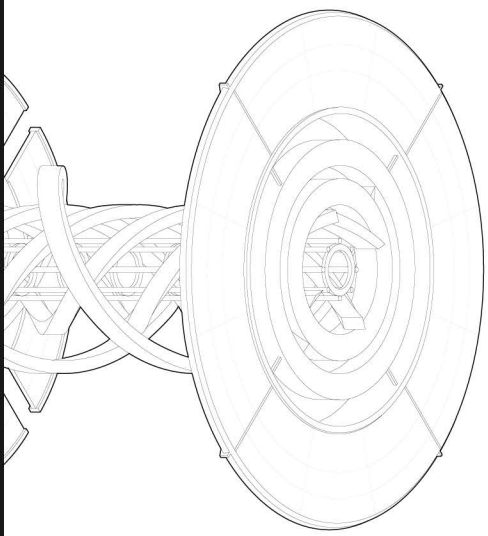


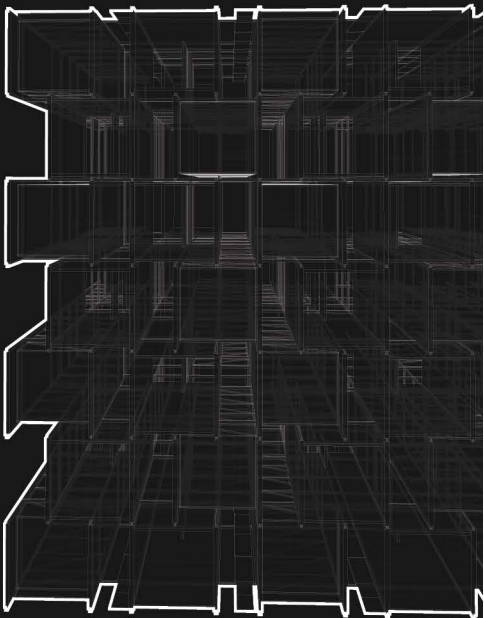
PAULBAMSON

DESIGN PORTFOLIO

FALL 2015 | SPRING 2017



ARCHITECTURE



LANDSCAPE

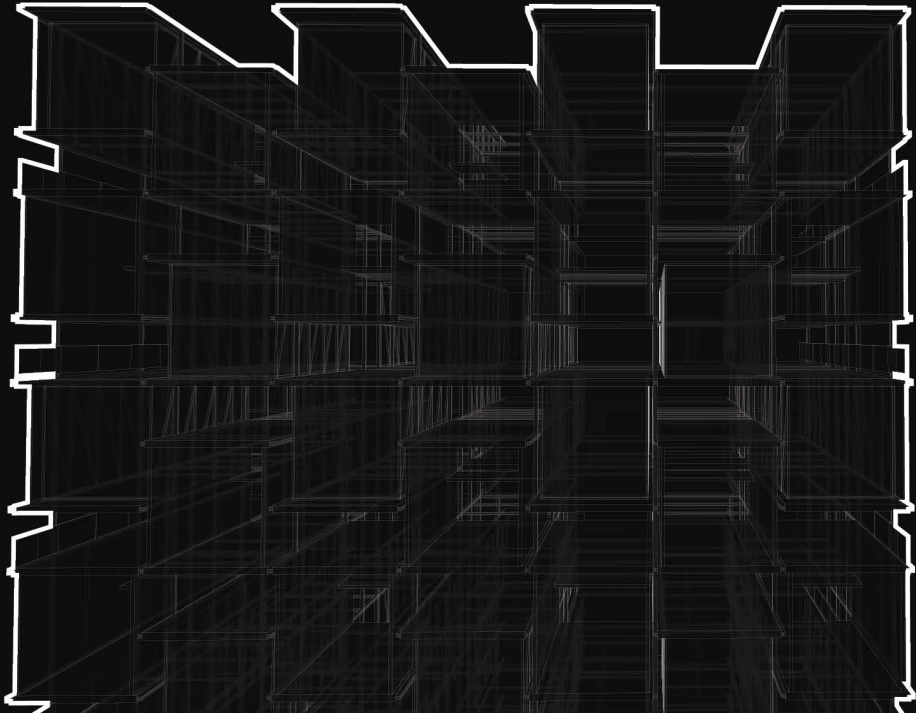
SUMMER 2014 | FALL 2016

DESIGN PORTFOLIO

PAULBAMSON



A R C H I T
E C T U R E
L A N D -
S C A P E



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[PAULBAMSON]

BIOGRAPHY

I was born in Nigeria but have lived in Nashville, TN for most of my life. For as long as I can remember, drawing has always come easily to me. As I got older, both math and art emerged as strengths. During my time at Montgomery Bell Academy, I gained a greater appreciation for the fine arts, taking Art all four years, and excelled in my math courses as well. This led me to pursue a degree in Architecture at the University of Tennessee, Knoxville. I draw inspiration from my obsession with technology, movies, and the arts. With a desire to help others any way that I can, I aspire to never stop learning, continue mastering my skills, and better lives through design. With these goals in mind, I plan to eventually start my own practice.

DESIGN PHILOSOPHY

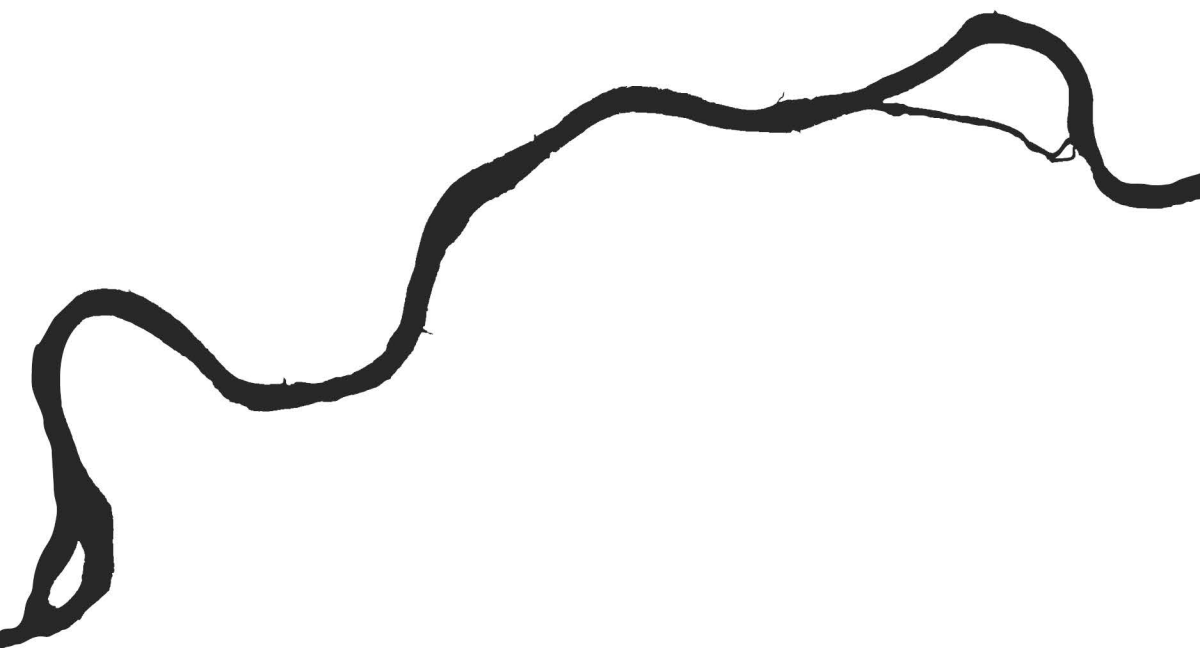
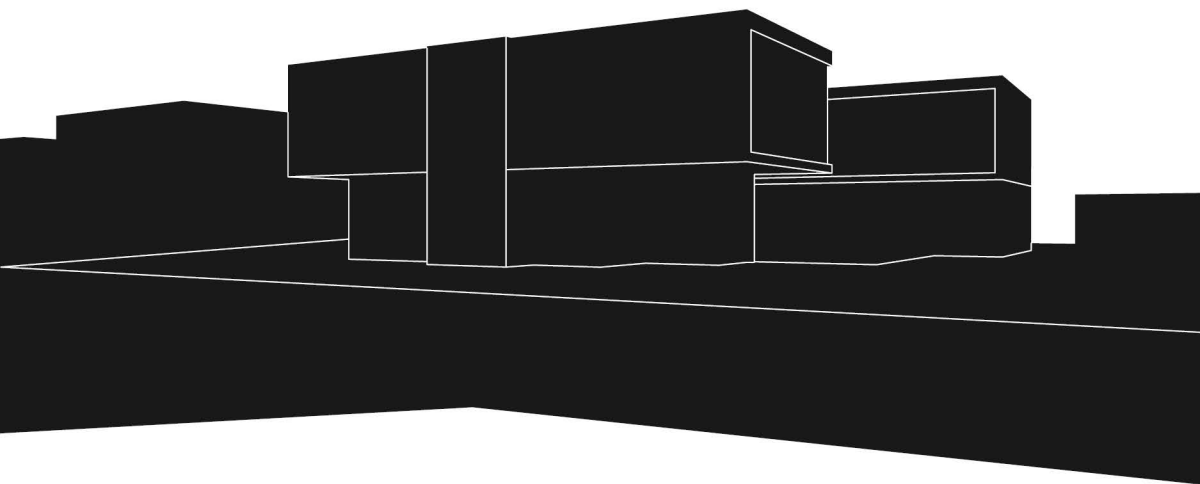
Design is problem-solving at its core. The intent is to make lives easier, more efficient, and ultimately better. When it comes to architecture and landscape architecture, design becomes about the connection between space, the environment, and its occupants, making it the perfect combination of pragmatism and poetics, math and art, engineering and design. Architecture and Landscape Architecture requires a designer to have a basic knowledge of a variety of different fields and be versed in human behavior and interaction.

EDUCATION

University of Tennessee, Knoxville
College of Architecture and Design
Bachelor of Architecture, Class of 2016
Master of Landscape Architecture, Graduation 2018

CONTACT INFORMATION

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Publications | www.issue.com/paulbamson



[ARCHITECTURELANDSCAPE]

I believe that in order to truly make an impact in the world today, one must become so disciplined with a concept or idea for the future that it can serve as a guiding force for his or her every move. For me that idea is one of dynamic and adaptive sustainable design capable of engaging our changing urban and ecological conditions. Design today shouldn't negatively affect future generations and should work for, not against, our planetary ecosystems. This belief has led me to pursue a Master's degree in Landscape Architecture after receiving my Bachelors of Architecture. During my time studying Architecture at the University of Tennessee, Knoxville, College of Architecture and Design, I have learned how to fine tune my design thinking, a skill that not only requires creative problem solving, but also the ability to visually represent and give form to a concept or idea. I have also learned of the many factors that affect a building, from climate to construction materials, and the urban consequences of each design move. Realizing that each decision has a real impact, I now carefully consider multiple aspects of sustainable design, from the scale of the site to the intricate wall section.

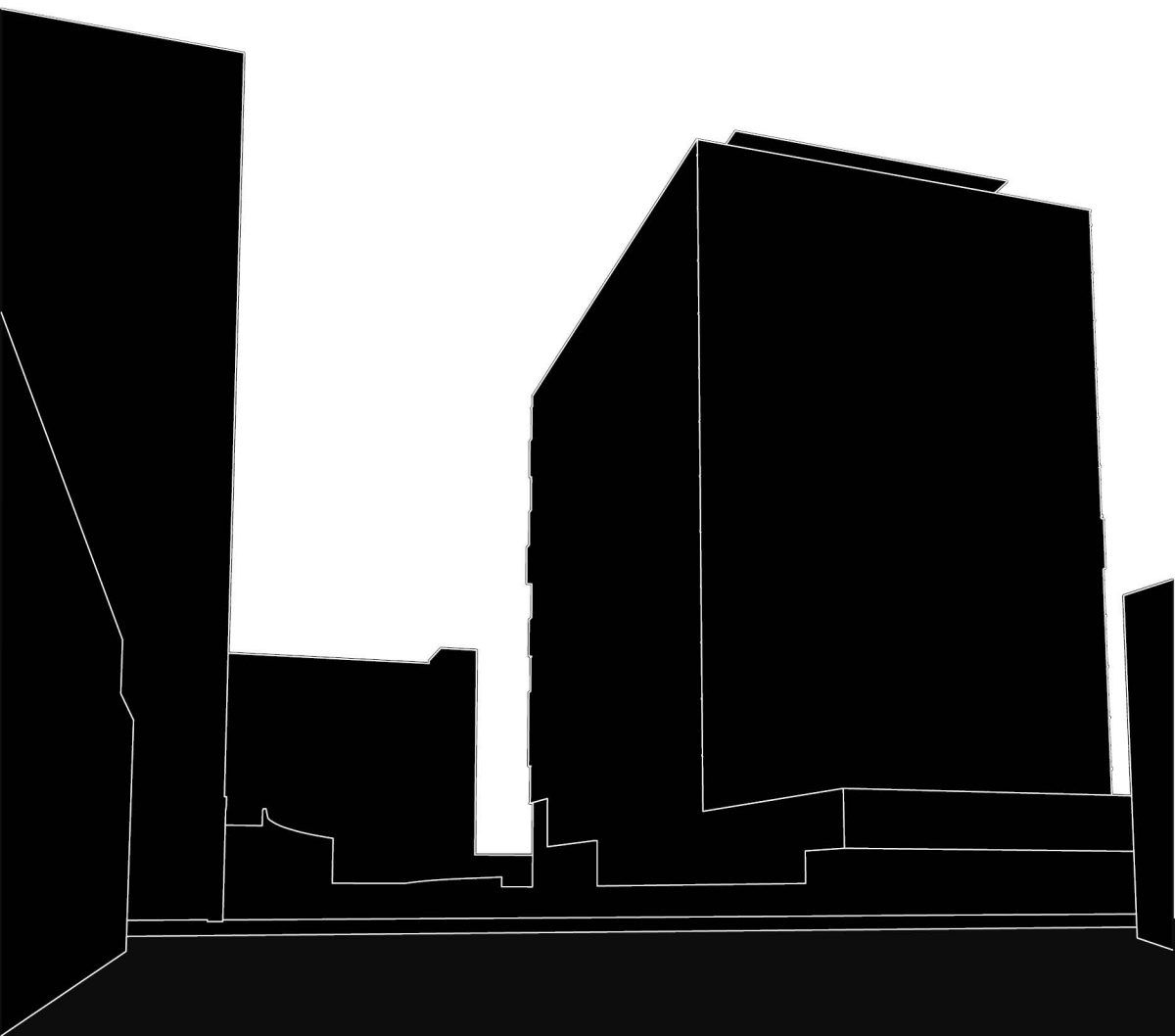
But I have come to realize that the building is only a part of the equation when it comes to sustainable design. The landscape around that building is equally, if not more, important than the building itself. Making sure that the hydrological performance of natural watersheds is preserved, soil erosion is prevented, and

pollution is minimized or mediated is crucial for the health of communities, cities, natural environments, and the planet. But there is so much more to it than that—in every aspect of architectural design, there is nuance that takes a trained eye to spot. This nuance is shared in built, natural, and synthetic environments with each scape needing different approaches to solving specific problems. Solutions to these problems are no longer as simple as adding more green space or placing a solar panel on a roof. Instead, they require a complex combination of multiple disciplines, research, and exploration. With degrees in both Architecture and Landscape Architecture, I will have a more robust set of concepts and skills necessary to engage these complexities at all scales of my future work.

Architecture and Landscape Architecture are two sides of the same coin, and I believe that designers of the future should be versed in both. The lines between built and natural landscapes are blurring and the design profession is evolving at an alarming rate. I intend to be able to contribute to a much wider range of project types than I would be able to if trained only as an architect. As I pursue this increasingly critical multidisciplinary, my hope is to become a leader in the design of the built environment, eventually opening up my own practice that explores my interests in dynamic and adaptive sustainable design in both Architecture and Landscape Architecture.

ARCHITECTURE 01

Activate TVA |
9 Square |
Micro Villages |



[ACTIVATE TVA]

Downtown is the urban heart of a largely suburban Knoxville. It is a 15 minute walk from the University of Tennessee and houses many of Knoxville's museums, convention centers, parks, and corporate headquarters. One of the companies that calls Knoxville home is The Tennessee Valley Authority, also known as TVA. TVA is a government corporation that is responsible for providing affordable electricity to over 9 million people in the Tennessee Valley.

TVA owns two large towers in the downtown area. These office towers were the headquarters of TVA for many years and additional office space in the East Tower was leased out to other companies and businesses. An atypical trend in most cities, Knoxville has a surplus of office space compared to residential. The low demand for office space made it difficult for TVA to lease in the currently unoccupied East Tower. Because the East Tower is empty, TVA has been looking for options to sell and/ or renovate the building to put it back to use.

There is, however, a high demand for residential, and my team and I expect that with an increase in downtown residents, an increase in office space demand will follow. Thus, we have left two levels of our design unoccupied for future development and leasing, allowing for program adaptability. The two MEP office levels are designed with maximum open space for flexibility.

The conceptual basis for this project is to activate the existing, static TVA complex through dynamic strategies which promote TVA's goals for innovation in high performance design and increased community interaction. The location of the site within downtown Knoxville, at the terminus of Market Square, presents opportunities for views, community interaction, and improved efficiency through increased downtown density. This design aims to activate the plaza, interior spaces, and facade. Knoxville has not yet made a significant appearance on the sustainable design scene, but a retrofit design of the iconic TVA towers could become a model for future design in that direction.

Thus, the goal is to maximize energy performance primarily on the facade level but also through storm-water collection, greywater reuse, and rooftop solar power collection. Through an innovative approach to existing photovoltaic-operated louver technology, we have designed a dynamic facade which minimizes solar heat gain, maximizes diffused light and city views, controls fresh air circulation for the HVAC system, and also aesthetically activates downtown Knoxville.

FALL2014

LOCATION Knoxville, TN

PROFESSORS James Rose and Keith Boswell FAIA, SOM Technical Partner

PARTNERS Christina Lulich and Ryan Stechmann

AWARDS Brewer Ingram Fuller Sustainable Design Award 2014 Winner



- PROGRAM**
- 1 TVA Headquarters
 - 2 Market Square
 - 3 Gay Street

DOWNTOWN KNOXVILLE

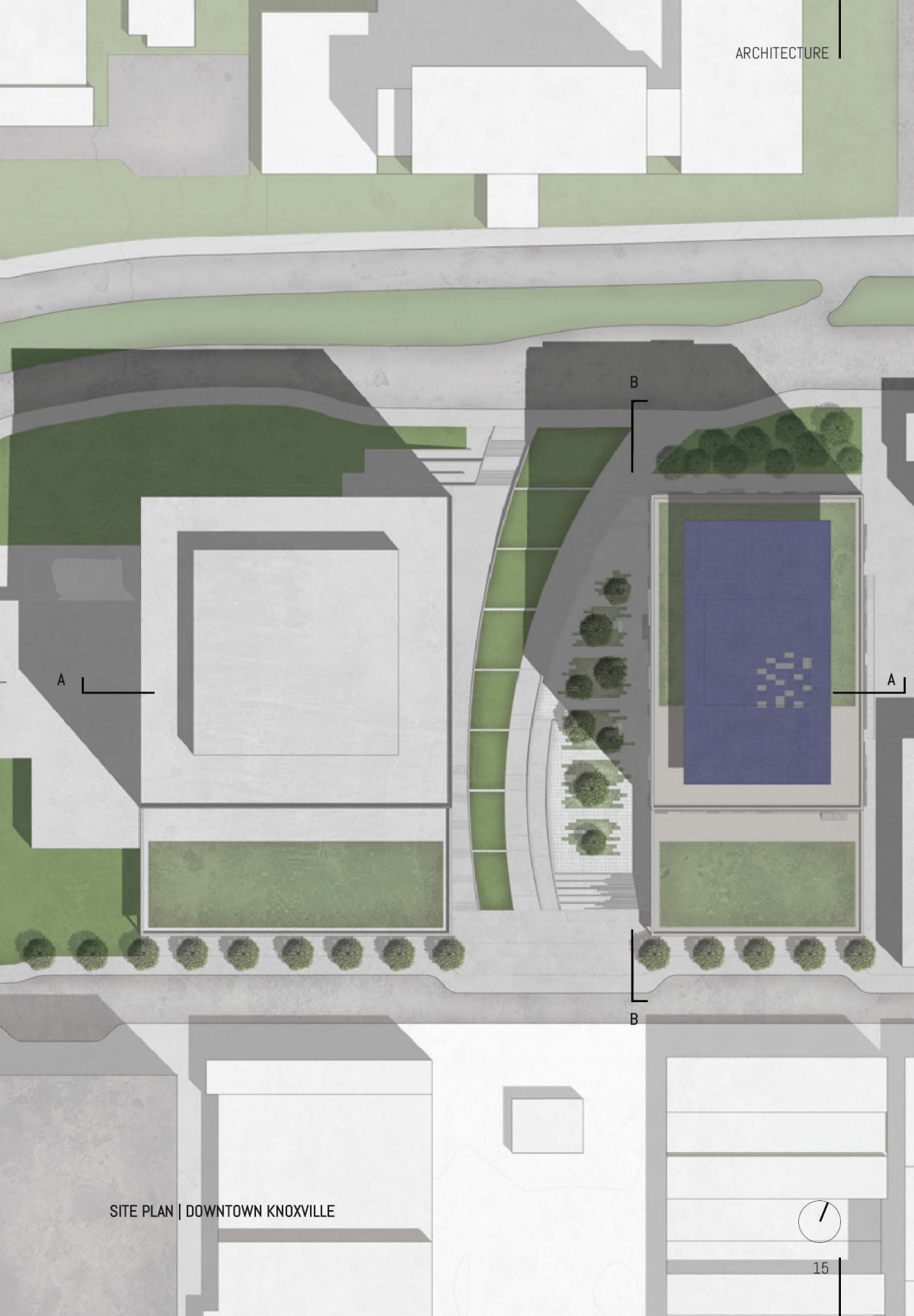
- KAT Trolley Downtown Loop
- Gay Street Trolley
- Summit Hill Drive
- TVA Complex
- Public Parking Garage
- Market Square

WALKABLE DOWNTOWN

Our site is located in the center of downtown Knoxville. Local amenities are walkable and parking lots are available nearby.

- Parking Lots
- Market Square





A

B

A

B

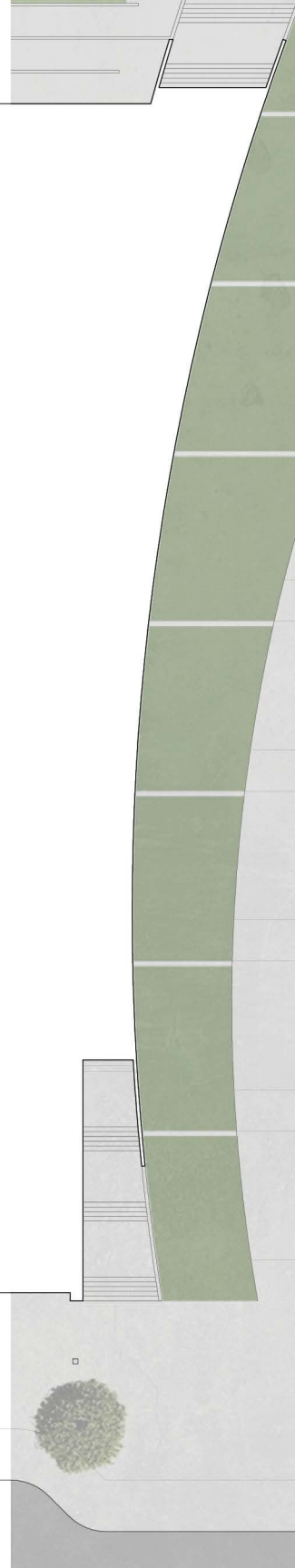


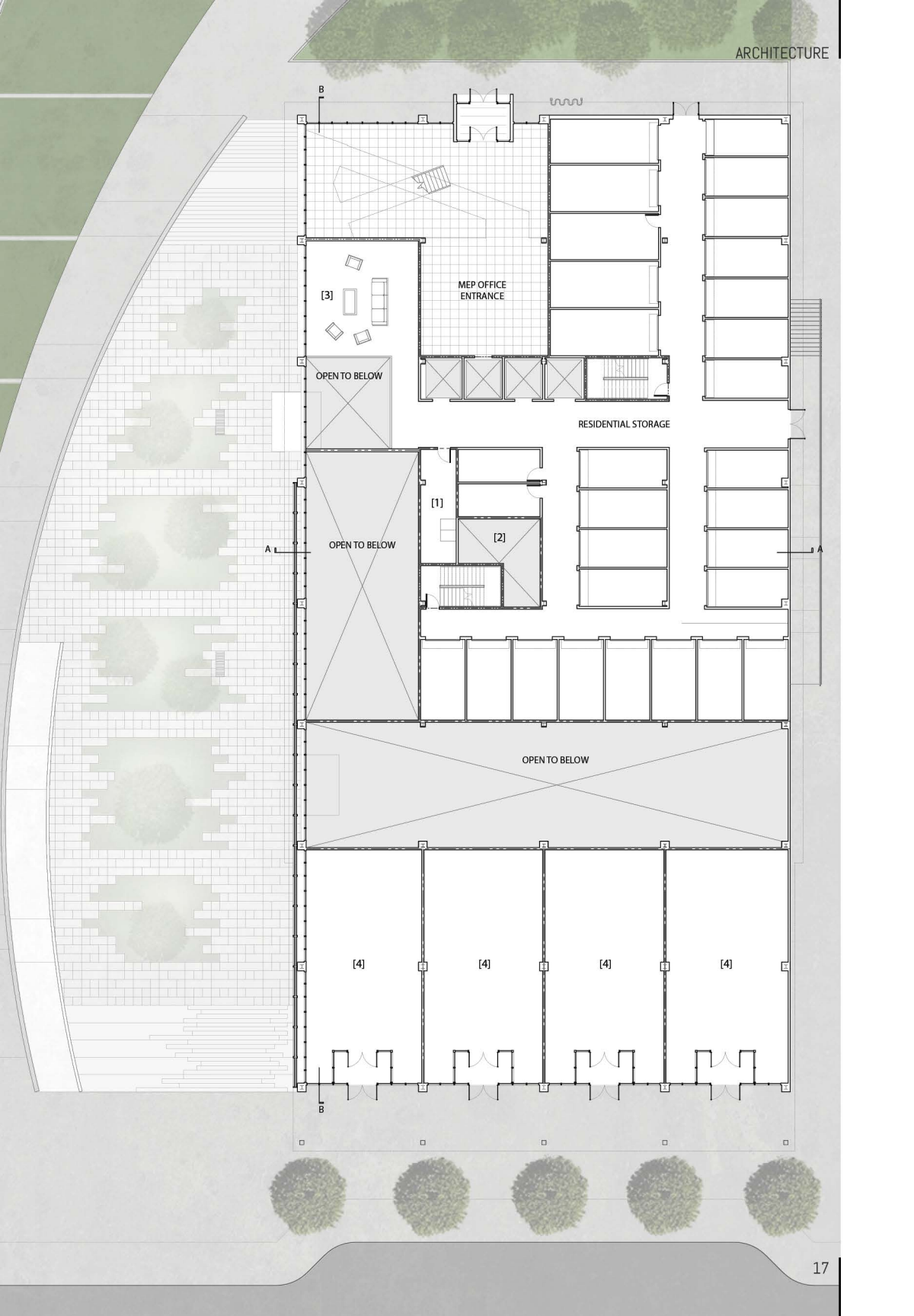
PLAZA LEVELS | FLOORS 1-2

The level of the lower plaza occurs 7' below Market Square level. This is where the primary residential entrance occurs. Alongside the plaza is a zone of retail which continues onto the Market Square level. The second level occurs 6'4" above Market Square level, allowing for a gradually-sloping (1:20) accessible ramp. On this level is the primary MEP Office entrance, residential loading dock, residential storage units, and retail space along Wall Avenue.

PROGRAM

- 1 Trash and Recycling Room
- 2 Mechanical and Plumbing Shaft
- 3 Multipurpose Room
- 4 Retail Tenant Space





B

B

A

A

[3]

MEP OFFICE
ENTRANCE

OPEN TO BELOW

RESIDENTIAL STORAGE

OPEN TO BELOW

[1]

[2]

OPEN TO BELOW

[4]

[4]

[4]

[4]



VIEW FROM MARKET SQUARE

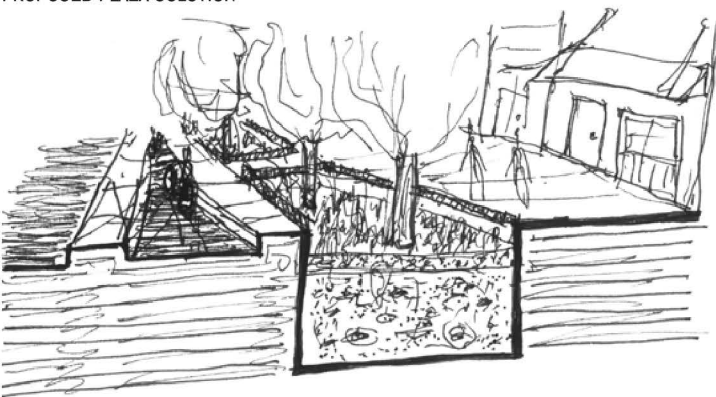




EXISTING TVA PLAZA



PROPOSED PLAZA SOLUTION



PLAZA PROCESS SKETCH

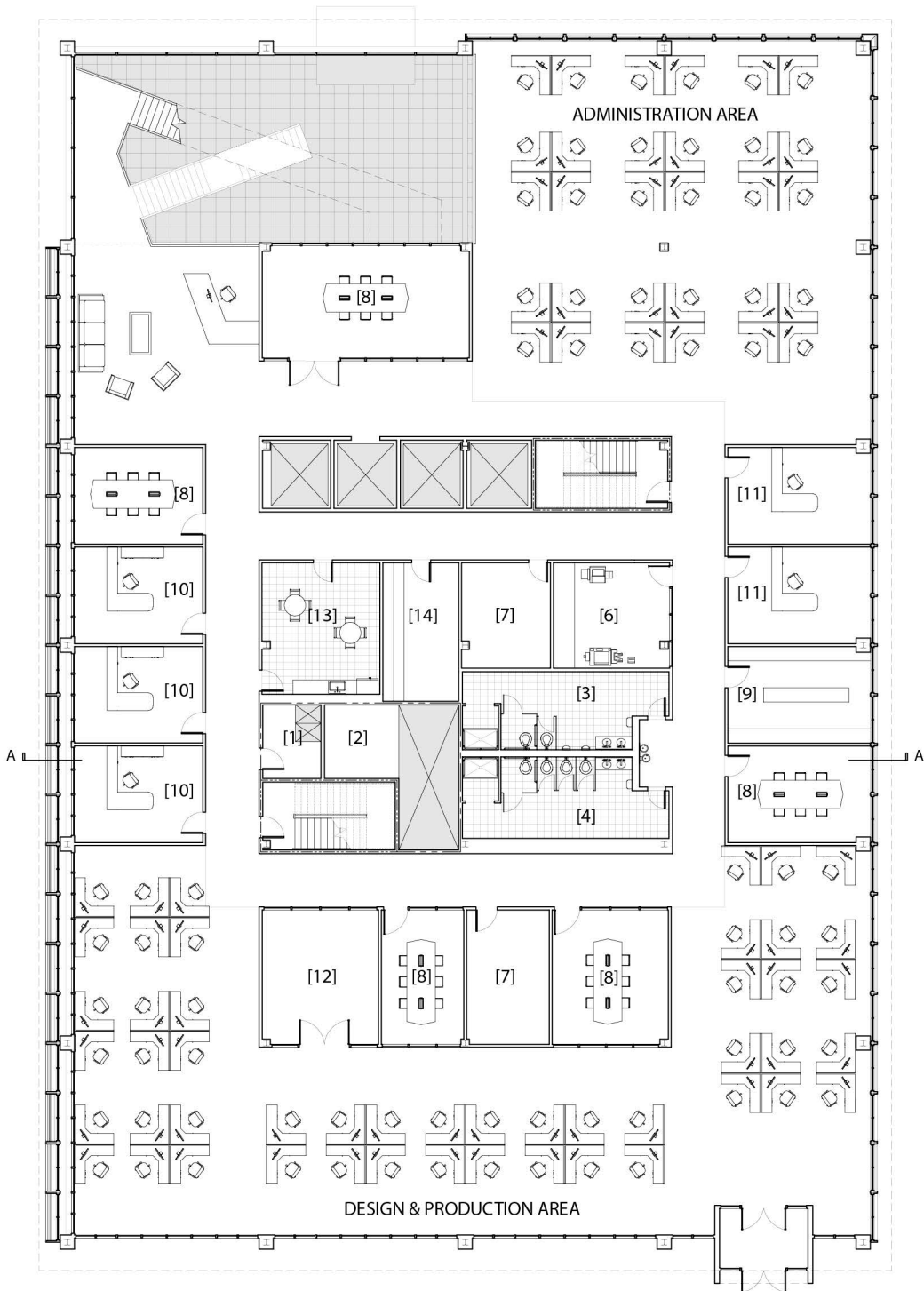




PLAZA RENDERING

PLAZA DESIGN | TERRACES AND BIOSWALES

Pollution from water runoff damages ecosystems and contaminates limited freshwater. Our strategy for low impact development is a series of bioswales with vegetation that can withstand extreme moisture. These gardens collect the storm-water on-site, minimize runoff, and support a habitat appropriate for birds and butterflies. Through the combination of planted plaza space, green roofs, and permeable paving material on the walkable surfaces, permeable material covers 70% of our site. The increase in planted material helps to filter out pollution in the air in the most densely-occupied outdoor spaces on-site. The design increases both public park space and downtown density. Also, by transforming a currently unoccupied building into leasable apartments, density will increase dramatically during the day and night.





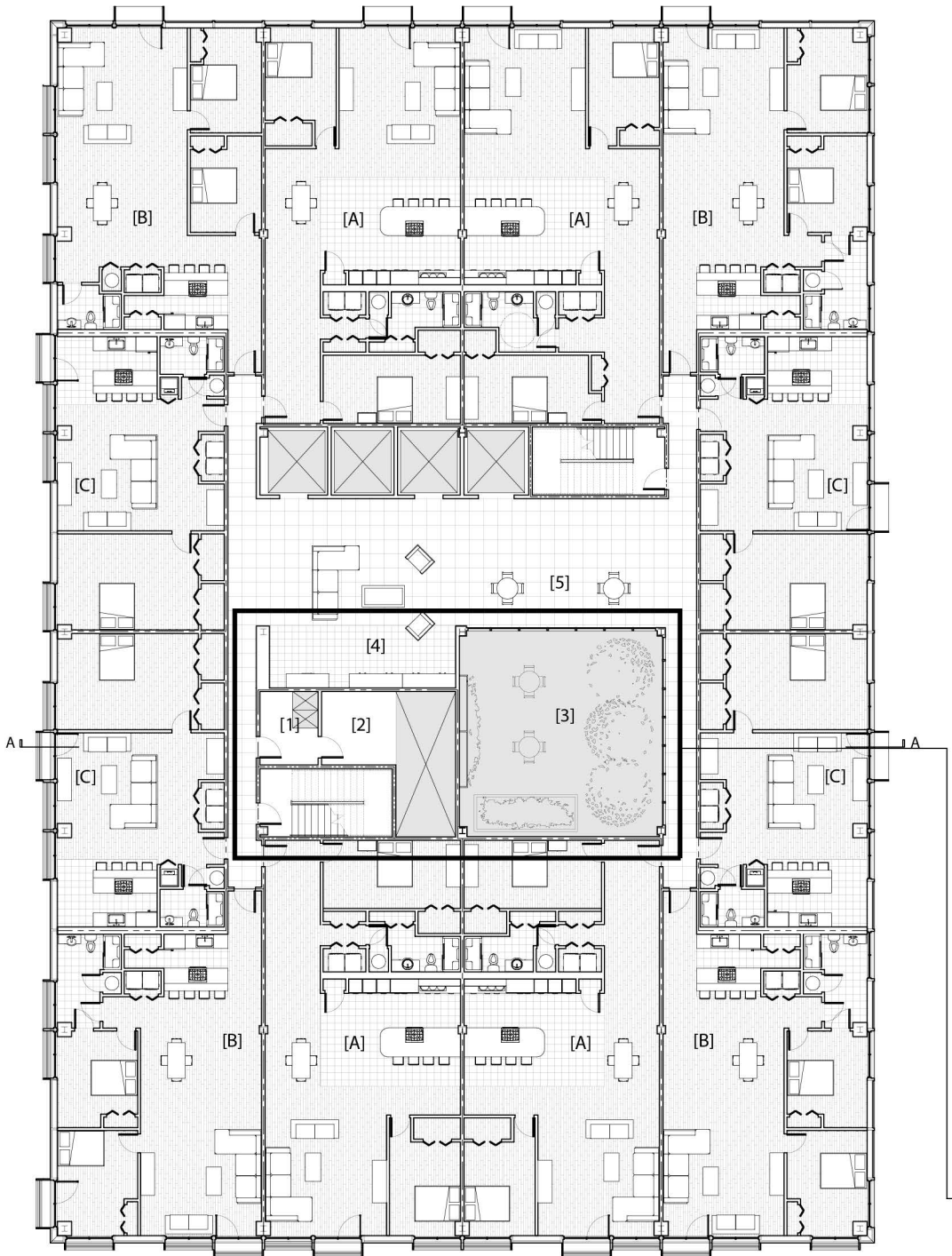
VIEW OF NORTHWEST ATRIUM STAIR

OFFICE LEVELS | FLOORS 3-6

The two MEP office levels occur above the main entrance. The Market Square level retail provides an occupiable green roof for outdoor meetings for MEP employees. These levels are designed to achieve maximum daylighting. Offices are either concentrated in the tighter areas or floating within the open areas. An atrium in the northwest corner brings in additional diffuse light and unites the two office levels.

PROGRAM

- | | |
|----------------------------------|----------------------------|
| 1 Trash & Recycling Chute | 8 Conference Room |
| 2 Mechanical Room | 9 Resource Library |
| 3 Men's Restroom | 10 Executive Office |
| 4 Women's Restroom | 11 Visitor's Office |
| 5 Computer Storage | 12 Multipurpose |
| 6 Printing Center | 13 Break room |
| 7 Storage | 14 Mail Room |





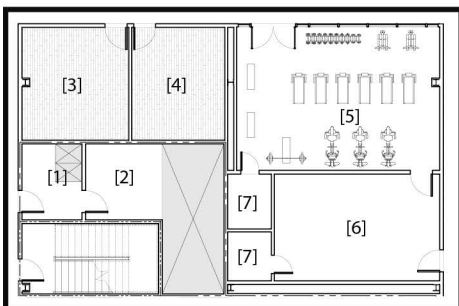
VIEW OF UNIT B LIVING ROOM

RESIDENTIAL LEVELS | FLOORS 7-14

We designed units with maximum openness for daylighting and views. Most bedrooms have windows and all windows are above adjacent buildings, so every unit has views over Knoxville. The unit sizes range from micro unit to large 2-bedroom.

PLAN LAYOUT INFLUENCE

Because our goal was to activate the facade both through solar-tracking louvers and a randomized modular facade, the module placement largely determined the placement of rooms within the plans. No floor plans are exactly the same because modules move around per floor. Program only moves when necessary, and it can be seen in the floor plans where periodically a residential unit layout is flipped.

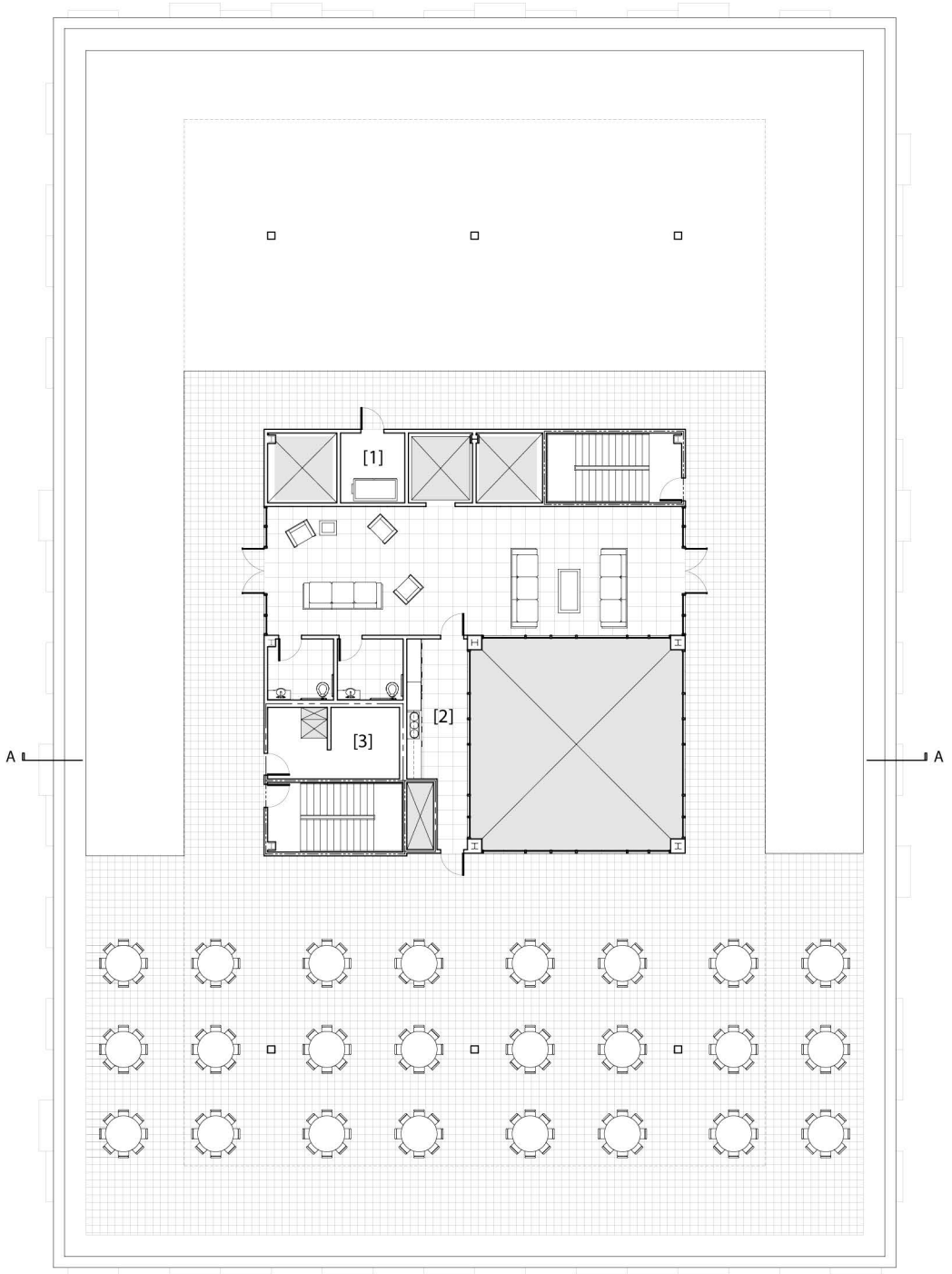


PROGRAM

- 1 Trash and Recycling Chute
- 2 Mechanical Room
- 3 Printing Center
- 4 Studio
- 5 Workout Facility
- 6 Yoga Room
- 7 Storage

LEVEL 7 AMENITIES

- 1 Trash and Recycling Chute
- 2 Mechanical Room
- 3 Multipurpose Meeting Space
- 4 Studio
- 5 Game and TV Room
- 6 Movie Room
- 7 Storage





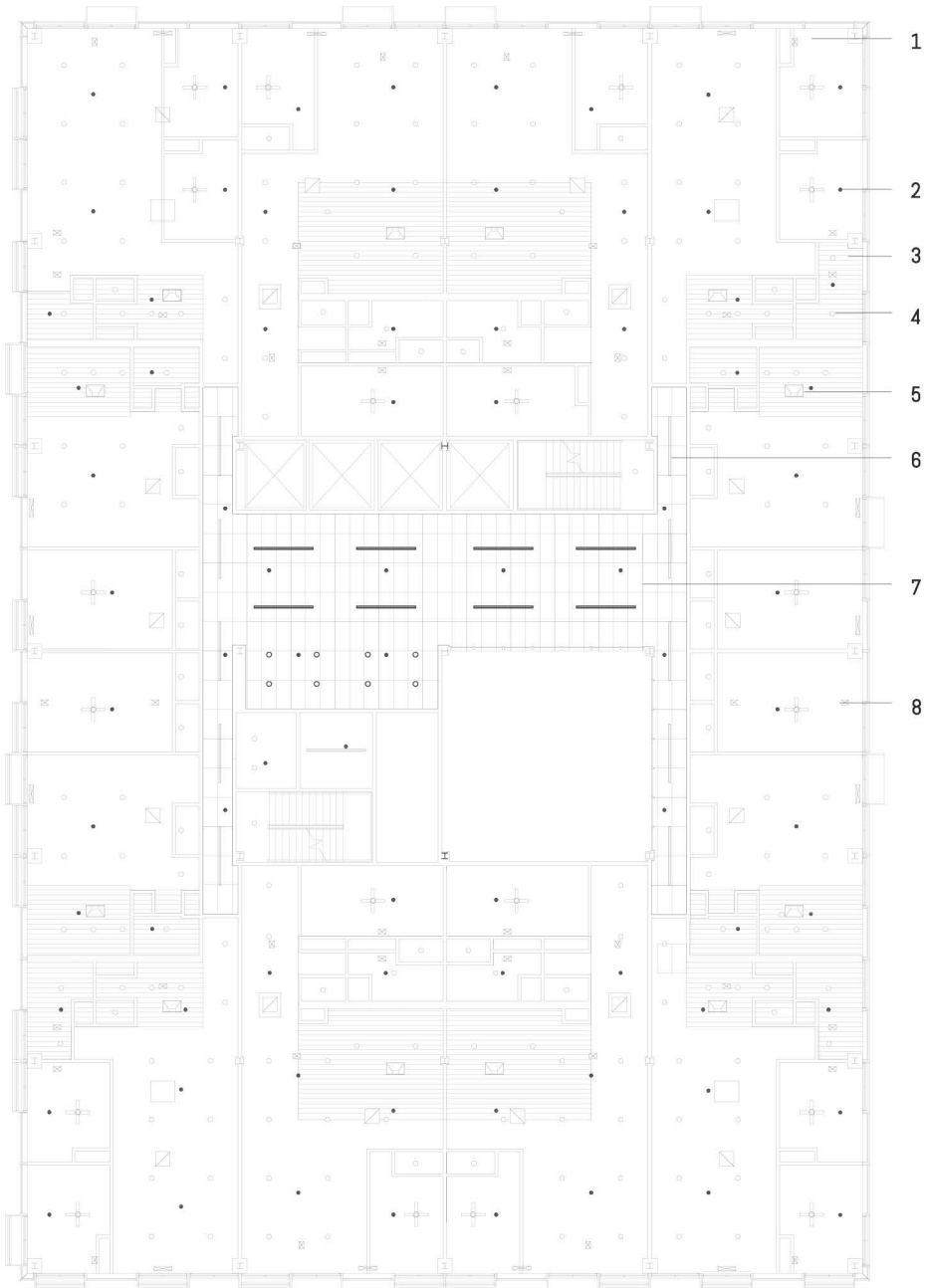
ROOF DECK | FLOOR 15

An occupiable roof deck provides a nice place for residents to enjoy and a has leasable event space. This also references the many roof decks in Market Square which you can look over at this view.

PROGRAM

- 1 PV Inverter
- 2 Catering Kitchen
- 3 Table Storage

VIEW OF OCCUPIABLE ROOF DECK

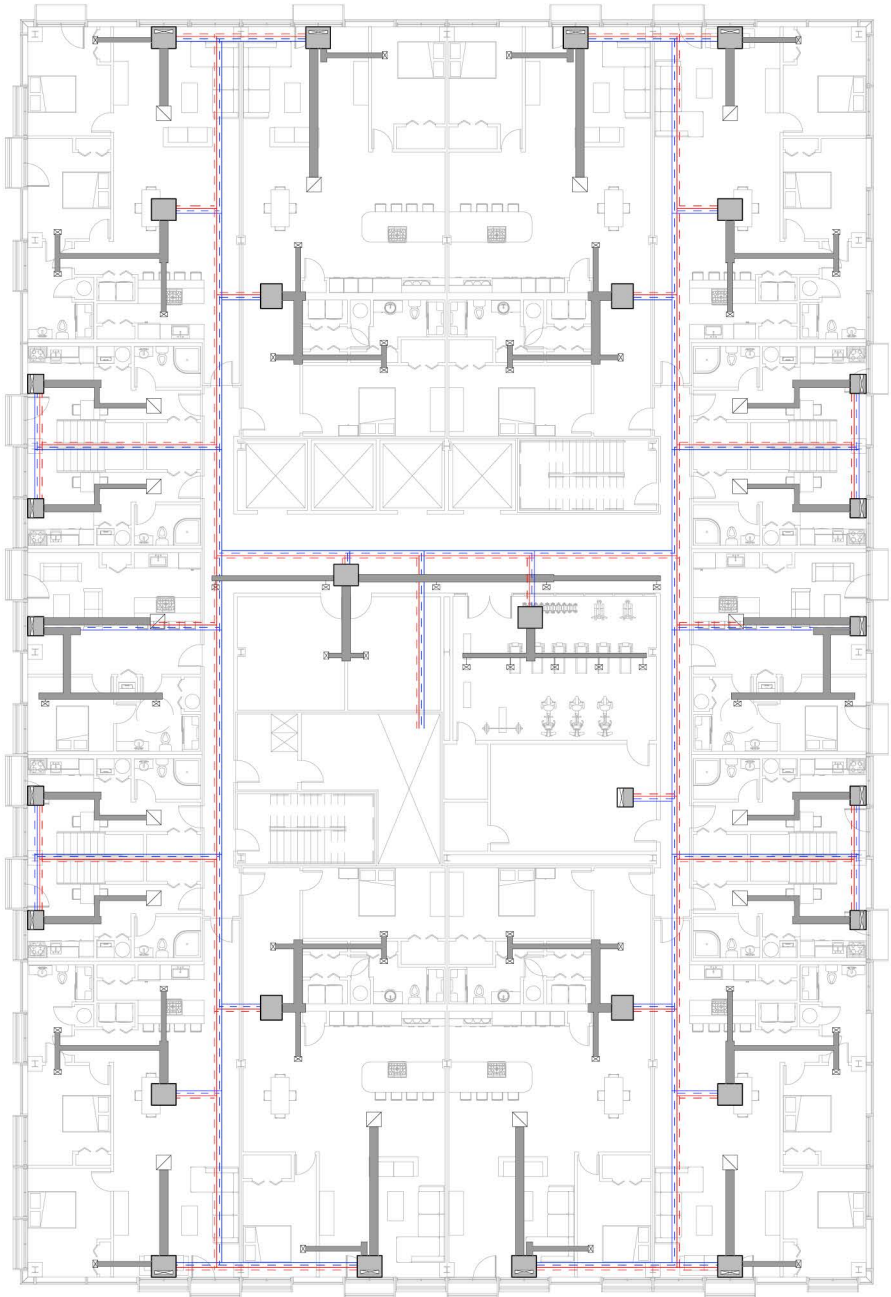


TYPICAL RESIDENTIAL REFLECTED CEILING PLAN

Typical ceiling height: 10' - Double-height micro units: 27'4". The ceilings are composed of a variety of materials adding variety to the spaces.

PROGRAM

- 1 Gypsum Board
- 2 Sprinkler
- 3 Wood Slat Ceiling
- 4 Recessed Can Lighting
- 5 Kitchen Exhaust
- 6 Recessed Strip Lighting
- 7 Acoustic Tile
- 8 See HVAC, right

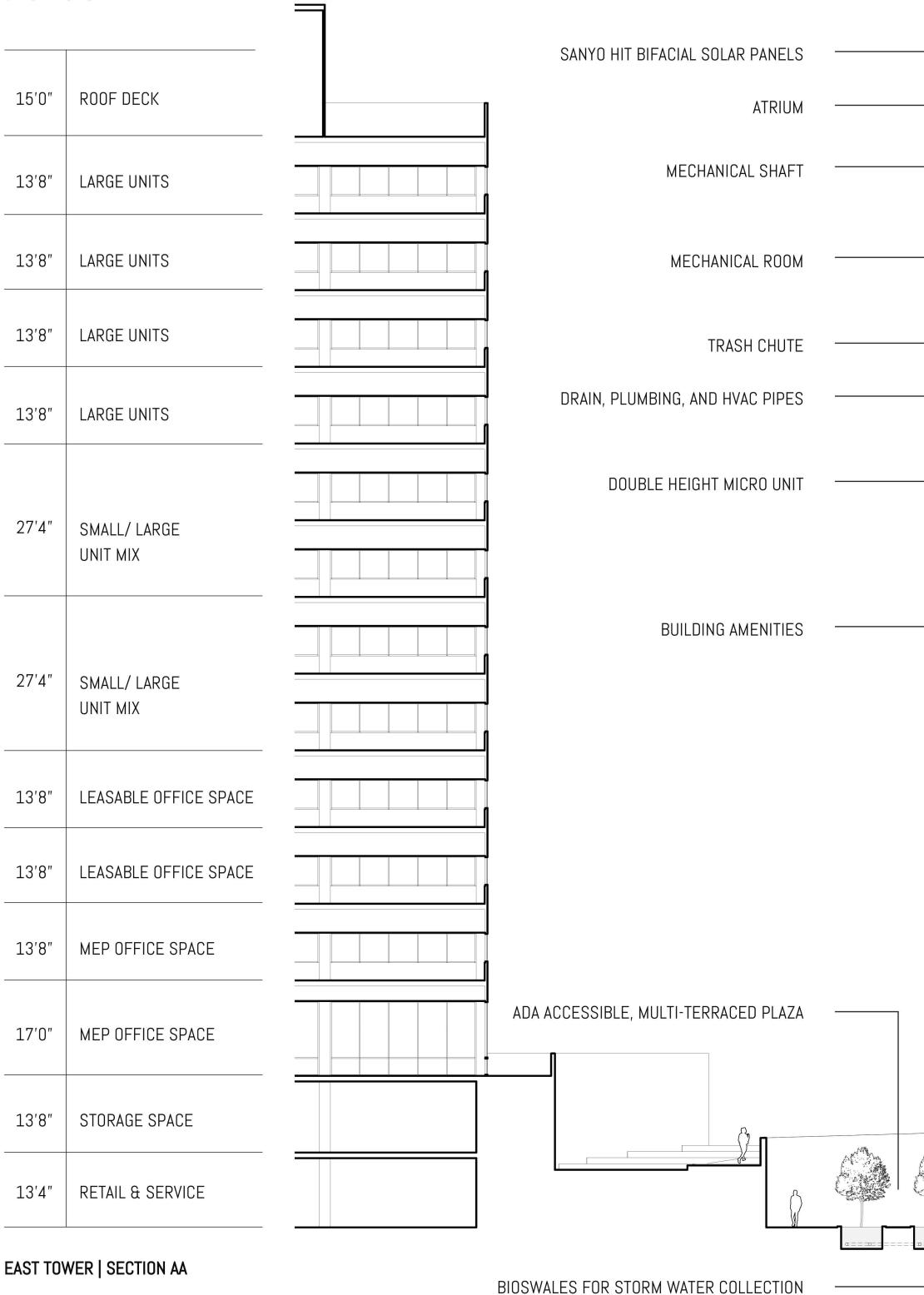


— HOT WATER SUPPLY PIPE
 - - - HOT WATER RETURN PIPE

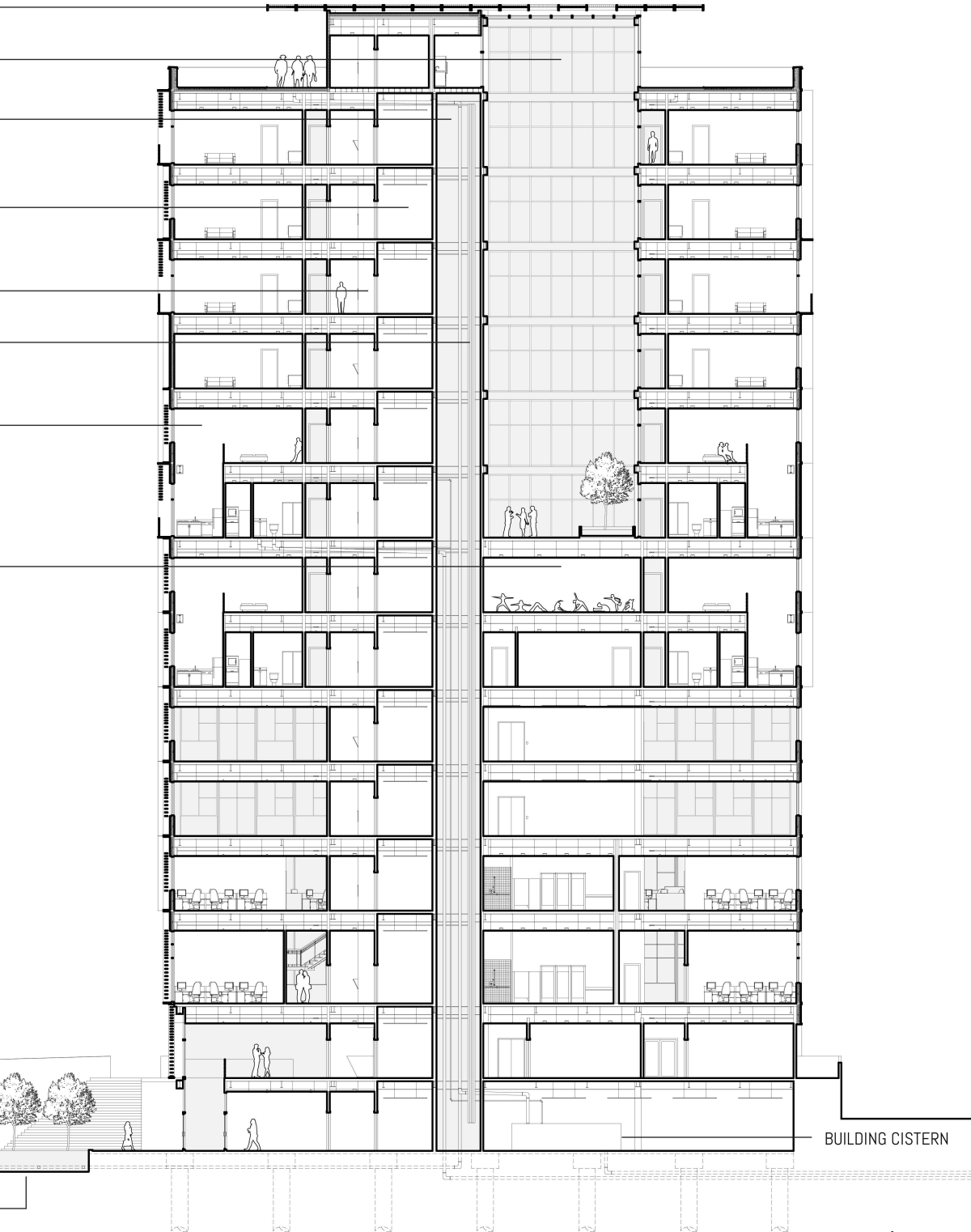
— COLD WATER SUPPLY PIPE
 - - - COLD WATER RETURN PIPE

TYPICAL RESIDENTIAL HVAC

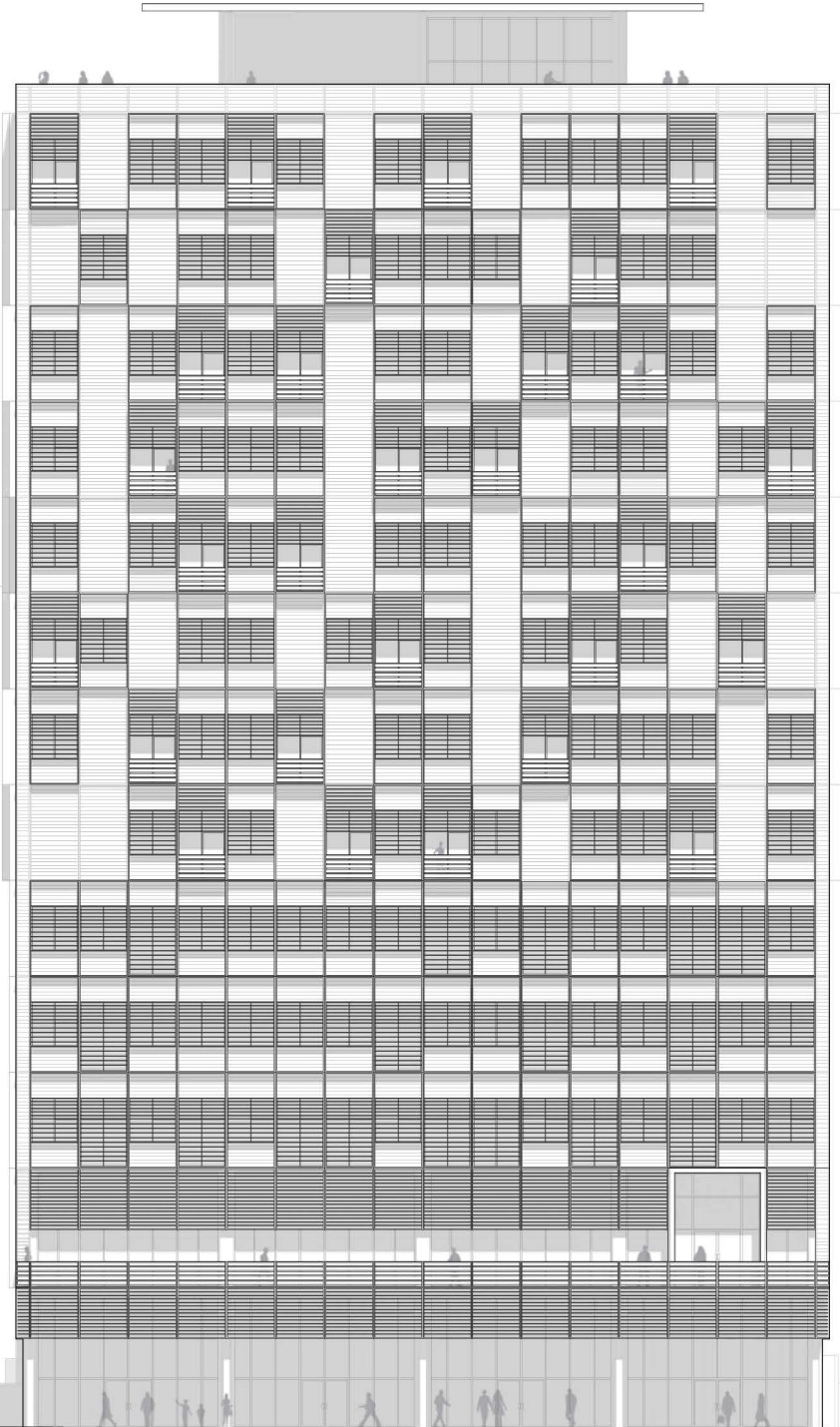
The fan coil system makes use of the pipes from the existing four-pipe system and minimizes ducts. Fresh and exhaust air are handled at the facade through the module's fan coil units. The rest of the spaces are conditioned by interior fan coil systems.



EAST TOWER | SECTION AA



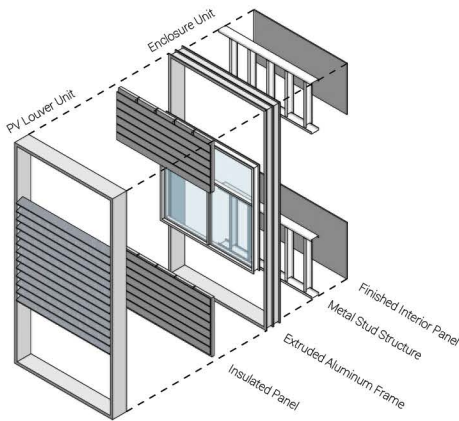
BUILDING CISTERN



SOUTH ELEVATION



FAÇADE DETAIL



FAÇADE PANEL EXPLODED

SOLAR TRACKING

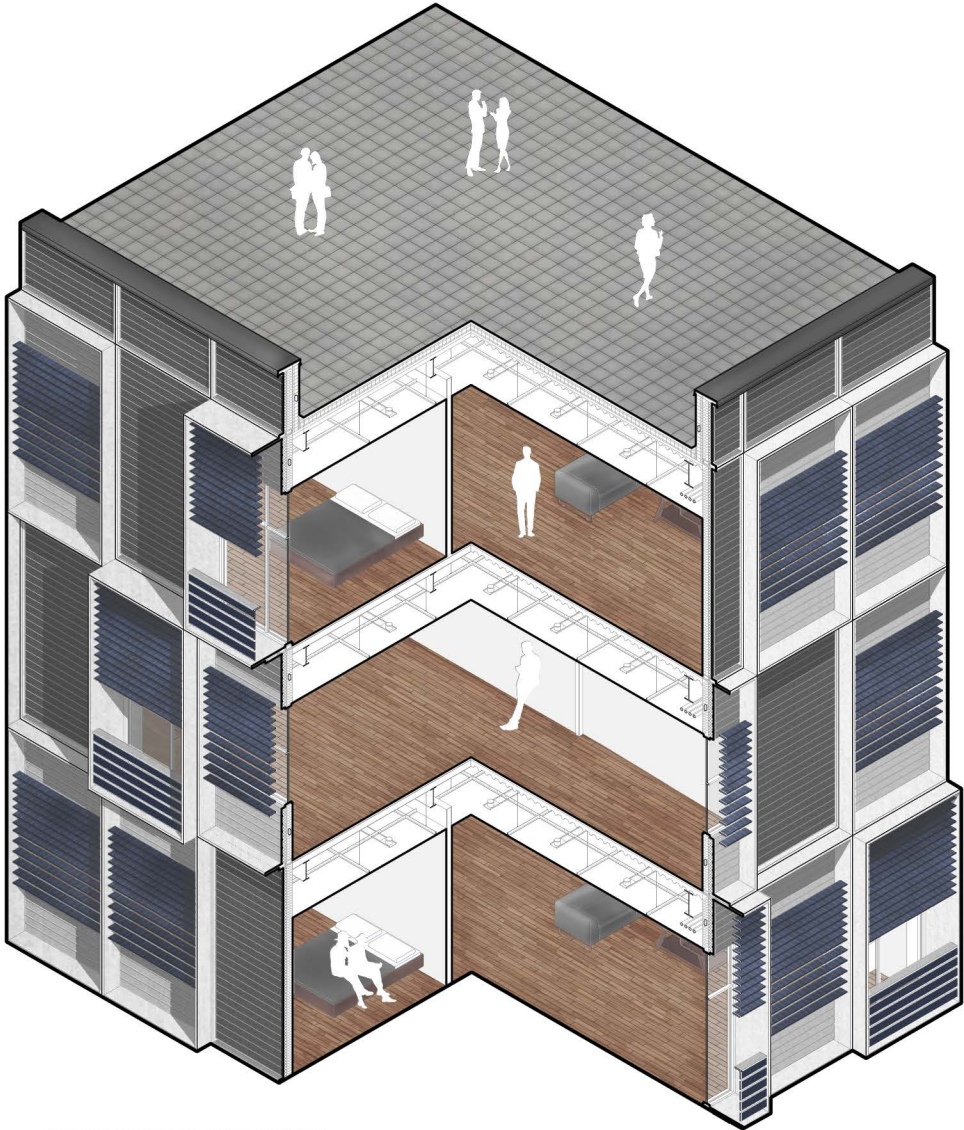
The photovoltaic solar-tracking louvers only produce the energy necessary to power themselves. The amount of sunlight collected will determine their angle to minimize solar heat gain and maximize daylighting. Where there is a view window, 6" wide louvers are spaced 8" apart on center to allow maximum view range. Where there is window above view level, modules are spaced at 6" on center. In the winter months, this gap between the louvers will allow more light into the space.

DYNAMIC FAÇADE

The façade deals most visibly with solar gain, light, and views, but it also contains multiple components of the HVAC. To further emphasize our dynamic façade, we are handling our fresh air intake and stale air exhaust within the modules (see next page). A heat recovery unit is built into the system for further efficiency.

MODULAR ENVELOPE

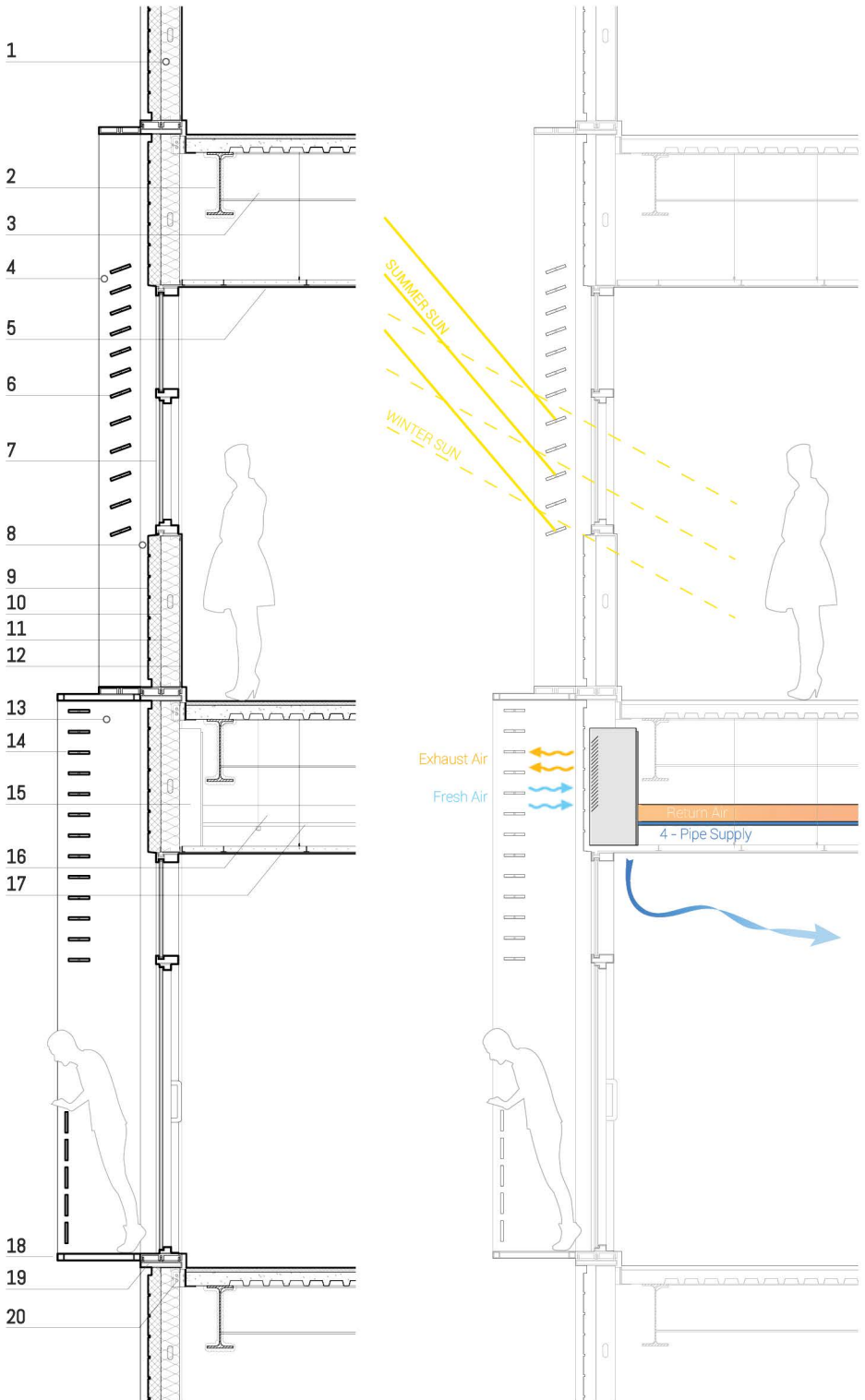
13'8" modules are prefabricated offsite for easy onsite assembly. They are mounted onto the existing structure and floor system as shown on the next page. Modules assemble to create R-40 in opaque zones. The louvers appear on the south and west façades because these are the areas of direct solar gain.



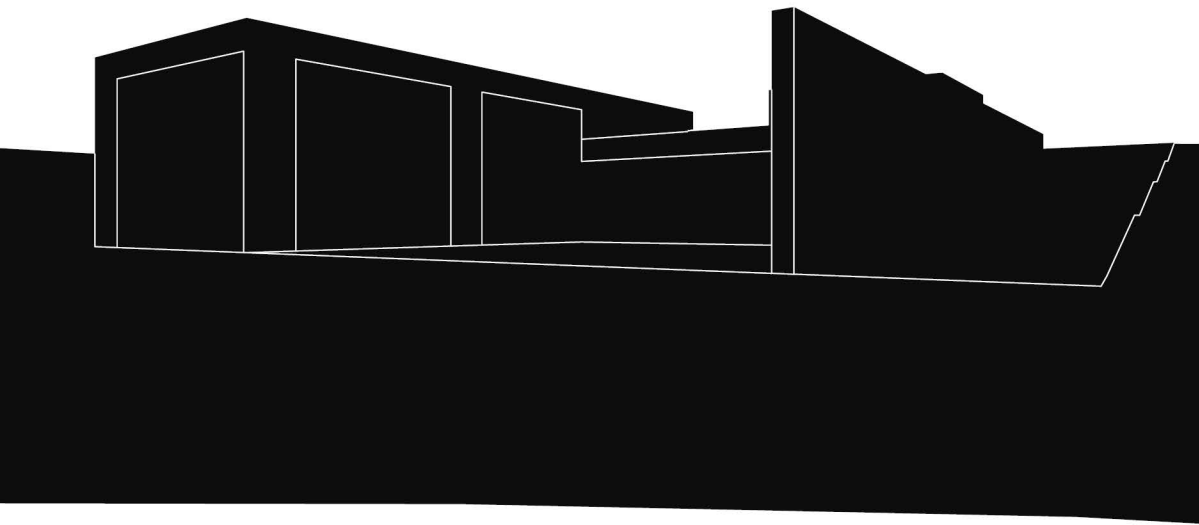
SOUTHWEST CORNER ISO SECTION

PROGRAM

- | | |
|--|--|
| <ul style="list-style-type: none"> 1 Solid Enclosure Unit (Total R-40) 2 W 18x50 3 W 14x26 4 PV Louver Unit 5 Suspended Gypsum Board Ceiling 6 Dynamic PV Louver (Active Shading Position) 7 Operable Window 8 Enclosure Unit 9 Insulated Panel 10 Batt Insulation | <ul style="list-style-type: none"> 11 5-1/2" Steel Stud 12 Finished Interior Panel 13 Balcony Unit 14 Dynamic PV Louver (In-Shade Position) 15 Fan Coil Unit (Beyond) 16 Return Air Duct (Beyond) 17 4-Pipe HVAC lines 18 Aluminum Clad Frame 19 Extruded Aluminum Unitized Facade System 20 Facade Anchor |
|--|--|



WALL SECTION DETAILS



[9 SQUARE]

When one visits a park or attraction, one of the most important aspects of their experience is the visitor center. It's a place to learn, buy goods and souvenirs, grab a bite to eat, or just take a break and hang out for a while.

This urban architecture project is a visitor center for historic Centennial Park in Nashville's West End. In 2010, a new master plan of Centennial Park was designed by landscape architect Kathryn Gustafson. This master plan is the outcome of a number of public meetings that took place over a two-year period. While identified in the master plan, the visitor center was not designed. The proposed site is the intersection of Parthenon Avenue and 31st Avenue North, a highly strategic urban corner of the park. Many elements of the master plan, including the ornamental gardens, were integral to its overall design. The goal is to provide a place where park goers can orient themselves and find out about the park and its main attraction, the Nashville Parthenon. The visitor center provides spaces for indoor events, houses a cafe, outdoor terrace and courtyard, and serves as a new park entry plaza with views eastward to the Parthenon, park, and downtown skyline.

While studying the site, I noticed that the park has three major zones; a Park Zone, a Lake Zone, and a Garden Zone. These three zones meet at the site location and are defined by its components. Building upon the concept of three primary zones, the visitor center has a

Public Zone, a Private Zone, and an Event Zone. I studied the master plan and found that the gardens surrounding the site have a repetition which was mainly A-B-A-B. Using the regulating lines pulled from the repetition of the gardens, a 9 Square Grid was created defining the program organization of the building. The 9 square grid consists of 40-foot and 10-foot zones. The 40-foot zones consist of program spaces and the 10-foot zones consist of circulation, storage, and service spaces like rest rooms and mechanical/ electrical rooms.

The two main public spaces are the outdoor terrace, with exterior seating for the cafe, and the courtyard, which is an extension of the ballroom and event spaces and faces the ornamental gardens. The exterior seating for the cafe is shaded by a canopy of vines which filter sunlight. The terrace is also a space where large tour groups can be dropped off by car and bus. The second level has staff offices which allow for great views of the park as well as views from the conference room and break room. Private restrooms are also available for the staff. The ground level is devoted to the ballroom and event spaces. The ballroom is on the north side of the building directly under the outdoor terrace. The event rooms are on the east side of the building and can be split into two spaces for additional events. The gallery is a mezzanine that wraps around the ballroom.

SUMMER2014

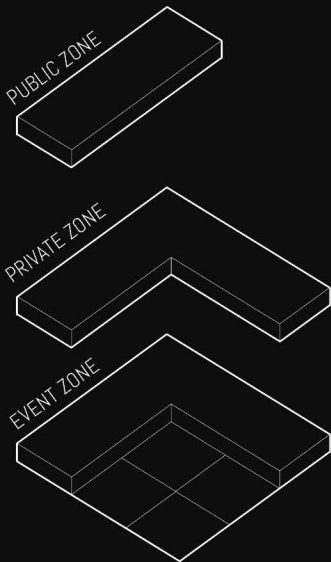
LOCATION Nashville, TN

PROFESSOR Thomas K. Davis



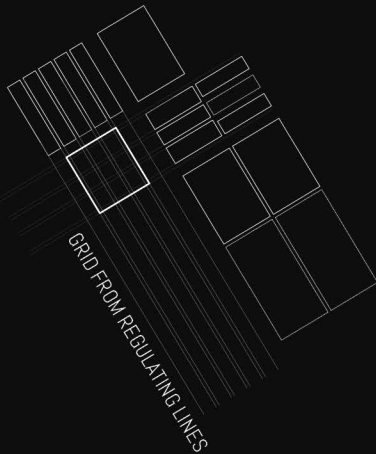
CENTENNIAL PARK ZONES

While studying the site, I noticed that the park has three major zones; a Park Zone, a Lake Zone, and a Garden Zone. These three zones meet at the site location and are defined by its components.



PROGRAM ZONES

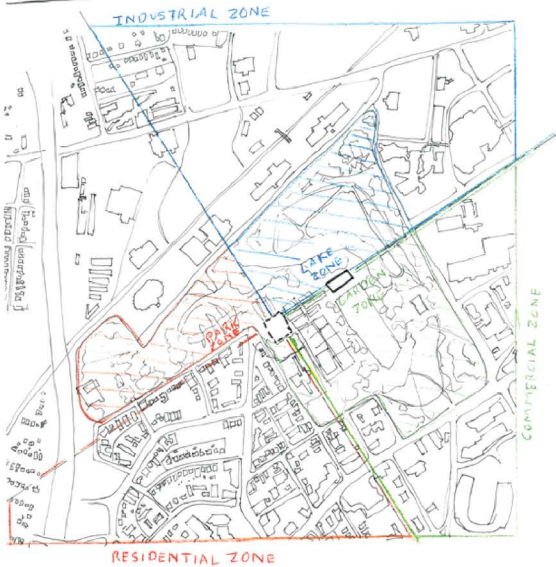
Building upon the concept of three primary zones, the visitor center has a Public Zone, a Private Zone, and an Event Zone.



9 SQUARE GRID

I studied the master plan and found that the gardens surrounding the site have a repetition which was mainly A-B-A-B. Using the regulating lines pulled from the repetition of the gardens, a 9 Square Grid was created defining the program organization of the building.

ZONES



CENTENNIAL PARK ZONING

Centennial Park is split up into three major zones, A PARK ZONE, LAKE ZONE, and GARDEN ZONE

SURROUNDING SITE ZONING

The surrounding site around Centennial Park also have three major zones, A INDUSTRIAL ZONE, COMMERCIAL ZONE, and RESIDENTIAL ZONE

VISITOR CENTER

Centennial Park, Nashville, TN

Program

- Lobby/Foyer @ 1000 sq ft
- Gift Shop @ 500 sq ft
- Ticketing office @ 150 sq ft
- Cafe @ 1000 sq ft 2k seats 16 public
- Administrative offices @ 200 sq ft (10)
- Event Hall and Event Rooms @ 2000 sq ft
- Lecture Hall/Auditorium @ 4500 sq ft-1500 sq ft
- Gallery @ 4000 sq ft
- Outdoor Terrace @ 500 sq ft
- Classrooms 5 ea @ 300 sq ft
- Kitchen @ 500 sq ft
- Restrooms @ 500 sq ft (2)
- Mechanical and Electrical @ 500 sq ft
- Storage @ 1000 sq ft
- Est. Grass Building Area 15,000 sq ft

ART CENTER







VIEW FROM FORMAL GARDENS



1

2

3

4

5

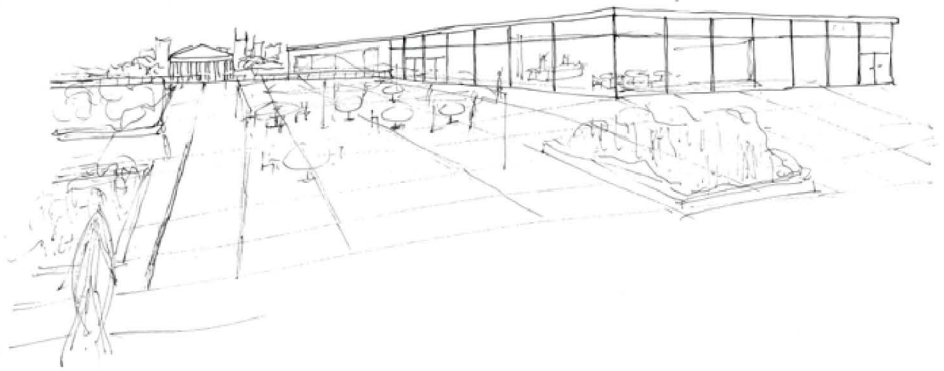
6

7

1

SITE PLAN

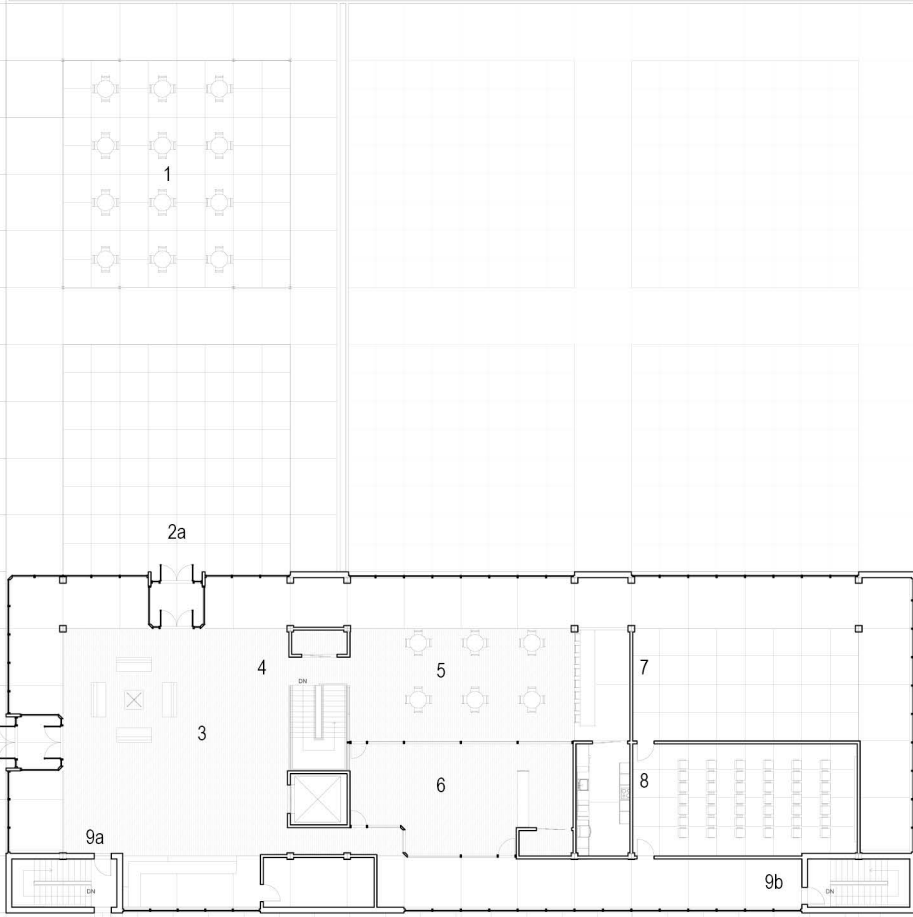
- 1 Formal Gardens
- 2 Rose Gardens
- 3 Grand Exterior Stair
- 4 Cafe Canopy with Vines for Shading
- 5 Outdoor Terrace
- 6 Green Roof and Skylight
- 7 Parking



A

B

DN



C

2b

A

B

C

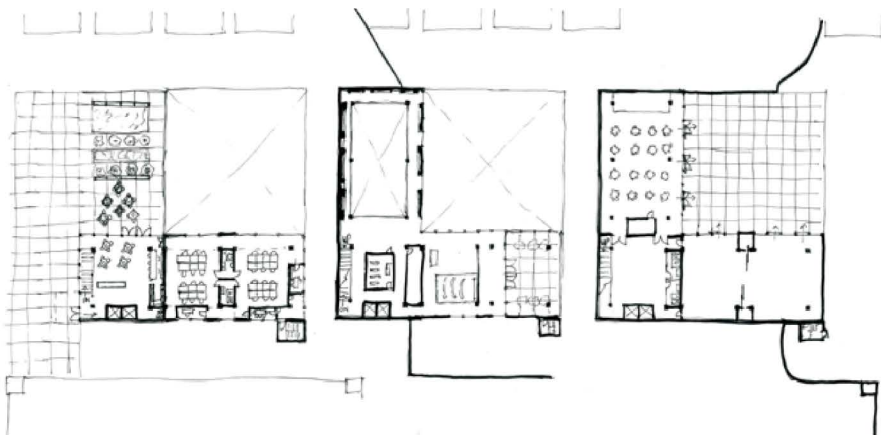


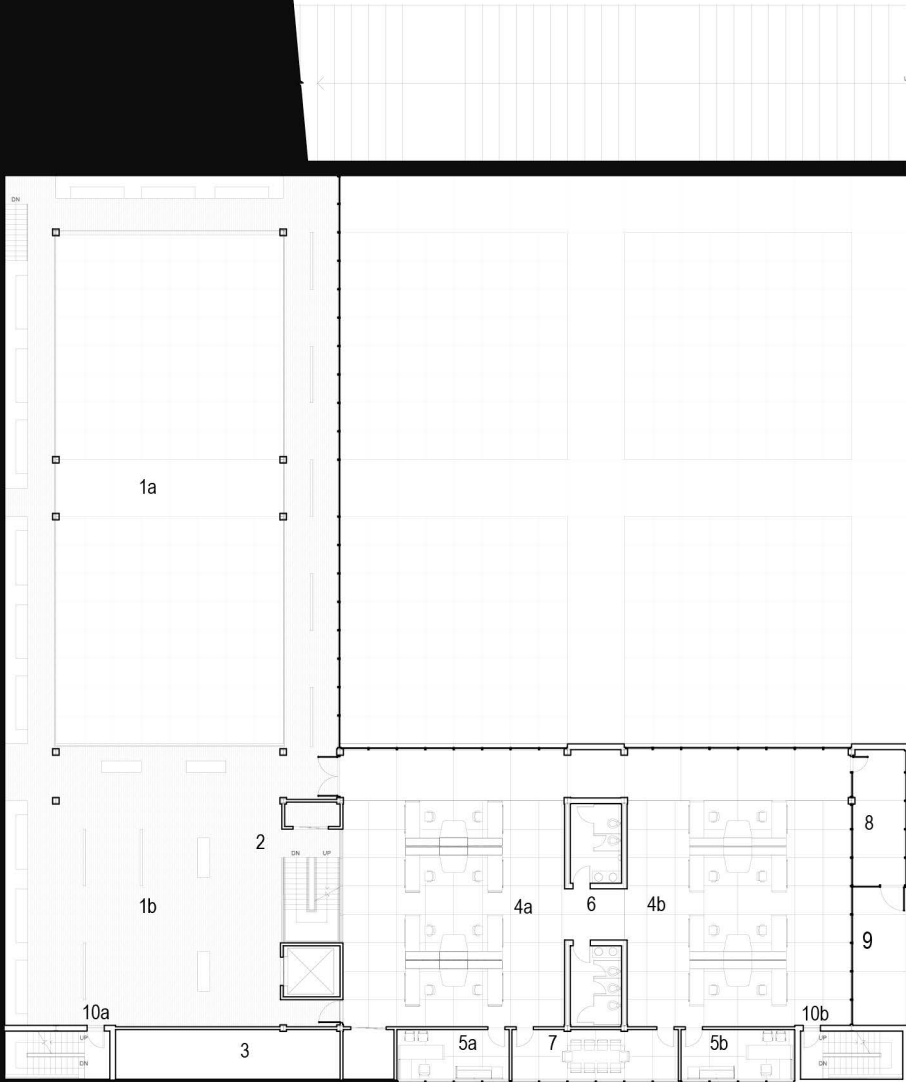


CAFE

LEVEL 3 PLAN

- 1 Exterior Cafe Seating
- 2 a-b Visitor Center Entries
- 3 Lobby/ Ticketing and Information
- 4 Circulation Zone w/ Stairs and Elevator
- 5 Cafe with Interior Seating
- 6 Museum Store
- 7 Orientation/ Multipurpose Space
- 8 Film Space
- 9 A-B Egress Stairs



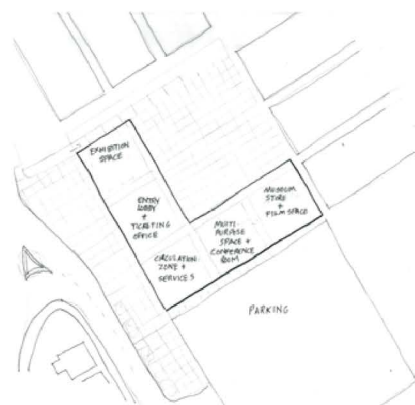


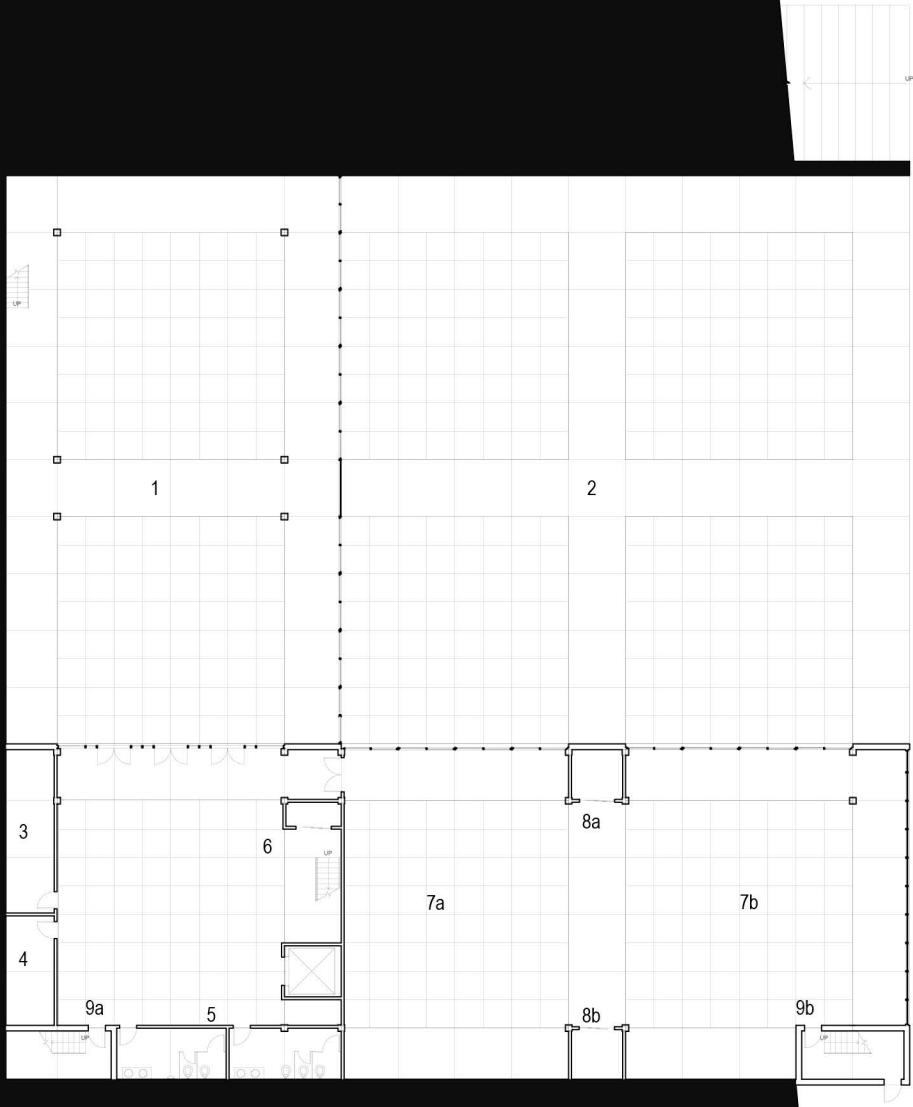


OFFICES

LEVEL 2 PLAN

- 1 A-B Atrium/ Mezzanine Gallery
- 2 Circulation Zone w/ Stairs + Elevator
- 3 Gallery Storage
- 4 A-B Cubical Office Desks
- 5 A-B Private Offices for Directors
- 6 Private Restrooms for Staff
- 7 Conference Room
- 8 Break Room
- 9 Outdoor Balcony
- 10 A-B Egress Stairs



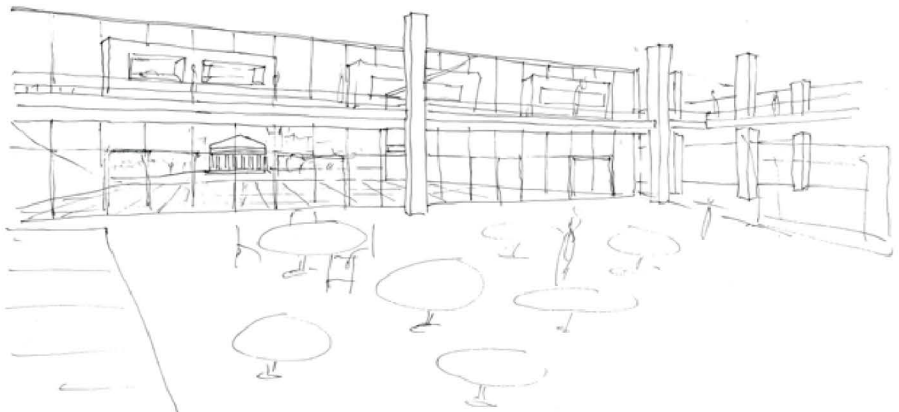




BALLROOM PERSPECTIVE

LEVEL 1 PLAN

- | | |
|---|--|
| 1 Ballroom | 6 Circulation Zone w/ Stairs and Elevator |
| 2 Courtyard that Extends from Ballroom | 7 A-B Event Spaces |
| 3 Catering Kitchen for Ballroom | 8 A-B Event Space Divider Storage |
| 4 Event Space Storage | 9 A-B Egress Stairs |
| 5 Male and Female Public Restrooms | |



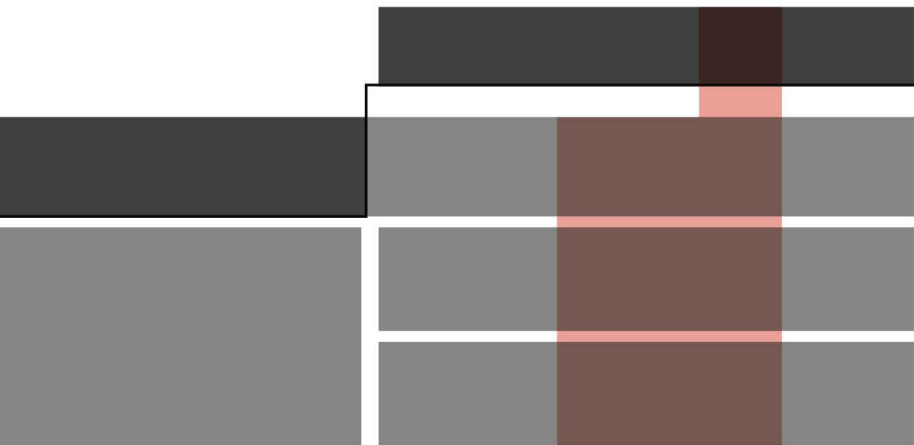
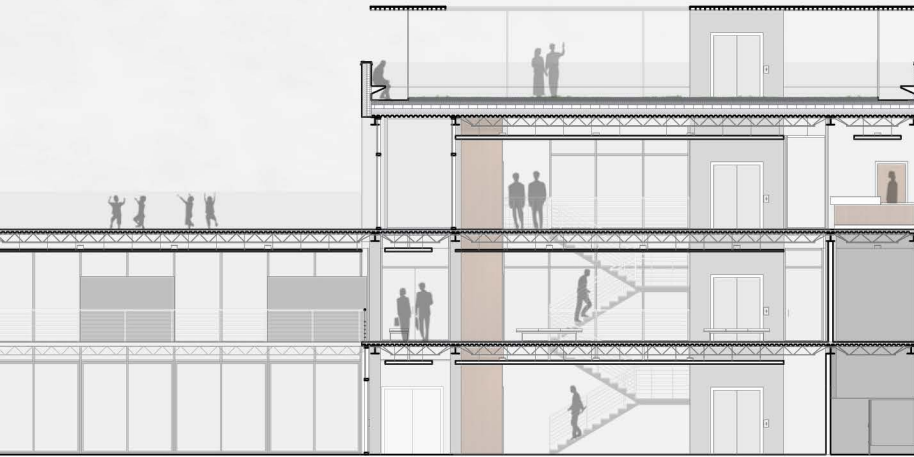


SECTION AA

-  OUTDOOR SPACE
-  INTERIOR SPACE
-  CIRCULATION SPACE



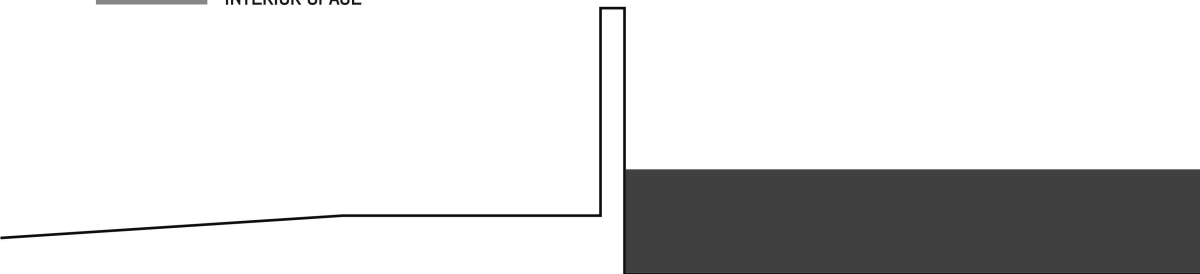
SPACIAL RELATIONSHIPS



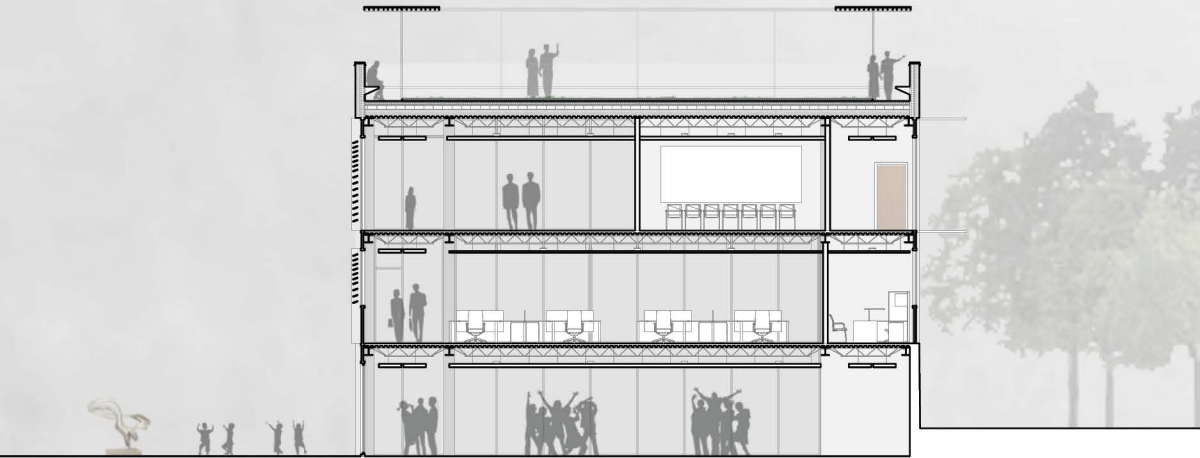


SECTION BB

 OUTDOOR SPACE
 INTERIOR SPACE



SPACIAL RELATIONSHIPS

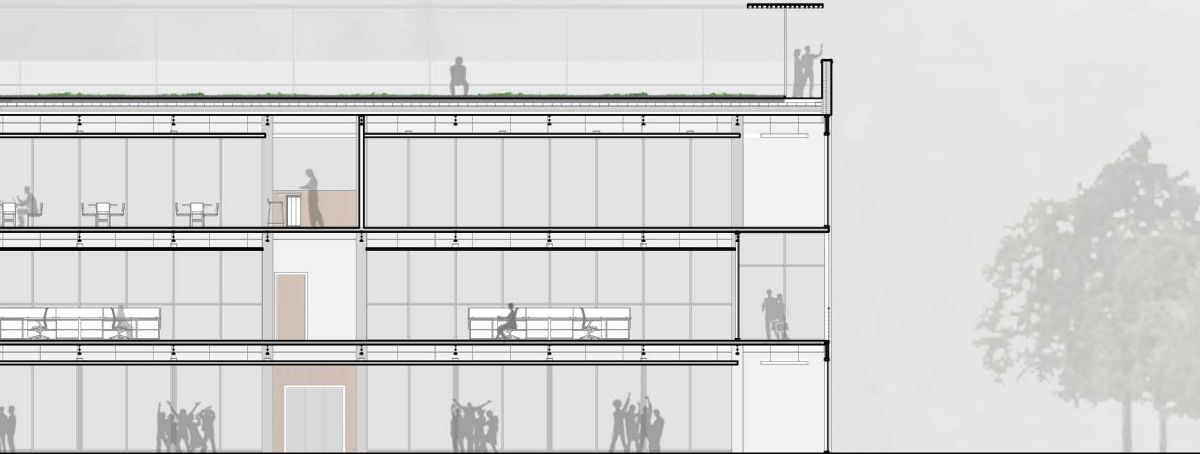


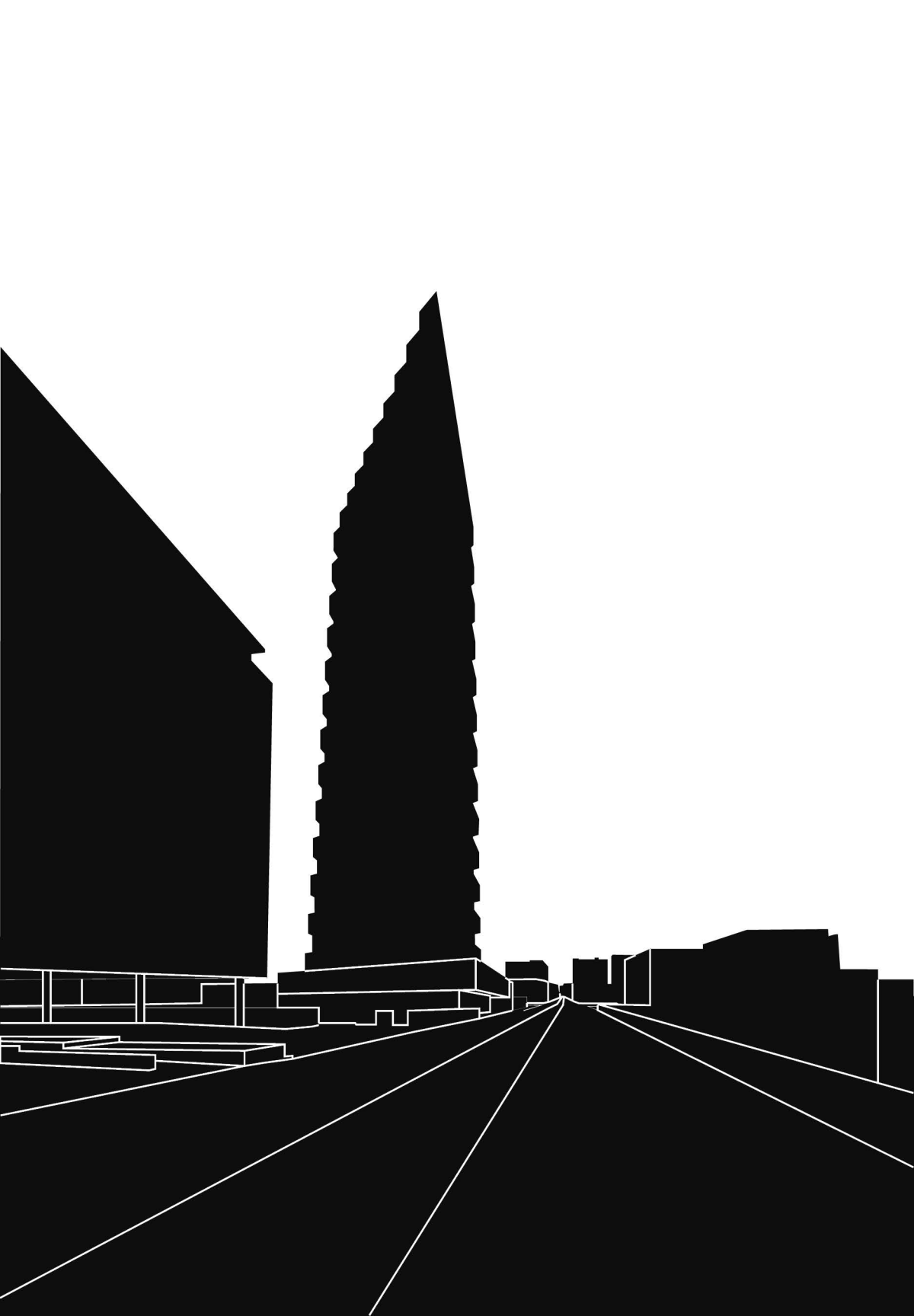


SECTION CC



SPACIAL RELATIONSHIPS





[MICROVILLAGES]

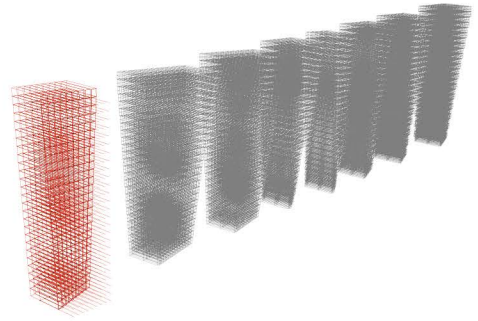
Nashville, Tennessee is now the "It" city with 80 new people moving to it every day. The growth rate is increasing density in downtown which is the urban heart of a largely suburban metropolitan area. With density increasing, a fleet of new challenges arises from the need for better mass transit to the demand for more affordable living spaces. Much of Nashville's current affordable housing is located in the suburban neighborhoods surrounding downtown. This distance increases travel time to and from work and often leads to increased congestion during rush hours. If more people lived and worked in closer proximity, less people would have to rely on the automobile which would in turn free up traffic flow and improve the living conditions of all Nashville residents.

In terms of housing, Micro Units provide a unique combination of affordability, utility, and density. The Gulch, a booming mixed use/ residential development in Downtown Nashville, is ripe for micro unit residential housing as many of the existing apartments and condominiums are higher end for a more premium price. Smaller units that are well designed to have all of the normal amenities are far more potential to be affordable as there is less floor area to charge. This project aims to add an additional 300 units to the Gulch which will drive business and innovation in the area due to increased density.

In terms of design, the units will be prefabricated and modular with the ability to be interchanged either on owners request, for general maintenance, or even re-location. Instead of the wasteful traditions of design construction and demolition, modular micro unit design has the potential to be far more sustainable and environmentally friendly.

RHINO TO REVIT WORKFLOW | RAPID PROTOTYPING

I believe that having a wide skill set is vital for a productive workflow. This project utilizes the parametric capabilities of Rhino and Grasshopper with the intelligence of BIM in Revit to create a dynamic composition of mixed use residential units and retail.

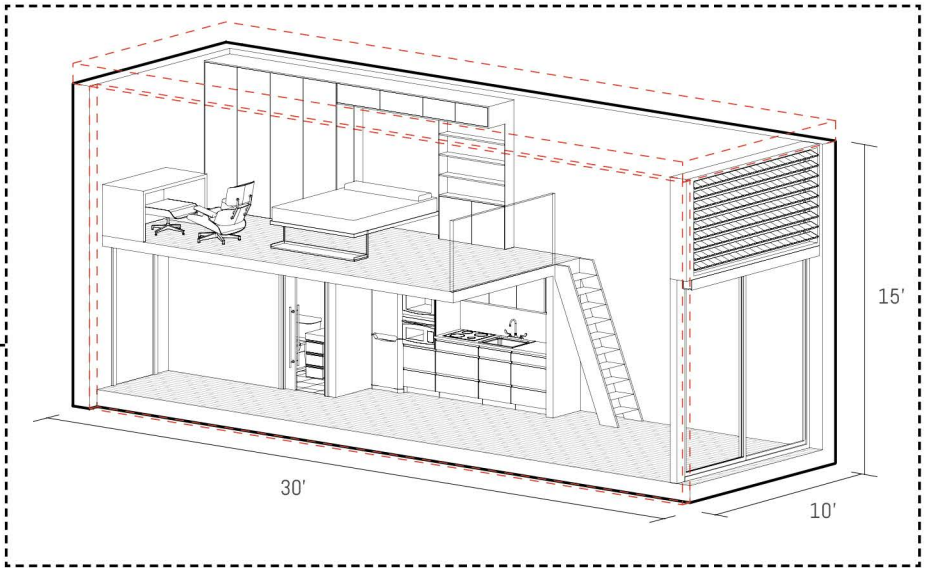


SUMMER2015–**FALL**2016

LOCATION Nashville, TN

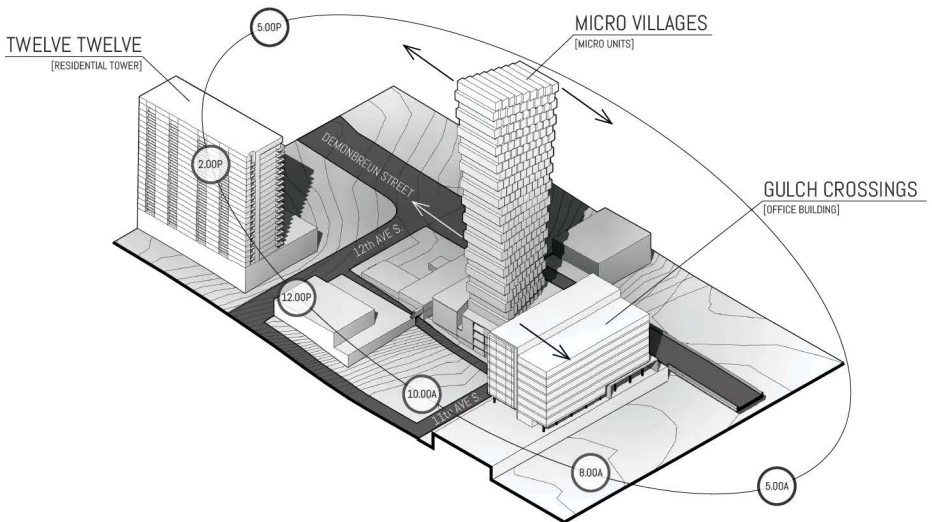
COLLABORATORS Kion Swaney





MICRO UNIT HOUSING

The units provide balance between small space, utility, and comfortability .



UNIT SHIFTING

The units are shifted in order to orient the building for best views and solar exposure.



LANDSCAPE 02

CURATED INUNDATION |

POND BALANCE |

AUGMENTED WILD |

WEDGED PIER |



[CURATED INUNDATION]

In the 21st Century, the TN Valley will no longer be afraid of, and will even welcome, flooding as an economic and ecological driver by embracing strategies of wetland remediation and the dynamic hydrologic processes and patterns of the river and river system.

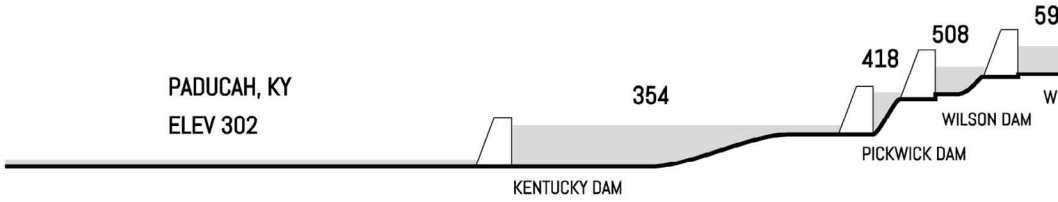
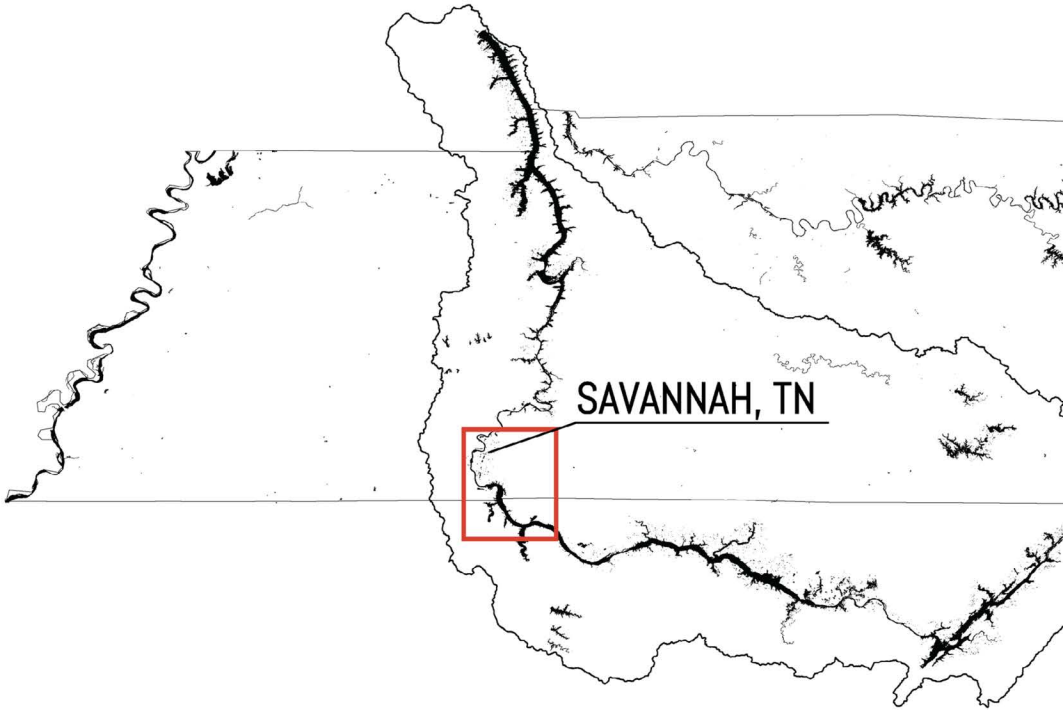
The Tennessee River has been heavily modified by the TVA in order to accomplish an extensive amount of goals that range from energy generation, to flooding control, and even to disease control. Although these modifications have allowed for economic and urban development along the Southeast, it has greatly affected the wetlands in the TN valley with a loss of 59%.

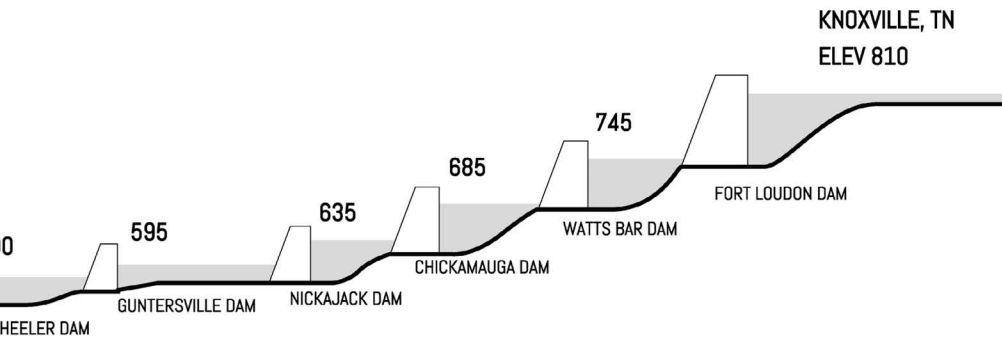
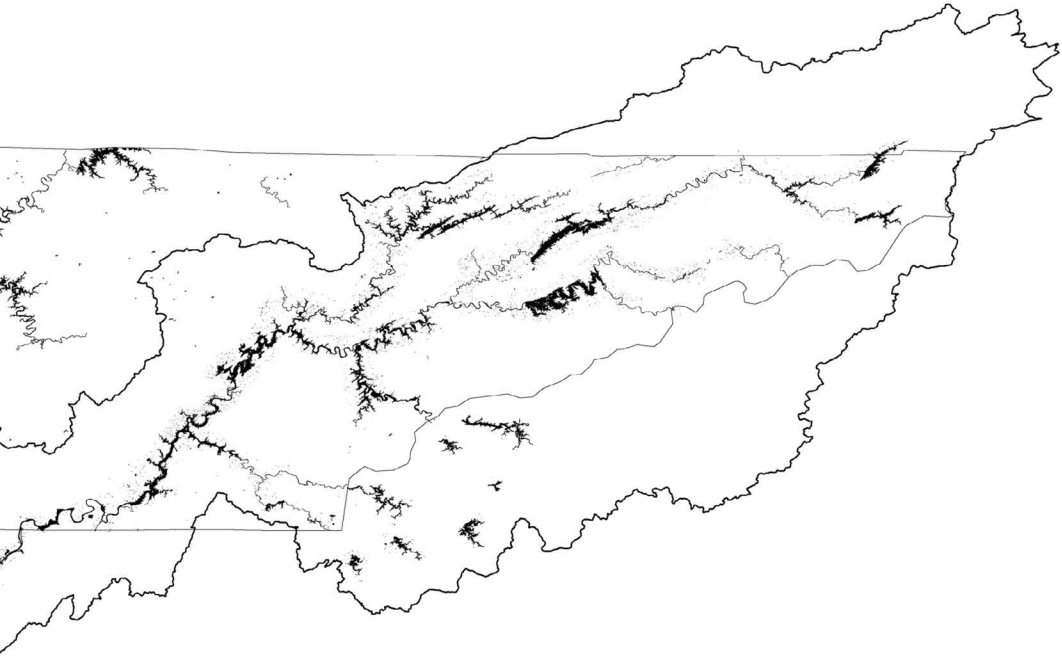
The 59% loss of wetland area has heavily effected biodiversity in the TN Valley which is considered to be the Amazon of the South. Bringing back wetland development along the TN River will not only drive ecological remediation but will also open up economic development through agronomic, aquacultural, and flood friendly agricultural practices. These are done through a series of wetland typologies that can handle the varying conditions of the TN River.

FALL2016

LOCATION Savannah, TN

PROFESSORS Brad Collett | Phil Enquist, FAIA, SOM Partner





TVA RIVER MANAGEMENT

AGRICULTURAL LAND

CITY OF SAVANNAH

PICKWICK DAM

RIVERSIDE RESIDENTIAL

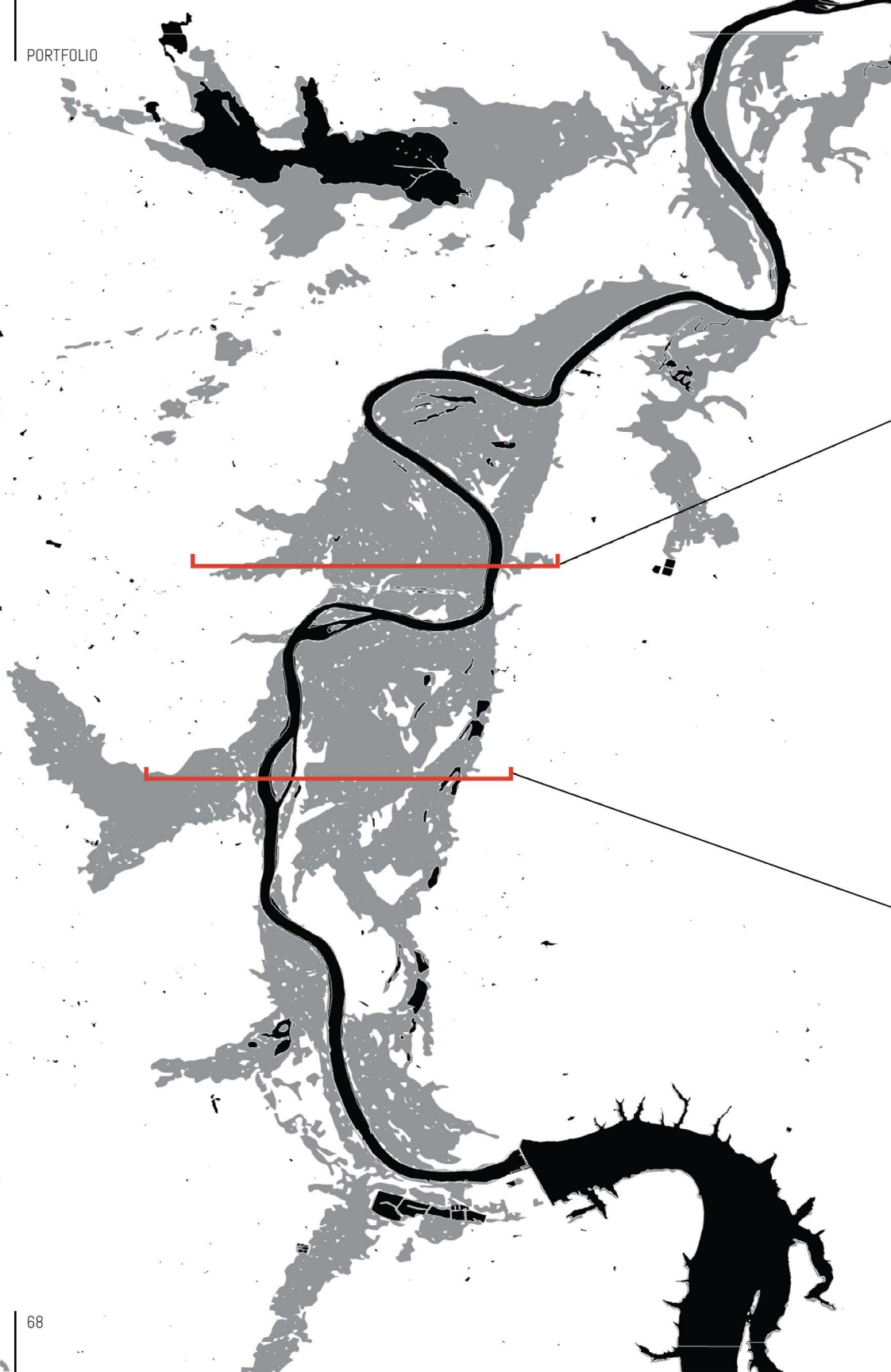
PACKAGING CORP.

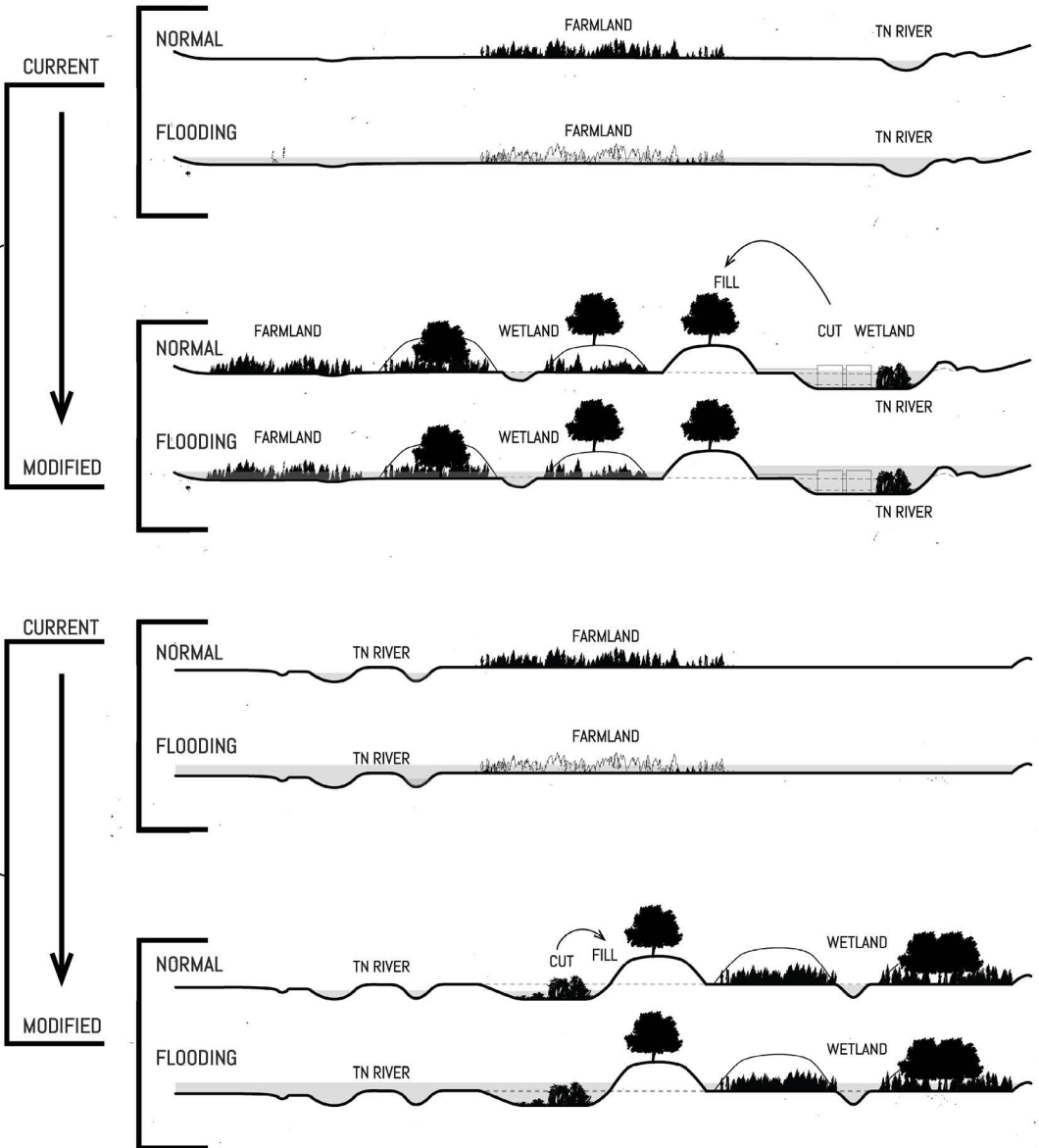
LANDSCAPE

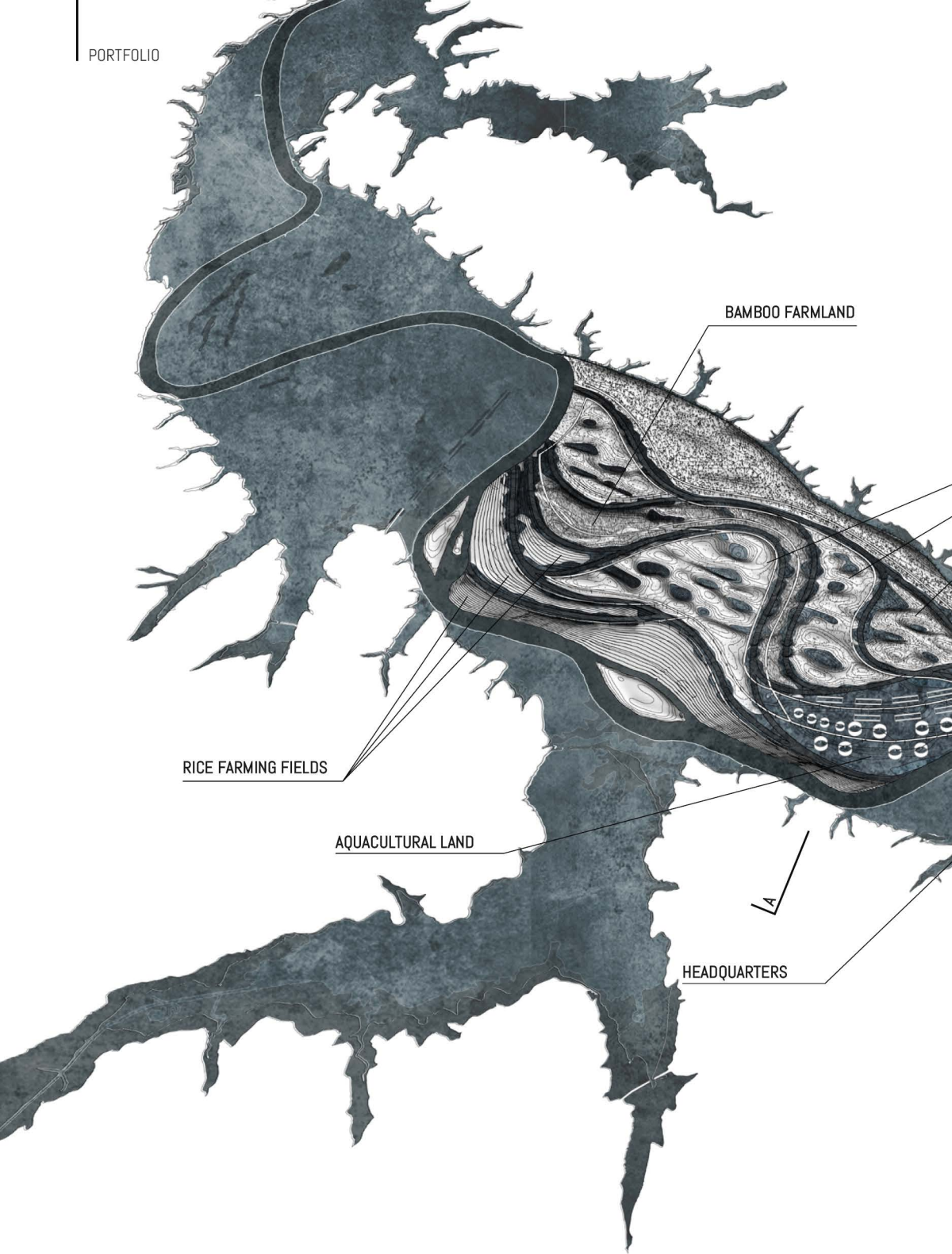
FARMLAND SITE

SAVANNAH, TN

FLOODING CONDITIONS







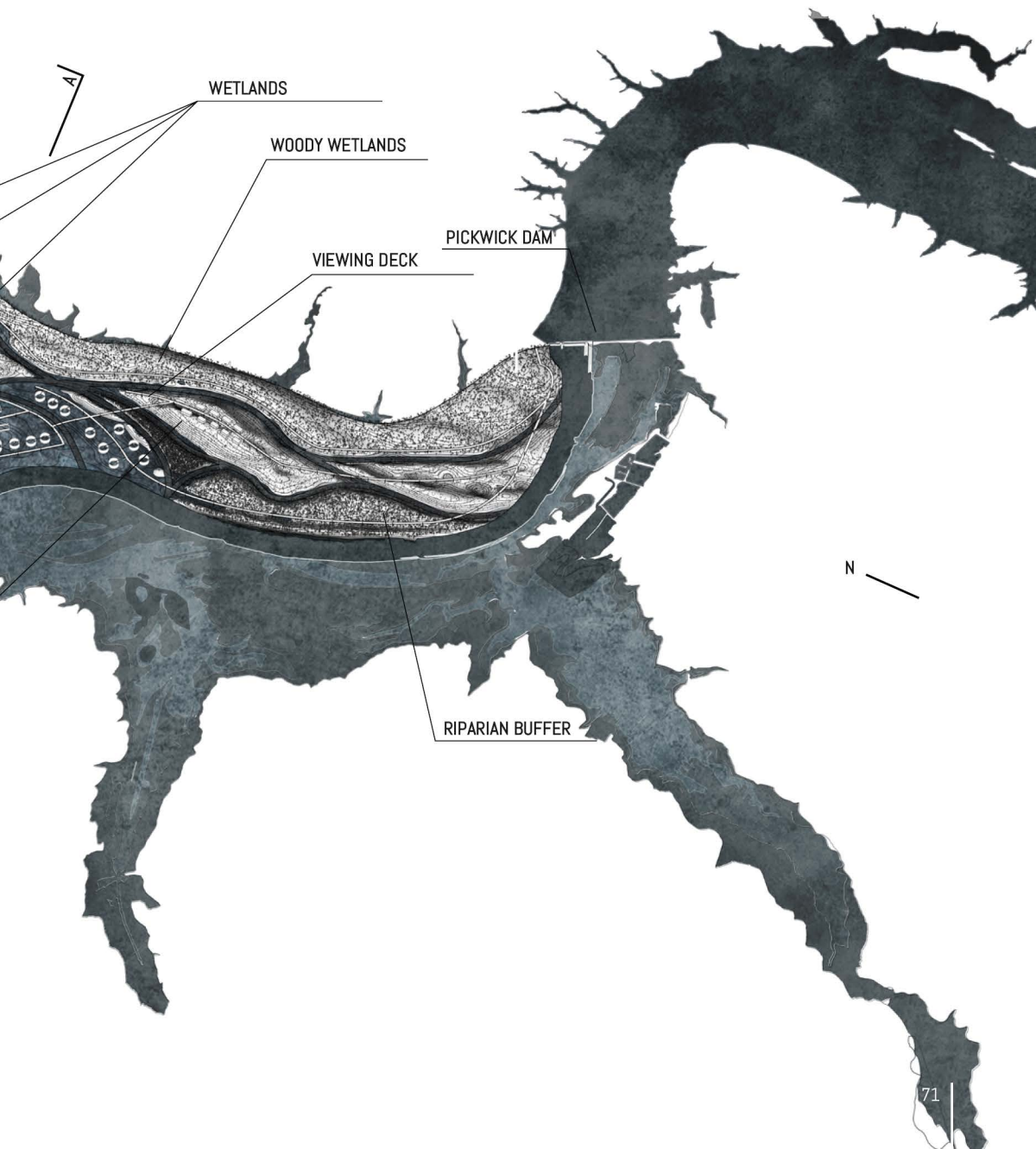
BAMBOO FARMLAND

RICE FARMING FIELDS

AQUACULTURAL LAND

HEADQUARTERS

LA



WETLANDS

WOODY WETLANDS

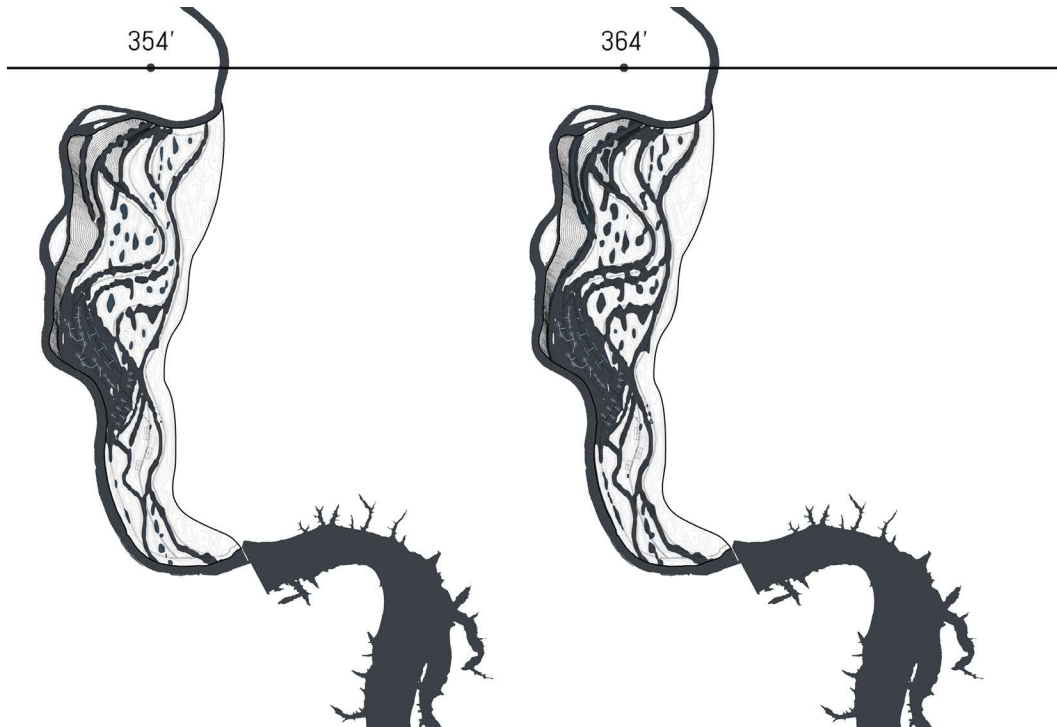
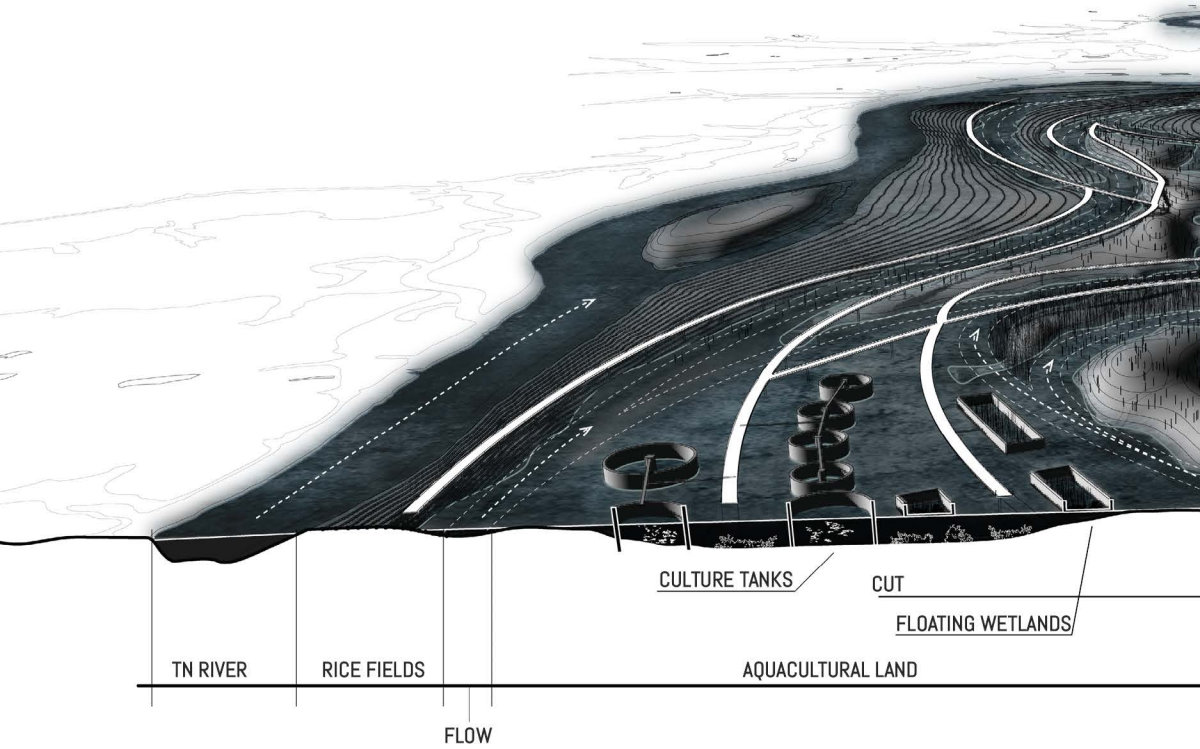
VIEWING DECK

PICKWICK DAM

RIPARIAN BUFFER

N

A





FILL

WETLAND ECOLOGY

WOODY WETLAND

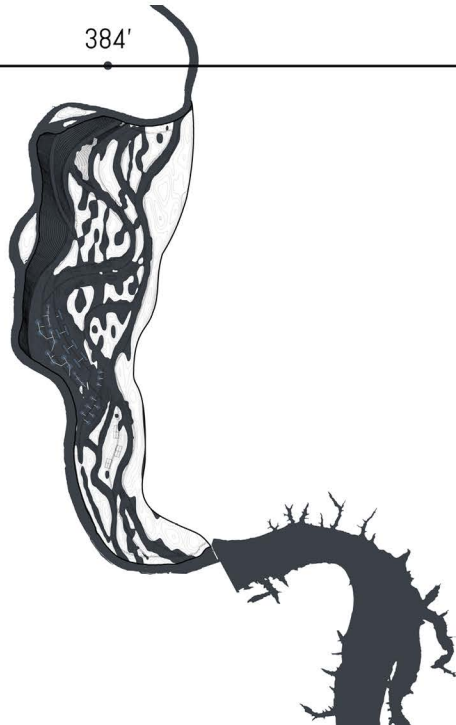
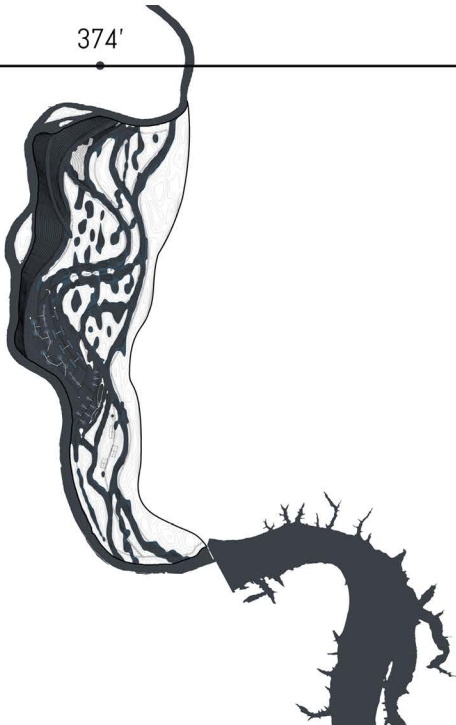
FLOW

FLOW

FLOW

374'

384'



WETLAND REMEDIATION TYPOLOGIES

- 01** Agricultural Wetland [Collection of excess fertilizer]
- 02** Aquacultural (Agronomic) Wetland [Fish, Algae, Phyto]
- 03** Industrial Wetland [Coal Ash Ponds, Waste, Pollution]
- 04** Fixed Floating Wetland [Wave Attenuator]
- 05** Barge Floating Wetland [Mobile Along River]
- 06** Sediment Remediation Wetland [River bed dredging]
- 07** Waterfront Residential Wetland
- 08** Stormwater Wetland

WETLAND TYPOLOGIES



FLOOD FRIENDLY PLANTS



SWITCH GRASS

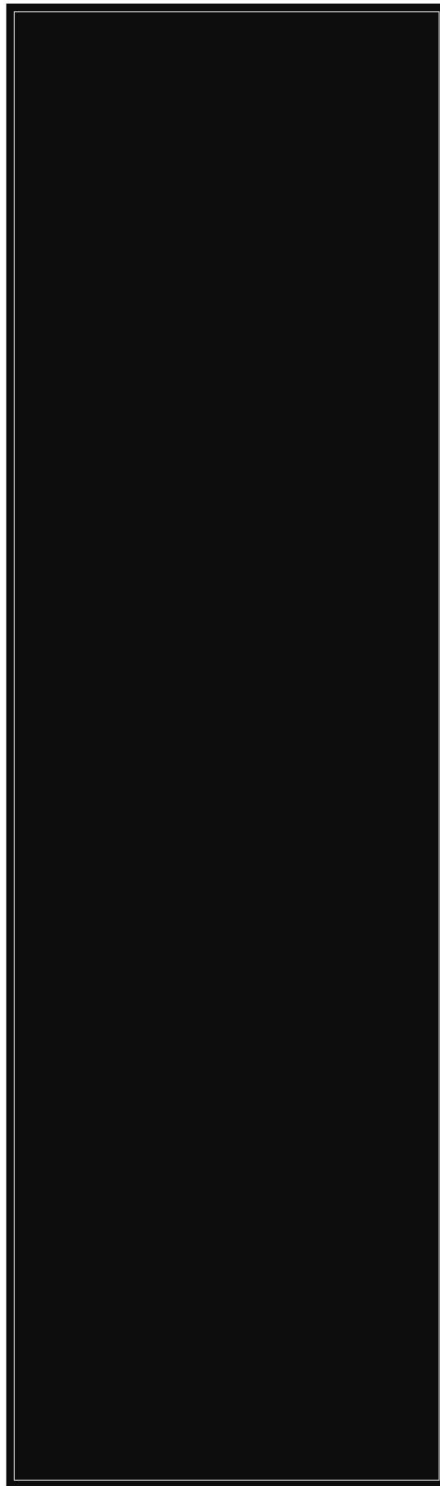
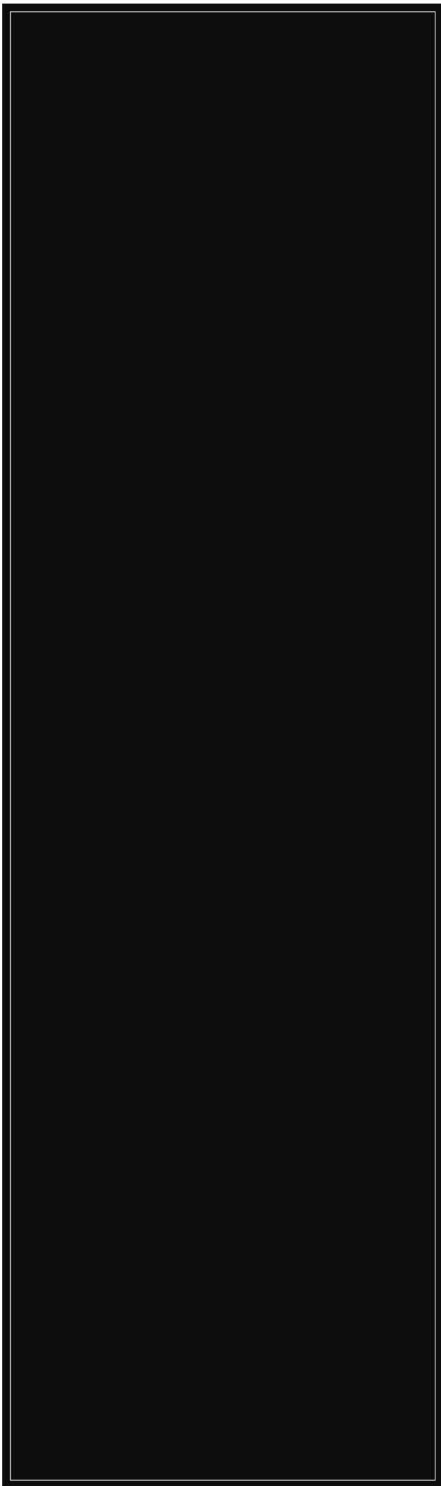


BALD CYPRESS



BAMBOO





[PONDBALANCE]

Mississippi is home to the largest market share of catfish farming in the United States. Because of the large amount of farming, much of the wetlands in and around the Mississippi river have been replaced by ponds. Water fowl that migrate through that area now have to fly farther to rest and feed. This wetland loss is leading to a loss of ecological diversity as the landscape has been re-purposed purely for production of catfish. Farmers are also forced to use a variety of harassment techniques to deter predatory waterfowl from eating their catfish and effecting profits. This project aims to bring back wetlands that drive ecological diversity as well as preserve the catfish farming industry, bringing balance to these landscapes.

To do this, Pond Balance modifies the topography for the catfish ponds allowing for landscape to emerge from the water creating wetlands. The bottom surface of the pond is also deepened in order to create additional habitat area for the catfish. New introduction, feeding, and harvesting techniques are developed to accommodate the modified pond surface for optimal yield.

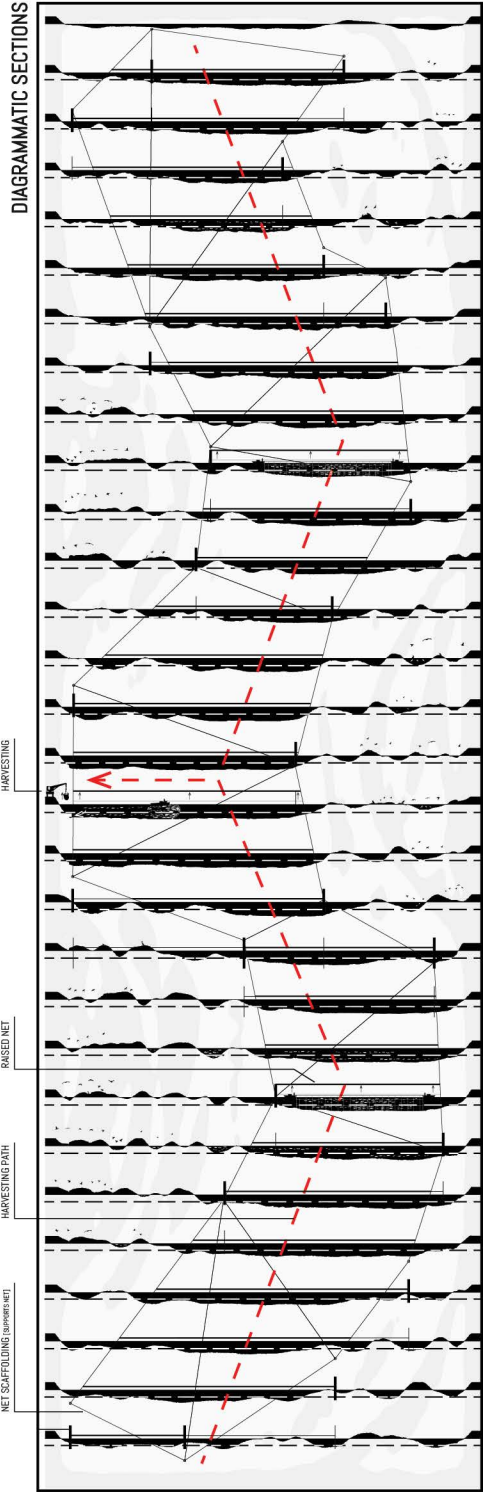
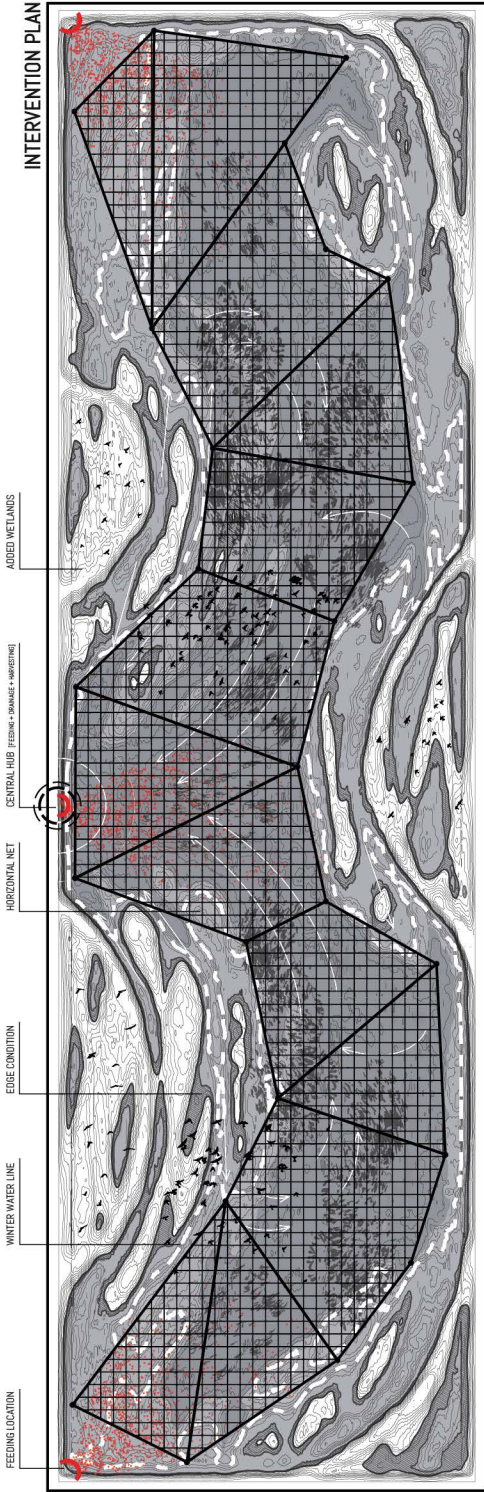
After careful analysis and diagramming of predatory waterfowl harassment techniques, a redesigned horizontal net covering the main water areas where catfish would be located will limit opportunities for catfish loss as the landing water fowl will only have access to the surrounding wetlands where many other nutrition

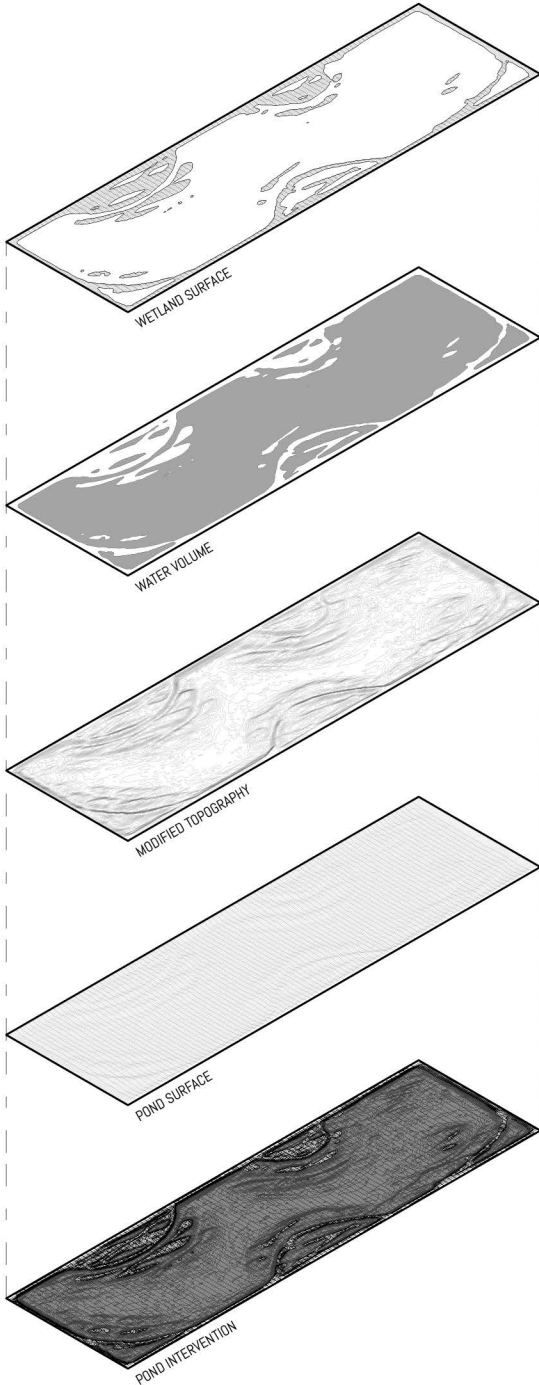
resources, such as insects, would be in abundance. For the farmer, it be cost effective to insert these wetland insects into the pond landscape to provide proper food alternatives to any of the waterfowl that would harm their yields.

FALL2015

LOCATION Mississippi

PROFESSOR Justine Holzman





WETLAND SURFACE

Wetland surface has been increased allowing for new migration stops and ecological diversity.

WATER VOLUME

The ponds are deepened slightly from 4' - 6' to increase water volume and catfish habitat.
 | 443480 cubic feet - 3,317,460.78 gallons
 | 2% Increase in from 2,839,510.65 gallons

MODIFIED TOPOGRAPHY

The modified topography was driven by wetland surface area increase and reliable water drainage during the winter months.

POND SURFACE

Pond surface was deepened for more catfish habitat and feeding locations as catfish are bottom feeders.

POND INTERVENTION

The intervention as a whole is meant to foster a dynamic reuse of the space currently taken up by just catfish farming. With modification of topography it is possible to not only increase catfish yield, but also increase wetland area for migrating birds heading south during the winter months.

PORTFOLIO



CORMORANT



PELICAN



GREAT BLUE HERON



GULL



BLACKBIRD



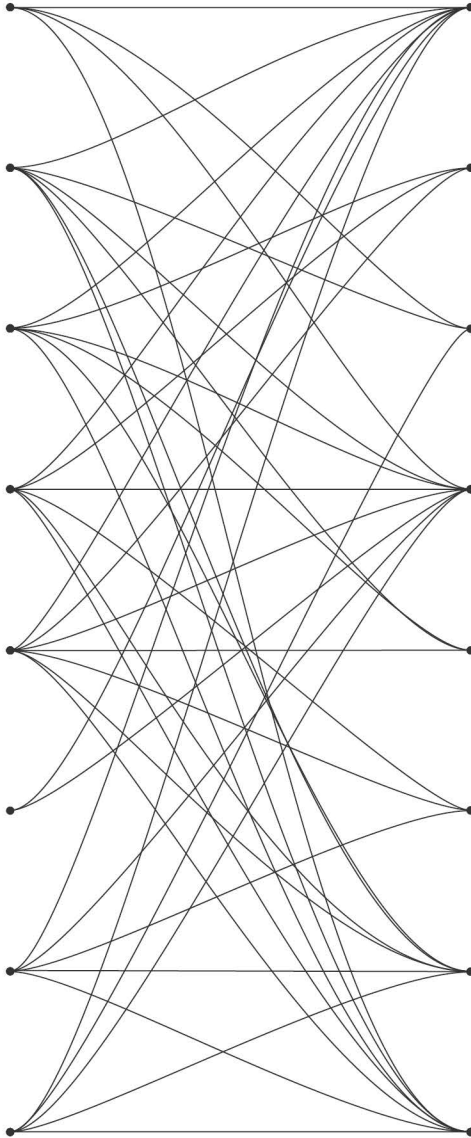
DIPPER



DIVING DUCK



BELTED KINGFISHER



GUN



PYROTECHNICS



LASERS AND LIGHTS



HORIZONTAL NET



PERIMETER NET



DOGS



PROPANE CANNONS



MOTION ACTIVATED ALARMS

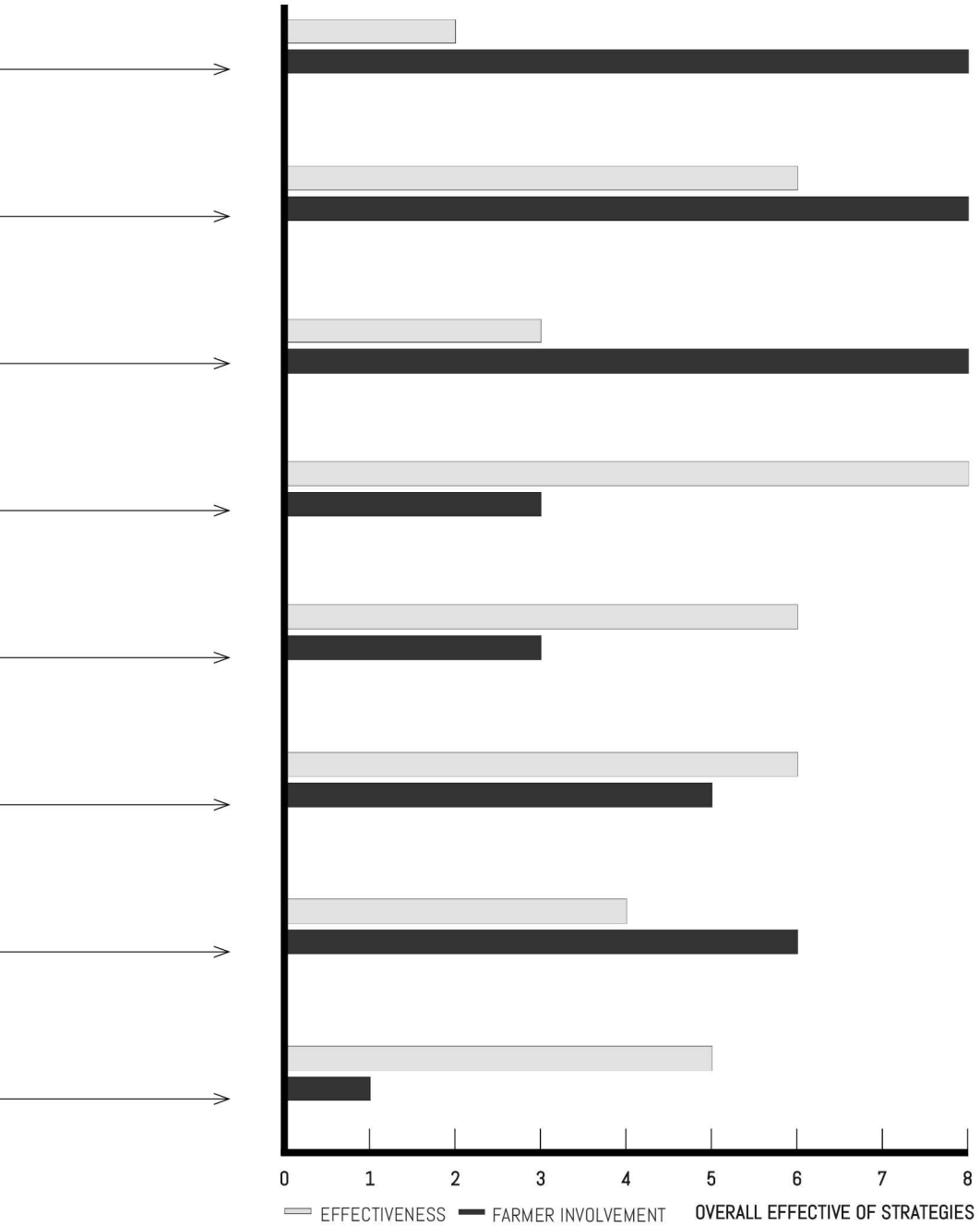
MAJOR PREDATORY BIRDS

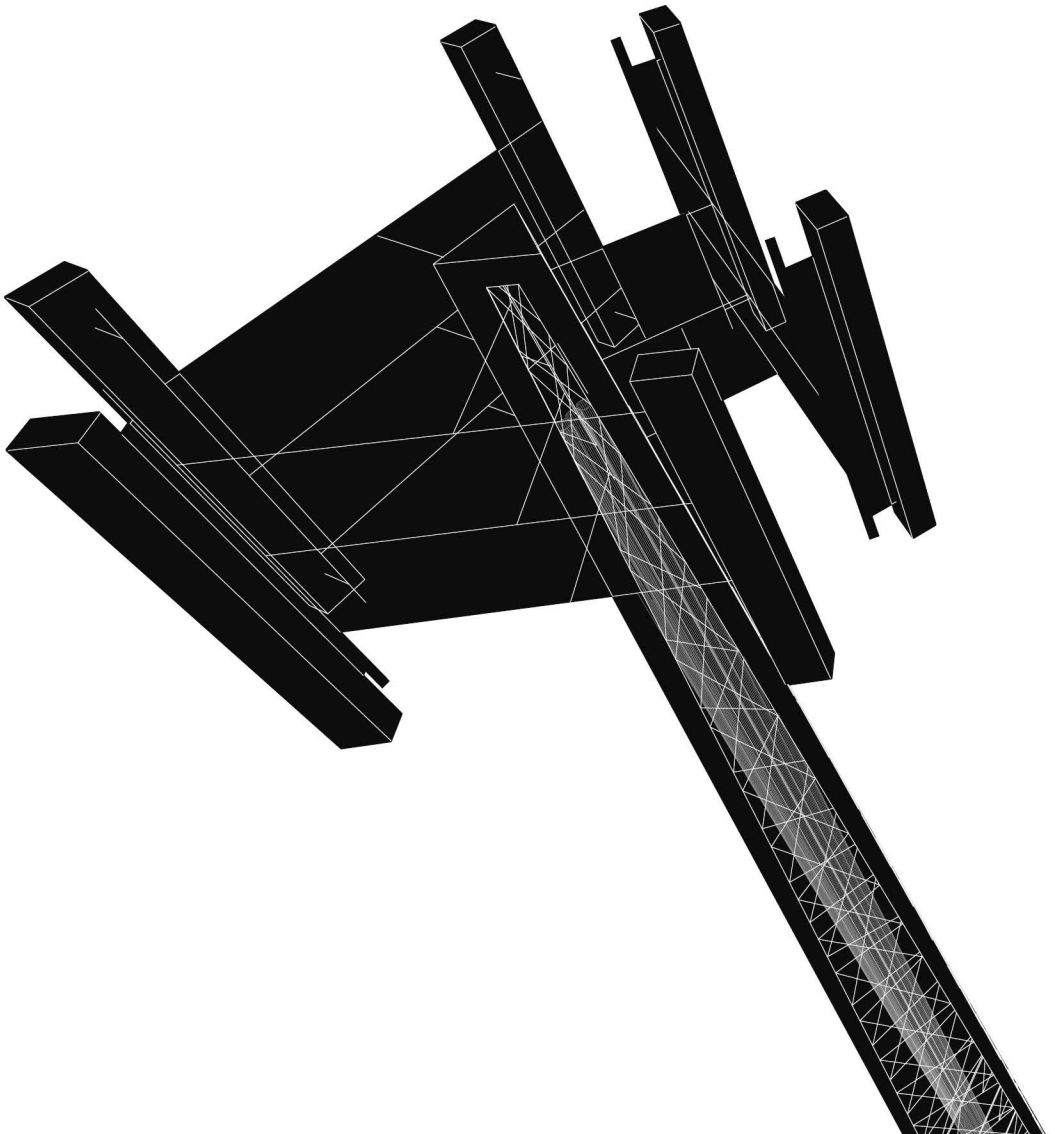
MOST EFFECTIVE STRATEGIES

DIRECT INVOLVEMENT DEVICES

NETTING PROTECTION DEVICES







[AUGMENTEDWILD]

This project proposes the creation of new cultural territories in the space between the real and the virtual. These territories are achieved by leveraging an existing infrastructure of Cell Towers – an infrastructure that enables the transmission and translation of massive amounts of data essential to our modern communication. This communication is achieved via a range of radio waves, a Latent Geography, which is invisible and intangible but present nonetheless.

Capitalizing on this latency, the project translates and makes tangible the Virtual geographies of radio, sound, and light waves to heighten the Physical geographies of slope, water and material flow which are always present on the site but which are not necessarily fully perceived. This overlay process defines Hybrid Territorial Zones of wildness along Sharp's Ridge in Knox County. Functionally, the project explores the intersections between the physical and the virtual enabled by the infrastructure of the cell tower and antennas that relay data and modify these hybrid territories, creating a new Augmented Wild. The Augmented Wild then responds and adapts to the external influences of these changing geographies.

These hybrid territories defining the Augmented Wild respond to the various frequency demands on cell towers driven by the activity of the users around it. Serving as infrastructure allowing for the direct interface between

the users and the zones, the Augmented Wild creates a Landscape of Event. This infrastructure is inherently open sourced, providing the ingredients for agents of change to Hijack the system – Hacking the frequencies in which the system is dependent.

SPRING2016

LOCATION Sharp's Ridge Knoxville, TN

PROFESSOR Gale Fulton

URBANIZATION PROJECTION 2020-2100

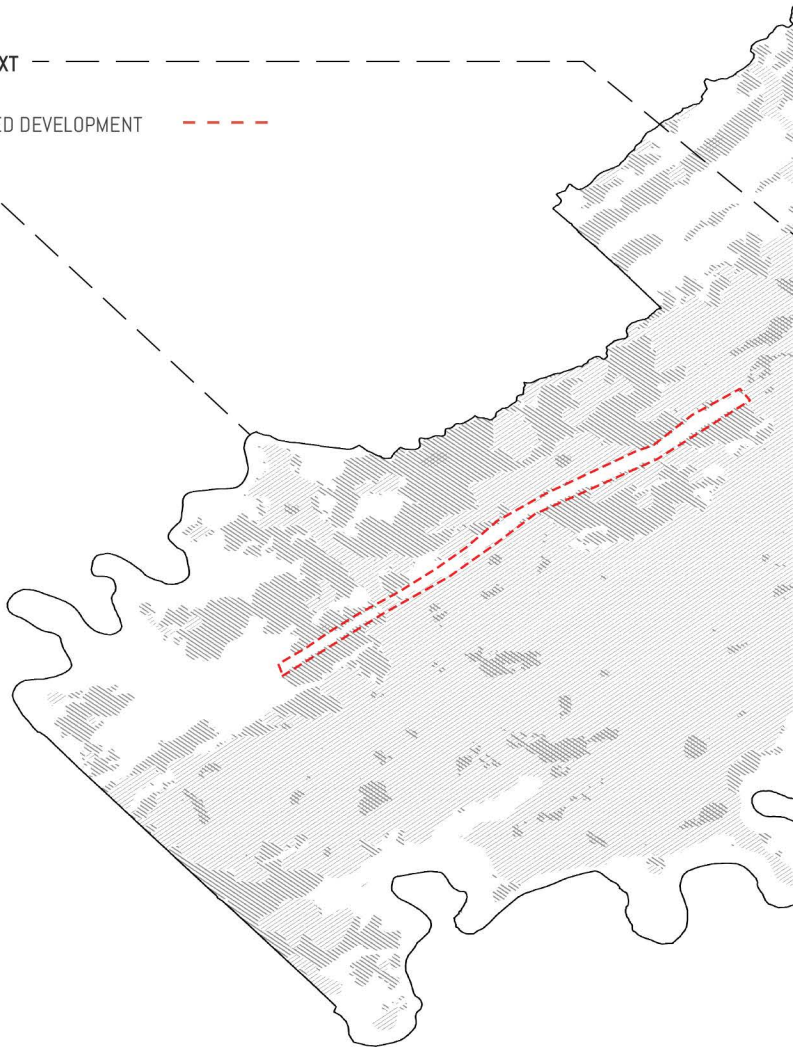
- RIDGES
- ▨ 2020
- ▨ 2100

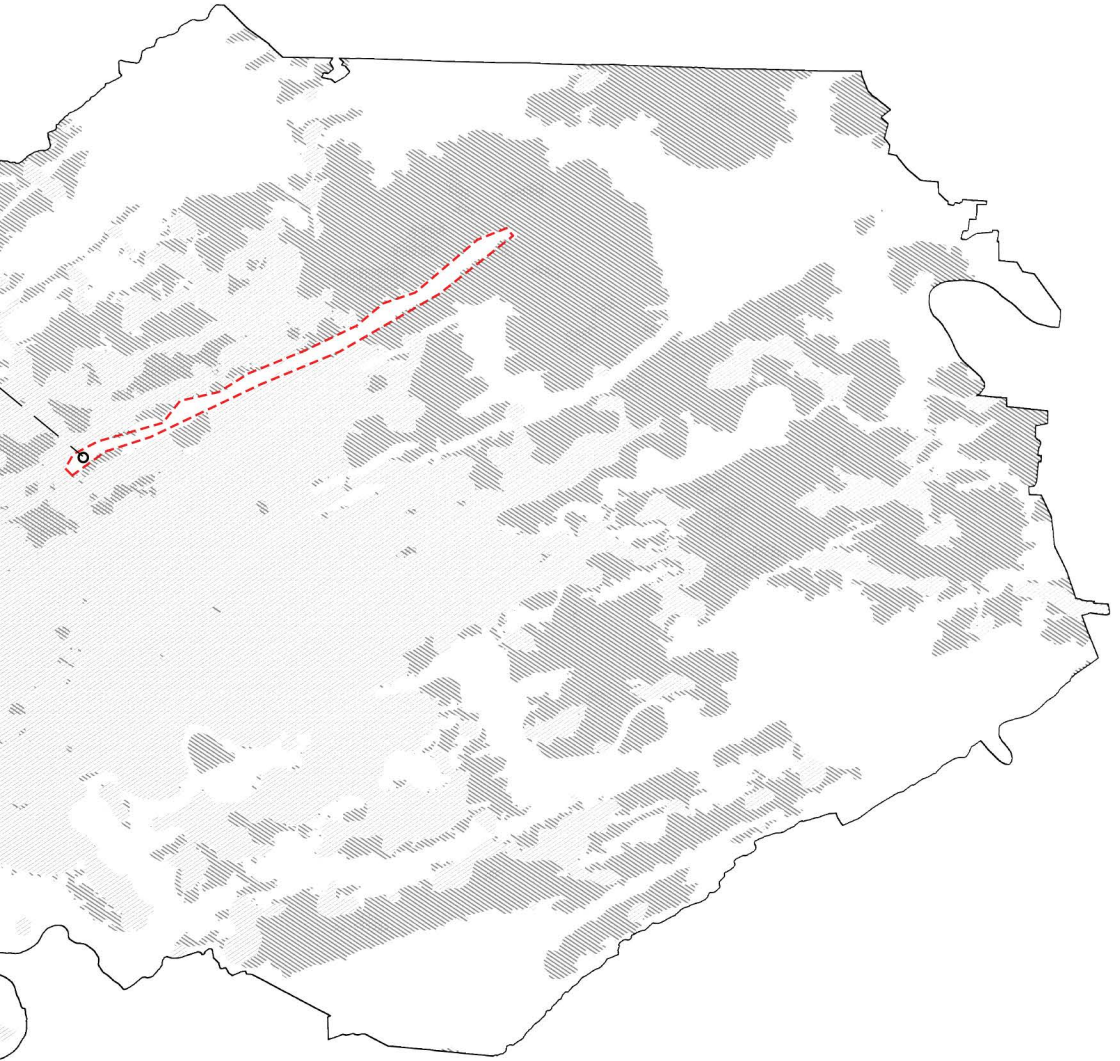
THE SITE IN CONTEXT

SHARP'S RIDGE

LACK OF PROJECTED DEVELOPMENT

KNOX COUNTY





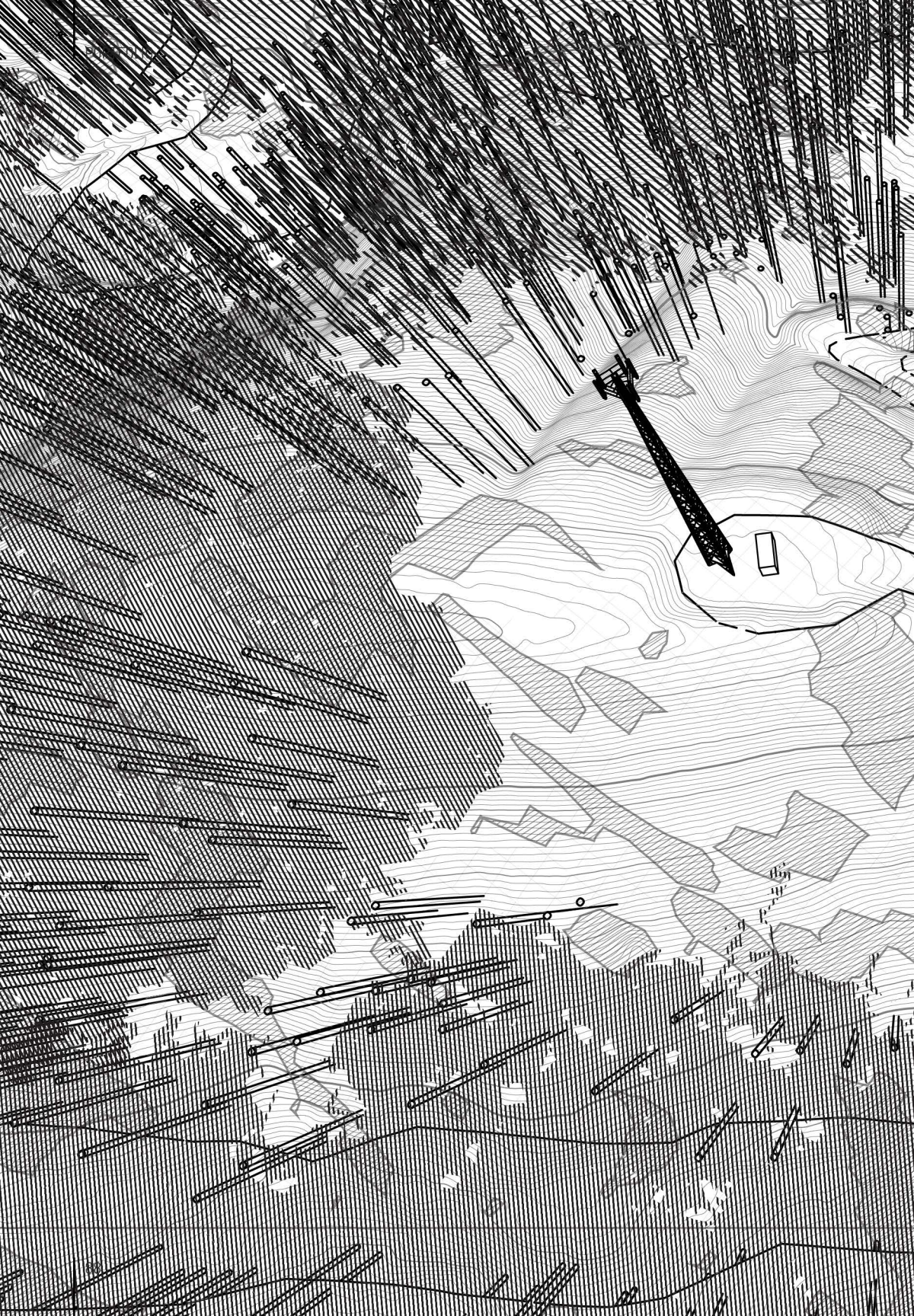




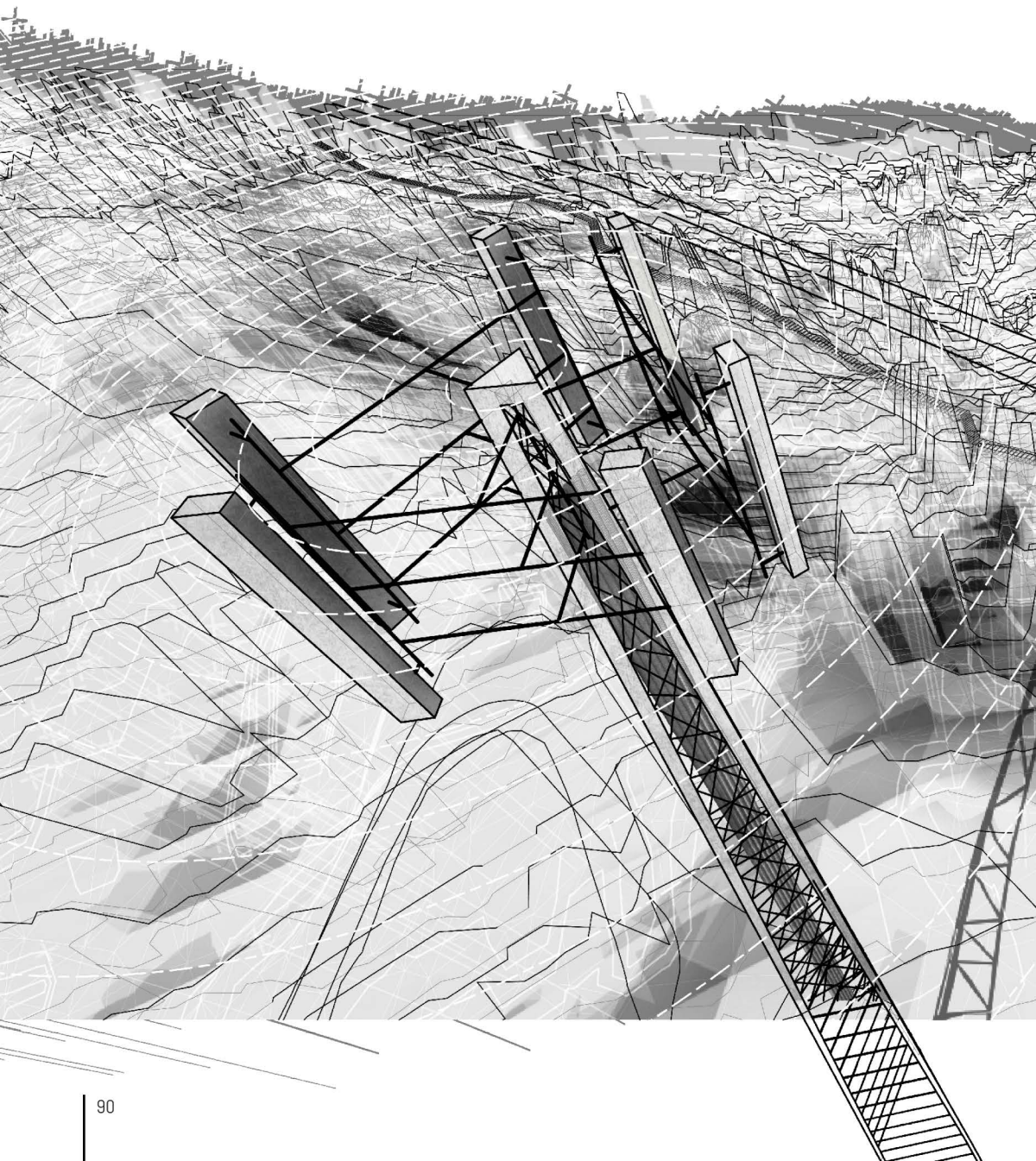
LANDSCAPE

100'

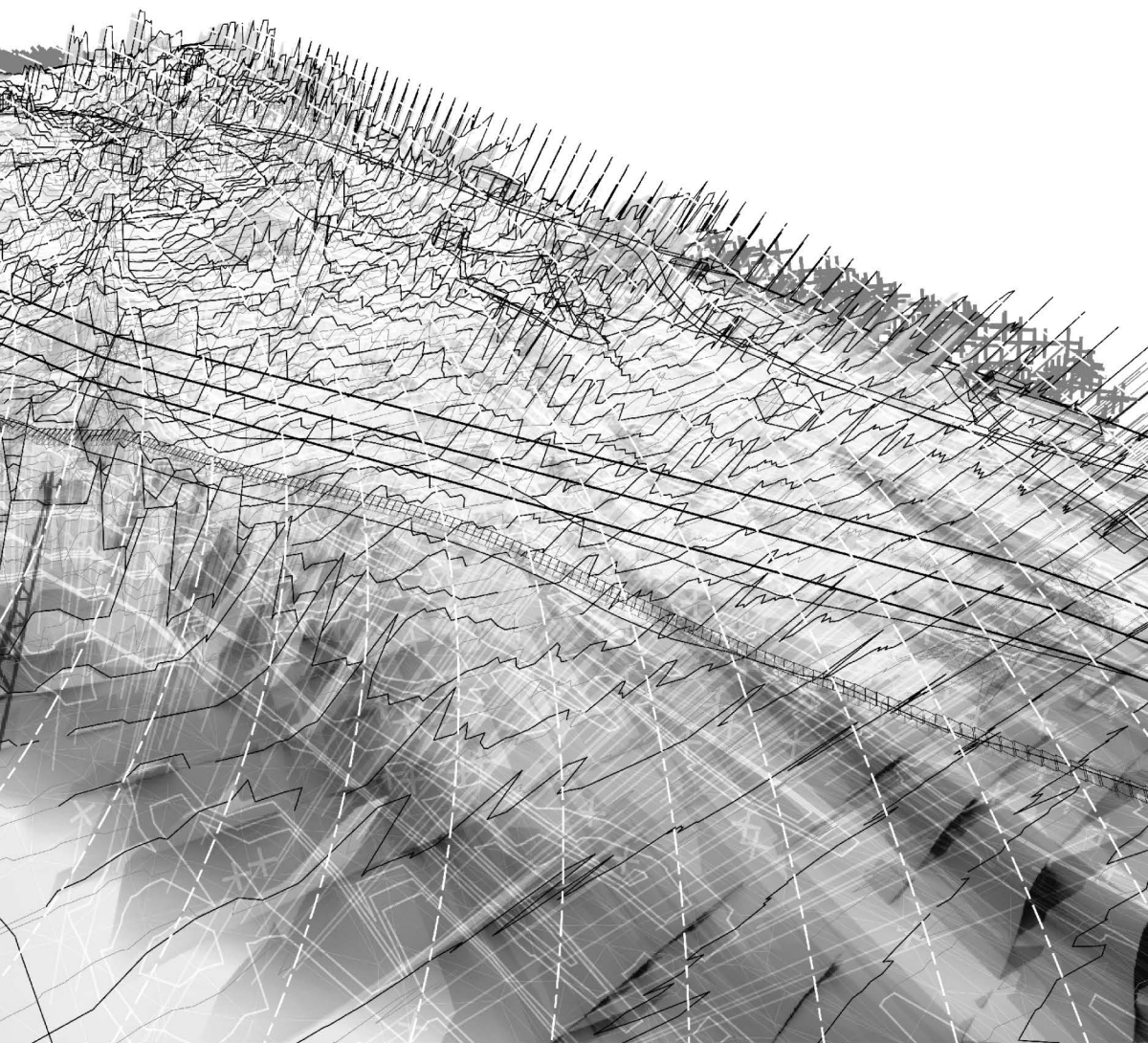
THE SITE
CELL TOWER
ANTENNA RECEIVERS

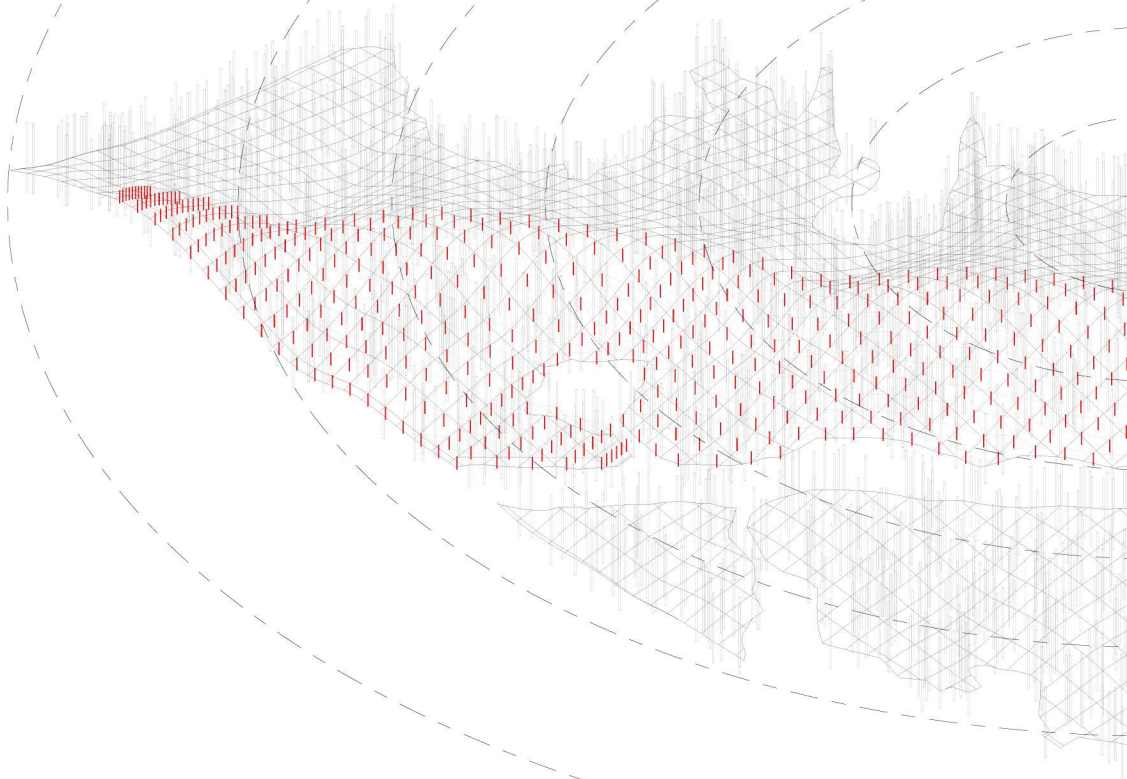


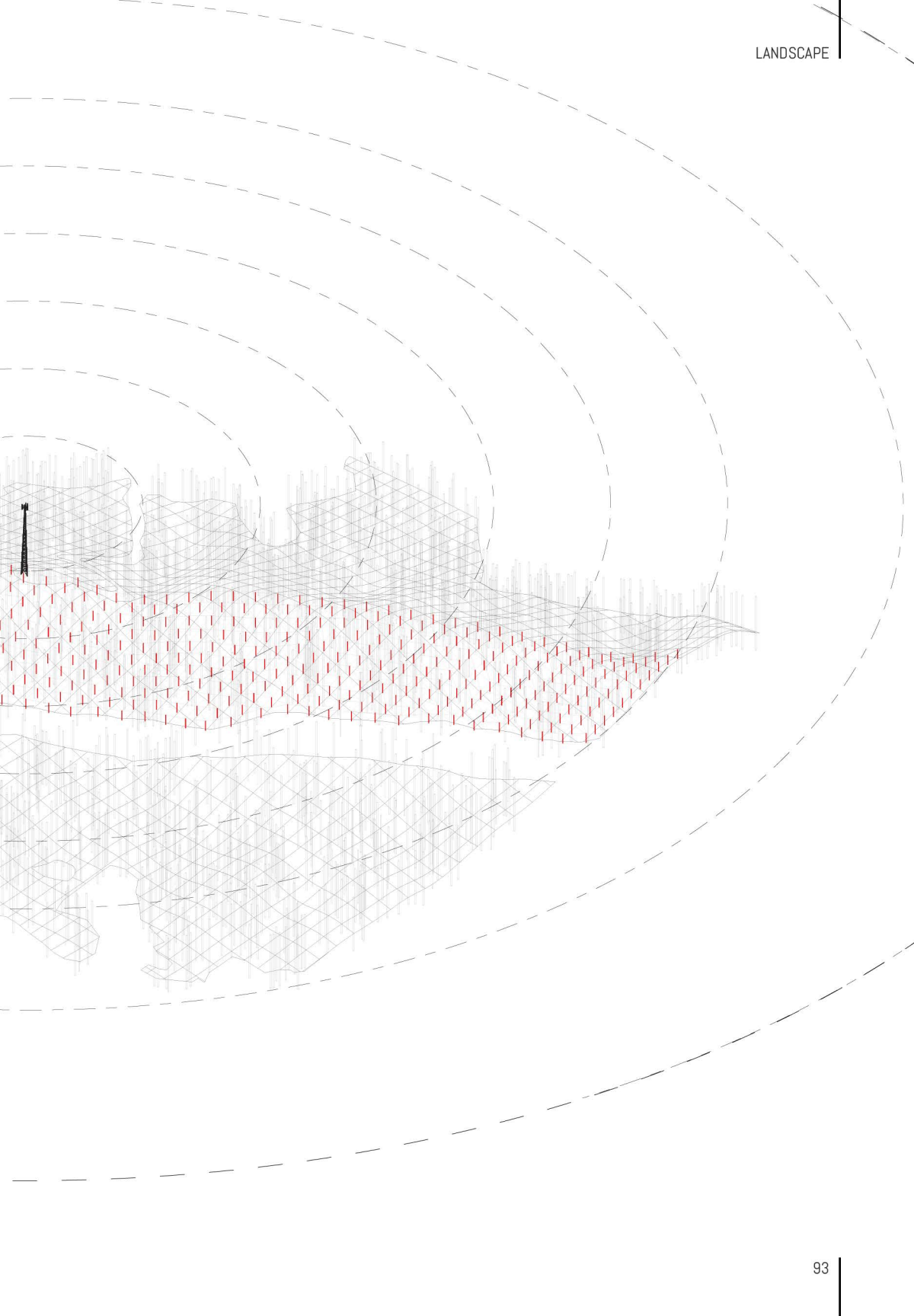




| VIRTUAL WILDNESS
| THE WAVES ARE ALL AROUND US
| JUST PAY ATTENTION





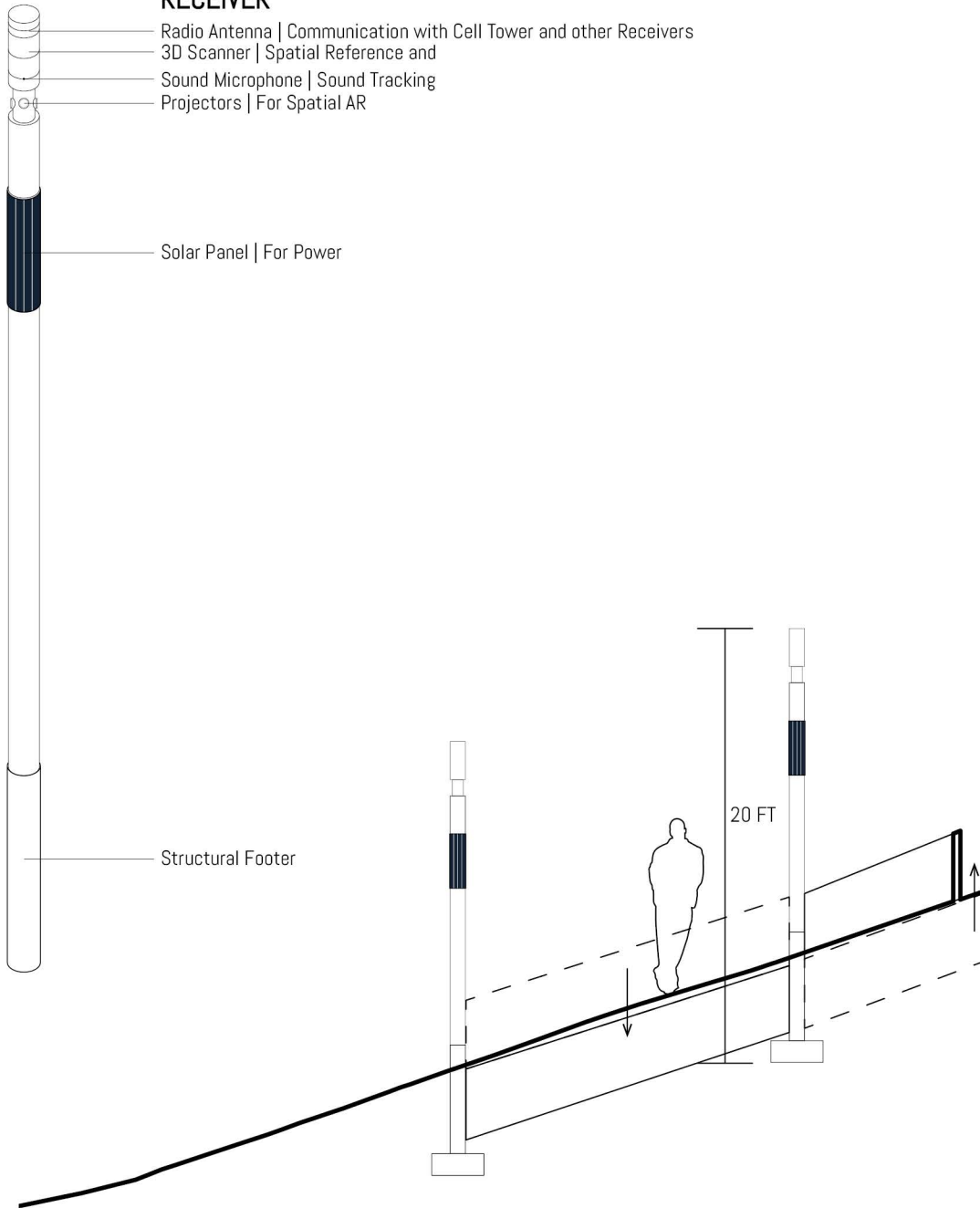


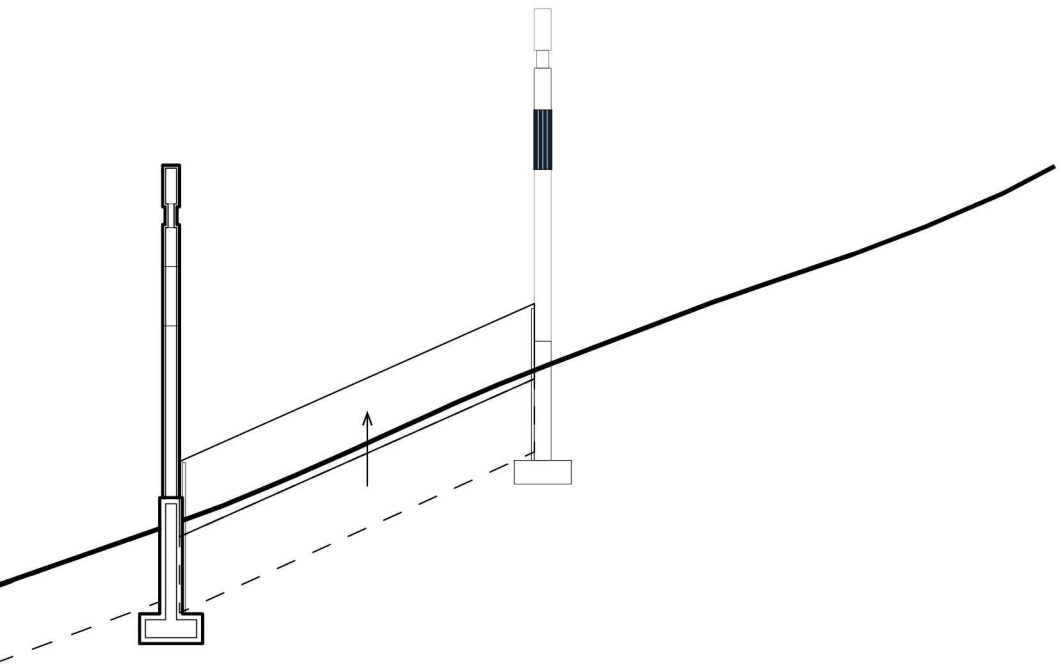
RECEIVER

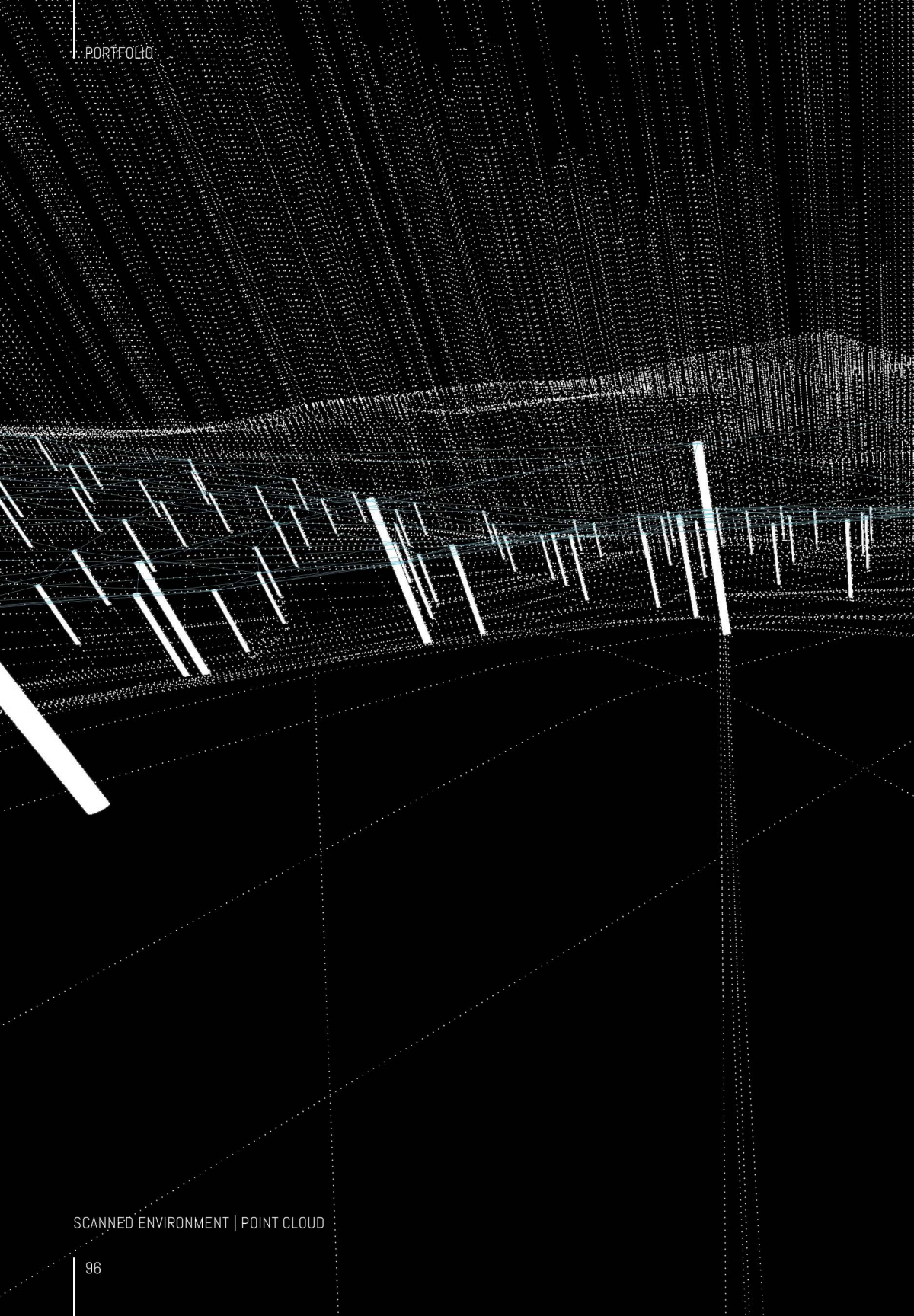
- Radio Antenna | Communication with Cell Tower and other Receivers
- 3D Scanner | Spatial Reference and
- Sound Microphone | Sound Tracking
- Projectors | For Spatial AR

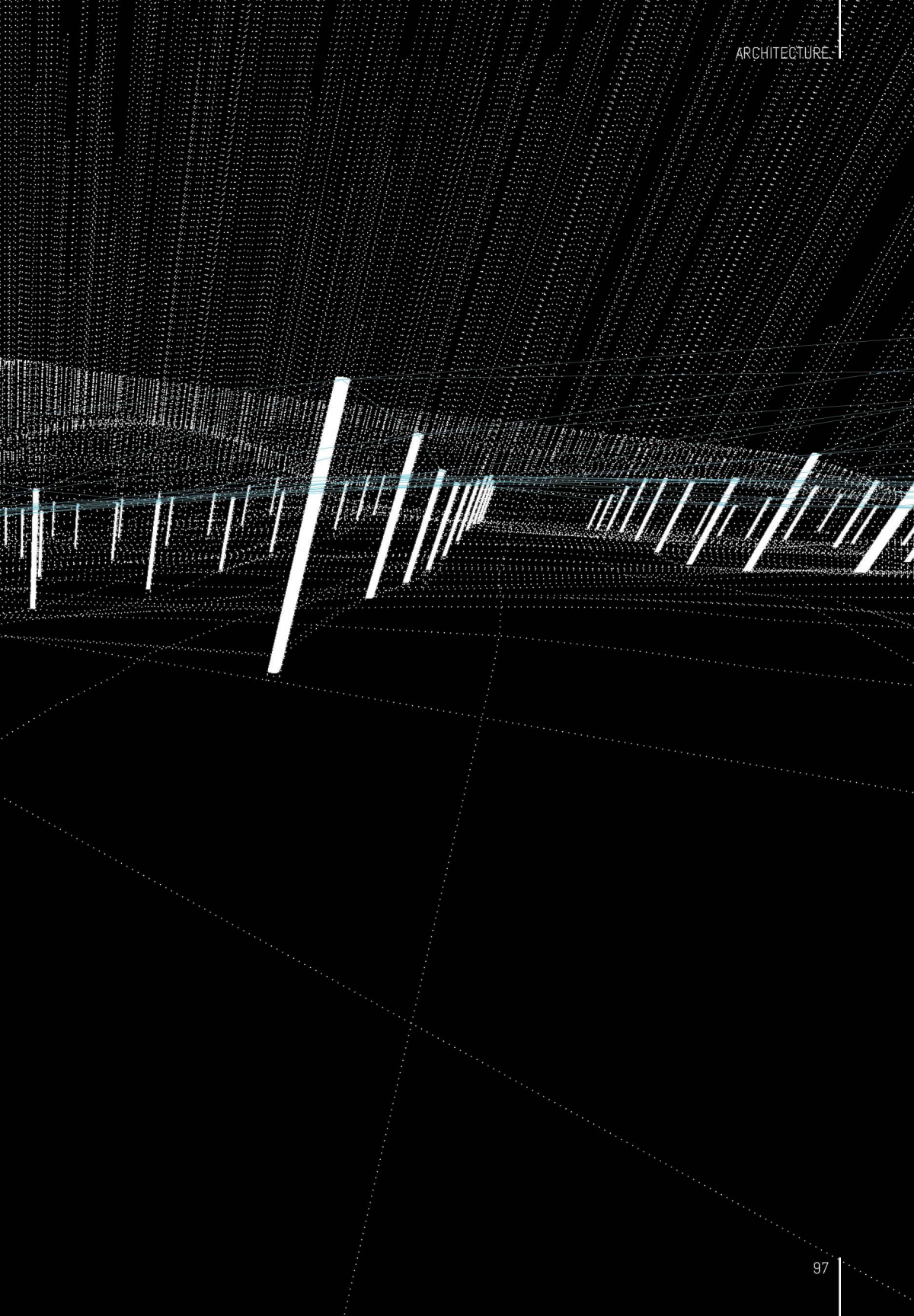
Solar Panel | For Power

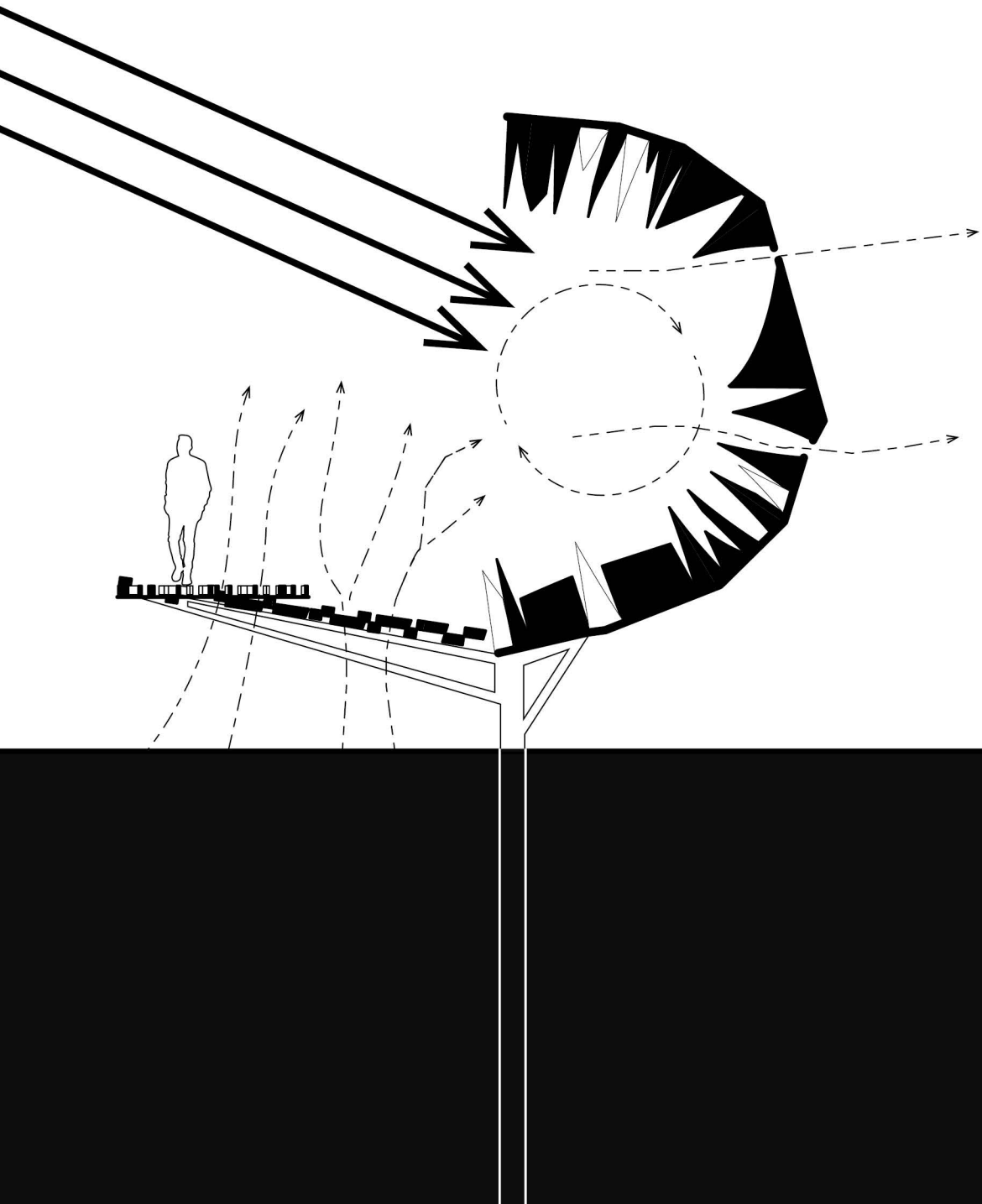
Structural Footer











[WEDGEDPIER]

The Wedged Pier is a wet infrastructure that explores digital representation techniques through tectonic interventions that interface between architecture, landscape and ecologies; speculating on new formal and spatial relationships.

The pier harnesses solar energy from the sun in order to clean the water from the TN River. The pier's design creates a paneled facade to maximize surface area along its walls. The arrayed modules take principles from anechoic chambers and are dark in order to absorb as much sun light energy as possible. The immense heat emitted from the pier in turn generates massive amounts of steam pulling water out of the TN River in order to clean it.

The pier is open to public use but is not for the faint of heart as the sauna like heat can be overwhelming during certain times of the year.

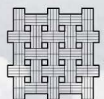
SPRING2016

LOCATION Knoxville, TN

PROFESSORS Gale Fulton, Roger Hubeli, Julie Larsen







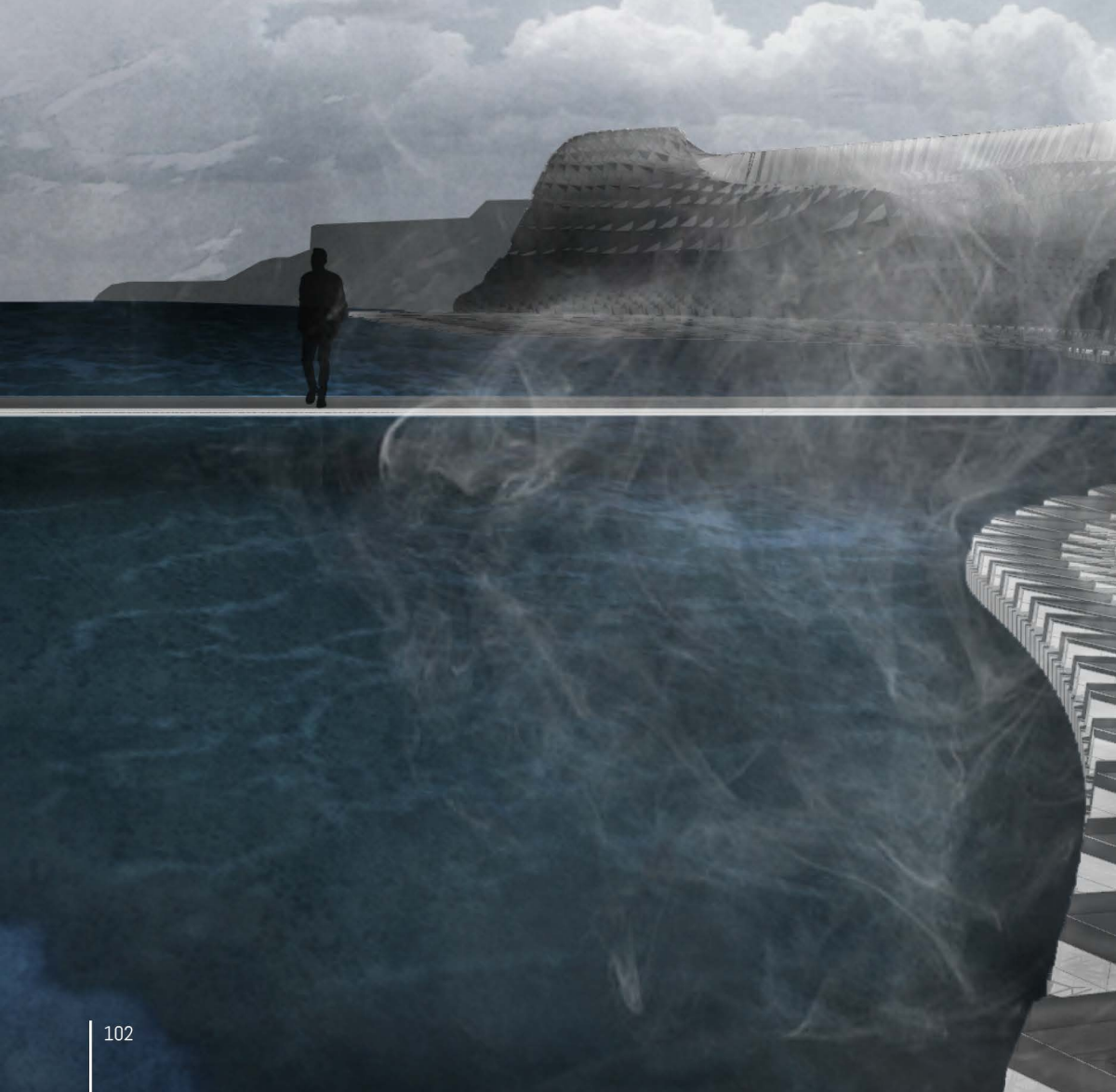
ANECHOIC WALL MODULE

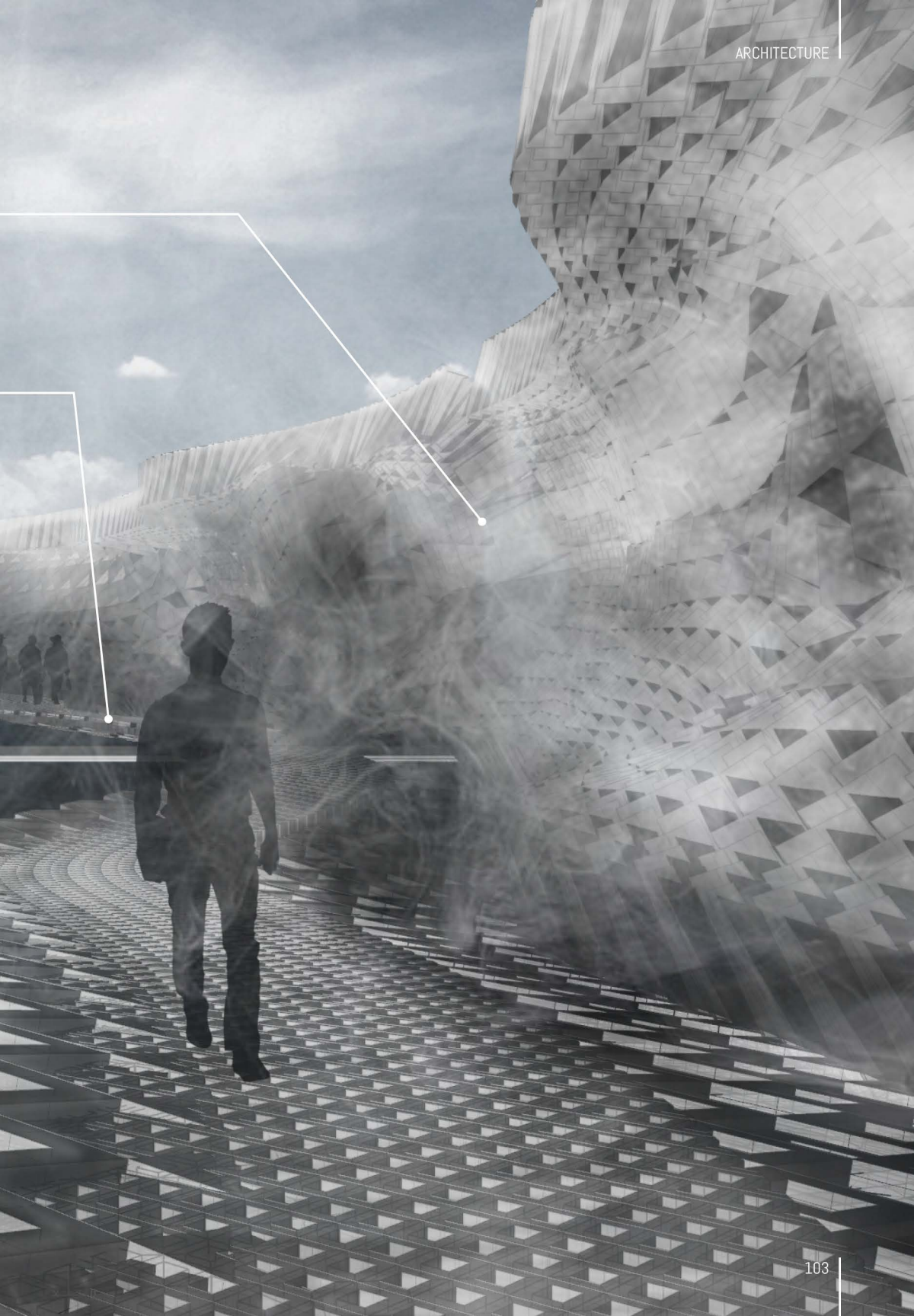
ANECHOIC WALL PATTERNS



WALKWAY POROUS MODULE

WALKWAY POROUS PATTERNS





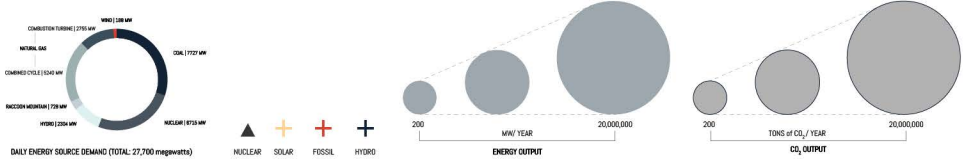
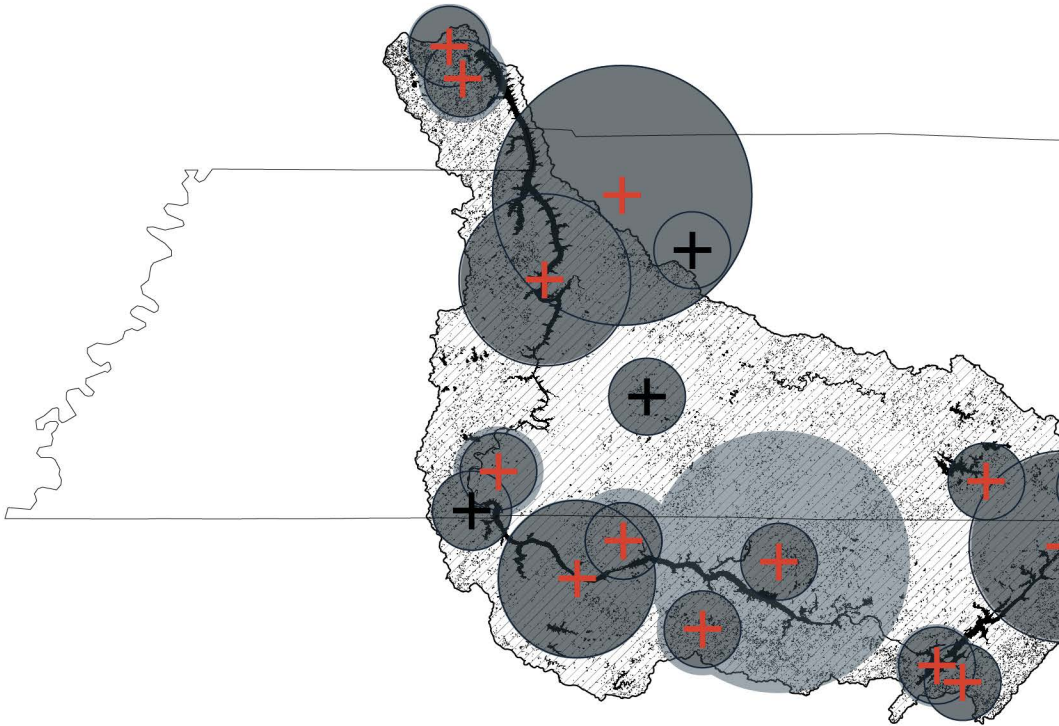
MAPPING 03

ENERGY LANDSCAPE |

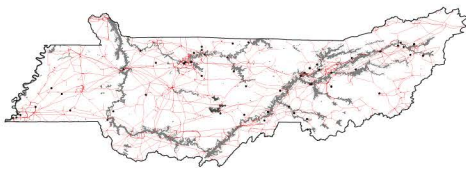
ENERGY TYPOLOGY |

RAPID RENEWAL - MI WATERSHED |

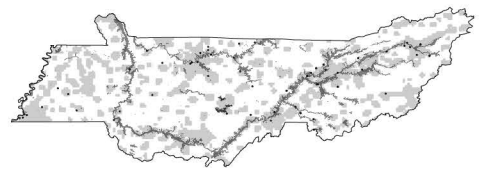
RAPID RENEWAL - CDL |



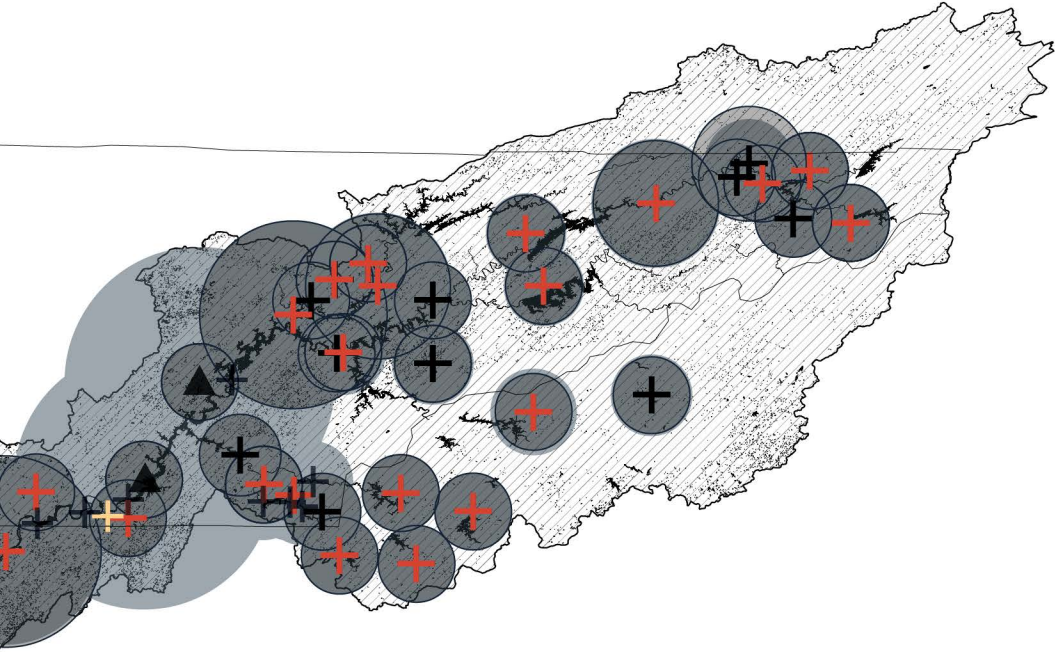
ENERGY OUTPUT | CO2 OUTPUT



• POWER PLANTS
— POWER LINES
POWER TRANSMISSION



• POWER PLANTS
■ POWER DEMAND
ENERGY DEMAND



ENERGY LANDSCAPE

The Tennessee Valley Authority (TVA) had an enormous impact on both the economic and energy development of Tennessee and most of the Southeast. Through a series of large scale industrial infrastructure, during the 1930's-1950's, TVA not only provided much needed power to the Valley but also flooding control of the Tennessee River which flooded often with devastating results.

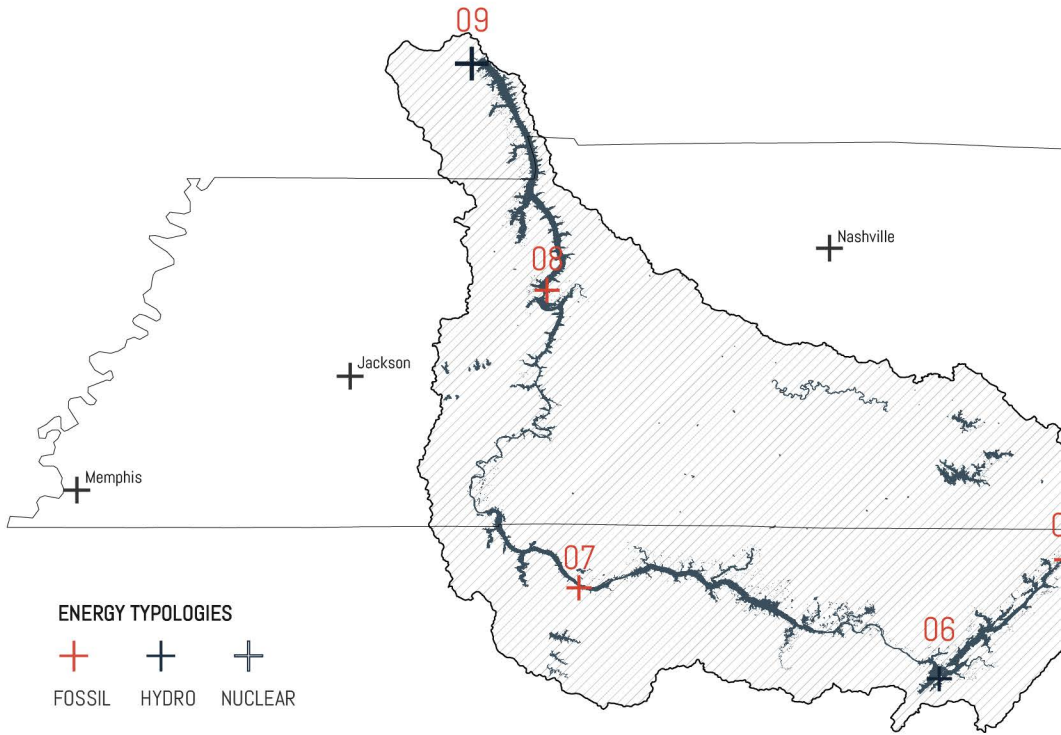
The energy diversity of TVA extended not just to hydro-electric power but also fossil fuels, like coal, and nuclear. Coal provides the majority of energy generation as well as the majority of carbon emissions as shown in the main map.

At the moment TVA's service area provides energy for over 9 million people and the great majority of that energy is generated from none renewable resources. This doesn't seem like it will change anytime soon as the only source of energy storage is at Raccoon Mountain which stores energy by pumping water up a hill when

there is a surplus of energy and the releasing that water down the hill using gravity to turn the turbines when demand is higher. There is only a 20% loss of energy in this storage method but the infrastructure and grid are simply not designed with the capability of storing excess energy for later use.

This means the sources of energy, like wind or solar are barely used in the TVA service area. One source the TVA are heavily looking into is natural gas which is proving cleaner and more abundant than coal, but not by much.

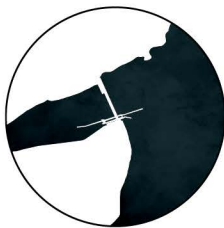
Nuclear produces almost as much energy as does coal but due to the rising temperature of the climate, the water in the TN River may become too hot for the Nuclear plants to operate thus limiting the use of this energy resource in the Tennessee Valley.



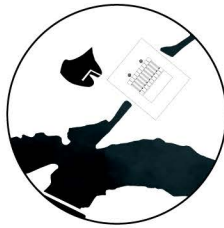
ENERGY LANDSCAPE CONT.

The TN River has been greatly modified by the TVA to not only control flooding for the valley but to also generate energy. The Dams along the river generate clean energy but not nearly as much as the fossil fuel plants placed along the river which also depend on close proximity to the river for dampening of coal ash.

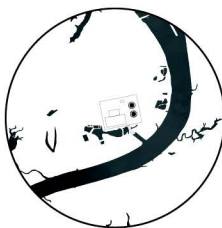
These sources are just generating enough energy for current demands but will struggle with warming waters and increase population. New river typologies will need to be made to tackle these issues.



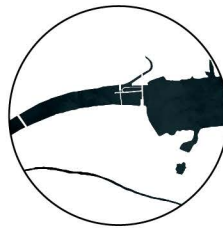
01 |



02 |



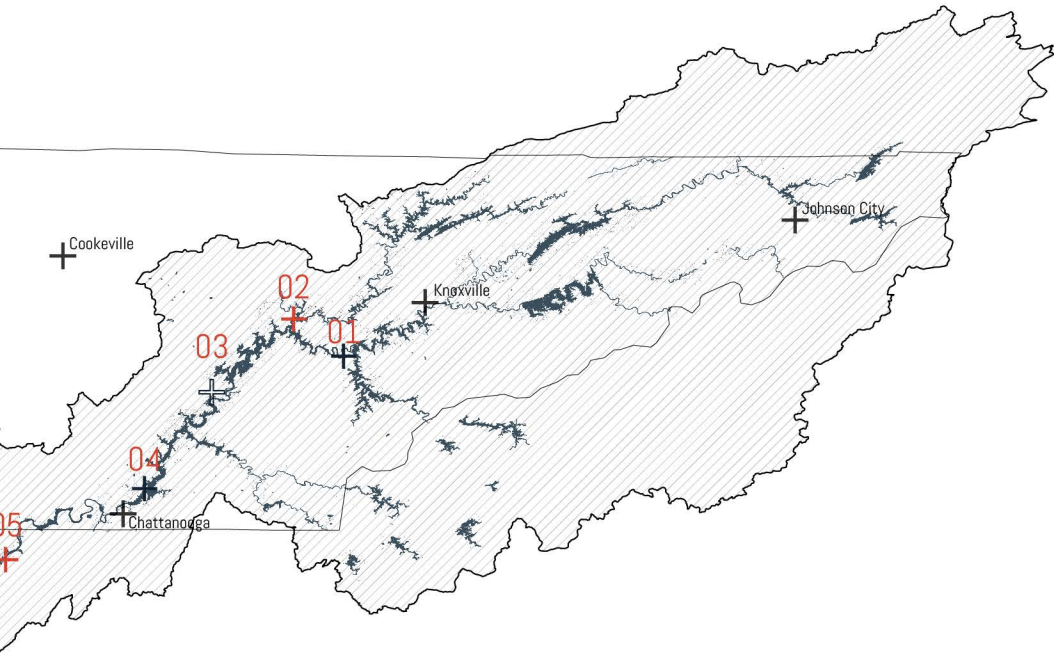
03 |



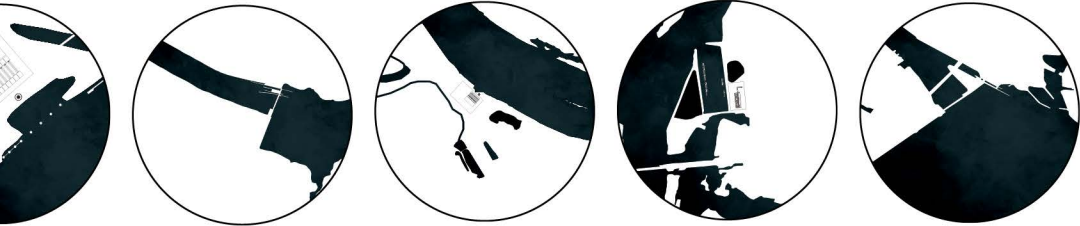
04 |



05 |

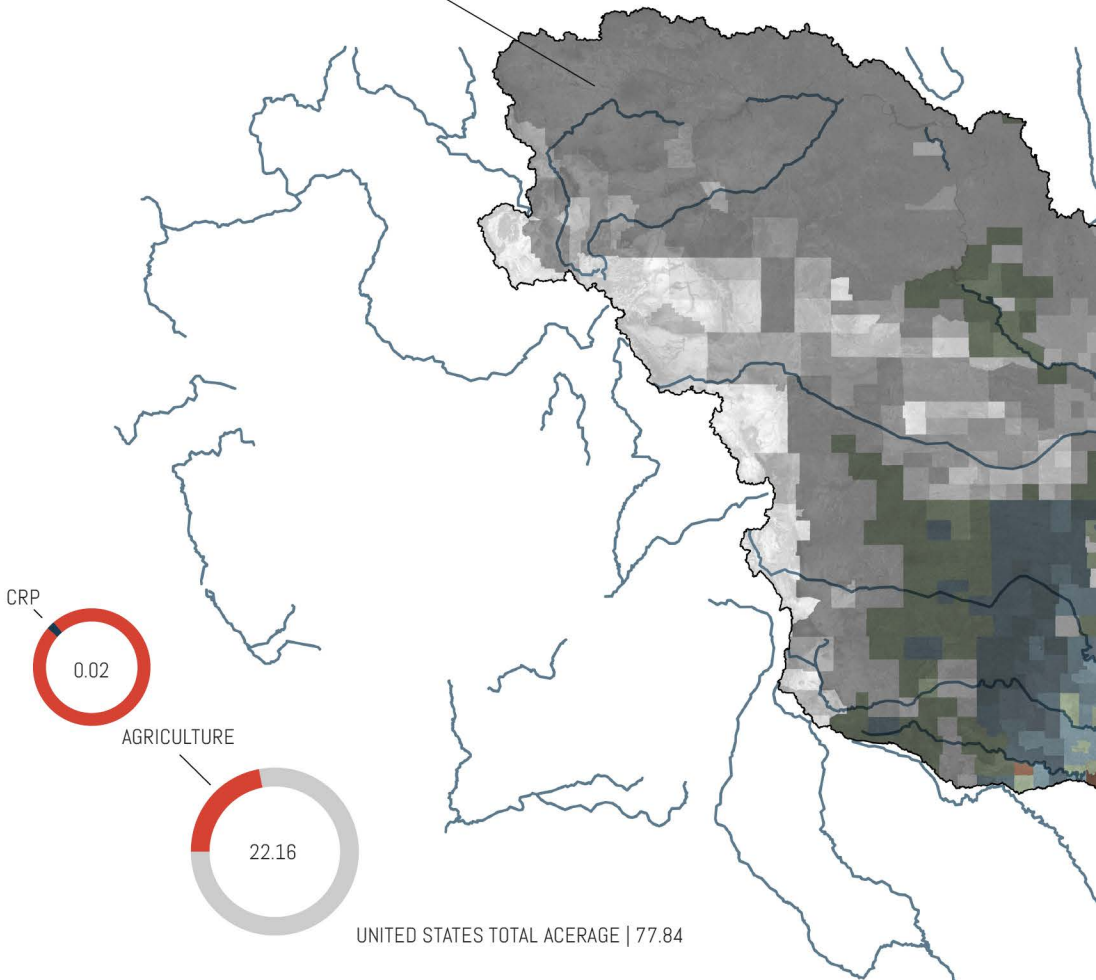


- 01 | FORT LOUDOUN DAM + LOCK
- 02 | KINGSTON FOSSIL PLANT
- 03 | WATTS BAR NUCLEAR
- 04 | CHICKAMAUGA DAM + LOCK
- 05 | WIDOWS CREEK FOSSIL PLANT
- 06 | GUNTERSVILLE DAM + LOCK
- 07 | COLBERT FOSSIL PLANT
- 08 | JOHNSONVILLE FOSSIL PLANT
- 09 | KENTUCKY DAM



5 | 06 | 07 | 08 | 09 |

MISSISSIPPI RIVER WATERSHED



RAPID RENEWAL IN MISSISSIPPI RIVER WATERSHED

Traditional CRP emphasizes the conservation and recharge of exhausted farmland by planting prairie grasses and specific trees. Unfortunately, the carbon sequestration and soil nutrient deposition process takes 10-15 years, which is far too much time. Rapid Renewal aims to recharge the land faster, 3-5 years, by using plants like bamboo and switchgrass, which sequester 35% more carbon and double water retention, in concert with landform manipulation to achieve this goal.

2,430,080,000

TOTAL ACERAGE OF THE UNITED STATES

534,617,600

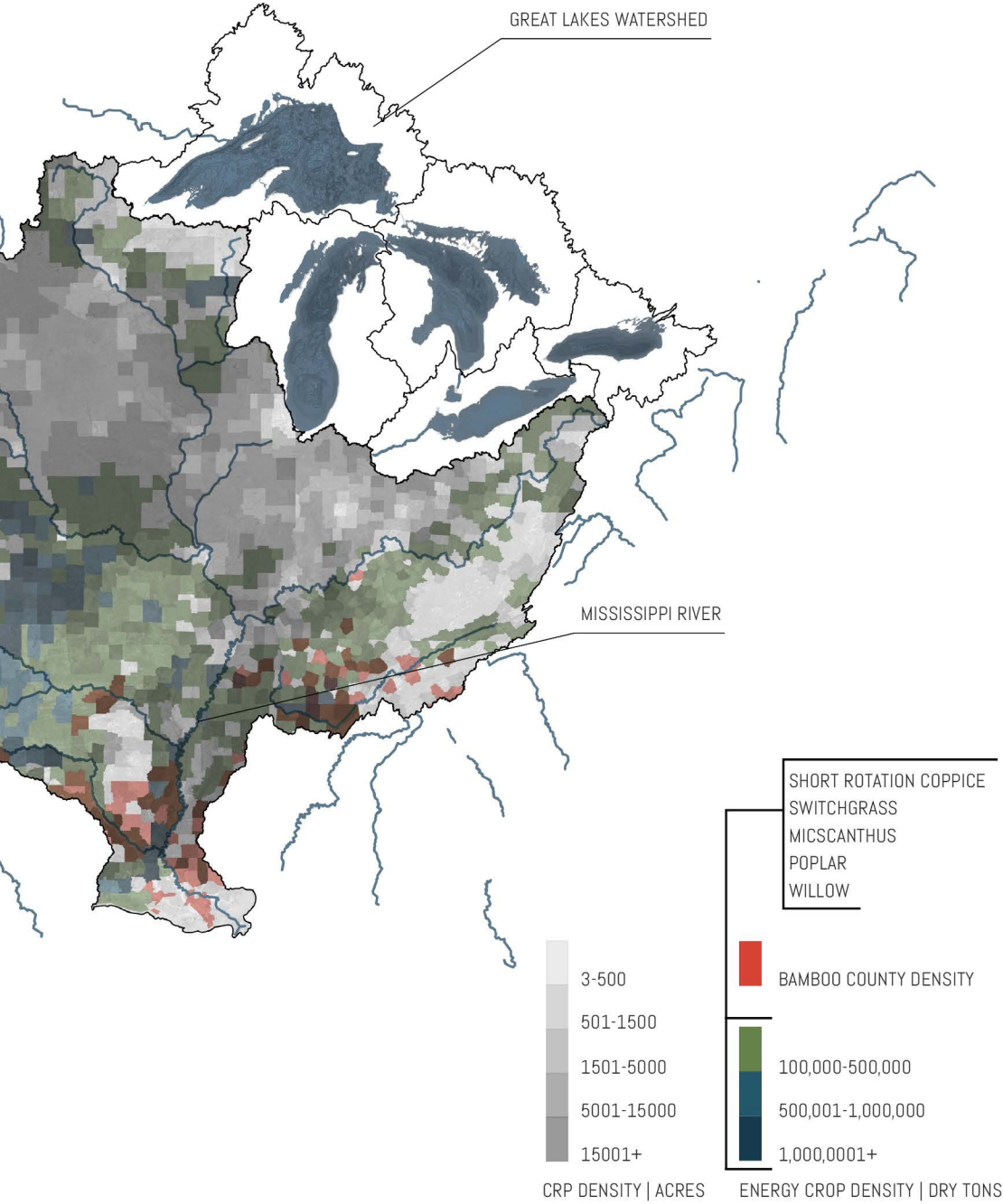
ACRES OF AGRICULTURE

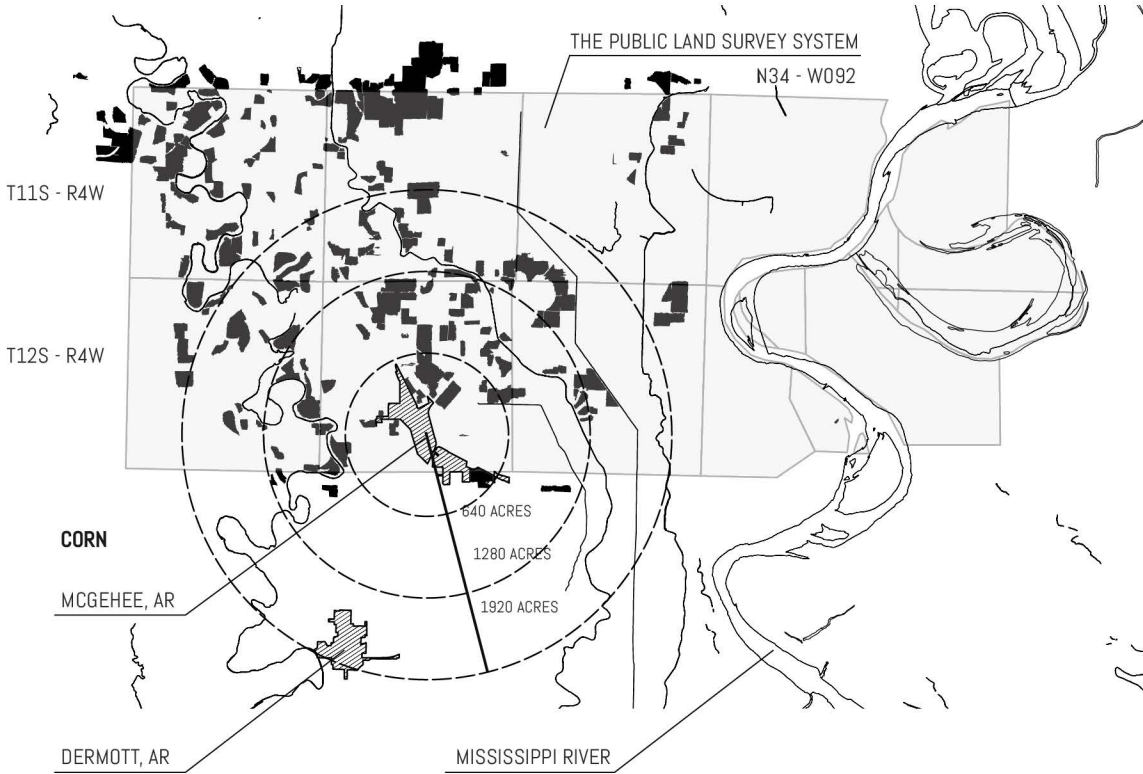
12,970,000

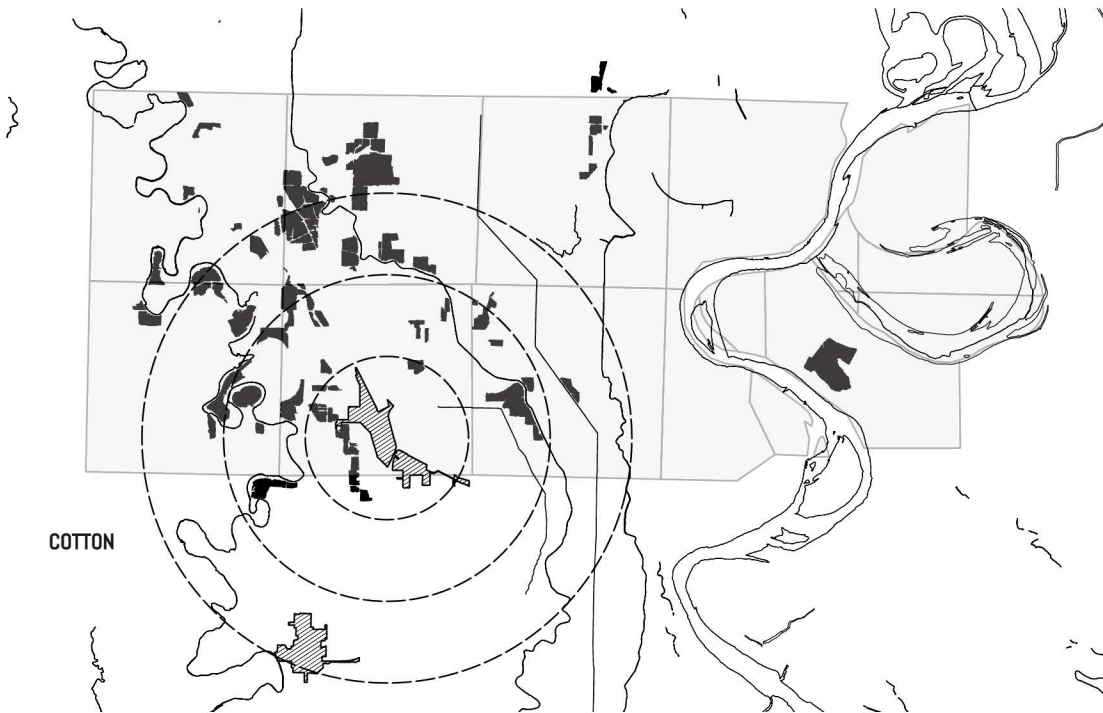
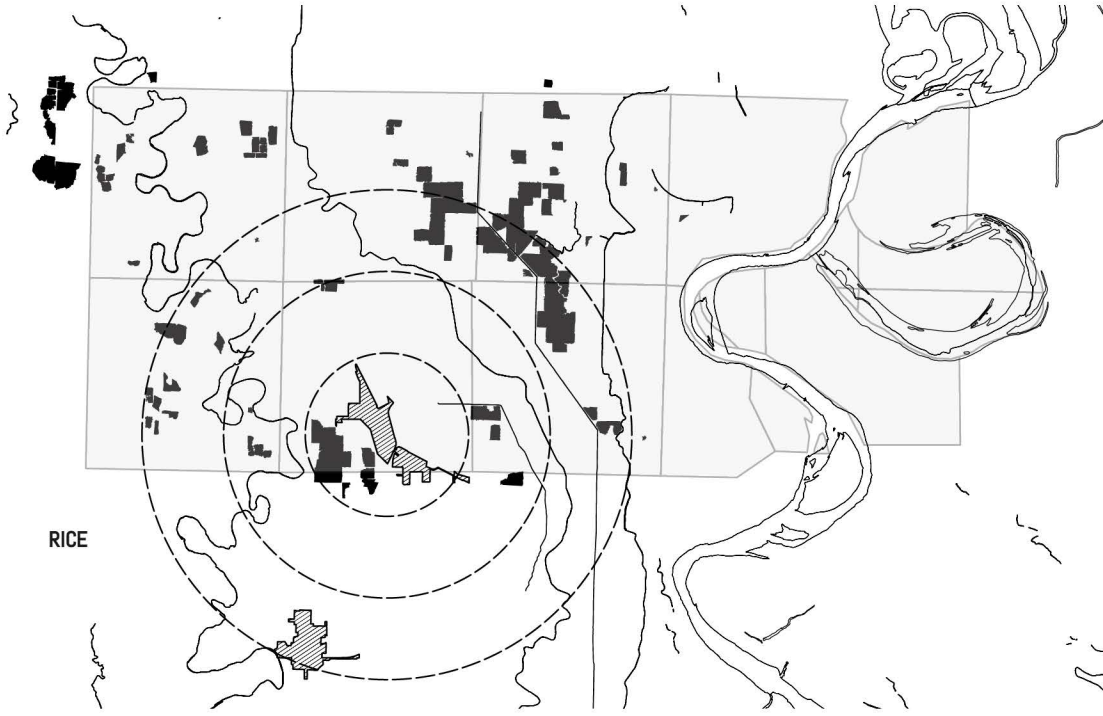
ACRES OF CRP

0.005%

TOTAL US ACERAGE TO CRP



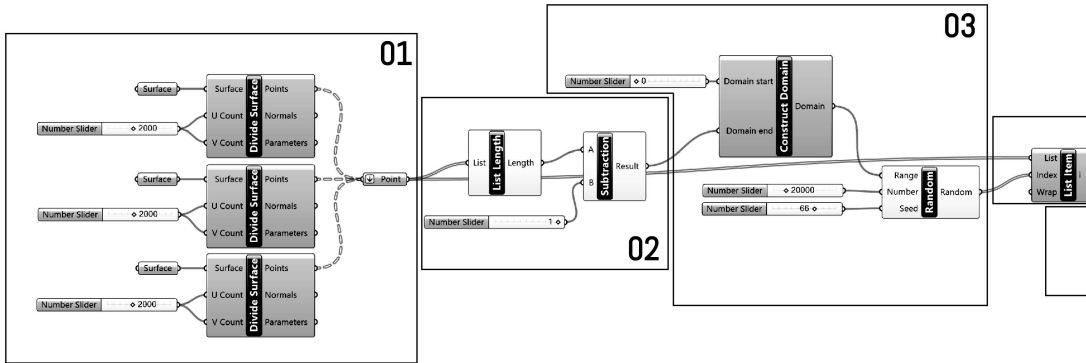




PARAMETRIC 04

RANDOM TREE GENERATOR |

CREATING TREE SURFACE |
DIVIDING SURFACE INTO POINTS |
RANDOMIZE SURFACE POINTS |
EXTRUDE POINTS AND RANDOMIZE HEIGHT |



RANDOM TREE GENERATOR | VERSION 01

PROGRAMS NEEDED

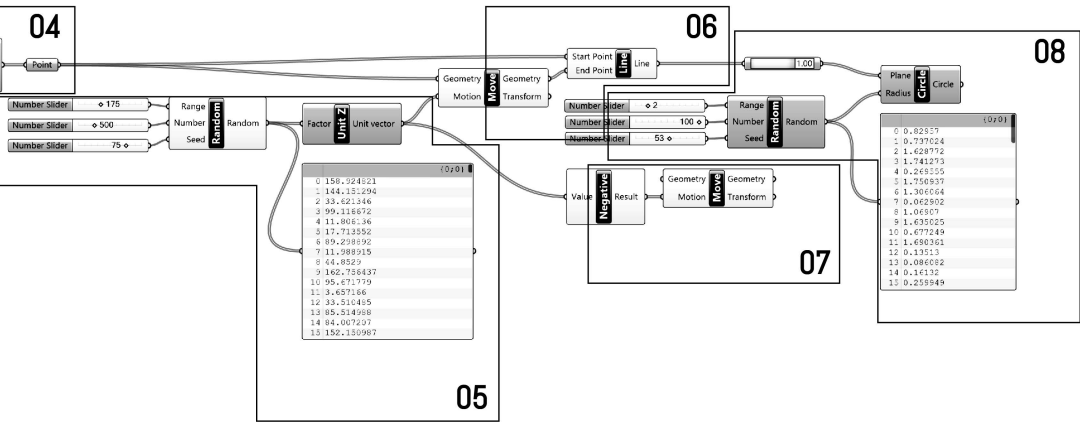
RHINO 5

GRASSHOPPER

SOURCES

Paul Bamson | MLA UTK

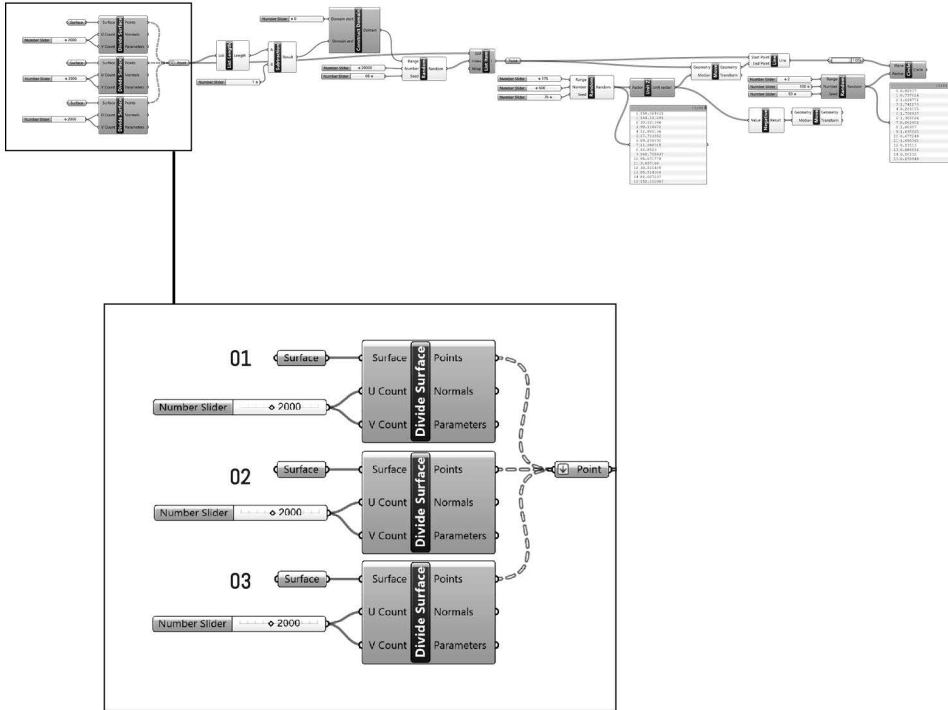
More scripts like this found in the publication [THINK LIKE A CODER]



INPUT
↓
COMMANDS
↓
OUTPUT

THE SCRIPT

- 01 INPUT SURFACES DIVIDED INTO POINTS
- 02 POINTS TO LISTS
- 03 RANDOMIZED DOMAIN FROM LIST
- 04 SELECTED POINTS FROM RANDOMIZATION
- 05 EXTRUDED POINTS AT RANDOMIZED HEIGHTS
- 06 LINES CONNECTED ORIGINAL POINTS TO EXTRUDED POINTS
- 07 ROOT SYSTEM
- 08 RANDOMIZED TREE CANOPIES



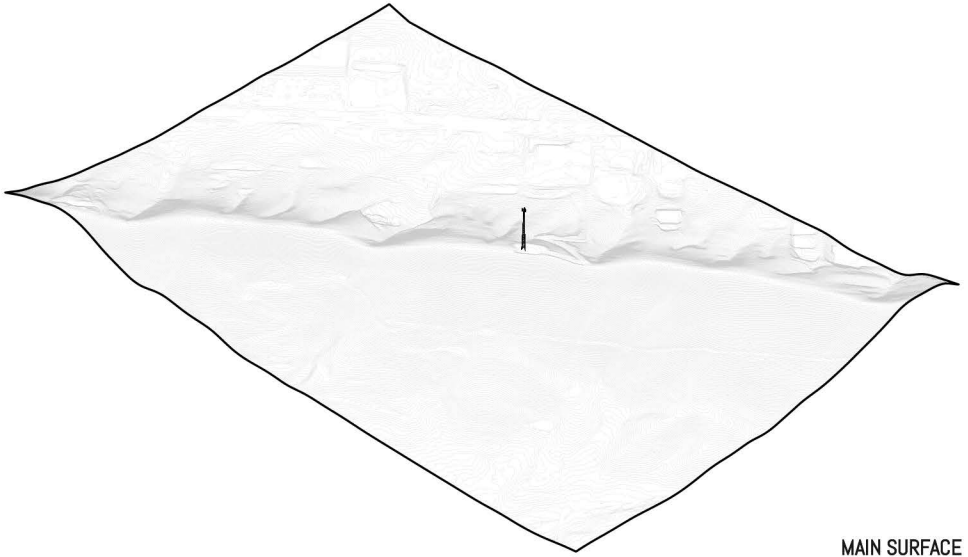
01 | INPUT SURFACES (TREE AREAS)

THE INITIAL INPUT

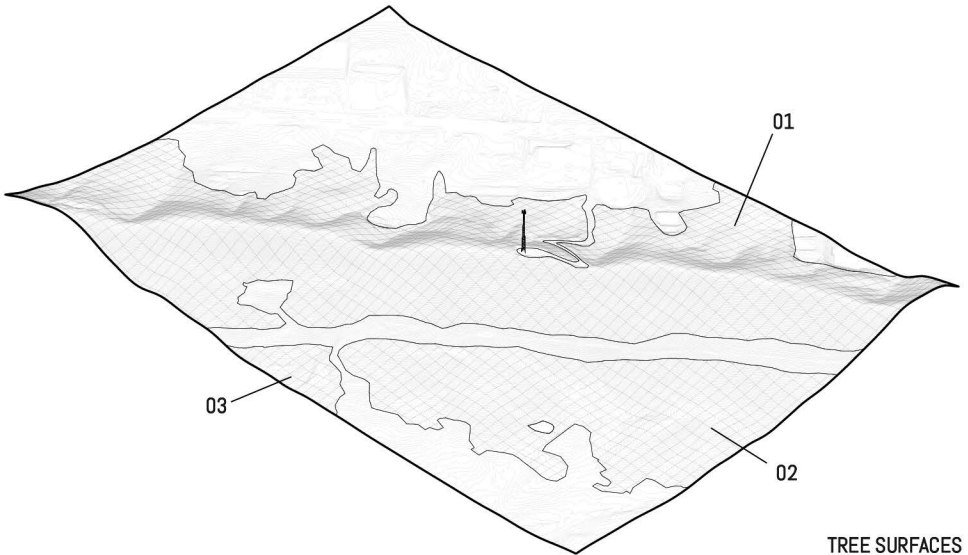
The script starts with the initial surface of the site modeled in RHINO 5. The script in Grasshopper needs the specific surfaces where the trees will be located. I split the main surface into it's respective parts where the trees are located. In this case it is three different surfaces. These surfaces are then divided into their respective points determined by the number sliders plug-in into the U and V inputs.

TIP

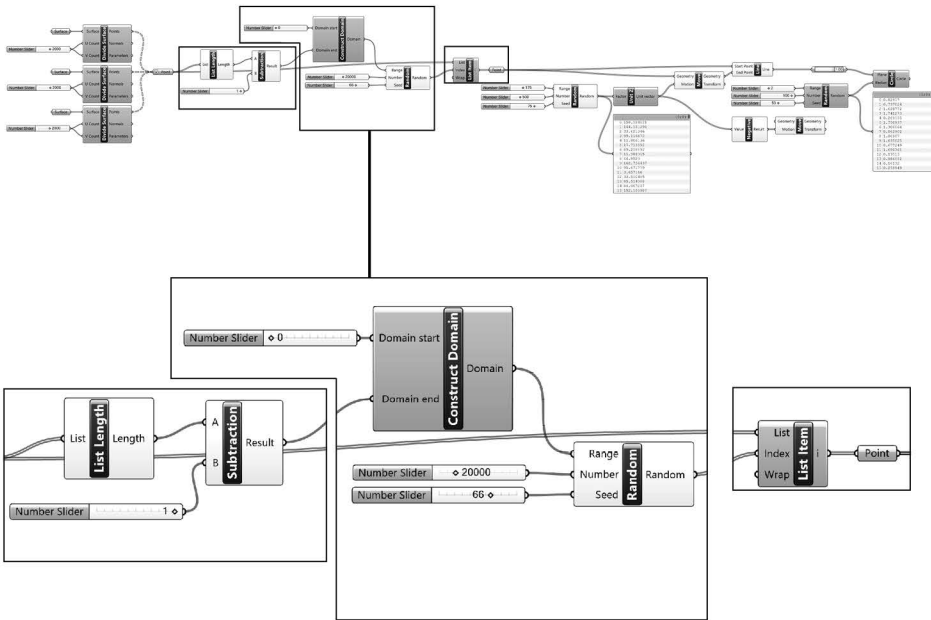
You can add as many surfaces as you like to the input portions of the script. Just be aware of the that surfaces of varying sizes should use proportional point divisions. Apply as necessary.



MAIN SURFACE



TREE SURFACES



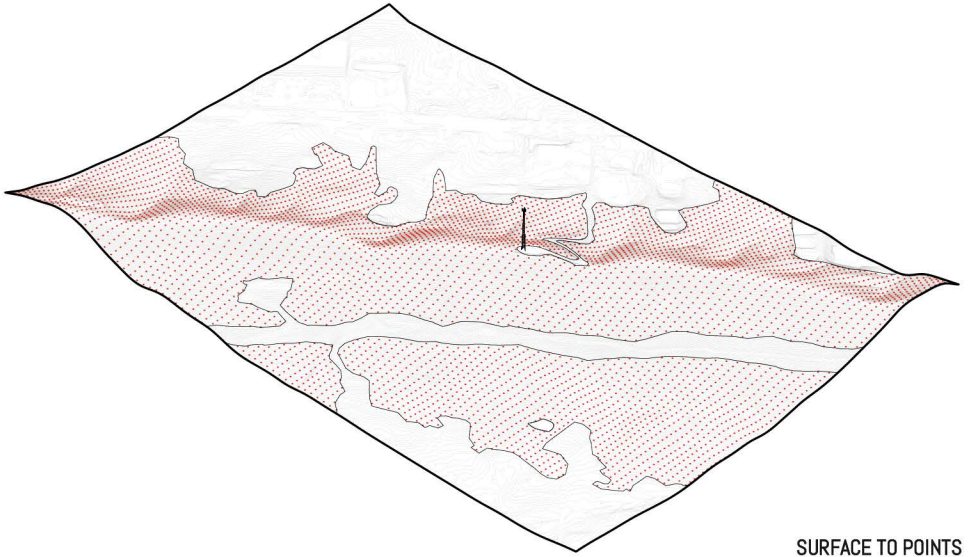
02 | SURFACE POINTS (TREE LOCATIONS)

RANDOMIZING TREE LOCATIONS

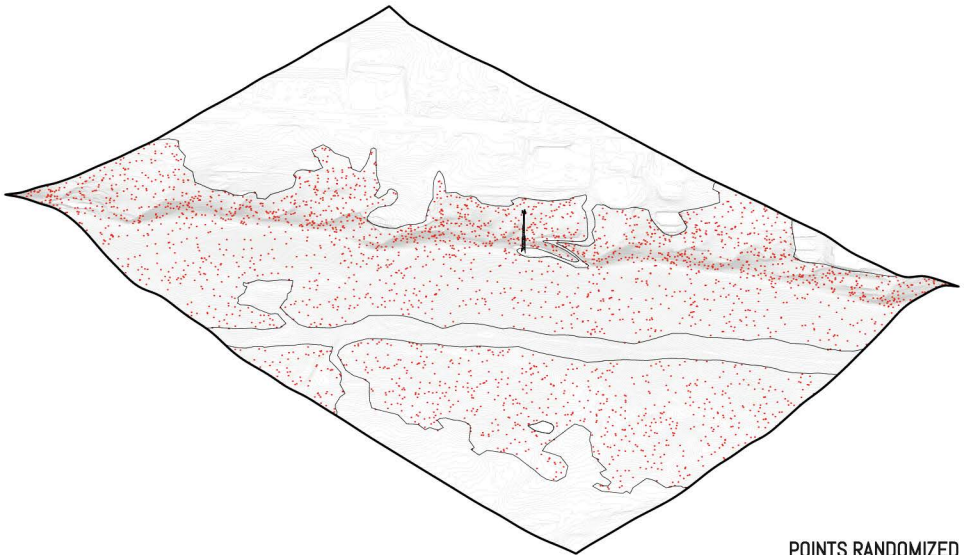
This portion of the script takes those points created from the divided surfaces and creates a list domain from them. This allows the Random component to generate a randomized list of available points to show from that initial domain list. Using the Number and Seed inputs of the Random component, you can generate as many random assortments as you desire.

TIP

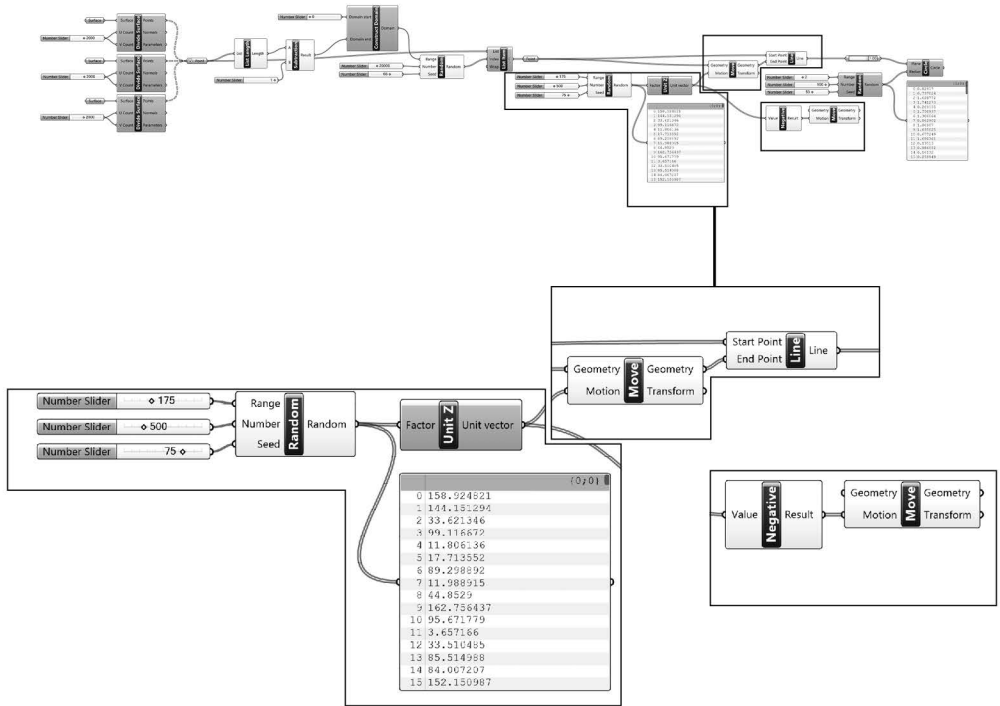
Once the random list of points is generated by sure to Turn off the Preview of the divided surface points or you will not see your random assortment of points in the Rhino Preview.



SURFACE TO POINTS



POINTS RANDOMIZED



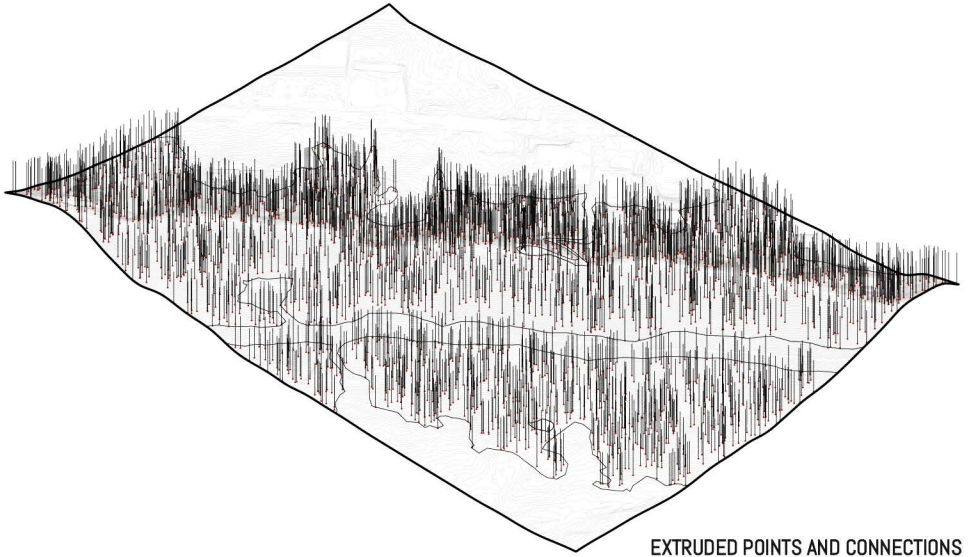
03 | EXTRUDE AND CONNECT POINTS (TREE HEIGHTS)

RANDOMIZING TREE HEIGHTS

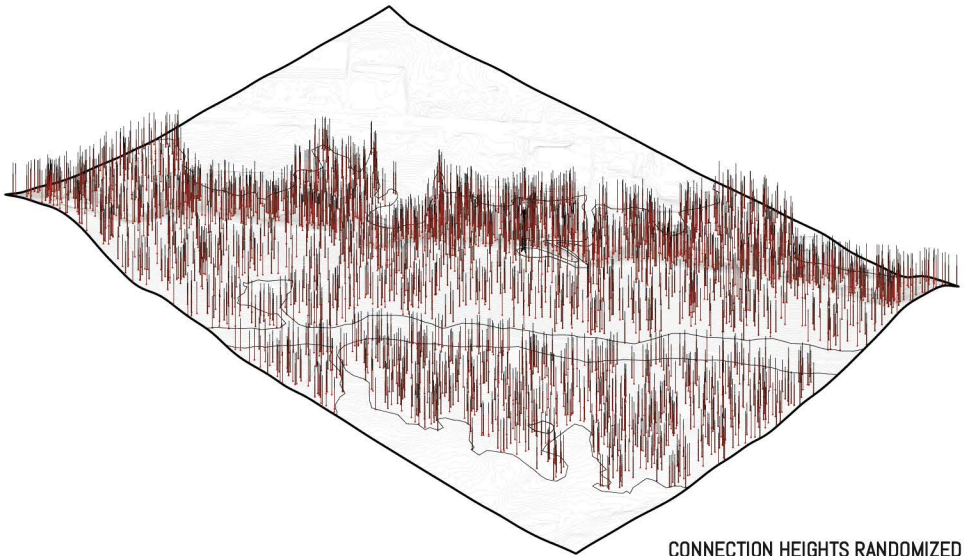
This portion of the script extrudes the points in the Z direction. The heights are then randomized by a set number and seed. Lines connect the two points creating the tree line. The negative move component extends the tree line below the surface creating the roots of the tree.

TIP

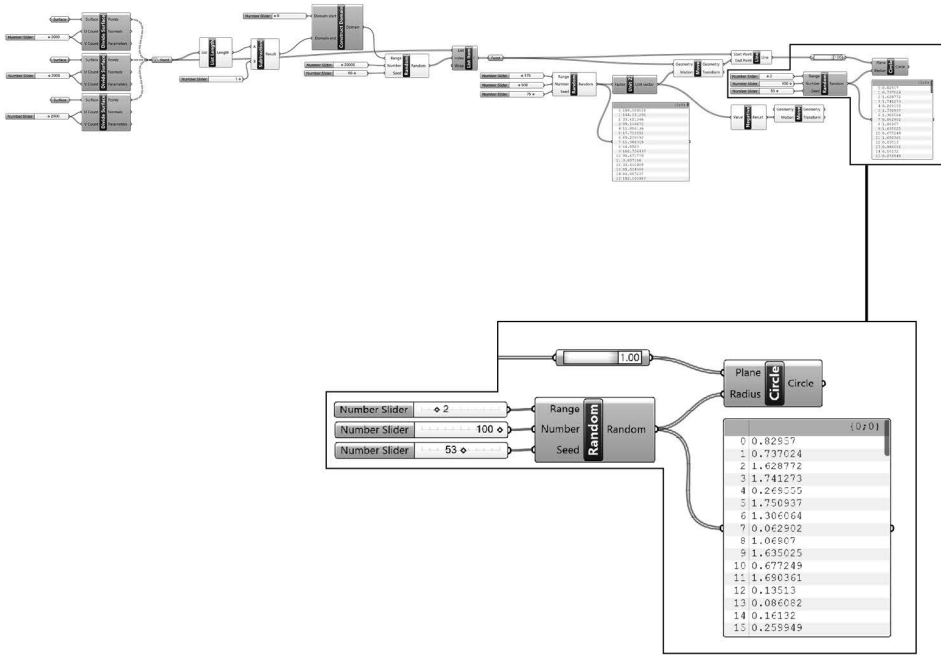
The below surface move component can be randomized as well.



EXTRUDED POINTS AND CONNECTIONS



CONNECTION HEIGHTS RANDOMIZED



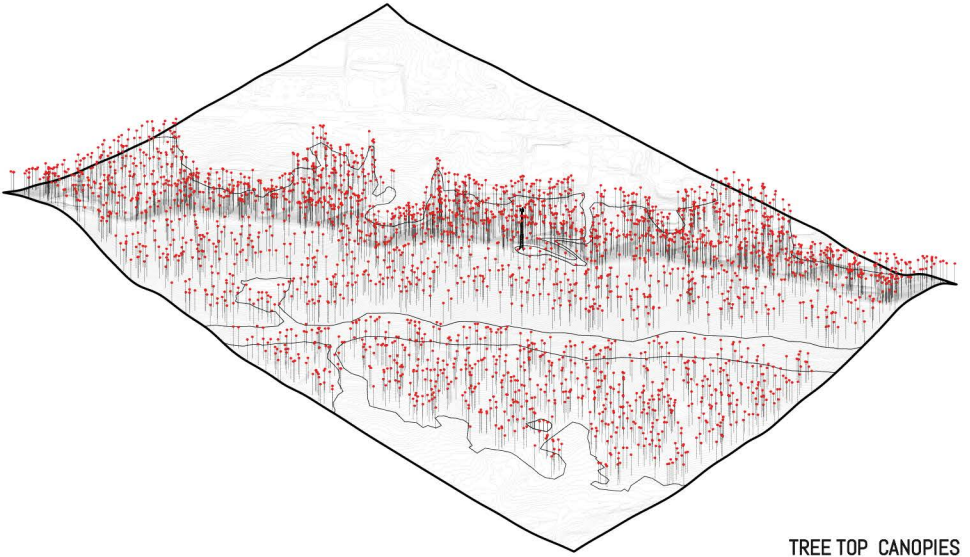
04 | THE FINAL TREES

THE TREE CANOPIES AND TRUNKS

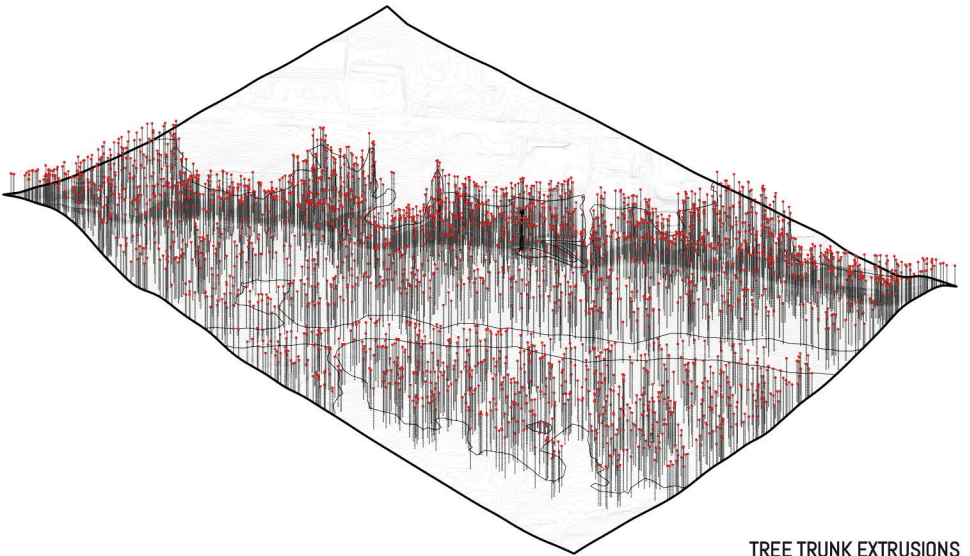
The final portion of the script applies a circular tree canopy to the top point of the trees that is also randomized. A trunk thickness is also applied to the tree lines, which just like everything else in this script, can be randomized. The true power of this script is the ability to rapidly generate variety of trees of varying locations, heights, thickness, and canopies sizes. It is great for forests or other collections of trees where a collection of trees needs to be generated quickly.

TIP

Save the piping, or thickening of the tree trunks, for last as this process is CPU intensive.



TREE TOP CANOPIES



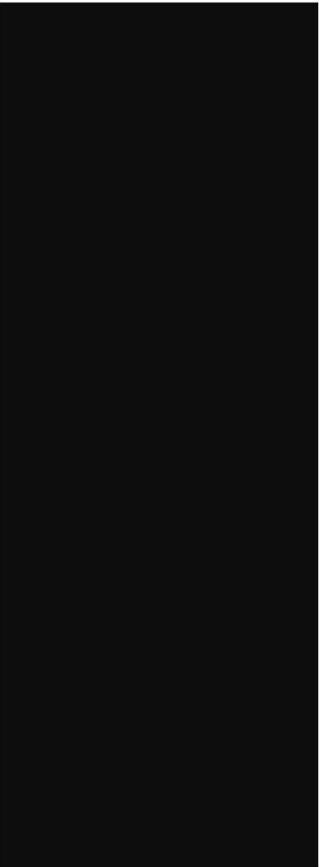
TREE TRUNK EXTRUSIONS

GRAPHICS 05

RENDER GALLERY |

PHOTO GALLERY |

ANIMATION |



[RENDERGALLERY]

There are so many forms of representation available to an architect, landscape architect, or interior architect, but one form that, often times, is better understood than the plan, section, and elevation is the rendering. Since renderings are composed with a specific point of view projected with perspective, one can more easily place themselves in or around a designed space.

Rendering is a powerful tool for designers to be able to convey the atmosphere, colors, textures, and other visual cues of a designed space. It allows those who are not versed in visual representation, to be able to 'see' and experience the design before it is built.

Because it takes a sharp eye and strong composition skills, renderings often take a long time to create well. The best renderings follow key principles and best practices from both photography, like the rule of thirds, and painting, like layered color, highlights, and shade and shadow. They can take a variety of forms in order to convey an idea from photo realistic to collage and montage to the very abstract. These are some select renderings that I have done before for both academic and professional work.

FALL2012–FALL2016



COPIA: AMERICAN CENTER FOR WINE, FOOD, AND ARTS
DESIGN BY PWP LANDSCAPE ARCHITECTS | NAPA, CA | 2002
RENDERED BY PAUL BAMSON | LAR 521



JOSEPH N. OLIVER BUTCHER SHOP RENOVATION FROM WAGNER STREET
 RENOVATION BY HNEDAK BOBO GROUP | MEMPHIS, TN | 2015
 RENDERED BY PAUL BAMSON

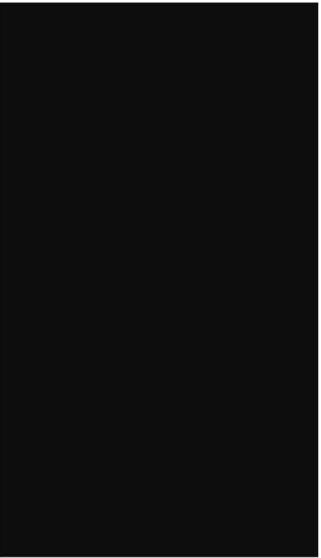


HO-CHUNK GAMING WISCONSIN DELLS
 DESIGNED BY HNEDAK BOBO GROUP | BARABOO, WI | 2015
 RENDERED BY PAUL BAMSON





ARCTIC EXPLORATION
RENDERED BY PAUL BAMSON | 583



[PHOTOGALLERY]

Photography is one of my favorite art forms. It allows one to be able to capture single frames in time, freezing and preserving a moment indefinitely. Photography is a light based medium, time of day and light exposure are vital for its functionality. This simultaneously gives control and takes it away from a photographer depending on the type of light they are using for their capture. Whether it was patiently waited for or set up for staging, a photograph has the ability to be just as constructed and composed as a drawing or painting. The frame is the viewport and what is excluded from the frame is just as important as what is included.

During my time at the University of Tennessee, I have had the opportunity to take many trips, which were great learning experiences that allowed me to sharpen my critical eye for finding those unique moments in time to capture. Seeing great architecture in a picture is nothing like being able to experience it in person, but it's the next best thing. Photography gives a preview of people, places, and things in hopes that one will eventually go and experience them for themselves. These photographs are some of my favorite taken during these trips.

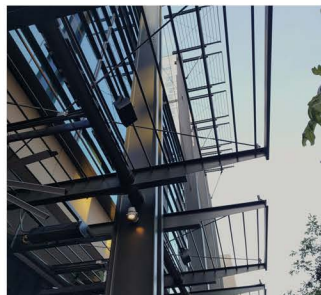
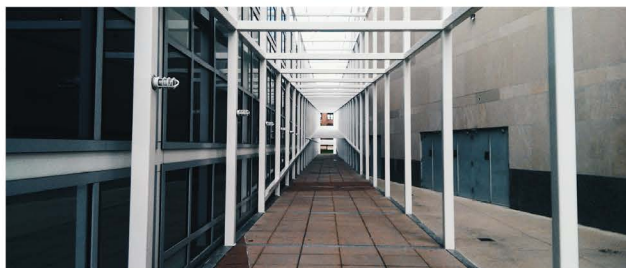
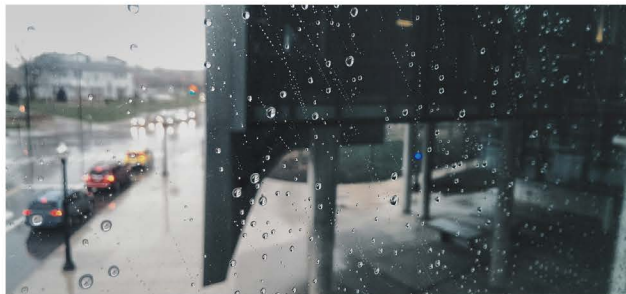
More photographs are available on my Instagram.

<http://instagram.com/ptbamson>

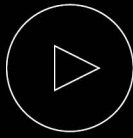
FALL2012–FALL2016











[ANIMATIONGALLERY]

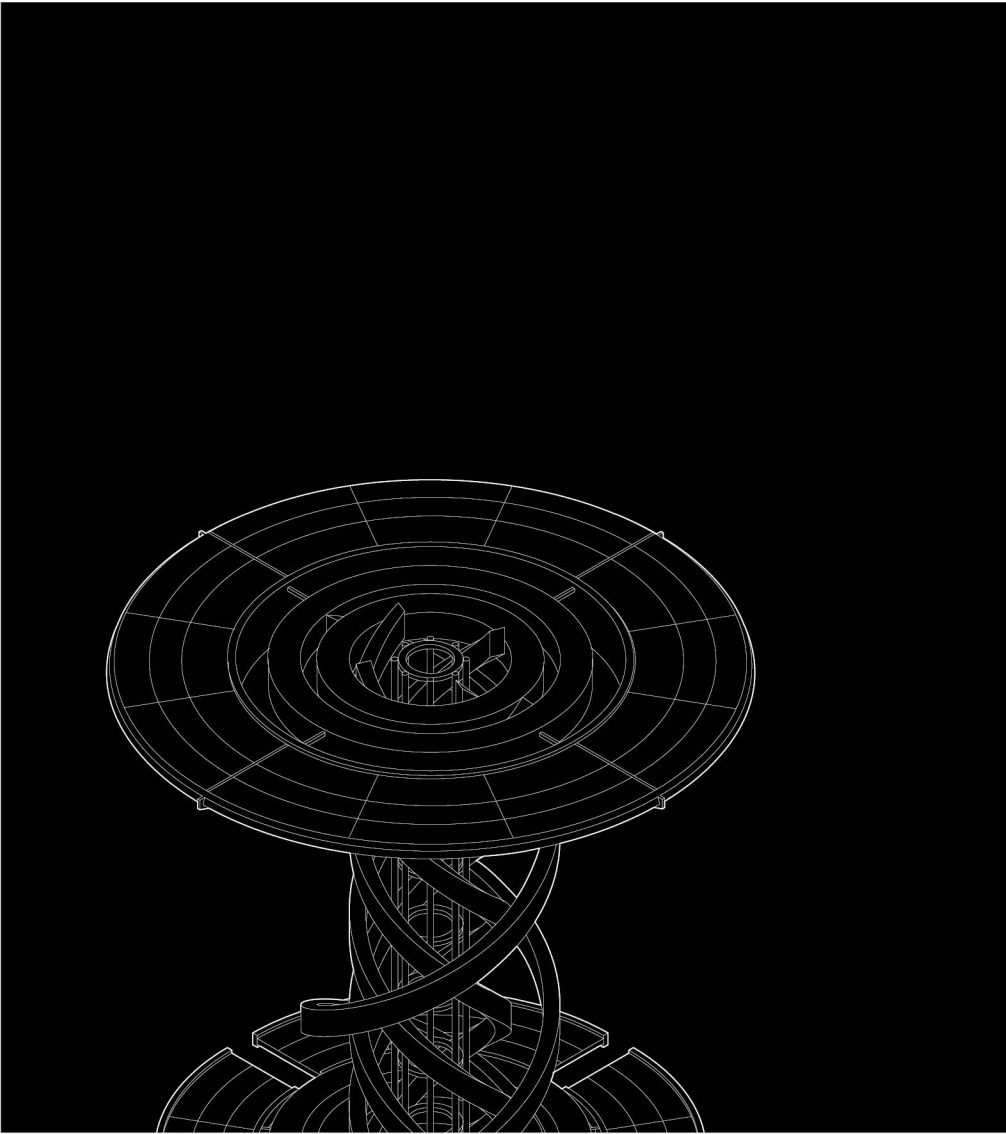
The main job of an architect, landscape architect, or interior architect is to convey a design, concept, or idea through means of representation. Whether through drawing, drafting, and sketching, or physical and digital modeling, most forms of representation are static and require creative design to convey multiple ideas or states/ stages of being. One medium that has the potential to surpass traditional static representation is the animation.

Animation has been around almost as long as photography and is nothing more than singular static images strung together in rapid succession, that when seen in sequence, have the ability to show change over time. This change over time is what creates the moving image we call video. Animation differs from video in that each frame is created rather than recorded.

Animations, as a time based medium, has the power to quickly and effectively convey an idea or demonstrate a designs process or performance in duration. Because they are time based they have the potential to tell the stories of dynamic design and projects that have phasing or iteration intervals.

Check out my animations here.
<https://vimeo.com/188581556>

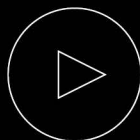
FALL2015



MAGNETOSPHERE GENERATOR ANIMATION

CLICK SCREEN TO WATCH

<https://vimeo.com/188581556>



CLICK HERE TO WATCH

PUBLICATIONS 06

CENTENNIAL PARK VISITOR CENTER |

THINK LIKE A CODER |

IMPRINT. WEBSITE |



[VCPUBLICATION]

The Nashville Urban Design Program of the University of Tennessee, Knoxville, College of Architecture and Design and the Nashville Civic Design Center present Centennial Park Visitor Center. This publication illustrates a summary of the Centennial Park Master Plan, precedents used for inspiration, a brief bio of the students involved, their design process, and their final work. All work was done during the Summer of 2014, which is the fourth summer of the Nashville Urban Design Program led by Thomas K. Davis, Associate Professor at the University of Tennessee, Knoxville.

The publication was put together as part of a professional elective that involved creating a summary of our summer and work. The four major spaces addressed in the publication are public, terrace, event, and private spaces. Each student took a unique approach to the programmed spaces and in the publication, the drawings showing these spaces are grouped so their similarities and differences could be compared. The publication was designed with the general public of Nashville in mind so the projects and schemes can be easily comprehended. The publication can be found here.

http://issuu.com/paulbamson/docs/centennial_park_vc_publication_fina

SUMMER2014

PROFESSORS Thomas K. Davis and Gary Gaston, Design Director at NCDC

PARTNERS Hayley Mull



CENTENNIAL PARK VISITOR CENTER

NASHVILLE URBAN DESIGN PROGRAM SUMMER 2014

University of Tennessee, Knoxville

College of Architecture and Design

Nashville Civic Design Center

Publication by Paul Bamson and Hayley Mull

COVER

01 | TYPICAL INTRO PAGE

The introduction pages show a brief example of what is to come in the section.

03 | TYPICAL PROCESS PAGE

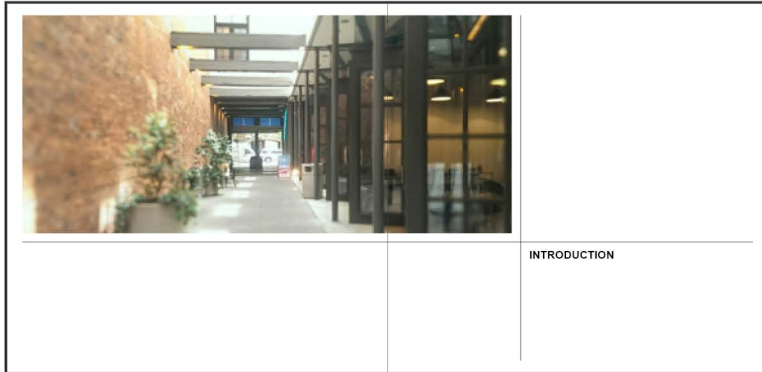
Each student has an intro page that displays a short bio, project summary, and process drawings.

02 | TYPICAL PRECEDENT PAGE

There were 6 precedents that the students drew inspiration from. Each precedent had unique characteristics and design aesthetics and were chosen based on their positive impacts on urban design in their respective cities.

04 | TYPICAL PROJECT PAGE

The projects were arranged according to four categories: public, terrace, event and private space. Since the designs varied, the projects were compared side by side to show the similarities and differences between them.



INTRODUCTION

01

ACROPOLIS MUSEUM 27

Athens, Greece 2009
Bernard Tschumi Architects

The Acropolis Museum is located in a site plan that the former Greek Parliament built in the northwest of the historical city. The site has a surface area of 50,000 square feet of space for exhibition and circulation in total. The edge of the museum runs the perimeter of the site, following the topography of the site and the topography of the top soil gallery. The Acropolis Museum has the same level of architectural sophistication as the buildings by visiting conditions (shown depicted in image below), through the Acropolis Museum, which is in the "Old Gallery."

Points of Inspiration

1. To respect the form
2. To respect the program
3. To respect the site
4. To respect the history
5. To respect the Acropolis and to respond to surrounding site

02

THE BRIDGE TO CENTENNIAL 53

Joseph Parbery
Four Year Architecture Student
University of Tennessee, Knoxville
George Architecture and Design

A bridge is a structure that carries a road, railway, canal, pipeline, footpath, bicycle path, or other form of transport across a barrier, such as a body of water, a gully, or a road, to another barrier. A bridge is a structure that carries a road, railway, canal, pipeline, footpath, bicycle path, or other form of transport across a barrier, such as a body of water, a gully, or a road, to another barrier.

Project Summary
 The project is a bridge that carries a road, railway, canal, pipeline, footpath, bicycle path, or other form of transport across a barrier, such as a body of water, a gully, or a road, to another barrier. The project is a bridge that carries a road, railway, canal, pipeline, footpath, bicycle path, or other form of transport across a barrier, such as a body of water, a gully, or a road, to another barrier.

03

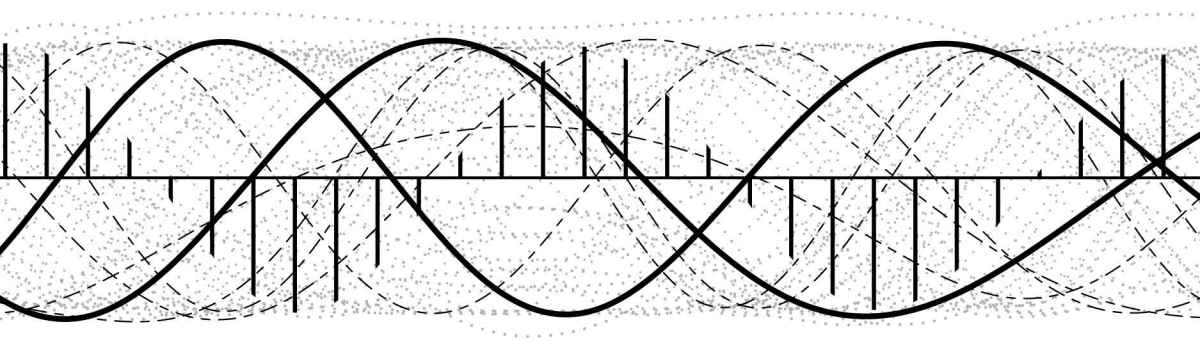
THE BRIDGE TO CENTENNIAL 83

LEFT IMAGE Level 1 Plan
BELOW IMAGE The bridge section through gallery and private space
 - - - - - Separate the upper levels like the gallery and laboratory are the private spaces such as restrooms, mechanical, and storage located along each side.

THE JEWEL IN THE CITY

LEFT IMAGE Level 1 Plan
BELOW IMAGE The bridge section through office space
 - - - - - The office space from the bathroom on either side. This placement allows them to have the best views as well as the most sunlight, creating the full facade facing the gardens.

04



[THINK/CODER PUBLICATION]

REASONS FOR THE STUDY

Since day one of architecture school, I have been interested in, and fascinated by, the vast variety of tools available to architects and designers. From the traditional drafting tools (pen, paper, scales, etc) to complex parametric modeling software, (Revit, Rhino, Grasshopper, etc). This has led to my belief that an architect or designer should be versed in all of the tools available to him or her so they are never bottlenecked by the lack of knowledge of any specific tool. By constantly asking the question 'Is there a better way to accomplish this?', Designers can continue to explore new technology which opens the door for possibilities that just were not available before.

OVERVIEW OF THE PROJECT

This study will focus on the exploration of contemporary coding and parametric technologies in order to define and re-imagining the functions that inform the architectural design process.

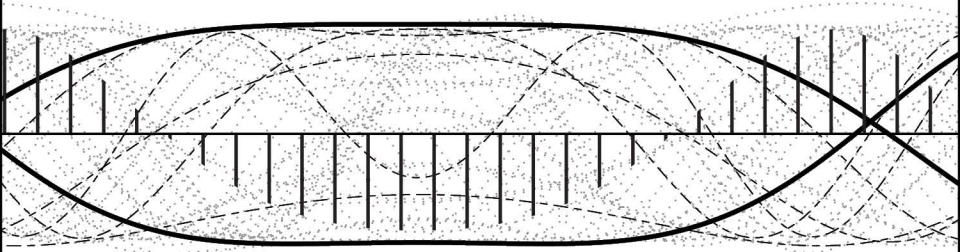
The software studied this semester was Grasshopper, a parametric plug-in for Rhino 5 that allows for the coding and scripting of 3 dimensional models. The study was broken up into two phases and the results are detailed in this publication. The goal of this study is to extract strategies that can be applied to other course studies and investigations.

SPRING2016

PROFESSORS Rana Abudayyeh

SPECIAL THANKS TO Gale Fulton, Jason Young, Keith Kaseman, Mark Stanley

[THINK LIKE A CODER]
PARAMETRIC LOGIC FOR DECIPHERING SITE
RHINO 5 | GRASSHOPPER | KANGAROO | FIREFLY



UNIVERSITY OF TENNESSEE COLLEGE OF ARCHITECTURE AND DESIGN

[PROLOGUE | THINK LIKE A CODER]

At the onset of this independent study, I worked to understand the parametric capabilities of Grasshopper, a Rhino 5 plug-in, in order to fully integrate it into my design workflow. Through research, experimentation, and case study application, I quickly realized that Grasshopper can be employed not just for form finding but can also be utilized towards the mapping, diagramming and analyzing of sites systems and landscapes, creating more in-depth and diverse sets of documentation where traditional site investigations fall short.

Since Grasshopper is so robust as a scripting tool, in order to fully utilize it, you have to understand how to **think like a coder**. A coder has to set up an infrastructure of commands in lines of code that the program/software has to execute to produce a result. Grasshopper allows a designer who is not versed in coding languages to code through

its graphical interface of connected components. These components are very similar to those used in the Rhino interface but have the advantage of being strung together into a **Script** to achieve a desired (or an unexpected) result.

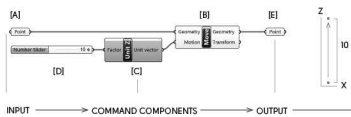
Fundamentally, a Grasshopper script is a series of **Inputs** run through a series of **Commands** that produces a series of **Outputs**. The script below is a simple command meant to move a point from one place to another in the Rhino coordinate system. In Rhino you would type **M** to initiate the **Move** command, then you select the object you want to move. Once the object is selected then you either move the object yourself with the mouse or you type in the exact distance you want it moved. Grasshopper reaches the same place a bit differently. The **Point** created in Rhino needs to be referenced in Grasshopper **[A]** and is the

new **Input**. Once the point is referenced, Grasshopper wants to know what to do with that point, in this case **Move [B]**. But in which direction and by how much? This script then tells Grasshopper to **Move** that point in the **Z Direction [C]** by **10 units [D]**. The resultant **Output [E]** is the **moved point**. Although there is a bit more set up in Grasshopper than in Rhino commands, once the script is set up, you can achieve multiple end results much faster. In Rhino, you would have to retype the entire set of commands to get a different point or object to move from point A to point B where as in Grasshopper the script has already been built so all you have to do is change the input to generate a brand new result.

The **power** of Grasshopper comes from the rapid generation of multiple outputs by stringing together a series of scripts turning the **resultant Output of one script into the starting Input of another script**.

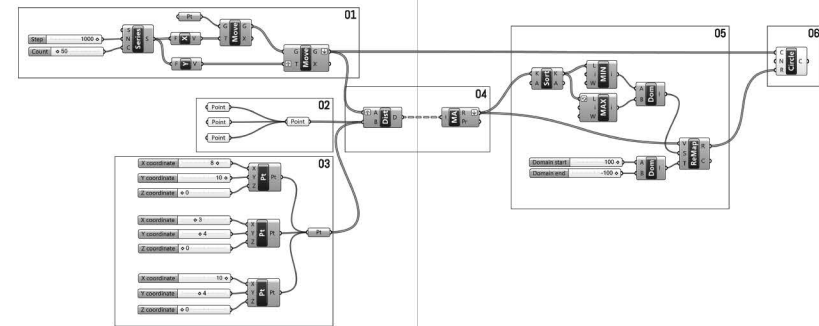
Once you understand the workflow of Grasshopper, **Input-Command-Output**, and the fact that every component, like the **Move** component, is a mini script **asking for a specific input to give a specific output**, you then understand that you can create far more complex scripts that accomplish much more than just moving a point from A to B. Like the old cliché, This is how you start working **smarter** instead of **harder** as you can accomplish what would ordinarily take a good bit of time in a matter of seconds with the right script in place.

This study is a compilation of the more complex case study scripts that I was exploring and how I eventually started building my own scripts based on what I learned during research.



12

13



ATTRACTOR POINTS SCRIPT | VERSION 01

PROGRAMS NEEDED

RHINO 5
GRASSHOPPER

SOURCES

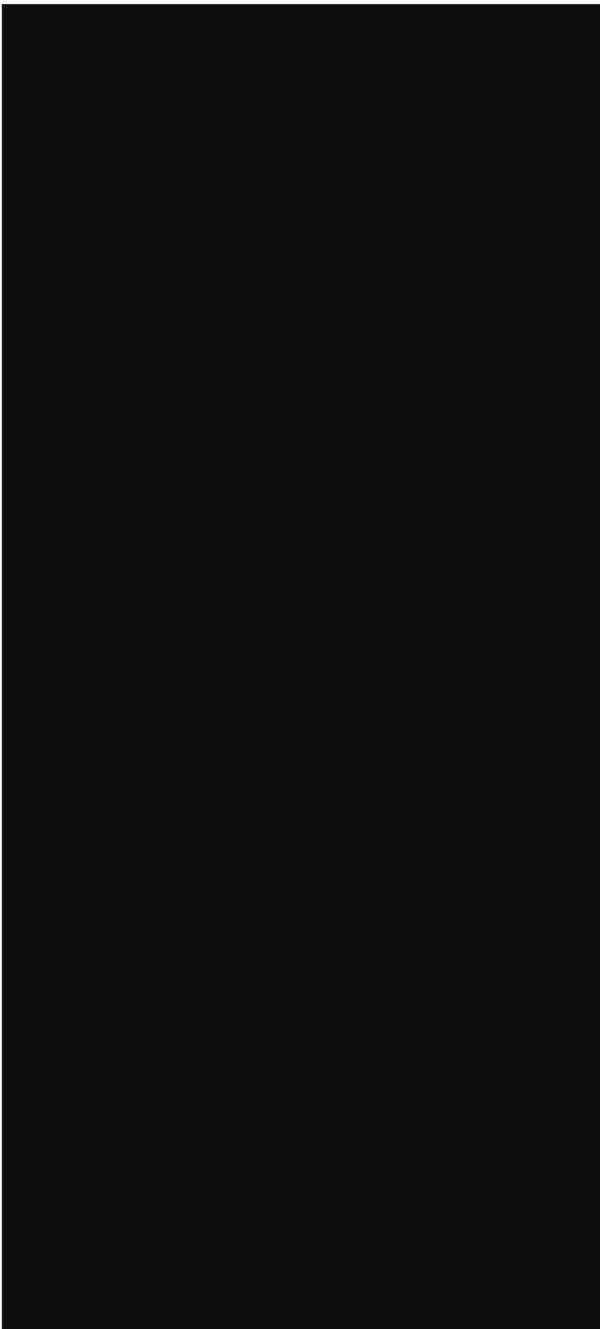
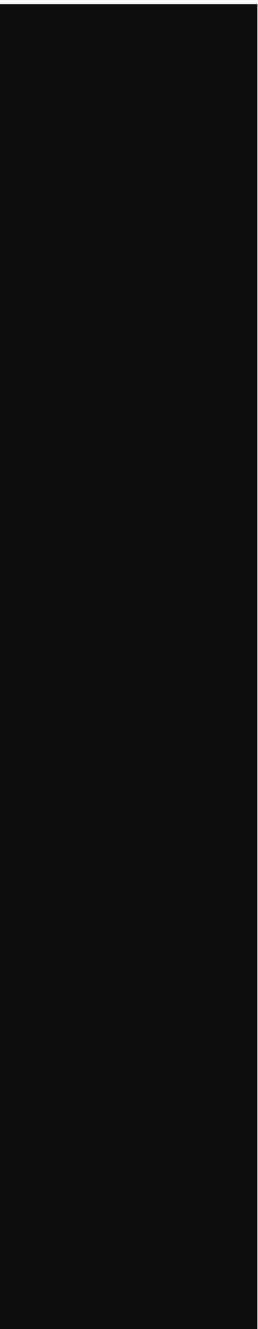
Danil Nagy | YouTube
Part 01 | <https://www.youtube.com/watch?v=AdnMLNv3Co>
Part 02 | <https://www.youtube.com/watch?v=2R0MwP7t2Uw>
Part 03 | <https://www.youtube.com/watch?v=Gd3C2z9354>

THE SCRIPT

- 01 THE GRID
- 02 ATTRACTOR POINTS | RHINO
- 03 ATTRACTOR POINTS | GRASSHOPPER
- 04 ATTRACTOR POINT PULL
- 05 DOMAIN MIN-MAX
- 06 FINAL OUTPUT

18

19



[IMPRINTWEBSITE]

"IMPRINT was founded in January of 2013 by a group of students who saw a need to create a new way to talk about and experience design and design education.

By developing a living, evolving online archive capturing student life and work at the College of Architecture and Design, IMPRINT becomes a forum for conversations about all aspects of design. By uniting the voices of the three disciplines within our college — architecture, interior design and landscape architecture — we can achieve that."

IMPRINT is the student run publication that I join earlier in 2014. It features a number of editorials about a variety of subjects in our design education and the profession. As I was designing the IMPRINT Website, I wanted to create an immersive fullscreen site that displayed clear organization. First, I created a background, comprised of various images of the Art and Architecture Building at the University of Tennessee, by arranging them in a 5 column grid. This grid then defined the organization of the site's different categories—About, Series, Publications, Submit, and Contact.

Designing a website is surprisingly similar to the process of designing a building in that the user experience drives the decisions made. Drawing inspiration from Google's Material Design on its latest version of Android, I aimed to create a sense of fluidity and continuity by making sure that every element on screen originated

from a point, proceeded along its set path, and had a bit of depth. This process allowed elements to come from somewhere, not just appearing out of nowhere, which made for a more intuitive and friendly user experience.

The first version of the site was designed in Wix. Check out the site here. <http://imprinttk.wix.com/imprinttk>

FALL2014

ORGANIZATION IMPRINT.

THE UNIVERSITY OF TENNESSEE
 College of Architecture and Design KNOXVILLE

MPRIM

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ABOUT
SERIES
PUBLICATIONS
SUBMISSIONS
CONTACT


WHO WE ARE

MPRIM was founded in January of 2013 by a group of students who saw a need to create a new way to talk about and experience design and design education.

This year our goal is to develop a living, evolving online journal to inspire students like you out of the College of Architecture and Design. MPRIM wants to become a forum for conversations about all aspects of design, and we believe that by joining the voices of the three disciplines within our college — architecture, interior design and landscape architecture — we can achieve that.

Throughout the year, we will be seeking for blog entries, anything from a quick recap of a college event to an involved research essay. We want to showcase what students in our college are doing and thinking! We will also be curating an online photo gallery, a sort of snapshot of our lives within the college. We will have calls for student work throughout the year, and you have classes, writing or images to contribute — don't hesitate to submit through the "SUBMIT" button on this website. We want this to be a collaboration between every student in the college.

WELCOME! CALL/TEXT/STAFF



THE UNIVERSITY OF TENNESSEE
 College of Architecture and Design KNOXVILLE

MPRIM


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WHAT WE DO

Our goal is to publish great content on a weekly basis, written by students from around the college. Here you will find columns about a variety of interests in architecture and design. You will also find our series of interviews and lectures led by the College of Architecture and Design at the University of Tennessee.

- COLUMNS
- INTERVIEWS
- LECTURE SERIES
- REPRESENTATION
- TUTORIALS
- BLOGS WE LOVE



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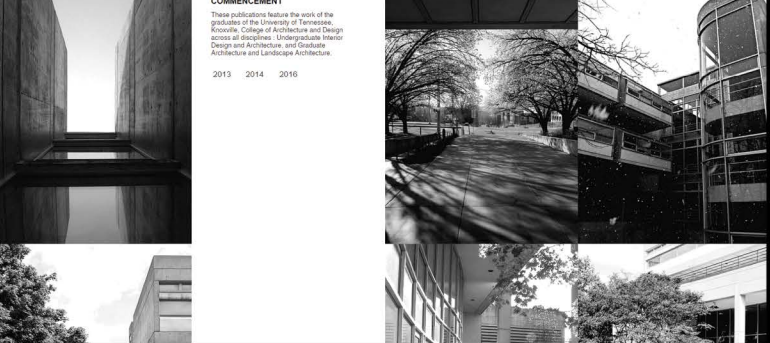
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COMMENCEMENT

These publications feature the work of the graduates of the University of Tennessee, Knoxville, College of Architecture and Design across all disciplines: Undergraduate Interior Design and Architecture, and Graduate Architecture and Landscape Architecture.


2013 2014 2016



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WE WANT TO HEAR FROM YOU!

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COLUMNS

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INTERVIEWS


Welcome to IMPRINT: Dialogue, our interview series speaking with prestigious faculty and professionals in the field of architecture, design, and beyond!

Dialogue with Paul Mankins
October 7, 2014



[Read More](#)

Dialogue with Matt Miller
November 18, 2014



[Read More](#)

Dialogue with UT Architecture Alumni and Award-Winning Architects Brandon Pace & John Sanders
October 28, 2014

Dialogue with Nader Tehrani
September 19, 2014

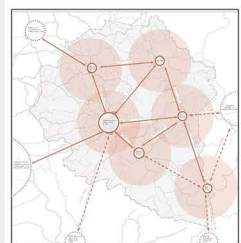
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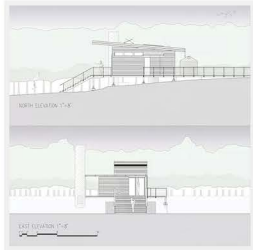
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STUDENT WORK

Appalachia Research Project // Connecting Spaces-Connecting Places
February 9, 2014



The Lone Oaks Farm Cabin
January 17, 2014



When I visited The Lone Oaks Farm in Middleton TN, I felt strongly connected with the landscape and nature the farm contained, and I was drawn into the natural world that's missing from our daily life. As we steadily progress into a technologically innovated world...

I WANT TO SUBMIT! WHAT DO I DO?

Great! We want to hear about you and your ideas!

If you have a piece of writing or images you want to submit to the website, just use the **SUBMIT** button on the page. Make sure you include your contact information (full name, phone number, email address and your zip). One of our editors will review your submission and let you know if it needs any editing.

If your idea is more general — or if you want to work for IMPRINT in an editorial capacity, feel free to email our editors, Marjorie D'Aprile at mdaprile@utk.edu.

We look forward to hearing your ideas and forming a true collaboration through IMPRINT!

SUBMIT

STUDY ABROAD


STUDENT LIFE

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