



A Front Porch for Oregon Health and Science University and Marquam Hill

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Figure 1: Design proposal (Calnen and Walsh)

About SCI

The Sustainable Cities Initiative (SCI) is a cross-disciplinary organization at the University of Oregon that promotes education, service, public outreach, and research on the design and development of sustainable cities. We are redefining higher education for the public good and catalyzing community change toward sustainability. Our work addresses sustainability at multiple scales and emerges from the conviction that creating the sustainable city cannot happen within any single discipline. SCI is grounded in cross-disciplinary engagement as the key strategy for improving community sustainability. Our work connects student energy, faculty experience, and community needs to produce innovative, tangible solutions for the creation of a sustainable society.

About SCYP

The Sustainable City Year Program (SCYP) is a year-long partnership between SCI and a partner in Oregon, in which students and faculty in courses from across the university collaborate with a public entity on sustainability and livability projects. SCYP faculty and students work in collaboration with staff from the partner agency through a variety of studio projects and service-learning courses to provide students with real world projects to investigate. Students bring energy, enthusiasm, and innovative approaches to difficult, persistent problems. SCYP's primary value derives from collaborations resulting in on-the-ground impact and expanded conversations for a community ready to transition to a more sustainable and livable future.

SCI Directors and Staff

Marc Schlossberg, SCI Co-Director, and Professor of Planning, Public Policy, and Management, University of Oregon

Nico Larco, SCI Co-Director, and Associate Professor of Architecture, University of Oregon

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About TriMet

The Tri-County Metropolitan Transportation District of Oregon was created by the Oregon Legislature in 1969 to operate and oversee mass transit in the Portland Metropolitan region. This public entity was formed by the legislature as a municipal corporation to replace the multiple private interest mass transit companies that previously operated in Multnomah County, Clackamas County, and Washington County; the counties that make up TriMet.

In addition to operating bus lines, light rail, and paratransit in the defined Tri-Metropolitan district, TriMet also connects to external mass transit services to provide wider blanket coverage for the region. TriMet's nationally recognized transit system provides more than 100 million rides annually, and carries 45% of rush hour commuters going into the downtown Portland area. TriMet not only moves people, but helps build sustainable cities by improving public health; creating vibrant, walkable communities; supporting economic growth; and working to enhance the region's livability.

Several civic leaders have been highlighted as key figures in the creation, establishment, and ultimate success of TriMet. Governor Tom McCall is credited with the initial call for the creation of the public corporation; other key contributors include Congressman Earl Blumenauer, Rick Gustafson, Dick Feeney, and Mayor Neil Goldschmidt. All were instrumental in shaping the organization itself, as well as the land use, civic development, and transformation policies that make TriMet the success that it is today.

The vision and efforts of these individuals and countless others have borne fruit. Recently, TriMet celebrated the second anniversary of the opening of its most recent light rail line. Since its inauguration the 7.3-mile MAX Orange Line has experienced continued growth, having a six percent year-to-year increase in ridership. Illustrating the holistic approach that has been a part of TriMet from its inception, there have been wider community benefits such as a positive impact on employment and a focus on sustainable practices such as bio-swales, eco-roofs, a first-in-the-nation eco-track segment, solar paneling, and regenerative energy systems.

TriMet is a key partner in the region's Southwest Corridor Plan and Shared Investment Strategy. Eleven partner agencies are participating in planning for a new 12-mile light rail line in southwest Portland and southeast Washington County that will also include bicycle, pedestrian, and roadway projects to improve safety and access to light rail stations. Southwest Corridor stakeholders include Metro (the regional government), Washington County, Oregon Department of Transportation, and the cities of Beaverton, Durham, King City, Portland, Sherwood, Tigard, and Tualatin. This collaborative approach strives to align local, regional, and state policies and investments in the Corridor, and will implement and support adopted regional and local plans. These initiatives and outcomes from participation with the UO's Sustainable City Year Program will help develop ideas that are cost effective to build and operate, provide safe and convenient access, and achieve sustainability goals while supporting the corridor's projected growth in population and employment.

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This report represents original student work and recommendations prepared by students in the University of Oregon's Sustainable City Year Program for TriMet's Southwest Corridor project. Text and images contained in this report may not be used without permission from the University of Oregon.

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Brianna Waggoner, Architecture, Graduate

Travis Walsh, Architecture, Graduate

Tygue Wierda, Architecture, Graduate

Executive Summary

During winter and spring terms 2018, graduate and undergraduate students in Professor Brook Muller’s terminal studio completed analytical research and urban design proposals for the Marquam Hill site. The urban design schemes encompassed a larger expanse – an east-west transect of southwest Portland that included the Willamette River, South Waterfront, Lair Hill, Barbur Boulevard (“the front porch to OHSU”), Terwilliger Parkway, and beyond. Students examined the implications of two proposed MAX line extensions located on either Southwest Naito Parkway or Southwest Barbur Boulevard, as well as the potential consequences to surrounding neighborhoods and the city in general.

Holistic design proposals for a highly complex project of enormous potential were developed by students in the studio class. Students were composed of an interdisciplinary group from architecture, urban design, transportation planning, landscape architecture, and historic preservation.



Figure 2: OHSU to Willamette River Plan View (Calnen and Walsh).

Introduction

A “Front Porch” for OHSU and Marquam Hill

Students in this comprehensive studio class set out to consider different visions of the proposed TrimMet project. Conceivably, a vision that would embolden existing institutions and amenities on Marquam Hill, including the renowned Oregon Health and Science University (OHSU). Attention was focused on Marquam Hill and the surrounding area adjacent to the proposed Gibbs Street light rail station. Students developed various building programs that included a food market, library, childcare facility, wellness spaces, a museum, exhibition spaces, a spa, a cycling hub, and a water education center, for example.

Proposed interventions responded to the sensitivity of the substantial historical and ecological significance of the area. Stakeholders were asked to envision the project as more than just a means of traveling up and down the hill. Students used stakeholder feedback to convey stories and meanings related to history, health, spirituality, recreation, geology, and landscape ecology of the area by envisioning adaptations as unique as the place.

Considered from the onset was the Lair Hill neighborhood connectivity to adjacent parts of the city. Infrastructure projects such as the Ross Island Bridgehead and Interstate 5 have isolated the neighborhood. Alignment studies developed by TriMet and University of Portland Engineering class were adapted to inform the architectural potential and consequences of future transportation infrastructure. Some alignments were focused on tunneling into the earth, while others focused on tower and bridge structures, and some combined both.

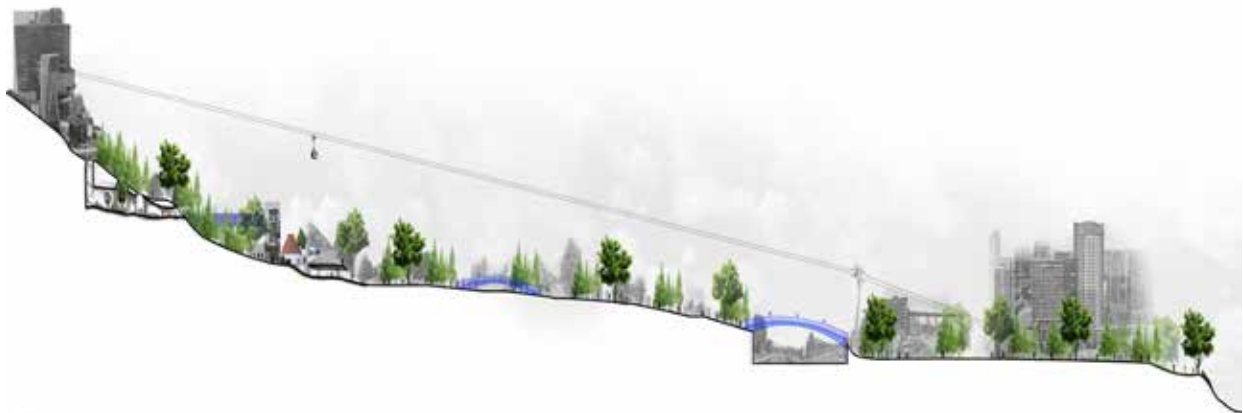


Figure 3: OHSU to Willamette River Section (Calnen and Walsh).

Student Design Principles

Following are the principles the students used to guide design schematics for area:

Enhance Conveyance, Wayfinding, Accessibility

Crafting a pedestrian journey that is safe, pleasant, and an exciting experience that is inspired by points along the site by envisioning the journey traversing up and down the hill. Since the project is intended to link the community to Marquam Hill and OHSU, students investigated design interventions related to the accessibility of health care consumers.

Consider Social Equity and Community Assets

Creating architectural and urban design interventions that are beneficial to all members of the community. Design proposals that result in positive social outcomes for the surrounding neighborhood residents and stakeholders.

Encourage Heritage and Adaptability

Preserving and honoring the site's rich histories and intangible assets by assessing all possibilities addressing the vacant Ahavath Achim Synagogue as well as surrounding the historic Lair Hill neighborhood.

Limit Site Sensitive Construction

Determining a sequence of construction processes that have the least detrimental impact on the existing ecology and community. Thoughtfully mitigating negative impact of developing with designs that aim to "stitch" or incorporate themselves sensitively into the sites, from parks and neighborhoods. Tower structures and other proposed interventions that be large and impactful should be considered foremost.

Improve Green (and Blue) Space

Design interventions could reinforce the existing beneficial qualities of the neighborhood parks, enhance recreational opportunities for visitors, support ecological habitats, and improve stormwater facilities during new construction.

Site Analysis

History and Culture

The “Front Porch” of Marquam Hill is the area of southwest Portland that connects: Terwilliger Parkway to OHSU and the Ahavath Achim Synagogue to the Lair Hill Neighborhood.



Figure 4: Aerial view of the “Front Porch.”

Terwilliger Parkway

Terwilliger Parkway is located just south of Interstate 405 between OHSU and Barbur Boulevard. The namesake comes from the Terwilliger family who moved to Oregon in 1845 and eventually donated the land for development. It is about 4.3 million square feet and stretches for two miles along Marquam Nature Park, OHSU, and ends at SW Capitol Highway and Terwilliger Boulevard. It has an array of amenities including walking paths, picnic tables, playgrounds, biking trails, and hiking trails.

It is the only linear park in the city of Portland with a wide range of vegetation and wildlife. Views spanning across the river are possible because of its location along the hillside with approximately 300 feet of elevation change.



Figure 5: Historic Aerial View of OHSU.

Ahavath Achim Synagogue

The Ahavath Achim Synagogue is located at the intersection of SW 3rd Avenue and Barbur Boulevard. OHSU sits up on the hill to the west, while the Lair Hill neighborhood is embedded directly to the east. Built on the site in 1966, it is a distinctive building, small and round with a red-domed roof. The congregation’s history dates back to 1910 when some of the first Sephardic Jews arrived in Portland. These immigrants arrived from Sephardic countries such as Greece and Turkey.

The building is important because it represents the legacy of the Sephardic and Jewish community in Portland. Huge efforts have been made by Portland’s Jewish community to foster and maintain the spirit and legacy of this building.

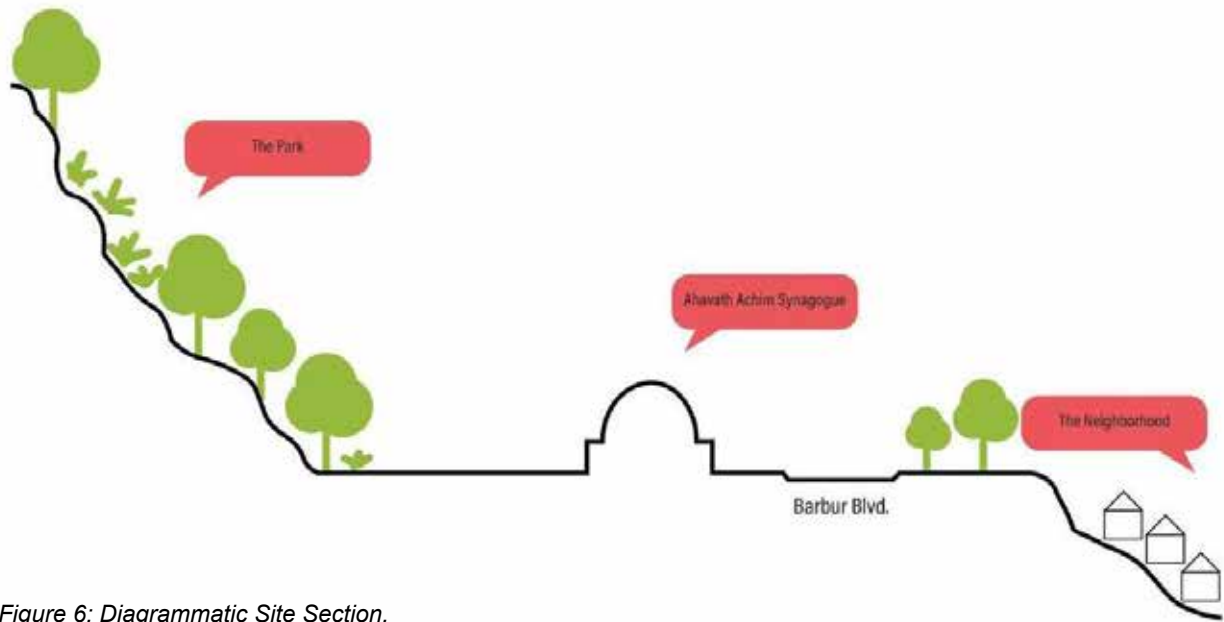


Figure 6: Diagrammatic Site Section.

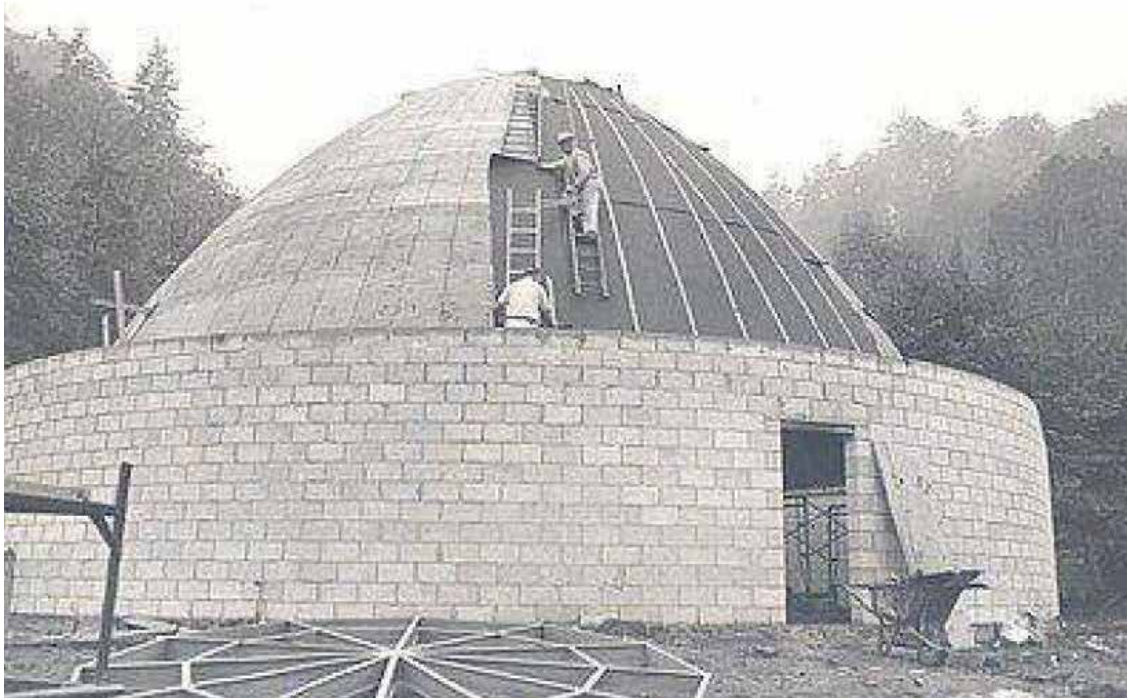


Figure 7: Old Synagogue.



Figure 8: New Synagogue.



Figure 9: "Front Porch" Plan View.

The Corbett, Terwilliger, and Lair Hill Neighborhoods

This south Portland historic district is located west of the Willamette River and east of Marquam Hill. There are both commercial and residential uses, however most of the structures within the district were designed as single-family residential homes.

It largely follows the same 200' x 200' grid as downtown Portland but suffers from occasional gridlock because of a dependency on automobiles to get around the construction of the Ross Island Bridge, and poor connection to Barbur Boulevard. Furthermore, the construction of Harbor Drive bifurcated the neighborhood into two separate parts. And construction of the interstate freeway system further isolates the neighborhood from downtown.

Homes in these neighborhoods were characteristically constructed in Queen Anne and Italianate architecture, a vernacular that represented a larger stylistic movement that occurred throughout the western United States in the latter part of the 19th century. Historically dominated by Jewish and Italian immigrants, these three neighborhoods once served as a gateway community into Portland for immigrants in the late nineteenth and early twentieth century.



Figure 10: Neighborhoods, Plan View.



Figure 11: Barbur Boulevard, 1932 photograph.



Figure 12: Barbur Boulevard House.



Figure 13: Front Porch Street Section.

Forest Park Conservation

The following list are actions the students believe could conserve the existing ecology of Forest Park:

Potential Forest Park Conservation Actions

- Address fish and wildlife circulation barriers (roads, culverts, fences)
- Foster forestation succession planning for old growth
- Improve stream buffer vegetation
- Increase channel complexity and fish habitat
- Maintain and expand existing white oak habitat
- Manage for future habitat complexity
- Manage public access and recreation to protect fish and wildlife
- Protect and improve headwater streams and riparian habitat
- Protect and improve water quality
- Remove invasive vegetation plants, in particular English Ivy

Additional Opportunities for Conservation

- Understanding the distances needed between human circulation and ecological circulation
- Protect larger and older plant life
- Consider ways to treat water runoff on-site

Potential Constraints

- People naturally want to form connections with habitat and wildlife
- Roads, trails, and structures impact local ecology
- Wildlife has limited access in the area



Figure 14: Terwilliger Parkway

Transit and Wayfinding Overview

The primary mode of transportation that occurs in the subject area, along with existing infrastructure, is confusing to navigate. Wayfinding could establish clear and direct pathways, interconnecting the neighborhoods to local assets. A pedestrian bridge and the aerial tram were the first interventions, connecting Marquam Hill to the South Waterfront, yet additional transit opportunities and wayfinding could enhance the journey for both residents and visitors.

Benefits of Construction

Design interventions in the area could require a large amount of construction that could negatively impact existing habitats. But, done considerately, students believe there is potential to create positive outcomes. Students researched and analyzed geotechnical assessments in their design considerations. The potential to control runoff, groundwater inflows, and stormwater became areas of interest in design schemes.

Student Proposals

Design Process

In winter 2018, students developed their urban design proposals for the Marquam Hill and surrounding neighborhoods area. Then, in the spring 2018, students selected a focal area and developed individual architectural design propositions. Since students were coming from a background in architecture, the area around the synagogue was chosen a main focal point. Students' final projects were divided into the following five design categories: "Plaza Entry," "Plaza Transitional Intersection," "Topography Design Opportunity," "Tunnel Opportunity," and "Opportunity for Health and Wellness."

Plaza Entry Student Concepts

Creating a plaza adjacent to the Synagogue as an entry marker or beacon to the park and to OHSU.

Emily Grof: "A Marquam Hill Discovery Park"

This concept is a childcare facility nestled into a public plaza at the base of Marquam Hill, where the notion of childhood discovery influences a multigenerational appreciation for nature. The facility could heighten community engagement along the Marquam Hill connection by reactivating a dormant node and adding childcare with a focus on nature and the history of the area.



Figure 15: Grof, View from Bridge

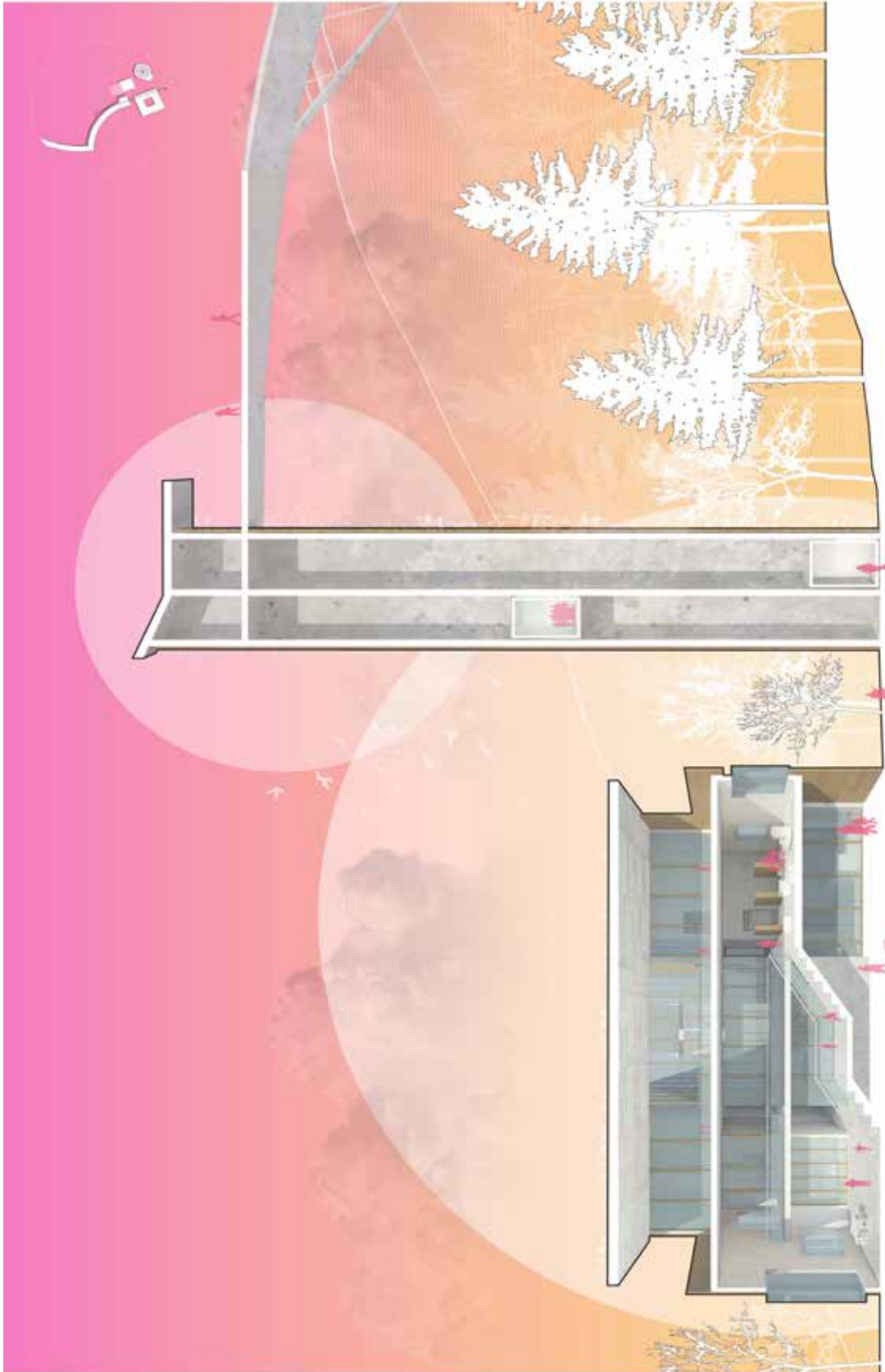


Figure 16: Grof, Building and Tower Section

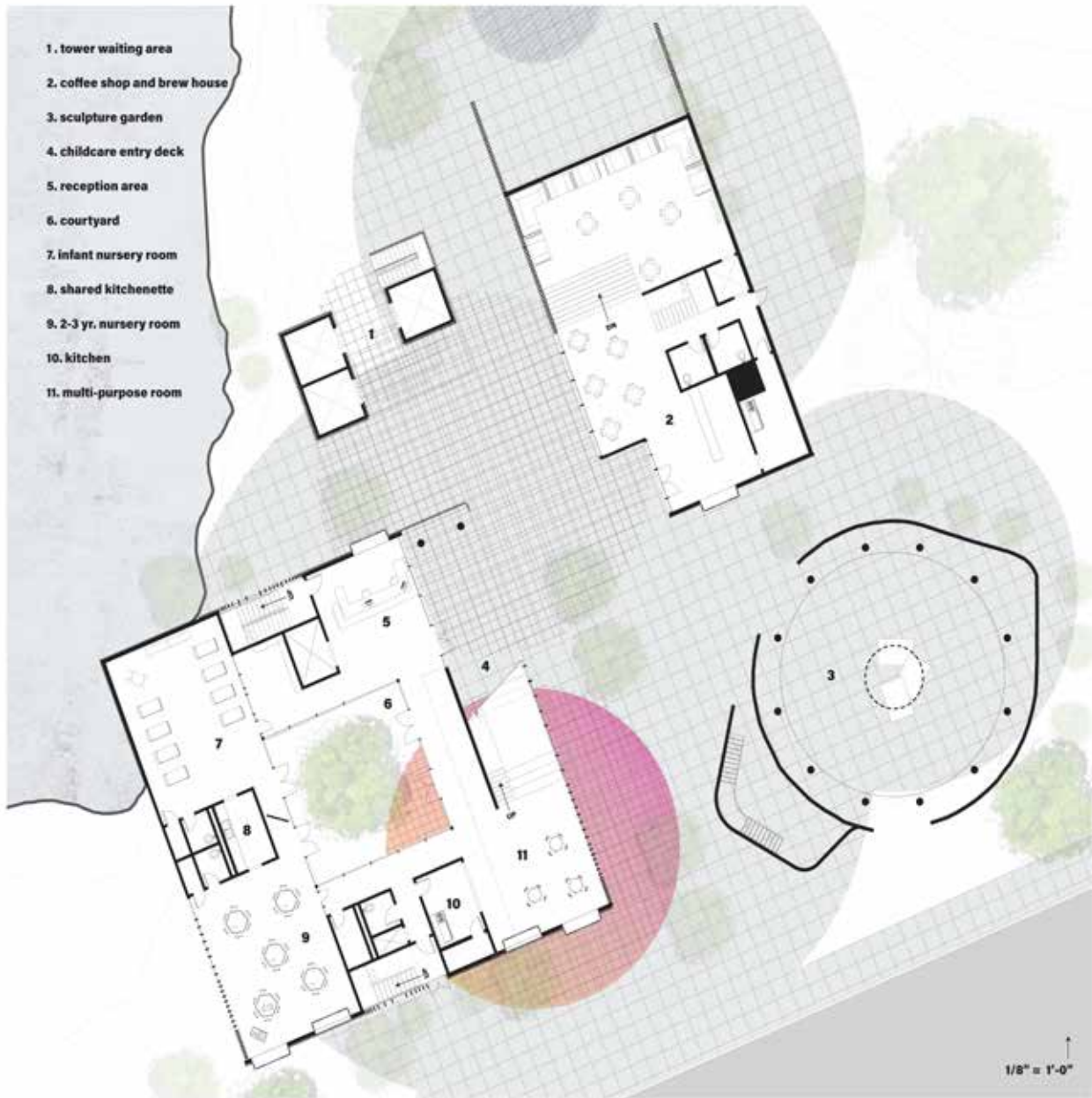


Figure 17: Grof, Proposed Site Plan Intervention

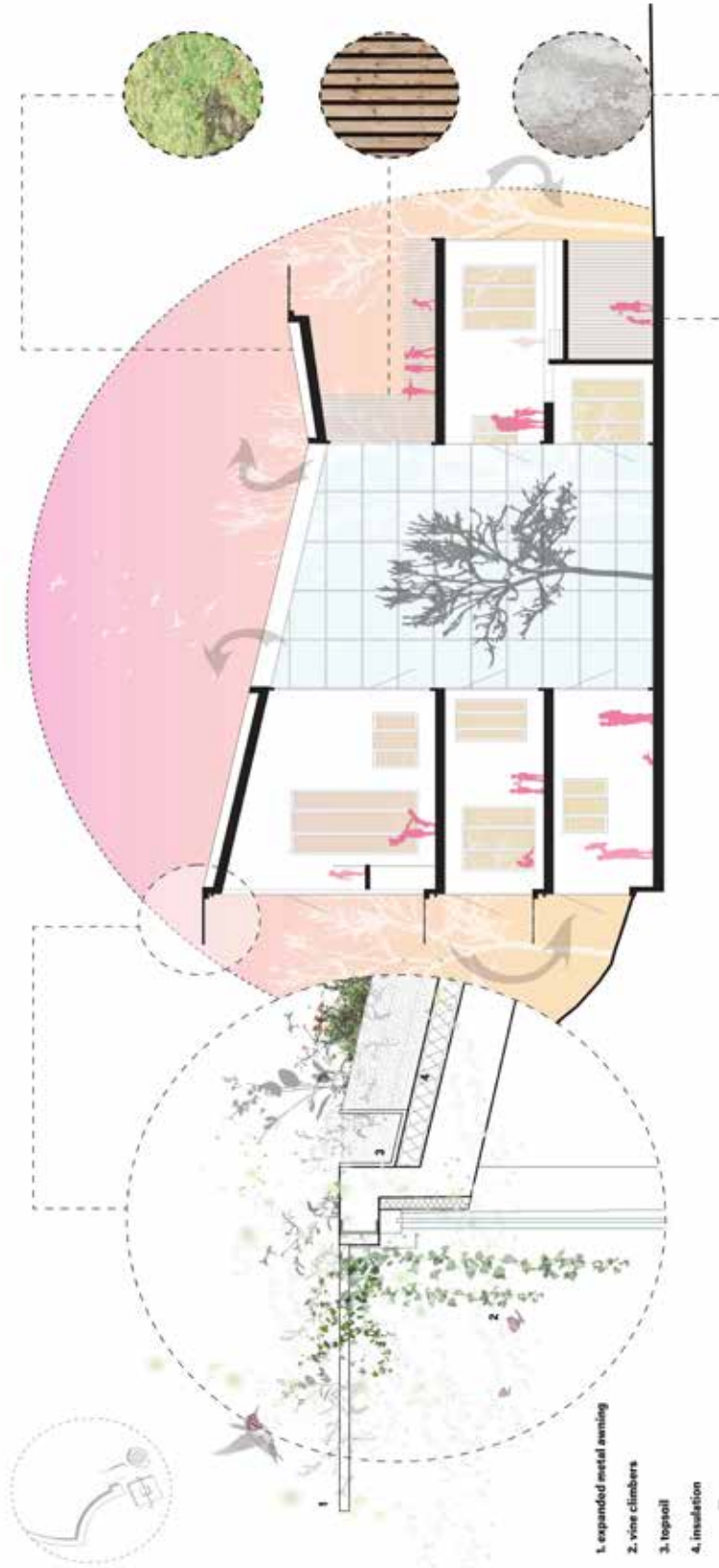


Figure 18: Grof, Building Section with Construction Detail



Figure 19: Grof, Building Interior Perspective

Sean Henderson: “Southwest Cycle Hub”

This concept is about using the bike culture of Portland to fuel new innovations for urban design and architecture. What would usually be part of a mundane daily commute will be transformed by creating moments of ascension, spaces to stop and observe, and areas to inhabit. The synagogue will be repurposed into the culmination of the cycle track, bringing the community together with food, drinks, and bicycles.

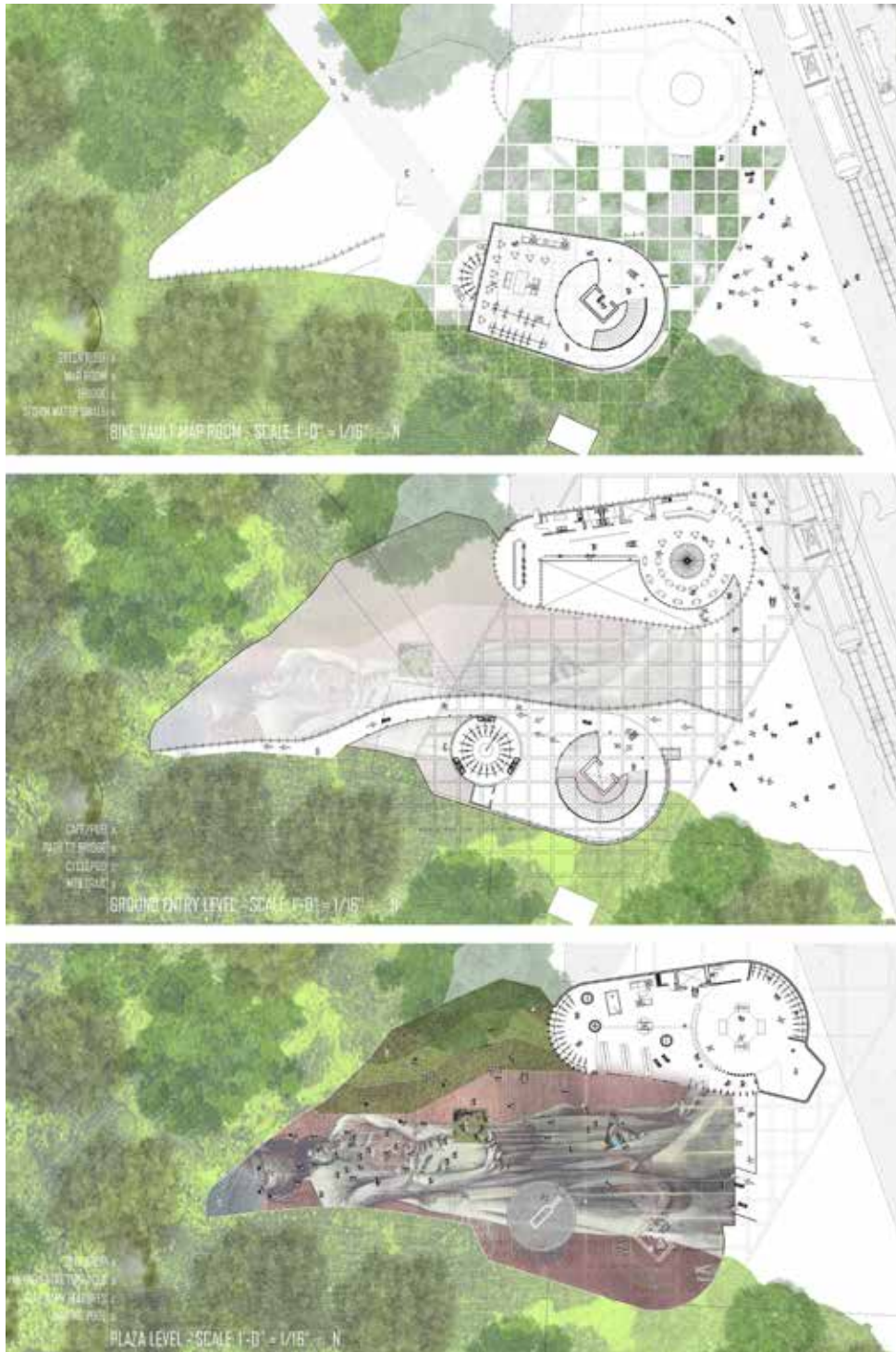


Figure 20: Henderson, Proposed Site Intervention



Figure 21: Henderson, Proposed Building Section

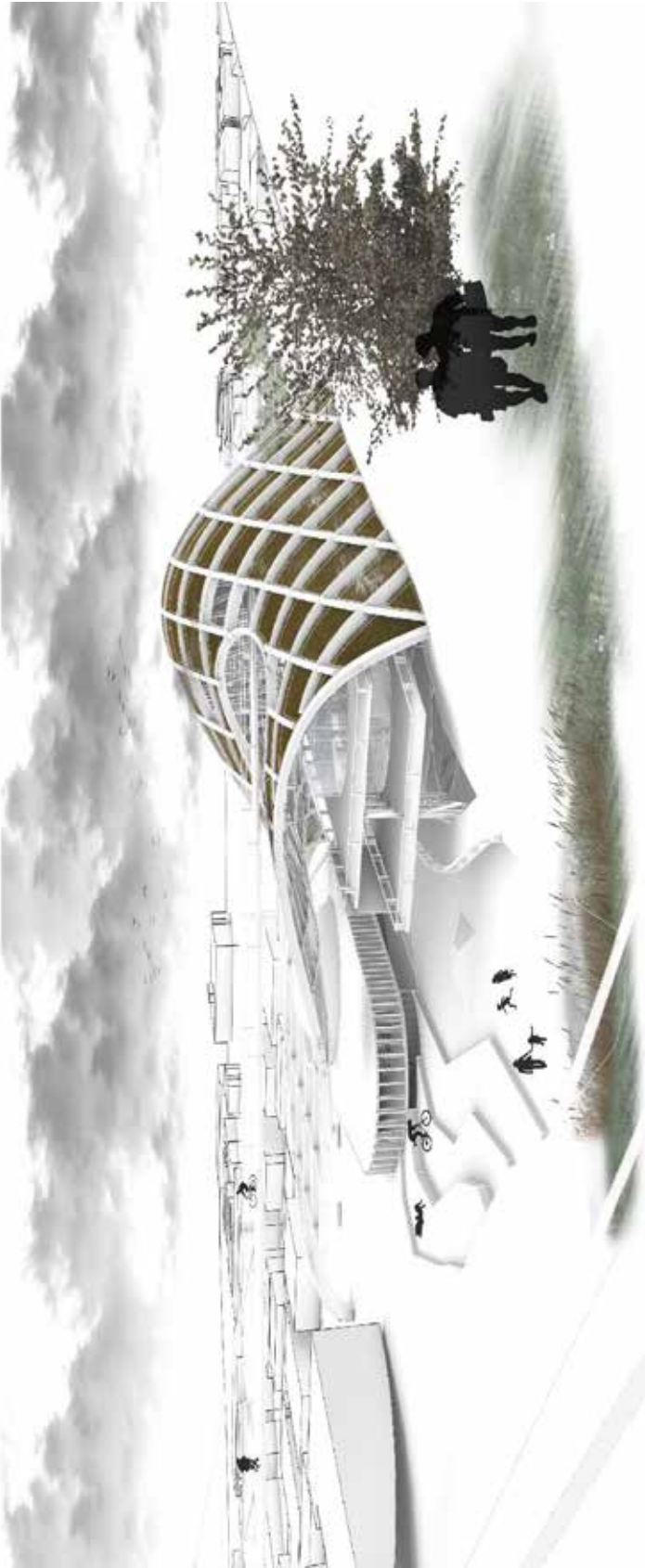


Figure 22: Henderson, Exterior Perspective of Cycling Hub



Figure 23: Henderson, Plaza and Cycling Hub

Taylor Lord: “A Farmstead”

This concept is about culture, nature, and art: a greenhouse farmstead. Elevated west through the area’s existing naturescape, the greenhouse would add to the harmonious nature aesthetic. Light and nature could improve the space, creating a transformation from the edge of the urban center to untamed nature, while providing quick and easy access up to OHSU. Programming the greenhouse for the use of sustainable farming, vertical gardens, and farm to table restaurants in the area’s food desert could provide an additional community asset. Furthermore, introducing biophilic architecture consistent with adjacent ecology could play on the positive benefits of nature and holistic health programs at OHSU.



Figure 24: Lord, Proposed Tower



Figure 25: Lord, Building Section



Figure 26: Lord, Proposed Plan



Figure 27: Lord, Proposed Building Intervention

Serena Abouchar: “The Walk”

This concept connects health and community with history and nature, by blending the landscape into art. It weaves through existing infrastructure to connect OHSU to the Southwest Waterfront and provides both an efficient and leisurely walk to the top of the hill. The anchor of the plaza is a museum that highlights the history of immigration in Portland as well as the role of landscape in past and present Portland.



Figure 28: Abouchar, View from Bridge



Figure 29: Abouchar, Proposed Overlook

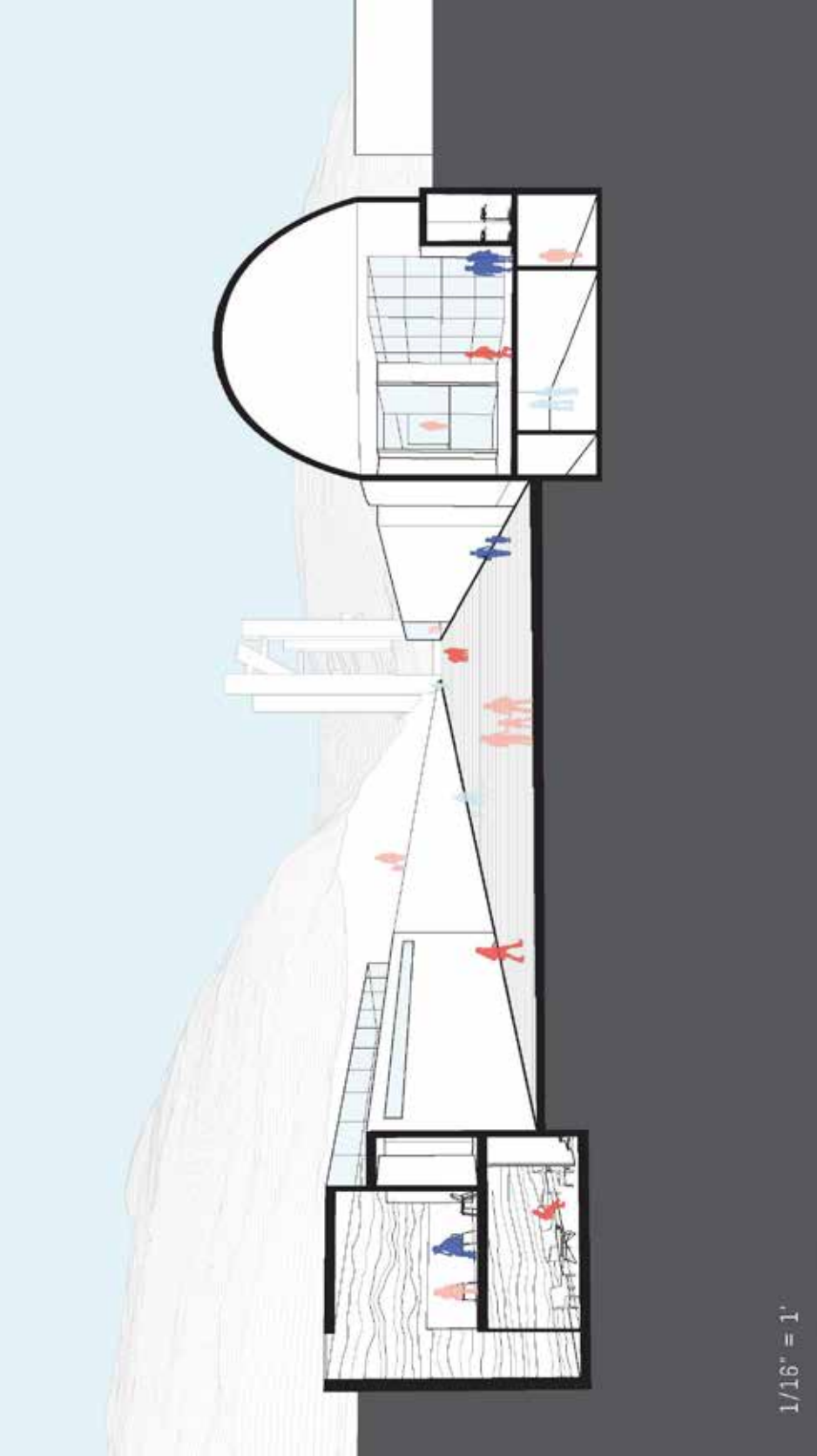


Figure 31: Abouchar, Section through Plaza Entry

Plaza Transitional Intersection Student Concepts

The plaza could be a space at the intersection of a built environment (Lair Hill) and nature (the Parkway). These students asked how we effectively and sensitively deal with this transition between the two.

Andrew Calnen and Travis Walsh: “The Transition”

This concept explored urban biodiversity in a dynamic public space. The students believed that an urban design approach of establishing a cultural plaza to provide a place for learning about eco-regions in Oregon as well as the processes behind urban agriculture could offer an educational interface with the surrounding community—bridging nature and community values.



Figure 32: Calnen and Walsh, Proposed Site Plan

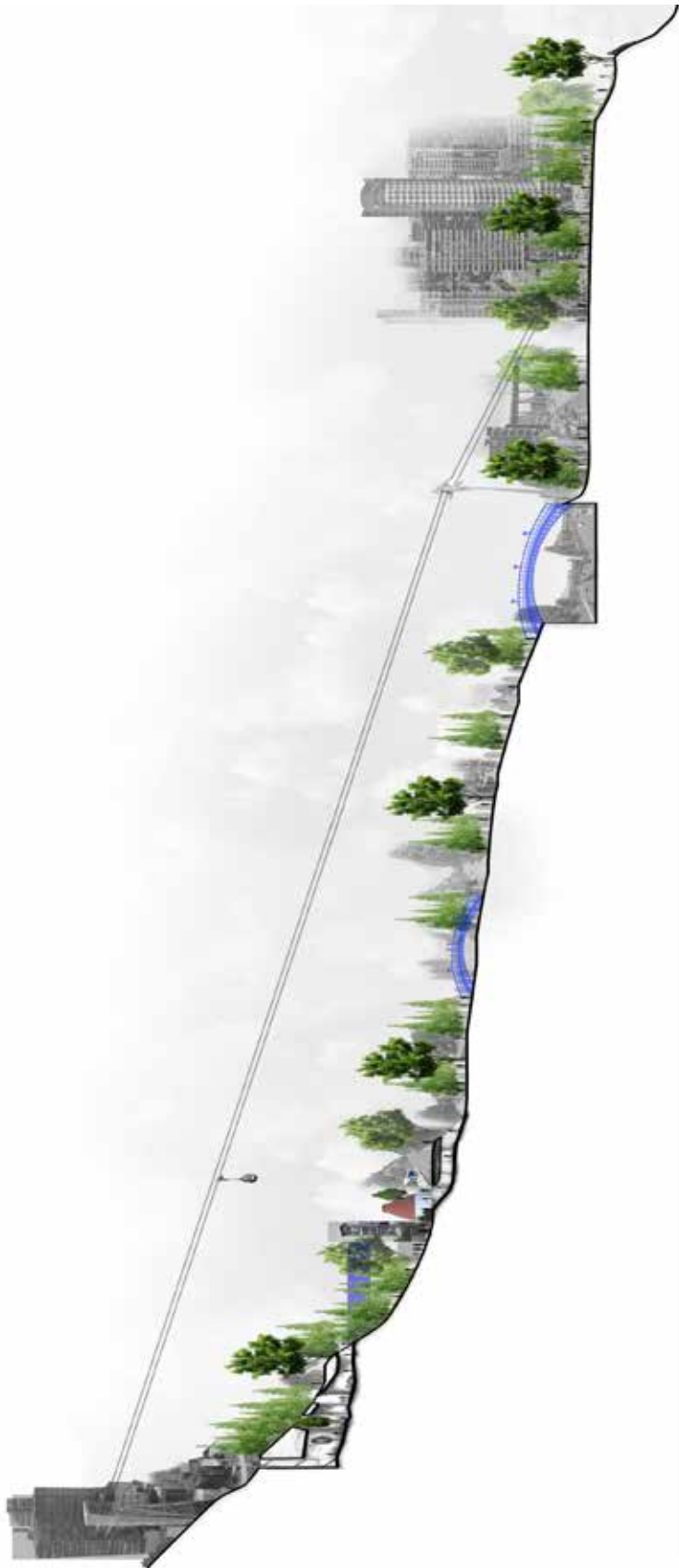


Figure 33: Calnen and Walsh, Existing Site Section with Proposed Interventions



Figure 34: Calnen and Walsh, *Ecologically-based Site Interventions*



Figure 35: Calnen and Walsh, Exhibition Space Interior



Figure 36: Calnen and Walsh, Market Hall Interior

Topography Design Opportunity Student Concepts

This group set out to capitalize on the dramatic topographic conditions of the areas and use the slopes for design inspiration.

Clarke Templeton: “Wellness Tower”

This concept is a two-sided wellness tower positioned on the vistas of Marquam Hill, to appreciate the therapeutic qualities of the surrounding nature on one side and the city vista on the other. The tower could serve as a pass through for customers and employees of OHSU’s Health and Wellness Center to an intermediary position along the commuter procession to OHSU.



Figure 37: Templeton, Multi-Use Path



Figure 38: Templeton, Cross Section through Building and Wellness Tower



Figure 39: Templeton, Switchback Procession



Figure 40: Templeton, Guided by Design

Melina Misri: “Renaissance System”

This concept focused on non-invasive and sustainable approaches. It was inspired by Italian Renaissance gardens, the historic use of simplistic hydraulic systems, the use of native and cultivable vegetation, and experiential connections to nature. Through these principles an overarching framework could be utilized in the landscapes to revitalize the area’s topography.



Figure 41: Misri, Proposed Design Intervention



Figure 42: Misri, Building Approach from the Trail



Figure 43: Misi, Section through Design Intervention

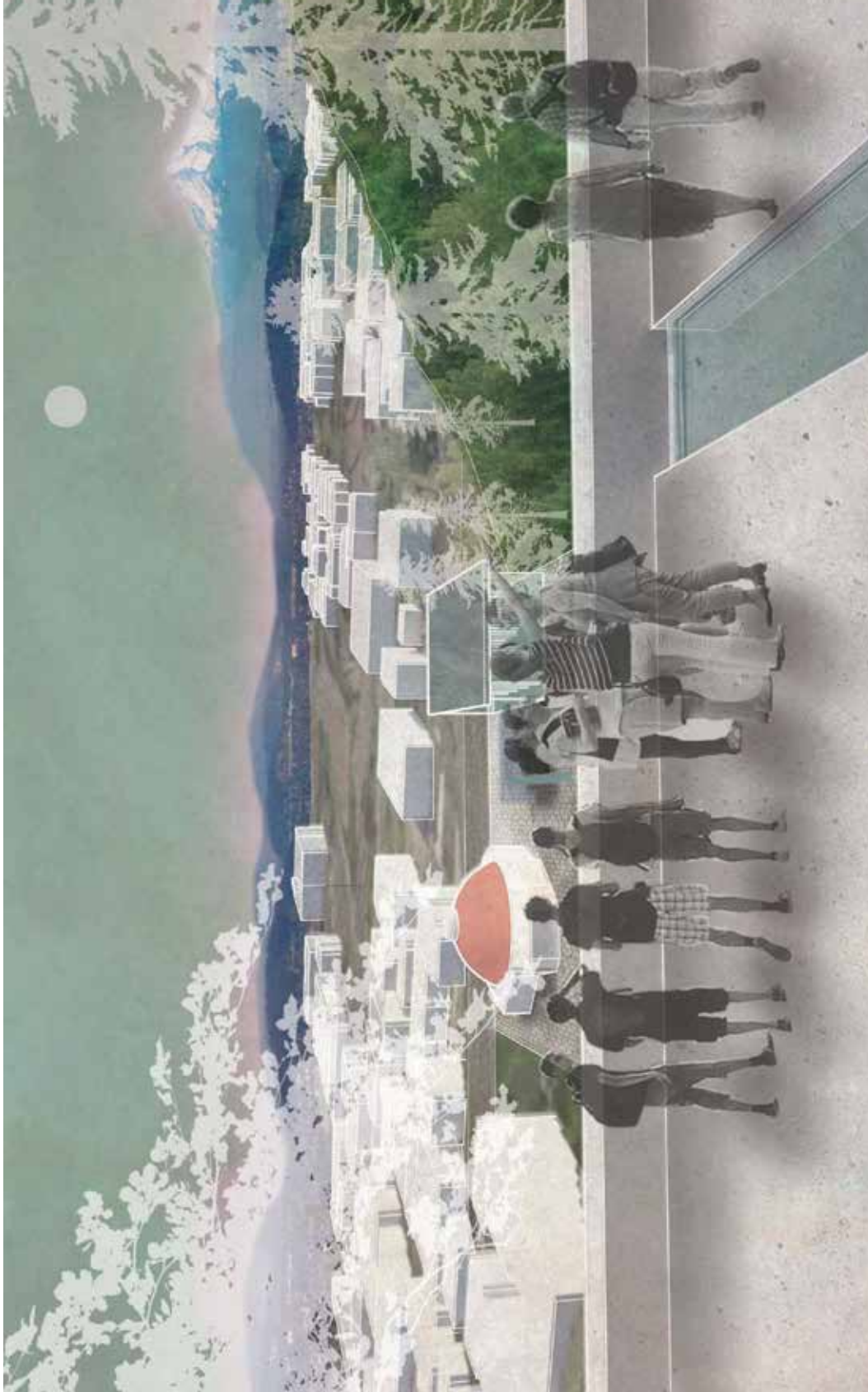


Figure 42: Misri, Building Approach from the Trail

Jilian Carlo: “Living Machine”

This concept uses acoustics to increase the sensorial experience in conjunction with a hydrological system via a living machine. The project weaves a living machine, wastewater treatment system, and stormwater treatment path within the existing urban fabric of Marquam Hill. The treatment processes could culminate at what could be known as the “Living Filter Education Center,” a place where visitors could learn about sustainable practices for managing groundwater to improve ecological functions and public health.



Figure 45: Carlo, Building Exterior View



Figure 46: Carlo, Pedestrian Trail



Figure 47: Carlo, Entrance Plaza

Tunnel Opportunity Student Concepts

These students considered the tunnel option, a challenge to make an underground space that's both humane and inviting.

Brianna Waggoner and Matthew Kisseberth: "Hydrological Sensorium"

The concept was inspired by the journey of water. The creation of a new subterranean system could preserve ecological functions while educating pedestrians.



Figure 48: Kisseberth and Waggoner, Underground Section

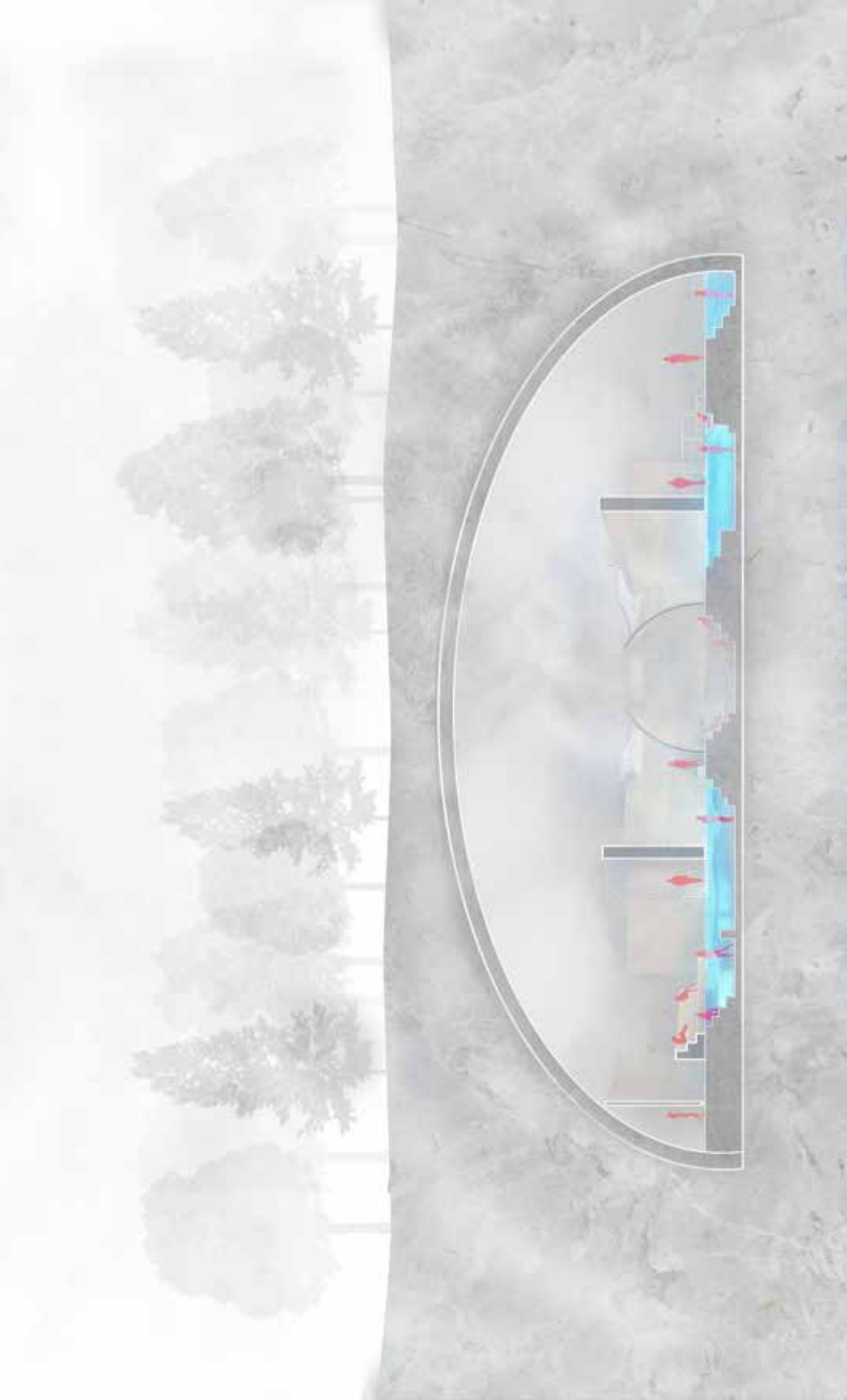


Figure 49: Kisseberth and Waggoner, Underground Section through the Tunnel

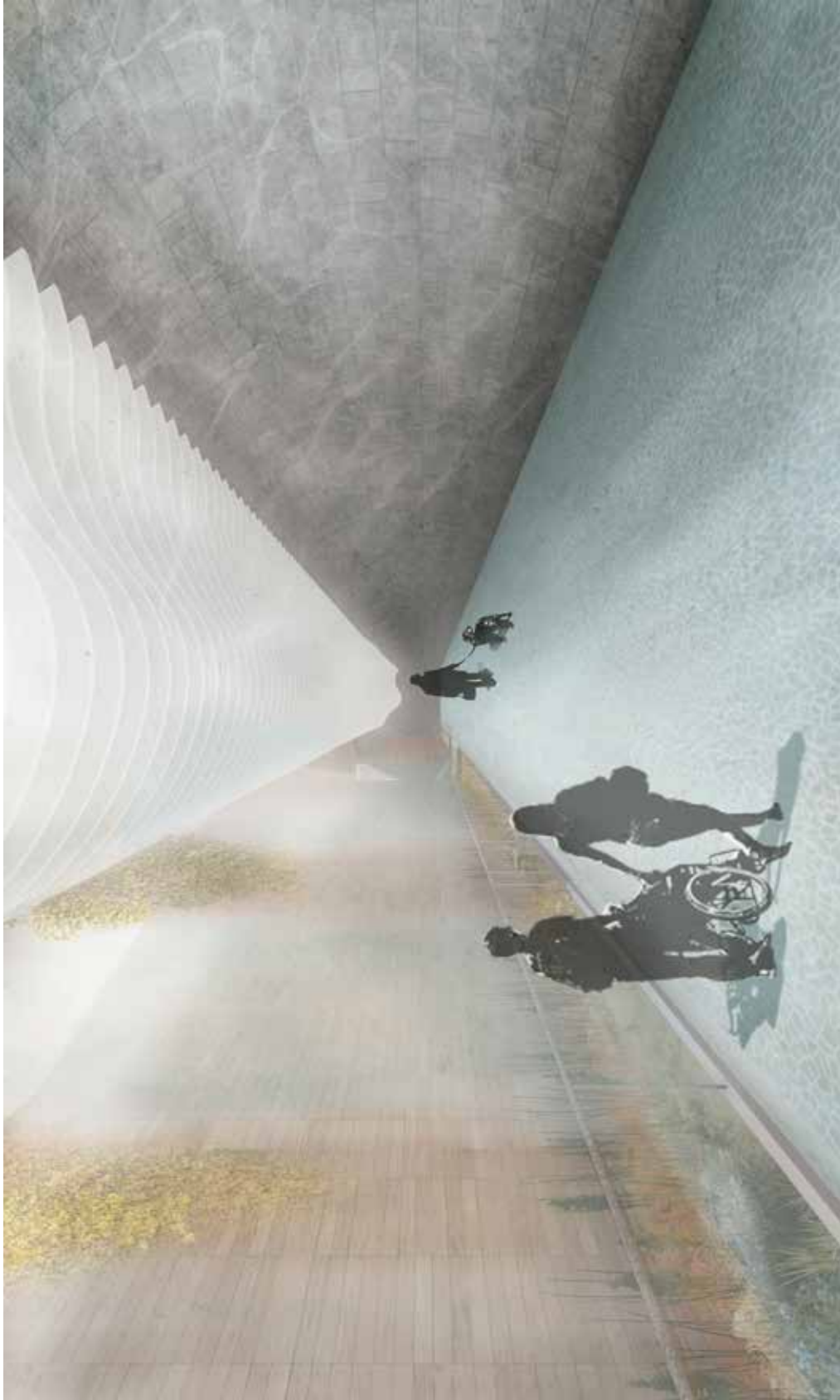


Figure 50: Kisseberth and Waggoner, Interior View from the Tunnel



Figure 51: Kisseberth and Waggoner, Interior View of the Courtyard



Figure 52: Kisseberth and Waggoner, View from the Bathhouse

Rachel Hall: "Geology"

This concept aimed to change the stigma of underground tunnels and spaces by enhancing the quality of light and revealing the dramatic geologic history in the tunnel. Informed by the site's geology, this pedestrian tunnel and elevator core, which lie 100 feet below, could educate commuters to the natural world below.



Figure 53: Hall, Geo-sectional Report of Site Conditions

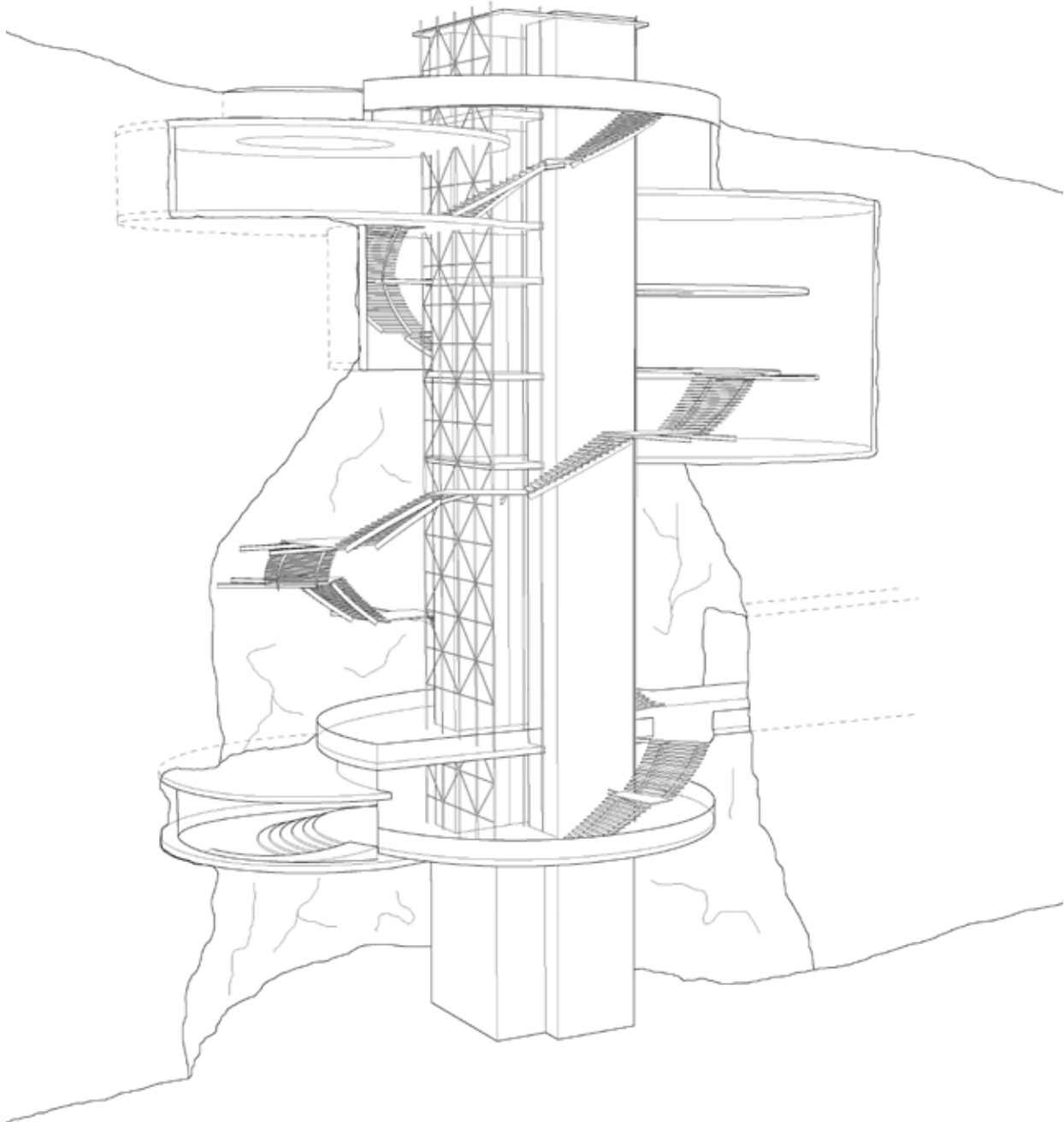


Figure 54: Hall, Section through Tower

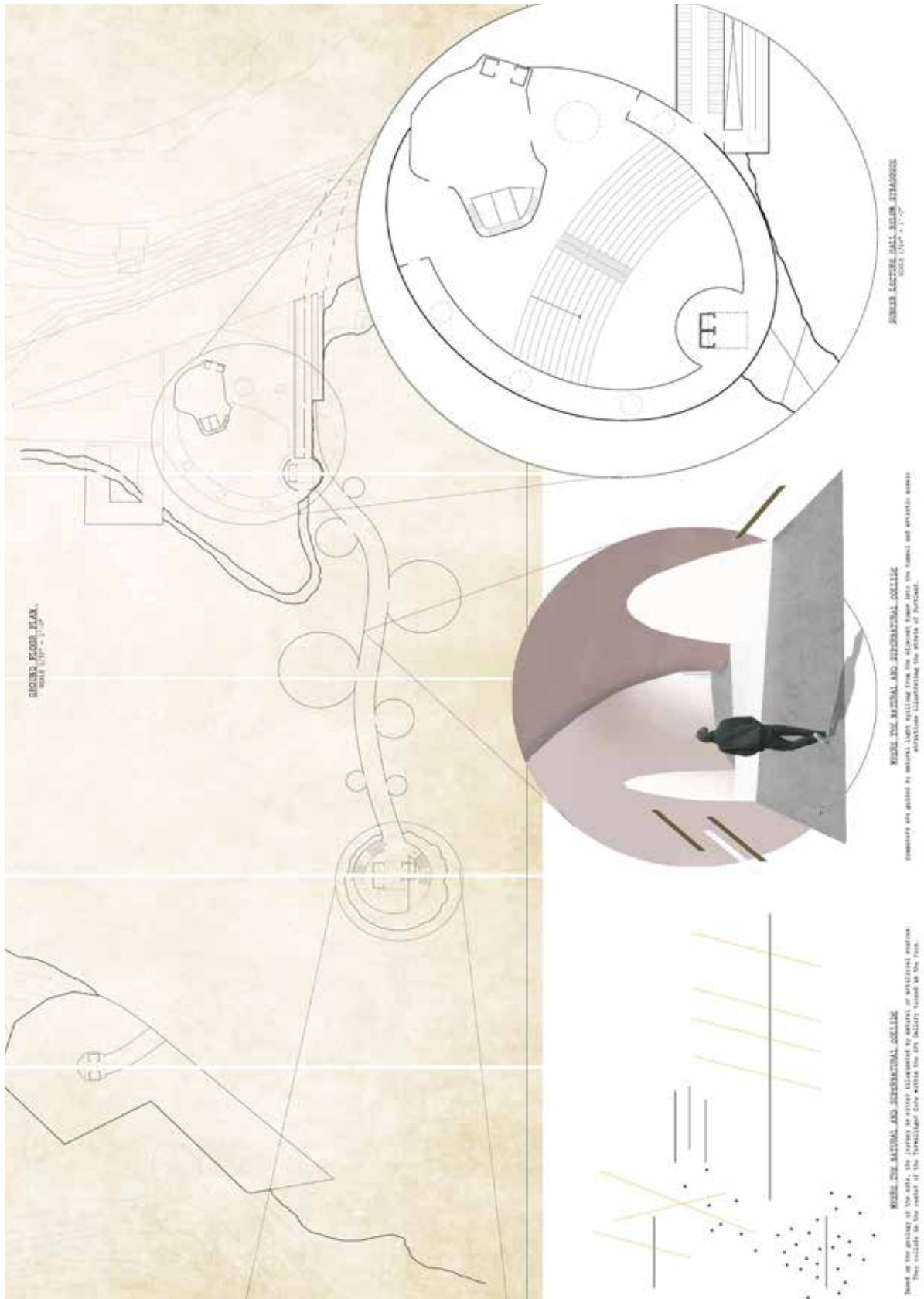


Figure 55: Hall, Ground Floor Plan

Opportunity for Health and Wellness Student Concepts

This group of students considered how to bring wellness and health uses up on the hill down into the community, and likewise bring community uses up the hill.

Tygue Wierda: “Triple-Bottom Line”

This concept uses best practices of sustainability and social equity to influence public space. Since the “triple-bottom line” of sustainable urban design is composed of environment, ecology, and economy, full sustainability can’t be met if one of these is not achieved. The student examined biophilic architecture as an approach. While biophilia is beneficial to urban residents, public investment of this sort can catalyze gentrification—a process known as green gentrification. The student considered the relationship between greening a space for health benefits with the people who will benefit in the short- and long-term, with a particular focus on lower income or minority neighborhoods undergoing revitalization. This student’s concept advocates for a complex and nuanced urban physical and social plan, one that understands how architecture could be supported by policies to ensure equitable and sustainable benefits for all.

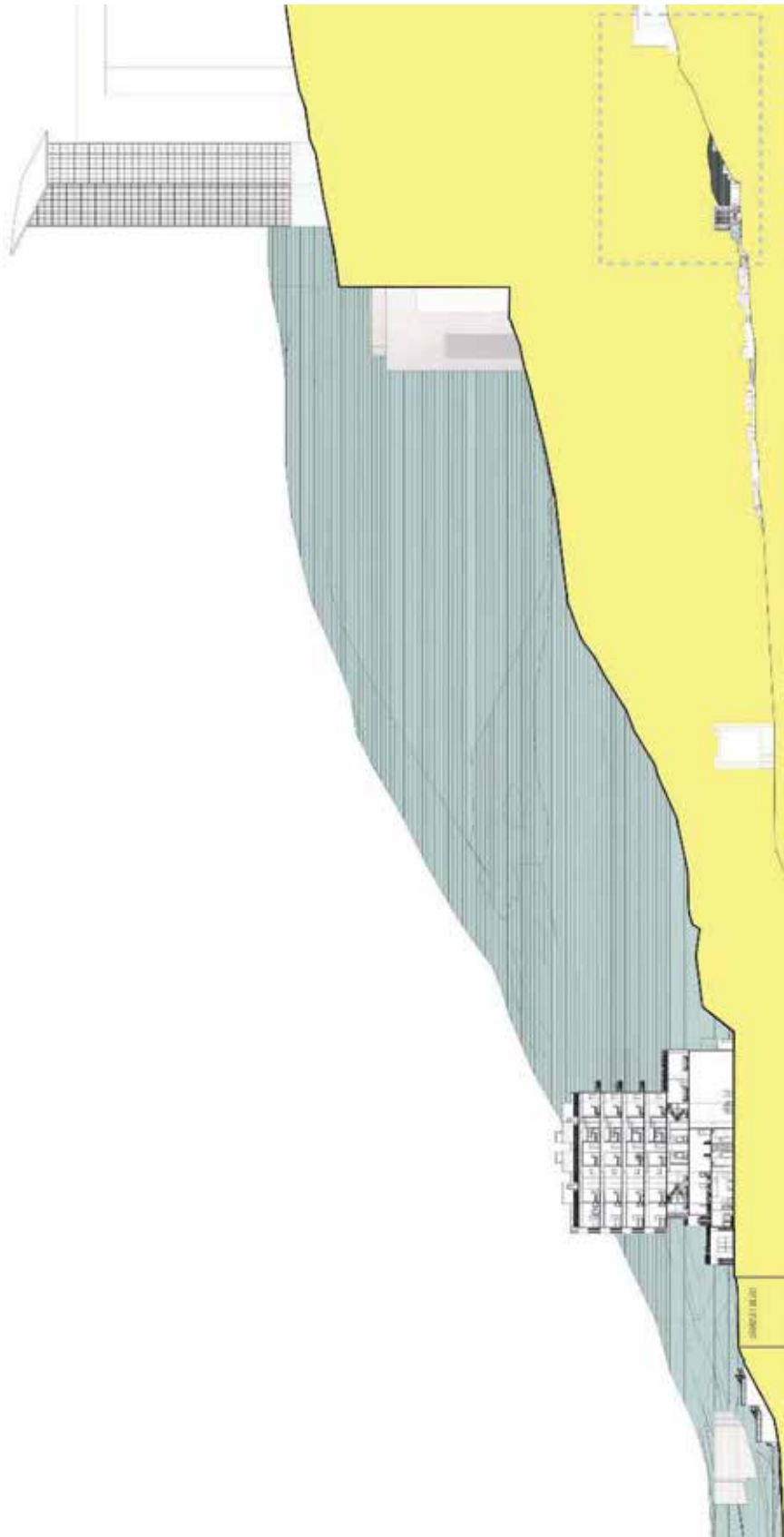


Figure 56: Wierda, Section through Site

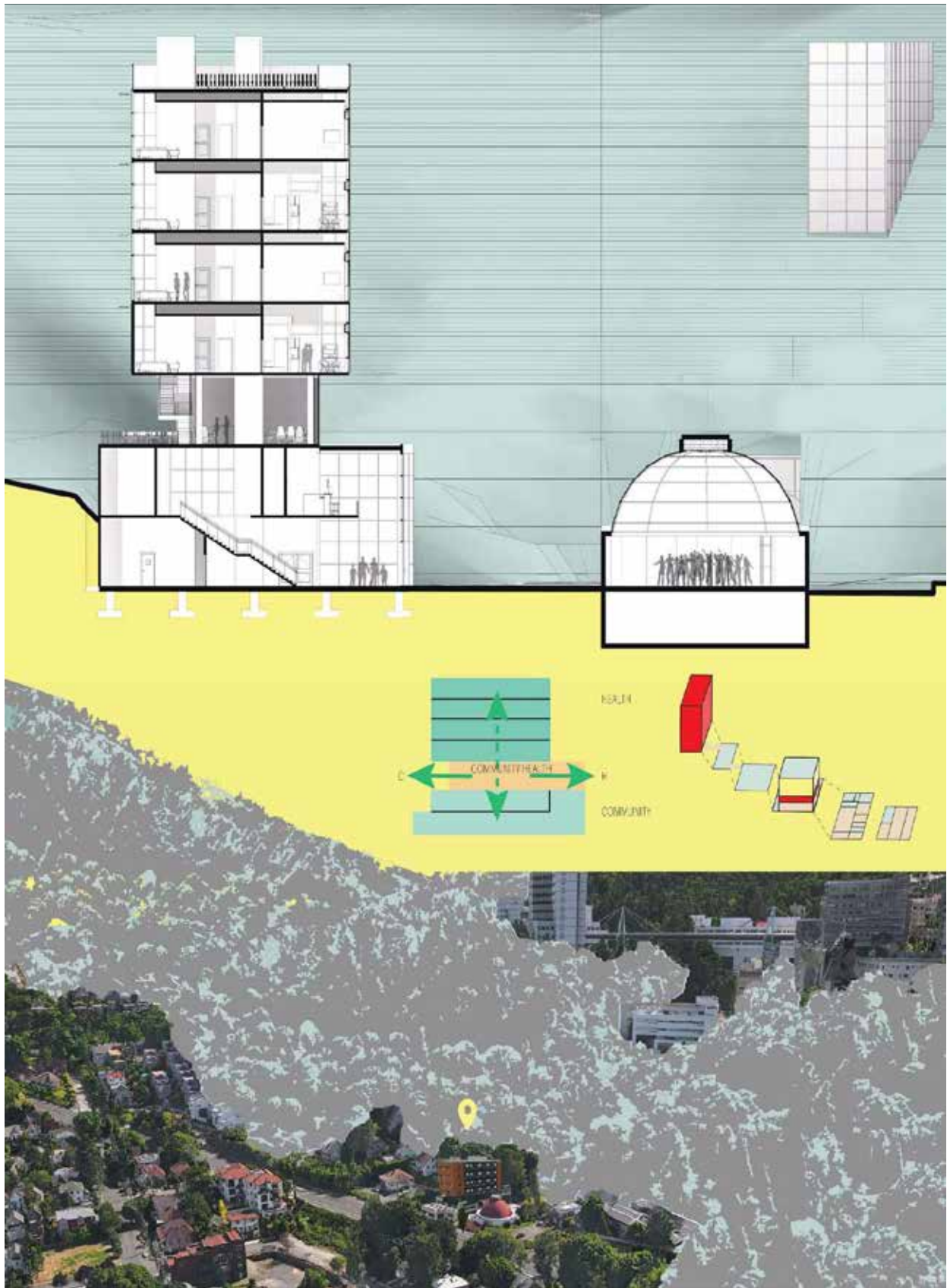


Figure 57: Section through Buildings

Erica Parrish: “History”

This concept creates an urban framework and civic pavilion at Terwilliger Parkway that could enliven the communities between South Waterfront and OHSU with wayfinding about the new light rail station. Inspired by the catenary curve, the pavilion could become a place where history could connect commuters to their environment. Located at a significant viewpoint along Olmstead’s 1903 parkway corridor, the Terwilliger Pavilion could create a civic shelter in the park that would function as a transit hub for the community. This flexible and welcoming space is a place that connects friends and neighbors, to learn the history behind Olmstead’s Terwilliger Parkway Corridor plan and grab a coffee on the way to work.

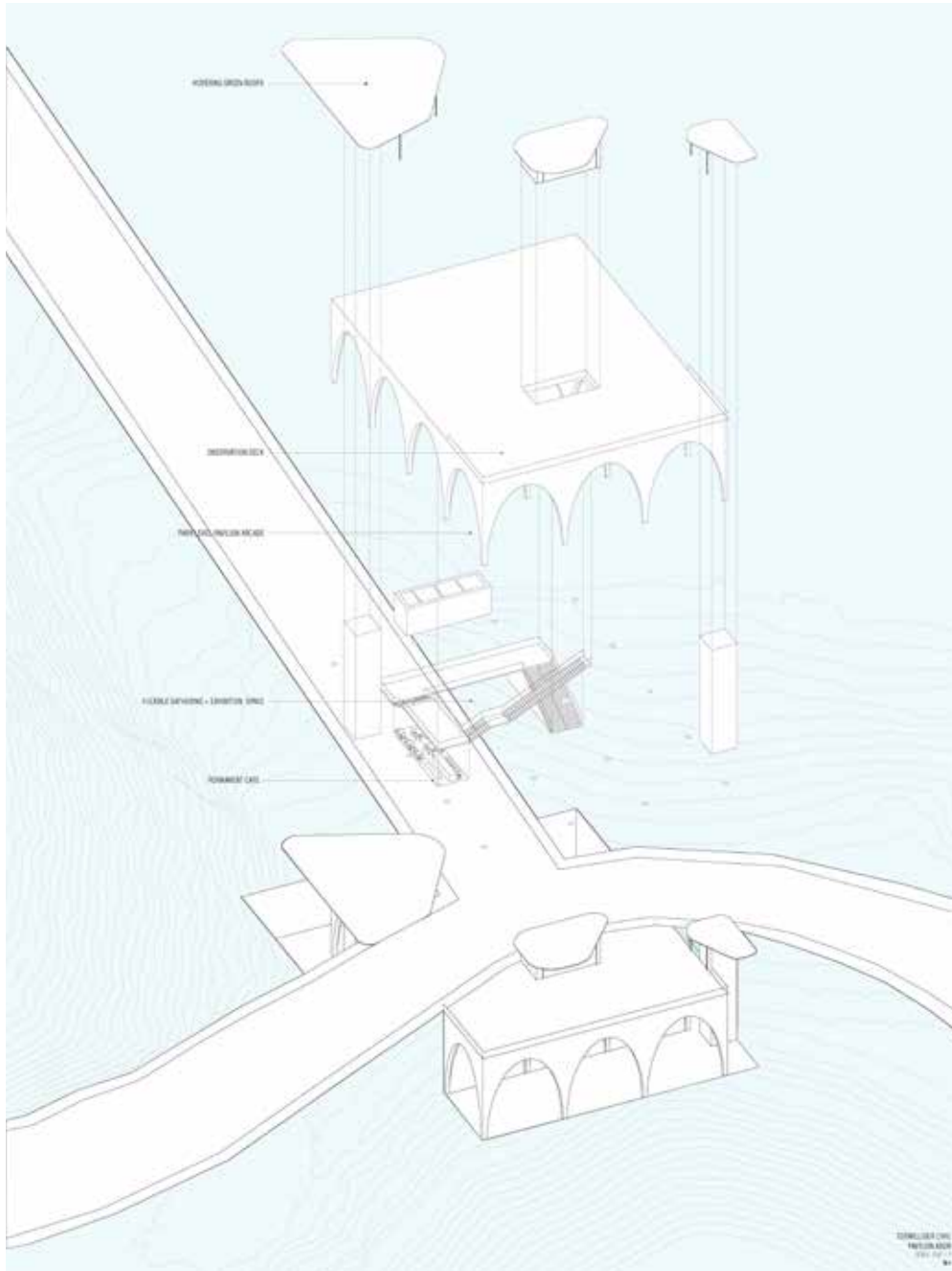
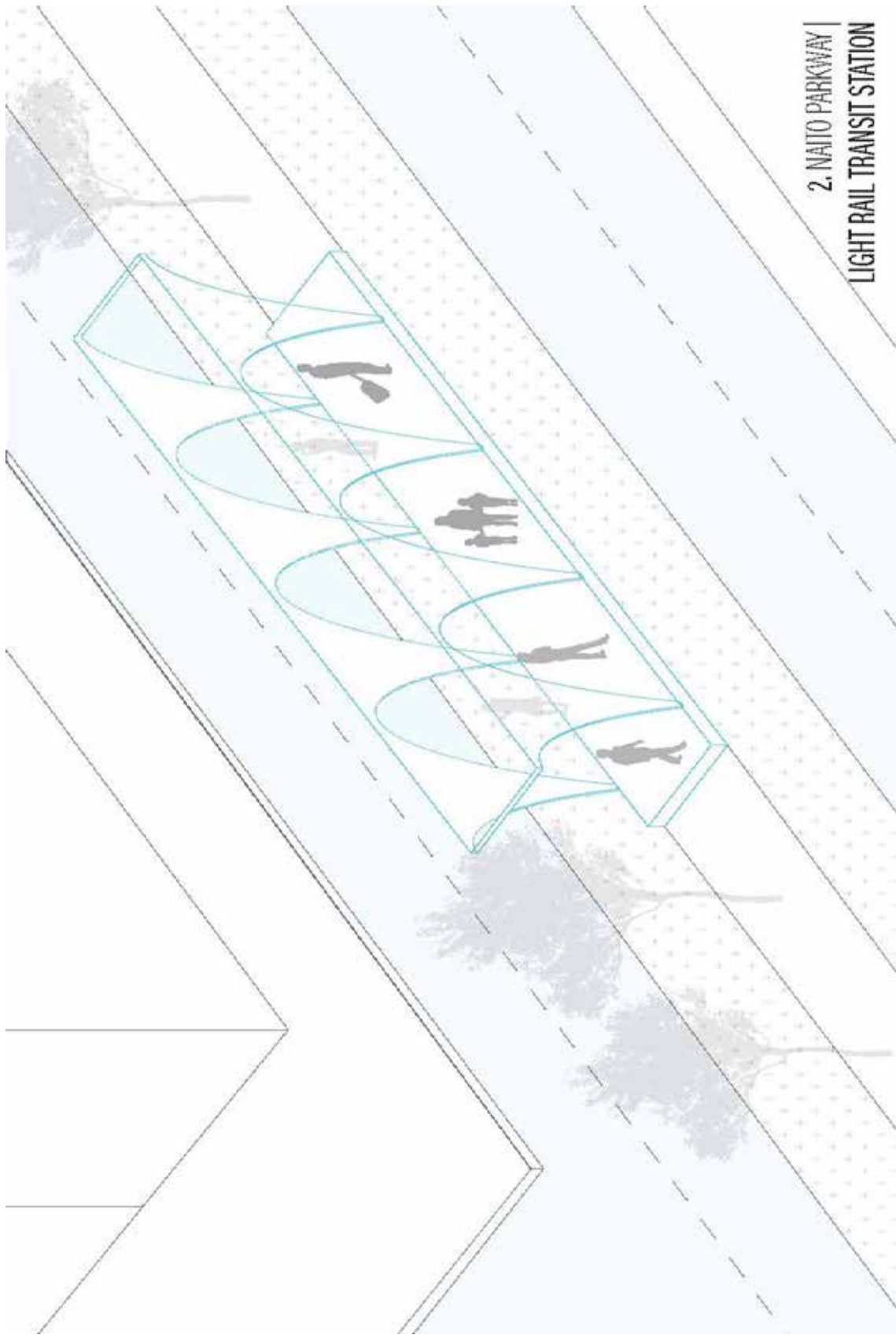


Figure 58: Parrish, Axonometric Diagram



2. NAITO PARKWAY |
LIGHT RAIL TRANSIT STATION

Figure 59: Parrish, Integrated Transit Design

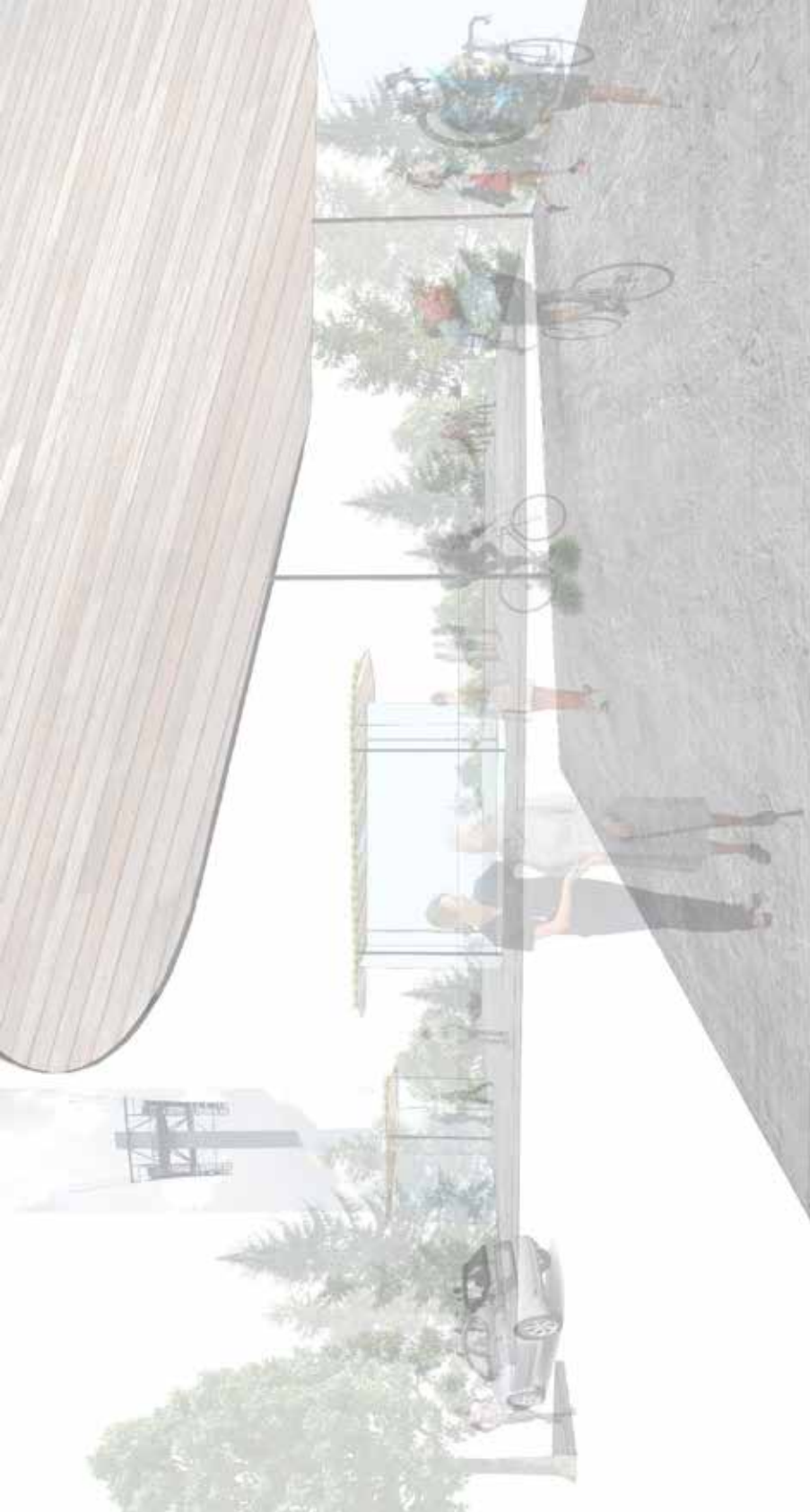


Figure 60: Parrish, View from Plaza

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