myceliUS cookbook

vol. 15 BOSTON, MA 2020

A GUIDE TO UNDER THE UNDERGROUND

out of sight and under the radar

"There is a duality in the underground – we seek refuge below the earth and under the radar. We assemble out of sight, growing as a collective that includes our human members and non-human partners.

We delve into the earth. What spread through the ground – our roots pushing towards the surface and into expanded subterranean territory.

The Underground is that which resides out of sight, thriving against the grain. We occupy buried spaces re-defining a new natural for the current era, the mess we are living in.

The detritus contains the potential for a feast of the senses.

Here we grow."

There is a hidden world hovering in the cool damp of the deep earth; it percolates in tunnels long forgotten and basements rarely entered. It is the overlooked, the discarded, the nature on the fringe of nature: home to revolutionaries, human and non-human alike.

Some dug, undermining the American lawn, the bane of suburban families as they step onto their suddenly squishy grass. Some sipped whiskey away from prying eyes, a rebellion carried in barrels and downed below the surface. Some hid, tucked below doors pulled under carpets, between walls, behind shelves, seeking more, seeking better.

This underground, the buried, is both the end of life and the beginning and contains the potential for a feast of the senses. The growth of life that sustains us sprouts, bright and eager, from the damp dirt while a coffin is slowly lowered into the depths. Roots, bulbs, seeds, bones, pipes, tunnels: dusty and dirty potentials and remains.

As elements of this ecology below the surface, infrastructural systems form a dense and intentional network critical to the operation of the city they run beneath. The above-ground could not exist without the below-ground, yet it is overlooked: 'out of sight, out of mind.'

We seek to use the cover of these systems to build our own alternate framework.

The underground, in its duality as both out of sight and under the radar, has the potential to be a breeding ground for a new ecology of nourishment. Here, we are free to grow new futures, build political movements, and support those already underway on the surface, without ever being seen.

2020 is the continuation, not the birth of our situation the destruction of the social and political and physical landscapes that has been exposed has long been creeping forward, out of public sight.

In an America where democracy was once seen as a given, myceliUS would never have been necessary.

But in these times, the fragility of our democracy has become apparent, our institutions of knowledge and reason are being dismantled and disabled, and the governing frameworks that we thought were law are being scrapped. The need for affordable food has increased. The residents of East Boston are under strain as a result of governmental instability, threats of deportation, and police brutality. The neighborhood as a place of community and safety has deteriorated to the edge of collapse under these threats, and food security has devolved in tandem. Those on the fringe, and those that stand with them, are on the brink.

So, we turn to the underground.

Welcome to MyceliUS,

a revolution of mushrooms and collectives.

the main artery

The air intake systems around the Ted-Williams-Tunnel is our critical first artery and testing ground, providing the free land and the damp air needed for mushroom growth.

Massive drills bore cylindrical tunnels, and one the roadway is inserted, drainage space below and air-flow above become interstitial, often forgotten buffers between persistent traffic and the ocean floor.

Into this site we deposit plastic-clad shavings, cultivate spores, and hang lights.

We tap into the electrical system of the tunnel itself to power grow bulbs, we siphon water from nearby utilities to mist the crop, and take advantage of the tunnel exhaust circulation for fresh air supply.

We inhabit the lower portion of these tunnels for our growing - building a sensual underground landscape that embraces the multiplicity of ecological potentials.

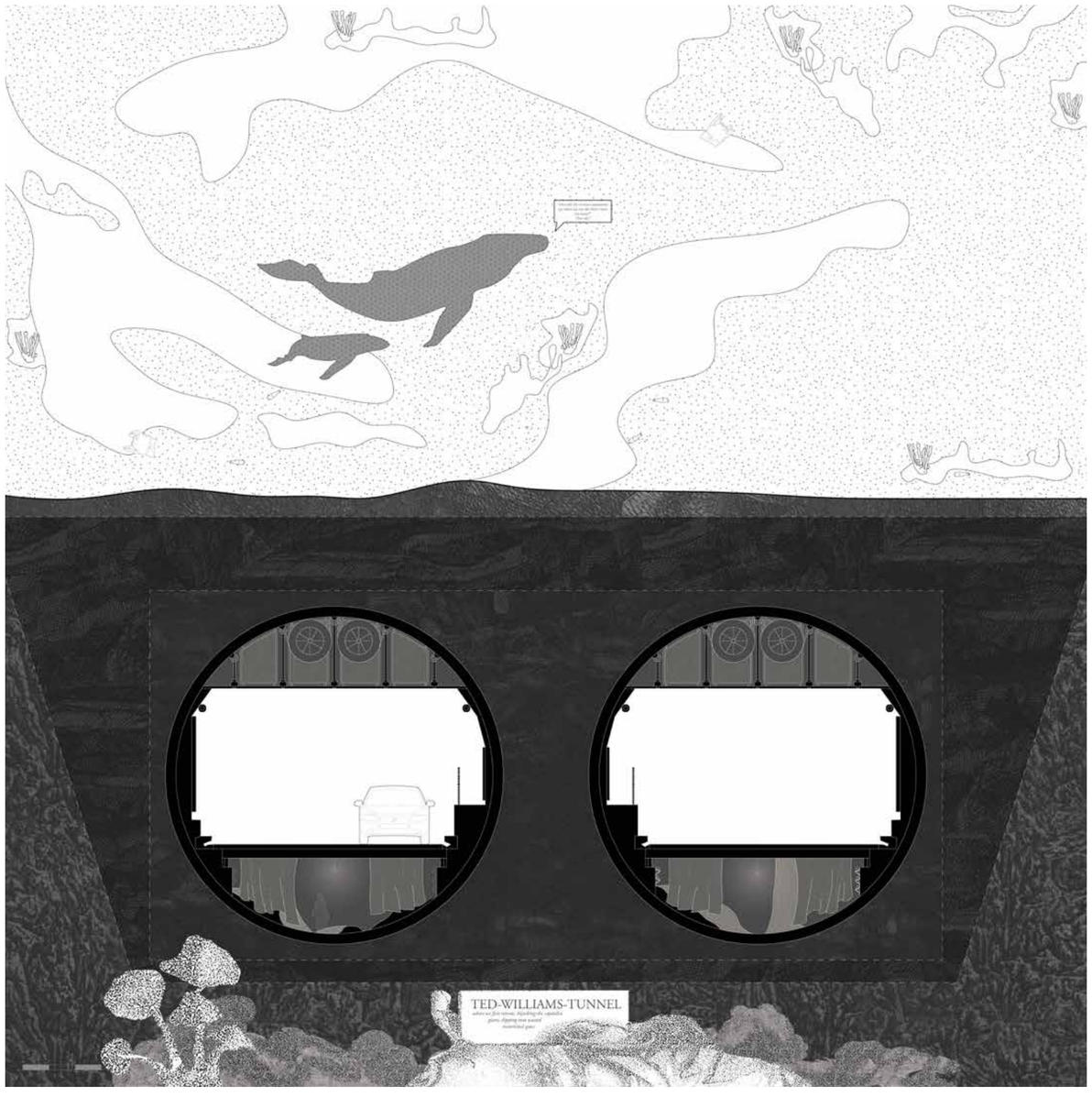
The tunnels reach a length of 2,600 meters, each able to grow more than 1500 tons of mushrooms per year, culminating in over 30 million servings.

Shiitakes, oyster mushrooms, growing banks, columns, furniture, rats, and volunteers fill this alternate Eden. Mist descends through the air, and grow-lights cycle, while mushroom leather curtains protect grow banks from heavy drafts.

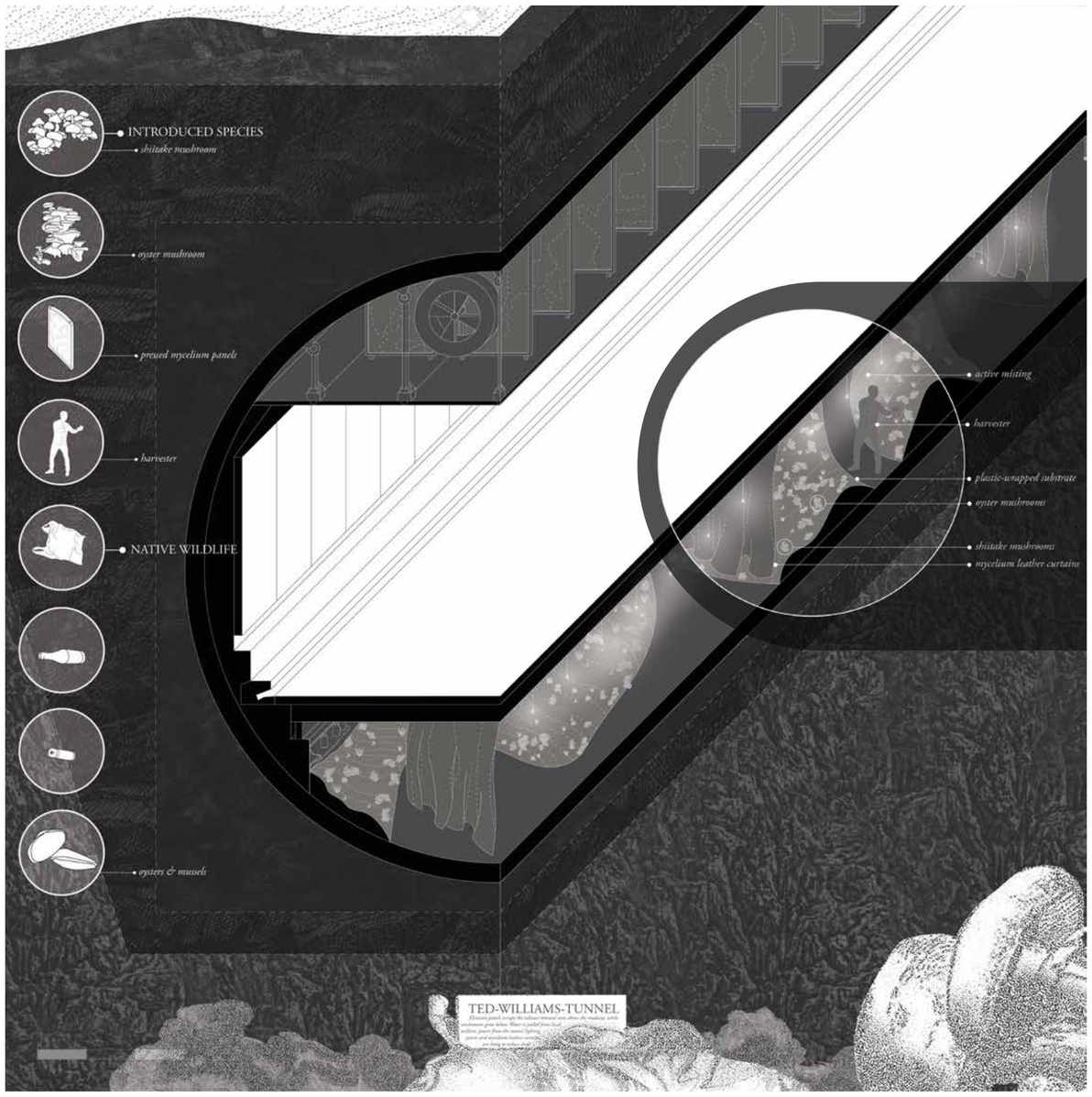
A smell of wet dirt and faint exhaust fills the air and the rumble of highway traffic blends to a white noise, the occasional honk echoing off the walls.

The multiplicity of mycelium usage can also be seen in the upper portion of the tunnel, where pressed mycelium root panels filter exhaust from the air, caring for the space they now call their home.

Our members work in tandem under the earth to grow for the above-ground communities.



(above) TED-WILLIAMS-TUNNEL. where we first retreat, hijacking the capitalist giant, slipping into wasted interstitial space.



(above) TED-WILLIAMS-TUNNEL. filtration panels occupy the exhaust removal area above the roadway, while mushrooms grow below. Water is pulled from local utilities, power from the tunnel lighting, and mycelium leather curtains reduce draft.

the offshoots

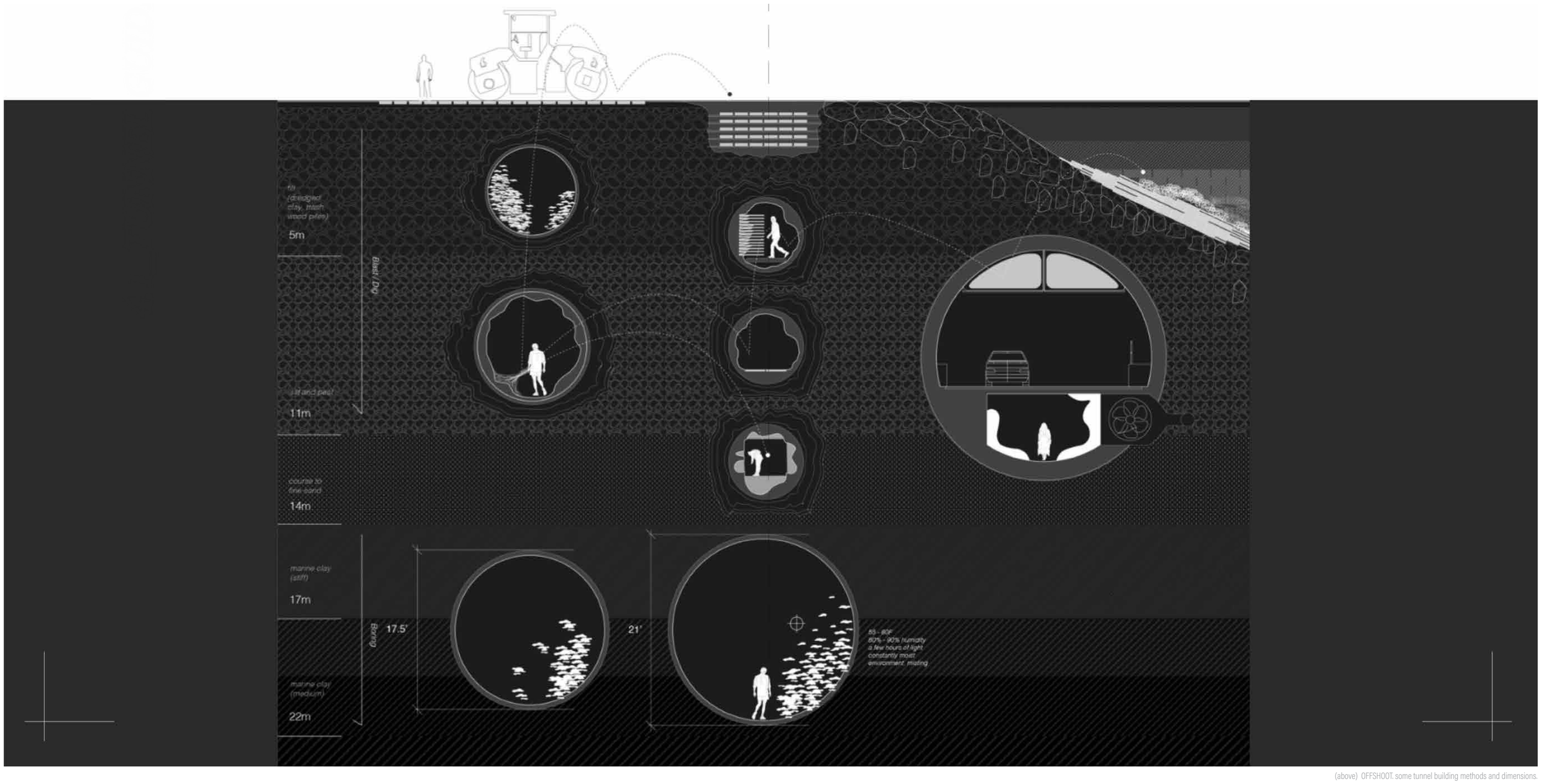
We began using the cover of the ted-williams-tunnel exhaust circulation, growing on the back of the capitalist giant (*the most expensive public works project to date*).

Yet, even as the market increased, the need for refuge remained. The tunnels expanded offshoots growing from the connections between tunnels segments, a new landscape across the bottom of the bay.

Our method for encouraging this fungal takeover is simple, but arduous.

We burrow through the earth with dynamite, pick axes, shovels and wheelbarrows, creating tunnels of exposed earth.

We drill tie-backs into this earth to stop its inevitable collapse. Then, we spray a stabilizing layer of concrete on all surfaces of the tunnel. On top of the concrete we layer permeable bags of wood shavings and soil, affixing them to the walls by driving spikes through the bags deep into the concrete. Pipes running between the bags constantly leak water into the wood shavings and soil, turning this tunnel into a damp, drippy grotto. Our tunnels are now a delicious feast for our fungal friends; Their invasion is inevitable.



(above) OFFSHOOT. some tunnel building methods and dimensions.

the crop

Eventually we expand the operation past the confines of existing infrastructure, and burrow side tunnels into the marine clay and gravel.

Some slip into existing tunnels, like abandoned subway routes and out-of-use sewers, others are dug, bored, and blasted.

These offshoots make their way towards the city, while providing atmospheres for various species and proximity to the necessary utilities.

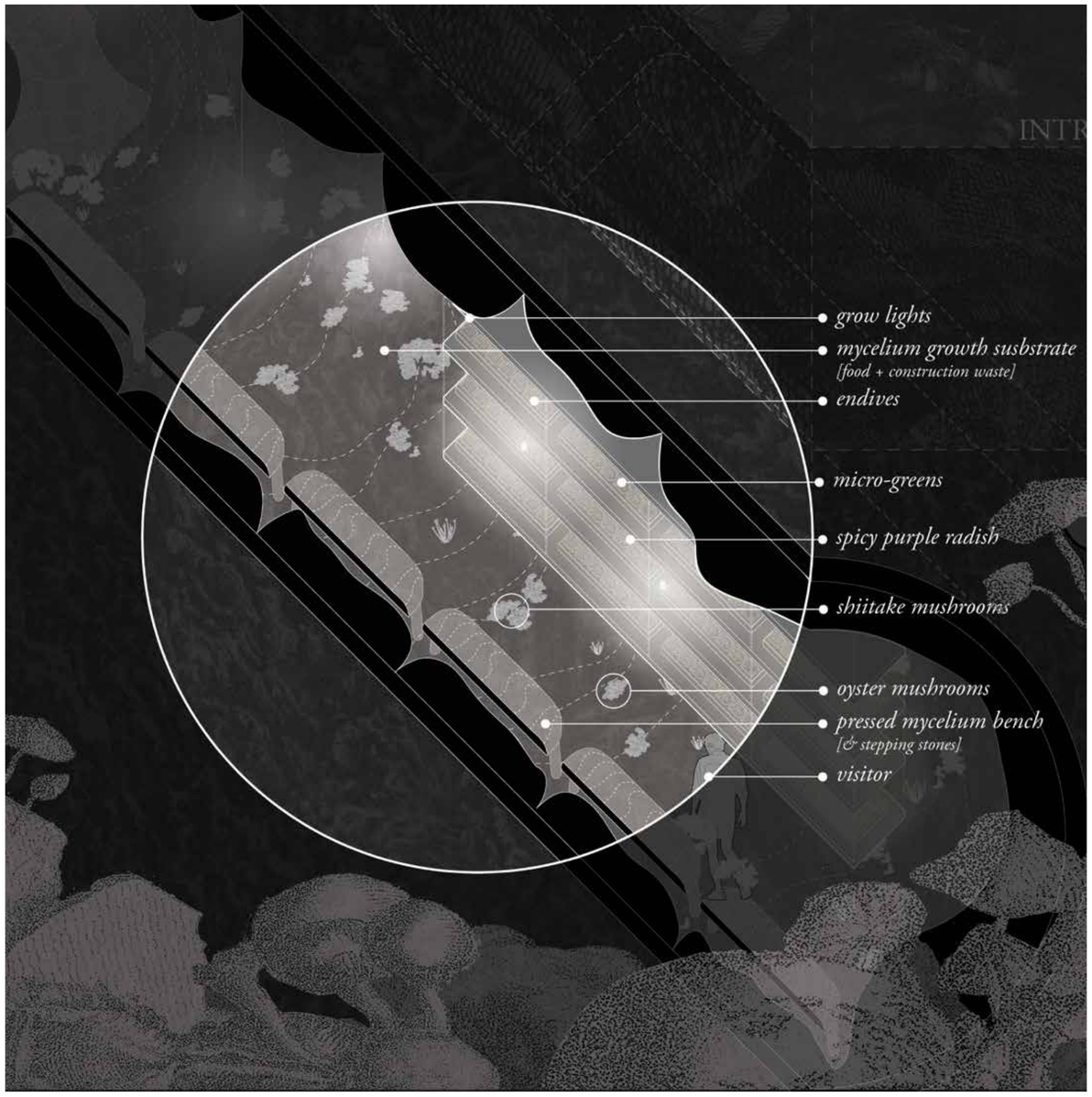
While we began with the mushroom and its myriad potentials, we continue to expand our crop to micro-herbs, micro-greens, and endives - companion species to the mycelium that are suited to growth below artificial light surrounded by dank, damp atmospheres. These crops proliferate and expand to fill their new urban landscapes.

"Why farm underground?" you might ask.

We reject the traditional modern mega-agricultural practices with their high water consumption, heavy chemical run off, and extreme waste. Instead, deep below the surface and underneath the urban fabric, these tunnels allow us an environment for year-round growing where temperatures remain consistent, water is conserved, chemical run-off is a non-issue, and waste is carefully recycled and re-invested.

The underground has a dense, deep, and layered potential map. Rats scurry along the tunnel floor, nibbling on dropped crops, moles dig side-by-side with our constructors, and mushrooms, micro-greens, and endives, grow side-by-side, re-thinking co-habitation and building a repertoire of the underground terroir

(above) OFFSHOOT. the offshoot tunnels create sensual underground landscapes that embrace the multiplicity of mycelium and non-human potentials.



(above) OFFSHOOT ZOOM.

the product

As we expand the network, we connect our tunnels to basements and infrastructure throughout the city. One could emerge from the manhole cover next to city hall or descend through their building's laundry room.

The mushrooms and crops that are growing below ground slowly begin to infiltrate the city above. They are not only a healthy and affordable alternative food options but are also ecologically friendly - in their method of growing and their potential as biodegradable furniture, fashion, and construction materials.

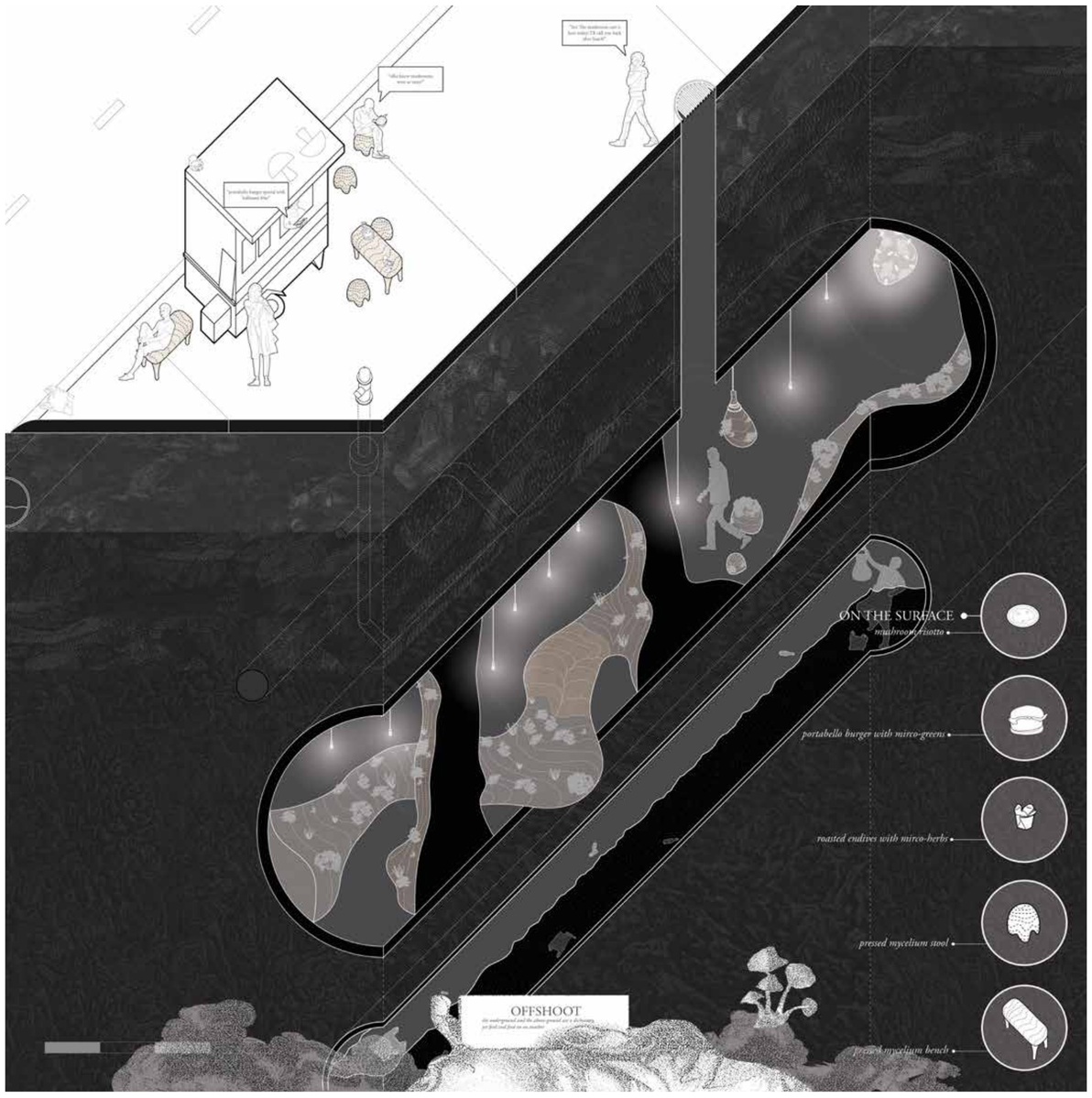
We are familiar with the studies exposing the high water consumption of meat and egg farming, but our underground crops not only consume less water, but also provide a sustainable carnivore-adjacent alternative. Mushrooms have just half the protein content of the same weight of an egg, a third that of the same weight of beef, and more protein than the same weight of an avocado.

In comparison to other cuisines that tend to populate food deserts and food mirages, our mushrooms are fat-free, low-sodium, low-calorie, and cholesterol free with antioxidants. You could eat a medium-sized and overpriced banana, or cook up three-quarters of a cup of shiitakes for the same potassium intake.

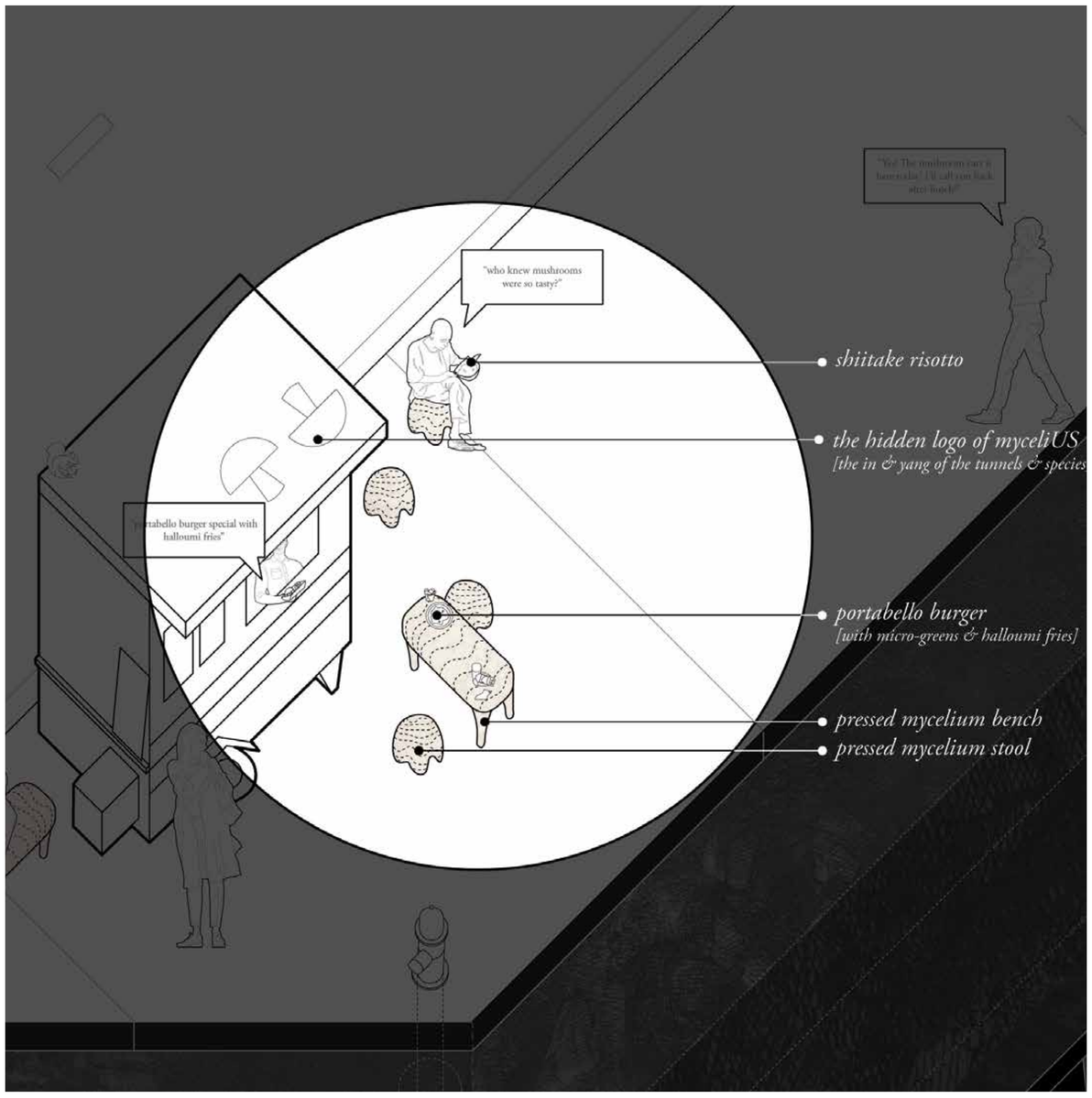
In MyceliUS, mycelium is not only food, but stool, bench, table, room, and economy. Both feeding and funding the underground.

MyceliUS' first presence on the surface is the cuisine and objects that make their way into the city.

Pre-packaged meals sit side-by-side with at home growing kits, biodegradable furniture, and new couture - myceliUS stealthily infiltrating the city one spore at a time.



(above) OFFSHOOT. the underground and the above ground are a dichotomy, yet feed and feed-on one another.



(above) OFFSHOOT ZOOM.

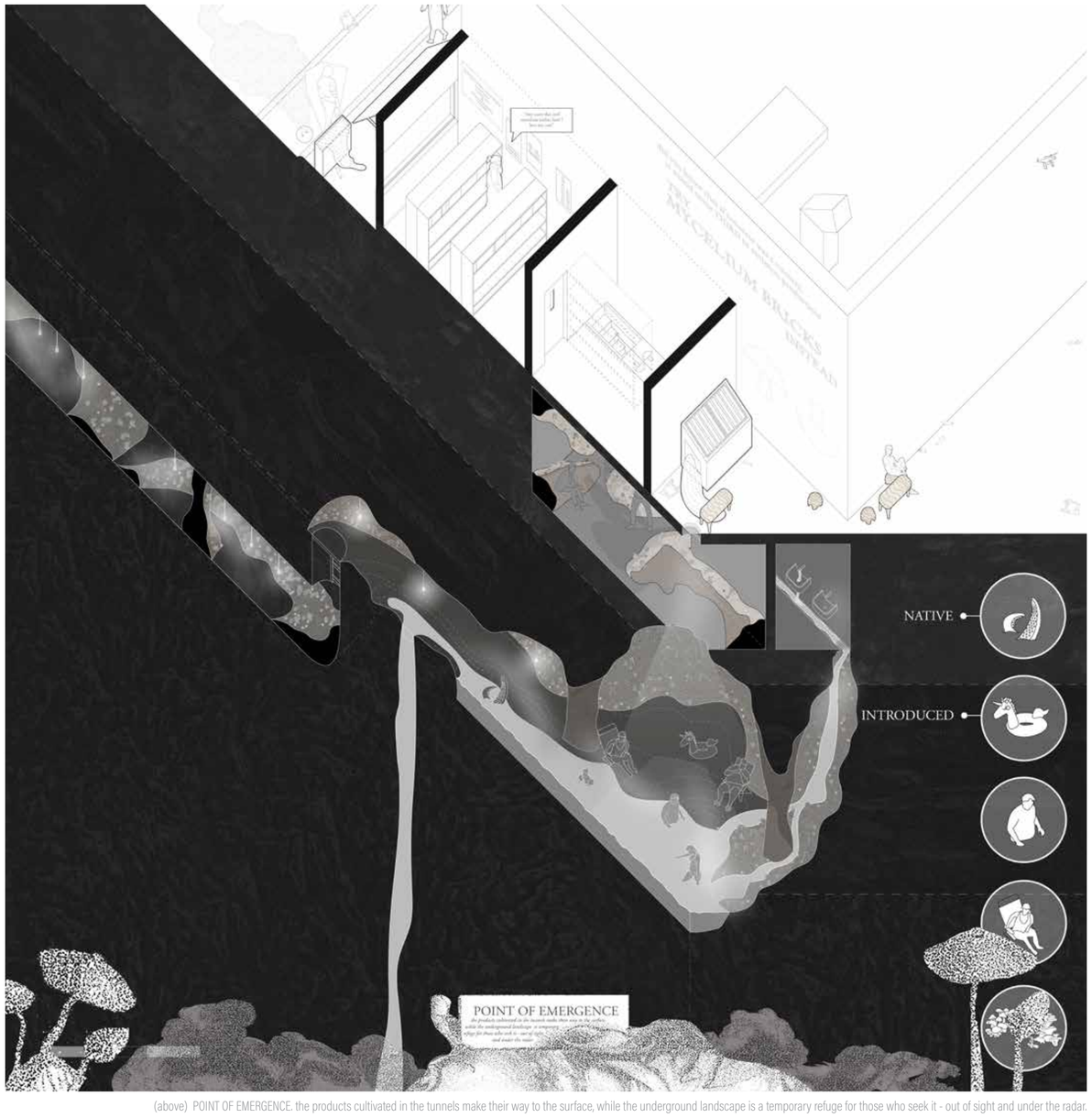
the grotto

At first myceliUS shows itself only in the products that are sold in East Boston bodegas, the underground itself is tucked away, ready for casual forays, a cool dip, and also when there is a need for temporary refuge - from immigration, high rent, and more.

Public spaces have become less welcoming, excluding some from their promise of safe relaxation, yet the underground is only manhole cover or a staircase away.

The mushroom and companion crop growth is a carefully choreographed parasitic invasion. As our crops grow, they take over our tunnels, consume the walls for their nourishment, break down the earth around them, and ultimately ornament and festoon our world.

These mushrooms surround our meeting space. Here we are surrounded by mycelium in its multiplicity, as wall, as room, as seating. Shiitake, oyster, psychedelic, and poisonous mushrooms alike sprout from the drippy wrinkles of the domes overhead. Water seeping through the earth fills the perimeter of the room, creating underground grotto tide pools. In this new ecosystem, we cultivate a habitat for mussels, clams, their companion creatures, and their predators. Humans are only one of the many species the space has been designed for.



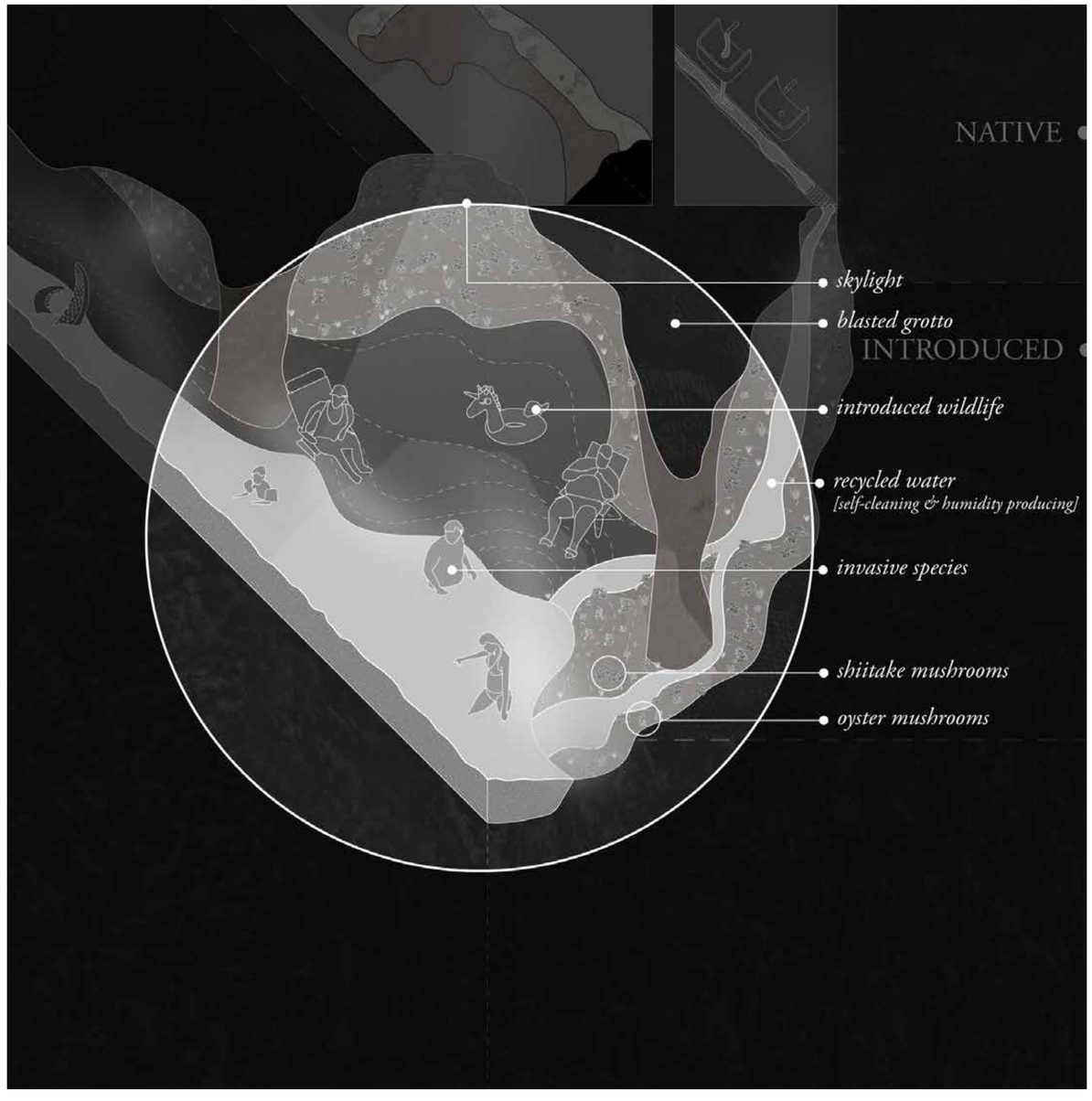
(above) POINT OF EMERGENCE. the products cultivated in the tunnels make their way to the surface, while the underground landscape is a temporary refuge for those who seek it - out of sight and under the radar.

Surrounded by furrowed walls filled with our furry and fungal friends, we are safe to discuss what we couldn't on the surface. We are free to imagine a society where there is no duality between us and the nature we live in. We are free to plan new futures.

Once, we strove for change within the system, but at some point, the violations of our democracy and our people became too much. Our activism was very much needed, but there was no revolution to support us. So we went underground to start one. This is where we continue to grow.

The glow of the fungal chandelier above dimly lights our faces, while its invisible outpouring of spores fills the air with a dark musty aroma. Under its visible and olfactible output, we recline, we relax, we pause from the ever-forward Progress of the capitalist above-ground, and we plot a campaign to aid causes on the surface.

We have built up our society so that we can act, not just remain hidden. We scrutinize our underground, incognito supply chains, and devise a strategy to best use them to support activists on the surface who represent the forgotten, downtrodden, and repressed.



(above) POINT OF EMERGENCE, REFUGE ZOOM.

the timeline

Our mushrooms and companion species feed through sharing their nutrients and multiplicity of potential, but also bring the flavors and terroir of the underground to the surface.

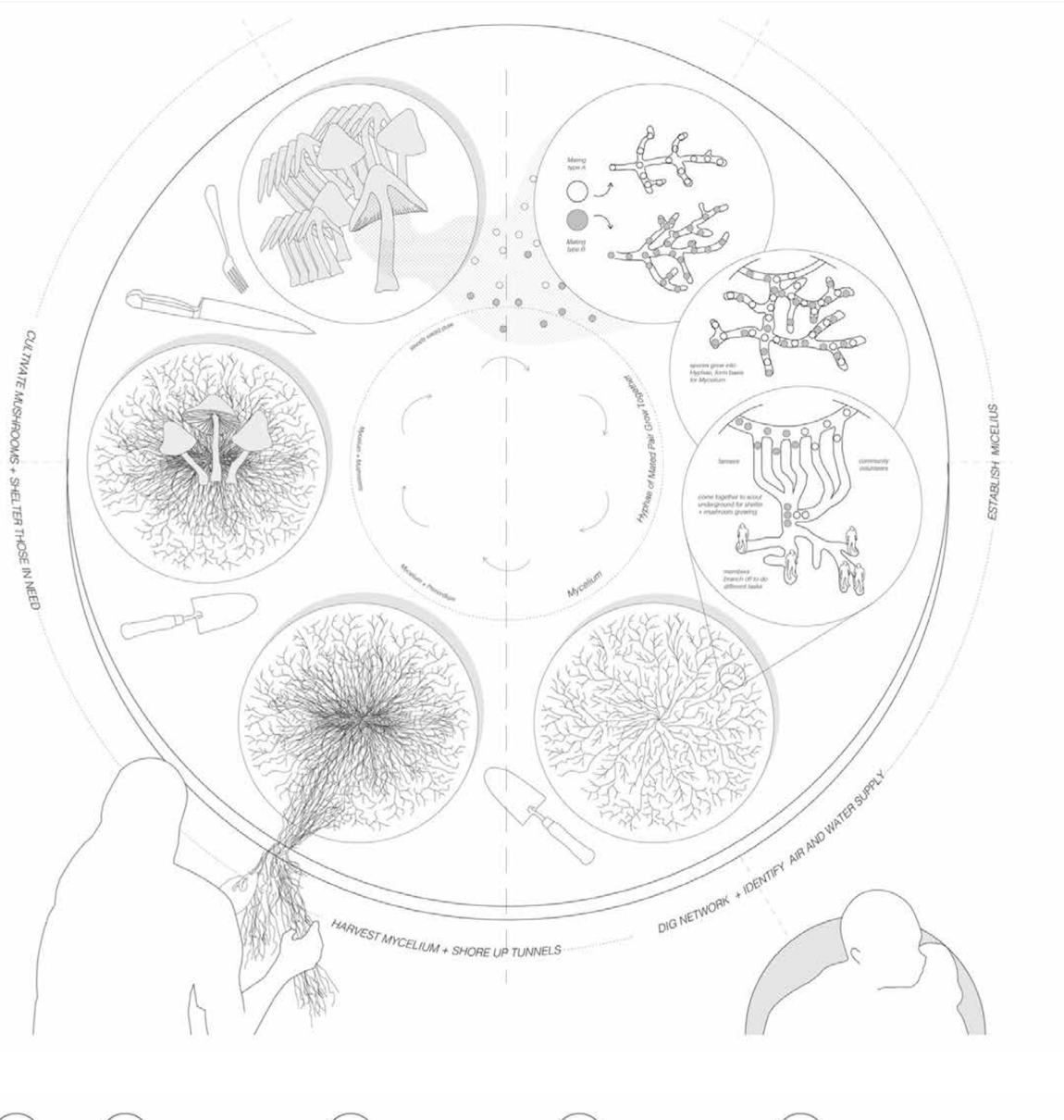
We are infiltrating Boston's cuisine and culture with the flavors of our underground revolution.

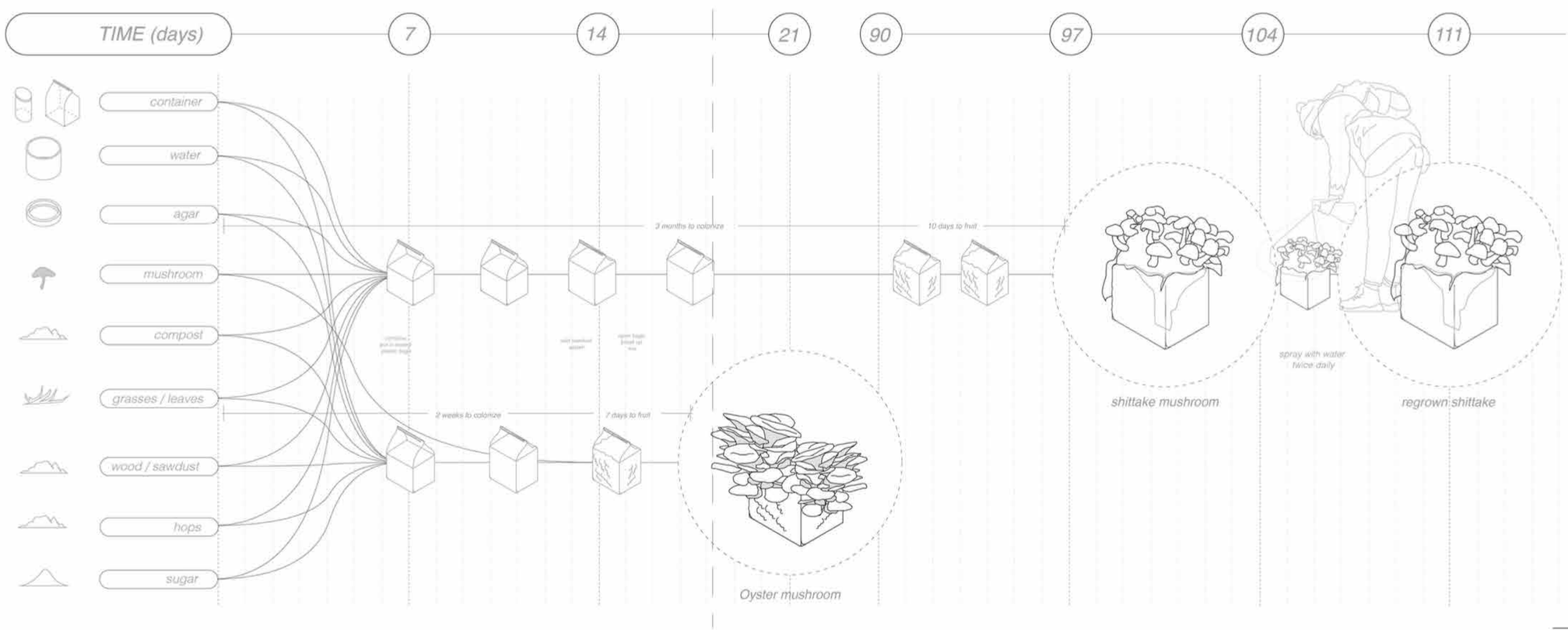
Inspired by the dispersed but strong network of roots and cells that form mushrooms, we are building our own non-hierarchical network of care underground.

Below the ground we embrace the multiplicity of mycelium and non-human potentials, compiling a guide for our cultivators breaking down how to grow and when to harvest roots and mushrooms.

The timeline shows growth cycle lengths two weeks for Oyster mushrooms, and over three months for shiitakes.

Beyond their use for consumption, mycelium roots can also be cultivated for use as leather-like fabric, filtration panels, and bricks. Other inedible products expand the potential of mycelium into the realm of furniture, made from pressed roots and mycelium leather, these pieces forming alternative and ambiguous furniture pieces that can be stools for harvesting or stepping stones for moving through the underground world.



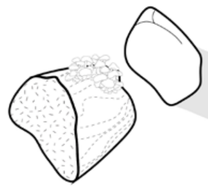


(top) MYCELIUS GROUP DIAGRAM + TIMELINE. (bottom) MYCELIUM GROWTH TIMELINE .

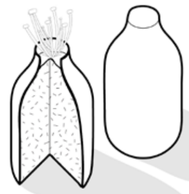
the multiplicity

A BRIEF GLIMPSE INTO THE MULTIPLICITY OF MYCELIUM

From its first spores and options of growing methods, to its potential futures as mycelium leeather, furniture, and food.

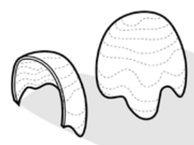


MUSHROOM GROWING BRICK
ideal substrate | *hard wood shavings*
[gleaned from construction waste]
growth potential | *oyster, shiitake, portabello +*

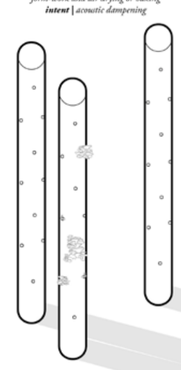


MUSHROOM GROWING JAR
ideal substrate | *hard wood shavings*
[gleaned from construction waste]
growth potential | *oyster, shiitake +*

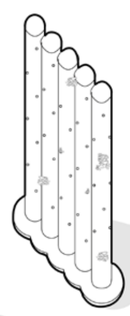
PRESSED MYCELIUM PANEL
process | *formed through pressing mushroom root mix into form-work and air drying or baking*
intent | *acoustic dampening*



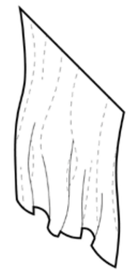
PRESSED HARVESTING STOOL
process | *formed through pressing mushroom root mix into form-work and air drying or baking*
intent | *seating + stepping stones through mycelium rooms*



SHIITAKE TREE
growth potential | *shiitake*

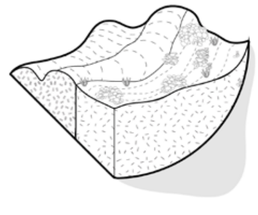


SHIITAKE SCREEN
growth potential | *shiitake*
intent | *temporary bracing + screening*

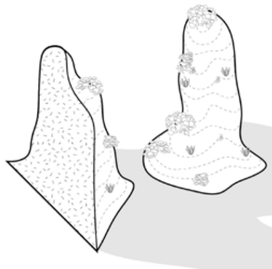


MYCELIUM LEATHER CURTAIN
intent | *reducing draft in tunnels to keep ideal mushroom growing atmosphere*

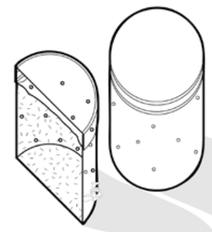
MYCELIUM WRAP BANK
process | *substrate + spores wrapped in plastic, punctured to allow for mushroom growth*



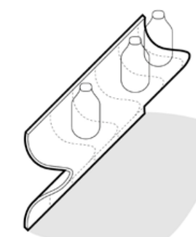
WRAP + LEATHER BANK
intent | *integrated lounging + growing*



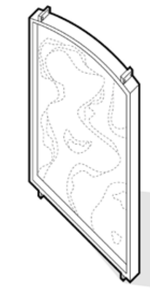
MYCELIUM WRAP STALAGMITE
process | *substrate + spores wrapped in plastic, punctured to allow for mushroom growth*



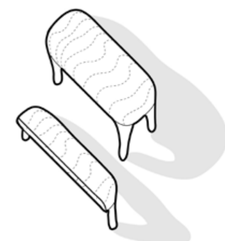
MUSHROOM GROWING BUCKET
ideal substrate | *waste hops + coffee*
[gleaned from breweries + coffee shops]
growth potential | *oyster, shiitake +*



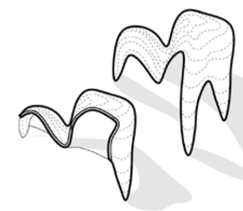
PRESSED MYCELIUM SHELF
process | *formed through pressing mushroom root mix into form-work and air drying or baking*
[biodegradable, after use can serve as substrate]



PRESSED MYCELIUM FILTER
process | *formed through pressing mushroom root mix into form-work and air drying or baking*
intent | *roots can filter C02 from air*
[biodegradable, placed in bay to serve as mussel-growth surface, where the carbon from the C02 is then absorbed in the shell-growth process]

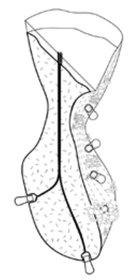


PRESSED HARVESTING BENCH
process | *formed through pressing mushroom root mix into form-work and air drying or baking*
intent | *seating + stepping stones through mycelium rooms*

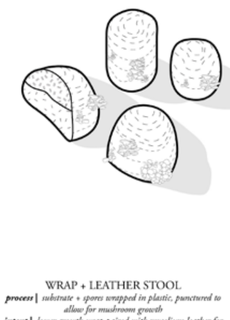


PRESSED HARVESTING HIGH-LOW
process | *formed through pressing mushroom root mix into form-work and air drying or baking*
intent | *seating + working*

PRESSED MUSHROOM FILTER
process | *formed through pressing mushroom root mix into form-work and air drying or baking*
process | *roots can filter C02 from air*
[biodegradable, placed in bay to serve as mussel-growth surface, where the carbon from the C02 is then absorbed in the shell-growth process]

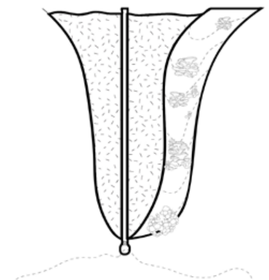


MYCELIUM WRAP CHANDELIER
process | *substrate + spores wrapped in plastic, punctured to allow for mushroom growth*

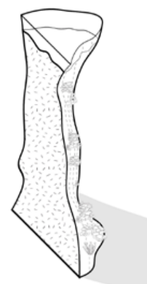


WRAP + LEATHER STOOL
process | *substrate + spores wrapped in plastic, punctured to allow for mushroom growth*
intent | *lower growth wrap paired with mycelium leather for integrated seating*

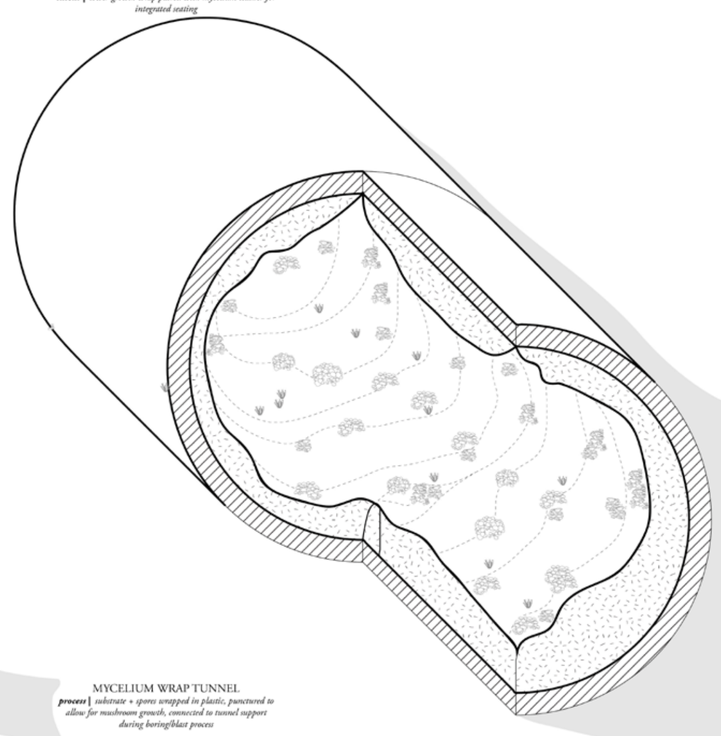
MYCELIUM LEATHER LOUNGE
intent | *ambiguous furniture piece*



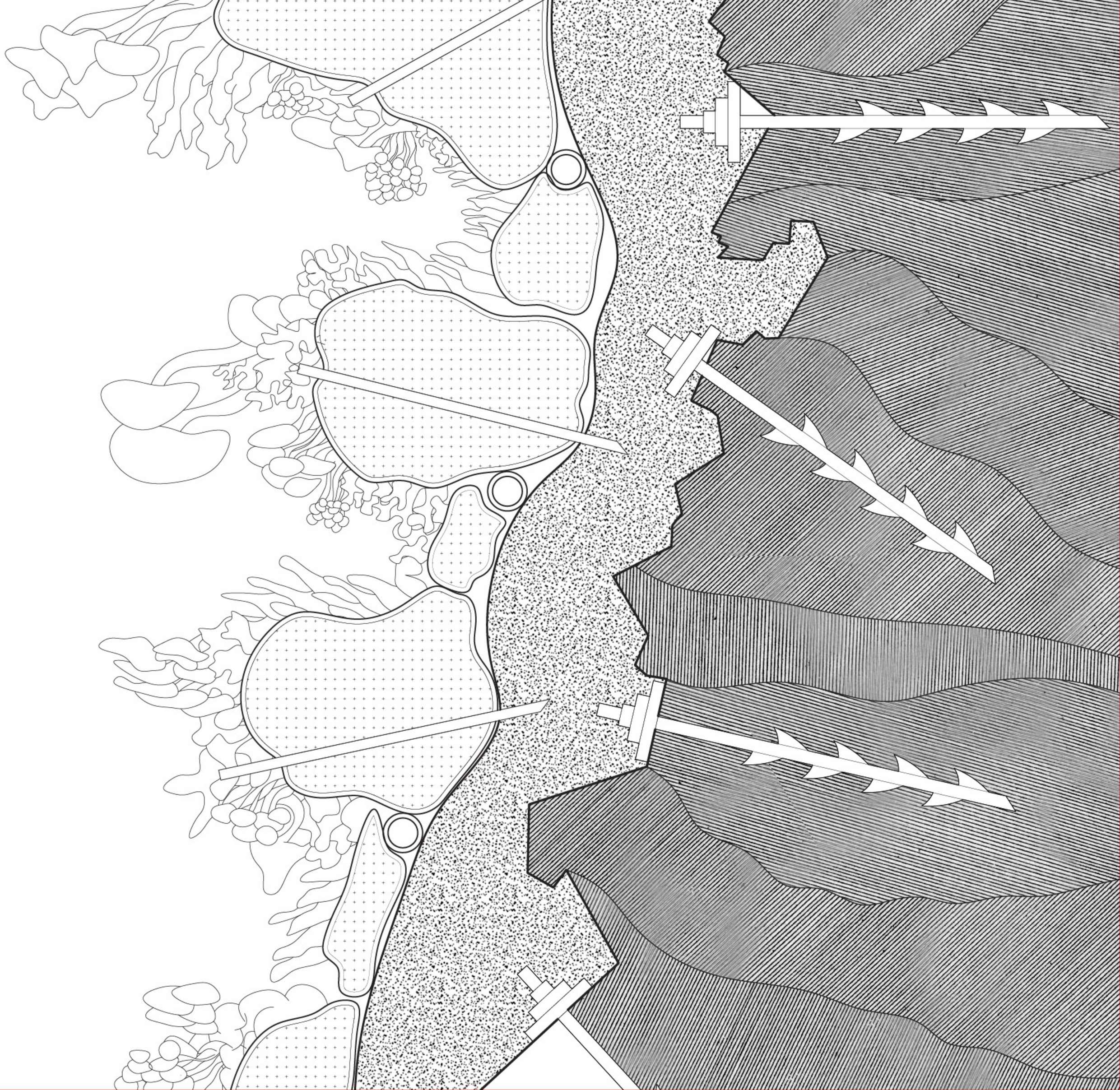
MYCELIUM WRAP STALACTITE
process | *substrate + spores wrapped in plastic, punctured to allow for mushroom growth*
intent | *integrated growing + misting system*



MYCELIUM WRAP PILLAR
process | *substrate + spores wrapped in plastic, punctured to allow for mushroom growth*



MYCELIUM WRAP TUNNEL
process | *substrate + spores wrapped in plastic, punctured to allow for mushroom growth, connected to tunnel support during boring/blast process*



the emergence

The underground and the aboveground are integrally linked. The flows of traffic, power, and data are all hidden beneath the surface. And now, our network of support and nourishment is a part of this shrouded system. We have retreated but will return. We would not have created the underground if not for events on the surface.

Calls for our reemergence, softened by the spongy surfaces surrounding us, reach our ears. Yes, it is time. We have grown strong enough. We can no longer keep our society hidden.

It's time to bring the revolution to the surface.

At first, only those who relied on and supported us knew of our existence. But as our crop flourished, as our tunnel network expanded, and as our spores spread wide, we realized our existence was no longer so fragile. And as we expand and grow beneath the surface, we begin to emerge, infiltrating the aboveground.

In East Boston, our ideologies and non-human companions mingle with exhaust as they make their way into the city. The growth spills out of our main respiratory connection to the surface, the Ted Williams tunnel exhaust tower.

The once orderly rational architecture is overtaken; symmetry is fractured, and lush fungal ornament overwhelms. This is an architecture of companionship, an architecture where we begin to obliterate the false opposition between nature and humans.

The concrete and steel surfaces that were once inhospitable to growth are now home to organic matter. The ecosystem that was once only comfortable in the underground is now flourishing on the surface. The crevices and grottos formed in this new re-positioned architecture create places for actors who never had an architecture.

Once, only a piece of infrastructure, the Ted Williams exhaust tower now hides queer bars, bathhouses, and breast-feeding booths in its blossoming bulges.

Fungus, flora, and fauna soon abound. Detritus of our underground disrupts the flows and functions of the aboveground.

The systems of the surface succumb to the ecosystem of the subterranean. Our revolution has begun.

the invitation

The revolution will not be dug or spored in a day, so we hope this dinner conversation was helpful. There will always be tyrants and those in need, so know the cookbook is here for you when the infrastructure around you remains unhelpful and under-utilized.

When the community can no longer rely on its government, be like MyceliUS and go underground, creating a mutual density of humans and non-human collaborators that can fruit and bring life to a renewed era above ground.

If you ever feel unsupported or hungry, myceliUS can build the world where you want to live, and feast.

(above) THE MYCELIUS. a diagram of the undertaking.