

A Train Station for Downtown Blacksburg, Virginia

An Analysis of Blacksburg's Urban Condition and the Insertion of a New Defining Landmark



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An Analysis of Blacksburg's Urban Condition and the Insertion of a New Defining Landmark

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Abstract

Downtown Blacksburg, Virginia, is defined by the presence of the town's original sixteen blocks, situated in a four x four square gridded arrangement. The edges of the downtown area are loosely bounded by unique natural and architectural markers and by rules for urban development that contribute to the architectural vernacular of the town. Public spaces are activated by the company of these markers, and sometimes by the repudiation of the urban rules, and thus a secondary reading of public occupation within the downtown sphere manifests itself. This thesis project attempts to identify and analyze the rules and characteristics of Blacksburg's urbanity and to project those rules into a new feature of the downtown foursquare grid. A train station that occupies the vicinity of the historic "Huckleberry" rail line characterizes, defines, and augments the public regions of downtown Blacksburg.

Dedication

Thanks to my family for always supporting my many endeavors, and for always encouraging me in my studies.

Thanks also to my committee for offering wisdom, critique, and guidance throughout the thesis process.

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*unless otherwise labeled, all images are original work by the author



Figure 1: Train Routes Throughout the New River Valley.

Figures of Blacksburg, Christiansburg, and Radford. Existing train routes and proposal for a new Blacksburg route indicated in light and dark orange, respectively.

Introduction

This thesis project began with my budding interest in trains and their historic links to many American towns. Train travel is a dwindling institution in America, surpassed by automobiles and air travel in convenience and popularity, but trains still captivate the imagination and the human spirit. No other mode of transportation captures as colorfully the notions of **Journey**, **Passage**, **Destination**, or **Arrival**. Train stations can also inject dynamism into the cities in which they are located, and it is for this reason that I was drawn to the program of a train station for Blacksburg.

Although no longer in existence, Blacksburg's original "Huckleberry" train station has indelibly marked the town's center and indirectly shaped the urban development of the downtown area. At the intersection of Clay St and Draper Rd, and marking the southernmost corner of the 4-square downtown grid, lies the mouth of the Huckleberry Trail, a biking path that now follows the route of the old rail lines. The new public library, the police station, and the Town Hall buildings stand sentinel over the site of what used to be a bustling center of downtown activity. The Huckleberry Trail bounds Blacksburg's residential district and creates a barrier that separates it from the activity of the campus and downtown.

It was an obvious decision for me to reinstate a new train station into downtown Blacksburg at the site of the original. As my thesis project progressed, it was important to me that any new proposal would further define and delineate the downtown territory of Blacksburg. The analysis of the existing urban conditions drove the development for the train station, and design decisions (such as site selection and formal requirements) were made according to the present urban rules. Cities can only become dynamic places if their public spaces are appreciated and nurtured, and although designing a train station was originally intriguing to me, the architectural program ultimately took a secondary relevance to the investigation of urban principles and public space. Through the examination and creation of architecture I began to understand what qualities exist to make downtown Blacksburg unique.

Analysis of the Macro-Urban Fabric of Blacksburg

Blacksburg can be easily and simply divided into three different zones of urban occupation: The Campus Zone, and its requisite external facilities and properties; The Downtown / Main St. Zone, including the majority of Blacksburg's civic and commercial institutions; and The Residential Zone or Zones. Because of Blacksburg's small size (fewer than 20 square miles), but relatively large population, the three zones must abut one another to accommodate the town's many functions. The relationships of proximity between the zones allow for transitional nodes to occur within the urban architectural fabric, at which points the particular conditions of public occupation take on unexpected characteristics. Areas of particular interest where the three zones interact include the stretch of Main St between Price's Fork Rd and Miller St, the intersection of College Ave and Main St, and the corners of the 4-square downtown grid.



Figure 2: Transitional Nodes between Campus, Downtown, and Residential Zones. Relative significance of nodes is indicated by size.

From left to right: Figure 3: Map of Campus Zone;
Figure 4: Map of Downtown / Main St Zone;
Figure 5: Map of Residential Zone.

Although each zone is distinct from the others, the zonal boundary lines are often shared or overlapping.

Opposite page: Figure 6: Overall Map and Figure Ground of Blacksburg.

Proposed train station site and Huckleberry Trail route are indicated. The new station occupies the corner of the downtown 4-square grid, perpendicularly situated in relation to Main St, where the edge of the Residential Zone meets the Downtown / Main St Zone.

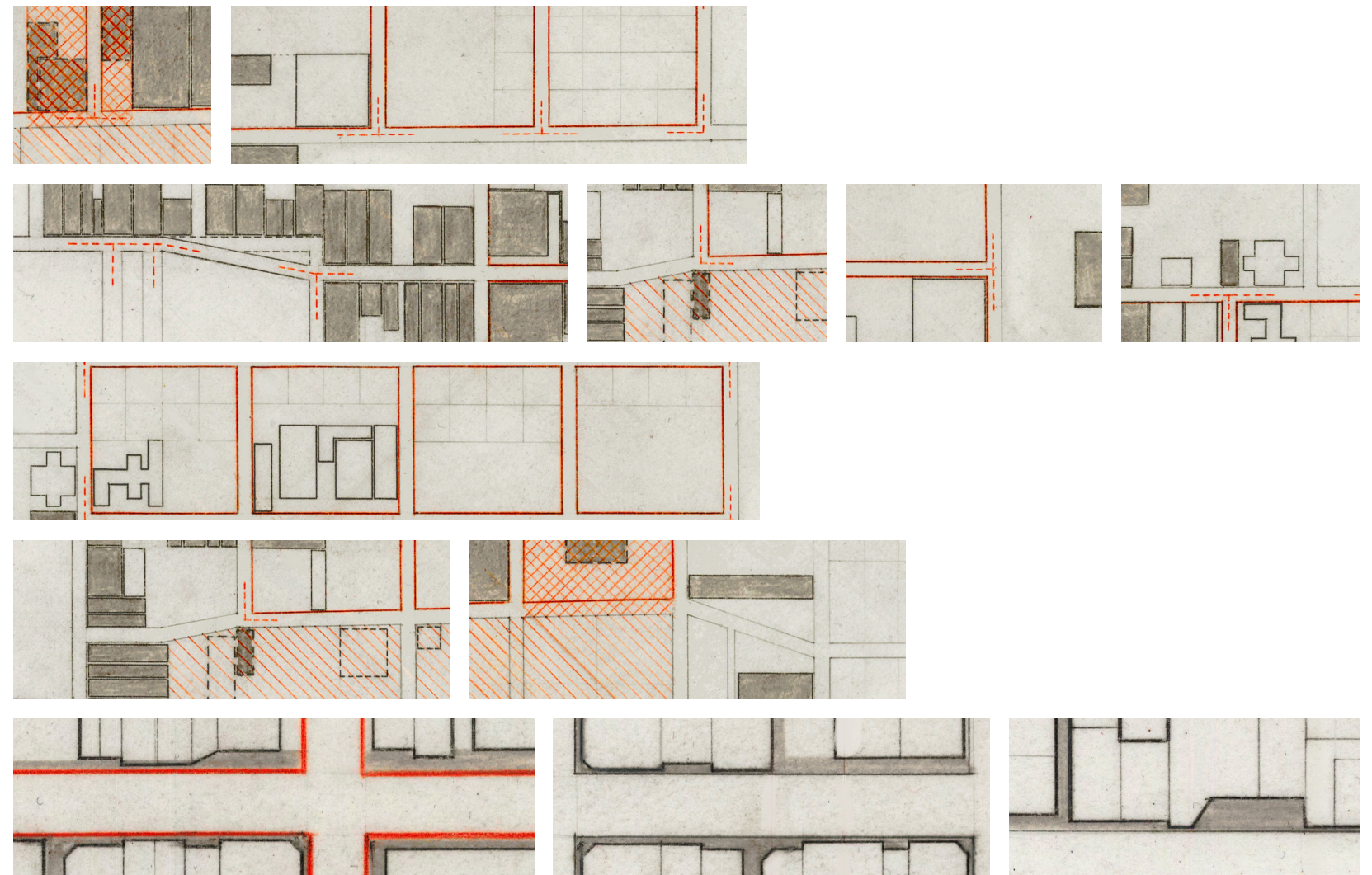




Analysis of Downtown 4-Square Grid and Main St's Urban Wall

During Blacksburg's founding, the city was arranged in a 4-square grid situated at an approximately 45 degree angle to accept sunlight and bounded by the underground streams that shape the natural landscape. The blocks were quartered and given over as property lots to agriculturalists. As the town expanded in size, new blocks were extended around the territory of the original 4-square, although the original 16 blocks remain in existence amongst the defining markers of Downtown. The bounds of the 4-square are passively identifiable by such urban features as T-intersections, street ending facades, quartered lots, and diverted directionality of roads.

Main St remains the most prominent identifier of the downtown zone. The densely spaced building facades that line Main St create an "urban wall" that is immediately recognizable and unique to downtown. Edged by the sheer façade wall, a public room for human interaction is thus created in the streets and sidewalks. At points of intersection, cornered facades or recessed entries redirect the meandering flow of pedestrians against the gridded structure of the downtown blocks, and further define the squares of space created in street intersections.



Figures 7 & 8: Detail of T-square Intersection

Figures 9, 10, 11, & 12: Detail of Street Ending Facades

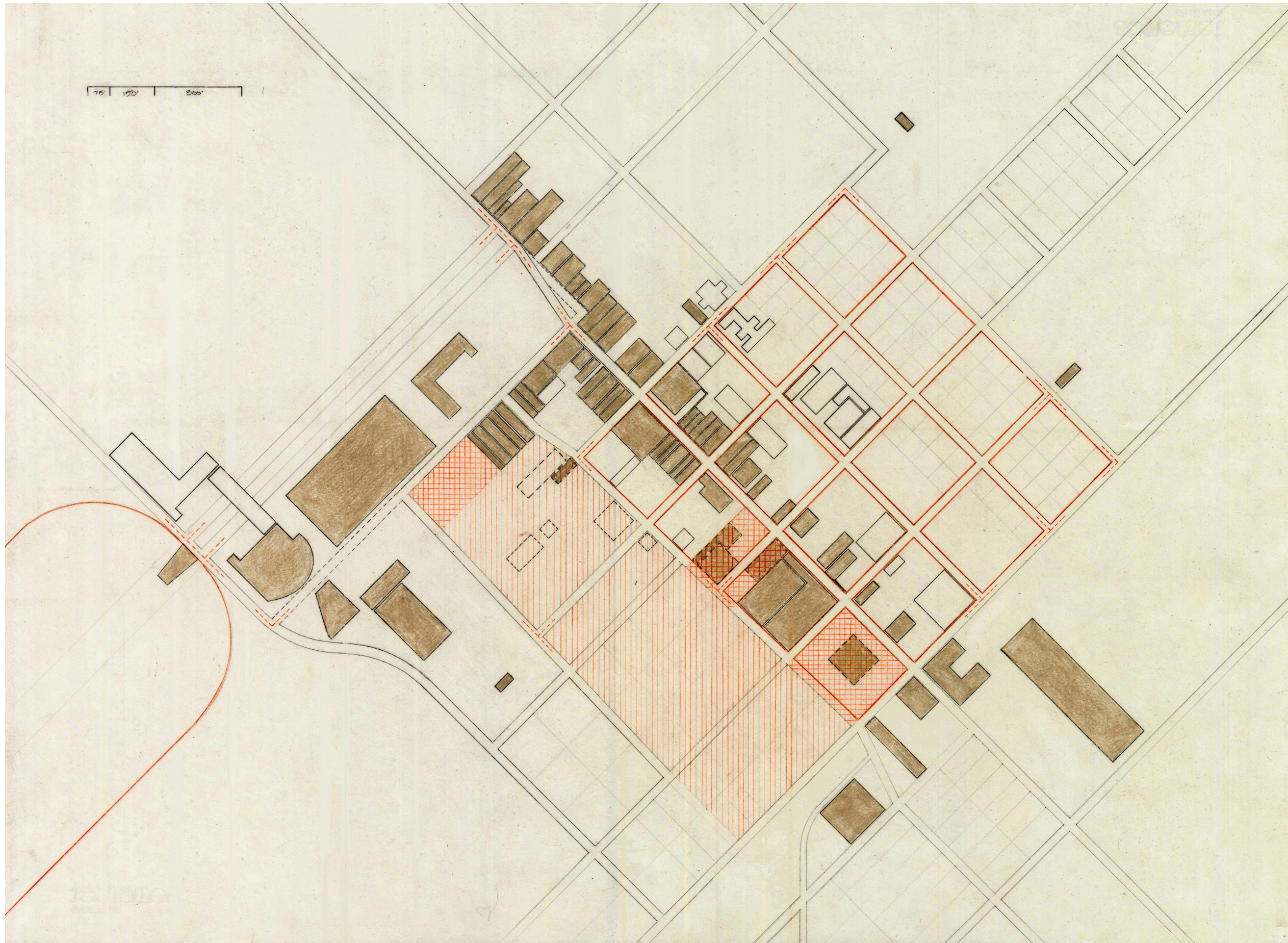
Figure 13: Detail of Quartered Lots

Figures 14 & 15: Detail of Redirecting Roads

Figures 16 & 17: Detail of Cornered Facades and Recessed Entryways

Details taken directly from map drawings and represent the urban markers that define the Downtown Zone.

Opposite page: Figure 18: Overall Map of Downtown Blacksburg. Plan of Downtown Zone including the direct and indirect urban markers that form the boundaries of the 4-square grid.



Analysis of Interstitial Alleys and the Shifting of Facades

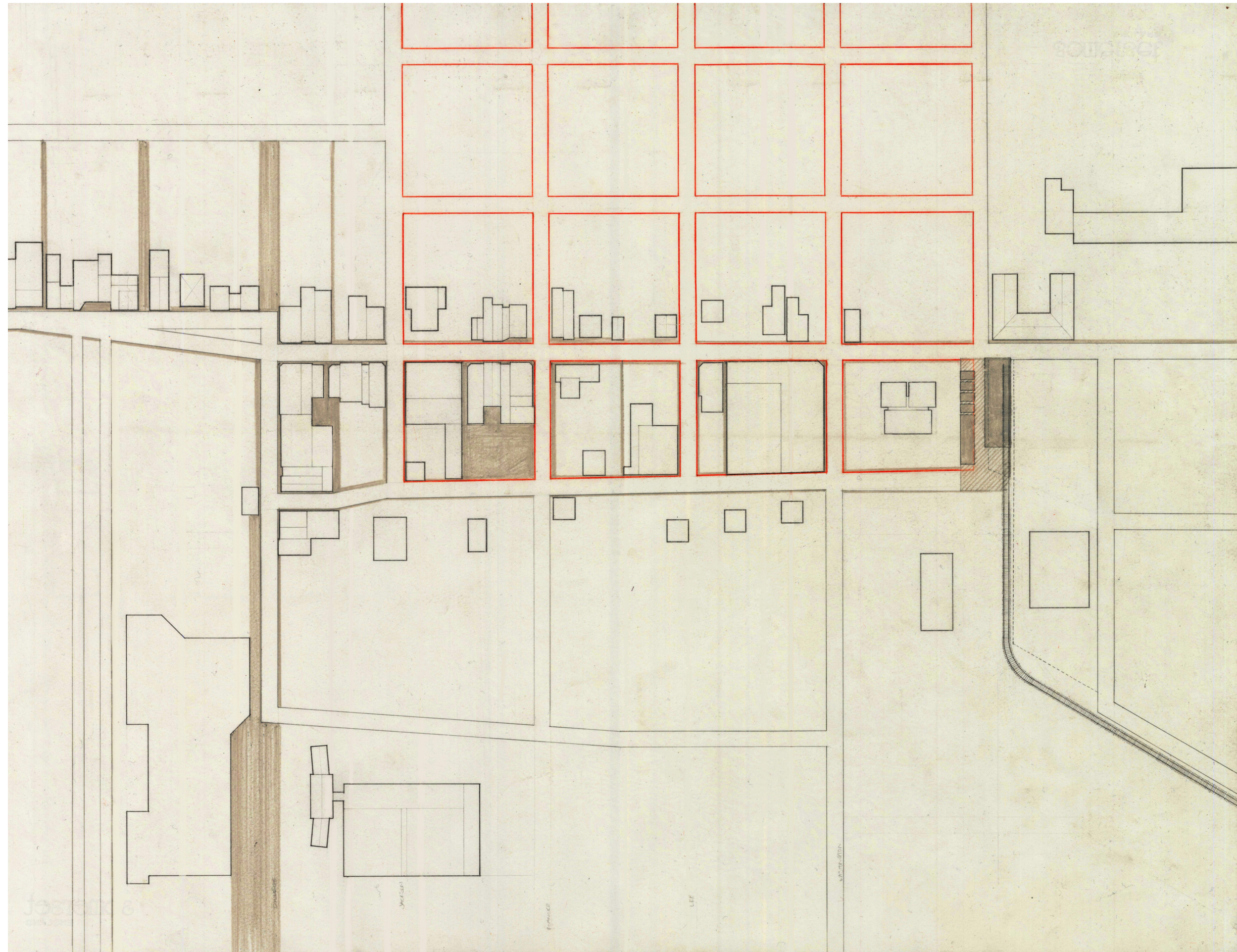
In certain instances along the length of Main St, the monolith of the urban facade wall is broken and secret public spaces are revealed in the gaps between buildings. These unintentional “alleyways” allow the itinerary of pedestrian traffic to change course and filter through the centers of city blocks. Many students and residents use these interstitial spaces as shortcuts or as peaceful meeting places within downtown. It is often the case that the secondary passages are preferable to the formal primacy of Main St. The tension between the two scales of downtown public space arises from their inextricable links to one another.

Identifying the location of Blacksburg’s underground public spaces requires a critical look back at the subtly shifting facades along Main St. Where the urban density of buildings lessens, interstitial spaces are allowed to surface and the depth of the city blocks becomes apparent and habitable. As the façade wall of Main St creates a primary stage for public activity, the receding facades of distant buildings create secondary and tertiary stages that define dynamic internal spaces.



Figure 19: Main St Elevation. Section through topography of Main St. and projected elevations.

Opposite Page: Figure 20: Map of Main St and Draper Rd. Interstitial gaps and alleyways between buildings indicated with tone. Proposed train station and its internal public spaces included at Clay St and Draper Rd intersection and similarly denoted.



Progression of Site Selection

Downtown Blacksburg provides numerous opportunities for architectural intervention within the interstitial spaces of the 4-square blocks, particularly along Draper Rd. Although Main St is clearly delineated by its concentration of facades, Draper Rd takes on the peculiar feel of a back road. Draper Rd is technically closer in proximity to the Campus Zone and logistically closer to the transitional node of activity that occurs along College Ave, yet it has never developed of its own accord into an active part of downtown Blacksburg.

In order to capitalize on the potential of Draper Rd to become an active pedestrian zone, I chose a site that would strengthen the passive boundary markers of the 4-square grid and work within the unique urban principles of downtown Blacksburg. The grain of the urban fabric is conducive to scattering small insertions between existing buildings in order to “complete” the gaps of space in the block and reconstitute an urban wall. However, I ultimately selected the site on Clay St between Main St and Draper Rd because it offered a chance to inhabit the full depth of the city block. I was also able to create a dichotomy of defining facades at either end that could project the different urban conditions found at Main St and Draper Rd. By occupying the street space, the new train station proposal truncates the corner of the 4-square grid and thus reinforces the otherwise passive downtown boundaries. Pedestrians would be given sole use of the territory and could then reclaim the Draper Rd boundary.

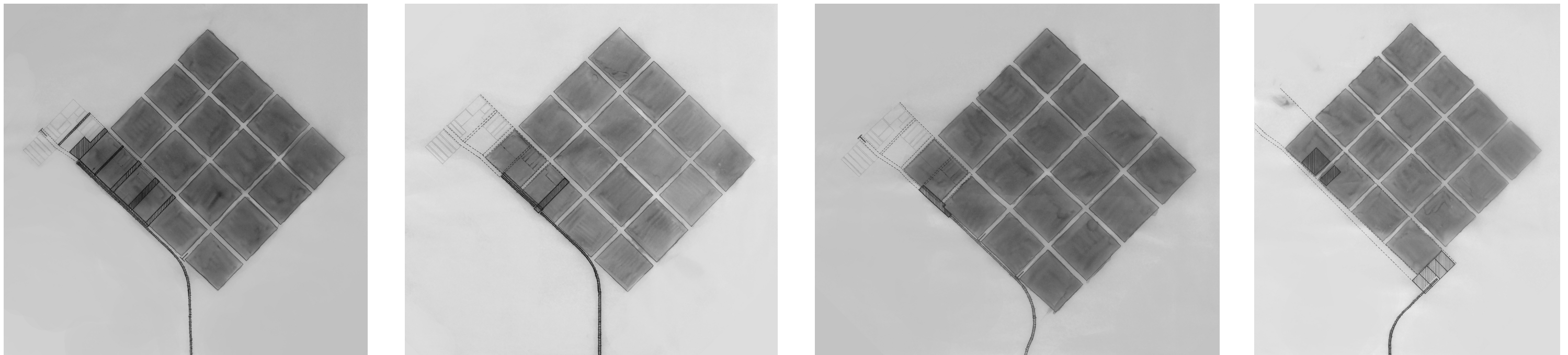
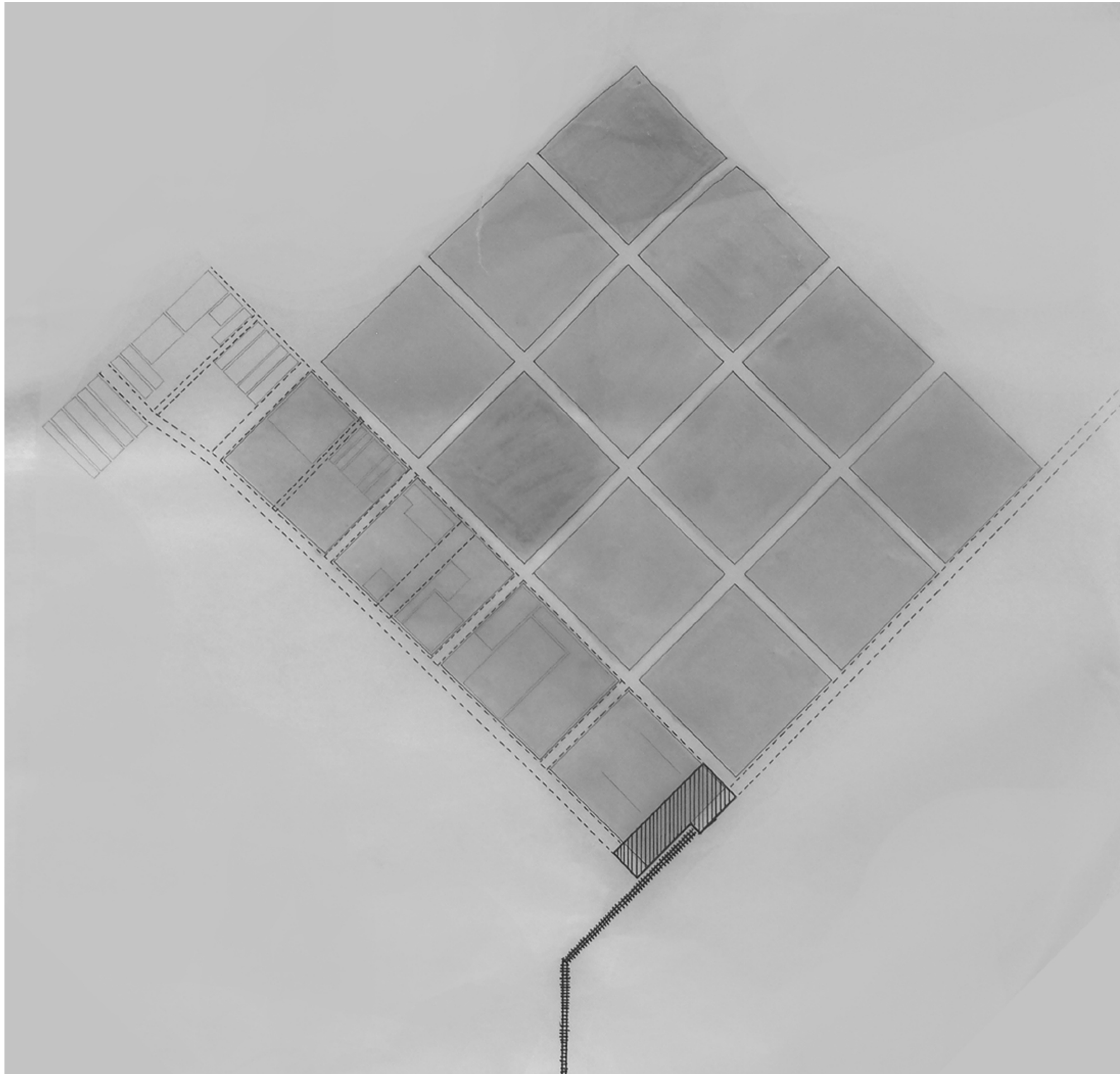


Figure 21: Progression of Site Diagram Sketches. Considered iterations of site planning

Opposite Page: Figure 22: Ultimate Site Diagram Sketch. Selected site located at street intersection of Clay St in between Main St and Draper Rd



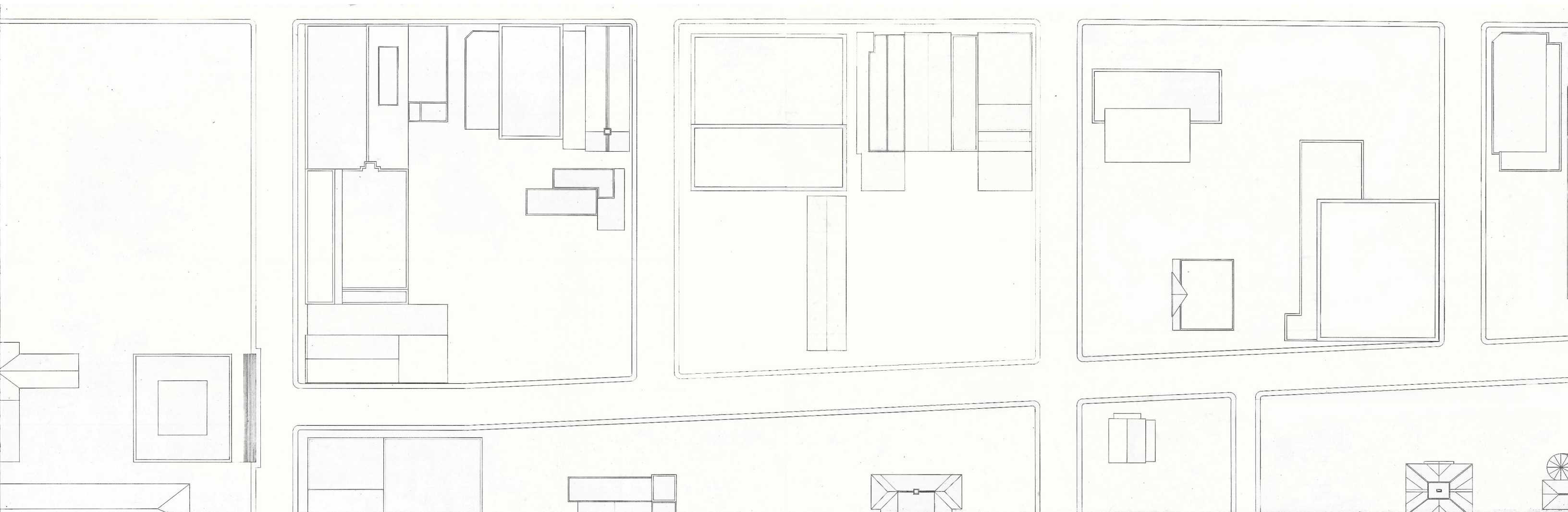
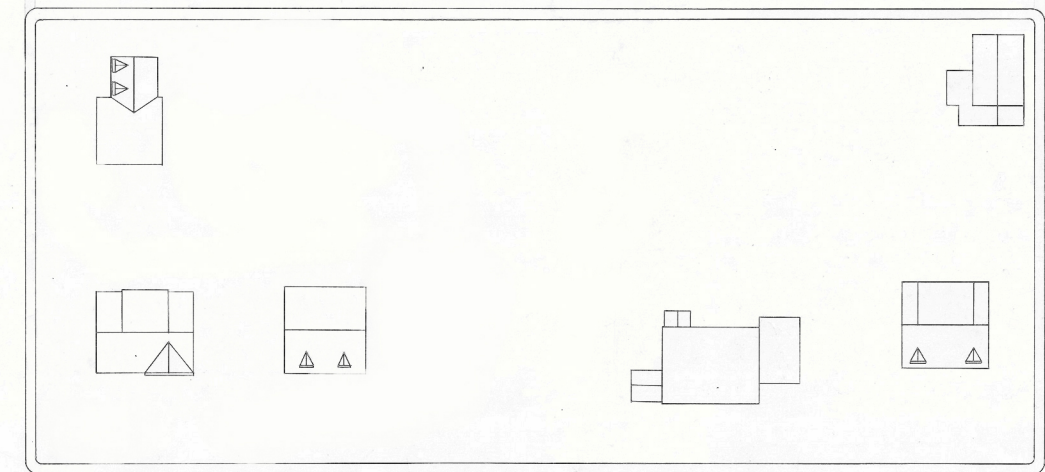
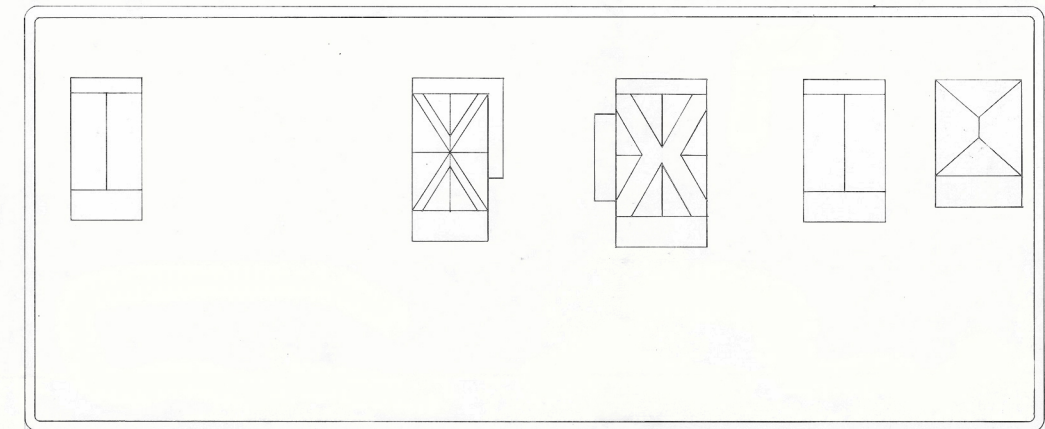
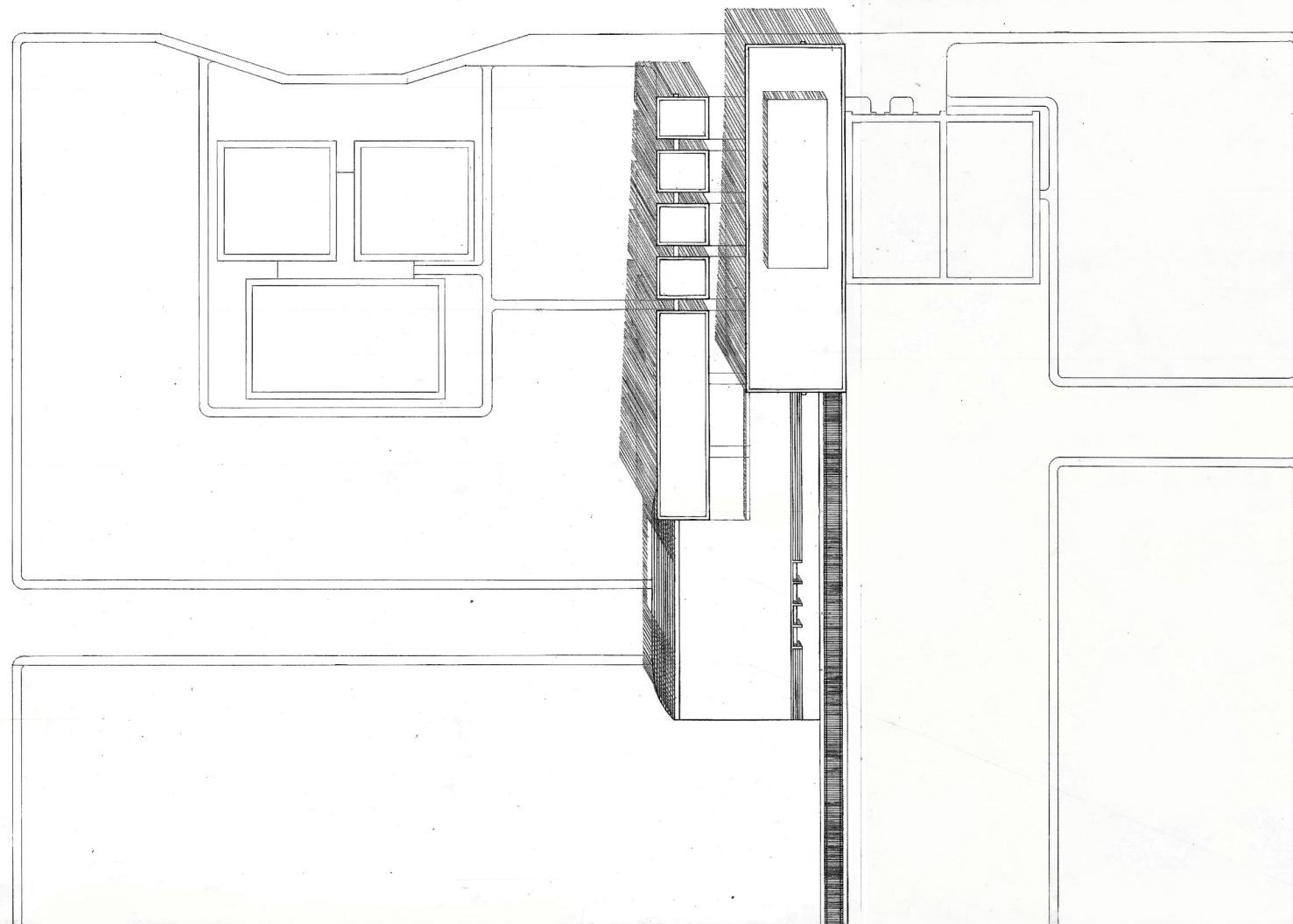
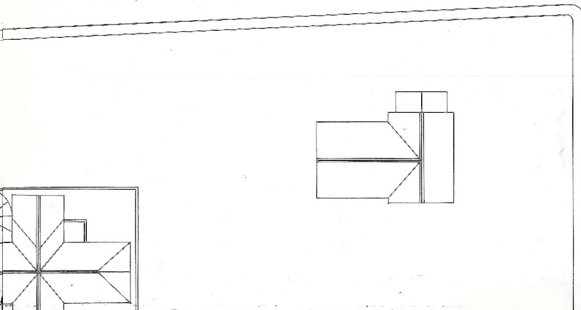
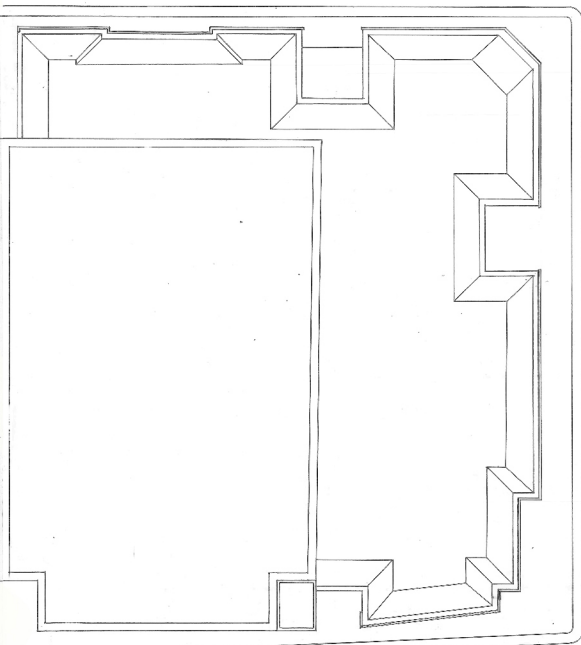


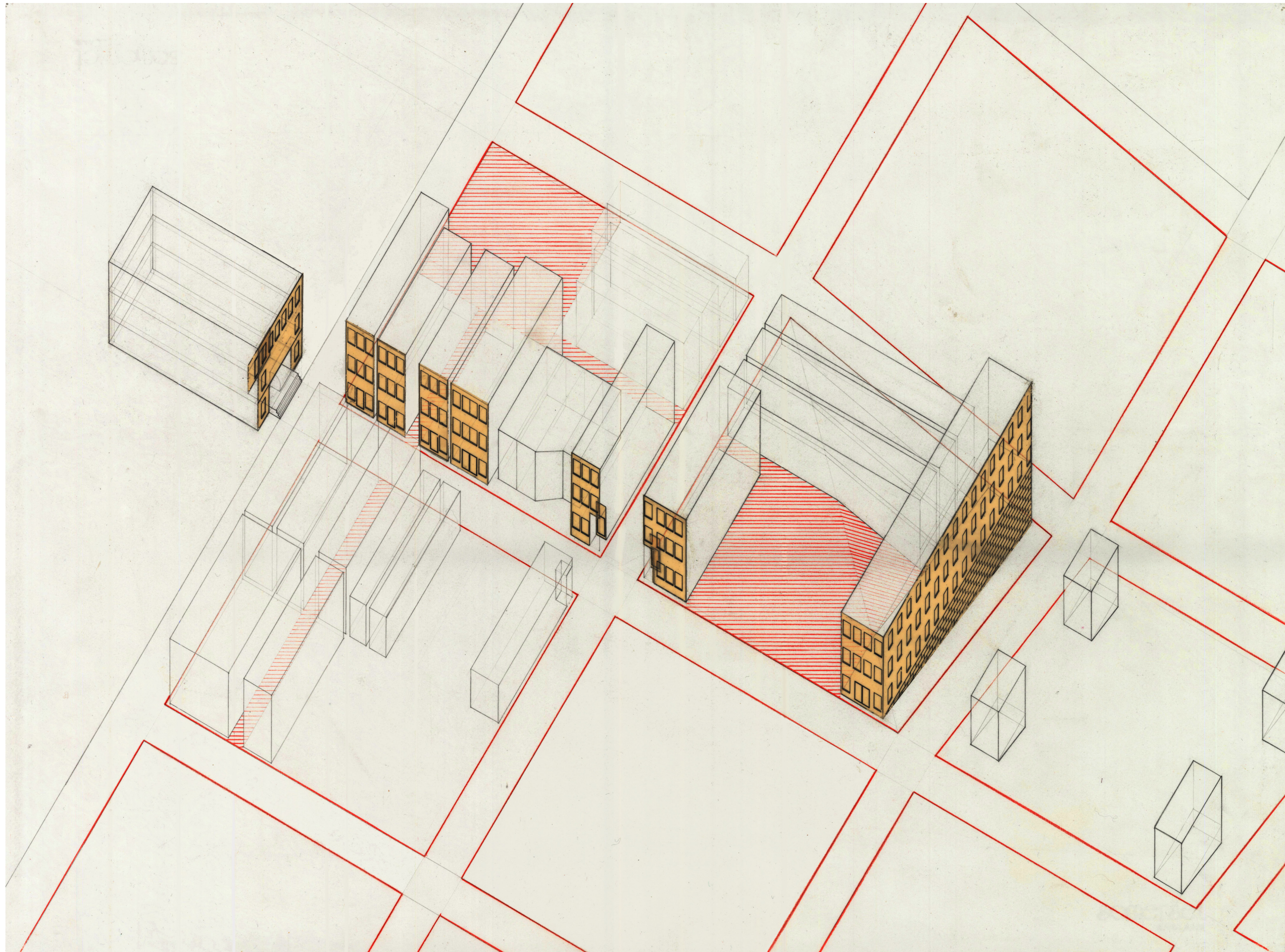
Figure 23: Plan of Draper Rd and New Blacksburg Train Station

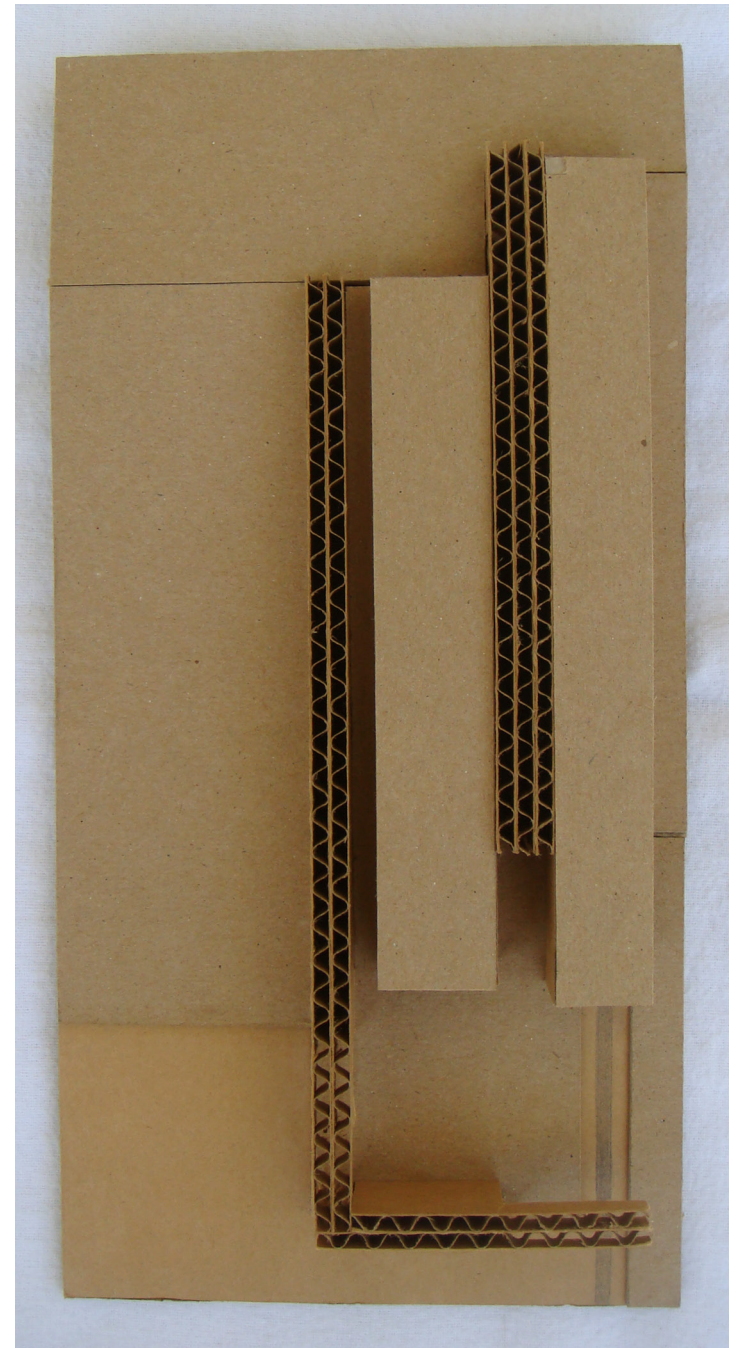
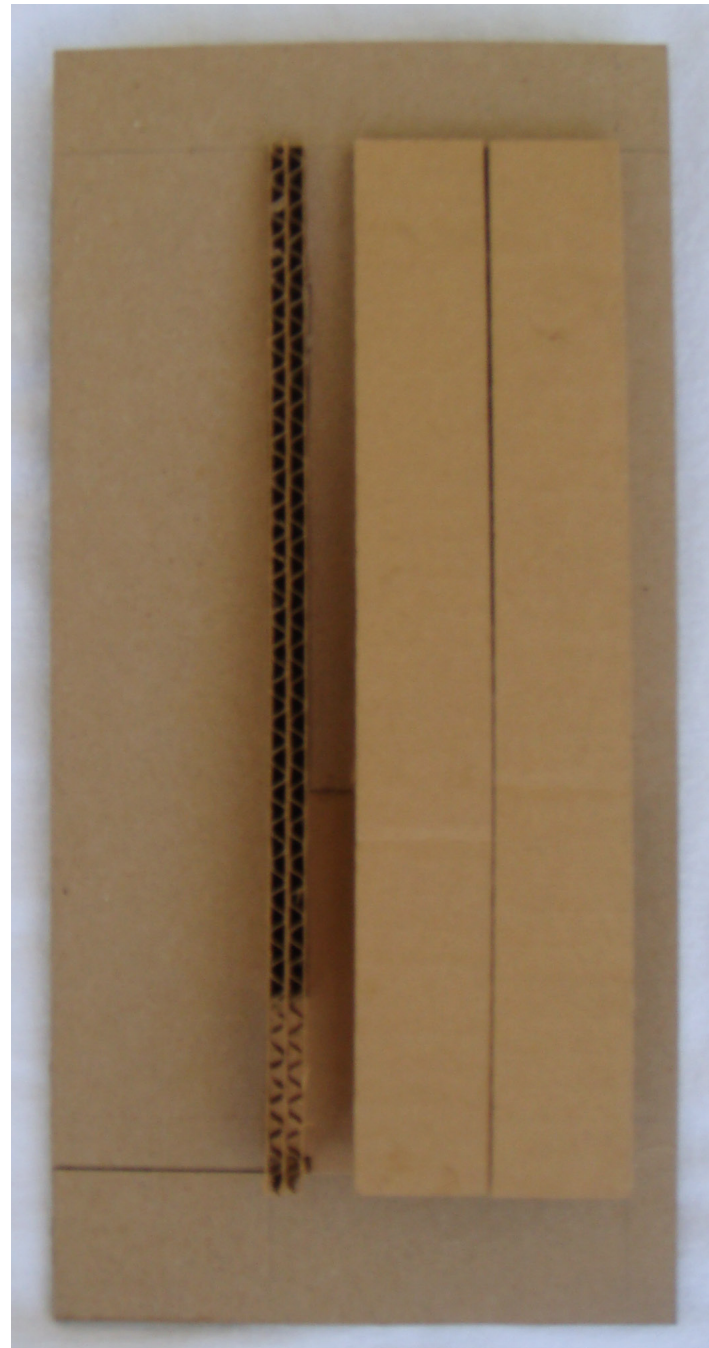
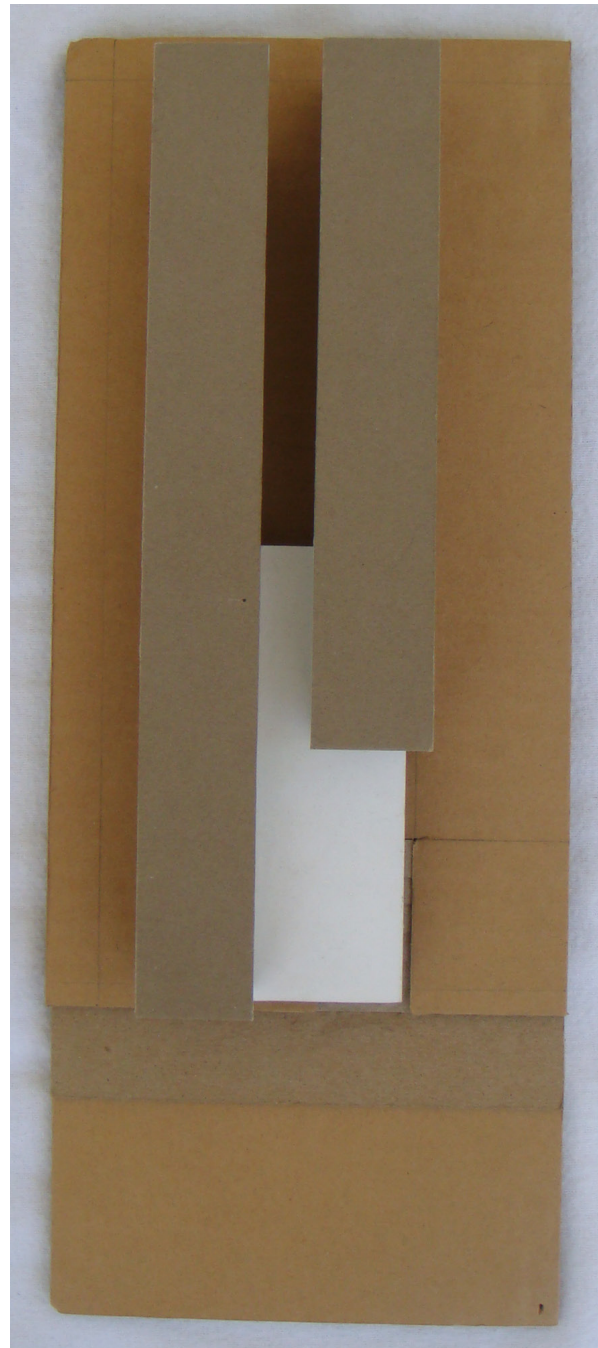
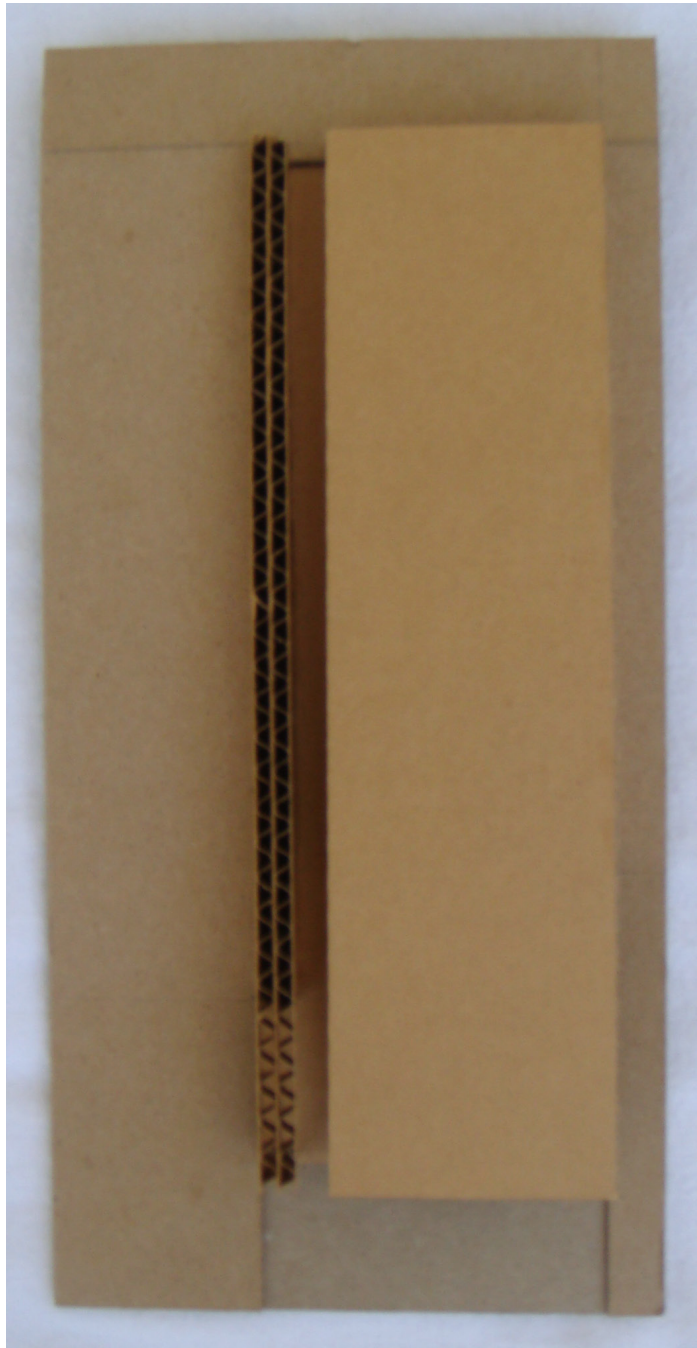


Formal Study of Downtown Buildings

In order to design a building that would fit into the vernacular of downtown Blacksburg, an investigation into urban form was required. The most noticeable shared characteristics of the buildings along Main St are decorative façades and geometries of proportion. A closer look at the general formal properties present along Main St. reveals that the buildings are simple multi story boxes that primarily engage pedestrians at the first floor façade. Although the buildings sometimes respond to changes in topography through the depth of the block, they typically have a front elevation situated in a strict perpendicular relationship to the directionality of the street they face.

Opposite Page: Figure 24: Axonometric Drawing of Typical Downtown Building Typologies.
Characteristic volumetrics, perpendicular relationships to street, and decorative facades.





Progression of Formal Development

Because the building facades along Main St are typically decorative, individual, and replaceable, no overarching formal theme exists that can be carried through to the new train station proposal. Rather, the typical volumetrics of the buildings along Main St and their relationship to the street space can be identified and projected into the new station. Buildings tend to be long, narrow, and uniform throughout the depth of the city block, and I continued this tendency through multiple formal studies and iterations. I ultimately decided upon a pair of shifting volumes separated by an interior ramp that descends through the station with the natural topography of the site. Similar to shotgun style row houses, where the favored living spaces occur along the side yard, the internalized facades of the volumes activate the ramp as the main public “street” within the station, giving primacy to the interior spaces over the front courtyard along Main St.

Opposite Page: Figure 25: Progression of Formal Models.

Multiple iterations of volumetric arrangements and spatial relationships.

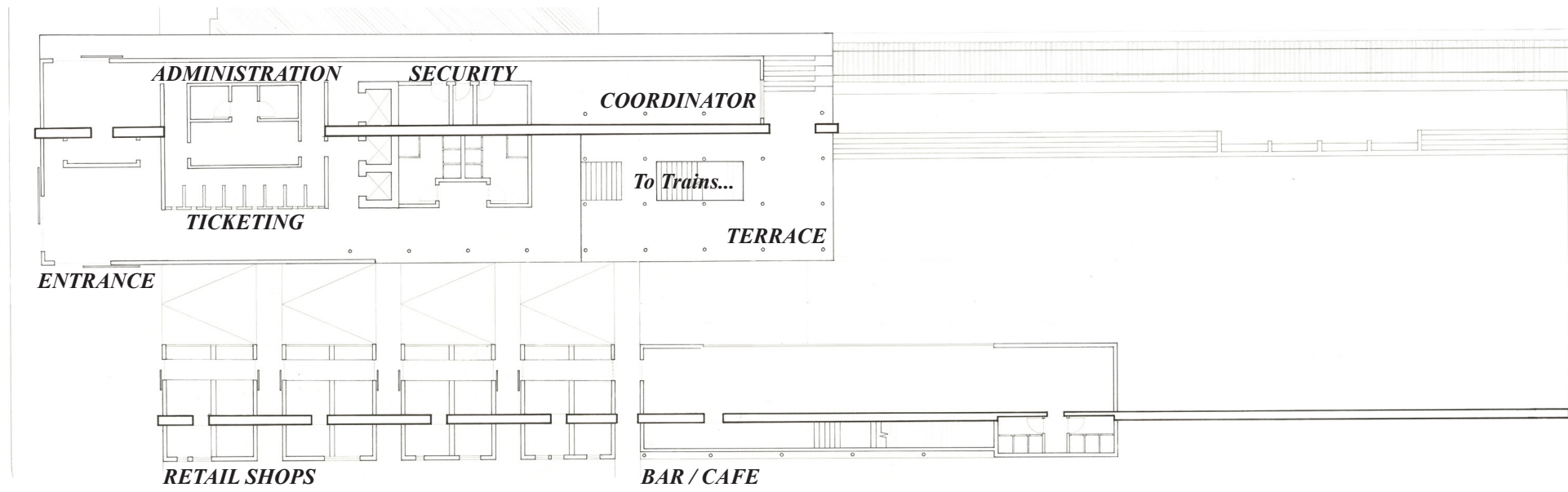


Figure 26: Plan of Building Program. Program of spaces identified.
Opposite Page: Figure 27: Axonometric Drawing of Train Station.

Discussion of Train Station Program

The program of the train station took on secondary relevance to the success of the project as the thesis developed into an investigation of downtown Blacksburg’s urban principles and the projection of those principles into new public spaces. Rather, the program and function of the train station spaces serve the broader goal of creating a dynamic public space internalized within the station.

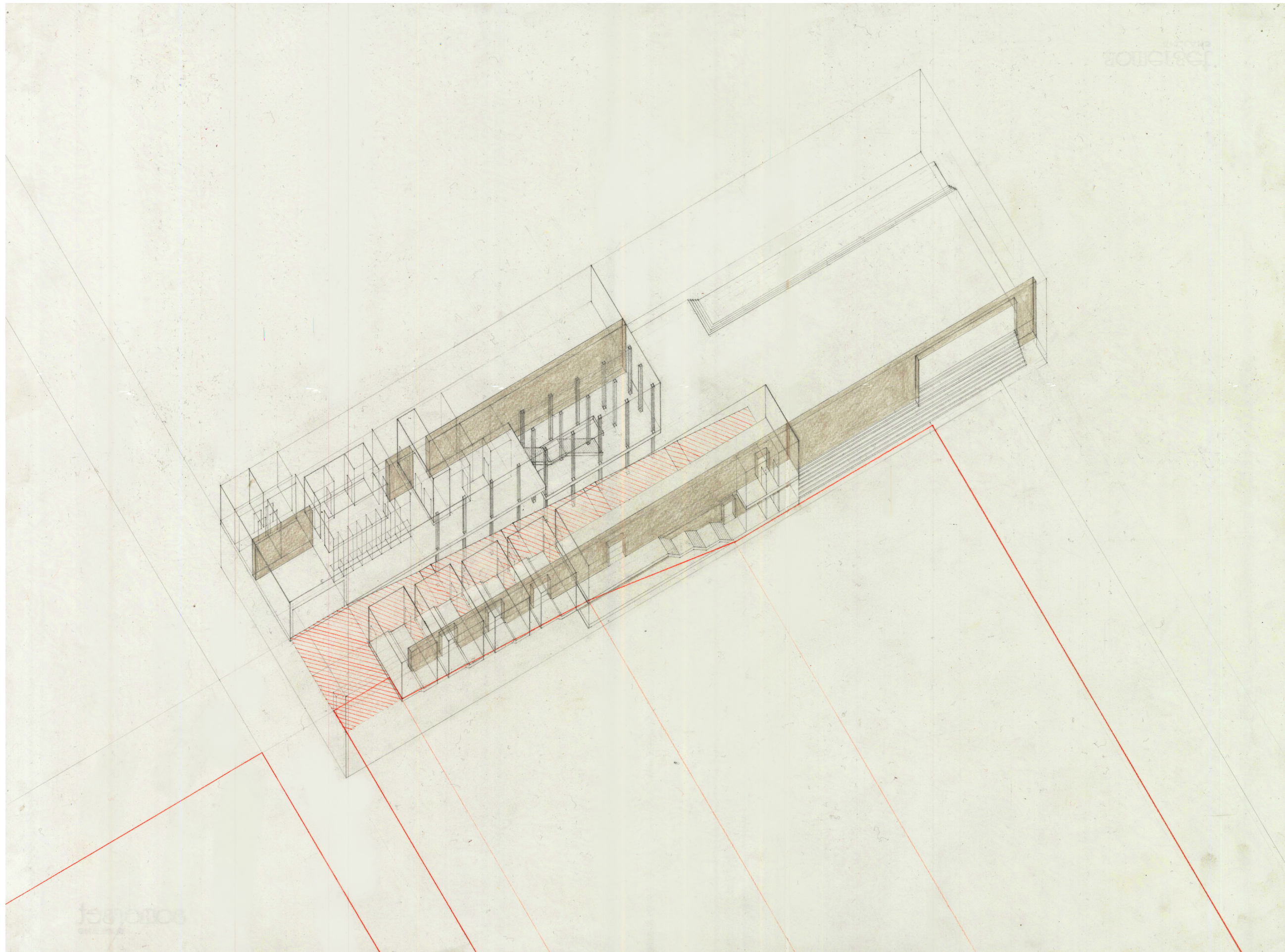
As pedestrians approach the train station from Main St, they are confronted by the facades of two volumes and a small courtyard space between them. The volumes are each structured around a monolithic concrete wall contained within the spaces and protruding slightly through the façade, and distinguished by a uniform curtain of terra cotta louvers that filter vision through to the interior. A ramp descends from the front courtyard between the volumes and links the elevations of Main St and Draper Rd.

The entry ramp that descends from the Main St façade through the length of the train station is the most active public space found in the new station design. The ramp acts as an extension of the street space found in the 4-square grid, although at a smaller “human scale” that is inhabitable only by pedestrians. Flanking the sides of the ramp and facing internally are a collection of retail spaces and a two-story bar and café. The shop fronts face inwards towards the main ramp to create an “urban wall” within the station that mimics the function of street façades found elsewhere along Main St. At the bottom of the

ramp, pedestrians are confronted with an open space defined solely by a large wall and a picture window overlooking Draper Rd that faces back towards the 4-square downtown blocks.

Another building along the opposite side of the ramp houses the service spaces of the train station. The main entrance of the building is accessed through the front courtyard found on Main St, and leads to the ticketing area within the station. Continuing through the building along the length of the ramp, pedestrians are led through a columned space to a terrace that overlooks the train platform at the level of Draper Rd. A stair case brings pedestrians from the terrace to the platform level. This spatial itinerary is structured by the length of the monolithic concrete wall that runs through the building. Located on the opposite side of the wall are the train station’s servant spaces, including administrative and security offices, maintenance and storage, and the train coordination hub.

The approach to the train station from Draper Rd is less formal. The station is sited at the southernmost corner of the 4-square grid and extends into the street space of the Draper Rd and Clay St intersection. The road is thus truncated to car traffic by the existence of the station’s monolith wall and its picture window entrance. A cascading stair case spreads across the entire length of the wall at the intersection and serves a double purpose: it acts as the entrance point for pedestrians arriving at the station from the Draper Rd promenade, and provides a seating area and meeting place for the public arena of the train station.



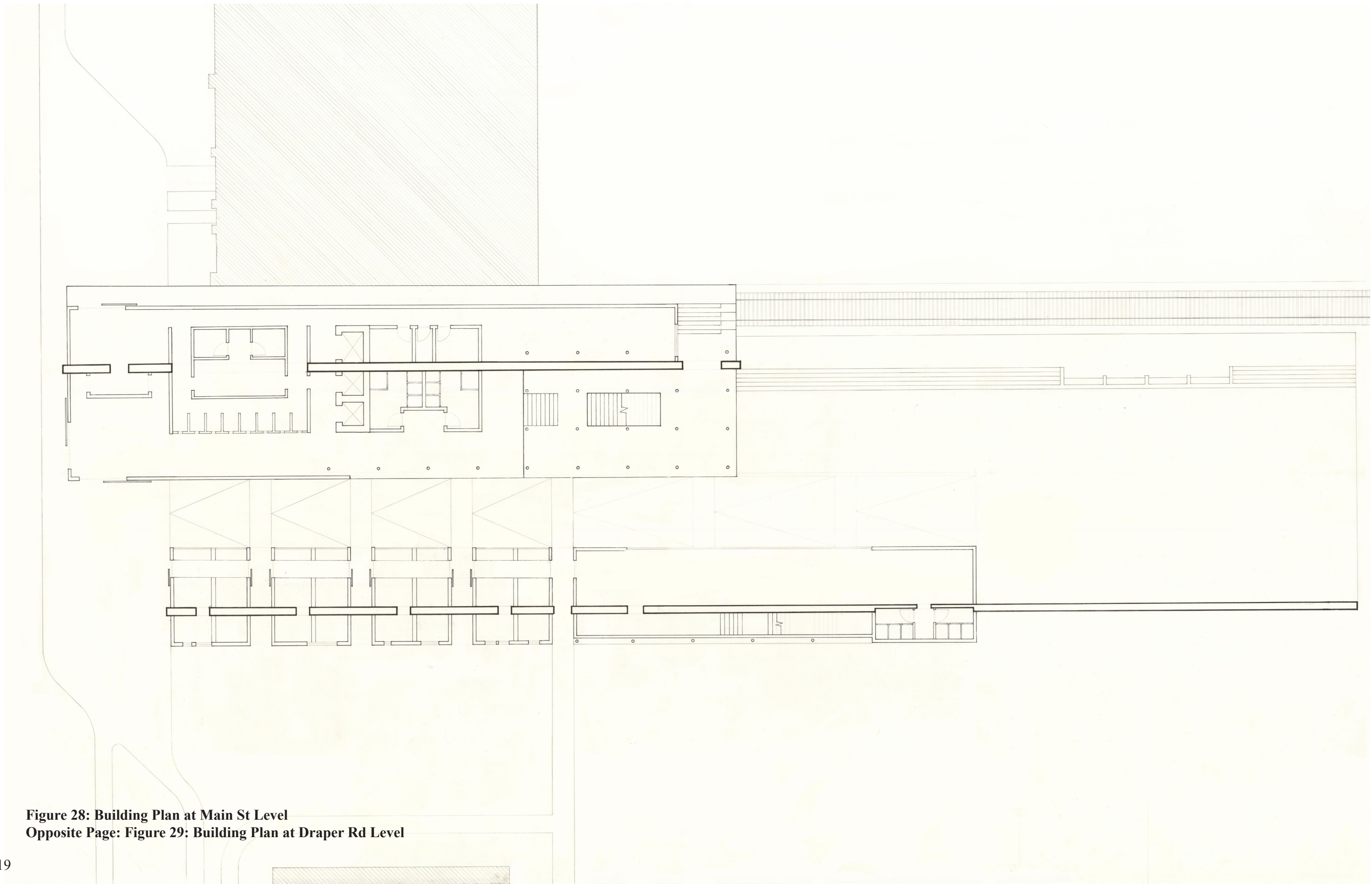
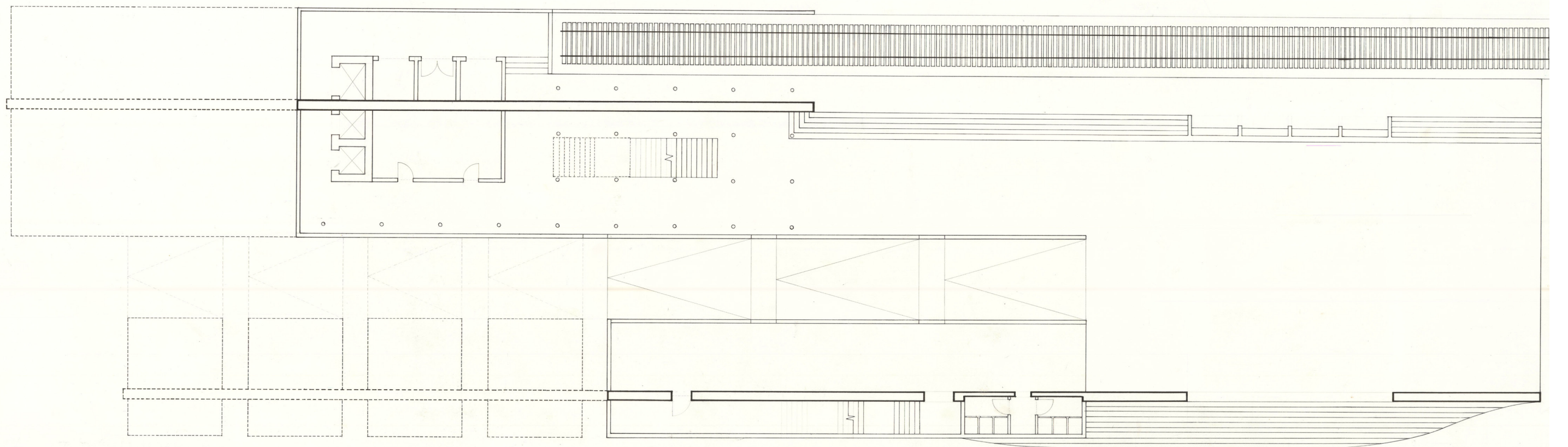


Figure 28: Building Plan at Main St Level
Opposite Page: Figure 29: Building Plan at Draper Rd Level



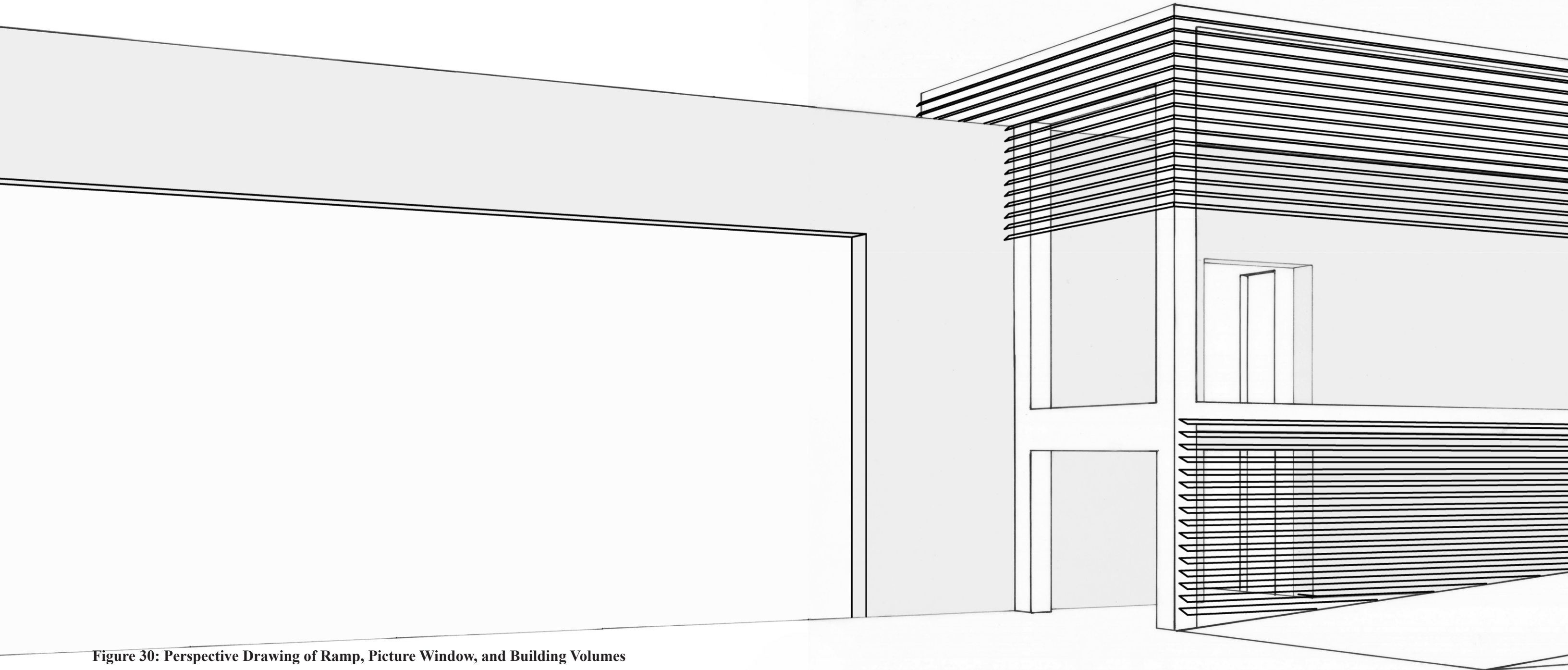
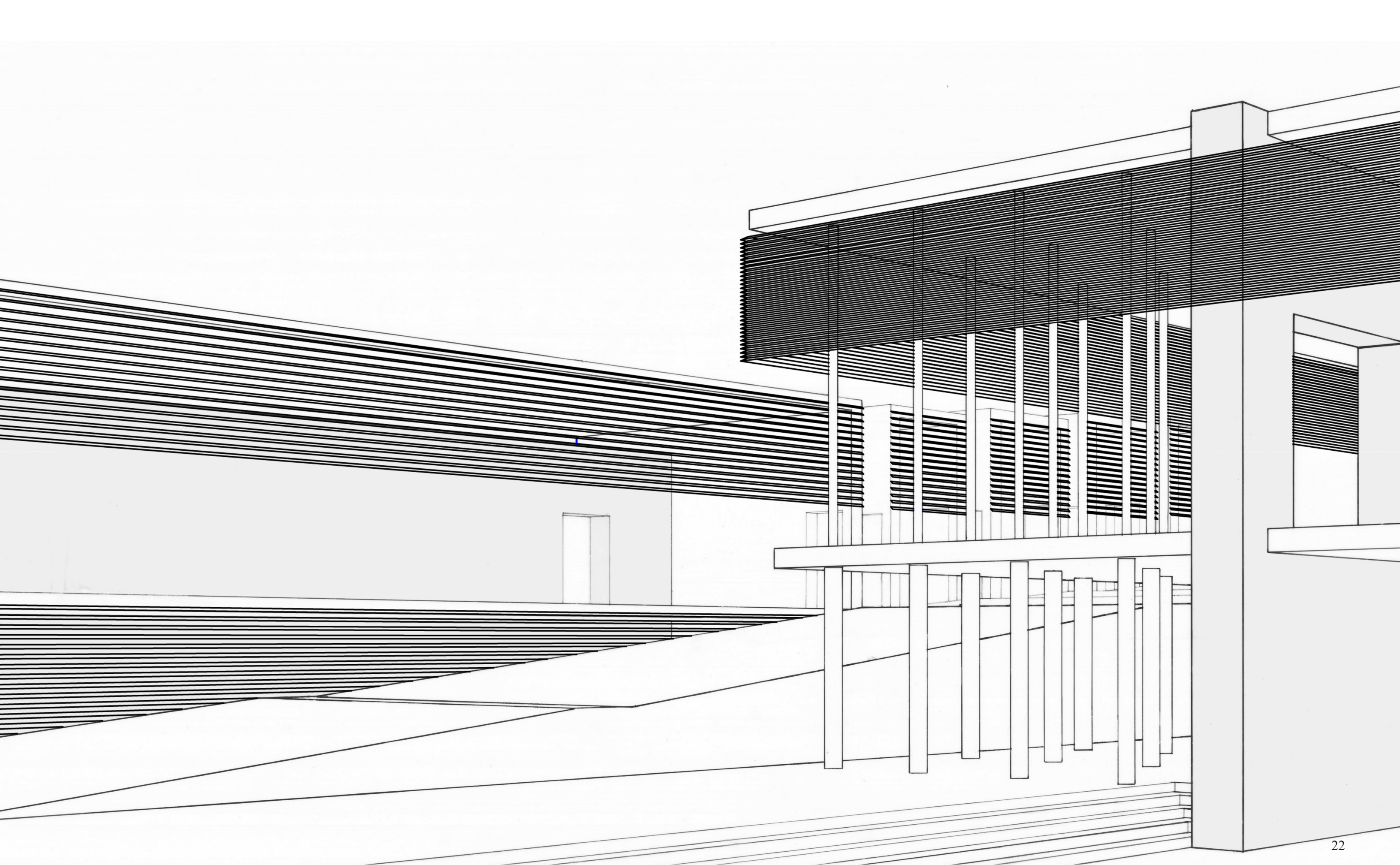


Figure 30: Perspective Drawing of Ramp, Picture Window, and Building Volumes



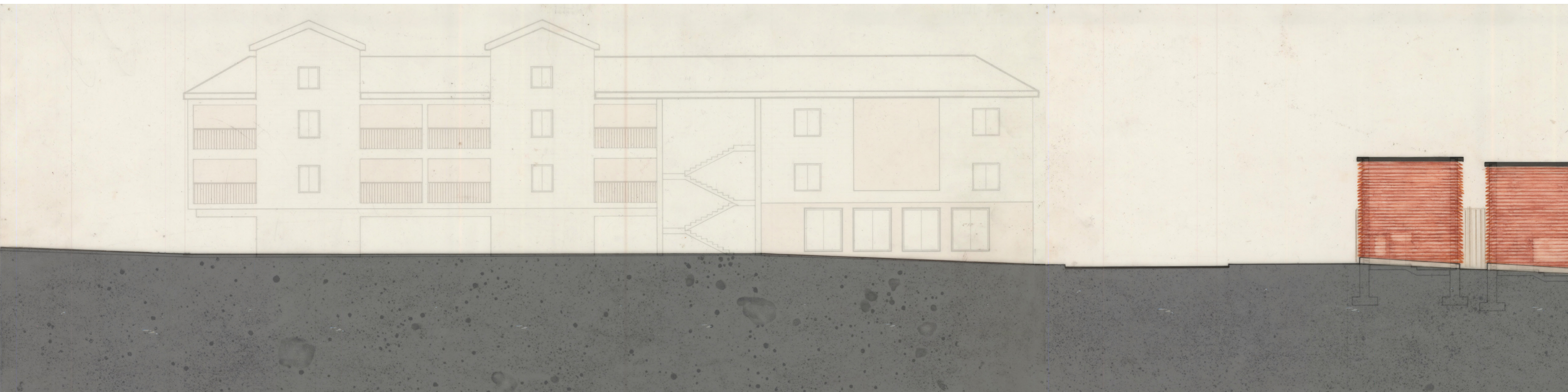
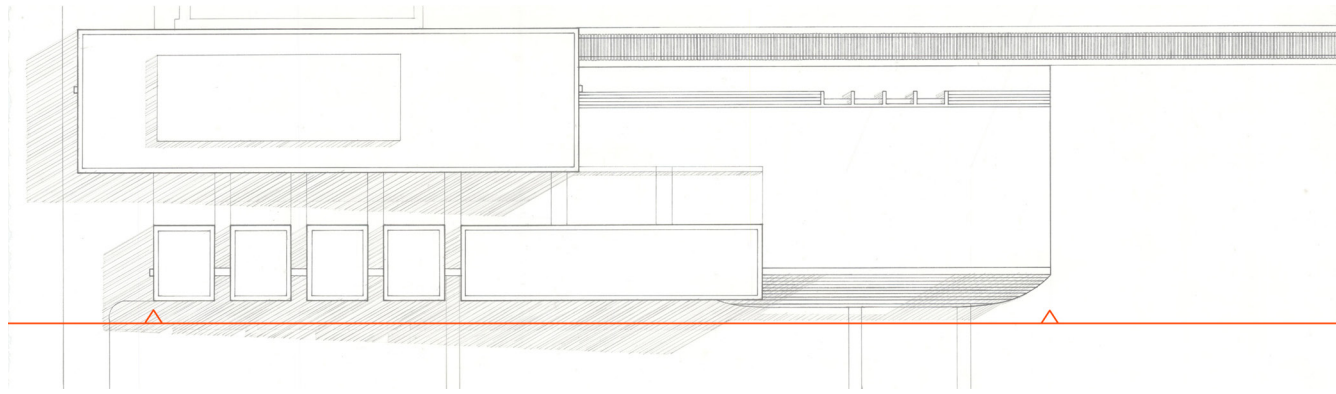
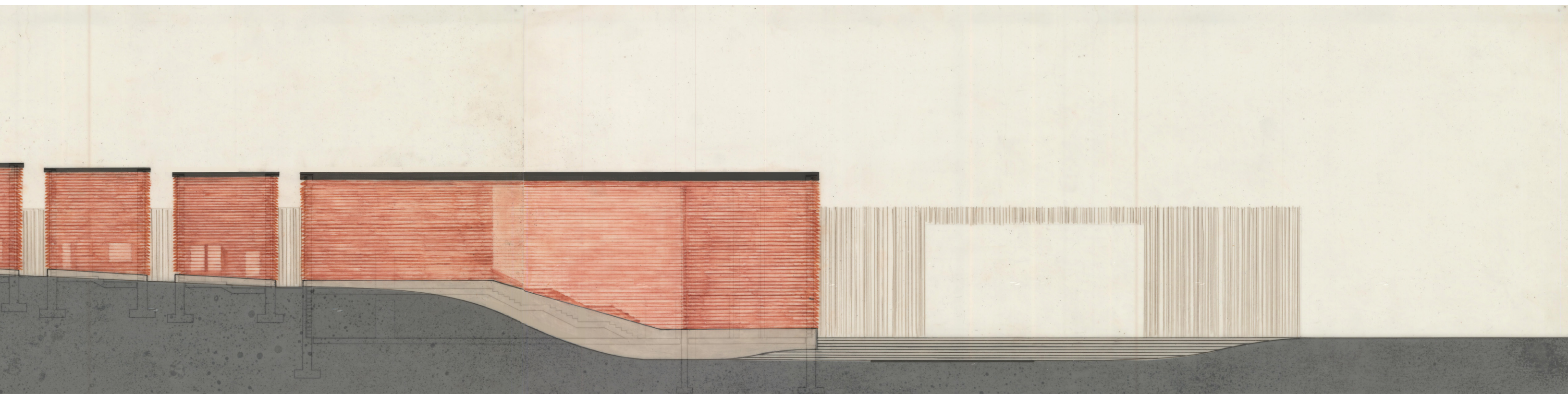


Figure 31: Elevation 1



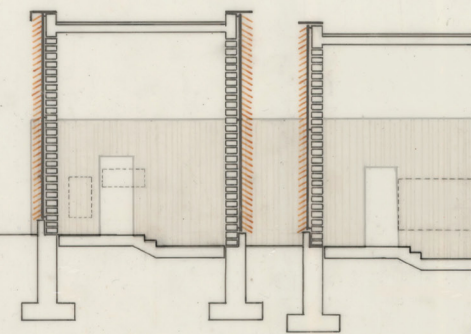
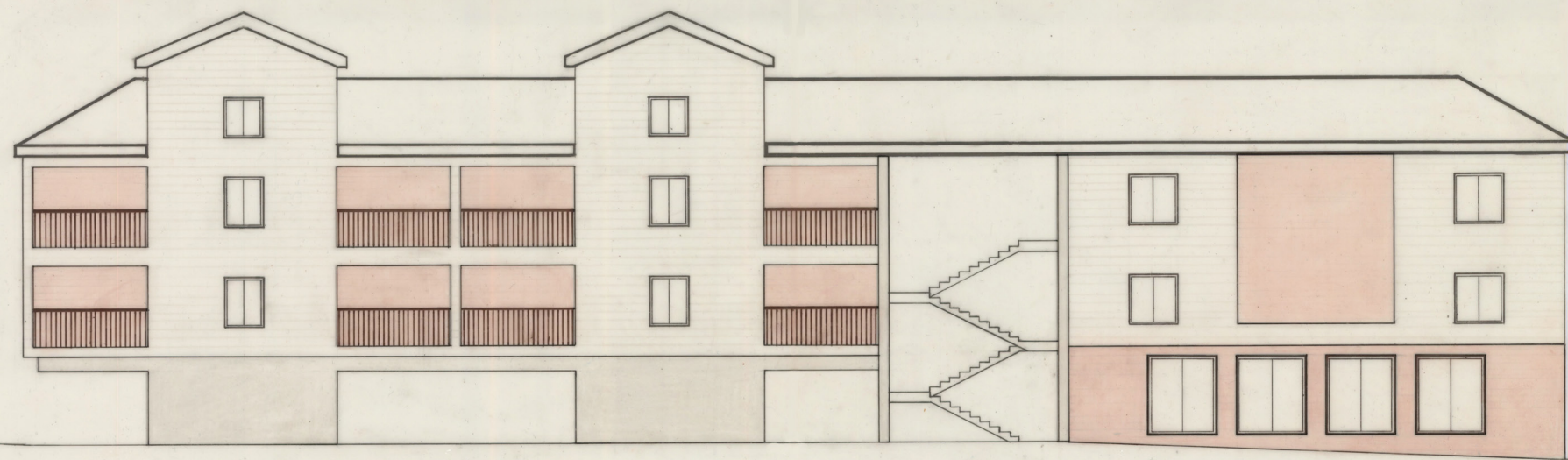
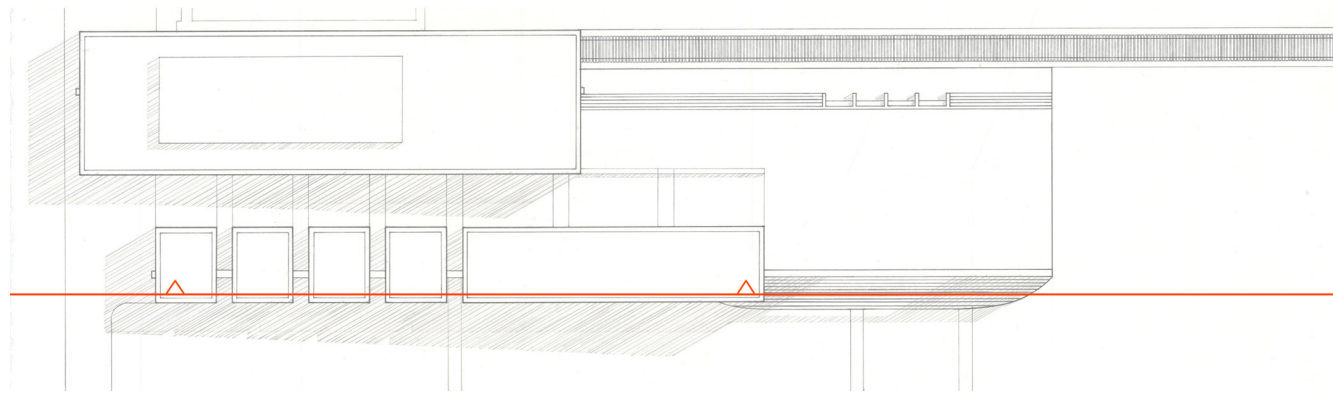
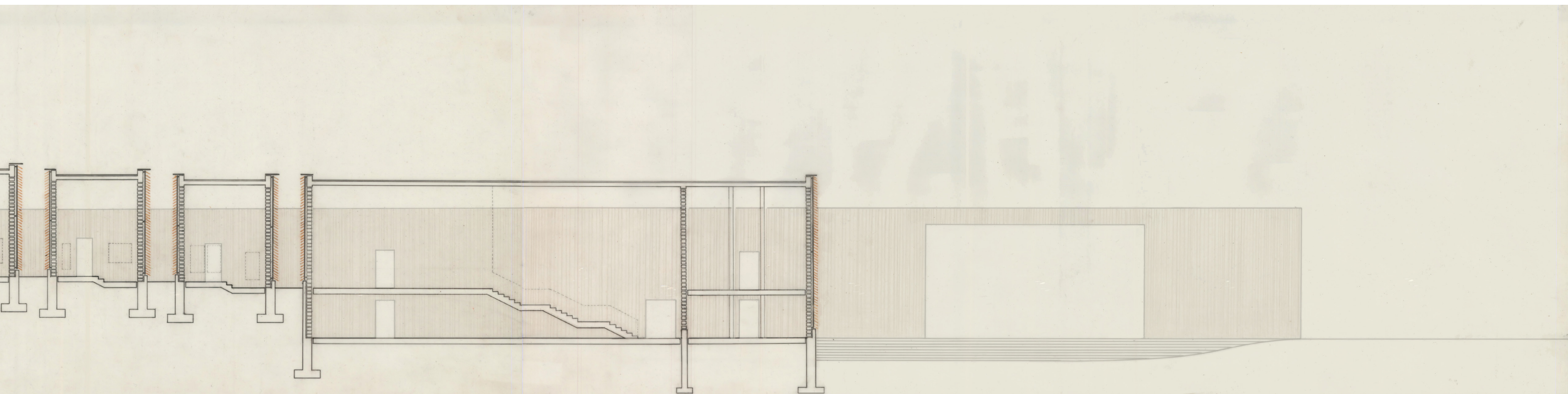


Figure 32: Section 1



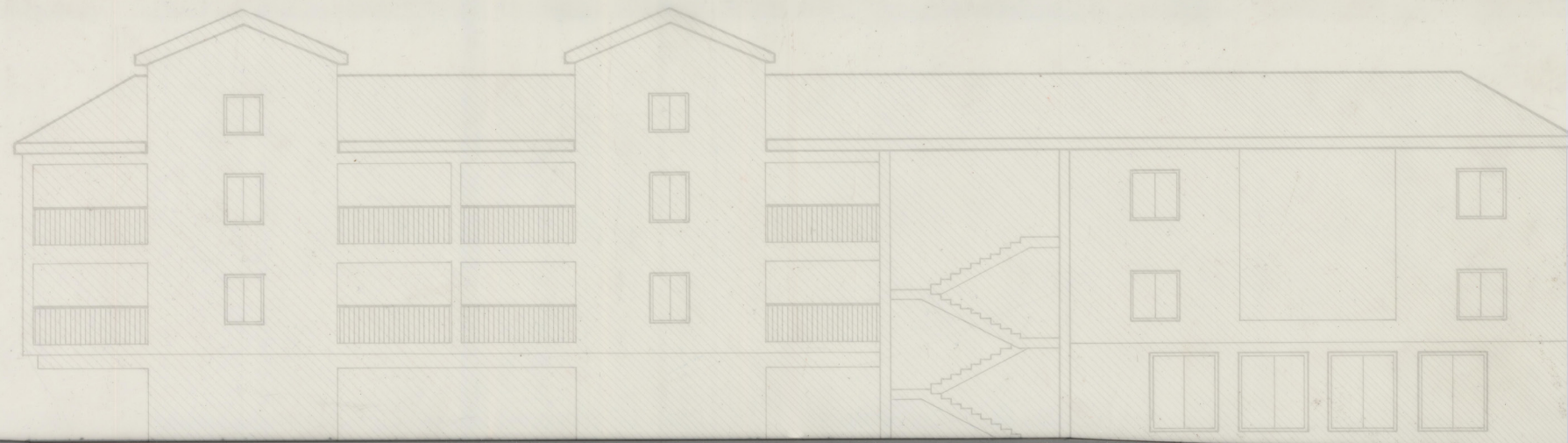
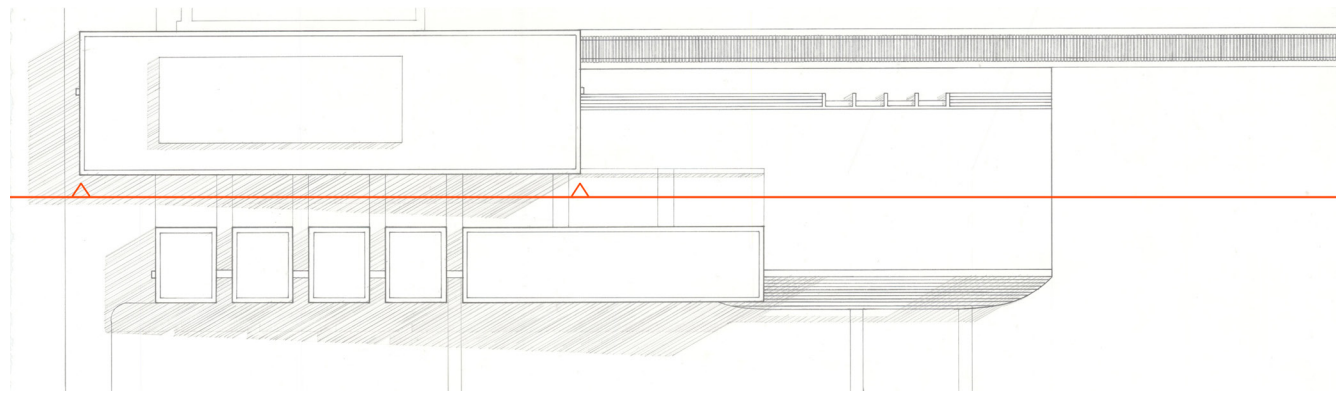


Figure 33: Elevation 2



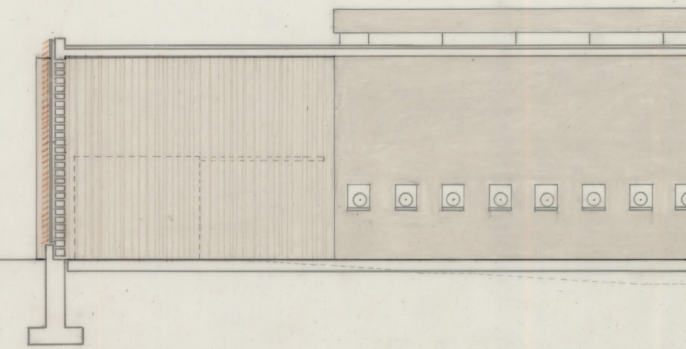
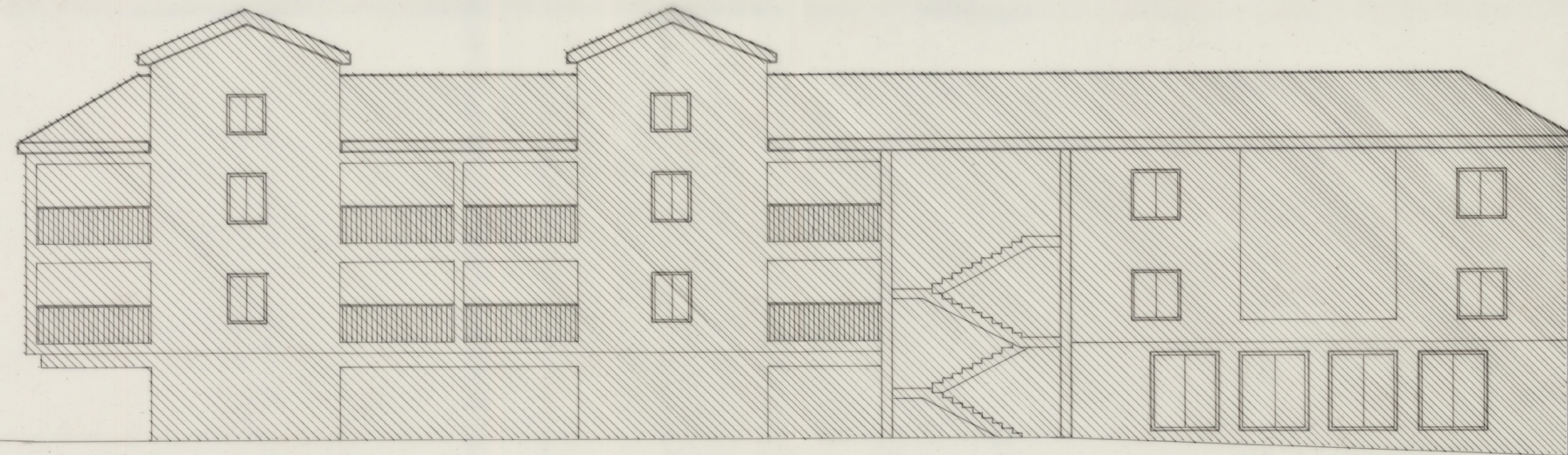
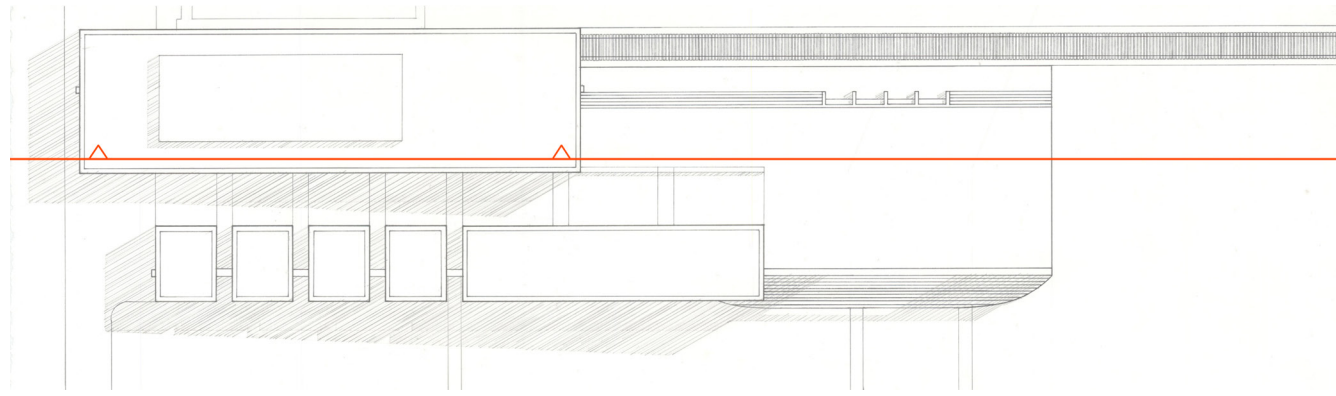
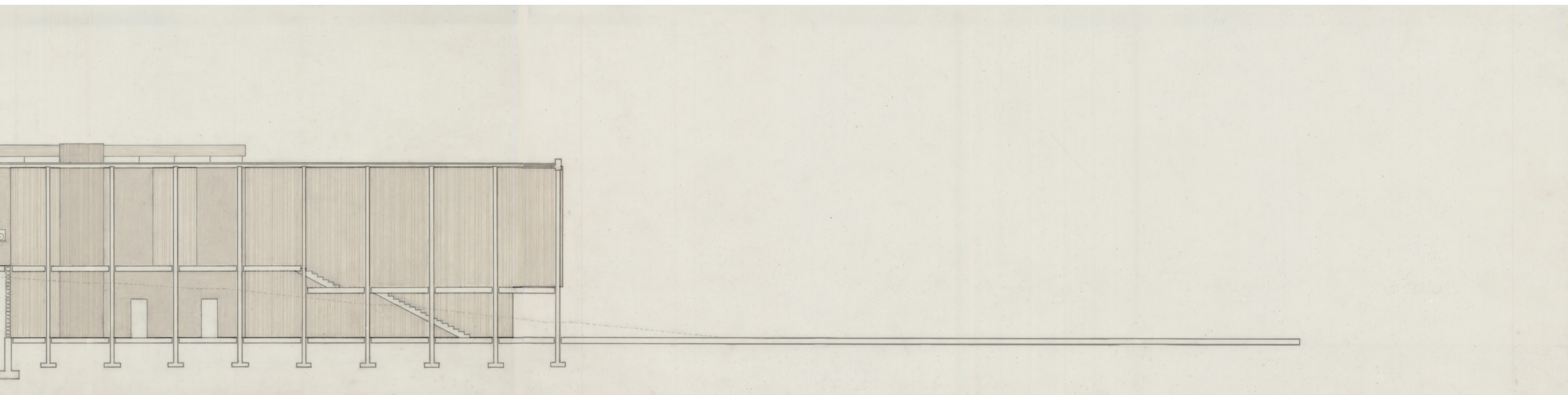


Figure 34: Section 2



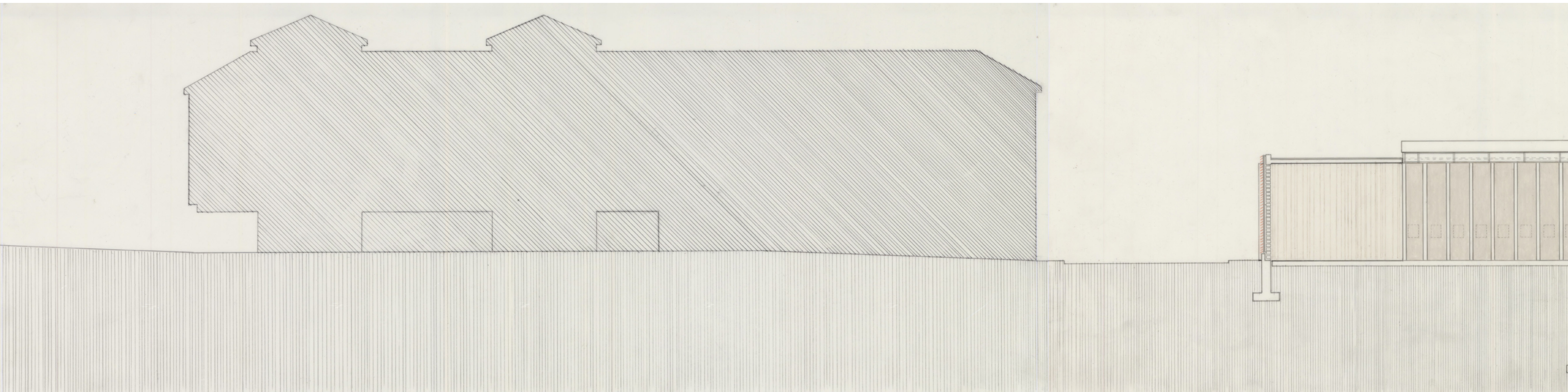
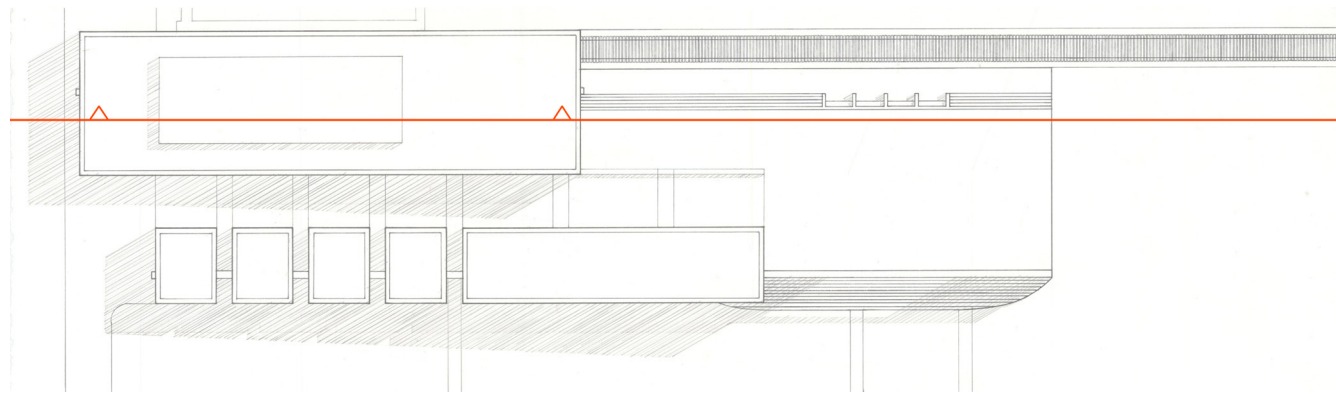
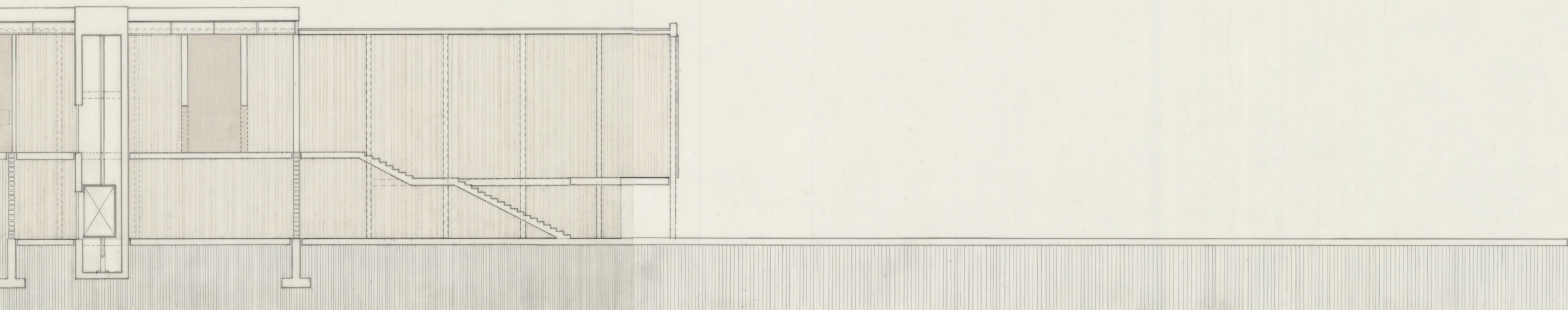


Figure 35: Section 3



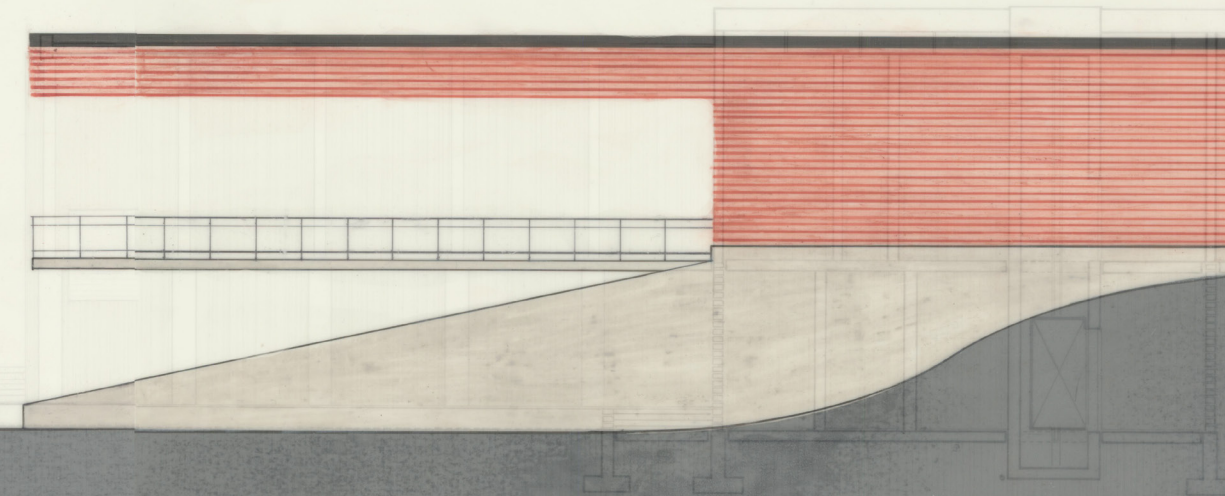
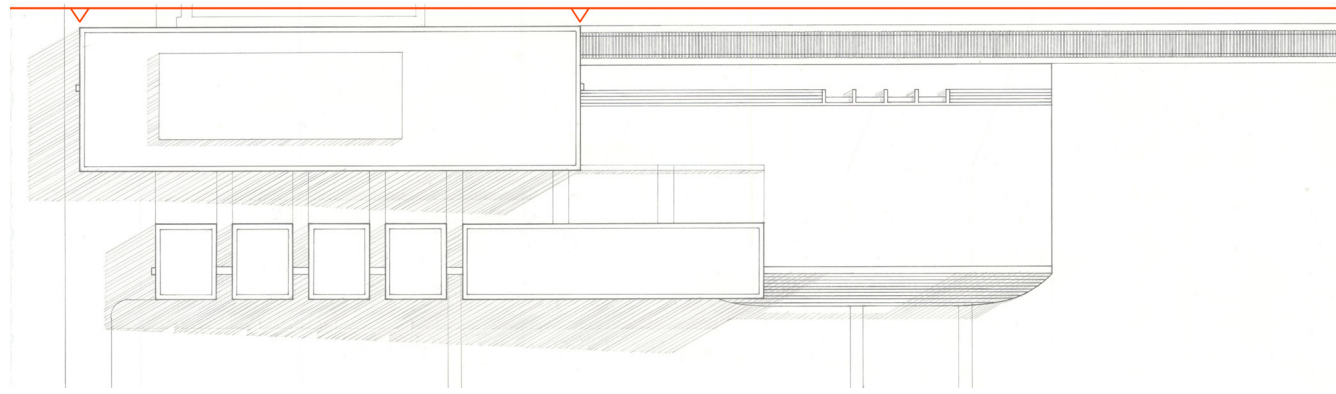
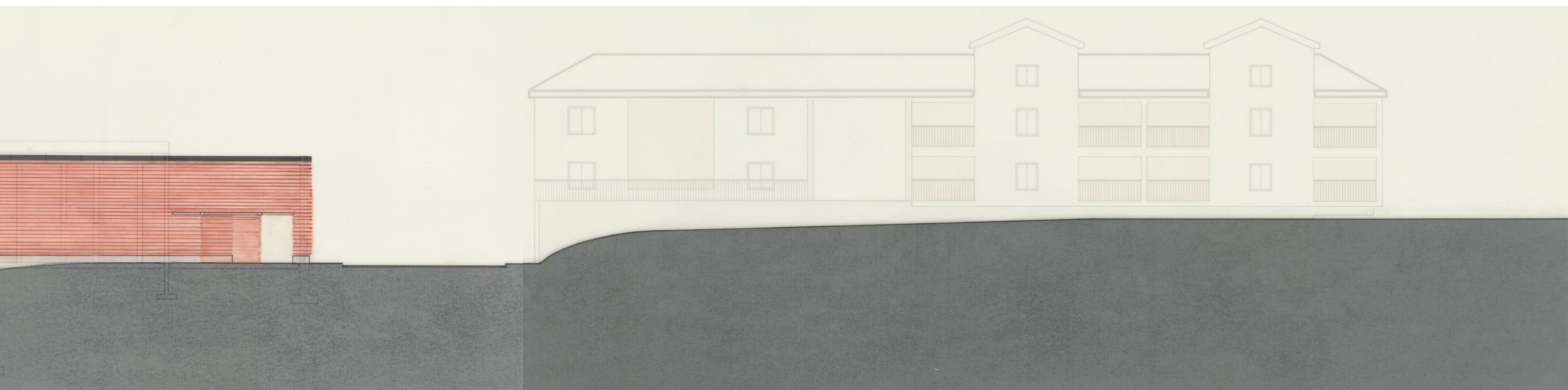


Figure 36: Elevation 3



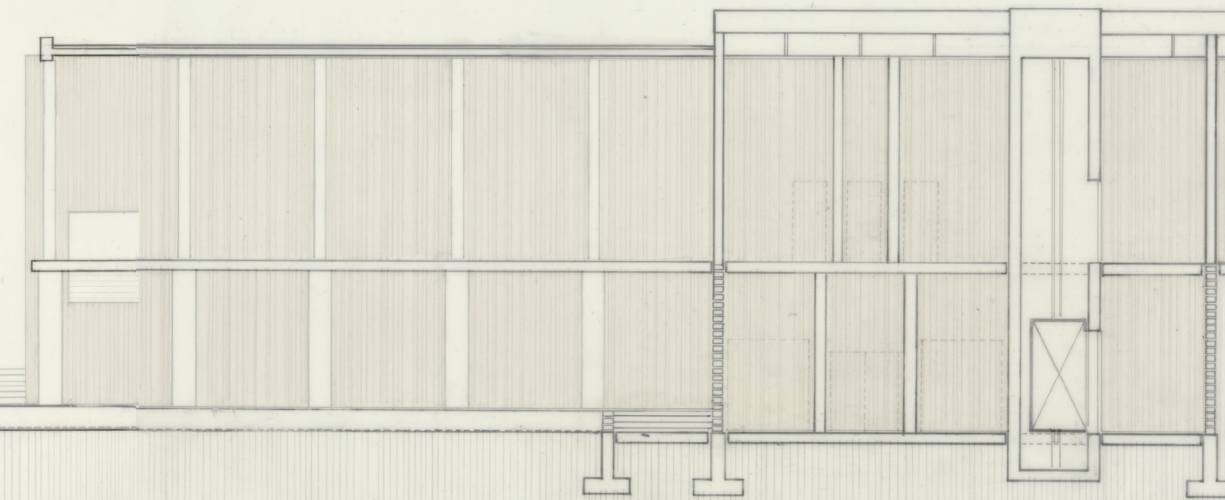
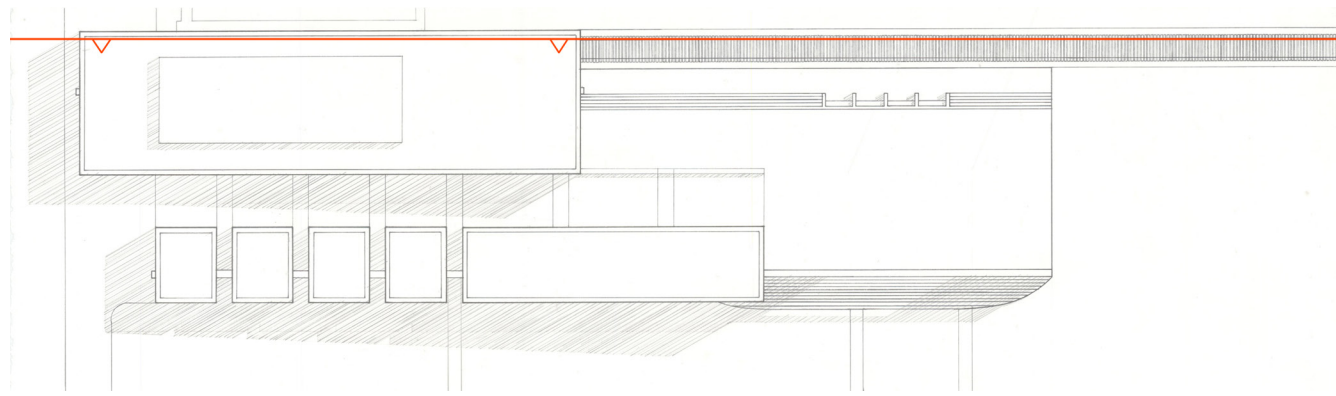
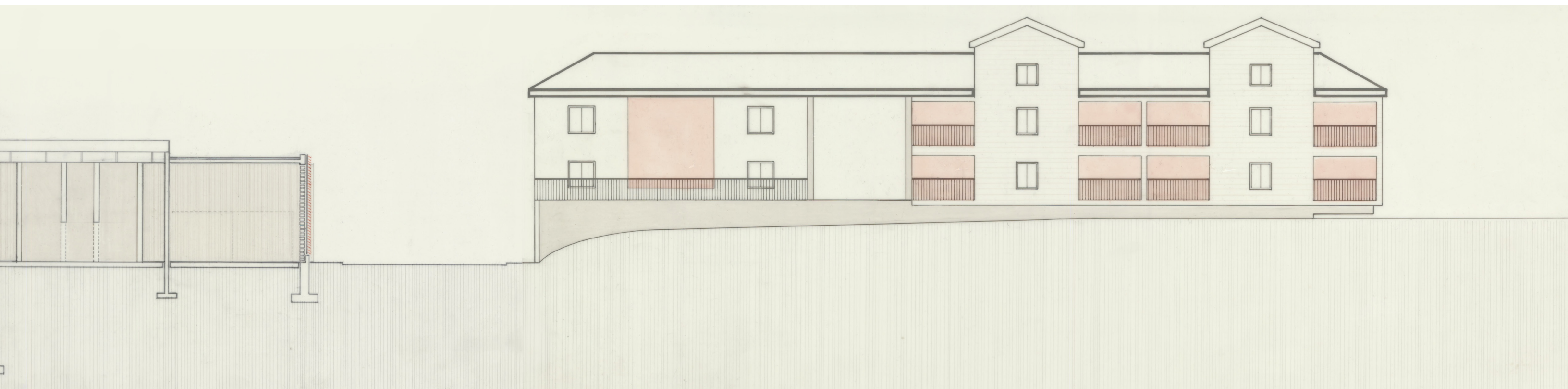


Figure 37: Section 4



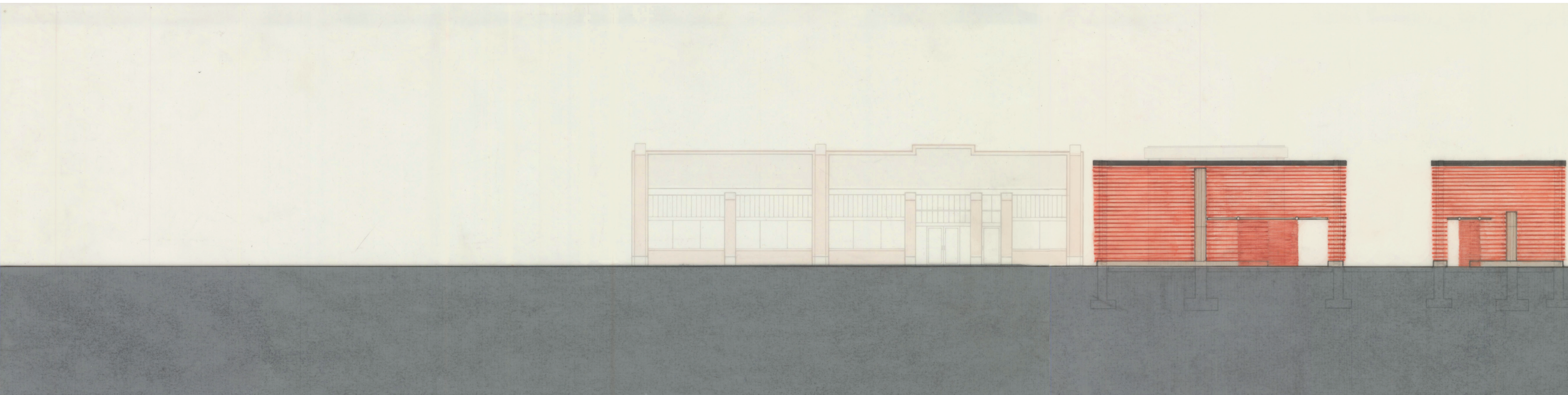
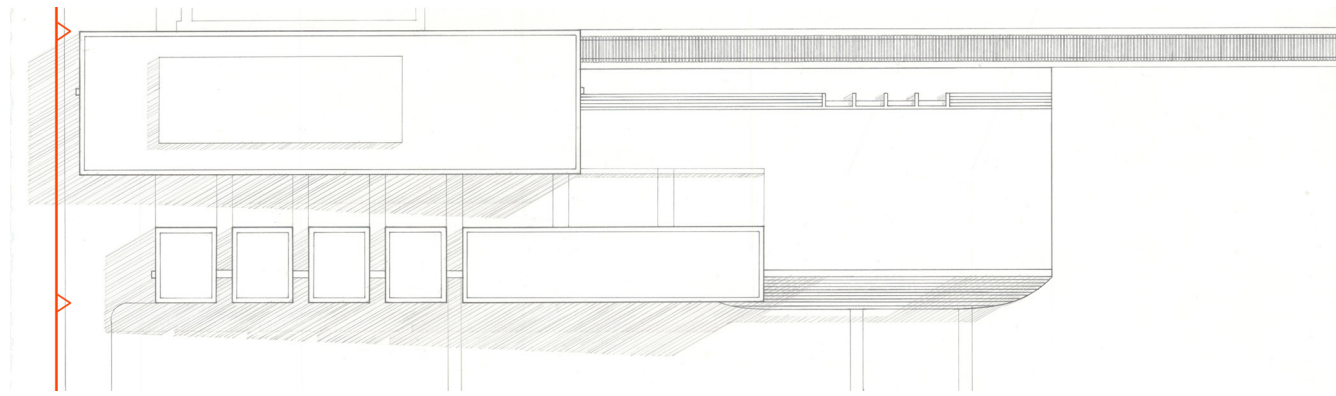
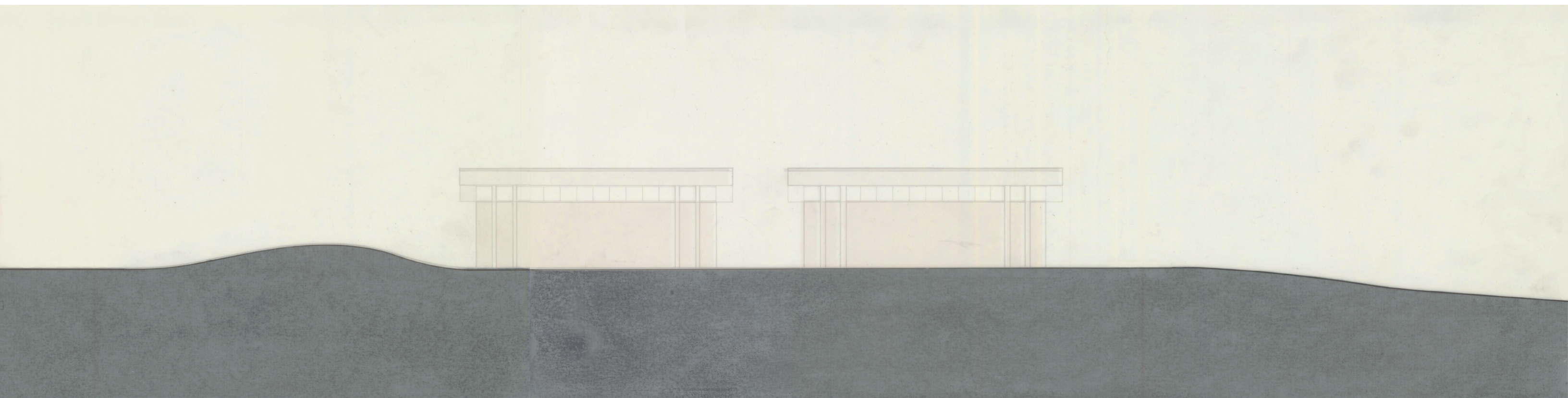


Figure 38: Elevation 4



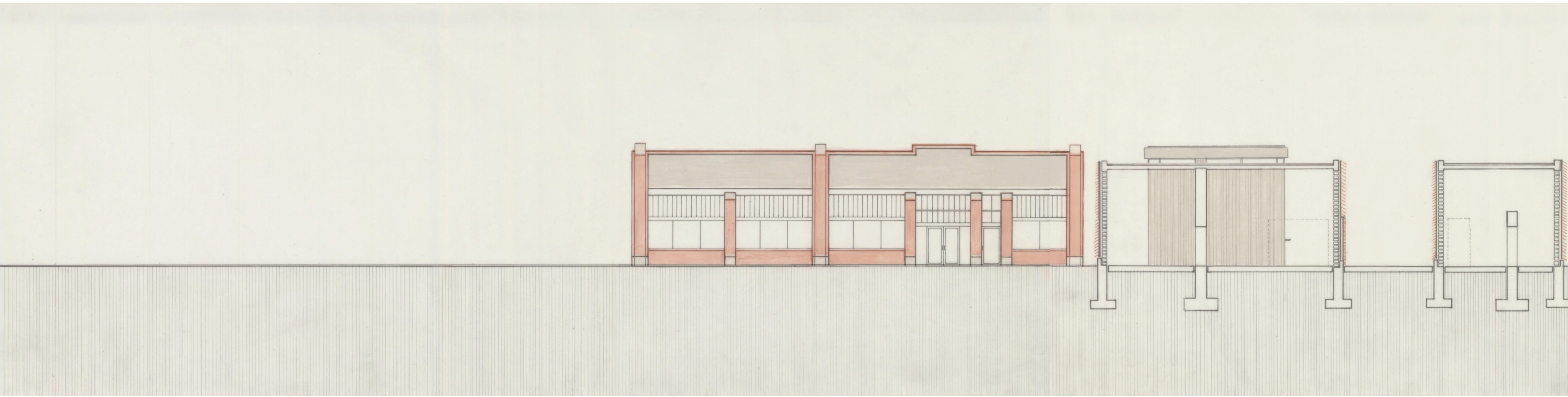
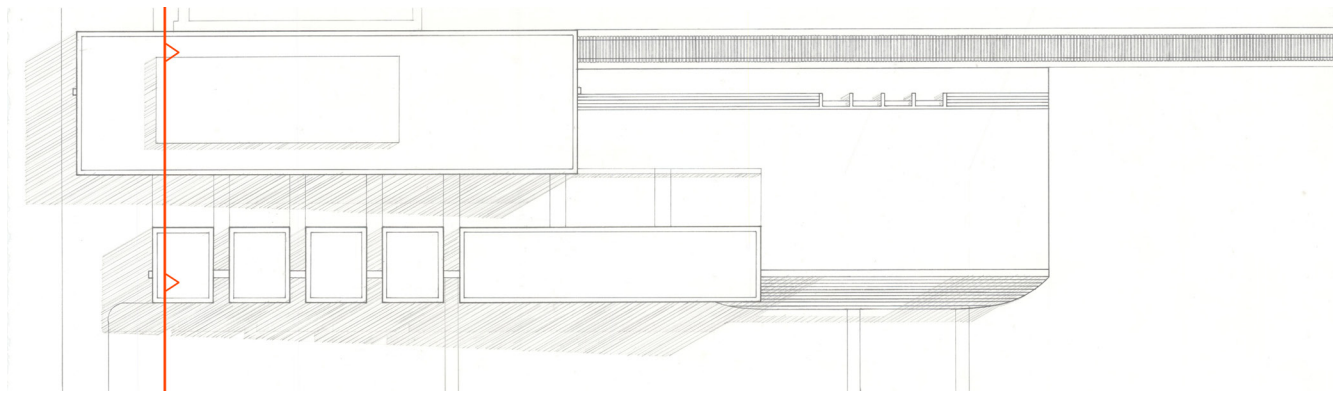
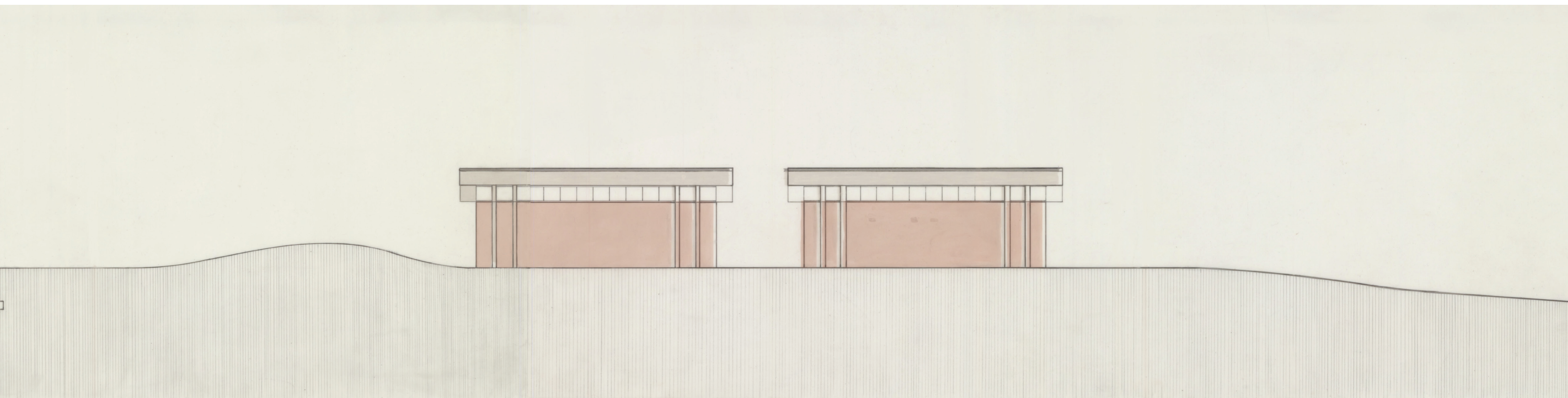


Figure 39: Section 5



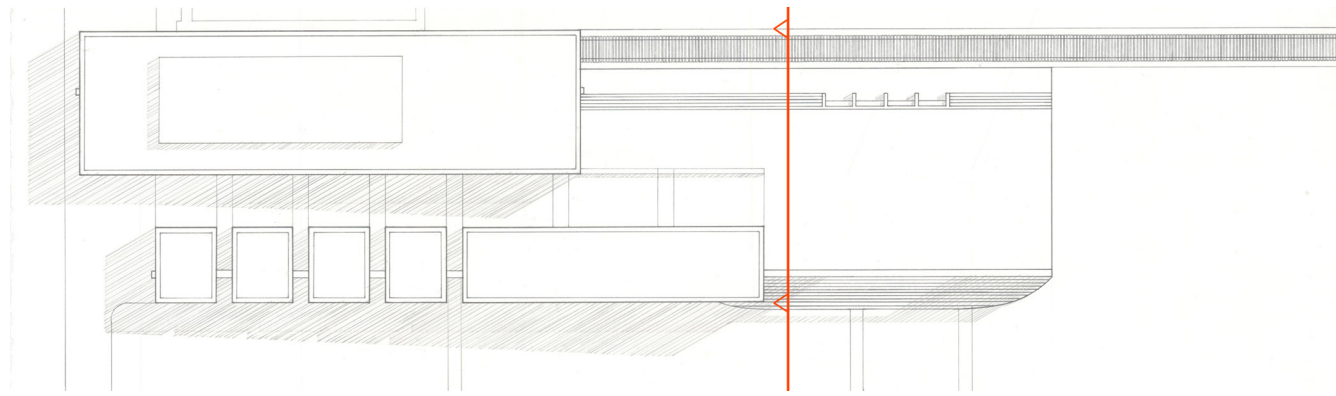
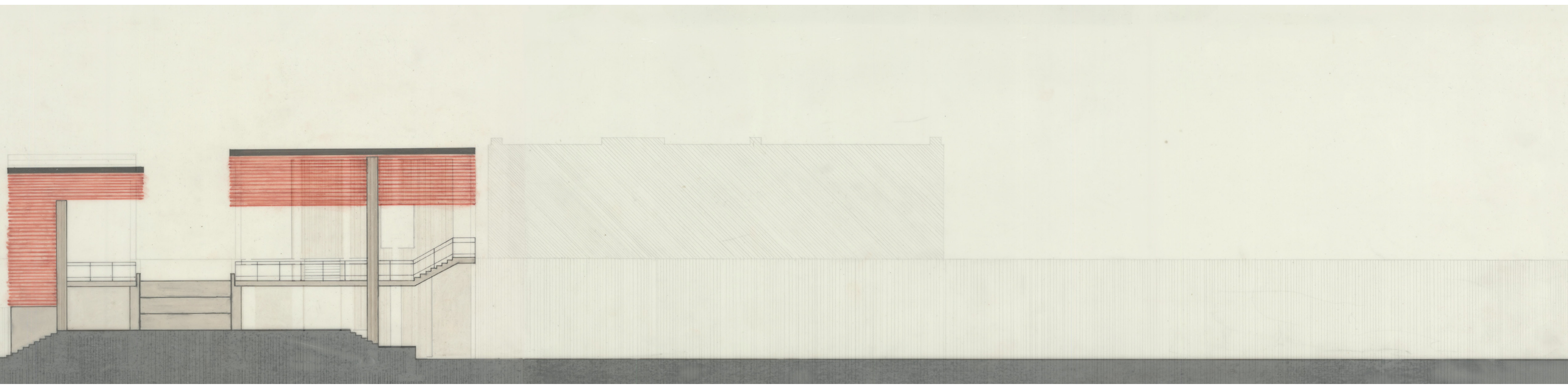


Figure 40: Elevation 5



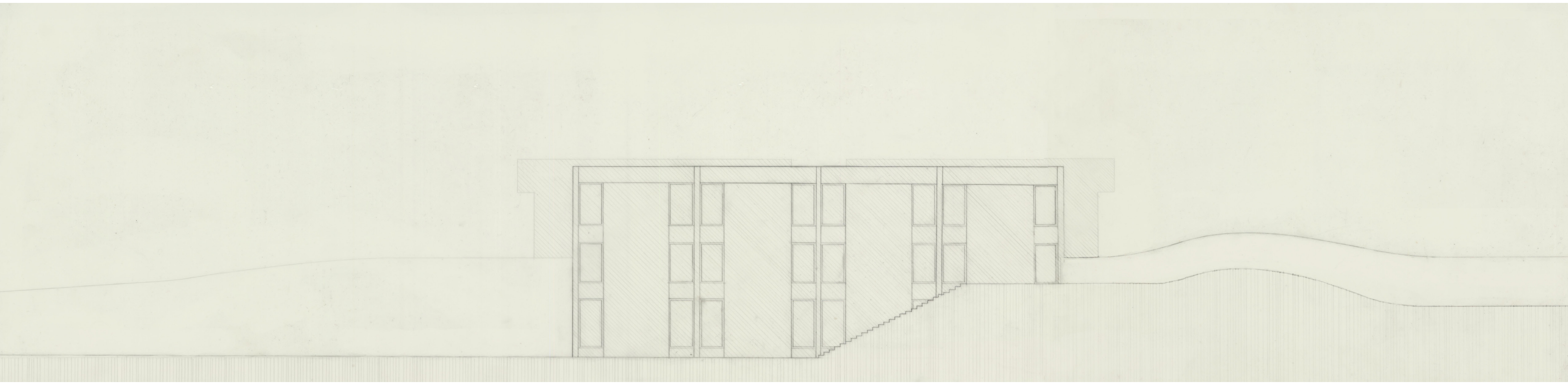
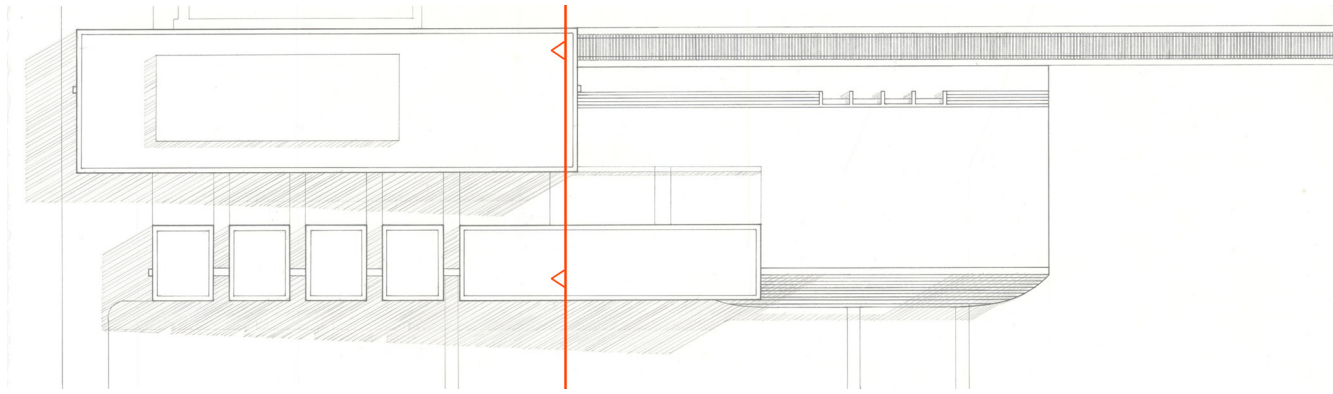
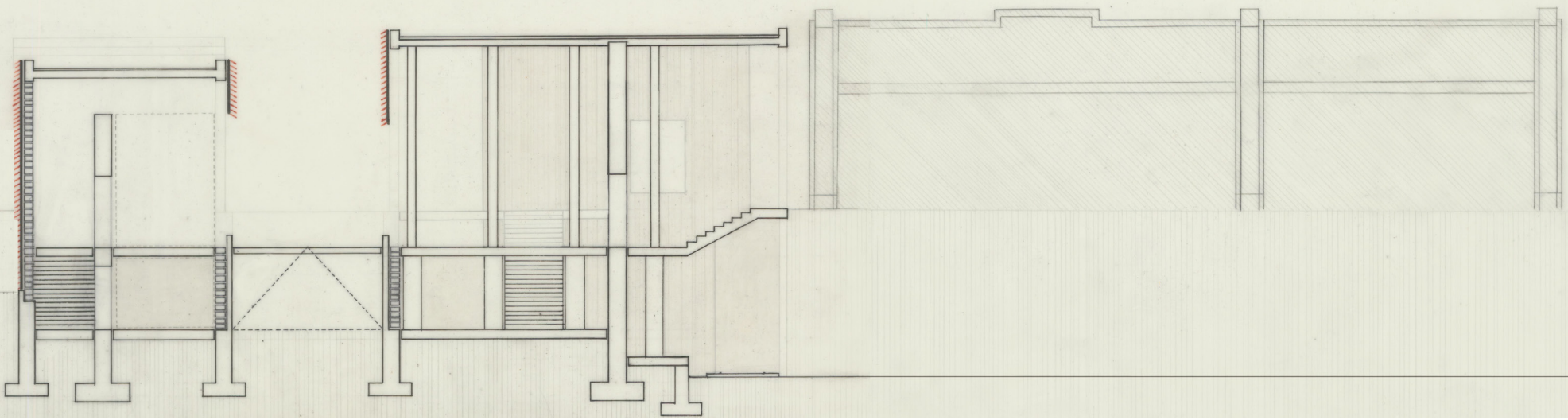


Figure 41: Section 6



Conclusion

This thesis has attempted to capture the unique urban conditions of downtown Blacksburg, Virginia and project them into a new train station proposal. By carefully analyzing the rules of urbanity particular to this location, I was able to design a train station perfectly suited to highlighting and enhancing the downtown public spaces within the context of the urban fabric.

Looking forward, Draper Rd provides numerous opportunities for other architectural installations to continue the pursuit for a more dynamic pedestrian realm. Draper Rd does not need to be the “back side” of Main St: indeed, Draper Rd is strategically located between Main St and the campus zone and could potentially become a populous pedestrian boulevard. The new train station creates the urban infrastructure required to attract pedestrians through the length of Draper Rd and to allow good public spaces to arise. This thesis project concludes with the design of the train station, but looks forward to the development of a broader public realm.

Opposite Page: Figure 42: Model of Main St Volumes.

Photograph represents the southeast corner looking north towards campus. Locations for potential future interventions indicated in white.

