

HYBRIDS OF COEXISTENCE

infrastructure x human space

booklet - camilla erlandsson

ARK128 - Architecture & Urban space design
Chalmers University of Technology 2021/2022



In this studio we interpret the different urban layers defined by the physical environment and experiment with human spaces, infrastructure and landscape to create a new form of urban structures, the "Urban Hybrids". The projects in our studio revolve around waterscapes in an urban context.

PHASE 1.

1.1.1 - infrastructure

GAS STATION

Use 3~5 references to illustrate an unintentional spatial effect you find artistically meaningful in 1 type of physical infrastructure generally not considered for high-resolution human space.



adventure
freedom
colors pops out of clear blue sky



never ending
peaceful??
just a building in the middle of
a cool landscape

(intentional)
space-ish
futuristic



kind of peaceful, kind of chaotic?
neon lights lights up the
nothing

I find gas stations somewhat poetic. They are something that is just there. Conveniently spread out along your path to offer a short break to stretch your legs and feed your car. Always there for you, but not as the destination it self.

1.1.1 - infrastructure

GAS STATION

The gas station was everywhere people wanted to drive, found at highway off-ramps, on small-town street corners, and scattered along country roads. The architecture of these places can be charming, with curved edges and bright graphics.

"Gas stations are the gateway to a community.
So it's very important to get these things cleaned up."



Camille Walala Pump And Go

This gas station in Arkansas was just another abandoned building. Now it's an eye-popping piece of art. Fun example of what gas stations might be, with a touch of creativity.

1.1.2 - human space

DANCEFLOOR

Use 3~5 references to illustrate a spatial effect you find artistically meaningful in 1 type of human space to crossbreed with your choice of infrastructure type.

Dance is a performing art. It is described in many ways. It is when people move to a musical rhythm. They may be alone, or in a group. The dance may be an informal play, a part of a ritual, or a part of a professional performance. There are many kinds of dances, and every human society has its own dances.

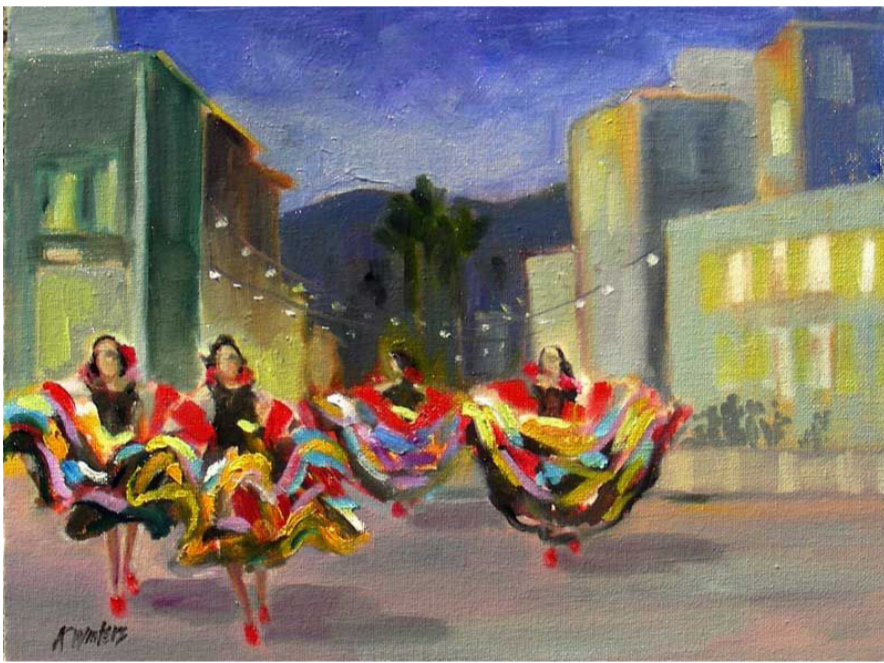
As with other performing arts, some people dance to express their feelings and emotions, to tell a story, or just to feel better.



"Dance Is The Language Of The Soul" a photograph by Yvette Depaepe

1.1.2 - human space

DANCEFLOOR



dancing mexicans by karen winters.jpg



photo-1504609813442-a8924e83f76e.png



"Sun dance" a Poster by Amaya Guerrero

1.1.3 - hybrid space concept

Gas station x dancefloor = ?

Diagrammatically illustrate the intended spatial effect and functionality of combining your selected infrastructure and human space types.

“our jobs as designers is to change the way we look at the world”

Gas stations is something that is just there. Conveniently spread out along your path to offer a short break to stretch your legs and feed your car. But it is not the destination in it self. Can it be?

When I was young me and my family used to travel by car through Europe every summer. The destination differed from every year, but whatever turn we took, gas stations were always there as a safe, familiar spot. We fueled up, ate some icecream, and rested for a bit. Other families was there as well. Where are they from? Where are they going? The anonymity itself made it a place of imagination and creativity for me.

“Gas stations were the perfect symbol of a new era, of mobility and independence.” - Juerg Judin

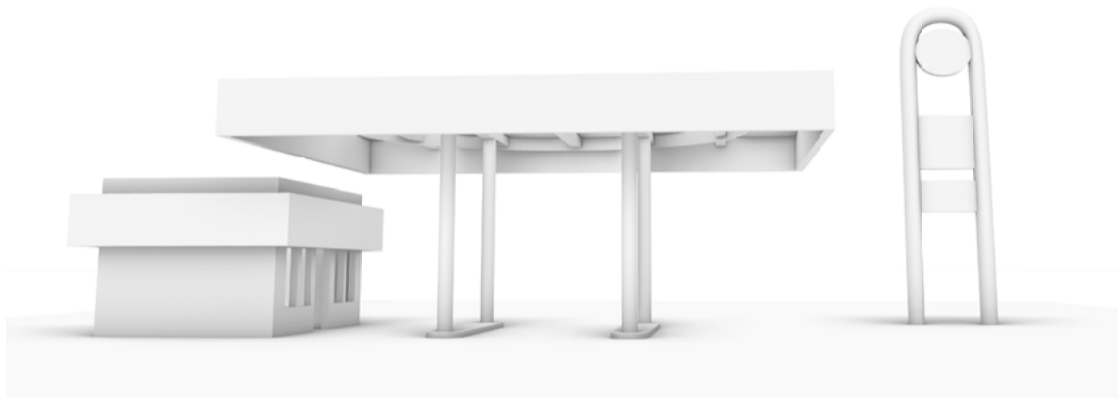
Today, a new era is around the corner. Gas stations are in need of new identities. Can we transform gas stations into symbols of joy, life and peace?

1.1.3 - hybrid space concept

Gas station x dancefloor = Trance-AM



1.1.4 - hybrid space system sketches

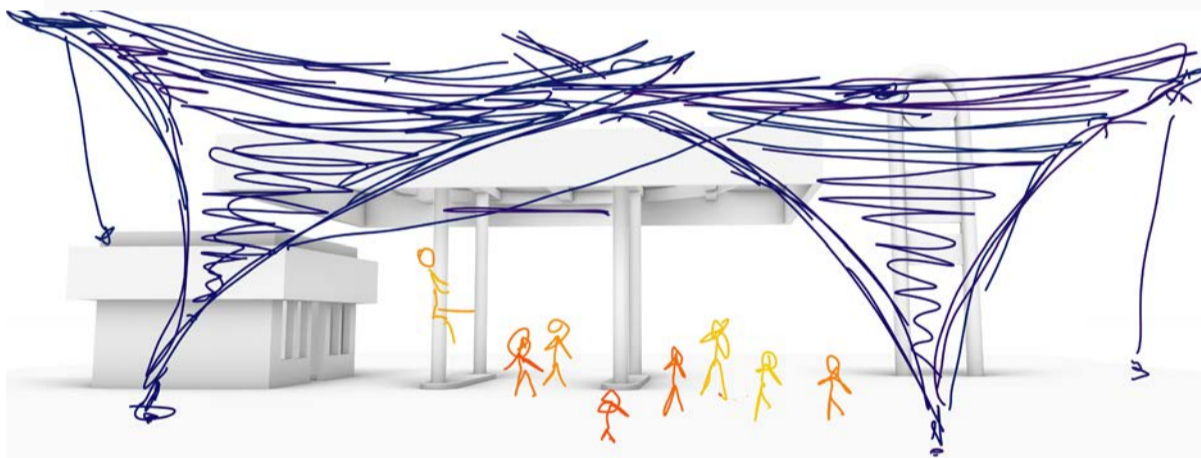


basic 3d model of gas station

existing elements:
small utility building
protective roof
gas pumps
cool sign/billboard



added elements:
another roof structure
reinforcement of existing roof
stairs / ways to get to roof
slide?

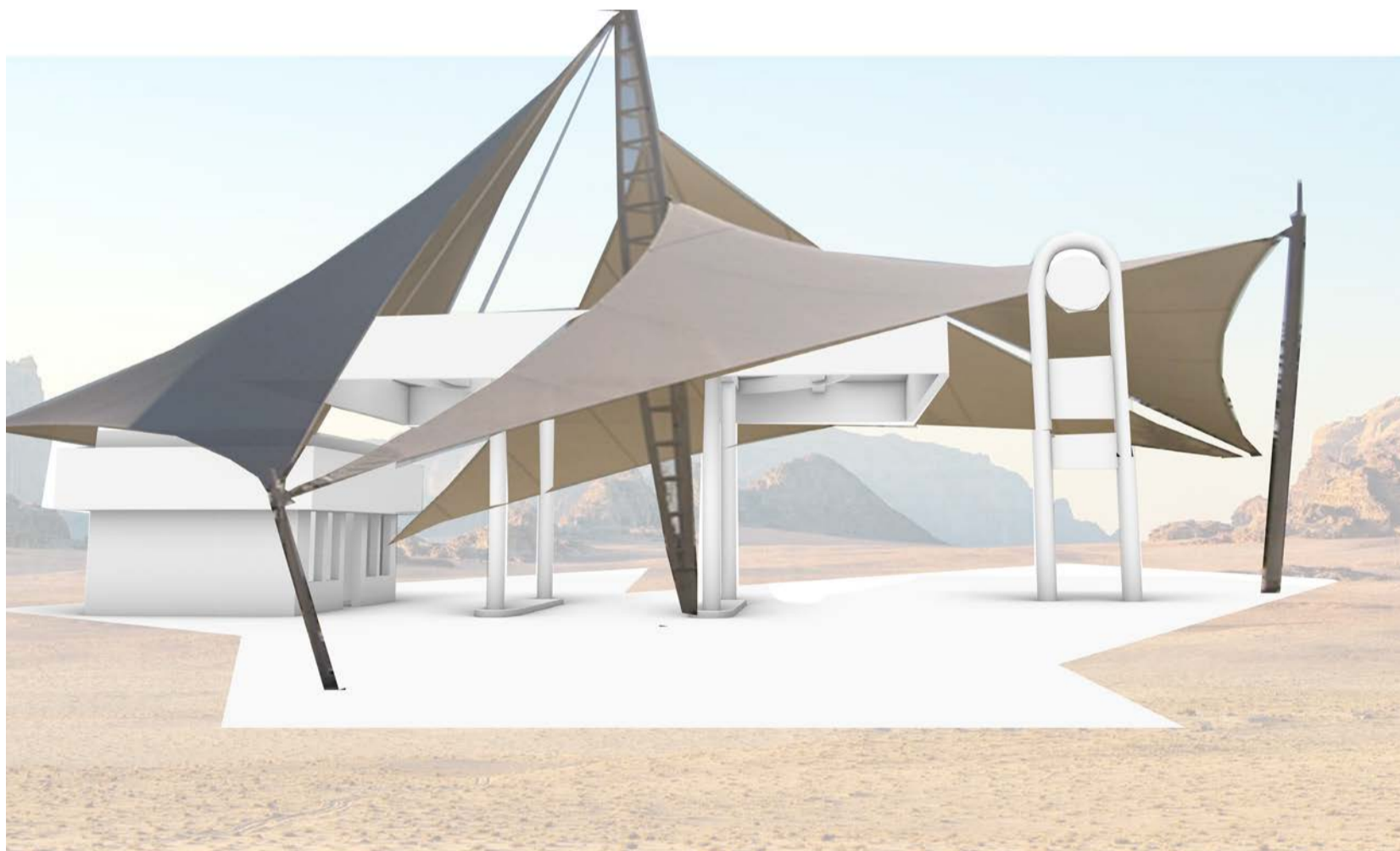
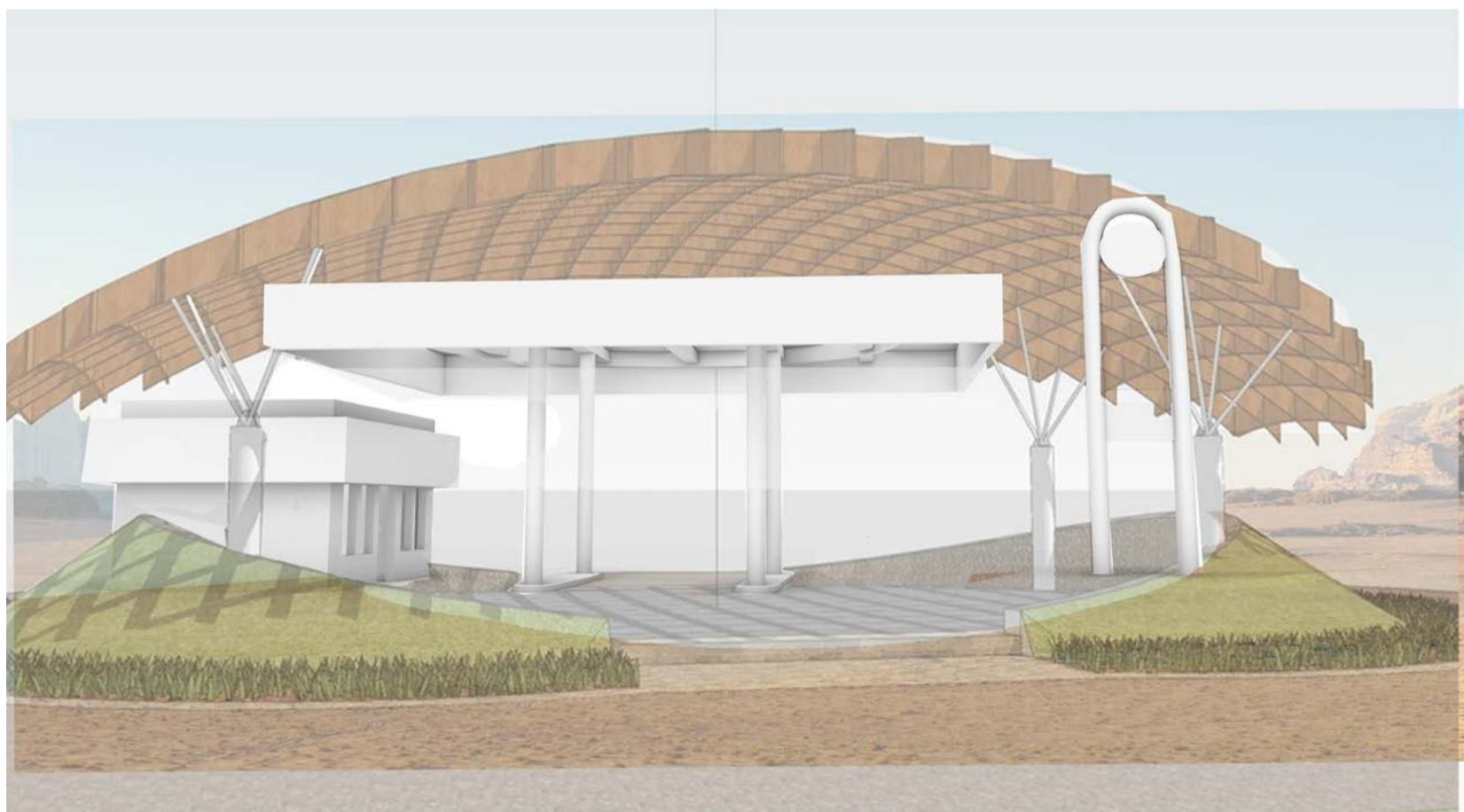


membrane roof structure



dancefloor on roof
gas station below

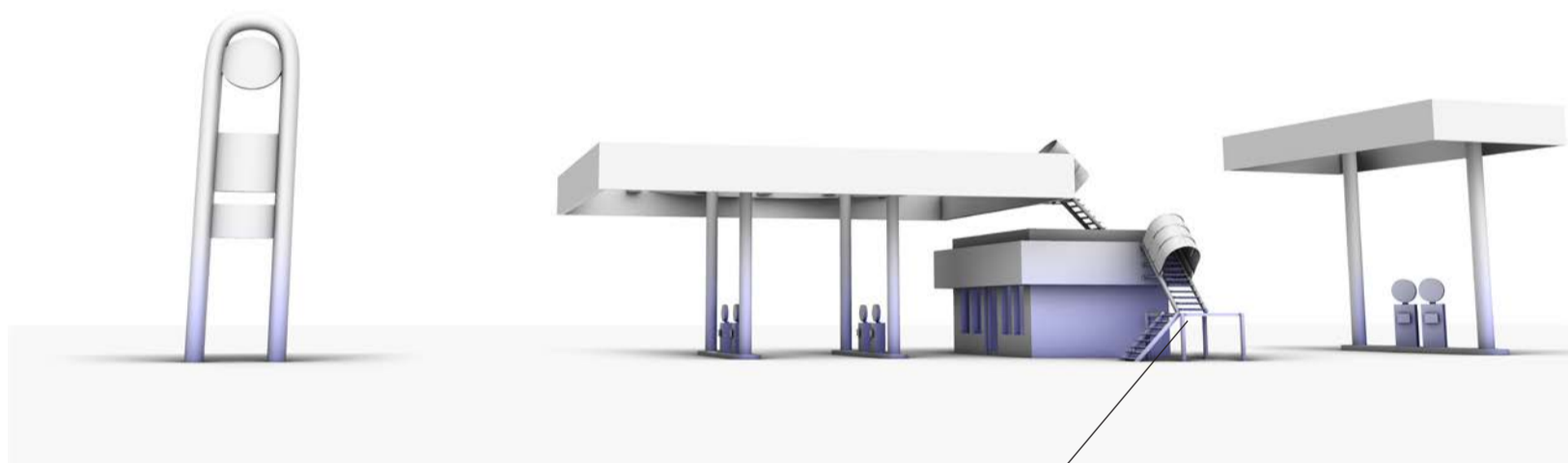
1.1.4 - hybrid space system collages



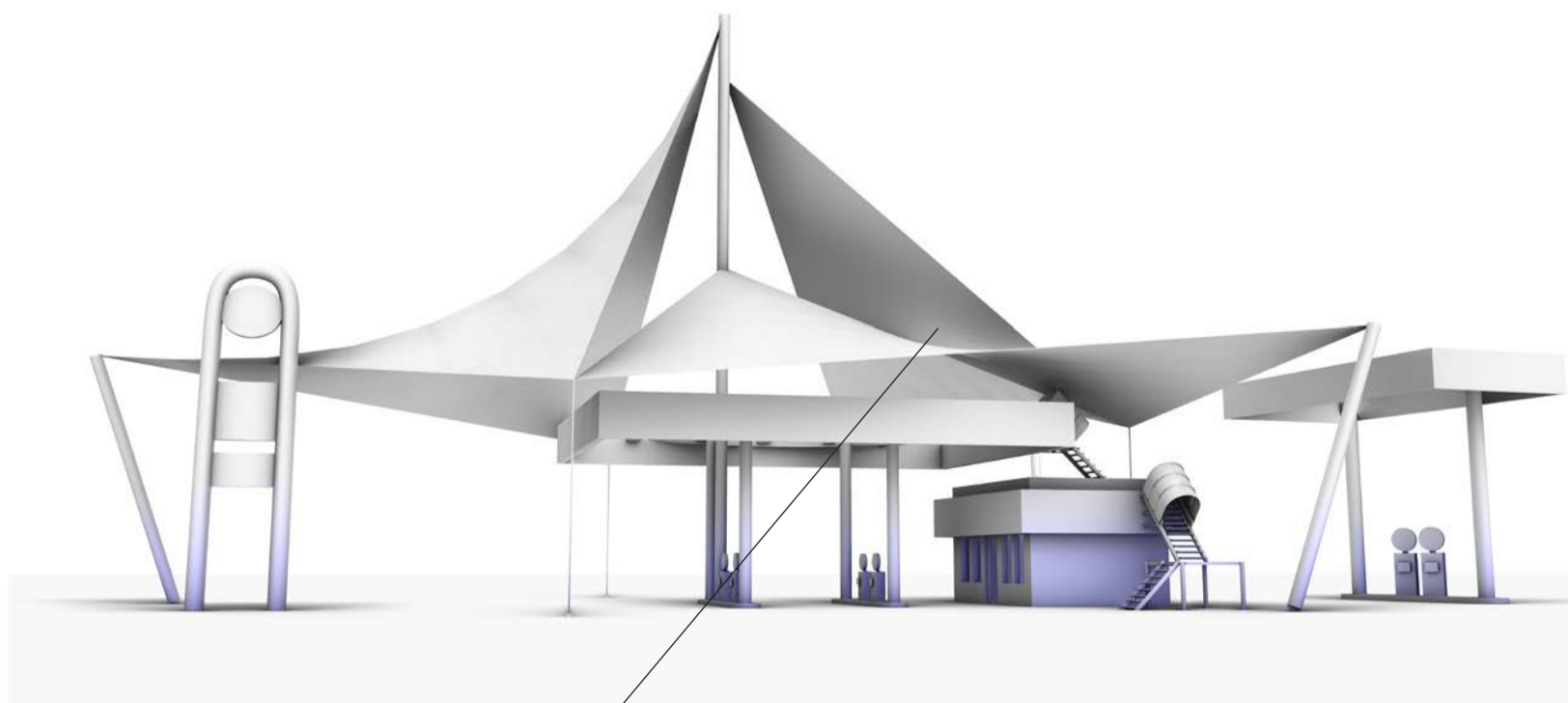
1.1.4 - hybrid space system old + new



existing elements



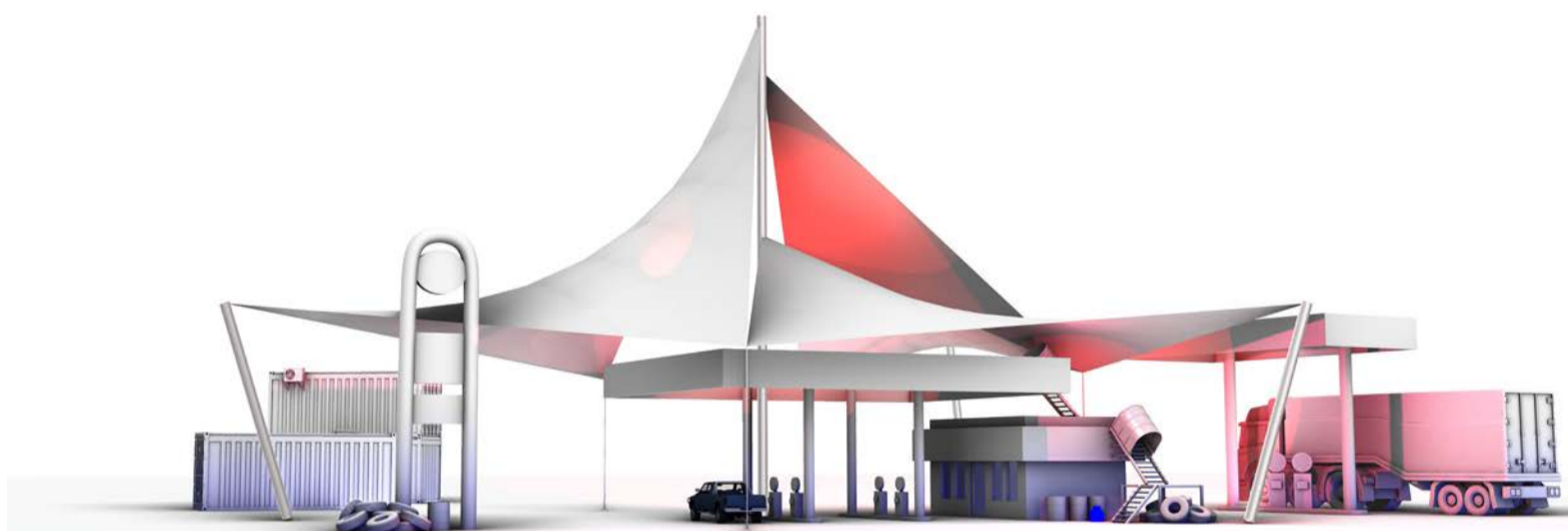
stairs to access roof



membrane roof structure

1.1.4 - hybrid space system

axionometry



the path of the vehicles in a gas station is quite straight forward. One possibility could be to use the space where the pumps are for a dancefloor.

The major problem with this solution is that whenever a car pulls up for gas, the dancers will have to move away. Not so much fun.

The traffic flow is supposed to be quite frequent, making the roof the better option for placement of the dancefloor. Floating above the vehicles.

1.1.5 - hybrid space design procedure

flow of traffic - flow of people

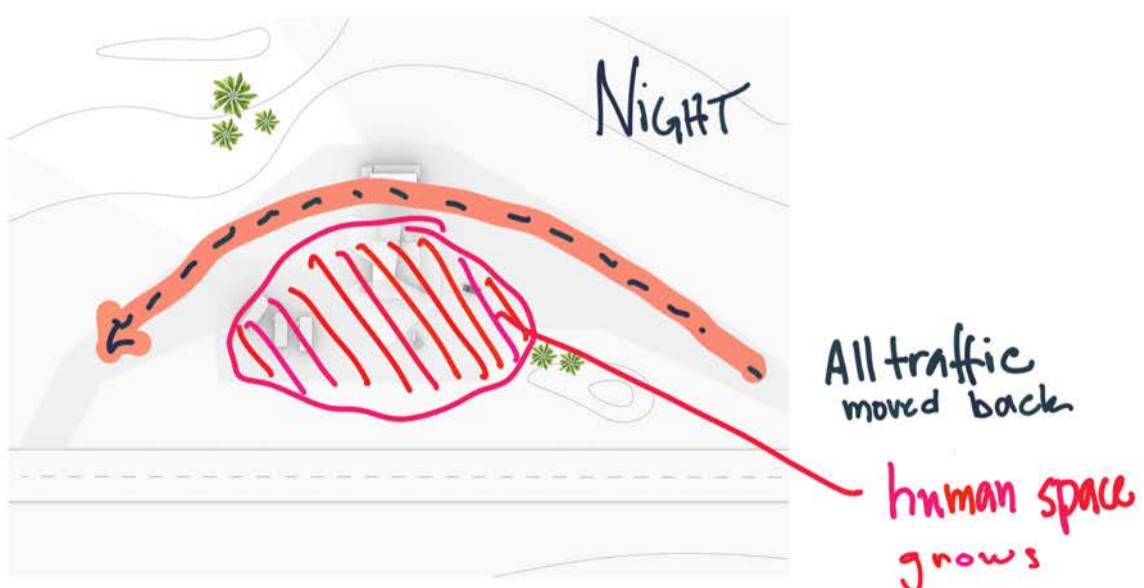


Cars use the pumps in front of the gas station while trucks use the larger pumps in the back. During the day vehicles passing for fuel is more or less equally distributed between cars and trucks.

The human space is confined to the roof.



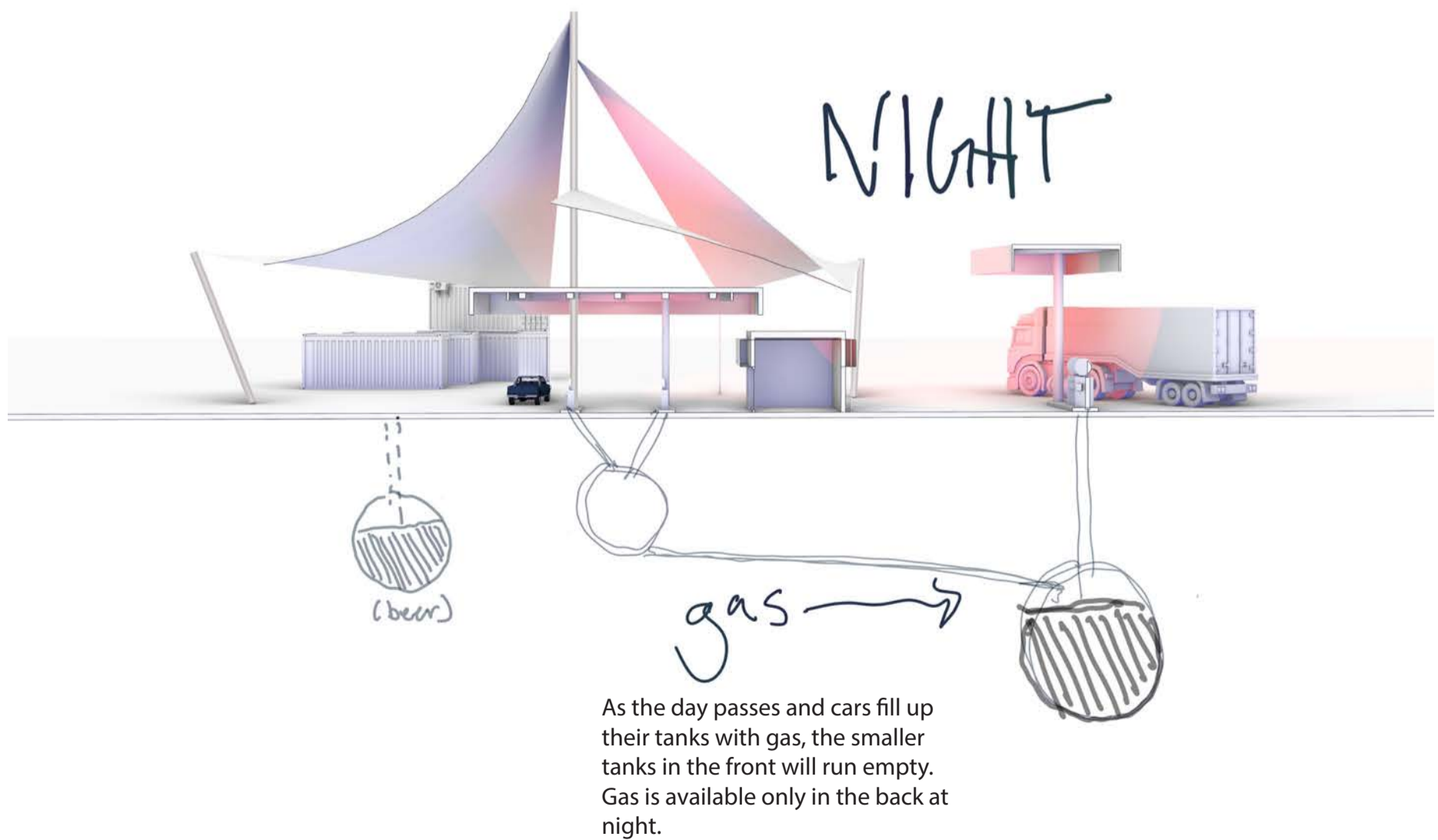
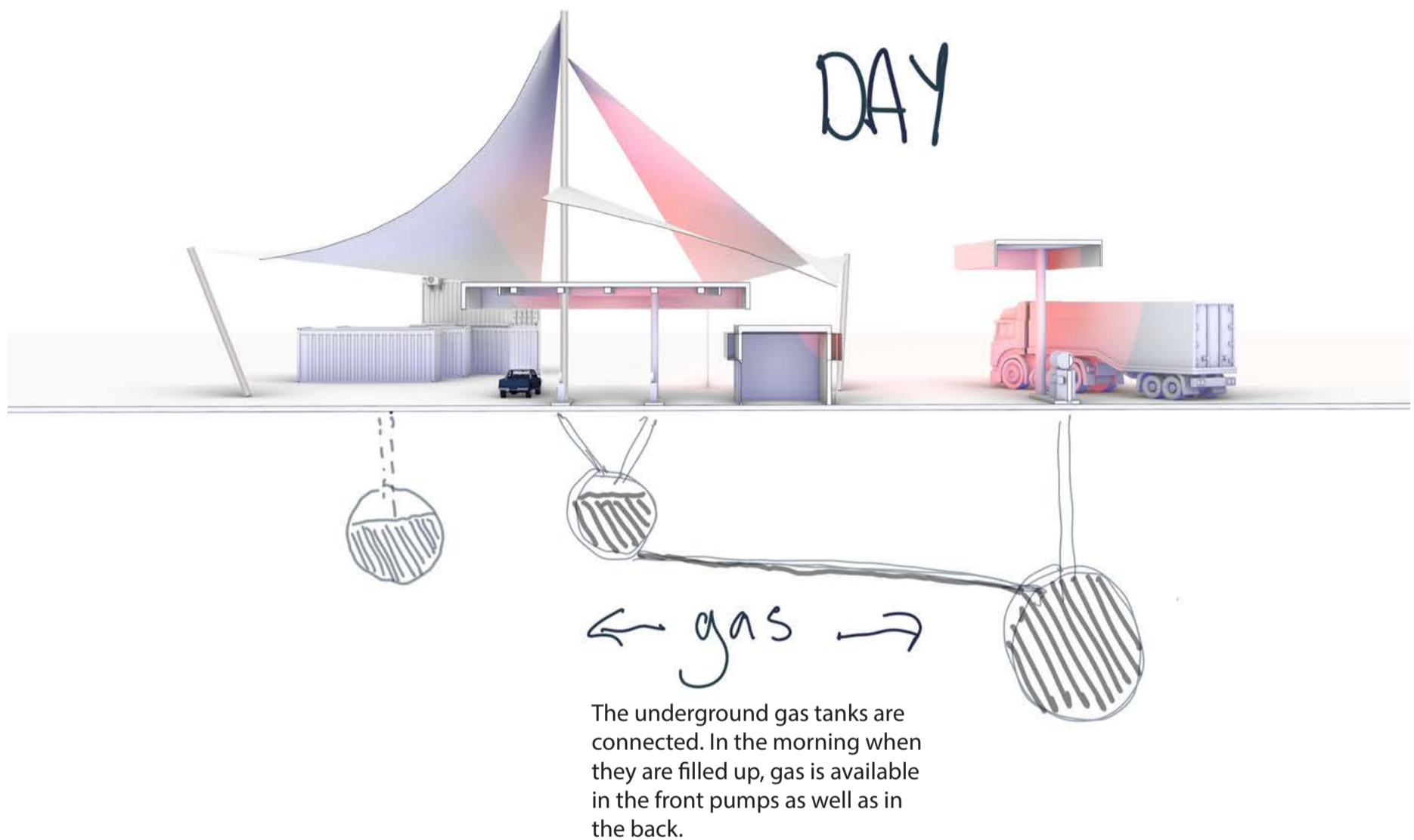
During the night the truck traffic is heavier, while the amount of single cars passing for gas is significantly smaller.



Therefore, it is reasonable to aim for a pushback of all traffic during the night. Making the human space grow between the pumps in the front.



1.1.5 - hybrid space design procedure flow of gas - flow of traffic



Density	1	10	50
Vehicles	Spaces can co-exist	Denser traffic requires separation of spaces	Denser traffic requires separation of spaces
Dancers	Small human space necessary, if not unnecessary	Infrastructure function can stay somewhat maintained	Significant number of dancers may cause disruptions in infrastructure functionality
Gas	Small amount of gas allows human space to grow	Large amount of gas allows infrastructure space to grow	Surplus of gas?
Pumps	Leads to queue? Slow moving traffic	Time efficient, but cause more movement	Probably too many pumps...

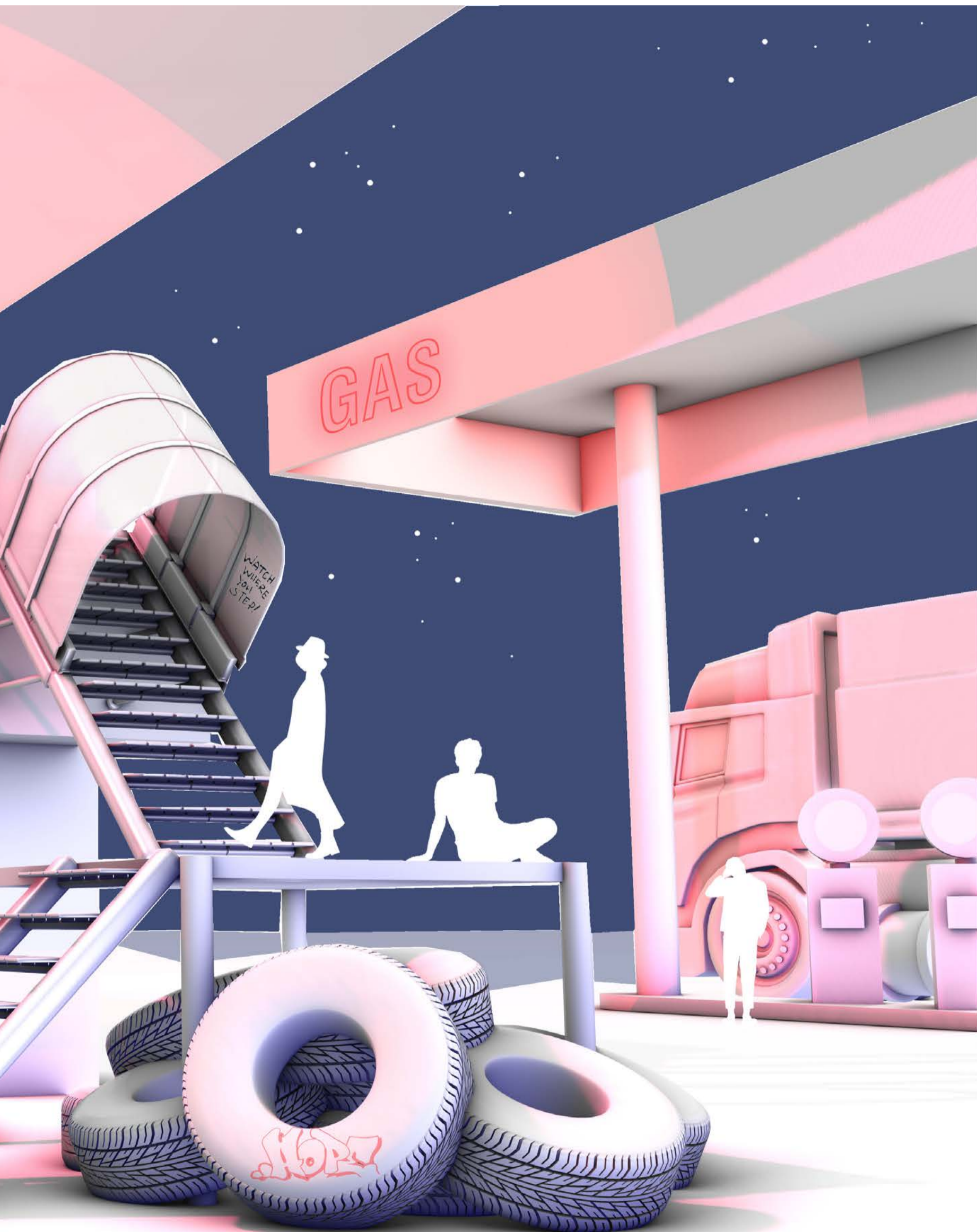
Matrix of infrastructure elements x density variations



illustration of human space



illustration of the roof access



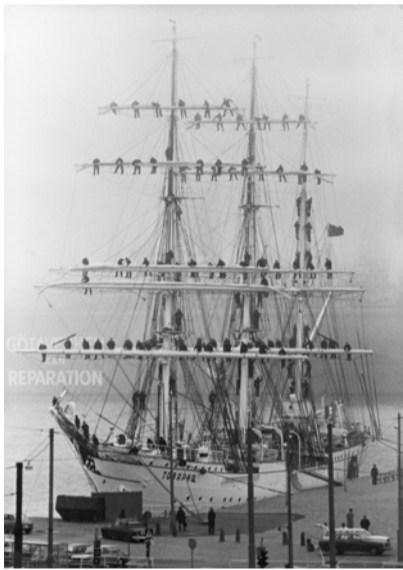
PHASE 2.

2.1.1 Problematization type



Gullbergskajen och Holmen

1968



Innerhamnen Södra

1978



Skandiahamnen

2000



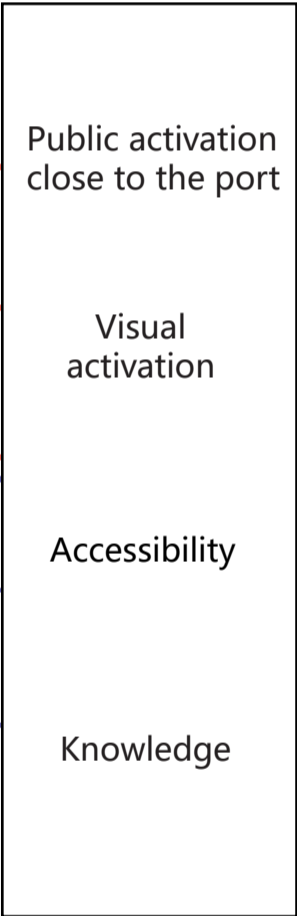
Skandiahamnen

2020

2.1.2 Intervention concept



solutions?



Infrastructure:

- Bridge
- Gas station
- Power grid

Agents:

- Vehicles
- Fuel
- Electricity

Human space:

- Socializing space
- Dance floor
- Gaming room

Agent:

- Socializing people
- Dancing people
- Gaming people

Pathways

for people to move from point A to B while socializing

Pit stop

for people to take a break from the path, perhaps asking for a dance

Transportation grid

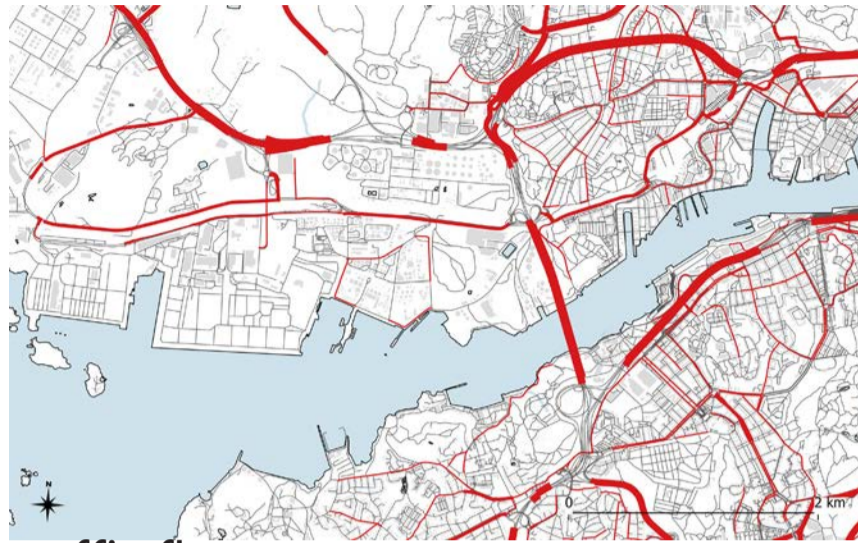
for transporting goods/ games/resources on the grid formed by the pathways

2.1.3 Context selection

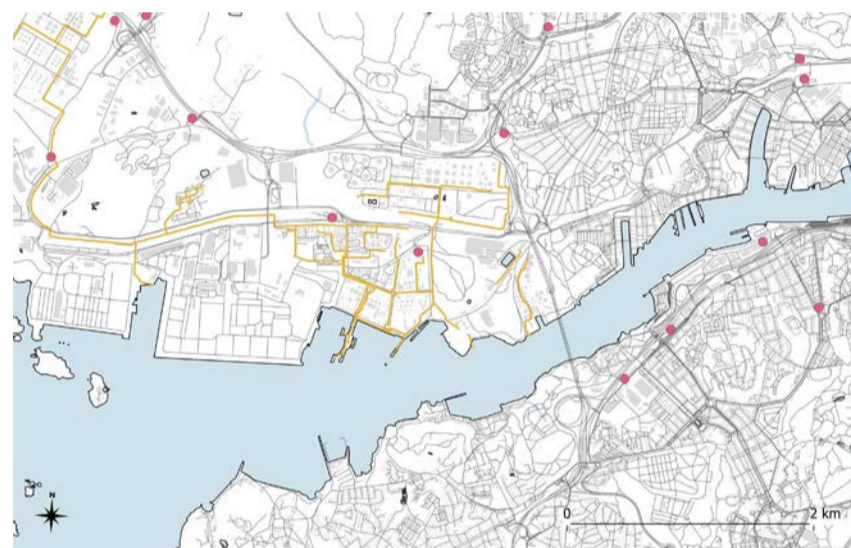
2.1.4 Context model



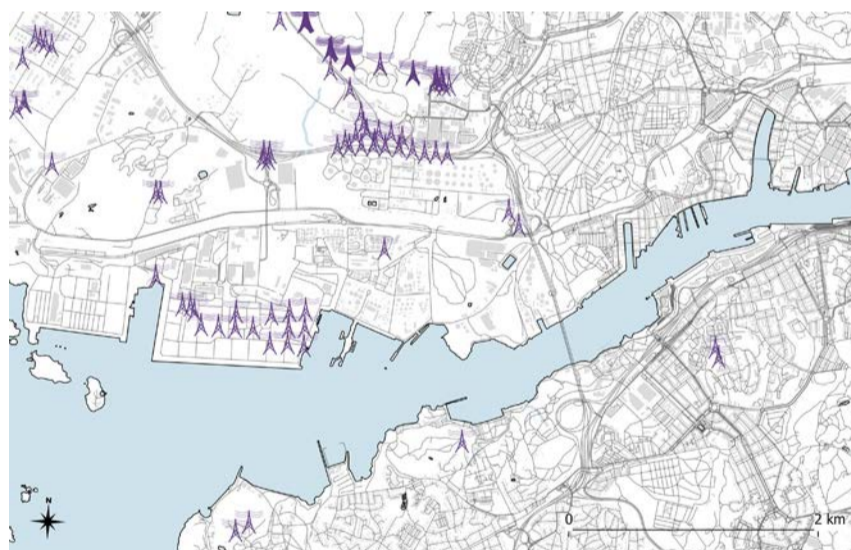
2.1.5 Problematization cartography



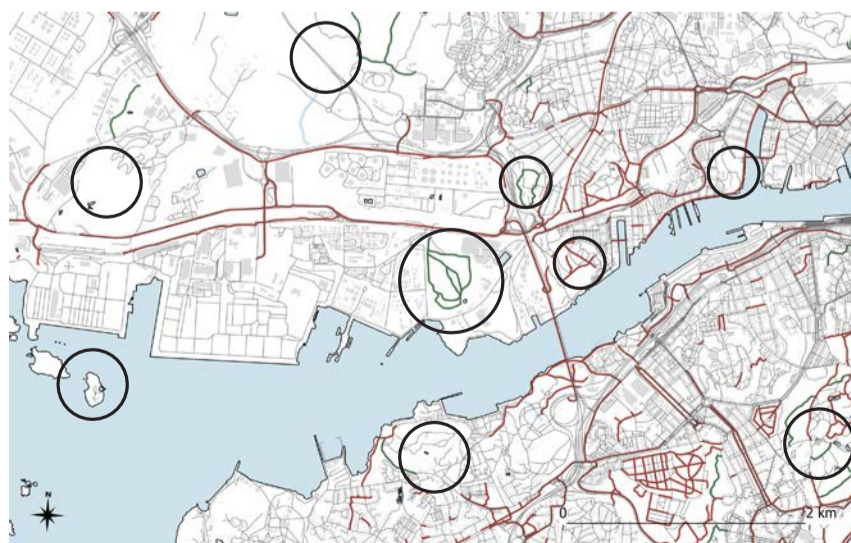
traffic flow



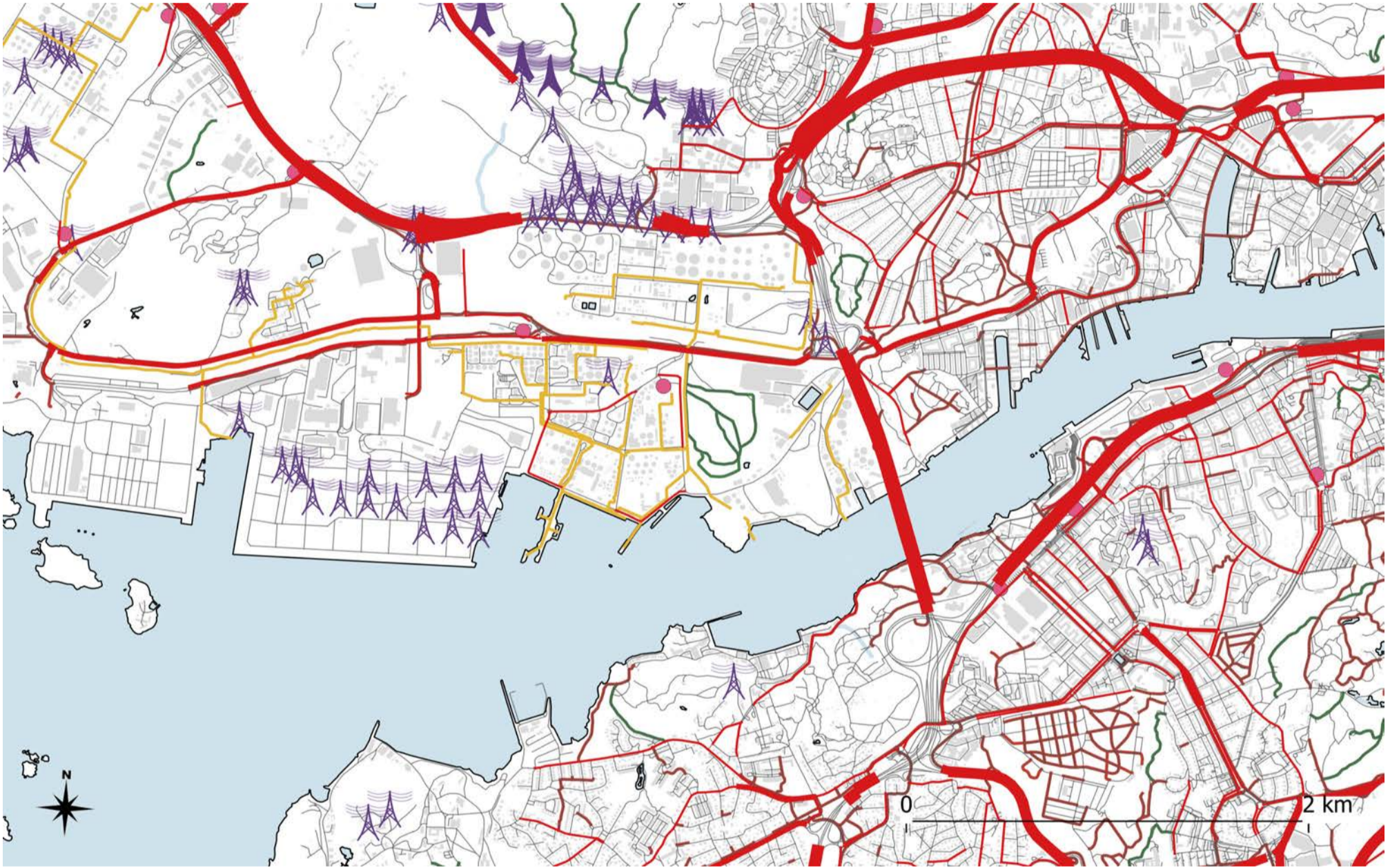
gas stations/oil flow



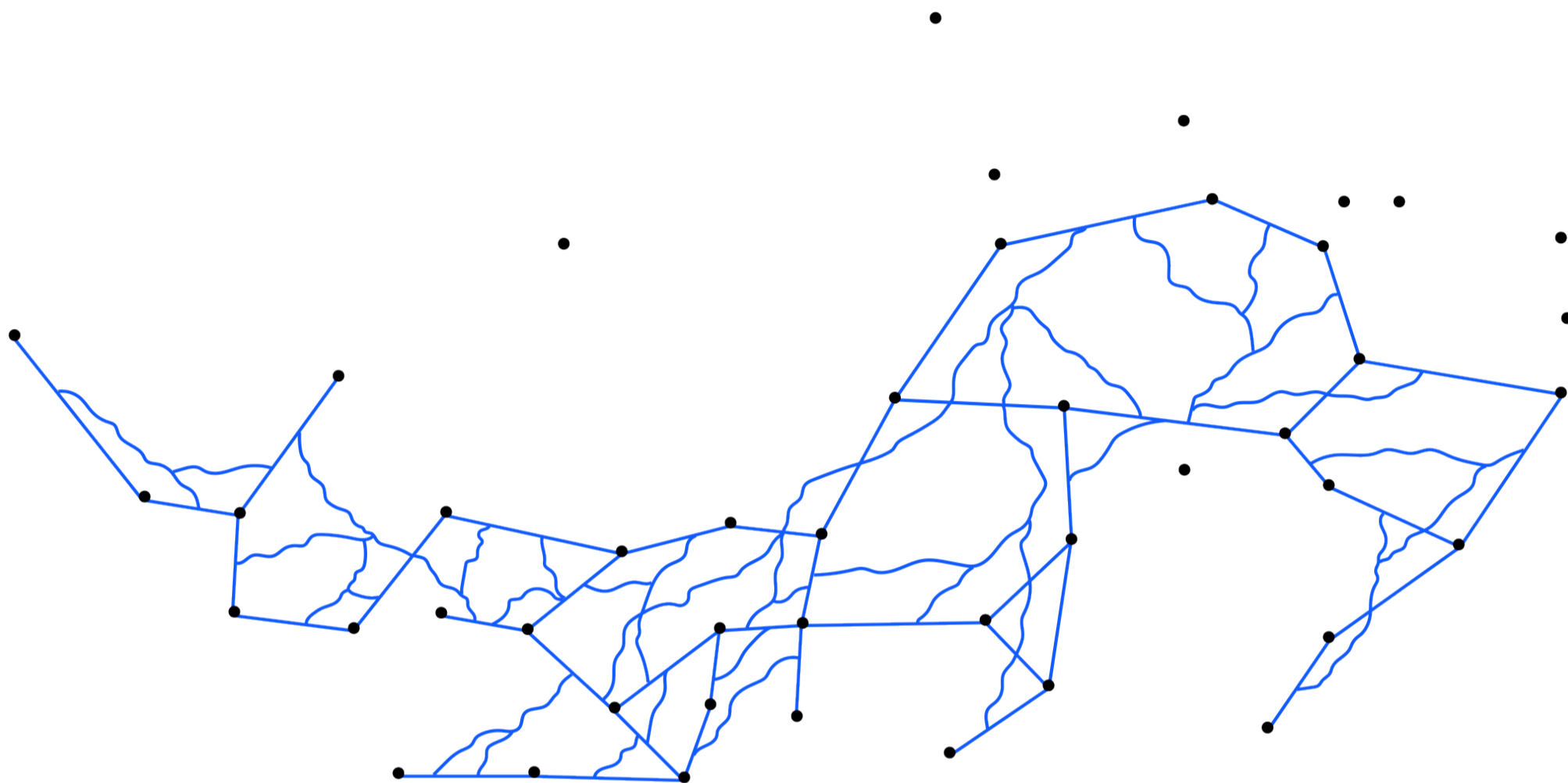
power towers



pedestrian/bicycle pathways/green areas



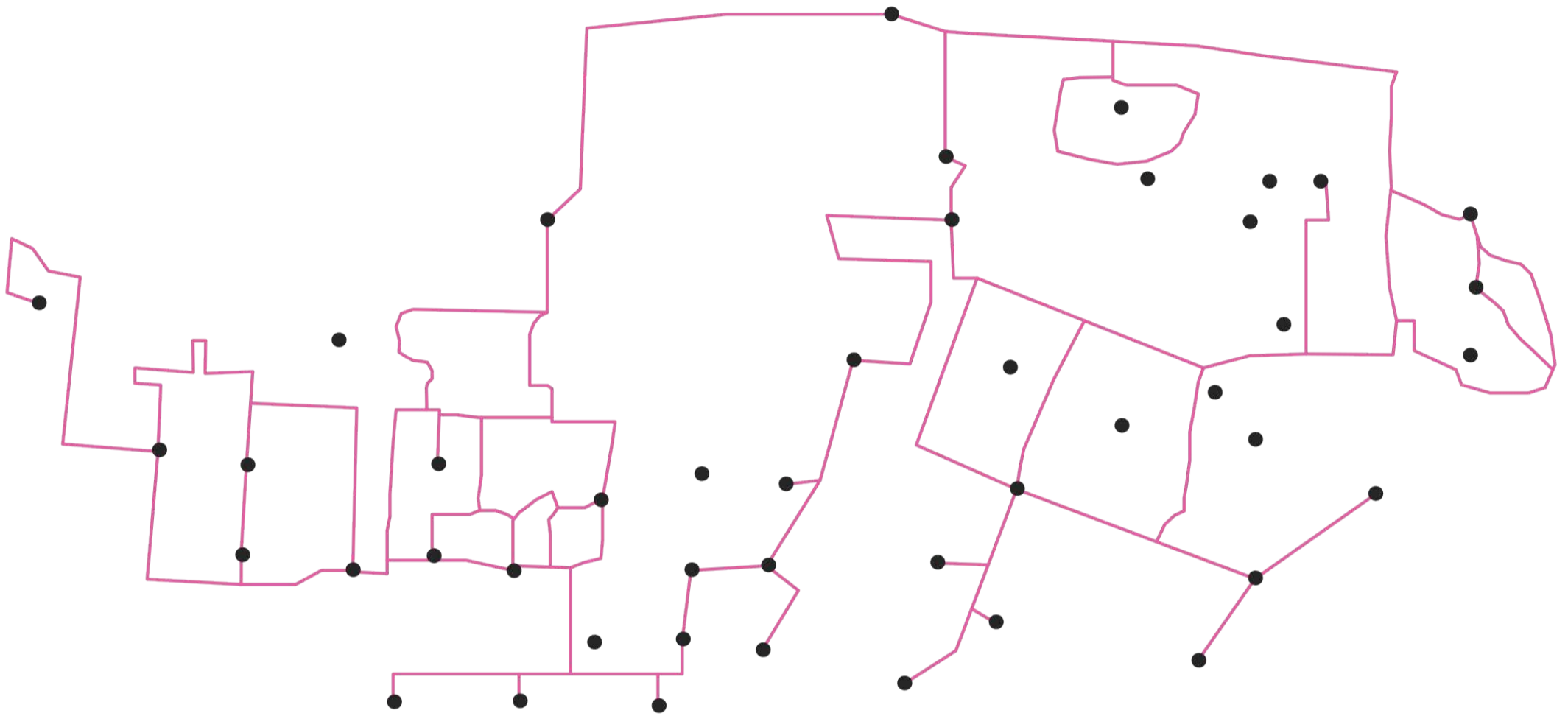
2.1.6 Intervention cartography



blue network - life

Infrastructure: power grid --> supply grid
Growth type: slime mold

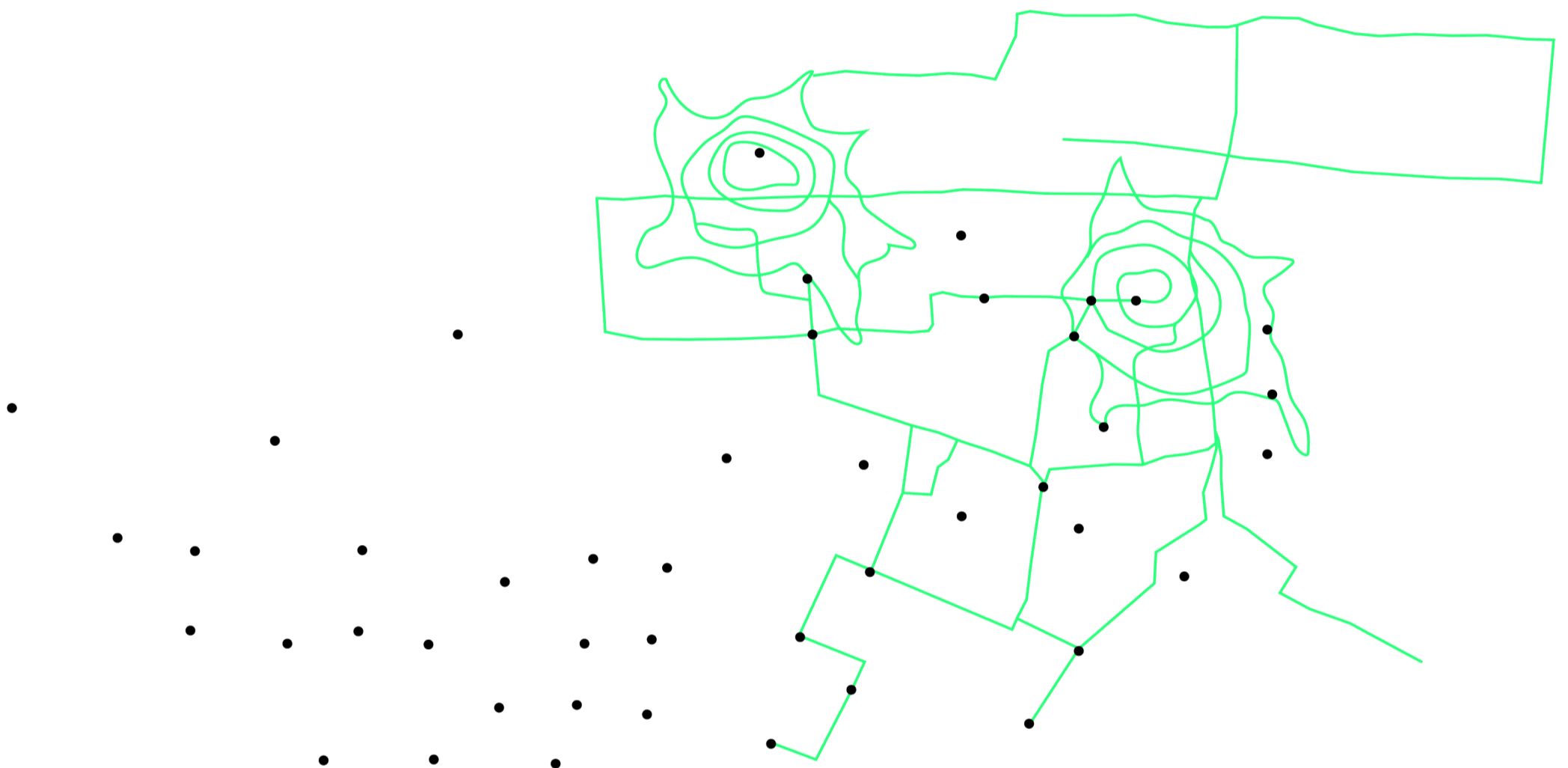
Life can not survive without water. The life network supplies water needed by the networks and human spaces. The " blood vessels" of the superstructure, if you will. Initially the network is forced into straight paths, but just like the mold slime it wants to optimize its path and live its own life.



pink network - movement

Infrastructure: bridges --> pathways
Growth type: stacking

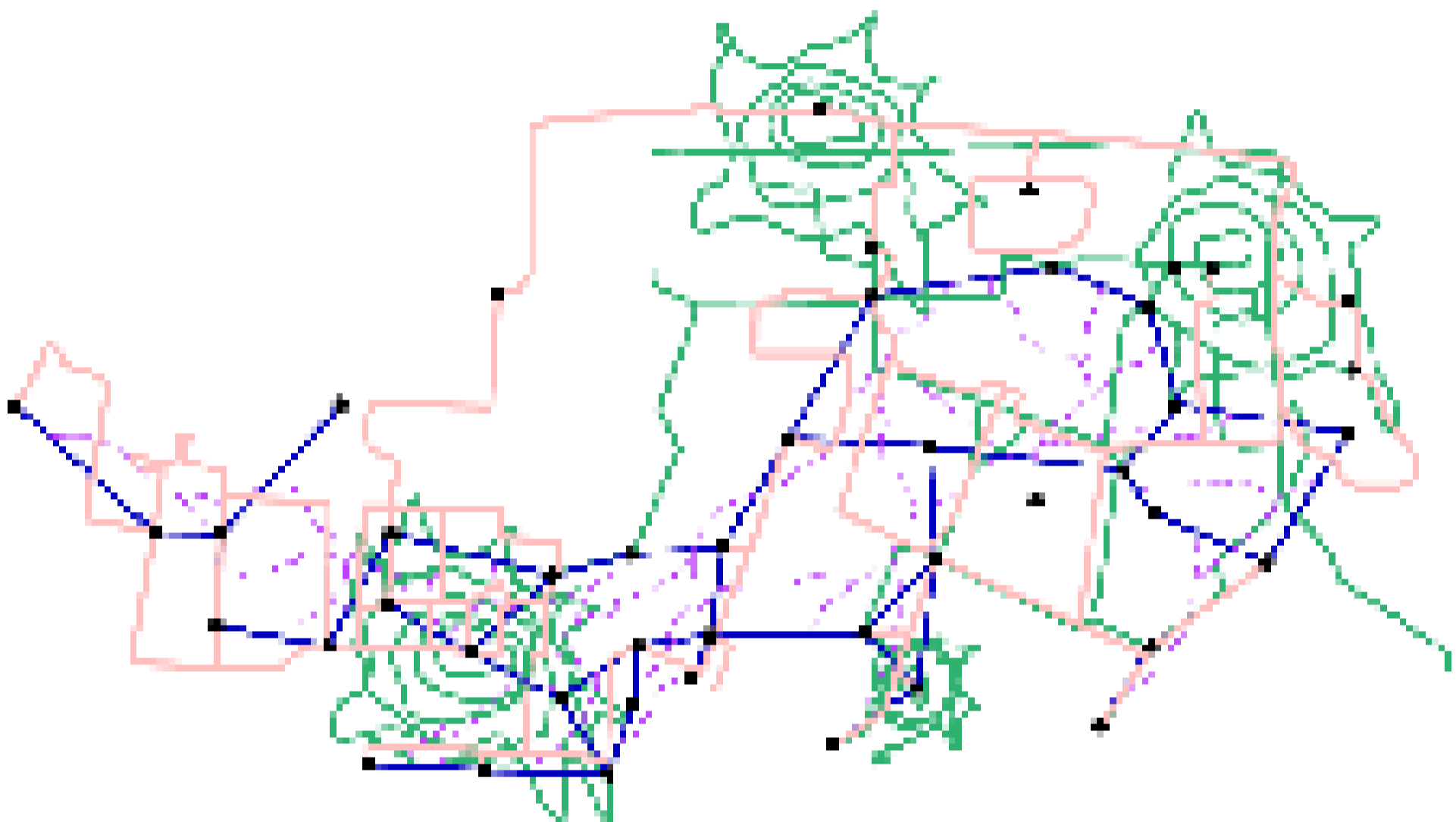
A network of pathways for people to get from point A to point B. The network is formed by the projection the existing system of roads and pathways in the harbour area inaccessible to the public, making the new movement a reinforcement of the existing one. While some nodes are disconnected from the network other have several connections which results in higher flow of people. Higher flow in some nodes results in a need of stacking pathways above each other.



green network - soul

Infrastructure: gas station --> pit stop/platforms
Growth type: parasitic

Existing gas stations and nodes with specifically dense movement on the site are hosts to a parasitic network growth. The parasite is human friendly and aims to neutralize the gas station and transform it into pleasant platforms for human activities by causing "explosions" of greenery. The greenery needs water to thrive, supplied by the life network and the people transverse to the platforms on the movement network.



superimposed network - life, movement & soul

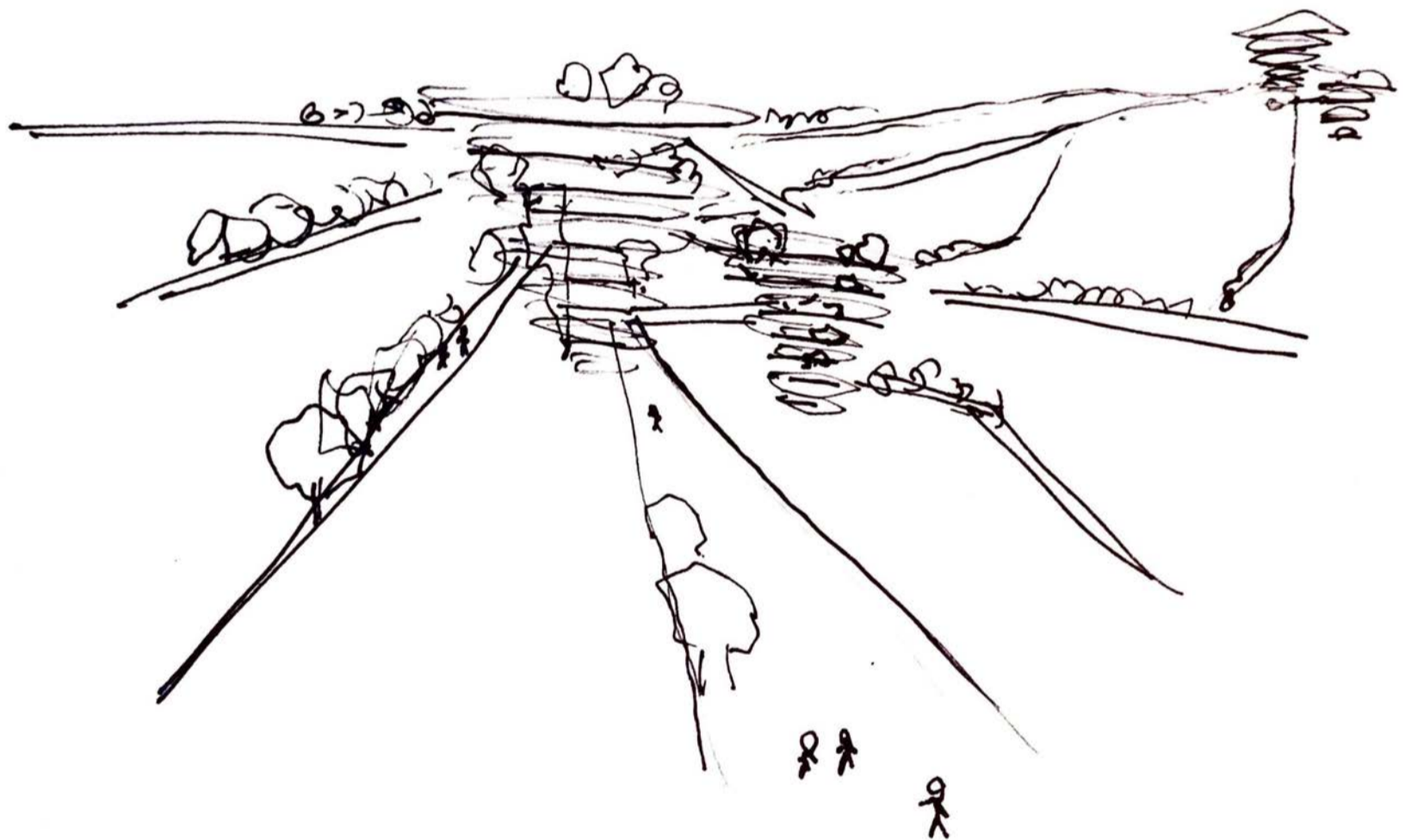
The movement network forms pathways in the sky above the harbour area allowing people to walk, run, ride a bike or perhaps dance in the clouds above the harbour.

The life network is the blood vessel, distributing water to even the smallest parts of the structure. Where there is water, there is life.

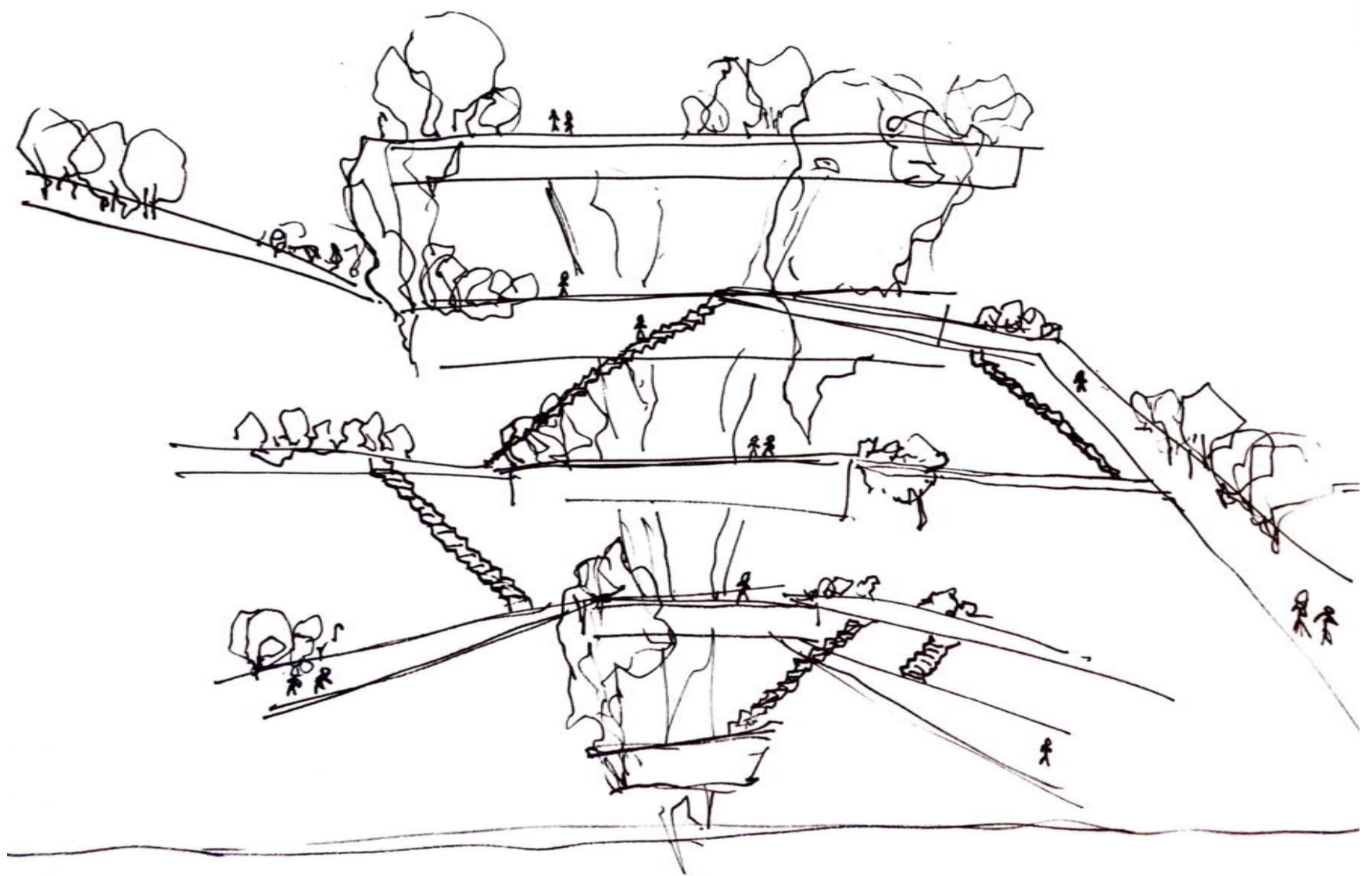
The soul network sets roots where fossil fuels are located, trying to counter attack and neutralize the space and transform it into fresh parks in the skies.

When combining the individual networks a supernet is formed that lives symbiosis together to bring back life, movement and soul into the harbour area.

2.2.1 Architectural experimentation



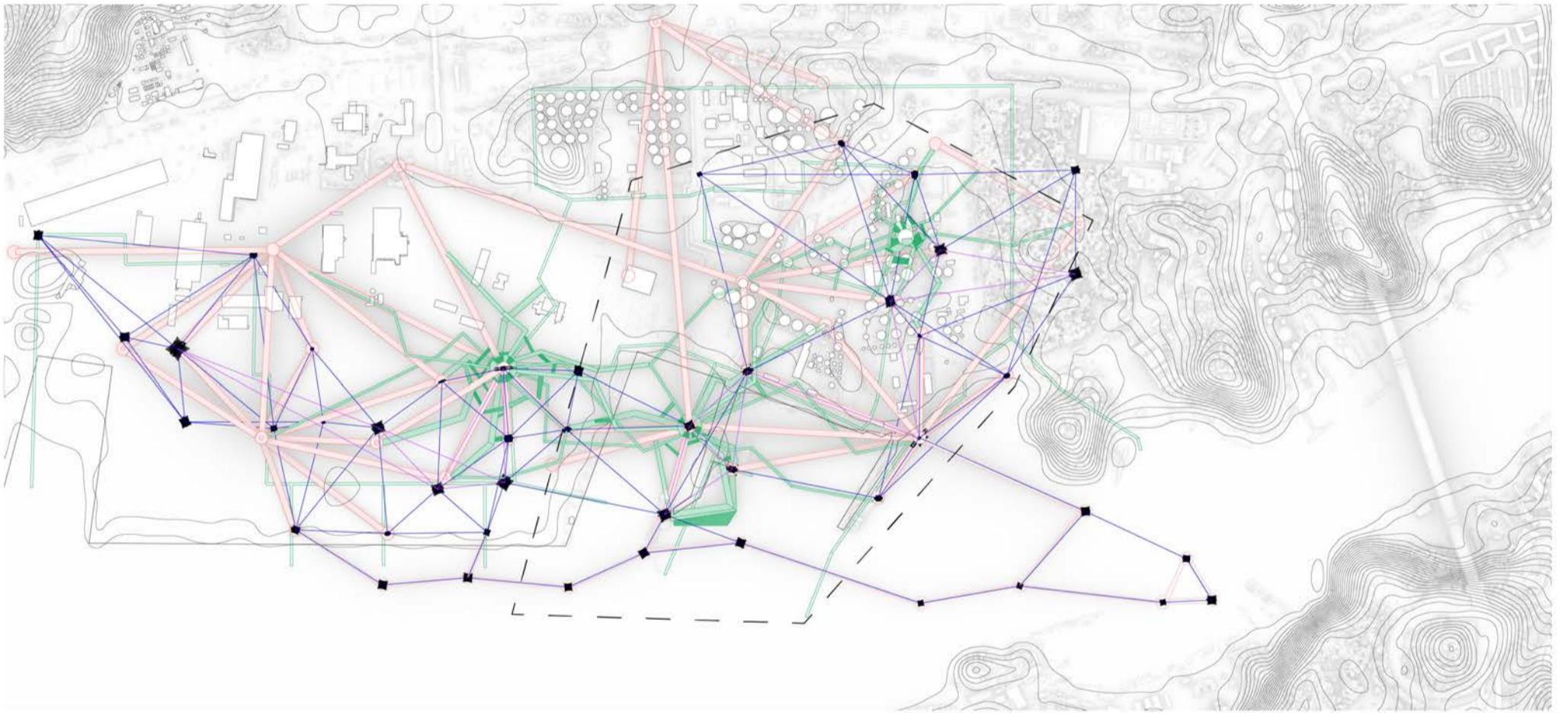
/the platforms



2.2.2 Suprastructure prototype

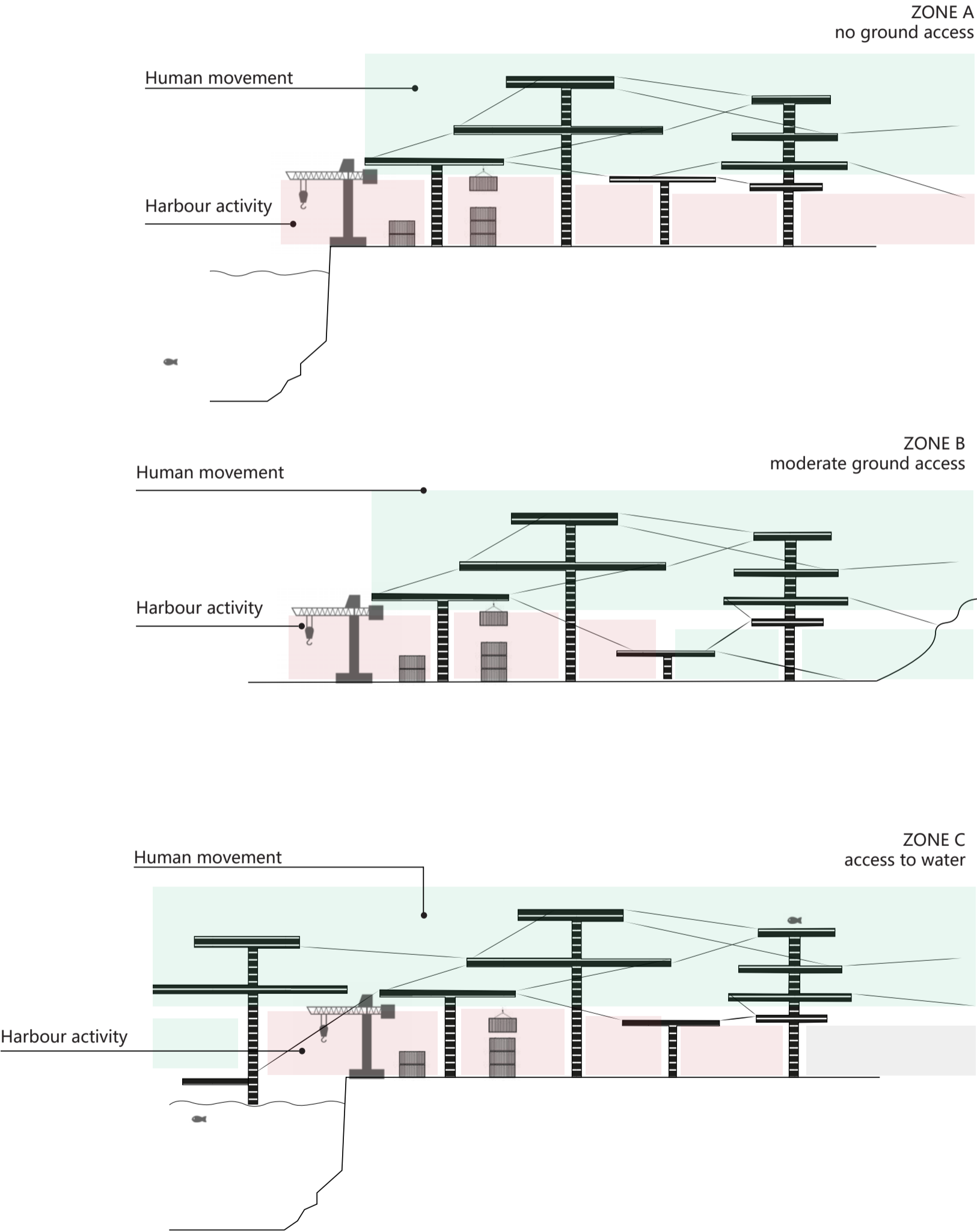


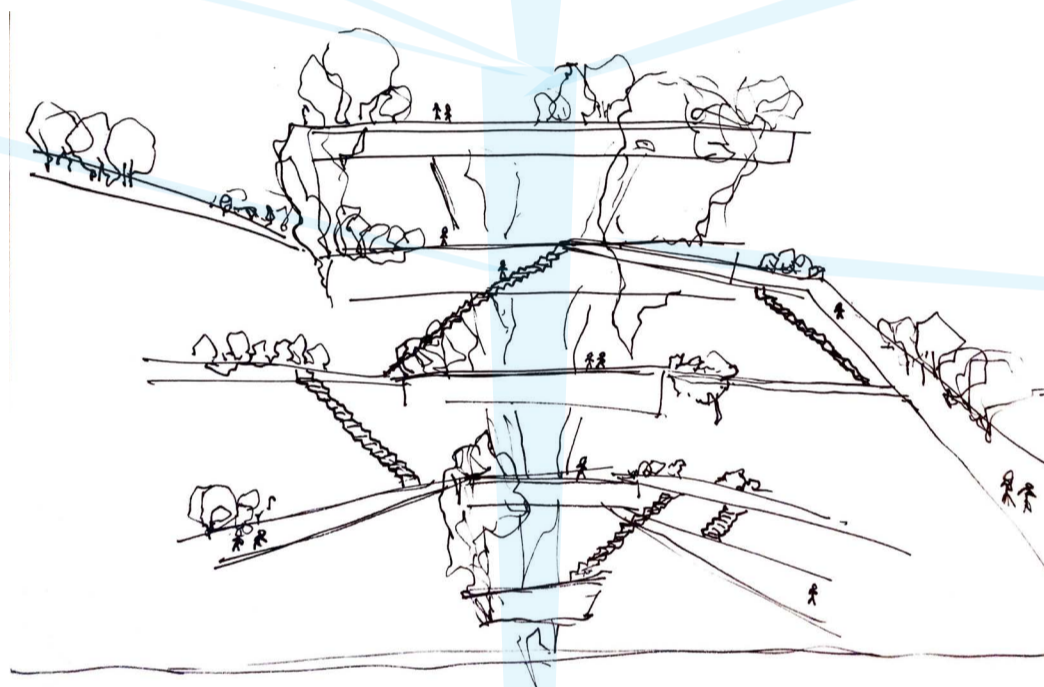
Perspective of the network



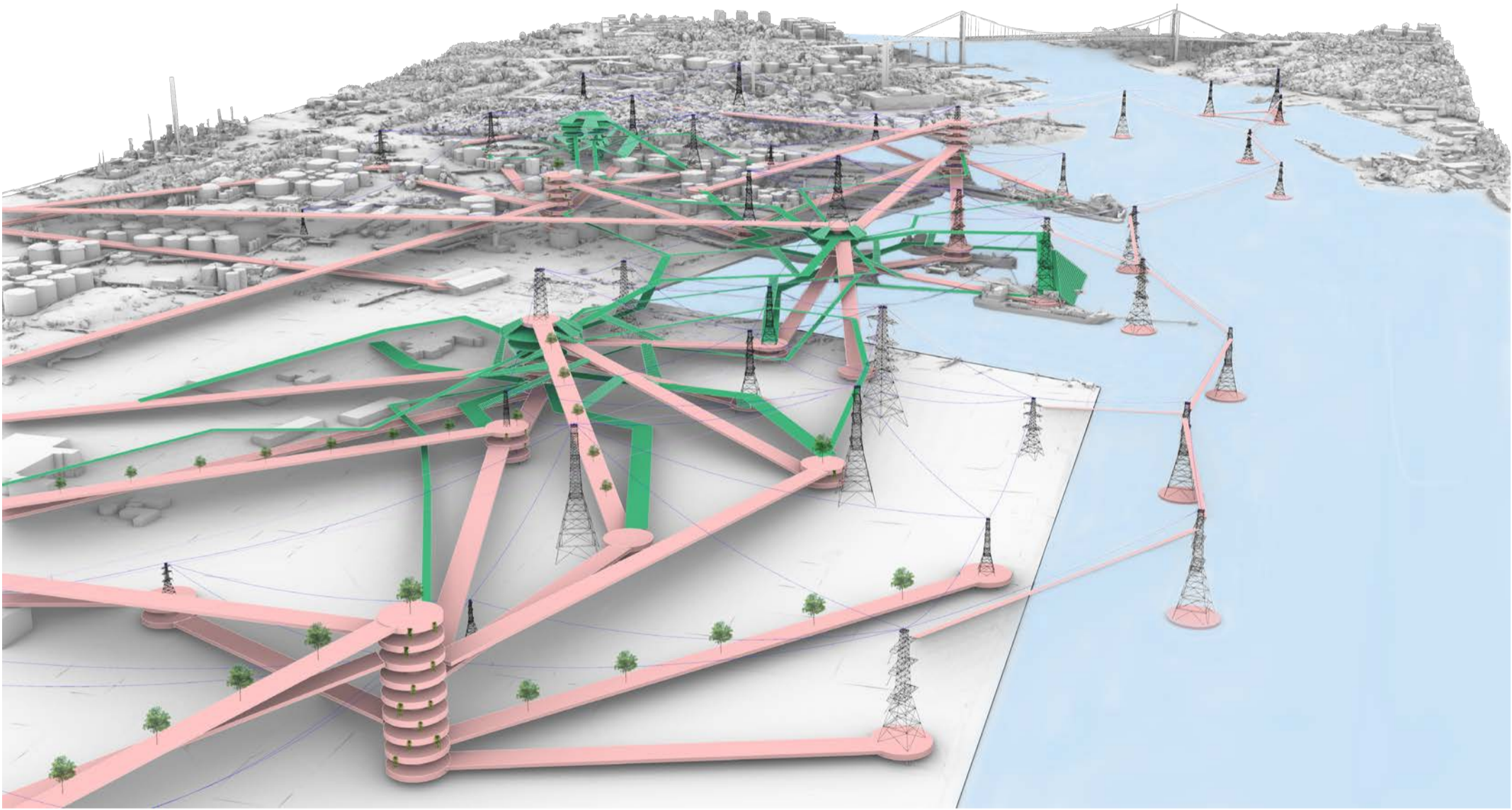
Illustrative plan

2.2.2 Suprastructure prototype





Some sort of water distribution
through the towers?

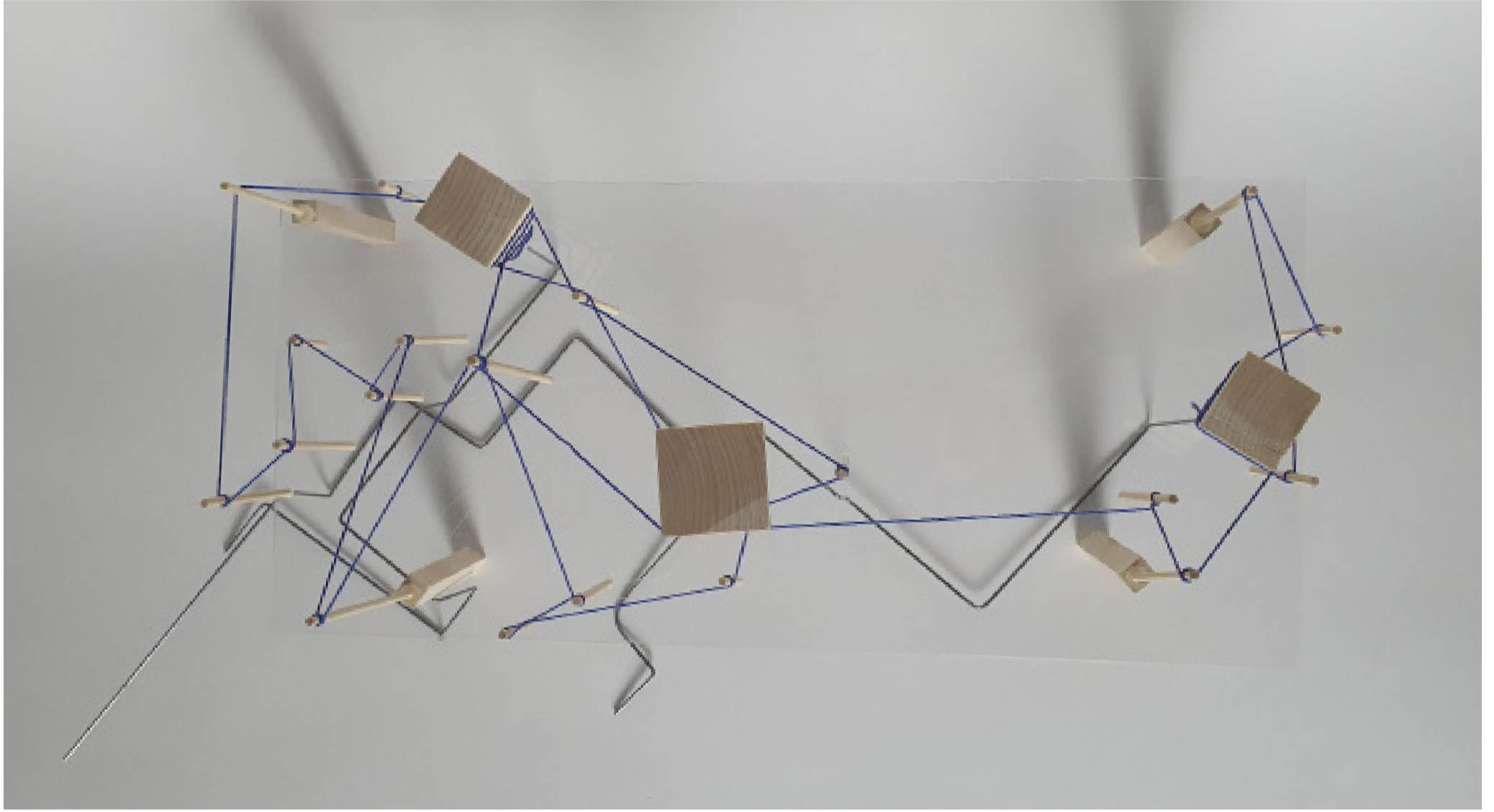


Birds-eye perspective



collages

2.2.3 Suprastructure model



REFLECTIONS

During this phase we went from individual work to groups, and the main challenge was to successfully merge our three different networks from phase 1 into one. How will they work together to solve our problematization?

Initially it was quite messy and hard to understand what we were doing and see how all of this would make any sense in the end. It was hard to let go and "play around" with the elements, but it led to very interesting group discussions (which I at times wish we had recorded). We decided to go in a more or less sci-fi direction to keep the playfulness of the process, and it was a fun direction to explore. It gave us freedom.

By the end of phase 2 I felt like the concept was coming together. We kind of knew where we wanted to go but was not sure how to get there. Some boundaries were set for phase 3, but the logics was not really done.

PHASE 3.

3.1.1 Waterscape suprastructure plan



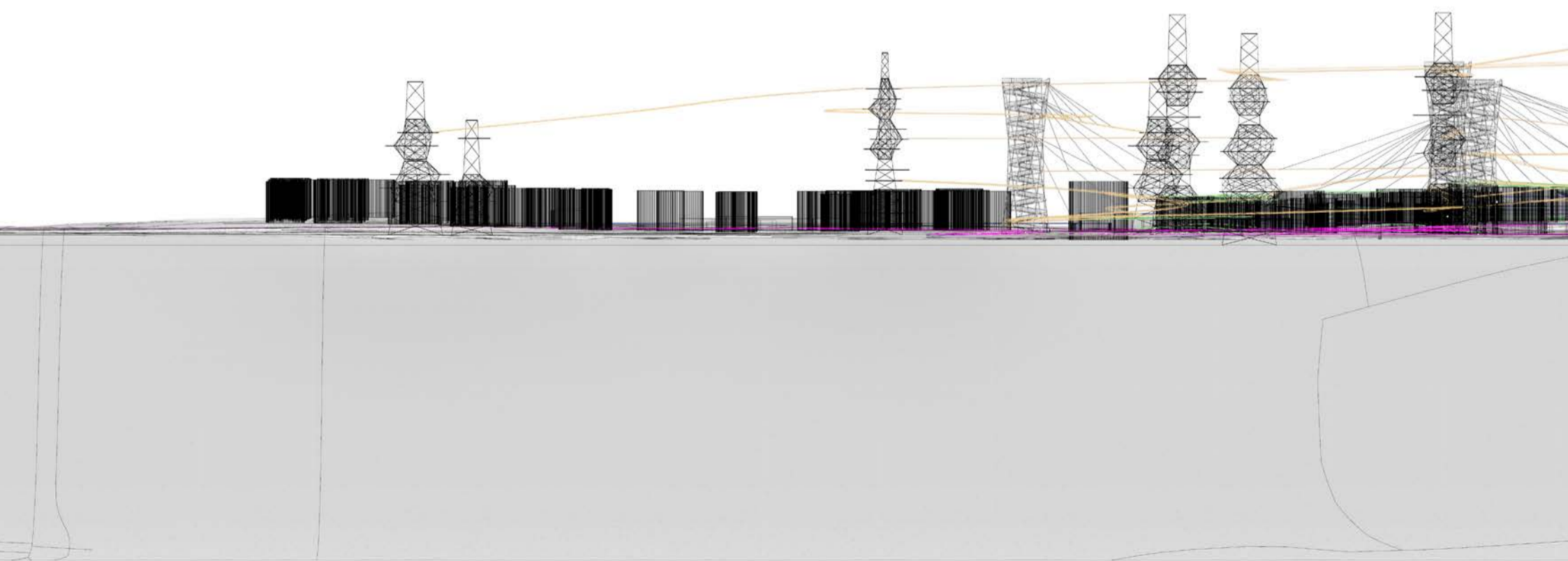
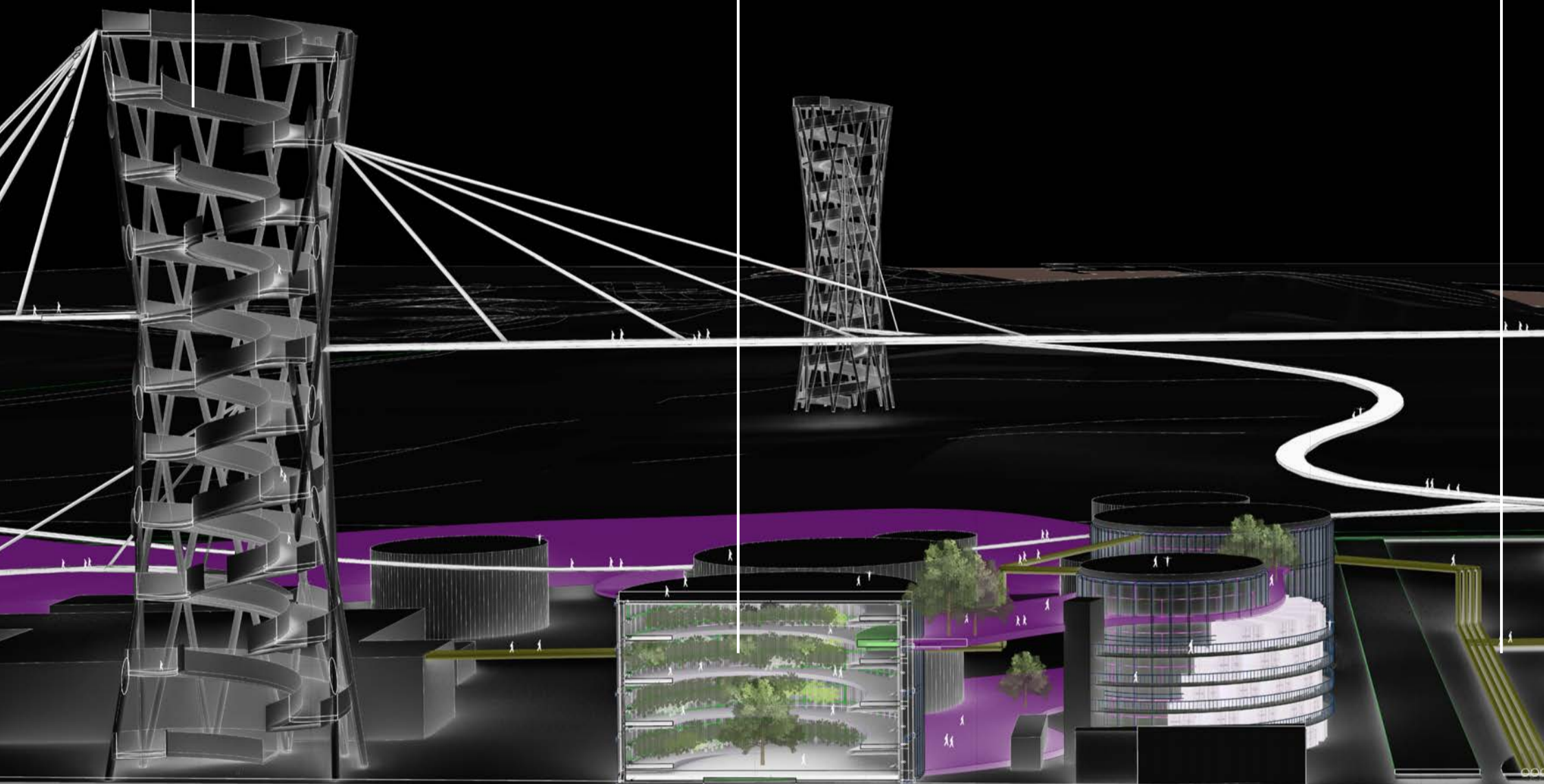
3.1.2 waterscape suprastructure sections

Movement towers with a spiral core, to shift between levels in the network.

Stabilizing the network and supporting the connecting bridges.

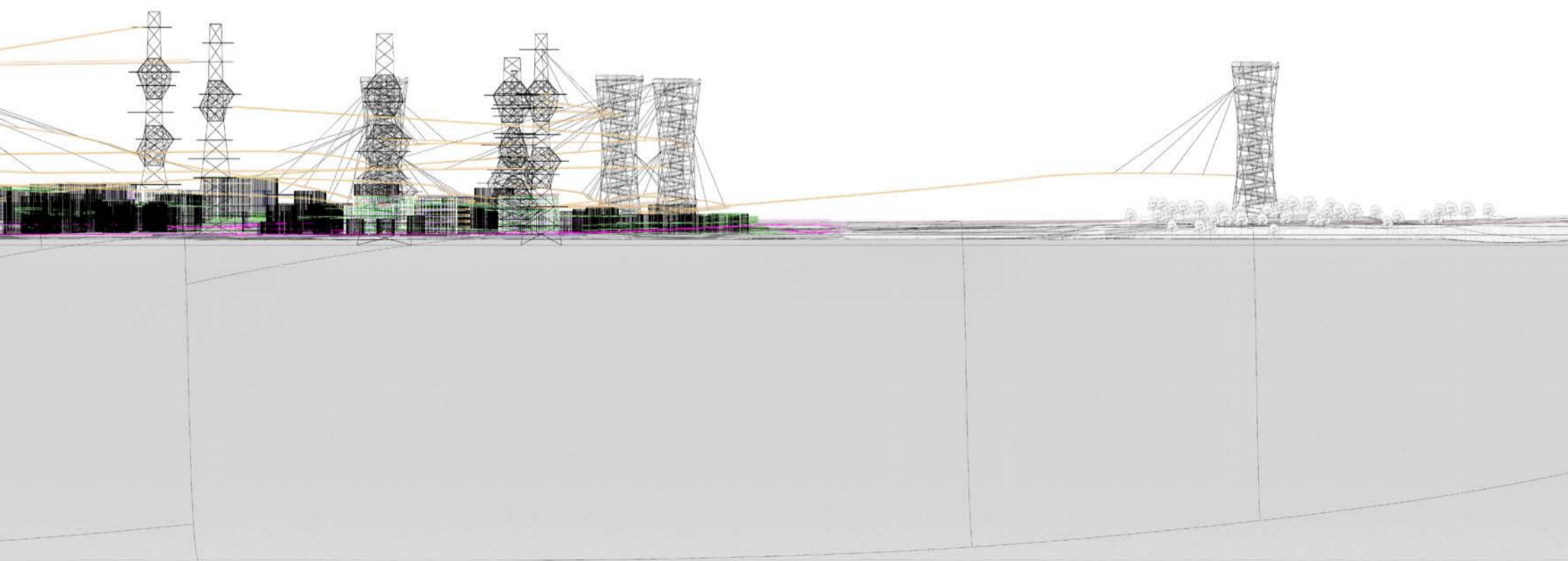
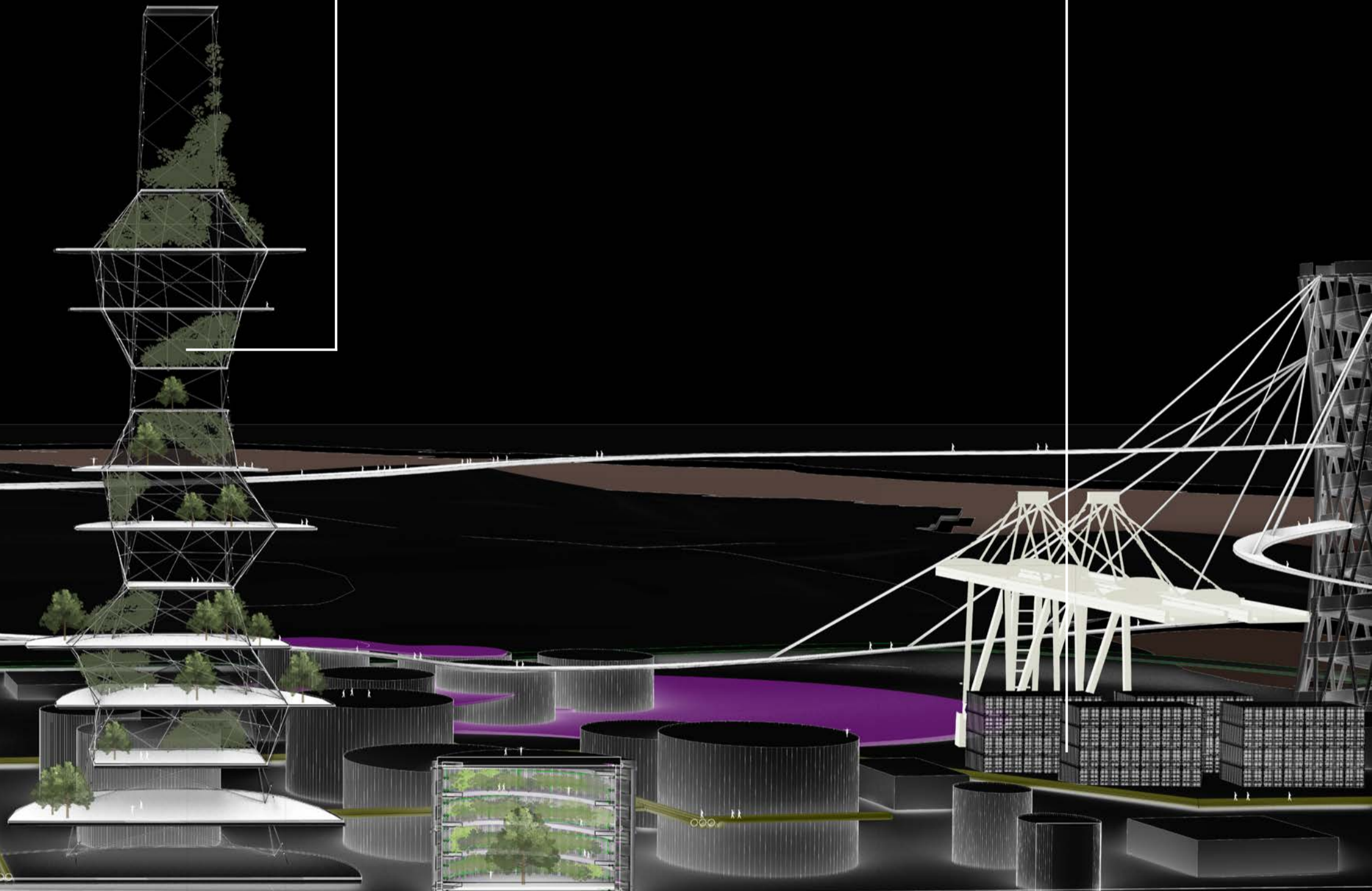
Clusters of old oil silos transformed into green spaces vibrating with life. Inside the silos vertical gardens are growing.

Old oil pipes converted to pedestrian pathways creating a small-scale connectivity between silos.

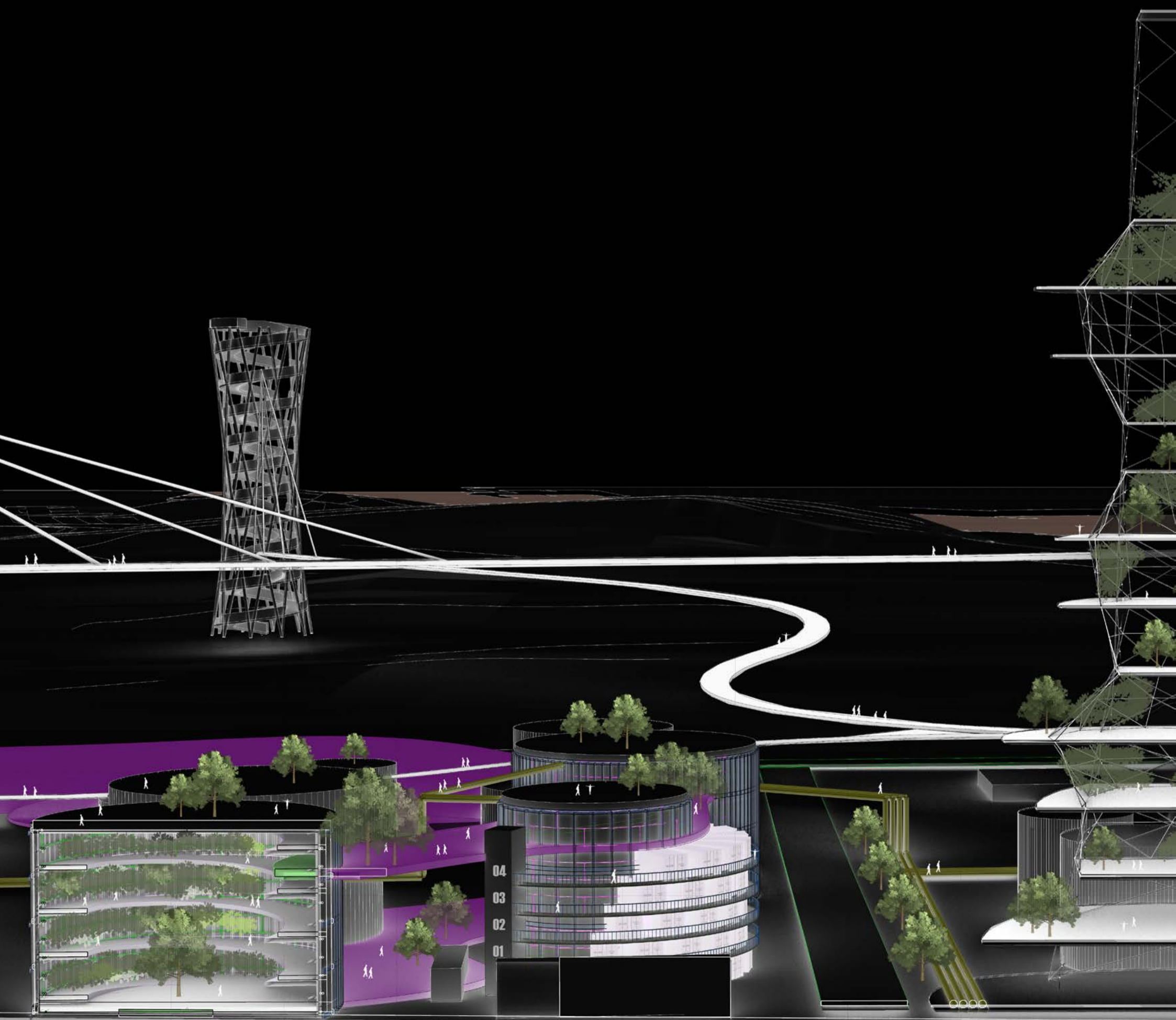


Multi-purpose powertowers supplying the network with solar energy while being vertical green nodes with vertical gardens and park-like platforms.

Areas on the ground left untouched (for now) to enable harbour activity to continue.



3.1.4 waterscape suprastructure perspective

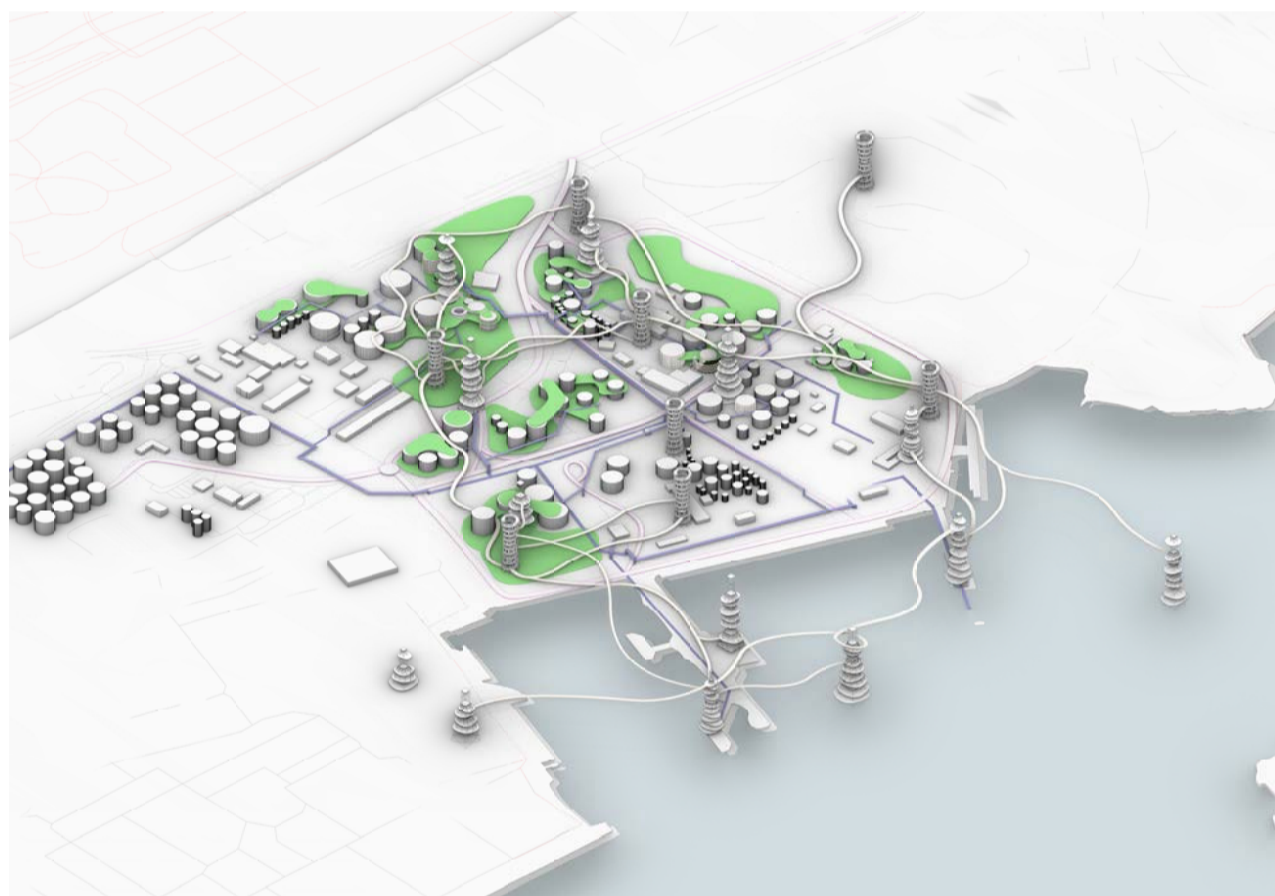


3.1.3 waterscape suprastructure axonometric

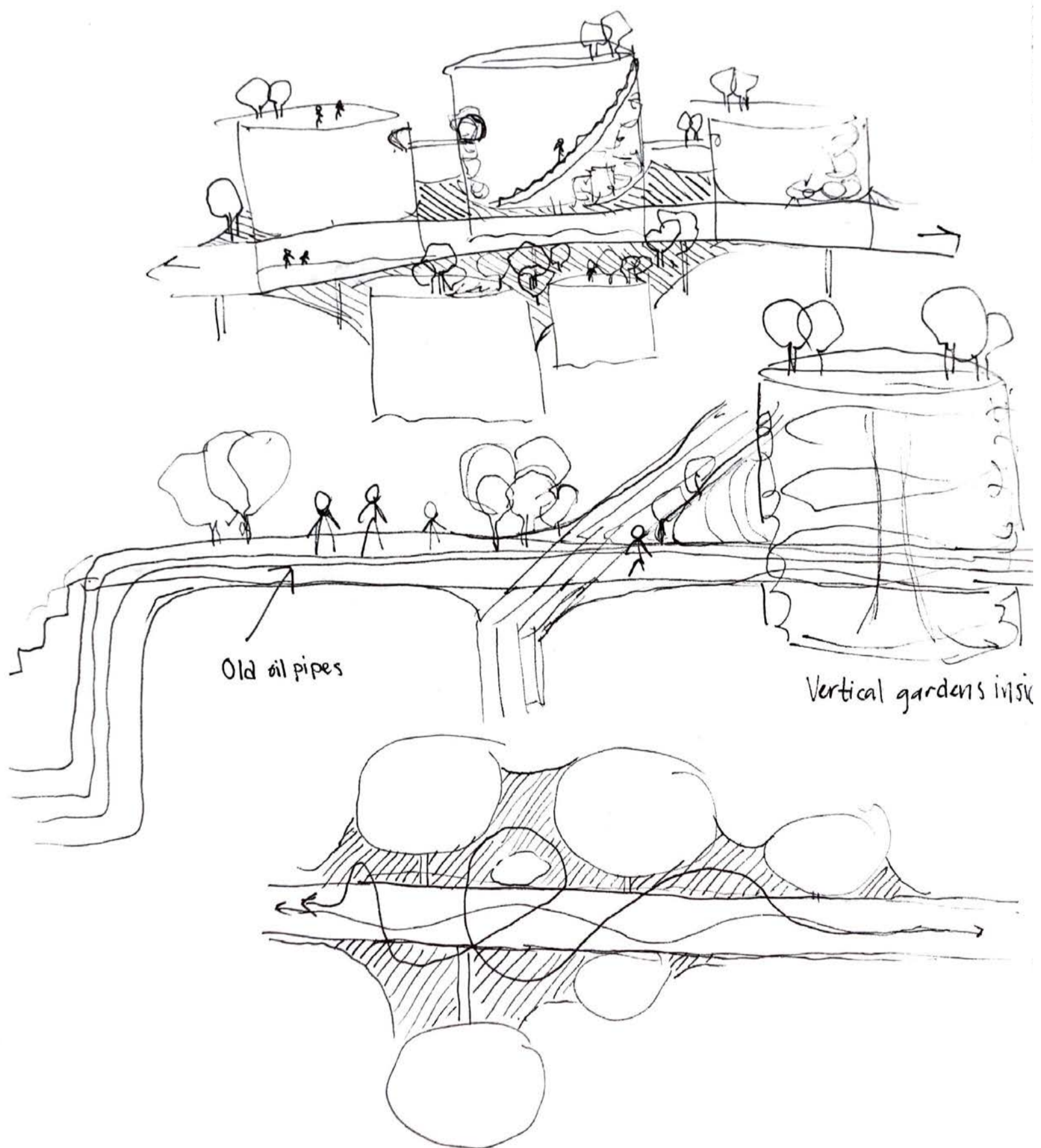


3.1.3 waterscape suprastructure axonometric - growth of green space





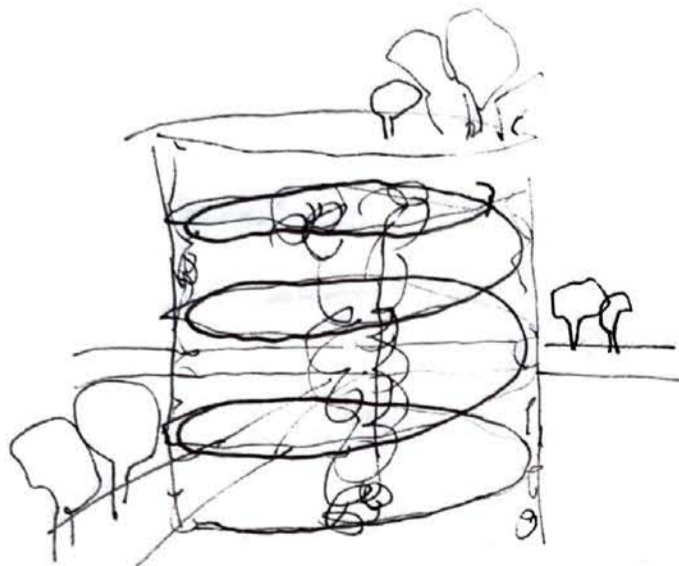
3.2. waterscape project concept sketches



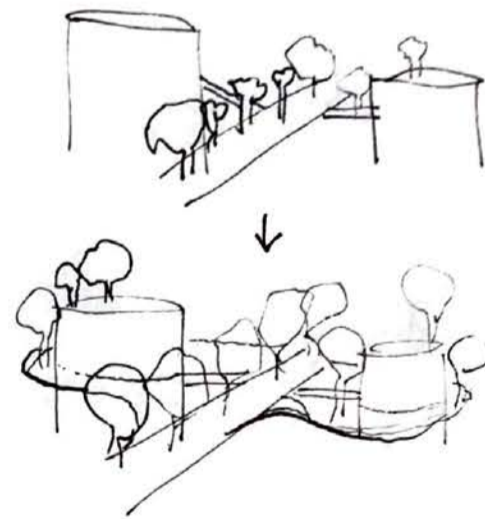
These are some sketches from early stage of the individual project.
I wanted to focus on existing structures on the site and adapt them
to future needs.

Initially the idea was to create parks outside and on top of the silos,
but the idea developed into something else. What happens if we
plant a seed inside the silos?

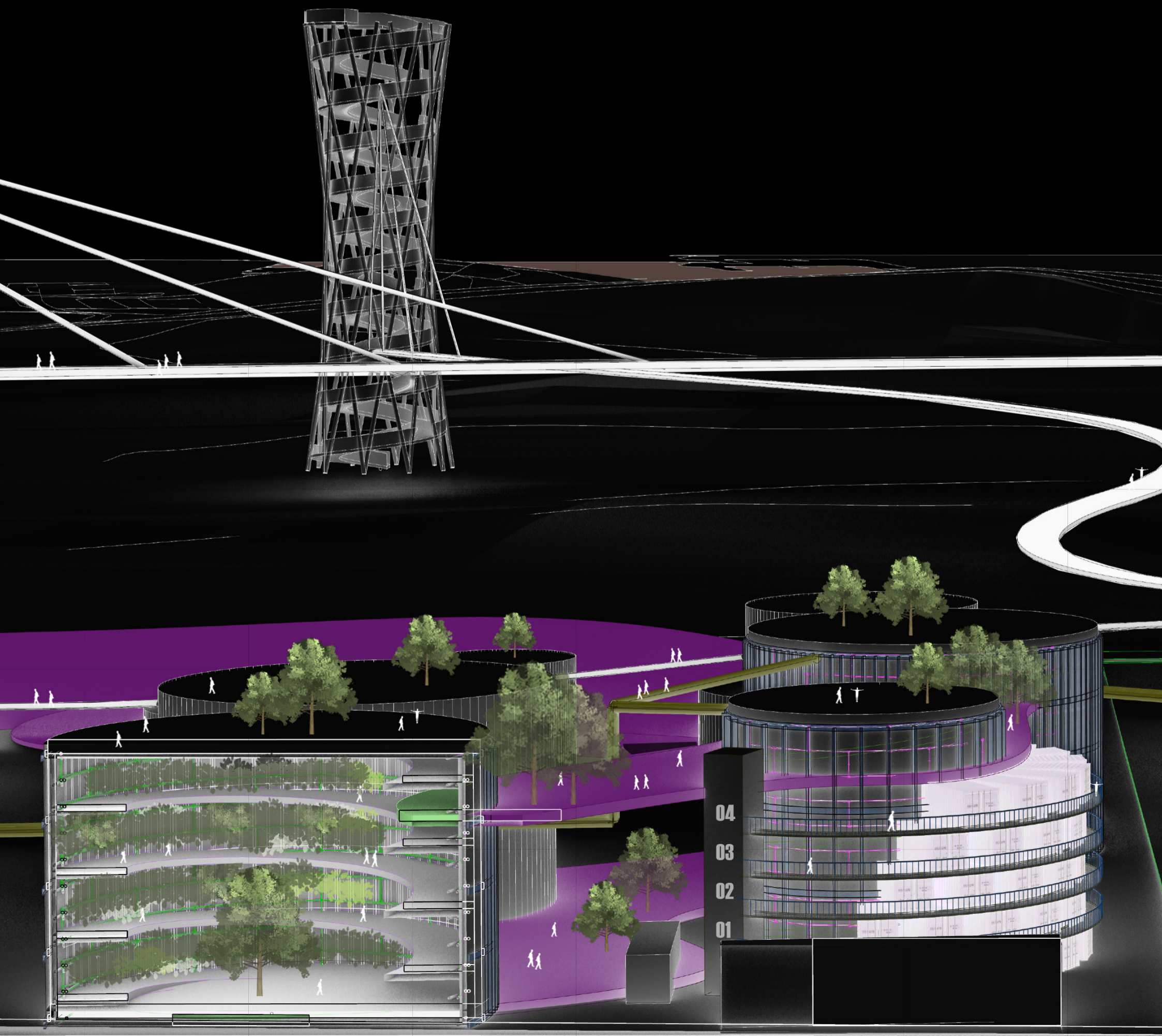
"industrial area reset"



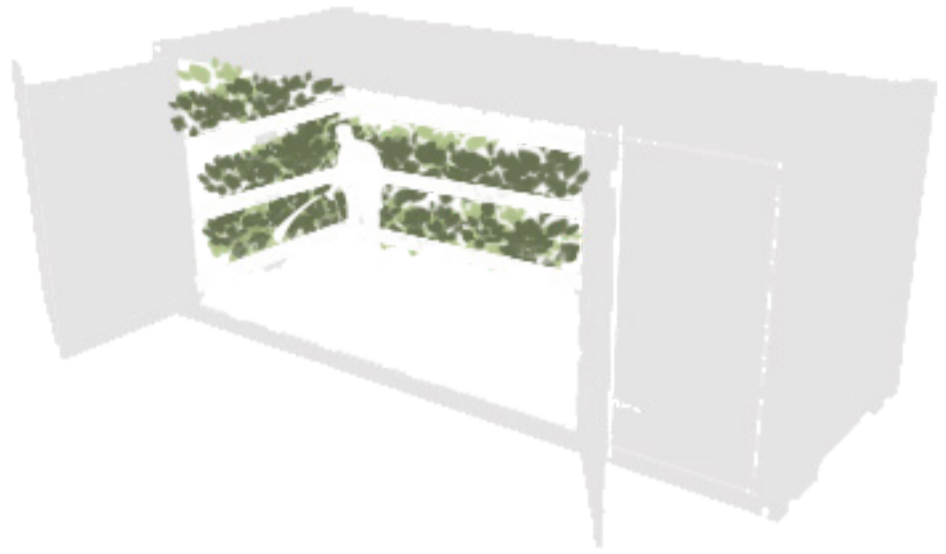
GREEN CORRIDORS
TRANSFORMS INTO PARKS?



3.2.2 waterscape project sections

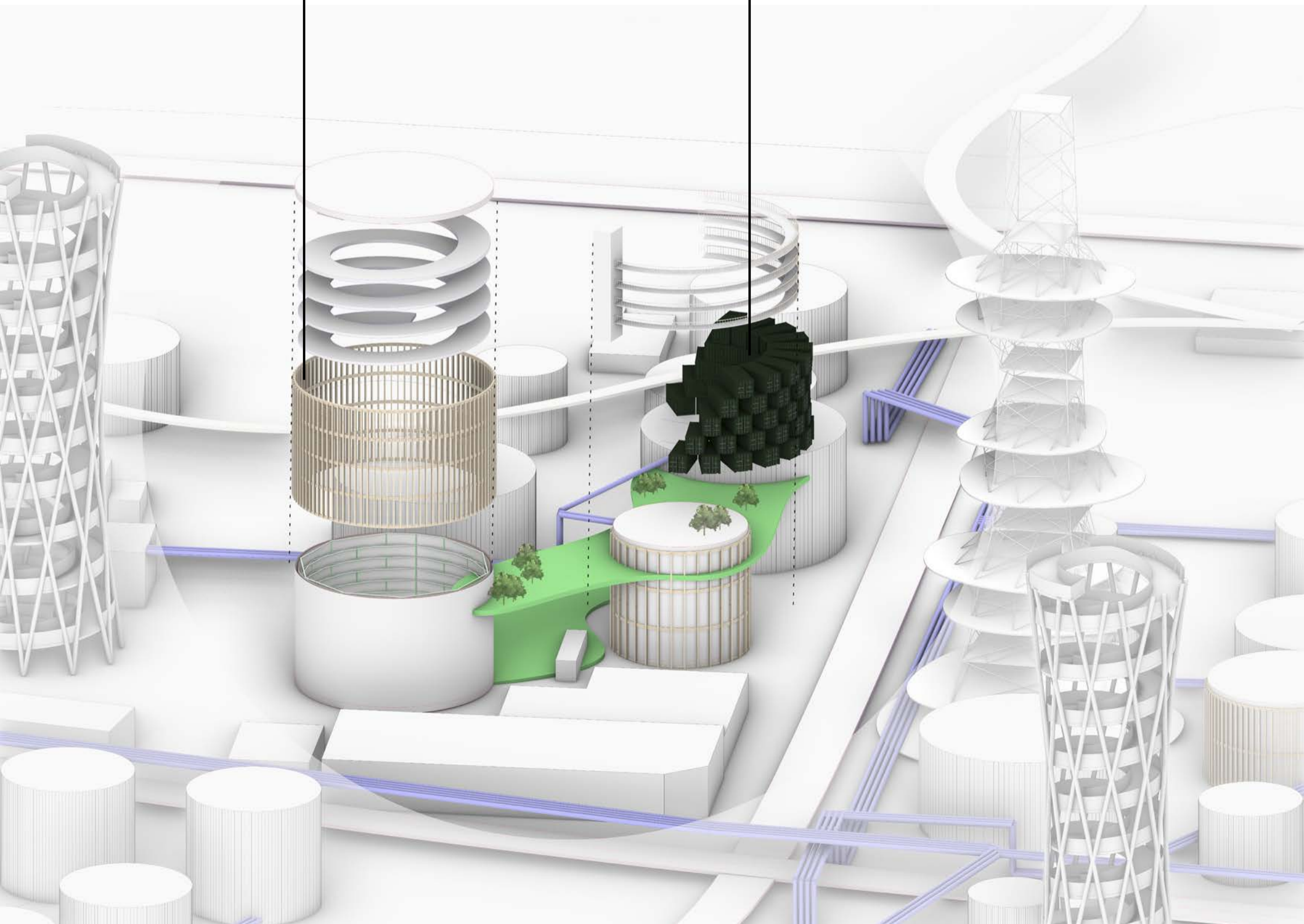


3.2.3 waterscape project axonometric



Old oil silos transformed into hubs for vertical gardening.

Stacked, recycled shipping containers are placed outside silos, used as "colonies" for citizens to pursue their farming dreams. It is mobile and each unit can be continually improved as technology advances.



3.3. concept development

Trying to fit the network together, we found it hard to establish the logic. Everything fell into place when we decided to merge the two towers into one, consisting of two parts.

Movement towers with a spiral core, to shift between levels in the network. Stabilizing the network and supporting the connecting bridges.

+

Multi-purpose powertowers supplying the network with solar energy while being vertical green nodes with vertical gardens and park-like platforms.

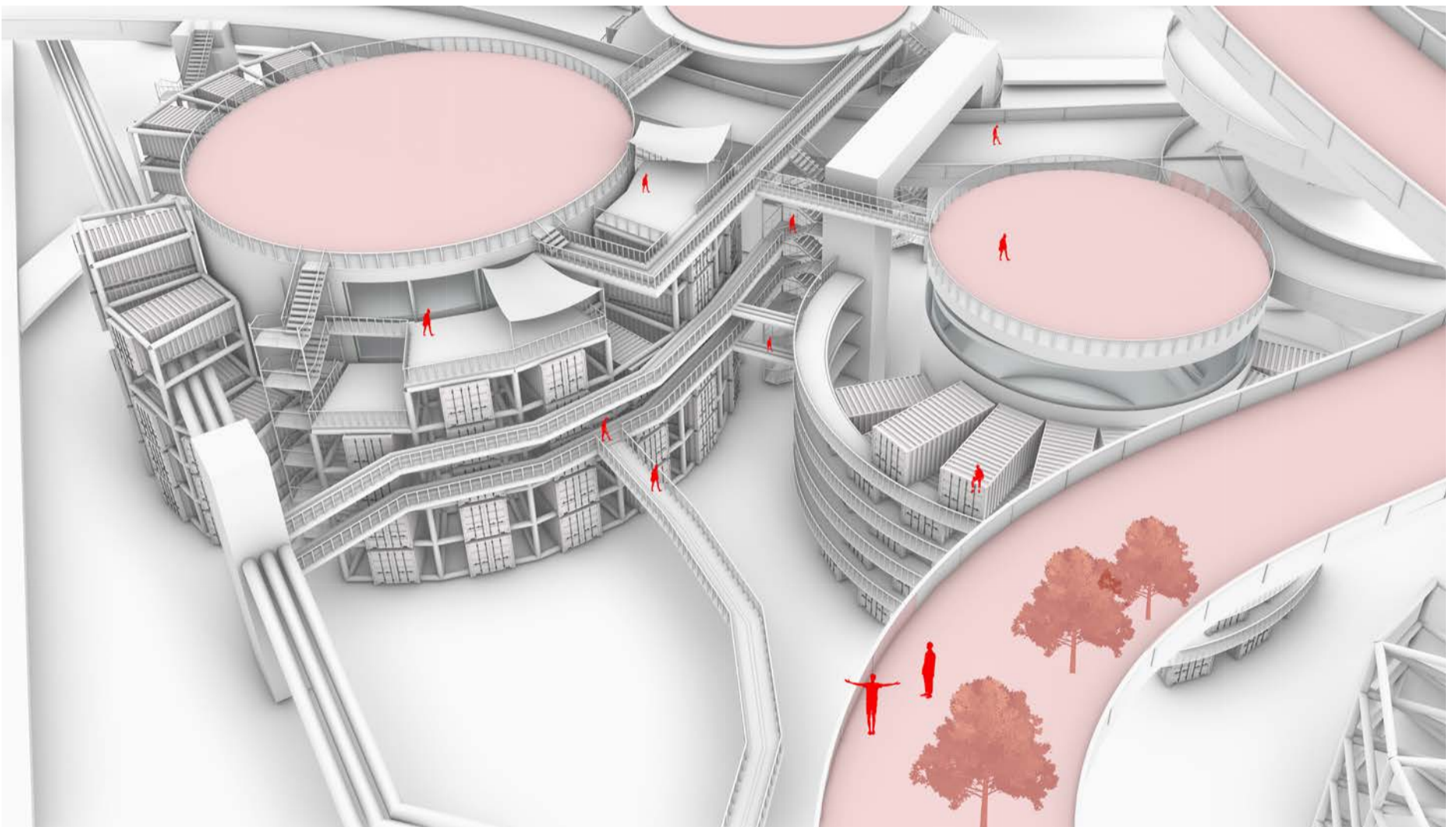
=

Powertowers supplying the network with wind & solar energy with a spiral hovering around it, enabeling smooth vertical movement in the network and connecting to the silos

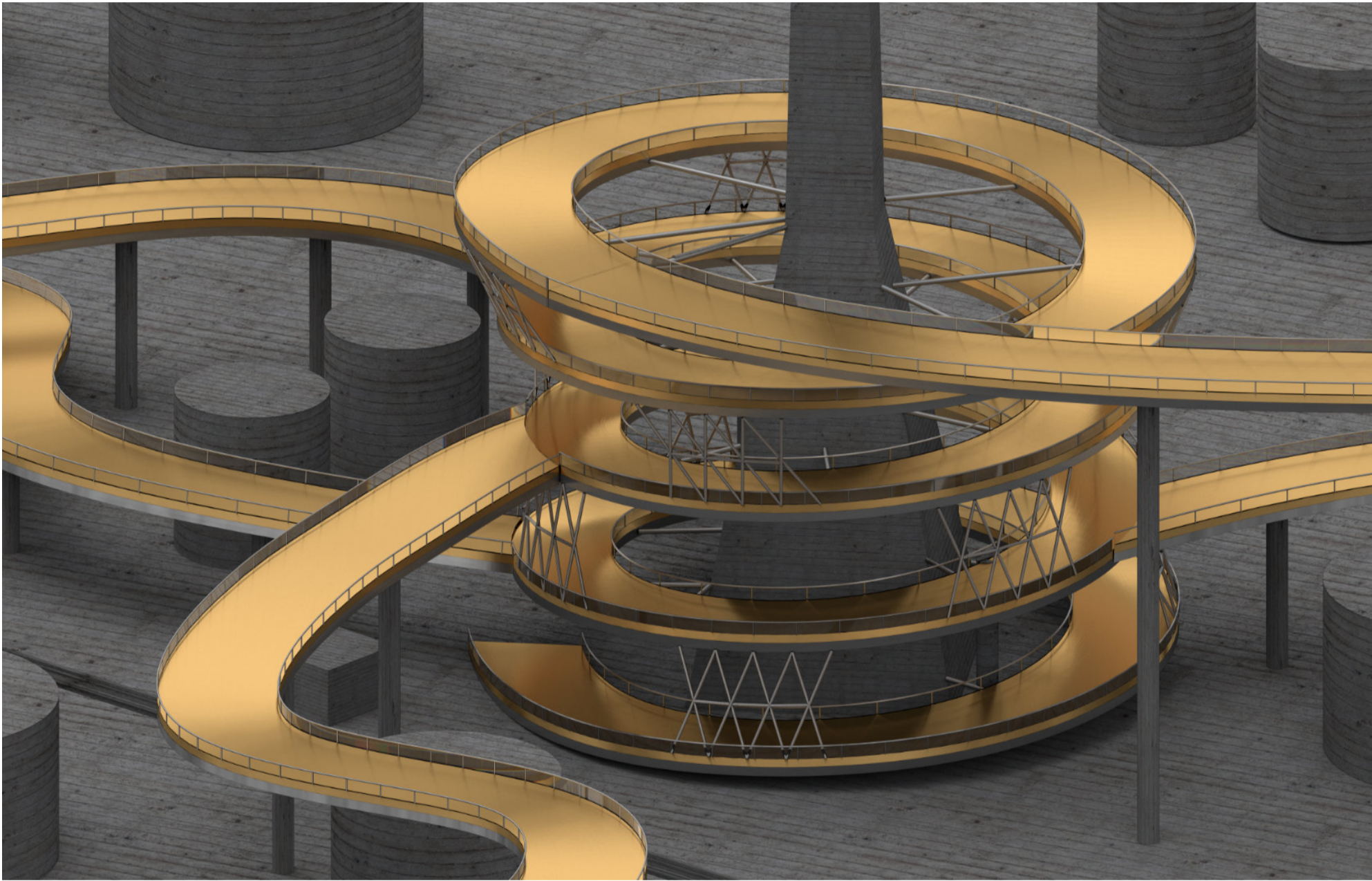


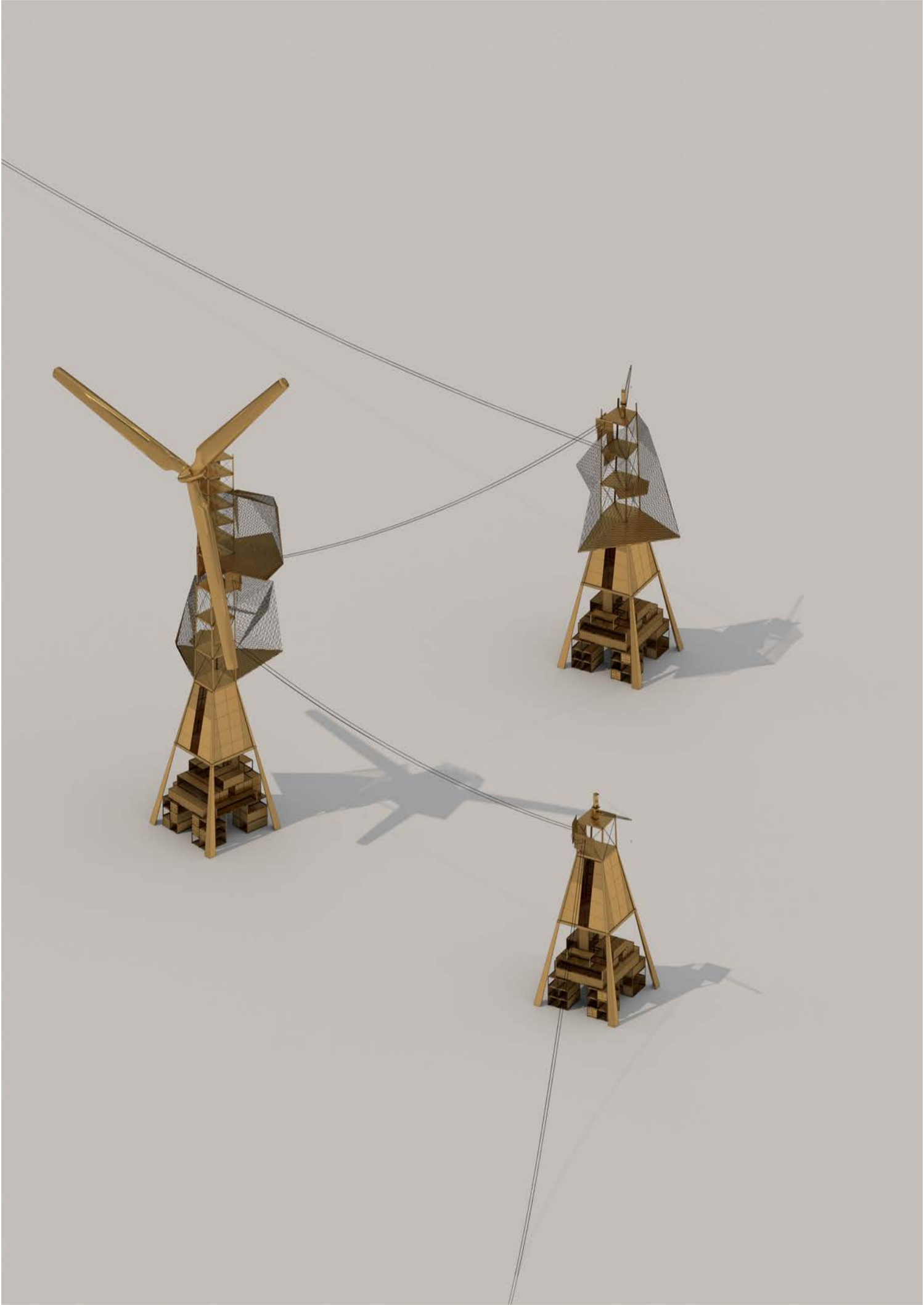


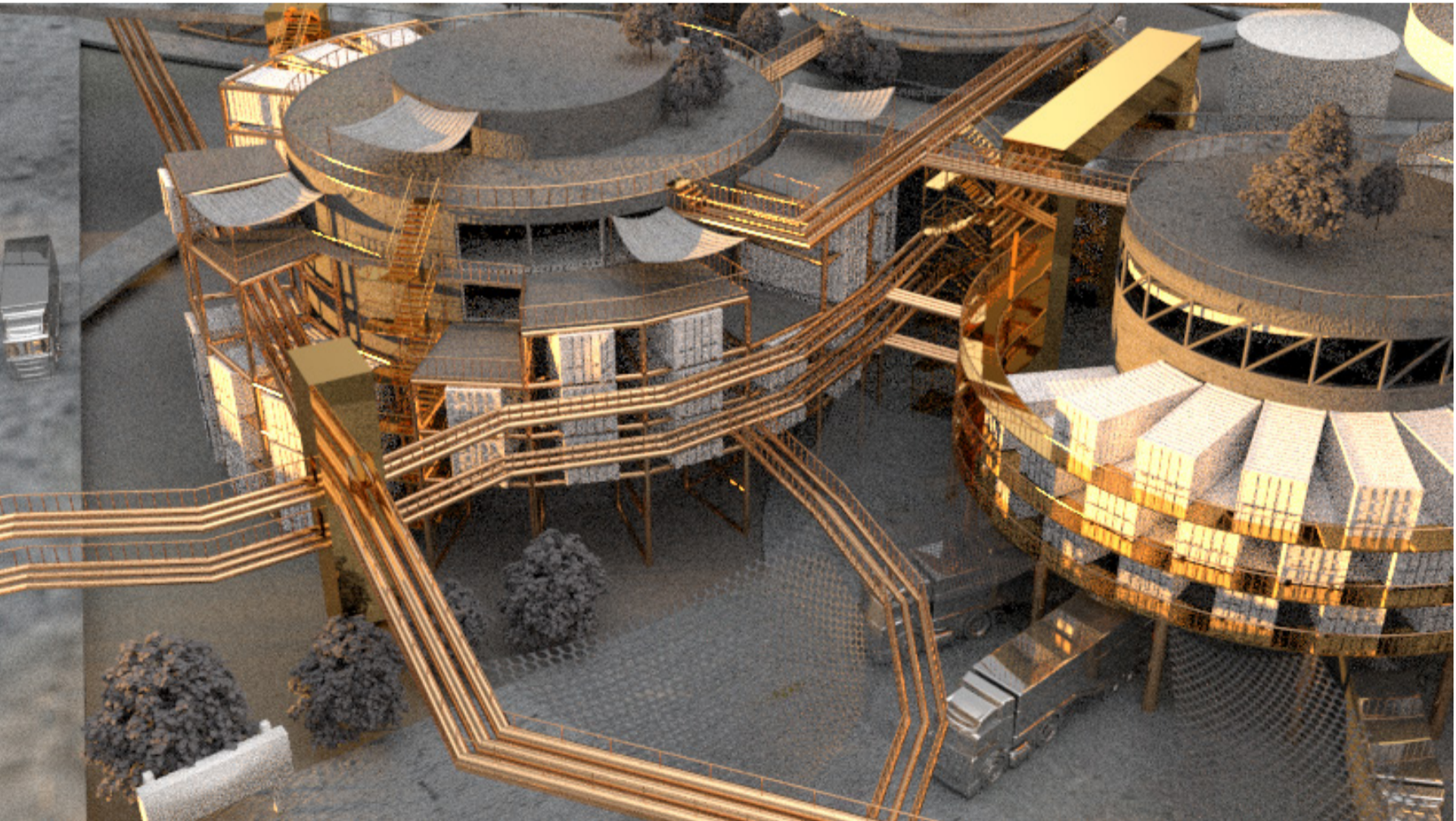
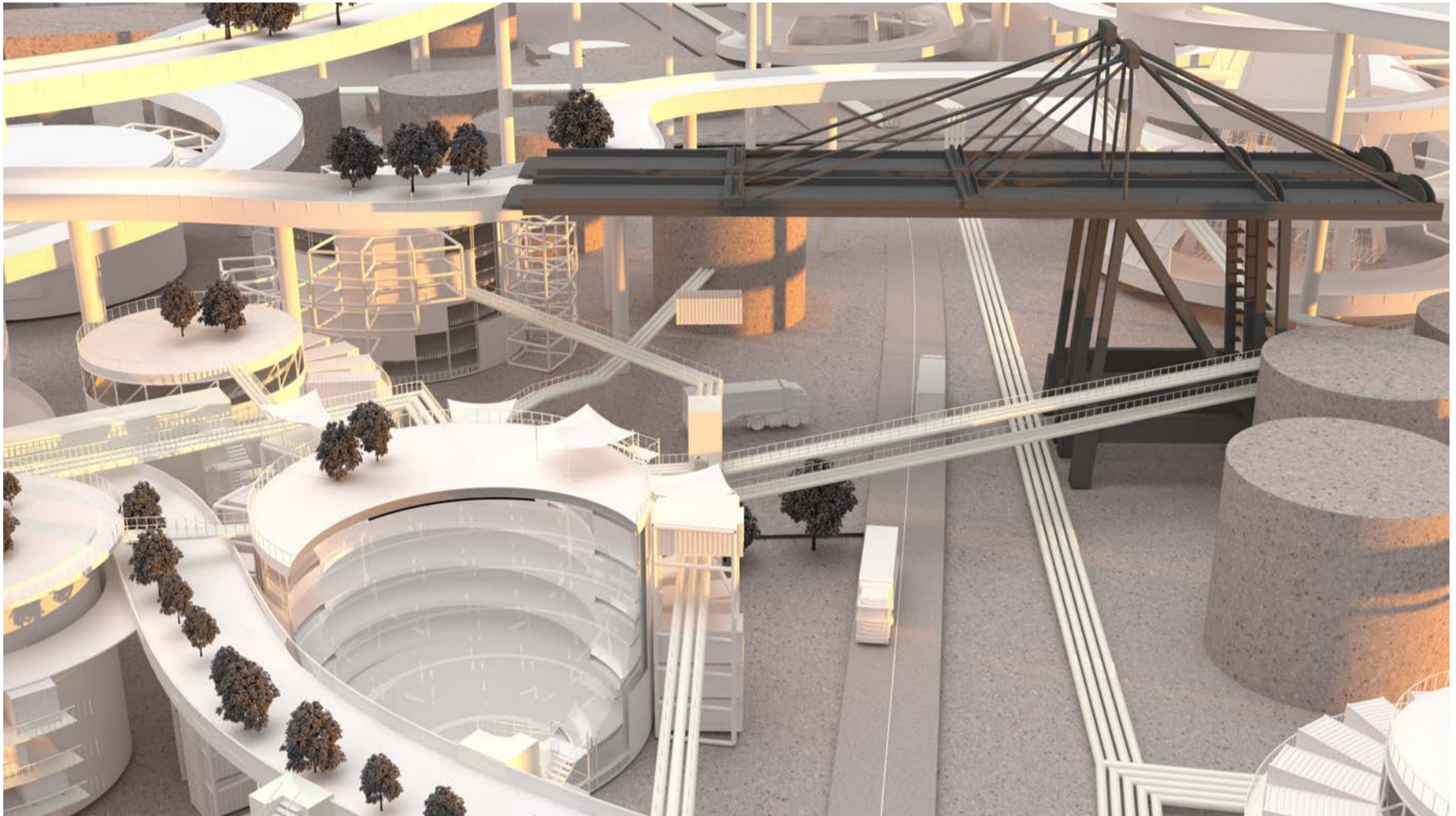
3.4 Getting to know the network - visual experimentation

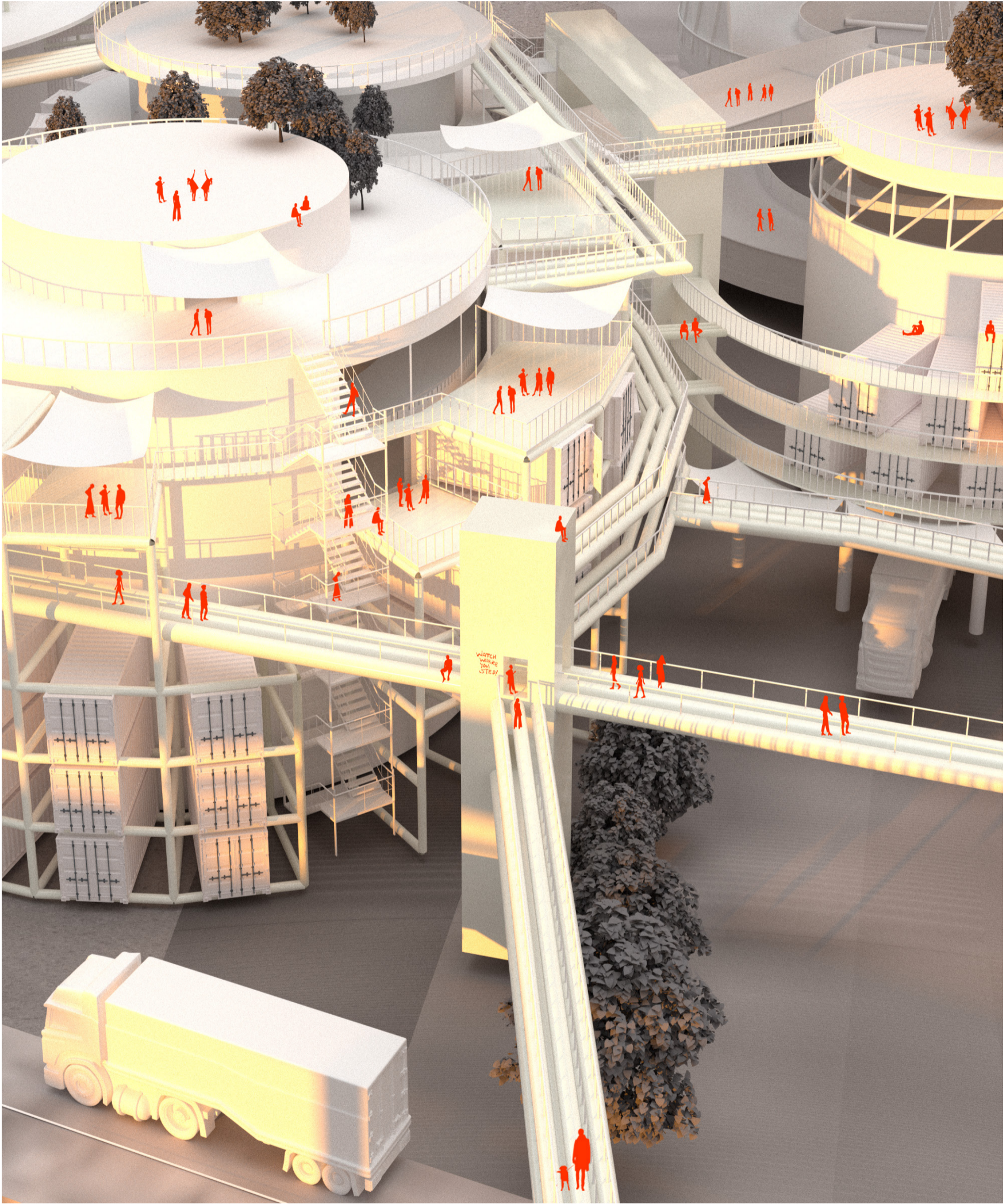


We spent time exploring our network with different types of renderings by changing the material and textures. This was a fun way to design in a explorative way, and helped us to get to know our creation.

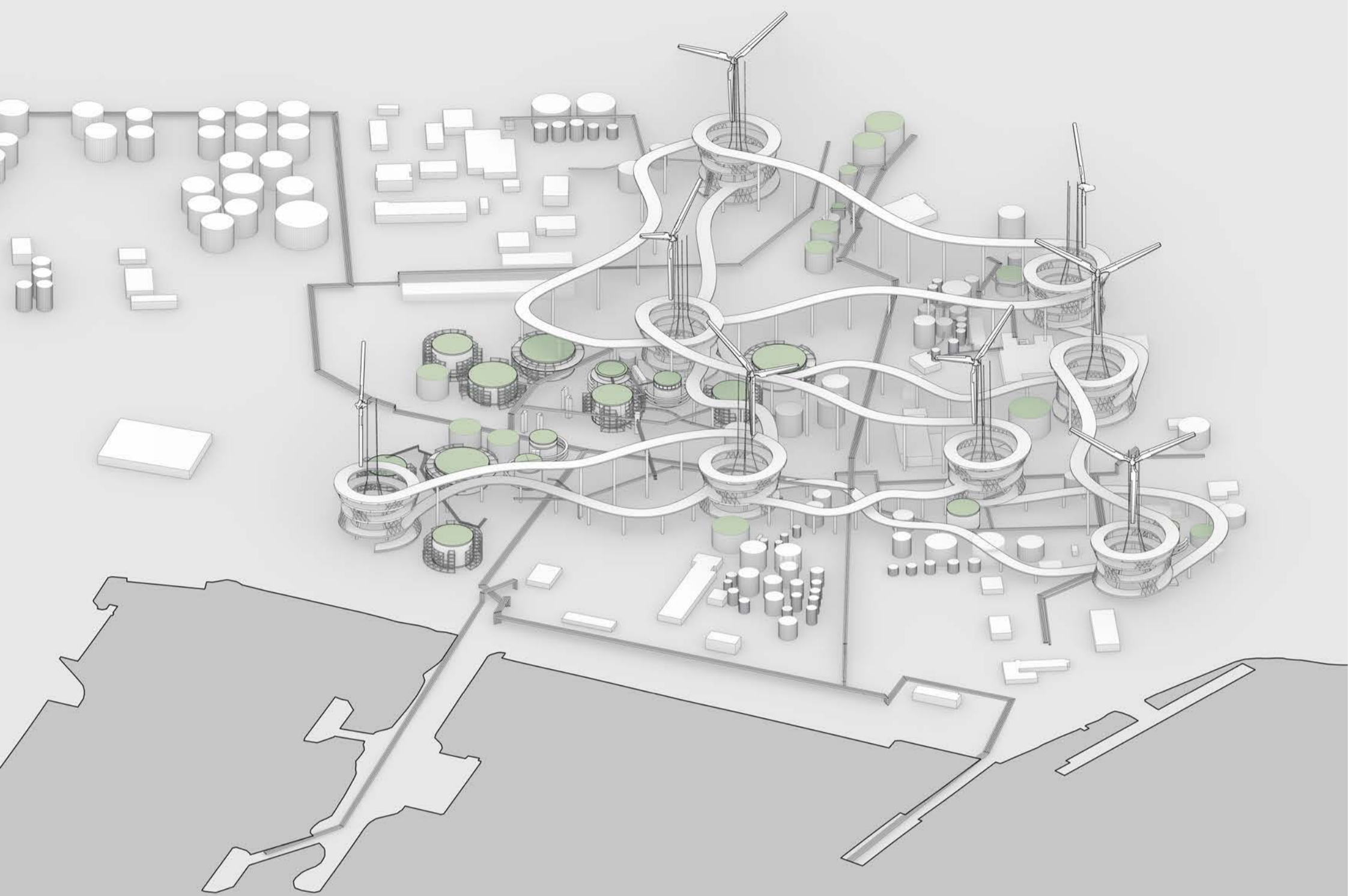








FINAL DRAWINGS



S(OIL), WIND & MOTION

INTRO

Gothenburg is a harbour city, but do we feel like it? The harbour is somewhere out there, hiding beyond the big green bridge, just out of reach and out of sight. We have lost the connection to the harbour, and there by our identity as a harbour city. We need to blur the lines and reclaim our heritage.

To begin solve this problem, we head out to Skarvikshamnen in Gothenburg, also known as the "energy port". As the name might give away, this area handles energy and controls the flow of fossil fuel into the city and other parts of the country. But as we might know, the future for fossil fuel is not too bright. What will become of the space when the use of fossil fuel decreases?

PURPOSE

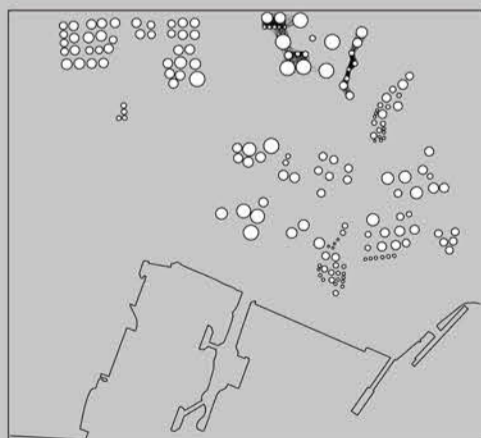
The S(OIL), Wind and Motion is a network hovering above the harbour enabling the co-existence of harbour and city. It is an adaptive network, adapting to the level of activity in the harbour below. As the demand for fossil fuel decreases, the activity in the harbour will simultaneously decrease and the network enables nature to claim back its space. For example, this area here is still active harbour area, not allowing the network to grow so much, while in other areas the network is widespread.

Making the dead space come alive by activation and celebration. A way for the city to expand above the harbour, enabling

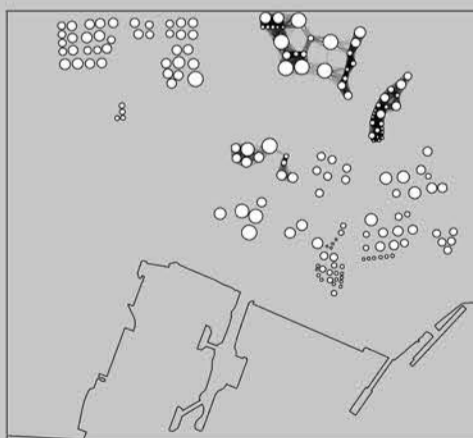
movement on the pathways, energy collecting trough the towers, and for growth in the silos. The network aims to shift the focus of the area away from fossil fuel to another type of energy. Energy like in food, green solar power and human energy. Thereby bring back life, movement, and soul to the area.

GROWTH

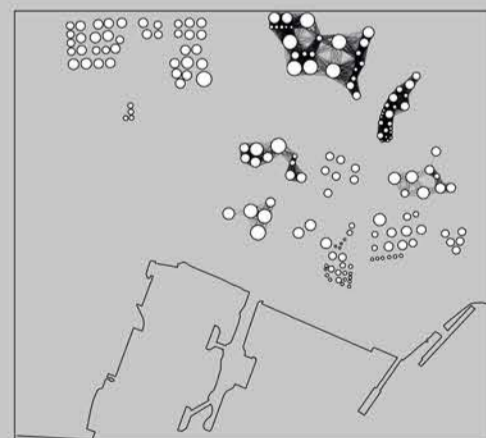
All we need to do is plant a seed. The seed connects to nearby structures on the site, clinging on to more and more as time goes by and the harbour activity decreases. The diagram below shows the growth pattern.



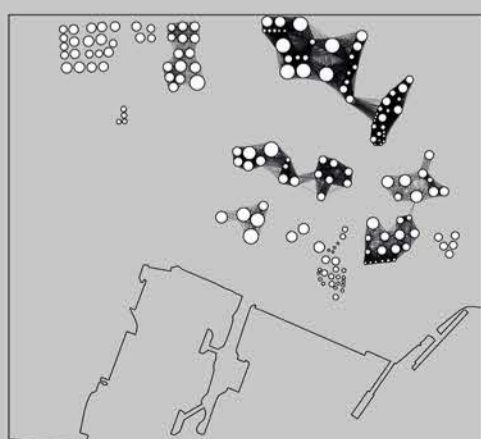
Stadium 1



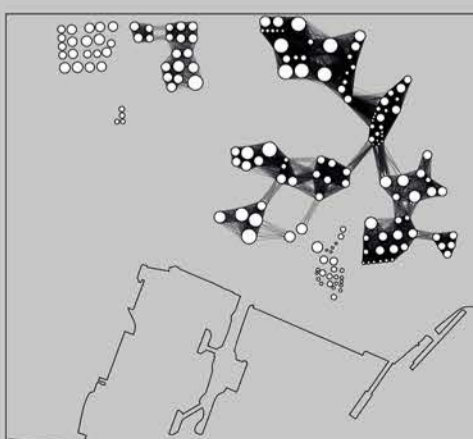
Stadium 2



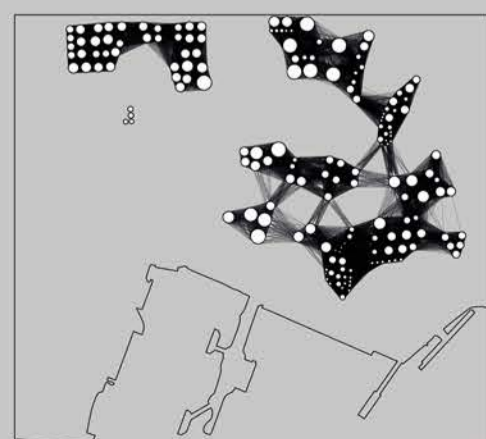
Stadium 3



Stadium 4

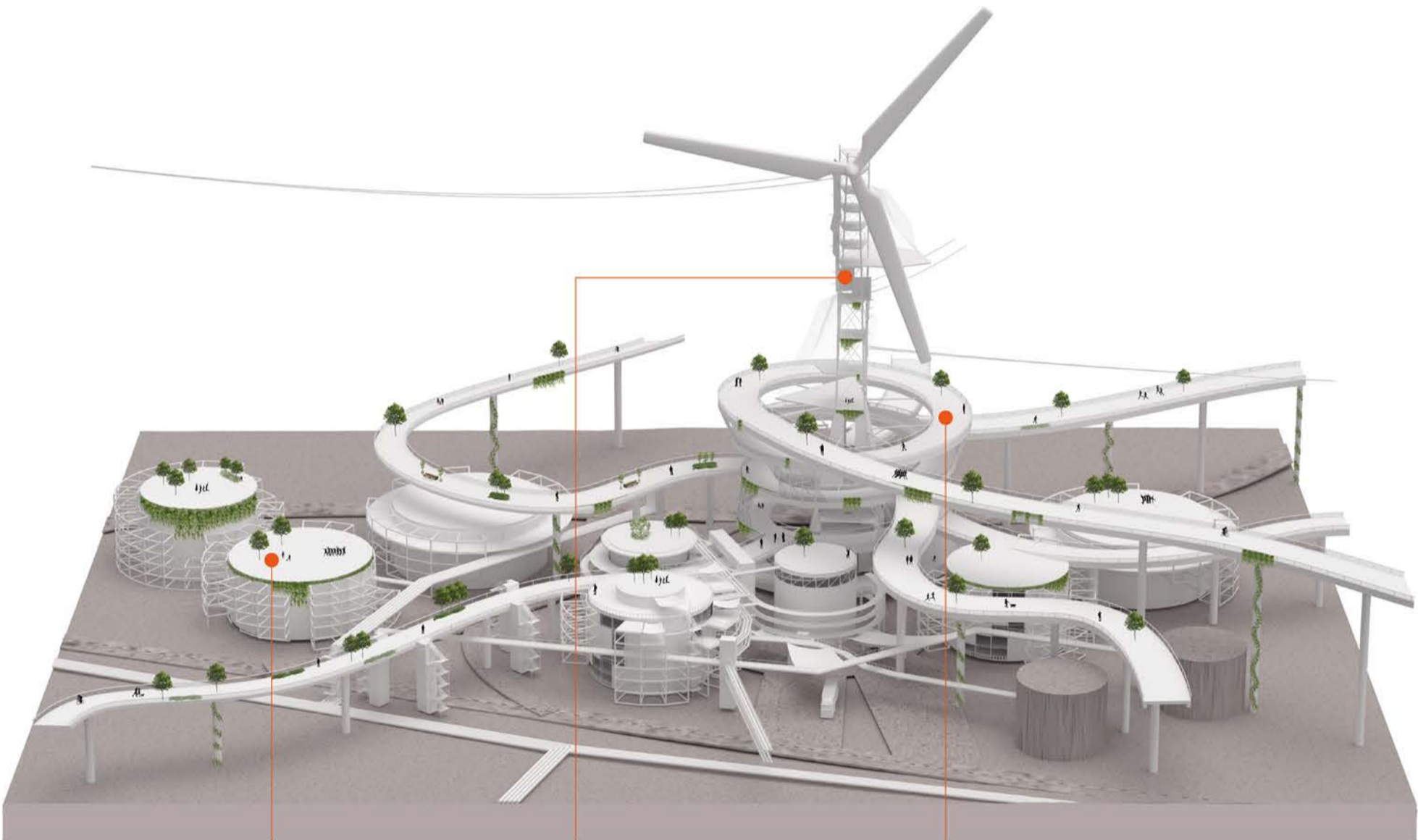


Stadium 5



Stadium 6 - the network has claimed the area completely.



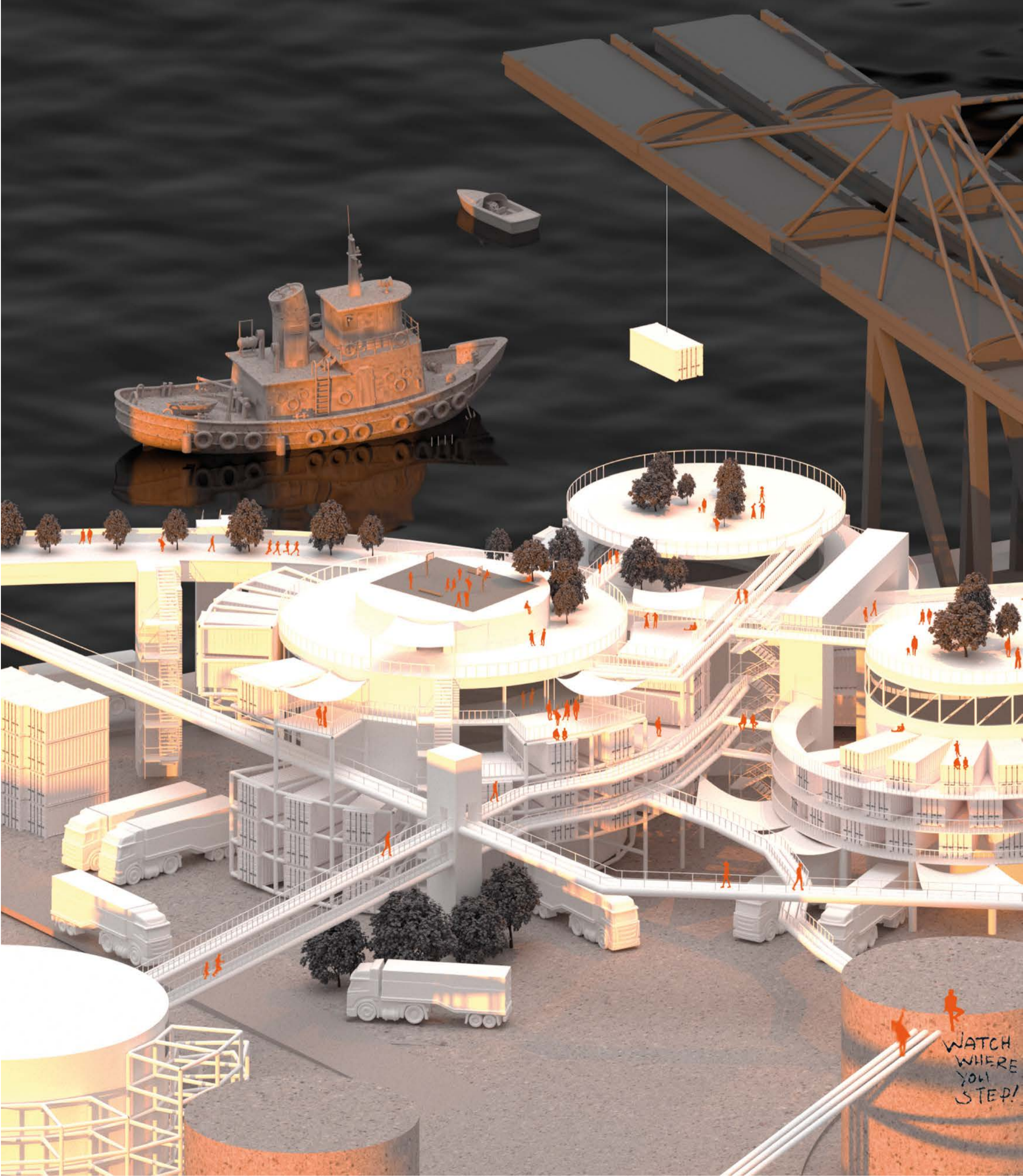


S(OIL)

WIND

MOTION

/perspective

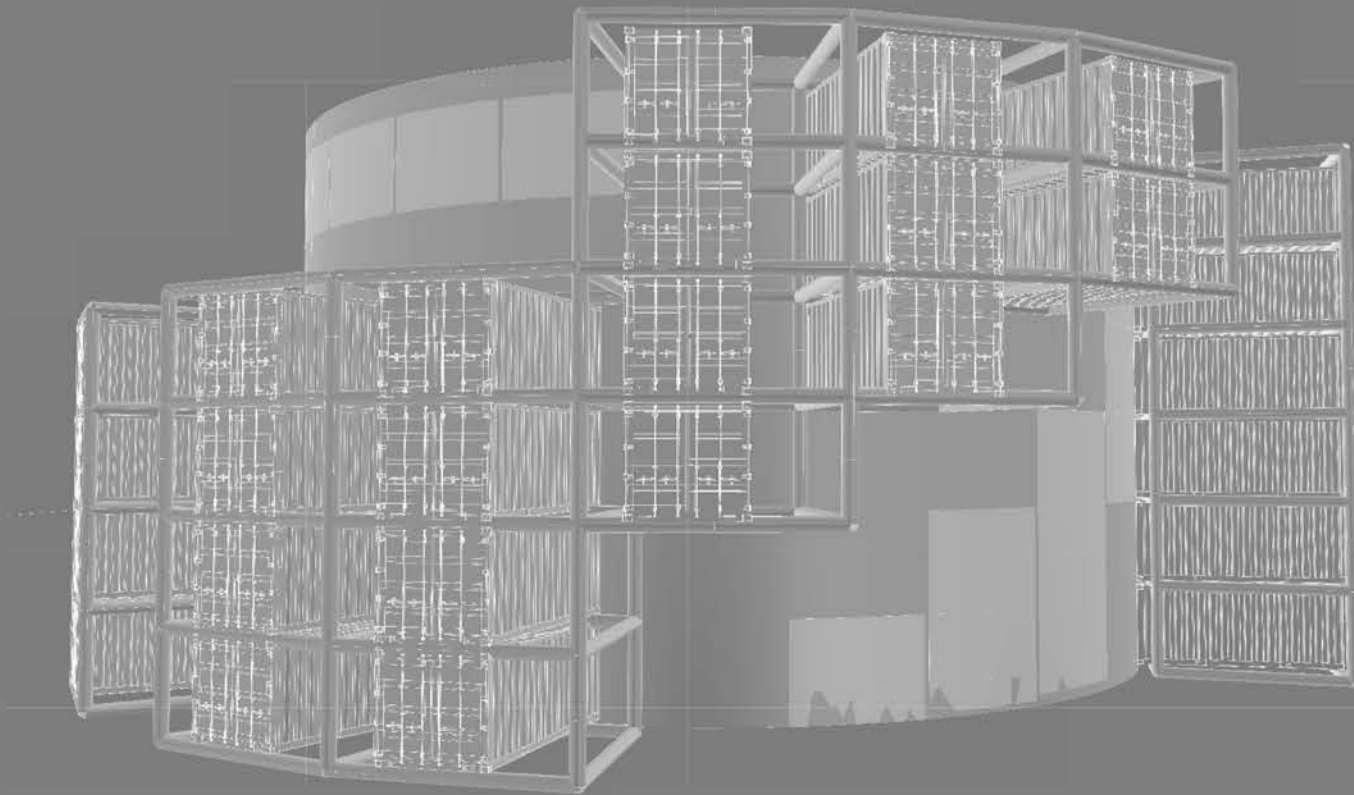
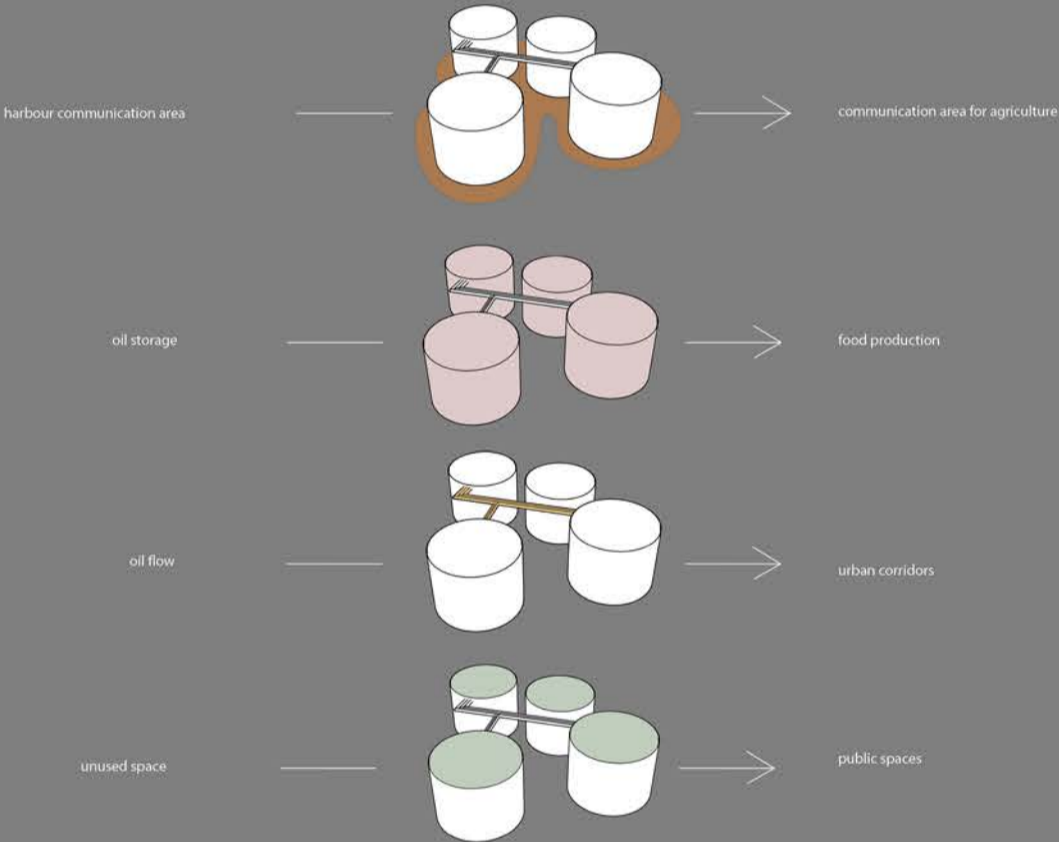


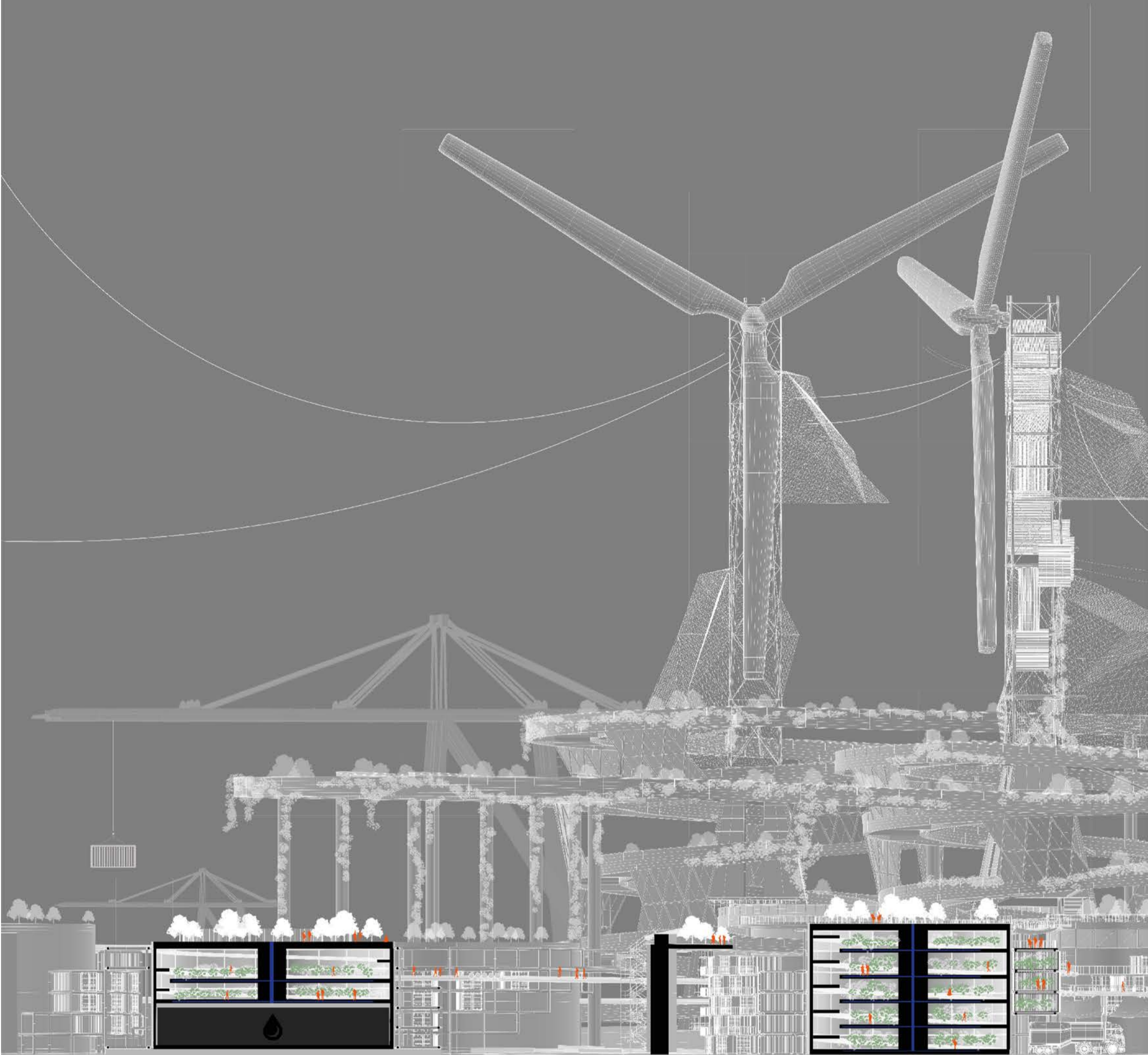
S(OIL)

In the post-petroleum world

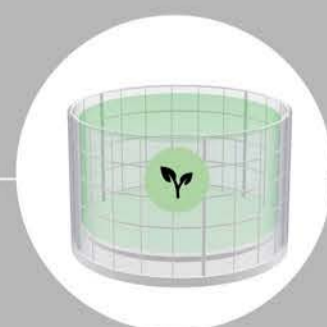
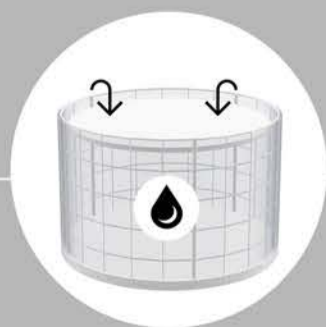
As the Earth's human population grows at an exponential rate, the oil discovery is decreasing at an exponential rate. Natural gas is becoming scarce and oil silos are now becoming abandoned storage containers. In this age of limited resources, why not convert some of these existing structures into something useful?

The project S(OIL) revolves around transforming the fossil fueled area Skarvikshamnen in Gothenburg, "the energy port" into a vibrant, living area for agriculture using existing elements of infrastructure found within the industrial landscape. It is an industrial area reset, giving the space new life and new identity. Leaving its former carbon footprint behind heading into the future as a space for learning by integrating with each other and nature. A place of wonder for the curious, for nature lovers and for creative doers.





OIL



SOIL

Contaminated oil silos are detoxified with bioremediation, which is a safe, environmental friendly, sustainable way of waste management to clean the environment. It uses biological organisms to alleviate pollution and removes or neutralises waste and toxic substances. In this process bacteria and microorganisms, in this case: plants, would be introduced into the silo. The soil microbes eat harmful pollutants and clean up toxic chemicals, leaving only harmless byproducts such as CO2 gas.

To make this applicable to our silos, a submersible platform would be attached to the existing silo structure introducing the soil to the inside, cleaning away the toxicities as it submerges. Once the platform has reached the bottom of the silo, the inside would be ready for cultivation.

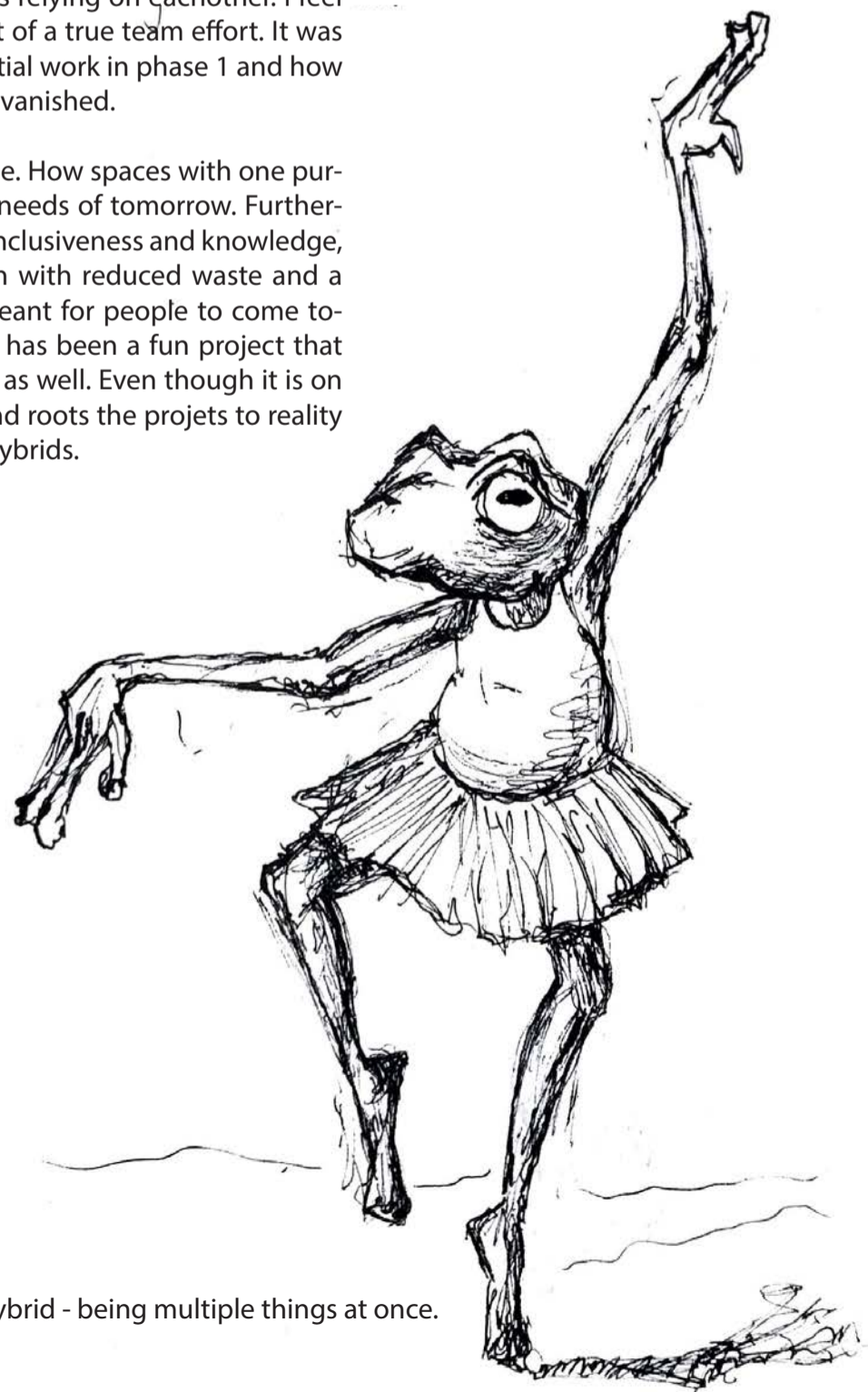
REFLECTIONS

We made phase 3 to a relative explorative phase. We spent time understanding and defining the logics of our three networks and how to translate them into a coherent unity. It was challenging at times, and many days it felt like we had made no progress at all.

It all fell into place when we decided to strip away elements we did not need, and defined different functions for each part of the network. Axels towers would be named Wind. They are proud, tall, energy-collecting warriors rising high in the sky. Samiras network would be Movement. A spiral clinging on to the towers and supplying the vertical movement as well as the connections between nodes. My network, S(OIL), stays on the ground, gradually allowing nature to claim back the space we stole from it.

For me, one of the biggest strength in our project lies within how well we worked together in this phase. We did all our individual work on the same place and we were interlinked with eachother all the way to the end. Even though it is three individual projects, they fit seamlessly together and is relying on eachother. I feel proud of the final presentations, and that is the result of a true team effort. It was fun to see how our final projects connected to our initial work in phase 1 and how our infrastructure elements had transformed, but not vanished.

My individual project is about what is and what can be. How spaces with one purpose today, can be transformed and adapted to the needs of tomorrow. Furthermore, it is my opinion that urban farming is all about inclusiveness and knowledge, promoting responsible consumption and production with reduced waste and a circular future. The space created in the project is meant for people to come together, grow together, and reconnect with nature. It has been a fun project that brings lots of joy to me, and hopefully to the viewers as well. Even though it is on the fantasy-side, interesting points are highlighted and roots the projects to reality and the challenges of future architecture and urban hybrids.



hybrid - being multiple things at once.

