



Design Portfolio

Claire Heidenreich

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A Poetic Approach to Climate Change

Solastalgia Sanctuaries explores the ecological grief concept of solastalgia; the feeling of homesickness when it is our home that is in fact leaving us.

cross-Canada series of botanical gardens act as landscape time capsules, keeping the memories and stories of place alive as climate change and ecological degradation transform them before our eyes.

In an unpredictable world where the future is uncertain, we need anchor points of stillness where we can take the time to acknowledge loss and change before continuing to hurtle forward.



Hybrid Representation

- Main garden design modelled fully in Rhino
Elements of final pieces laser-cut from various cardstocks, holographic and iridescent paper, and vellums stained with alcohol inks and speckled with shimmer paints
Cut-outs arranged and glued by hand

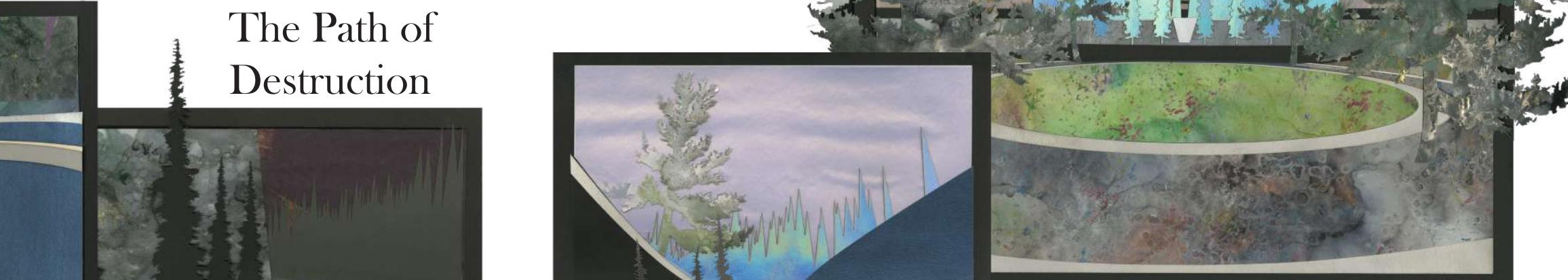


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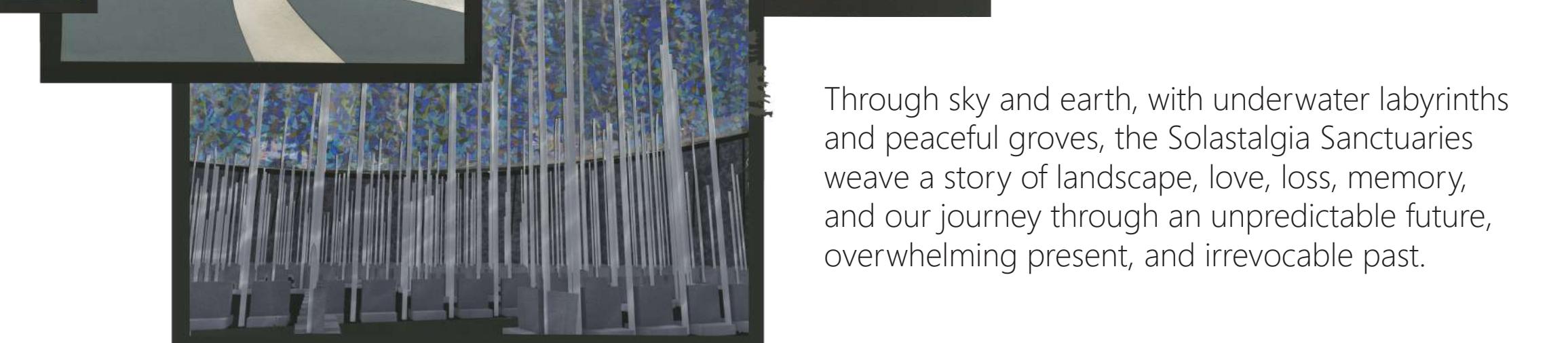
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I a story of a landscape that
ds, landscapes define the pla
their mountains and trees, c
ent groves and endless seas
r hearts. When they change,



A Hopeful



10 of 10

*Regional Studio
Instructor: Kris Fox
Fall 2024*



Through sky and earth, with underwater labyrinths and peaceful groves, the Solastalgia Sanctuaries weave a story of landscape, love, loss, memory, and our journey through an unpredictable future, overwhelming present, and irrevocable past.

Phenomenological Site Analysis

Landscape Architecture Studio
Instructor: Kris Fox
Winter 2023

This project involved a deep dive into the texture of place, exploring the sensations and impressions evoked by the richness of the forest. From such an immersive site analysis emerged a design centered on drawing people deeper into the park, both spatially and spiritually. The pathways present a gradient of increasing depth, complexity, and immersion.



Conceptual Discovery Model

Landscape Architecture Studio
Instructor: Kris Fox
Winter 2023

Guests were invited to embrace a state of child-like curiosity and use magnifying glasses to explore a tactile representation of Griffith Woods Park, hunting for hidden wonders and uncovering scraps of scientific oddities.

Speculative Design: What if Alberta's Resource Economy Was Defined by Salt Instead of Fossil Fuels?

This project blends comprehensive research into Alberta's industrial resource economy and history with the fantasy of a society built on beauty, dreams, and the resilience of the human spirit. It asks: What events might realistically have led to this fantastical alternative present? Economies, histories, politics, fringe radicals, artisans, ecologists, and storytellers comprise this Story of Salt.

Explorations were made through alternative timelines, doctored news articles, a model of glowing crystals and moss, and a fairy tale in watercolours and salt.

SALT IN FORT SASKATCHEWAN

A STORY OF EXTRACTION AND CONTAINMENT

GEOLOGICAL

THREE MAJOR SALT FORMATIONS
DEPOSITED IN THE DEVONIAN ERA
380-420 MYA

CENOZOIC

MESOZOIC

PALEOZOIC

PRAIRIE EVAPORITE FORMATION

COLD LAKE FORMATION

LOTSBERG FORMATION

COLONIAL

PRE-COLONIAL

1700S

FUR TRADERS COME TO THE AREA

1875

WILLIAM D. JARVIS ESTABLISHES FORT SASKATCHEWAN AS A BASE FOR ROYAL CANADIAN MOUNTED POLICE

1882

LAMOUREUX SETTLEMENT ESTABLISHED ACROSS RIVER

1905

CNR BUILDS RAILWAY CONNECTION AND BRIDGE

1915

FORT LEVELLED TO BUILD PROVINCIAL JAIL

1919

ATCO LANDING TRAIL AIR LINE TRAILERS

1922

SCOTFORD REFINERY EXPANDS

1930

DOW CHLORALKALI PLANT SHUTS DOWN

1947

OIL STRUCK WITH LEDUC #1

BEGINNING OF MAJOR RESOURCE EXTRACTION AND INDUSTRY IN AREA

1951

SUNCOR EDMONTON REFinery

1955

PRISON RIOT

1961

DOW CHEMICAL OPENS PLANT

1968

DOW CHEMICAL OPENS CHLORALKALI PLANT

1973

PLAINS MIDSTREAM CANADA (PMC) OPENS SALT CAVERN STORAGE TERMINAL FOR NATURAL GAS LIQUIDS

1981

PMC GAS FRACTIONATION PLANT

1992

FORT SASKATCHEWAN BYLAW MAKES IT ILLEGAL FOR RESIDENTS TO DIG IN PUBLIC SPACES

1995

SCOTFORD REFINERY EXPANDS

2003

DOW CHLORALKALI PLANT SHUTS DOWN

2004

DOW RECREATION CENTER

2007

FORT SASKATCHEWAN RE-CREATED FOR HISTORICAL PURPOSES

2008

ATCO PROPOSES EXPANSION TO STRATHCONA SALT CAVERN STORAGE PROJECT

2011

SCOTFORD REFINERY EXPANDS OPENING QUEST CARBON CAPTURE AND STORAGE

2013

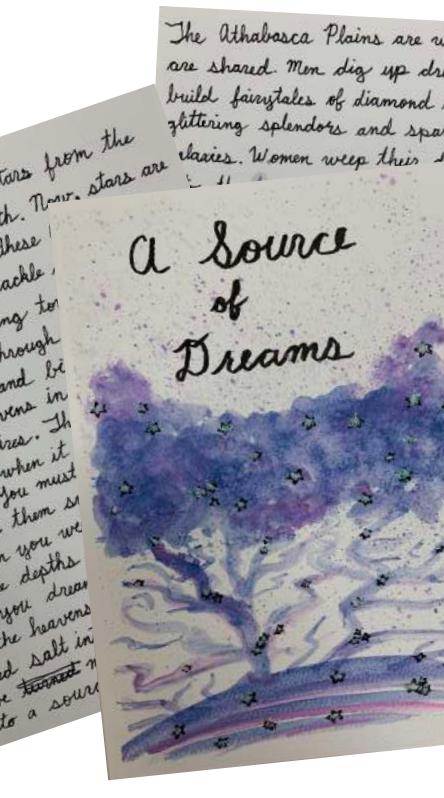
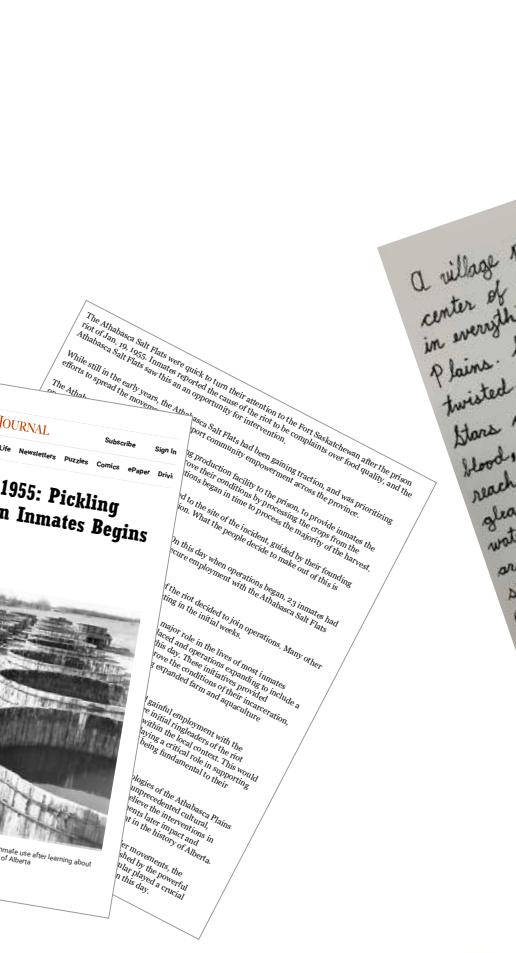
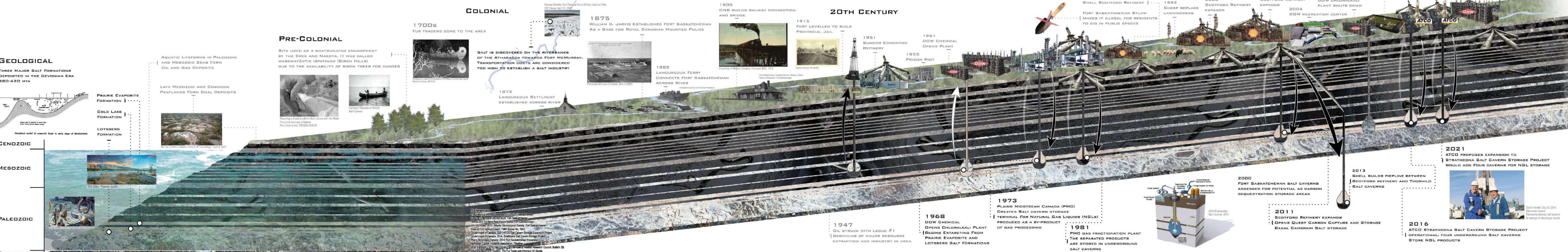
ATCO PROPOSES EXPANSION TO STRATHCONA SALT CAVERN STORAGE PROJECT

2016

ATCO STRATHCONA SALT CAVERN STORAGE PROJECT

2027-2029

DOW'S PATH2ZERO ESTIMATED COMPLETION, INCLUDES HYDROGEN-FUELLED ETHYLENE CRACKER AND OFSITE CARBON SEQUESTRATION

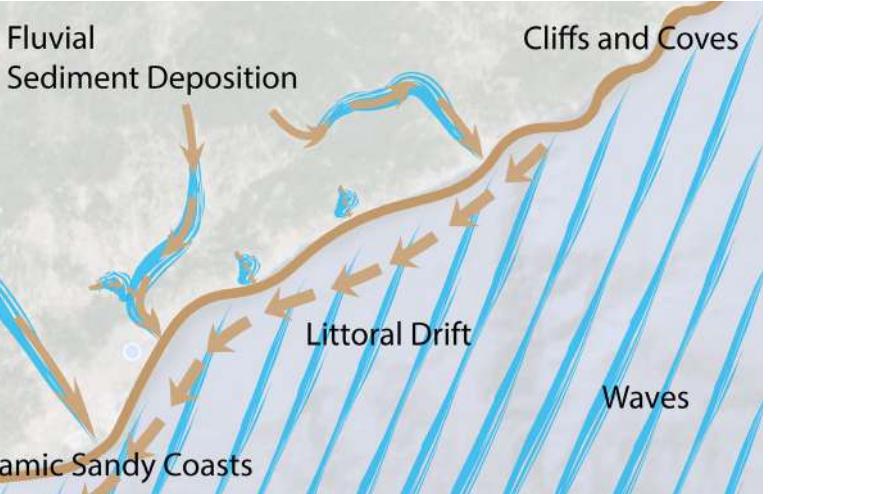


Green Infrastructure and Dynamic Resilience

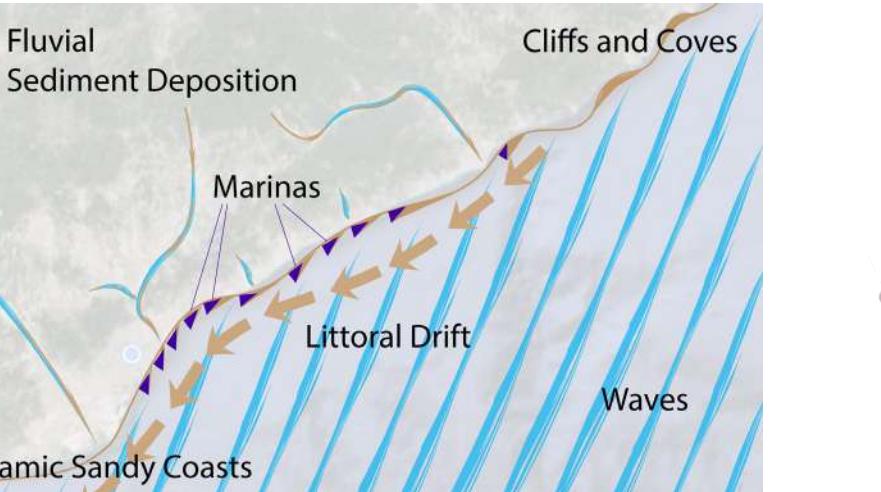
Special Studio Topics in Architecture
Instructor: Rafael Gómez-Moriana
Spring-Summer 2024

"Designing resilience means linking structure with function through processes allowing the system to adapt, even transform."
– Miriam Garcia Garcia, Towards the Synthetic Metamorphosis of the Coast: Designing Resilient Landscapes. 2017. p. 102

Natural Coastal System



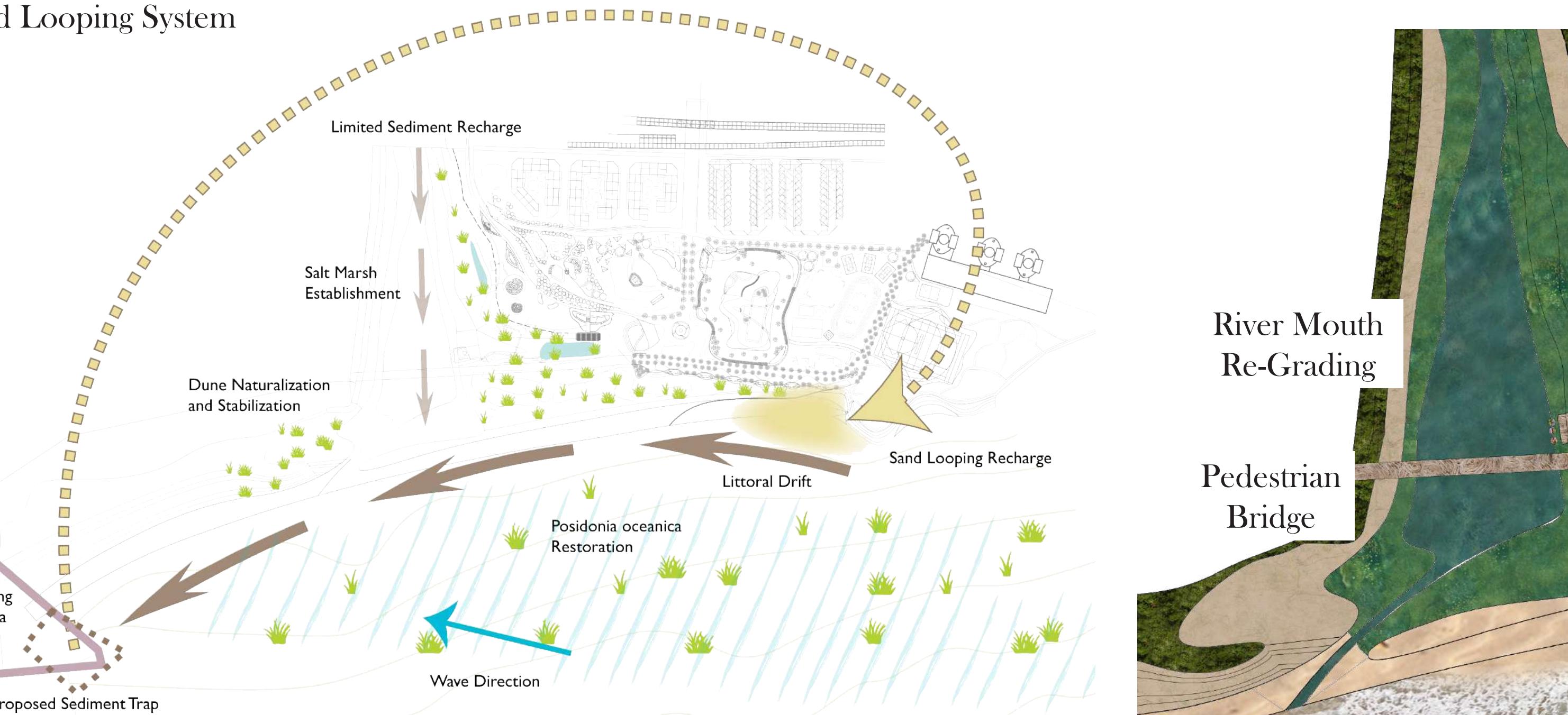
Human-Impacted System



A long history of human intervention has disrupted the hydro-geological functioning of the Catalan coast.

Originally a net depositional system, the beach is now being lost at an estimated annual rate of 2-4m.

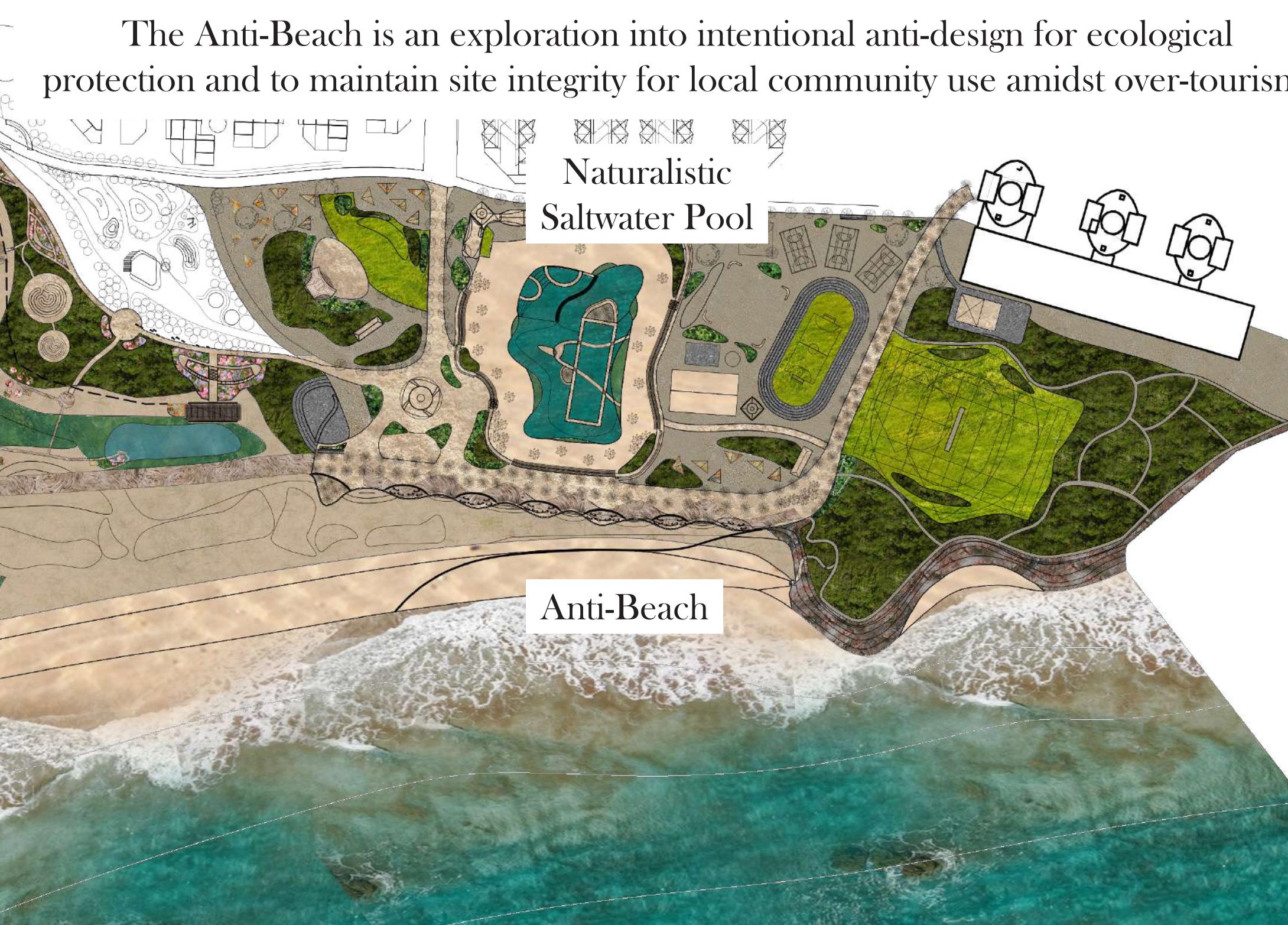
Sand Looping System



This design seeks to understand and harness both natural processes and human influence to build resilience within the established built context. Sand Looping prevents the destructive practice of regional seabed dredging while keeping beach maintenance local and efficient. Coastal dune and sea grass meadow restoration complements this system, slowing the erosion process and thereby minimizing operational frequency and cost.

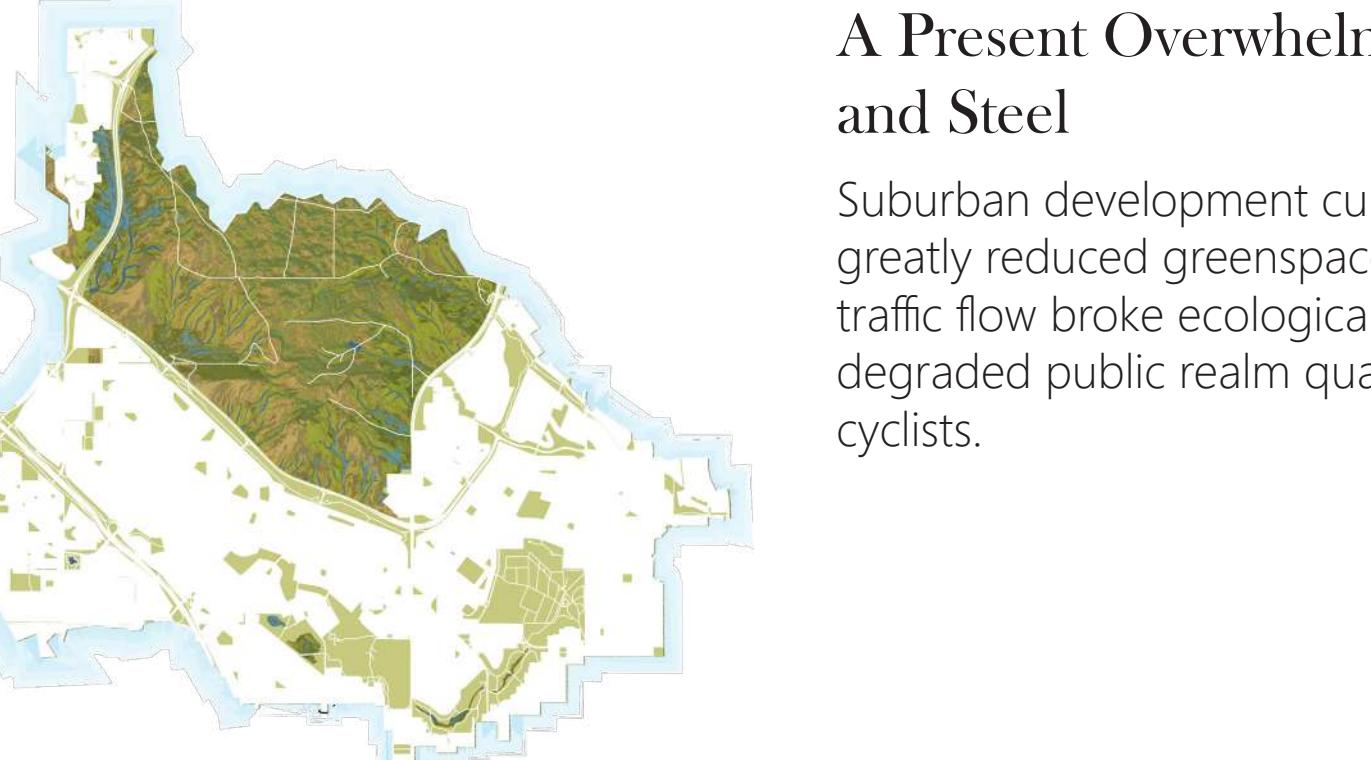
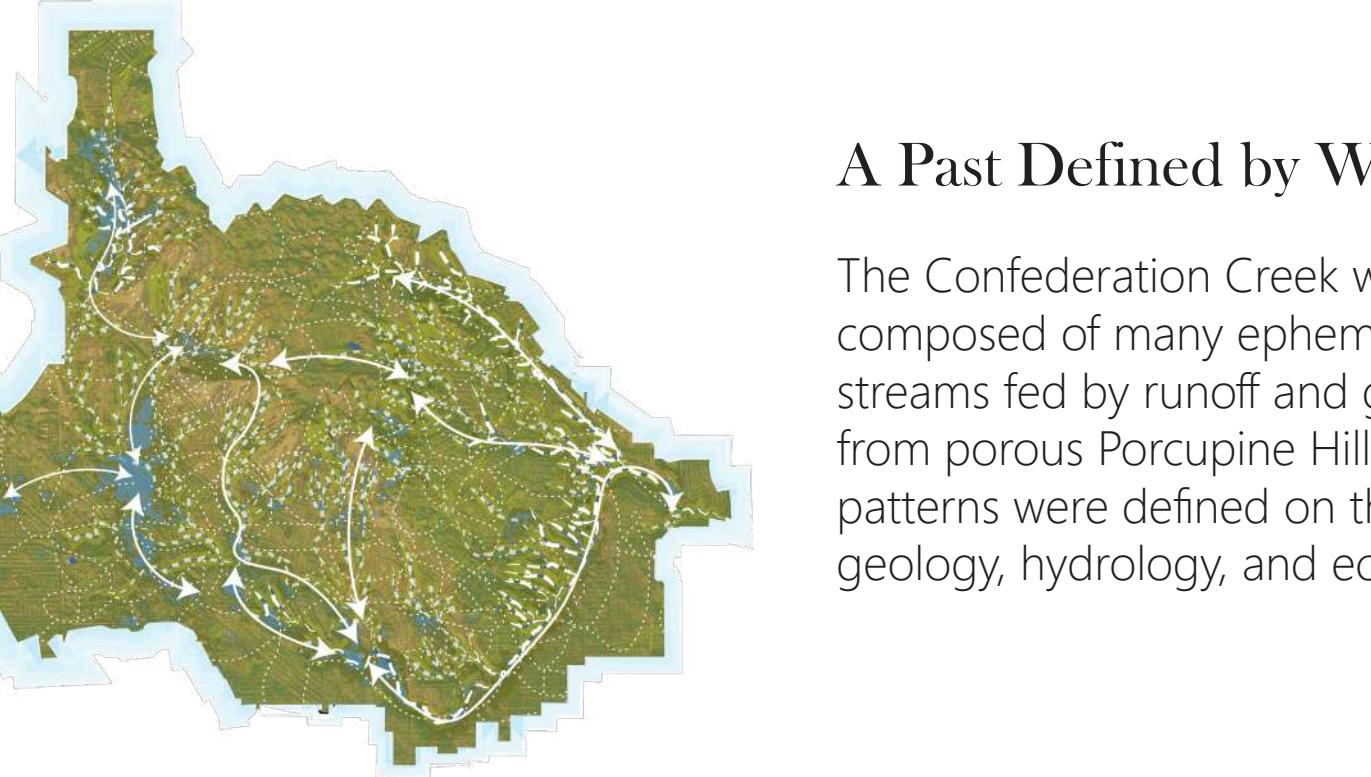
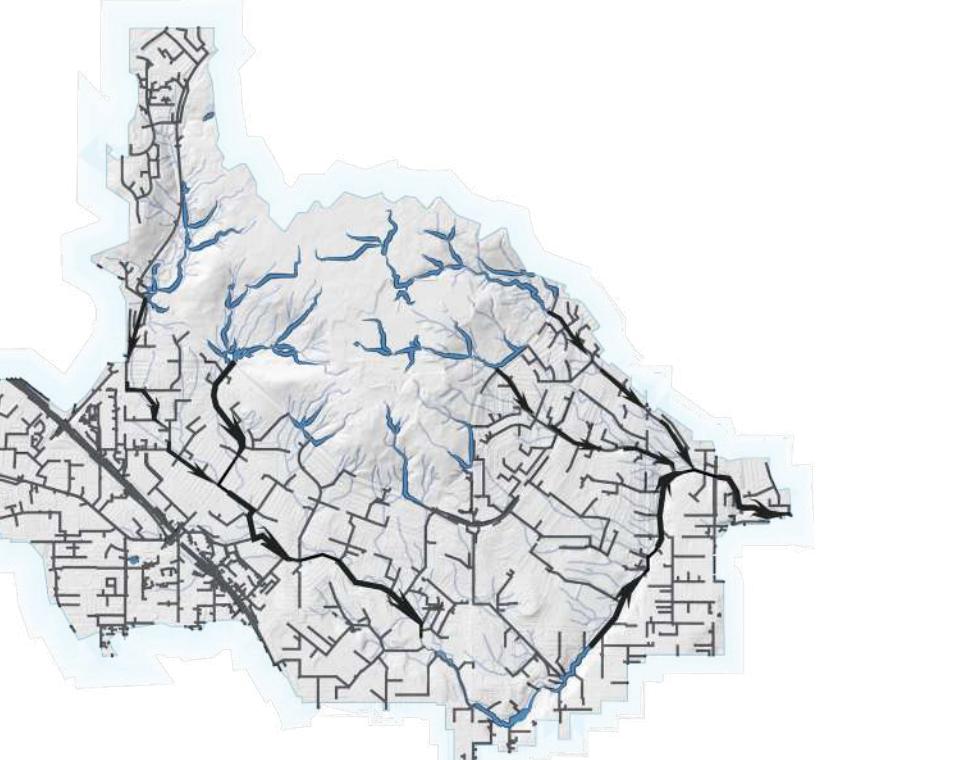
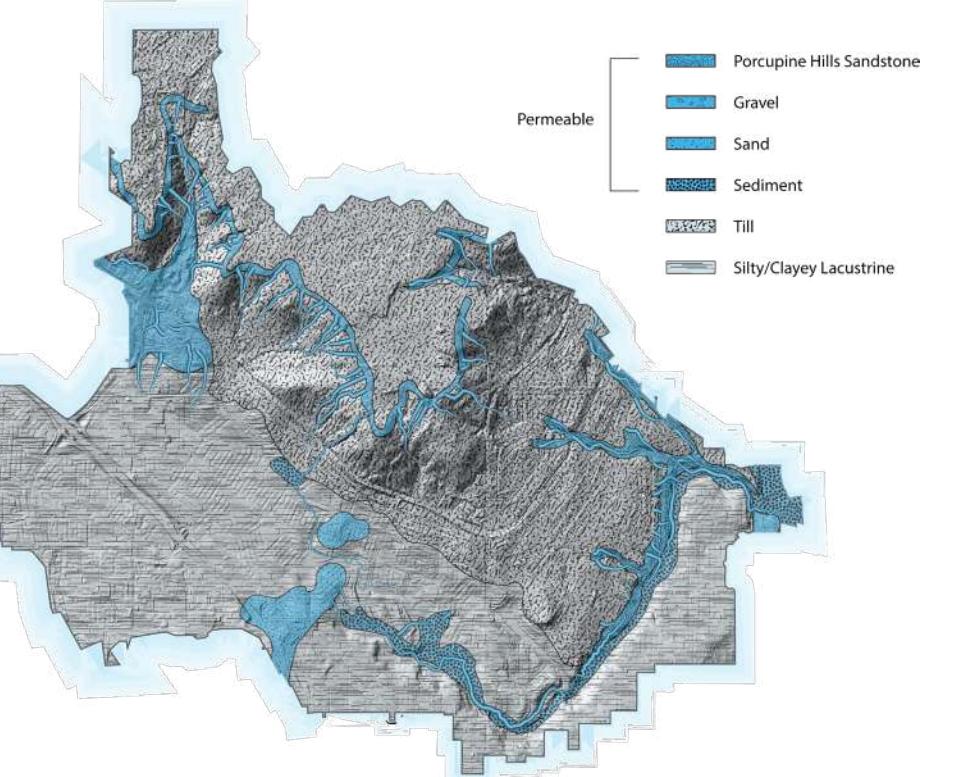
The Anti-Beach

This project involved a collaborative master planning of infill development in Sant Adrià de Besòs, a working-class post-industrial neighbourhood facing ongoing issues of housing affordability, accessibility, and over-tourism. The beach and river systems were further suffering from heavy metal contamination and reversal of historic progressive delta functioning. Continuous evolution of the surrounding design context required flexibility in design response.



Special Studio Topics in Architecture
Instructor: Rafael Gómez-Moriana
Spring-Summer 2024

Unearthing Ecological Histories



A Past Defined by Water and Rock

The Confederation Creek watershed was historically composed of many ephemeral and perennial streams fed by runoff and groundwater emerging from porous Porcupine Hills sandstone. Movement patterns were defined on the interrelations of geology, hydrology, and ecology.

A Present Overwhelmed by Concrete and Steel

Suburban development culverted streams and greatly reduced greenspace. A priority on vehicular traffic flow broke ecological connectivity and degraded public realm quality for pedestrians and cyclists.

Inviting the Light

A Quiet Beckoning



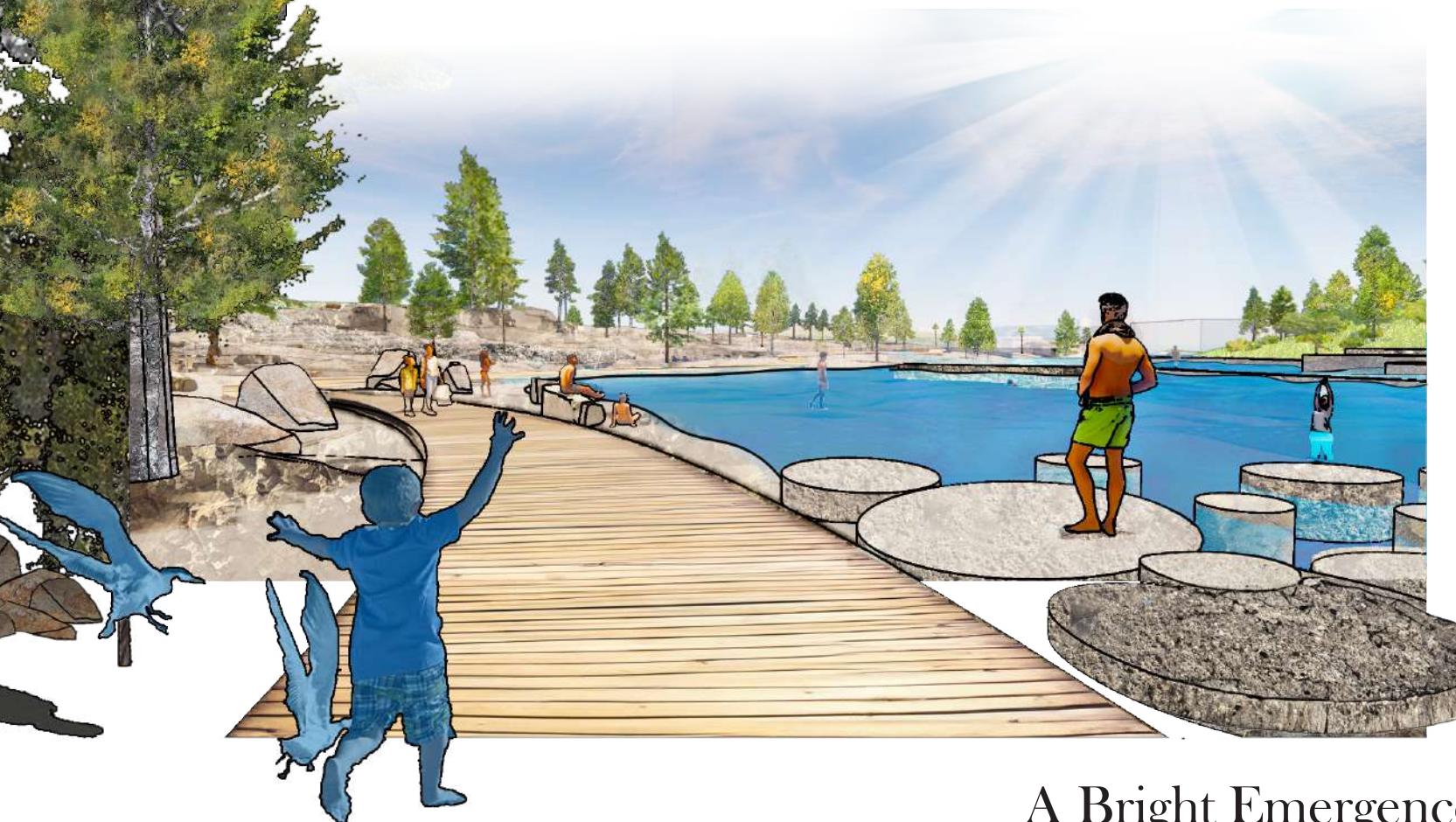
A Call to Discovery

A journey of freedom along a rambling path

This design proposes the re-balancing of human and natural systems, envisioning a future of connection, resilience, and equity between people, ecosystems, and natural processes.

The three main interventions include:

- Daylighting perennial streams and building greenways where major vehicle-exclusive highways are now located
- Creating a wetland complex for biodiversity, discovery, and bio-filtration
- Establishing a public natural swimming pool for joyful resilience

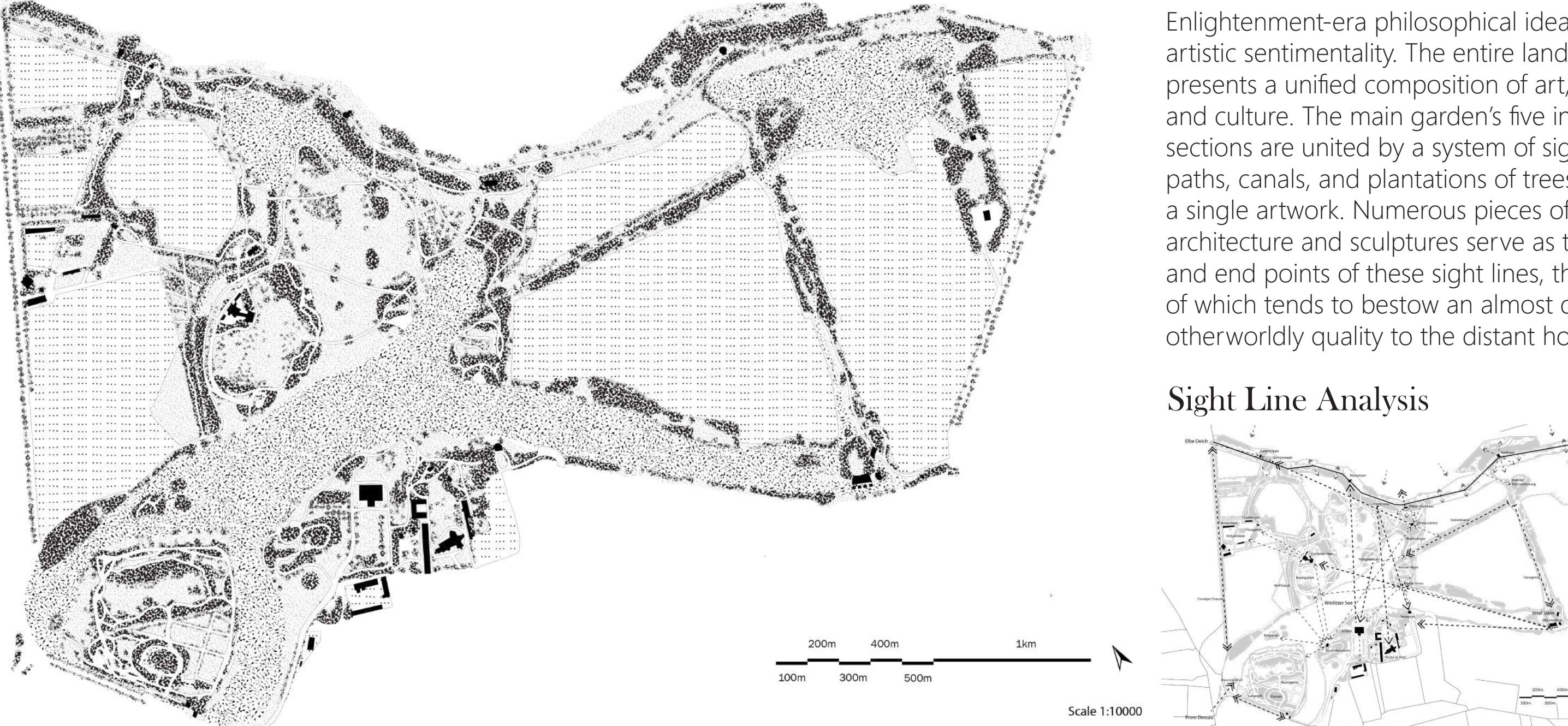


A Bright Emergence

Learning from History

This project fostered a deep appreciation for the historical evolution of landscape architecture and the potential for the discipline to bridge design with philosophy, art, science, education, and economics. My study focused on the Garden Realm of Dessau Wörlitz, a landscape garden designed by Prince Leopold III. Friedrich Franz of Anhalt-Dessau that expanded across his entire principality. The landscape consists of parks, ornamental gardens, lakes, agricultural fields, horticultural research plots, labyrinths, tunnels, castles, churches, canals, and even an artificial volcano.

Figure Ground



Sight Line Analysis



The Urban Parking Lot as an Alvar Analog



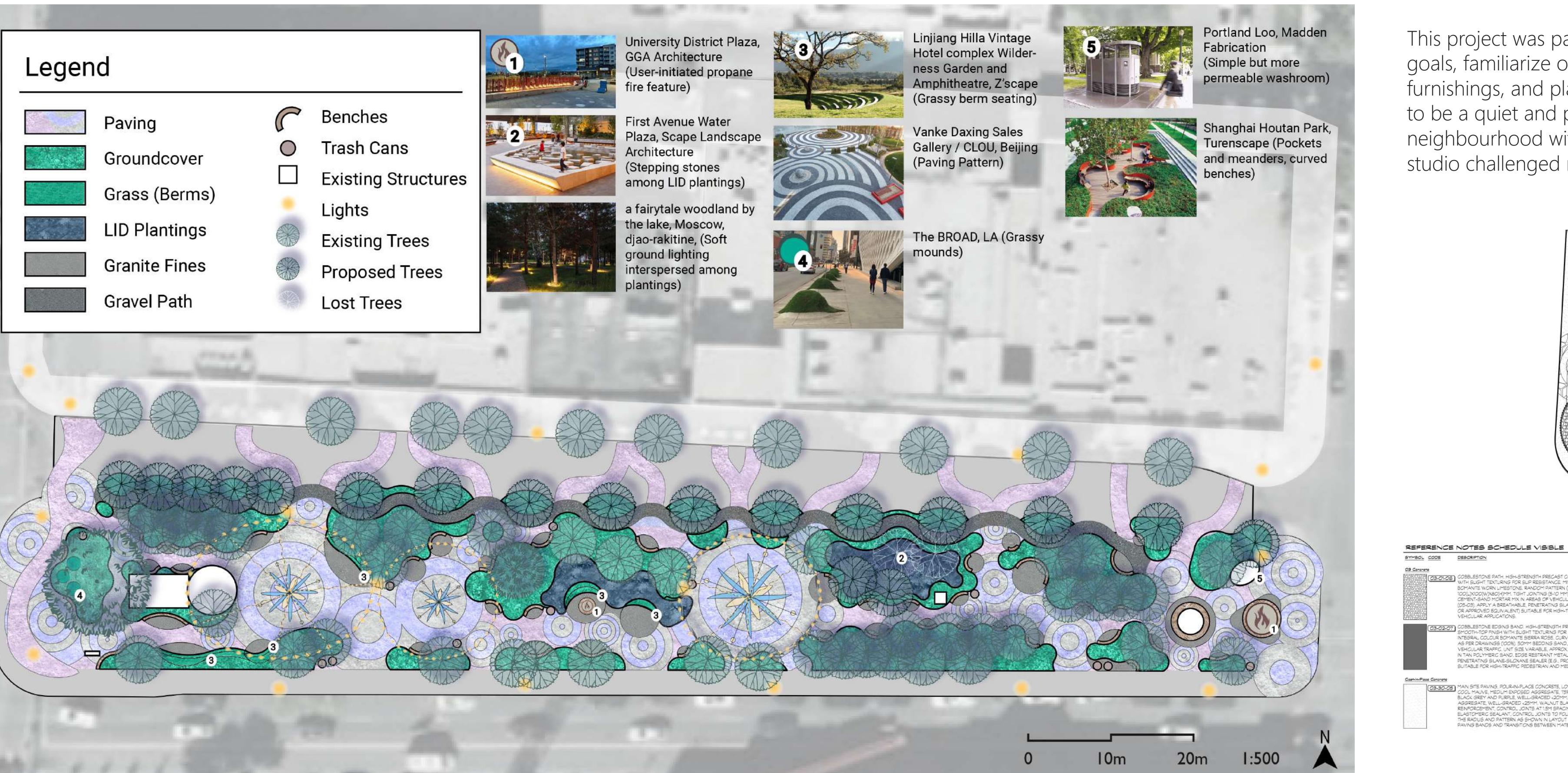
Alvars are incredibly biodiverse and harsh ecosystems.

Plants grow on limestone bedrock or thin soil and must tolerate extreme flooding, drought, exposure, and salts.

These conditions are quite similar to a Calgary parking lot.

An Urban Woodland Allusion

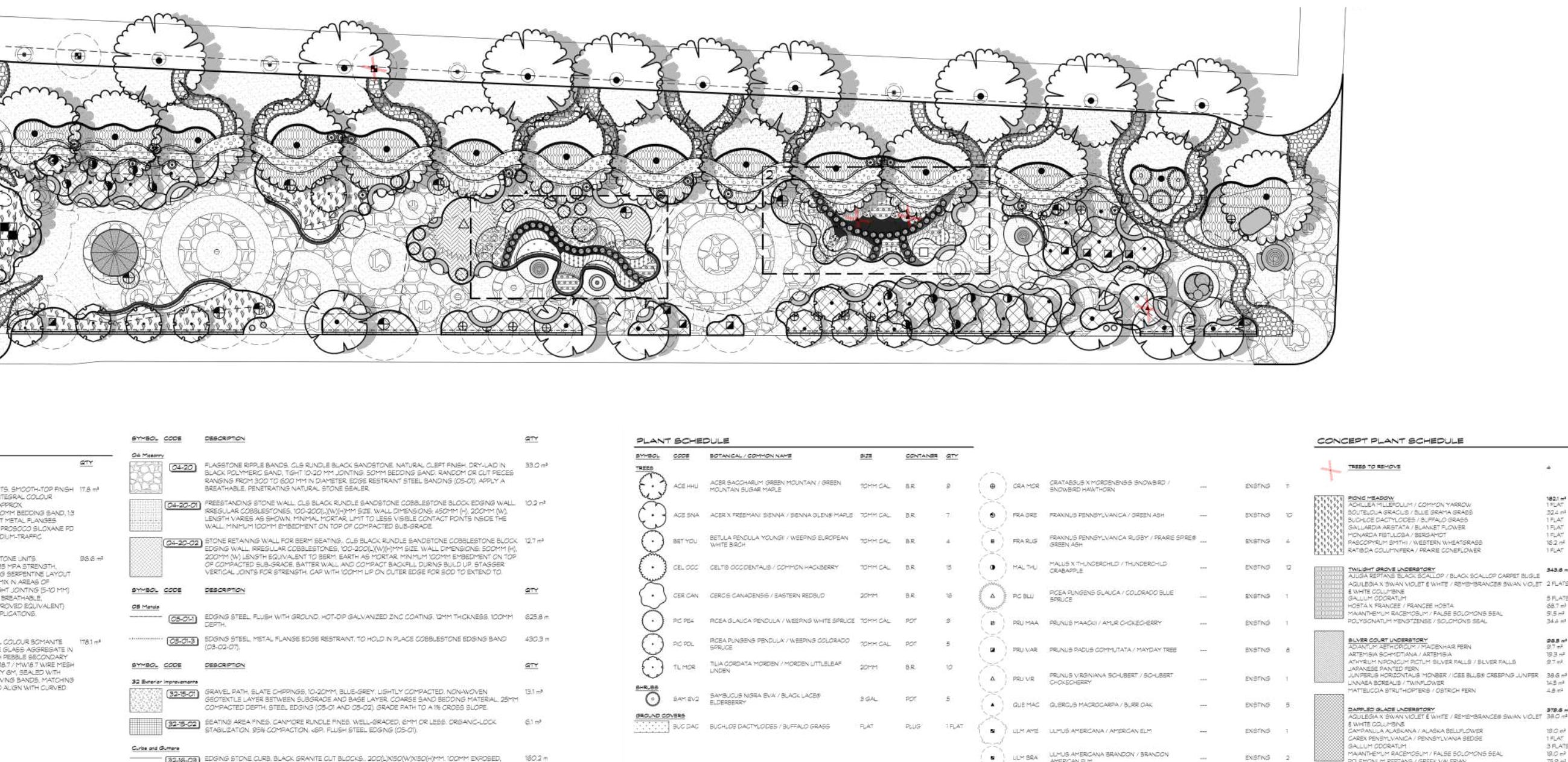
Fbbs and



Eddies of Stone an

Work-Integrated Learning Studio
Instructor: Chris Jennings
Winter 2023

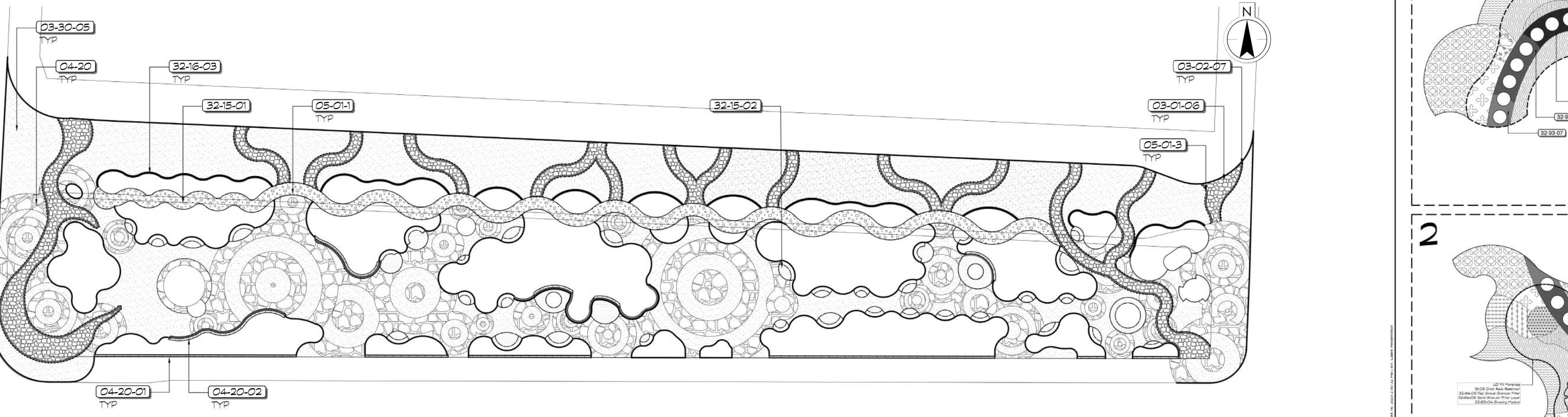
work-integrated studio completed at Stantec. In the re-design of local Tompkins Park, we were challenged to follow mock "client" briefs with AutoCAD and LandFX for typical landscape design workflows, and deep-dive into the research of hardscape materials, site analysis, and design. My concept was inspired by both the feeling of the site itself, and the park dedication, which states the purpose of the site as a "place of refuge and respite from the bustle of city life." I wanted to create a whimsical, enchanted space that harmoniously blended the surrounding character of the park with a sense of woodland feeling. I wanted to create a bubble outside of time, and a peaceful, flexible space to rest, gather, and reflect in. This project allowed me to actualize my more whimsical design dreams into a workable, constructible set of technical plans and schedules.



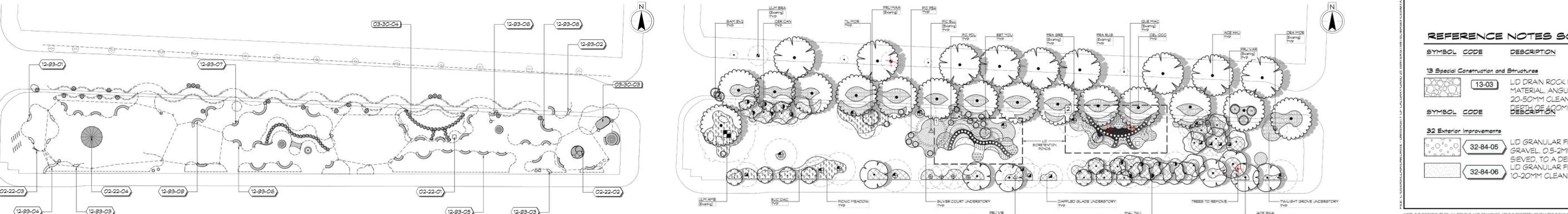
Construction Drawings

Work-Integrated Learning Studio
Instructor: Chris Jennings
Winter 2025

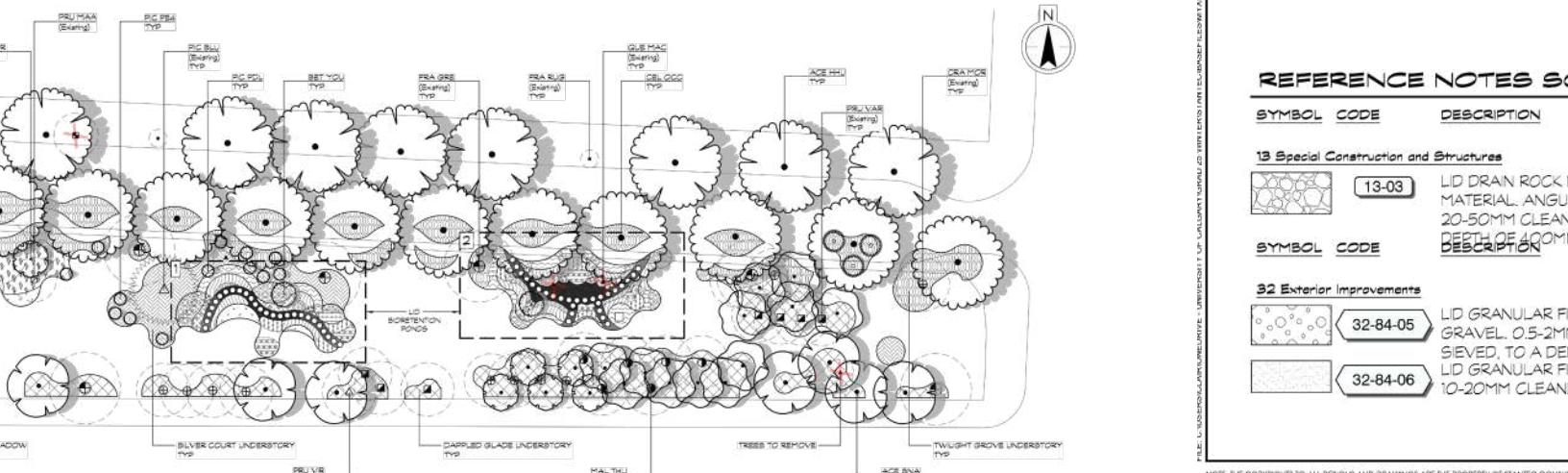
Hardscape Plan



Site Furnishing Plan



Planting Plan



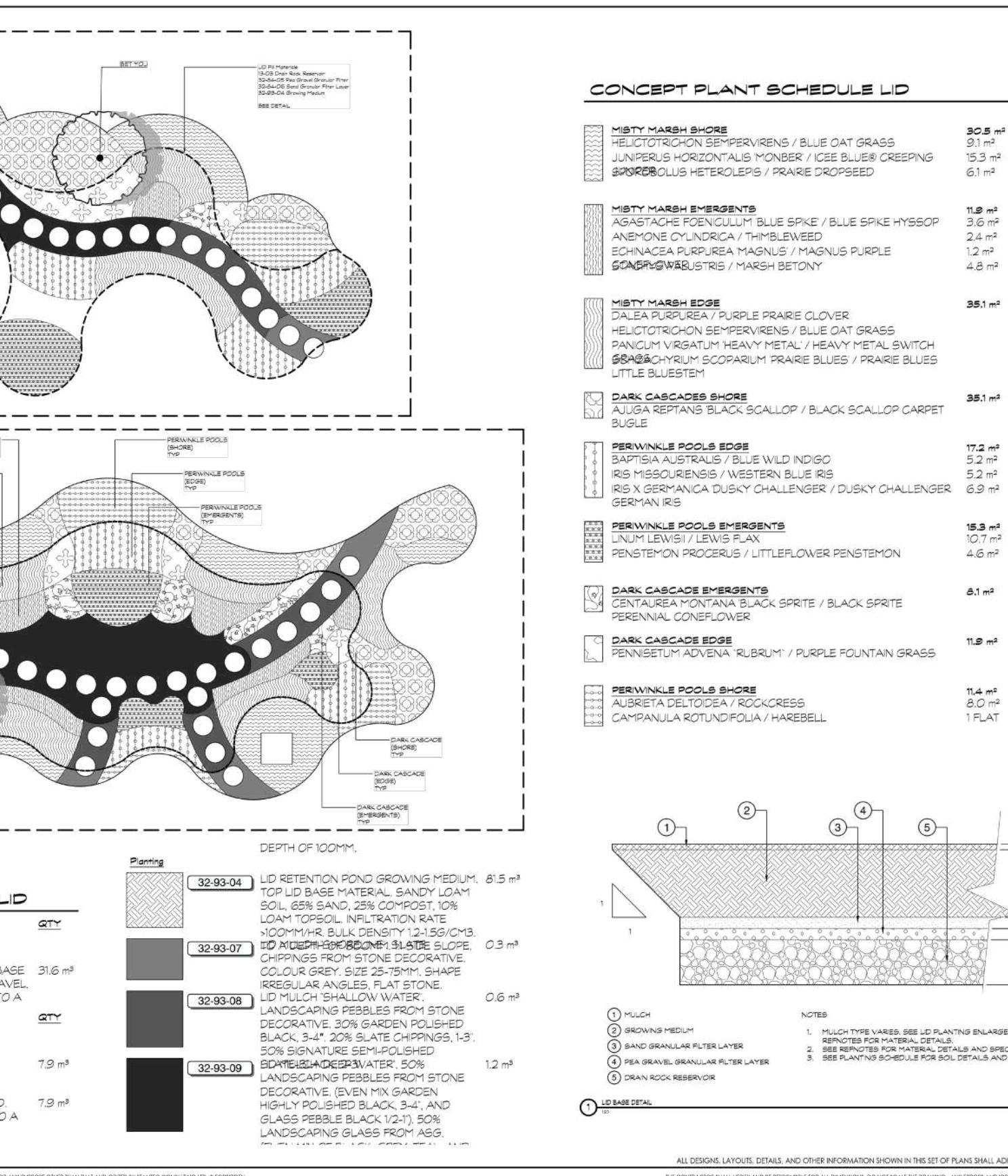
Functional and Enchanting

Work-Integrated Learning Studio
Instructor: Chris Jennings
Winter 2025

This LID bioretention pond is designed as an echo of a wetland. I wanted to create a softly magical rain garden, a place worthy of the magic that phrase evokes for me.

Plantings are both LID-functional and aesthetically strategic. The Misty Marsh plantings evoke a silvery, shimmering marshland, with tall blue grasses imitating cattails, thinly planted marsh weeds emerging from shimmering mulch, and weeping groundcovers reminiscent of the water-flattened grasses of a wet meadow. Purple irises border Periwinkle Pools of wildflowers. Between these sections flow Dark Cascades of fountain grasses and sleek black pools of black groundcover.

The sense of water is created through gradated mulches. Dull slate chippings line the shore, while the interior pond area is mulched with round and shiny dark stones and glass, increasing in shimmer towards the center, where the deepest section of the pond would be. Stepping stone paths with soft ground lighting further create the illusion of a wet pond.



Parametric Mapping

Compelling geometries communicate complex data to a more visceral level.

These maps visualize a 100-year tree planting program for air quality in Kathmandu through parametric mapping techniques.

Mapping was done with Grasshopper scripting in Rhino and utilized Open Street Map data.

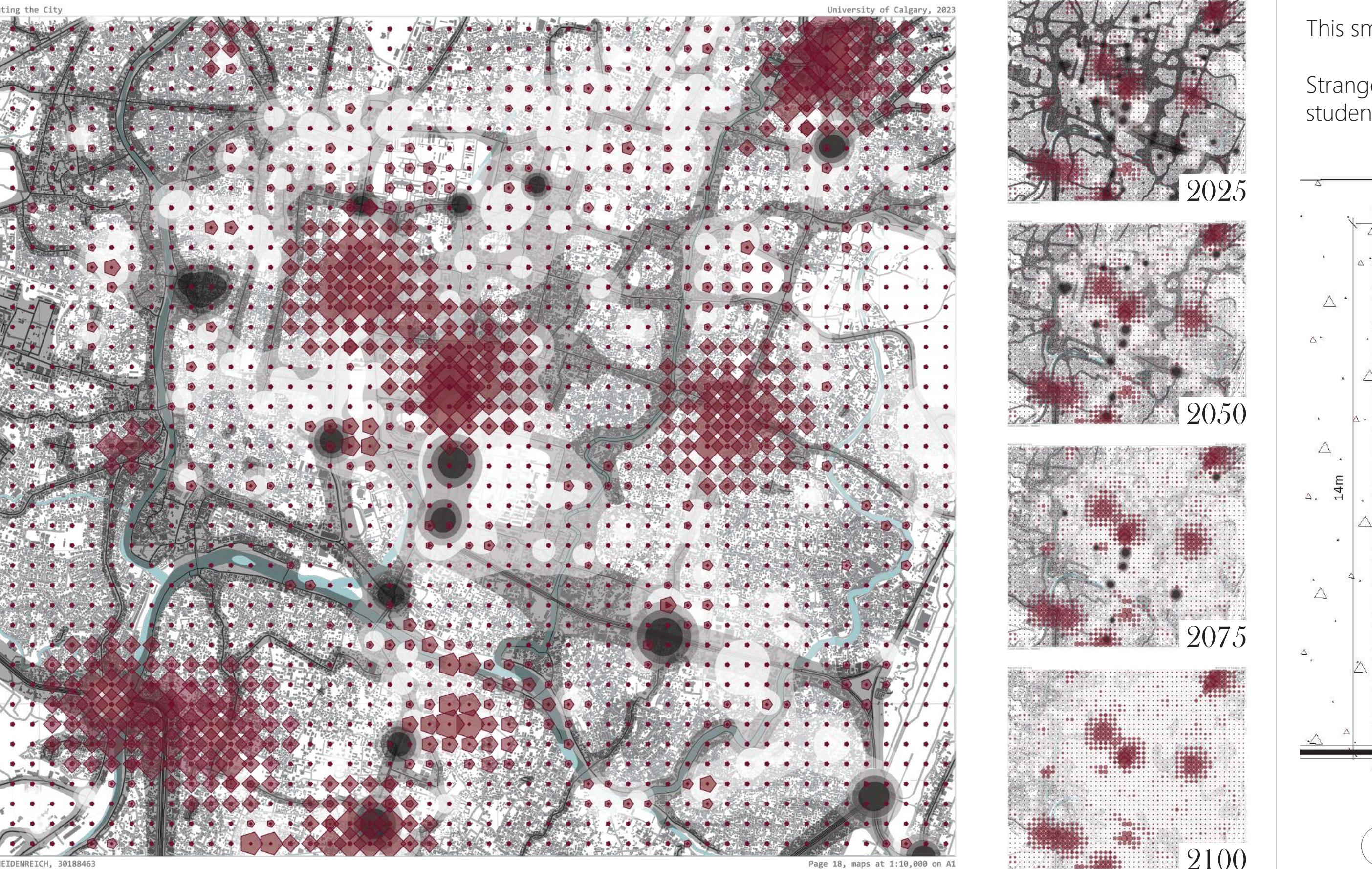
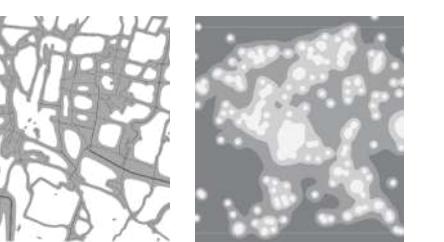
Crowded Gathering Areas



Pollution



Tree Cloud



Carpinus caroliniana

A Winter Kaleidoscope

This small, shady schoolyard site is brought to life with all-season colour.

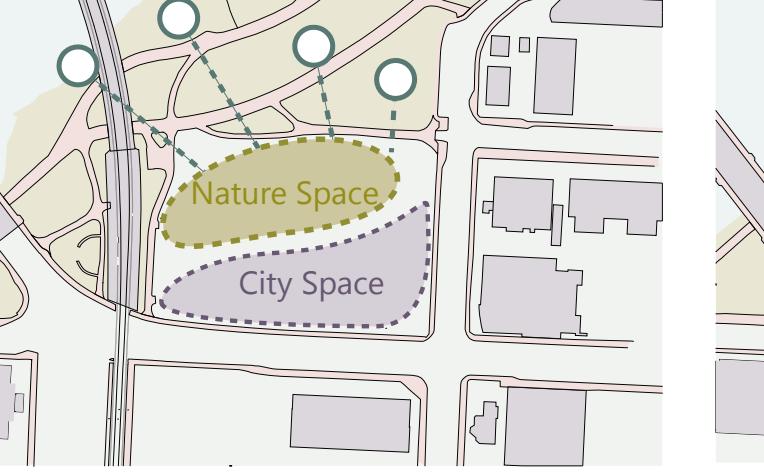
Strange seedheads spark botanical curiosity, while stepping stones and a rock pile respond to student input and provide space for fun and whimsy.



Mixed-Use Brownfield Master Planning

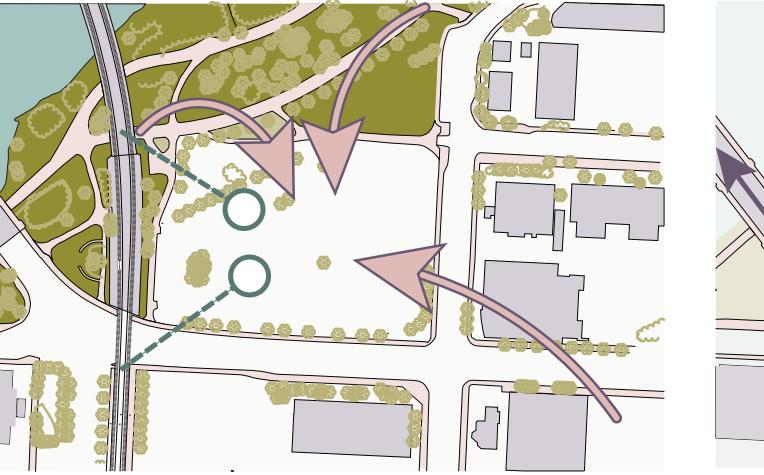
Instructor: Youjung Kim
Site Planning Studio
Fall 2022

This site in Calgary currently exists as an underused parking lot located at one of the main entrances to the downtown area. This project imagined a mixed-use re-development of this site. The development included three mixed-use buildings (ground-level commercial, residential above) and a museum dedicated to the Bow River, which the site overlooks. My approach aimed to create a strong central gathering area without creating safety issues in lower activity areas. The museum was placed with clear sightlines to the river, and was further integrated into the site through water, rock, and planting features mimicking the naturalized shoreline. A sense of intimate conviviality is curated through a delicate balance between wide open spaces and nestled corners.



Strengths

- River and greenspace sightlines
- Transition zone

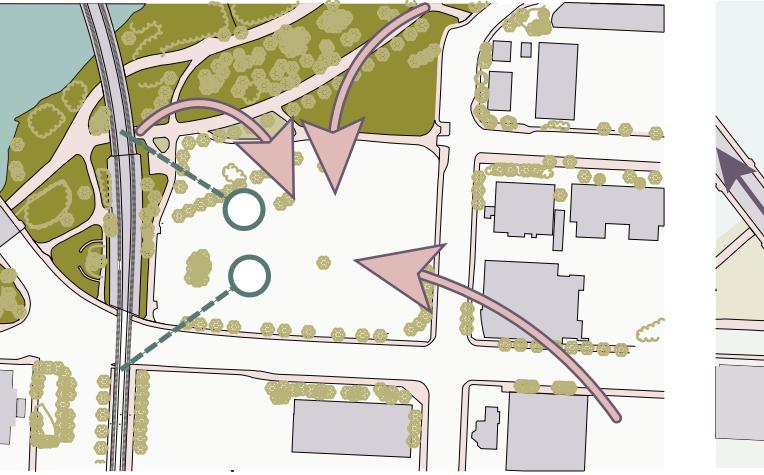


Opportunities

- Good River Walk and downtown access
- Sightlines from C-Train

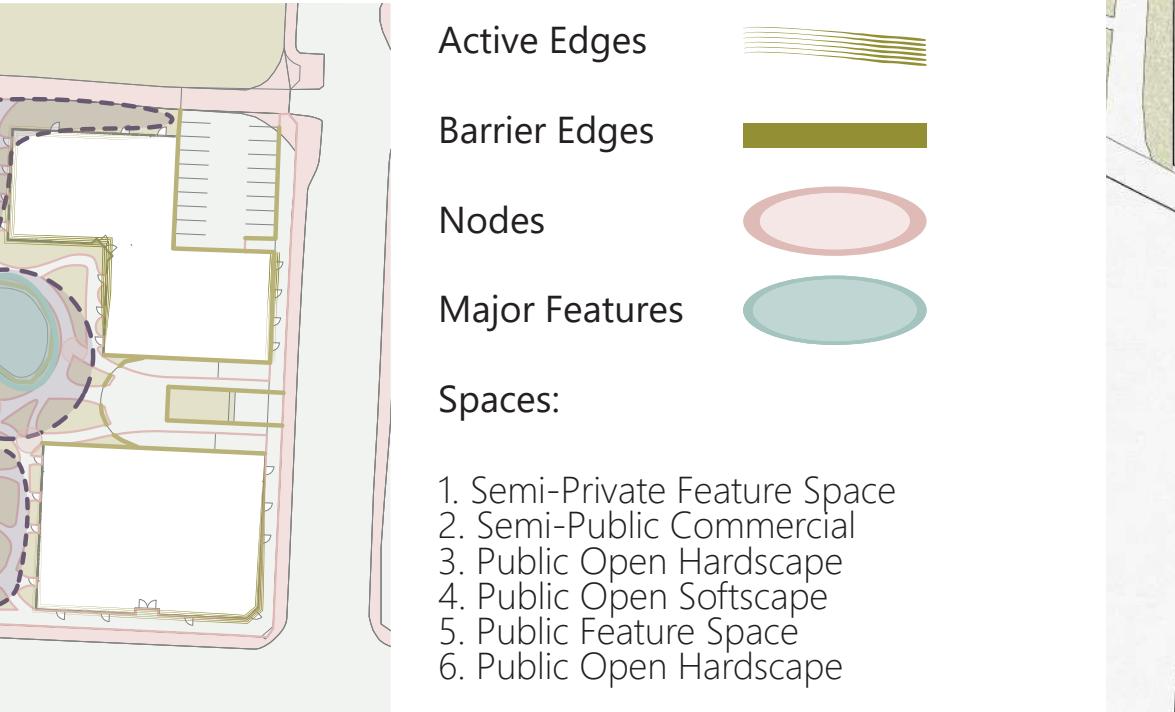
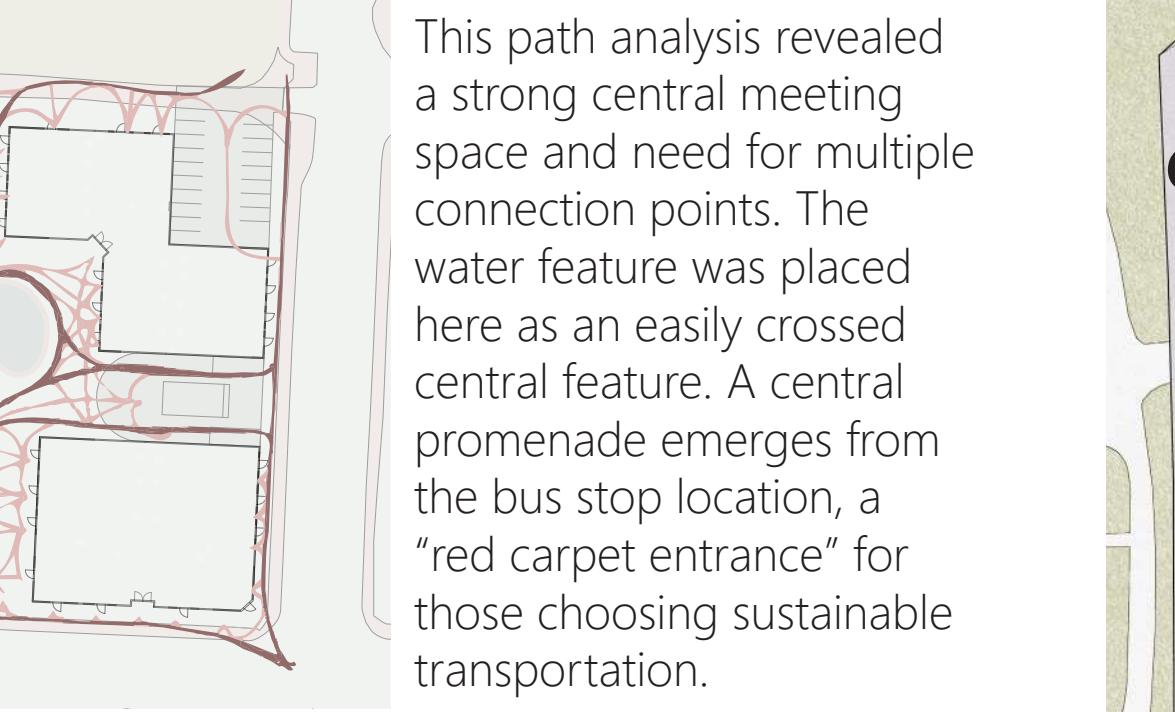
Weaknesses

- Inactive corner, low visibility
- Tall surrounding buildings



Threats

- Poor vehicle access (one-way street bypasses site)
- Noise from C-Train and busy street



This path analysis revealed a strong central meeting space and need for multiple connection points. The water feature was placed here as an easily crossed central feature. A central promenade emerges from the bus stop location, a "red carpet entrance" for those choosing sustainable transportation.

Active Edges



Barrier Edges



Nodes



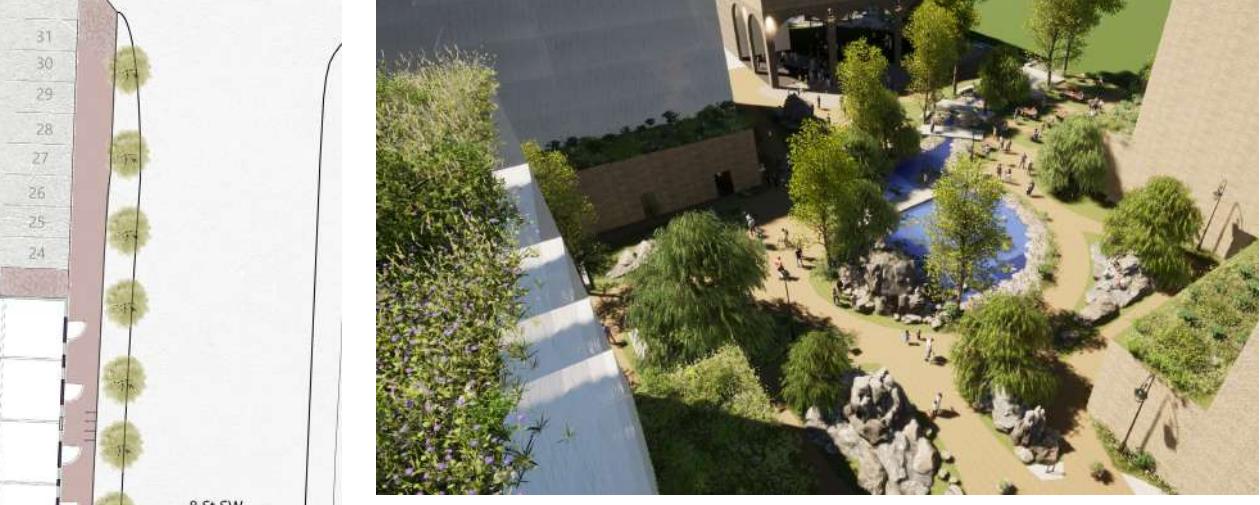
Major Features



Spaces:

1. Semi-Private Feature Space
2. Semi-Public Commercial
3. Public Open Hardscape
4. Public Open Softscape
5. Public Feature Space
6. Public Open Hardscape

From City to River: A Wilder Urban Plaza



Instructor: Youjung Kim
Site Planning Studio
Fall 2022

Founding an Avant-Garden

Extracurricular Activities
Student-Led, Various Mentors
Fall 2022-Winter 2025

While perhaps the most humble in appearance, establishing this graduate student group has been my proudest achievement from my time at the University of Calgary. Inspired by the Test Plot initiative of the landscape architecture firm Terremoto, the Avant-Garden began from a desire to make a difference. I made a commitment to myself that I would make Test Plots happen on the university campus, despite not having the faintest clue how to go about achieving this. It ended up being one of the greatest learning experiences of my life. Much of this learning was hard-won, with a series of messes, disasters, and failures. But there were also moments of such beauty. Classmates coming together to shovel soil all day in the hot sun, local nurseries generously offering support, building connections with campus grounds keeping staff, sharing hands-on horticultural experience, and seeing bees enjoying the flowers we planted are just some of the amazing experiences the Avant-Garden brought to life.

An Opportunity for Growth



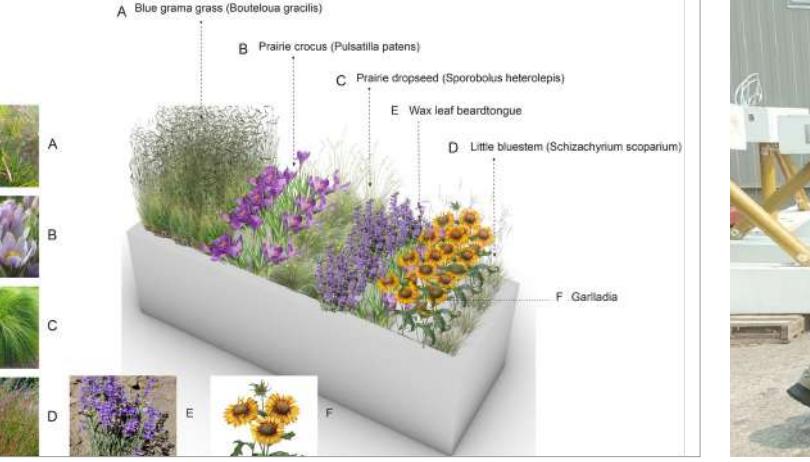
+ A Lot of Hard Work



+ A Lot of Amazing People



+ Design



+ Research



Design and Planting Research (Wallace Erabu, member)

Experimenting with Unconventional Soils (Uelite)

The Creativity in All of Us

Extracurricular Activities
Student-Led, Various Mentors
Fall 2022-Winter 2025

The Avant-Garden is founded on principles of collaboration and collective empowerment. We want students to embrace both their power and responsibility to shape the spaces around them. We want to build something beautiful, and we want to do it together. While our first year involved members of the group contributing designs and largely taking responsibility for work activities, this year we've been making an effort to bring more voices into the creation of our campus vision. A painting day brought together students from across the faculty to make murals for decorating the planters. And then our largest effort to date has been the running of a campus-wide planting design competition. The winning designs will be used in this year's planting efforts.

Painting Day



Jordyn Poirier



Awani Khatu



Mashrica Shukhi

Wallace Erabu

Design Competition Materials

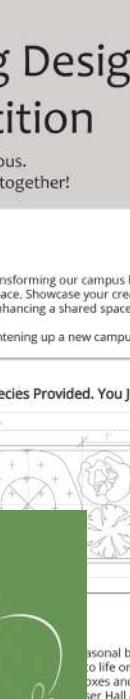


Promotional Poster by Danayit Getachew



Lora Li

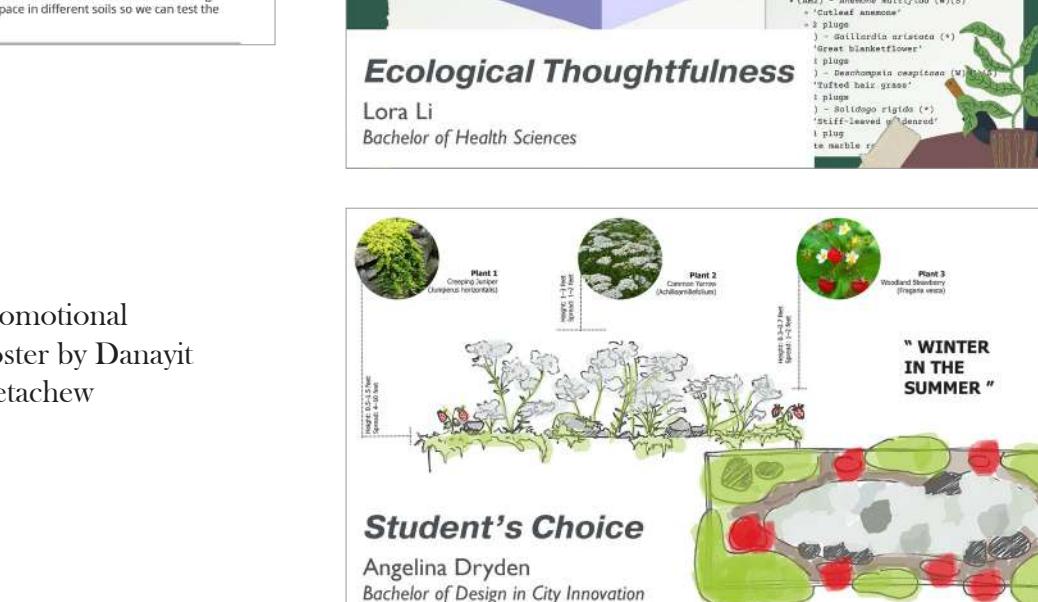
Bachelor of Health Sciences



Angelina Dryden

Bachelor of Design in City Innovation

Competition Winners



“WINTER IN THE SUMMER”