

A COMMUNITY COMPOST NETWORK FOR PROVIDENCE

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Somerson Sustainability Innovation Fund



PROJECT TEAM

WEST END COMPOST HUB

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PROJECT TEAM

NEIGHBORHOOD COMPOST HUB NETWORK

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Estephania Granados
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Emily Hesse
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Stewart Martin, Providence Garden Works
Charlette Roberts, Providence College
Bonnie Epstein, RISD



HARVEST CYCLE + GROUNDWORK RI



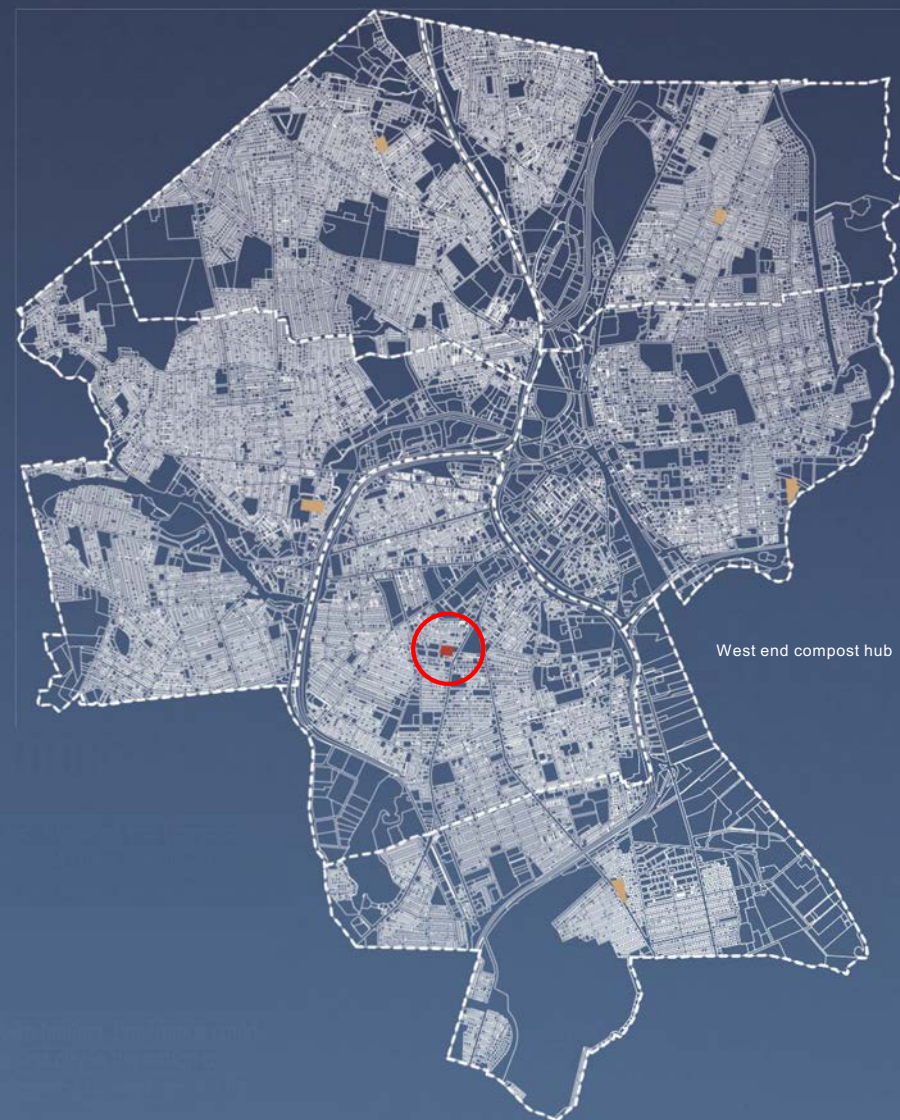
GROUNDWORK
Rhode Island



**Harvest
Cycle**

HARVEST CYCLE + GROUNDWORK RI

- 750 customers across city, half residential pick up and half drop-off
- 13+ tons of food scraps diverted from landfill each month
- Processing only ~10% into compost on small scale, rest picked up by ReMix Organics and Epic Renewal
- Interest growing rapidly – 30% growth in last year





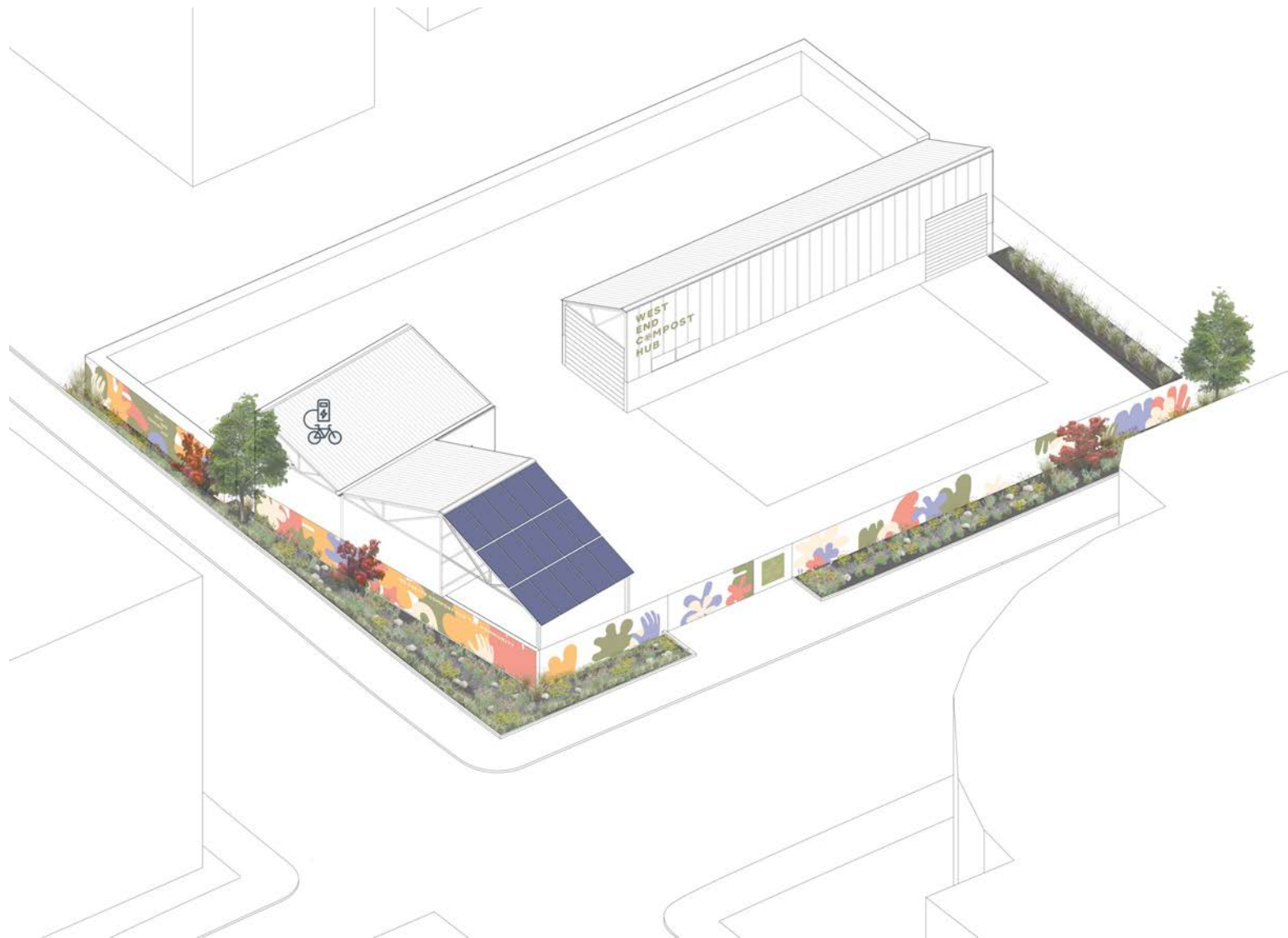


GROUNDWORK
Rhode Island



Harvest
Cycle





1. Drop-Off

Food scraps and yard debris are dropped off.

2. Combining & Mixing

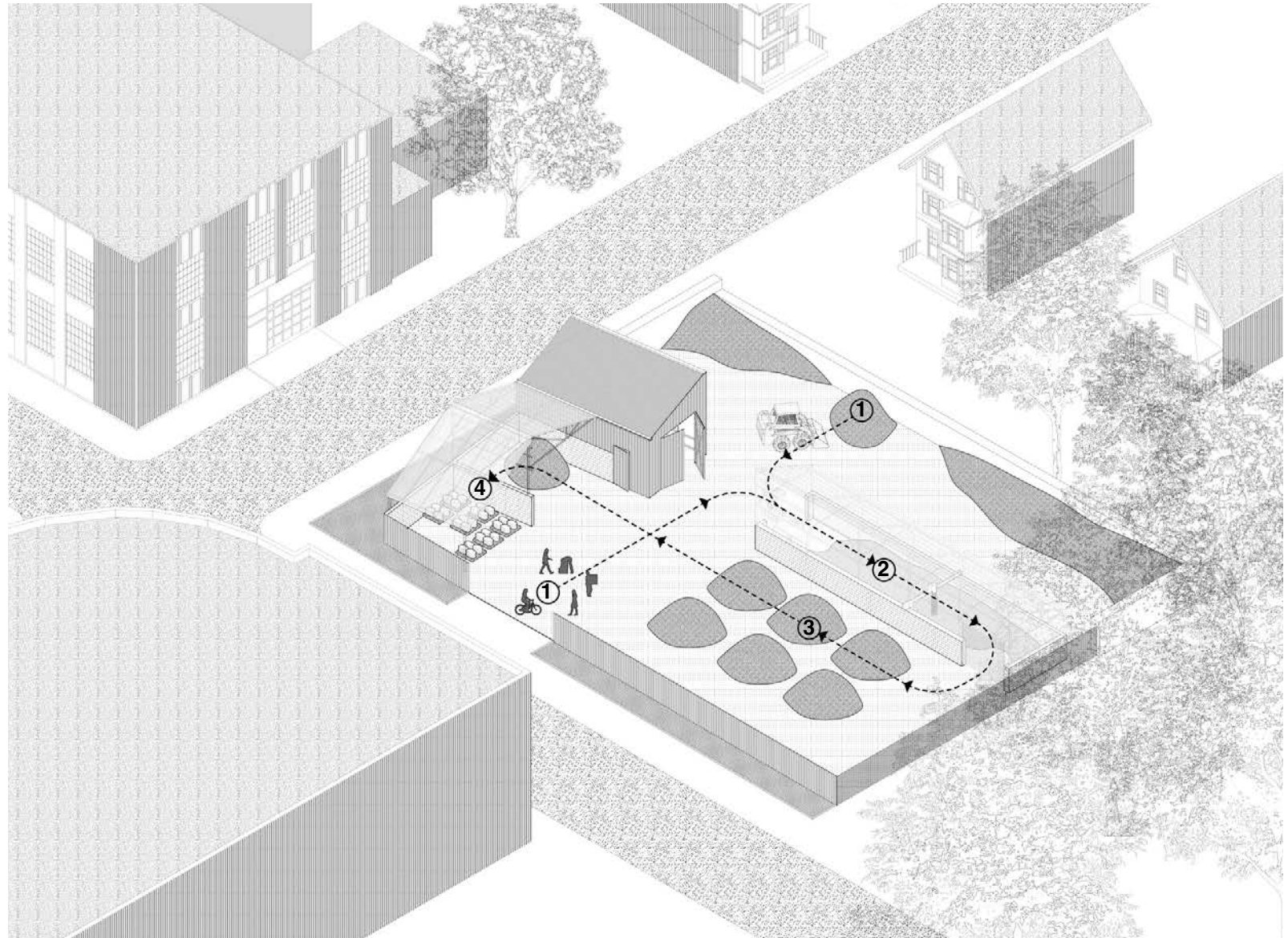
The organic materials are combined in the in-vessel composter.

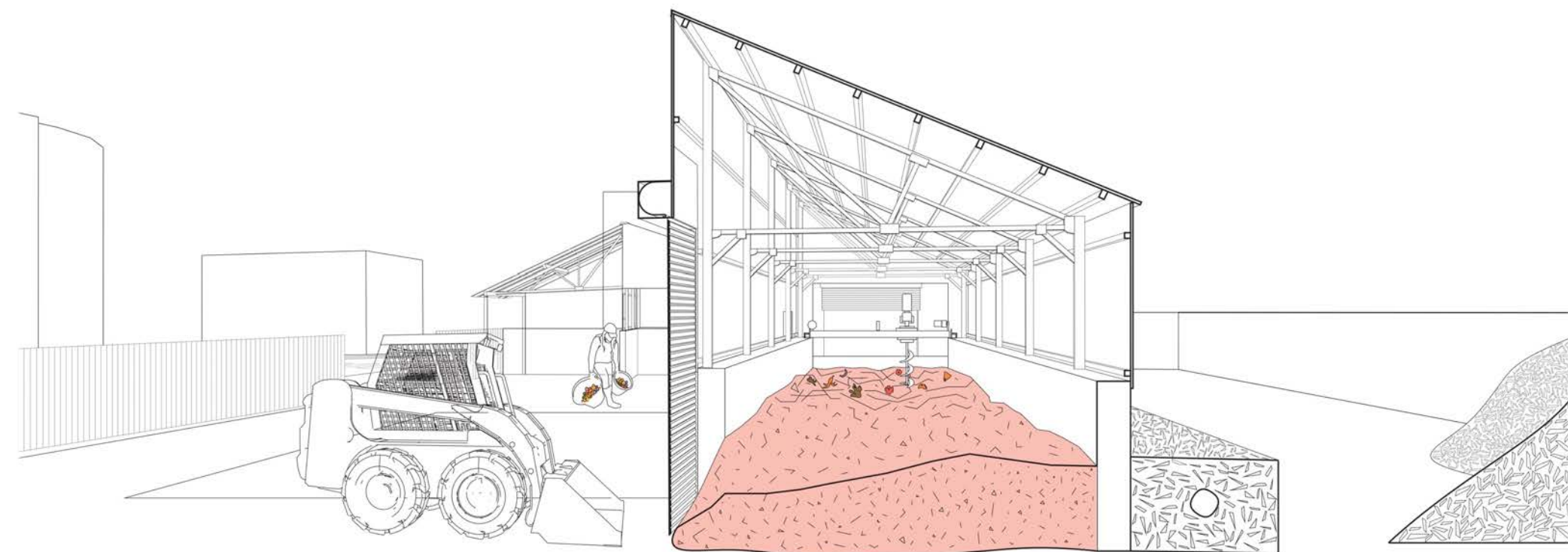
3. Secondary Composting

The material continues the composting process in secondary composting piles outside the vessel

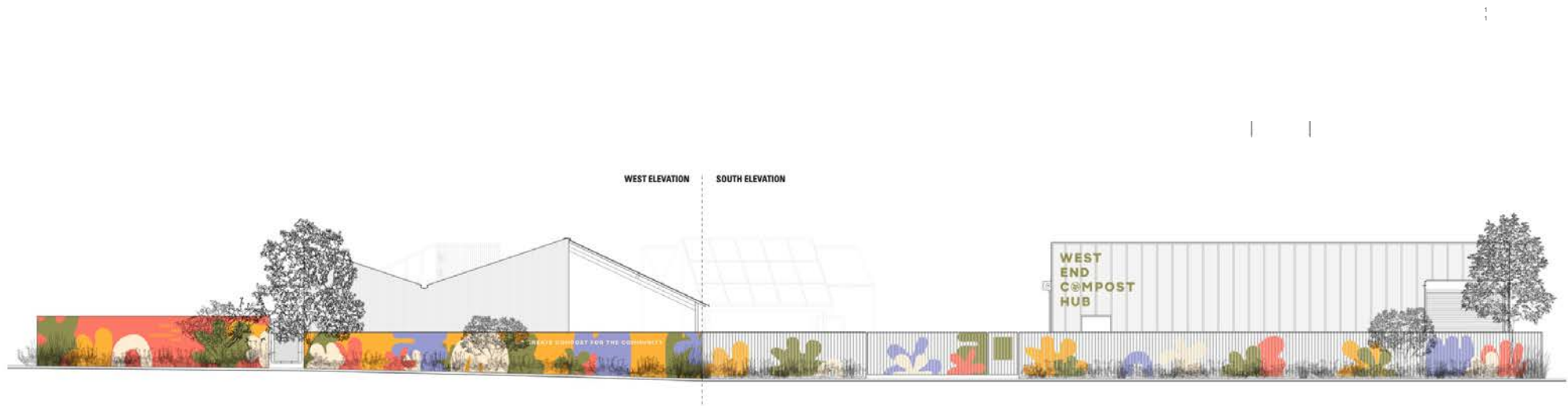
4. Curing & Pick-ups

Compost is cured in the covered storage area, sifted, and then given or sold back to the community.

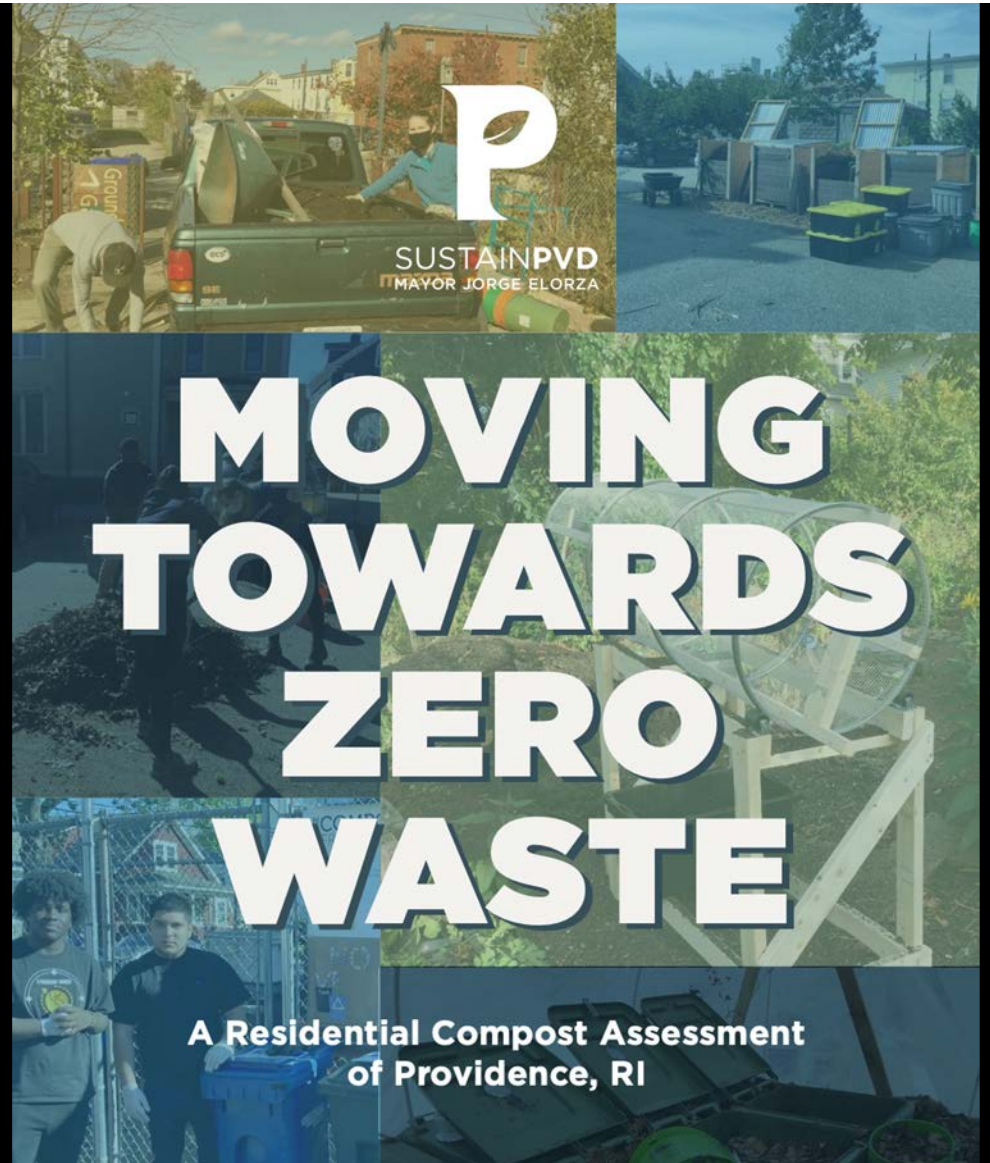


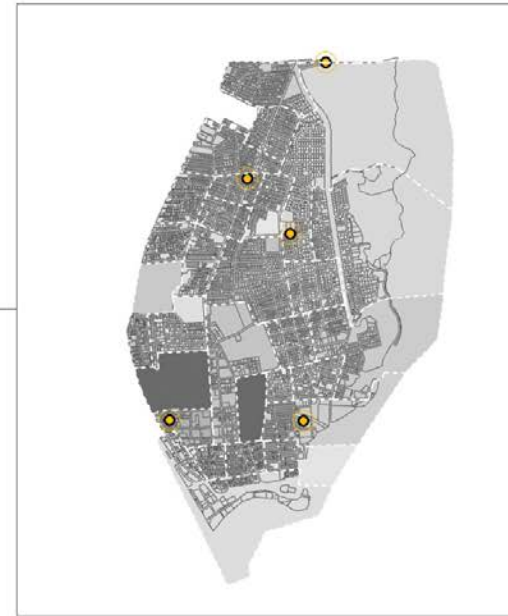
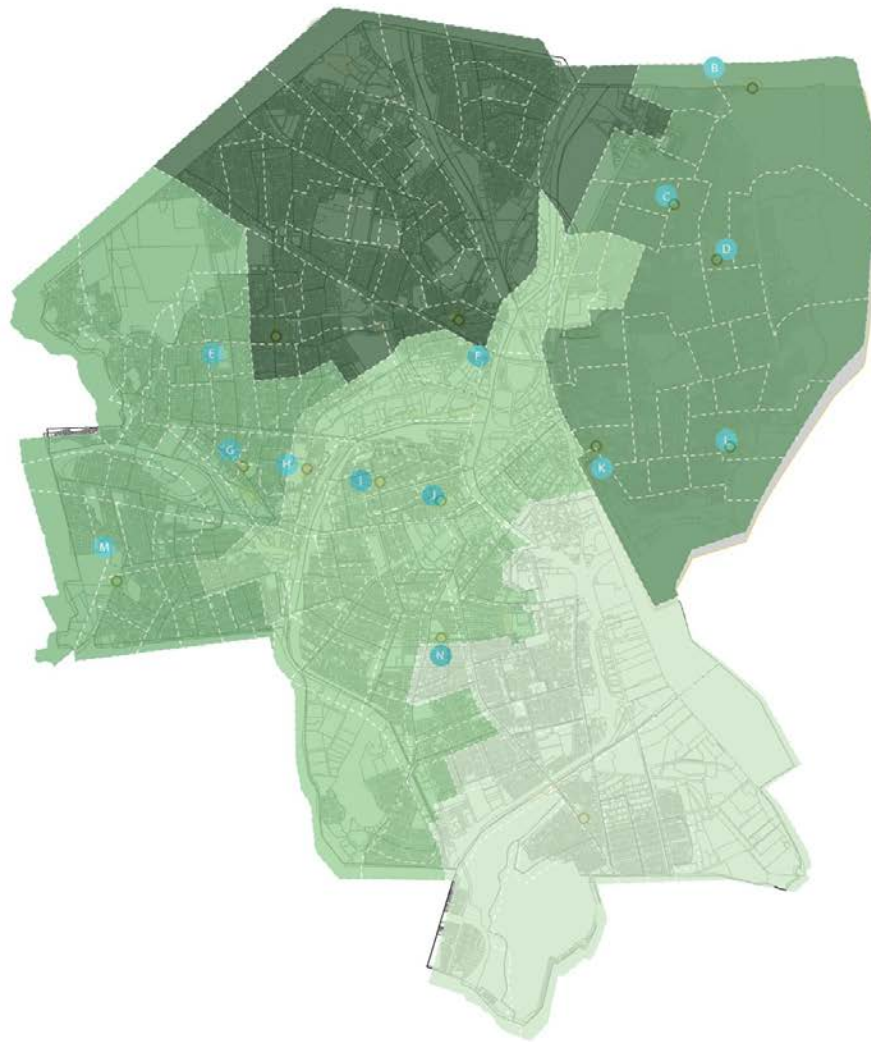




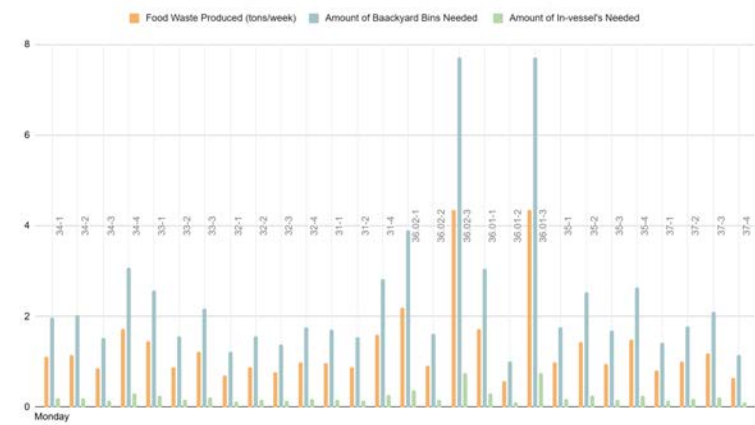


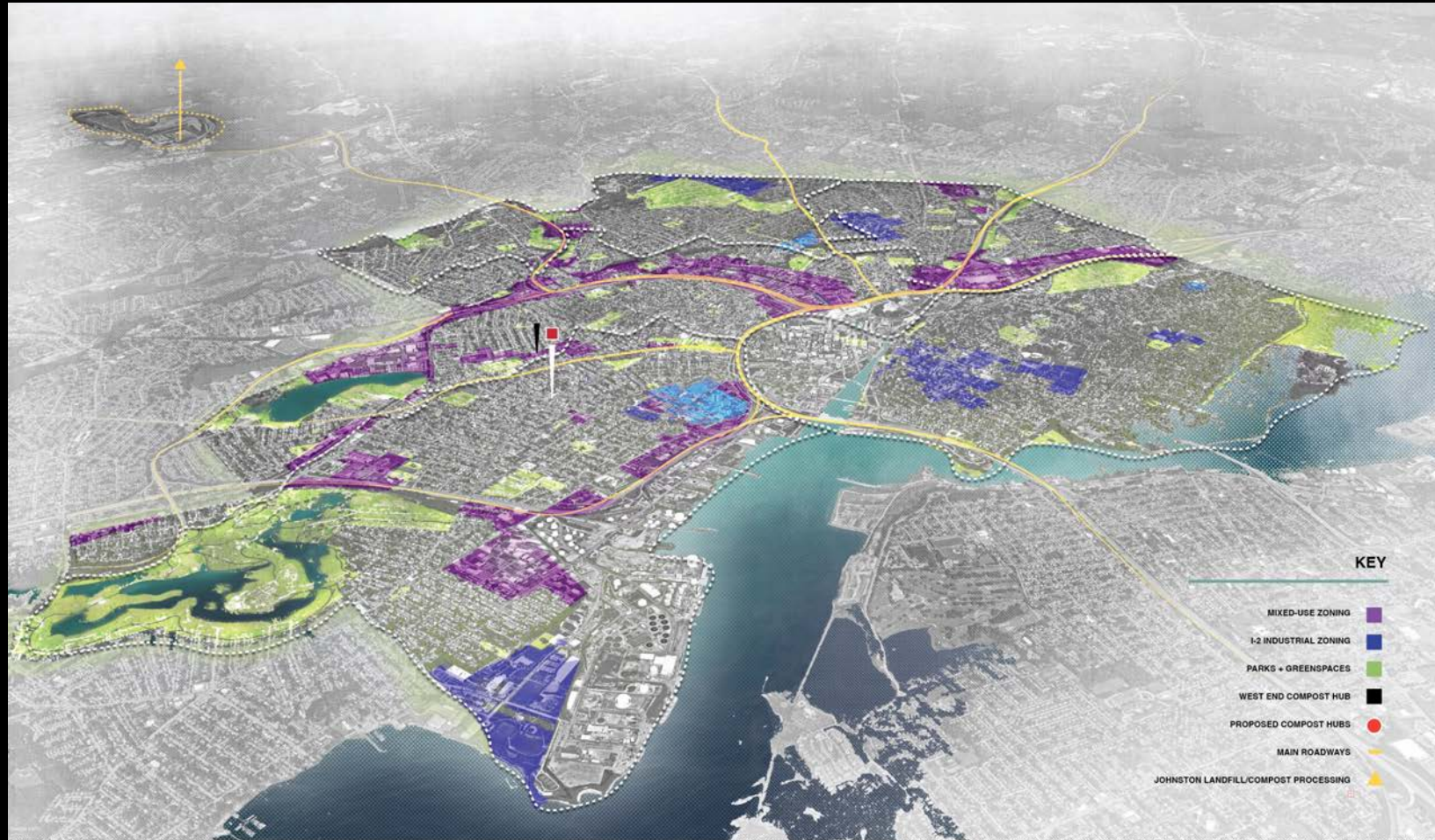
NEIGHBORHOOD
COMPOST HUB
NETWORK





Amount of Compost Intervention per Census Block Groups Within Monday Pick Up





DISTRIBUTED LOCATIONS

Aerobic Compost Systems



Windrow Compost



Anaerobic Digester (Johnston, RI)



Static Aerated Compost



In-Vessel (Turn)

On-site Composting (i.e. deployable composting)



In-Vessel (Earthflow)

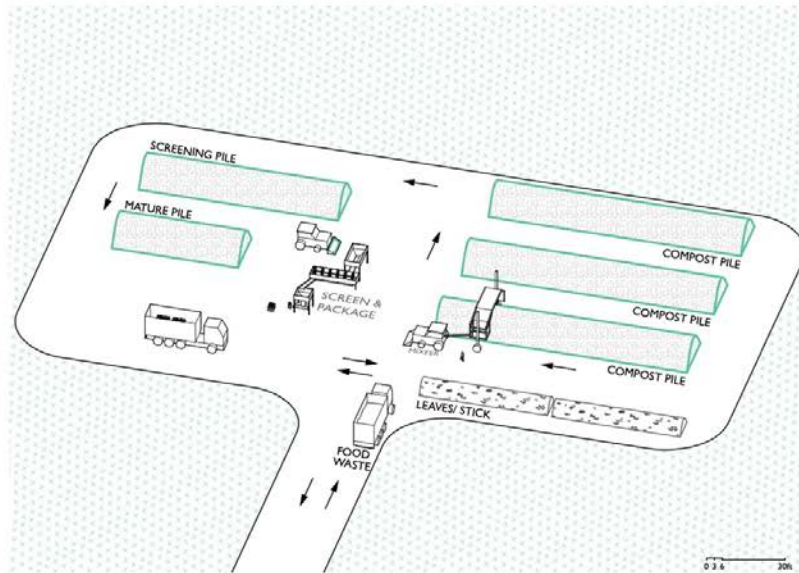


Backyard Compost

Facilitation of Compost (i.e. Gather-Disperse Food Scraps)



Food Scrap Hauling Companies



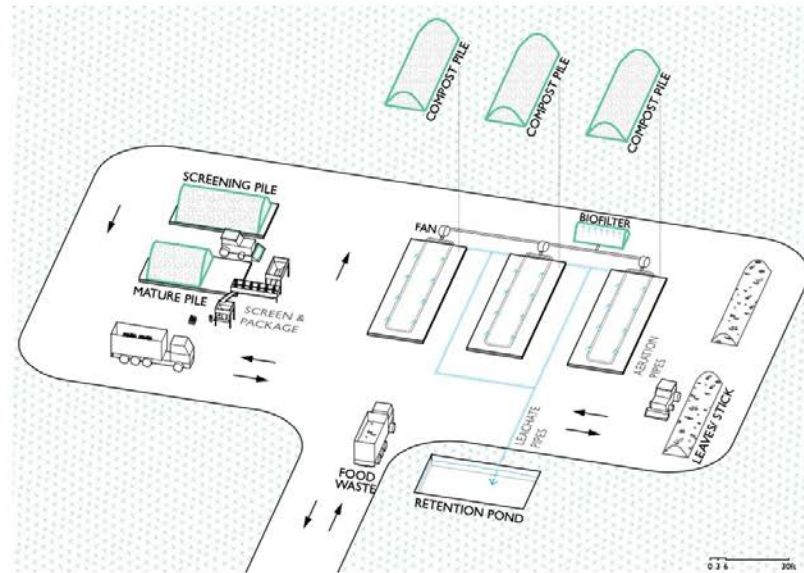
Turned Windrows

Common Applications:

- On-farm composting systems
- Sites where space is not limiting
- Sites with few or no nearby neighbors
- Early-stage sites

Common Challenges:

- Undersizing a site for the volume of material it will handle
- Inadequate space for loader operation, leading to inefficient / suboptimal pile management
- Insufficient vector controls (rodents, birds)



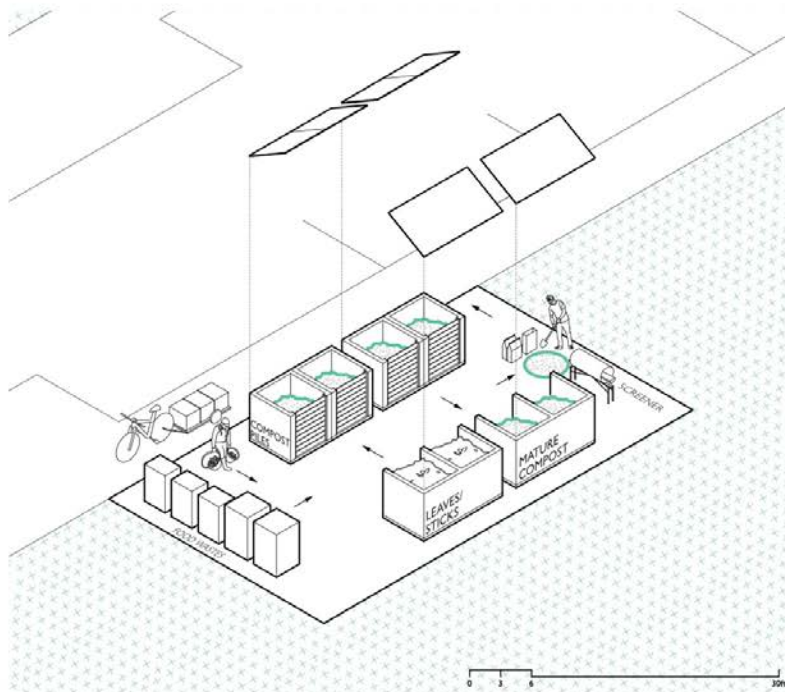
Aerated Static Pile (ASP) Composting

Common Applications:

- On-farm, commercial, and community composting sites
- Sites where space is limiting
- Sites with nearby neighbors
- Used for the primary (active) composting phase followed by secondary turned windrows
- Expansion strategies for later-stage sites

Common Challenges:

- Overheating
- Uneven air distribution due to poor design
- Drying
- Preferential air channeling
- Non-uniform end product
- Need for mixer
- Higher upfront cost
- Lack of access to electricity and water in remote locations
- Insufficient vector controls (rodents, birds)



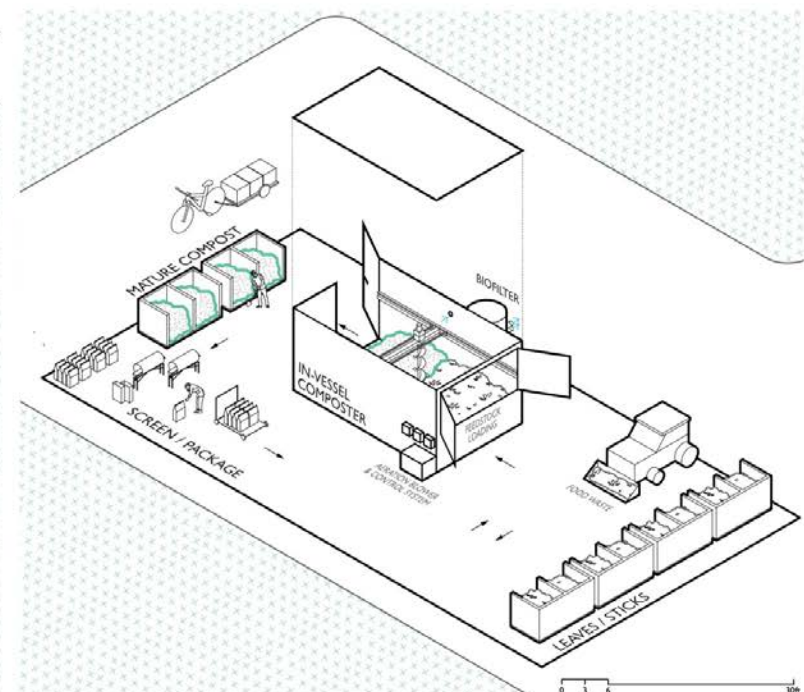
Bin and Bay System

Common Applications:

- Schools
- Community gardens
- Combined with small scale aerations

Common Challenges:

- Under-turning
- Piles not heating in winter (insulation can help)
- Insufficient rodent-proofing
- Drying and uneven moisture



In-Vessel Composting

Common Applications:

- Small to large institutions and community composting sites
- Sites where space is limiting
- Sites with nearby neighbors
- Used for primary phase followed by secondary turned windrows / piles or other

Common Challenges:

- Upfront cost
- User error (such as improper recipe, adding large materials that cause clogs)



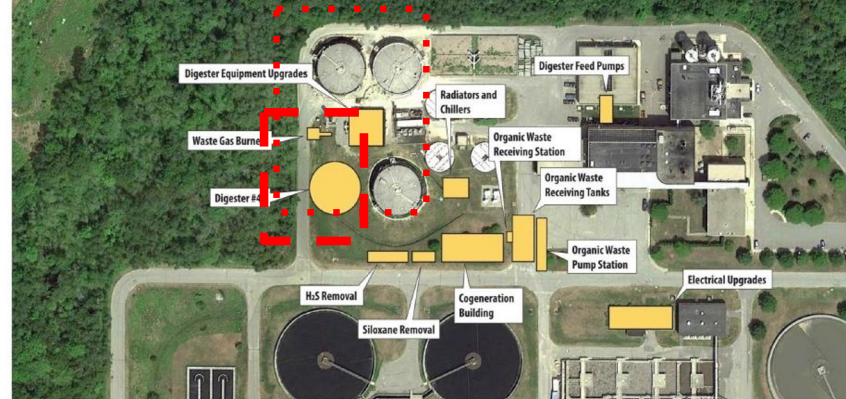
CITY OF
CAMBRIDGE



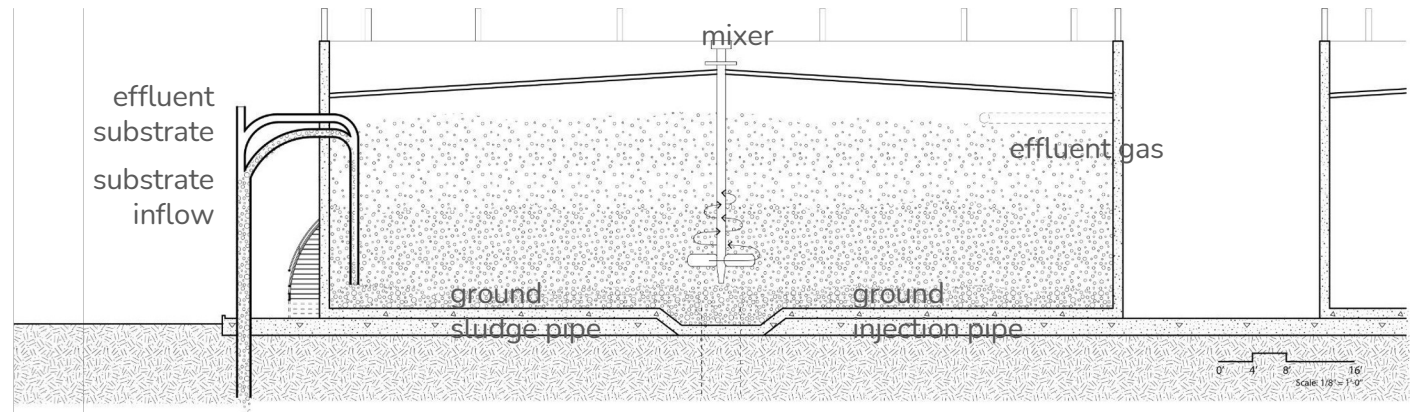
<https://www.wickedlocal.com/in-depth/regional/2022/07/20/massachusetts-cambridge-west-tisbury-reduce-waste-increase-recycling-re-use/7704631001/>

ANAEROBIC DIGESTER

GLSD Organics to Energy Project Components

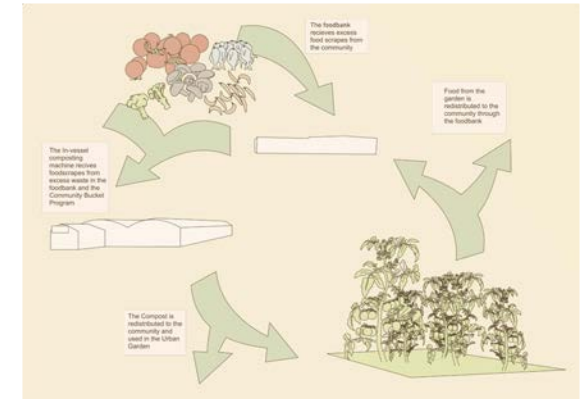
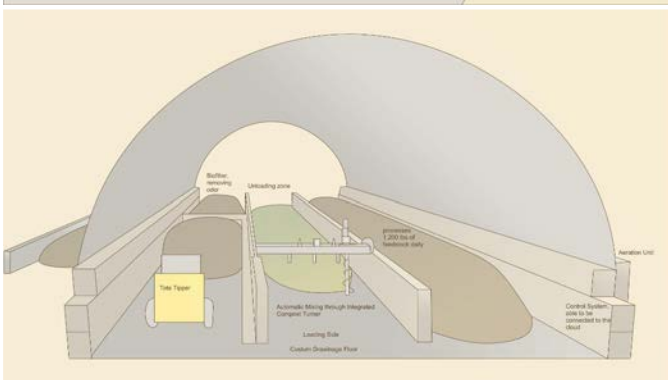


- Pilot program “Organics Diversion” began in 2014 with 600 households
- 35% reduction in trash by the end of Phase 1
- GLSD powers its plant from energy created from food waste to fuel
- Not really “composting”
- Program is a receptacle model, rather than exchange





The Foodbank Dayton Food Bank



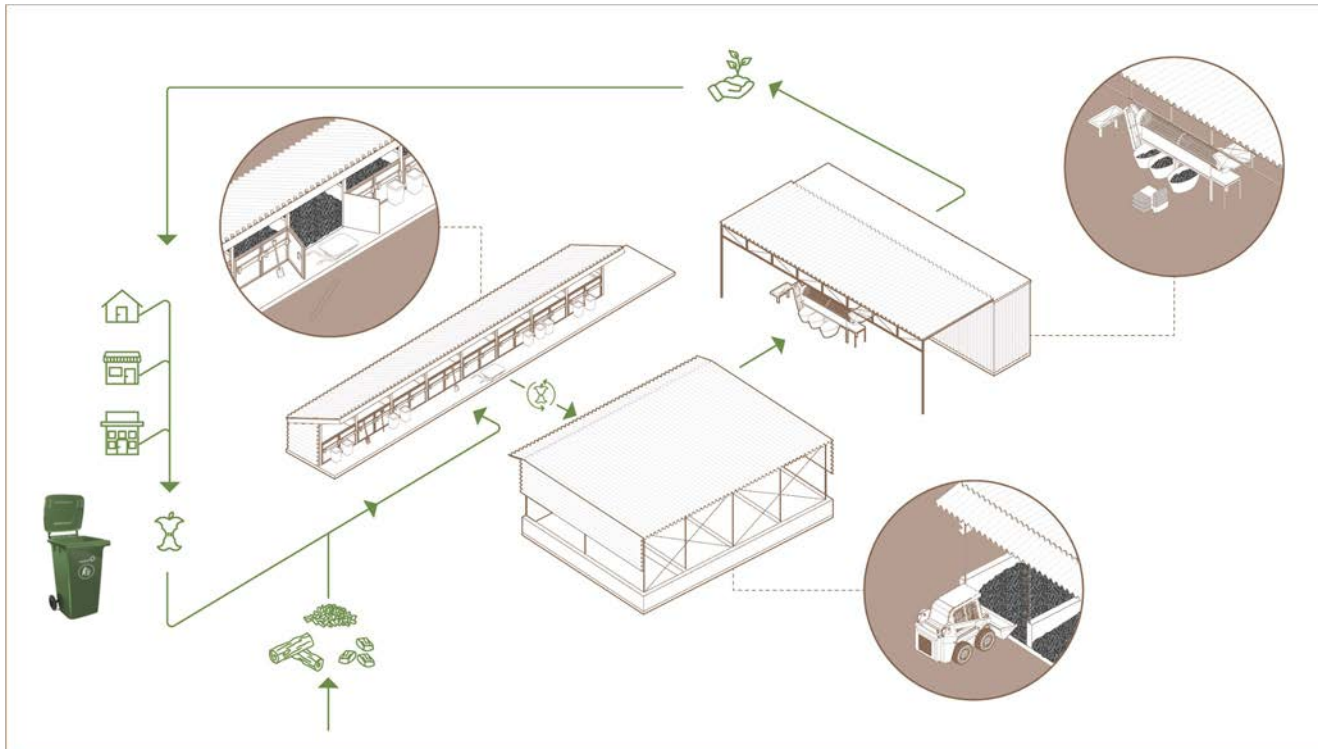
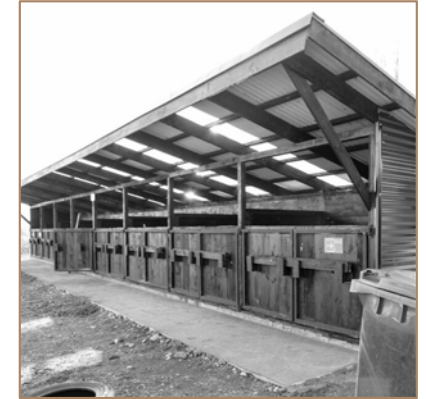
- 1 percent of the food acquired spoiled, they distributed over 16 million pounds of food annually.
- Composts approximately 80 to 100 tons of food waste annually
- Produces 8,000 lbs of produce annually



Regenera
ORGÁNICO

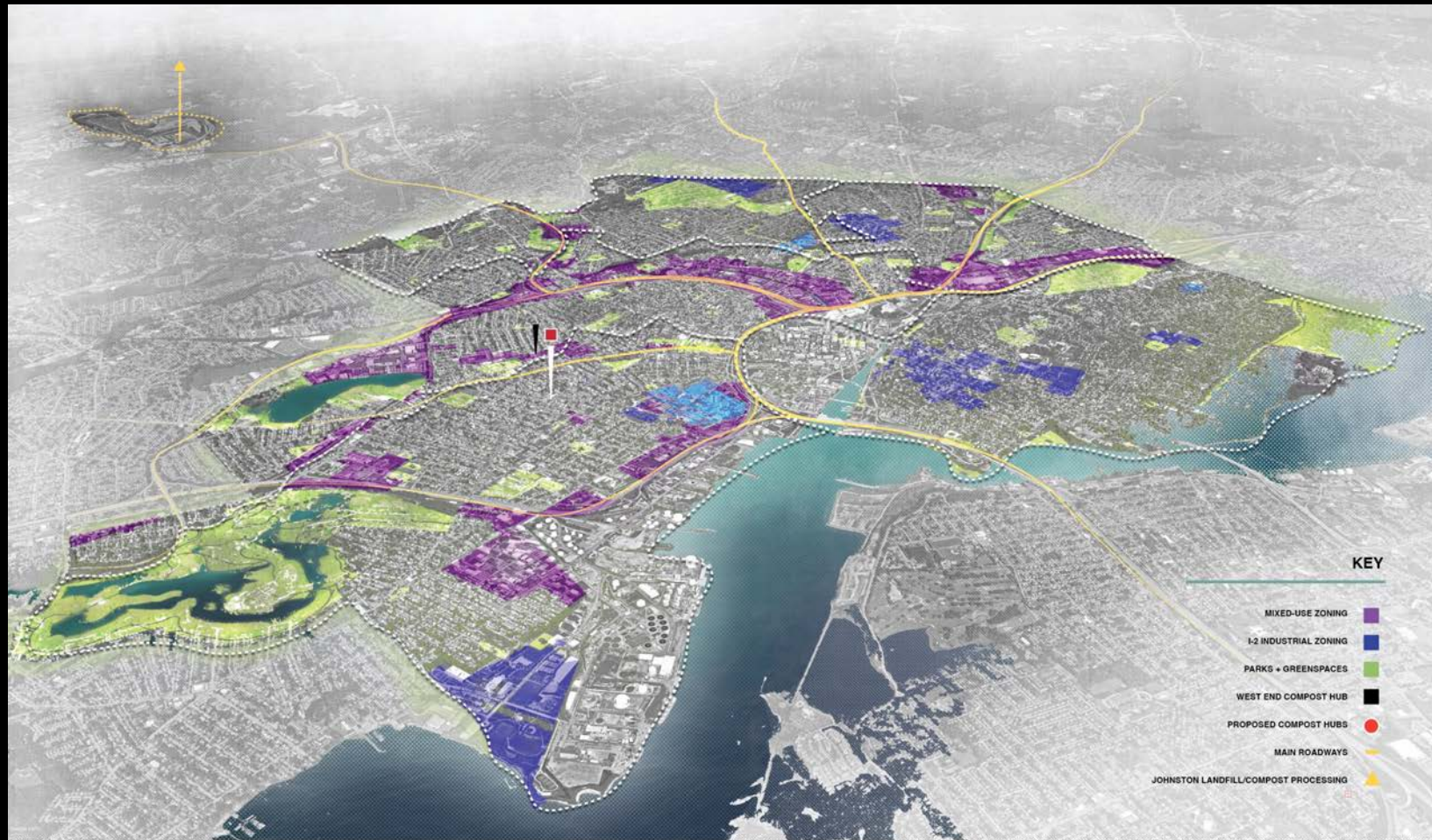
Regenera Orgánico, Puerto Varas, Chile

- 400 square meters (4,305 sq ft)
- Processes 240 tons per year
- Weekly collection from homes/businesses
- Compost returned every 3-4 months

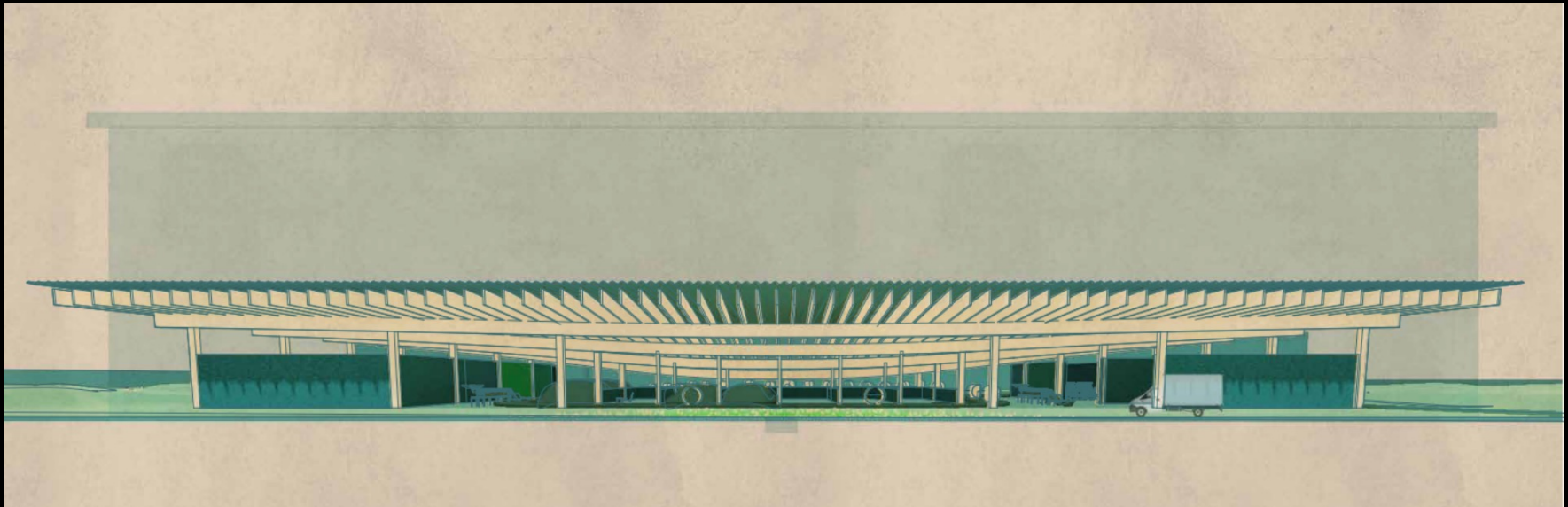


NEIGHBORHOOD COMPOST PROPOSALS

ARCHITECTURAL RESPONSE



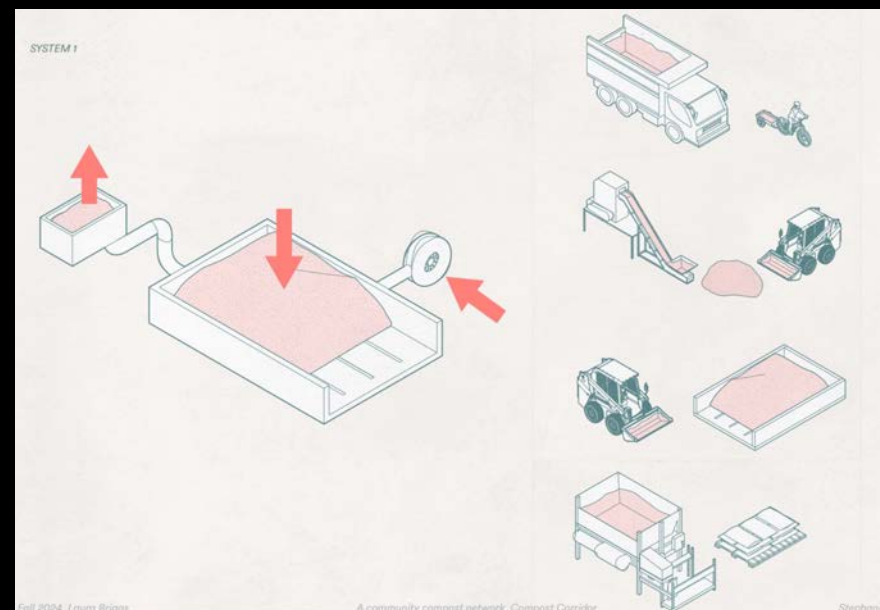
DISTRIBUTED LOCATIONS

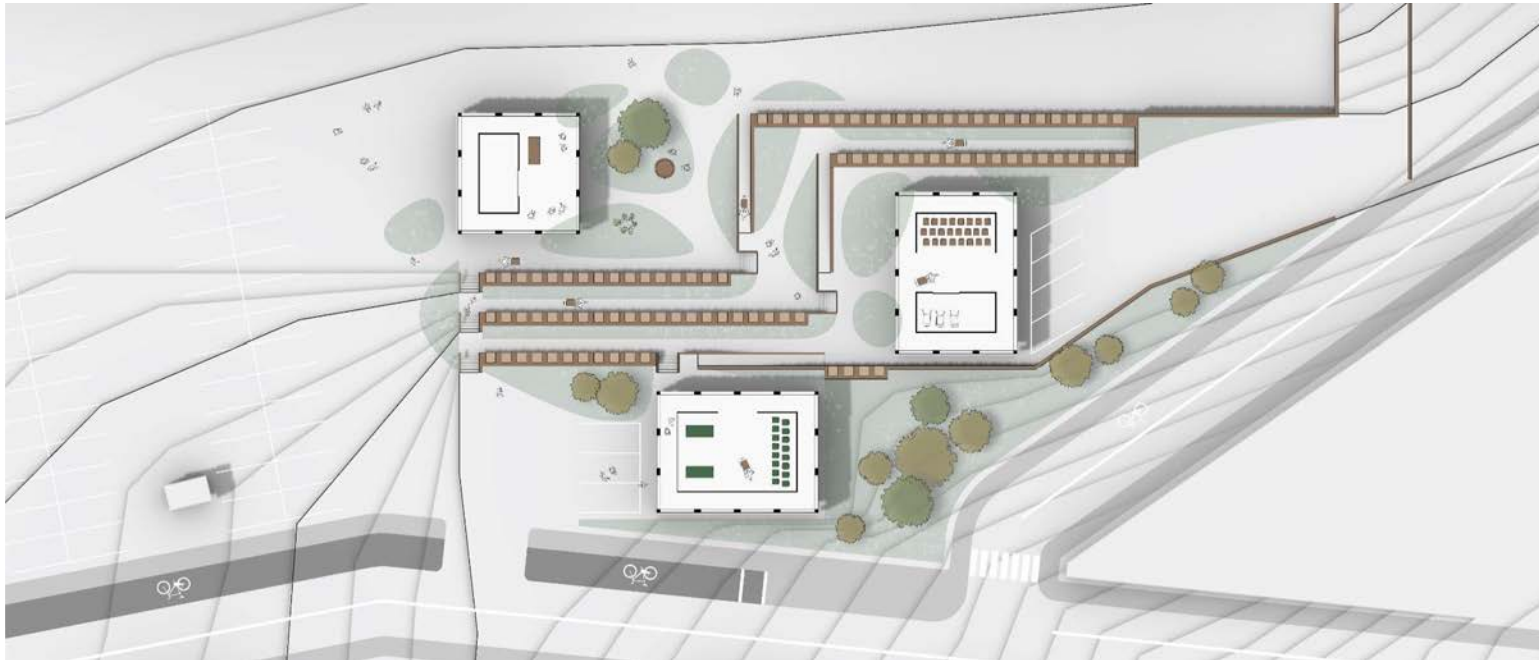


Estephania Granados



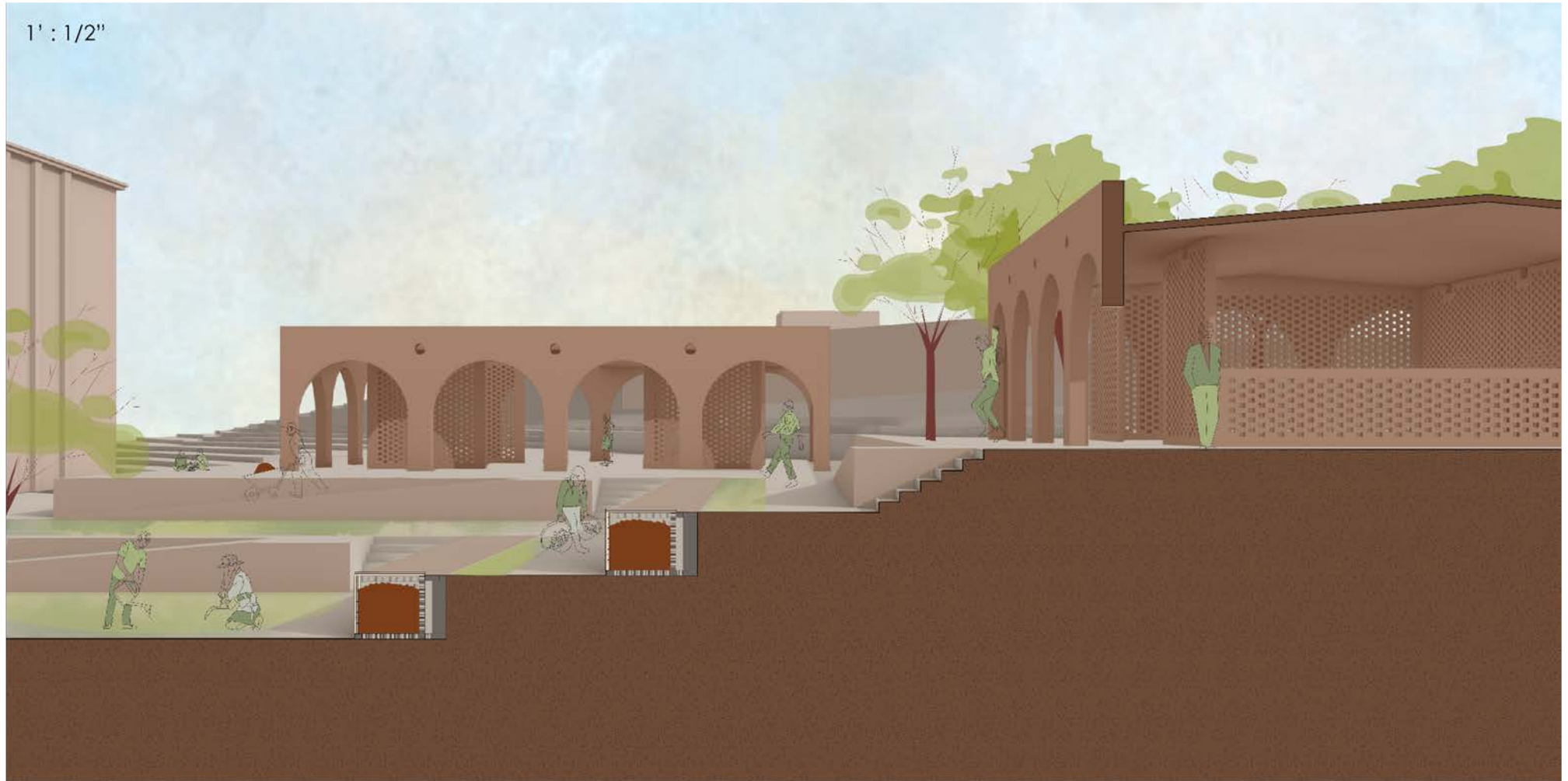






Olivia Messmer

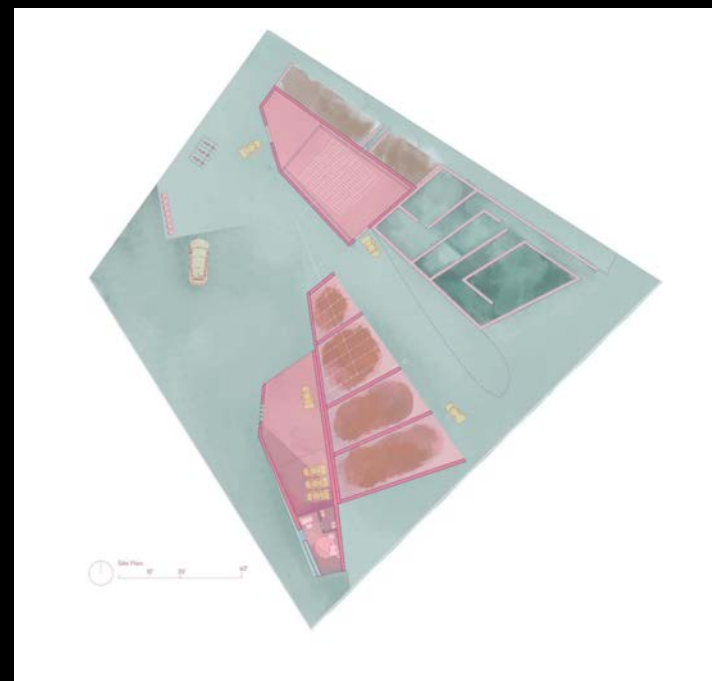
1' : 1/2"

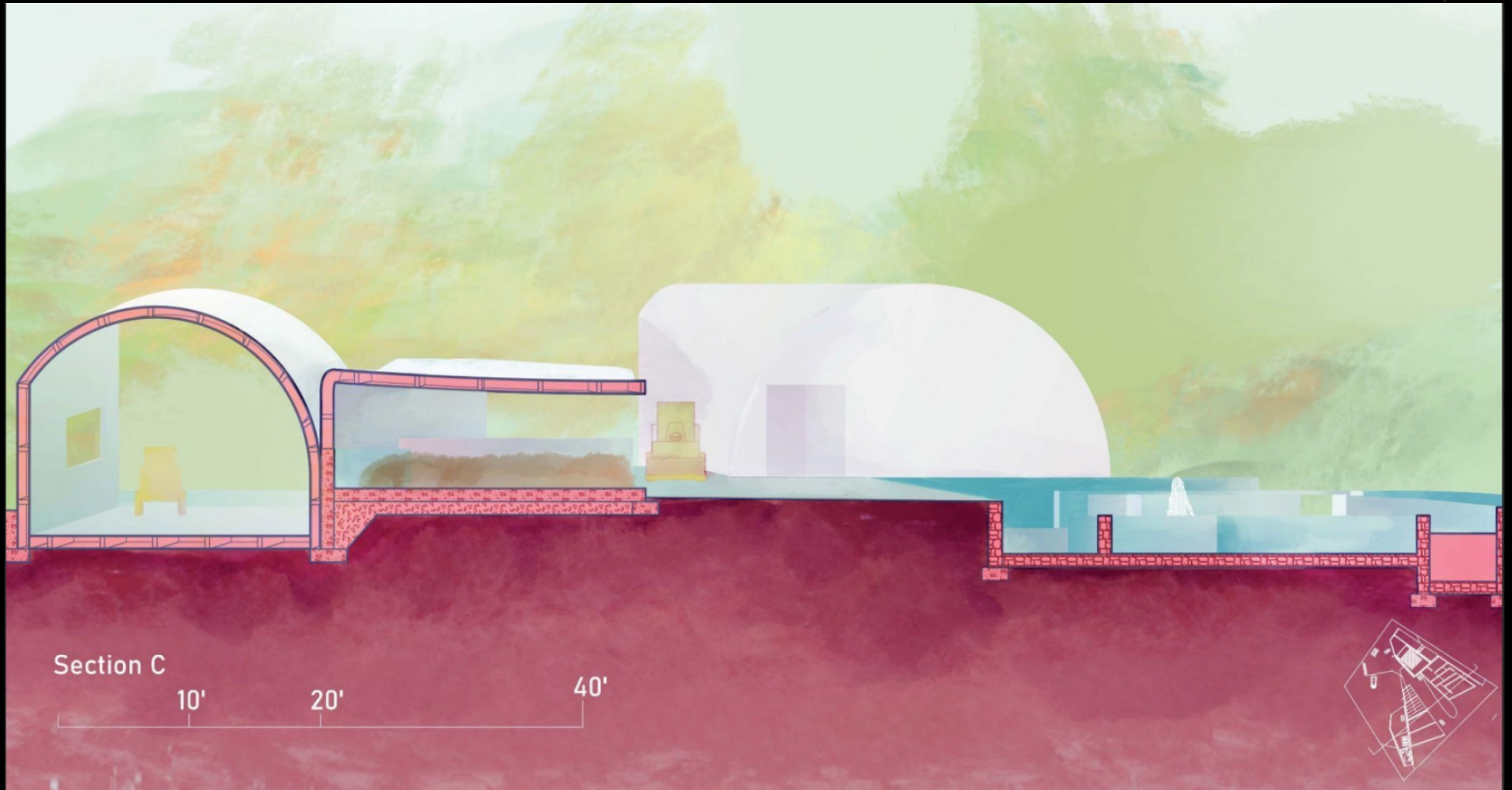


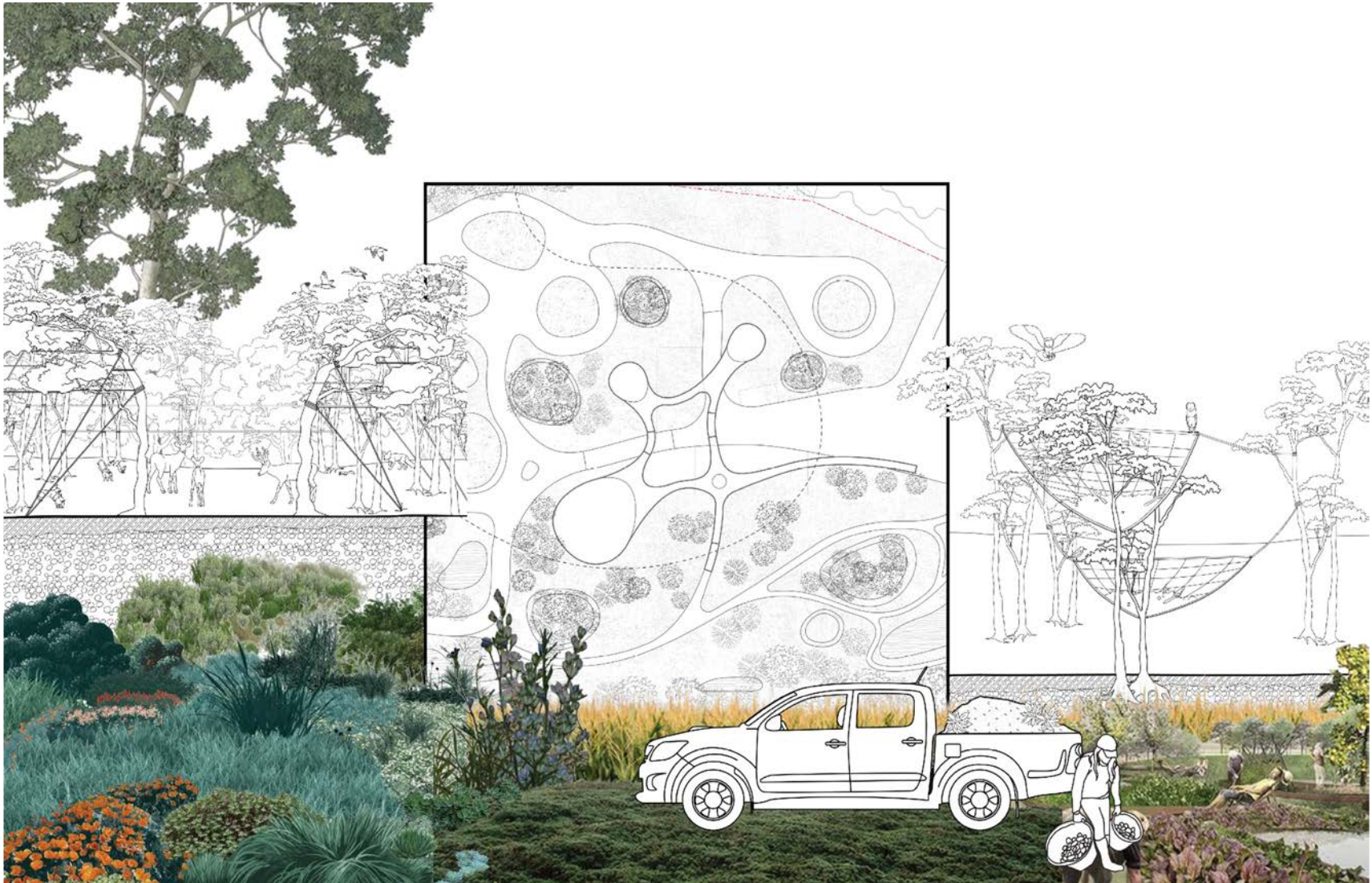




Olivia Boucher



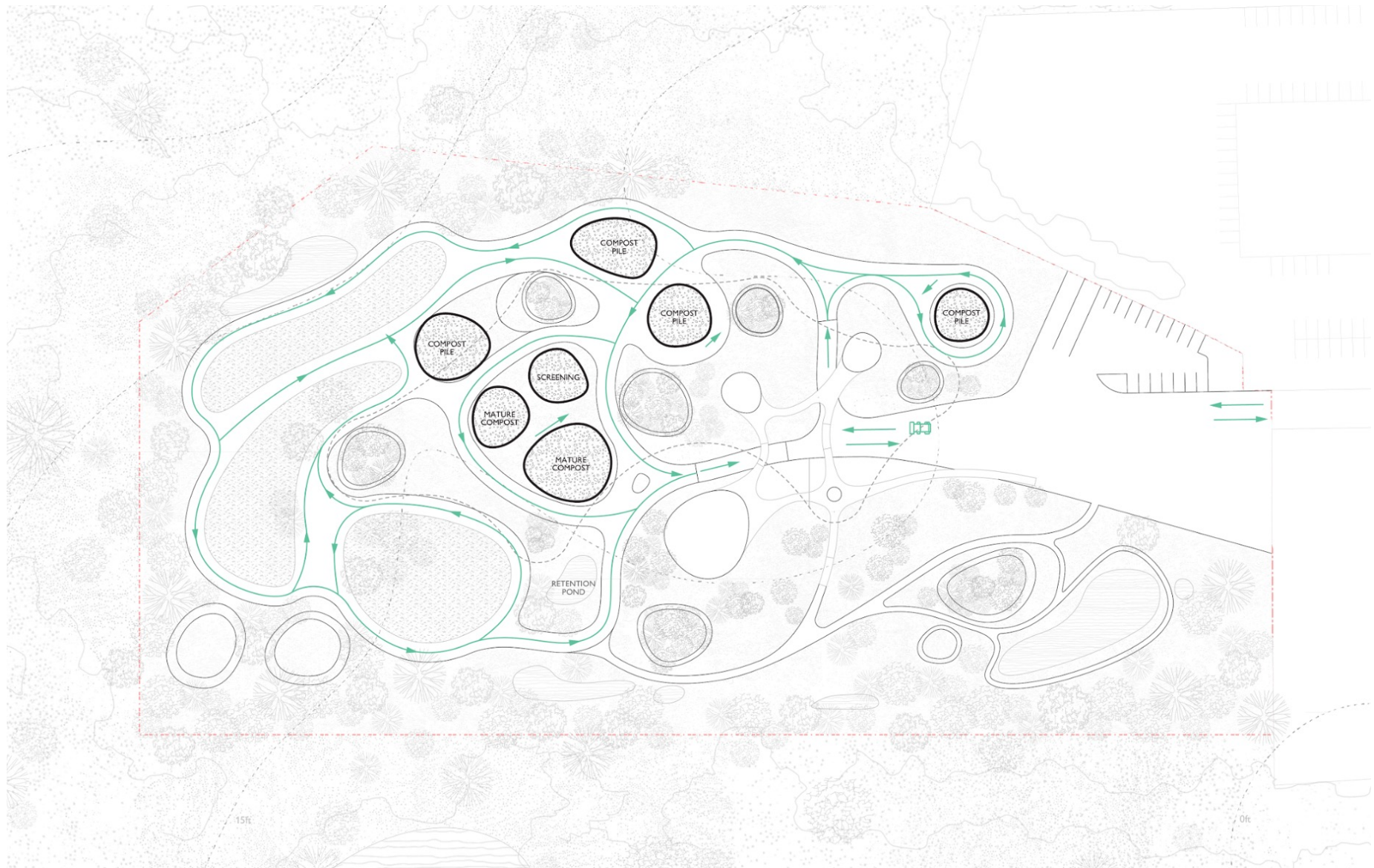




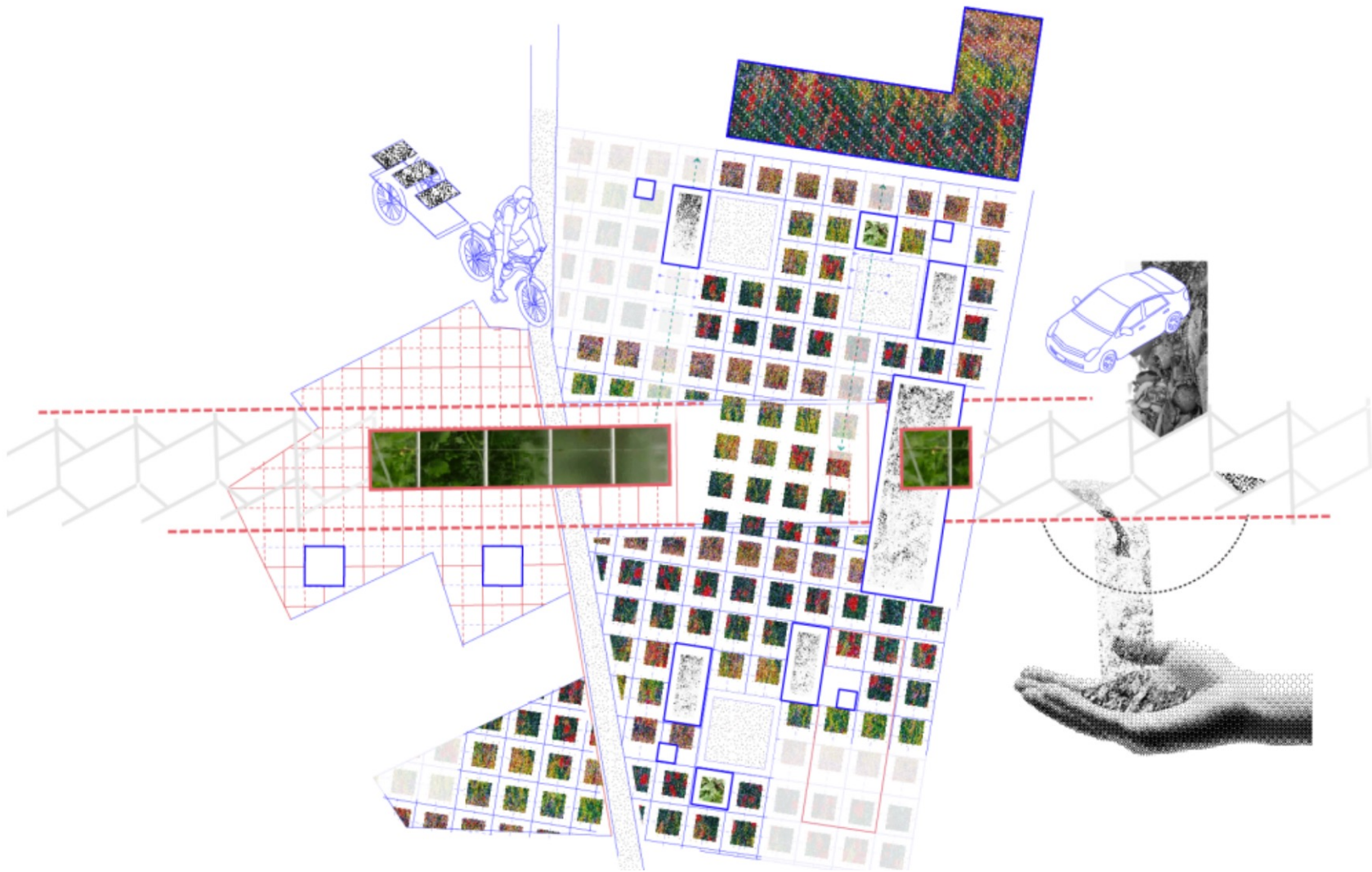
Shuli Wu



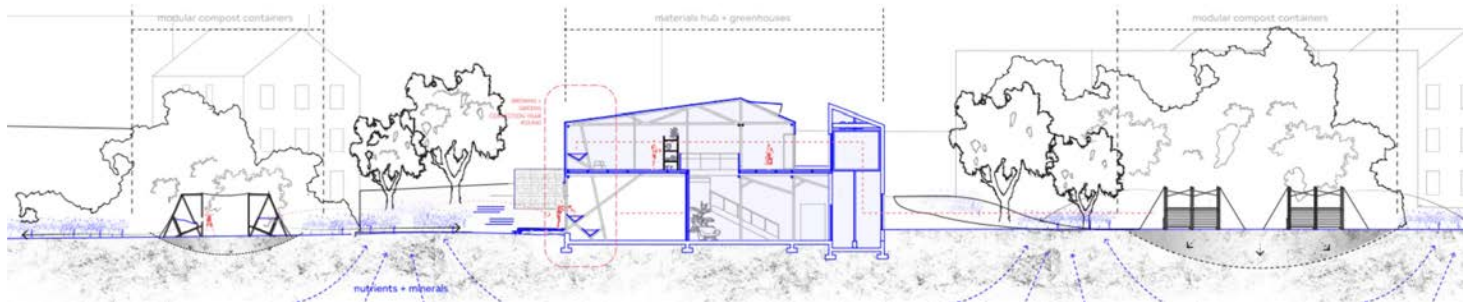
1/32"=1' ELEVATION



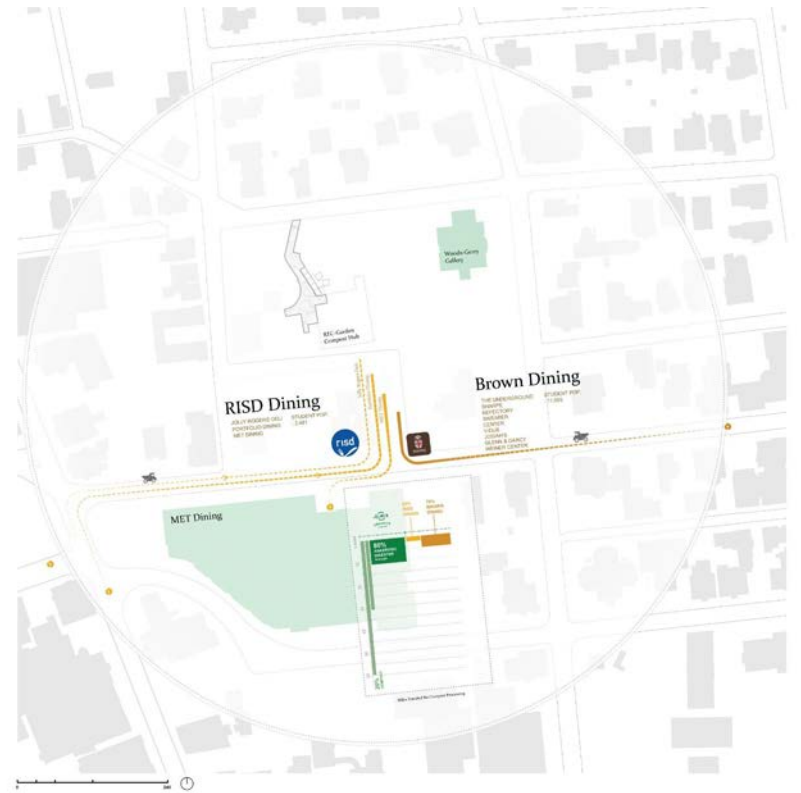




Pateton Gonzales

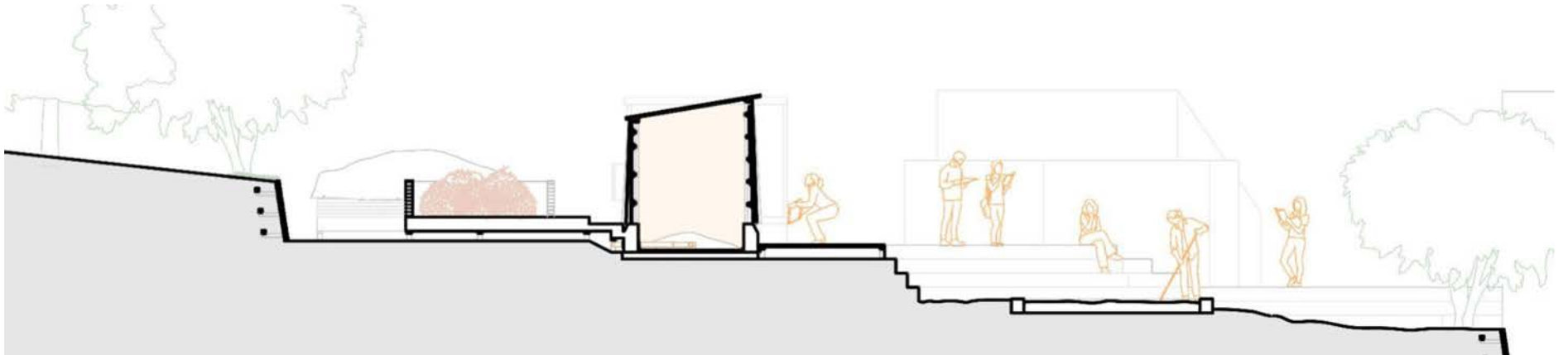
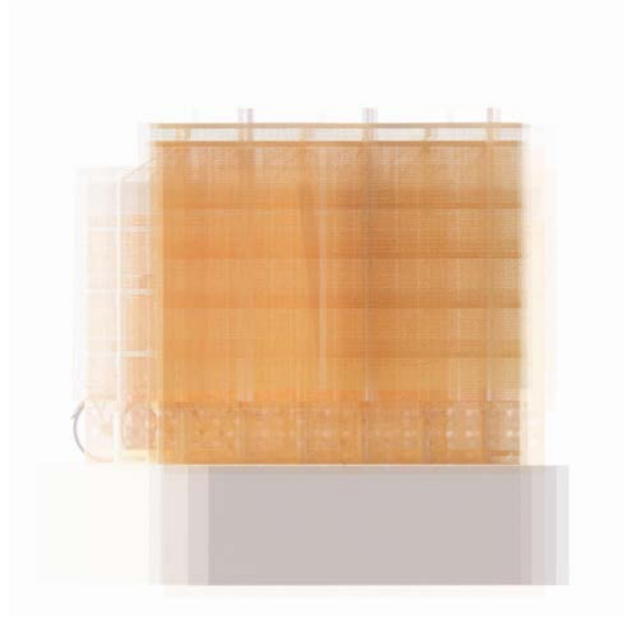






Seungwoo Hong







Naomi Kern