

# Harmoniscapes

Composition through Affect, Acoustikinetic Architecture,  
and Soundscapes in Public Space

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## Producer's comments -

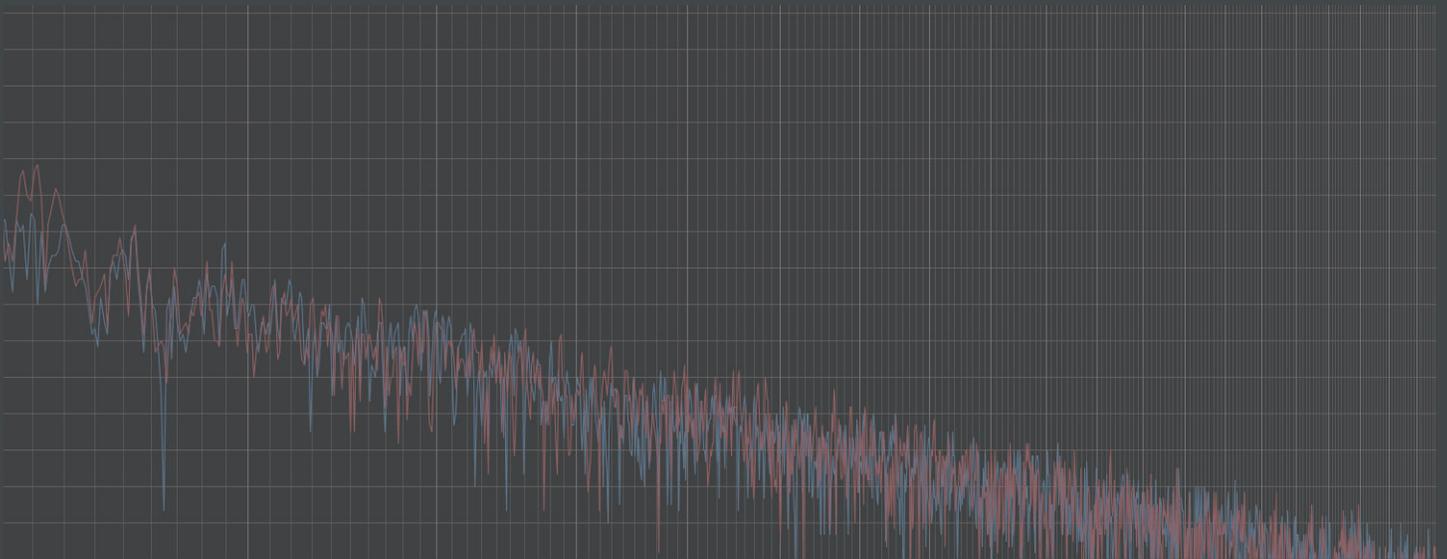
This project aims to challenge the design of urban public spaces through the perception of sound.

Historically, the acoustic environment found within the urban context has progressively filled with noise as more industrial technology has found its way to the city. By analyzing the acoustic quality of these spaces, a deeper understanding of the greater sensory environment begins to take hold.

The temporal quality of sound is rarely the primary focus of spatial design, especially in terms of public space. In an attempt to both mitigate what is considered true noise, for example, excessive motorization, and create architectural elements that define both the space and acoustics, a place may be made more enjoyable to the inhabitant beyond its existing form.

Applying the concepts of musical tone to define and understand tonal quality, an analysis of existing sound in space begins the process of re-design and further comprehension. This starting point through the real-world application of on-site recording is then expanded upon to define frequencies that are perceived as noise, and frequencies in the environment that bare an initial tonal quality.

These tones, filtered and processed through a Digital Audio Workspace, combined with design proposal acoustics generate a new acoustic environment that I argue is more pleasant than the existing audible space. From this point, a design which implements and captures the sound in space culminates in a re-design proposal and a re-orientation of how the acoustic qualities are perceived.



## Part I. Abstract

The study of sound in relation to spatial design seems to veer down one of two paths, those being vibrational<sup>1</sup> effect on objects and places and sound studies that explore through interdisciplinary fields how audible qualities effect the world around us. These foci rarely consider music<sup>2</sup>, tonal quality (the timbres which a soundscape is comprised of) and the affective mood the tones combined generate in relation to public environments. As the field of wave is expanded upon, greater comprehension of how these vibrations affect us will undoubtedly be constructed, however an important aspect of how the public interfaces with these waves may be lost in the present focus of research. Both, in some cases turning away from affect to seek solutions based in historic evidence and experimentation. In short, a qualitative study based in affective phenomenology may bring about positive design implementations to our urban public spaces. This endeavor is an attempt at connecting points from various mediums in an attempt to invoke, through the application of affect, a means to consider and challenge the design of public spaces through acoustics.

How are the current soundscapes of public spaces perceived by the people who use them and what audible pieces of these places can be identified as harmful to the urban composition as a whole? Acoustic qualities of public spaces are rarely consciously considered by an occupying person although the soundscape is ever-present and typically regarded as noise<sup>3</sup>. Noise itself is constantly considered a negative quality of the urban environment and seems to proliferate in the void of public space when compared to the carved canyons of city streets. The idea of mitigating sound is by no means new especially when referring to enclosed spaces, but through careful design study and testing, could it be possible to improve the quality (timbre, tone, mood) of public spaces that hold little control over the how they are used? By improving the product of the environment and generating designs conceptually manifested for these acoustics, the user's subconscious reaction of auditory senses may improve their perception of the space around them and by extension ameliorating the comprehension of the space itself.

I argue that public spaces within the urban context are designed with a lack of consideration for acoustic quality and atmosphere in and around the existing context. By understanding the conditions under which these spaces are used and the existing soundscapes and ambience within these spaces, design proposals can be implemented that aim to enhance the acoustic properties and user experience together. The attempt to recompose the urban acoustical atmosphere into a positive publicly received soundscape is then understood with the goal of improving the public atmosphere through phenomenological designs in inhabited spaces.

<sup>1</sup> These studies are amply important regarding the more we develop a general understanding of the universe around us, vibration and waves seem to be as foundational as the particles that physically inhabit the space between these wave forms. (Carroll 2019) The study of vibration ranges from subliminal frequencies that physically affect the spaces we create and inhabit to sounds so high-pitched, they may be utilized in war zones as aggressive oscillators that disrupt the other's thoughts, actions, and ability to focus. (Goodman 2012)

<sup>2</sup> "...research in sound studies has had little to say about music's inhabitation of and entanglement with the encompassing acoustic environment." (Born 2015, 5)

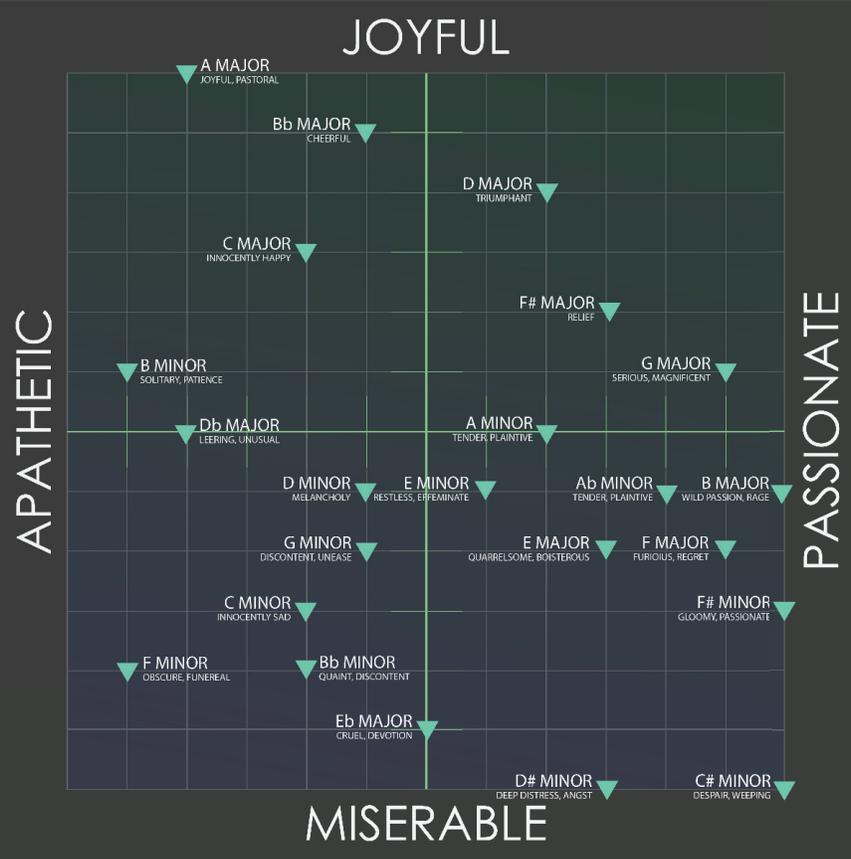
<sup>3</sup> Noise is to be understood in this purpose as the layering of audible events, both tonal and percussive. I would like to utilize the description of noise identified by Carlyle, Goethe, and the Buddha as "organic sounds created by humans and animals at work and at play." (E. A. Thompson 2002, 115-117) These are combined in an informal synthesis to define the backing track, or in my terms the "atmospheric texture" for the individual's acoustical experience to be built upon and panned throughout.

The goal of this design thesis is to combine the sonic elements found in public spaces with a consideration of materiality sourced from a simplified application of acoustical physics in an attempt to improve the affective quality of those spaces. By rejecting methods of singular analysis, but instead utilizing a wide range composed together, alternate means of organizing the form and quality of these spaces will be proposed. As vibration can be weaponized:

“What if the actual weapon was vibration itself, and its target not the operating systems of robots but the affective operating system of the city’s population? This would be a scenario in which that which was being transmitted would be not just information but bad vibes” (Goodman 2012, 76)

I will attempt to pacify the sonic vibrations, to alleviate the oppressive drowning of the urban environment and improve the quality of the public space’s urban soundscape. The Harmoniscape combines acoustic quality and the appeal of public spaces into a harmonious evolution of the perceived urban environment.

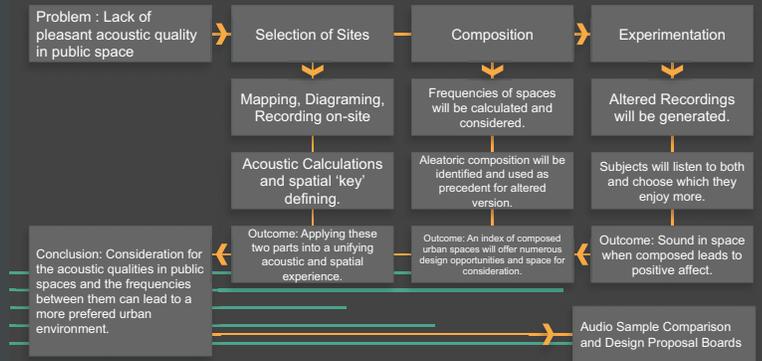
### Key Signature Emotive Chart



## Part II. Methodology

Identifying a process to organize, compare, contrast and understand these public spaces is a necessary structure of practical repetition for the truly unique aspects of the individual spaces to occur over. My initial audio data collection was conducted in Cleveland between the months of October and November following with New York City in early December. The spatial documentation includes mapping of entrances, gathering locations, boundaries, materiality, unique elements, and points of recording have been documented. In addition, time, date, and weather have been recorded so provide additional context for the samples to be worked with.

### Methodology



The methods for redesigning public spaces to produce an positive-affective acoustic space will take place over three separate inquiries, each orchestrated together to compose a complete proposal for applying an informed design.

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#### 1. Site Selection

- A list of public spaces located within the city of Cleveland is generated including typology, materiality, size, date of completion, standard use, and unique features.
- Six locations are selected based on diversity in comparison to one another.
- Sites from lower Manhattan are collected and studied in an identical method to the Cleveland Sites.
- Four are selected from New York to develop.

#### 2. Audio Collection

- On-site data collection through the use of a Tascam DR-05 field recorder are collected from various locations within the site.
- Date, time, weather, number of occupants, sound producers, and location are documented.
- Utilizing 'Advanced Spectrum Analyzer Pro' frequencies from the space will be identified along with overtones.
- Generate spatial Key Signature based on acoustic recordings.
- Frequencies are diagrammed and utilized for recomposing soundscape.

#### 3. Production of Composition

- Identify aleatoric elements and used as precedent for composing altered version. Complete for each space.
- An altered version of the spatial soundscape will be produced based on original recording. This includes the same aleatoric 'beats' that occur in the original while including new elements generated by future design implementation.
- Goal: An index of composed urban spaces will offer numerous design opportunities and space for consideration.

#### 4. Experimentation

- The altered compositions will be compared in a blind A/B format through participants to show audible adjustments improve affect in space.
- Goal: A considered composed urban space will lead to positive affective reactions.

#### 5. Spatial Redesign and Compositional Implementation

- Produce content of redesigned public spaces applying a duality of phenomenological and rational design methods
- Goal: Apply Composition Methodology and Experimentation Methodology into a unifying acoustic and spatial experience.

#### 6. Conclusion: Consideration for the acoustic qualities in public spaces and the frequencies between them can lead to a more preferred urban environment

## Part III. Research

### Introduction

I would like to consider the acoustic design of the urban context and expand upon Thompson's notion that "any exploration of a soundscape should ultimately inform a more general understating of the society and culture that produced it."<sup>4</sup> Instead, reversing her statement so that a comprehension of the society and culture that inform the urban soundscape may allow us to explore how that composition comes to be, how it may be altered, and what can be done to improve the affective quality of that soundscape and the environment it is found in. Eric Clarke's application of Ecological Theory to understand sound through timbre, texture, and space from the position of a centralized perceiver<sup>5</sup> focuses on "their acquired sensitivities to environmentally available information." Utilizing his argument for environmental explanations on sound in space, the connection to further using the environment to decipher and improve upon the soundscape through the lens of musical quality can be made. This occurs in two entangled, yet different forms, vibrational and affective sound.

A question that seems to evade the most particular and reduced research into vibration and space is how the quality of sound, which is usually perceived by a non-attentive occupant, affects the way they perceive the space. This does not apply to venues or places where sound is the sensory focus, but in a public setting in an everyday environment. I believe this is due to the lack of concrete evidence as to how affect theory and sound relate beyond an individual's perception expanding to a more geographic context. This becomes especially complex when considering the sounds subconsciously received are random elements that compose the soundscape, yet popular music in recent history, is a mixture of compressed recognizable tones and repetitive melodic elements that invoke the auditory flow-state of mental reception. Allow the occupant to now be placed in an urban environment where reverberation occurs constantly bouncing off the numerous hardscapes blending with the repetitive hum of vehicles and the ambience of the utility systems of the city; all synthesized into a nearly incomprehensible mixture of tonal wave form and audible textures. Contesting for attention in such a field, they blend into what most think of as, and is commonly referred to as 'noise'.

Instead of approaching the complexity of the urban soundscape as a summed, additive audio-environment, reducing audio found within my places of study allows me to approach the noise from a subtractive mindset. Individual sounds and their layers of frequencies and overtones become singular instruments in the orchestra of the city. Imagine yourself as an audio flauer, subject to the musical environment around you situated in an outdoor setting. As you come upon the nucleus in which all of the instruments play around you, you realize that the sounds clash with each other, and instead of creating a layered atmosphere, overtones compete for audible recognition. This leaves only the harshest tones to be experienced as little has been provided to mitigate unpleasant tones. The noise envelops you and though the audio presence is low, there is still a noise that negative reaction. But if the setting had ways for mixing the tones into a less harsh, maybe even comprehensible orchestration, would that not increase the chances of your interest in experiencing the acoustic world around you?

<sup>4</sup>The importance of reversing this perspective and challenging the designs that allow these soundscapes to happen is a temporal element that a majority of public space designers unknowingly tune-out.

<sup>5</sup>"The argument is this: since a single auditory system is involved in our understating of everyday sounds (in which Clarke is referring to common, traditionally non-musical sounds) speech and music, it is inescapable that certain general auditory (or even more generally perceptual) functions play a role in all three domains (timbre, texture, and space.)" (Clarke 2013)

My personal fascination with music, a hard turn from the term noise, has led me to consider how music and space blend. In most public spaces<sup>6</sup>, the use of intentional tonal sounds in space is either a secondary thought (such as speakers haphazardly placed in a shopping center to provide a muzak<sup>7</sup> backing) or the primary purpose for the space's design (concert halls and theaters). The design's purpose is typically to curate the overall quality of the sound in a closed or curated environment, minimizing aleatoric disturbances not planned for outside the composition. In public spaces, the luxury of removing these random 'noise' elements is almost entirely lost, which eventually returned me to the notion that music and public space cannot exist without additional noise (surely nothing groundbreaking, but important to conclude so that the remainder of this study is purposeful.)

As an aside, I must introduce concepts from Barbara Berry, author of *Musical Time: The Sense of Order*. "Even if it cannot be comprehensive, what analysis can achieve may nevertheless be of significant importance. Analytic techniques can be used to set up stylistic norms and show how an individual work adheres to, departs from, or modifies those norms." Barry's critique of acoustical analysis rejects the ability to account for all "components and relationships" in a work. She proposes that any attempt to completely decipher a work (in this case, a musical work) leads to partial interpretation. Her writings on *Perceptual Issue*<sup>8</sup> are widely applicable to this project and research, speaking to complexity levels, individual tastes, structure, and identity. This selection from her work on attempting to order music through the human experience and multi-layered analysis provides a number of layers for how to approach this layered study of space, sound, and public perception. Specifically, I would like to call attention to her early writing on the perception of musical time. She writes

*"...musical time, then, can be considered as a function of the ability to create organization out of often complex stimuli. The foregoing account of perceptual processes was presented deliberately in an abstract form in order to give a schematic description of human information processing." (13)*

The marrying of music and time, space and medium, (Lavin 2011) affect and aleatory, is my attempt to create an organizational language from the abundance of complexity in the Urban Environment. The dialectic balancing and entanglement of each of these pairs speaks to Barry's rationalization of musical motion as time in space. (Barry 1990, 250-254) Combining elements into a layered, complex movement for others to explore, discover, and enjoy relates back to her thoughts on the coupling of "musical structure" and "affective potentiality." This heightens your awareness to a moment based in phenomenology, surpassing the rationalization of comprehension through time organization into a "pleasurable experience"<sup>9</sup>. Typically, I find the oversaturation of sensory elements to invoke a moment of reflection, allowing for time to pass where emotion can be felt. The generalized affective qualities of specific key signatures may provide enough of this saturation, when combined with proper public space design to accumulate to this moment of pause and produce the heightened enjoyment I seek to manifest.

<sup>6</sup>Disregarding the use of headphones in public space which allows for an escape into our hyper-curated individualistic musical world. (Petrusich 2016)

<sup>7</sup>The term Muzak refers to a branded musical background played throughout stores and public establishments.

<sup>8</sup>*Musical Time*, Section 1: *Perceptual Issues* begins as a musing on time and its unconscious passing brought to light through the "blip or beep" which cannot exist without time. (Barry 1990) She then develops and critiques numerous methods of analyzing music and the temporal effects it carries, along with the individual and how a subject might perceive a work based on that individual's own complexity. It is in these early proposals that Barry deciphers one of the most common explanations in contemporary sound, the "linking of raw stimuli to processed information.

<sup>9</sup>though this is the intended outcome, the subjectivity of temporal resonance may lead to a reaction not as strongly felt by others, such is the way of non-solitary listening. (Lysaker 2017, 162)

The question then becomes about balance and understanding. With no intention of seizing absolute control over what activities are partaken in space, what occurs around the peripherals and beyond, and attempting to reconfigure the context as a whole, what can be done to improve the tonal quality within these spaces? Beyond simple barrier walls and sound absorption devices, what design elements can be utilized to promote a healthier audible environment? By exploring snapshots of the everyday acoustic experience within these places, generated frequencies will be contextualized and rearranged to better the user experience as a whole. In many cases, allowing the users to be active participants in the spaces they inhabit.

### On Acoustics, and the Age of Individual Music

Public Acoustics have undergone a series of monumental changes over the past century, each decade or so contributing a new instrumentation to the urban orchestra. This transition from predominantly analog elements (such as organic creatures to mechanical industry) to digital elements now being experience everywhere has altered the environment and the way we listen in drastic ways over the past century. Consider waiting for the bus, or maybe more appropriately now, an Uber. The tonal blip from the app ringing from the small speakers of a smartphone, or momentarily assaulting your eardrum from your earbuds sets a rhythm against the man passing by on his bicycle, volume turned to its highest setting, pounding out of a small Bluetooth speaker. A woman nearby sits on a bench with her speakerphone conversation opening the curtains a bit too far into her life, while combating the Muzak playing from the exterior-mounted speakers in an attempt to create a comforting ambiance. These digital devices surrounding us neglect the natural tones analog sources produce due to the necessity of audio compression. (Tagg 1982) Though Tagg's analysis is focused toward popular music and its compressed acoustic results, all sound that travels through digital means before reaching its amplification source is compressed with loss to the original and natural state.

Thompson writes a full chapter on noise in the urban setting beginning with writings from Buddhist scriptures dating as far back as 500 BCE. This chapter expands on evolution of audible nuisance through the transition from purely organic sounds to industrial rhythms brought on by advancing technology. The final instrumental implementation to the modern urban chamber was the addition of electronic amplifiers in vehicles and devices. By the early 1940's, mechanical tones generated a majority of the soundscape of the city.<sup>10</sup> This has only been furthered with the addition of motorized personal transportation and amplifiers aimed at enhancing the safety of the visually impaired. Claims that these tones are unchangeable, at least at a bureaucratic level makes them some of the few tones that cannot be altered<sup>11</sup> and therefore provide a basis for the rest of the composition to formulate around.

Composers such as Xenakis and Machover have attempted, (and in every example I've had the pleasure of experiencing, succeeded<sup>12</sup>) in either recreating the audible fabric of

<sup>10</sup> The film The City (Steinger and van Dyke 1939) acted as a means of raising awareness for the needs of city planning. The score composed by Copland sets a series of emotion-inducing movements against the sounds of the modern city. The conclusion that the most notable sounds of both the poorly planned and well considered urban environments were those of machinery and industrial components given the time period.

<sup>11</sup> James Murphy of LCD Soundsystem is enthralled with changing the turnstile jingle of the New York subway to something more pleasant. This endeavor has been rejected numerous times with claims that the jingle is a staple to the visually impaired and altering the tone would have negative effects. (Karp 2014)

<sup>12</sup> Machover's A Toronto Symphony beautifully blends the dissonance of traditional orchestral instrumentation with recordings contributed by residents of the city. His composition incorporates the use of percussive rhythmic elements to invoke the momentum of vehicles while famously including the recognizable chimes of the subway.

environments (machover's specifically relating to the urban), or creating pieces that speak to the acoustic difficulties of urban ambience. The act of deciphering the complexities of urban soundscapes is entirely a project within itself which is why I have selected to accept the sound bites recorded in the field as is and attempt to positively alter them without overstepping the boundary into the realm of composer. The practice of composition (and the idea of authorship with it) is understood as a spectrum with the likes of Mills,<sup>13</sup> Eno, Xenakis or Stockhausen expressing complete control over the audible space they create (Xenakis 1992). Machover begins to emanate his expressions and abilities outward towards a generation of collaborative ambience, and concluding with projects such as UrbanRemix.<sup>14</sup> This project pushes the boundary of how soundscape composition is authored; forging a path to propose interactive design elements participants may use to add to their audible environment. These, among many others who have attempted to capture the feeling of the city's soundscape often rely on the contrast of crescendo or accented forte against time-less audibly-filled space and the randomness of sound that usually refuses to cooperate with the overall contextual timbre. Instead of attempting to define a specific harmonology, I will design and provide the tools necessary so that the environment can be acted upon by the users of the space so that they may co-author the ambience surrounding them, while providing examples for how the audible and physical space may be reconfigured.

It is clear that there is an abundance of audio-emanating sources found throughout the city or even on each street corner. I believe this is one of many factors that have led to the rise of the headphone. In the early 2000's, a multitude of articles both praising and rejecting the new format of mp3 and its medium of access were written. These continued into the 2010's as the combination of mp3 player and phone became relatively universally accessible. Though many would shudder at the thought of forfeiting their own personal playlists, accounts dating back to the rise of the Walkman show that the 'inwardly focused era'<sup>15</sup> may not be the perfect audible solution to our noisy constructed environments. The notion that public space could be filled with individuals oblivious to the world around them in a means to escape the oppressive urban environment they are situated in seems to reject the idea of public space altogether.<sup>16</sup>

My proposal addresses the issue of personal music in the urban environment not as a rejection of the headphone, but a pause from it, a suggestion to take in the space around oneself at full value. The design result incorporates layers of intriguing design that assist in shaping the audible environment and in some situations to be determined, interaction with what I call the *Harmoniscape*, the blending of the organic soundscape with decipherable tonal attributes that harmoniously reverberate through consciously formed and articulated design elements.

<sup>13</sup>Mill's release of his album "Look" has received critical acclaim as a piece "expressing exquisite vulnerability at the intersection of ambient and modern classical." (Curran 2018) This album is a prime example of the modern soundscape, rejecting any semblance of rhythmic properties to induce an ethereal aleatoric experience.

<sup>14</sup>The collaborative project organized and produced by four researchers supported by the Georgia Institute of Technology allowed participants with an app to record sounds found in their city, geo-tag the location these sound-bites were collected, and allow others access to remix the clips and produce new tracks. The crowd-sourced tracks can then be re-uploaded to the app for other users to participate in and experience the acoustic perception of other local residents. (Freeman, et al. 2012)

<sup>15</sup>The use of headphones is described as a defensive means to access privacy, to hold still to some semblance of control over the listener's life, or simply to have a break from the hyper-connected world. Petrusich writes that the medium "allows us to feel cloistered, safe, and comfortably alone." The headphone has created a new movement in music, an introspective approach to how we audibly fill our time. She closes her article stating that "all pleasures, soon, may be private."

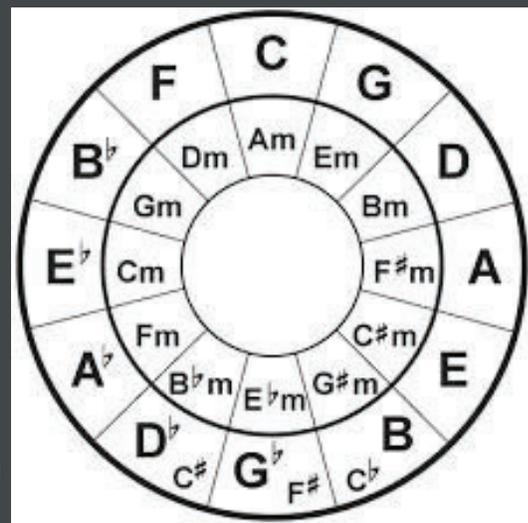
<sup>16</sup>It is important to note that there is nothing inherently wrong with simply listening to a curated selection of music, but to use that as a primary means of escaping and rejecting the world around you is a troubling thought.

## On Affect through Sound

In her critique of Affect Theory, Ruth Leys poses the claim made by those reacting to past philosophers who “over-valued the role of reason and rationality” (The Turn to Affect: A Critique, 436) “...that we human beings are corporeal creatures imbued with subliminal affective intensities and resonances that so decisively influence or condition our political and other beliefs that we ignore those affective intensities and resonances at our peril...” and also criticizes Tomkins’s general suggestion that “basic emotions do not involve cognitions or beliefs about the objects in our world. Rather, they are rapid, phylogenetically old, automatic responses of the organism that have evolved for survival purposes” citing later that objects are “contingently related to objects.” (437) The rest of her critique flows through proposals by Tompkins, Massumi, Shouse, separation of emotion and affect by Deleuze and Guattari, and experiments by Sturm. But I argue this approach of analyzing the theory through experimentation leads only to a deeper muddled complexity of understanding and further argument. Instead, acknowledging that while Affect Theory brings with it its flaws,<sup>17</sup> there is inherent value in the attempt and art of sensorial provocation. We should not disregard a force simply because we do not fully understand it.

When applying the theory to music, Laszlo’s thoughts on Leonard B. Meyer’s appropriation and application of the entirety of affect fit well into this compositionally. His turn to positioning the subject as the “medium of discovery” allows the concession between the contradicting theories by Meyer Theory and Collingwood. As he writes “Affect is pre-musical; expression properly musical in character. Human existence arouses affect and music, by formulating and expressing it, contributes to its resolution and alleviation. ‘Music expresses feeling’ is another way of saying ‘music resolves affect.’” (Laszlo, 134). This duality of the pre-sonic emotive and sonic resolution positions the ontology of the subject’s response within the audible environment and carves spaces I intend to fill with beautiful design that stimulates the senses pre-musically and post through alleviation.

Acoustics considered through affect theory carry definitive emotional implications which have been categorized in western music as emotional keywords relating to acoustic keys. Though the specific keywords can differ slightly based on an individual’s description, a general understanding of positive and negative<sup>18</sup> keys can be applied and organized into spatial factors (Steblin 2002). John Mattheson wrote in the early 1700’s (later translated by Rita Steblin) about the emotional qualities found in specific keys which define sounds and movements in broad strokes. Utilizing these findings in expression, a distinction of keys preferable over others can be made with the intention of improving the quality of the selected spaces through means of positive emotional quality, which can best be expressed with contrasting elements typically highlighted in the circle of fifths<sup>19</sup>. An important element in composing with key signatures is that whilst



*The Circle of Fifths, Nikolai Diletskii*

<sup>17</sup> Such as the dissonance caused when trying to explain the initial reaction, one of the most contended issues with the concept

<sup>18</sup> The defining factors between positive and negative are based on the affective responses an individual has towards their audible environment. While personal affinity for specific types of acoustic qualities differ, a generalized response that posits the subjected sounds as non-harmful when compared to others results in a positive effect.

<sup>19</sup> The circle of fifths is a graphic organization of the twenty-four western major and minor keys. The guide explains how major and minor keys relate and how signatures may change without disrupting the tonal flow of a musical piece. The graphic was developed by Nikolai Diletskii in his composition *Grammatika*.

the key itself may generally emanate in set affective tone, the final arrangement of chord progression, melody, harmony, and mode all play roles in the emotional quality of a composition. With the goal in mind of presenting these keys in a deliberate and honest way, final compositions will be arranged in an effort to provoke the generalized descriptions of each key, typically using the key's Ionian, Dorian, Aeolian, and Lydian modes<sup>20</sup>.

The keys selected to be primary foci and contrasting elements include. A Major, Bb Major, C Major, D Major, Eb Major, F# Major, G Major, A Minor, B Minor, and E Minor. Amaj, Bbmaj, and Cmaj all sound joyful or can be described as any number of synonyms that ultimately return to the simplest form: happy. Though, as one listens through the melodic alphabet, the affective tone transitions from a pastoral ambiance to a happy innocence. Dmaj presented in a simple, traditional manor, using the D chord as the root tends to carry a mood of triumph which is similar to Gmaj, though Steblin transcribes the key as more magnificent than the latter. The key is also known for its calming and satisfactory elements, applied in movements relating to love and friendship. The list of five major keys will serve as the foundation of final compositions, which will later be designed in contextual relation of the space.

The contrasting keys each relates to at least one of the selected majors when consulting the circle of fifths. This will inform how to properly contrast the space's soundscape so that the emotional positive points can properly radiate and provide an intrinsic design challenge when attempting to allow both (or in some cases multiple) keys to flourish and express the affective qualities necessary for the auditory arousal of the public<sup>21</sup>. (Laszlo 1968, 132) Ebmaj is comprehended as an intimate key, expressing devotion. In spaces where contemplation or rest is a common occurrence, this will function as a momentary disrupt from the uplifting majors meant to fill the environment. F#maj pairs well with the keys of Dmaj and Gmaj in the affective mood of triumph, differing in description as a triumph of overcoming. This may be utilized in conjunction with either of its emotional pair, but may be applied to contrast a more melancholic space. Amin is described as pious and tender, and perfectly responds to the key of Cmaj, arguably the simplest tonal shift in western music. Bmin embodies patience, an ephemeral quality many spaces in the urban environment could benefit from due to the relatively high energy and tension that accompanies the awareness and stimulation of the city. Emin is described as naïve and innocent by Steblin, typically used as a contrast to Cmaj as well. This juxtaposition of acoustic elements results in a joyous relief from the hopeful wallowing the key is known for.

These combinations of key composition speaks to the greater marriage of dualistic elements, pieces the define work as a whole and lose prominence when isolated. Applying these arrangements to space, imbuing the design with deeper artistic elements, layering and weaving the audible throughout places already appreciated as place can only embolden the qualities we find endearing. In some ways, this project speaks to Lavin's thoughts on superarchitecture<sup>22</sup>, listening to the ways the visible mediums touch and respond, and attempting to appropriate this concept for those who may prefer to hear rather than only see, while not jeopardizing the original spatial design of the spaces selected. Affect Theory is

<sup>20</sup>These modes translate to joyful, serious, melancholy, and ethereal, relative to the major Dorian mode.

<sup>21</sup>Though Laszlo makes the argument that great musical pleasantness is found in the alleviation of affect, the nature of a composed aleatoric soundscape rejects the notion of strong emotional movement, trading the sweeping emotional grandeur for an immersive transparent transience. The balance between the subtleties of affective composition while accepting and embracing the chance elements of the urban soundscape provides opportunities to challenge alleviation through his rejected accumulation concept.

<sup>22</sup> (Lavin 2011, 51-60) The application of her terminology suggestion oscillation is not accidental, and encourages the recalibration between architecture and one of the many second-thoughts that occurs because of the design, reverberation and acoustic quality.

imbued in the senses, and when used as a design guideline for public space, must respond to both the phenomenological qualities it produces and the Sensory Environment the space exists within.

An important note to the design of this project is the access and consultation of pedestrians in these spaces. Given the scope of this thesis, there is no sufficient way to scientifically prove that there are defining results based on analysis. And that should not be considered an issue. Barbara Barry's book *Musical Time* addresses a number of issues that could be used to critique this project and explains a position rejecting the significance of a simplified analysis. Instead, to analyze the effect certain sounds have on an individual, a multilayered analysis is required. However, I intend to sidestep the necessity of this complex analysis by addressing the source of the question. Will my random blind audience select the original soundscape over the other, and if so, is a reason beyond the affective qualities necessary?

### On Sound in Public Space

With personally curated playlists and the utilization of these to return a listener to a sense of control over some aspect of their life<sup>24</sup> (Bull 2005) In what ways can design be applied in creating acoustically pleasing spaces? Through a mixture of qualitative research and quantitative analysis comparing and contrasting various environments with a medley of experiments seeking to gather data on public perception, this project will result in an offering of considerations on redesigning current space with application to future spatial design as well. In an attempt to strive for positive feedback such as "potential self-transformation (Lysaker 2017) my intention is to respond to whether space that utilizes a structured acoustical format<sup>25</sup> can improve the perception of public space as a place people want to use?

An opportunity is afforded here given the combination of unique spaces, context, and defining elements that generate sound. The concept of *Sonic Branding* is proposed by Joel Beckerman, (Lupton and Lipps 2018, 156) focusing on the short sonic moments that assist in orienting one to their environment. In spaces surrounded by water front, the branding of moving water regardless of how subtle or calm becomes a grounding acoustical force that stimulates senses outside of vision. Combining this audio structure with "sonic triggers" which reinforce an audible experience in a unique way, the resulting perception of place and time generates a stimulating memory. But this concept lends itself to the safety in the public realm as well and poses a minor challenge in the design proposal. When arranging the environment in such a way to mitigate specific tones in public space, it will be crucial to respond to initial feedback in relation to my sounding board<sup>26</sup> to be aware of the selective initial reactions presented. (Lysaker 2017, 162) In effort to provoke a curated field of emotions, tapping into initial memories of space or sound plays a vital role in this affective study.

<sup>23</sup> (Lupton and Lipps 2018, 123)

<sup>24</sup> Bull's findings on how the contemporary headphone user feels about their current place in the world is expressed through an interview held with Tracy L, quoting "...The MP3 digital music revolution has given me some control back." (Bull 2005, 347)

<sup>25</sup> Format being defined as a structured system, entangling traditional and soundscape composition techniques with a designed environment that strengthens and responds to the acoustic qualities of its context.

<sup>26</sup> An applicable term for those who respond to the A/B format of original versus altered audio

The complexities of reverberation and absorption layers mathematics, materials, and spatial design require an in-depth analysis of decibel levels and application of acoustical physic formulas. Utilizing Sabine's Reverberation Formula (E. A. Thompson 2002, 33) and material attenuation (Burnett 2008) to reduce decibel levels, the form and materiality of the end result will combine acoustical physics with phenomenological design properties. Critical Distance comes to mind as one of the most diverse acoustical properties and arguably the most important to understand. Burnett defines this as the "distance from the sound source where the direct and reverberant sound energies become equal." In an enclosed space, this is easily located by utilizing a decibel meter, but in outdoor space, this field becomes murky. This is harder to find still due to the way soundwaves at different frequency levels function in air. In most cases when dealing with pedestrian focused public spaces, loud sound producers will be beyond the Critical Distance, meaning the audio experienced is already a reverberated (muddled and entangled) remnant of its original self. Accepting the sound as natural (whether analog or digital) where found and recorded is the most honest way to approach the waveforms.<sup>27</sup> These processes will be utilized only to assist in developing the design and backing the rationality in decision making. I will not attempt to scientifically rationalize every aspect of this thesis as the act would reduce the importance of the design process and results.

### Application of Music

The most challenging movement to address in this thesis is that of music. Musical tastes change at the individual level and transition through ebbs and flows when referring to larger audiences. Popular music today compared to a decade ago still shares some resemblance but skipping a generation into the 1970's or 80's makes the alterations to what is considered popular more prevalent. However, some means of developing a musical, or maybe simply a more melodic urban soundscape is the purpose of this project. To do this, the designs from form to materiality must be imbued with qualities that respond to waveform.

When melody is applied to the conversation, the line between soundscape and ambient music becomes blurred. I will draw a distinction between soundscape and music through the use of repetition, rhythm, and riffs; each developing the previous concept further from the gradient of soundscape to music. In every example of soundscape I have listened to<sup>28</sup>, the primary moving factor of the piece is the lack of repetition. Though small movements or melodies may occur once or twice throughout a piece, the idea of the soundscape as a whole is an atmospheric engulfing of the senses and immersing the listener. Once repetition is implemented throughout a composition, the mind begins to make sense of the acoustics and deciphers the piece as something recognizable beyond sounds. Rhythm should be treated as an evolution of repetition, finding a mixture of tonal waves, percussive beats, or both to generate something that speaks to the affect one experiences when nodding their head along with the beat. The final piece to transcend out of ambience into modern music is the application of the riff, or a melody which is repeated in such a manner that it becomes a defining characteristic of the musical piece.

<sup>27</sup> The process of analyzing and documenting the selected spaces

<sup>28</sup> This includes Xenakis, Machover, Mills, Schafer, Eno, Glass etc. See Also Musical Time (Barry 1990)

To apply a repetitive, rhythmic melody to a space whose acoustics are defined by chance and subject to inhabitants is not an option in the traditional sense of the riff. But there may be opportunity for something as defining as a melody to be initiated when a participant so chooses. This can take form in a number of ways, whether through installation pieces or adjustable architectures that can be altered to rebound sound waves in specific ways, always with the intent of improving the quality and response to the sound waves.

Returning to the culmination of audio and space, the means and methods of forming design based on acoustic and wave form has been a subject of my exploration throughout graduate school. I've explored rational graphics that utilize frequency and wave charts from inspirational moments to generate new methods of developing space. Lyrical context has led to grid based associations and placement. Multiple snapshots of intersecting musical moments have been overlaid in plan and section to define new complex arrangements of gestalt-rejecting labyrinths and sanctuaries.

### On Materiality and Acoustic Absorption

The application of materials is crucial in the composition of audible space. From recording studios to theaters, the compliments of a proper usage of material can create an astounding effect to even the most untrained ear. The development of acoustical physics has evolved in a number of significant ways since the technology revolution and addition of computers to analyze and decipher complex frequency data. However, most of these applications find limitation at the same conclusion: exterior use.

To combat this daunting task and pair acoustic treatment with exploitation of the urban public use, typical design and treatment will use some combination of limited exposure, enclosure, and material treatment. Though acoustic absorptive materials are accessible and proven to work to tremendous levels, their exposure to elements simply cannot hold ground when compared to hard materials such as woods metals or stones. For this reason, with the understanding that the project focuses on external spaces predominantly, they will not be used. An in-depth analysis of how materials react to different frequency levels for a comprehensive application in the proposals can be made with formulaic decision.

The application of foliage and general greenery will be used as a natural way of absorbing sound as the empty space between the leaves and the fabric like quality of natural membrane are treated as absorptive materials. Their non-planar surfaces function similarly to the cavernous spaces that trap sound until the energetic waves dissipate reaching that blissful moment of silence.

<sup>29</sup> Similar to a frequency reduction through utilization of a multi-band equalizer, scooping ambient sound through material properties creates frequency space for mid-level resonance that the human ear can easily attune to.

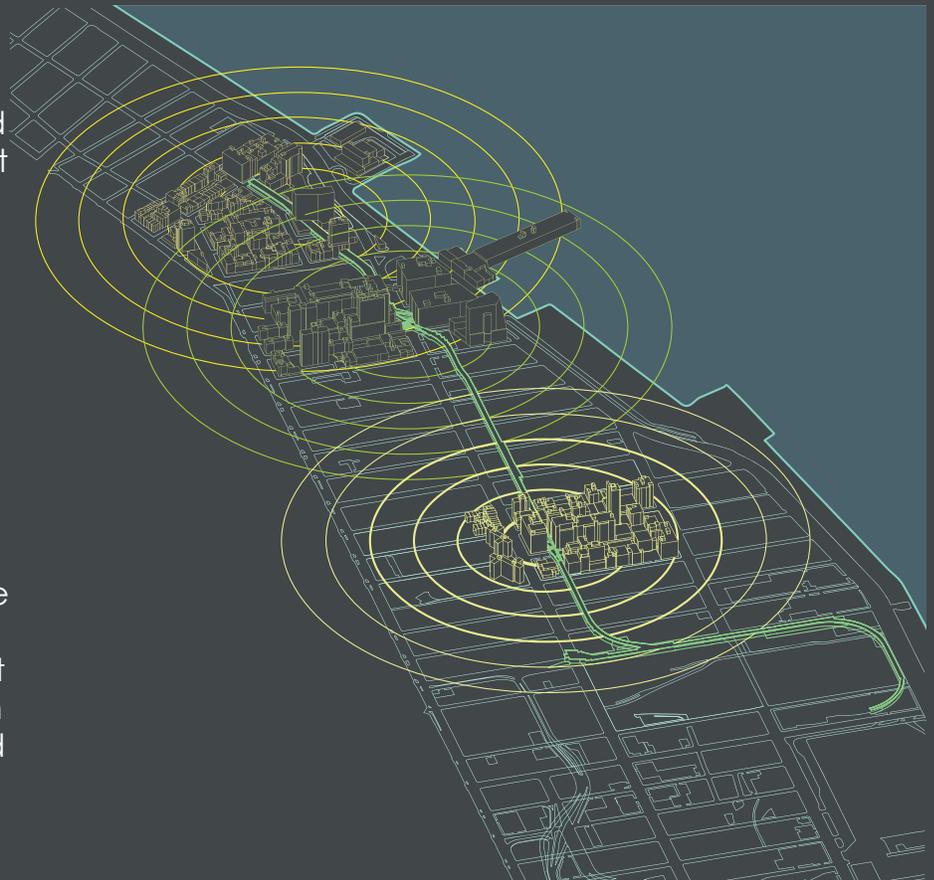
## Research Conclusion

Arranging sounds in space and space for sounds to improve the perception and use of public spaces is as complex as the composition of *Pithoprakta*. However, this should not be thought of as a deterrent but rather a challenge to redevelop urban spaces into urban masterpieces. The necessity of basing this design study in affect theory provides a qualitative means to test whether this exploration of acoustics and design can truly have an effect on the way public spaces are considered and designed. Found in an urban design project, the complexities of balancing use, affect, and awe is a careful process that must be considered from numerous perspectives. The addition of acoustic quality into this formula pushes conceptual equation to a further extent and makes balancing the exterior inhabitation a difficult goal to achieve. However, this study has found a few interesting points of conclusion that could be expanded upon much further.

Kinetic forces are constantly at play in the urban environment and can be utilized in a number of ways. My applications of Open-Tube acoustic physics, tension suspended metal panels, free-floating percussive pads and corresponding percussive columns, rain pools, and percussive walkways are simply a beginning to the massive possible collection of acousti-kinetic architectural elements. Though it is worth noting that a majority of conceptual ideas I have pondered ultimately stem from these starting “instruments”. That being stated, the use of open-tube columns to both create structural and acoustic elements has proven to be one of the best comprehensive meshing of two systems to generate new space.

Mitigation of sound should be stated as a major factor as well. Though public space could be designed in an effort to create affective properties, the mechanical noises of the urban environment and systems around us create a blanket of sound that would make a *Harmoniscape* comprehensible. Through the use of materials and proper acoustic deflection techniques, more acoustic space can be carved out.

The *Harmoniscape* concept has plenty of room to be expanded upon, for example in relation to internal architecture and the way acoustic spaces are perceived in our every day lives. That being stated, this initial point of research and experimentation defined a threshold to be passed through for a long journey of merging music and design.



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## Part IV. Site Selection and Analysis

It is important to preface that Cleveland (A) to no one's surprise is a relatively quiet city, especially in contrast to the energetic epicenter of New York City (B). Aside from sporting events that usually turn the streets into a singular massive traffic-jam, most evenings throughout the city's public spaces are quite reserved. In an attempt to gather as much data, produce a well formulated comparison, and imagine if The Rock and Roll Capital of the World at all felt as such, my study extends to the city that never sleeps. These two exceedingly different cities provide two design canvases that are made similar by selection of site. I have selected parks, plazas, and interior public spaces, each in Cleveland to share a New York counterpart so that the end results will have a defined means to compare and contrast to each other. While in every case, the sites in New York are larger (which allows for more diverse audio data gathering, but also more room for reverberation and absorption) they share numerous qualities with the Cleveland public spaces they were selected to be paired with, such as water features, peripheral context, or use.

### Battery Park

Along the South Eastern edge of Manhattan Island, Battery Park sprawls out for 25 Acres with meandering paths that lead to various elements on the Hudson River. The historical park began in the 17th century and became one of the establishing locations on Manhattan Island. Housing the Battery, a fort providing the park's namesake, this building now acts a central node for those seeking a historic experience or simply to purchase a ticket to Ellis Island and the Statue of Liberty. Surrounding the large semi-circular masonry building, greenery and foliage envelop a number of experiential spaces such as the Korean War Memorial, Walloon Settler's Monument, Netherland Monument, SeaGlass carousel and the East Coast Memorial for WWII Veterans. During my visit crowds gathered around street performers who had set the pathways as an impromptu stage.



Wagner Park is located directly north of the Pier A Harbor House. With an elevated river overlook constructed of brick masonry and a large open grass square encased by a low wall perimeter, this site is ideal for exploring the connection of public space to the water. The edge elbows proposing a specific point of extension of the public space. The kinetic movement of the waves provide a unique opportunity for exploration into the percussive-acoustic realm of space-making.

## The High Line

Snaking through buildings on an existing elevated train rail, the High Line is one of the most publicized and recognized public spaces in New York and known throughout the world. This made for a perfect speculative space to study and apply acoustic concepts. Given the massive length of the project, I chose to isolate three specific sections and treat each as an individual project.



26th Avenue Overlook – a site for contemplation and relaxation, located near the north end of the High Line, a pair of benches back to back framed by an iconic light box overlooks 26th avenue. The elevated path sits on columns as the metal grating passes between two buildings in close proximity with foliage all around. My analysis of this section was that it is primarily a transition space which lacked protection from the possible downpours. In addition, the canyon-like quality of the two adjacent buildings made for an excellent opportunity to harvest and utilize the wind.

10th Avenue Transition – the first point in which the High Line traverses 10th Avenue, a space for rest was seemingly carved out for the public to sit and stare down the long linear road. As this piece covers the street, an opportunity for challenging the way structure and kinetics while using the awe inspiring movement to define this node as a unique destination became clear.

Suspending the large piece from above isolates the node allowing for long reverberation times which alone would do little to alter the acoustic environment. However, a unique façade treatment made of specifically sized natural wood members are suspended along the north and east face, pinned at a single point, freely swinging and creating a tonal percussive element. The existing interior is an arrangement of wood stadium benches along a path set perpendicular to four of the five walls. My alteration rearranges this quality to never be perpendicular, causing any refracted sound waves to continue on rather than move back and forth removing “noise” and instigating a singular passage of audio past the listener.

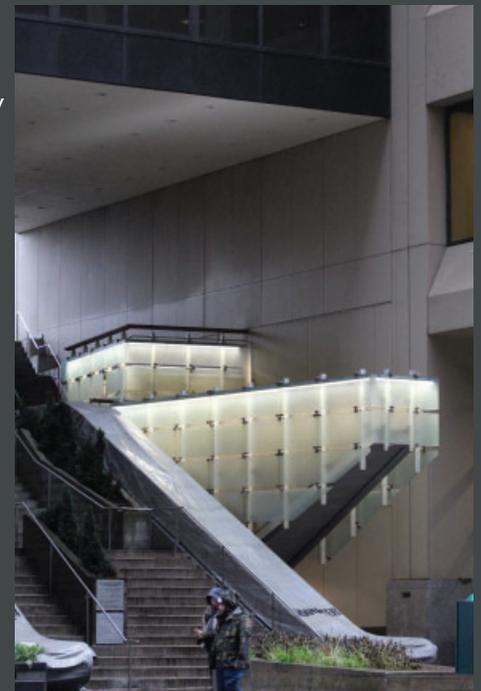


The Standard- At the southern end of the High Line, the path runs over a single story building, and is covered by another directly above, making for a unique point along the trail. This building above is isolated from the path, sparking an interest in creating a connection for the users while also generating an elevated portion above the highline which would add to the uniqueness of this site. The cover becomes the wall which is pulled from the floor, creating a barrier at either the east or west side, audibly disorienting the individual or capturing city sounds or the acoustics of the wind and the waves from the Hudson River.



### 55 Water Street

Along the south-eastern bank of Manhattan Island, 55 Water Street houses what is known as the Elevated Acre. A seemingly private staircase leads up to a large river viewing park with foliage and a large green lawn. The space is used primarily as a location for lunch breaks with events such as movie night on the lawn a few times during the summer months. The design of the space implies a division between gathering space and moments of relaxation. A large concrete stair encloses the green space which can be rented for weddings, with an iconic glass structure beacon at the corner which illuminates the edge overlooking the Hudson River. The simple low railing allows the wind from the South-West to blow through, being captured by the large towers. The lack of any canopy makes the space uncomfortable and nearly unusable during showers or cold-fronts.



## The Oculus

The Oculus made headline news as Santiago Caltrava's addition to the respected landmark and grounds of the World Trade Center. Completed in February of 2016, the white soaring wings cover the central hub of transportation in the redeveloped segment of Lower Manhattan.

Visited on December 5th, 2019 at 5:00 PM, the space was filled with numerous people working to move through the crowd and avoid the tourists to get to their trains. The below-grade stores welcome a fair number of those who came to shop, but the idleness seen behind

the storefronts contrasts the constant motion of the interior body. Seating is delegated to relatively small arteries off the main space leaving nowhere to rest under the large parabolic shell. Depending on my location, the trains constantly arriving and leaving fill the space with bass frequencies and high-pitched screeches due to the breaks.



Retrospective: At first glance, this is a very appealing project to test my process on, but after development and experimentation, designing the "harmoniscape" for this particular site proved to be less than exciting. I once thought that combining the sounds of the trains passing by with a system to draw those acoustics into the main promenade might be exciting, but due to serious concerns and regulations of ventilation systems, this proved to be impossible. The primary space, being essentially a massive glass and plaster dome reverberates sound until the waves die in the air between the walls. This led to an initial interest in creating a massive floating platform for performers to fill the space with their sound, but besides the platform also absorbing the reverberation and noise from below, this became very limited. I opted to not pursue this further as there was very little room for expansion beyond this initial thought.

# Part V. Design Concepts

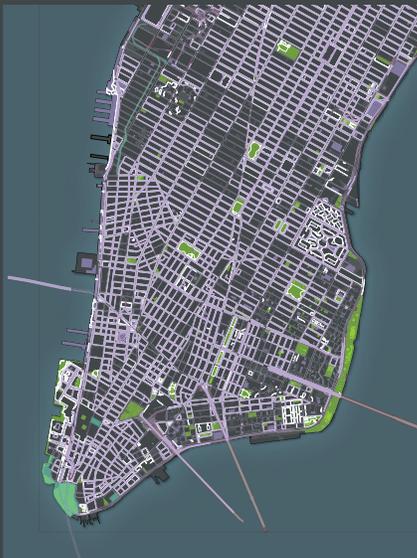




REGIONAL FIGURE GROUND



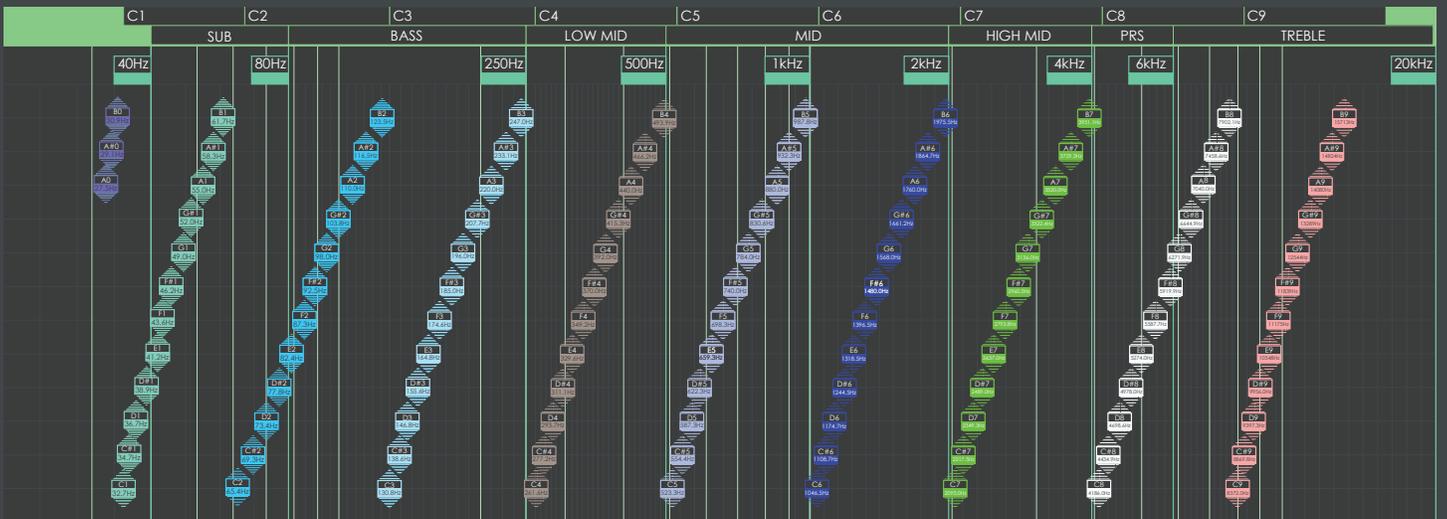
SELECTED SITE LOCATION



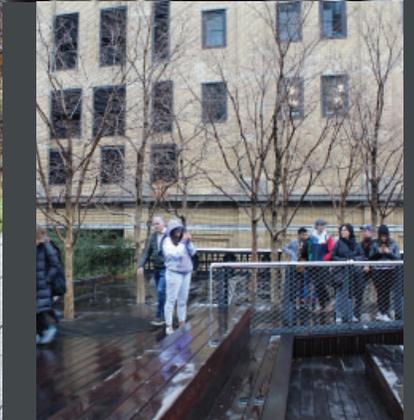
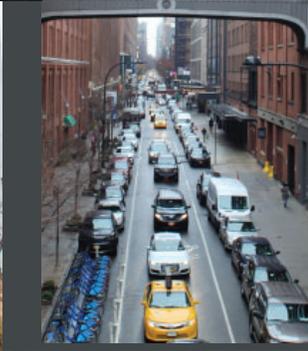
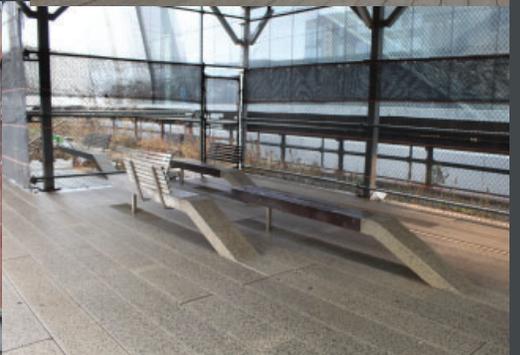
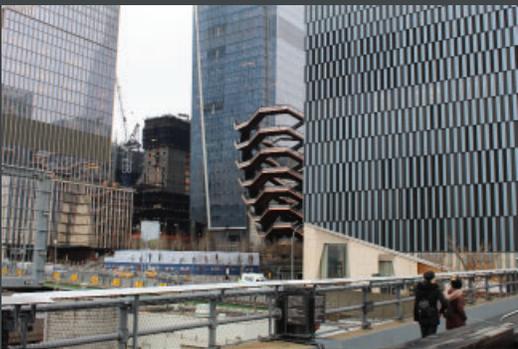
REGIONAL OPEN SPACE



REGIONAL TRANSIT SYSTEMS

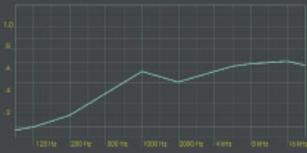




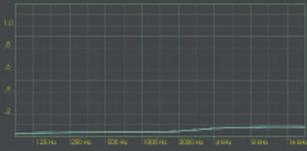




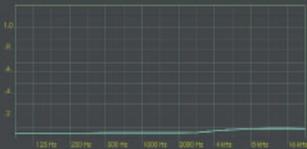
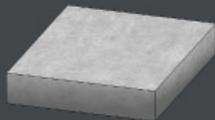
CEMENT CLINKER



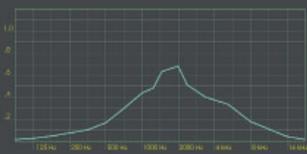
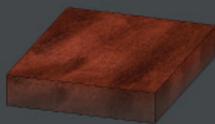
CONCRETE, UNFINISHED  
MILDLY POROUS, ROUGH FINISH



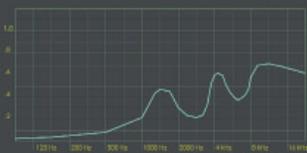
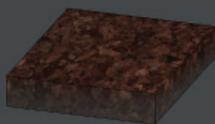
CONCRETE, SMOOTH  
MILDLY POROUS, SMOOTH FINISH



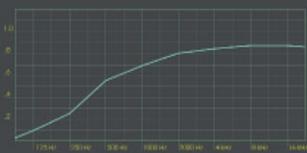
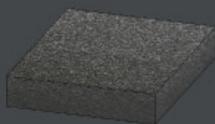
COPPER  
MALLEABLE AND DUCTILE METAL



CORK  
LOOSE, SOFT WOOD



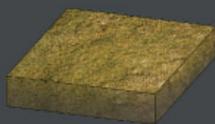
RUBBER, GRANULAR  
SOFT GRAIN, GROUND COVER



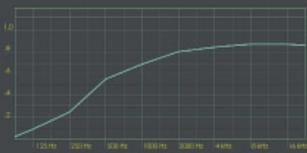
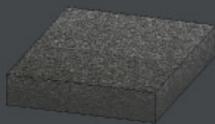
GLASS  
TRANSLUCENT, HARD SURFACE



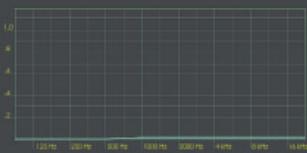
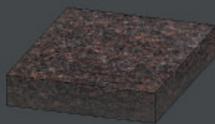
MOSS / GRASS  
THIN ORGANIC COVERING



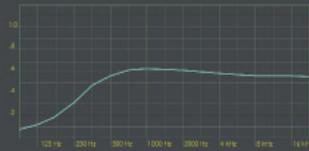
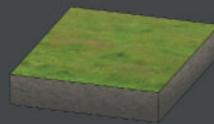
RUBBER SHEATHING  
COVERING, ACOUSTIC ABSORPTION MATERIAL



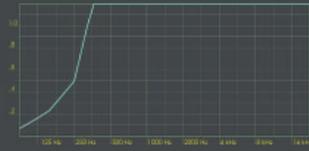
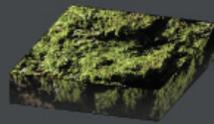
GRANITE  
HARD STONE



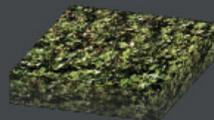
SOIL  
EARTH COVER



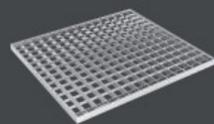
FOLIAGE, DENSE  
SHRUBBERY, TREES



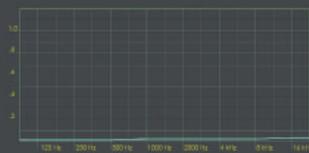
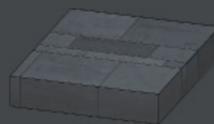
FOLIAGE, THIN  
LIGHT SHRUBBERY



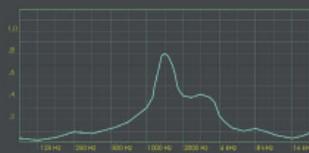
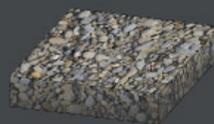
METAL GRATING  
ACOUSTIC DIFFUSER AND STRUCTURE



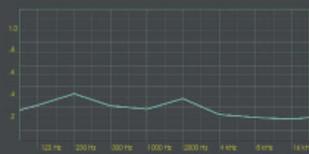
CERAMIC TILE  
PATH COVERING



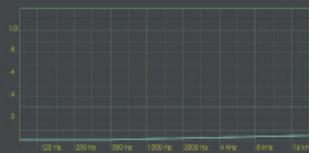
GRAVEL  
STONES, GROUND COVER



STONE PAVERS  
STONE, GROUND AND FACADE APPLIQUE



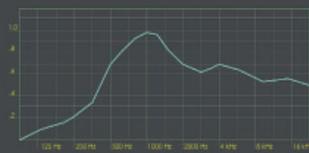
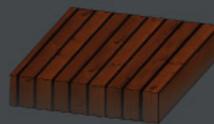
ROUGH MASONRY  
CLAY BRICK, ROUGH FINISH



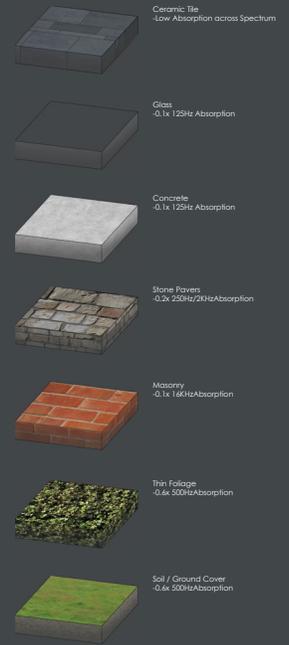
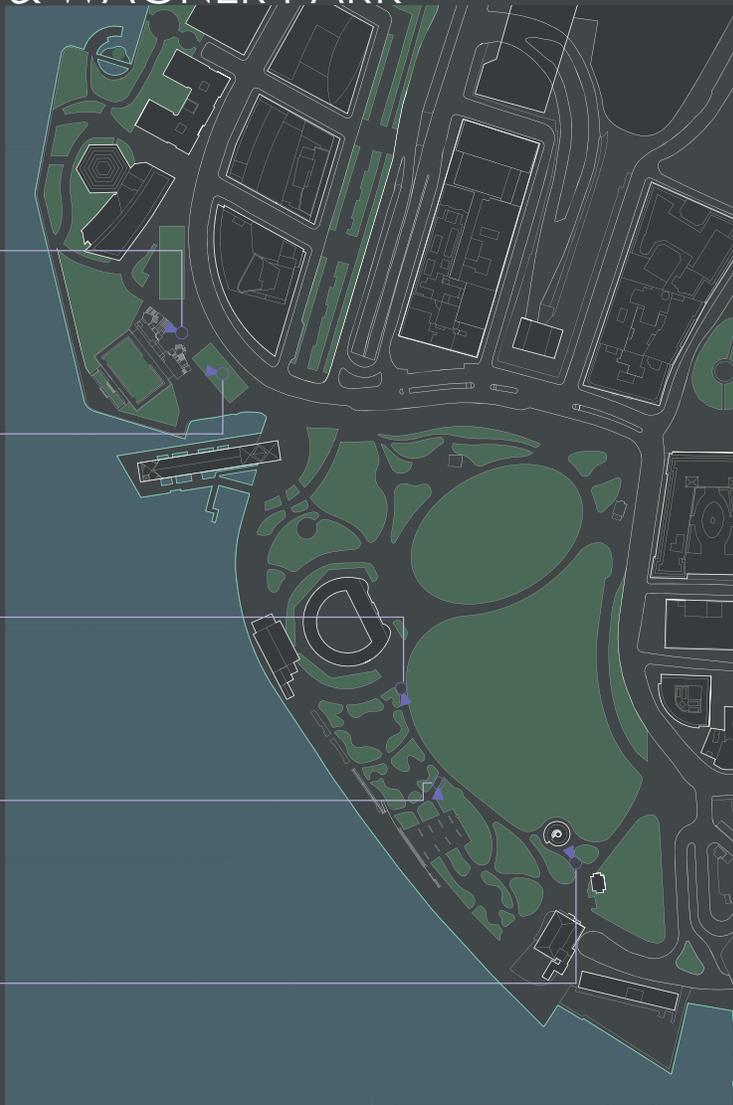
WOOD PANELING  
HARDWOOD BLOCK



WOOD PANELING  
ACOUSTIC TREATMENT WITH ACOUSTIC  
ABSORPTION BACKING

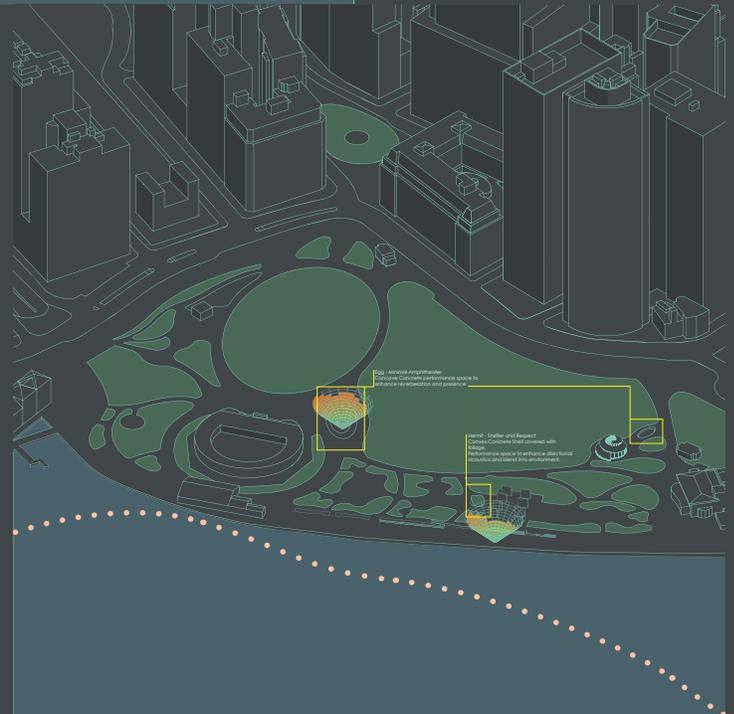


# BATTERY PARK & WAGNER PARK



Above: Material and Location Diagram  
Graphic Plan

Right: Isometric Recording Diagram

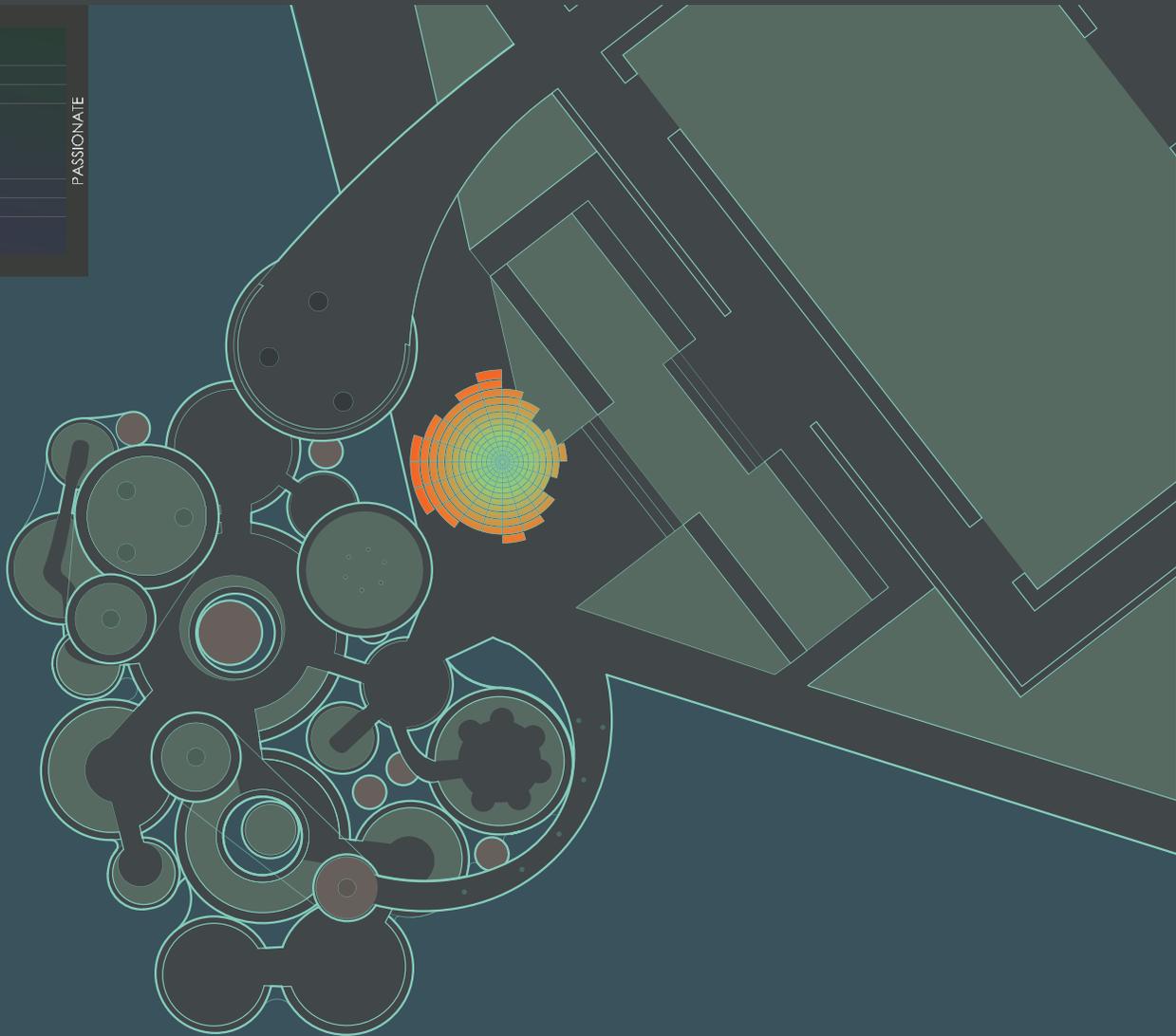
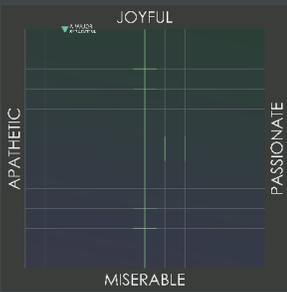




Above: Hermit Stage Collage - Directional acoustics and performance space

Below: Egg-Shell Stage Collage - Reverberation directional performance space





Wagner Park Proposed Plan

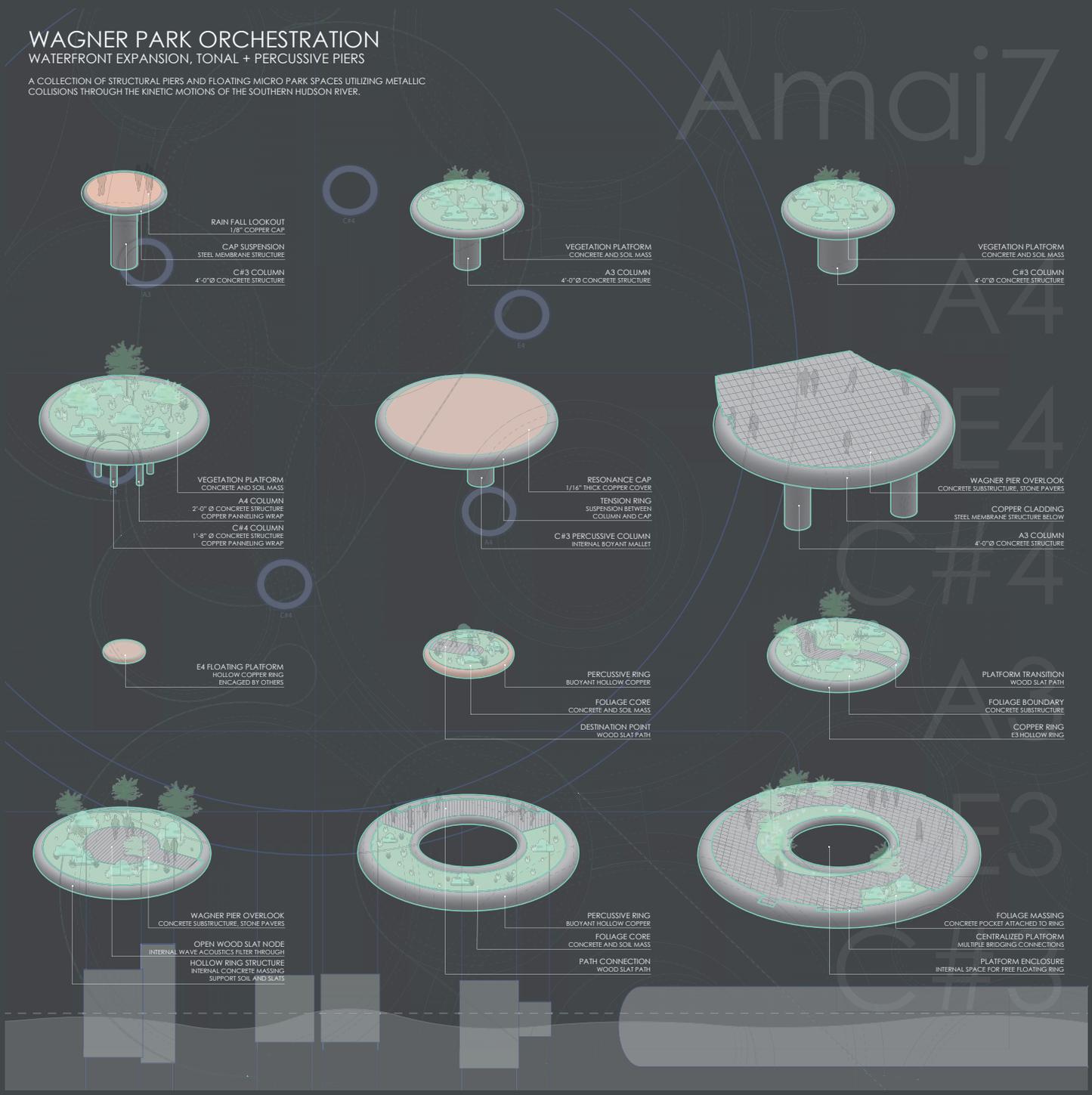


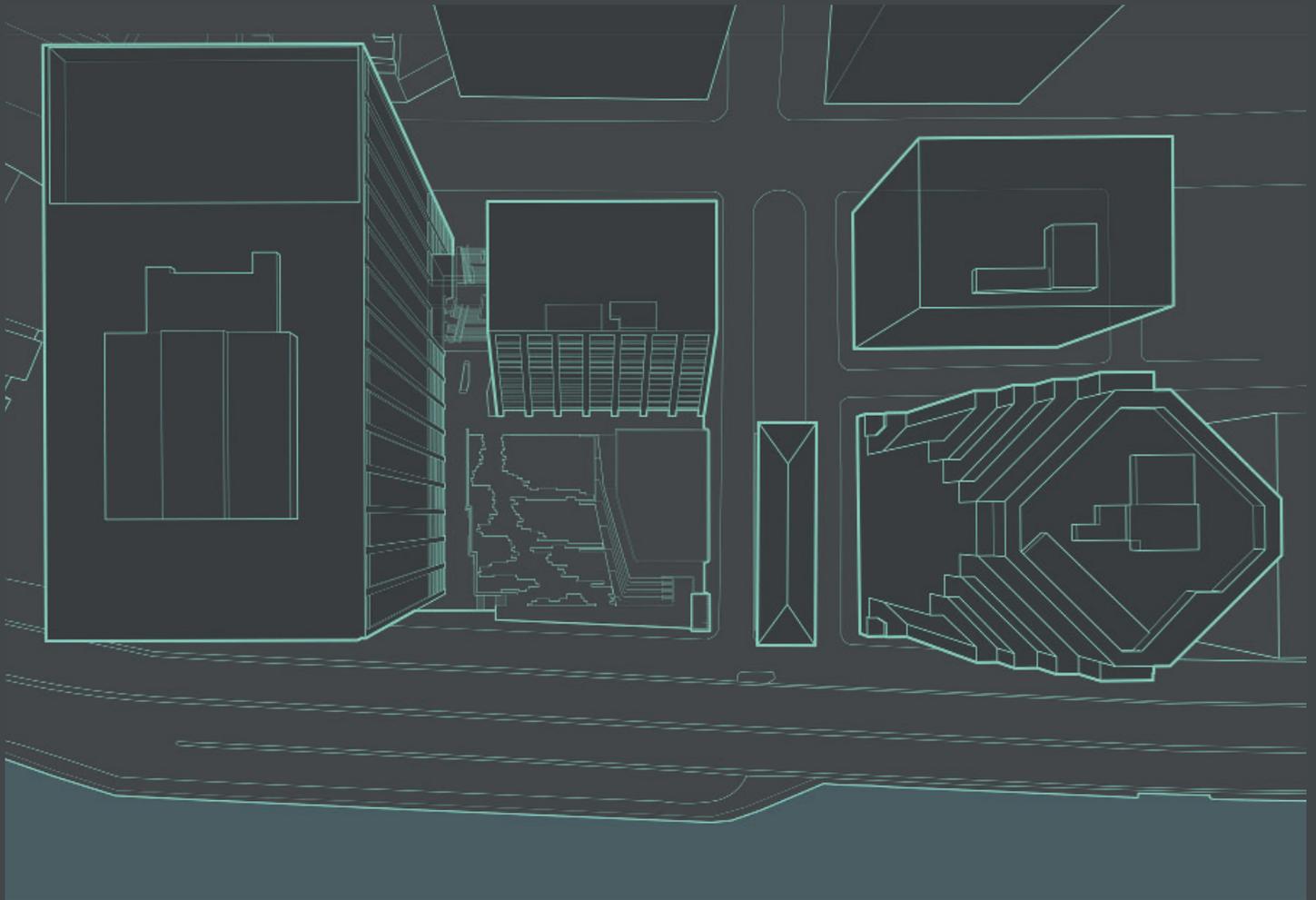
# Wagner Park Design and Orchestration.

An extension of the simple geometries of Wagner Park converges to a series of stationary and floating platforms designed and arranged for aleatoric percussive tonal interactions and an immersive water front public space.

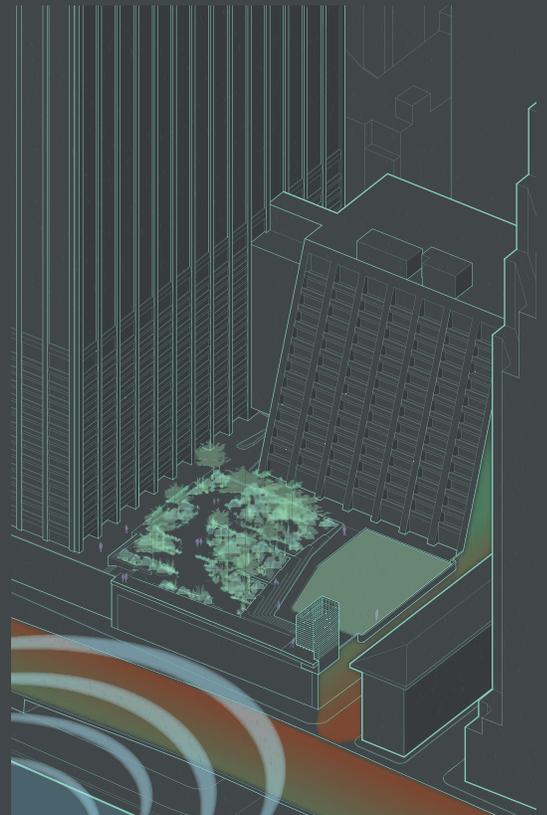
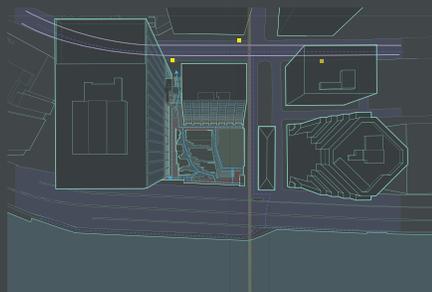
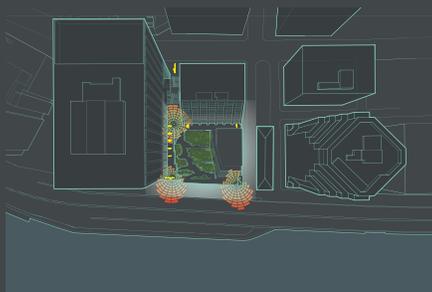
## WAGNER PARK ORCHESTRATION WATERFRONT EXPANSION, TONAL + PERCUSSIVE PIERS

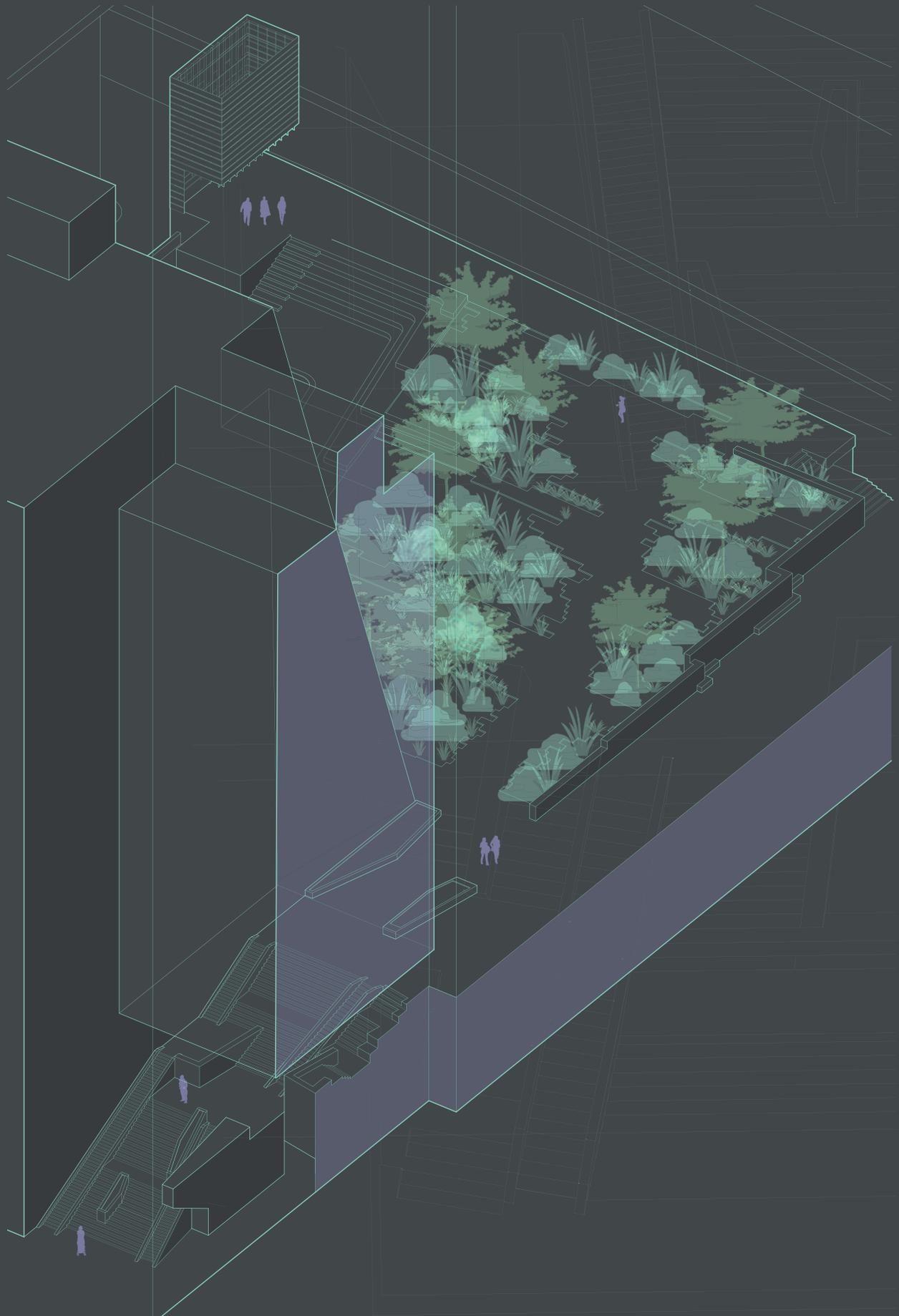
A COLLECTION OF STRUCTURAL PIERS AND FLOATING MICRO PARK SPACES UTILIZING METALLIC COLLISIONS THROUGH THE KINETIC MOTIONS OF THE SOUTHERN HUDSON RIVER.





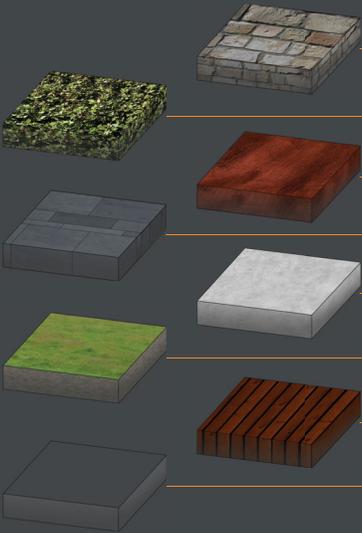
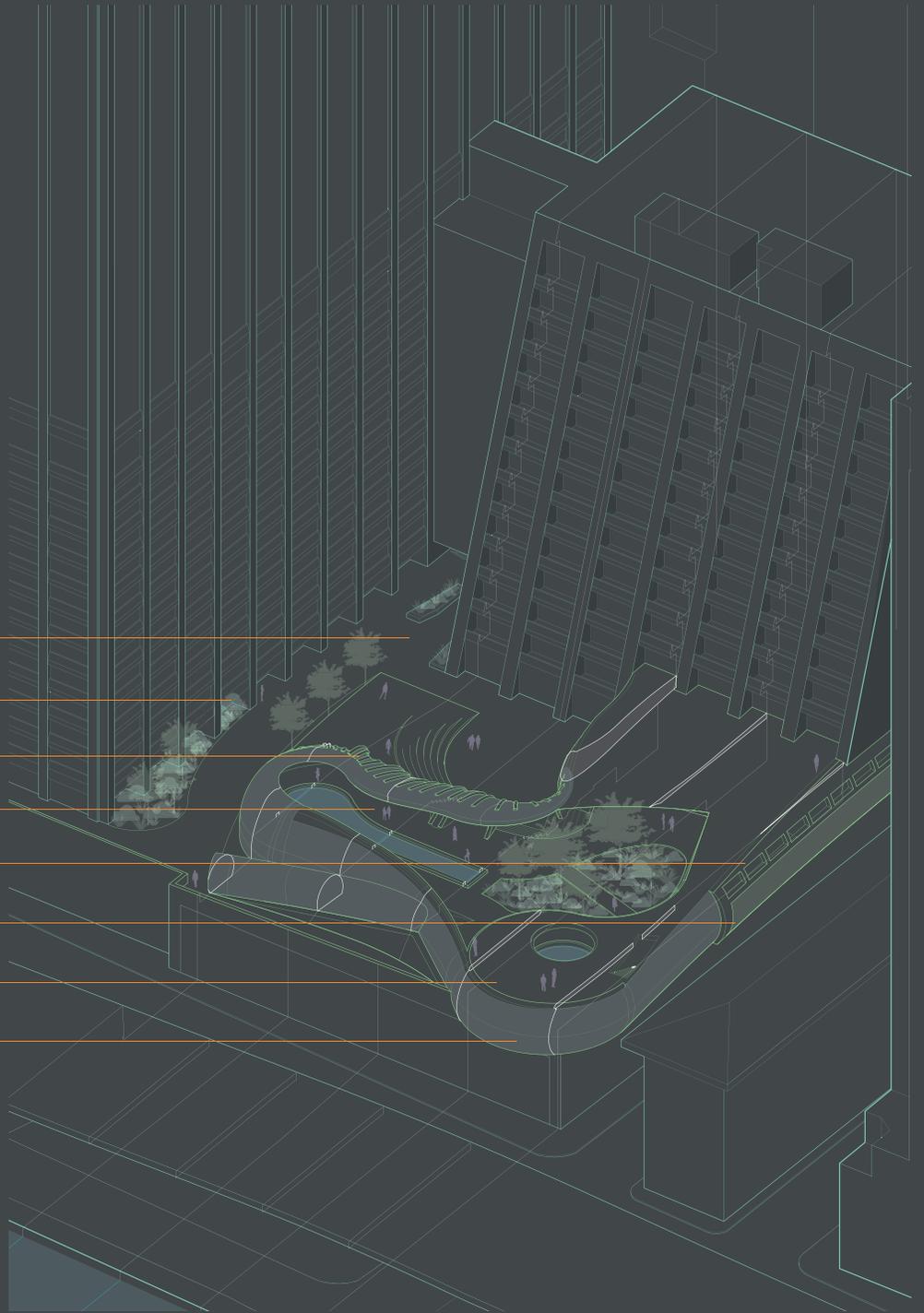
Existing Perspective Plan with isometric climatic diagram to the right. The existing context involves an exposed face to the south-western bank of Manhattan and a series of access points from the ground plane and internal building connections.



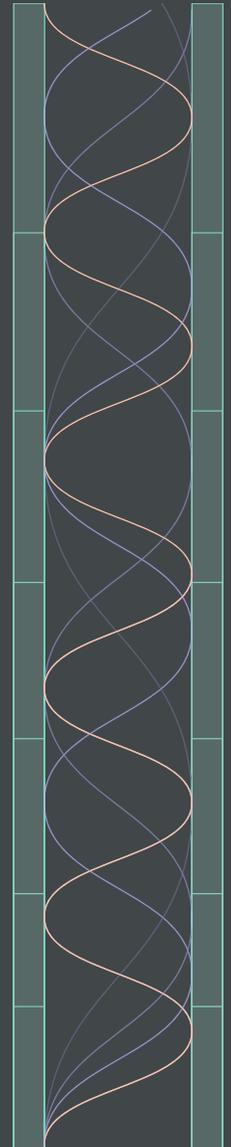
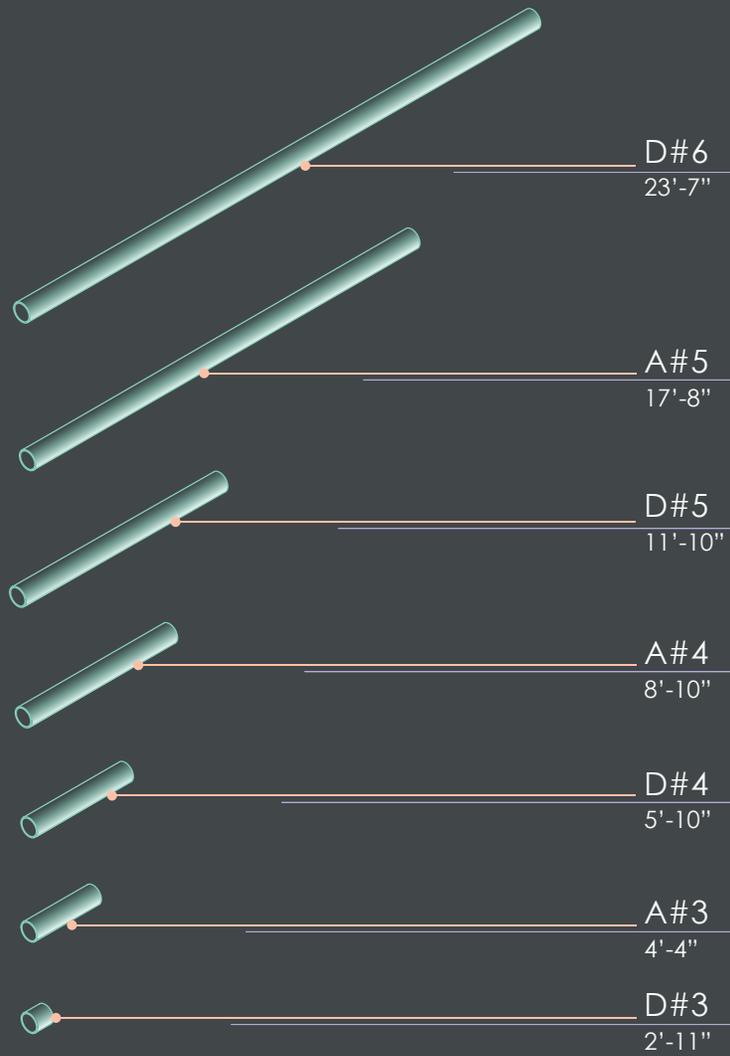


South East Isometric Detail



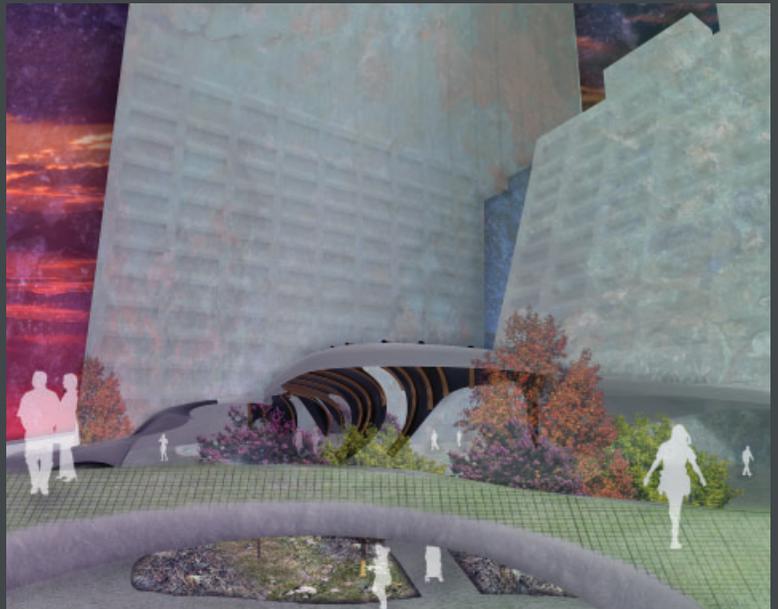


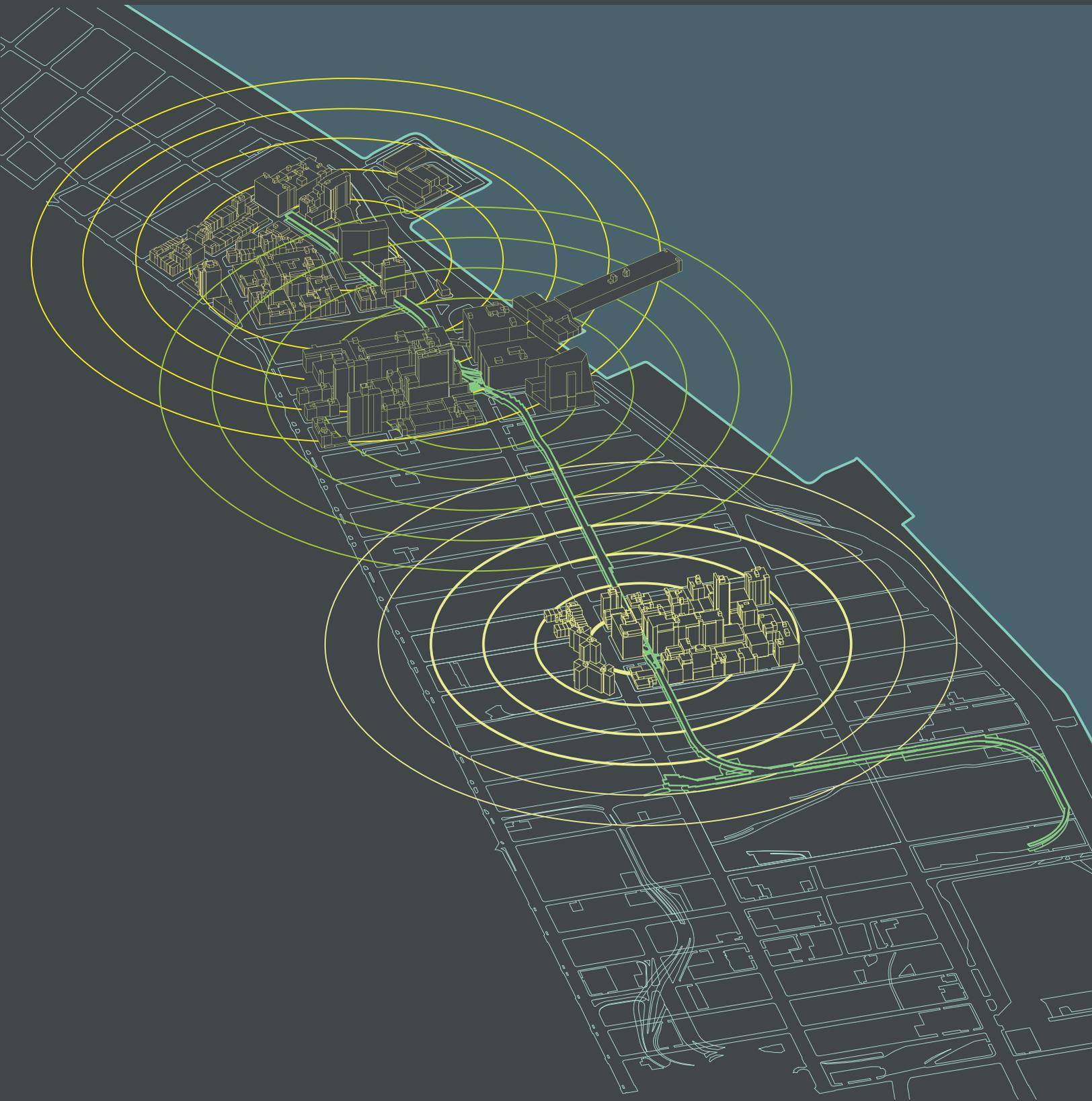
## OPEN TUBE FREQUENCIES



The 55 Water Street design proposal includes a wind barrier that directs the moving air through a series of calculated structural open tubes to invoke the chord of A#.

The canopy supported by the tubes collects rain dripping into collection pools defining a gentle ambiance.





## The High Line

Snaking through buildings on an existing elevated train rail, the High Line is one of the most publicized and recognized public spaces in New York and known throughout the world. This made for a perfect speculative space to study and apply acoustic concepts. Given the massive length of the project, I chose to isolate three specific sections and treat each as an individual project.

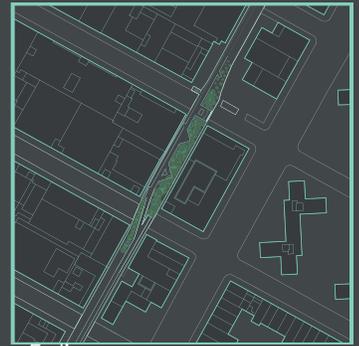
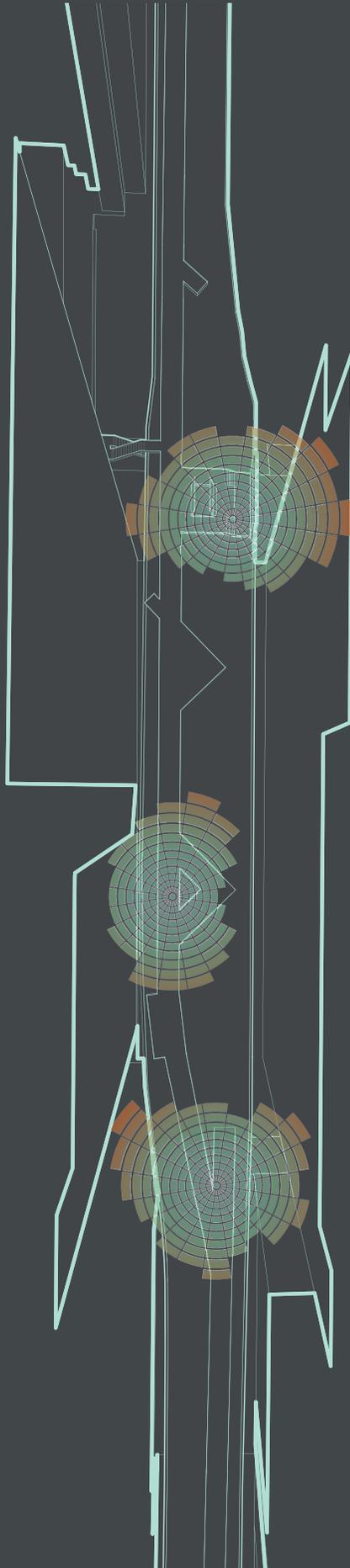
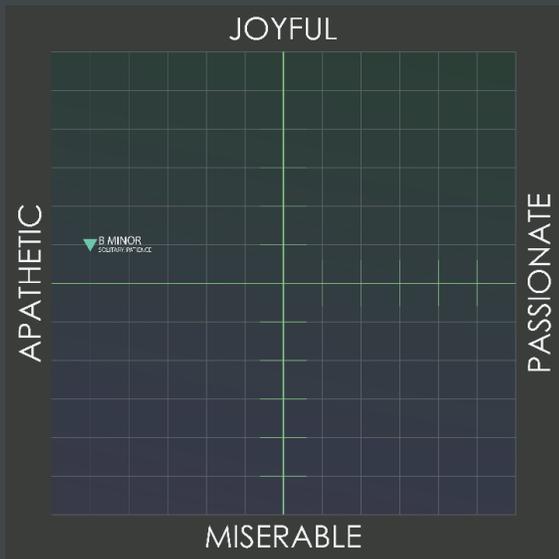
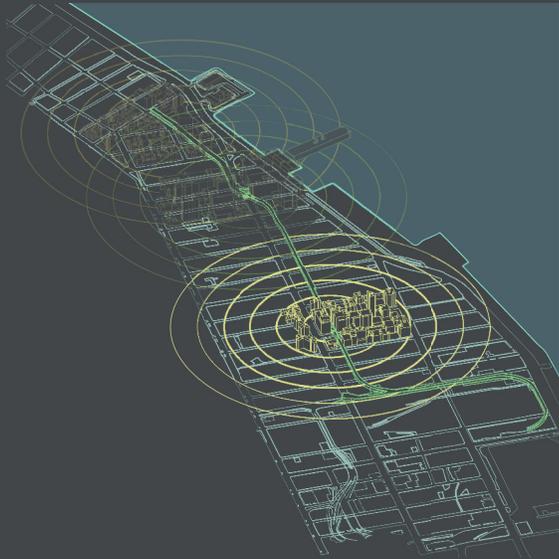
26th Avenue Overlook – a site for contemplation and relaxation, located near the north end of the High Line, a pair of benches back to back framed by an iconic light box overlooks 26th avenue. The elevated path sits on columns as the metal grating passes between two buildings in close proximity with foliage all around. My analysis of this section was that it is primarily a transition space which lacked protection from the possible downpours. In addition, the canyon-like quality of the two adjacent buildings made for an excellent opportunity to harvest and utilize the wind.

10th Avenue Transition – the first point in which the High Line traverses 10th Avenue, a space for rest was seemingly carved out for the public to sit and stare down the long linear road. As this piece covers the street, an opportunity for challenging the way structure and kinetics while using the awe inspiring movement to define this node as a unique destination became clear.

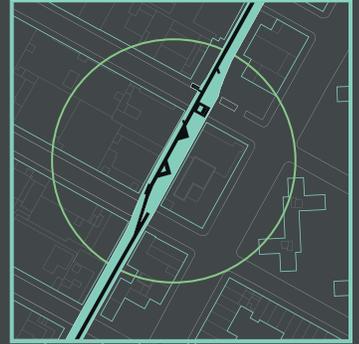
Suspending the large piece from above isolates the node allowing for long reverberation times which alone would do little to alter the acoustic environment. However, a unique façade treatment made of specifically sized natural wood members are suspended along the north and east face, pinned at a single point, freely swinging and creating a tonal percussive element. The existing interior is an arrangement of wood stadium benches along a path set perpendicular to four of the five walls. My alteration rearranges this quality to never be perpendicular, causing any refracted sound waves to continue on rather than move back and forth removing “noise” and instigating a singular passage of audio past the listener.

The Standard- At the southern end of the High Line, the path runs over a single story building, and is covered by another directly above, making for a unique point along the trail. This building above is isolated from the path, sparking an interest in creating a connection for the users while also generating an elevated portion above the highline which would add to the uniqueness of this site. The cover becomes the wall which is pulled from the floor, creating a barrier at either the east or west side, audibly disorienting the individual or capturing city sounds or the acoustics of the wind and the waves from the Hudson River.

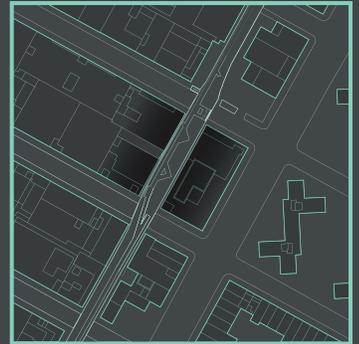
HIGH LINE SITE 01  
26TH AVENUE OVERLOOK



Foliage



Elevated Path



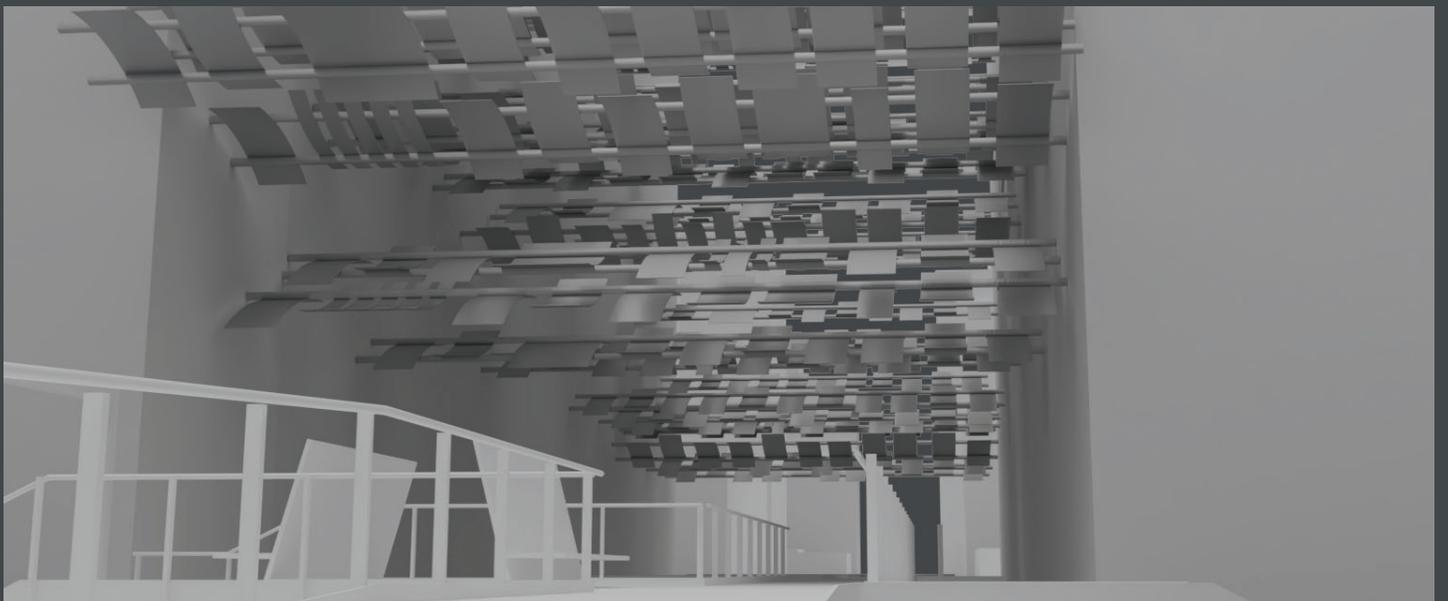
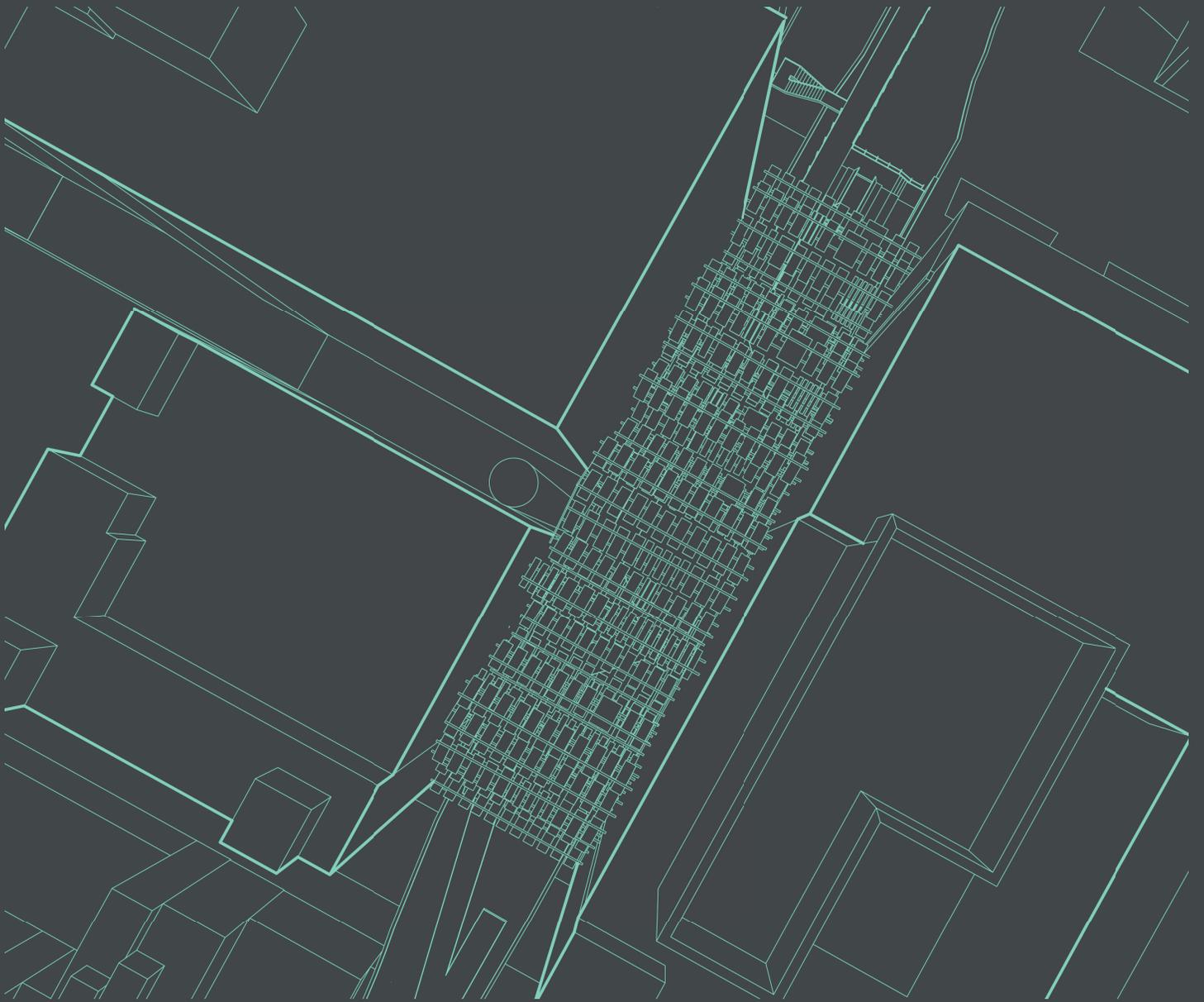
Obstructions



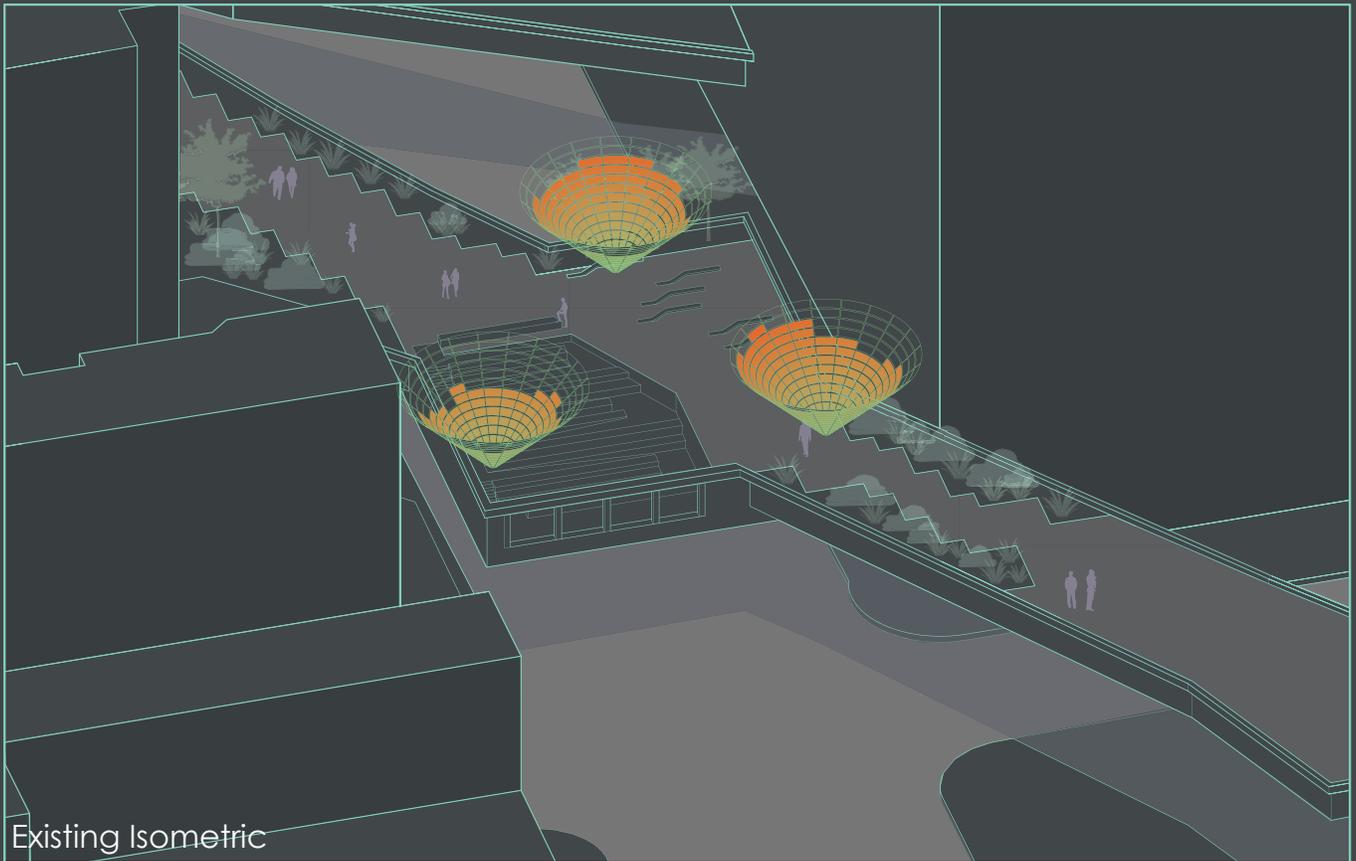
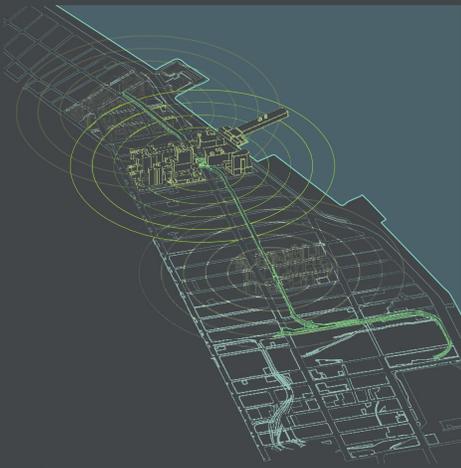
Entry Plan



Transit Line

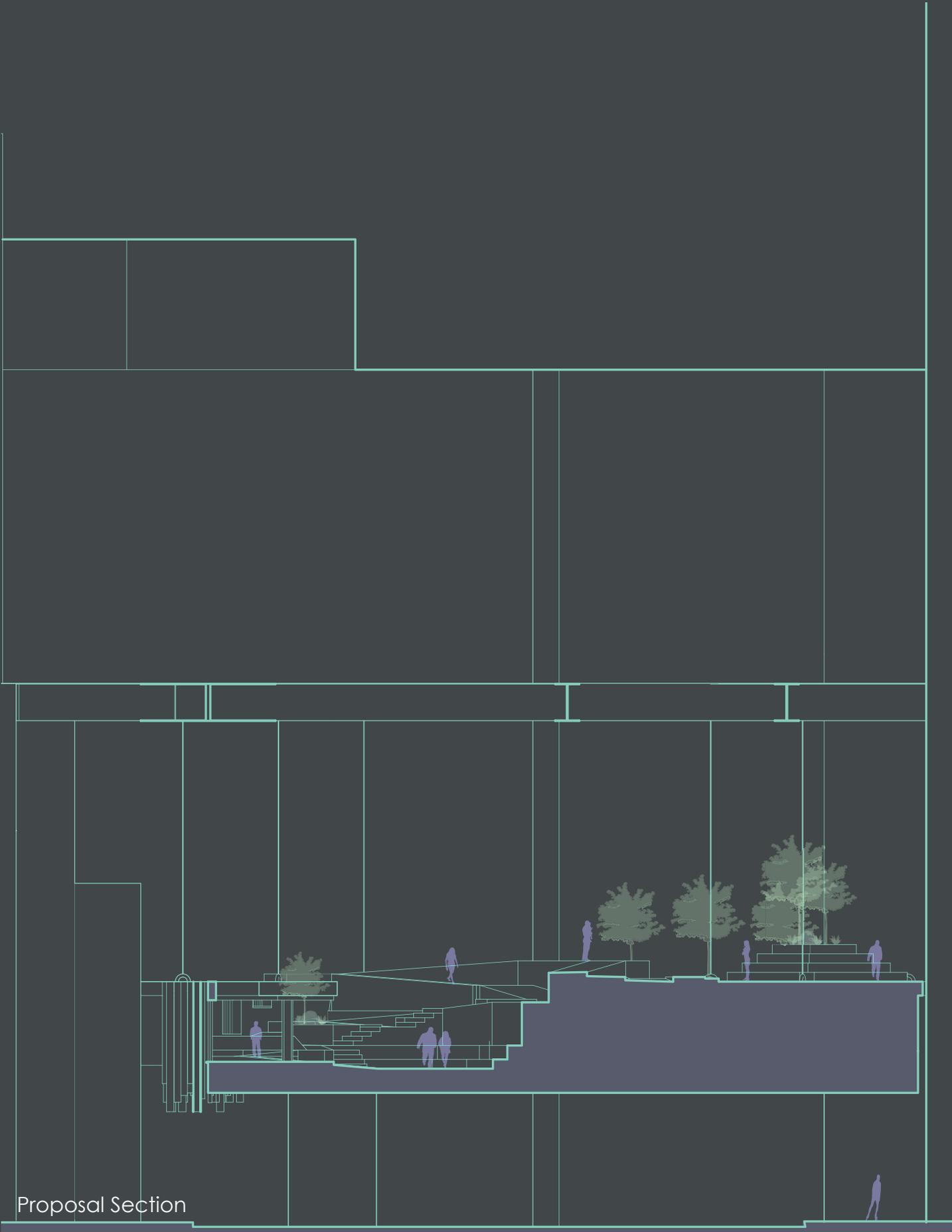


# HIGH LINE SITE 02 10TH AVENUE TRANSITION

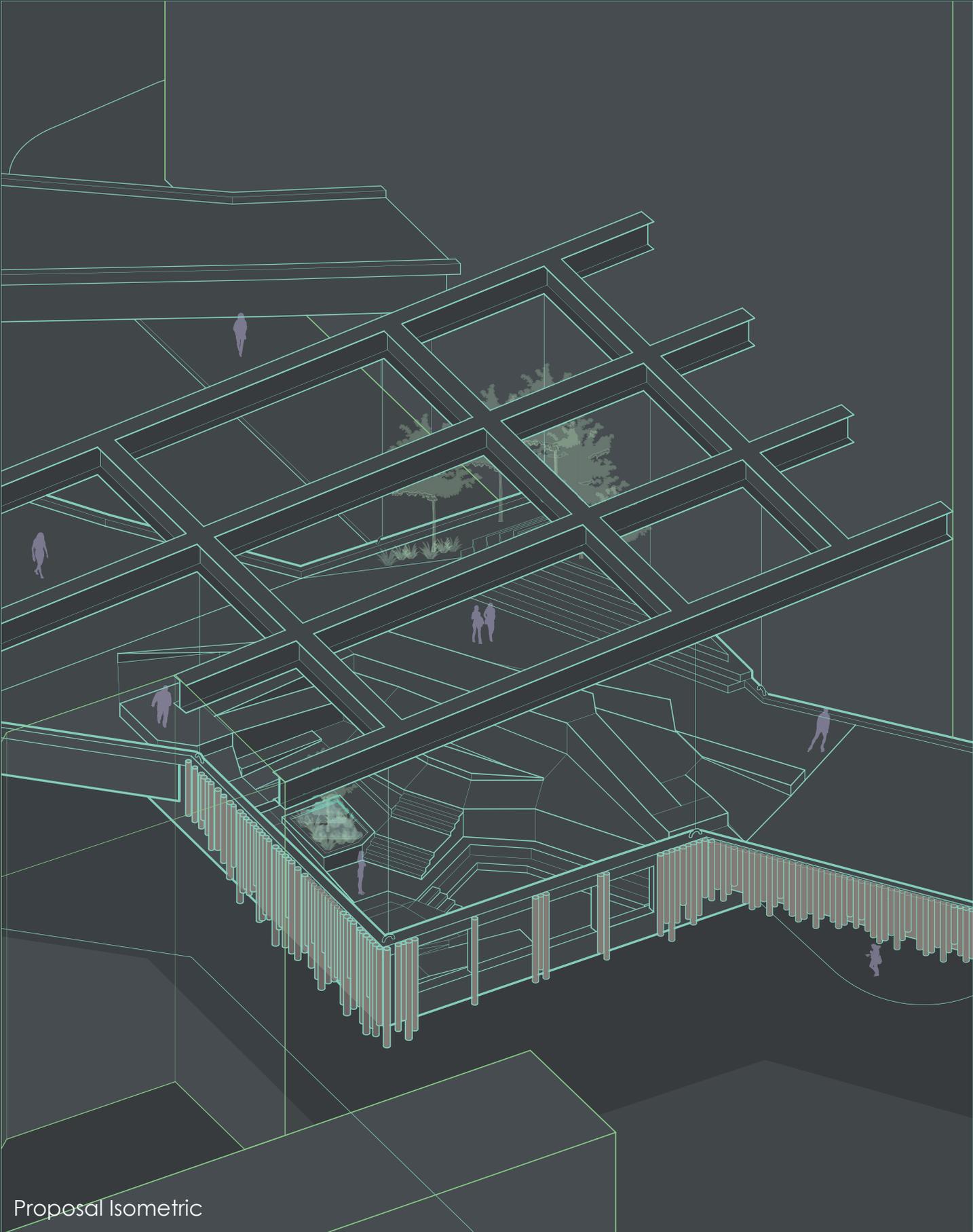


Existing Isometric

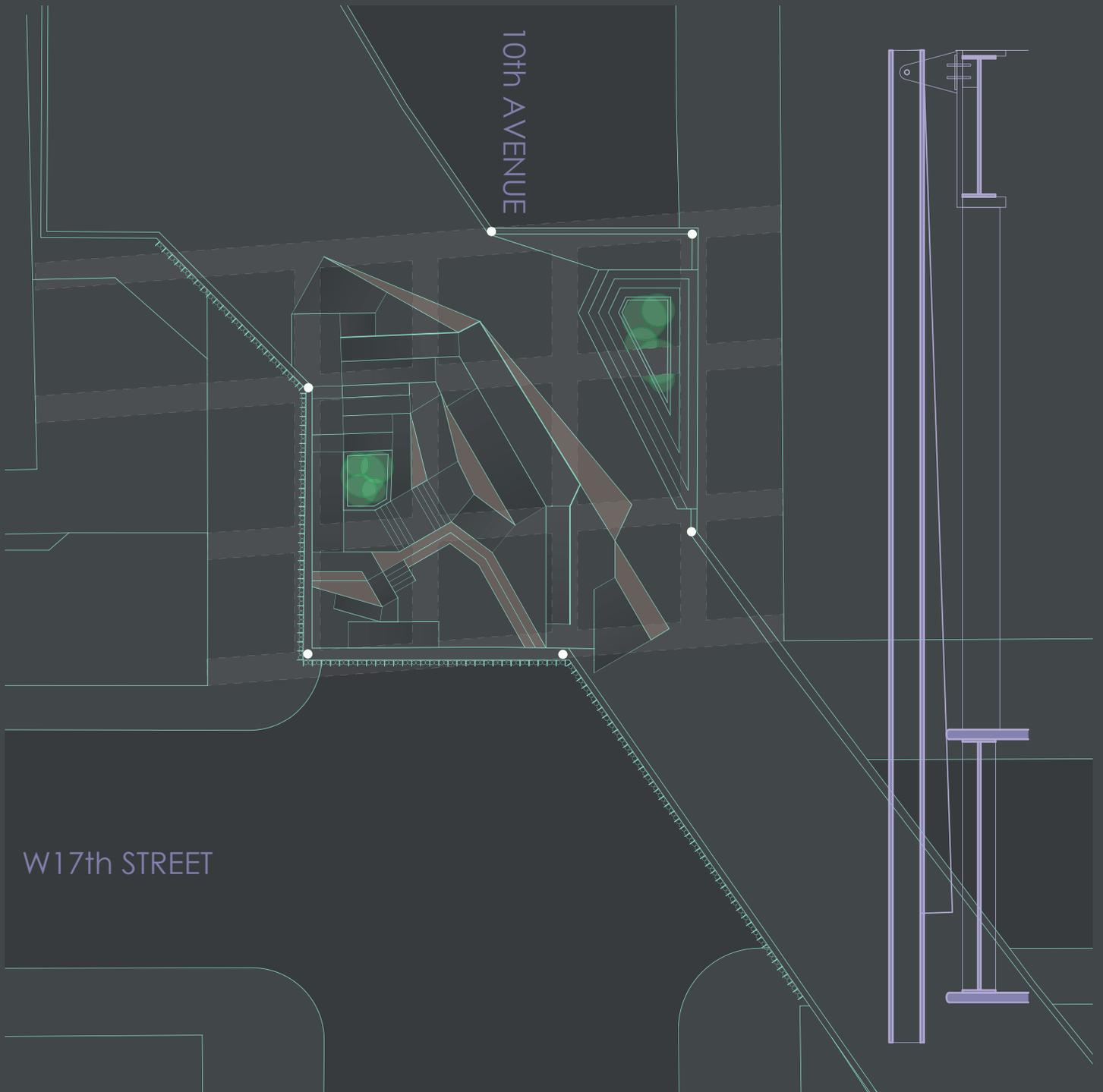




Proposal Section



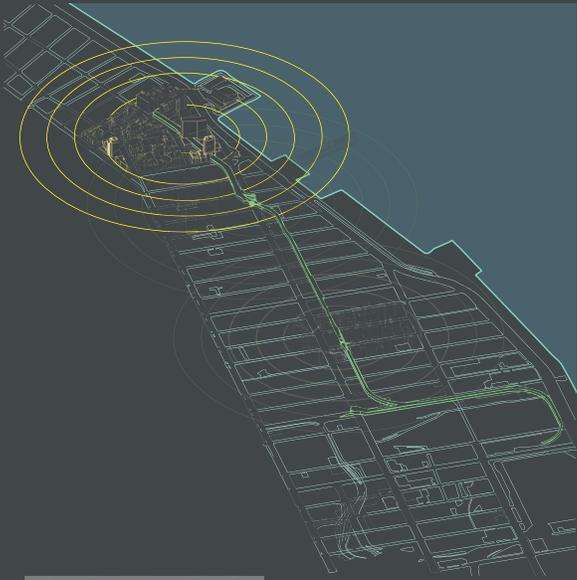
Proposal Isometric



10th AVENUE

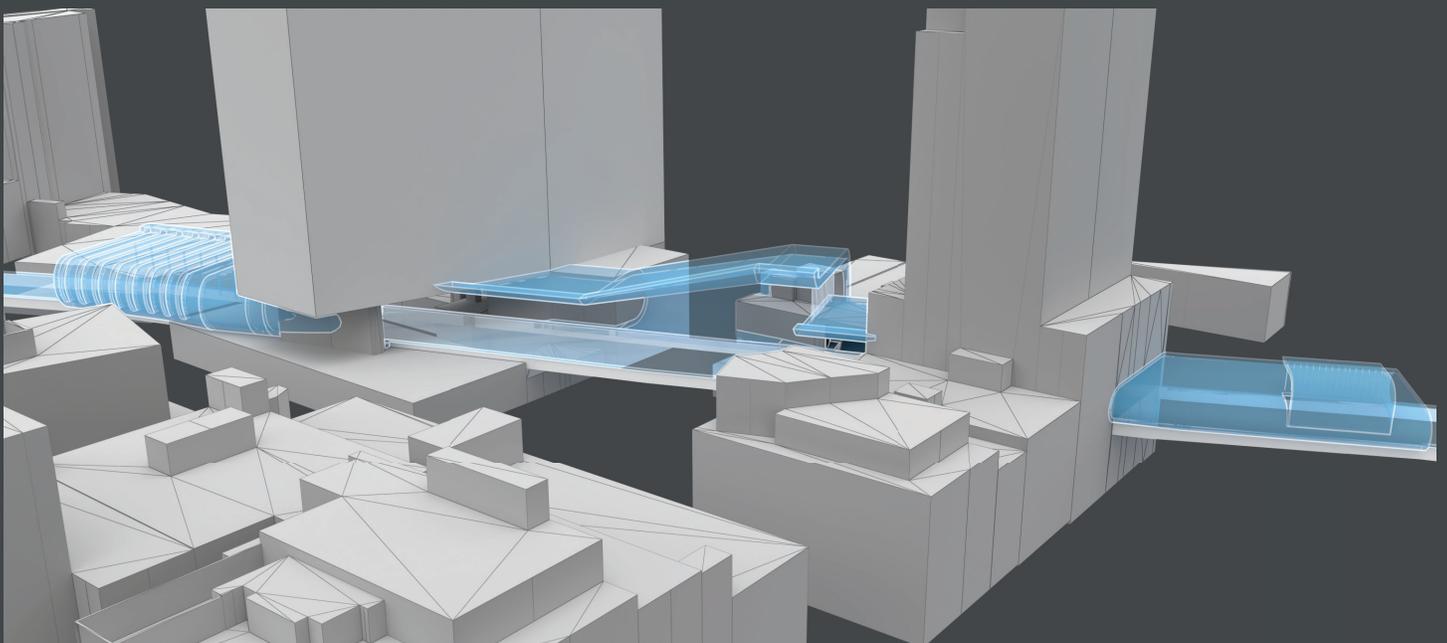
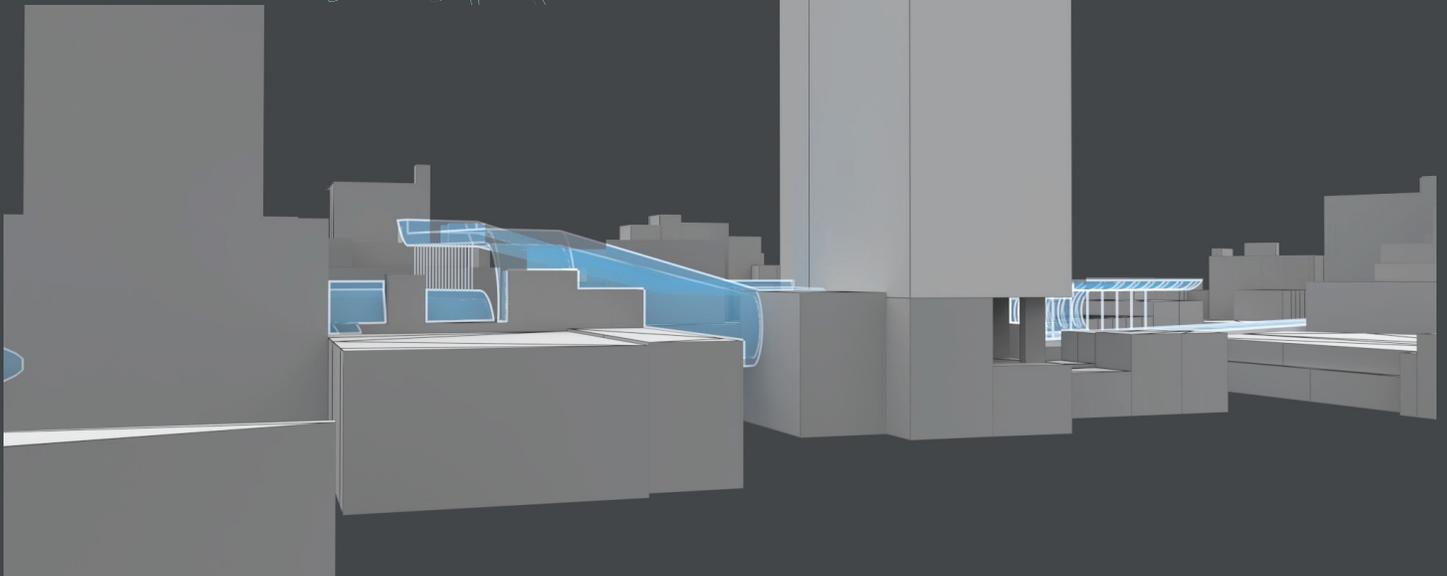
W17th STREET

Proposal Plan



## Highline 03 Concepts

In an attempt to push the extents of applications of these concepts, particular enclosure of space to disorient and challenge the acoustic perception of motion through these partially covered extents of the High Line define themselves by capturing the sounds of the city or Hudson River depending on the inhabitant's location.



To experience the audible designs of this thesis,  
please visit this youtube link:  
[https://www.youtube.com/playlist?list=PLIs6Dq0q\\_](https://www.youtube.com/playlist?list=PLIs6Dq0q_)

This project was only possible thanks to my supportive family and friends, the trust from Dr. Meshkani and Prof. Rugare to allow me to work under my own stress levels and at my own pace, and significantly in part to the music that has continued to inspire and provoke my unique means of challenging and perceiving the world. I would like to share a series of albums with any who are interested in exploring the sonic world I have crafted around myself.

Language - The Contortionist  
The Great Misdirect - Between the Buried and Me  
Flow State - Tash Sultana  
Epoch - Tycho  
The Vacancy - Four Seconds Ago  
Habits - Elephant Tree  
Periphery IV: Hail Stan - Periphery  
Effloresce - Covet  
The Mountain - Haken  
Space Is Still the Place - The Bright Light Social Hour  
Chon - Chon  
The Color Spectrum - The Dear Hunter  
Yellow & Green - Baroness  
Let Yourself be Huge - Cloudkicker  
Astronoid - Astronoid  
Rhythm, Chord, and Melody - Reign of Kindo  
Isometric - Jake Bowen  
The Way Forward - Intervals  
The Direction of Last Things - Intronaut  
Handmade Cities - Plini  
Invent the Universe - Sithu Aye  
False Idol - Veil of Maya  
The Joy of Motion - Animals as Leaders  
Weather Systems - Anathema  
The Sufferer and The Witness - Rise Against  
The Ineffable Truth - G Jones  
Volition - Protest the Hero  
Constellations - August Burns Red  
10,000 Days - Tool  
Digital Veil - The Human Abstract  
Pink Lemonade - Closure in Moscow  
Passengers - Artifex Pereo  
Altered State - Tesseract  
Carbon Based Anatomy - Cynic  
Somewhere in the Between - Streetlight Manifesto  
The Collective - Scale the Summit  
Ley Lines - Flor  
Acts 1 - 5 - The Dear Hunter  
Good Apollo I'm Burning Star IV Volume One: From Fear Through the Eyes of Madness - Coheed and Cambria  
A Shipwreck in the Sand - Silverstein  
Coyote Gunfight - Dynamite Thunderpunch  
Watershed - Opeth  
Exoplanet (Redux) - The Contortionist  
Grow - Chon  
Wish You Were Here - Pink Floyd  
A Wizard, A True Star - Todd Rundgren  
Images and Words - Dream Theater  
New Levelas New Devils - Polyphia  
This is Not - Croix