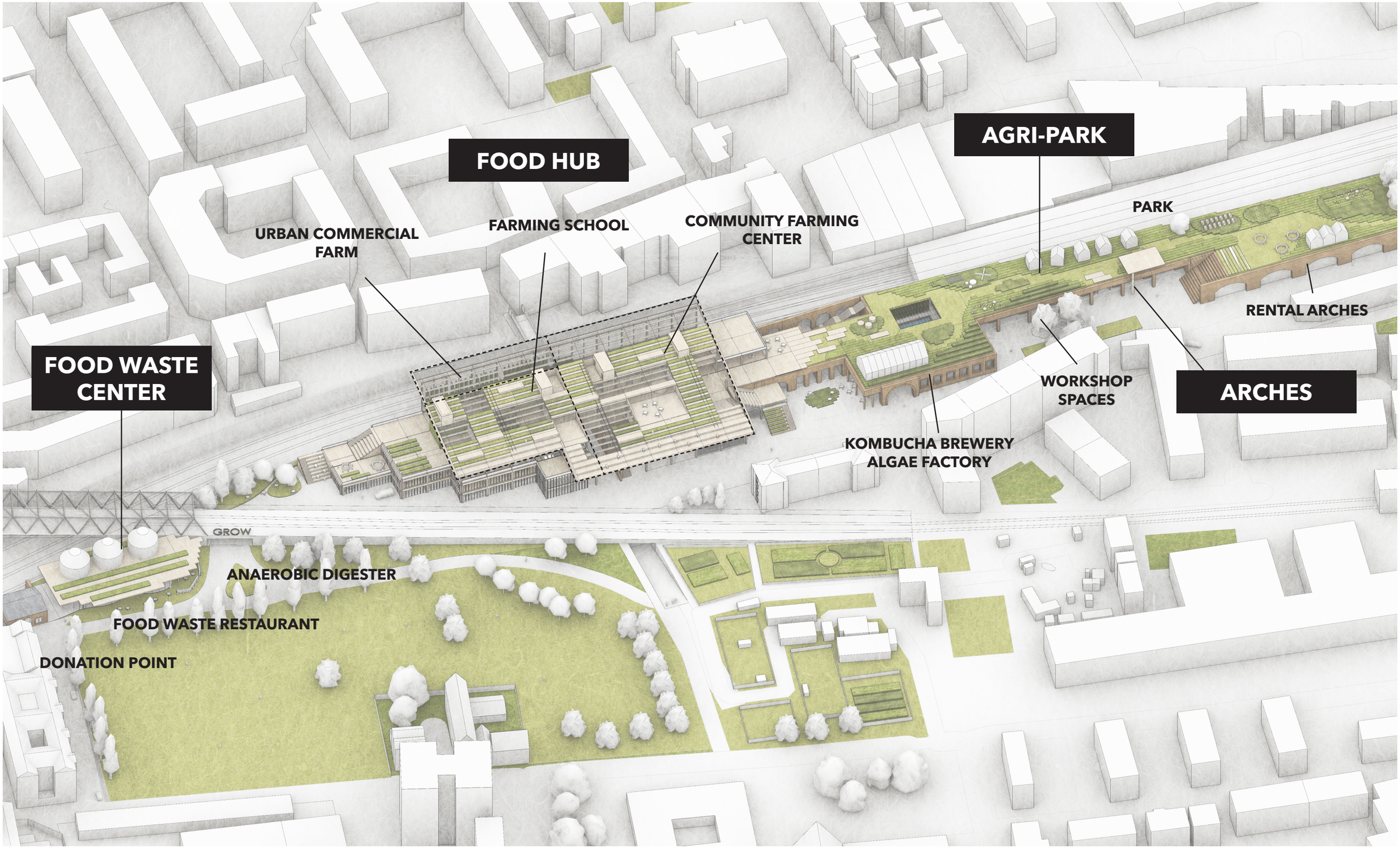
MAIN PROGRAM

FOOD SUPPLY CHAIN INTEGRATED TO REDUCE FOOD MILES



EXISTING CONDITION
SITE

MASTERPLAN
FOODSCAPES



MASTERPLAN
FOODSCAPES

BUILDING
HEAT AND COOL FOR THE
NEIGHBORHOOD

FOOD

TURBINE GENERATOR

energy

CO_2

biogas

FOOD WASTE

food waste

KITCHEN

URBAN FARM

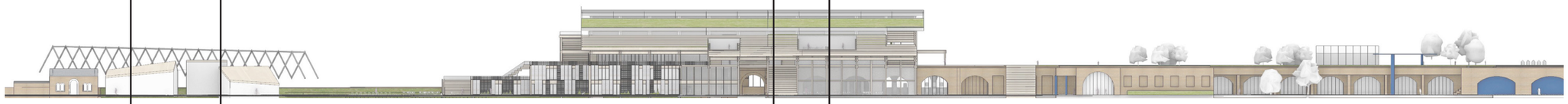
CO_2

KOMBUCHA BREWERY

O_2

sludge and ferlitizer

ANAEROBIC DIGESTER



food waste

nutrients

clean water

FISH

FOOD

ALGAE

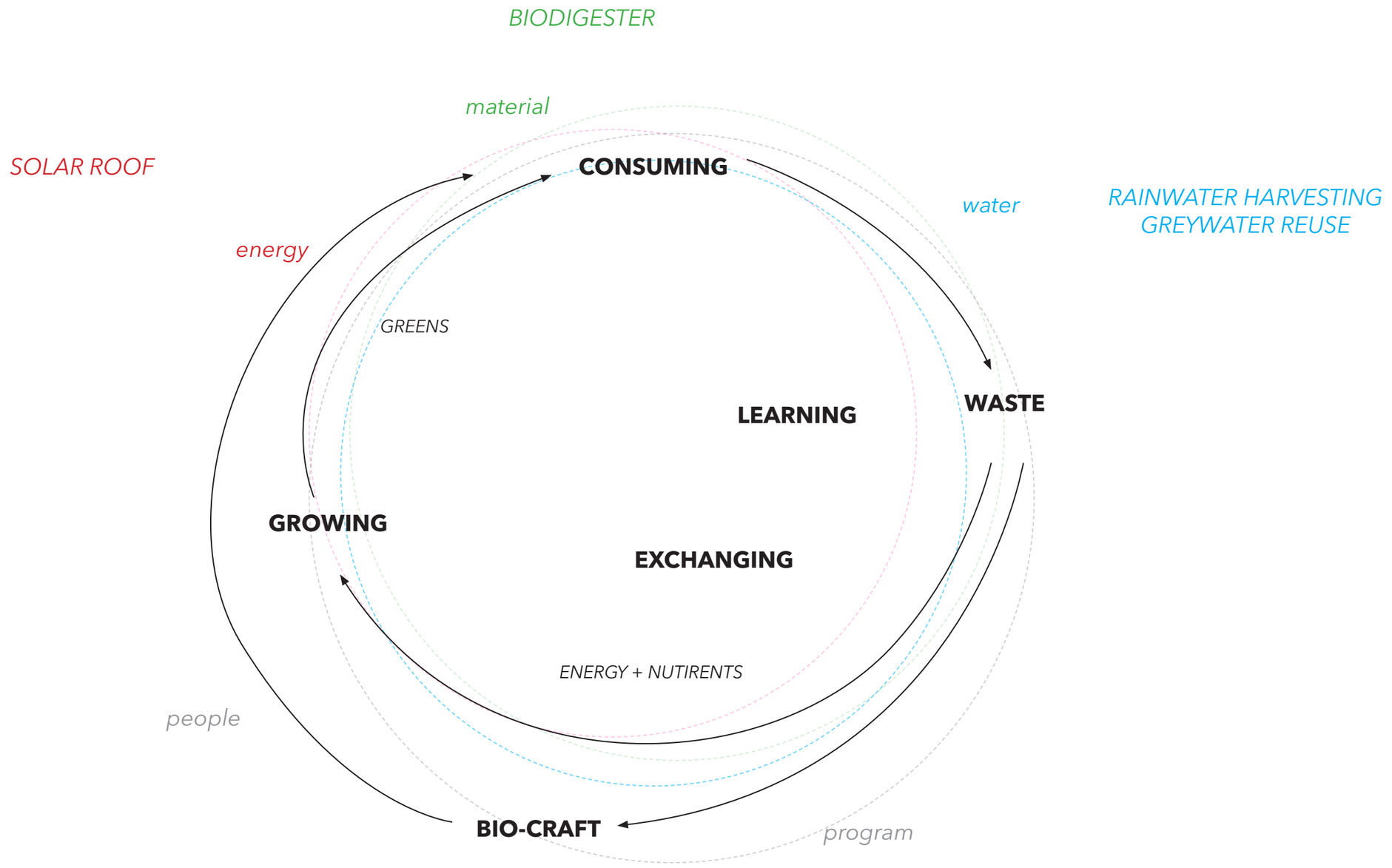
FOOD

NEIGHBORHOOD

feed

fertilizer

URBAN SYNERGY
FOOD HUB

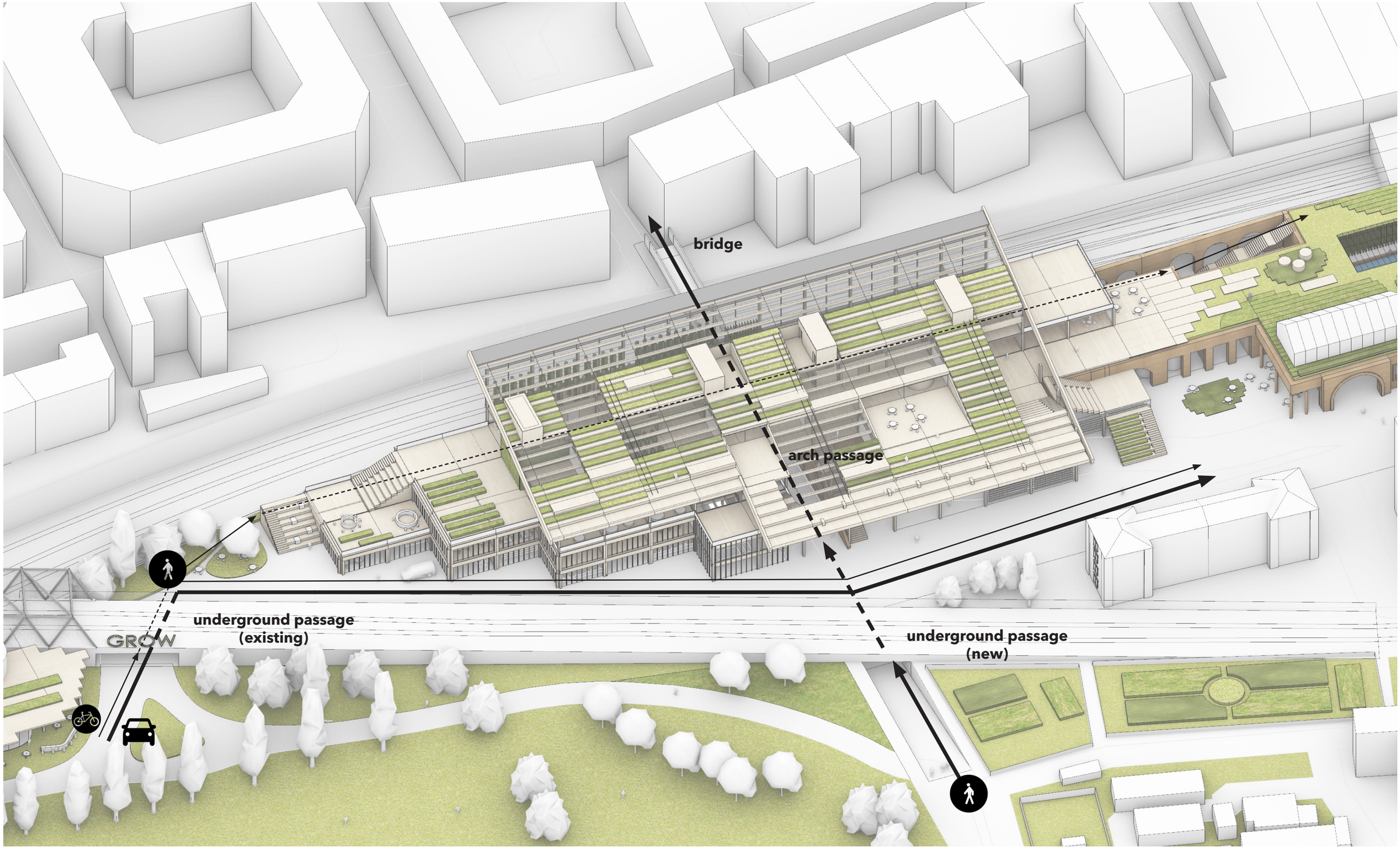


CIRCULARITY
URBAN METABOLISM

PROGRAM CYCLE
MATERIAL CYCLE
BIOLOGICAL CYCLE
WATER CYCLE

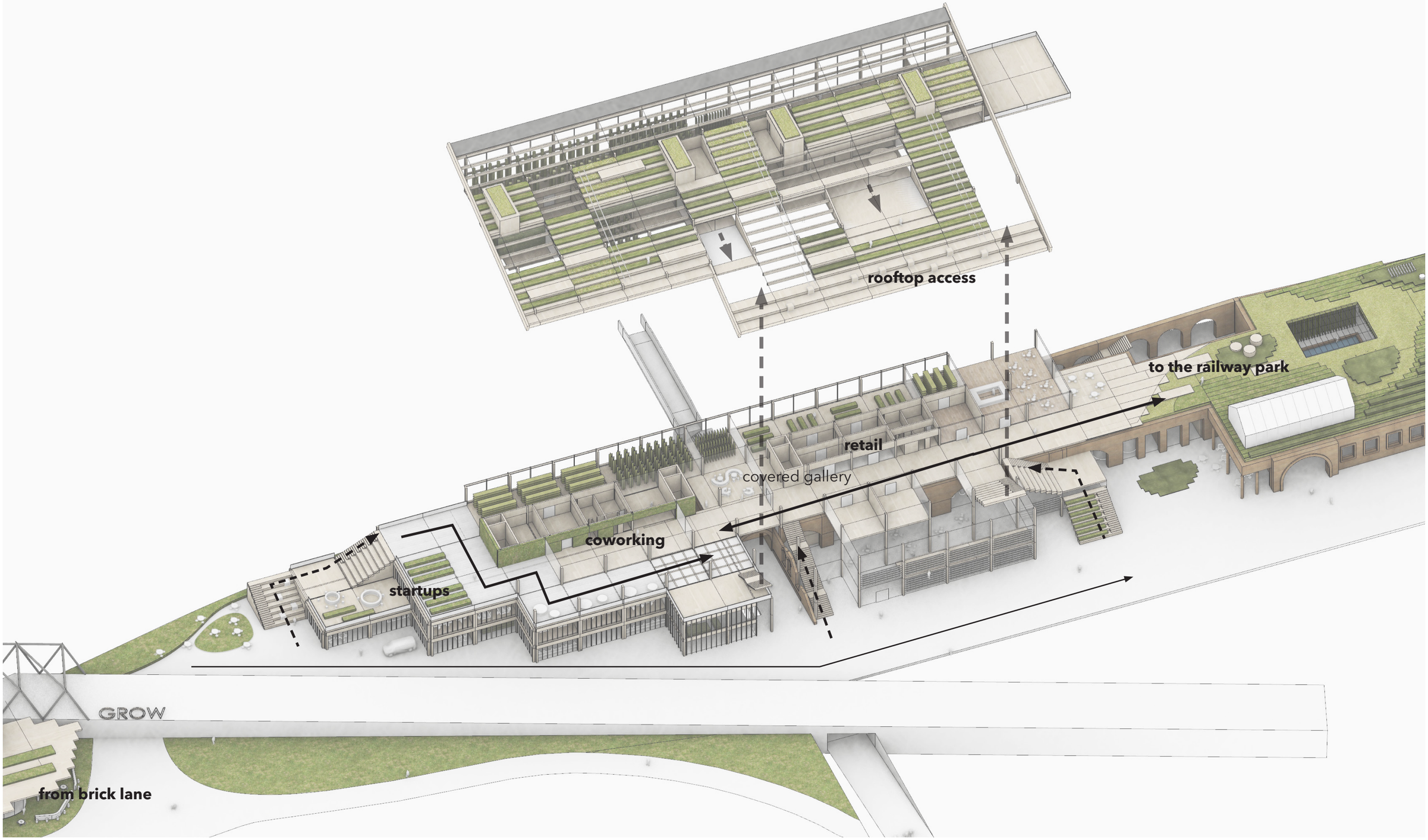
BUILDING

ACCESSIBILITY
ENTRANCE

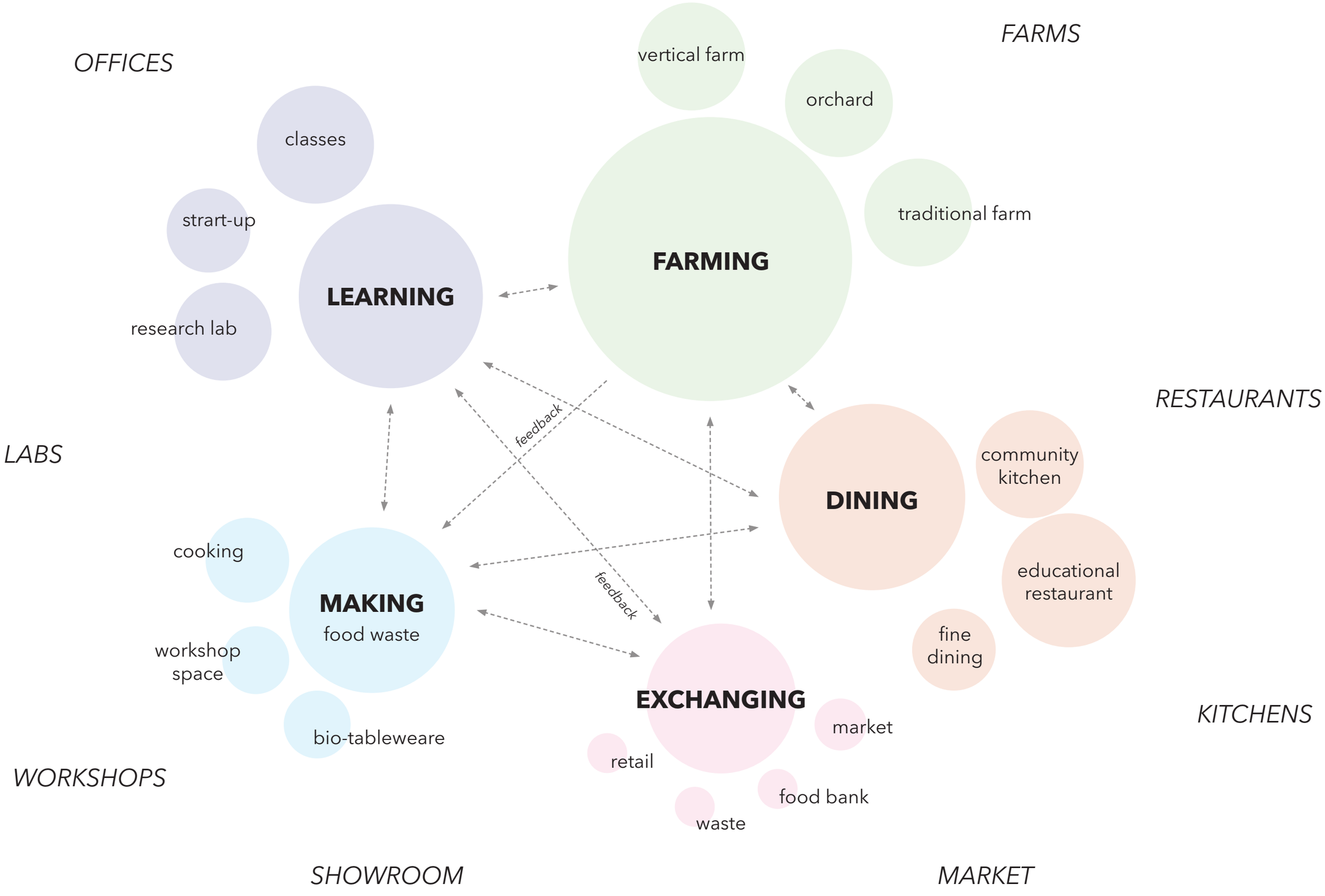


MAIN ACCESS POINTS
ENTRANCES

ACCESSIBILITY
ENTRANCE TO THE PUBLIC PATH



PUBLIC PATH
ACCESSIBILITY



PROGRAM
ACTIVITIES

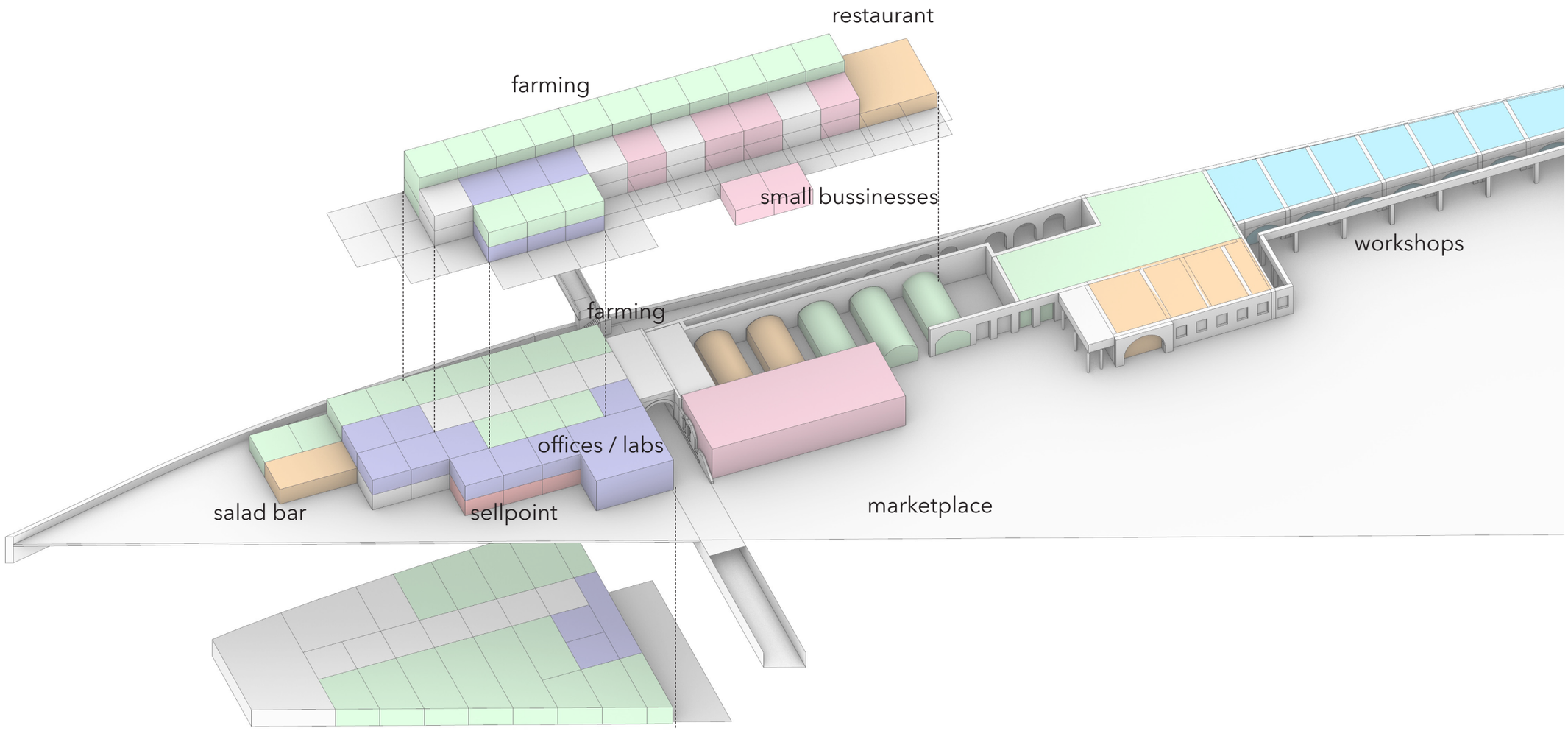
FARMING

DINING

EXCHANGING

LEARNING

MAKING



PROGRAM
ACTIVITIES

education / dissemination / business

demonstration farm

home farming appliances showroom (integrated in the offices)

LEARNING

dietetitian / nutritionis office

research

test lab

material lab

bio (grow)-lab

job center

material library

office space

training center

craft / design

fab-lab / makerspace

workshops

MAKING

artist studios / residences

idea accelerator

showroom / exhibition space

market

market hall / stalls

flexible space

exchange centre

loading / unloading

access train / car / drone

community food exchange

EXCHANGING

food bank

waste

sorting (material / energy / nutrients)

anearobic digestion plant

composting facility

production

vertical farm underground

glasshouses

vertical farm (vegetables)

vertical farm (fungi)

vertical farm (microgreens)

FARMING

seed bank

research

test kitchen

experimental kitchen

kitchen incubator

public

coffe roastery

tea rooms

juicery

cooking school

DINING

community

community kitchens

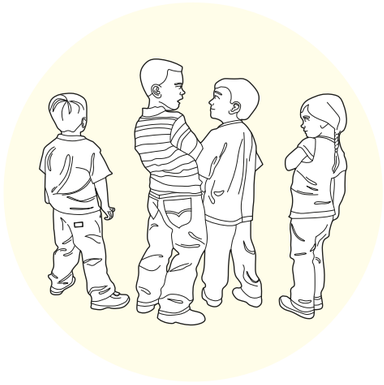
community dining areas

PROGRAM INTERSECTIONS

OVERLAPS

MAIN PROGRAM
USERS

VISITORS
interester in urban farming, nutrition,
new technologies



KIDS
collaboration with schools
after-school activity for families

STARTUPS
looking for afrming innovation

JOBLESS / DISADVANTAGED
future trade in urban farming
needing a place to stay /
good nutrition

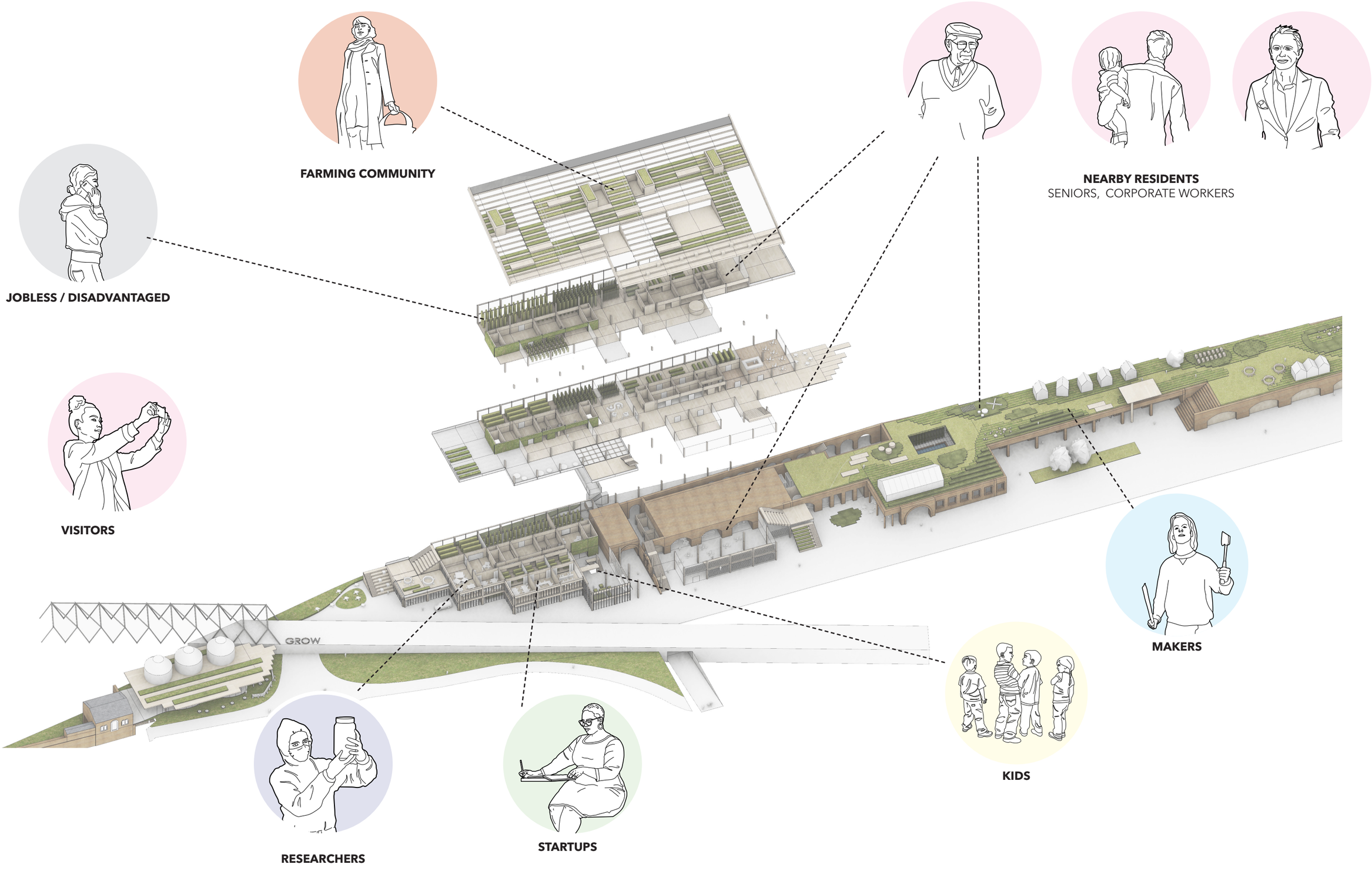
NEIGHBORS
gardeners
volounteers at bood bank

URBAN CONDENSER
USERS

FARMING COMMUNITY
skills exchange
bonding

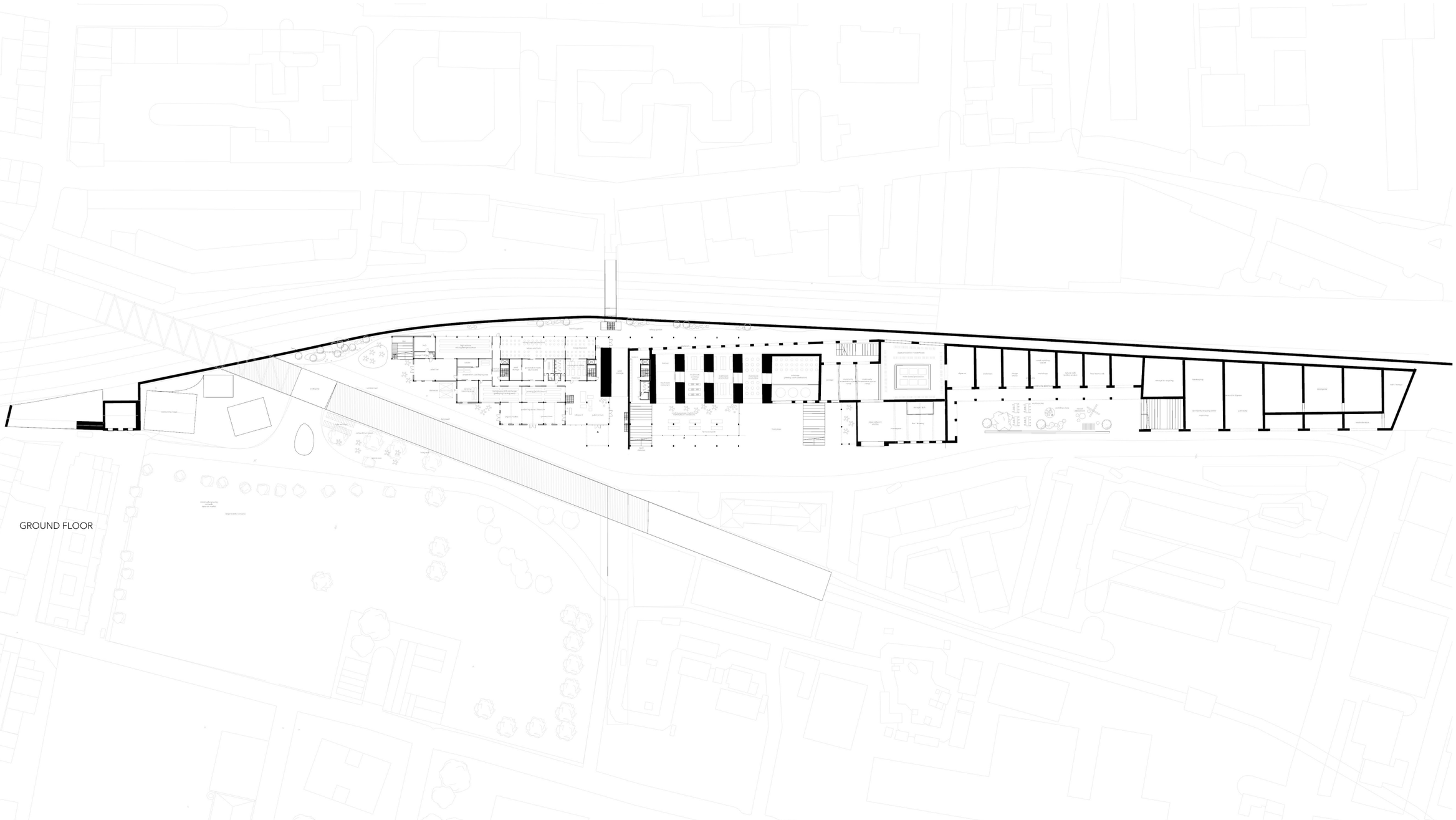
RESEARCHERS
interested in bio-materials
needing facilities
collaboration

MAKERS
designers
craftsman

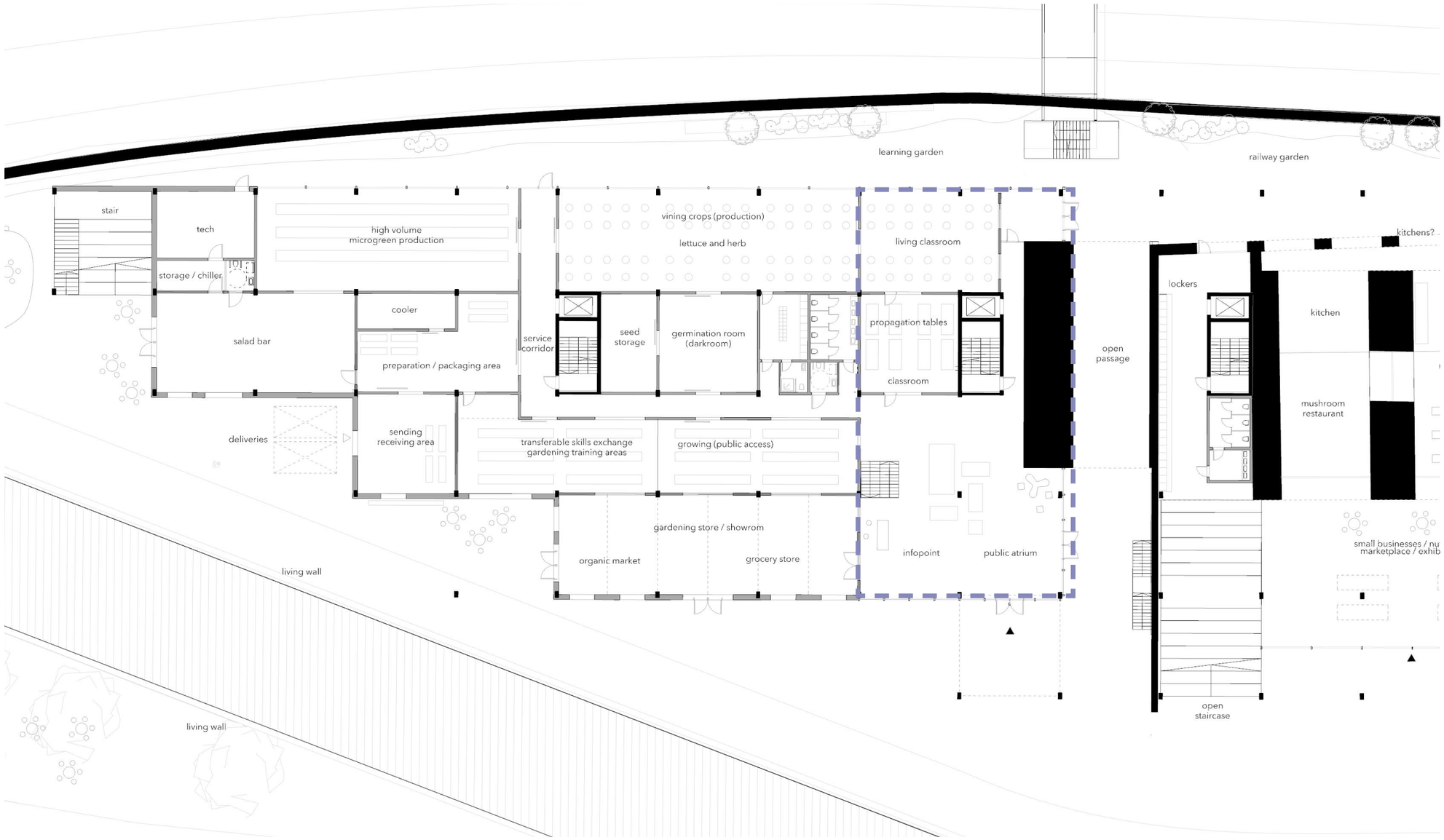


ACTORS / URBAN CONDENSER

FOOD HUB

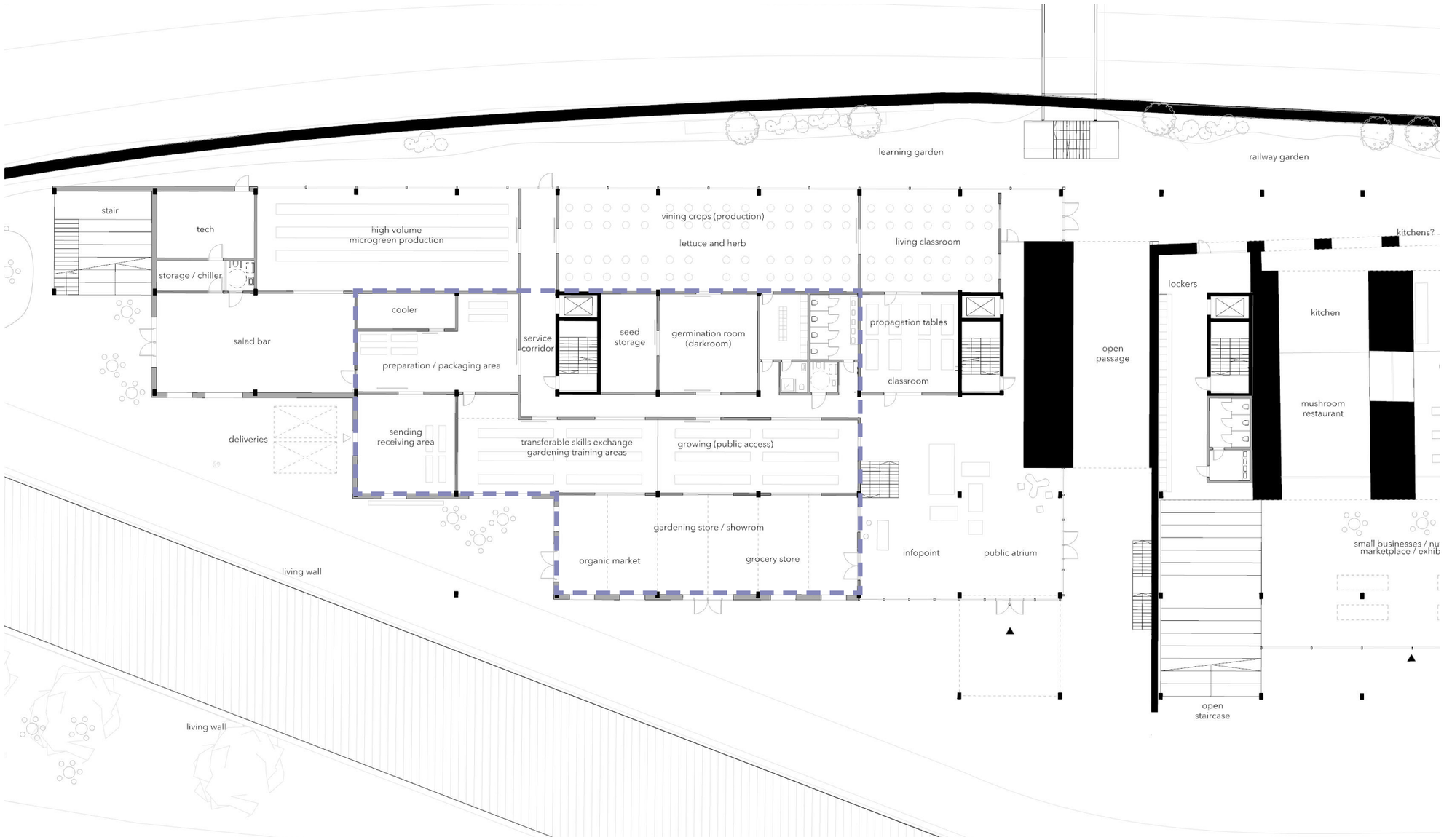


MASTERPLAN
GROUND FLOOR



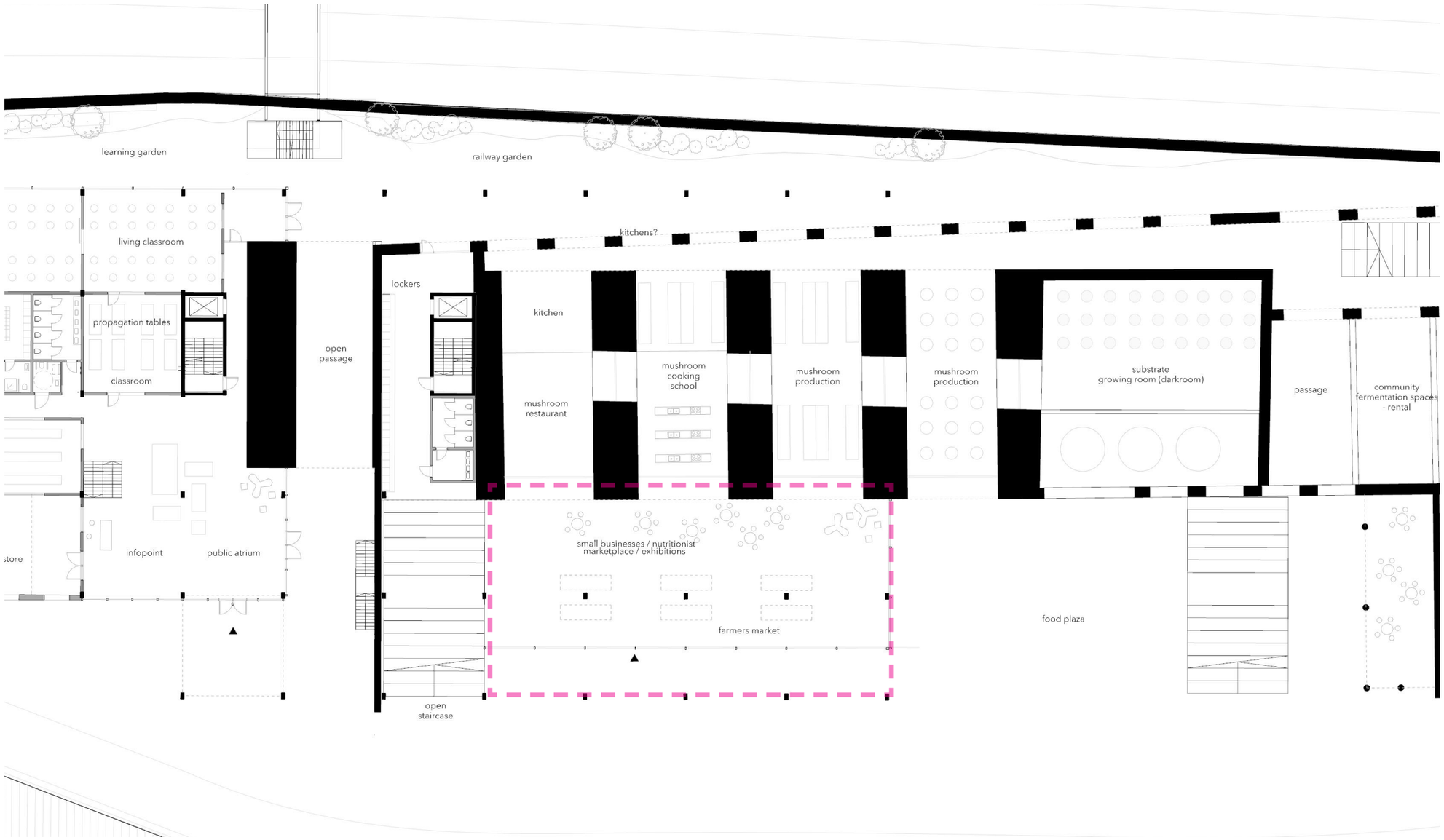
EDUCATIONAL ATRIUM
COMMUNITY FARMING

EDUCATIONAL ATRIUM
FARMING SCHOOL



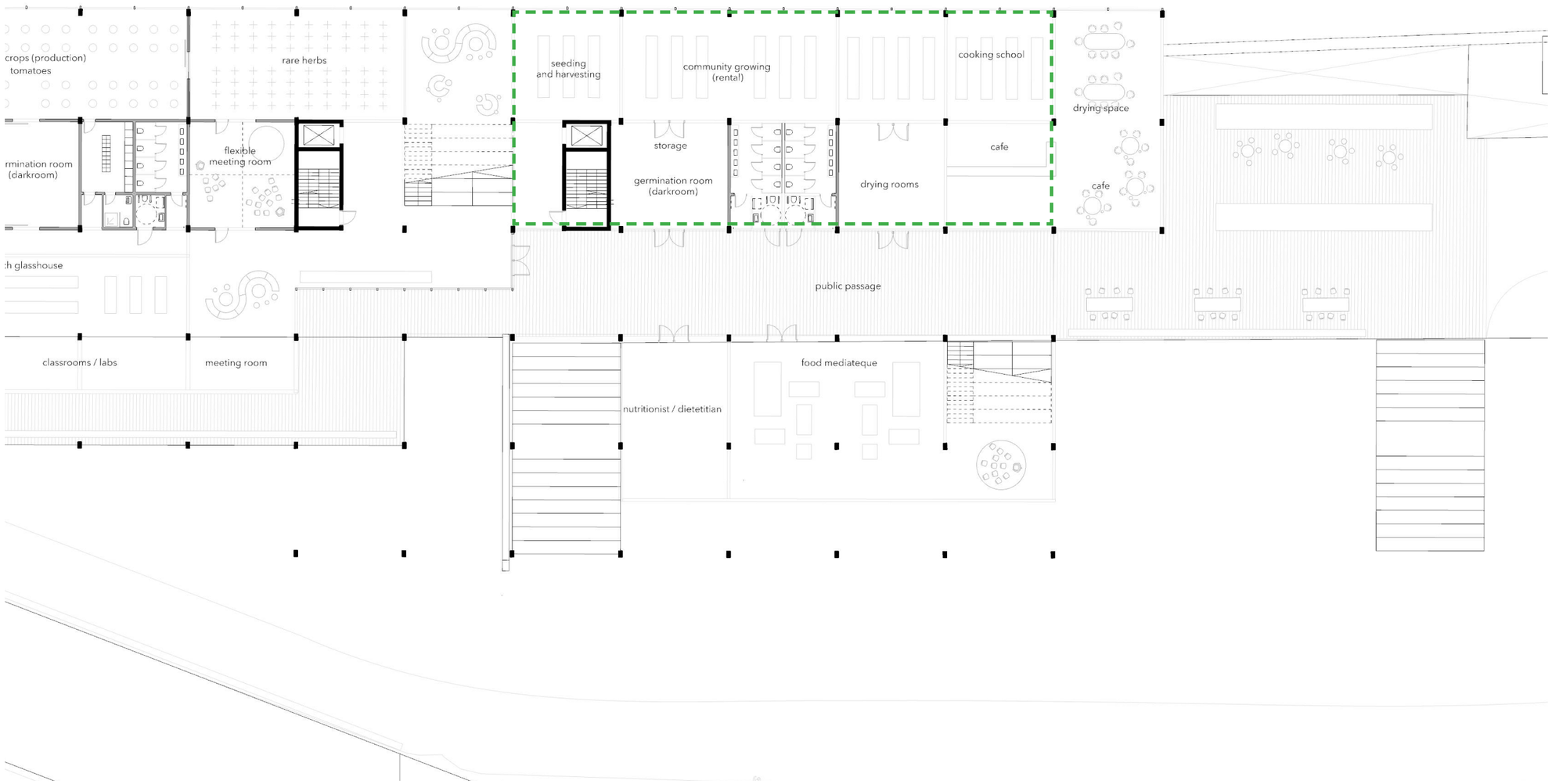
RESEARCH / STARTUP SPACES
INNOVATION BOOST

RESEARCH / STARTUP SPACES
INNOVATION BOOST



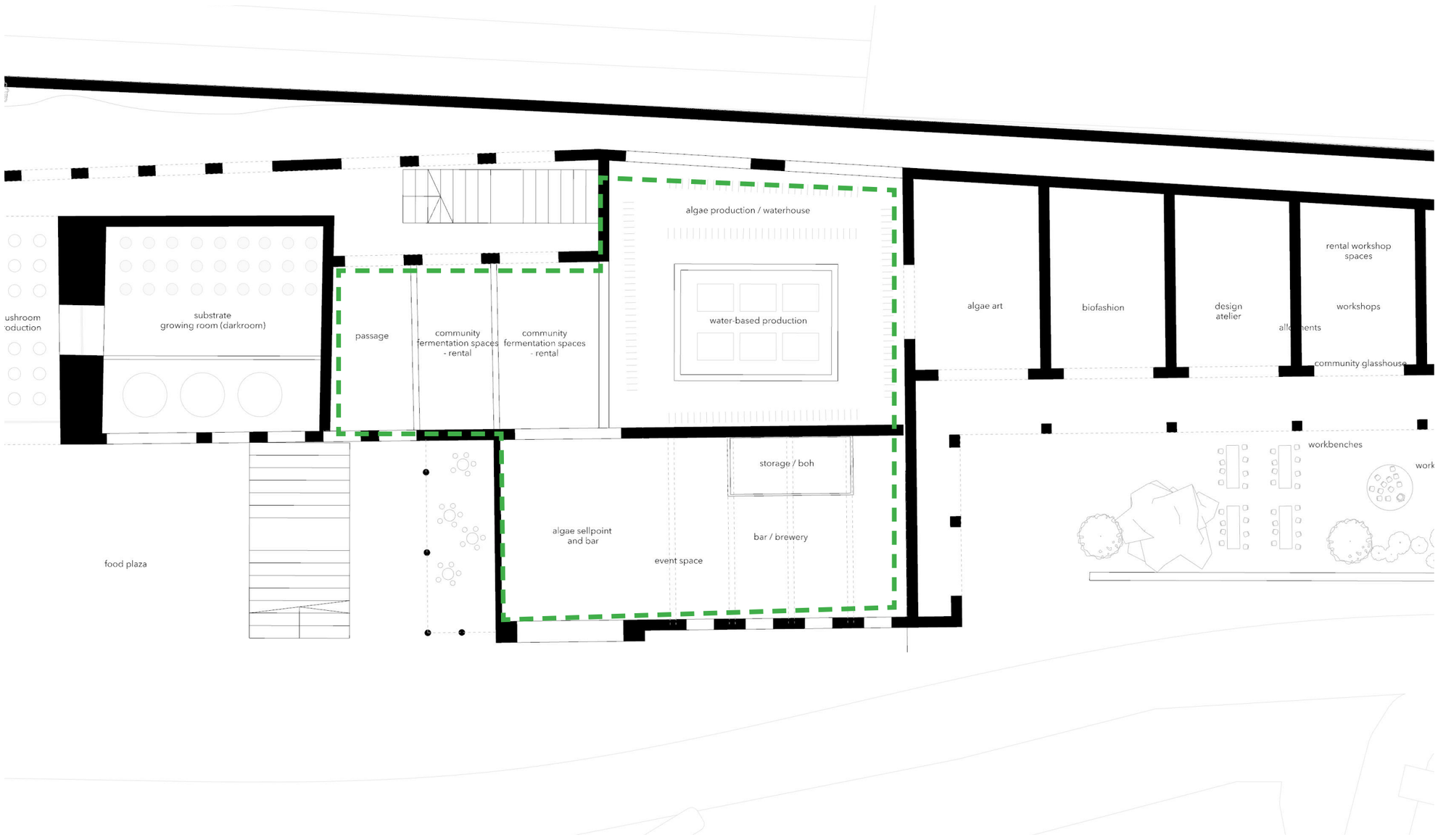
MARKET
COMMUNITY FARMING

MARKET
EXCHANGE



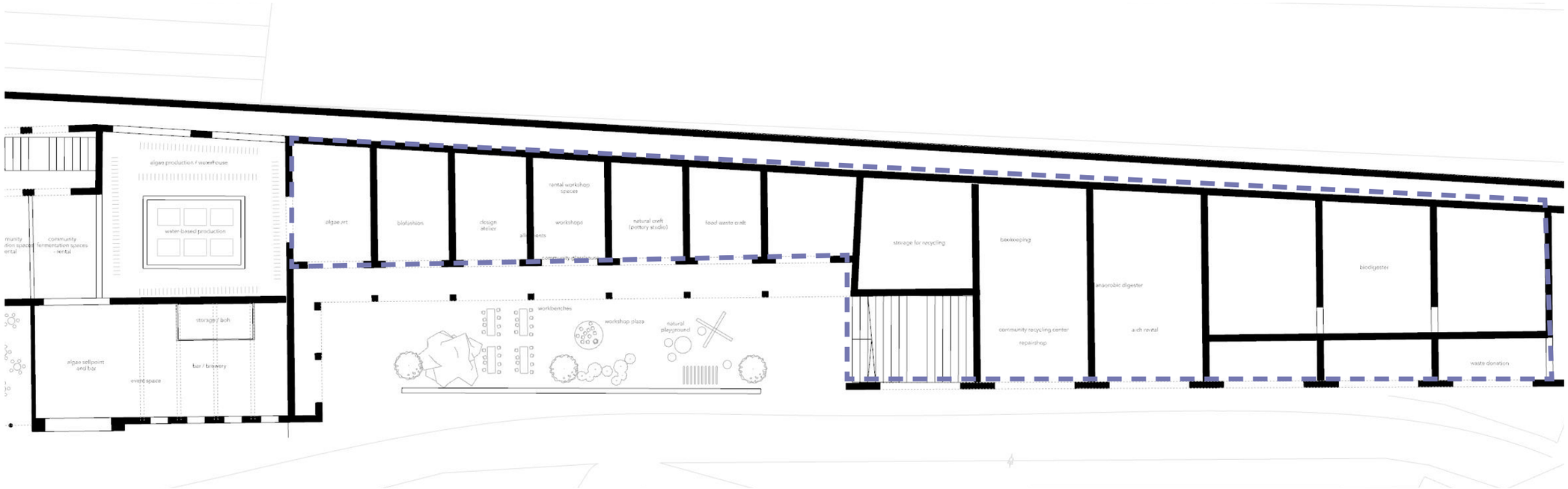
FARMING
COMMUNITY FARMING

FARMING
COMMUNITY FARMING



ALGAE / WATERHOUSE
FARMING

ALGAE / WATERHOUSE
FARMING



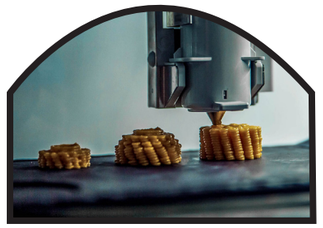
ARCHES
TRANSFORMATION

FOOD PRODUCTION
GROWING

FOOD TREATMENT
FERMENTATION / DRYING

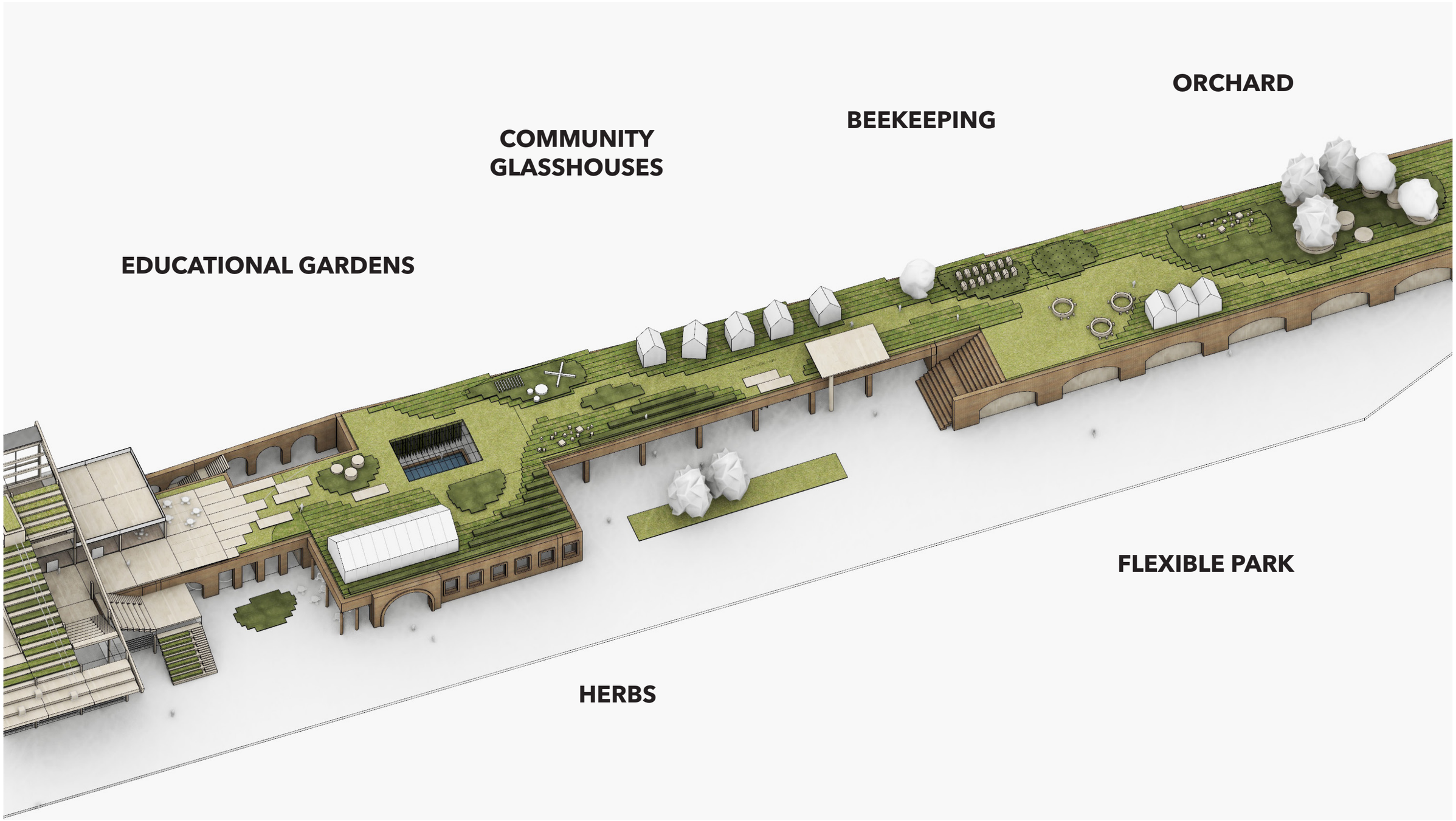
COMMUNITY
KITCHEN

WORKSHOP
CRAFTSMAN / ARTISTS / DESIGNERS



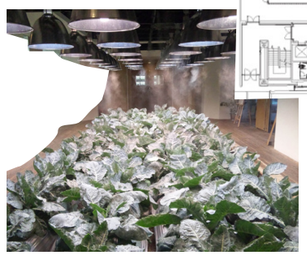
SMALL BUSINESS
STARTUP / INCUBATOR

FLEXIBILITY
USE ADJUSTED TO THE NEEDS

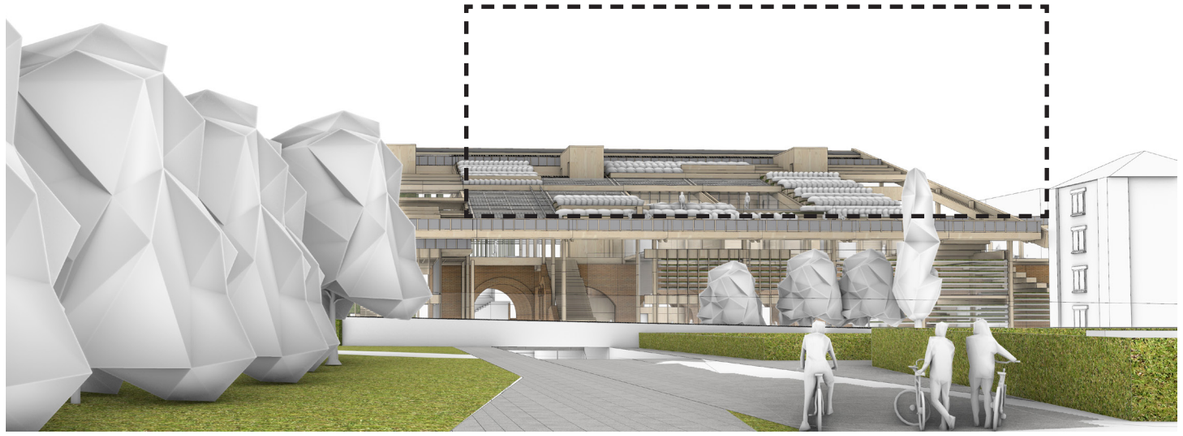


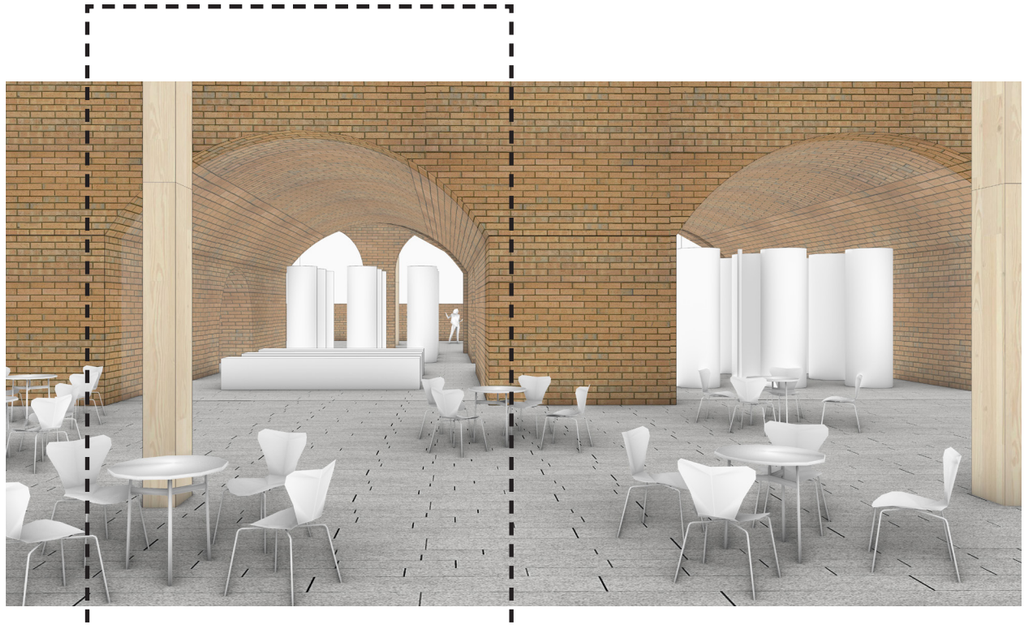
RAILWAY PARK
EDUCATION AND COMMUNITY

RAILWAY PARK
EDUCATION AND COMMUNITY

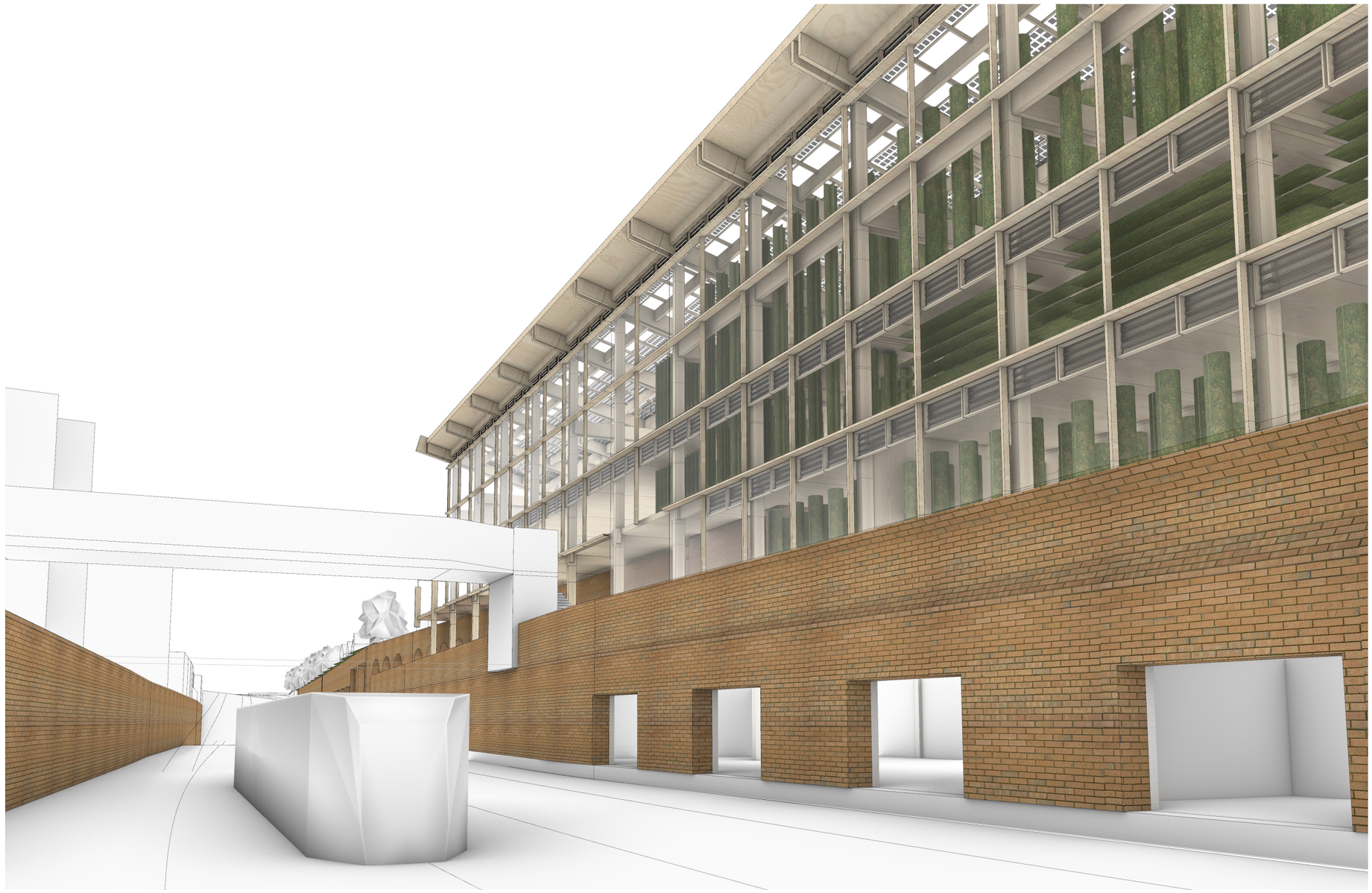


SMALL SCALE INDOOR FARMING
VISIBILITY





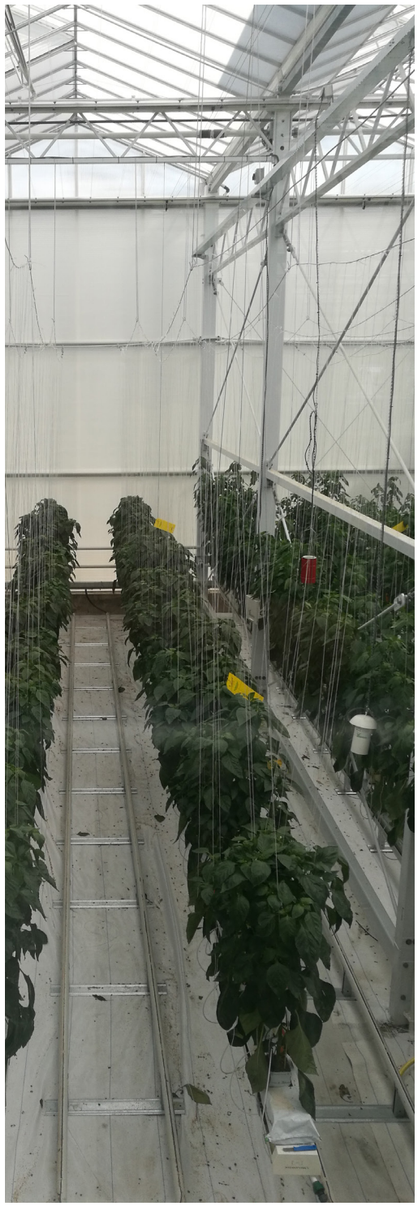
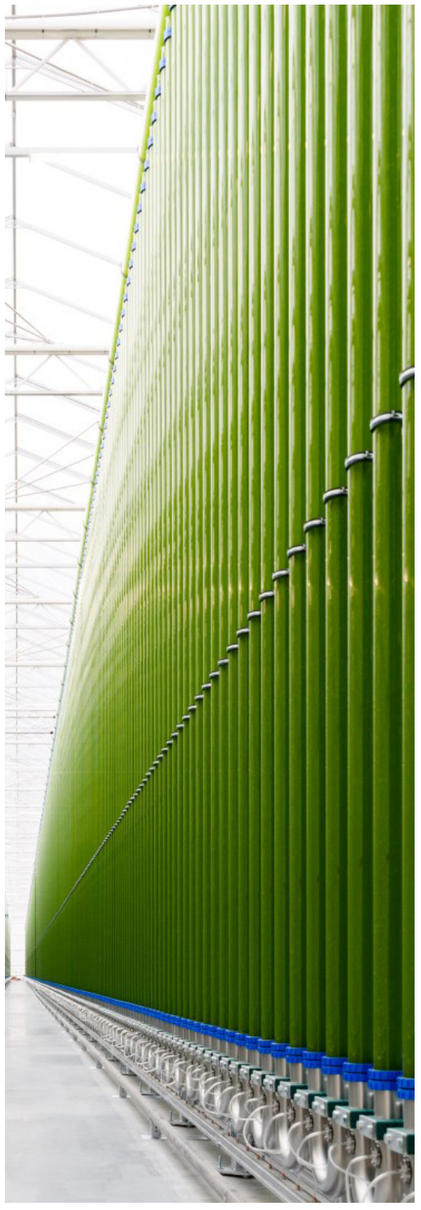
FARMING
VISIBILITY FROM OUTSIDE



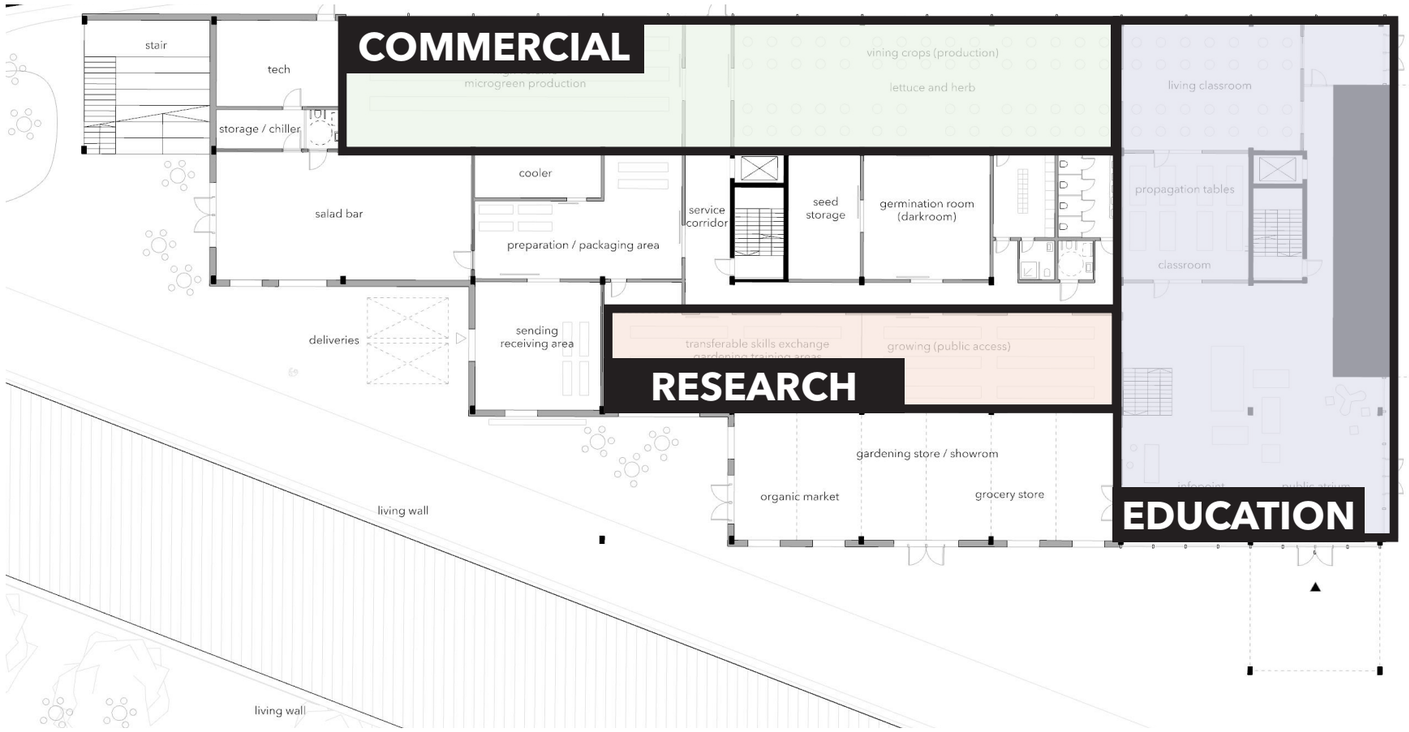
FARMING
VISIBILITY FROM OUTSIDE

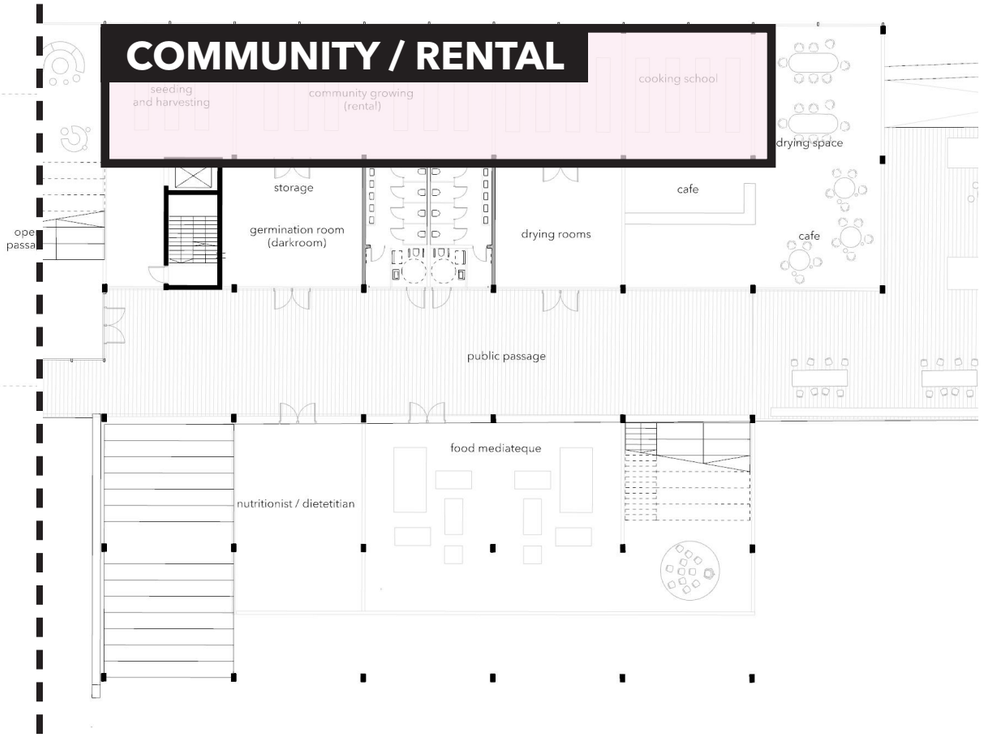
FARMING

FARMING
TECHNOLOGY

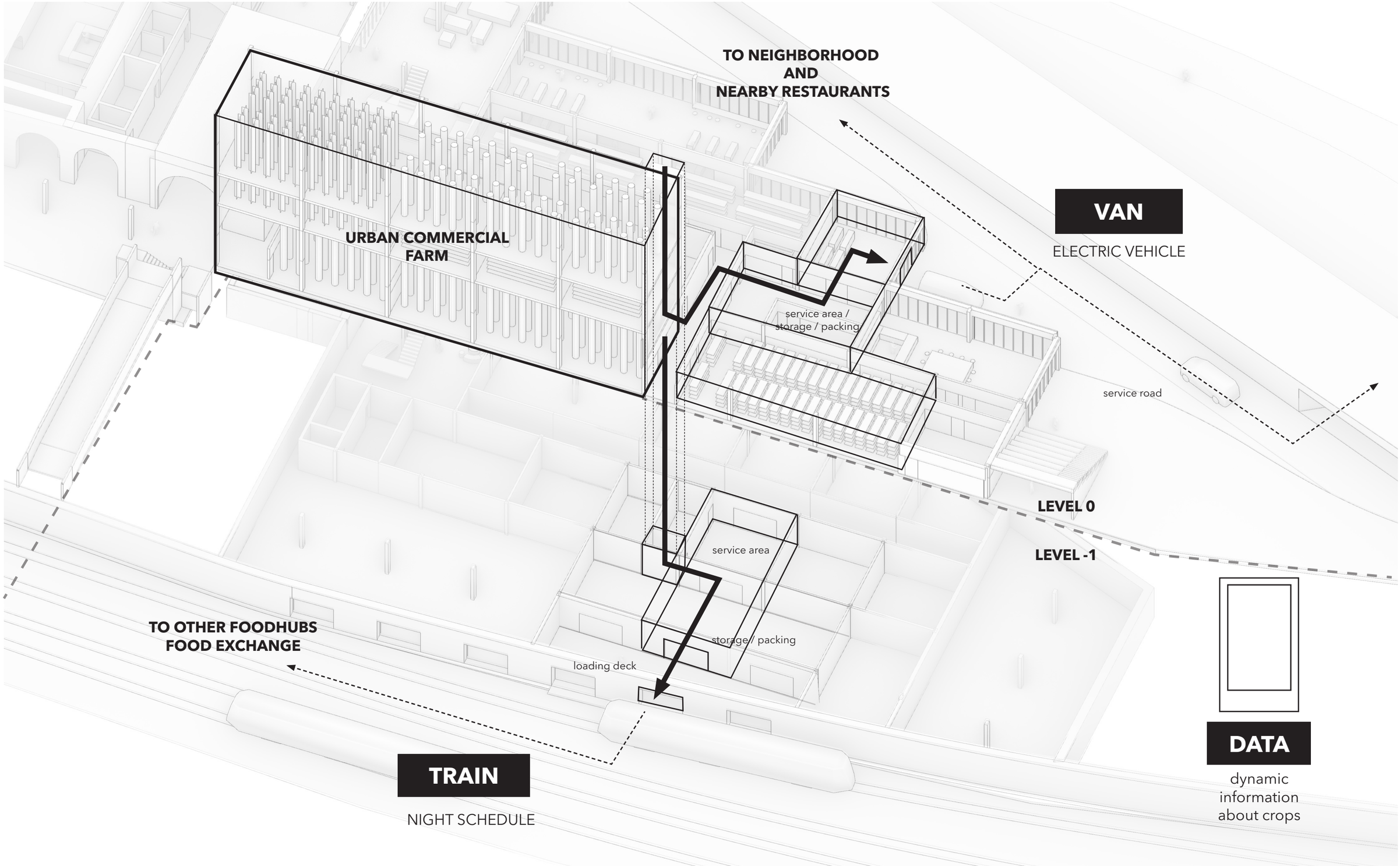

URBAN FARMING
LIGHT CONDITIONS



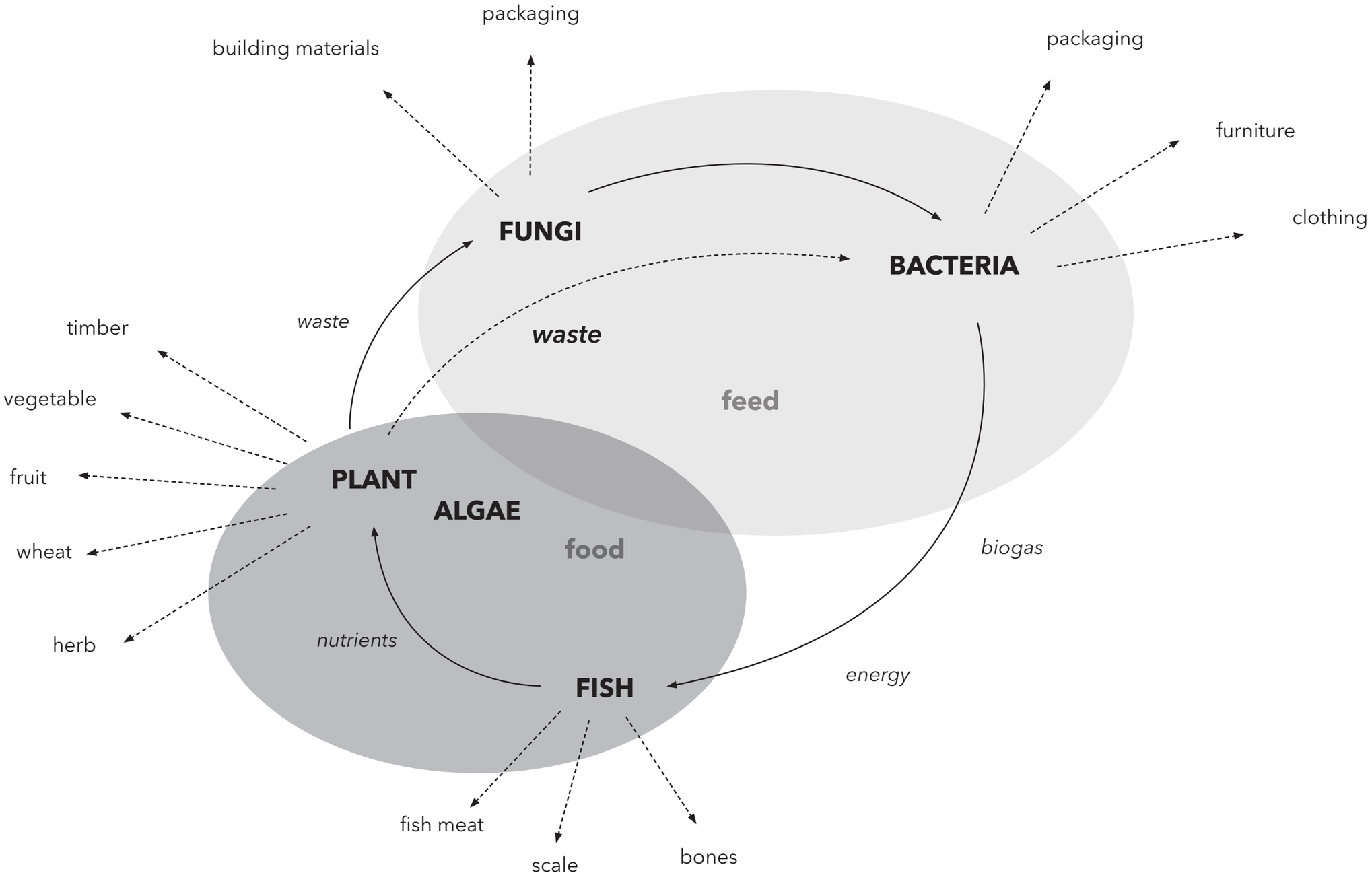


1-4 LEVEL **0 LEVEL** **2-4 LEVEL**

FARMING FACILITIES
USE



SUPPLY
TRANSPORTATION

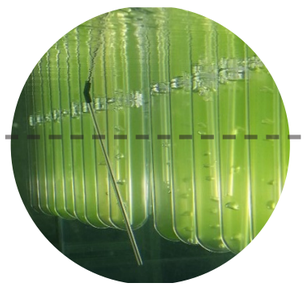


MATTER
PRODUCT SYNERGY

VEGETABLES
GROWING

LEAFY GREENS
GROWING

PLANT
DRYING



ALGAE

PLANTS
GERMINATION

FUNGI

FISH
AQUAPONICS

BACTERIA
FERMENTATION

PRODUCE
TYPES AND TREATMENT

greenhouse farm

strings

stacked

mill

algae wall

wall

column

shelves

polder

algae roof

pockets

bag

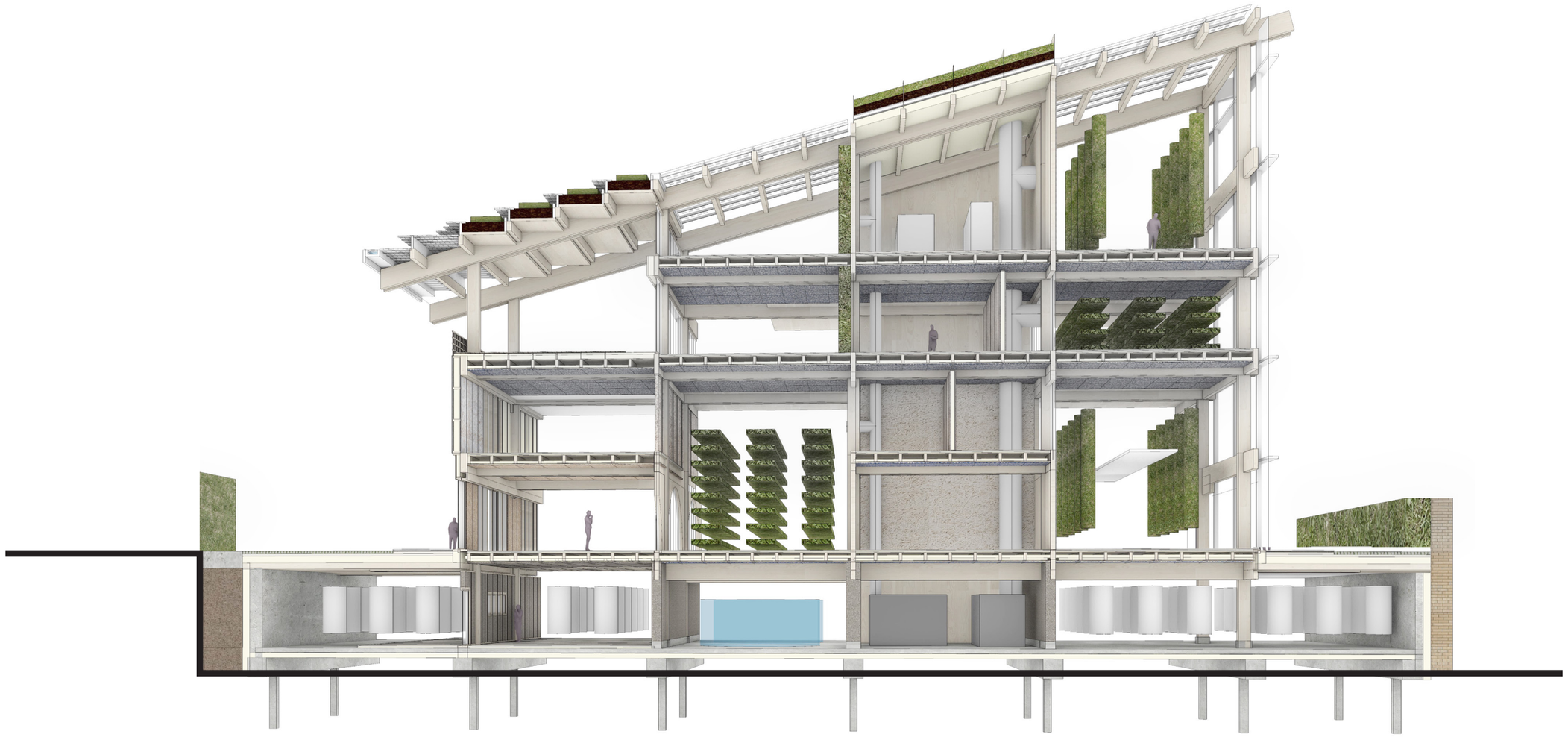
tile

box

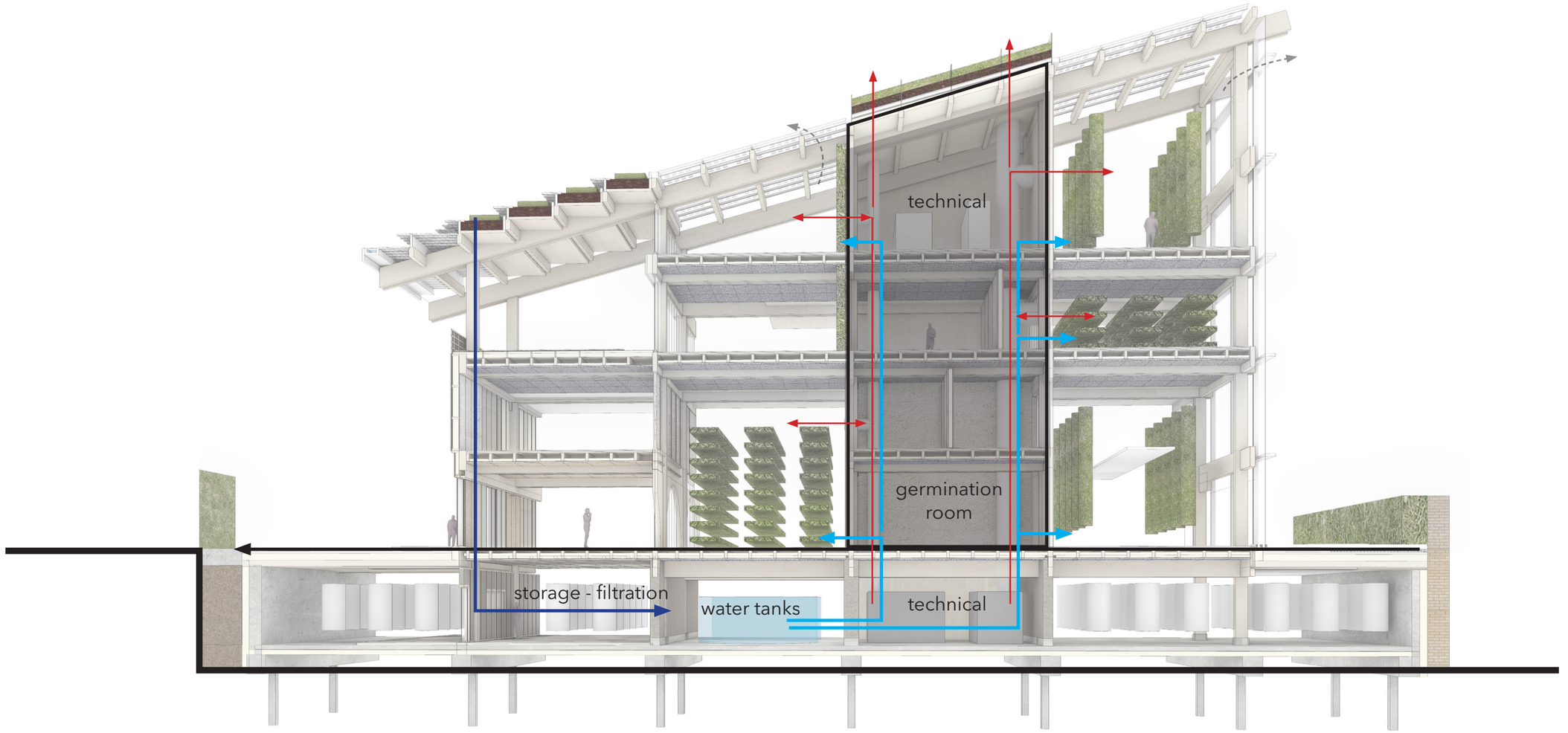
pool

FARMING TYPES
EQIPMENT

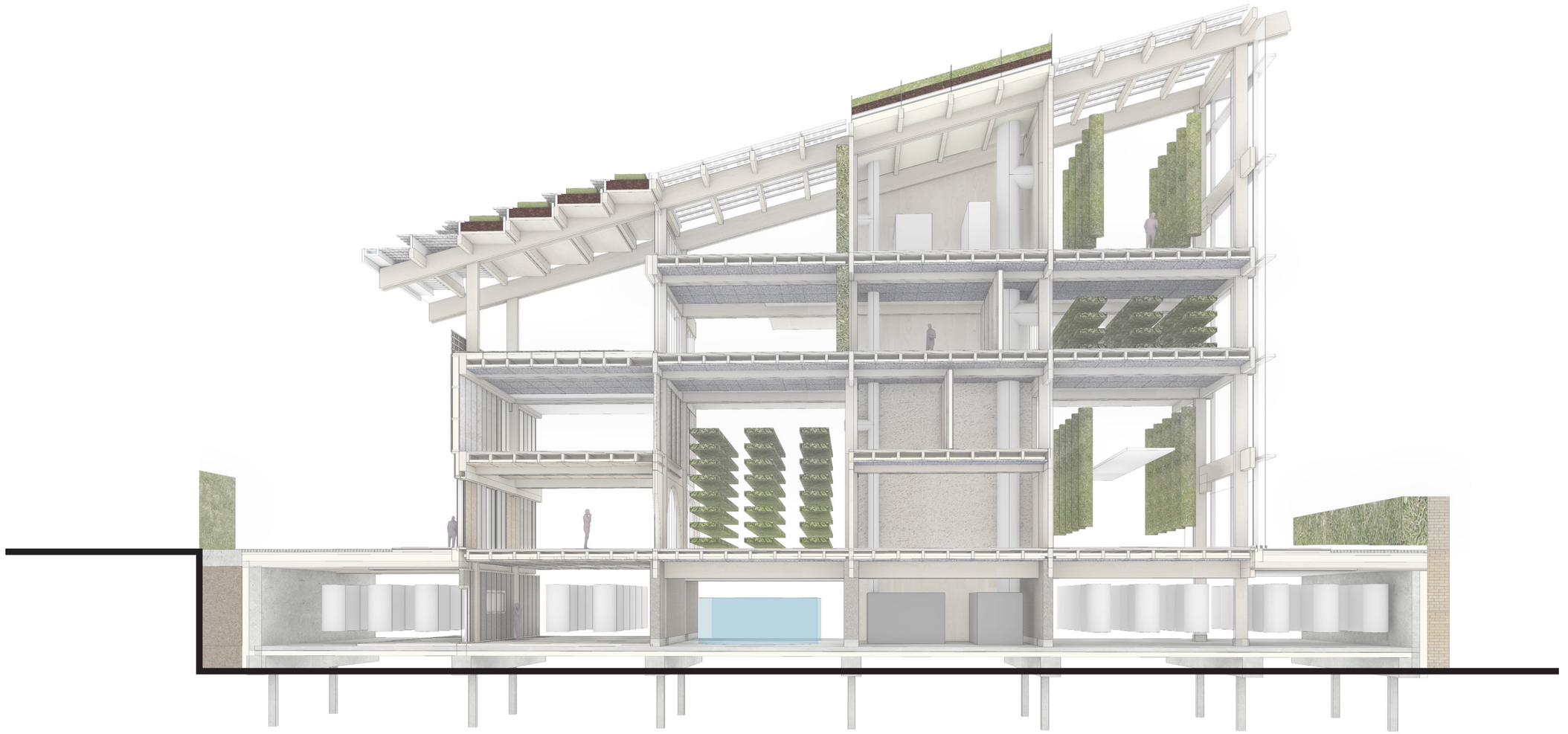
SOCIAL	RESERACH	TECHNICAL	FARMING
social programs	farming and labs	core supplying growing spaces	commercial farm



DIVISION
FOOD HUB



AIR AND WATER
FOOD HUB



CLIMATE ZONES
INDOOR FARMING

E. ROOFTOP

-5-25 oC

50-90%

natural

A. HOT GREENHOUSE

23-25 oC

60%

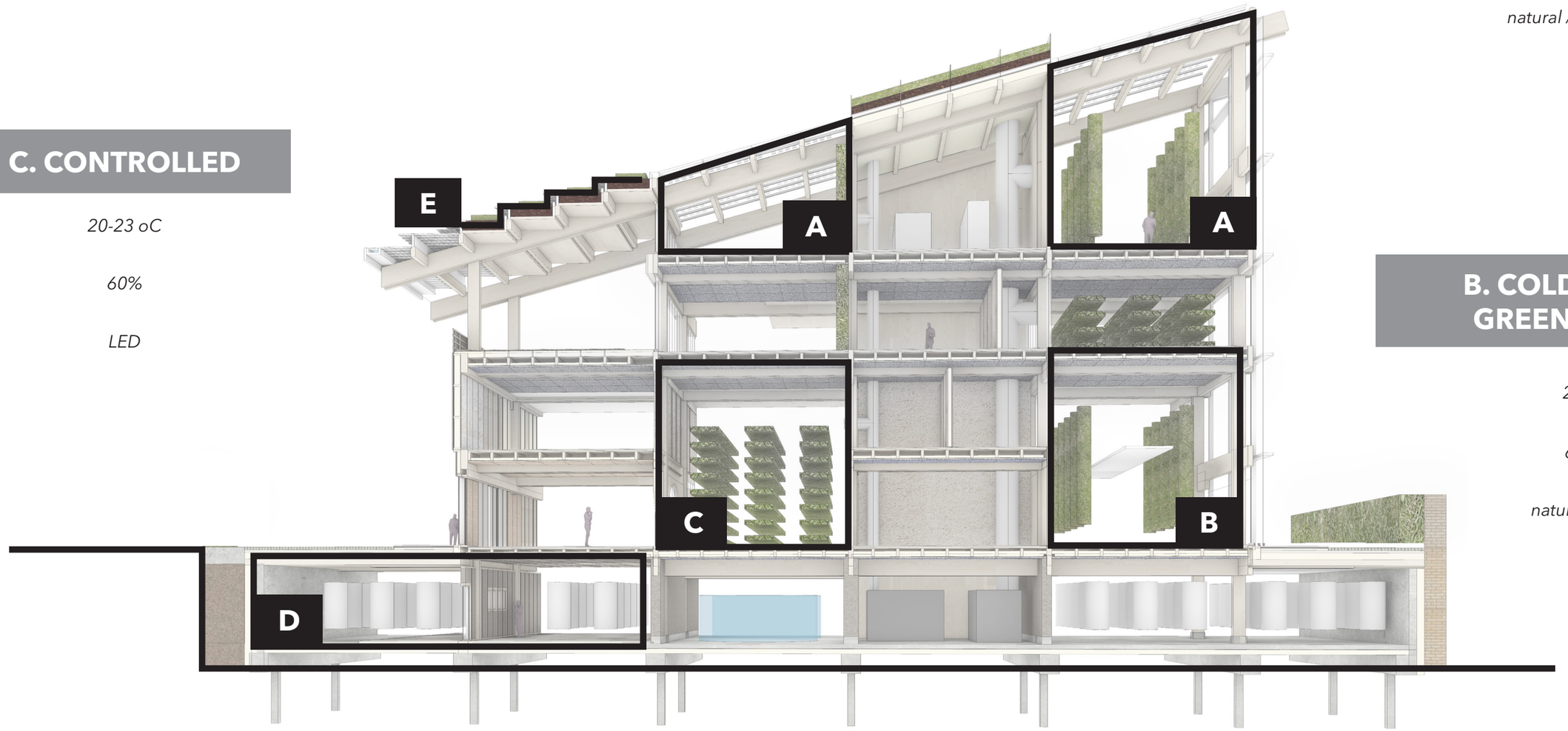
natural / LED

C. CONTROLLED

20-23 oC

60%

LED



B. COLD-WARM GREENHOUSE

20 oC

60%

natural / LED

D. BASEMENT

16-20 oC

70-80%

dark / LED

CLIMATE ZONES
INDOOR FARMING

A. HOT GREENHOUSE

23-25 oC

60%

natural / LED

B. COLD-WARM GREENHOUSE

20 oC

60%

natural / LED

C. CONTROLLED

23 oC

60%

LED

D. BASEMENT

16-20 oC

70-80%

dark / LED

cucumber

pepper

tomatoes

eggplant

green beans

carrots

strawberries

lettuce

spinach

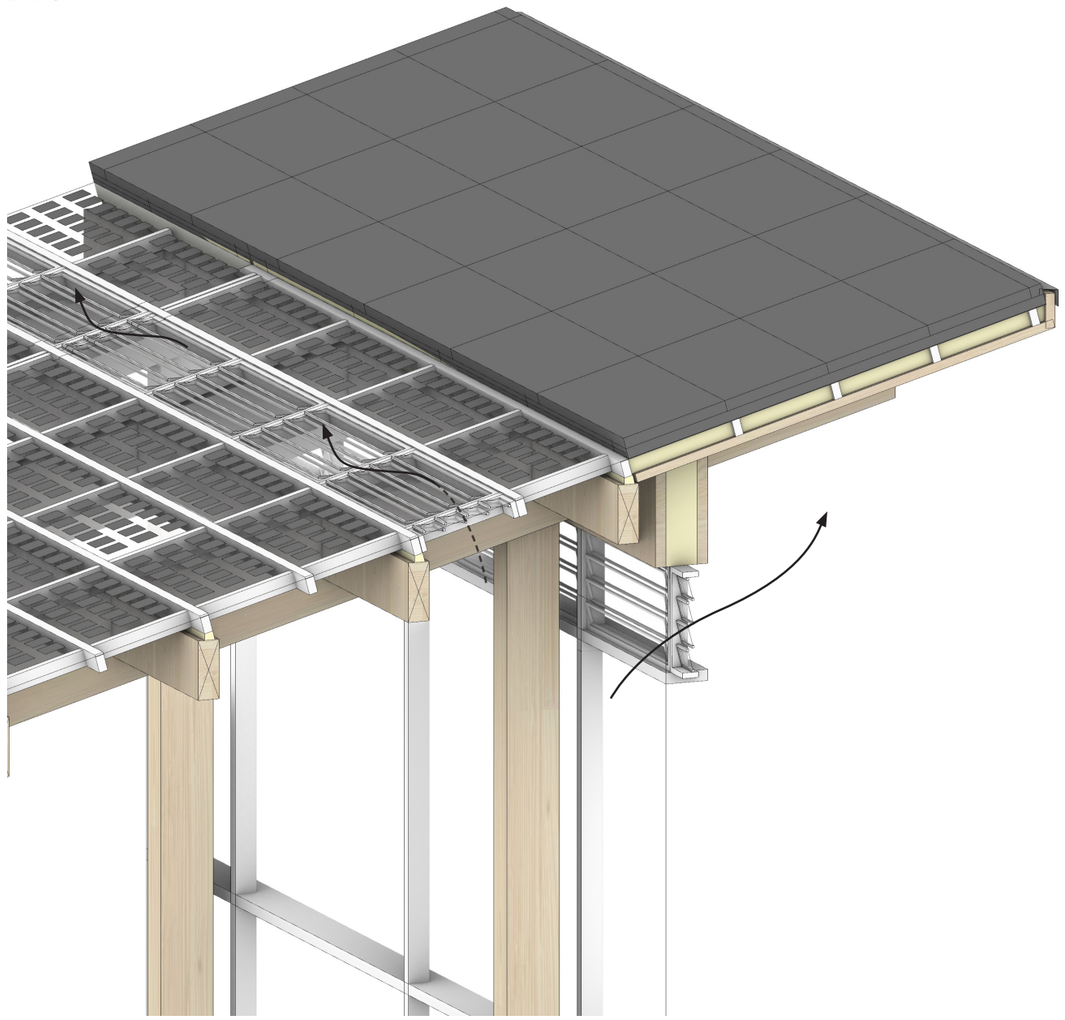
microgreens

leafy greens

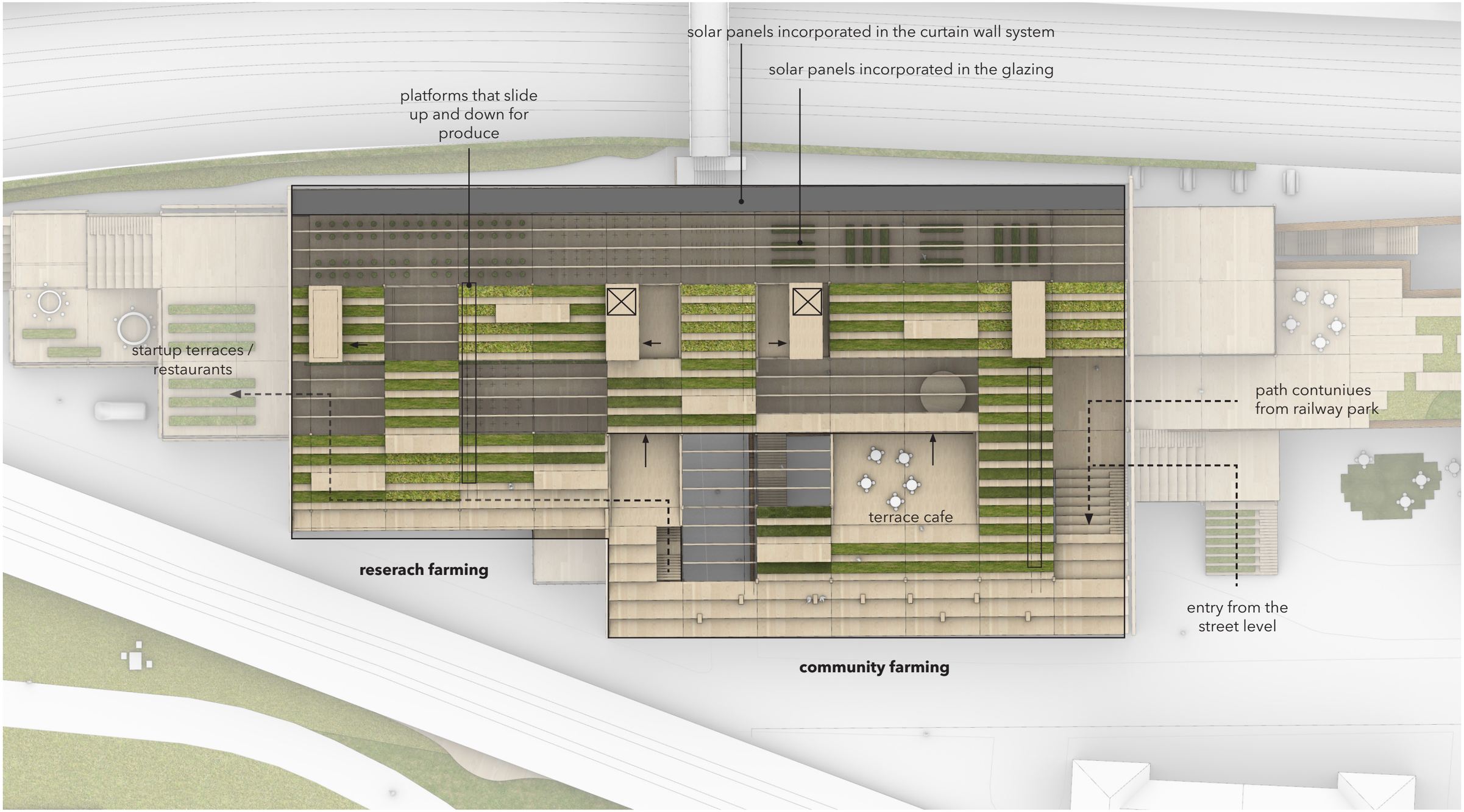
mushrooms

PRODUCE TYPES
INDOOR FARMING

Glasscon automatic louvre windows for greenhouse ventilation



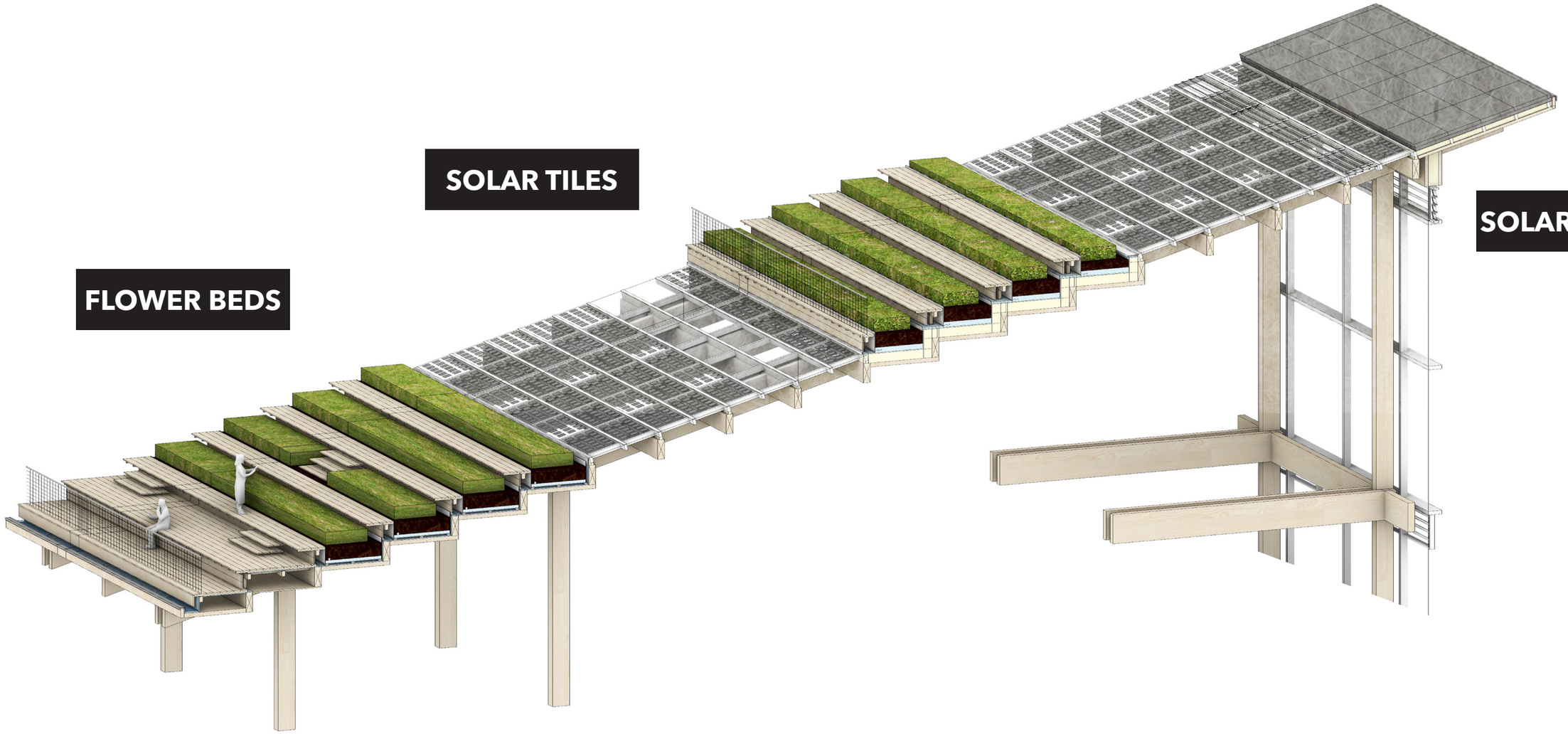
CLIMATE
VENTILATION



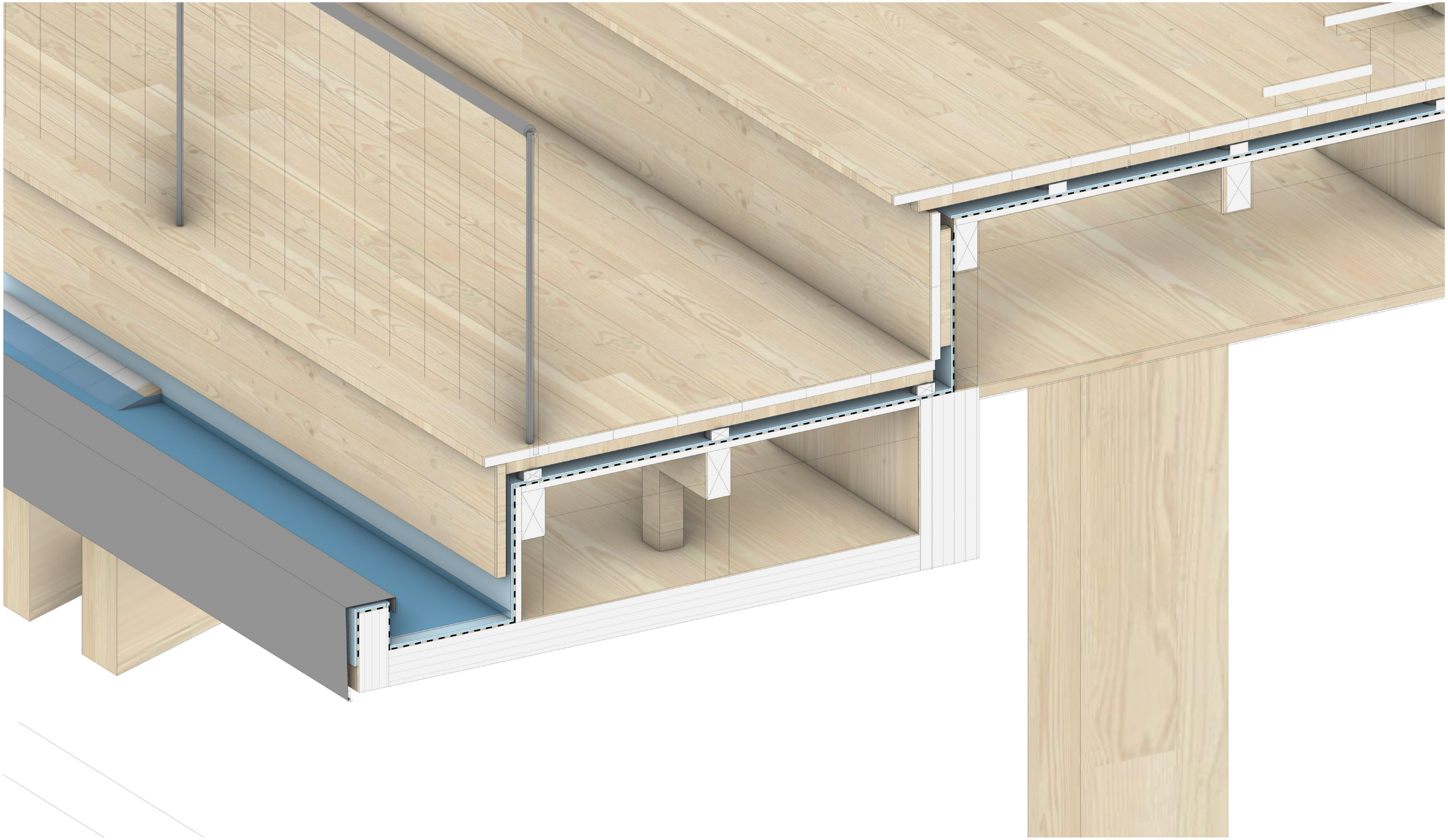
ROOFTOP FARMING
RESEARCH / COMMUNITY ACCESS

ROOFTOP PUBLIC ACCESS
FARMING CAFE

ROOFTOP PATTERN
SEASONAL PRODUCE



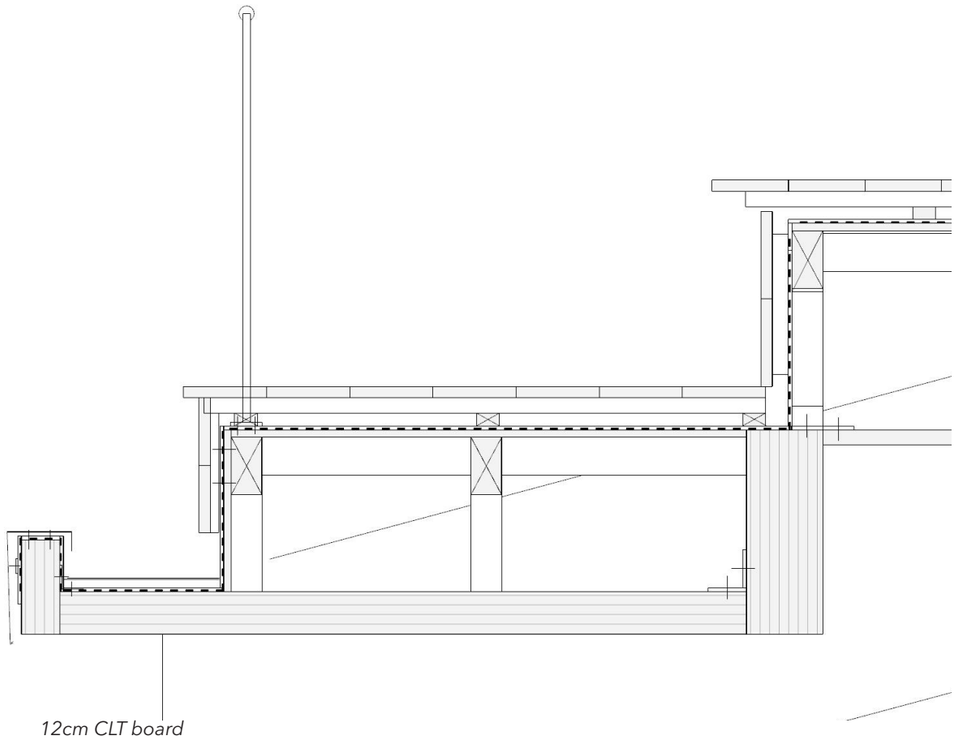
ROOFTOP
TECHNOLOGY



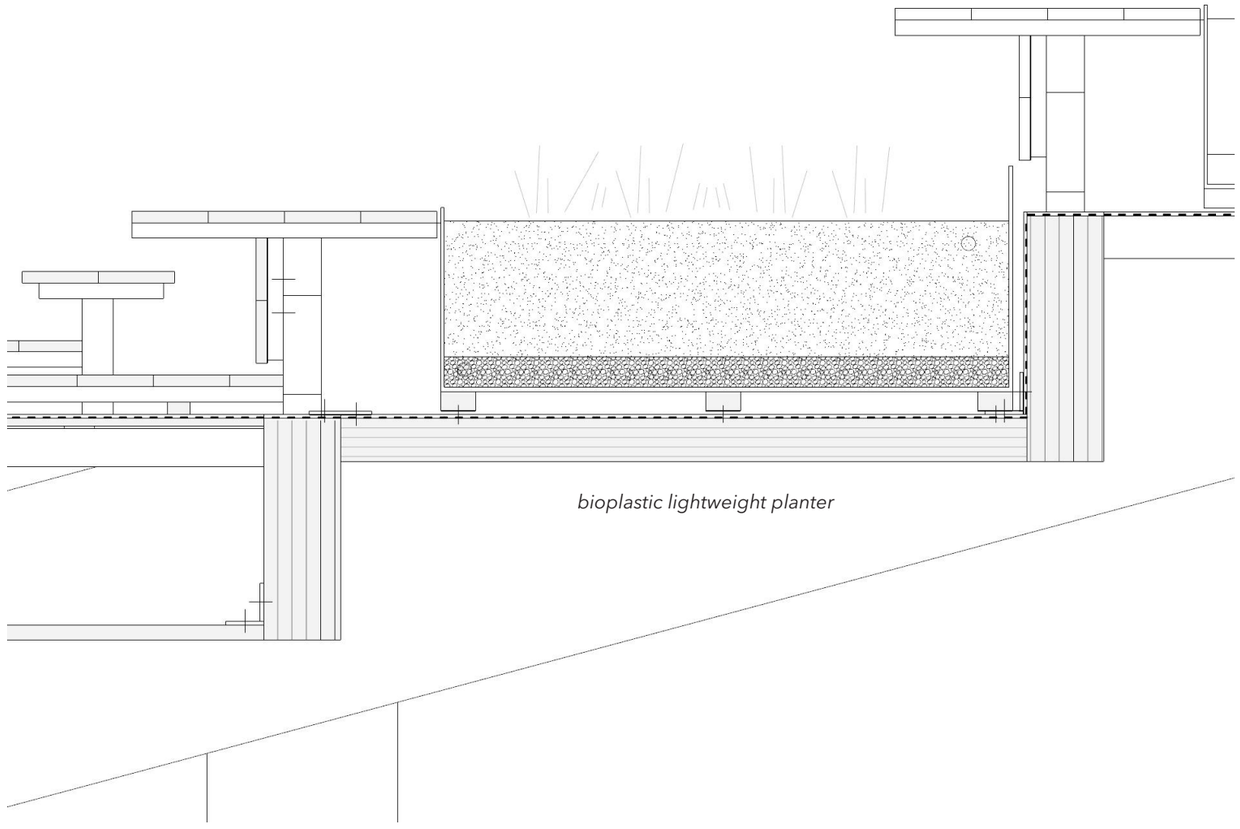
ROOFTOP
TECHNOLOGY

ROOF_TERRACE
3cm - planks - NEOLIFE (wood composite)
terrace substructure
- waterproofing layer

2cm - OSB board
60x20 cm ceiling beams - gluelam
5cm - CLT board



ROOF PLANTER
extensive planting
soil
filter fabric
drainage and storage layer (PermaSEAL)
root barrier
waterproof membrane



ROOFTOP
TECHNOLOGY

MATERIALS

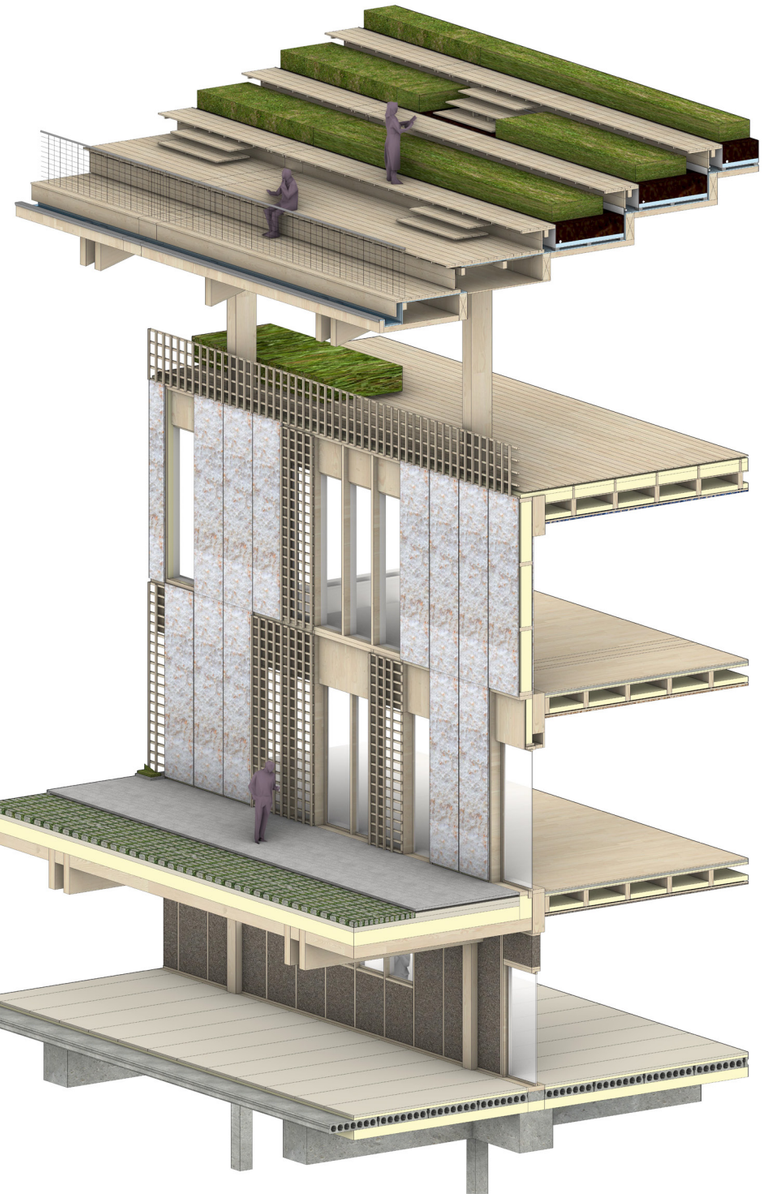
MATERIALITY
SHOWCASING / EDUCATION

EXTERIOR

biocomposite flooring

mycelium

biolith tile

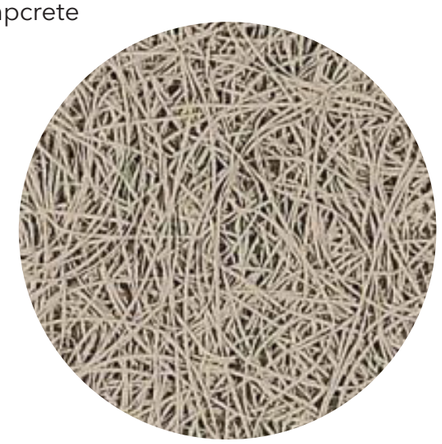


INTERIOR

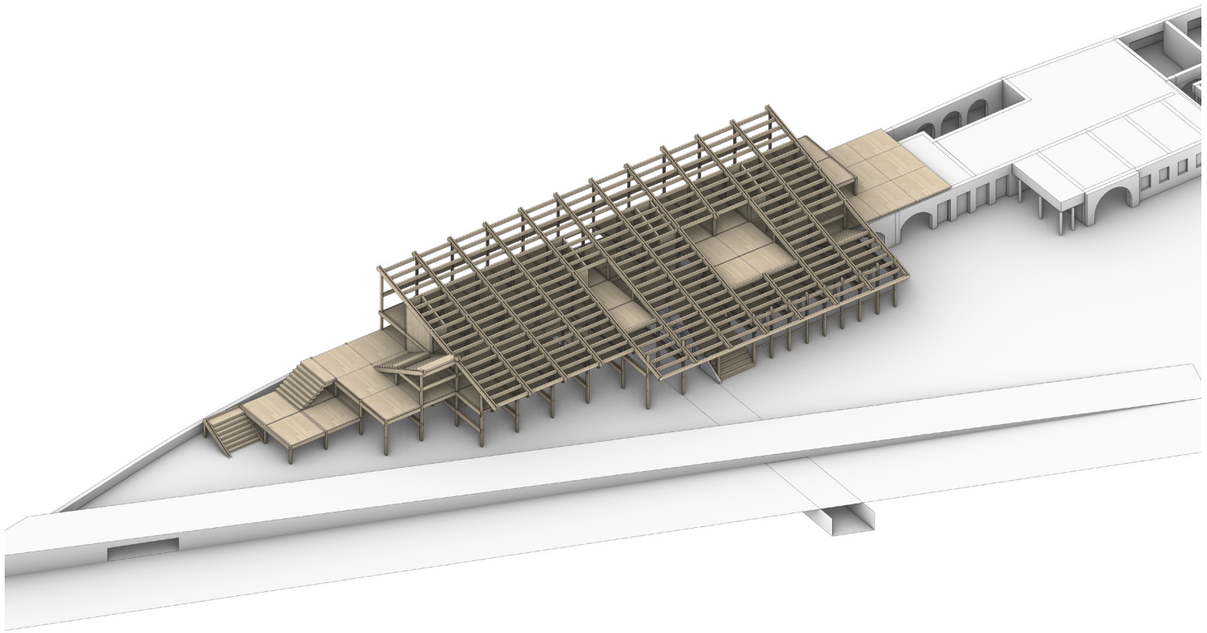
CLT

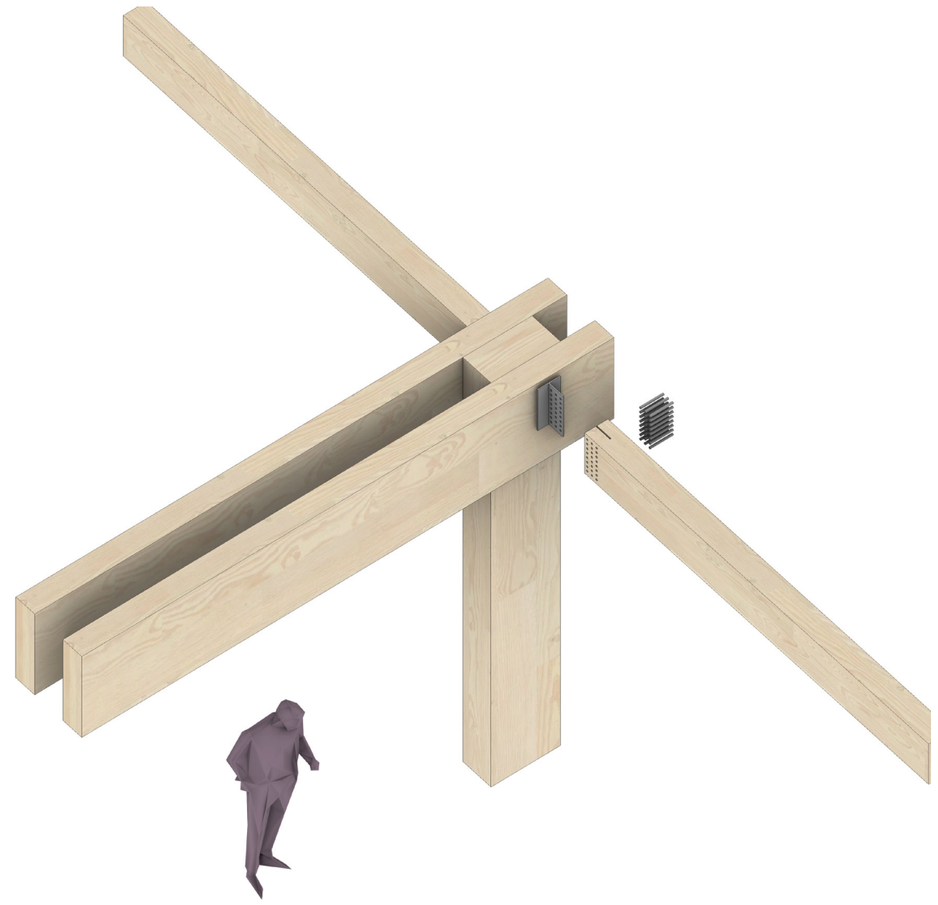
organoid panels

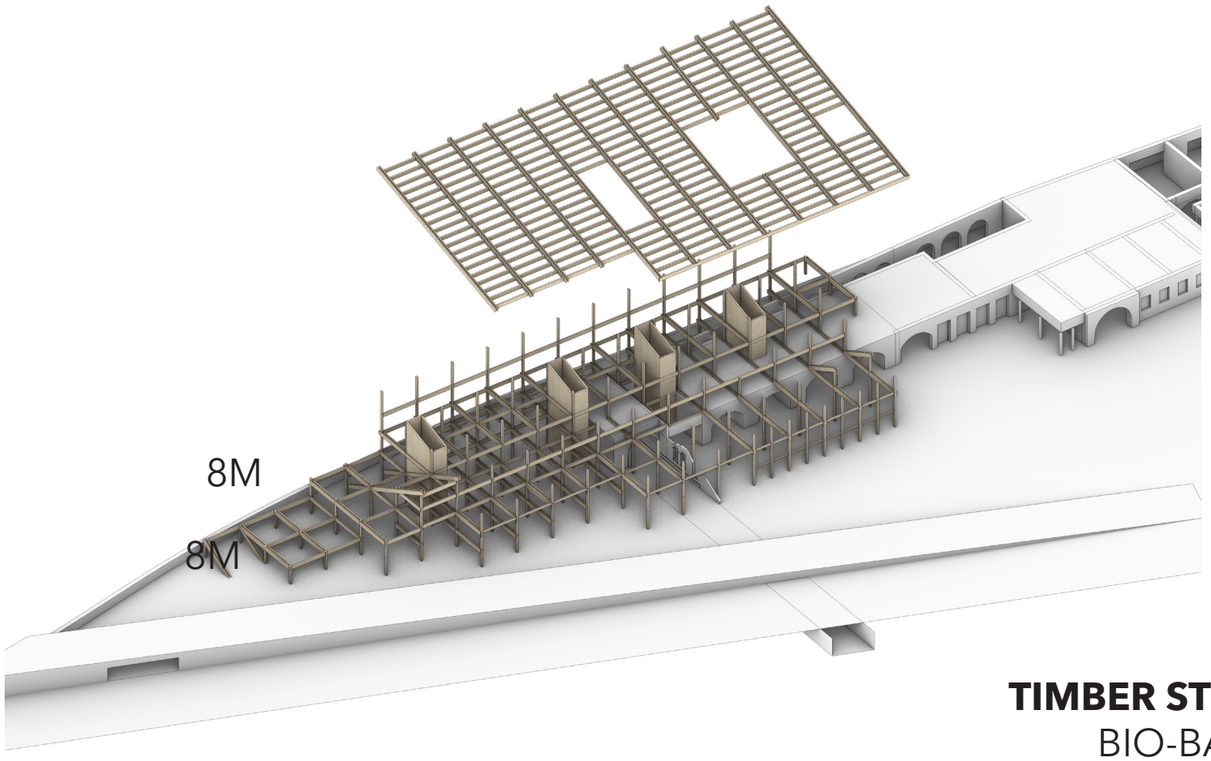
hempcrete



BIO-BASED MATERIALS
SHOWCASING / EDUCATION

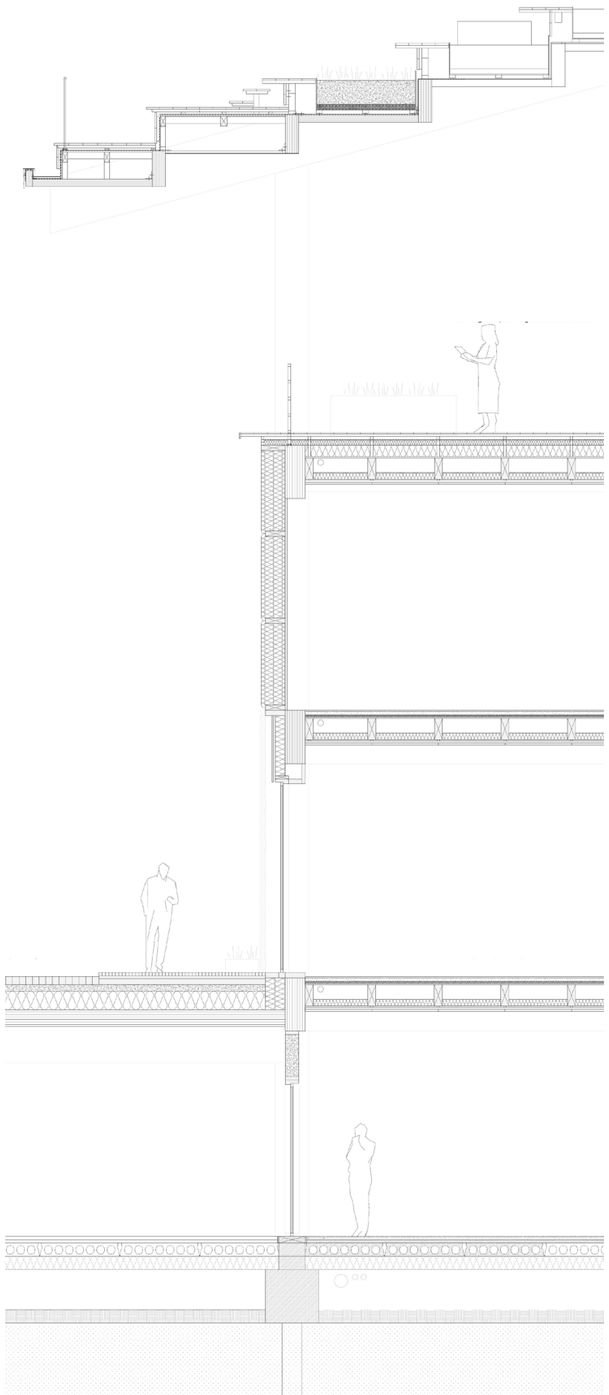






TIMBER STRUCTURE
BIO-BASED

MYCELIUM
FACADE

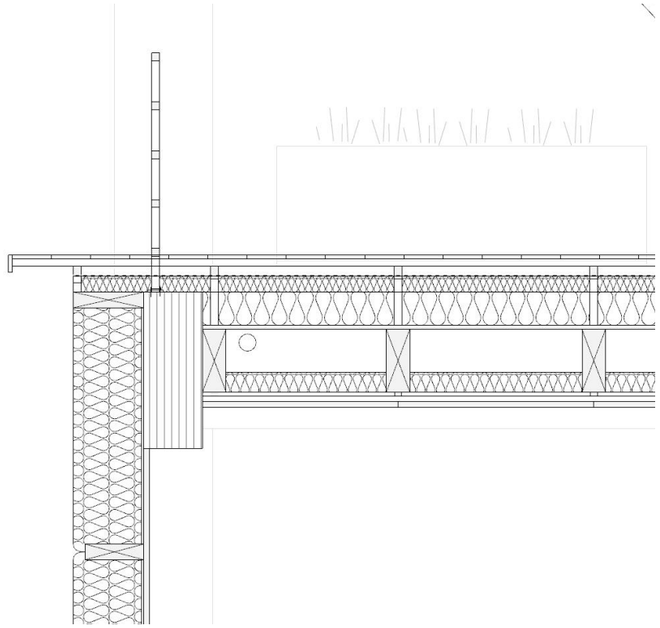


BIO-BASED MATERIALS - FACADE

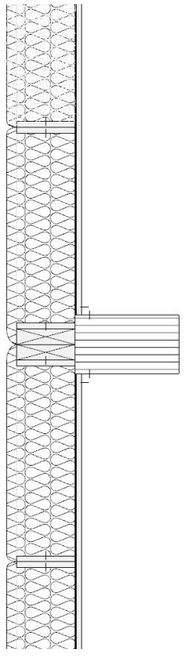
SHOWCASING / EDUCATION

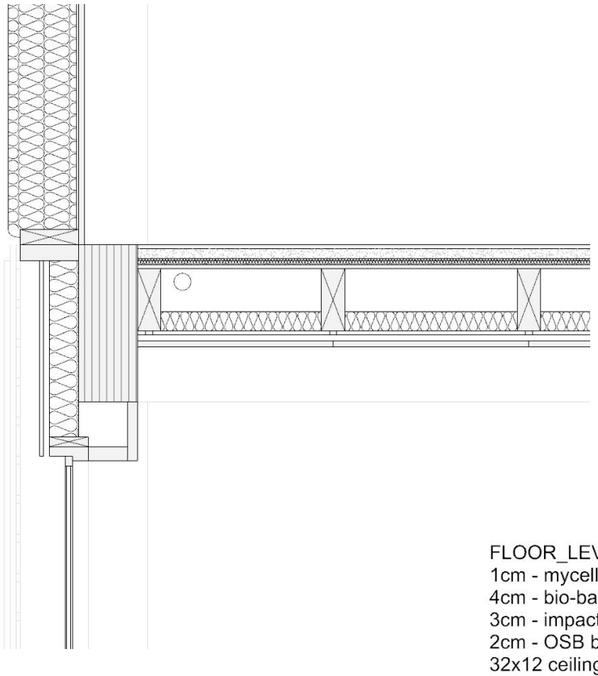
FLOOR_TERRACE
3cm - planks - NEOLIFE (wood composite)
terrace substructure
- waterproofing layer
20cm - insulation

2cm - OSB board
32x12 cm ceiling beams - gluelam
5cm - acoustic insulation
4cm - panel substructure
3cm - organoid panel - agricultural waste material



WALL EXTERNAL
35cm - mycellium panel
- timber modular substructure
- bioplastic vapour barrier
3cm - organoid (bio-based panel)



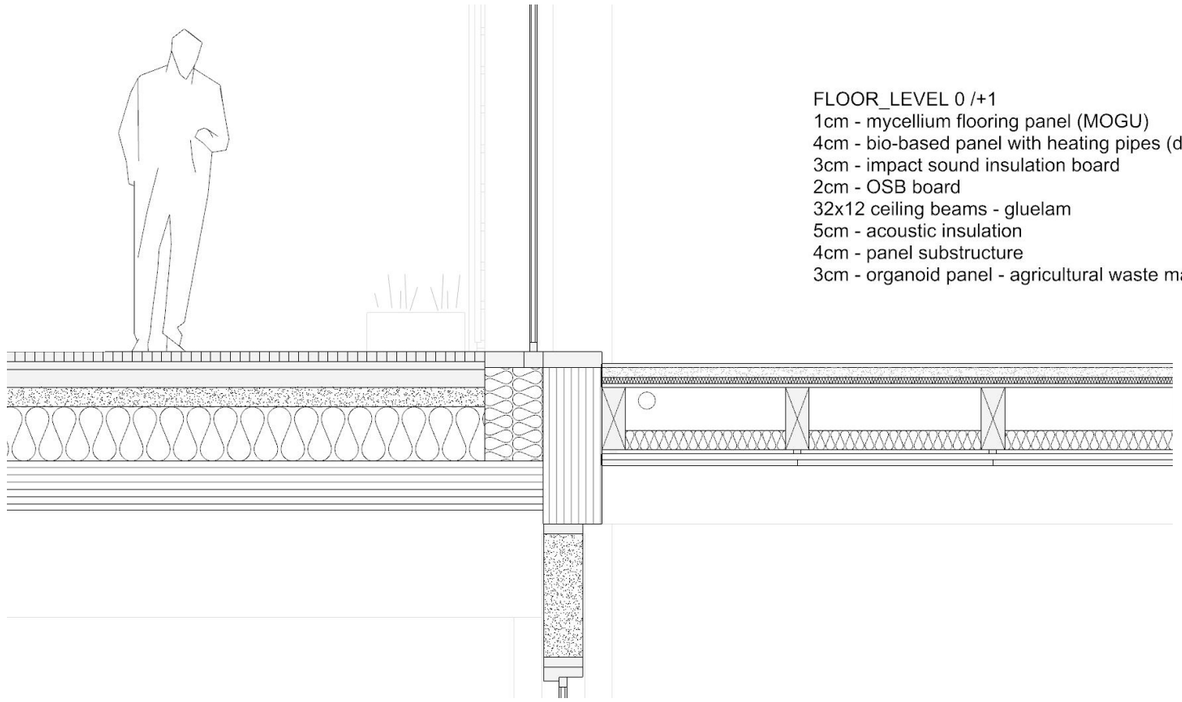


FLOOR_LEVEL 0 /+1
1cm - mycellium flooring panel (MOGU)
4cm - bio-based panel with heating pipes (dry construc
3cm - impact sound insulation board
2cm - OSB board
32x12 ceiling beams - gluelam
5cm - acoustic insulation
4cm - panel substructure
3cm - organoid panel - agricultural waste material

BIO-BASED
BUILDING TECHNOLOGY

FLOOR_LEVEL 0 / outside
1cm - Biolith paving
10cm stabilizing layer - sand
- waterpproofing layer
25cm - insulation
25cm - CLT slab
80cm - glulam beam (main structure)

biolith tile



FLOOR_LEVEL 0 /+1
1cm - mycellium flooring panel (MOGU)
4cm - bio-based panel with heating pipes (dry construction)
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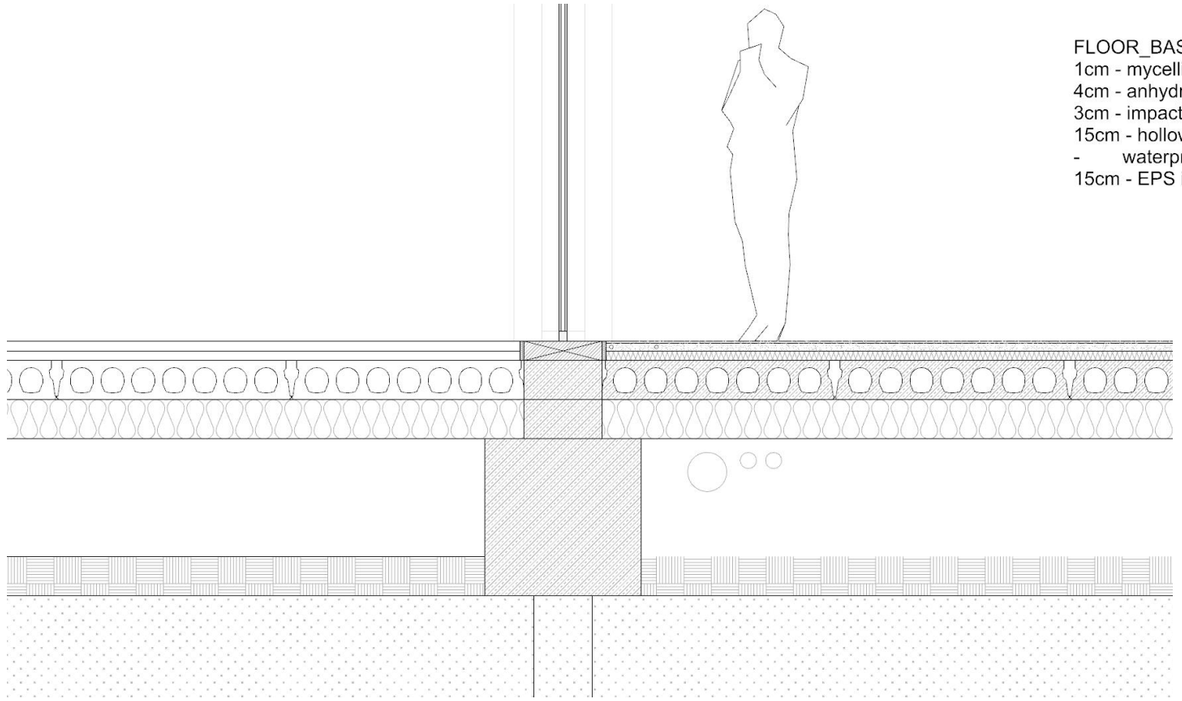
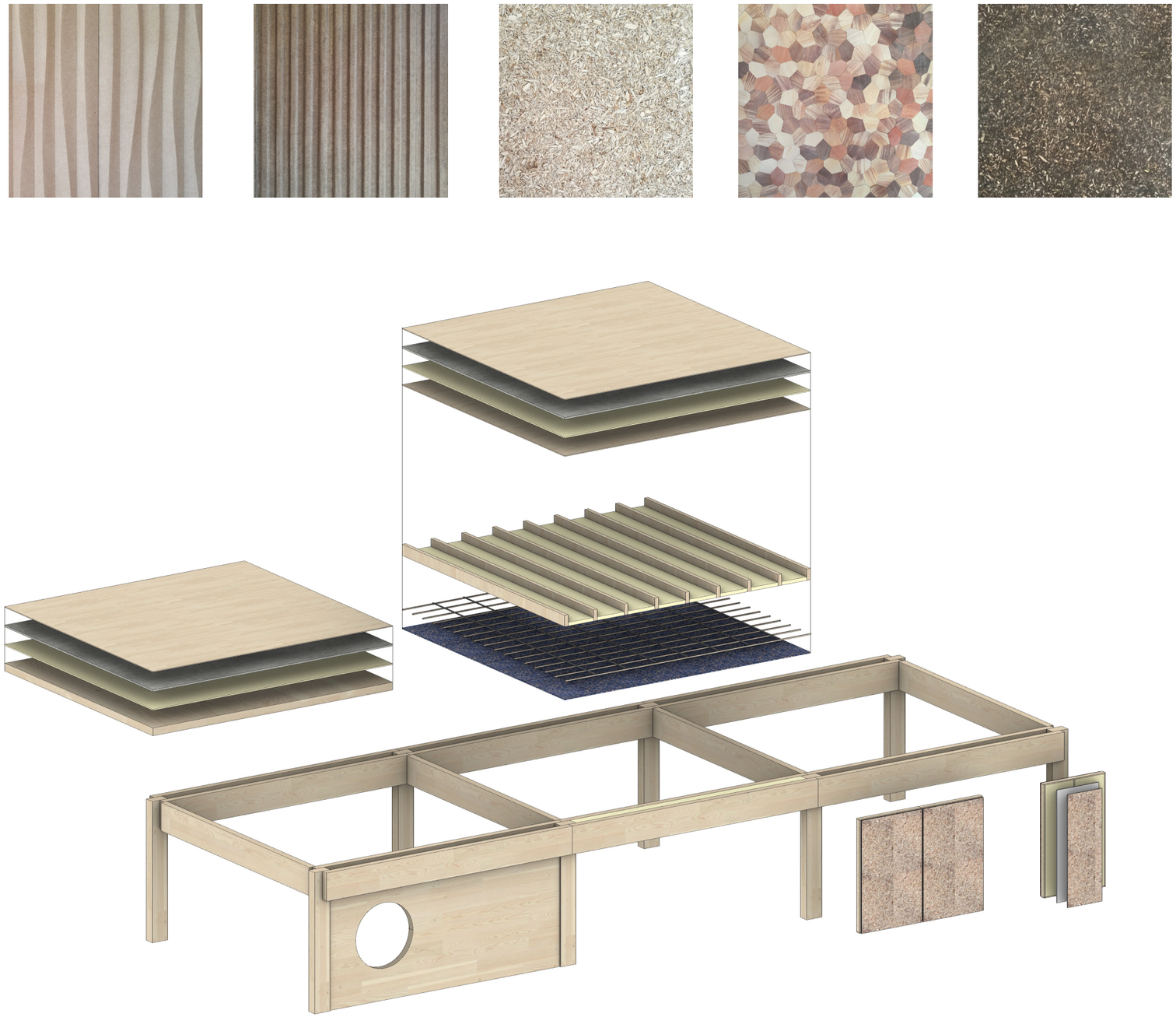
5cm - acoustic insulation
4cm - panel substructure
3cm - organoid panel - agricultural waste material



FLOOR_BASEMENT
1cm - mycellium flooring panel (MOGU)
4cm - anhydrite screed with heating pipes
3cm - impact sound insulation board
15cm - hollow core slab
- waterproofing layer
15cm - EPS insulation

BIO-BASED
BUILDING TECHNOLOGY



BIO-BASED MATERIALS
MODULARITY / INFILL

BIO-BASED PANELS

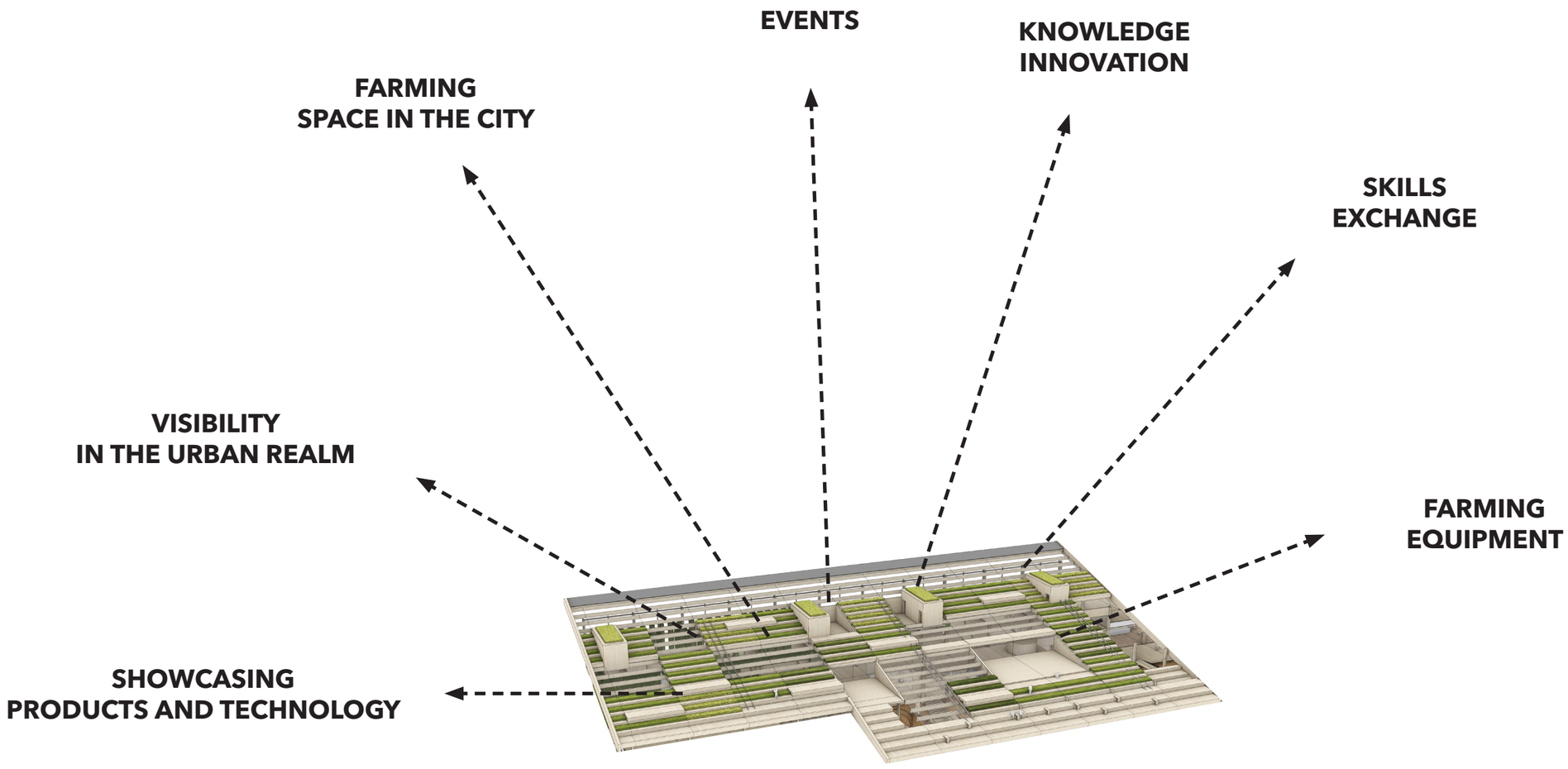
MYCELLIUM LAMP

TABLEWARE FROM FOOD AND AGRICULTURAL WASTE

KITCHEN FROM AGRICULTURAL WASTE

RECYCLED FLOOR

BIO-BASED MATERIALS AND PRODUCTS
USE / EXPOSITION / EDUCATION

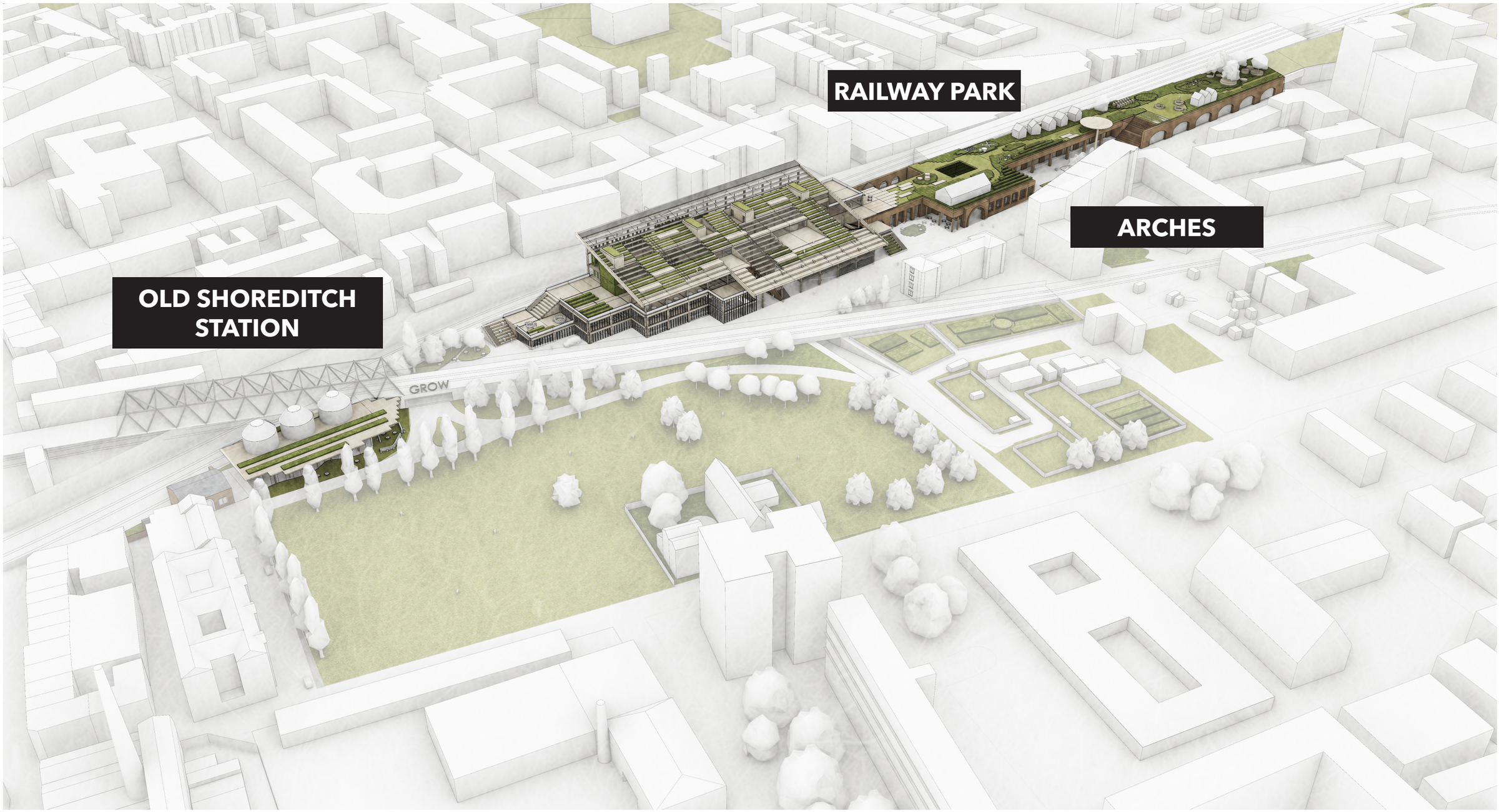


EDUCATION + AWARENESS

FOOD HUB AS FORUM AND EDUCATIONAL TOOL

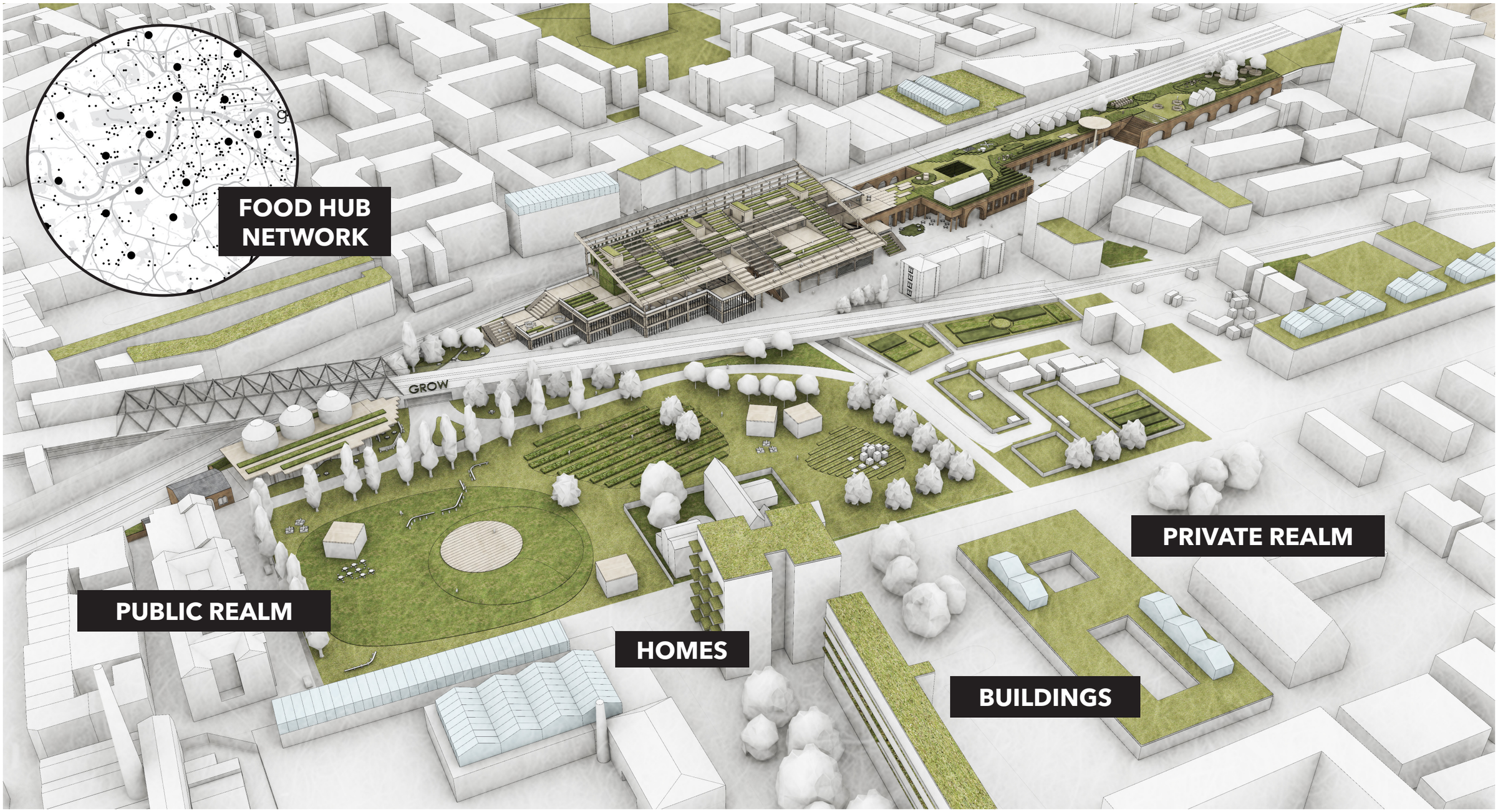
PHASING

FOODSCAPE
PHASE 1

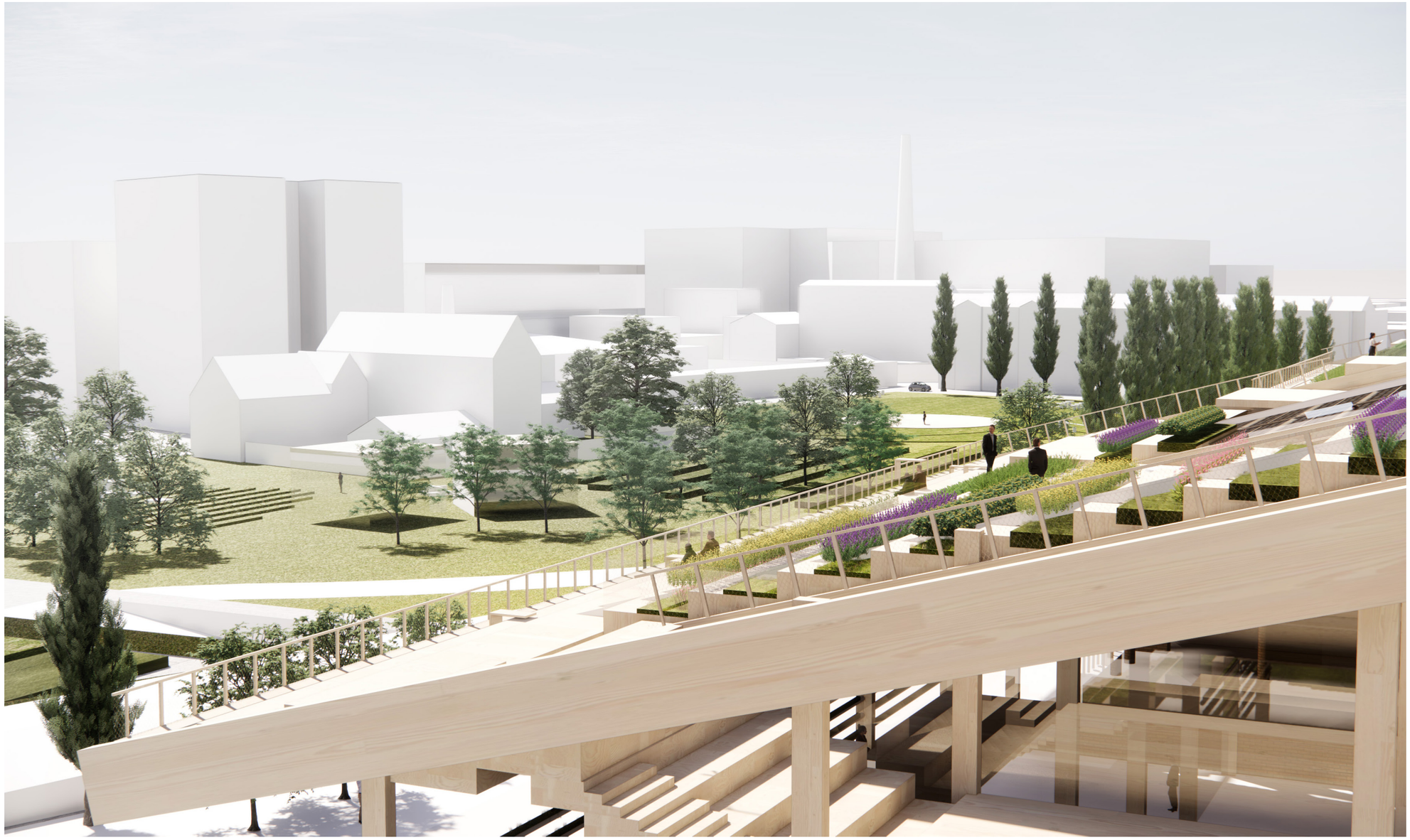


FOODSCAPE
PHASE 2

FOODSCAPE
PHASE 3



FOODSCAPE
MULTISCALAR TRANSFORMATION



THANK YOU

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ADC 2021/22