SENSORIAL ECOLOGY: THE HAPTICITY OF SITE

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This work is for each of my parents. The tenacity of my spirit is the result of their unyielding love. Thank you.

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ABSTRACT:

This project intends to expose the intense rapport between self and the environment via the experiential nature of the haptic realm. The theoretical objective behind the research, and its accompanying explorations, explores the haptic potentials of the creative process, in order to arrive at a more sensually awakened design application. The research is driven by countless interrogations. However, in the end there is one prevalent concern: can the haptic perception and corporeal experience of a site, and its scars, cultivate transformation, while also echoing its past? By means of conceptual design, the work explores a postponed, urban terrain's existing and potential haptic qualities, in order to provide Landscape Architecture discourse with a contemporary method of revealing site through our own sensorial ecology.

KEYWORDS

Hapticity, Haptic Potential, Multi-Sensory Experience, Transformation, Initial Conditions

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CHAPTER I: INTRODUCTION

DESCRIPTION OF PROJECT

So much of human interaction and engagement with the natural world is based on how individuals perceive the surrounding landscapes. More often than not, the outside world seeks to appeal almost entirely to a single modality - vision. However, the visual sensation alone cannot sustain the sensory stimulation needed in order to derive at a clear understanding of the environment. The intimacy of space and place is inherently a collective experience, and yet the our environment often neglects the human necessity for multi-sensorial balance. This project intends to expose the intense rapport between self and the environment via the experiential nature of the haptic realm. My research is driven by countless interrogations. However, in the end there is one prevalent concern: can the haptic perception and corporeal experience of a site, and its scars, cultivate transformation, while also echoing its past? By means of conceptual design, the work explores a postponed, urban terrain's existing and potential haptic qualities, I order to provide Landscape Architecture discourse with a contemporary method of revealing site through our own sensorial ecology.

UNCOVERING AN INDIVIDUAL PERSPECTIVE

Human beings require multi-sensory stimulation throughout their daily lives to facilitate appropriately one's perception of the surrounding environment. As a result, sensory impressions play a vital role in both cognitive and physical development. Given that these percepts of information help to cultivate the mind, as well as promote physical well-being, there is a substantial need for human beings to achieve a dynamic balance of sensual experiences. This internal balance of sensory information is directly related to our ability to understand both the manmade world, as well as the earth's natural processes,

which are the foundation for all life. Given that our mental and physical well-being is contingent on this equilibrium of sensorial encounters, it is imperative for human beings to acknowledge the prominence of the body's contribution to our perception of the surrounding environment. Throughout my life, I have always tended towards a holistic view in regards to my participation with the outside world, and vice versa. This existential notion of sensual collaboration is reinforced in the book, *Parallax*, whose author, architect Steven Holl, affirms:

> The smell of rain-wet dirt, the texture merged with the color and the fragrance of orange rinds, and the steel-iced fusion of cold and hard: these shape the haptic realm. The essences of material, smell, texture, temperature, and touch vitalize everyday existence. … When sensory experience is intensified, psychological dimensions are engaged (70-71).

Rooted firmly in the phenomenology of architecture, Holl presents his fascination with the dynamic relationships between scientific innovation, human perception and built form. What is more, Holl advocates for "enmeshed experience" and insists that:

> From the optic-haptic realm of material and detail to the connections of space developed in the light of the foreground, middle ground, and distant view, architecture is manifested in perception. … Enmeshed experience is not merely a place of events, things, and activities, but a more intangible condition that emerges from the continuous unfolding of overlapping spaces, materials, and detail. This "in-between reality" is analogous to the moment in which individual elements begin to lose their clarity, the moment in which an object merges with its field. From touching the smallest detail to sensing the movement of a body and its

> acceleration in space – all of these sensations criss-cross in the chemistry of things … (57-58).

This interwoven ambiance is unequivocally related to the organs of tactility and the haptic realm. Derived from a Greek word meaning "to lay hold of" the world, haptic, in itself reveals an extraordinary relationship between the modality of touch and the material world (O'Neill 3). And so, through tactile comprehension and corporeal experience, the three-dimensional world is held by way of hapticity. Not only does haptic perception allow us to comprehend current spatial conditions, the haptic embodiment of the landscape also heightens our sensitivity to the cyclical passage of time and therefore reveals the emergent evolution of materiality. Sincere comprehension of space and time transpires only through the unconstrained conversation between our sensory modalities and the environment, ultimately allowing each of us to respond accurately to the outside world. These ideas of haptic perception and time developed during my exploration of the writings of architect Juhani Pallasmaa. Time and again, Pallasmaa references the tenets of numerous theorists vital to architectural discourse, such as Maurice Merleau-Ponty, Martin Heidegger, and Henri Bergson. Although, I have been previously exposed to many of their ideas, Pallasmaa's writings helped to concretize their posture within my research. In his book, *The Eyes of Skin*, Pallasmaa argues that all knowledge of the outside worlds stems from the sensations of touch and haptic encounters. He writes:

> Touch is the sensory mode that integrates our experience of the world with that of ourselves. … My body remembers who I am and where I am located in the world. My body is truly the navel of my world, not in the sense of the viewing point of the central perspective, but as the very locus of reference, memory, imagination and integration (11).

In his texts, Pallasmaa expresses a concern about the prevalent visual dominance of modern culture. He suggests that the power and the aggressive nature of our visual faculty essentially encourages and, in due course, leads to the subjugation of the other sensory modalities, as well as to the separation and isolation of individuals from their surroundings. Pallasmaa insists:

> The hegemonic eye seeks domination over all fields of cultural production, and it seems to weaken our capacity for empathy, compassion and participation with the world. The narcissistic eye views architecture solely as a means of self-expression, and as an intellectual-artistic game detached from essential mental and societal connections, where as the nihilistic eye deliberately advances sensory and mental detachment and alienation. Instead of reinforcing one's body-centered and integrated experience of the world, nihilistic architecture disengages and isolates the body, and instead of attempting to reconstruct cultural order, it makes a reading of collective significance impossible. The world becomes a hedonistic but meaningless visual journey (22).

It is my contention, as well, that the modern world is mesmerized by the sheer potency of our visual faculty. At our own expense, the eye, in vain, dictates and controls the quality of our experiences. Unable to foster sincere connections and interactions, this superficial organ yields fleeting sensations, rarely forming lifelong memories, and ultimately denies us the experience of space and time. The need for balanced sensual experience is indisputable. Although hapticity and corporeal experience are grounded in tactility, our bodies are dynamic ecosystems in need of poised sensorial experiences. Even with the emergent conditions of the modern world continuing to perpetuate visual dominance, we must begin to

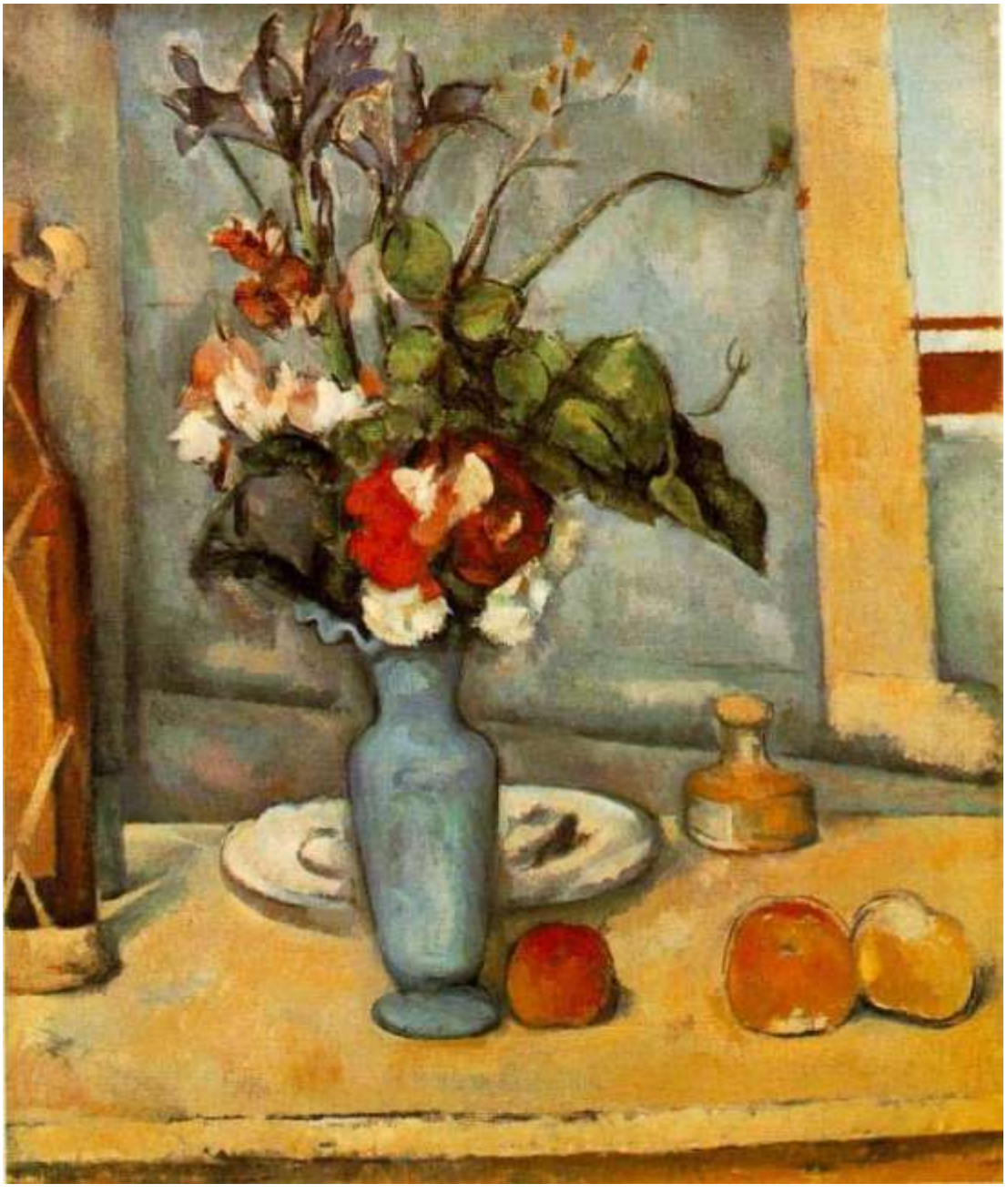
reawaken ourselves holistically, for multi-sensorial perception remains paramount. For this reason the task presented here, for present and future landscape architects, is to create spaces which engage all sensory modalities. By paying attention to materiality and detail, as well as time and transformation, we can shape the essence of spatial form into a holistic, sensual experience.

PRECEDENT STUDIES

During the course of my research, I discovered several precedents that embody the founding theories of my individual perception concerning design. Derived from various areas of art and design, each precedent study portrays hapticity and corporeal experience in a unique, innovative style.

THE BLUE VASE, PAUL CEZANNE, 1885-1887

Paul Cezanne is revered as the "Father of Modernism." The Post-Impressionist painter utilizes Impressionist color techniques to shape the harmonies in nature, however his regretful insight revealed that light consumes form and thus complicates sensory experience. Cezanne wished to give order to human sensory perception, rather than simply record the encounter. In the still-life, *The Blue Vase*, the artist, less concerned with verisimilitude, illuminates visual confusion by unveiling differing viewpoints and giving authority to the actual act of seeing. He painted the distortions of the eyes (Blake 15-20). Understanding that art is the result of immeasurable sensorial collaborations, Cezanne chose to illuminate the discontinuities and imprecise perceptions of our sensory modalities, alongside their accord.



Left: Paul Cezanne, *The Blue Vase*, Oil on Canvas, 1885-1887 (Blake).

Top: This is a photographic essay, taken in the fall of 2007, which depicts my experience of Halprin's *Portland Open-Space Sequence.* Starting on the left, the first three photographs are of the Ira Keller Forecourt Fountain. The fourth image shows the berms in Pettygrove Park. The last four photographs show different views of the Lovejoy Fountain, which was not in use at the time of my visit. (Photographs courtesy of the author.)
Bottom: Photographic detail of the Ira Keller Forecourt Fountain

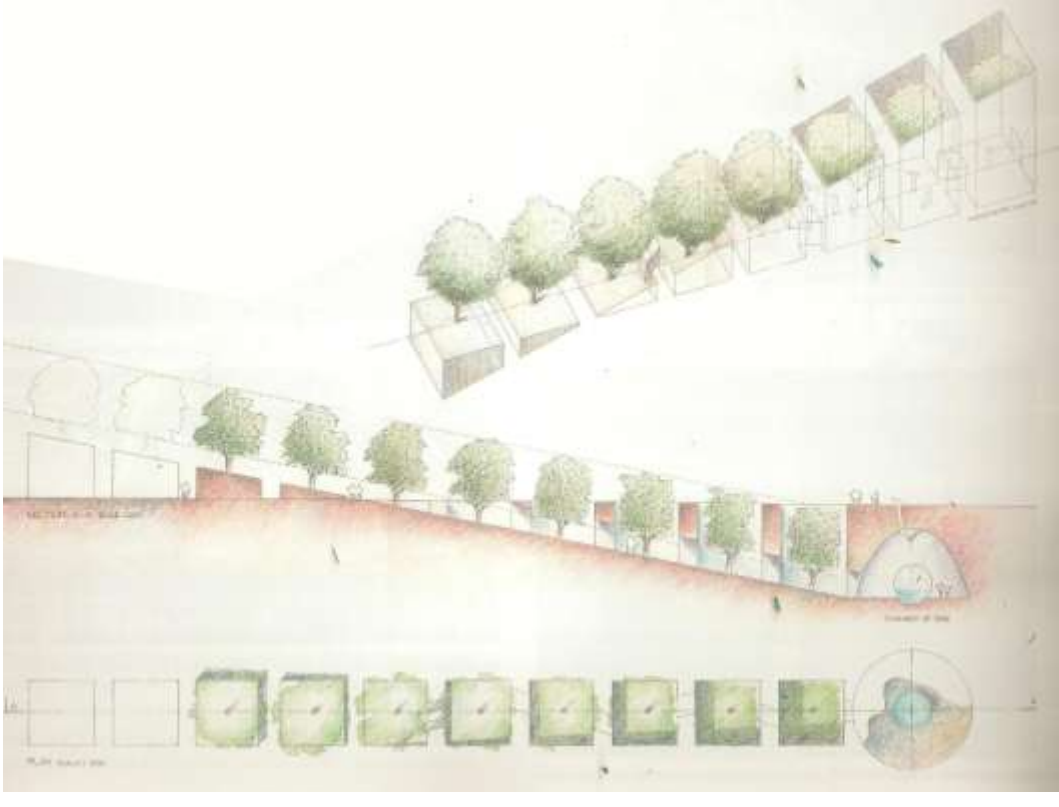
Portland Open-Space Sequence
Lawrence Halprin + Associates, 1965-1978

The *Portland Open-Space Sequence* was part of a redevelopment project intended to revitalize the public realm. Designed by landscape architect Lawrence Halprin and his team, the eight-block network unites three unique outdoor spaces – Lovejoy Fountain, Pettygrove Park, and Ira Keller Forecourt Fountain. A procession of spaces engages the visitors' sensory modalities in totality. Drawn from Portland's surrounding landscape and the movements of dancers, this sauntering series enmeshes the participant in intimate, haptic experience. In his sketchbooks, Halprin reflected, "the space is choreographed for movement with nodes for quiet and contemplation, action and inaction, hard and soft, yin and yang. … Finally

these places were for the first time designed to be used, to be participatory, *not* just looked at (Halprin 60-61; Cultural Landscape Foundation)."

GARDEN OF EMERGENCE
ROOM 4.1.3., 1989

This garden was conceived for "Inventor 89," an international ideas competition for monuments to commemorate the bicentenary of the French Revolution. The design consists of a row of trees that descend into a subterranean chamber that ends at water feature where droplets are dropped rhythmically onto a hot plate. The idea was conceived as a representation of Time (Weller 130).



Above: This image displays the sections created for the "Inventor 89" Exhibit.

Travel Diary

Just like that, the opening
of an eye. An apprehension in the ascending lid,
deciding proportion, engraving.
The eye knows plainly inside, outside. *Last Night*
Trees exhaled as if the breeze relieved them. I'm feeling

disoriented into the land, its demanding roads
so ongoing, horizontal and trailing
like exhaust the beautiful sentences,
flat history flowering
in its cursive hand. *Trees exhale*
and the leaves fall. The eye's mute reference,

the character of travel,
presence opening into the letters, and the now
becomes a trail of letters behind it like hair.
Last night the trees let go of leaves like exhaling,
relieved at this lessening, and the leaves
as fine scales in their shifting descended

their only distance, ideal their notion of journey
as in any travel diary. That's what I'm seeing.
I wrote, that's what I'm writing. As if

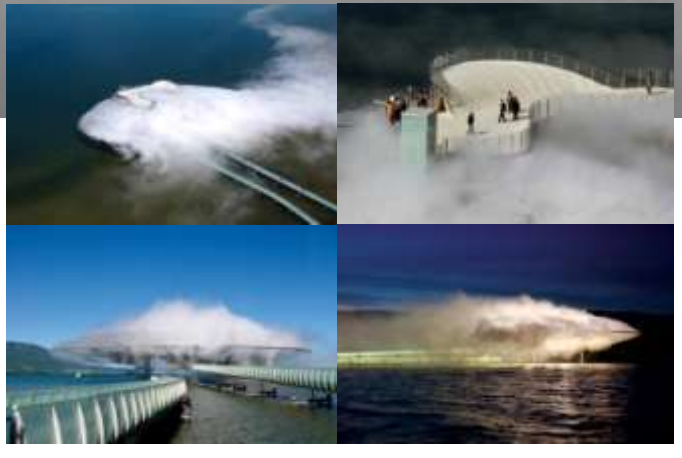
words plainly interested in their surroundings
record the entire: *Majuscule, Minuscule.*
I'm battered by the *lasts nights,*

and the *meanwhile* especially,
whose axis radiates like steam, whose axis
records ongoing. The eye opens or the eye closes,
the irresponsible, servile eye. Into the alphabet of the eye

the howling wilderness of letters, characters in a tract,
digging in at the heels (Newman 2-3).

TRAVEL DIARY
AMY NEWMAN, 1999

In her poetry, Amy Newman captures the essence of corporeal experience. Her words summon our sensorial modalities and offer up the extraordinary union of ourselves with both the natural world and time. The poem *Travel Diary* speaks to the sensations of the eye, although the words within beckon the other senses. The work is concerned with the hegemony of our visual sense and this organs' unrelenting indifference towards the natural world, as well as history and mortality. Newman emphasizes the passage of time through the embodiment of environment, and simultaneously exposes the "irresponsible, servile" character of vision.



Top: This picture was taken from within the Blur structure and shows the participants' experience Diller Scofidio + Renfro, *Blur Project).*
Right: These four photographs present the cloud-like space from various perspectives (Diller Scofidio + Renfro, *Blur Project).*

THE BLUR PROJECT

DILLER SCOFIDIO + RENFRO, 2002

Built for the Swiss Expo 2002, *The Blur Project* challenges traditional visual and architectural functions through the existential exploration of corporeal perception. In response to our overdependence on our visual faculty, the architects, Diller Scofidio + Renfro, designed an experimental cloud-like inhabitable space, which forced visitors to rely on their haptic sensory modalities to attain spatial analysis. Hovering just above the surface of Lake Neuchatel in Yverdon-les-Bains, Switzerland, the lightweight tensegrity structure, interwoven with ramps and paths, utilized an intricate misting system of filtered lake water to create an opaque vapor, or blur. From the shoreline and the entry ramp, the built form was obscured and a fog-like condition was produced. While the project seems impractical, the Blur was, and still is, an intense

Above Left: Richard Serra, *Snake*, Weathering Steel, 1994-1997. This photograph presents the sculptural piece prior to instillation (www.guggenheim.org).
Above Right, from Top to Bottom: Richard Serra - *Between the Torus and the Sphere*, Weathering Steel, 2003-2005; The Matter of Time, Weathering Steel, 2005; *Double Torqued Ellipse*, Weathering Steel, 2003-2004. These photos exhibits the pieces for Matter of Time after instillation in the Guggenheim (www.guggenheim.org).

lesson on the importance of embodied experience (Diller Scofidio + Renfro, *Blur Building*).

The Matter of Time
Richard Serra, 2005

Designed by Richard Serra, one of the most prominent sculptures of our time, this permanent installation, *The Matter of Time*, merges seven weatherproofed, steel compositions with his previous piece, *Snake*. Working in unison, these sculptures capture the gestures and ambiguities of spatial existence. Through this assemblage, Serra presents "real space to the viewer" (www.guggenheim.org). Encouraging interaction, the work evokes the corporeal experiences and haptic perceptions of its participants. Serra's spatial and temporal methodology creates an unanticipated

passage of form and measure. Paying tribute to both physical and experiential time, the sculpture releases hapticity, while industriously enticing memories "that linger and recombine and replay (www.guggenheim.org)."

The High Line

James Corner Field Operations (in collaboration with Piet Oudolf) and Diller Scofidio + Renfro, 2004-Present

Inspired by the beauty of urban ruin and the subsequent reclamation of nature, *The High Line* pays homage to its histories, celebrating the then and the now, as well as the meanwhile. Comprised of architects, landscape architects, landscape designers this team's agri-ecture methodology combines organic and built form to alter the human perception of "the wild, the cultivated, the intimate, and the hyper-social" (Diller Scofidio + Renfro, *The High Line*). Once an active freight railroad, this elevated, post-industrial space encourages distraction and

The illustrations above are digital perspectives of the *High Line* project (Diller Scofidio + Renfro, *The High Line*).

departure from urban life, while simultaneously connecting participants to the city from its voyeuristic perspective (Jacobs). The team's provocative approach to adaptive reuse exposes the transformative character of life and exemplifies the collaborative nature of multi-sensorial experience, as well as the process of design itself.

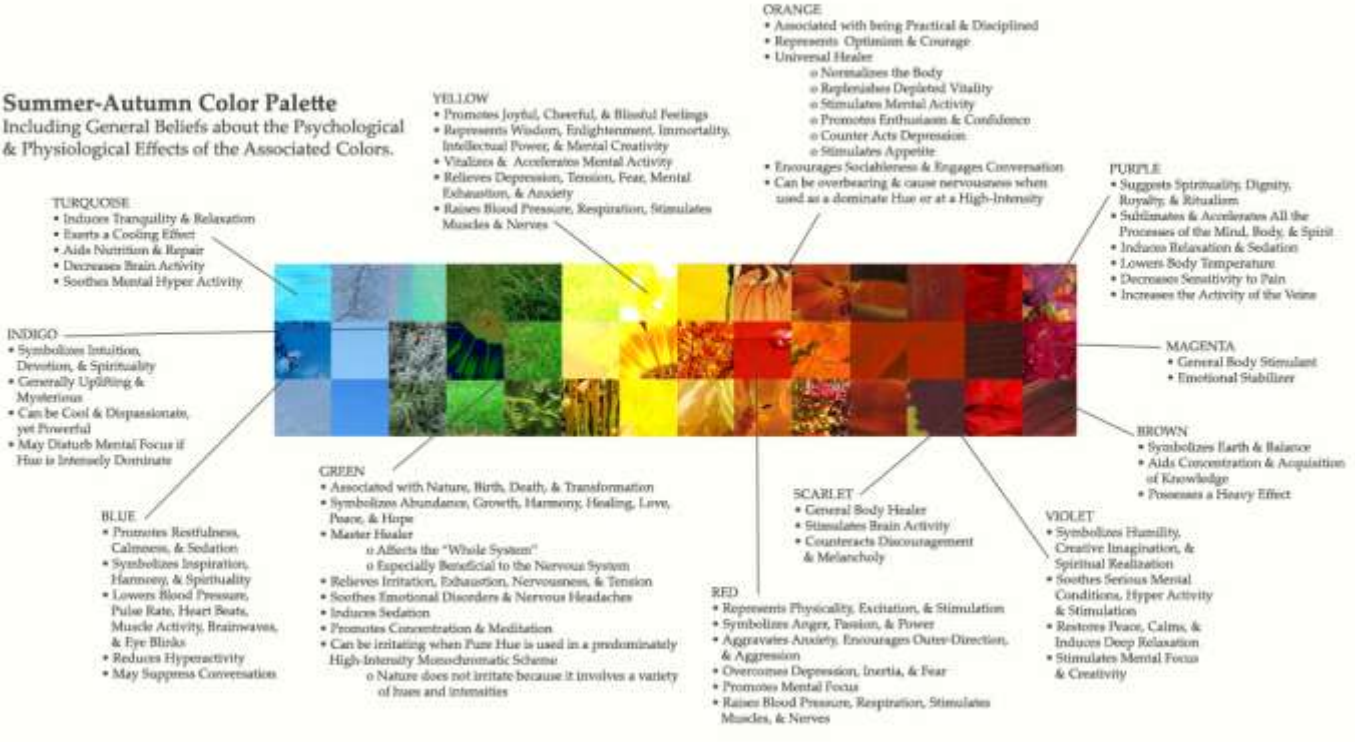
Chapter II: Sensory Phenomena

> Experience is understood not only via objects or things, yet space is only perceived when a subject describes it. As that subject occupies a particular time, space is thus linked to a perceived duration. The virtual body, as a system of nerves and senses, is "oriented" in space. It is either upside down or right side up. The body is at the very essence of our beings and our spatial perception.
>
> — Steven Holl, *Parallax* (13)

Multi-Sensory Experience

Human beings have an inherent need for sensory stimulation, and for this reason sensual experiences are paramount to an individual's

Left: This photographs was created to illustrate the human sensory organs (Photographs courtesy of fellow student, Amanda Simpson, and the author).



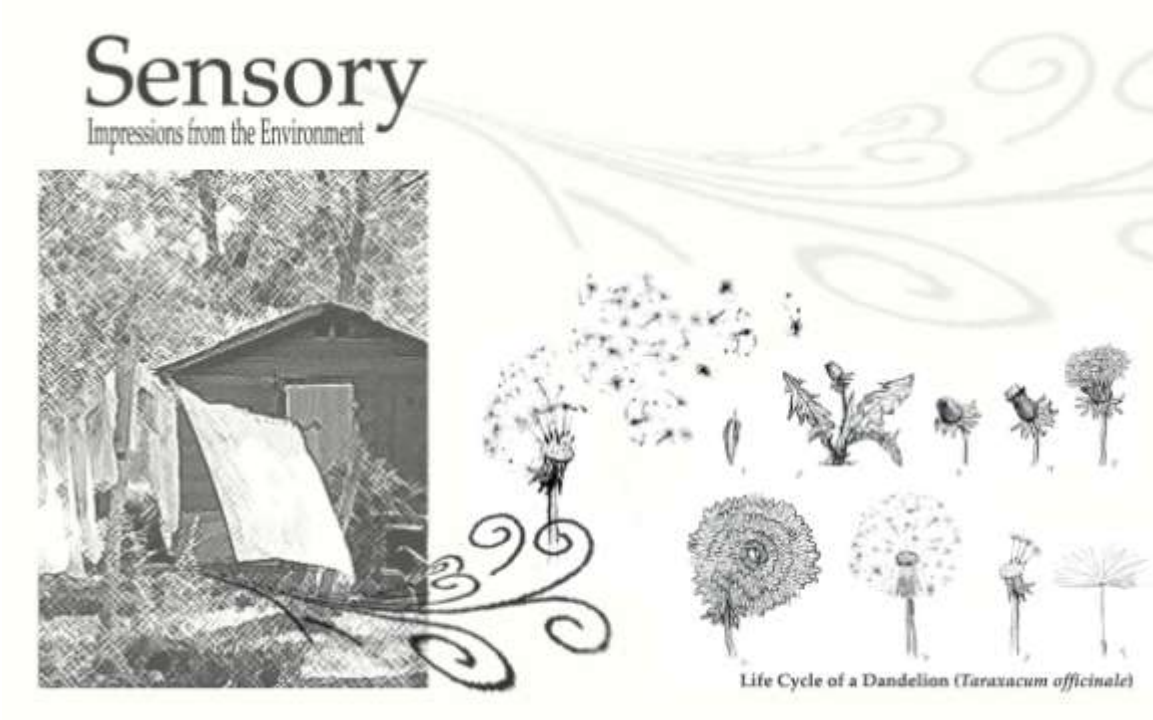
The above graphic was created to illustrate the reactions and/or experiences an individual might have in response to particular colors and their intensities. This color palette was based on environmental changes that occur within the seasons of summer and autumn. (Images courtesy of the author.)

psychological and physical growth. The most significant viscera of experience originates from the information, or percepts, we acquire through sensory stimulation. These impressions, which are largely gained from the outside world, both nurture and nourish the recipient - mind, body, and soul. The notion that the environment only affects organic well-being is significantly flawed. Psychoanalyst Harold Searles maintains that we possess a transcendental connection to the natural landscape, an affinity which he believes, has been grievously disregarded in modern times (Clayton and Opotow 6). Environmental perception is encouraged by diverse stimuli that distinctively appeal to the varying sensations of the human psyche. Often, vision is considered our foremost sensory experience. However, this assumption is not accurate. While these sense modalities inform us of our immediate surroundings, the received percepts are largely general. The heredities of sounds, smells, tastes, and tactilities actually offer much more exhaustive and detail oriented data concerning the body and its relationship to the external atmosphere (Pallasmaa 39-46).

THE DOMINANT EYE

As visual species, our optical experiences provide us with vast amounts of detailed and specific information about the surrounding environment. Our visual faculty has the ability to perceive 18 times more information than our auditory sense. However, this may be due to an active dependence on the eyes to gather perceptual data. What is more, this reliance on our ocular sense is largely a result of the eye's ability to cover superior distances when compared to our other sensations (Walker 13). Unfortunately, this propensity for sprawling observation characterizes the visual sense as an "organ of distance and separation" which, in turn, "surveys, controls, and investigates" (Pallasmaa 46). The anatomy of the eye itself promotes the sensations of aloofness. Unlike other organs, we are able to control the sensory

information received by our visual faculty by closing our eyelids to the outside world. This unique ability fosters disharmony with other sensory modalities, reinforcing the eyes' narcissism. This being said, visual knowledge alone lacks an emotional connection to environmental stimuli (Tuan 10). Only through communication with the other sensory organs, is the eye able to perceive the outer landscape with a greater emotive and expressive attentiveness. For when other sensations are suppressed, eyes' capacity for isolation and exteriority overshadows individual investment in the surrounding environment (Pallasmaa 19). In addition to this environmental segregation, visual



The illustration to the left is a visual expression of the sensorial experience of wind. The graphic demonstrates how environmental episodes affect multisensory sensations and perceptions. (Photographic image courtesy of the author.)

domination eliminates lasting impression of the world. Authentic associations with space and culture are formed by our capability to remember and recall past experiences. Considering the authority given to our ocular modality, it seems illogical that this organ of choice is the least efficient in memory preservation (Bowring 2). With an inept ability to retain long-term sensorial percepts, it is menacing that vision is the one sense able to sustain the increased speed of the modern world. Currently, our world is characterized by incessant motion, which seems to be gaining velocity daily. Pallasmaa affirms:

> The experiences of space and time have become fused into each other by speed … the world of the eye is causing us to live increasingly in a perpetual present, flattened by speed and simultaneity (21).

This intensification of movement through the environment reduces our perception of detail and further hinders the formation of lasting memories (Walker 14). Ironically, this fast-paced existence has reinforced the hegemonic eye. Critiquing this technological domination, Martin Heidegger, one of the most important philosophers of the 20th century, suggests that "the fundamental event of the modern age is the conquest of the world as picture" (Pallasmaa 21). Advancing technologies aim to free people by removing the physical restrictions standing in the way of knowledge and information, only to simulate haptic interactions within a virtual environment and replacing sensual experience with "fabricated, mass-produced, and manipulated (21)" imagery.

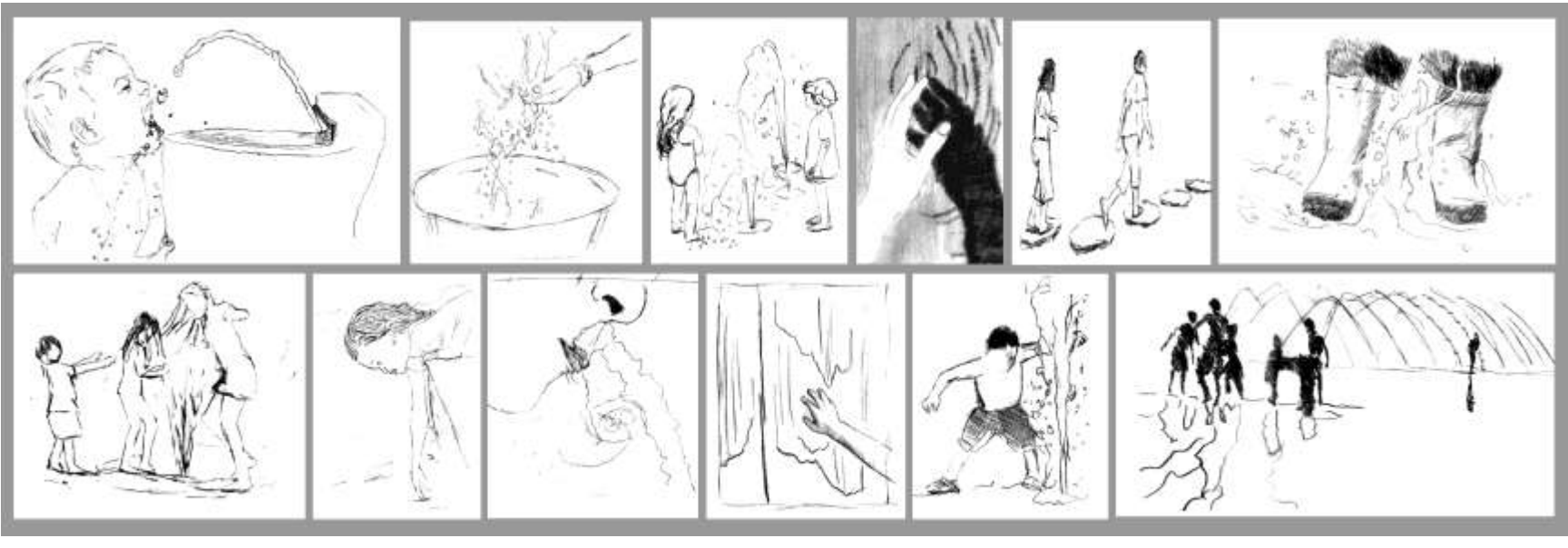
HEARING, SMELLING, TASTING

While the sense of sound is far less sharp than the gift of sight, aural sensations leave stronger emotional impressions. According to Juhani Pallasmaa, sound is the encounter that comprehends and articulates our spatial perception. He writes:

> Sight isolates, whereas sound incorporates; vision is directional, whereas sound is omni-directional. The sense of sight implies exteriority, but sound creates an experience of interiority. I regard an object, but sound approaches me; the eye reaches, but the ear receives (49).

Unlike the vision, the acoustical sensations of our auditory organs are usually without end; even in silence there is sound. We are unable to close our ears, as we are the eyes, to undesirable noise, leaving each of us vulnerable to the reverberating stimuli (Tuan 8). Thus, the ears capture the materiality of the external landscape in echo. In the same persistent manner, the sentiments of the nose and mouth contribute to the experience of space and time. These synergistic sensations perform as a duo, simultaneously appraising the surrounding world. Despite their supplementary nature, the gustatory system is far less complex than the olfactory system. There are four primary taste modalities generally accepted – sweet, sour, salty, and bitter. In addition to these principal sensations, there are three flavor impressions not universally accepted – astringent, fattiness, and savory (also know to as umami). Also, the system has the ability to detect temperature percepts, such as false heat and false coolness (Delwiche). Our oral experiences are intrinsically ingrained in our other sensory experiences, as well. For instance, the visual encounter of certain colors, such as green or orange, can evoke hunger, as well as thirst. In the beginning, human beings perceived the external landscape through "the interior sensation of the mouth" (Pallasmaa 59). With this said, our histories were traditionally passed down orally, ultimately fusing mouth and tongue to the spatial memoirs of antiquity. The sensations of the nose meander throughout our memories, as well. The olfactory organs are physically related to our ability to remember and recall information. Located within the inner recesses of the brain, known as the cerebral cortex, there is a vast memory region which developed

from the section of the brain directly concerned with smell (Tuan 10). As a result, odors and aromas often summon extremely precise and vivid recollections of elapsed experiences. According to Pallasmaa, "a particular smell makes us unknowingly re-enter a space completely forgotten by the retinal memory; the nostrils awaken a forgotten image, and we are enticed to enter a vivid daydream" (Pallasmaa 54). Intertwined in our experiences, the interactions of the mouth are perpetually linked to our olfactory sensations. Suitably, the effect of taste and smell is an assemblage of profound, spatial sensations forever coupled with memory and time.



The above sketches explore the haptic sensations of tactile encounters with water.

MEMORY, TIME, AND TRANSFORMATION

Perception, cognition, and memory of the exterior landscape are unequivocally affixed to our multi-sensory system. Since perception is the human interpretation of sensory stimuli, our overall thought process begins then with the ability to perceive. The way in which we comprehend this perceived information and knowledge is referred to as cognition. Our cognitive ability is not solely determined by the transactions of perception; it is also established by our analytical and intuitive nature, as well as cultural influences. Known as memory, the form of cognition that enables us to store and subsequently recall information occurs in three distinct phases. First is the perception and recording of sensory sensations. Next is the temporary preservation of percepts, which are maintained within short-term memory. Finally, there is the encoding of information into the long-term memory (Kopec 48-54). The perceptive stage of this process is seemingly the most significant. Perception is initiated by multi-sensorial encounters with the surrounding environment. However, the framework for existential depth and authentic connections between people and the environment is materialized through memory.

How we perceive, appreciate, and remember a particular space ultimately depends on the assemblage of sensuous environmental encounters, along with our capacity to filter and process the external percepts. Through interactions with sensory provoking environments, individuals are able to fulfill the body's intrinsic desire for holistic sensorial experience and ultimately engage in meaningful exchanges with the outside world. In the book, *Landscapes: Selected Writings of J.B. Jackson*, Jackson writes:

> Far more of our time and energy are spent in the unconscious pursuit of these sensory experiences than we realize. The view from a height, the sudden glimpse of an expanse of sky or water or city, the unobscured light, the sound of human be-

> ings at play, the color and texture of flowers and lawns the protective enclosed space, or the stream of activity – these are what we are always seeking, because something tells us that they are vital to us. The contemporary city frustrates those desires; the city that the average urbanist dreams of satisfies only incidentally (Jackson 84).

While everything we know about the world is perceived through our sensory impressions, the dynamic collaboration between environment and self is what truly allows human beings to accurately comprehend and appropriately respond to the external landscape. Jackson suggests that the modern urban form proffers inadequate corporeal sensations. He insists that built form "be designed to promote harmonious social relationships, just as it must be designed to promote our physical well-being, but it must also be designed to stimulate our sight and hearing and sense of touch and smell (82)."

The catalyst that peaks multi-sensorial awareness and fascination, and ultimately provides thought-provoking interactions, is transformation, or more simply change. In her book, *Sense and Sensibilities*, Jillyn Smith states, "a changing sensory environment is essential … Nothing is worse for a human than monotony, solitary confinement (212)." Without change, stationary or static elements become mere scenery, which permit ancillary attributes to be habitually overlooked. In some cases, these elemental, yet stagnant, percepts are disregarded, and eventually forgotten. With this said, the transformative and emergent qualities of space and matter play an essential role in developing a deeper understanding of our surrounding landscape, while concurrently contributing suitable encounters from which to form lasting memories (4-7, 206).

HAPTICITY

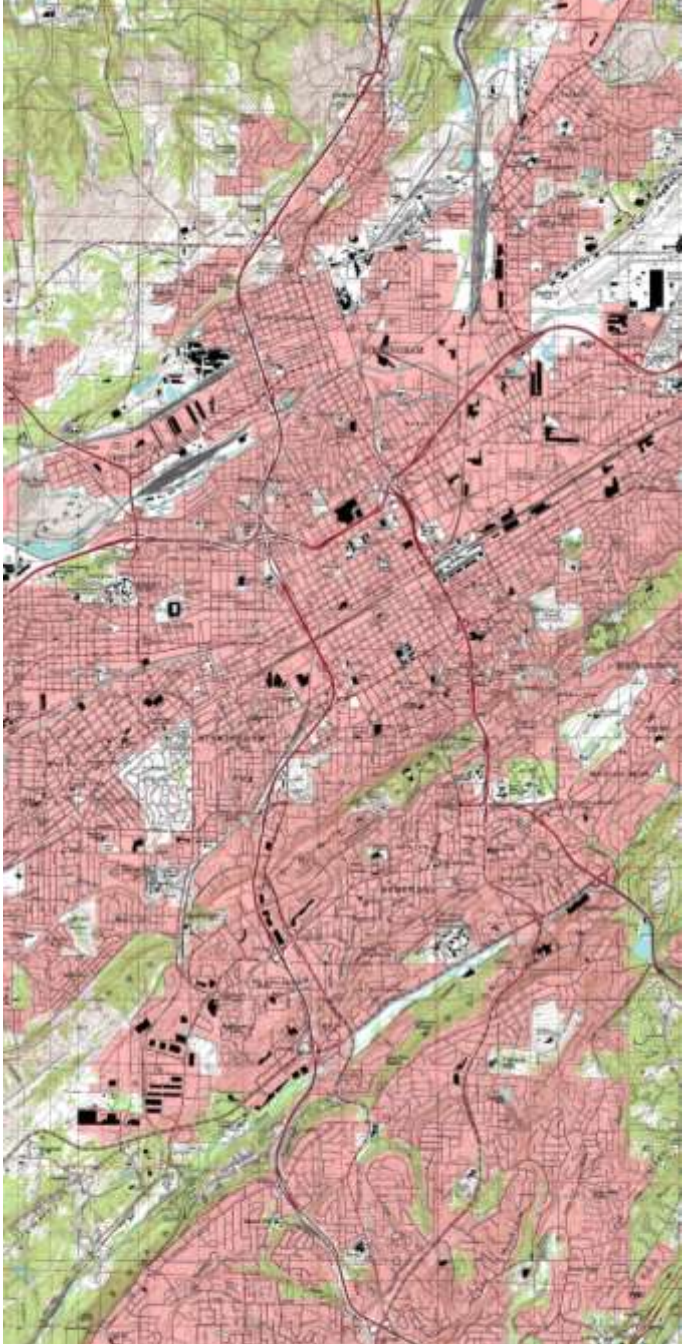
All human sensory experience occurs within the haptic realm. However, the haptic system embraces the specialized qualities of the cutaneous, kinesthetic, and proprioceptive modalities and invites propinquity, contact, and resonance (Fisher 2). In reference to our cutaneous, or tactile, sensations, Jennifer Fisher suggests that "the haptic sense renders the surfaces of the body porous" (2). Implying that through the sensations of the skin, we begin to comprehend our surroundings, constantly perceiving, both internally and externally. The essence of the haptic realm begins with intimate, tactile perception. While the olfactory system aids us in the ability to develop lasting memories, the cutaneous modality is "the only sense which can give a sensation of spatial depth" (Pallasmaa 42). As the result of resistance and pressure established by the outside world, tactile encounters transform the details of matter - weight, density, texture, and temperature - into authenticities of space and place; making our sense of touch the grounding force of reality from imagination. Considered the "Mother" of all the senses, tactility is our dominant sensation. The anthropologist Ashley Montagu states:

> [The skin] is the oldest and the most sensitive of our organs, our first medium of communication, and our most efficient protector … Even the transparent cornea of the eye is overlain by a layer of modified skin … Touch is the parent of our eyes, ears, nose, and mouth. It is the sense which became differentiated into the others … (Pallasmaa 11).

The multi-sensory nature of our tactile perception provides us with assiduous percepts of sensual experience; ultimately providing more information through this sensation than any other sensory organ (Tuan 7-8).

Though initiated by touch, our sensory encounters concern each of the modalities of movement at different levels and intensities. Movement is defined as both kinesthetic and proprioceptive sensations. While these terms are often utilized interchangeably, each sensation is unique. Kinesthesia is related to muscular tension and motion through space; whereas, proprioception refers to the perception of the body within spatial dimensions (Paterson). In short, our kinesthetic aptitude communicates behavioral responses to the environment, while proprioception conveys cognitive awareness. According to some experts, proprioceptive sensations are directly connected to the bodily sense of equilibrium, or balance (*Wiertelak).* In addition to this association, balance and movement are ultimately governed by the vestibular system, which "is designed to detect the position and motion (or acceleration) of the head in space" (Crockett). What is interesting here is that the vestibular system is deeply embedded, not only, within the *temporal bone* alongside the inner ear structure, or *cochlea,* responsible for hearing, but also within the area of the brain stem (the *vestibular nucleus)* responsible for the muscular movements of the eye, neck and limbs (Blakemore and Jennett). While providing further confirmation of our sensory amalgamations, the explanations for these sensory experiences fortify the value of simple movement. Ultimately relying on multi-sensory interactions, our articular sensations allow us to experience our environment through sequences of varying perspectives. Devoid of movement, the human environment would be stagnant and hollow, and absent of the sense of touch, our continued existence is questionable (Tuan 11). Our encounters with the outside world are "fused and integrated into the haptic continuum of the self … as the locus of reference, memory, imagination, and integration" (Pallasmaa 11). Authentic, haptic perception is a collective effort between all sensory modalities, resulting in a holistic appreciation of the world. We discern our surroundings through em-

bodied sensations of information and redefinition; whereas, “the percept of the body and the image of the world turn into one single continuous existential experience” (Pallasmaa 40).



Chapter III: Unearthing the Site

The journey for the perfect haptic situation began in Birmingham, Alabama, the "Magic City." Chosen due to its close proximity to Auburn University, the city seemed likely to offer many valuable exchanges.

Site Selection Process

Since this research differs from other more conventional inquires into environmental design, the methods of site reconnaissance called for a much more personal investment of sensorial investigation. Thus, with sketch book and camera in hand, it was time to walk the city's streets, perceptively, as well as physically, recording multi-sensory encounters. Beginning on the northern side of Birmingham's downtown area, a multitude of sensu-

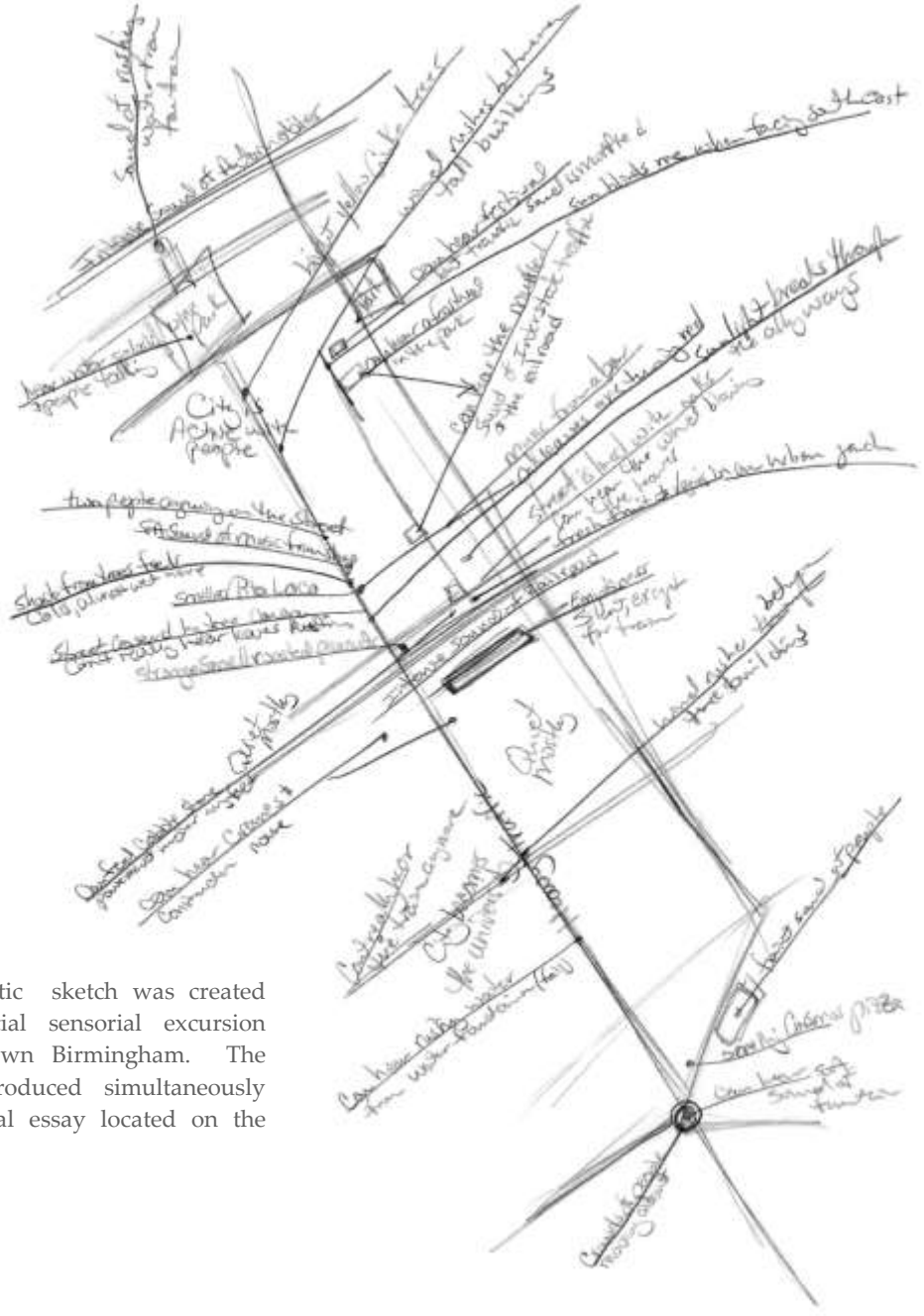
Right: This map shows the City of Birmingham's downtown area in relation to the surrounding communities. In addition, the map reveals the city's topography ("Map Locator").

ous experiences were discovered. Originally thinking that this area would provide a more significant location, this misconception eventually unearthed. While there are plenty of potential sites, most of which are in various stages of abandonment, there seemed to be some essential quality missing. Regrettably , the graphic narratives to these haptic excursions continue to be largely *visual* sensations. Throughout this process of perceptual documentation, it was increasingly difficult to illustrate the compulsory data visibly. However, this was especially hard in the initial stages of research.

The maps below explore the various connections of the Birmingham downtown area. This analysis helped to identify potential sites for further investigation. However, this study lacked the sensorial elements that the research required.

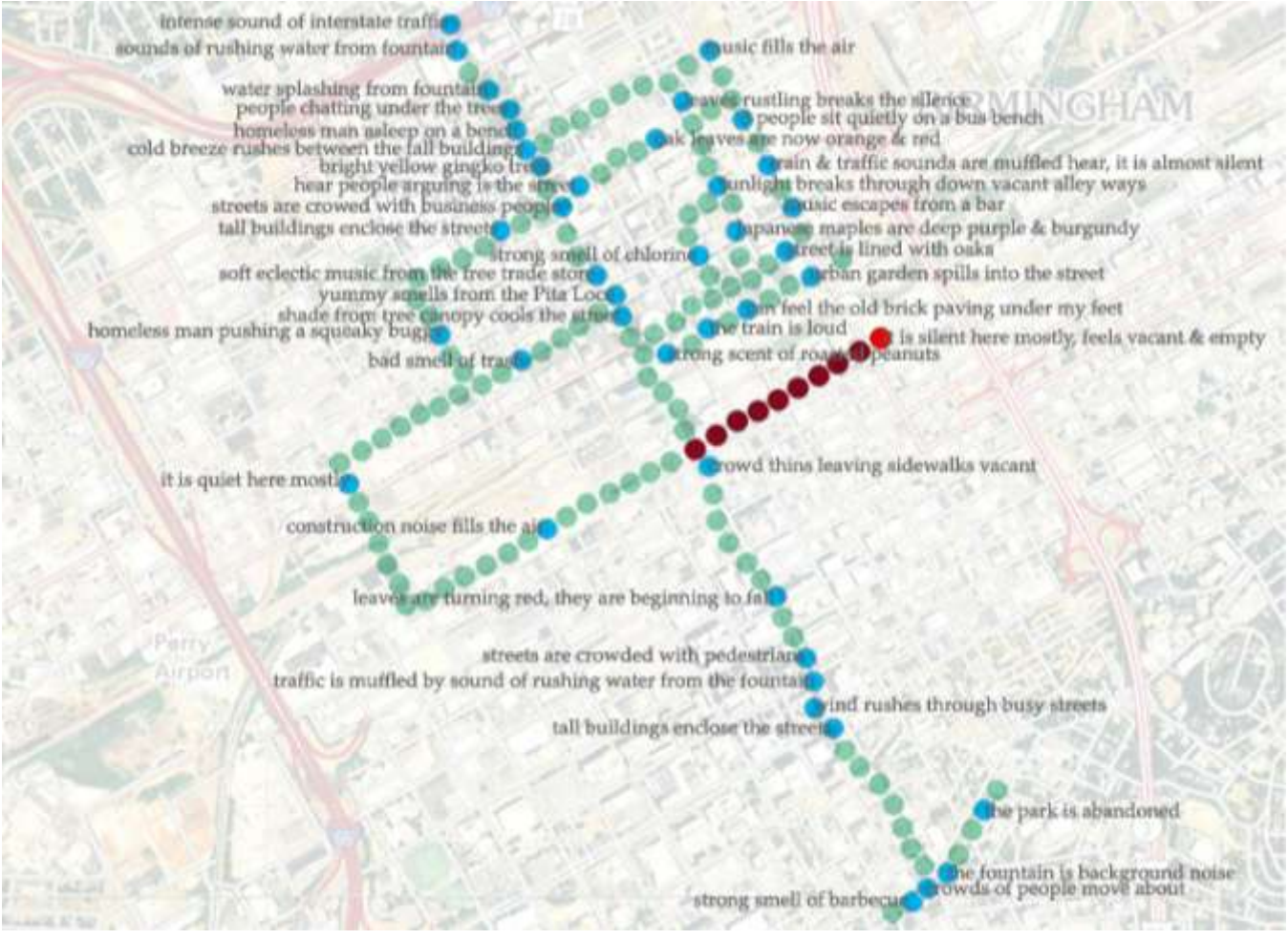
Expressed through sensorial mapping and photographic essay, my intention was to uncover the hidden potentials of an urban terrain. With the incorporation of essential site criteria, the task became more focused. The sensory recordings of the city's downtown area revealed that there were eight qualities an experimental site would require in order for the research to be realized. The experiential terrain needed to be neutral and flexible enough to permit invention, yet remain at a scale which promotes attention to detail. In addition the site needed to provide connections, both physically and perceptively. Furthermore, it was necessary for the site to encourage openness, rather than enclosure. Lastly, the sensory mappings demonstrated the significance of water events, solar penetration, and vehicular access.

The above image is the photo-collage taken during my sensorial exploration of downtown Birmingham. (Photographs used in this image are courtesy of the author.)



This diagrammatic sketch was created during the initial sensorial excursion through downtown Birmingham. The graphic was produced simultaneously with the pictorial essay located on the page 37.

This gestural map indicates the area traveled during the initial sensory journey. The image captures the sensorial experience of this exploration (Background image: "Map Locator").



Like the previous image, this map shows the paths taken, along with the recorded sensory encounters, during the initial investigation. The red dots signify the selected research space (Background image: "Map Locator").

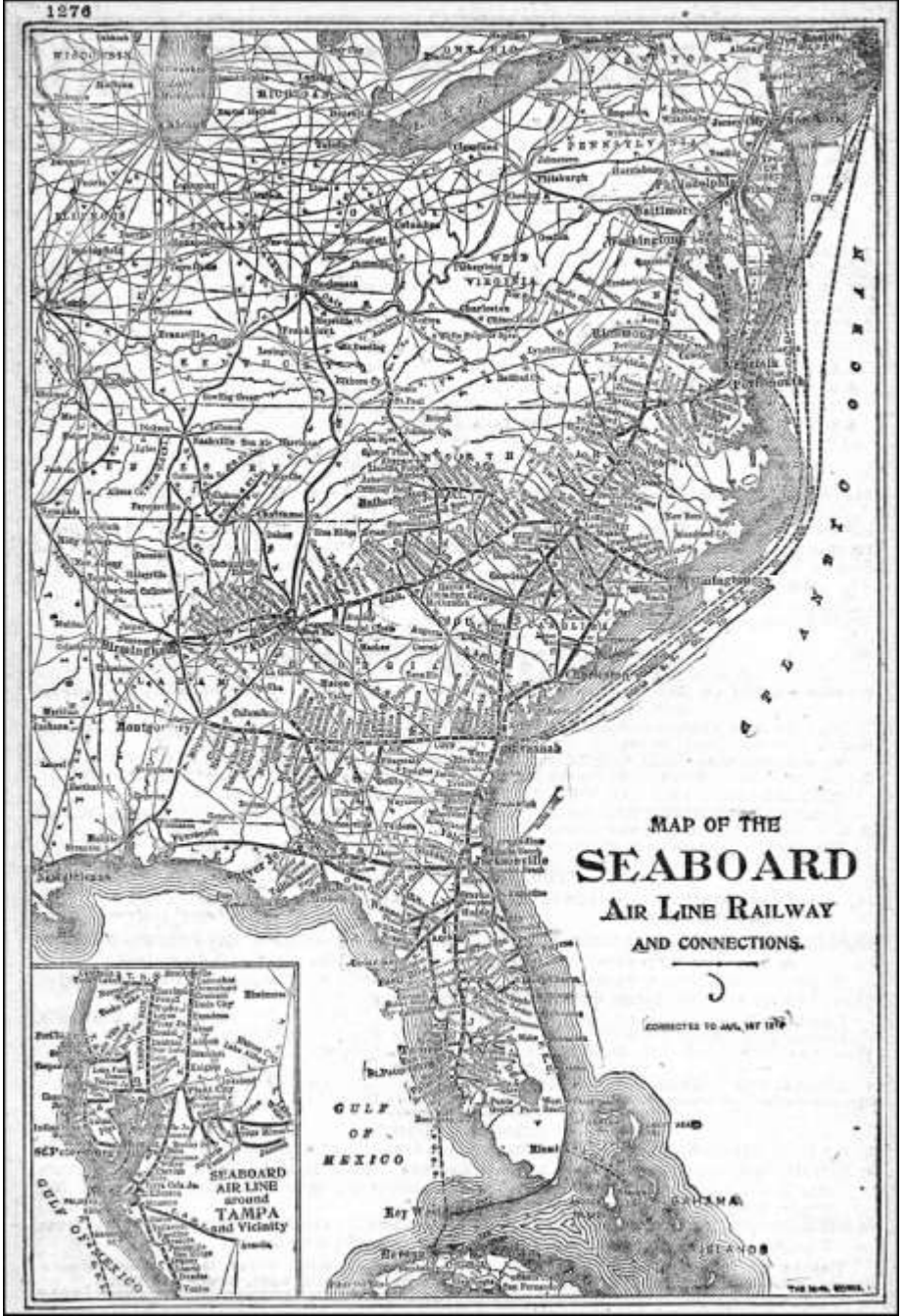
With these guidelines established, I revisited Birmingham several additional times, interacting with the city in the same manner. Slowly, the haptic potentials of an appropriate, experiential site became unearthed. The exposed terrain materialized within a discarded railroad channel, where life is suspended as it awaits its transformation.

The above image reveals that the 1st Avenue South channel lies within downtown Birmingham's Automotive Historic District. The map also indicates other nearby historic districts (Background image: "Birmingham Map Maker ").

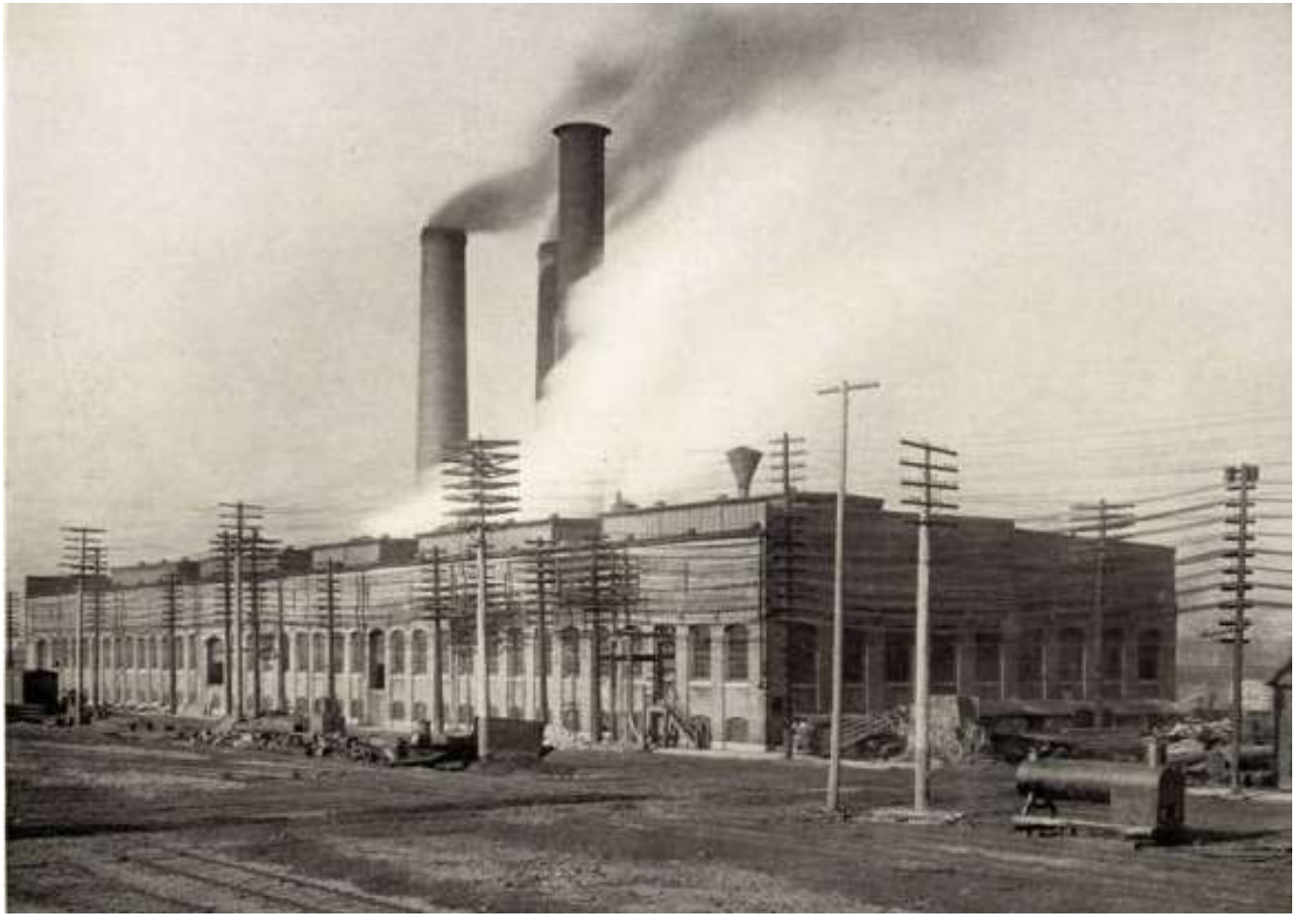
Site Histories and Contexts

Located in the southern district of downtown Birmingham, Alabama, this experimental site lies within the city's Historic Automotive District. The corridor was initially utilized as a loading and unloading zone for train transportation of automobiles, as well as other manufactured goods from the Birmingham area.

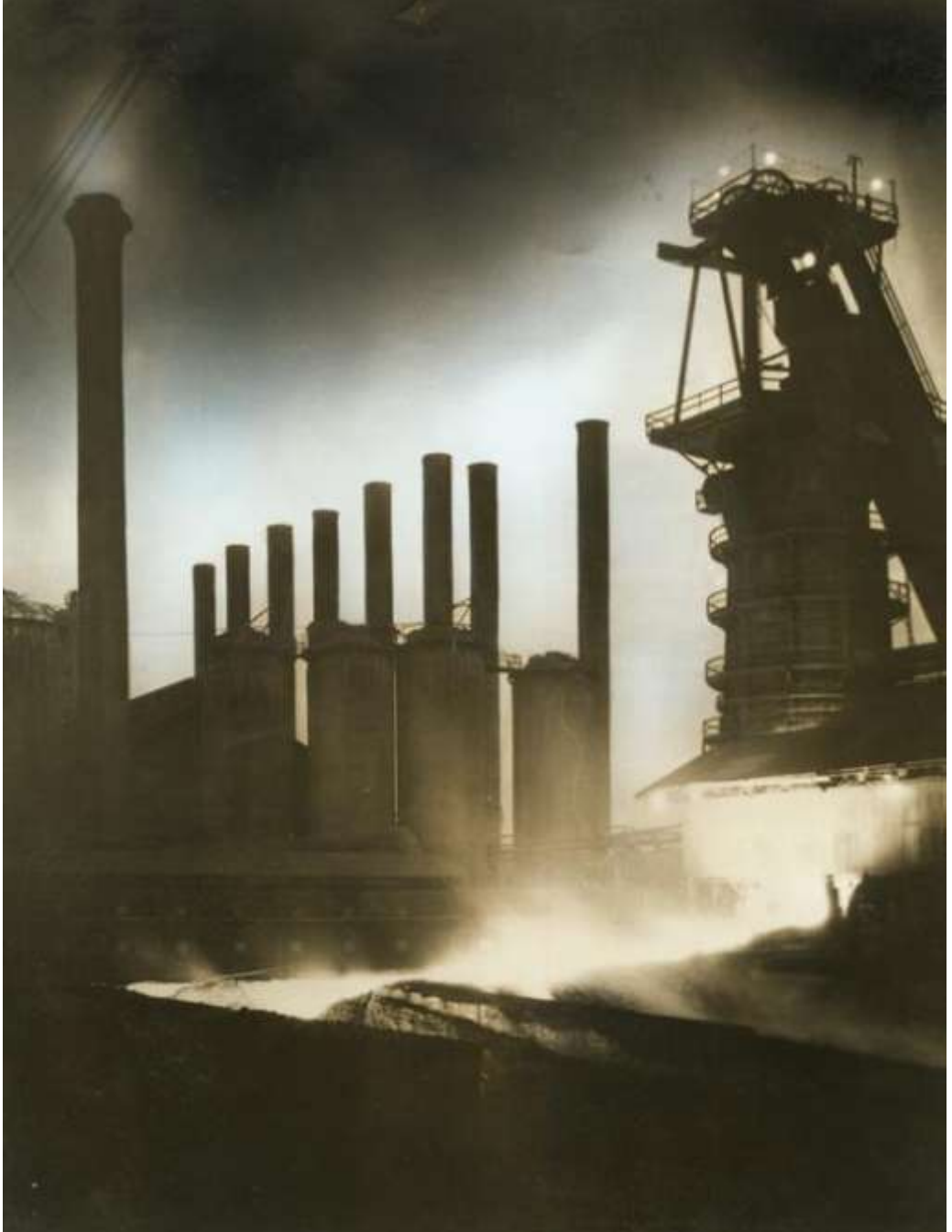
This site began as part of a larger rail line which was intended to connect the "Magic City" to the rest of the country. In 1902, the Seaboard Air Line Railway, or SAL, purchased a line, known as the East and West Railroad, or E & W Railroad, which ran from Pell City, Alabama to Cartersville, Georgia. SAL intended to make the track a key link in the planned line from Atlanta to Birmingham. The following year, Seaboard incorporated the E & W into a new subsidiary, renaming it the Atlanta and Birmingham Air Line Railway, also referred to as A & BAL. This firm was organized to build a link from Birmingham to the E & W at Coal City, Alabama (now known as



Left: Appearing in the *Official Guide of the Railways* in April of 1918, this map depicted the SAL Railway system in January of 1916, after the Atlanta-Birmingham connection had been completed ("Seaboard Air Line Railway").



The above photograph shows the Birmingham Railway, Light & Power Co. Power House. Located on Powell Avenue between 18th to 19th Streets South, this historic station is borders Birmingham's Railroad Park, which is currently under constructed ("Power House").



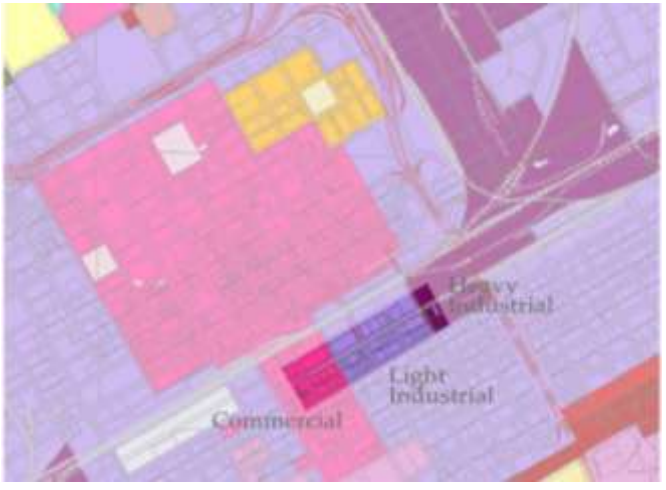
Left: The photograph captures a nighttime steel mill slag run Sloss-Sheffield Steel and Iron Co., circa 1930-1941 ("Sloss Furnace at Night.").

Adjacent: This photograph shows the iron furnaces at Sloss-Sheffield in North Birmingham in 1908 ("Iron Furnaces").

Wattsville). On the Atlanta side, the A & BAL Company constructed 43 miles of new track from Howells, Georgia to the E & W line, which completed the Birmingham-Atlanta railroad. This new connection opened in late 1904. As a result, the 1st Avenue segment was created as part of the Atlanta & Birmingham Air Line Railway which provided the connection between Atlanta and Birmingham. Although absorbed by the Seaboard Air Line Railways in 1909, the Atlanta Rail Lines are still operating in the Birmingham area (Storey).

Running northeast to southwest between 20th Street South and the 24th Street Bridge, the abandoned channel lies two blocks south of these active railroads. What is more, this site is flanked by two new Brownfield developments, Sloss

Below: This is a map from 1887 showing the plans for a network of railroads which now flow throughout the City of Birmingham ("Atlas of the City of Birmingham and Suburbs - Plates F and C").



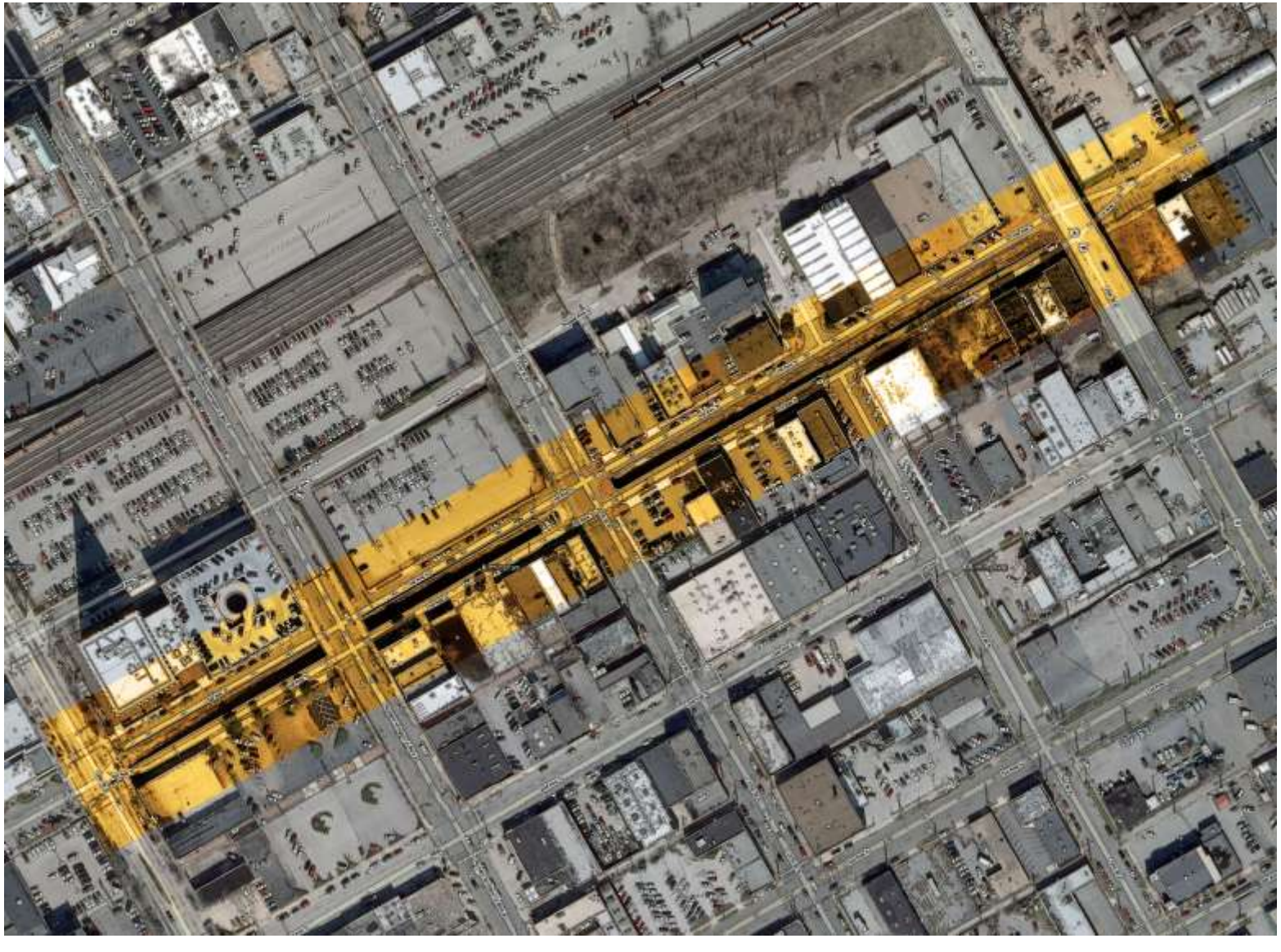
Above is the Landuse Map of downtown Birmingham. The highlighted area reveals that 1st Avenue South lies within three separate landuse districts (Background image: "Birmingham Map Maker ").

This map depicts the potential connectivity of the 1st Avenue South channel (show in orange) to nearby park spaces and recent Brownfield developments. The site is located directly between the Historical Sloss Furnace and the new Railroad Park (Background image: "Birmingham Map Maker ").

Furnace Park and Railroad Park. Each of which are important to both the history of Birmingham itself, as well as the rail lines that helped cultivate the city.

While the corridor's connection to the past is vividly displayed in the remnants of track still present on the site, there are further historical connections, which are much less obvious. The site itself is a symbol for the change that has occurred in Birmingham over the last century. The use of the space as a railroad channel in the early 1900s marks the rise of industrialization

Above: This graphic provides a bird's eye perspective of the urban terrain surrounding the experimental site, 1st Avenue South (Background image: "Bird's Eye Detailed Photo Map").
Adjacent Page: This aerial view displays the avenue's contiguous metropolitan area.. (Background image: "Aerial Photo Map").
1st Avenue is highlighted in orange in both images.



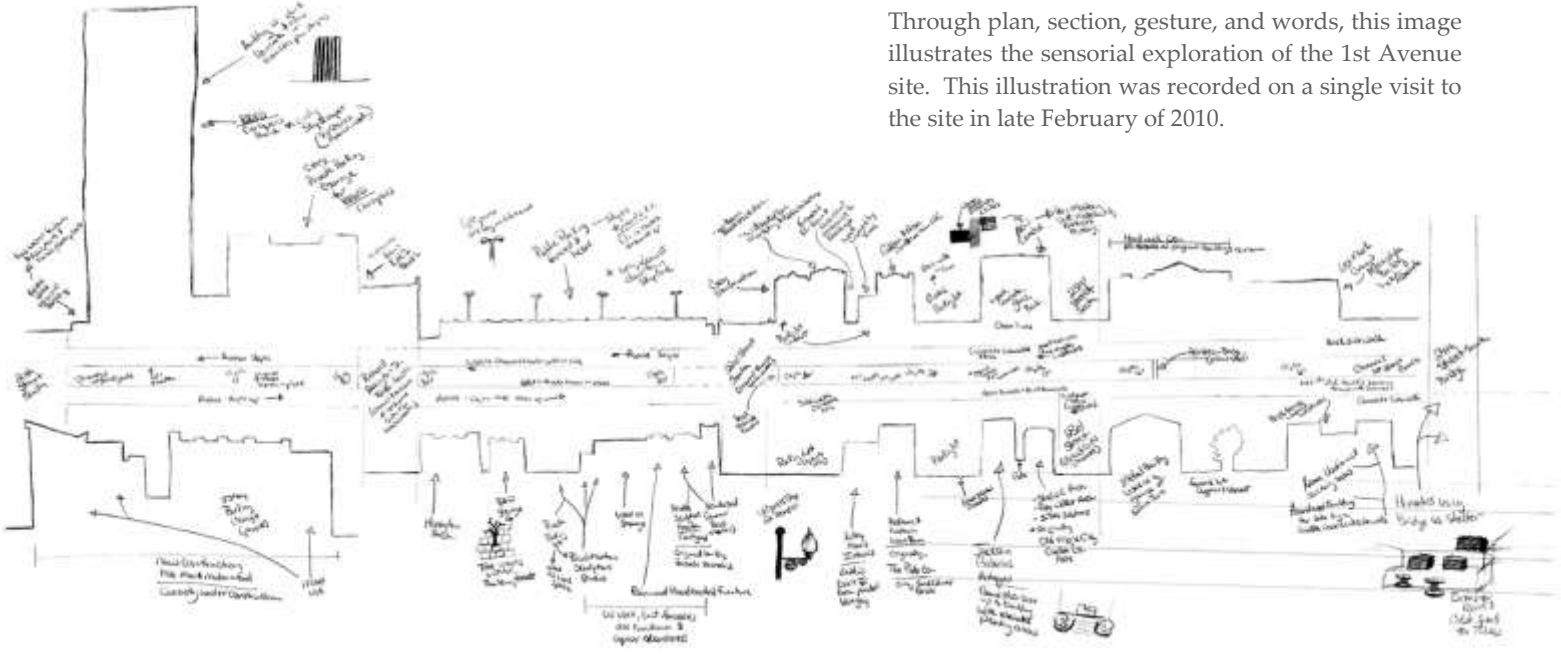
The above photographs reveal the present desolate conditions of the 1st Avenue South channel. (Photographs courtesy of the author.)

throughout the American culture. However, the site's desertion and neglect illustrate vital shifts in the city's resources from industrial to commercial to institutional. The space, once bounded by warehouses and factories, is now wrought with decay. The most vivid signs of life in the downtown area stem from the University of Alabama in Birmingham, or UAB, which grew to replace the industries the city once depended upon. Although the site testifies to the implications of time, the site remains vulnerable to the destructive forces of mass development and the institution that presses towards it daily.

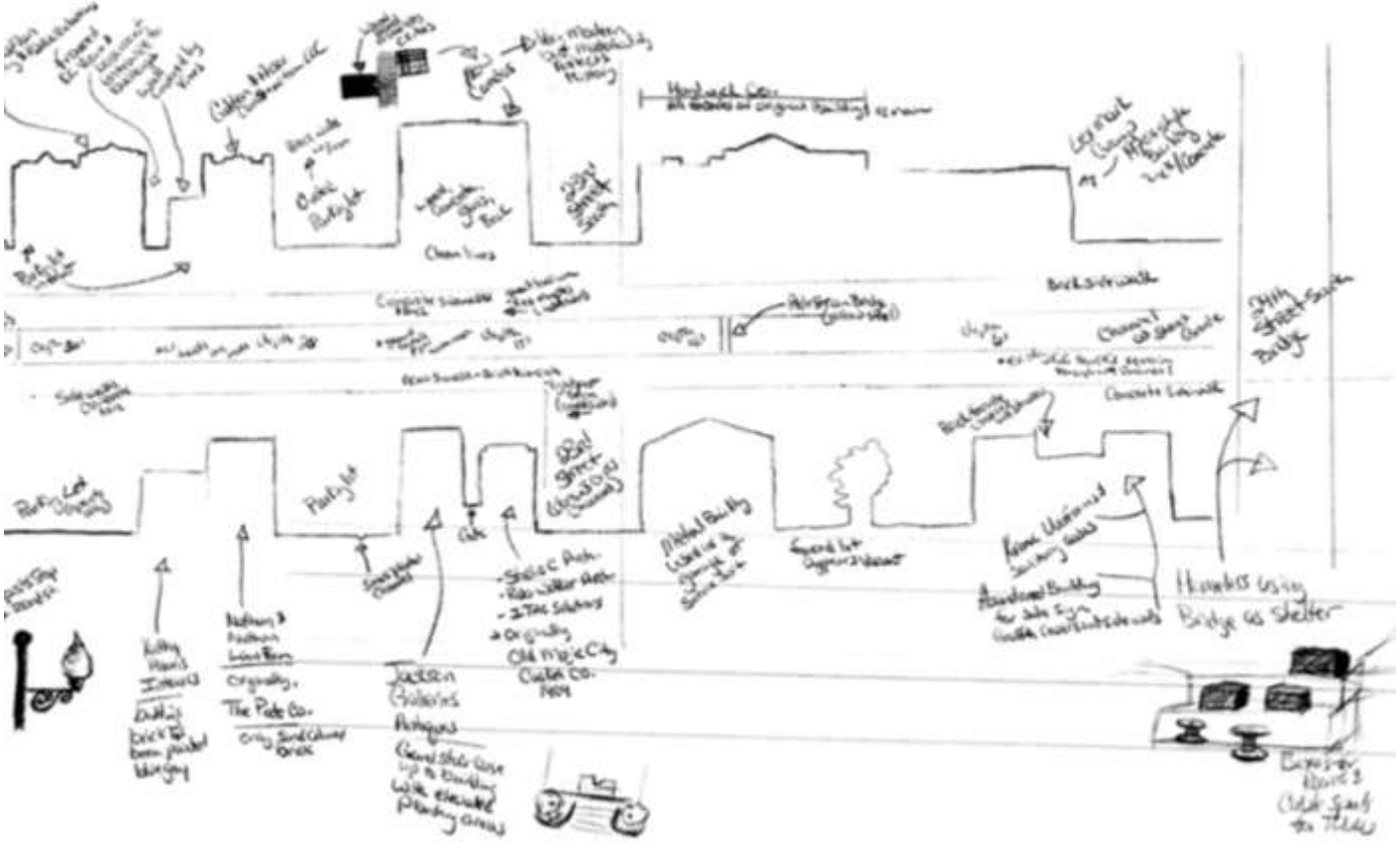
The most interesting characteristic of the site, however, is the site's unusual grade change, which descends below street level, disconnecting it from the street. From the corridor's southwestern entrance, which opens onto 20th Street South, the site quickly descends below street level, splitting the street in half. The experience here, is that of descending down beneath the city. However, the actual condition is that the city rises above, while the linear path down through the channel remains at grade. When entering from the 24th Street Bridge entrance, the experience is the same, however it

progresses downward more gradually. Following Richard Arrington Jr. Boulevard South, the space arrives at its deepest descent. Here the channel is nearly 30 feet below street level. However, this is the only section that has, from street level, an unobstructed view of the city's skyline, as well as the active rail lines, which rest two blocks north of the site.

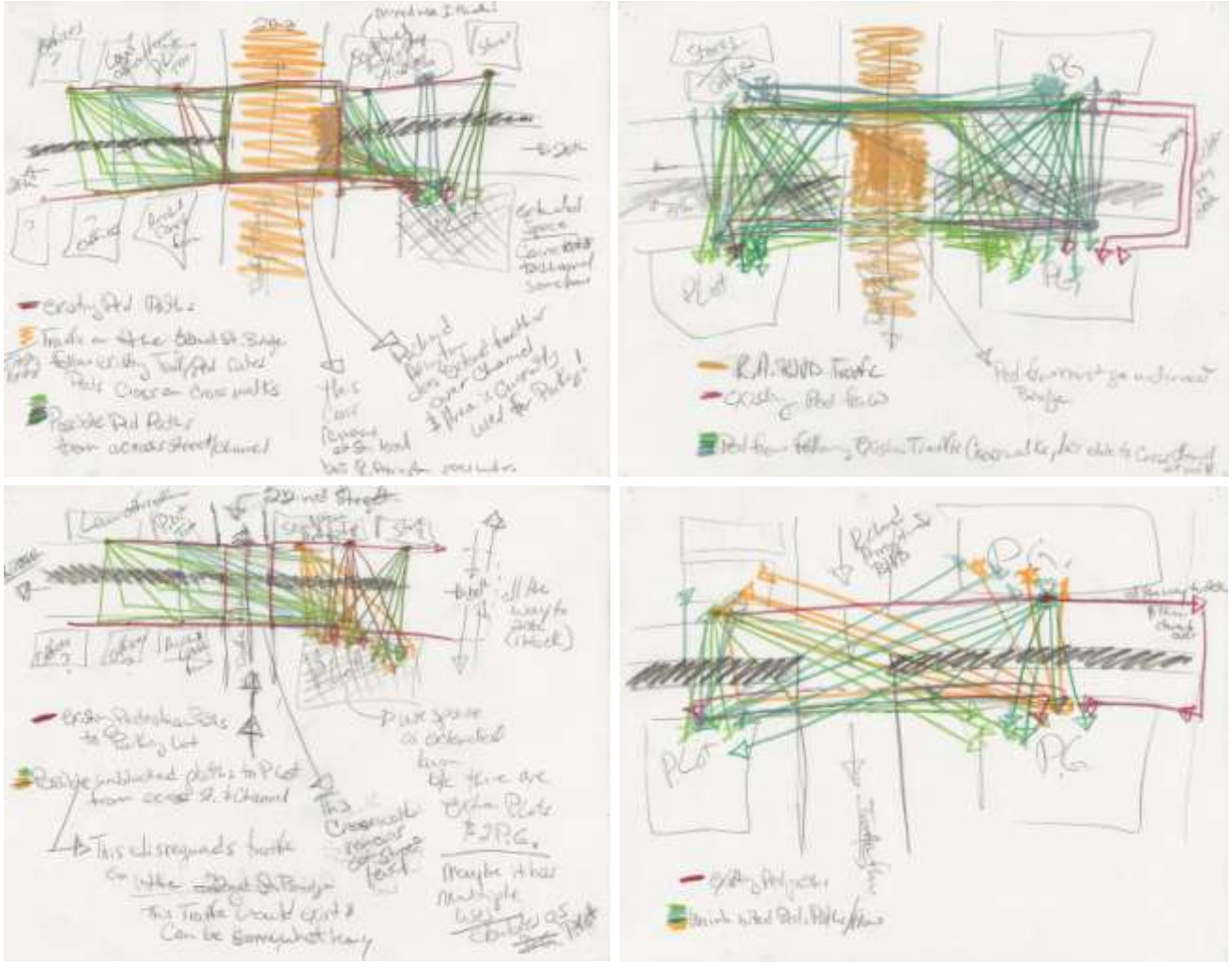
In addition to this interesting topography, the site's surrounding architecture changes dramatically from one entrance to the other. The section from 20th Street South to Richard Arrington Jr. Boulevard is encased by massive buildings, one of which reaches nearly 32 stories. After this section, the architecture is scaled more appropriately for the streetscape. In the section

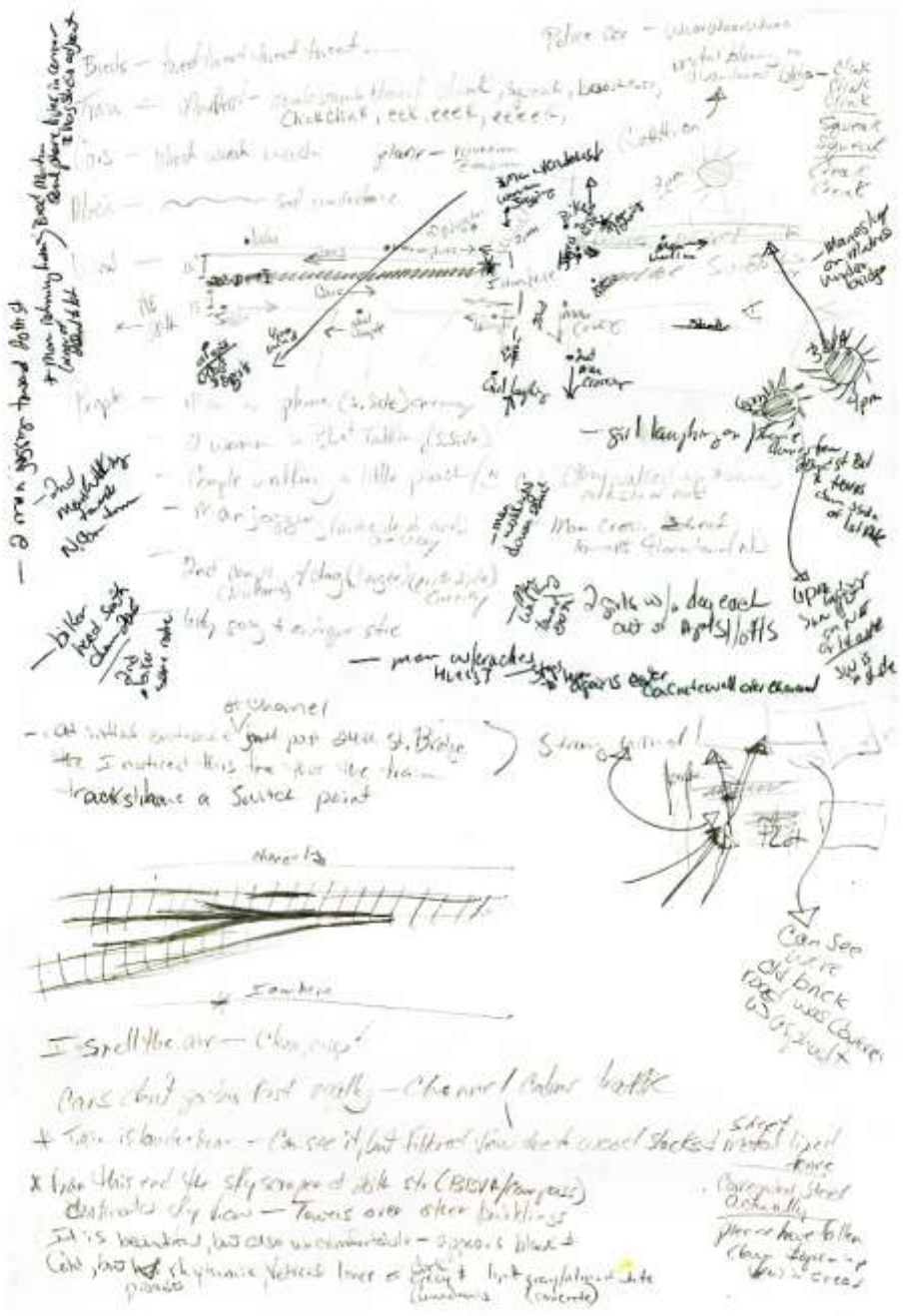


Through plan, section, gesture, and words, this image illustrates the sensorial exploration of the 1st Avenue site. This illustration was recorded on a single visit to the site in late February of 2010.

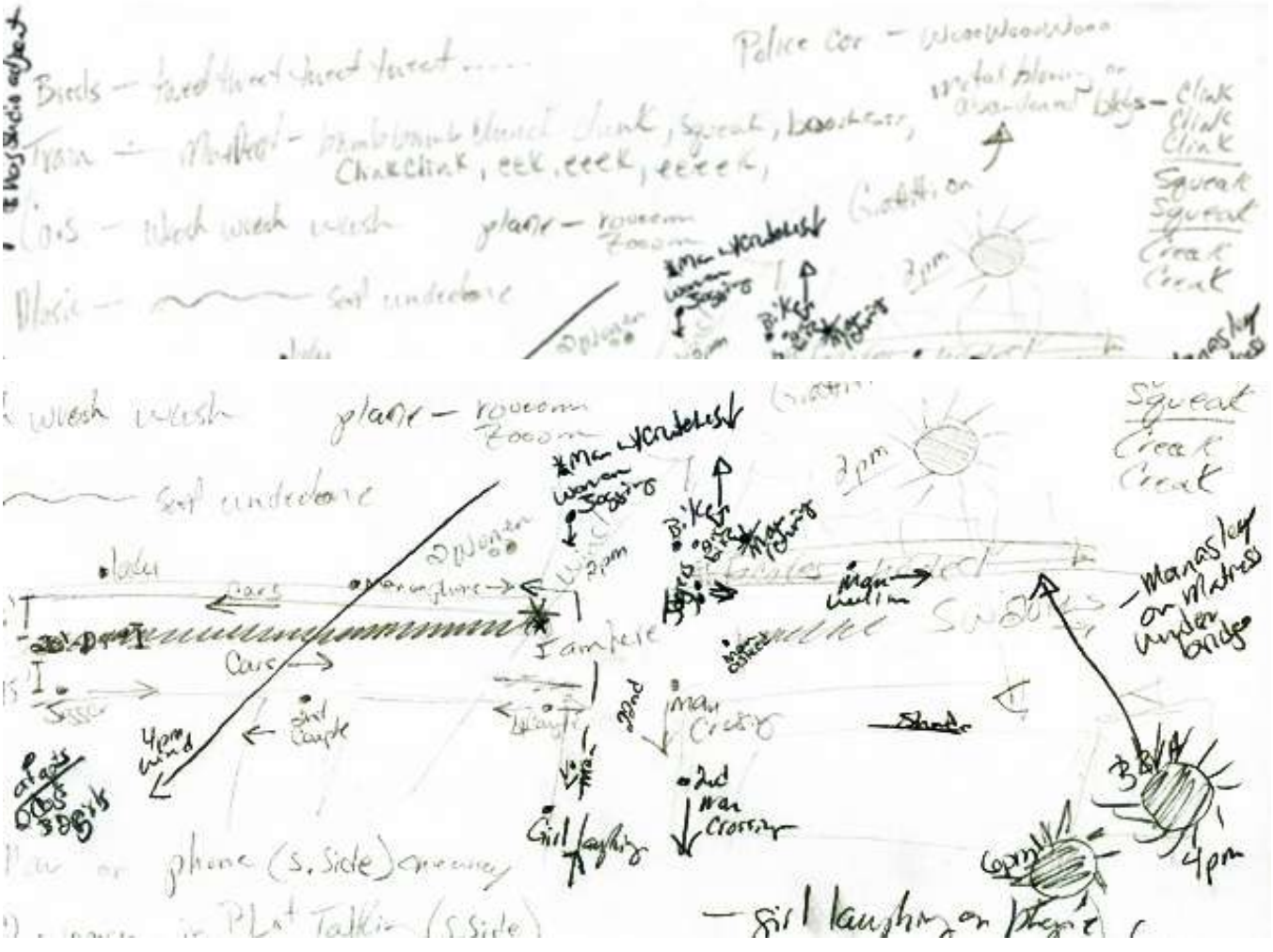


Above: This image is a detail taken from the sensory map on page 51.
Adjacent: These four graphic studies explore the spacial syntax of 1st Avenue South. The top diagrams focused of existing pedestrian traffic, while the bottom images focused on potential movement. The studies on the left investigate the 22nd Street intersection and the ones on the right examined the Richard Arrington Jr. Boulevard intersection.

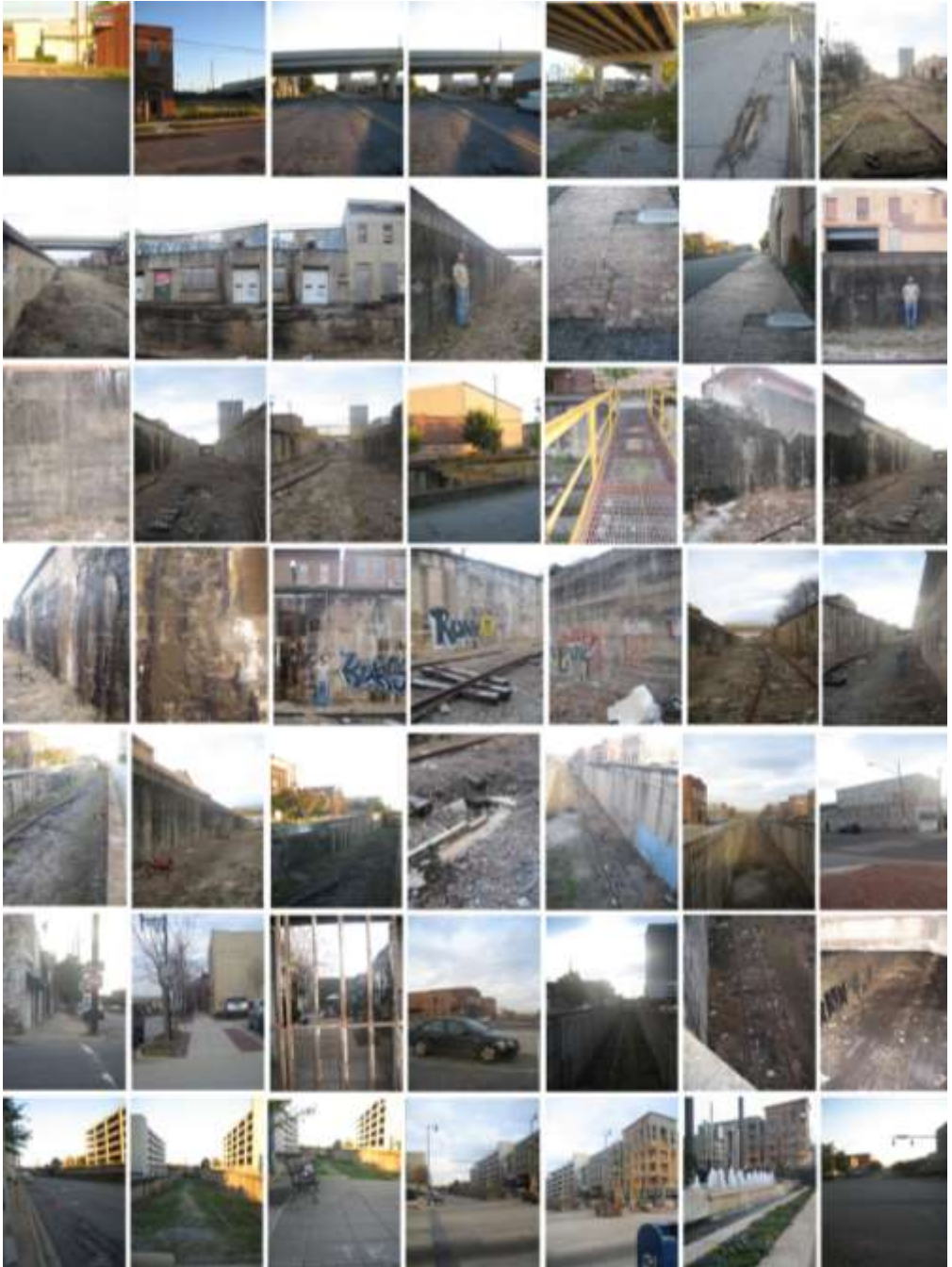




The image to the left is my sketchbook recordings of additional haptic occurrences from the same sensorial investigation as the map on page 41. These gestural notes document encountered sensations, such as wind and sun movement and pedestrian traffic and interaction. I decided against diagramming these episodes because in every attempt the sensual experience became muddle.



Above: These two graphics are details taken from the sketchbook recordings on the preceding page.



This photographic essay was recorded following the preliminary research by design phase. In keeping with the sensorial mapping methods completed previously, this investigation helped to further unearth the existing haptic potentials of the study area. (Photographs for this image courtesy of the author.)



Above: These panoramas exhibit the existing conditions of the 1st Avenue South. The photograph on the left provides the view of the channel from the Richard Arrington Jr. Boulevard Bridge facing southeast towards 20th Street South. The center image shows southwestern view of the corridor from the 22nd Street South Bridge. Lastly, the image to the right displays the view of the space from 22nd Street facing northeast towards 25th Street. (Photographs courtesy. of the author)

that stretches between Richard Arrington and 22nd Street, the buildings are for the most part run down and appear abandoned. This is however not the case. Most of structures are utilized as studio or storage space, others are businesses or residences. The final section of the channel runs from 22nd Street South to just beneath the 24th Street overpass. Most of the architecture in this area has been renovated and is either strictly office or mixed-use buildings. What is more, many of the buildings in this segment have historical value, and so the original facades have been maintained. Closer to the entrance at the 24th Street Bridge, the buildings are mostly deserted and the area becomes more industrialized.

One reason the streetscape changes so rapidly is due to the historic value of area. However, these

changes along 1st Avenue may also be due to the fact that the area crosses through three different landuse districts - Commercial, Light Industrial, and Heavy Industrial. It is important to note that the corridor, itself, only crosses through two districts, while the avenue continues into a third district. The area closest to the 24th Street over-pass is largely surrounded by warehouses and industrial facilities. Currently, many of these warehouses, as well as other buildings along the site, are being, or have already been, renovated into loft apartments and mixed-use developments. However, the abandoned channel cuts 1st Avenue South in two, which poses a problem with future development along the Avenue. With this said, it is apparent that the site lends itself to the reconnection of disjointed spaces.

These panoramic views convey the existing conditions from within the 1st Avenue South channel. (Photographs courtesy of the author.)

The above image exhibits the skyline view of downtown from the southern side of 1st Avenue South at 22nd Street Bridge. (Photographs courtesy of the author.)

This graphic was completed during the initial phase of research through design. The study investigates the site's existing ecologies and grade condition.

CHAPTER IV: ENGAGING HAPTICITY

This research focuses on the potential haptic qualities of the 1st Avenue South abandoned railroad corridor. The methodology employed in this phase of research is referred to as Research by Design. With this said, I intended to further uncover the hapticity of this experiential site through active design investigations.

INITIAL EXPLORATIONS

The initial design explorations focused on the channels existing grade and ecologies. The method utilized in these exercises was a mixed-media approach, in which the final outcomes became two-dimensional collages. These early studies are actually some of the better design ideas. These ideas allow the decay of the 1st Avenue South channel to shine through. However, these investigations largely disre-

gard the surrounding terrain and do not endeavor to reconnect the space's participants to street level.

In an attempt to reconcile the prior neglect, the second set of explorations focused on the site's unusual grade change. For these concepts, the site was broken down into various segments. The first design area explored the haptic sensations of transcending levels. Beginning at the channel's southwestern entrance, this section stretches from 20th Street South to the Richard Arrington Jr. Boulevard South overpass. From this direction, the site quickly descends below street level, splitting the street in half. The intention of this inquiry was to introduce a network of levels and platforms that would allow pedestrian flow to permeate the site's distinctive change in grade. In addition, the idea for the design layout was derived from the aerial view of the city. A grid pattern was applied to the linear corridor in order to accentuate the rela-

Like the previous perspectives, these three images are part of a series of drawings which examine the potentials of the channel's initial conditions.

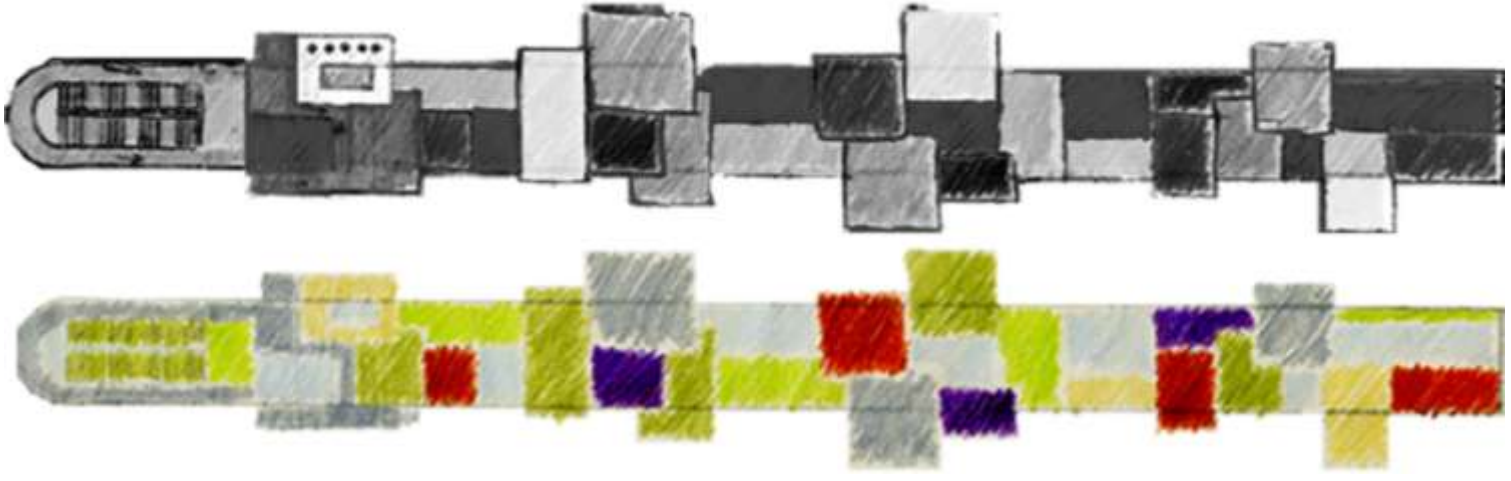
This aerial map places the abstract plan within surrounding urban context (Background image: "Aerial Photo Map").

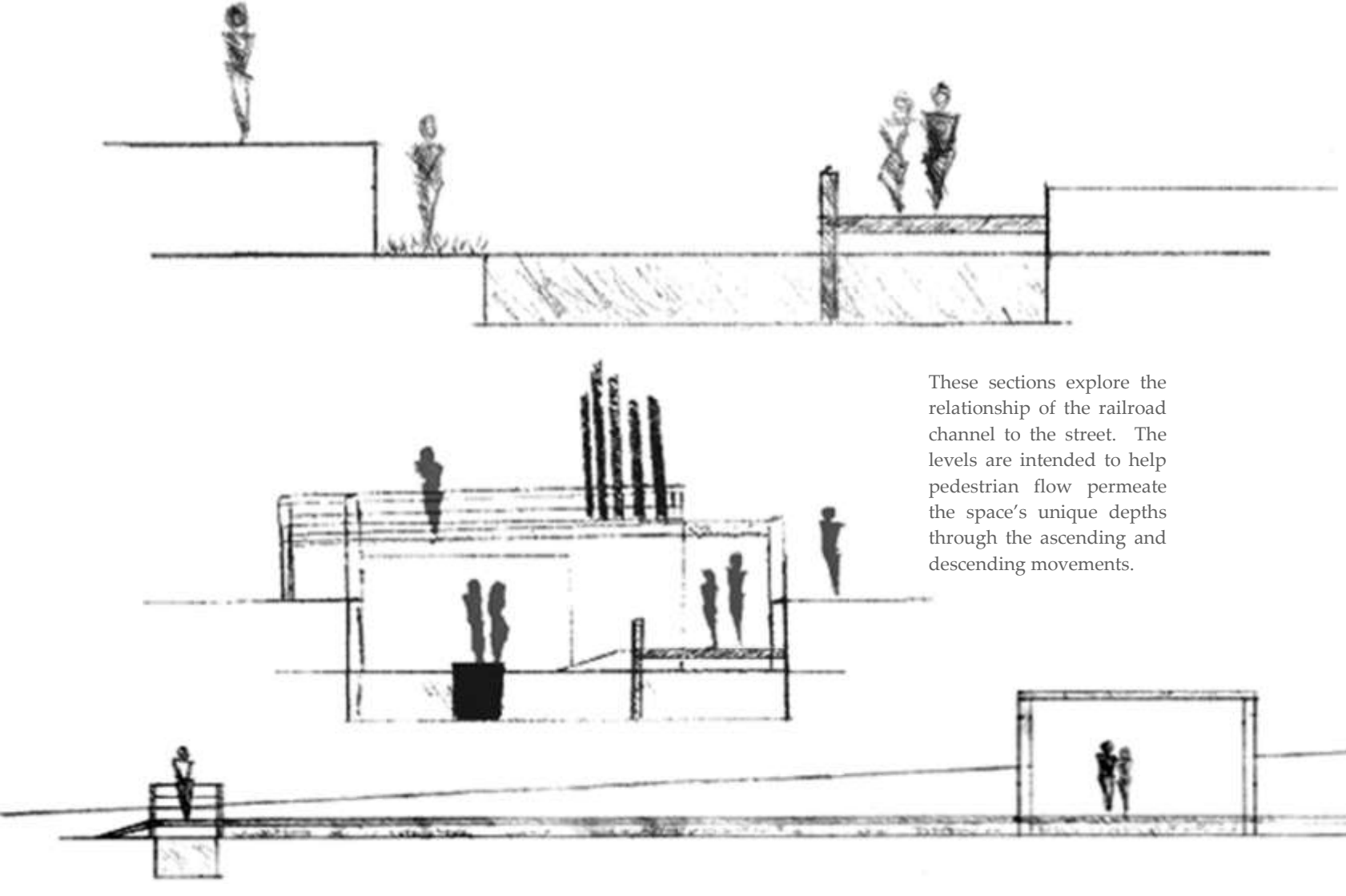
This above graphic highlights the three focus areas of the initial design phase (Background image: "Aerial Photo Map").

tionship of the space to the city. While both of the explorations explored the haptic influence of ascending and descending, the grayscale study, in particular, provides a greater force of compact planes and levels, which then intensify the haptic response to confinement. Encased by extremely tall buildings, this section of the channel exudes an ambiance of enclosure. Due to the surrounding buildings, the phenomenon of light becomes extremely significant. Therefore, the tinted study attempts to explore textures and surfaces that reflect and absorb light.

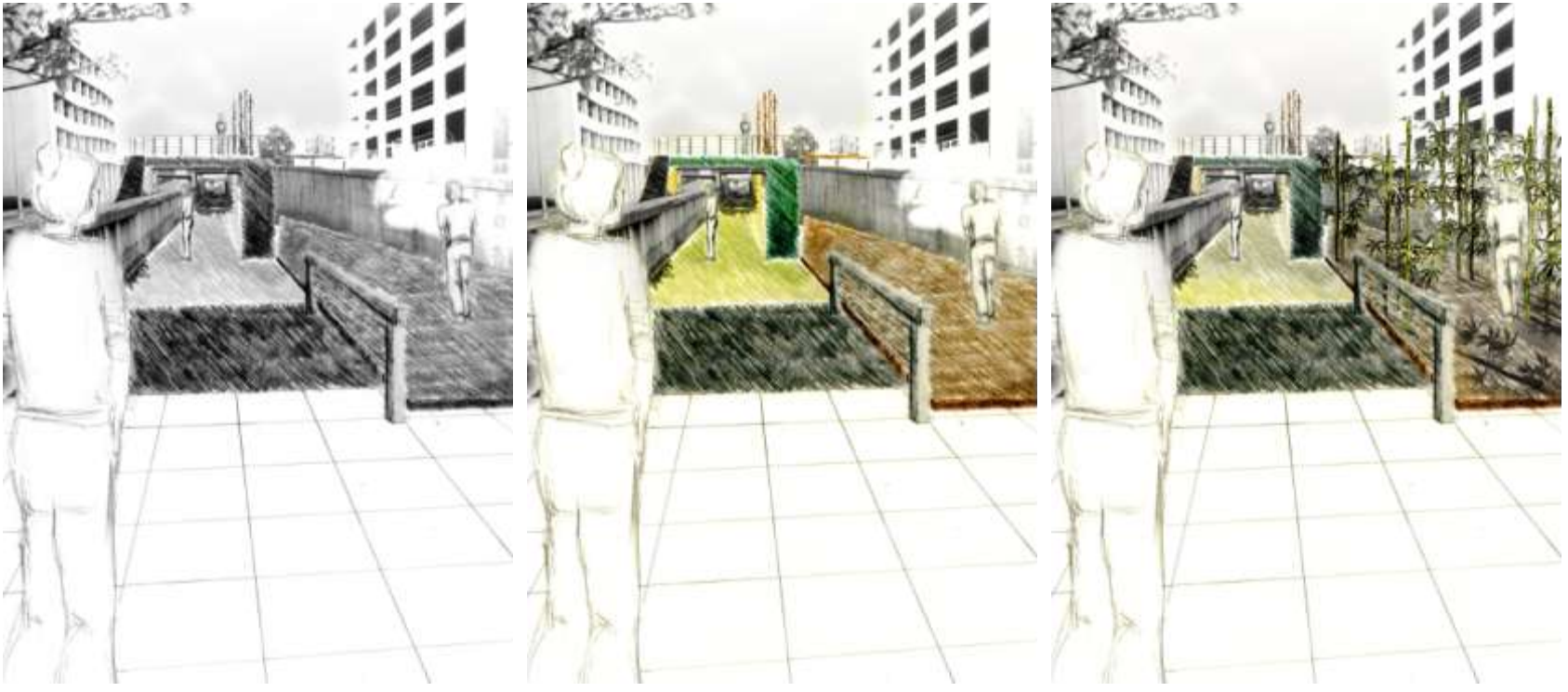
The second conceptual design investigation centers on the depths of the site's grade changes. This section extends from Richard Arrington Jr. Boulevard South to the 22nd Street South Bridge and is the section that descends furthest below grade. The aim, at this juncture, was to explore height changes through shading. Both studies

Developed for the first research by design investigations, the design concepts below explored the haptic sensations of transcending grade changes. The site segment that these plans coincide within is highlighted in pink on the aerial image located on page 63.

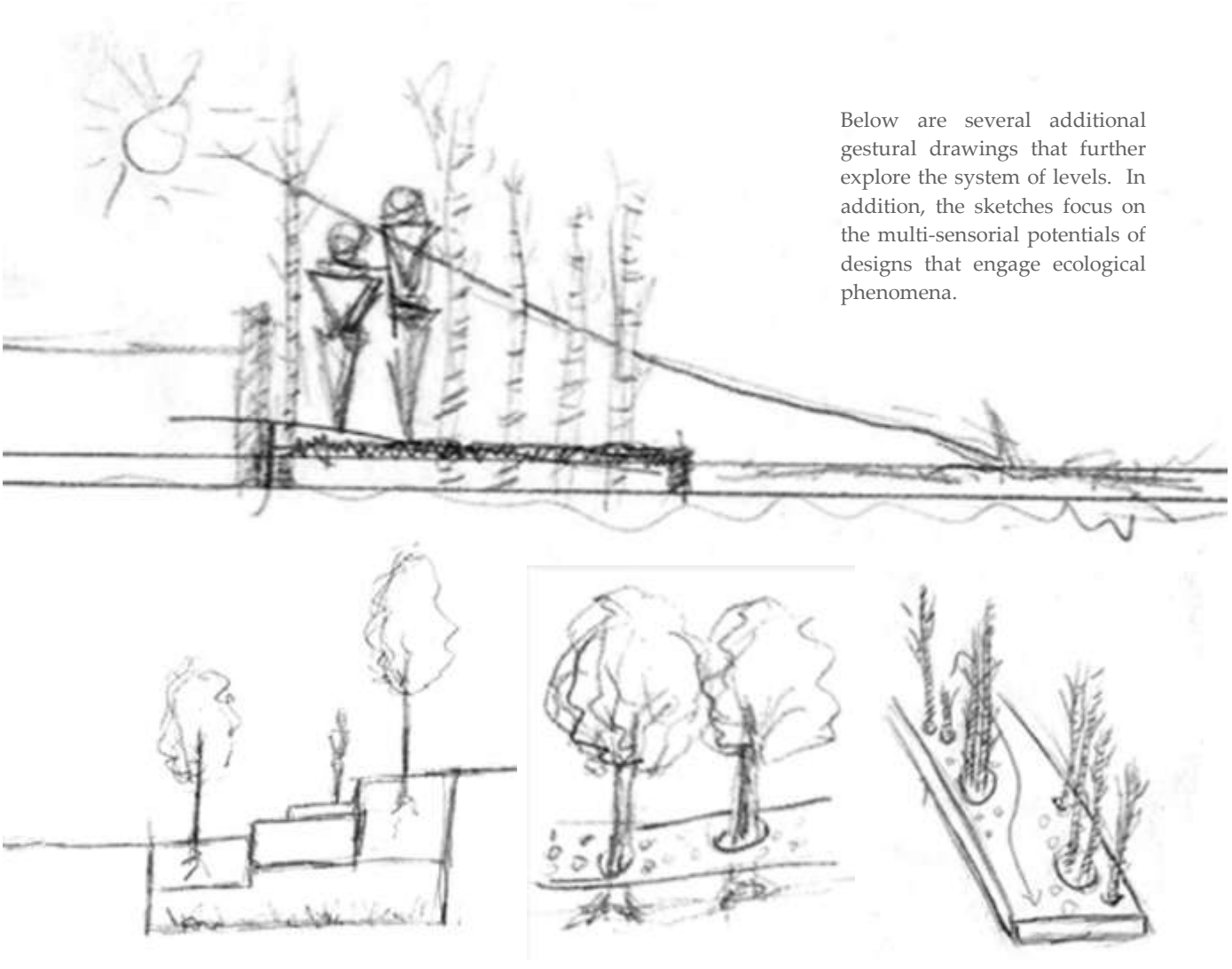




These sections explore the relationship of the railroad channel to the street. The levels are intended to help pedestrian flow permeate the space's unique depths through the ascending and descending movements.



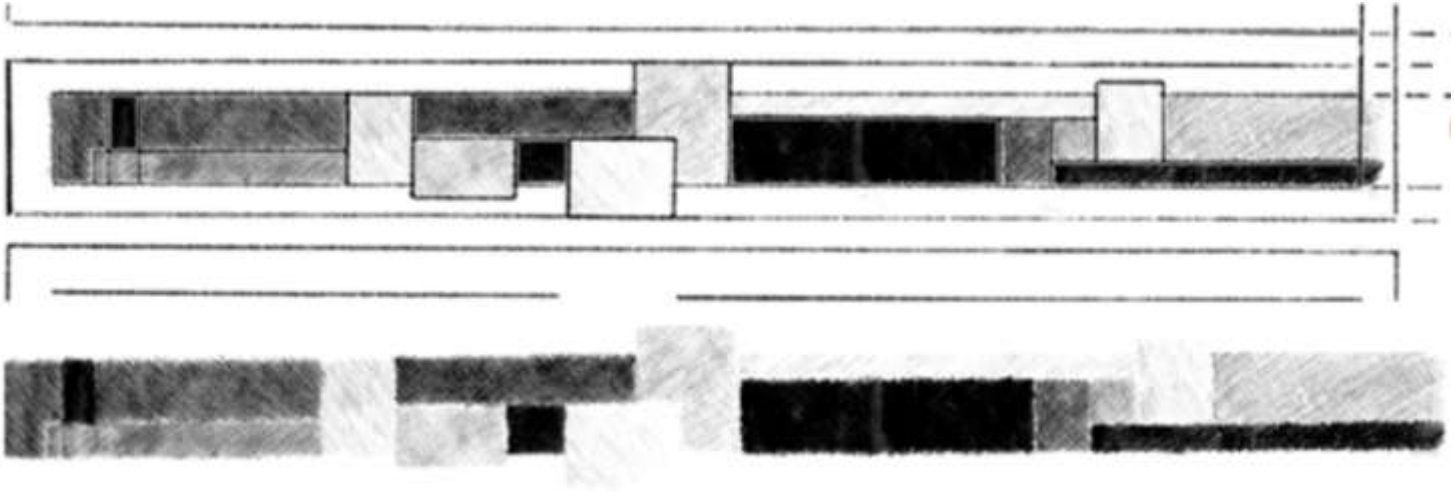
The perspectives above continue to investigate the level system proposed for the first section of the 1st Avenue corridor. Utilizing platforms and bridges, the design seeks to amplify the haptic sensations of enclosure, expanse, ascent and descent., while simultaneously addressing the site's grade changes.



Below are several additional gestural drawings that further explore the system of levels. In addition, the sketches focus on the multi-sensorial potentials of designs that engage ecological phenomena.

emphasized the sites need to traverse the grade change and reconnect pedestrians to street grade. Importantly, this segment is the only area of the street which has an unobstructed view of the downtown skyline and neighboring railroads. Since this abandoned corridor was initially excavated for train use, there is a chance here to renew the site's bond to its history, which could be accomplished by subtly accentuating the industrial noise, while exploiting the echo of the passing trains.

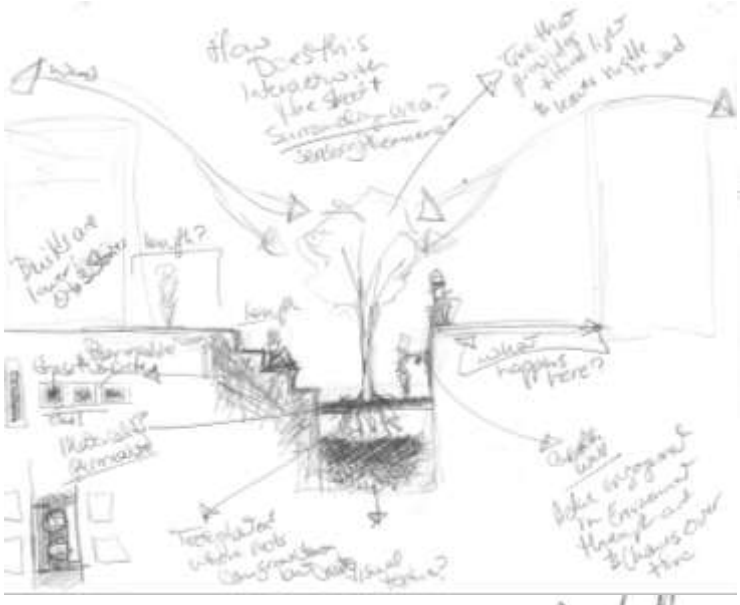
This final examination in this series, combined the previous investigations and examined textural materials and surfaces. This portion stretches from 23rd Street South to the channel's opening just beneath the 24th Street Bridge. The studies express the combination of levels and

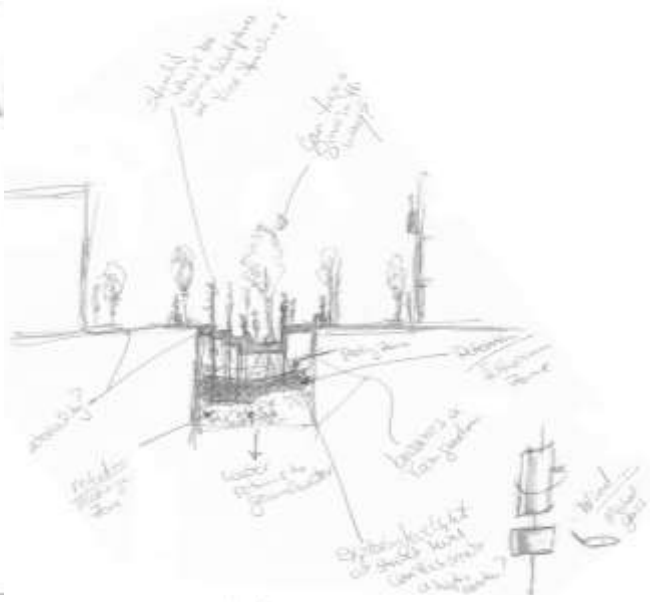


The image above illustrates an additional application for the use of water within the 1st Avenue corridor.

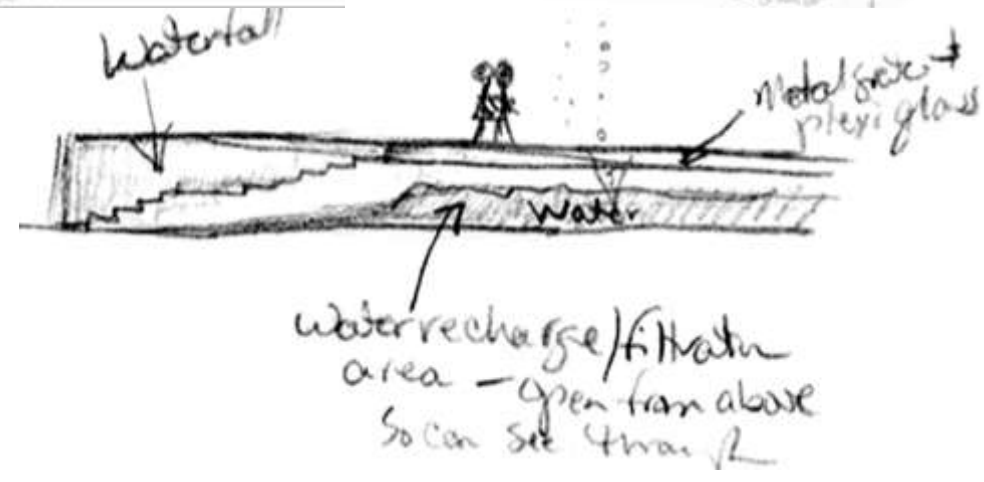
These conceptual designs investigate the intensities of depths presented in the 1st Avenue channel. This section is tinted by an orange circle on the aerial image located on page 63.

The illustrations, presented here reflect on the sensual interactions of water, while offering a mixture of ways in which the phenomena can be harnessed through spacial design. During this stage, the research focused on the phenomenological characteristics of natural systems, specifically those of light and water





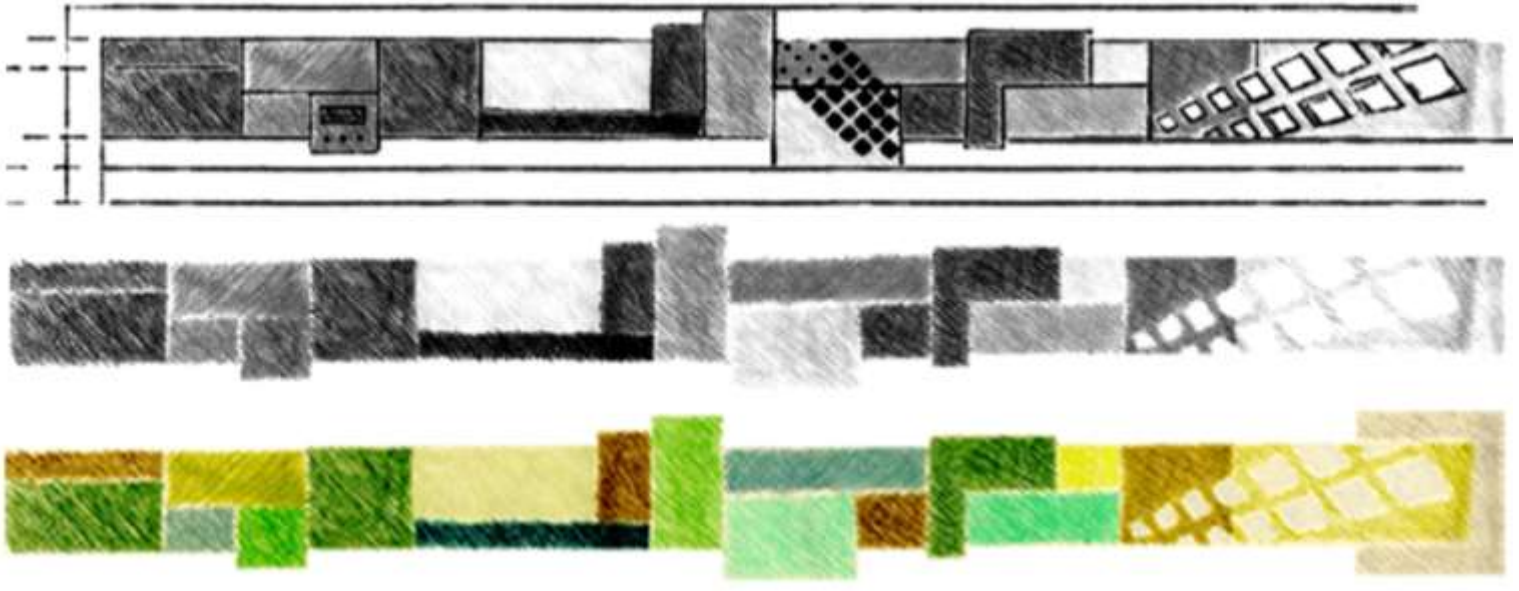
These gestural sketches were initial study inquiries made examining the system of platforms and levels, in combination with ecological phenomena.



depth changes through an assemblage of patterns borrowed from the surrounding environment. The initial grid-like plan was intended to emphasize the site's relationship surrounding urban terrain. Therefore, archetypal elements from the immediate environment fostered inspiration and where utilized to recreate the experiential site's spacial experience.

In addition to these grid-like aerial plans, the space was examined via perspectives and sections. Returning to the mixed-media approach used in the prior perspectival explorations, the conceptual plans became more meaningful. However, these designs still seem

These graphics investigate textural patterns and surfaces. This segment is marked by an teal circle located on the aerial map on page 63.





As part of the design research series that slowly moved away from representational drawings, these images investigated color, texture, and pattern in a non-objective style.

to miss the intended purpose of this theoretical research. These explorations, while attempting to delve into multi-sensorial experience and the haptic realm, remain superficial.

Subsequent Examinations

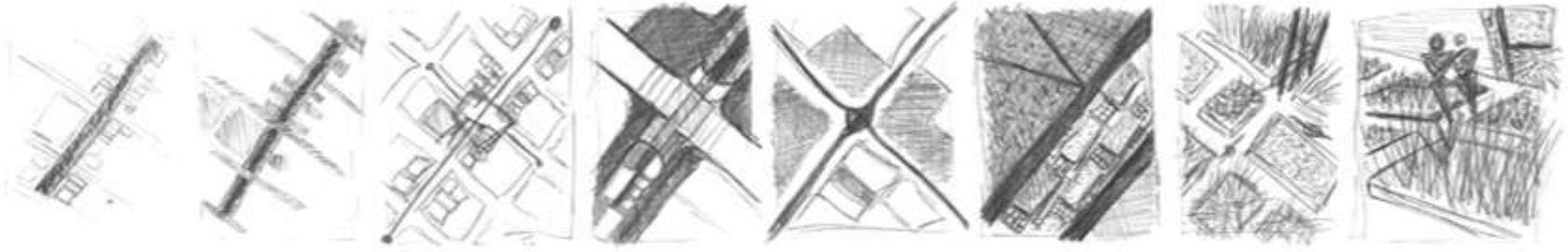
Since the preceding design inquiries appeared to lack a deeper sophistication in regards to the site and its haptic potentialities, the next phase of research required a return visit to the site. Often is necessary for a designer to "jump the system," if you will, and reevaluate the decisions that have been made. This approach to the design process entails zooming in to the site prior to concretizing the contextual and historical elements of research development, and then back out again. This method frees the mind through the release of design ideas, while simultaneously allowing the designer to inadvertently work through physical and contextual situations. Utilizing this "zoom-in-

These perspectives explore seasonal change, in regards to texture and color. The images were completed as part of a series that began more representational and ended fairly abstract.

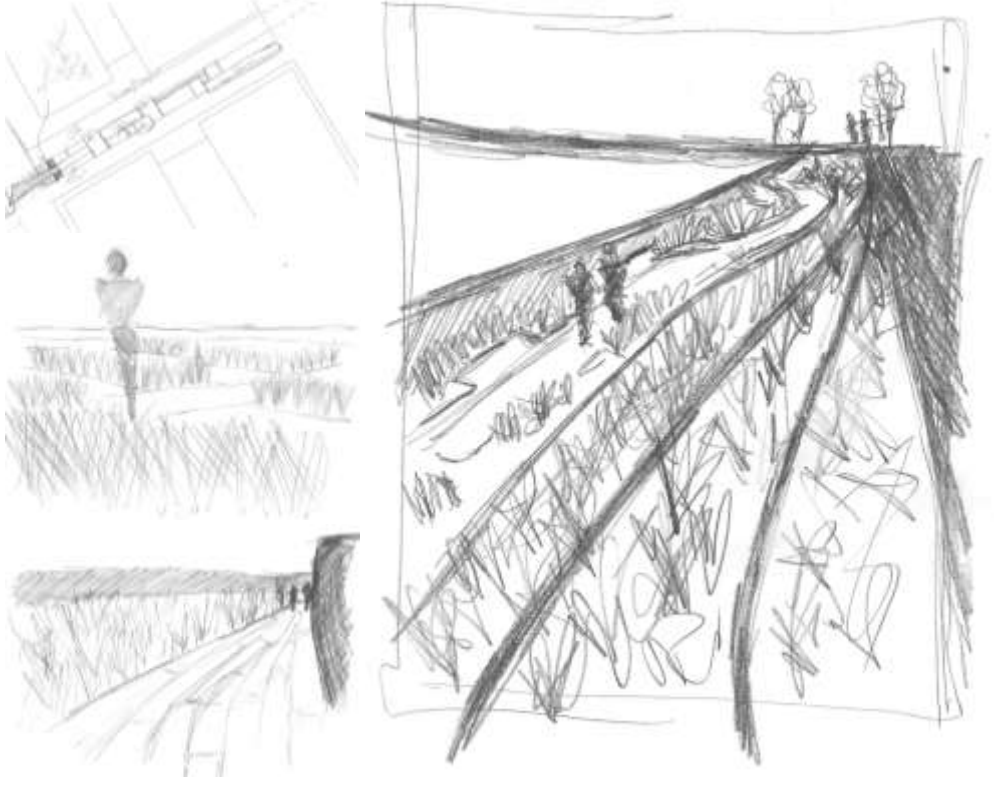
These perspective drawings investigate pattern, color and texture. The images were completed as the second phase of a series that gradually became more abstract and three-dimensional.

zoom-out" tactic, an expressive sensorial diagram of 1st Avenue South was produced. The image captures the site's structure and context in gestural form, along with the sensual ambiences of the space. This investigation not only unearthed hidden haptic potentials of the terrain, but it also facilitated a reconnection to the site itself. Following this exercise, the design studies focused on the spacial materiality, existing, as well as potential. The ideas began as mixed-media drawings and slowly moved towards a more three-dimensional style. In addition, the first drawings in this phase remained fairly representational. However, as the research progressed the images began to be more abstract. At this point, a partial study model of the site was constructed. The model was made for the area of the channel that stretches from 20th Street South to the 22nd

These mixed-media assemblages investigate the site through pattern, color and textural materiality. The studies are the third stage a series intended to explore the through abstraction.



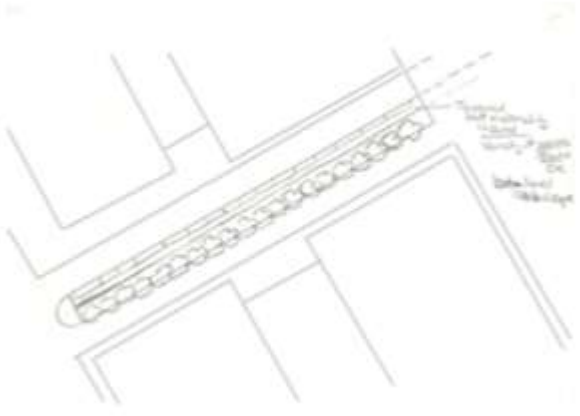
This image to the left is a set of design investigation exploring the Prospect Archetype and the haptic sensation of openness. The design focuses on the section of the channel that spans between Richard Arrington Jr. Boulevard and 22nd Street.

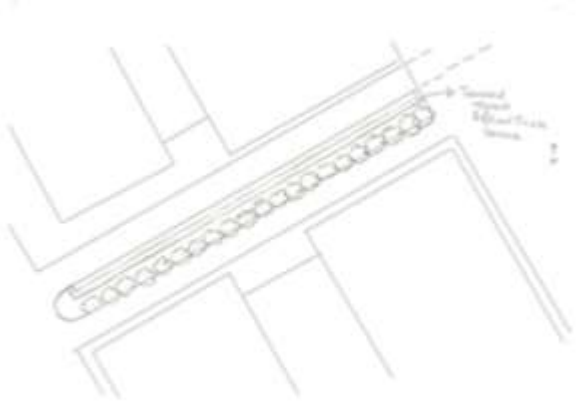


Street Bridge. The model was extremely helpful in understanding the spacial qualities of the channel and allowed for a simulated experience of the site.

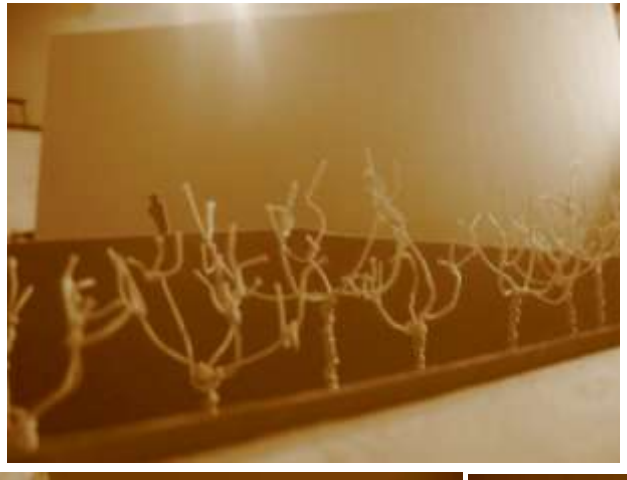
Inspired by Room 4.1.3.'s Garden of Emergence, the concept designs, at this stage, re-examine the haptic qualities of descending and ascending, as well as the Prospect and Refuge Archetypes. Remember that the corridor remains at the grade of its entrance streets, while 1st Avenue rises above it, creating a depth in some places of around 30 feet. Therefore, the site speaks to the haptic sensation of descending. The city rises above the area and the channel appears to descend. Through the amplification of the site's unique terrain, these haptic experiences can be heightened. While working with the model, the sequential, linear placement of trees within the corridor was examined. When moving through the site, the trees' vertical presence enforces the intended haptic sensations. However their

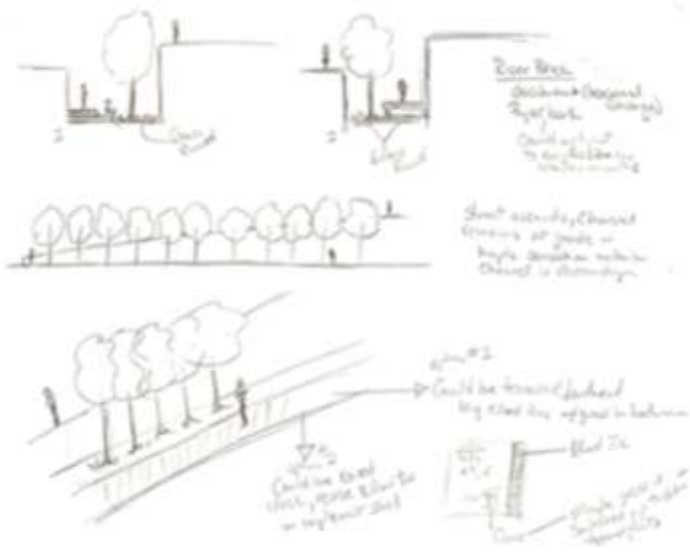
The photograph above was taken after design inquiries where applied to the study model. The model investigations greatly assisted in the understanding the spacial contexts of the 1st Avenue channel.

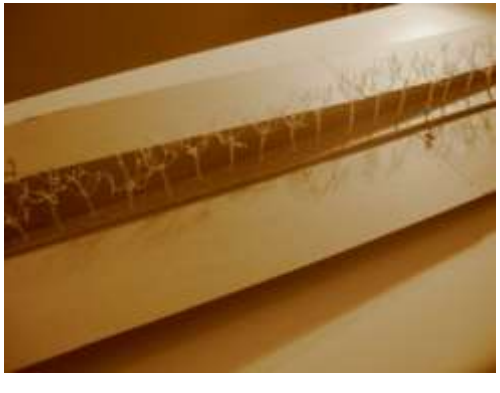


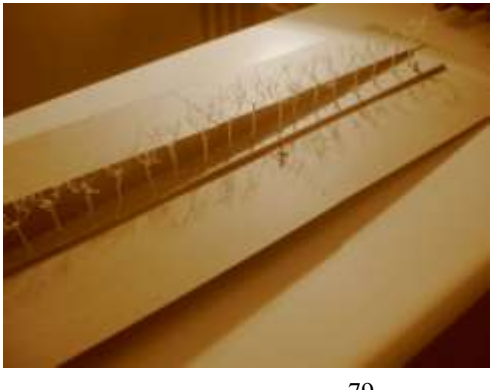


The sketches and model photographs on these two pages explore the placement of trees within the channel to intensify the existing haptic qualities of the 1st Avenue Railroad corridor. This was the influenced by the precedent study of Room 4.1.3.'s Garden of Emergence.



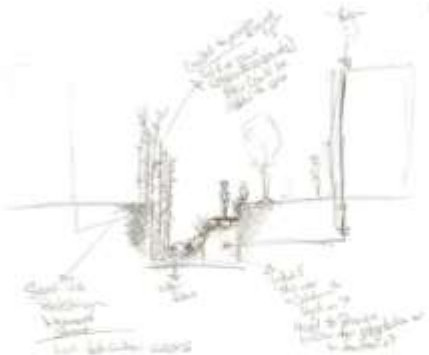
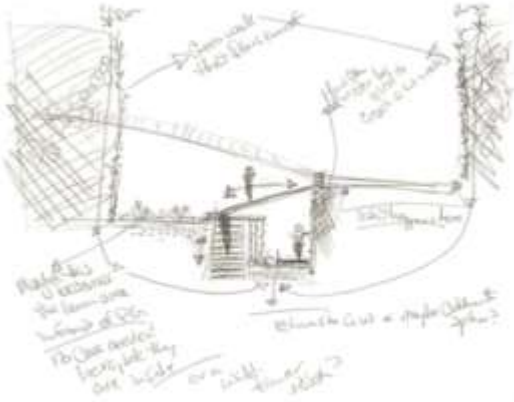


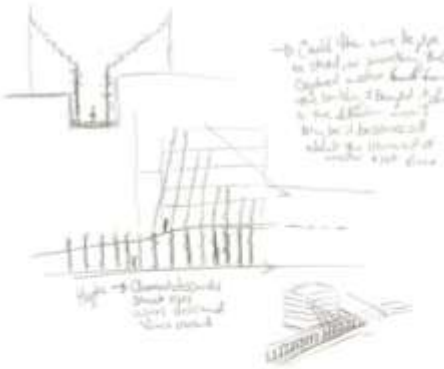
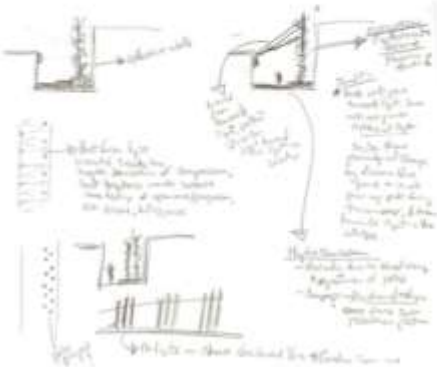
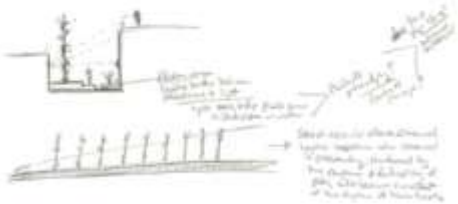






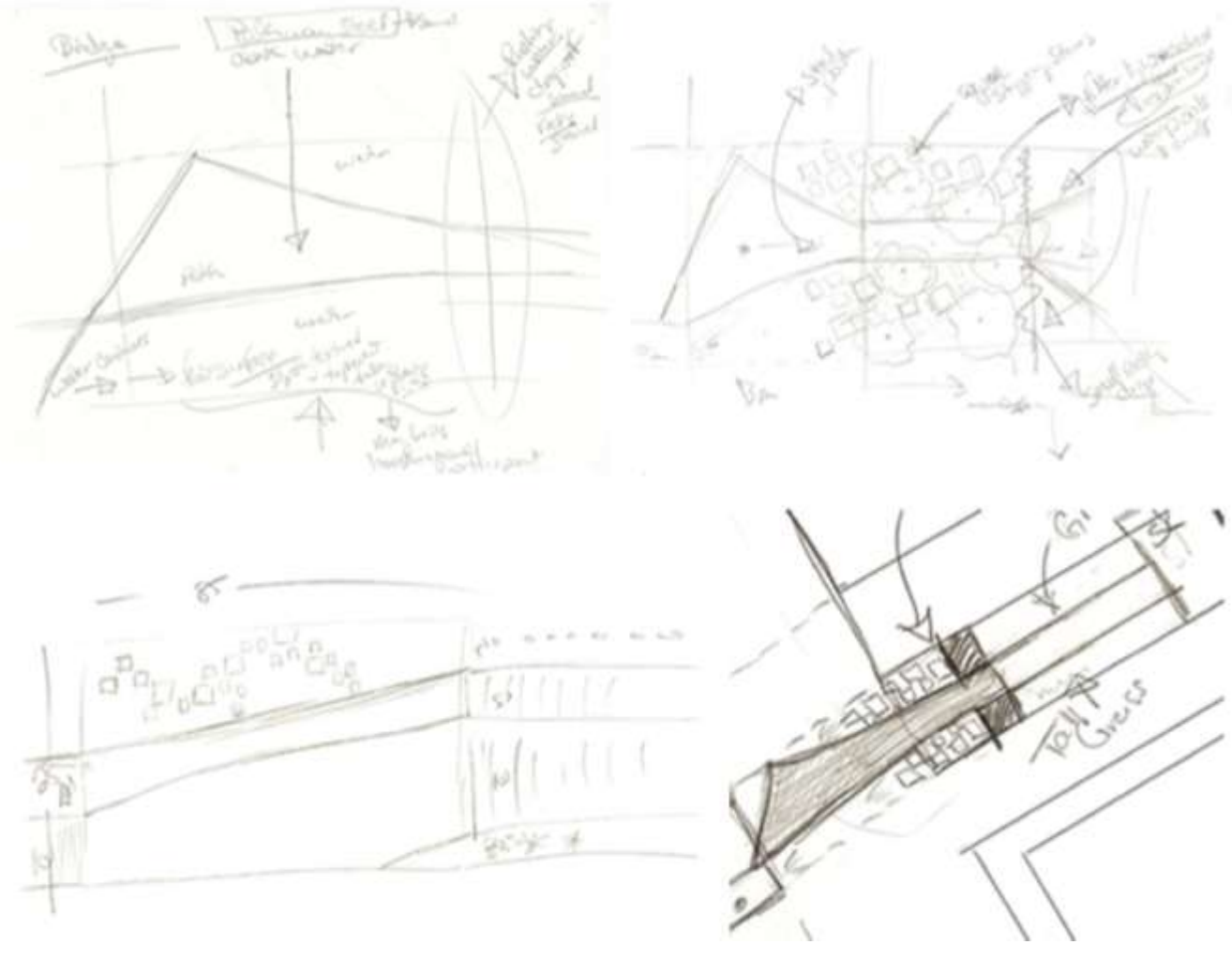


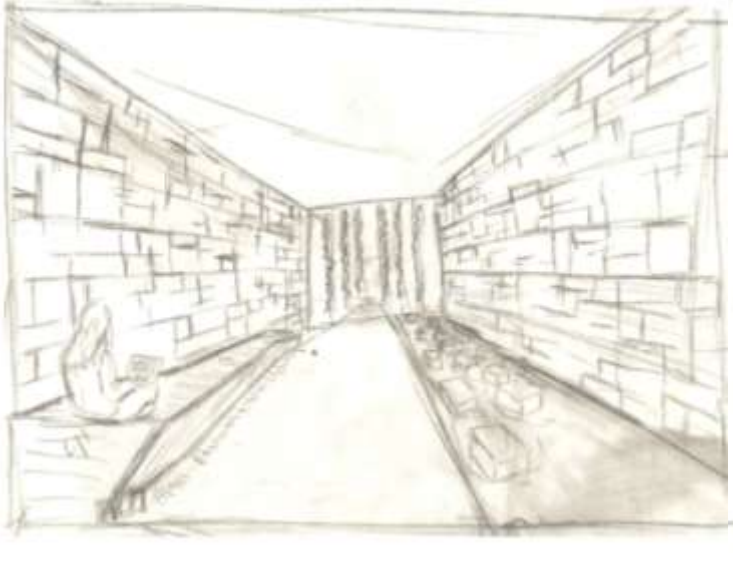
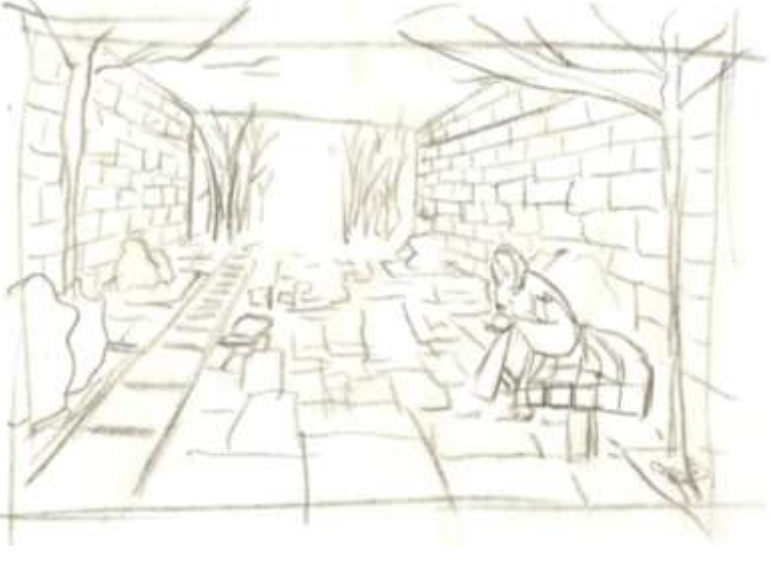


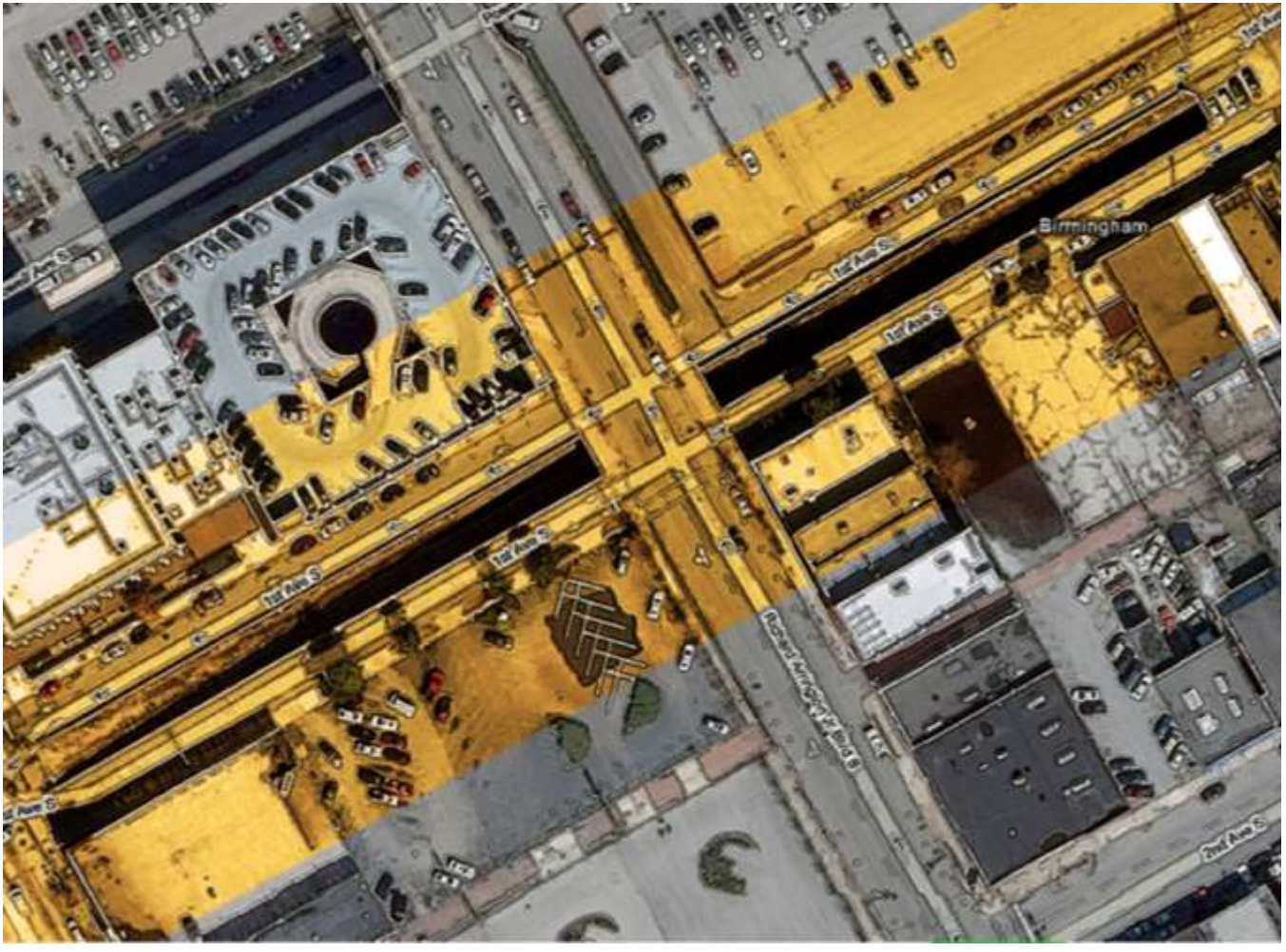
Keeping with the prior investigation, the graphic studies and model photographs, located above and on the preceding page, investigate the rhythmic positioning of poles within the abandoned corridor, in place of trees. The design inquires explored a variety of options, such as the existing rail tracks and mess tubing with vines, prior the decision to use stainless steel.



Located above and on the adjacent page, these plan and perspective drawings, as well as the model illustrations, examine the haptic conditions associated with compression and the Refuge Archetype.

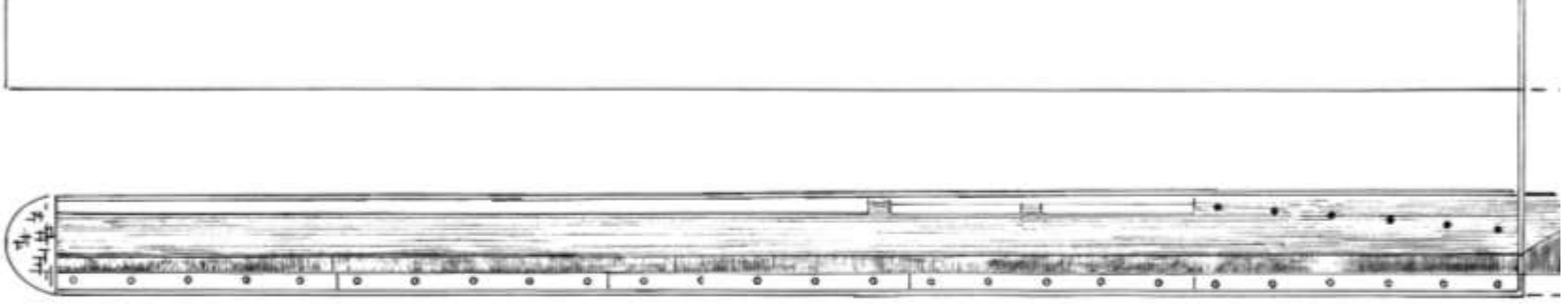




This map above highlights in orange the focus of the subsequent explorations (Background image: "Aerial Photo Map").

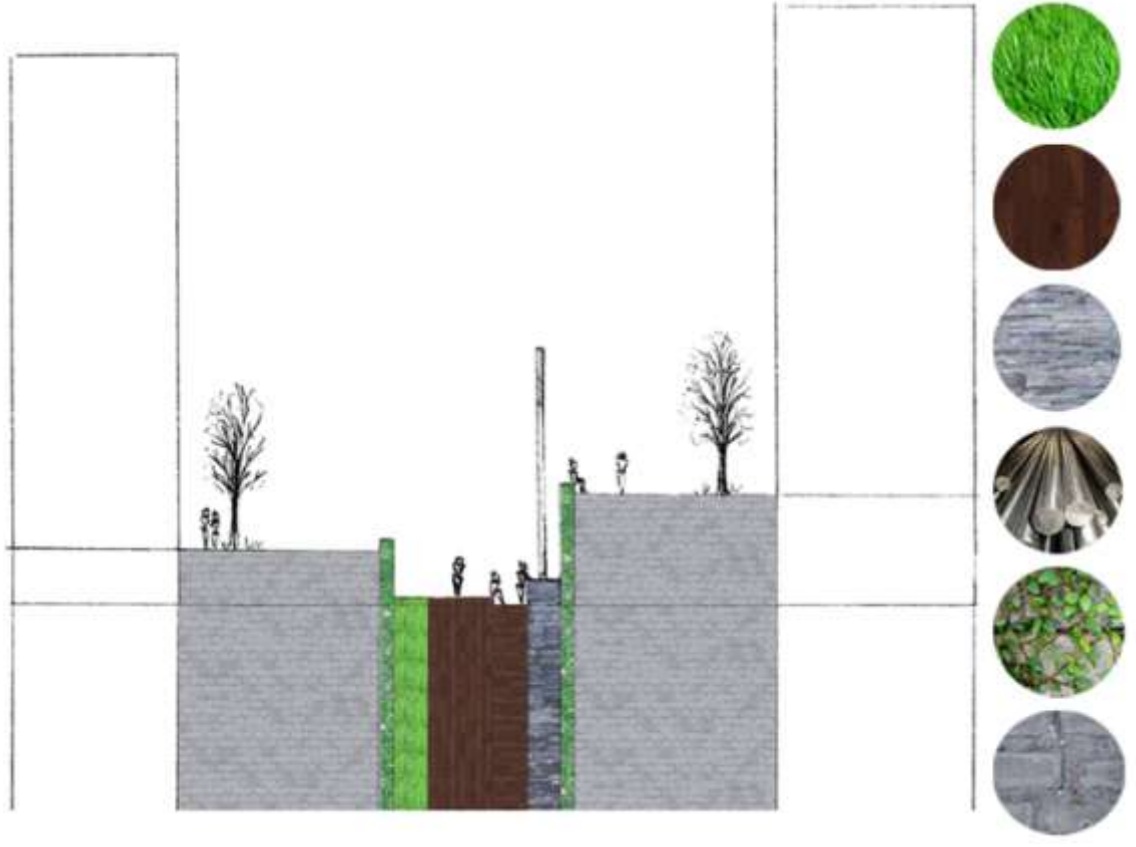
This above graphic highlights the three focus areas of the subsequent design phase (Background image: "Aerial Photo

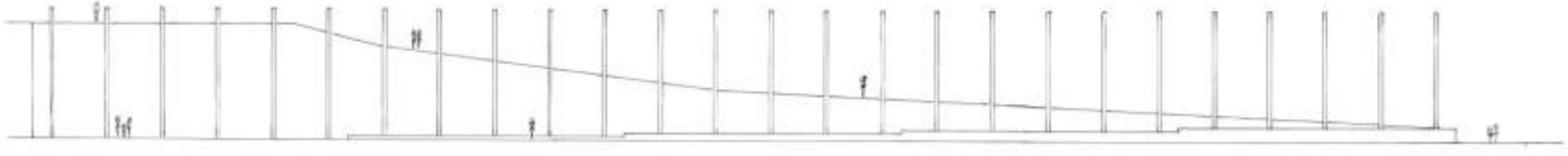


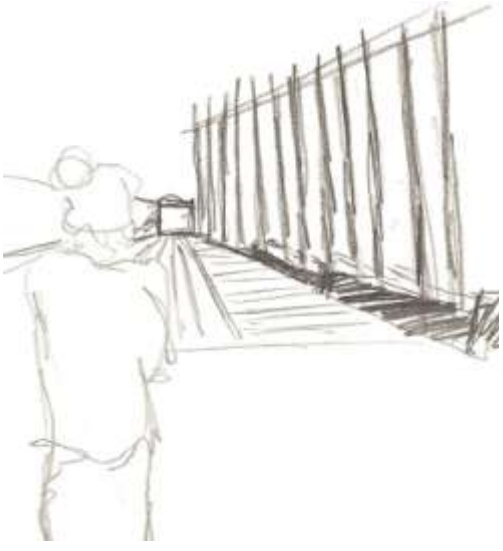
Below is the site plan for the first section of the channel, which runs from 20th Street South to Richard Arrington Boulevard.

canopies to create a distraction. Thus, the placement of vertical elements, other than trees, was explored. Wooden dowels were then placed in a rhythmic pattern along the southern most wall of the model that depicts the abandoned section that runs from 20th Street to Richard Arrington Jr. Boulevard. From this direction, the site quickly descends below street level, splitting the street in half. The employment of these simple, vertical elements will significantly energize the haptic characteristics of descent. In addition to the cadenced of the poles' design, the play of light and shadow, as the sun moves throughout the day, will also intensity the targeted hapticity. Consequently, it is proposed that a line of identical, stainless steel poles be rhythmically spaced within a terraced vanishing pool, along the southern most wall of the 1st Avenue channel. Reaching 35 feet in height, these ageless structures will reflect the area's contextual situation, while creating an interesting juxtaposition to the decay and abandonment of the corridor, itself, and its adjacent terrain. Re-claimed wood, such as the remnants of railroad ties scattered throughout

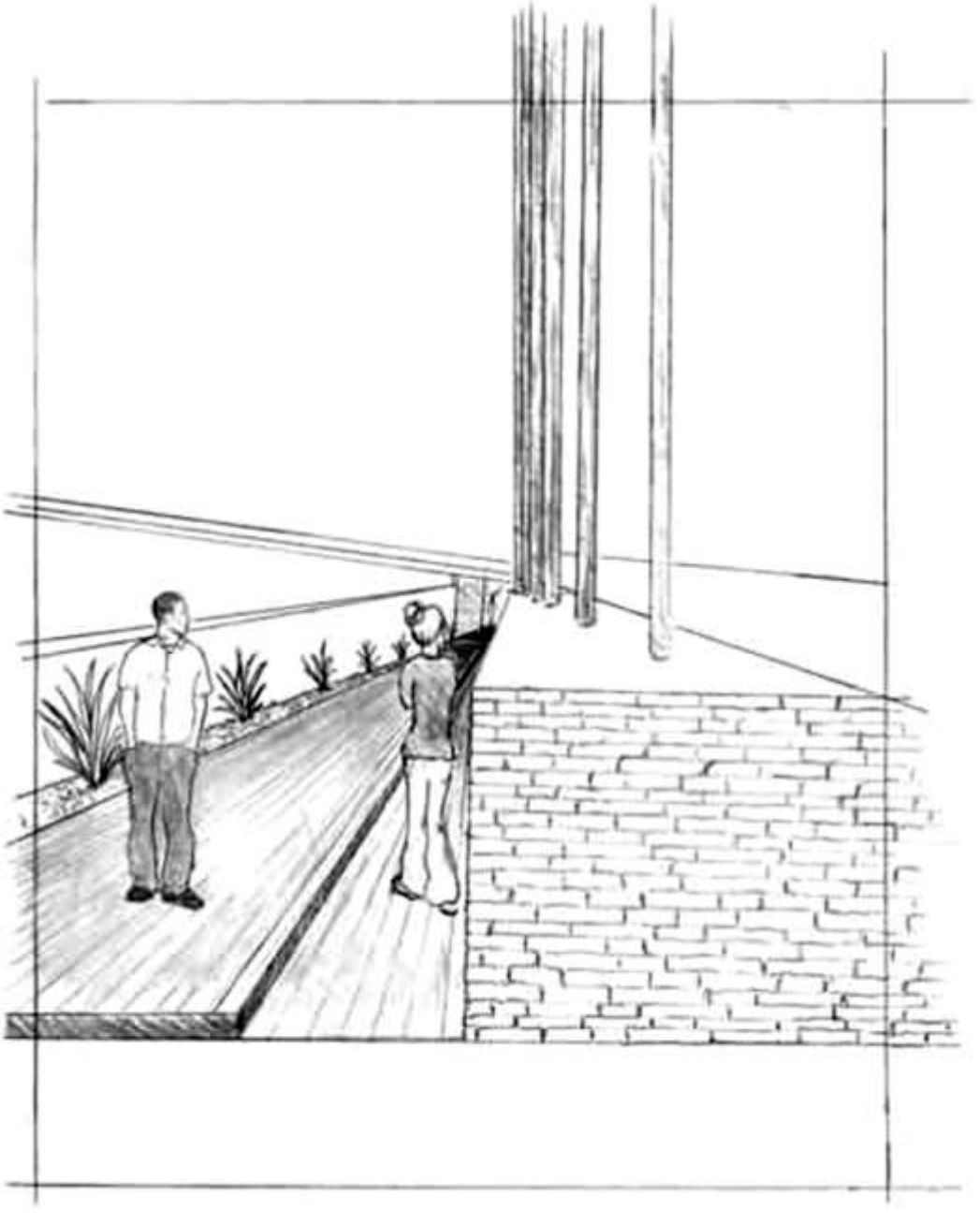
Right: This section illustrates the final design intervention. The graphic also shows the materiality intended for the space.
Below: The section, channel's showing southern wall of the , conveys the careful assemblage of the proposed stainless steel poles.

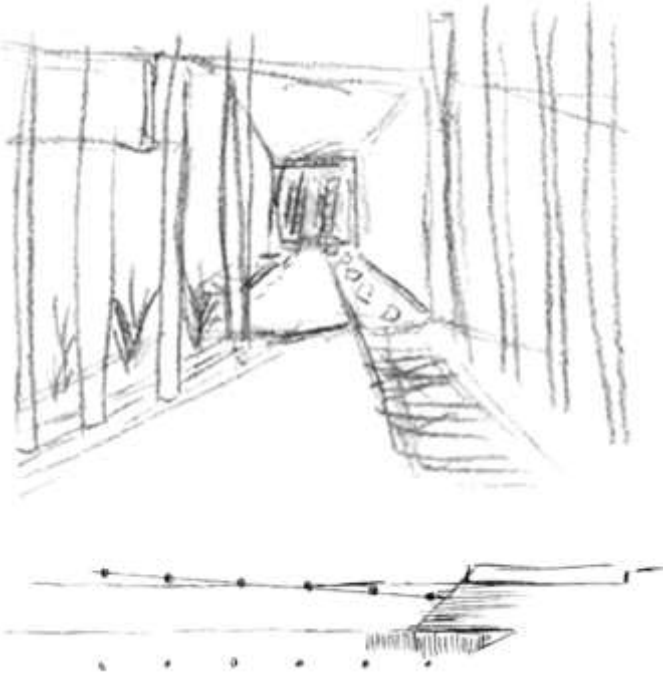






These perspectives provide the views of from the entrance to the channel at 20th Street South, looking northeast towards the Richard Arrington Jr. Boulevard Bridge.



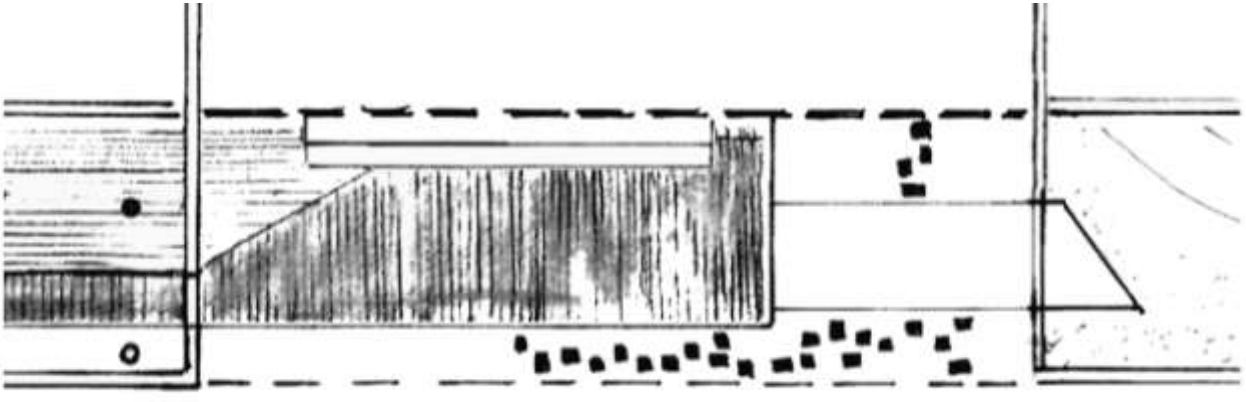


Above: These sketches demonstrate the placement and subsequent compression of the proposed steel poles .

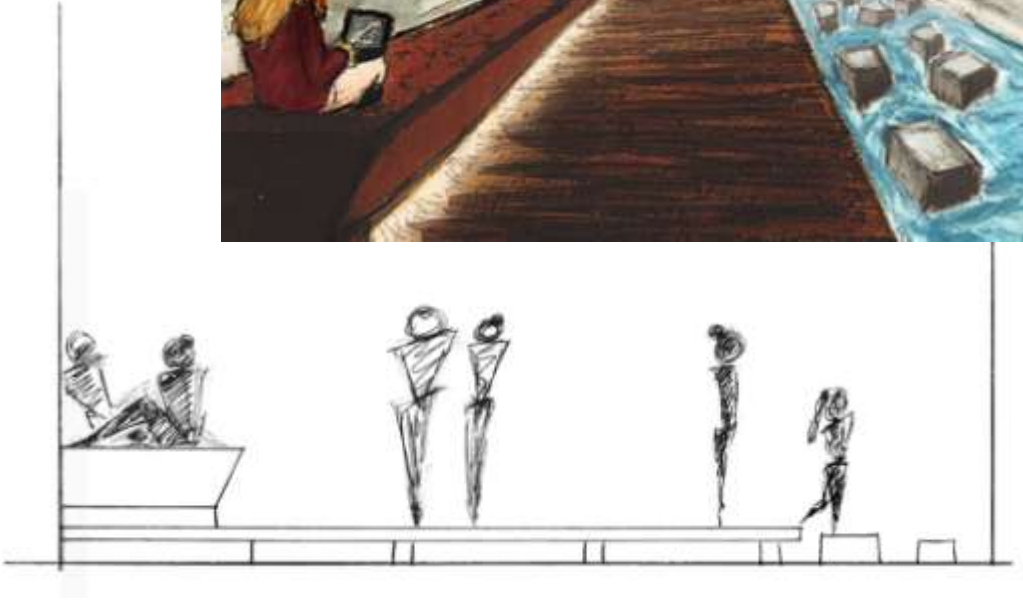
the site, will be used to create an urban boardwalk. The decking will create a drum-like, rhythmic echo that will summon the pedestrian into the channel's procession. The area is enclosed by modern architecture and so the materiality wishes to reflect its condition. The materials here are simple and clean. The creeping fig and lawn area provide a manicured sensation of nature. Both compact, they will not reach out and touch, the participant will have to initiate contact. The limestone will smell like earth when wet, enhancing the sensation of descent even further. When water flows through the fountain, it will move the visitor as well. The vertical elements, along with the drumming cadence, flowing water, and play of light, will engage the participants' peripheral vision, creating heightened haptic experiences.

This next set of design investigations explore the haptic sensations of compression and the Refuge Archetype. Here, the concept was to create a compressed experience that pushes the participant through the thresholds of the Richard Arrington Jr. Boulevard and 22nd Street South tunnels. However, once inside these

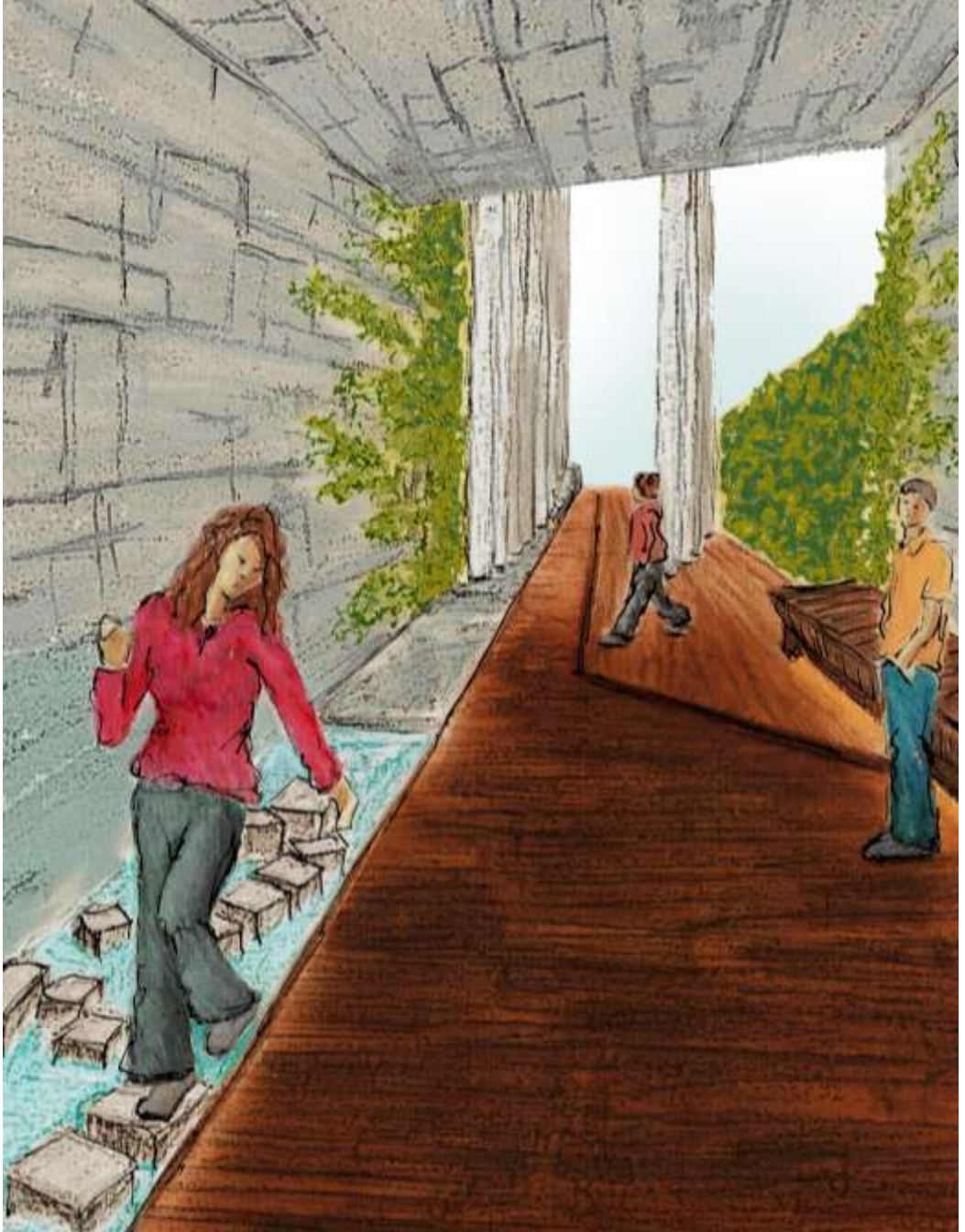
tunnels, the spaces intended to provide refuge by harnessing a more calming haptic sensation. The nature of the 1st Avenue South terrain calls for the pedestrian to go on a journey. Thus, the section that lies beneath the Richard Arrington Jr. Boulevard overpass is where participant first reaches the threshold between city and refuge. This section is only 85 feet in width, but it is at this point when the depth reaches nearly 30 feet. The design for this area is a continuation from the first sector, as this is the nature of the space itself. However, this space becomes more actively haptic than passive. There is now a chance to interact with water in a more playful manor. Concrete stepping stones allow the participant to jump and move throughout the shallow retention pool. Since this section is beneath a bridge, it is enclosed and already tends to compress the visitor. Therefore, the light, in this segment, will glow from beneath the water, creating a calming ambiance prior to the participant entering the next phase, which lies just beyond steel platform. This use of weathering steel as the ground plane speaks to



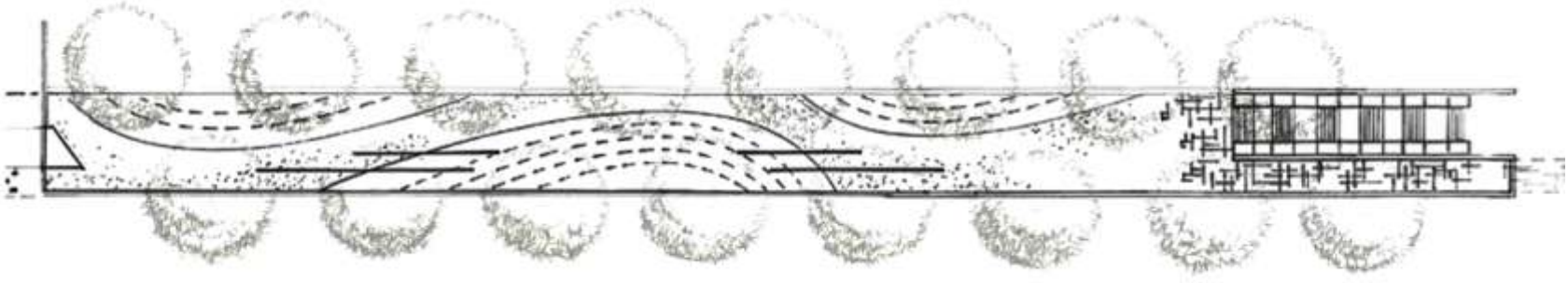
This above graphic is the plan for the section which runs beneath the Richard Arrington Jr. Boulevard Bridge.



Above: This perspective drawing portrays the proposed design and materiality for the interior space underneath Richard Arrington Jr. Boulevard Bridge.
Left: The cross section illustrates the heights of the bench, deck, and stepping stones.



Facing southwest towards 20th Street South, this image provides the perspective view from within the tunnel underneath the Richard Arrington Jr. Boulevard Bridge.

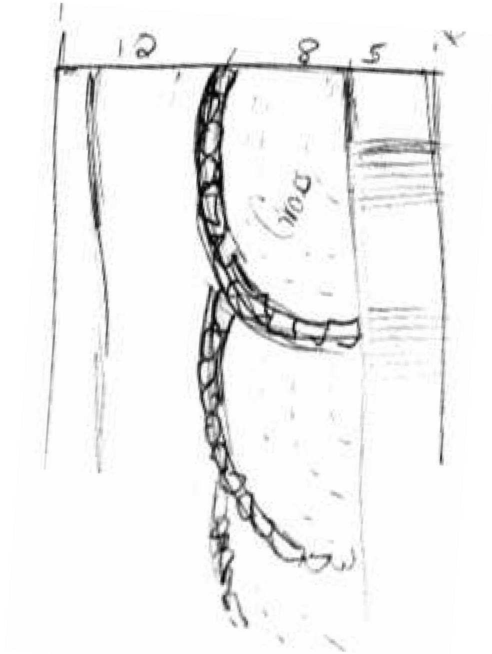


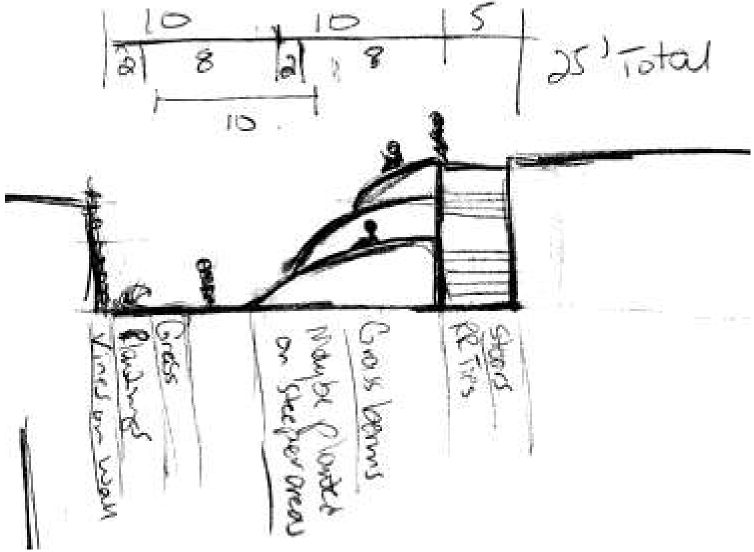
This above graphic is the conceptual plan final section which runs Richard Arrington Jr. Boulevard to 22nd Street South.

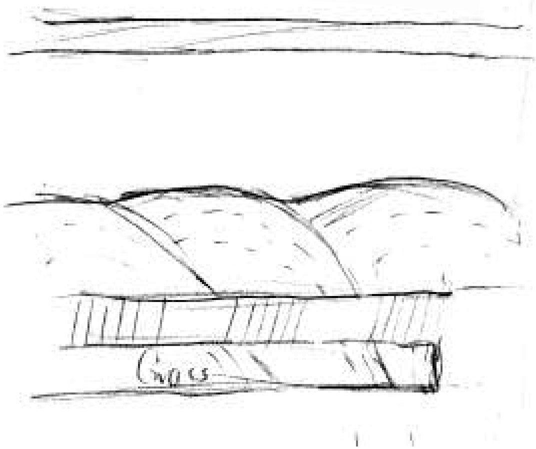
the history of the corridor, as well as the city itself. In addition, the metal walkway will echo a train-like essence throughout the tunnel.

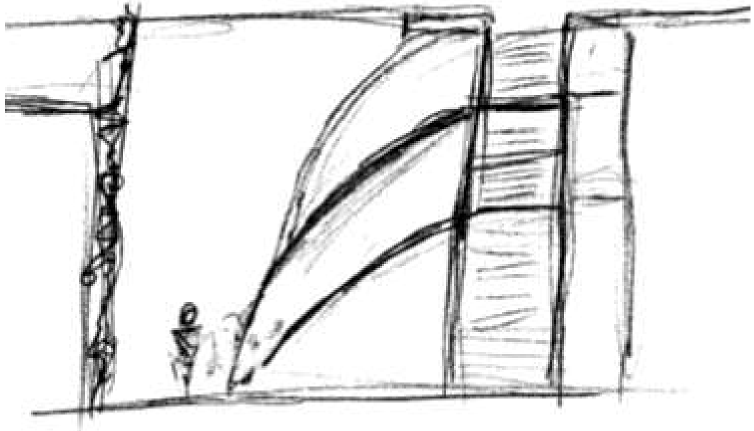
The final concept for this investigation, examines phenomena of the Prospect and Refuge Archetypes . The segment between the Richard Arrington Jr. Boulevard Bridge and the 22nd Street Bridge, as with the others, builds off of the terrain's existing hapticity. The descent from the city leads to a woodland-like refuge, far beneath the surrounding city. At this point, the visitor is 30 feet below street level. The inhabitant's haptic sensation continues to be that of enclosure and descent. It is here that the terrain speaks of its refuge, yet the path is linear and does not provide time for contemplation. Thus, to augment this haptic condition, the site's linear quality requires interruption and, so, the pedestrian path must begin to meander. Since the channel is virtually flat, with no vertical elements to slow the participant, design investigations began to explore potential topographic alteration. Mimicking Lawrence Halprin's use of mounded earth, and the city's surrounding geography, three berms were fashioned within the space. Standing against the site's walls and planted for deep shade, each

The gestural studies, above and on the adjacent page, all explore the use of mounded earth to create the levels needed in order to reconnect the channel to the street level. These investigation intend for the berms to be designed around a set of stairs that allow participants to traverse the grade change. These inquiries led to the to the final design of the section between Richard Arrington Boulevard Jr. and 22nd Street South. However, the staircase was not implemented in combination with the berms due to the limitations presented by the channel's height and width.


12
8
5
Grass


10
10
5
2
8
2
8
10
25' Total
Vines on wall
Plantings
Grass
Maybe planter on steeper area
Grass berms
Stairs RR Ties

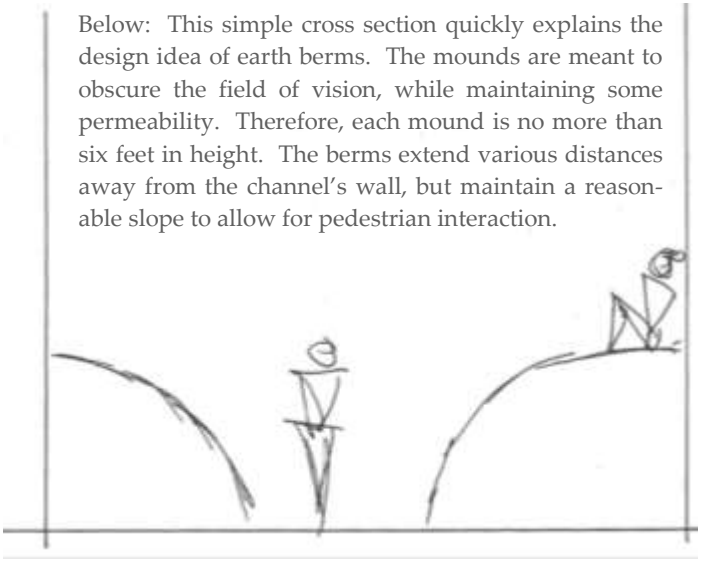

Grass



The above graphic explorations offer views looking down into the channel facing southwest towards the Richard Arrington Jr. Boulevard Bridge. The perspectives clarify the mounded earth proposal for this section of the corridor.

mound provides a scent of earth and forest. These berms obscure the participant's view, creating refuge and intimate space, while simultaneously providing a moment for prospect for those who are willing. Create a winding, woodland path, the mounds exaggerate the participants' position within the forest. At street level, the space is lined with red maples, which will create a distant forest canopy. Now 60 feet or so away from the tree canopy, the haptic sensation of descending is be

Below: This simple cross section quickly explains the design idea of earth berms. The mounds are meant to obscure the field of vision, while maintaining some permeability. Therefore, each mound is no more than six feet in height. The berms extend various distances away from the channel's wall, but maintain a reasonable slope to allow for pedestrian interaction.



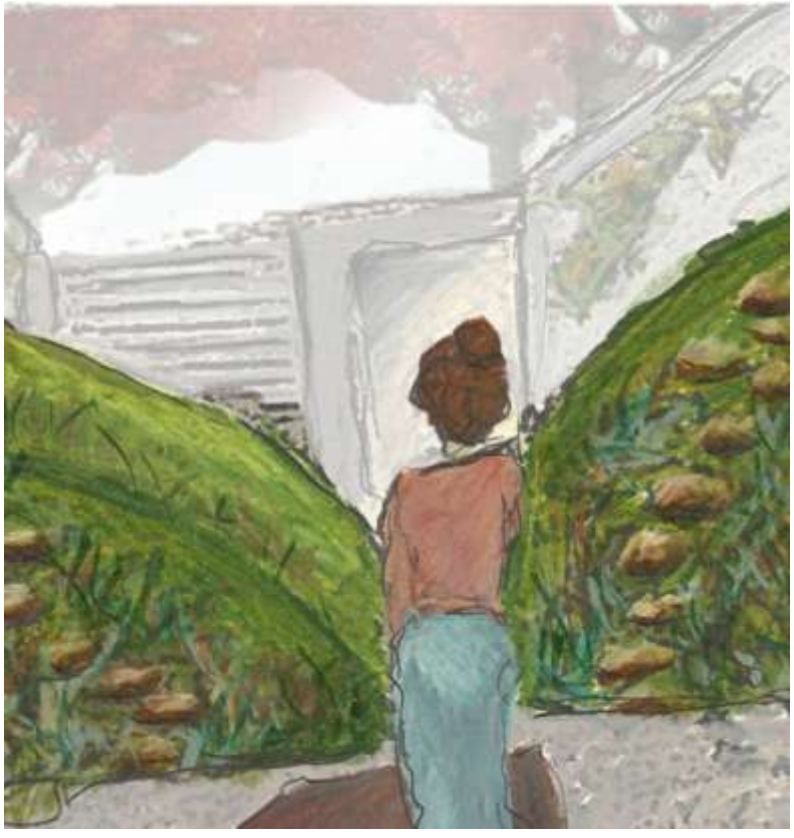
reinforced. The path is now made of crushed limestone, softening both sound and pressure of movement. Compacted within the crushed stone, are the remains of the site's past employment. The train tracks remain in their original position throughout this segment of the channel, and so, it is proposed that these elements continue undisturbed. The site's walls have numerous cracks and openings for which are to be planted, along with the berms. At the end, nearest the 22nd Street Bridge, a staircase will offer an opportunity for pedestrians to return to the street level. It is at this point that the area has the clearest of the neighboring railways, and an unobstructed view of the downtown skyline. The need to bring pedestrians back to street level in this area, is also due to the fact that this is the most heavily traversed segment of 1st Avenue South and it is currently the most disconnected from this decaying corridor.

This graphic perspective illustrates the human scale of the proposed mounds. What is more, The image reveals how the red maples' low-growing limb structure might stretch out across the corridor resembling a forest canopy.

Final Explication

The previous design choices were arrived at through much research and endless contemplation. The difficulty in designing a site based on haptic potentialities is immense. This is mainly due to the fact that everything that is perceived is transferred through haptic sensations. Thus, all is haptic. When we look, we feel. When we hear, we feel. When we smell, we feel. When we taste, we feel. Everything is touched by hapticity.

However, as with all creative endeavors, there must be an end result, and these subsequent explorations are my conclusion. To be critical, these designs fail to embrace the totality of haptic exploitation. They fall short for many reason, but mostly because of over analysis of site and subject, along with inconstancies in time management. Each of which affected productivity significantly. Yet even with these flaws, the design research contained within this book validate my theoretical perspective. The examinations of a terrain through multi-sensorial and haptic encounters are invaluable to the profession of Landscape Architecture. So much more can be perceived from the outside world than a mere aesthetic vision, and we, as designers, should all aspire to relentlessly feel the world that surrounds us.



The mixed-media illustration above presents a view of the planned earth berms from within the channel facing northeast towards the 22nd Street Bridge.

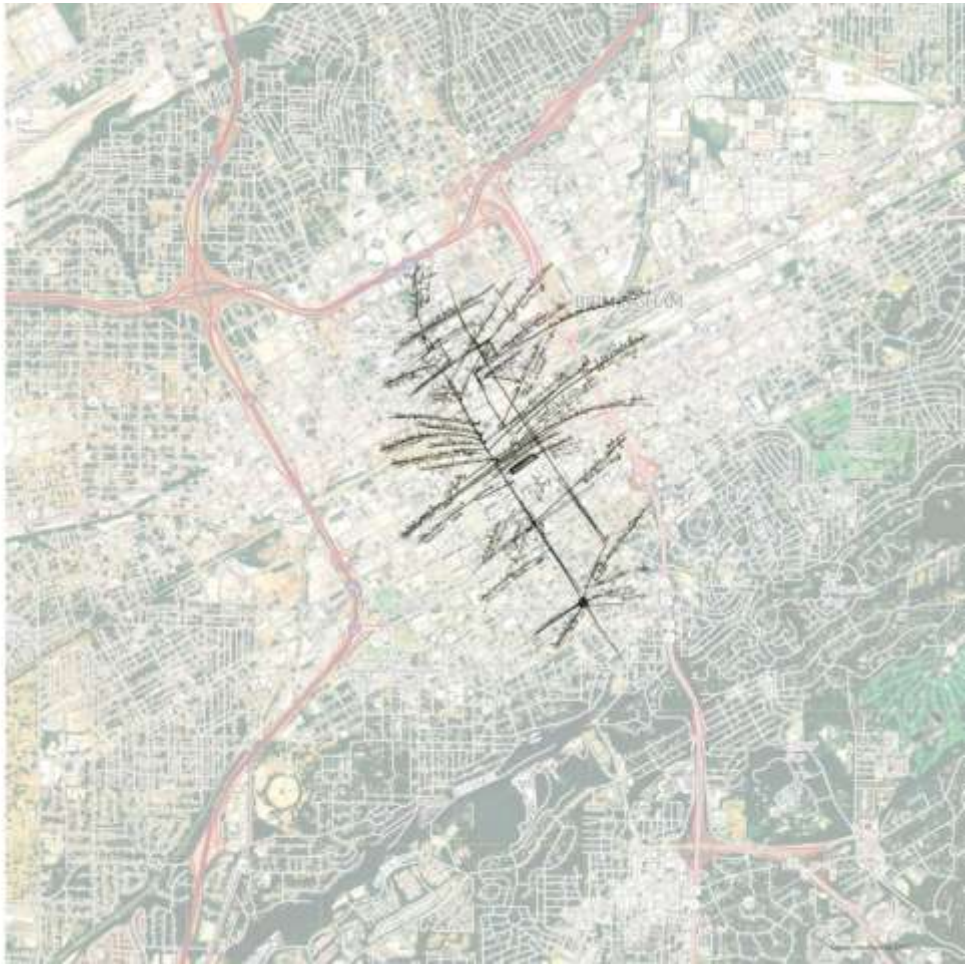
CHAPTER V: CLOSURE

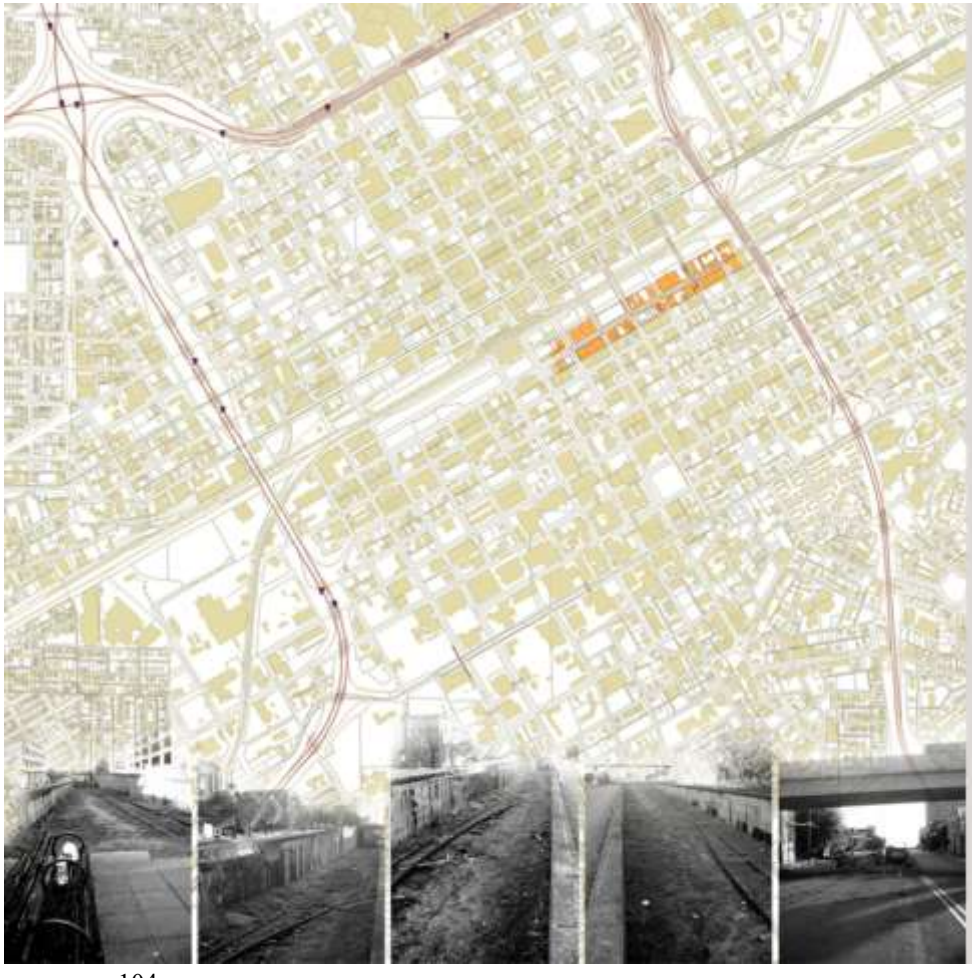
The theoretical objective behind this research, and its accompanying explorations, was to realize the haptic potentials of the creative process, in order to arrive at a more sensually awakened design application. Unfortunately, the spacial implication of visual representation exposed the weakness of employing these methods to express the haptic condition. Nonetheless, it remains my contention that every design professional must begin to actively observe the environment wholly—body, soul, and mind. This journey has reawakened within me, an affinity for life. Realizing now the significance of holistically embodying the world and living deliberately. I am humbly thankful.

PRESENTATION GRAPHICS:

The presentation graphics were created for the purpose of visually communicating this research to the Landscape Architecture faculty. In the following pages, these images are exhibited sequentially. Several illustrations were presented multiple times; however, those graphics are only displayed here once. Therefore, only the images that were altered appear twice. The development of each of these graphic images helped to structure the work and, when displayed as a collection, the illustrations attest to the progress and change that has occurred throughout this process.

INITITIAL PRESENTAION:





The Situation

Human perception, cognition, and memory of the environment are unequivocally adjoined to our **multi-sensory system**. Since perception is the human interpretation of sensory stimuli, our overall thought process begins then with the ability to perceive. The way in which we comprehend this perceived information and knowledge is referred to as cognition. It is important to note that cognition is not only ascertained through the **transactions of perception**, but it is also gained through reasoning, intuition, and culturation. Finally, there is memory, which is a form of cognition that enables us to store information and recall subsequently. Memory occurs in **three distinct phases**. First is the perception and recording of sensory sensations. Next is the temporary preservation of a perception, which is held within the short-term memory. Last is the encoding of information into the long-term memory. With this being stated, how we **perceive, appreciate, and remember** a particular environment ultimately depends on the assemblage of sensory sensations, as well as our ability to filter and process this external information (Kopec 48-54).

The Sensory System

Optical Sense
- Vision
- Dominate Sense

Auditory Sense
- Hearing
- Second Dominate Sense

Olfactory Sense
- Smell
- Taste
- Dominate Memory Sense

Cutaneous Senses
- Touch
- Pressure
- Pain
- Temperature
- Haptic Sensation

Kinesthetic Senses
- Body in relation to the Environment
- Head in relation to the Body (Balance & Equilibrium)

Sensory

Impressions from the Environment

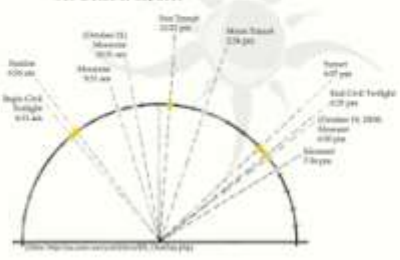
Phenology

The study of the seasonal timing of life cycles

Life Cycle of a Dandelion (*Taraxacum officinale*)

Seasonal Color Change Red Maple (*Acer rubrum*)

Summer-Autumn Color Palette
Including General Beliefs about the Psychological & Physiological Effects of the Associated Colors.



Sun & Moon Data for October 20, 2009

Phenological Repertoire

Phases of the Sun

Growth & Transformation of Wildlife

Temperature & Wind Changes

Phases of the Moon

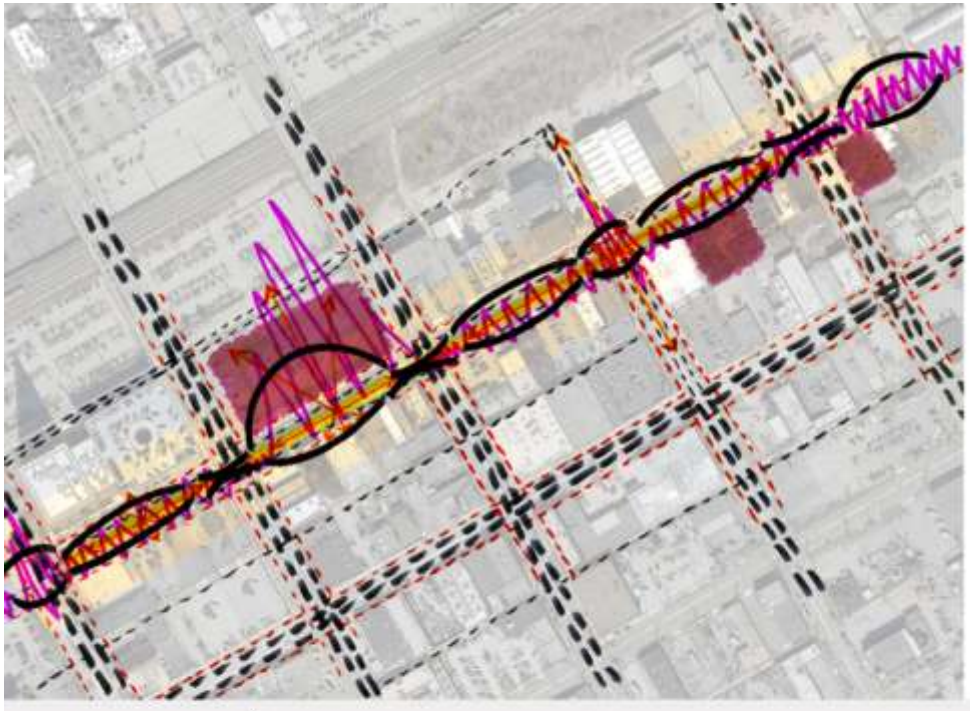
Growth & Transformation of Plants

Hydrological Changes

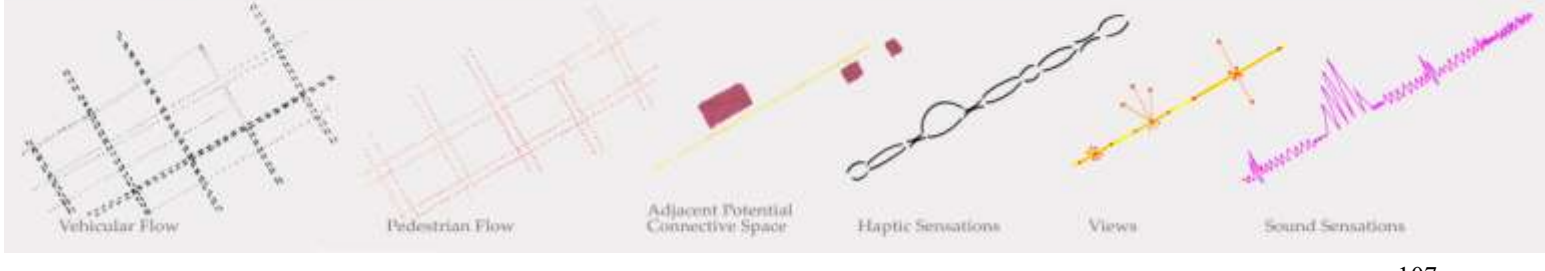
Existing Phenomena

Sensorial Map of Downtown Birmingham, Alabama

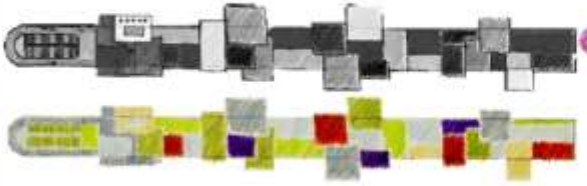
Sensorial Phenomenon




MAPPING THE
SITUATION

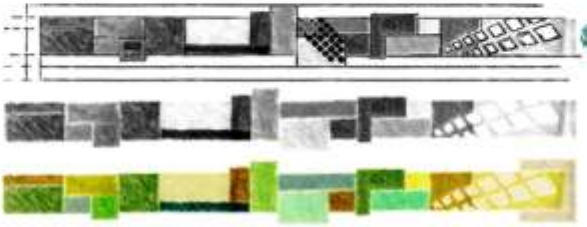

Vehicular Flow
Pedestrian Flow
Adjacent Potential
Connective Space
Haptic Sensations
Views
Sound Sensations

The Concept



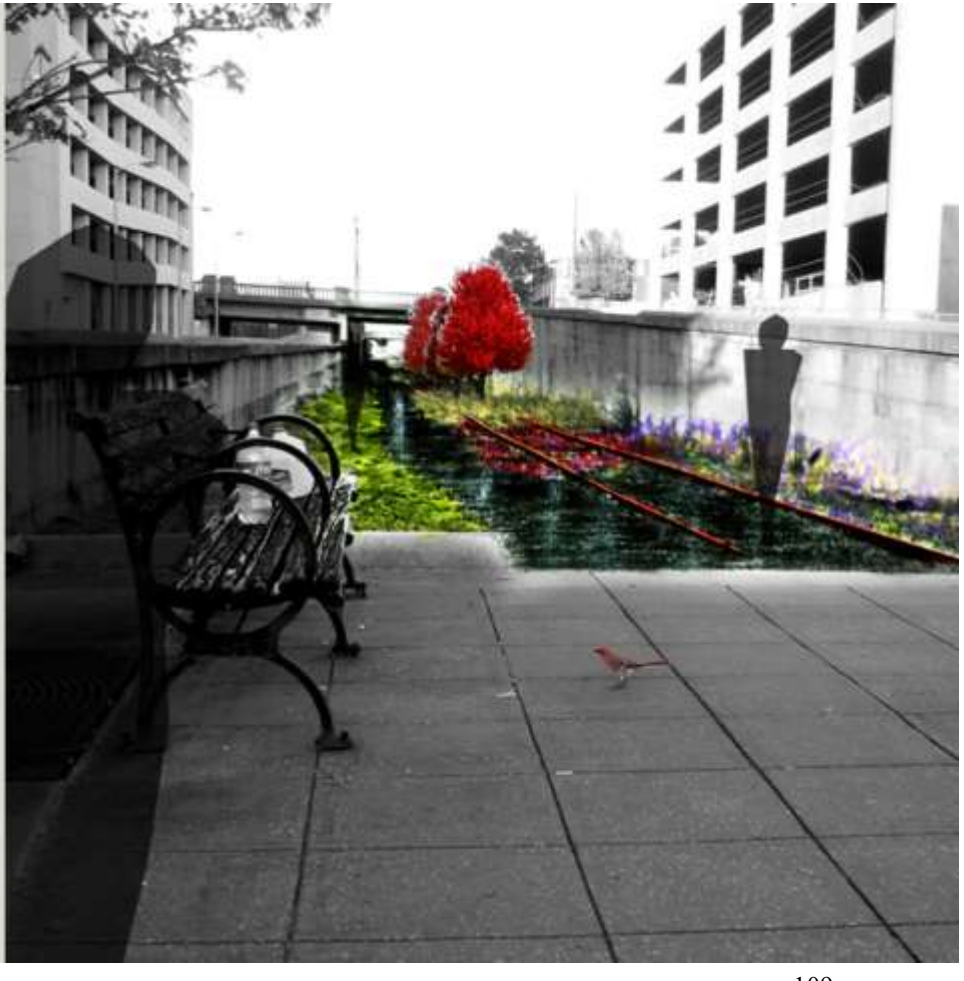
Exploring Levels

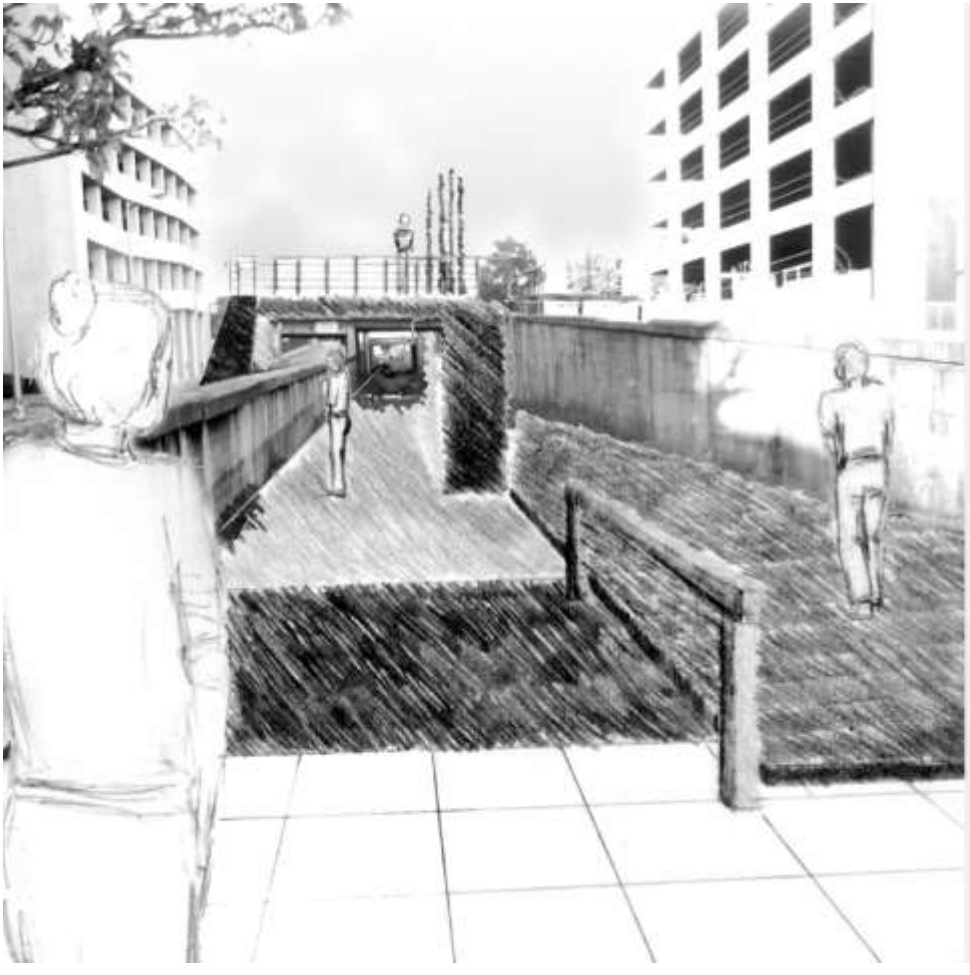
Exploring Depths



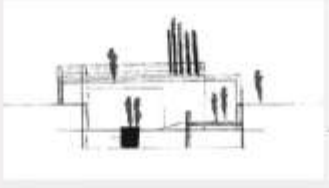
Exploring Patterns

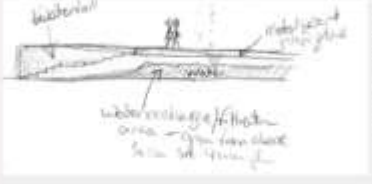
Initial Designs





EXPLORING LEVELS





THESE IMAGES EXPLORE THE RELATIONSHIP OF THE HABITANT CHANGING TO THE FORCE. THE DESIGN CONSIDER PLANFORM AND SECTION TO CREATE SPATIAL SEQUENCES OF INCLUSION AND EXPERIENCE, AS WELL AS TO RELATIONSHIP THE CHANGES IN GRADE. THE LEVELS ARE INTENDED TO HELP PEDESTRIANS PASS THROUGH VARIOUS DEPTHS OF CHANGE THROUGH THE ARCHITECTURAL AND ORCHESTRAL MANIPULATION.

WE PLAY IN UNQUALIFIED DELIGHT WITH OUR EYES OPEN, OUR LEGS MOVING, OUR ARMS AND TORSOS ENGAGED. THE PHENOMENON OF INEFFABLE SPACE REFERS TO THE MAXIMUM INTENSITY AND THE QUALITY OF EXECUTION AND PROPORTION - AN EXPERIENCE BECOMES RADIANT. DIMENSIONS ALONE DO NOT CREATE THIS SPACE; RATHER THE SPACE IS A QUALITY BOUND UP IN PERCEPTION.

-STEVEN HOLL, PARALLAX

The Phenomena of Water & Light

As a catalyst for change, architecture's ability to shape our daily experiences in material and detail is subtle yet powerful. When sensory experience is intensified, psychological deminsions are engaged.

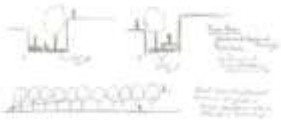
- Steven Holl, Parallax

The Situation

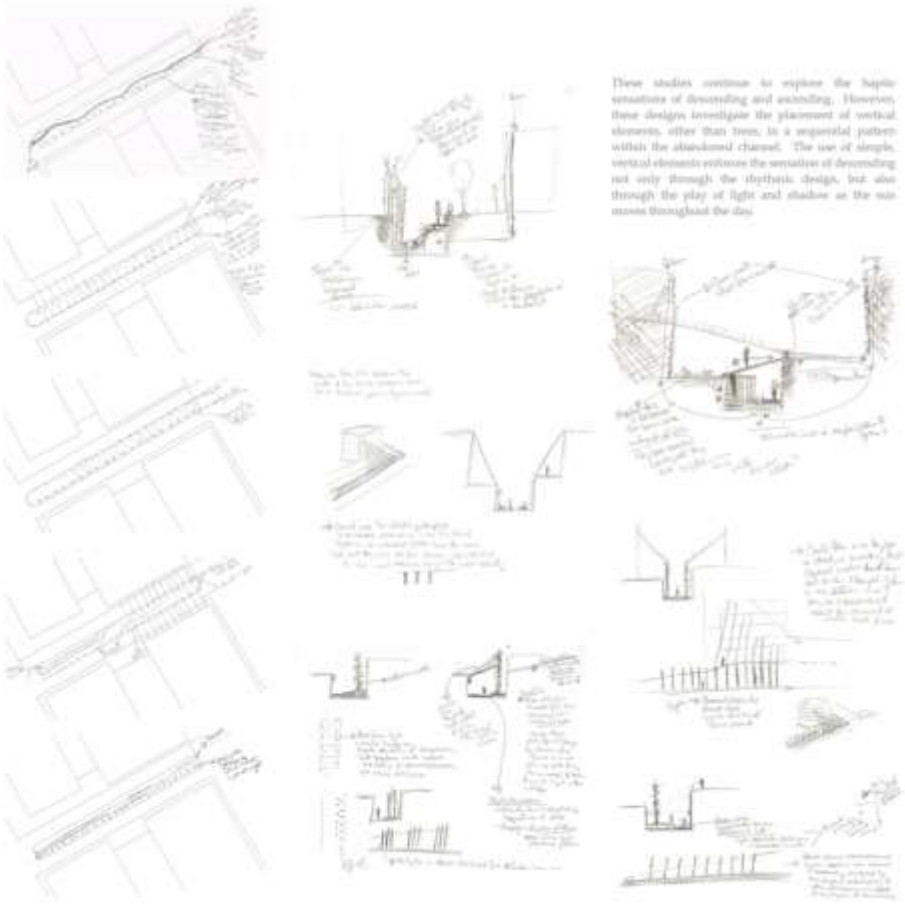
The experimental site is located on the south side of downtown Birmingham, Alabama. The area is an abandoned rail line that divides 1st Avenue South in half. The segment runs northeast to southwest between the 24th Street Bridge and 20th Street South. This abandoned rail line was once part of the Atlanta Railroad lines and remnants of the site's history remain intact. The Atlanta rail lines are still active in the area and, although separated by two blocks, the active railroads run parallel to the abandoned channel. In addition, the area lies within the Historic Automotive District and is largely surrounded by warehouses. Currently, many of these adjacent warehouse buildings are being renovated into loft apartments. It is important to note that the site has an unusual grade change that descends beneath street level, disconnecting the street. What is more, this site is flanked by two new Brownfield developments, Sloss Furnace Park and the Railroad Park. For these reasons, this site lends itself to the reconnection of disjointed landscapes.

Experimental Site Criteria:
* Neutrality and flexibility to permit invention
* A scale that allows for attention to detail
* Connectivity to other potential sites
* Openness rather than enclosure
* Access to water
* Good solar penetration
* Restricted vehicular access
* Access to potential retail

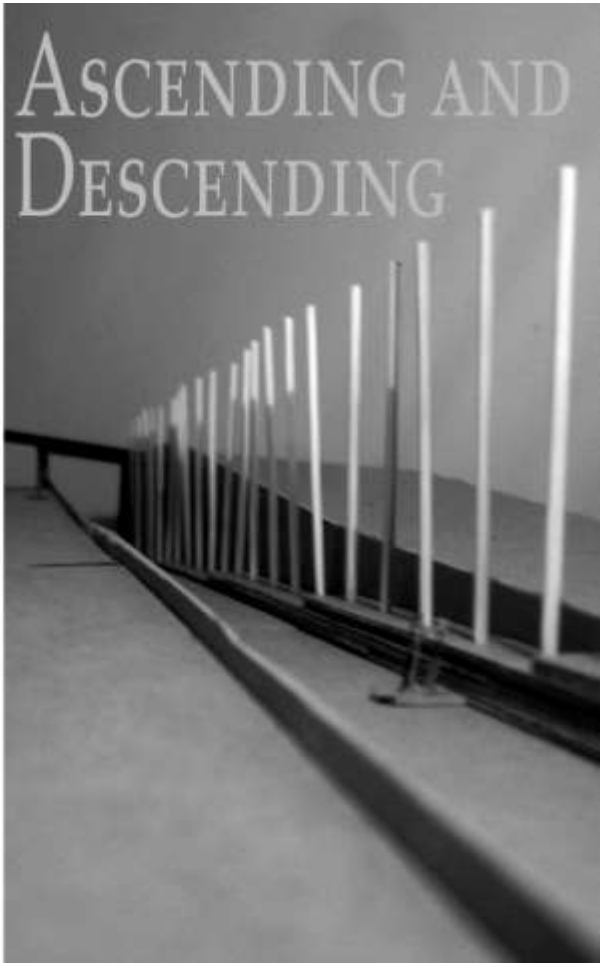
Inspired by Rosen 4.1.3's Garden of Emergence, these design investigations explore the haptic sensations of descending and ascending. The channel remains at the grade of its entrance stream, while 1st Avenue rises above it, creating a depth in some places of around 30 feet. By enhancement of the site's unique terrain, these haptic experiences can be heightened. These studies investigate the sequential placement of trees within the channel. The trees vertical presence will enforce the haptic sensation of descending, as well as ascending, when moving through the site.

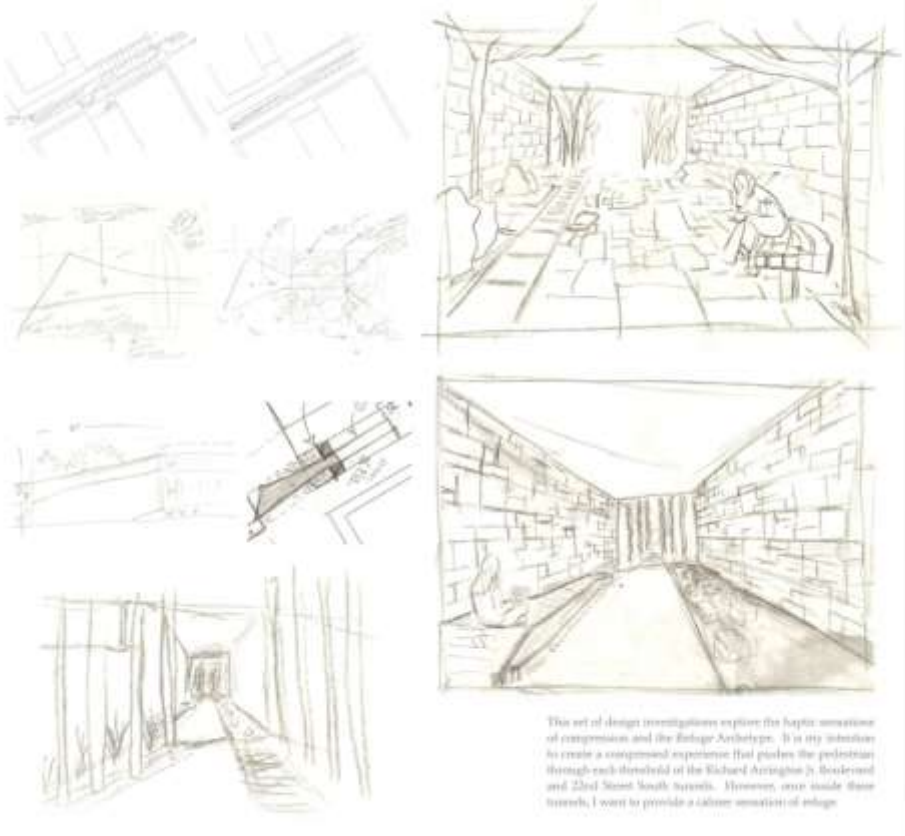


ASCENDING AND DESCENDING

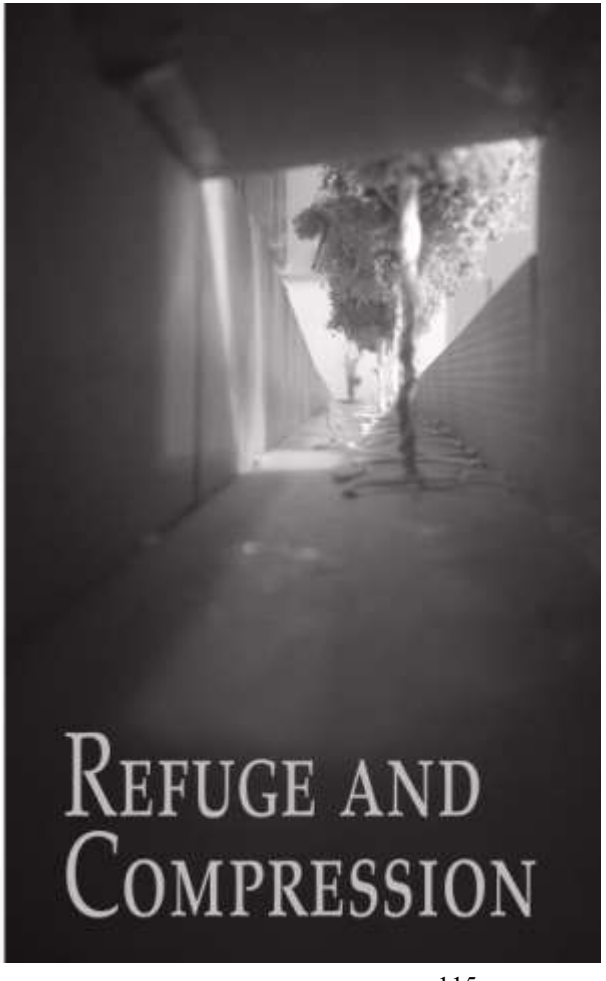


These studies continue to explore the haptic sensations of descending and ascending. However, these designs investigate the placement of vertical elements, other than trees, in a sequential pattern within the abandoned channel. The use of simple, vertical elements enhance the sensation of descending not only through the rhythmic design, but also through the play of light and shadow as the sun moves throughout the day.

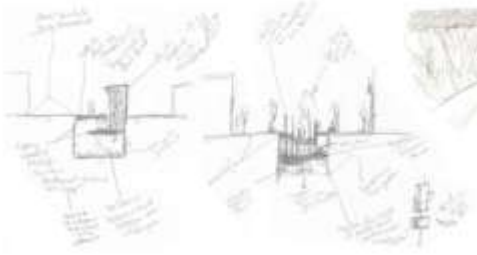




This set of design investigations explore the haptic sensations of compression and the Refuge Archetype. It is my intention to create a compressed experience that guides the pedestrian through each threshold of the Richard Arrington Jr. Boulevard and 22nd Street South tunnels. However, once inside these tunnels, I want to provide a calmer sensation of refuge.



The design investigations here, explore the haptic phenomenon of the Prospect Archetype and the sensation of ascending. It is my intention that the compressed experience within is followed by a release into an area of expanse. The section of the site between Richard Arrington and 22nd Street South is perfect for the exploration of these haptic sensations. The area has the only clear view of the city skyline, yet it is at the deepest depth. My intention is to bring pedestrians back to street level in this area. It is the most populated area along the avenue, and yet in many ways it is the most disconnected.

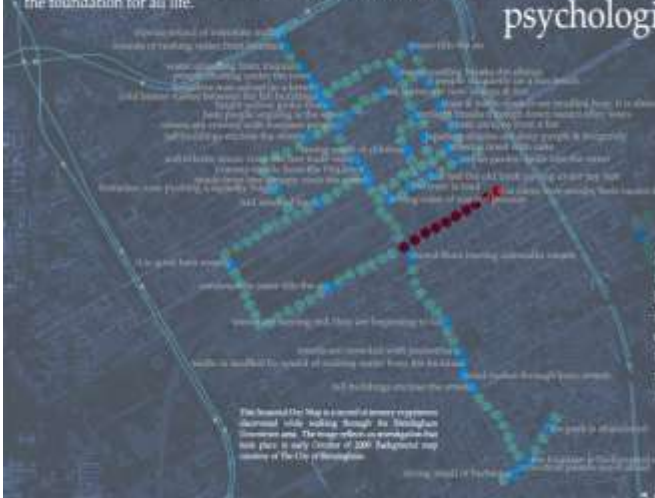


PROSPECT AND RELEASE

Sensorial Ecology

Human beings require multi-sensory interactions throughout their daily lives to appropriately facilitate their perception of the surrounding environment. For this reason, sensory impressions play a vital role in both cognitive and physical development. Given that these percepts of information help to cultivate the mind, as well as promote physical well-being, there is a substantial need for human beings to achieve a dynamic balance of sensual experiences. Furthermore, it is essential that these sensorial connections are not only gathered from man-made landscapes, but also from the earth's natural processes, which are the foundation for all life.

"When sensory experience is intensified, psychological dimensions are engaged."
- Steven Holl, Parallax



My research has revealed that the modern urban situation often lacks a dynamic balance of multi-sensory stimulation. While urban environments are filled with sensual encounters, the heredity of these experiences is largely fabricated. As a result, human beings are becoming overtly dependent on their visual faculty, at the expense of other sensory sensations. Additionally, I have found that multi-sensory impressions are explicitly distorted at successive times of the year, thus linking our sensorial experiences inevitably to the phenomena of Seasonality and Phenology. This research seeks to illuminate phenological episodes for urban dwellers through the design of an urban terrain that heightens haptic sensations, in order to illustrate the sensory relationships human beings undergo due to the inescapable passage of time. As part of my process, I investigated patterns of transformation through an intense assemblage of sensory and phenological phenomena.

The Position

Research Question:

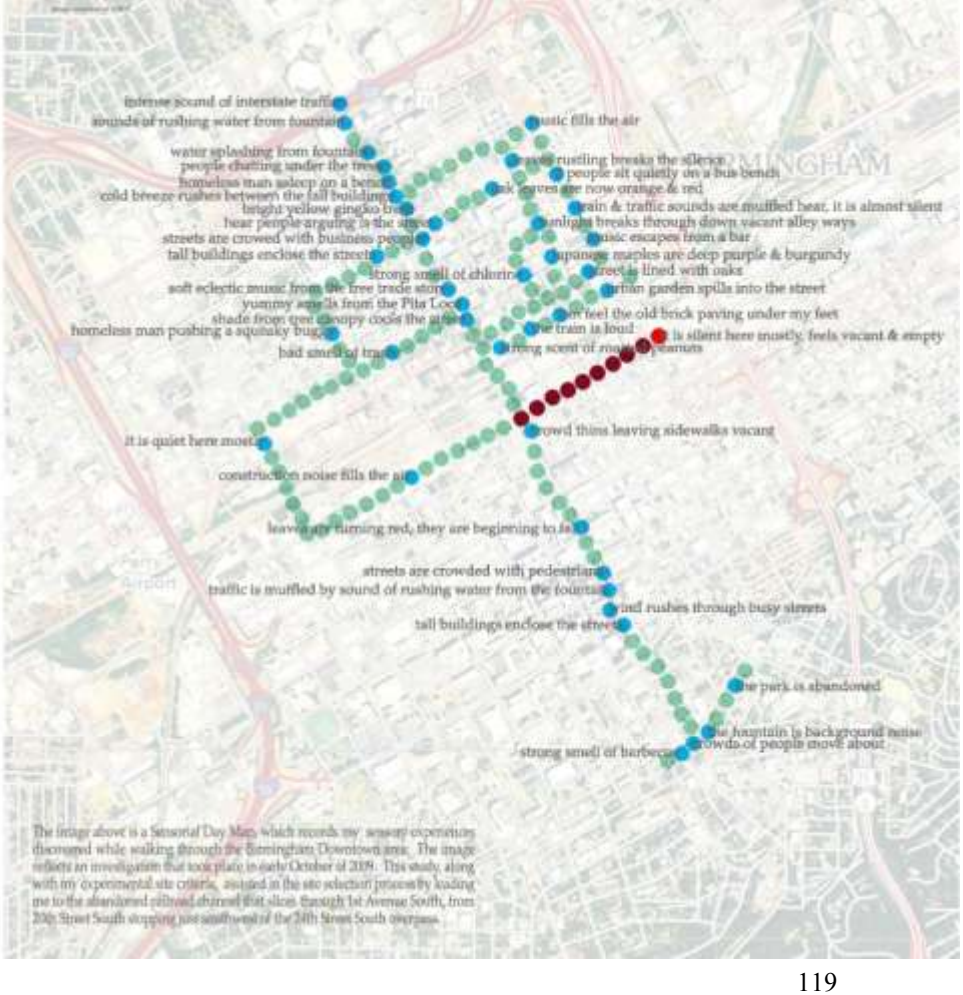
Can the haptic sensations be enhanced through landscape design?

Sensory Phenomena and the Haptic Realm:

As human beings, we develop an acute understanding of our surroundings through the interaction of sensory experience. However, as Yi-Fu Tuan stated in his book, Topophilia, "Our human being has more ways to respond to the world than the five senses, seeing, hearing, smelling, tasting, and touching known to us since the time of Aristotle (Tuan 6)." For the purpose of this research, I will focus on five areas of human sensory experience - visual, auditory, olfactory, gustatory, and kinesthetic. We are predominately a visual species. Through our optical experiences human beings obtain vast amounts of detailed and specific information about the surrounding environment. However, visual knowledge does lacks emotional connection to environmental stimuli. Through the interactions of the other sensory organs, human beings begin to perceive the outer landscape at an increasingly sensitive and expressive intimacy. Take our auditory ability for example, while the human sensation of hearing is far less sharp than the gift of sight, the auditory sensation arouses a stronger emotional expression. This may be due to the fact that we are unable to close our ears to undesirable noise, leaving each of us vulnerable to the overbearing stimuli. The human olfactory sense is equally significant to our emotional sensitivity towards the environment. In addition, it is important to understand that the human sense of touch is directly related to our ability to remember and recall information. A vast storage area is located in the inner recesses of the brain, known as the cerebral cortex, which directly received from the section of the brain concerned with smell. Therefore, odors and aromas often evoke extremely sensitive and vivid recollections from past experiences. While the sense of smell aids us in the ability to develop lasting memories, the coherence, or tactile, sensation is essential for survival. The sense of touch is the grounding force of reality from imagination. In fact, more information is received through this sensation than any other sensory organ. Considered the "Mother" of all the senses, the sense of touch is our dominant sensation and all other senses are merely its descendants. "[while we receive] the result of movement and pressure established by the material world. The human sensory experience occurs within the haptic reality, involving each of the senses at different levels and sensations, beginning with touch. However, the experience cannot be fully explained without involving our ability to move. Movement, or the kinesthetic sensation, allows us to experience our environment through sequences of varying perspectives. Without movement, the human environment would be stagnant and ultimately meaningless. For the modern man, this is increasingly becoming the outcome. We rely excessively on our visual aptitude, while largely neglecting the importance of additional sensory experiences. Thus in the end we are creating a progressively static and lesser landscape (Tuan 9-10).

EXISTING PHENOMENA

The photographs below where taken as part of a sensorial derive study of Downtown Birmingham, Alabama. These images represent the existing sensory stimuli found along the paths I chose to follow. I began the journey at the corner of 24th Street North and 1st Avenue North. This investigation led to the the creation of the adjacent sensorial map. My actual path is not defined, because I walked along some of the streets multiple times. However, the map is accurate in regards to which streets I did explore.

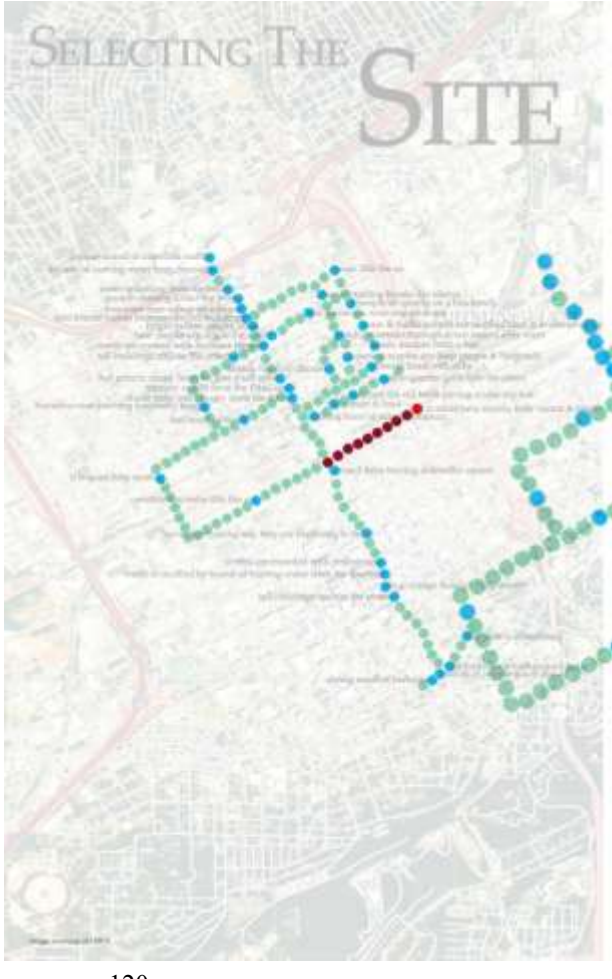


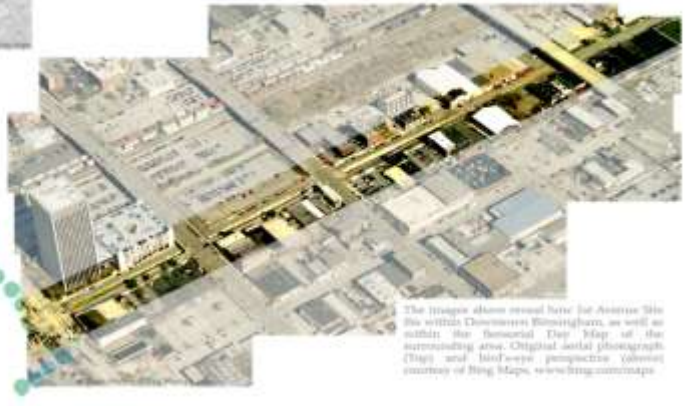
The image above is a Sensorial Day Map, which records my sensory experiences encountered while walking through the Birmingham Downtown area. The image reflects an investigation that took place in early October of 2019. This study, along with my experimental site criteria, assisted in the site selection process by leading me to the abandoned railroad cut-road that slices through 1st Avenue South, from 20th Street South stopping just southwest of the 24th Street South overpass.

Selecting The Site

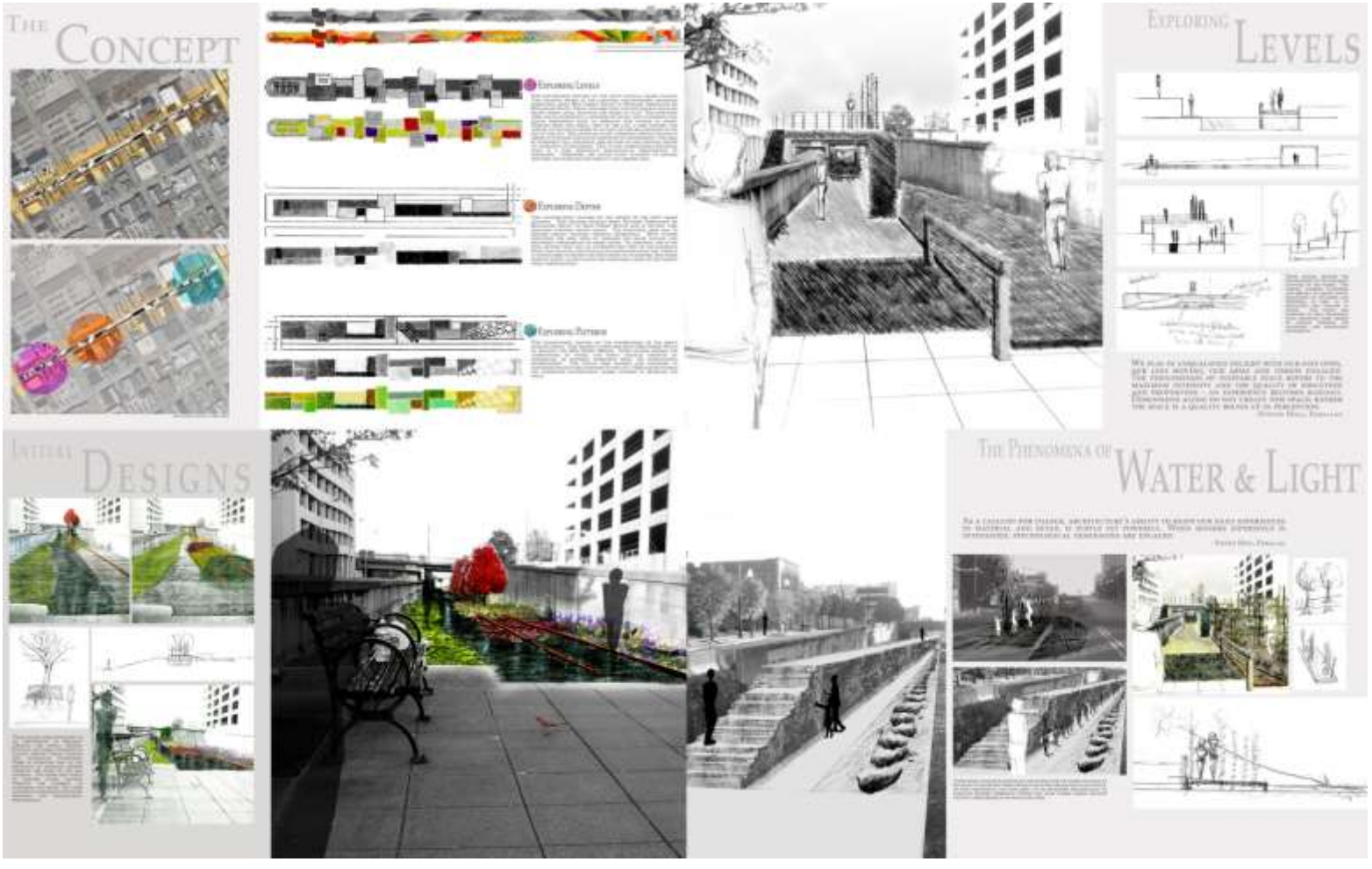
Experimental Site Criteria:

- a scale that allows for attention to detail
- neutrality and flexibility to permit invention
- connectivity to other potential sites
- openness rather than enclosure
- good solar penetration
- restricted vehicular access
- access to potential retail
- access to water



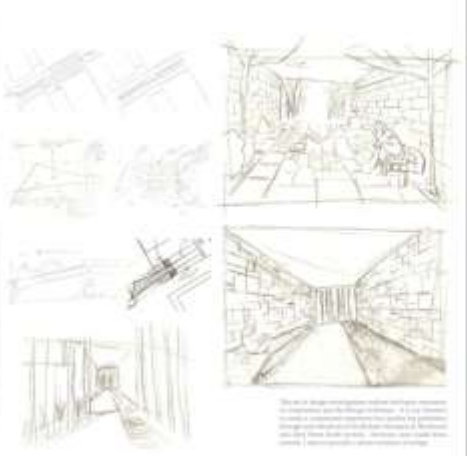


The images above reveal how 1st Avenue Site fits within Downtown Birmingham, as well as within the Immediate Day Map of the surrounding area. Original aerial photograph (Top) and bird-eye perspective (above) courtesy of Bing Maps, www.bing.com/maps

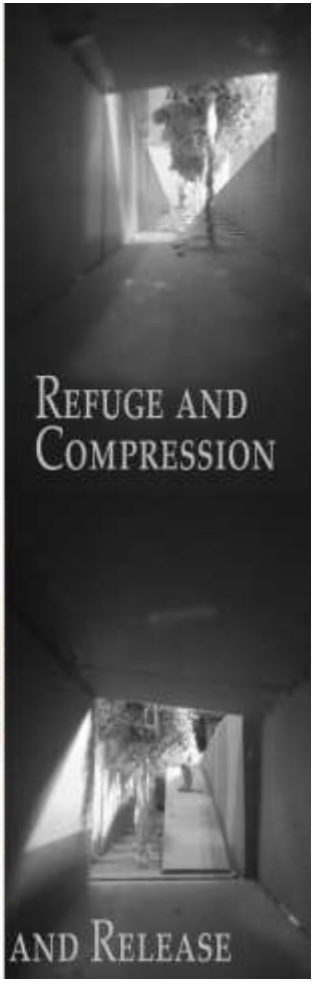

THE CONCEPT
EXPLORING LEVELS
INITIAL DESIGNS
THE PHENOMENA OF WATER & LIGHT


ASCENDING AND DESCENDING

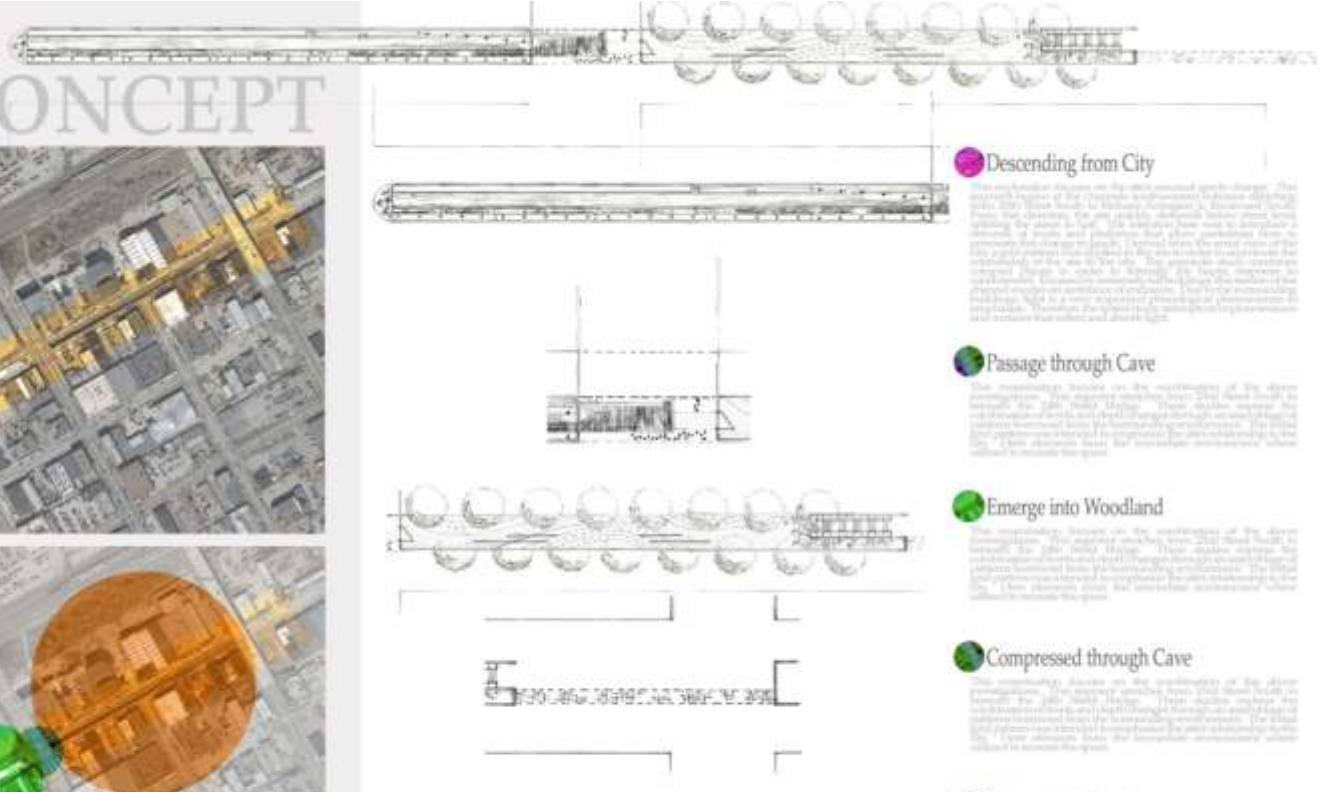

ASCENDING AND DESCENDING




PROSPECT AND RELEASE


REFUGE AND COMPRESSION

The Concept



Descending from City

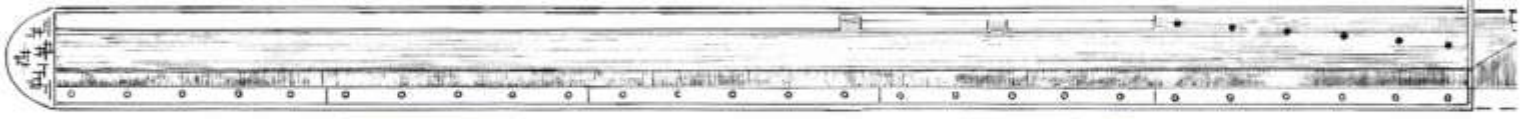
Passage through Cave

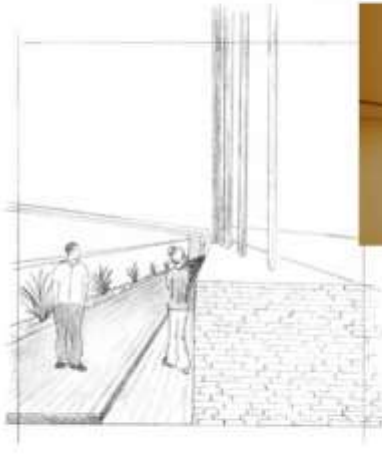
Emerge into Woodland

Compressed through Cave

Emerge into Meadow

HAPTICITY: DESCENDING

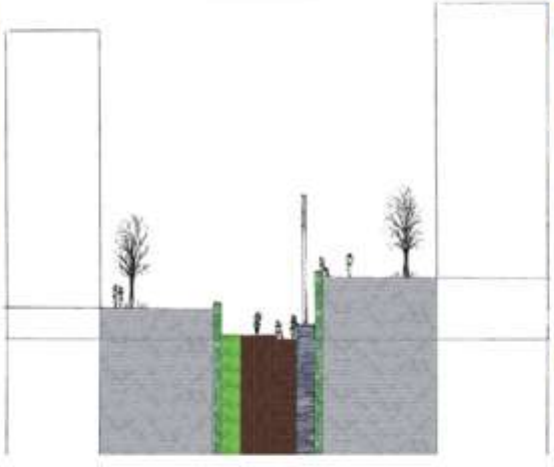




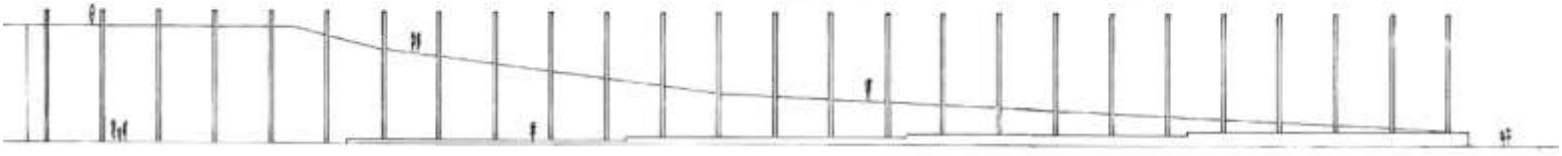
Three perspectives, above and to the left, depict the proposed modification of the vertical pole elements. Each are viewing the site from 20th St., South facing northeast.

Right: This section shows the verticality of the poles in relation to the street and surrounding buildings, as well as the materials chosen for the site. Scale:1"=10'

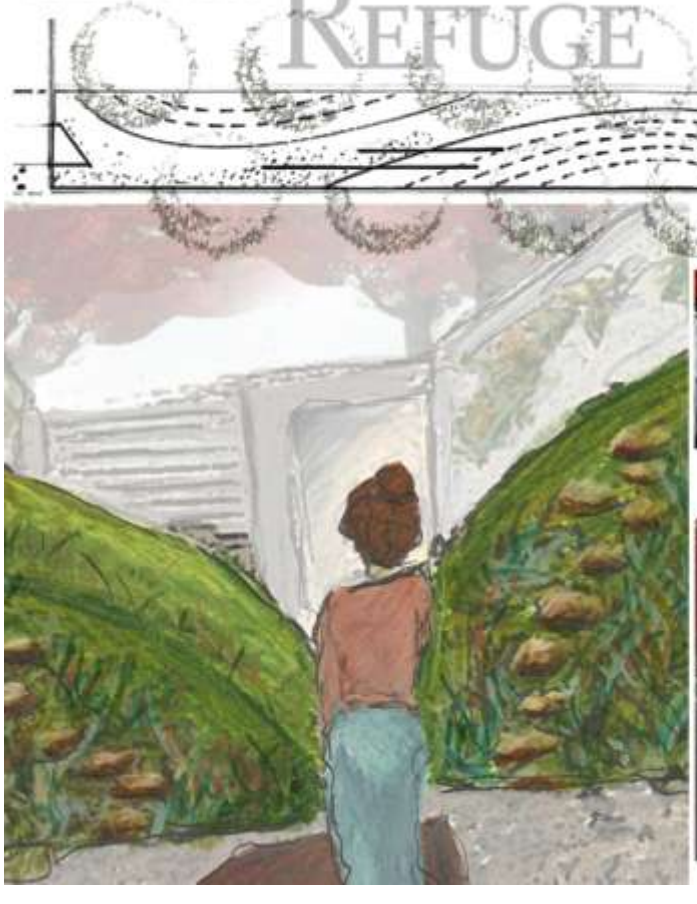
Below: This section of the the modification showing the rhythmic placement as well as the height of the stainless steel poles. Scale: 1"=10'



The site speaks to the haptic sensation of descending. The city rises above the area and the channel appears to descend. The area is enclosed by modern architecture and so the materiality wishes to reflect its condition. The materials here are simple and clean. The wooden dock is of reclaimed railroad ties and provides a cadence for the participant's descent. The decking will echo the movement of the inhabitant, creating a drum-like quality. The creeping fig and lawn area provide a manicured sensation of nature. Both compact, they will not reach out and touch, the participant will have to initiate contact. The limestone will smell like earth when wet, enhancing the sensation of descent even further. When water flows through the fountain, it will move the visitor too. All of these materials will age visibly, but like the surrounding architecture, the stainless steel poles will remain young. This is a nice juxtaposition between the past and the present.



HAPTICITY: REFUGE



Far Left: This perspective view displays the berms from within the channel.

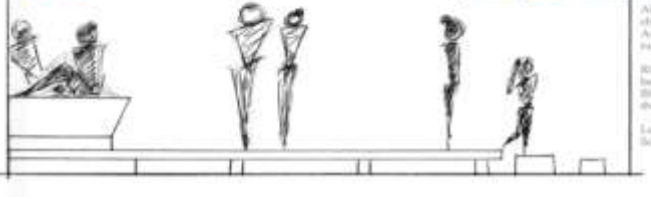
Left and Below: These perspectives show the channel and berms from street level.

The descent from the city leads to a woodland-like refuge, far beneath the surrounding city. At this point, the visitor is 30 feet below street level. The inhabitant's haptic sensation continues to be that of enclosure and descent. It is here that the terrain speaks of its refuge, yet the path is linear and does not provide time for contemplation. The path wishes to meander. So, to create this wandering the topography must change. Three berms stand against the channel's walls. Each planted for deep shade, these berms mimic the city's surrounding geography. Providing a scent of earth and forest, these berms obscure the participant's view, creating refuge and intimate space, while simultaneously providing a moment for prospect for those who are willing. The path is now made of crushed limestone, softening both sound and pressure. Compacted within the crushed stone, are the remains of the site's past employment. The corridor walls have numerous cracks and openings for which are to be planted, along with the berms. Above is a distant canopy of red maples, which provide a false sensation of privacy. At the end of this section there is a grand stair case that provides exit, or further prospect. However, for further refuge, the participant may proceed through a tunnel to enter the next phase of the journey.

This section shows the scale of the berms to the participant. Each will be between four to eight feet in height and will not exceed 10 feet in width. Scale: 1"=20'

HAPTICITY: CAVE

The section of the site behaves as a threshold, a sort of transitional place. Its existing haptictiy encloses and compresses the participant, and then gives way to what is beyond. The materials here are continued from the initial descent. The wood continues the drumming, but now it is echoed within. The water provides calming, ambient light, while allowing playful interaction. The cement stepping stones reflect the city's geometry, while leading the participant away in distraction. The threshold is bridged by a thin gage of reclaimed steel. The steel will create a chorus with the wooden deck, resonating a throughout, like the trains of the channel's past.



Above: Perspective view of east channel from beneath the Richard Arrington Blvd., overpass facing northeast.

Right: Perspective view, from beneath the Richard Arrington Blvd., overpass, of the entrance to the channel from 20th St. South.

Left: Section of proposed design. Scale: 1"=20'

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