



**2021**

MARIA F. CHACON P.



SAN RAFAEL BLEND



to create connections between coffee consumption and coffee production  
experiences, following guidelines inspired by  
finca san rafael's core of operations, topography and nature.

**san rafael blend**  
coffee in architecture

maria fernanda chacon portillo  
final studies 2021



### To my chair, Marcel Erminy...

Thank you for your passion for teaching, for design, and tiny obsessions. This project and growth could not have been possible without your time, encouragement and keen eye. I will always cherish the lessons and growth opportunities I've had thanks to you throughout the last three years.

### To my committee members:

#### Gabriela Campagnol,

Your thorough knowledge in the many topics surrounding this complex project, your energy, and disposition, allowed this project to reach a depth that was both critical for my education and growth. Thank you for your help, in and out of this project. You are an inspiration and motivation to move forward as a woman architect.

#### Michael O'Brien,

One of the most knowledgeable, patient, talented and well-rounded professors I had the privilege of learning from. Thank you for your expertise, the out-of-the-box realism you brought to all conversations, the sparks of creativity you inspired, and the motivation to learn more about tangible architecture. As I told you before, it was an honor to have you as my first professor in architecture, and committee member for final studies. Thank you for everything.

#### Cecilia Giusti,

Thank you for the thoughtful and important conversations we shared, they allowed me to delve into topics from the project that are rarely discussed in architecture, but that are important as we strive for a better future both as architects and human beings. Your input, background and experience allowed me to see different points of view that were key for the project.

### To my studio professor, Brian Gibbs

Thank you for helping me navigate what was the most challenging year of my academic career, and helped me produce a project I am proud of. I truly appreciate your flexibility, encouragement, and helpful criticism throughout the development of the project. It allowed me to grow in my understanding of architecture and project development on a new level.

### To my family

#### Mama y Papa, Teresa Portillo y Rene Chacon

No hay suficientes palabras para decirles lo agradecida y afortunada que me siento de tenerlos a ustedes como mis papas, mis mejores amigos, mi apoyo incondicional y mi motivacion a seguir adelante. Espero que el contenido de este libro sea prueba suficiente y fruto de su esfuerzo de proveernos con la mejor educacion, las mejores oportunidades, y todo el amor posible. De ustedes viene mi dedicacion, etica laboral y perseverancia, sin la cual este proyecto no hubiera sido posible. Los amo.

#### Mis Hermanos, Rene y Martin Chacon

Gracias por ser mi ejemplo a seguir siempre. No podia haber pedido dos hermanos a los que admire mas. Les atribuyo a ustedes mi hambre de aprender, de sobresalir, y mi capacidad de agradecer las oportunidades que se me prestan para prepararme lo mejor que puedo. Soy sumamente afortunada de tener hermanos que me han demostrado en mente y practica lo lejos que puedo llegar, y me han quitado mil barreras del camino. Los adoro.

#### Mi compañerito, Jorge Torrebiarte

Empiezo por darte las gracias por tu paciencia, por aguantar estos casi cuatro años de relacion a distancia, donde tanto tu como yo hemos podido desarrollarnos profesionalmente. Gracias por apoyarme en mis noches de desvelo, tanto en persona como por telefono; por escuchar mis llantos, alegrías, quejas y frustraciones. Sobre todo gracias por acompañarme en mi crecimiento, e inspirarme a conocer areas nuevas donde puedo desarrollarme creativamente y expandir mis horizontes. Te dedico este proyecto, como el inicio de mil posibilidades juntos.

### To my friends

Thank you for your words of encouragement, patience and support, even when I would disappear for months at a time, or miss important events due to deadlines. I share this with you all.

#### M. Arch

I never thought that I would form such a strong bond with such an amazing group of people. I am grateful for all we have been through, inside and outside of studio, and for friendships that I'm sure will last a lifetime. Congratulations on your projects, and thank you for being a part of this incredible experience.

### Special thanks:

to **Kevin T. Glowacki**, for your help, time and encouragement while pursuing the certificate in historic preservation.

to **Davi de Lima Xavier** and **Livia Loureiro**, for your encouragement and input throughout this and *all* my projects.

to **Gerald Maffei**, **Alejandro Borges**, **Nicole McIntosh**, **Shelley Holliday** and **Maki Iisaka**, for playing a special role in my education, and helping me discover what talents I had to offer in architecture.

# abstract



The **San Rafael Blend** project focuses on rehabilitating the existing mills and buildings of the existing coffee farm “Finca San Rafael” in Purulha, Guatemala, to develop a tourism complex. The purpose is to incorporate a new program that will retain the cultural and historic contributions to the site combined with a modern take on coffee production.

The San Rafael farm has been owned by the Thomae family since the 1800s, when the family immigrated to Guatemala from Germany. Since then, the farm has operated mainly as a coffee plantation, contributing to one of the country’s biggest industries, and partaking in one of the defining elements of Guatemalan culture. Besides existing as a historic farm, one that has been around for more than 200 years, the farm has also made an economic and cultural impact on the surrounding communities, contributing as well with new renewable resources in the form of a local hydroelectric plant. The new project will propose an even larger, positive economic impact, taking into consideration the cultural effects and disruptions that innovation could bring into the site.

With the addition of the tourism into the farm, the project aims to rehabilitate, revitalize, and modernize the coffee production process to offer an educational experience to coffee enthusiasts, and coffee experts alike. The rehabilitation of the existing processing mill will aid in the exploration of technological and cultural contributions the farm has offered to coffee production.

Particularly as the farm participates in the nation’s unique way of growing coffee, which is under the shade of taller trees. The analysis of the existing edifications of the site will provide insight into other architectural historic and cultural heritage that continually influences the farm’s owners, workers, and surrounding communities.

The main purpose is to rehabilitate the mills for efficient coffee production, introduction of innovative technology, sustainable practices, and safe touristic experiences. The mill’s renovation begins by determining what parts of the building envelopes and industrial structure are important to retain, as well as what will change and showcase what existed in a new way.

For instance, the patios used for drying coffee are a physical element of the process that will remain the same, relating to physical contact with the coffee, and as a concept in this project, are also connected to the cultural use of “patios” in colonial residences, and are used throughout the project to connect the new program with the old.

The new program provides spaces for coffee roasting, tasting, and selling, and appropriate areas for tourism hospitality, such as a hotel and souvenir/artisanal shop. These areas will reflect the authentic character of the region, country, and its ecological environment, so that in one place they have an educational experience that aids in the understanding of coffee production, as well as Guatemalan culture.

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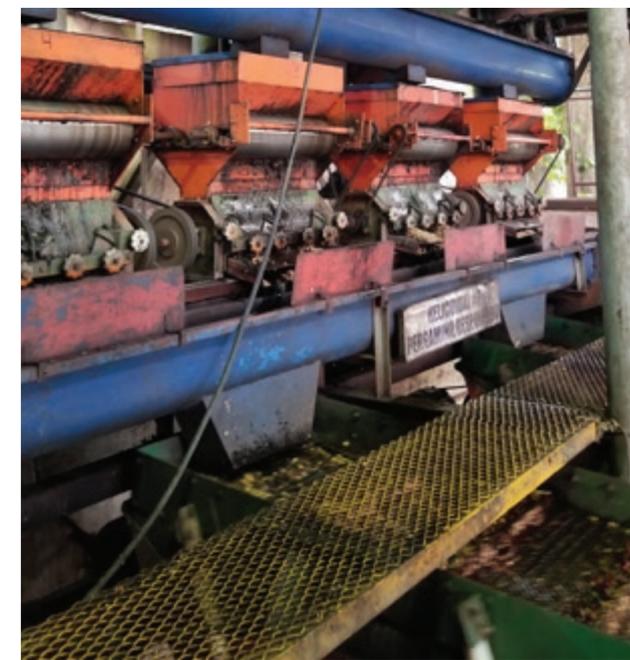
# my first tour



I started my coffee tourism experience in December of 2016 during my first visit to Guatemala. Throughout the last four years and a half, I have visited and stayed at eight farms located in different regions of the country. The National Association of Coffee in Guatemala categorizes eight main coffee regions, and of these I have visited four: "Rainforest Coban", "Volcanic San Marcos", "Traditional Atitlan", and "Antigua Coffee".

Although I have been able to visit most of the operational facilities in these farms, the farms "Santo Tomas Perdido" and "Santa Teresa" in the Atitlan region are the ones I am most familiar with. These two neighboring farms function as sister farms, one where most of the coffee is grown, and the other where they process it through a wet milling facility, and later ship it to a dry mill to be de-hulled, cleaned and exported. My experience has been most transformative and educational because of the liberties I had while there. Because of my personal relationship with the owners, I was able to walk through the mill, above the conveyor belts and fermentation troughs,

next to the drying ovens, and between the rows of coffee laying in the drying patios. I helped in the installation process of a new sorting machine one night in 2018, where I also had the opportunity to help unload a tractor full of just-hand-picked cherry beans into a trough where the coffee would be guided with ducts into the machine to be sorted. I distinctly remember the thousands of cherry beans unloaded, watching them fall on the pit and be transported throughout the ducts. At the end of the day, I had a semi-permanent reminder of that night, due to the hard-to-remove cherry honey residue in my shoes and jeans.



Pictured:  
Top: Finca Santo Tomas Perdido, Solola, Guatemala  
Tractor transporting cherry beans to the Beneficio

Middle: Finca Santo Tomas Perdido, Solola, Guatemala  
Mayan woman paying attention to a talk during a professional development event for small producers.

Bottom: Finca Santo Tomas Perdido, Solola, Guatemala  
Conveyor belt at Wet Mill.

Previous page, bottom: Santo Tomas Perdido, Solola, Guatemala  
Rows of coffee beans in drying patio.

site





views



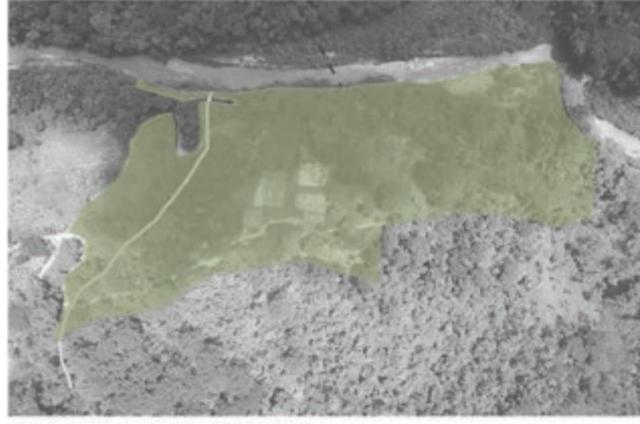
guatemala



baja verapaz



finca san rafael



intervention area (5.64 ha)

“Finca San Rafael,” a coffee farm in Purulha, Guatemala, was founded approximately in 1895, after the German family “Thomae” acquired the land during Justo Rufino Barrios’ term as President. The farm is located on a region of the country that is the ancestral home of the local indigenous Maya Poqomchi and Q’eqchi’ ethnic groups, and since the late 19th century has functioned primarily as a coffee farm in one of the main coffee farming regions of Guatemala, the Verapaces.

The area of intervention is completely surrounded by rural farming areas, and approximately an hour away from the closest town, Purulha. Significant features include a significant change in elevation, the top-most part of the project siting at 450 m above sea level, and meeting the river (plan north) at 419 m. The site receives its strongest winds from the North East, and has a temperate climate year-round, with slightly colder temperatures in the winter months.

# historic conservation

Poster presented at the 22nd Annual Historic Preservation Symposium: Difficult Campus Heritage hosted by the Center for Heritage Conservation at Texas A&M University

Recipient of: 3rd Place - CHC Poster Award, APT Texas Best Poster Award

MARIA FERNANDA CHACON PORTILLO  
MASTER OF ARCHITECTURE CANDIDATE  
CHAIR: MARCEL ERMINY  
STUDIO PROFESSOR: BRIAN GIBBS

## COFFEE TOURISM COMPLEX IN GUATEMALA HERITAGE CONSERVATION THROUGH COFFEE PROCESSING EDUCATION

TEXAS A&M UNIVERSITY  
Keywords: Adaptive Reuse, Coffee Farm, Heritage Tourism, Architecture

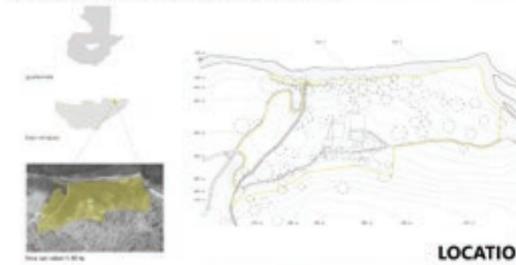


EXPERIENCING COFFEE BY INHABITING ITS INDUSTRIAL HERITAGE, LEARNING ABOUT ITS PRODUCTION, AND TASTING A FRESH CUP WHILE LOOKING AT IT FROM A NEW PERSPECTIVE.

### FINCA SAN RAFAEL

"Finca San Rafael," a coffee farm in Parulha, Guatemala, was founded approximately in 1895, after the German family "Thomae" acquired the land during Justo Rufino Barrios' term as President. The farm is located on land that is the ancestral home of the local indigenous Maya Poqomchi and Q'eqchi' ethnic groups, but since the late 19<sup>th</sup> century has functioned primarily as a coffee farm in one of the main coffee farming regions of Guatemala, the Verapaces.

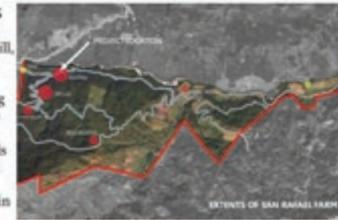
The primary goal of this project is to incorporate a Coffee Tourism Complex into the farm as an alternative economic resource. Coffee farmers in Guatemala, and the world, have had a financial crisis for several years, causing many to explore diversifications to their income in order to keep their farms active. The project intervenes on 5.48 hectares of the farm, a relatively small section to the North-East, where the existing operational facilities are located. My project adds programmatic needs such as new administration areas, staff and visitor accommodations, recreation and wellness areas, general services, and most importantly, a complex with coffee growing, processing, roasting, tasting and selling facilities. As a concept, the project rehabilitates, adapts, reuses, and modernizes this 125-year-old farm into a heritage tourism attraction for coffee enthusiasts.



### LOCATION

### EXISTING CONDITIONS

The existing operational facilities include a dry mill, a wet mill, three storage areas, a mechanical workshop and two drying patios. The buildings are currently out of service, and some of the materials used, such as corrugated metal roofs and wood siding and flooring, are in poor condition.



### HISTORICAL RELEVANCE

This farm, as well as others that were acquired during the same period throughout the country, is a physical manifestation of Guatemala's industrial heritage, the country's economic evolution, and the history of coffee production.

Additionally, the farm has influenced the adjacent communities economically, socially, and technologically since its beginning, contributing to the growth and development of the surrounding areas, as well as to the country's multi-generational culture of coffee production.



EXISTING CONDITIONS



DRY MILL & STORAGE ROOMS



WET MILL

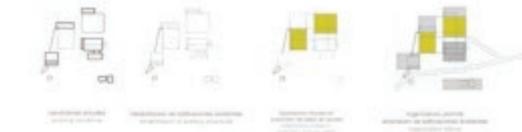


FRONT - DRY MILL

### CONCEPT

Through an analysis of the facilities, the drying patios stood out as a permanent surface which comes in direct contact with the coffee beans during their processing, making the material - concrete - a part of the process, and the main material that will remain after the intervention.

The proportions of the existing buildings inspired a grid which will inform the placement of the structural members, new interactions with the slope of the topography (considerably inclined towards the river), and the distribution of the spaces.

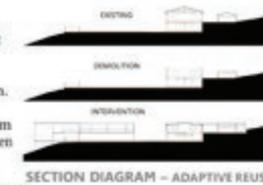


### ADAPTIVE REUSE

After the removal of the materials that need replacement, the existing structures will retain their original use while adapting to the new program.

The inclusion of tourism in the program calls for a different relationship between the processing areas as well as spaces for the tourists to experience the facilities without disrupting the operations.

Any additions or new construction surrounding the facilities will utilize local materials, including those that are found in the existing structures, such as wood decking no longer suitable for flooring, allowing for a sustainable and cohesive development.



SECTION DIAGRAM - ADAPTIVE REUSE



NEW PROJECT



DRYING PATIO - FRONT OF DRY MILL TASTING ROOM

SITE PLAN - TOTAL AREA: 8255 m<sup>2</sup>



### ACKNOWLEDGING A DIFFICULT HERITAGE

Many of the existing coffee farms in Guatemala have disputes over land ownership, mainly between the current farm owners and the indigenous people that reside inside or around the property. This conflict is increasingly relevant today, as indigenous groups demand ownership of lands they claim to be their ancestral homes. Parts of some farms been occupied by groups of families attempting to physically claim their "rightful" place, and farm owners have reported that their private property has been invaded or stolen, either by groups of people that have lived there for generations, or by organized crime groups attempting to steal and illegally sell these lands.

Finca San Rafael has been one of the farms in conflict for several years, and has been subject to controversy, having last attempted to remove 35 families from the property in June of 2020. The eviction order was not carried out due to COVID-19. Although this project does not attempt to resolve years-long conflicts, much research and thought has gone into the design process in an attempt to find an opportunity for resolution through the creation of a modernized complex which will incentivize the creation of job opportunities, land usage, and transparency in coffee production activities.

### SELECT REFERENCES

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- Arce, J. 2018. *Historia del Café*. <https://www.museo.org/temas/historia>. Accessed January 20, 2020.
- Adams, V. H. 2008. "Coffee Farm Architecture and Cultural Landscapes in Guatemala, 1850-1950." *Material Culture: Journal of the Pioneer American Society*, no. 38: 1-48.

## historical relevance

This farm, as well as others that were acquired during the same period throughout the country, is a physical manifestation of Guatemala's industrial heritage, of Guatemalan, Mayan and foreign origin, particularly German. Additionally, it's been a part of the country's economic evolution, and the history of coffee production.

The farm has influenced the adjacent communities economically, socially, and technologically since its beginning, contributing to the growth and development of the surrounding areas, as well as to the country's multi-generational culture of coffee production.

## adaptive reuse

After the removal of the materials that need replacement (wood, and steel), the existing structures will be rebuilt, rehabilitated to operate as they originally did: as a dry mill, wet mill, or storage facility respectively.

The openings in the structures, previously made of wood and steel, become connective and friendly spaces for tourists to inhabit what used to be a space solely meant for manufacture; keeping in mind to allow the staff of the farm to continue their operations without disruptions.

## local materials

In order to maintain the farm's authenticity and character, the project uses local materials such as limestone, river boulders, shale stone, and most importantly, wood believed to be of the same source as the original. The farm has a variety of lumber trees, of which the project uses cedar, pine and oak.



## acknowledging a difficult heritage

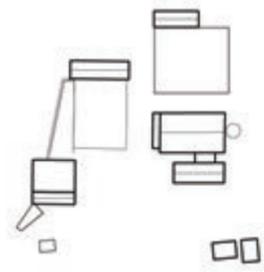
As part of the Historic Conservation Certificate, I had the opportunity to look into and question the heritage of this farm. Many of the existing coffee farms in Guatemala have disputes over land ownership, mainly between the current farm owners and the indigenous people that reside inside or around the property.

This conflict is increasingly relevant today, as indigenous groups demand ownership of lands they claim to be their ancestral homes. Sections of some farms have been occupied by groups or families attempting to physically claim their “rightful” place, and hundreds of farm owners throughout the country have reported that their private property has been invaded or stolen, either by groups of people that have lived nearby for generations, or by organized crime groups attempting to steal and illegally sell these lands.

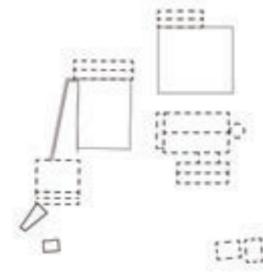
Finca San Rafael has been one of the farms in conflict for several years, and has been subject to controversy, having last attempted (as of the start of this project) to remove 35 families from the property in June of 2020. The eviction order was not carried out due to COVID-19. Other attempts have been made against the family.

Although this project does not attempt to resolve this years-long conflict, much research and thought has gone into the design process in an attempt to find an opportunity for resolution through the creation of a modernized complex which will incentivize the creation of job opportunities, land usage, and transparency in coffee production activities.

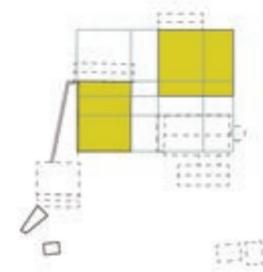
Additionally, the farm has an enormous potential for heritage tourism, both for the local culture and its industrial history, and could play an important part in sparking conversation between these conflicting groups. Ultimately, tourism could not only bring profit to the farm, but also healing.



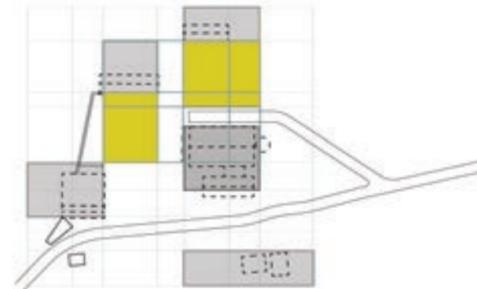
existing conditions



rehabilitation of existing structures



organization based in proportion of drying patios



organization allows for amplification of existing structures



The concept of the project was inspired by two prominent elements in and of the site, its topography, and the existing facilities. Since the prompt provided by the client included retaining the operational facilities, turning the core of operations into the core of the coffee tourism complex provided unique opportunities to aid in the tourist's coffee processing experience.

After analyzing the purpose of each structure, the drying patios stood out for their proportions, conditions as negative spaces, and materiality. Built out of concrete, the drying patios are the only material that directly plays a part in coffee processing.

The existing connection of the concrete buildings to the ground inspired a strategy that would be applied throughout the project. All structures either being nested into, touching the ground, or being carved out, will be built with concrete or stone. The materials that needed replacement, wood and steel, along with concrete, became the structural materials for the rest of the project.

The proportions and layout of the existing buildings allowed the development of a grid-like guidelines, mostly in 3 meter increments, which in plan informed the distribution of the new program, the rhythm and placement of the new structural members, as well as a distinct approach towards the interaction of the buildings with the topography. That interaction, the moments where the grid meets a change in elevation, became design opportunities, allowing the structures to follow the change in elevation, raising on top of them, or carving inside the topography to create new space.

The scale of the project remains at one or two floors throughout, and each moment is emphasized through its materiality.

## development of existing conditions

removal and replacement of steel & wood structures.  
existing conditions become opportunities for connection between coffee processing and coffee consumption.vv

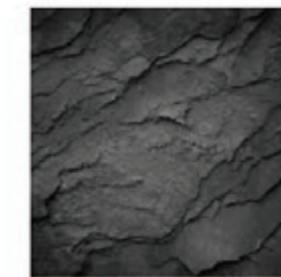
### local materials



clay



boulders



shale stone



limestone

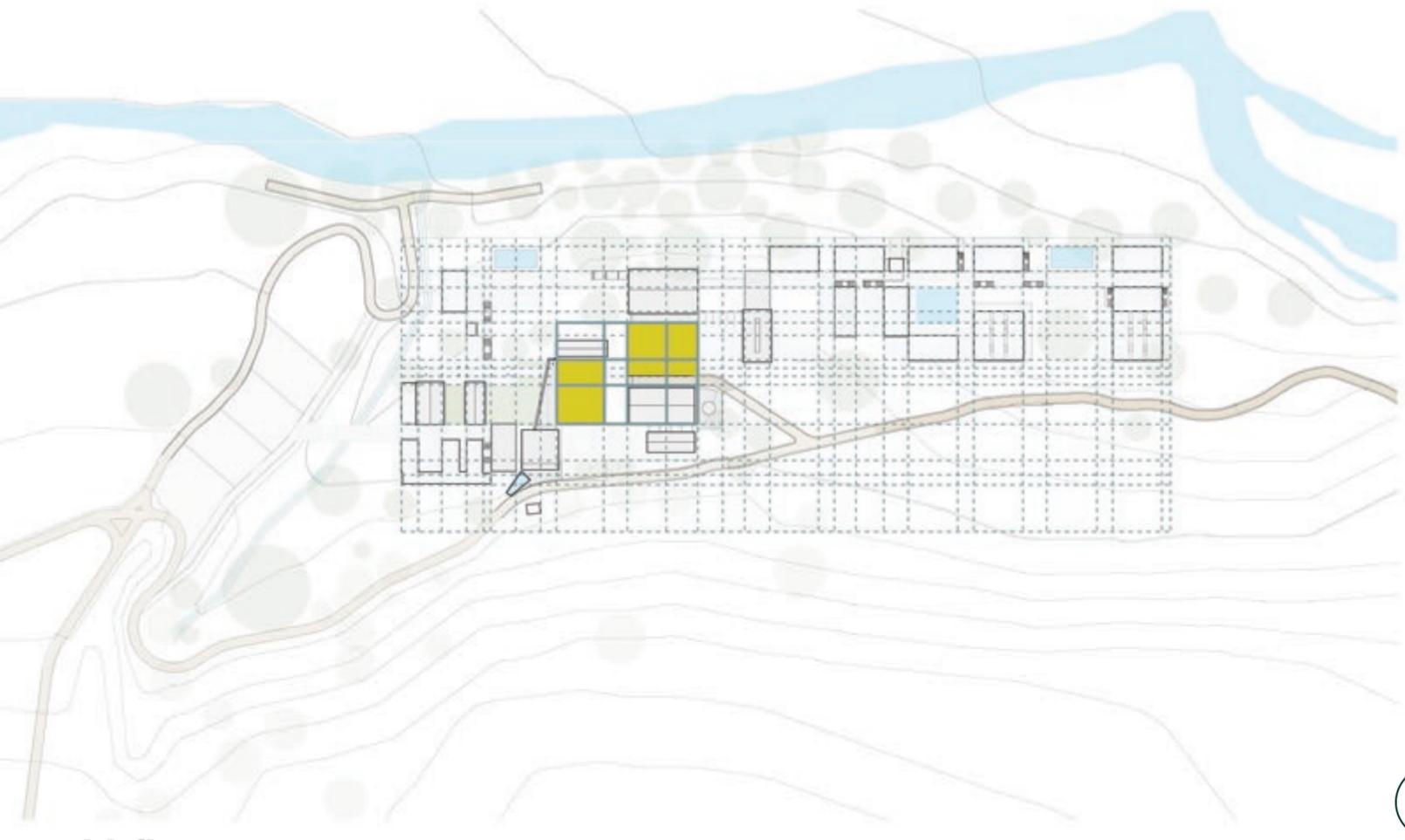


serpentine

#### lumber trees

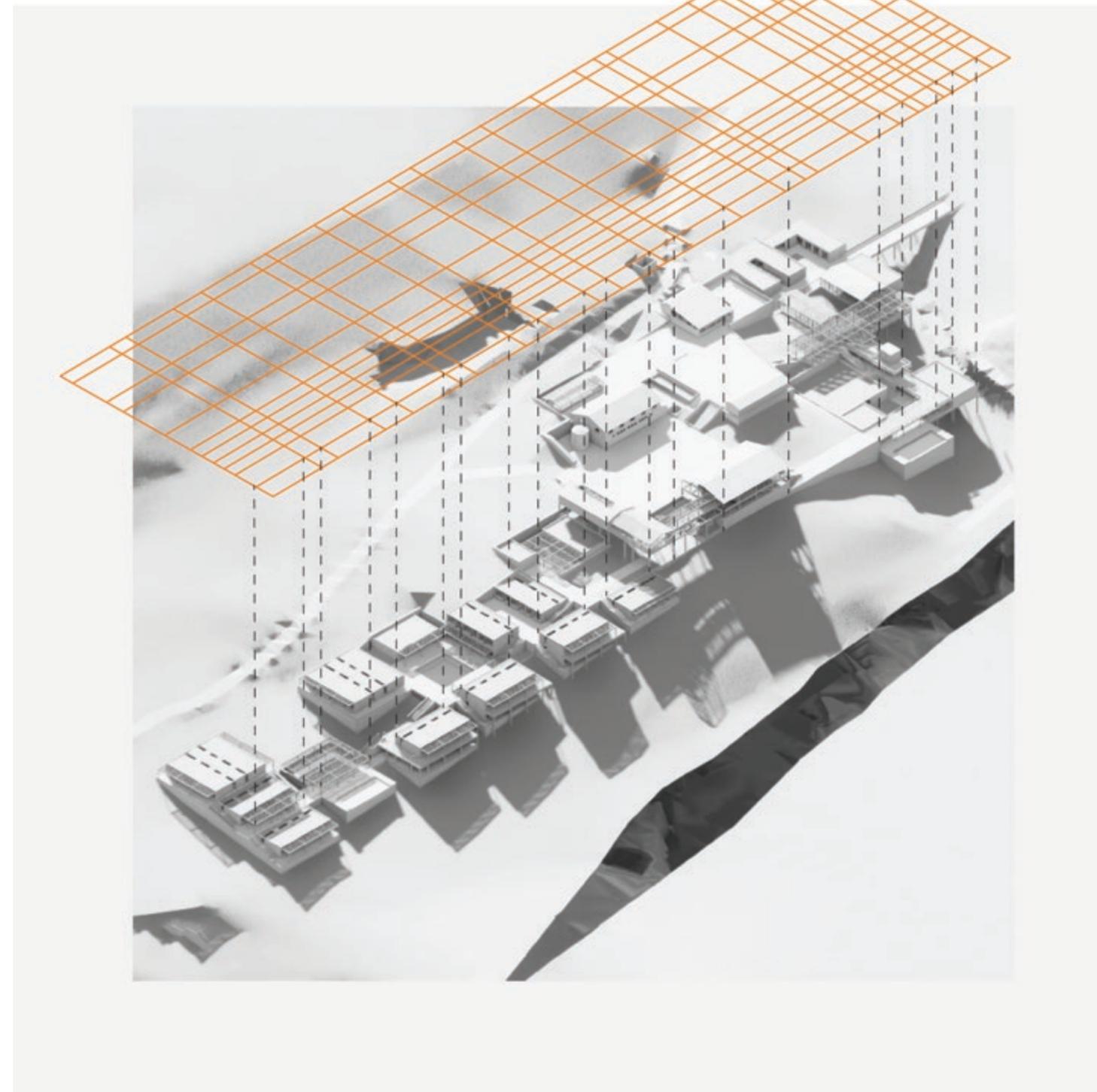
cypress  
pine tree  
"matilisguate"  
"hormigo"  
"guachipllin"  
"zapotillo"  
"liquidambar"  
"conacaste"

walnut  
cedar  
mahogany  
"taxisco"  
oak  
carr  
myrtle



## guidelines

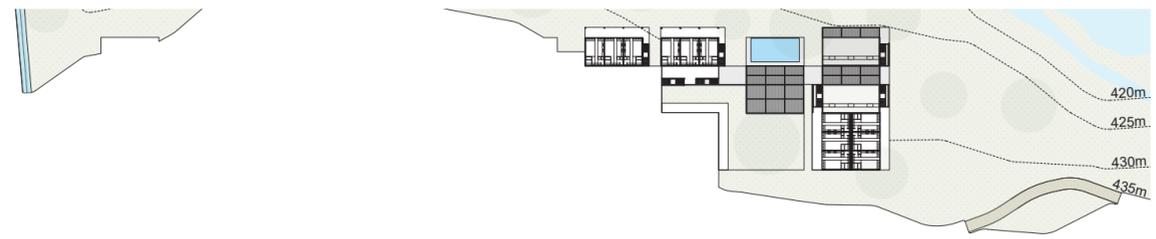
inspired by the existing conditions, the initial guidelines inform the entire project in plan and elevation.



**+430**



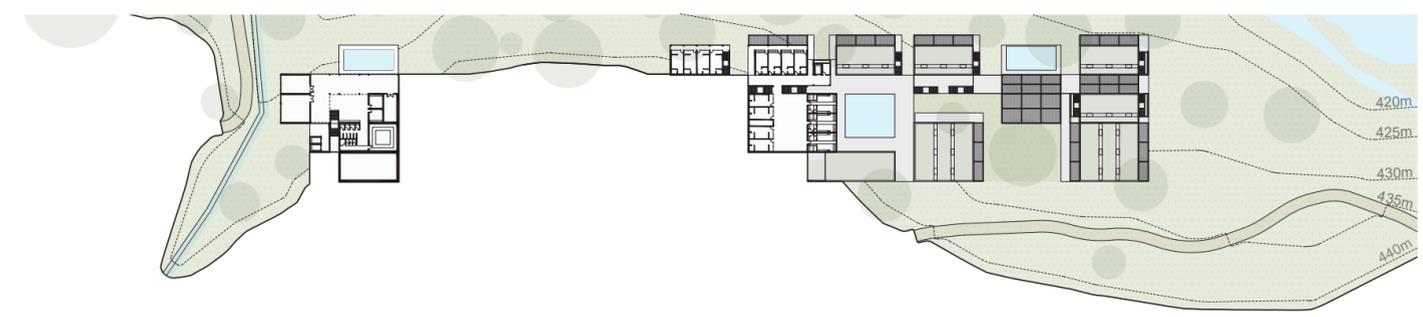
**+433**



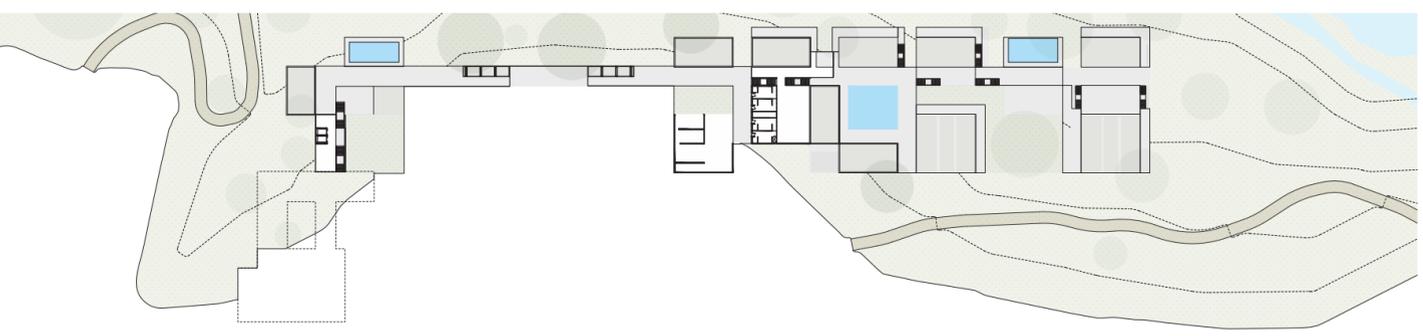
**+436**



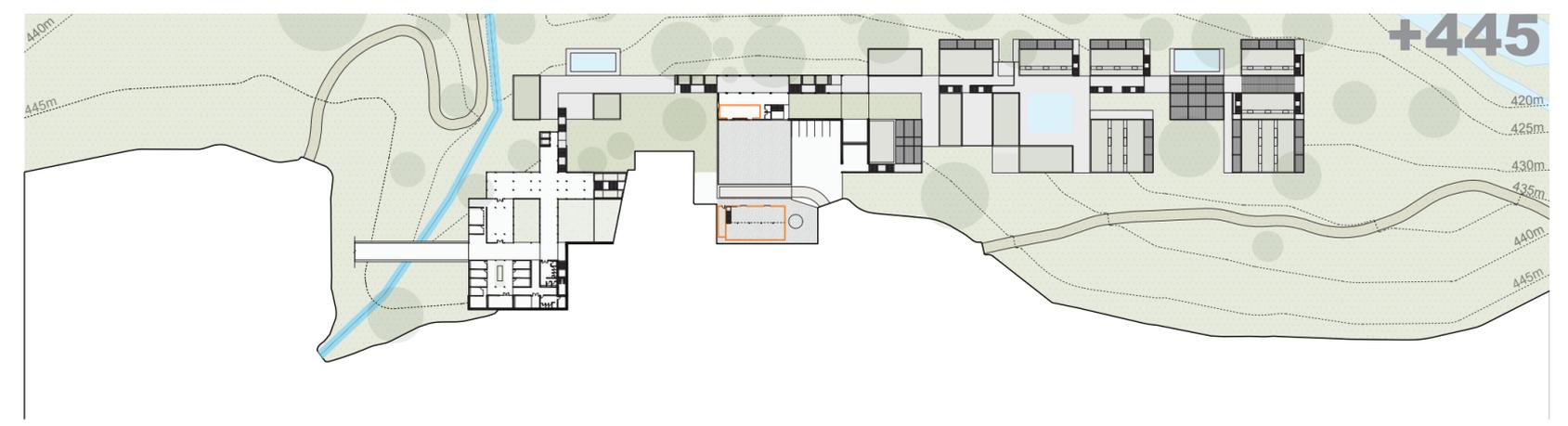
**+439**



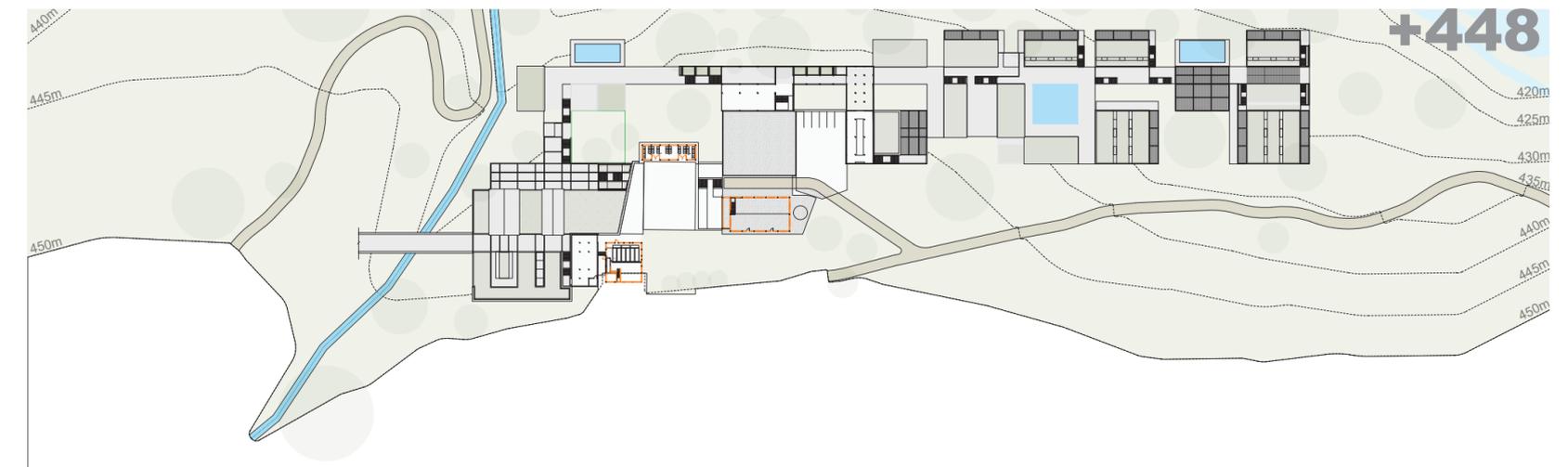
**+441**



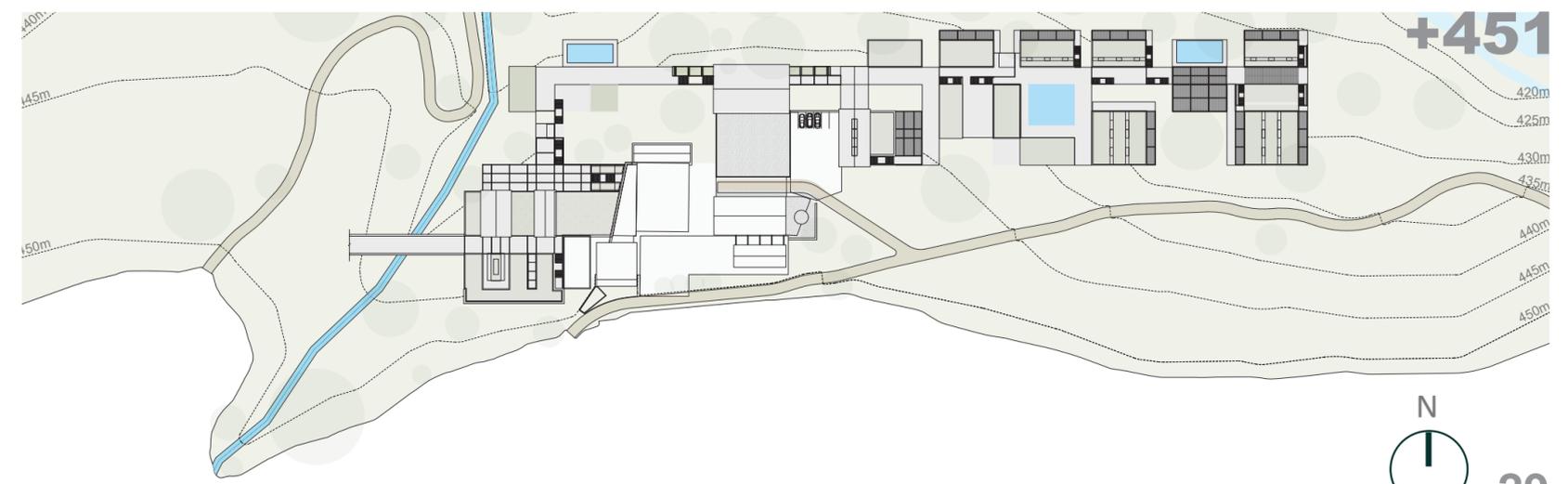
**+445**



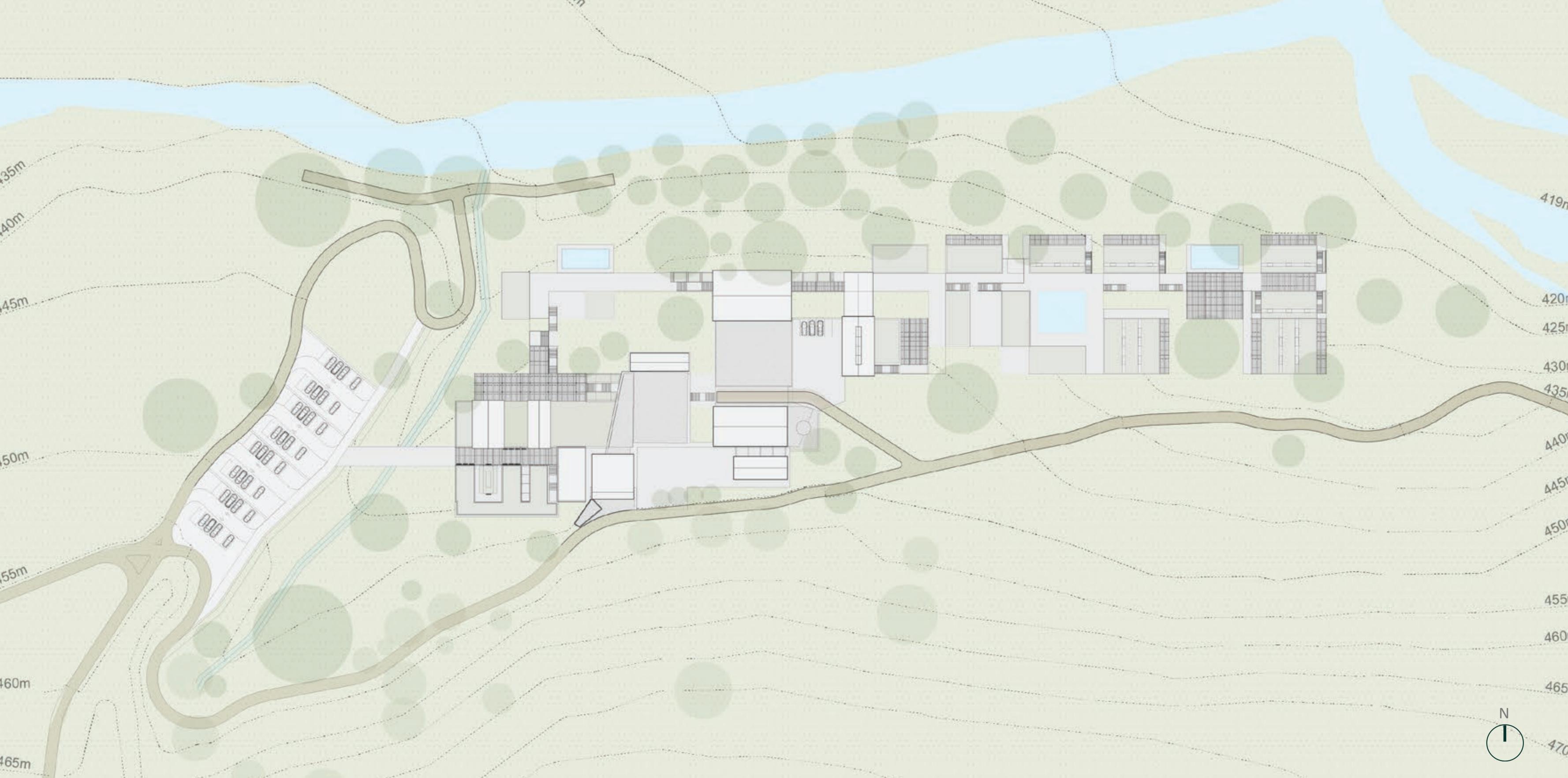
**+448**



**+451**



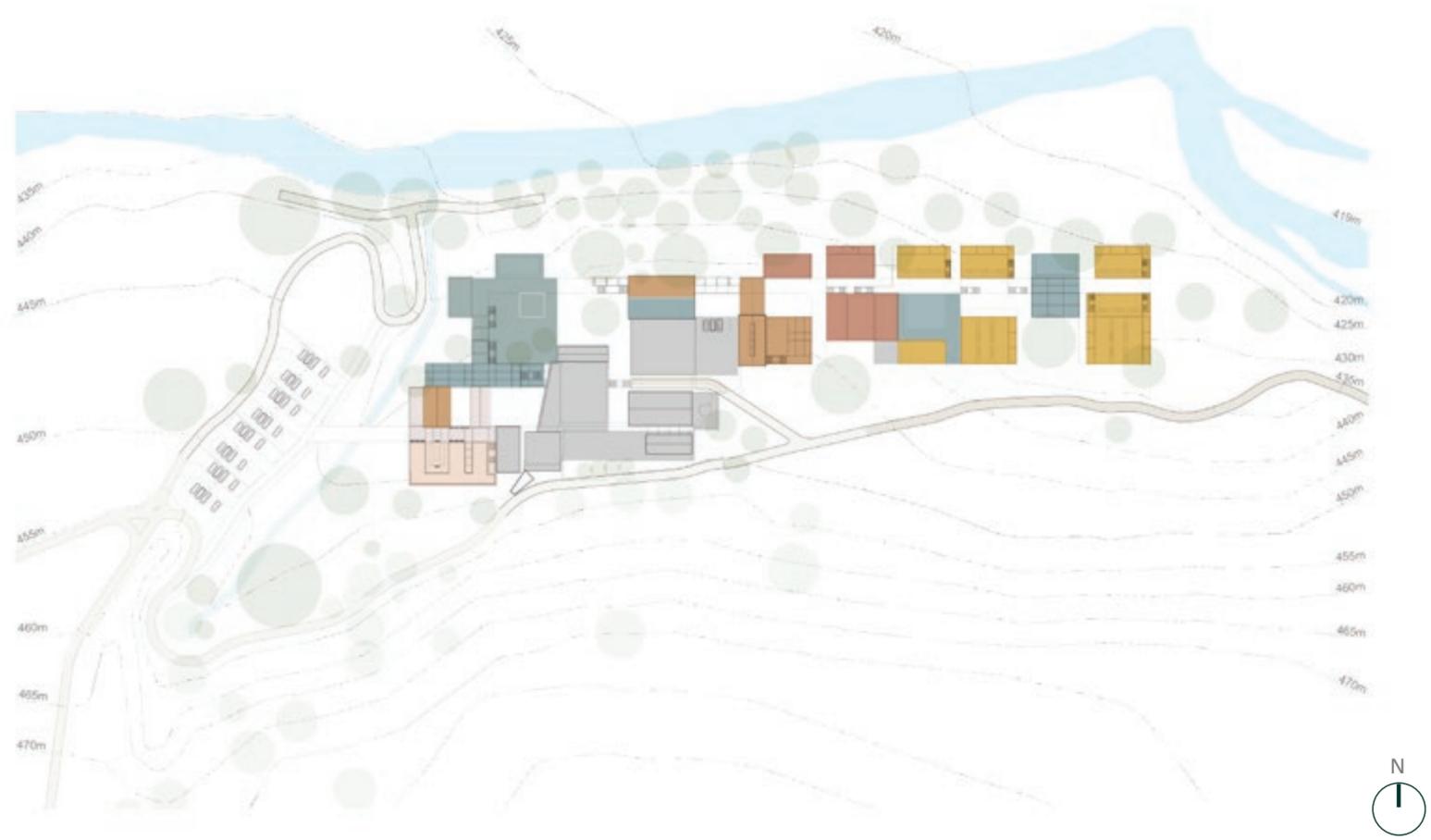
**29**





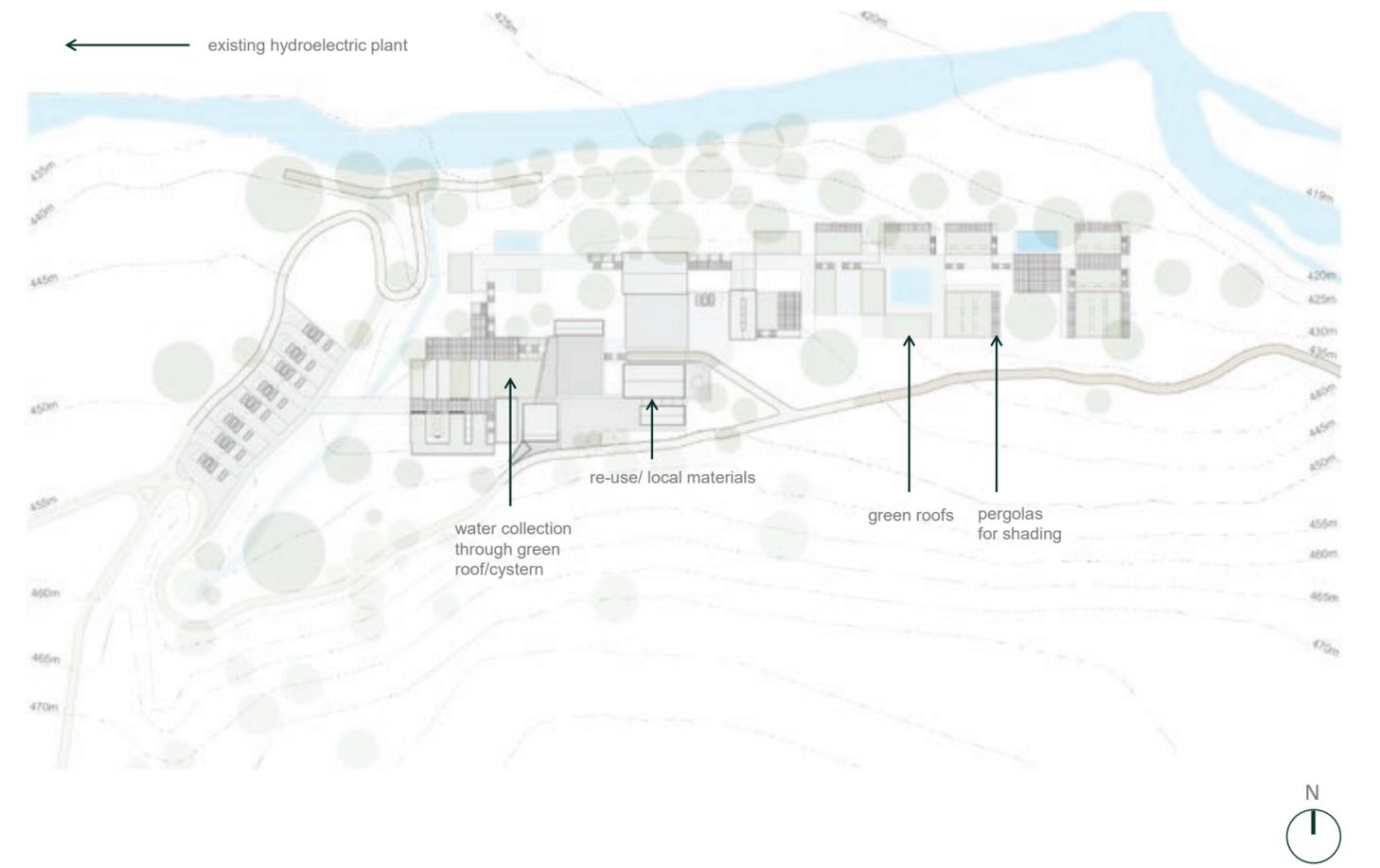
Due to the volcanic nature of Guatemala's landscape, the site has a significant decline towards the river, located Northward of the existing structures. The change of elevation of about 20 meters from the south of the site, ending at the river, along with the imposition of a rigid grid, gave way to strategies such as carving, elevating, superimposing and nesting to give form to the new structures.





<b>RECEPTION</b>	<b>ADMINISTRATION</b>	<b>STAFF ACCOMMODATION</b>	<b>FOOD &amp; BEVERAGE</b>	<b>ACCOMODATION</b>	<b>RECREATION</b>	<b>WELLNESS CENTER</b>	<b>GENERAL SERVICES</b>
entrance vestibule lobby front desk office concierge station luggage storage main safe lobby lounge souvenir shop restrooms janitorial cafe	manager's office admin. offices conference room restrooms janitorial server room office supplies	double room lounge room housekeeping kitchen	bar & cafe restaurant barista area coffee tasting kitchen storage rooms pantry cold room cleaning supplies vegetables & greens	bungalow suite single bungalow double bungalow shared bungalow shared toilets pool	reception foyer multi-purpose room and gallery restrooms furniture storage	reception waiting room employee lounge massage room temascal area (sauna) thermal pools showers yoga & meditation restrooms dressing rooms	supply storage linen storage laundry maintenance office repair workshop general storage loading dock check-in area check-in office security station restrooms dressing rooms janitorial staff station machine room double traction parking lot parking lot heliport
● 423 m <sup>2</sup>	● 293 m <sup>2</sup>	● 910 m <sup>2</sup>	● 897 m <sup>2</sup>	● 2984 m <sup>2</sup>	● 436 m <sup>2</sup>	● 527 m <sup>2</sup>	● 1788 m <sup>2</sup>

8255 m<sup>2</sup>  
not listed: circulation and mech. room (applicable to all)  
**LAVDS PROGRAM**



Due to its remote location, several sustainability strategies were thought of. The program will use the local hydroelectric plant, which currently powers the residence and surrounding areas, to power the new facilities. In addition, elements such as cystems and green roofs will be used for water collection. Pergolas are placed throughout the project's outdoor areas to provide shading. Lastly, the project either re-uses existing buildings, or will use locally sourced materials only, as previously mentioned.

The guidelines aided in the organization and master planning of the project in such a way that the new areas (administration areas, cafes, wellness facilities, and accommodations) surround the operations core, and are connected to it through areas pertaining to steps in coffee processing not present at the farm before, such as coffee roasting, tasting and selling.

## sustainability

san rafael blend





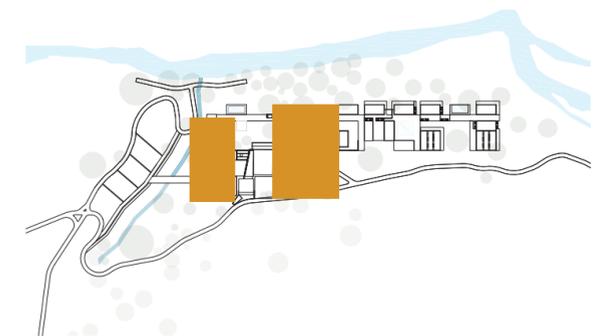
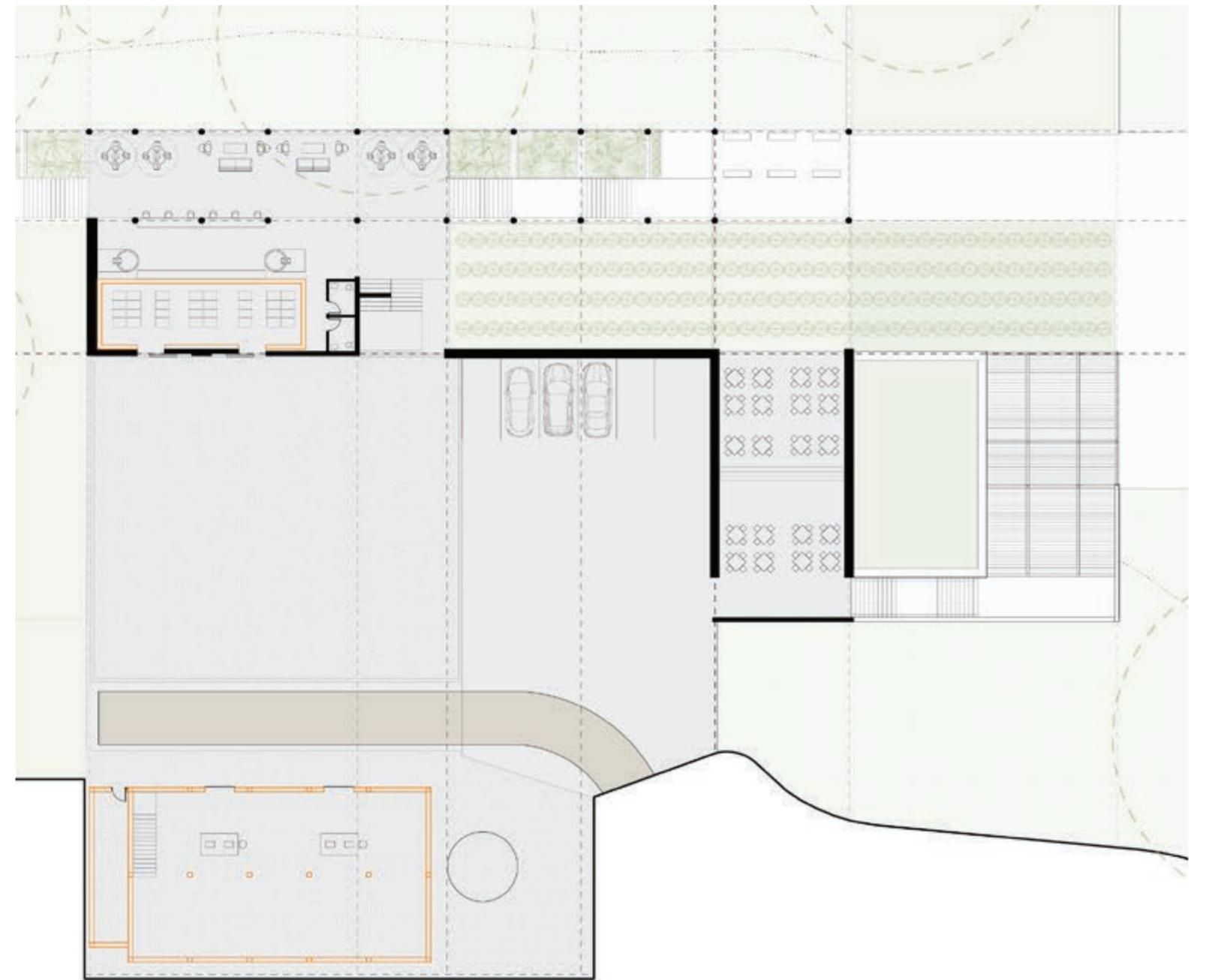
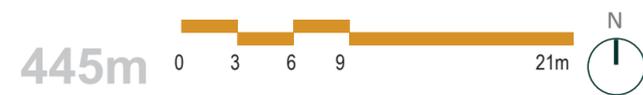
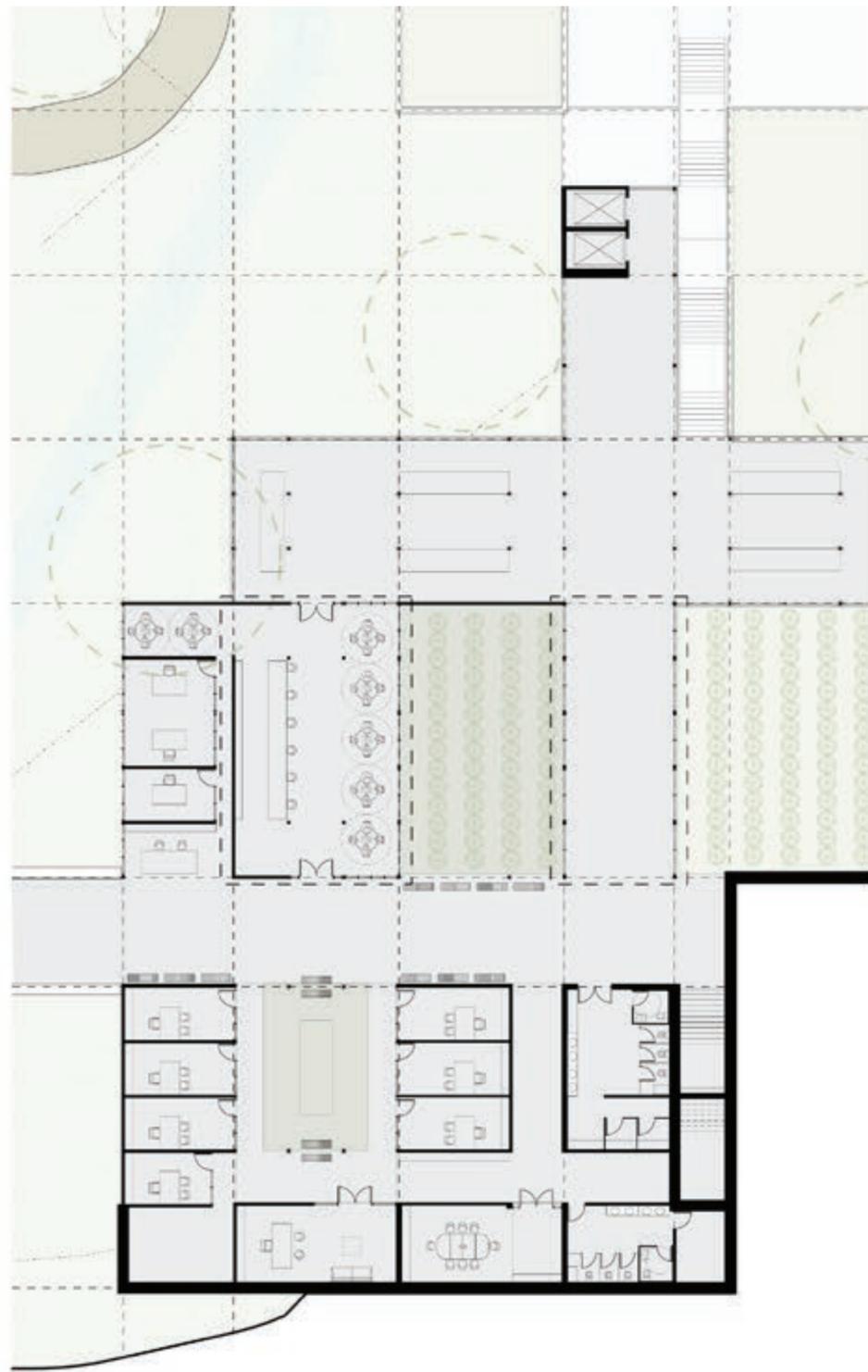


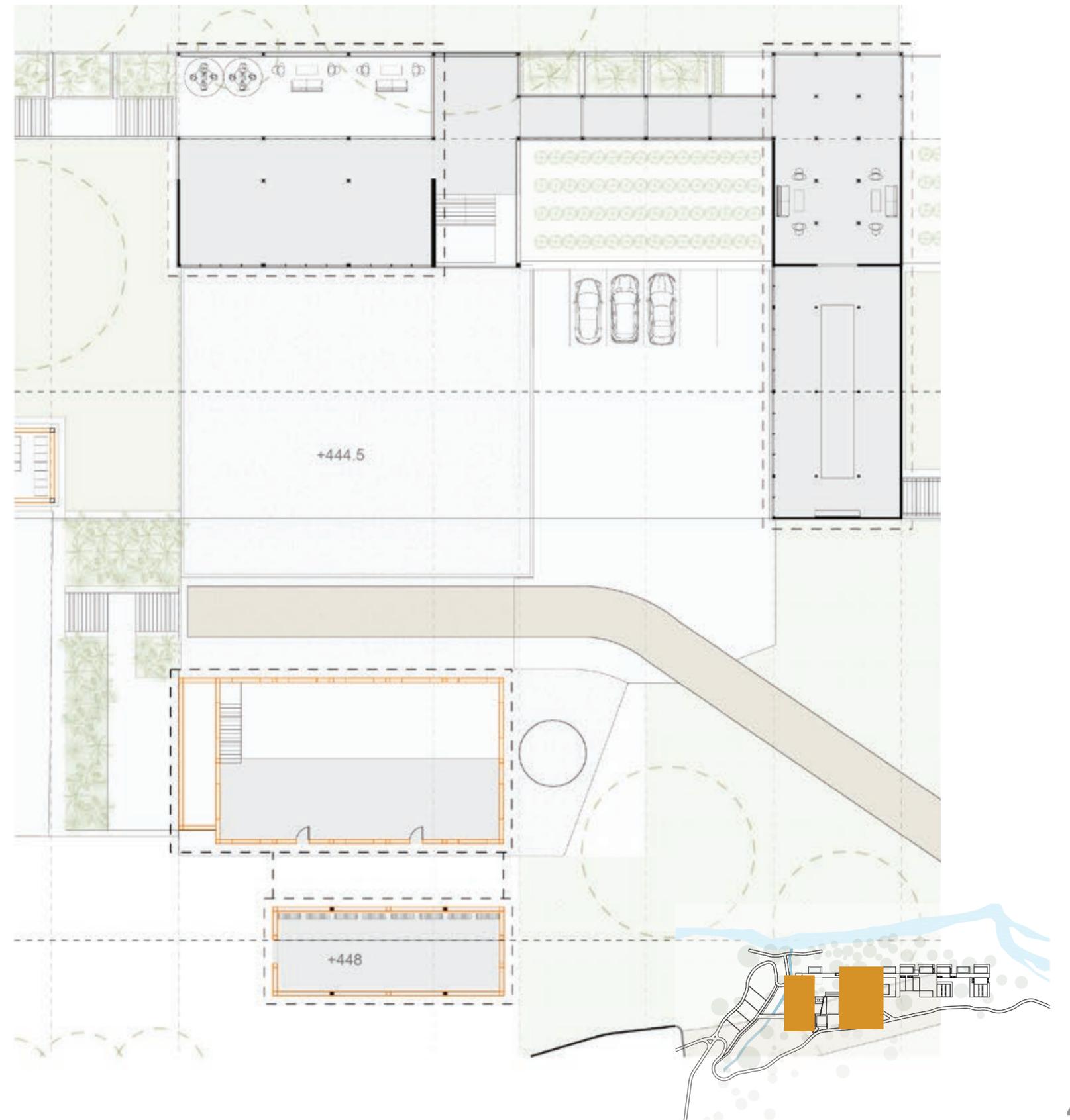
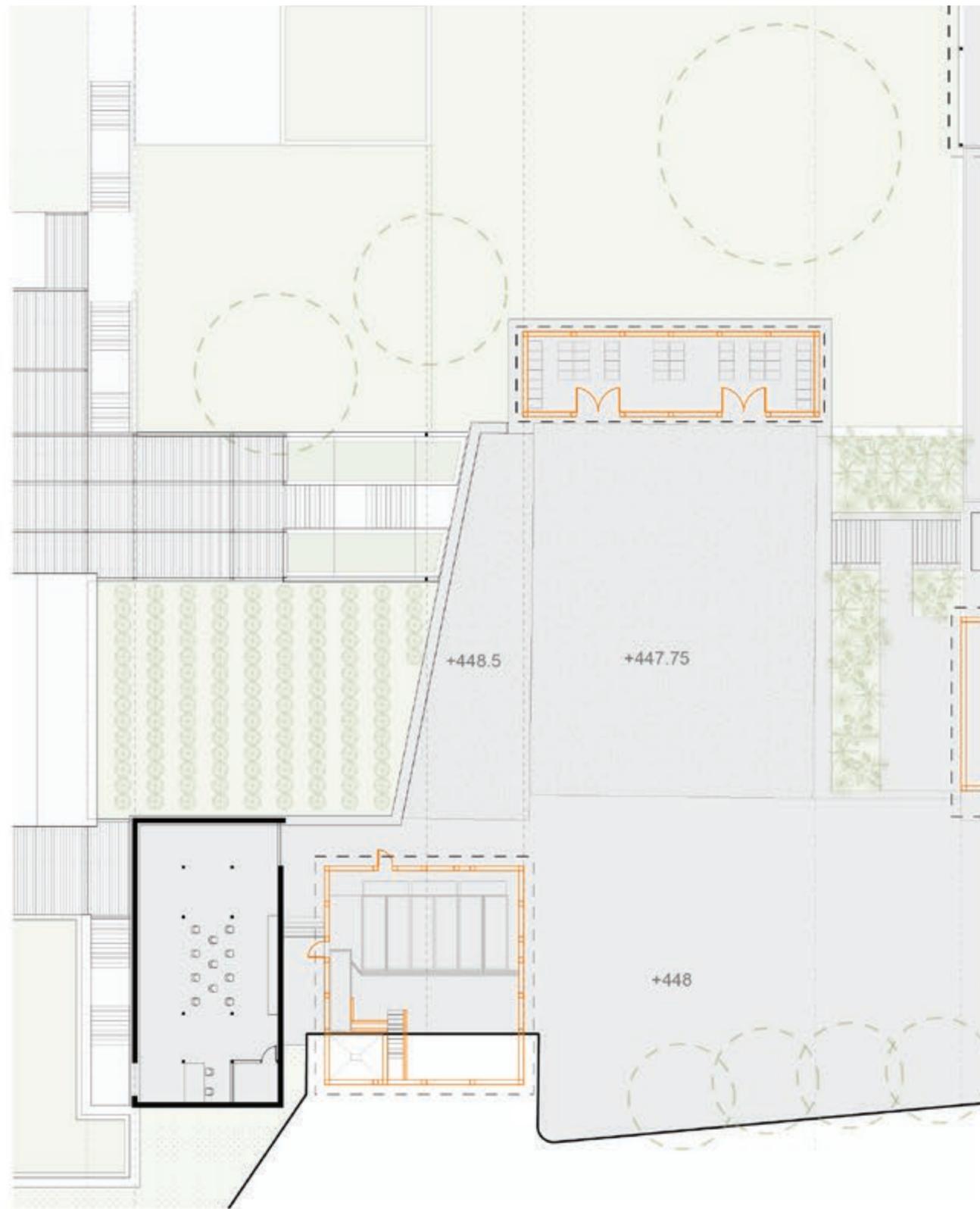
## overall plan

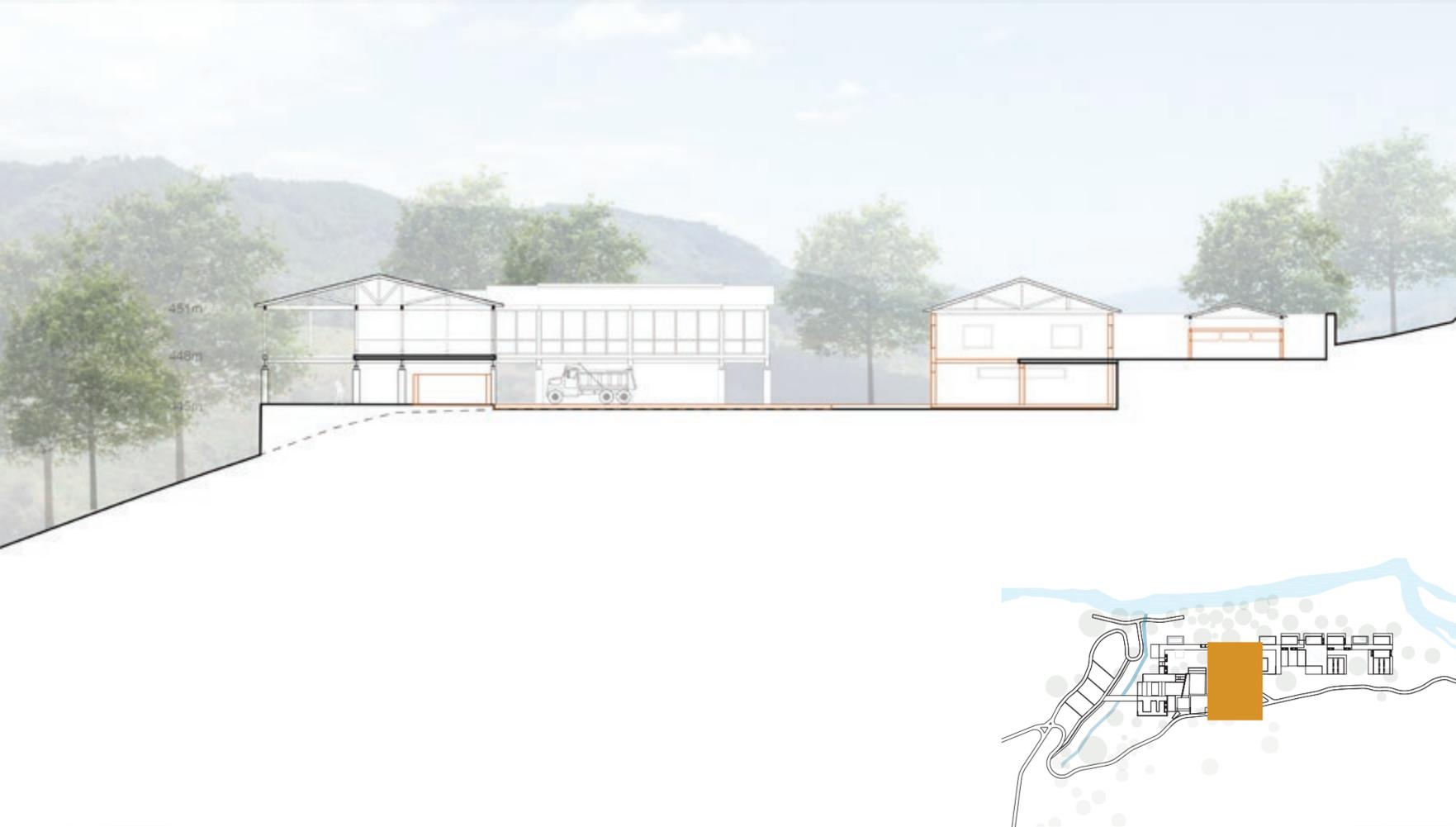
1. reception/administration
2. cafe
3. agricultural plantings
4. market
5. existing operational facilities
6. drying patio
7. parking
8. roasting bar



## market





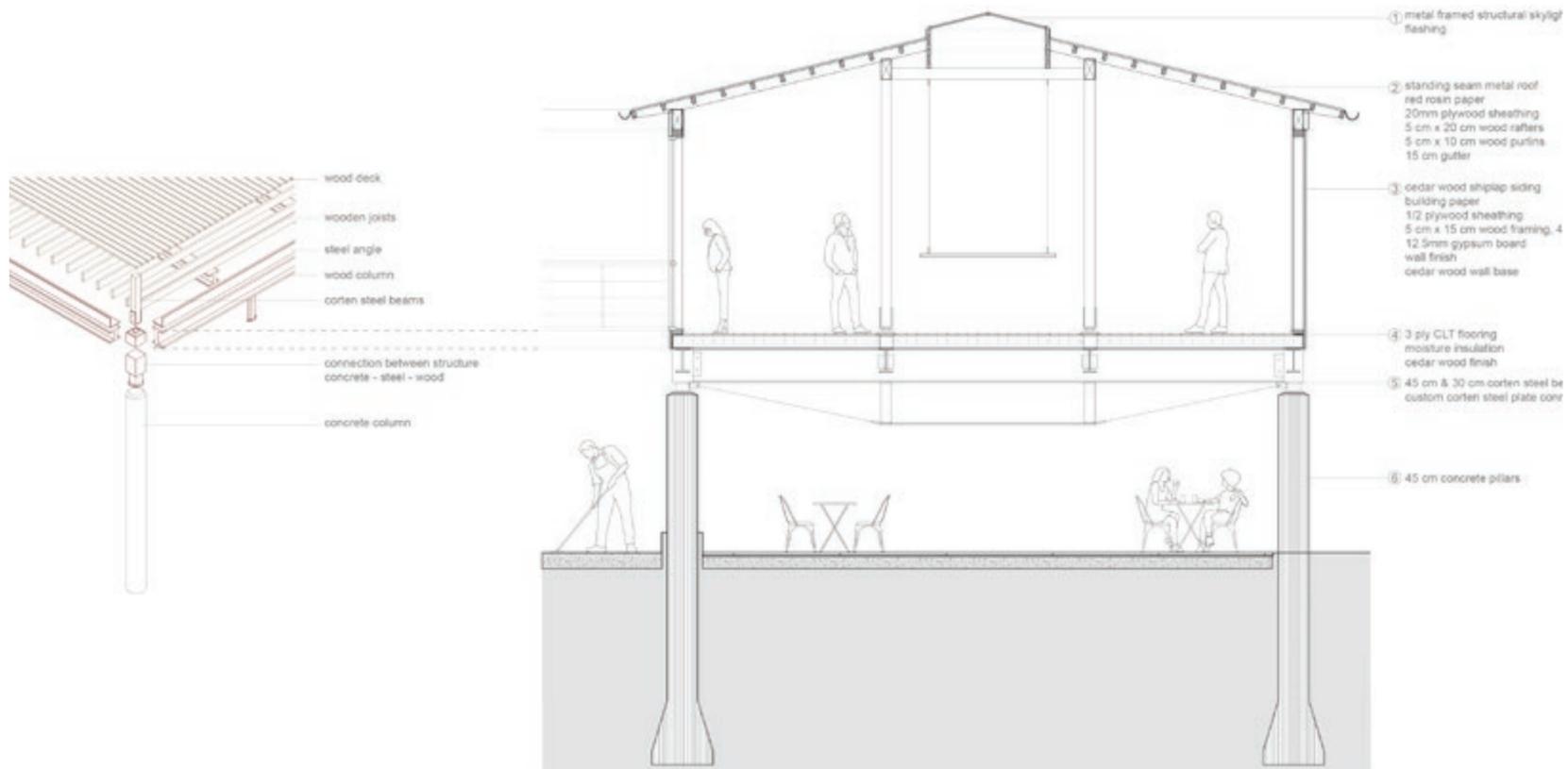


## operational facilities

Existing buildings now surrounded by the following steps in the coffee processing line. Roasting, tasting, and selling.

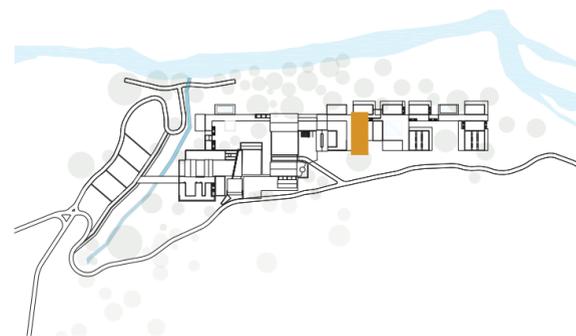
With this project I realized the potential that architecture has in industrial construction for it allows a variation of the usage of means and methods in construction, providing the opportunity to design for site efficiency and save money, modernity and progress to invite more visitors, and economic means to carry continue into future generations of coffee farmers, also creating a positive impact in the local economy.





## tasting room

The existing grid-inspired layout allows the tourist to move through the coffee processing line from several perspectives, changing the status of a coffee farm from the origin of a commodity, to an industrial heritage site. Additionally, the physical and visual connections from the new project to the existing facilities allows the tourists to experience mental connections of understanding, appreciation and admiration towards the industry of coffee farming; this project is a celebration of the coffee culture in Guatemala, being materialized through architecture. This is true particularly in areas where unusual connections happen, such as tasting a cup of coffee while watching coffee beans dry or walking through coffee plantation patios on your way to your room.



The transitions of materials can be best appreciated in the pillars that allow for certain structures to be raised throughout the irregular topography. The round concrete pillars stop at a regular height and are met by custom steel connections and flooring structure which receives wood, either cedar or CLT, flooring and decking, to later raise wood framing and glass structures.

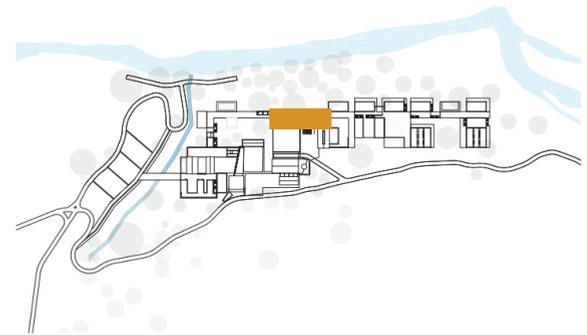


roasting bar - drying patio



roasting bar

New possibility of offering just harvested, freshly-brewn coffee, while looking at it dry.



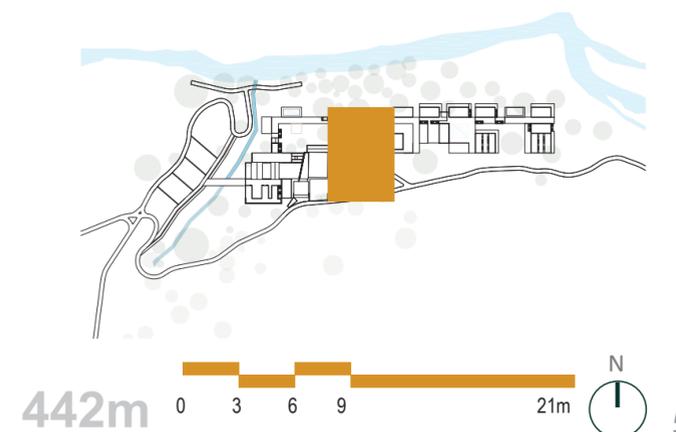
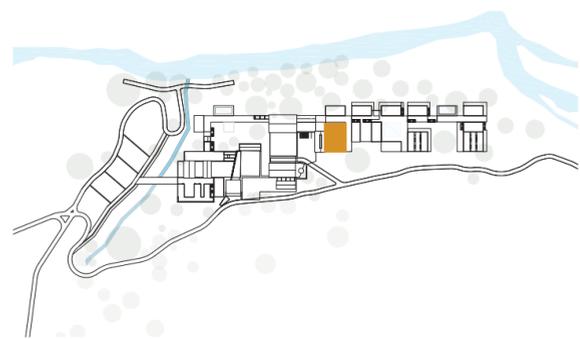
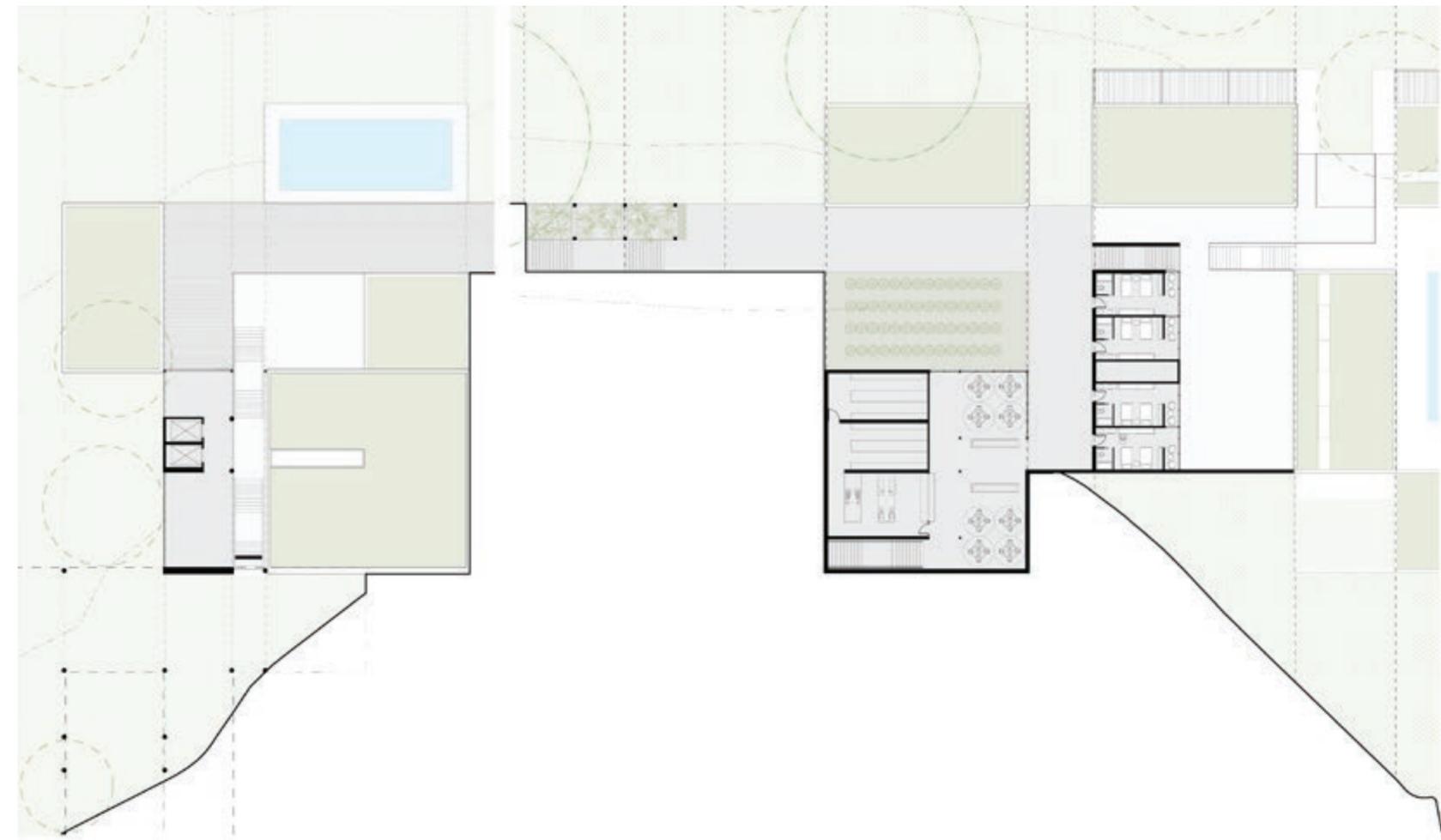


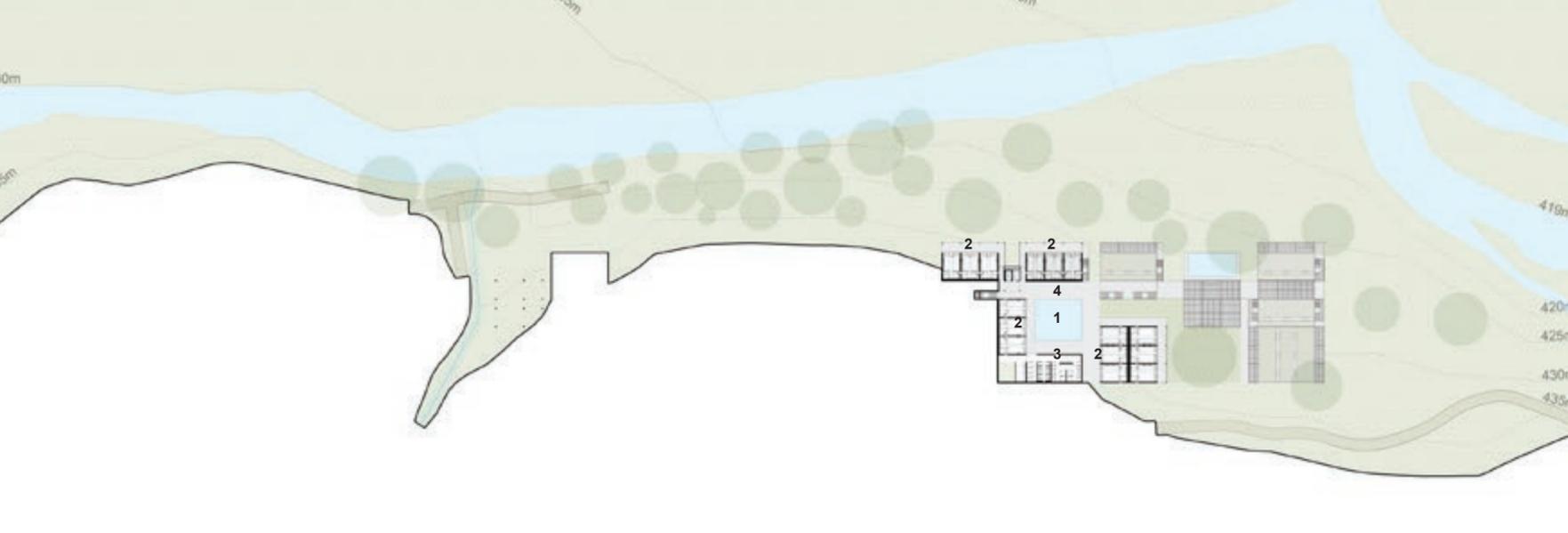
## overall plan

1. spa pool
2. yoga rooms
3. bathroom & temascal
4. cystem
5. storage room
6. staff accomodations



food patio



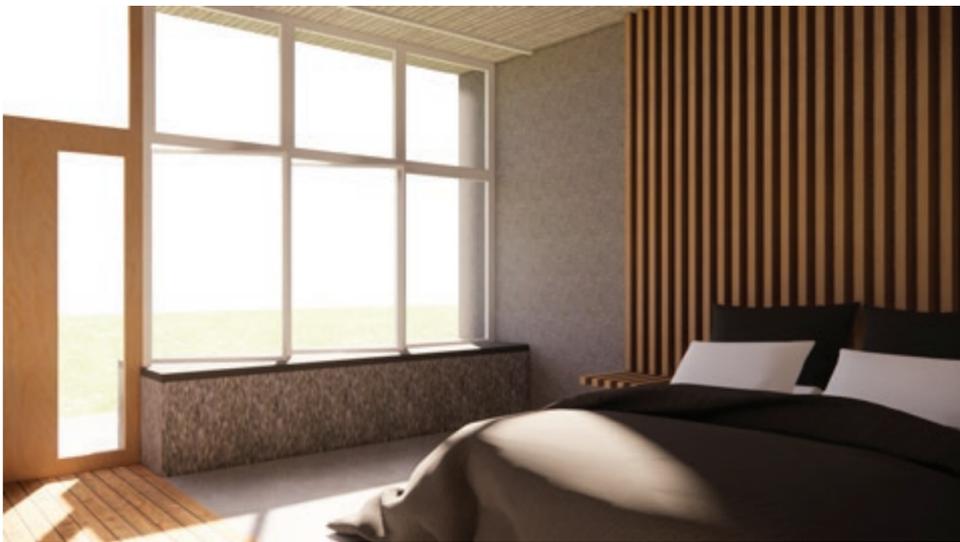


## overall plan

- 1. pool
- 2. accomodations
- 3. bathrooms
- 4. outside bar

## accomodations

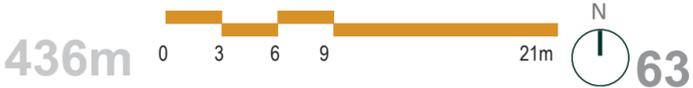
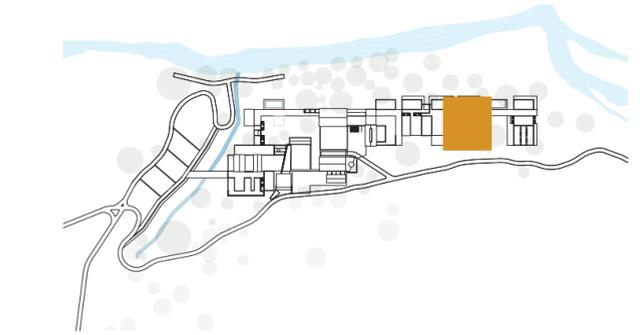
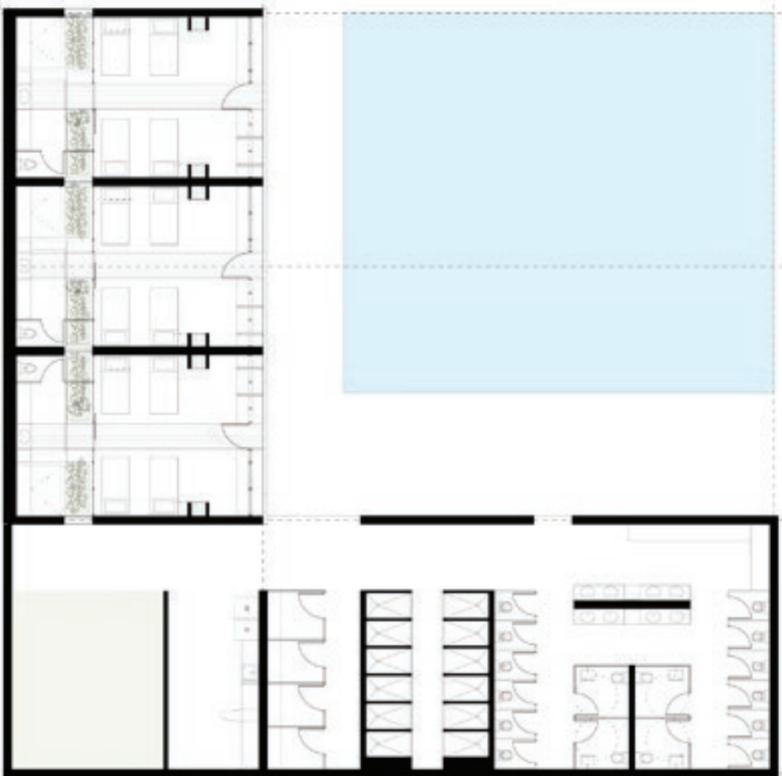


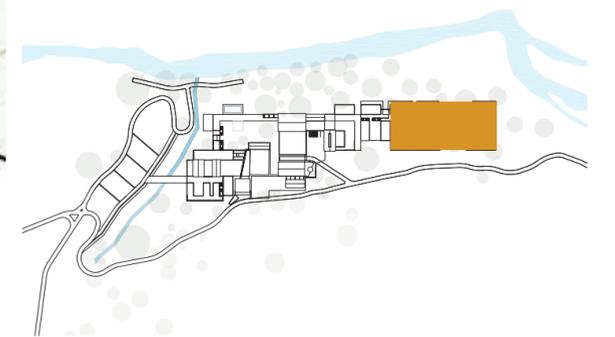
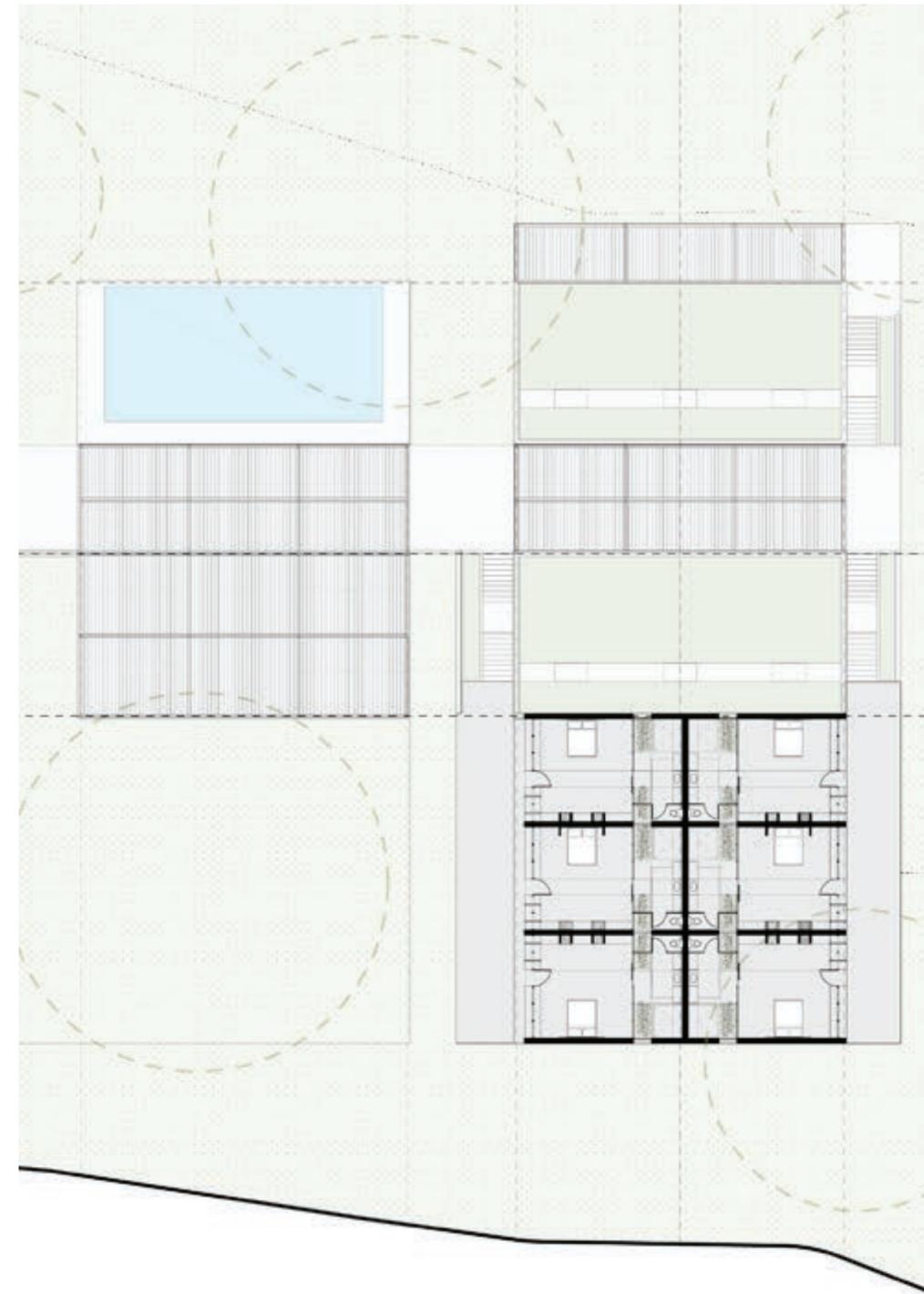
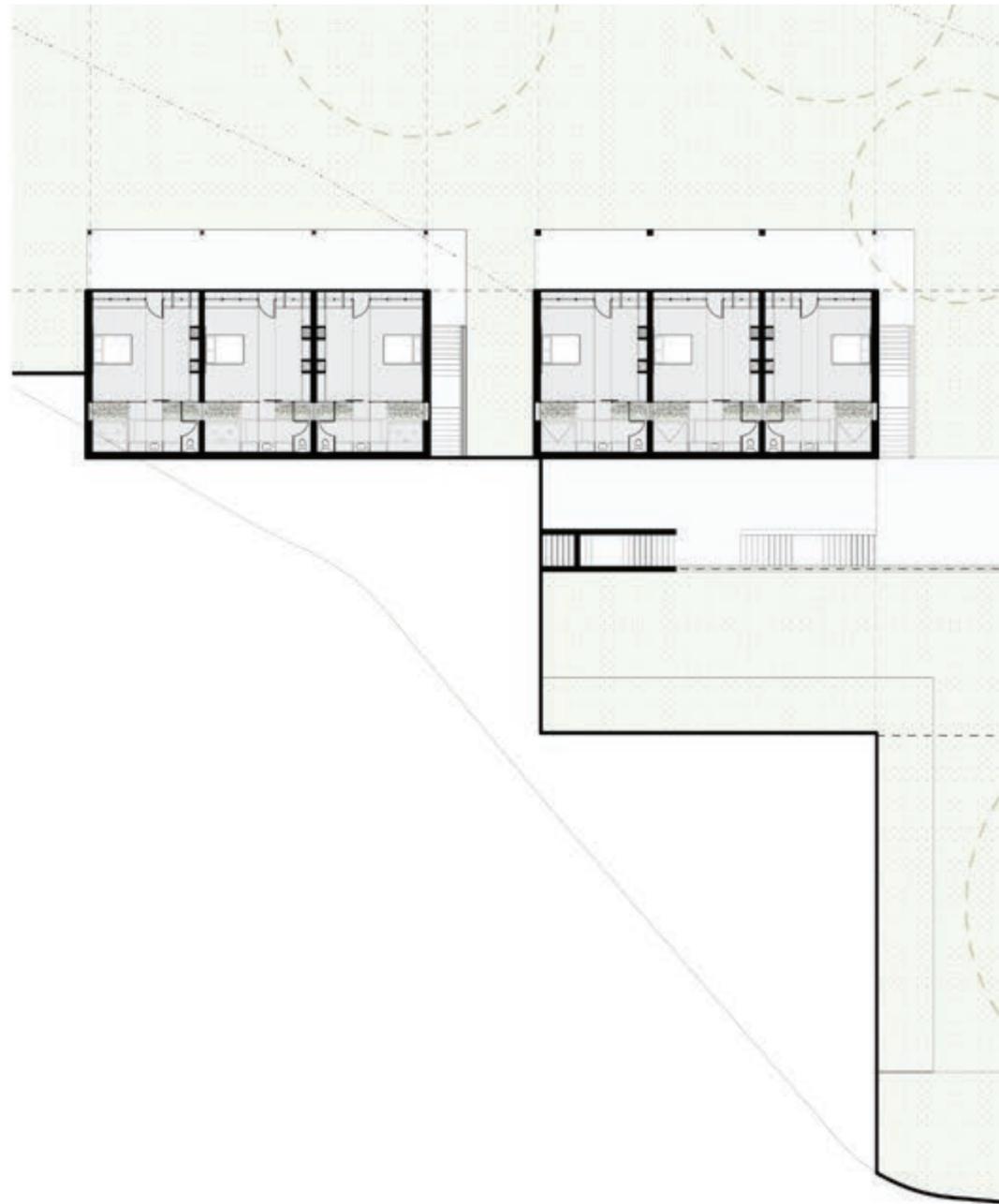


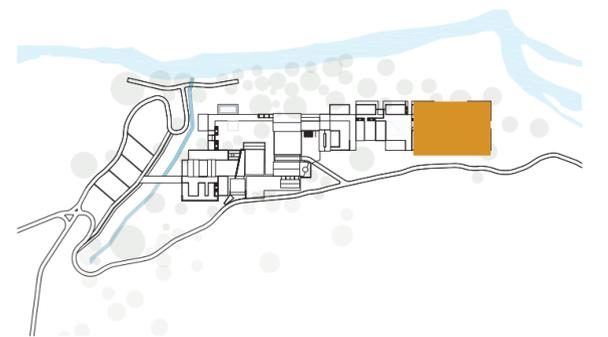
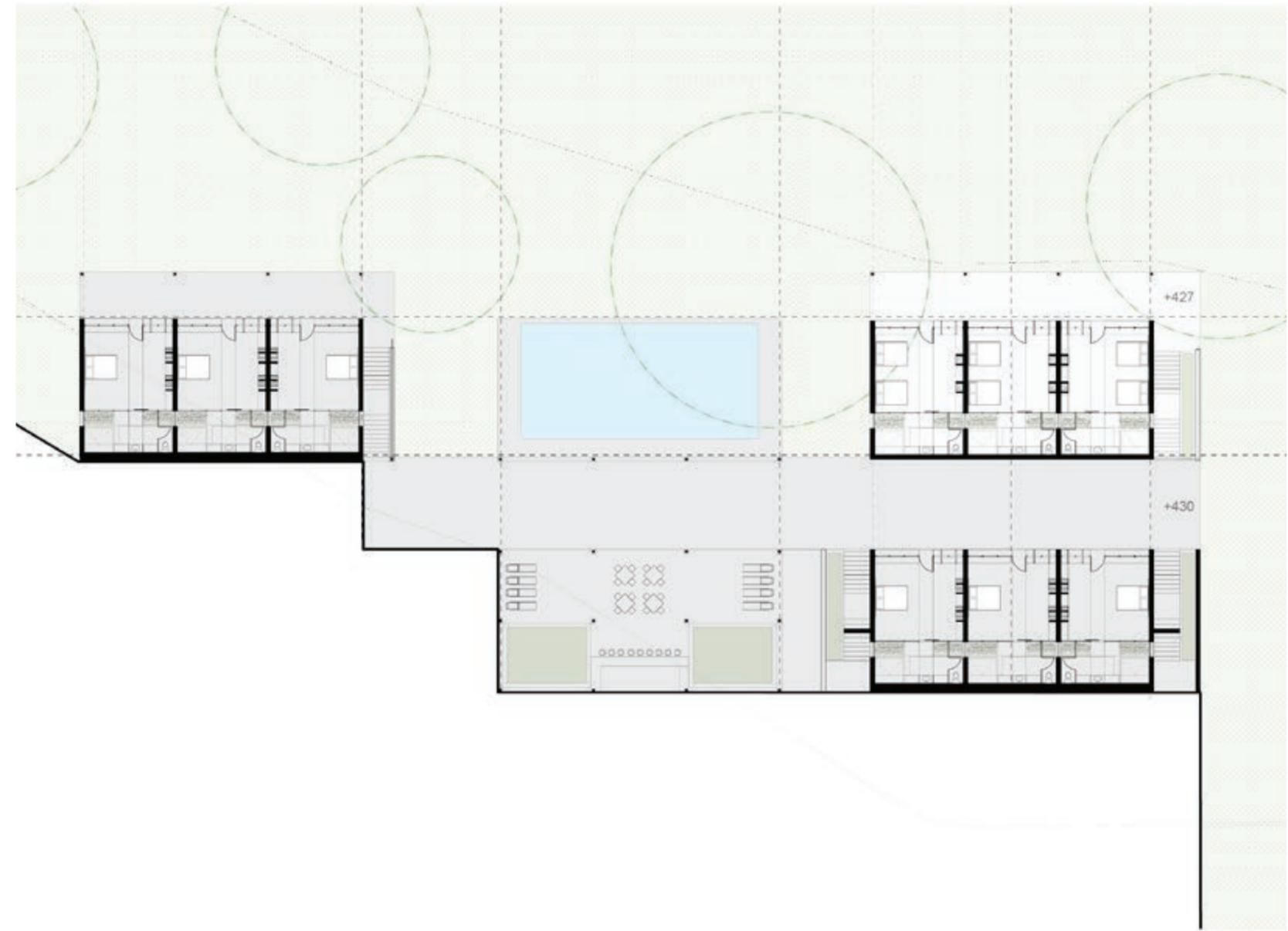
accommodations



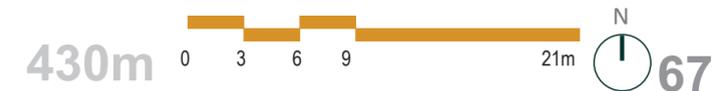
pool







acomodations





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