OXÍMORON

PROFESSORS:

Arq. Patricia Rodriguez Anido Arq. Ramón Palisa

Arq. Beatriz Coronel Arq. Marta Casen

TC.-

Taller Combes

PEREZ ALBERT DAIANA

ROJANO SOFÍA

CONTENTS

.01

INTRODUCTION

Theme – Site – Design Concept.

THEME

Concept Definition and Design Proposal.

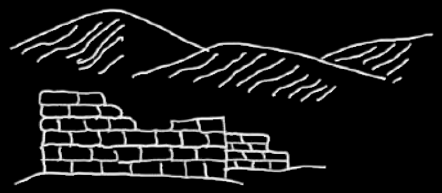
OXÍMORON

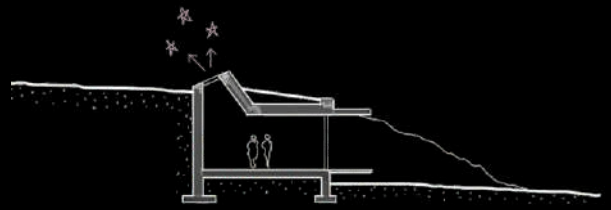
(From the Latin oxymōrum, derived from the Greek oxýmōron, meaning “sharp” + “foolish”.)

A rhetorical device that brings together two opposing concepts, generating a new meaning through their apparent contradiction.

ASTRONOMICAL HUB

An Ecosystem of Science, Culture, Tourism, and Astronomical Heritage.





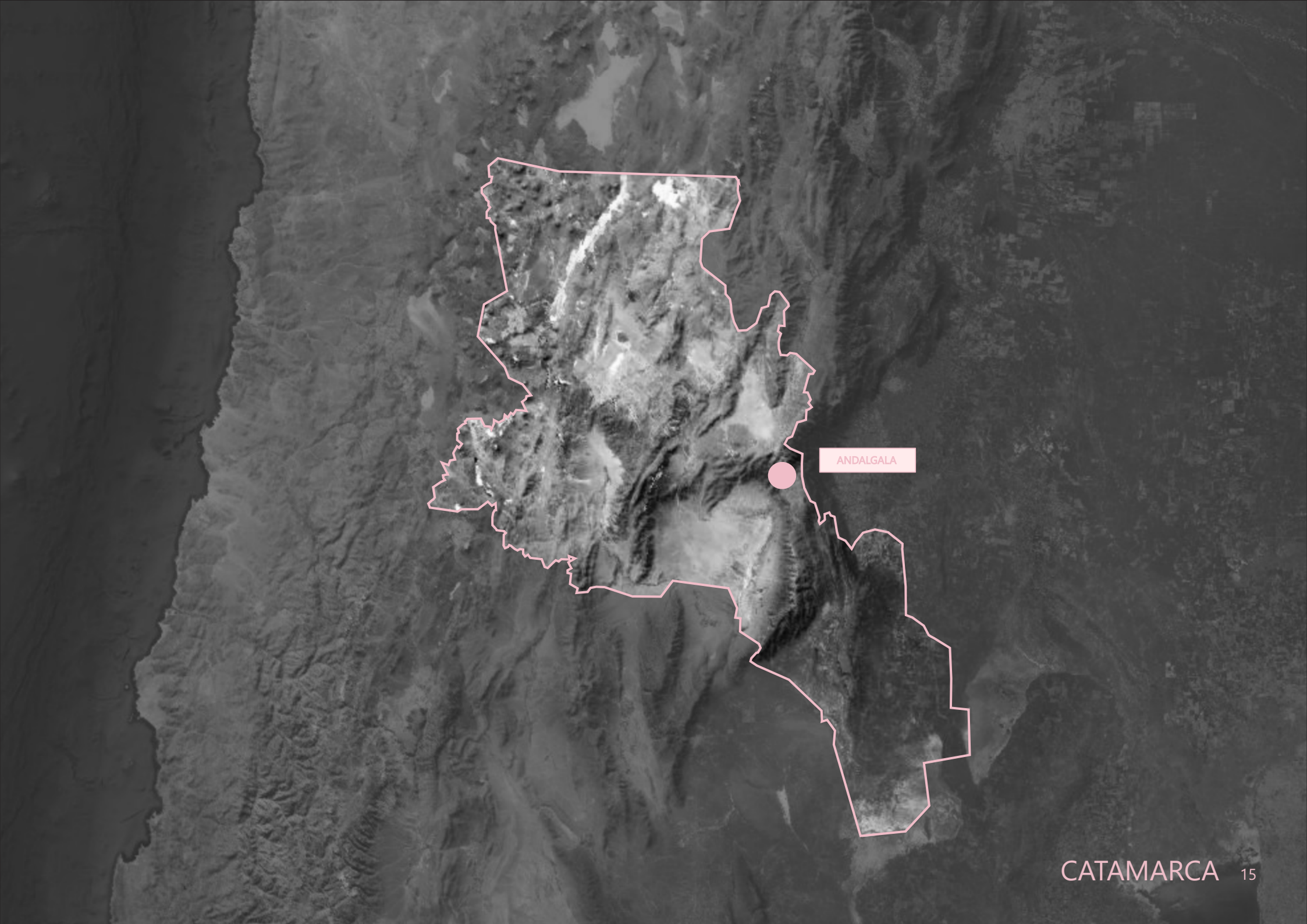
Filled with seemingly contradictory dualities:

* Tourism ↔ Science
* Outreach ↔ Research
* Visible ↔ Invisible
* Past ↔ Future
* Mountain ↔ Sky
* Subterranean Space ↔ Celestial Observation
* Spiral ↔ Line
* Public ↔ Private
* Silenced Women ↔ Recognized Women

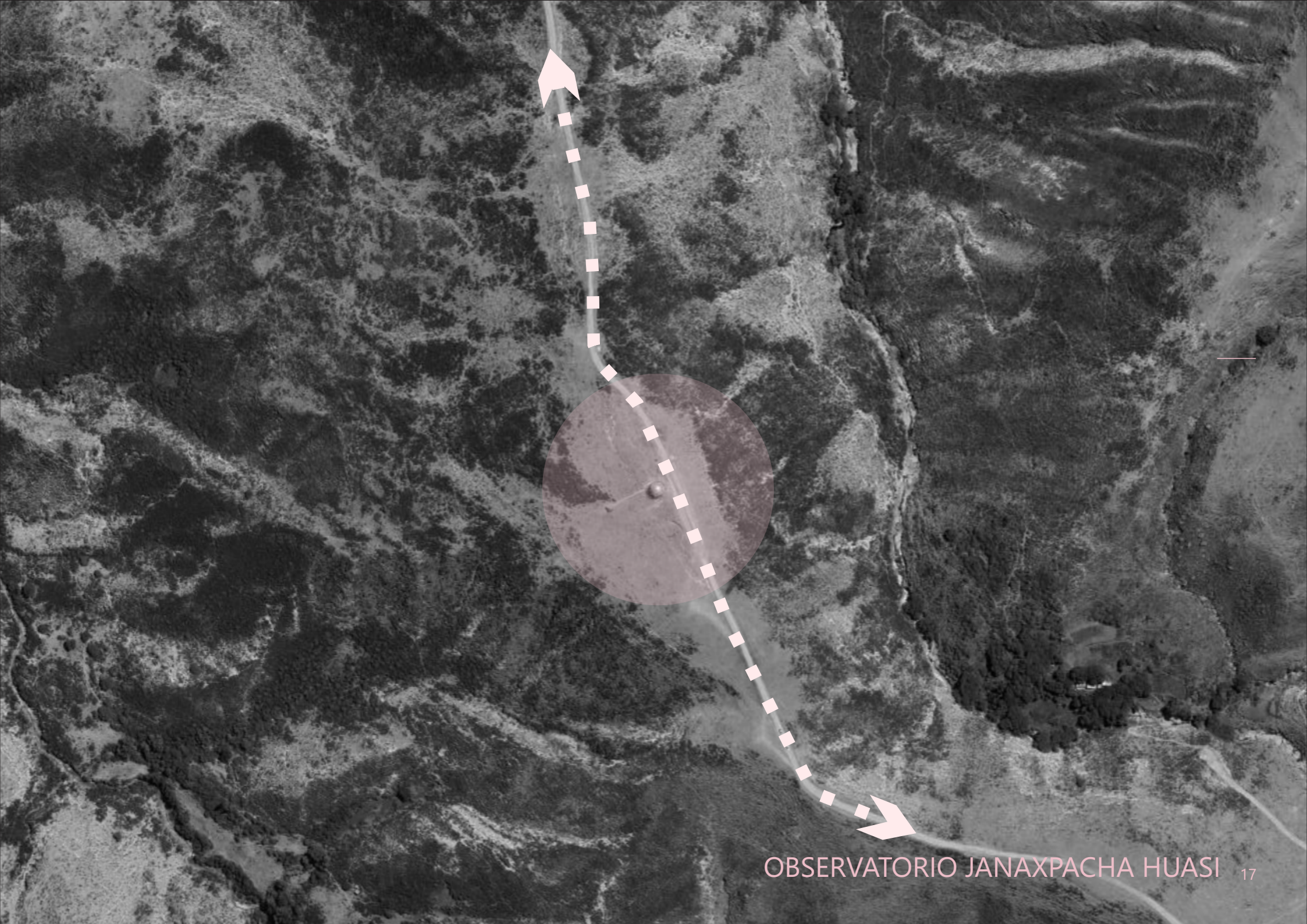
SITE

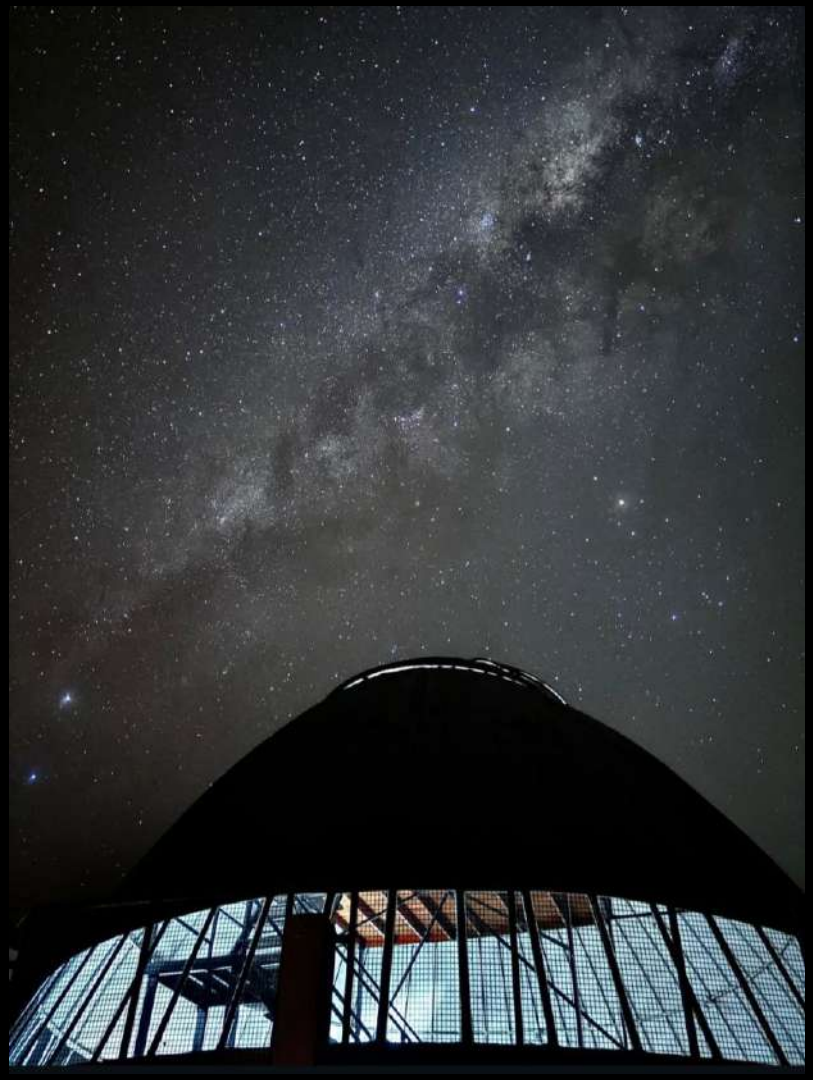
Justification of Site Selection and Analysis.


ARGENTINA


ANDALGALA


EL ALAMITO
BUENA VISTA
BUENA VISTA, ANDALGALA

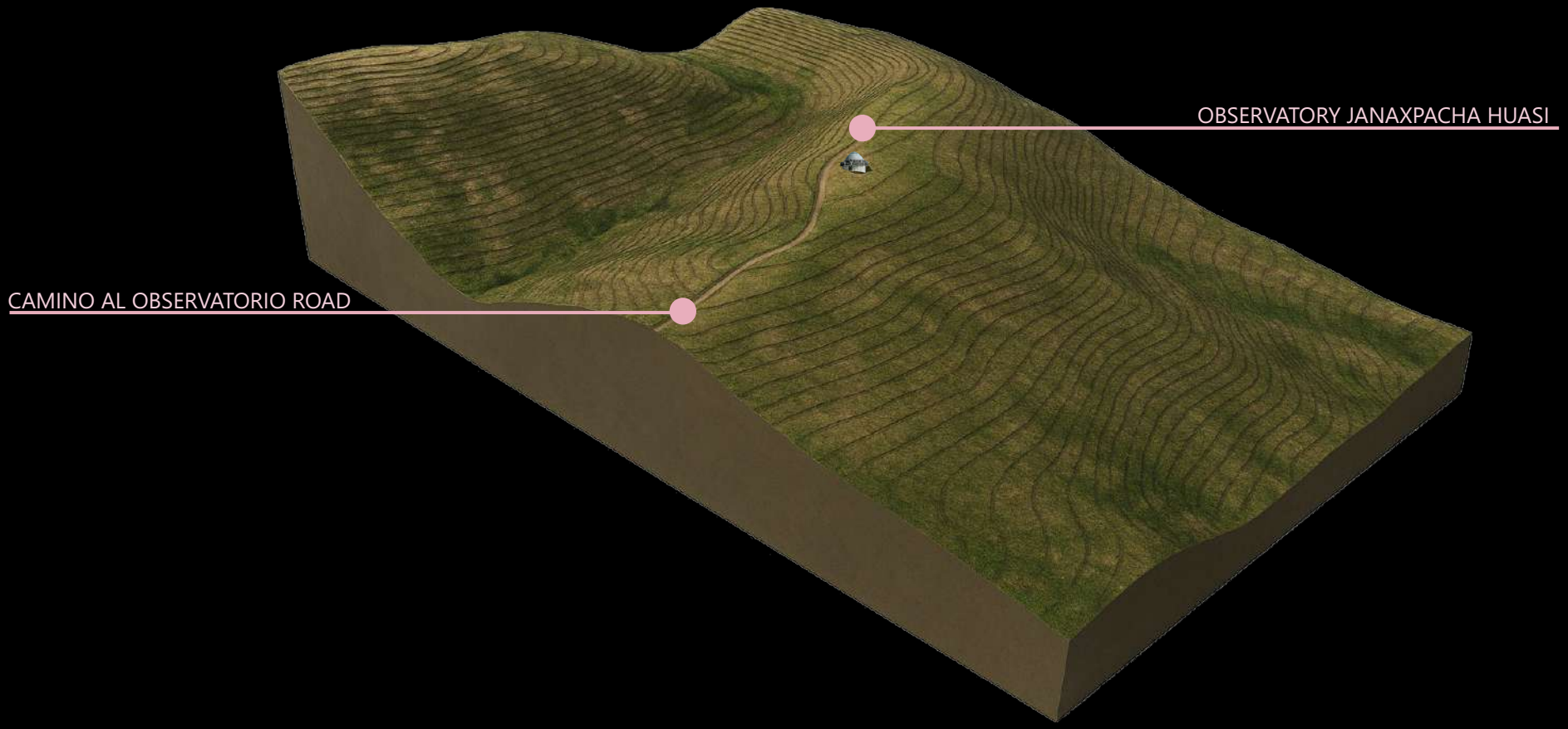




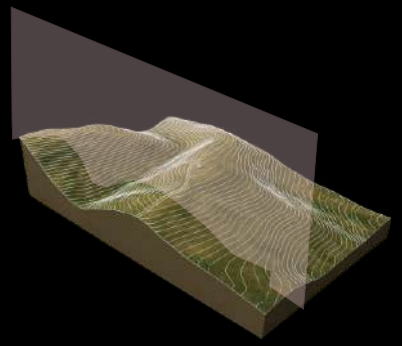
The project is located along the Camino al Observatorio Road, at coordinates 27°31'31.6"S, 65°59'29.0"W.

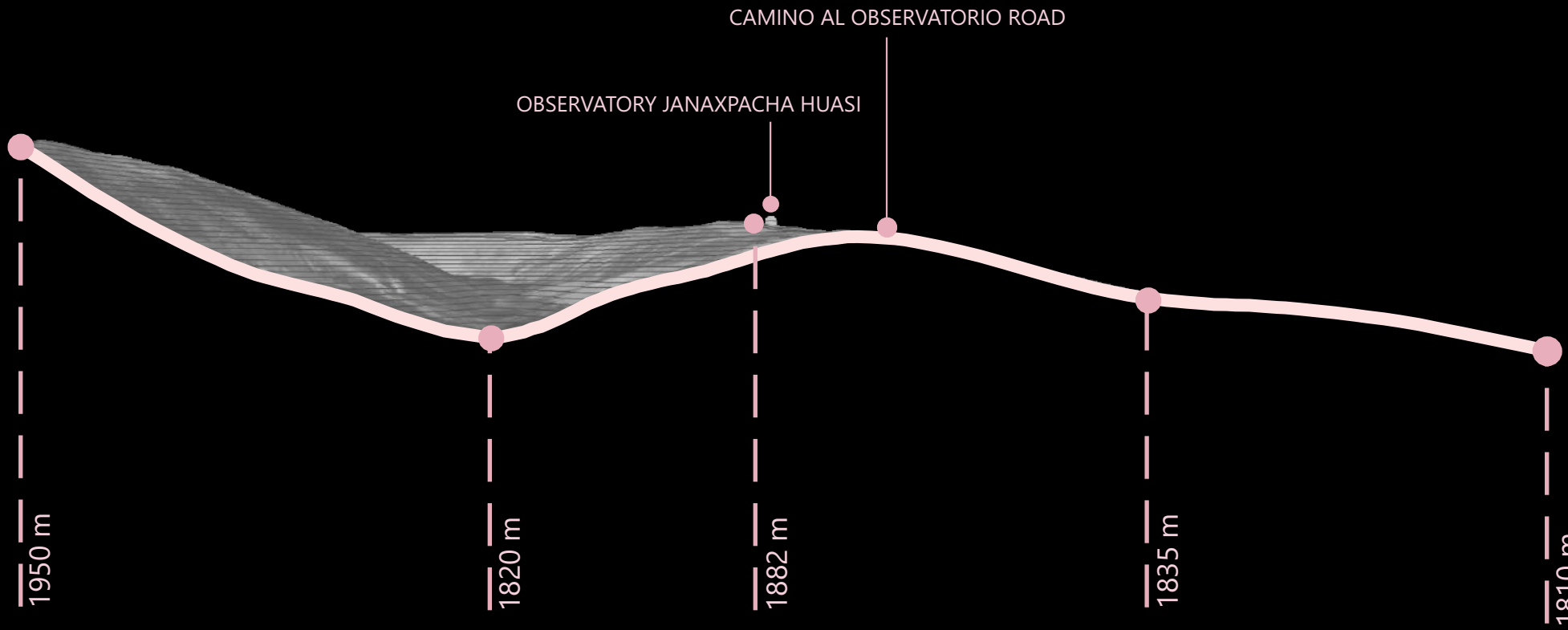
The site is home to the small astronomical observatory Janaxpacha Huasi, which means “House of the Sky” in Quechua. Its name serves as a tribute to the Indigenous peoples and the cultural heritage of Aconquija.

In fact, it was the first observatory in Argentina to be named in a native language, recognizing the legacy and identity of the region’s original inhabitants.


OBSERVATORY JANAXPACHA HUASI
CAMINO AL OBSERVATORIO ROAD

SITE





TOPOGRAPHIC SECTION

HISTORICAL CONTEXT

Indigenous People
Pre-15th Century

The Diaguita–Calchaquí people inhabited the Aconquija region, developing a profound understanding of astronomy. They used observations of the sky to organize agricultural calendars, ceremonial practices, and terrestrial navigation.

Colonial Period
16th–19th Centuries

Colonial expeditions and records described the region for its imposing geography and exceptionally clear skies. The area remained relatively isolated, experiencing minimal human intervention.

Scientific Recognition
19th–20th Centuries

The first formal astronomical observations in the Aconquija region were conducted by Argentine scientific institutions. The area's skies were recognized for their exceptional transparency and atmospheric stability, highlighting their potential for astronomical observation.

Scientific and Touristic Interest
2000s

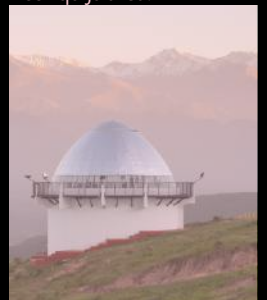
Growing recognition of the value of Argentina's night skies. Catamarca promotes astronomical tourism as a strategy for sustainable development and economic diversification.

The site possesses exceptional natural conditions but lacks comprehensive infrastructure. This presents a unique opportunity to integrate science, tourism, community, and territory into a cohesive development strategy.

Potential and Challenges
Present Day

Observatory Janaxpacha Huasi Construction
2011 -2018

Janaxpacha Huasi Observatory, was built in the Sierra de Narváez at an altitude of 1882 meters above sea level. Conceived as the region's first astronomical infrastructure, it was constructed by local craftsmen from the Aconquija area.



Astronomical Biocluster
Future Proyect

The proposal envisions the consolidation of a strategic hub of national significance, representing Northwestern Argentina (NOA) through the integration of astronomical research, scientific outreach, sustainable tourism, education, and territorial enhancement.

PHYSICAL AND NATURAL SITE ANALYSIS

1 . SOIL

Rocky and sandy soils.
Shallow soil depth in higher elevations.
High drainage capacity.
Risk of water erosion on sloped terrain.

IMPLICATIONS

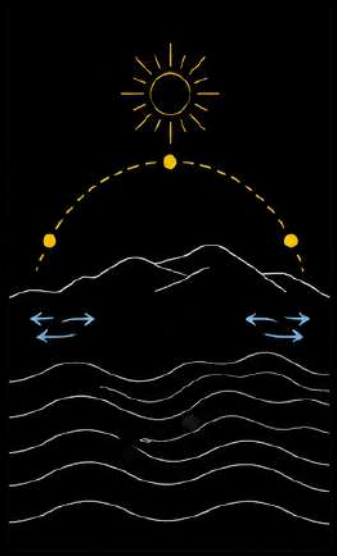
•Utilize the site's natural drainage patterns.
• Employ a lightweight,partially embedded architectural intervention.

2 . FLORA

Native xerophytic vegetation.
Low shrubs and grasslands.
Discontinuous distribution adapted to the terrain’s slope.

IMPLICATIONS

• Low water maintenance requirements.
• Integration with the surrounding landscape.
• Use of native species in green roofs and outdoor areas.



3 . CLIMATE

High solar radiation levels.
Prevailing winds (NE–SW).
Significant daily temperature variation.

IMPLICATIONS

• Controlled solar gain.
• Strategic cross-ventilation.
• Thermal mass to enhance environmental comfort.

4. TOPOGRAPHY

Steep slopes (10%–25%).
Site layout follows the contour lines.
Strong visual relationship with the surrounding landscape.

IMPLICATIONS

• Architecture adapted to the site's slope.
• Linear circulation paths.
• Organic branching that follows the descending topography.

5. HYDROGRAPHY

Seasonal watercourses.
Natural drainage patterns following the site's topography.

IMPLICATIONS

• Take advantage of the site's natural drainage.
• Integrated stormwater management.

SWOT ANALYSIS MATRIX

01 Strengths

- High number of clear-sky days per year, with approximately 200 cloudless days annually.
- Low levels of light and atmospheric pollution.
- Dry and stable climate.• Strategic location at 1,882 meters above sea level.
- Existing observatory serving as an initial operational base.
- Presence of ancestral astronomical practices and knowledge.
- Landscape of outstanding natural and scenic value.

02 Weaknesses

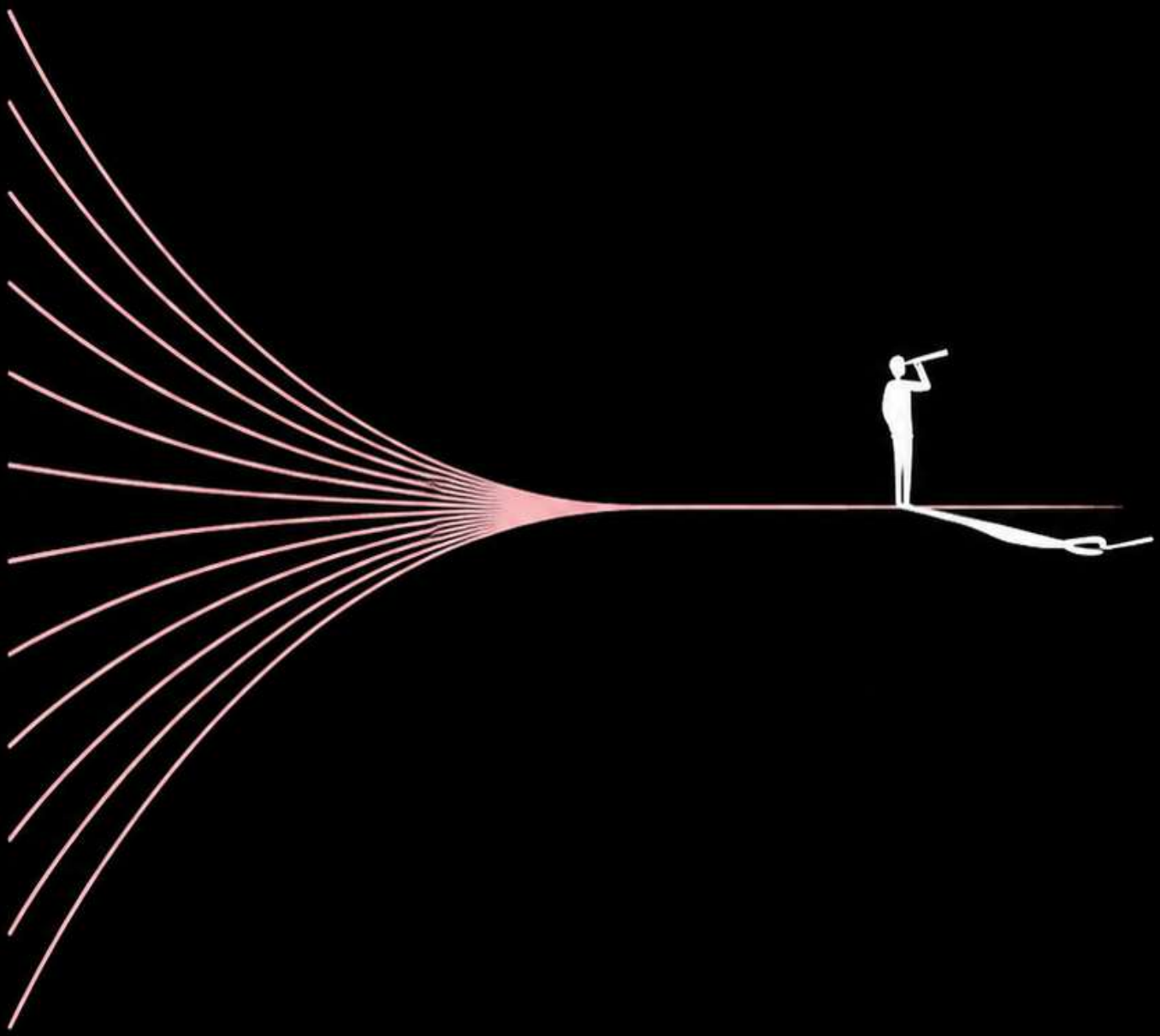
- Lack of comprehensive infrastructure (accommodation, services, and logistics).
- Limited accessibility.• Poor connectivity.
- Insufficient basic services.
- Low visibility and promotion of the site.
- Dependence on external initiatives for its development.

03 Opportunities

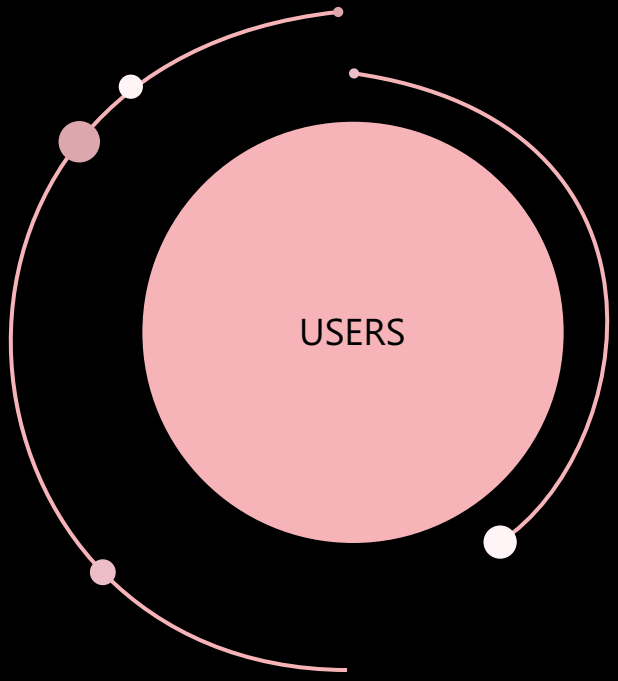
- Strengthen astronomical and educational tourism.
- Create a sustainable tourism destination that stimulates the regional economy.
- Develop infrastructure in an area that currently lacks it, while leveraging its untapped potential.
- Position the site as a strategic national hub.
- Integrate science, tourism, education, and culture within a single territorial framework.
- Attract public and private investment to support territorial development projects.

04 Threats

- Unplanned tourism growth that could negatively impact the natural environment and astronomical observation conditions.
- Environmental pressures on a sensitive mountain ecosystem.
- Lack of long-term and sustained investment.
- Significant daily temperature fluctuations.
- Development interests that do not prioritize conservation and sustainable growth.



USERS



01

PROFESSIONALS

Scientific / Technical

PROFILE

Researchers, astronomers, technicians, and scientific instrument operators.

NEEDS

- Laboratories and technical facilities.
- Professional observatory infrastructure.
- Data processing facilities.
- Long-term accommodation.

REQUIREMENTS

- Light and acoustic isolation.
- Thermal stability.
- Reliable technical connectivity and continuous power supply.
- Privacy and concentration.

02

AMATEUR ASTRONOMERS

Semi-Specialized

PROFILE

Astronomy enthusiasts, astrophotographers, and students.

NEEDS

- Observation platforms.
- Nighttime observation and practice areas.
- Workshops and training programs.
- Temporary accommodation.

REQUIREMENTS

- Controlled access.Dark skies.
- Spaces for interaction and community engagement.
- Signage and wayfinding.

03

TOURISTS

General Public.

PROFILE

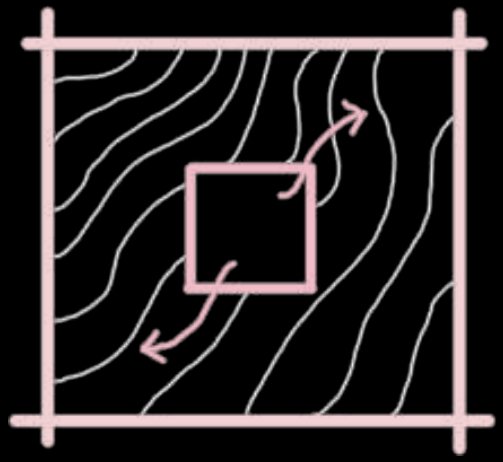
Visitors, families, school groups, and tourists.

NEEDS

- Reception and information services.
- Museum and interpretation spaces.
- Guided tours.
- Viewing platforms and rest areas.

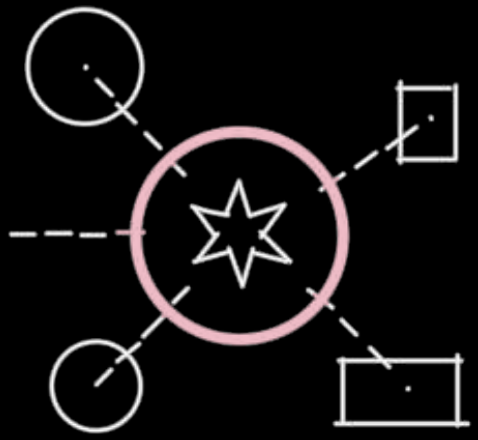
REQUIREMENTS

- Universal accessibility.
- Educational and immersive experience.
- Basic comfort.
- Connection between landscape and architecture.



LINEAR SITE LAYOUT ADAPTED TO THE TOPOGRAPHY

Optimized solar exposure, strategic cross-ventilation, and thermal mass for environmental comfort.



ORGANIC BRANCHING BIOCLUSTER

A natural growth pattern that adapts to the site's topography and landscape.

SEMI-BURIED ARCHITECTURE INTEGRATED WITH THE LANDSCAPE

Thermal and visual protection with a reduced environmental impact.

CONNECTION AND CONTINUITY WITH THE LANDSCAPE

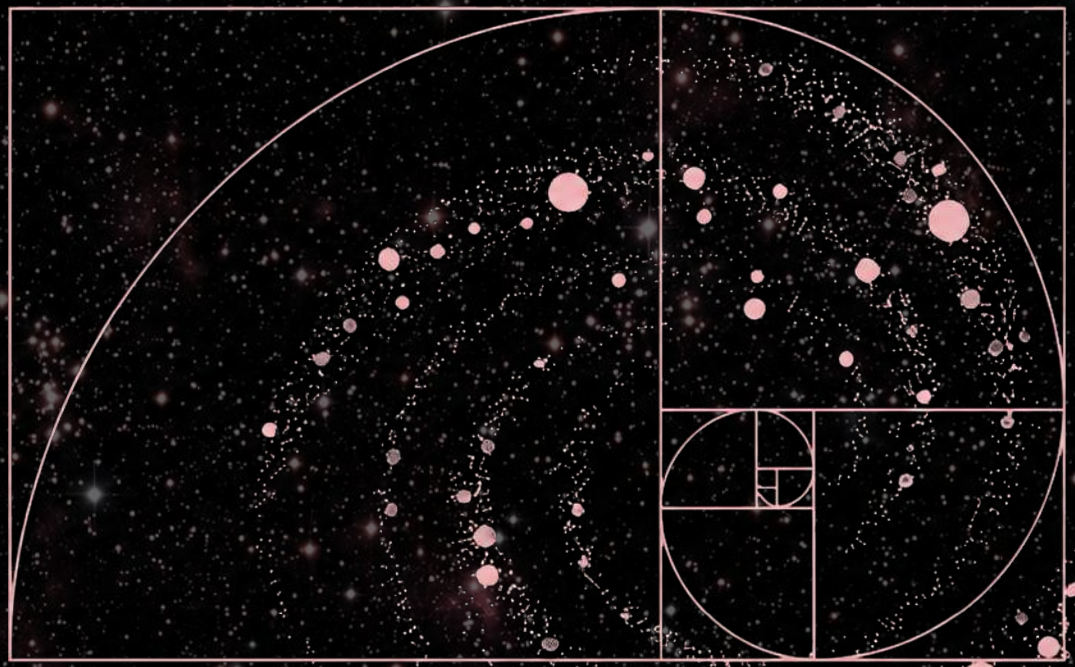
A linear circulation route that links the different programmatic elements and reinforces the experience of the surrounding landscape.

ENVIRONMENTAL EFFICIENCY AND PASSIVE COMFORT

Takes advantage of the site's slope while minimizing impact on the terrain.

CREATE AN ASTRONOMICAL OBSERVATIONAND SCIENTIFIC OUTREACH HUB FOR NORTHWESTERN ARGENTINA

Integrate and enhance the territory through a scientific and tourism network.



SPATIAL OXIMORON : GALAXY

A Synthesis of Opposites in Motion

GALAXY SEEN IN PLAN VIEW.

A body that exists in contradiction - always in motion, always evolving.

GALAXY SEEN IN SECTION.

A linear view of the universe, revealing a dense band of interstellar dust.

THE WOMEN WHO TAUGHT US TO READ THE SKY

From the Invisibility to the Recognition of the Women Who Changed Astronomy.

Hypatia of Alexandria

4th century AD
Egypt

First documented astronomer and mathematician.
Designed the astrolabe and the hydrometer.

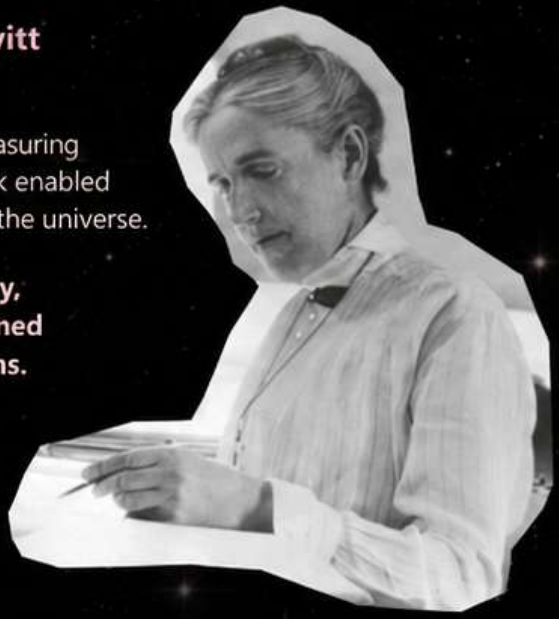
**Symbol of the silencing of women in science.
She was murdered and mutilated
for being a woman scientist.**

19TH CENTURY

Henrietta Swan Leavitt
USA

She discovered the basis for measuring distances in the universe. Her work enabled Hubble to discover the expansion of the universe.

**Hubble received the glory,
but Leavitt was not mentioned
in most of the publications.**



1900–1920
"Harvard Computers"
USA

Despite making some of the most important astronomical discoveries, their work was attributed to male directors and they were paid only a fraction of their salary.

THE BASIS OF MODERN ASTROPHYSICS

18th century
Caroline Herschel
Germany/England

First woman to discover a comet (1786).
First woman paid for her scientific work.

Most of her discoveries were published under her brother's name rather than her own.

THE MOTHER OF THE HUBBLE

1980

Nancy Grace Roman

USA (NASA)

First female chief astronomer at NASA and planner of the Hubble Space Telescope.

1970

Vera Rubin

USA

She confirmed the existence of Dark Matter.

Her discovery is considered one of the most important of the 20th century. Rubin never received the Nobel Prize, despite being nominated several times by men with lesser contributions.

Great defender of women's inclusion in science

OLGA PINTADO

2000–Present

Tucumán, Argentina.

Pioneer in Astrophysics at NOA. In November 2025, the International Astronomical Union (IAU) named asteroid (26782) Pintado— in her honor—in recognition of her scientific career.

Cristina Mandrini

Argentina

Solar astrophysicist. She is currently a researcher at CONICET and a professor at the University of Buenos Aires. Active participant in the International Astronomical Union.

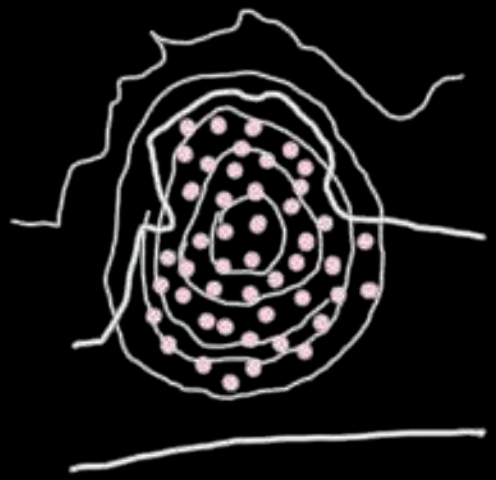
1989 - Present

.02

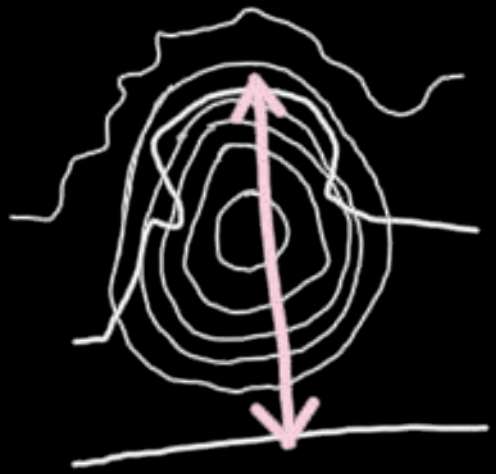
ASTRONOMICAL HUB

Master Plan - Connection.

GENERATING CONCEPT



SITE

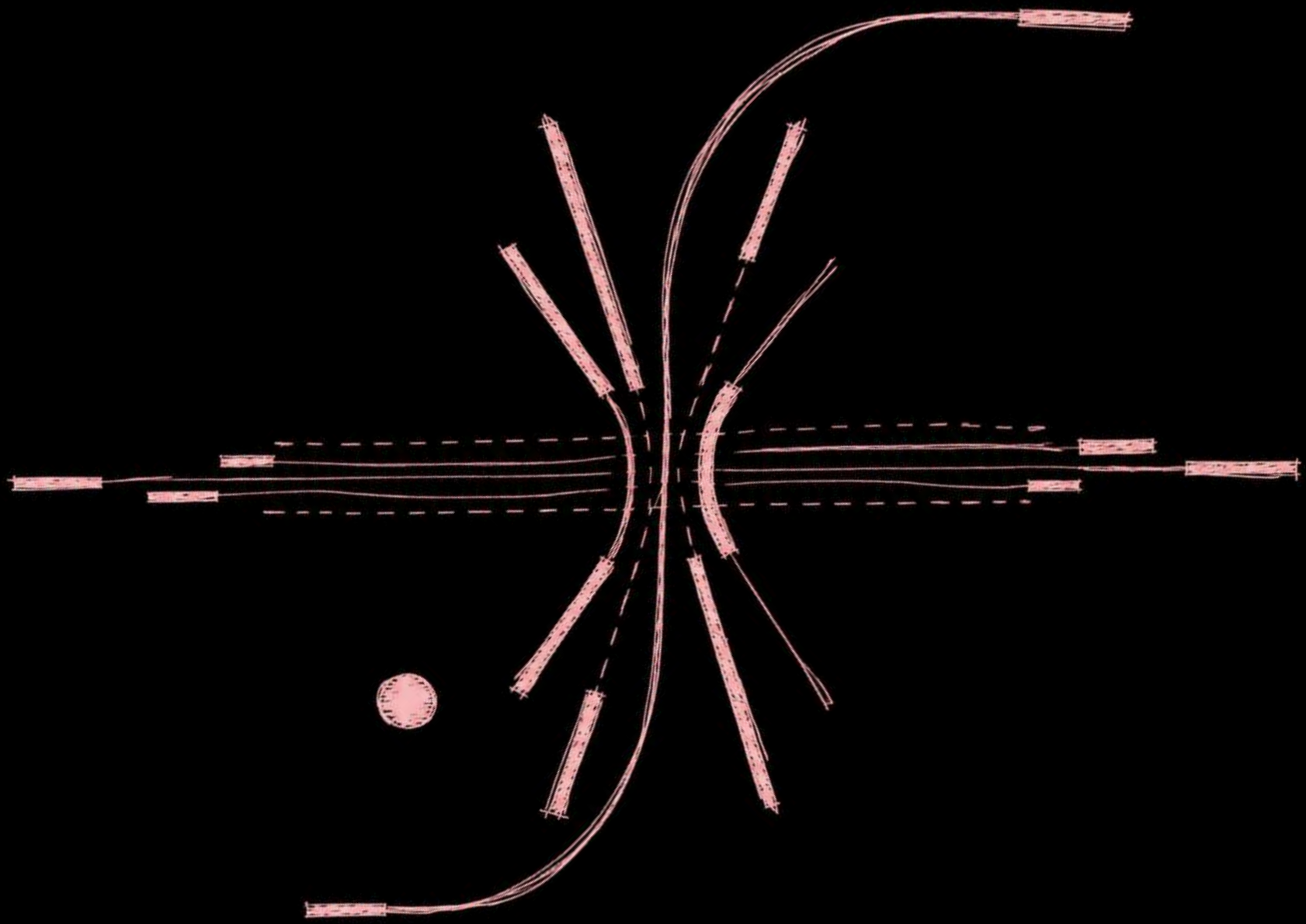


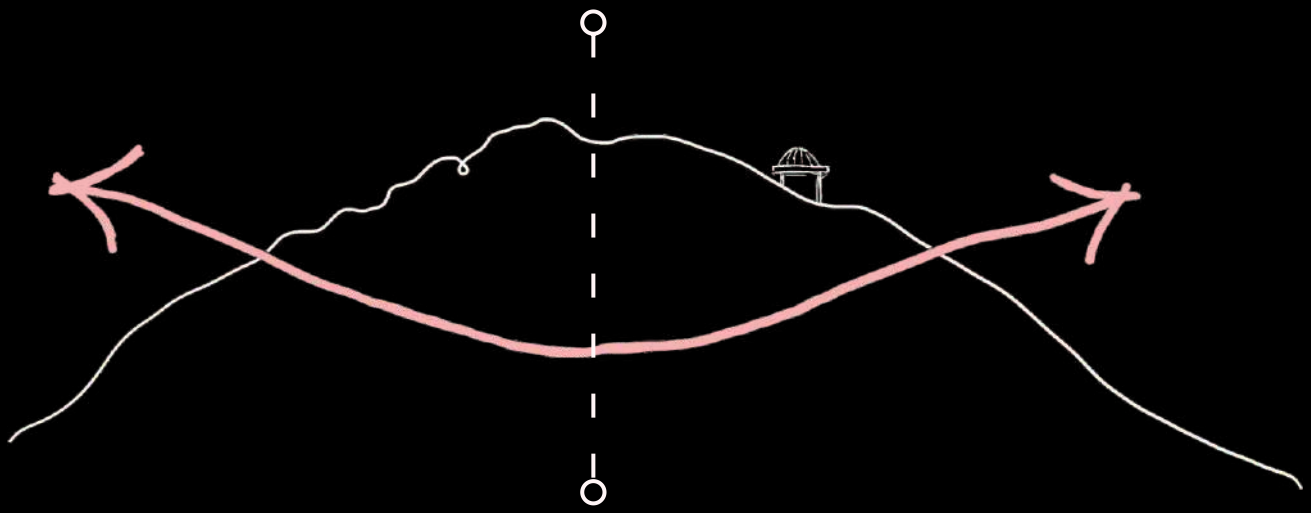
CONNECTING PATHWAY

JOURNEY OF DISCOVERY

A SENSORY JOURNEY, A DESCENT INTO MEMORY

GENERATING CONCEPT





PRIVATE

Scientific – Technical

ADVANCED ASTRONOMICAL OBSERVATORY

SPECIALIZED TECHNICAL AREA

RESEARCH AND DATA PROCESSING

PUBLIC

Outreach – Tourism

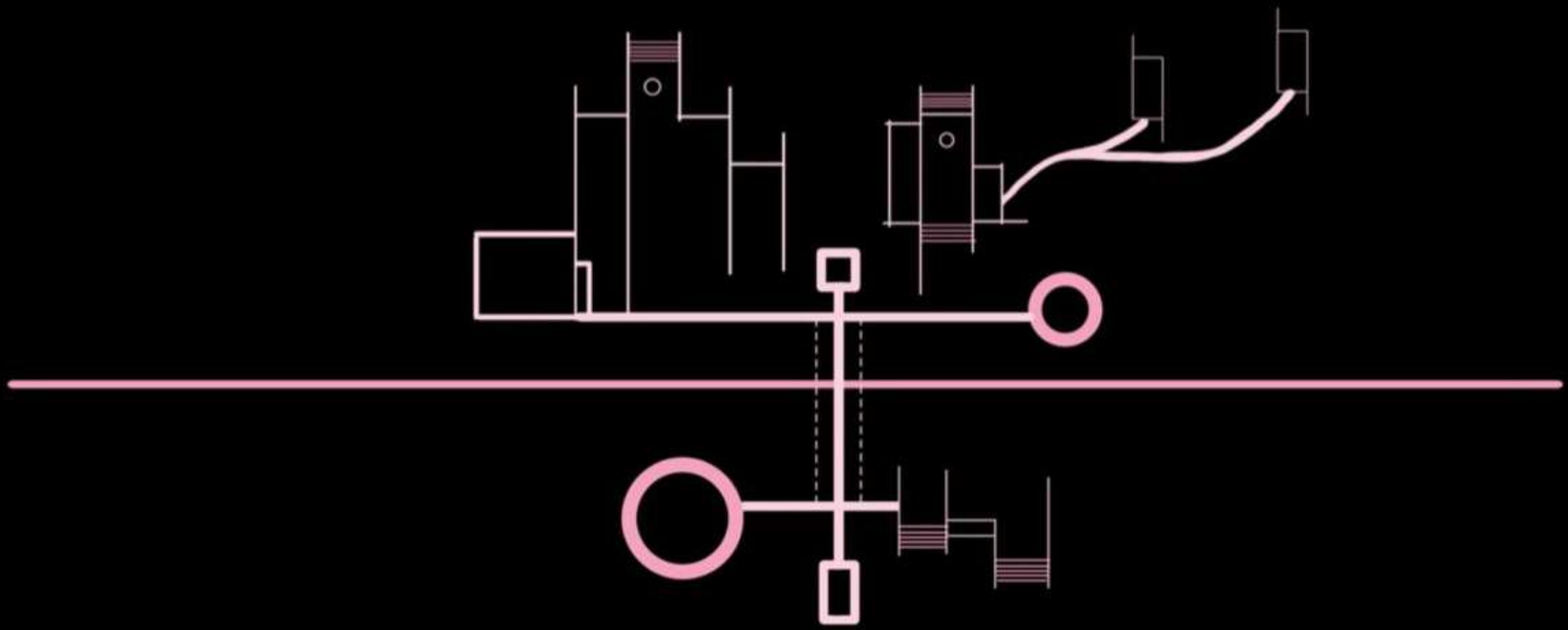
OEXISTING PUBLIC ASTRONOMICAL OBSERVATORY

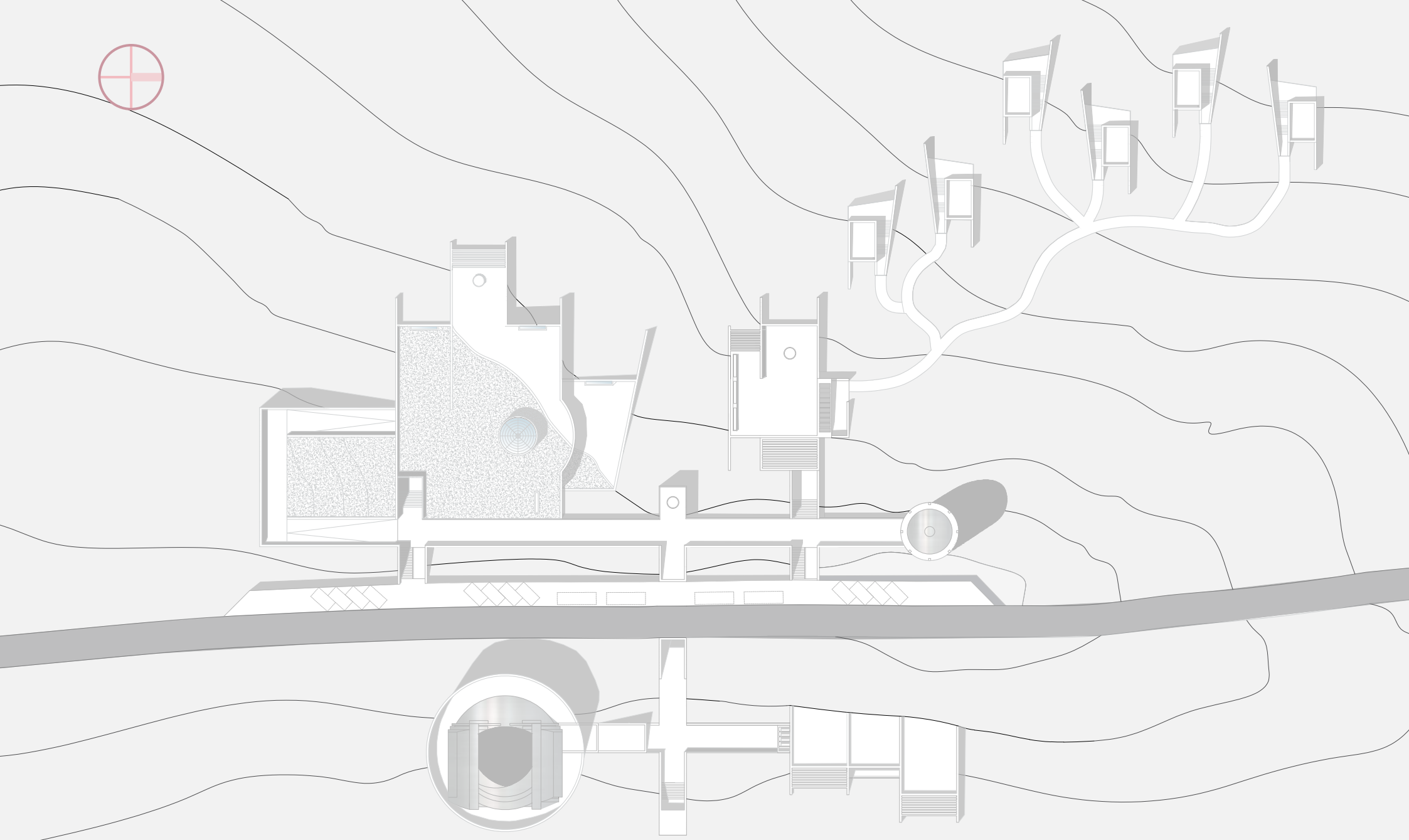
ASTRONOMICAL MUSEUM WITH A GENDER PERSPECTIVE

ASTROTOURISM – RESIDENTIAL BIOCLUSTER

TWO OPPOSING FACES OF A MOUNTAIN,UNITED THROUGH A NEW TERRITORIAL NARRATIVE.

CONCEPT SKETCH





Planta Conjunto Polo Astronómico Oxímoron.

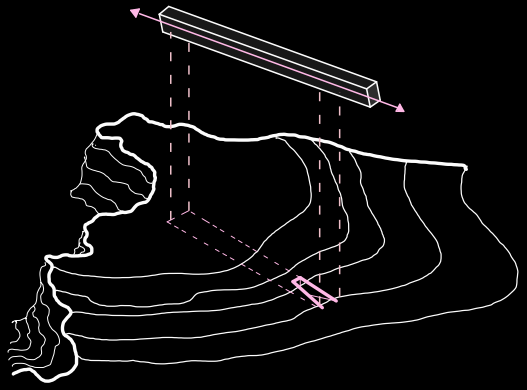
.03

ASTRONOMICAL MUSEUM

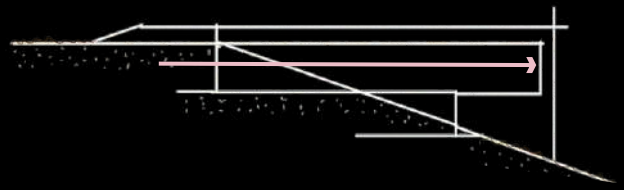
With a Gender Perspective.

GENERATING CONCEPT

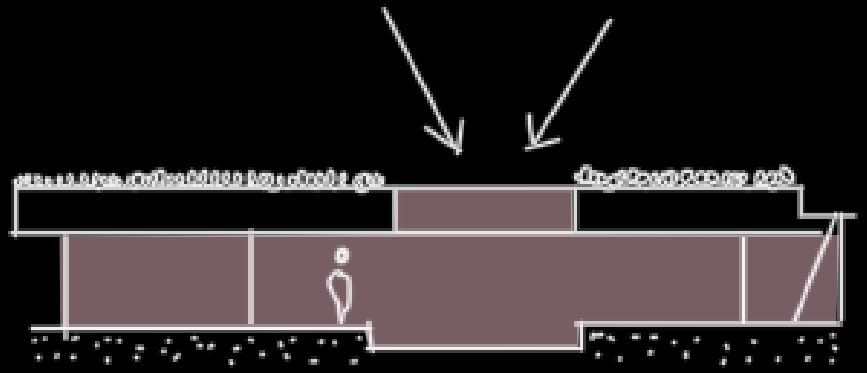
GENERATION

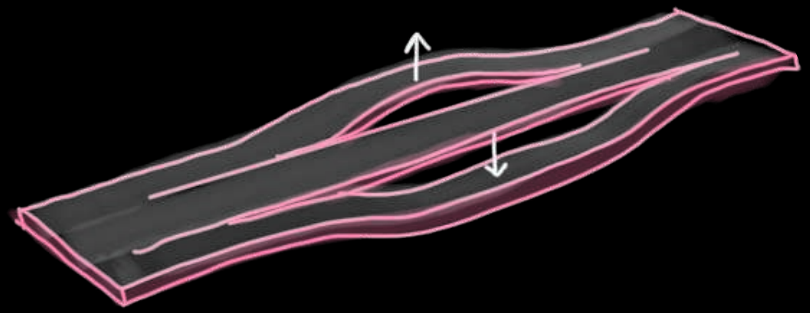


SUBTERRANEAN ARCHITECTURAL VOLUME

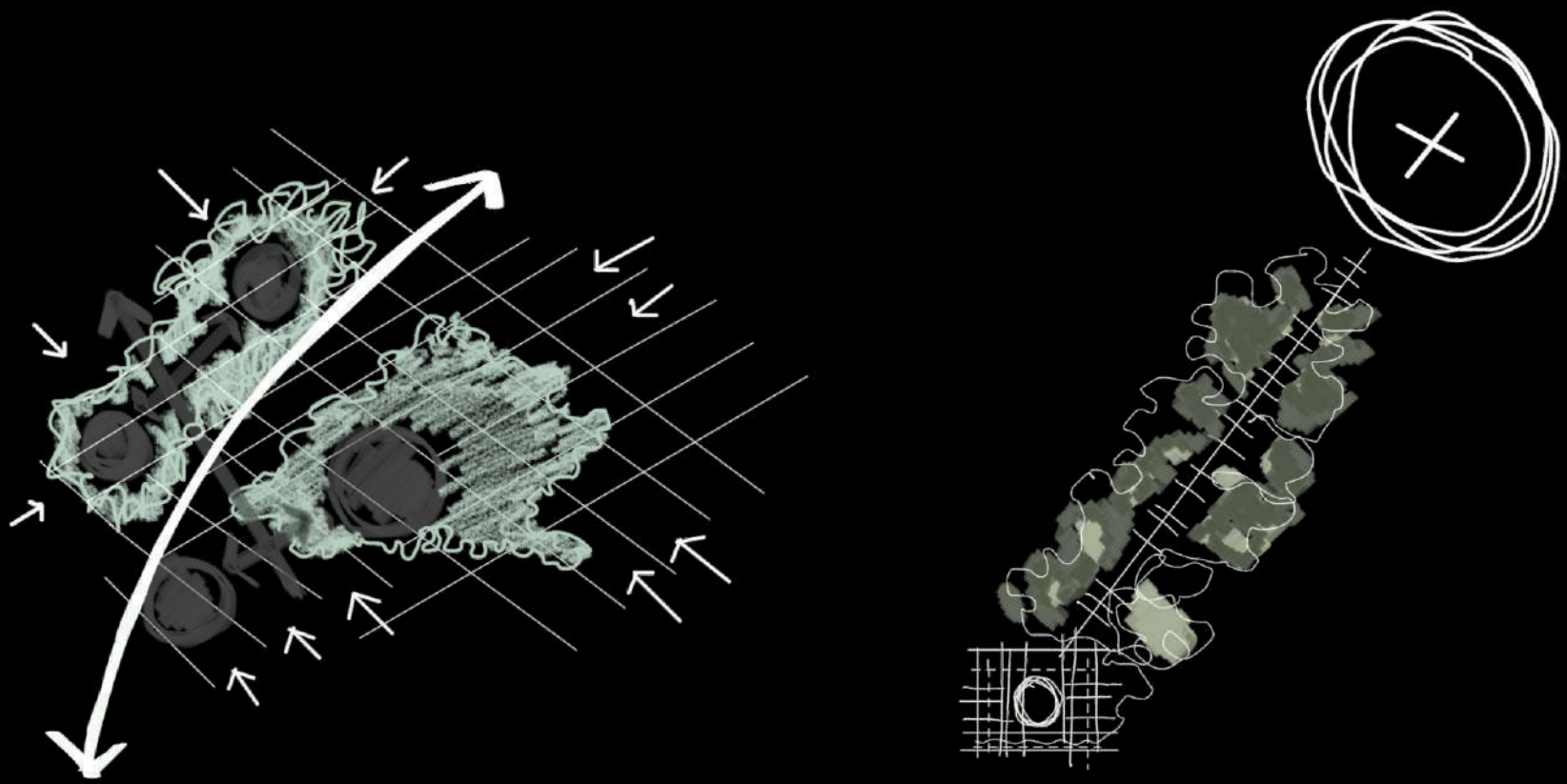


EMERGENCE

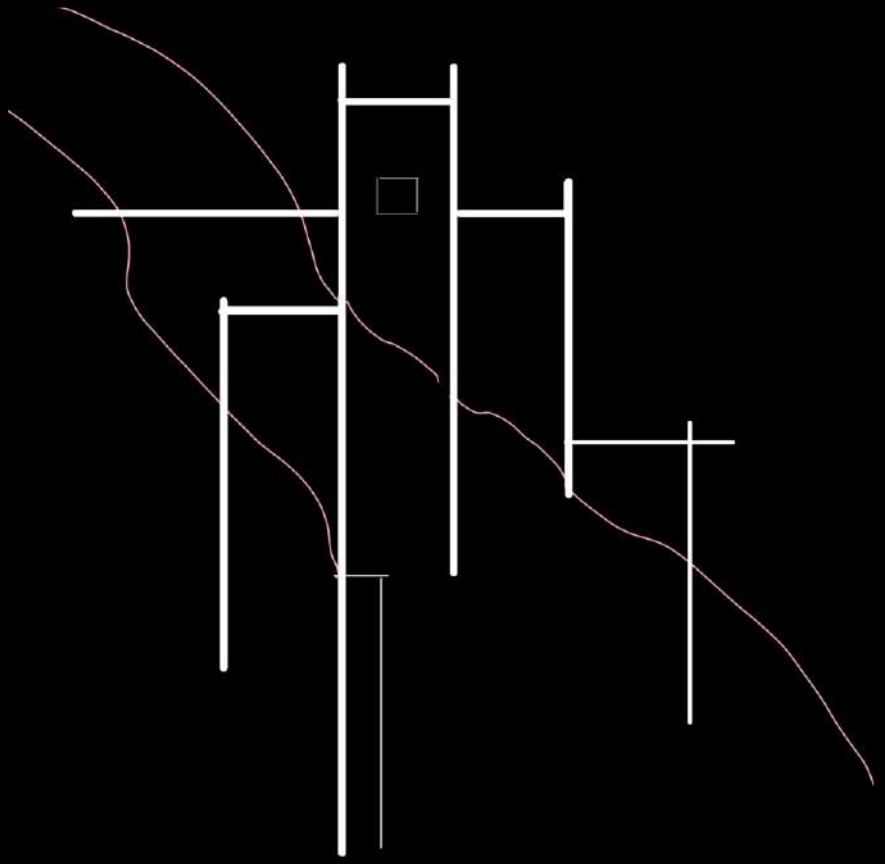


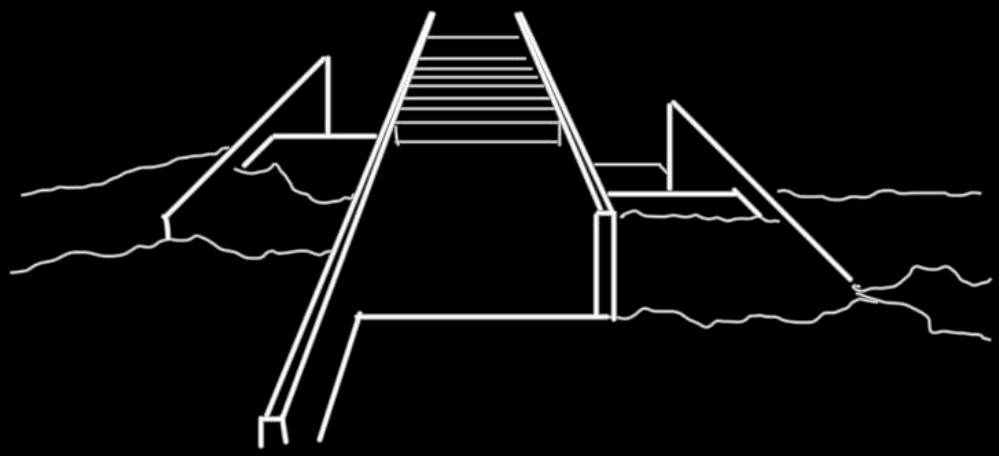


LONGITUDINAL SECTION - THE NATURAL LANDSCAPE REVEALED THROUGH PATHWAYS, RESTING SPACES, AND PLACES FOR CONTEMPLATION

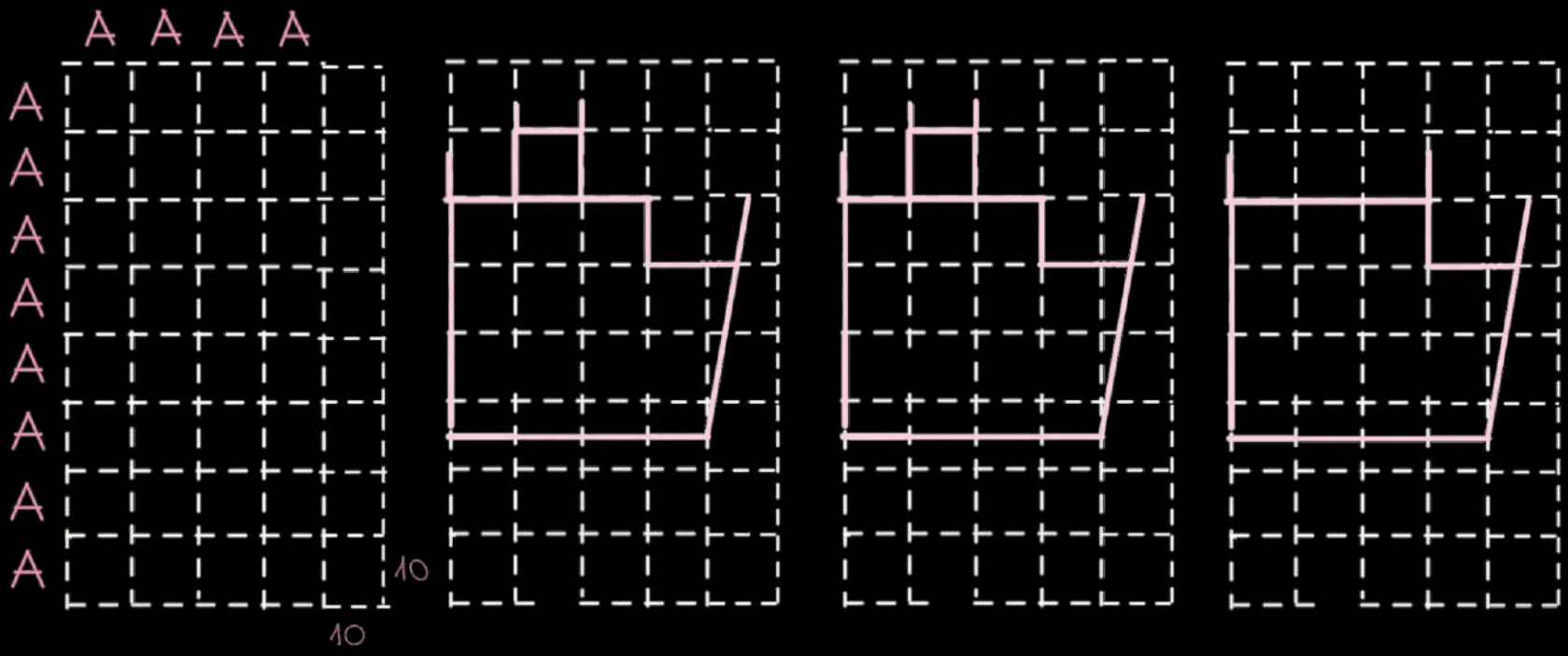


ARCHITECTURE DOES NOT SIT ON THE LANDSCAPE; IT EMERGES FROM WITHIN IT.

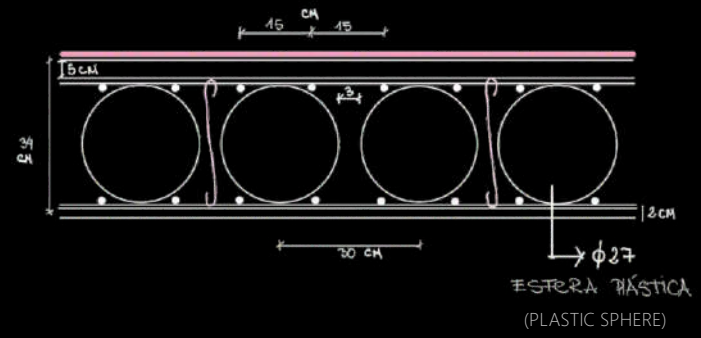




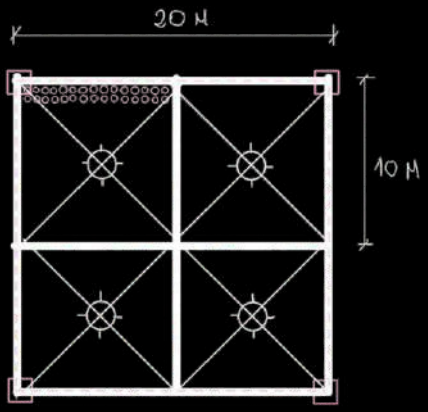
FORM GENERATION THROUGH LINEAR PLANES INSPIRED BY THE GALAXY IN SECTION

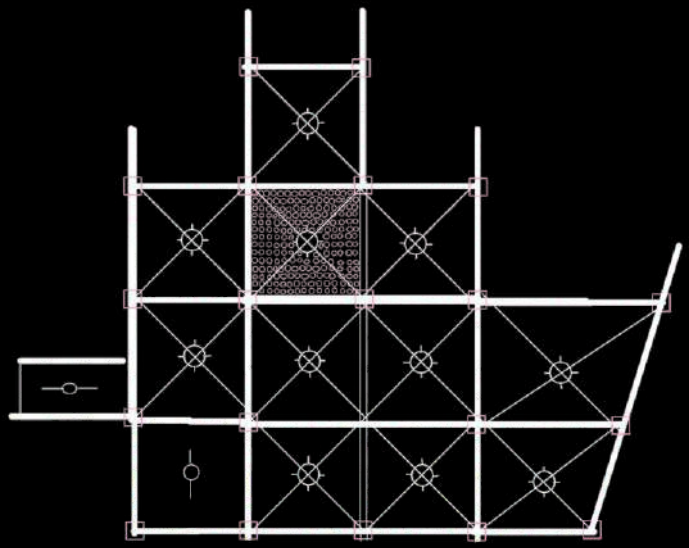


MODULE

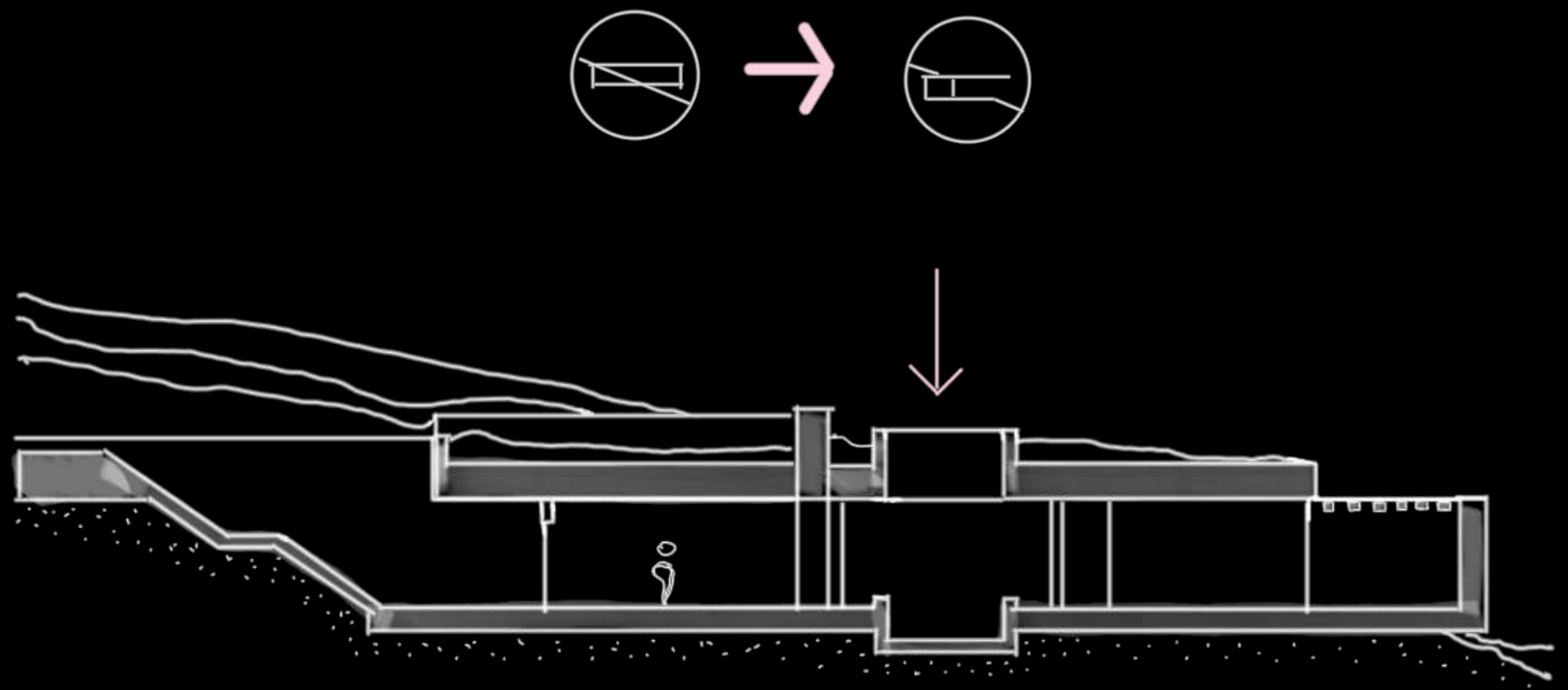


(PLASTIC SPHERE)

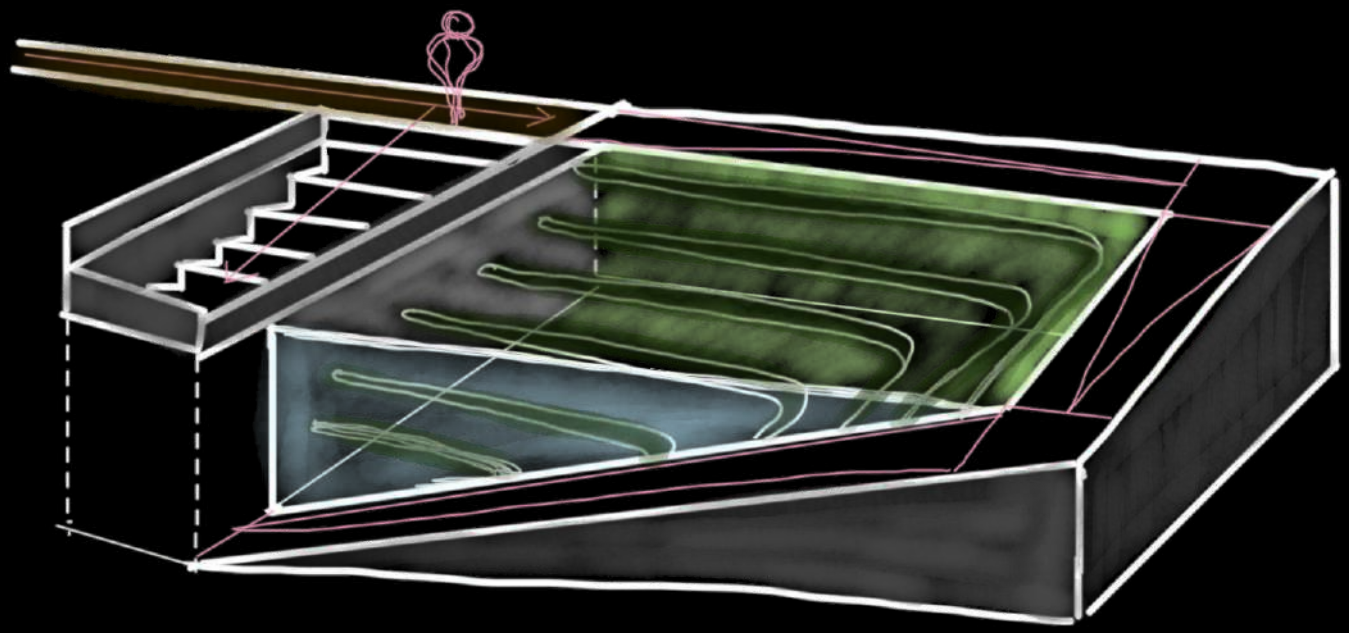




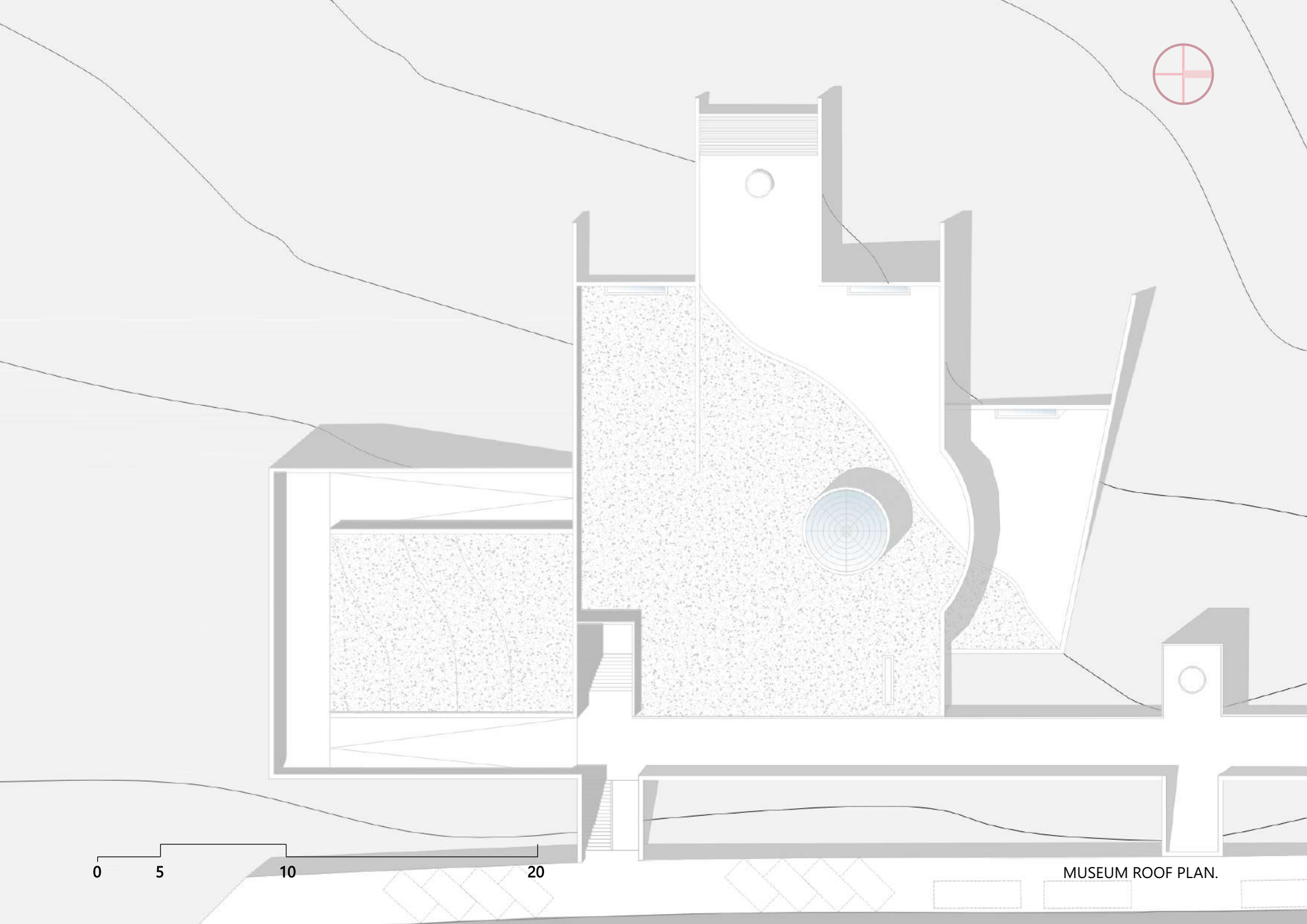
PRENOVA VOIDED SLAB STRUCTURE WITH SPHERICAL CORES (BUBBLE SLABS)



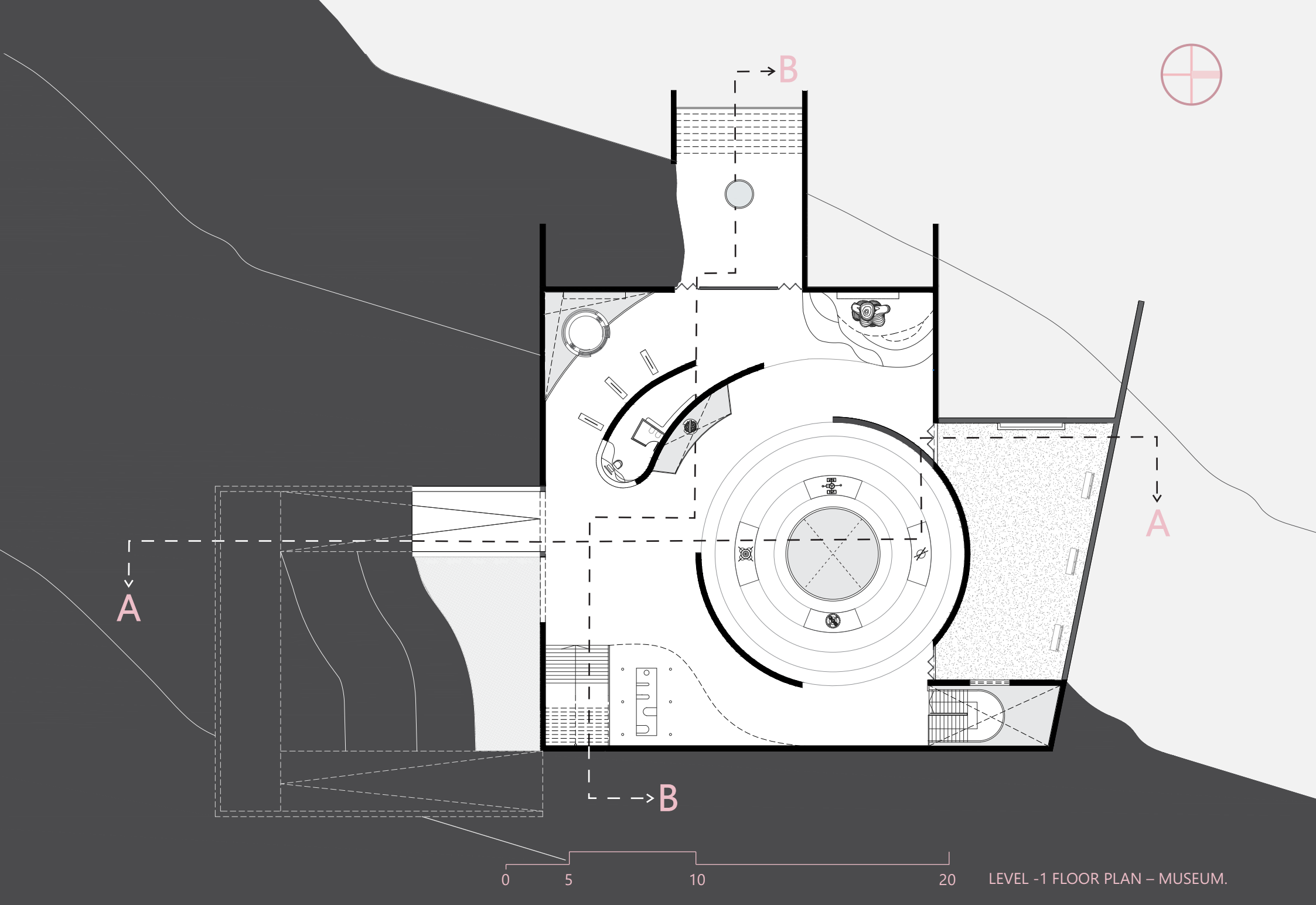
ENTRY INTO THE MOUNTAIN,A DESCENT INTO MEMORY, HISTORY, AND THE PAST



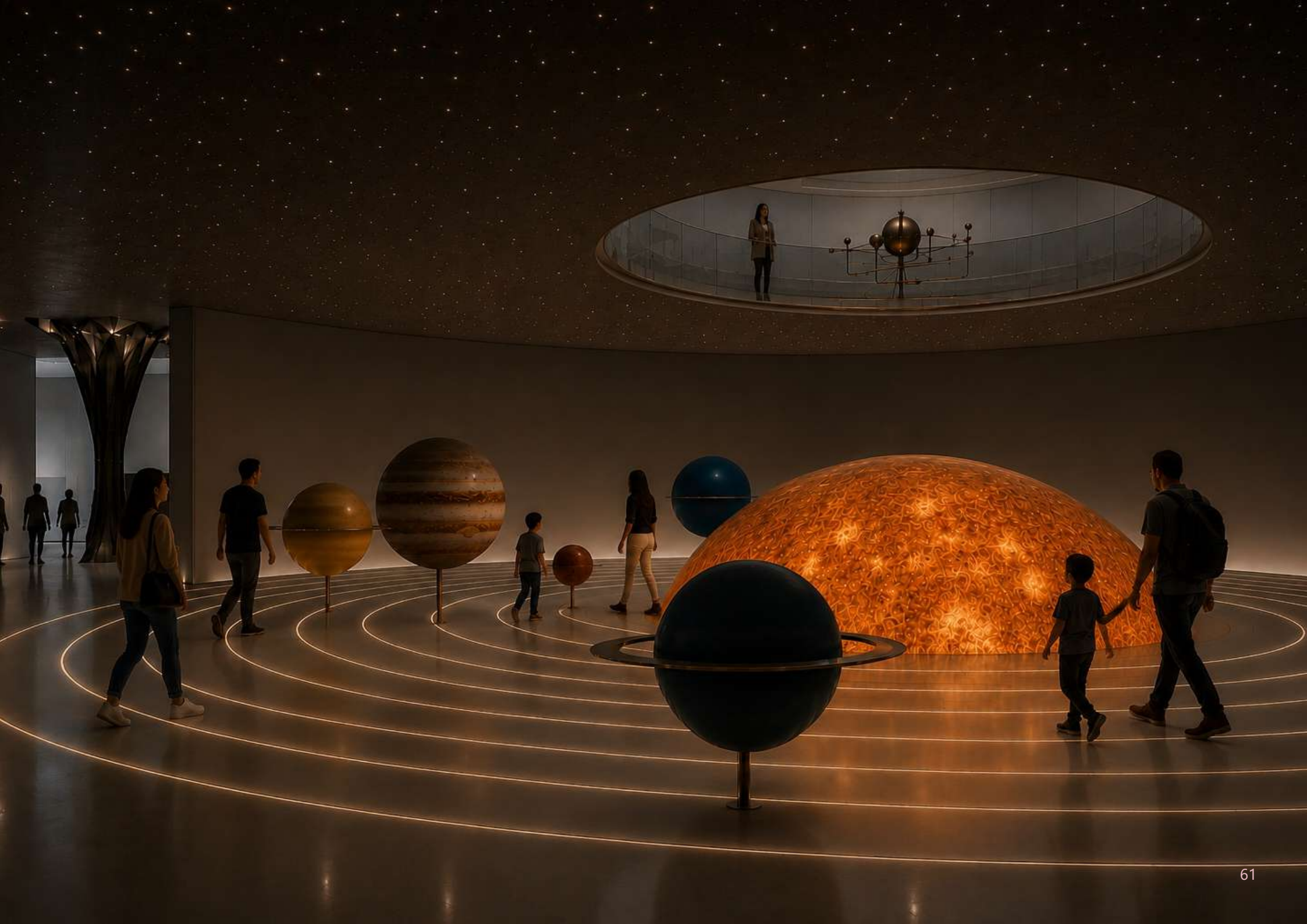
THRESHOLD BETWEEN THE LANDSCAPE AND THE MUSEUM

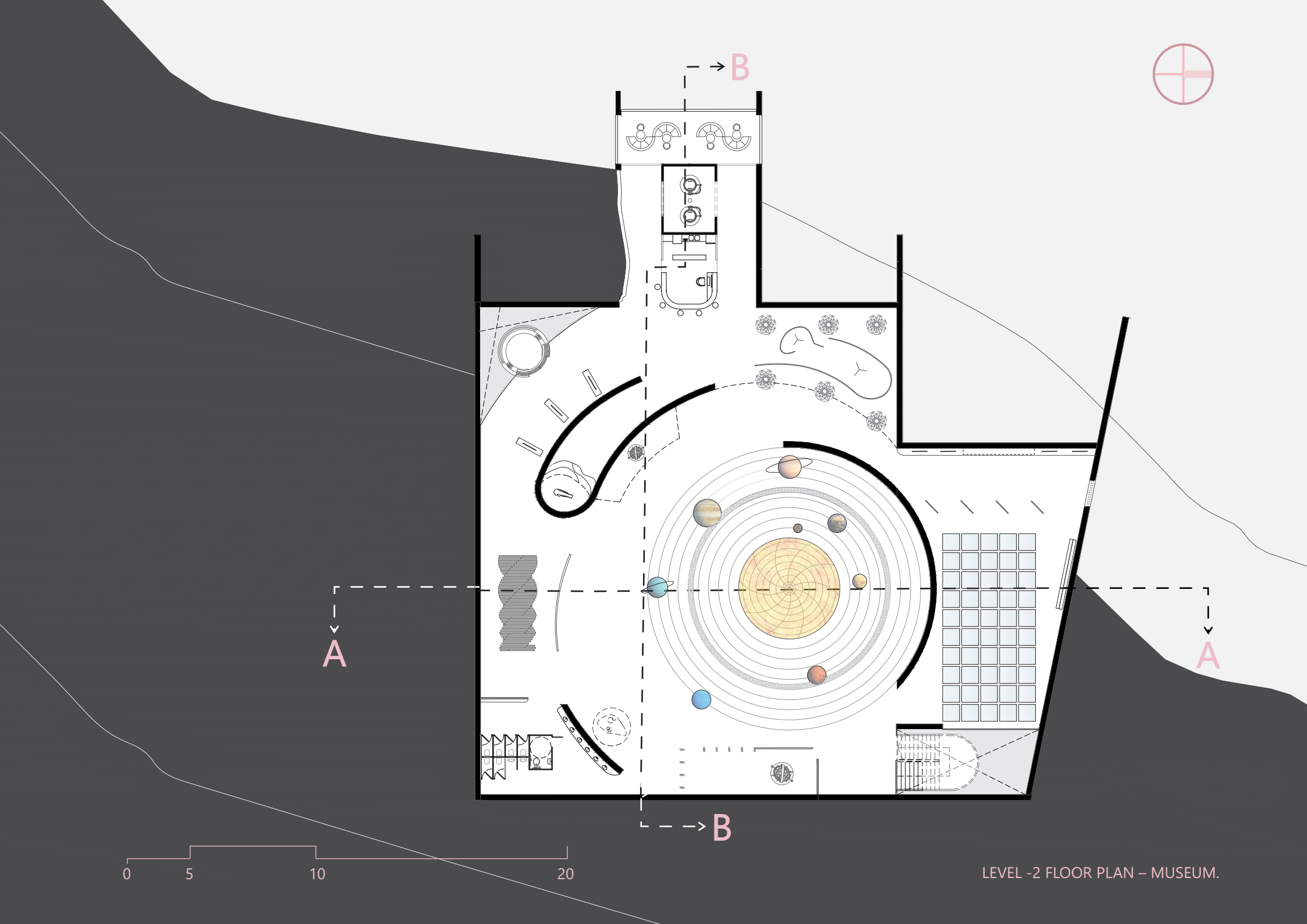


MUSEUM ROOF PLAN.

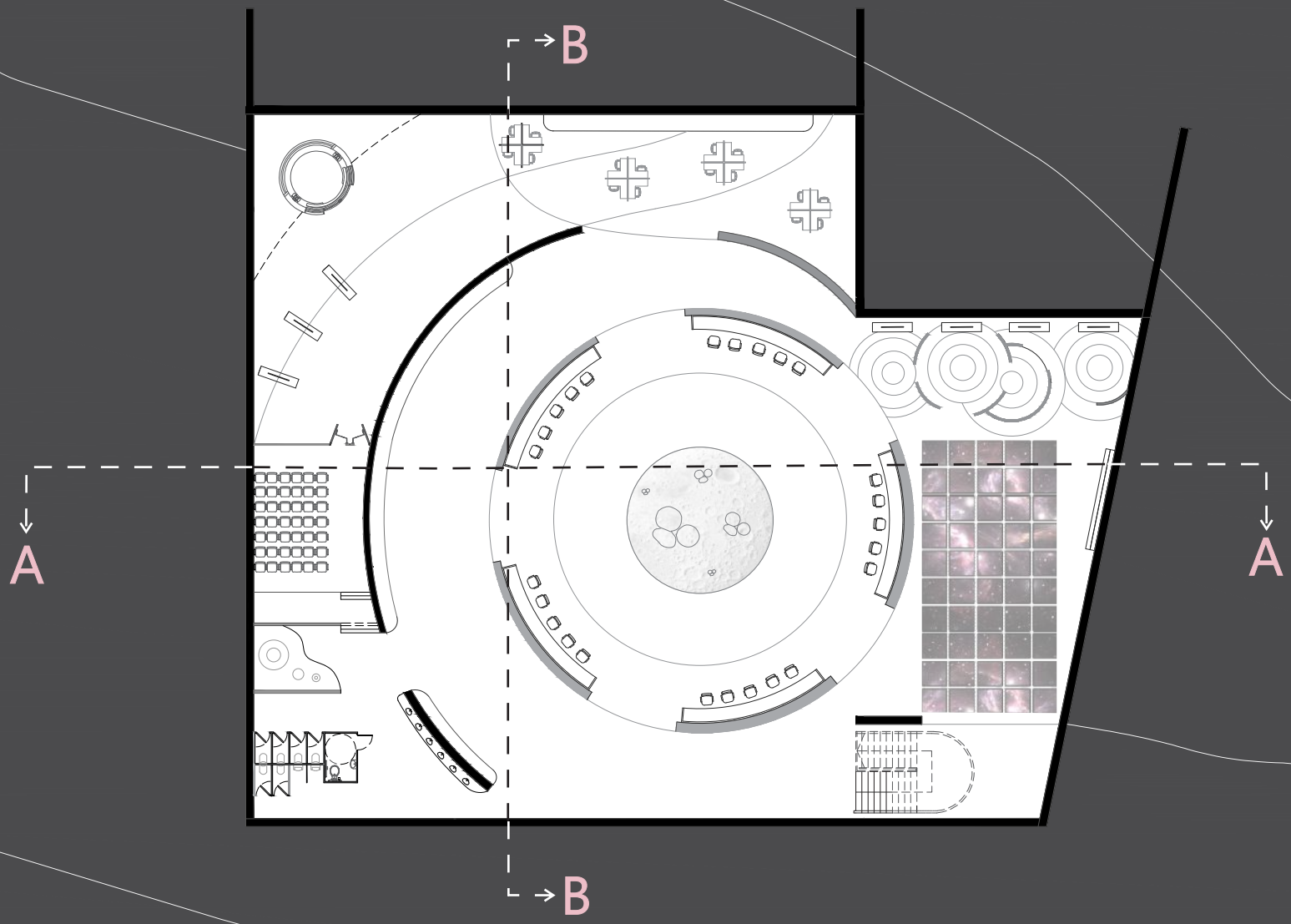


LEVEL -1 FLOOR PLAN – MUSEUM.



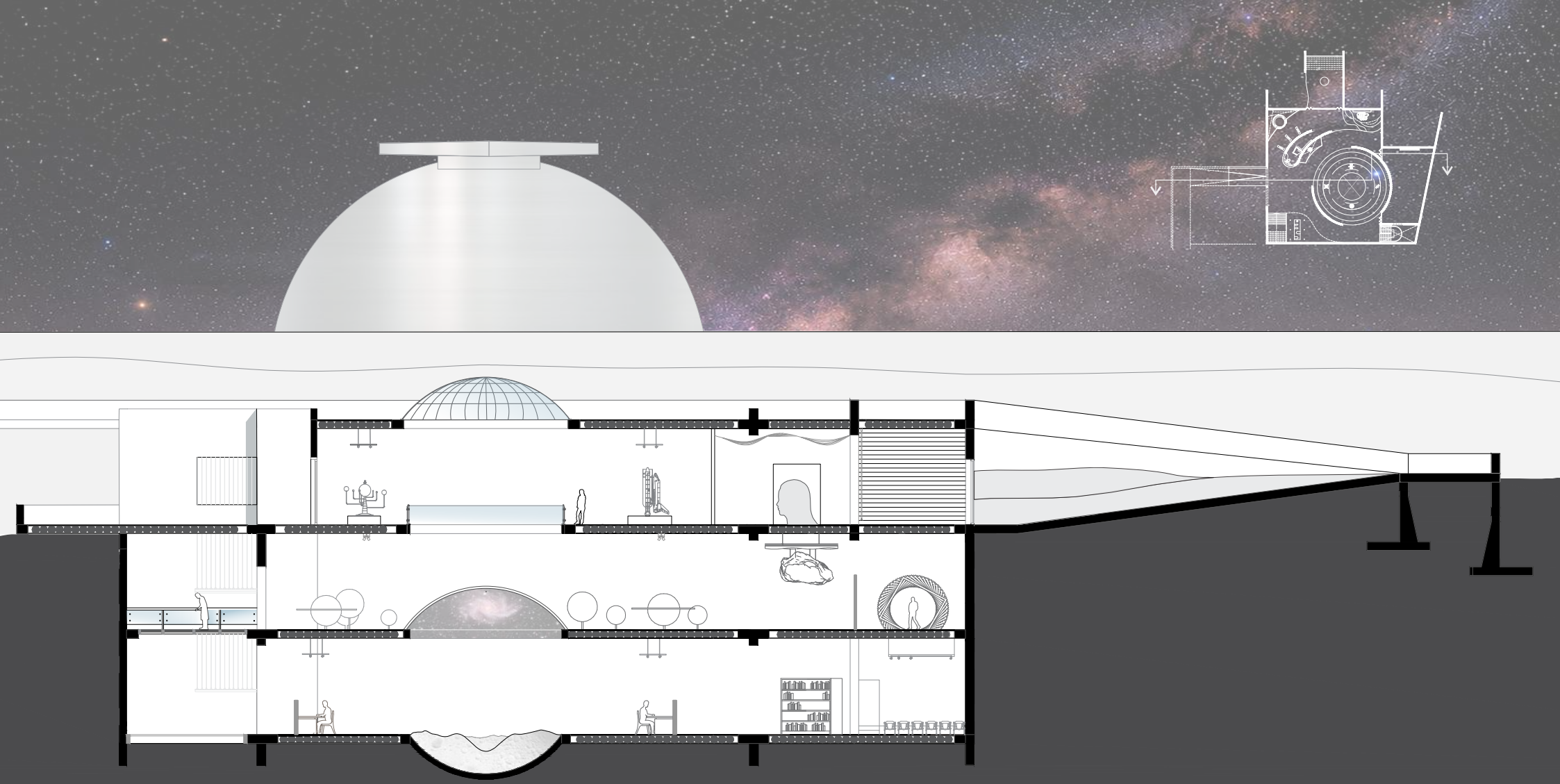


LEVEL -2 FLOOR PLAN – MUSEUM.



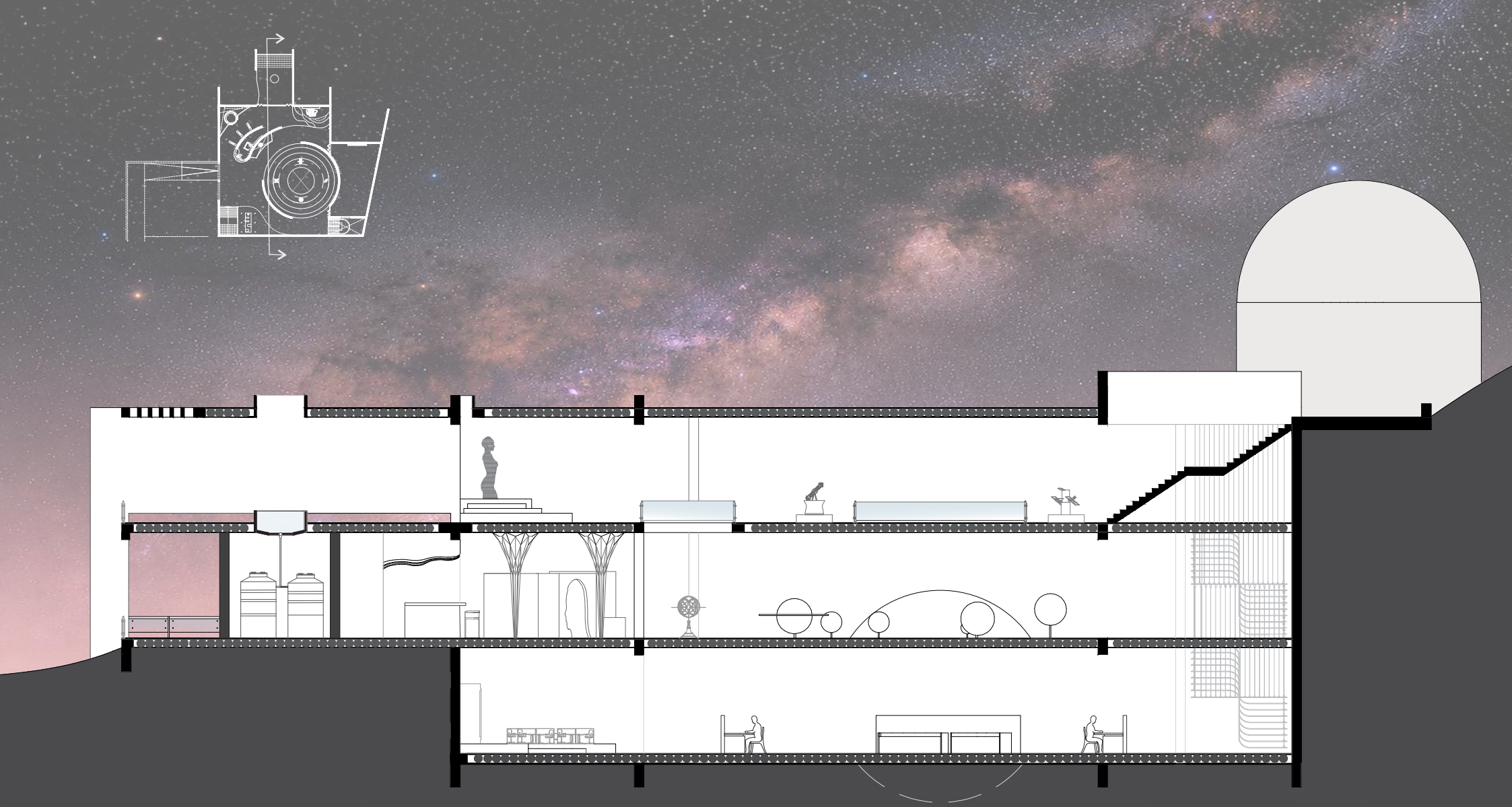
0 5 10 20

LEVEL -2 FLOOR PLAN – MUSEUM.



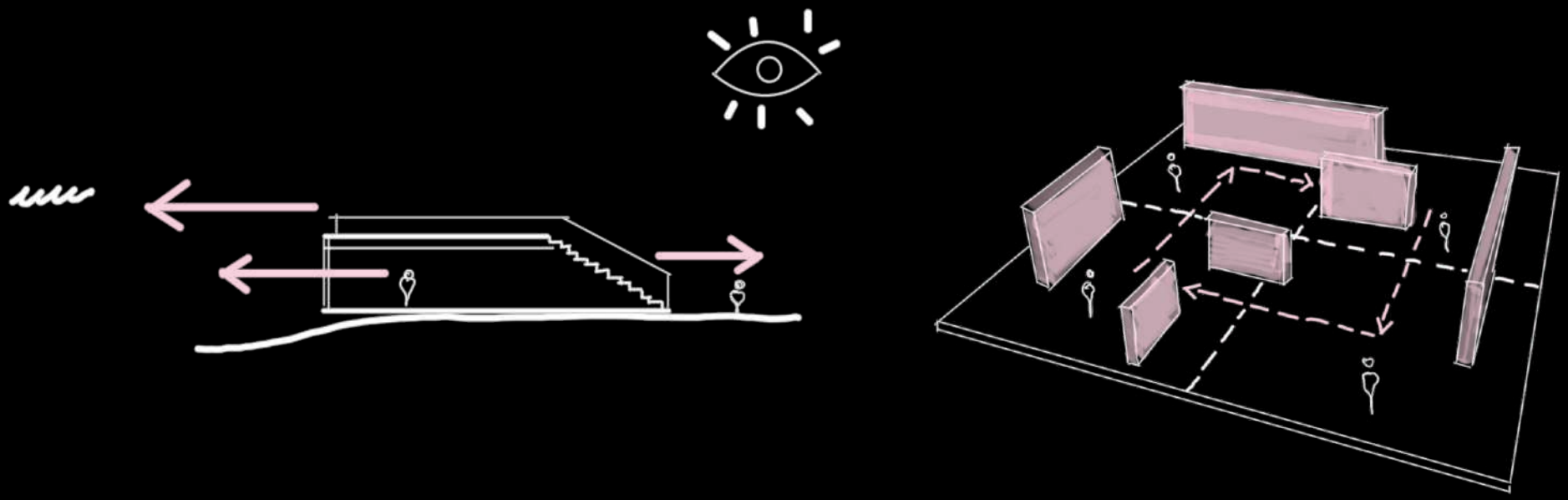
0 1 5 10

CROSS SECTION A–A – MUSEUM.



LONGITUDINAL SECTION B–B – MUSEUM.

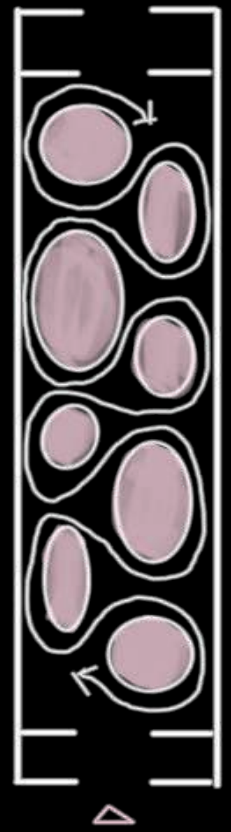
EXHIBITION SPACES



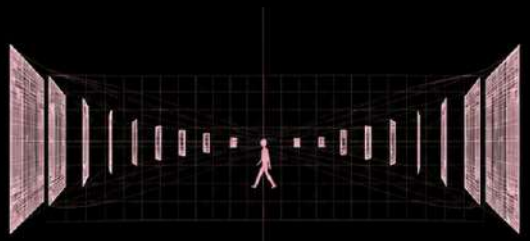
CIRCULATION ROUTE – EXHIBITION SPACES

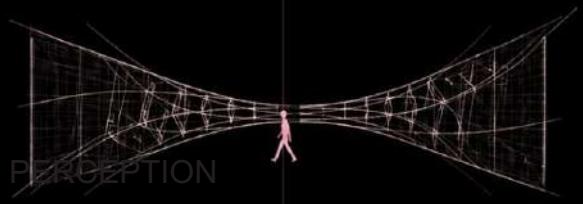
ENTRY

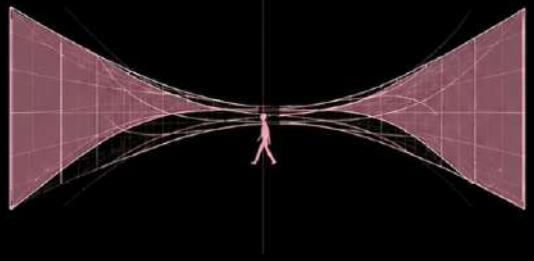
EXHIBITION



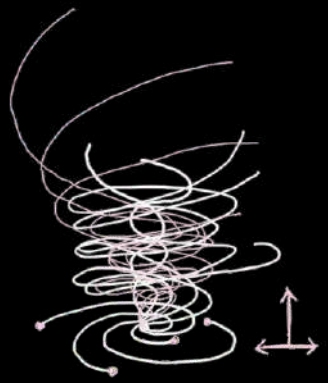
CIRCULATION

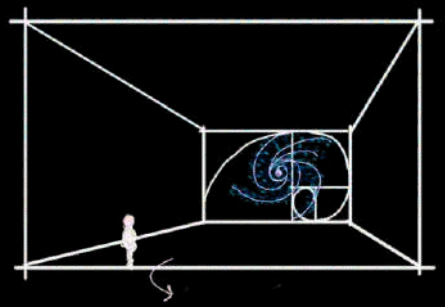


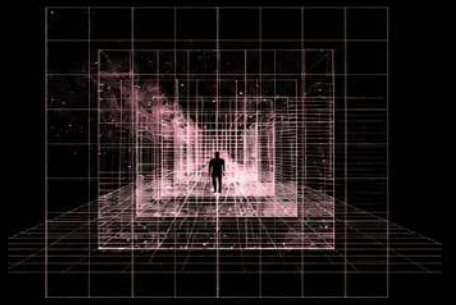


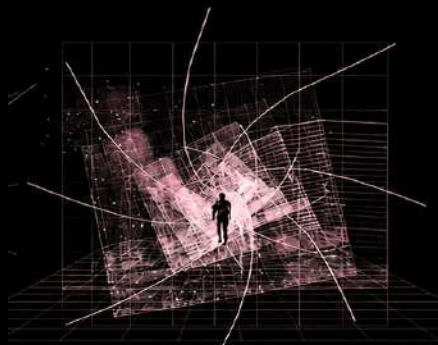


SPACE–TIME PERCEPTION





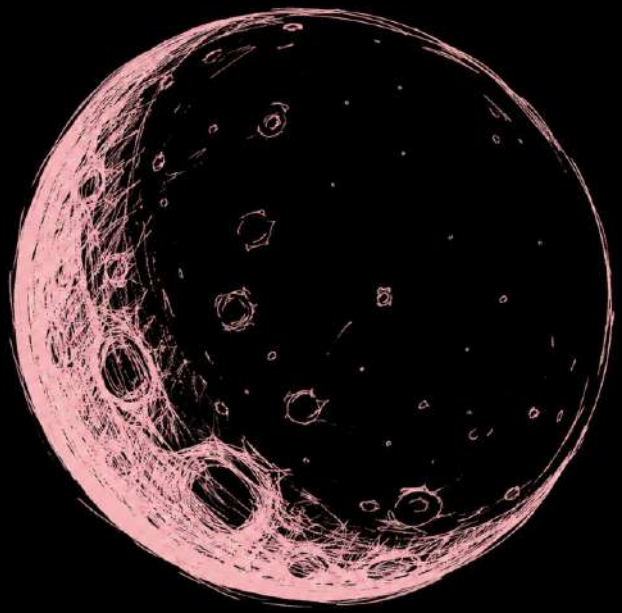


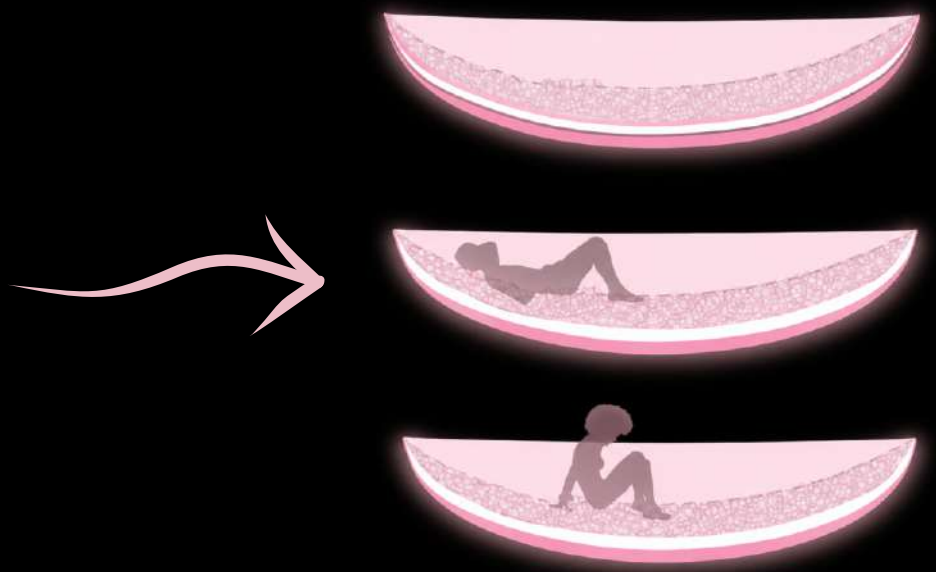


EXHIBITION

GRAVITATIONAL WAVES

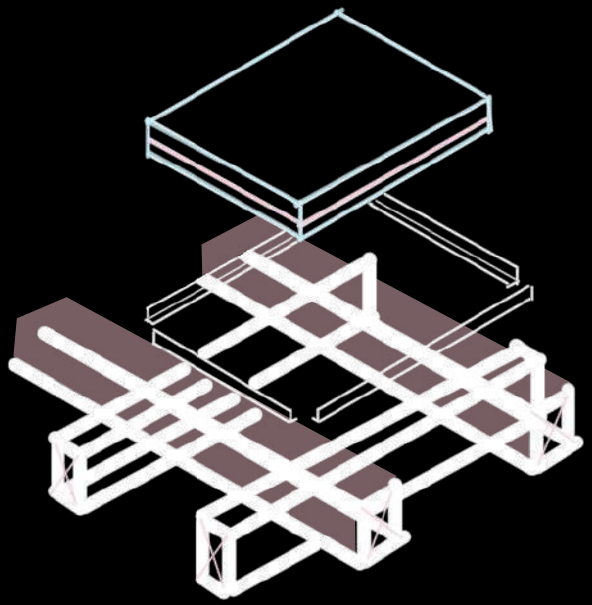
SPACE–TIME PERCEPTIONS

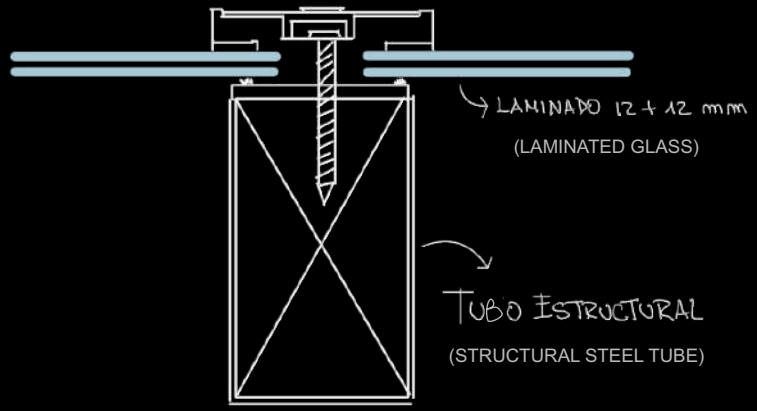




THE MOON REIMAGINED

A SPACE FOR REST AND REFLECTION



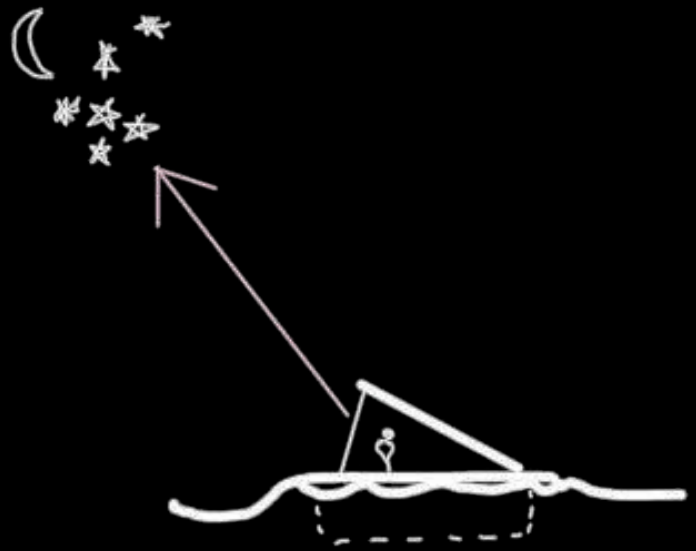


GLAZED MEZZANINE

.04

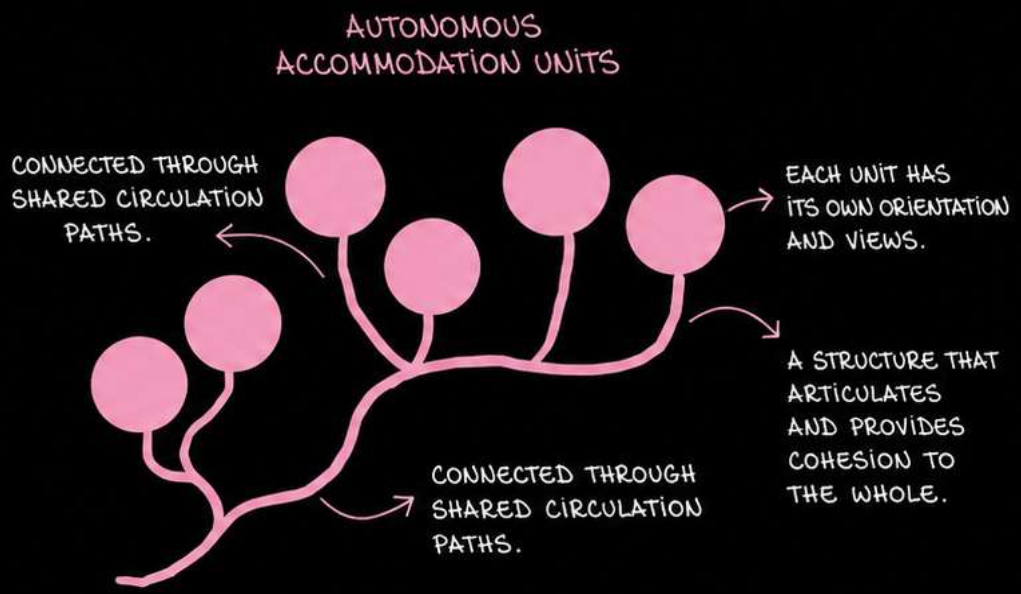
B.E.T.Y

Biocluster Estelar de Turismo Yachay.
(Yachay Stellar Tourism Biocluster)

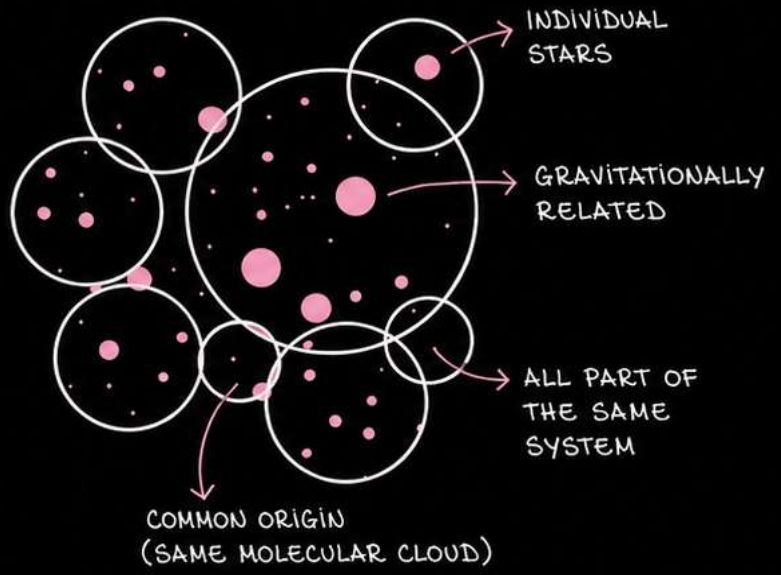


B.E.T.Y. is a residential biocluster that explores the relationship between territory, landscape, and memory.

BIOCLUSTER OF ACCOMMODATION UNITS



STELLAR CLUSTER (OPEN CLUSTER)



CONCEPTUAL RELATIONSHIP

JUST AS THE STARS IN A CLUSTER ARE AUTONOMOUS BODIES THAT SHARE A COMMON ORIGIN AND A FORCE THAT KEEPS THEM UNITED, THE BIOCLUSTER REINTERPRETS THIS LOGIC IN ARCHITECTURAL TERMS.

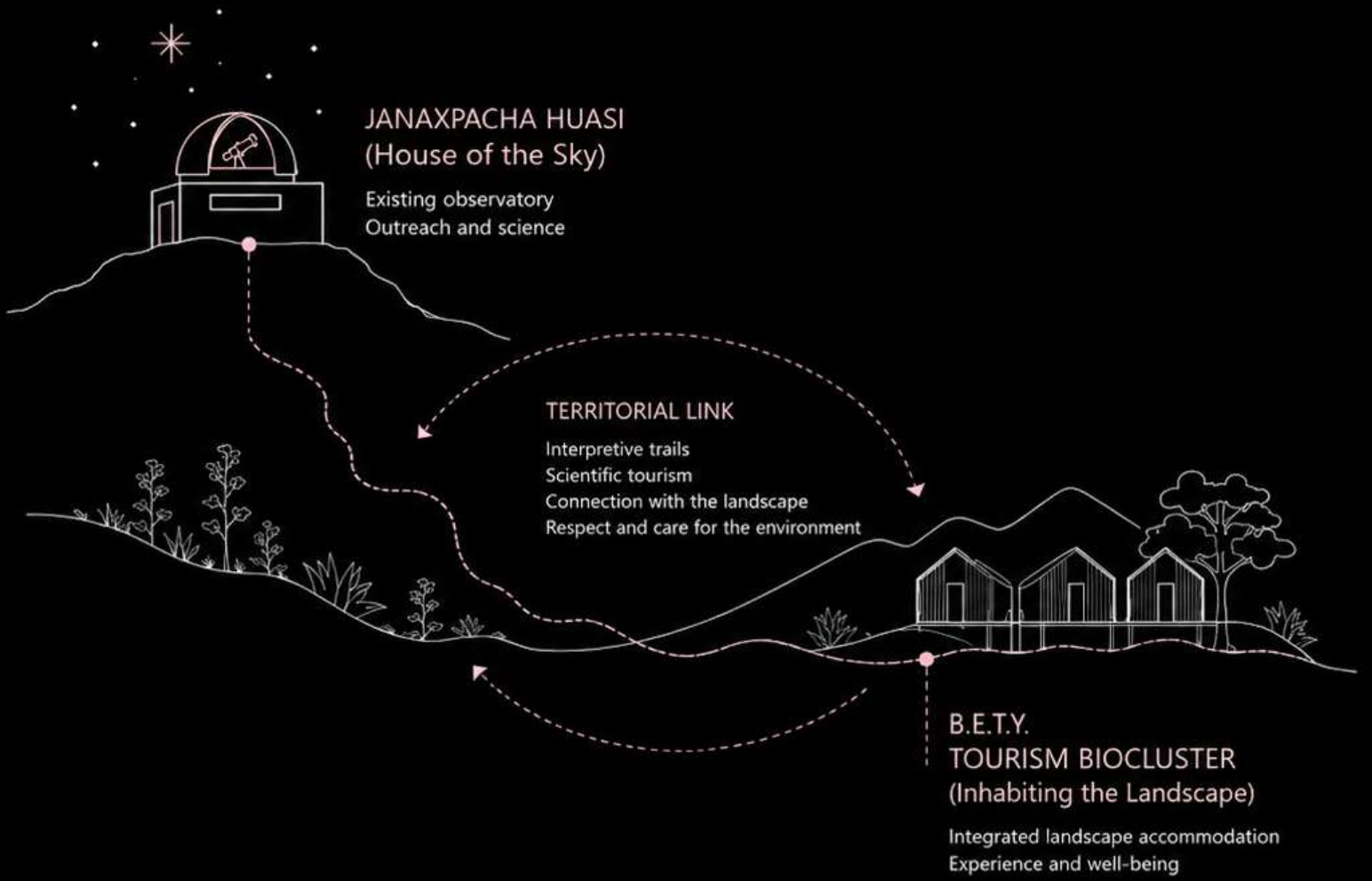
→ INDIVIDUAL UNITS CONNECTED BY A COMMON STRUCTURE. → ARCHITECTURE ACTING AS THE GRAVITY THAT ORGANIZES THEM.

BIOCLUSTER OF ACCOMMODATION UNITS ⟷ OPEN STELLAR CLUSTER

- INDEPENDENT UNITS.
- CONNECTED THROUGH SHARED CIRCULATION PATHS.
- LINKED BY A SYSTEM THAT GENERATES COHESION.
- ARCHITECTURE FUNCTIONS AS THE ORGANIZING GRAVITY OF THE ENSEMBLE.

- INDIVIDUAL STARS.
- GRAVITATIONALLY RELATED.
- ALL PART OF THE SAME SYSTEM.
- COMMON ORIGIN (SAME MOLECULAR CLOUD).

LINKING BETWEEN EXISTING OBSERVATORY AND TOURISM.



Janaxpacha Huasi

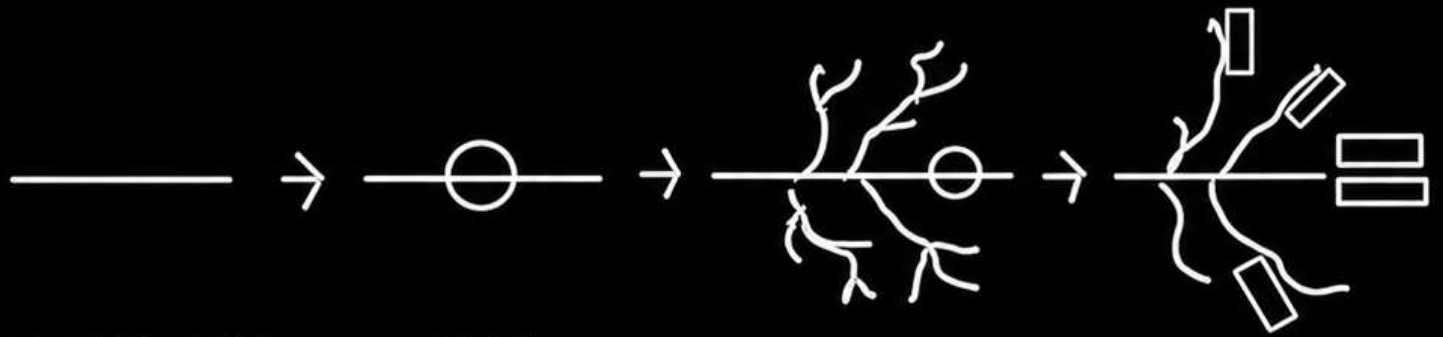
"House of the Sky" in Quechua.

Yachay

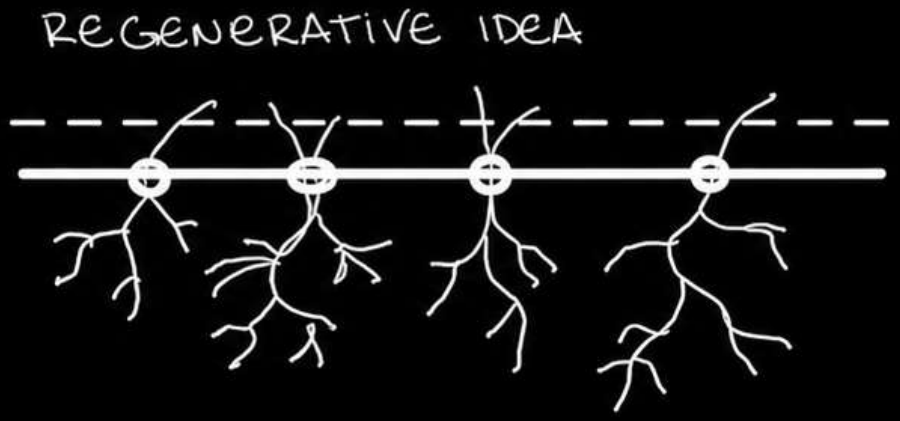
"Knowledge" in Quechua.

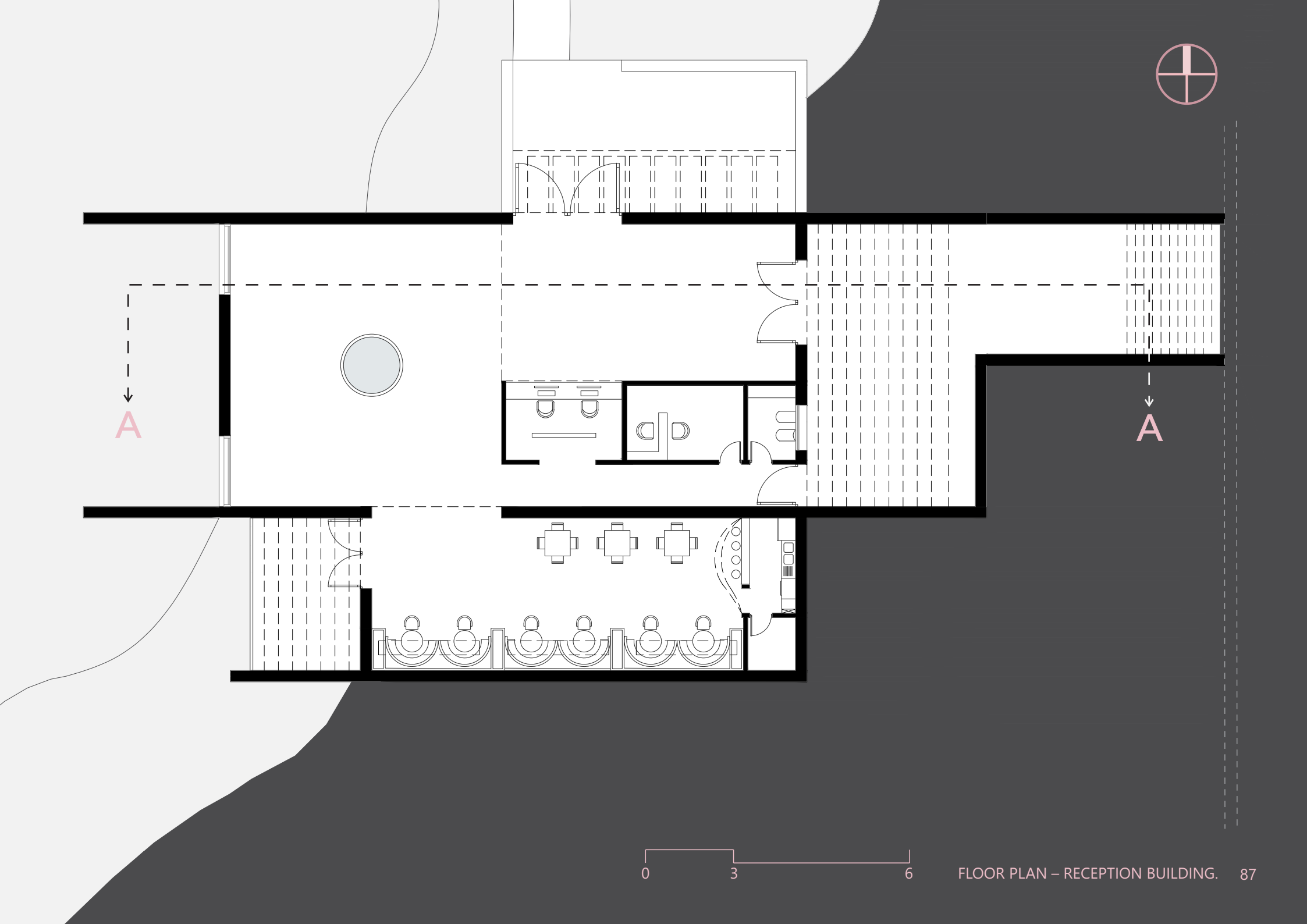
Enhance the natural and cultural landscape through sustainable and experiential architecture.

Integrate and revalue the territory through a tourism-scientific circuit.



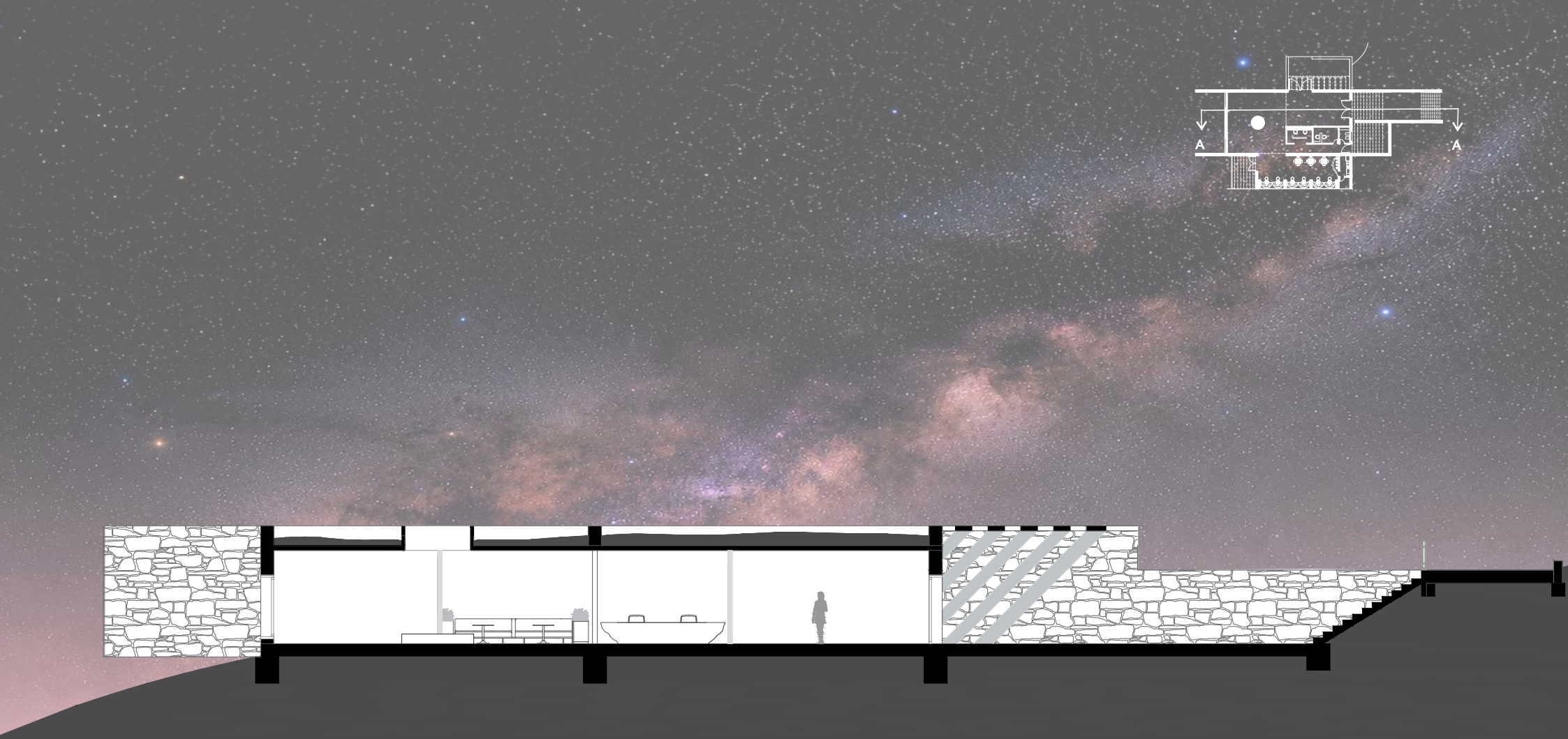
- TERRITORY CONSERVATION
- SCIENTIFIC TOURISM
- ENVIRONMENTAL EDUCATION
- LANDSCAPE INTERPRETATION
- PEDESTRIAN MOBILITY
- LOW IMPACT
- RESPECT FOR TOPOGRAPHY
- SKY OBSERVATION



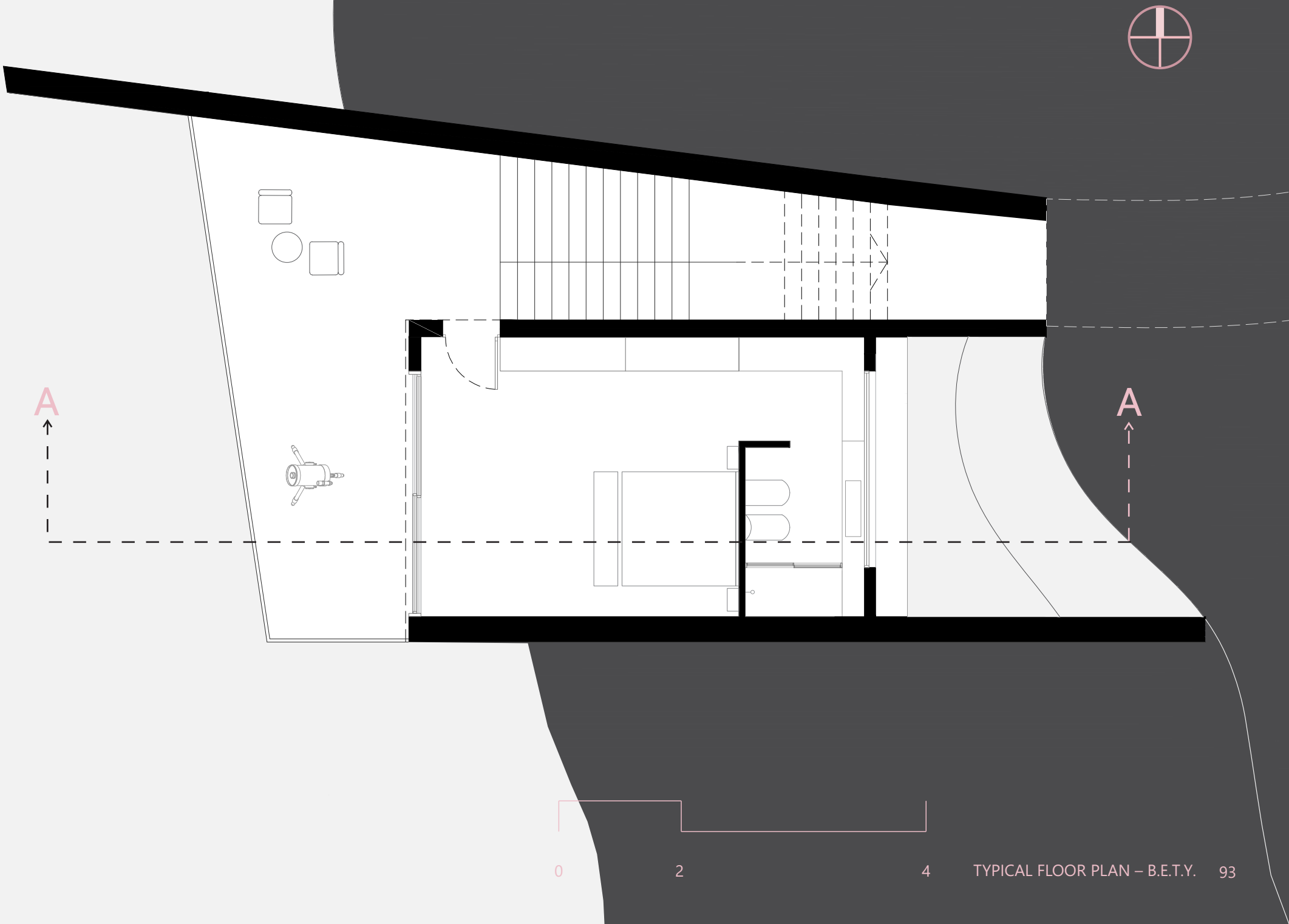


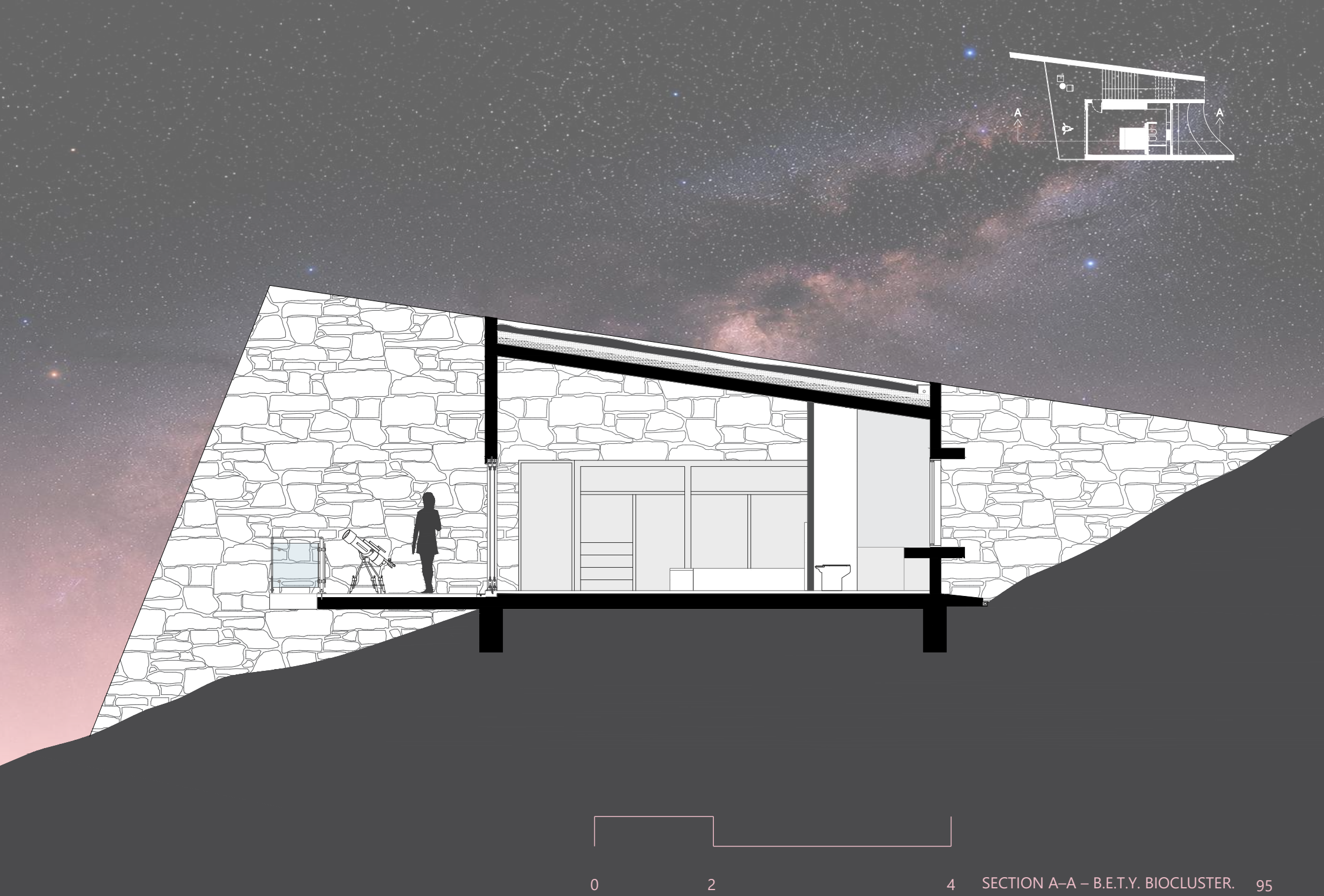
FLOOR PLAN – RECEPTION BUILDING.


B.E.T.Y.

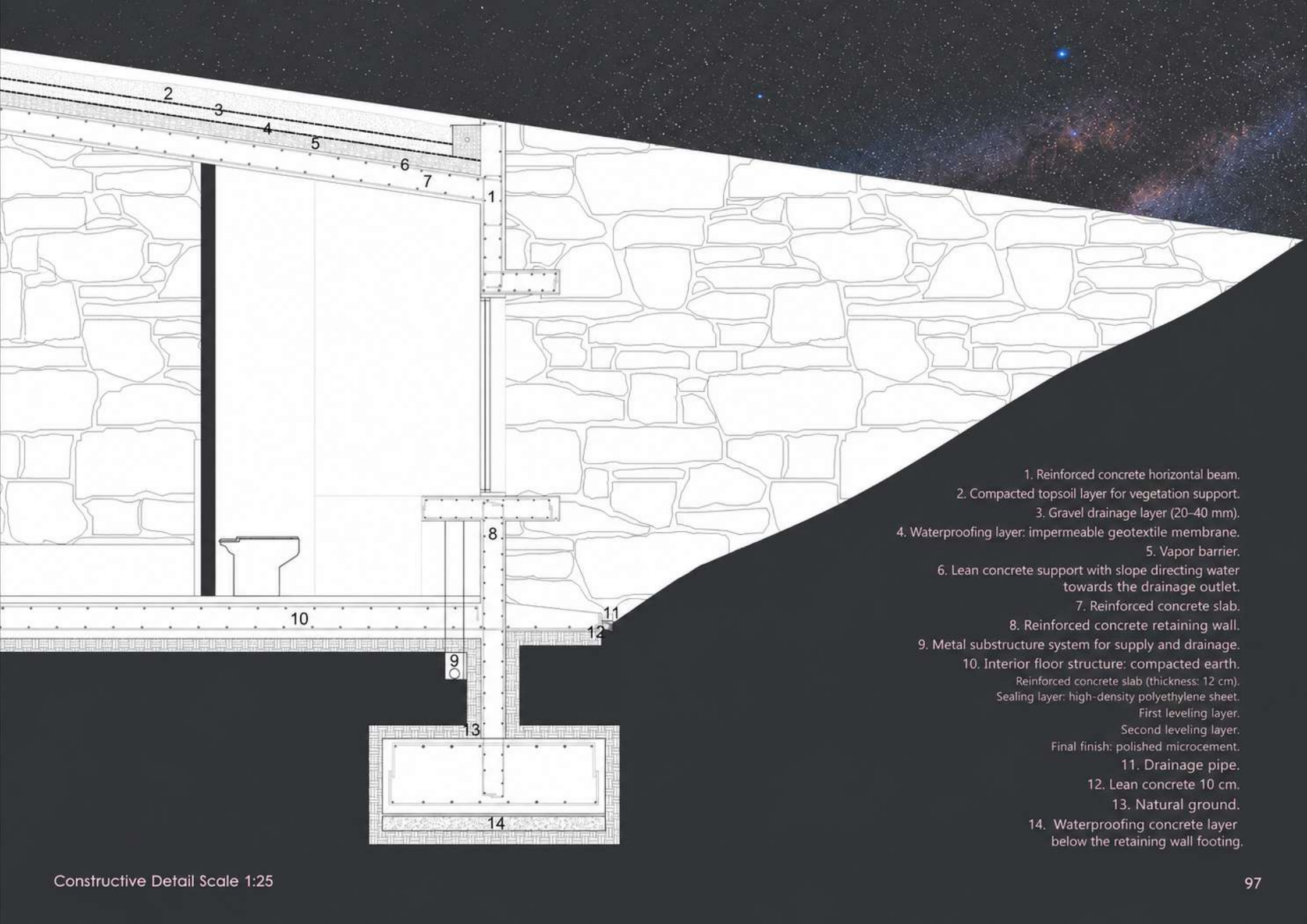


SECTION A–A – RECEPTION.


A
A
0
2
4



SECTION A–A – B.E.T.Y. BIOCLUSTER.



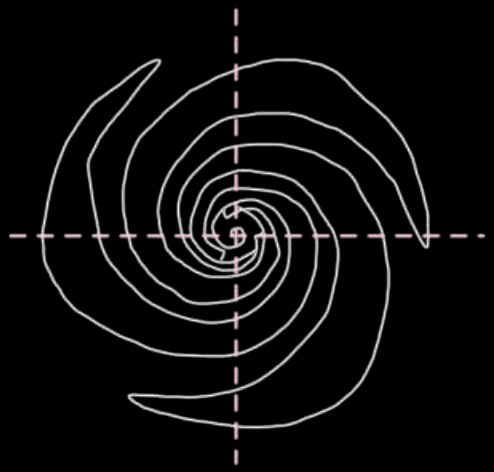
1. Reinforced concrete horizontal beam.
2. Compacted topsoil layer for vegetation support.
3. Gravel drainage layer (20–40 mm).
4. Waterproofing layer: impermeable geotextile membrane.
5. Vapor barrier.
6. Lean concrete support with slope directing water towards the drainage outlet.
7. Reinforced concrete slab.
8. Reinforced concrete retaining wall.
9. Metal substructure system for supply and drainage.
10. Interior floor structure: compacted earth.
    Reinforced concrete slab (thickness: 12 cm).
    Sealing layer: high-density polyethylene sheet.
    First leveling layer.
    Second leveling layer.
    Final finish: polished microcement.
11. Drainage pipe.
12. Lean concrete 10 cm.
13. Natural ground.
14. Waterproofing concrete layer below the retaining wall footing.

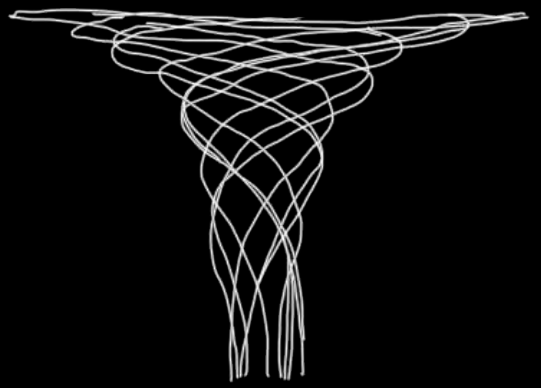
Constructive Detail Scale 1:25

.05

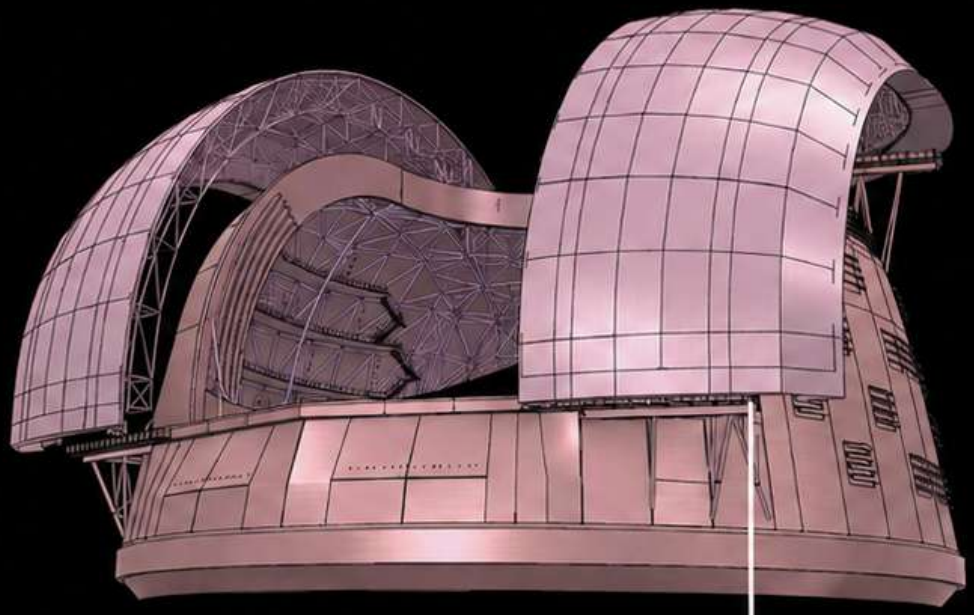
A.N.D.R.E.A.

Archivo de lo Negado, Descubierto y Revelado en Exploración Astronómica.
(Archive of the Hidden, the Discovered, and the Revealed Through Astronomical Exploration)





GENERATING CONCEPT



Between the beams, a secondary structure is erected to support the cladding of the dome. This structure is based on vertical trusses and horizontal bracings.

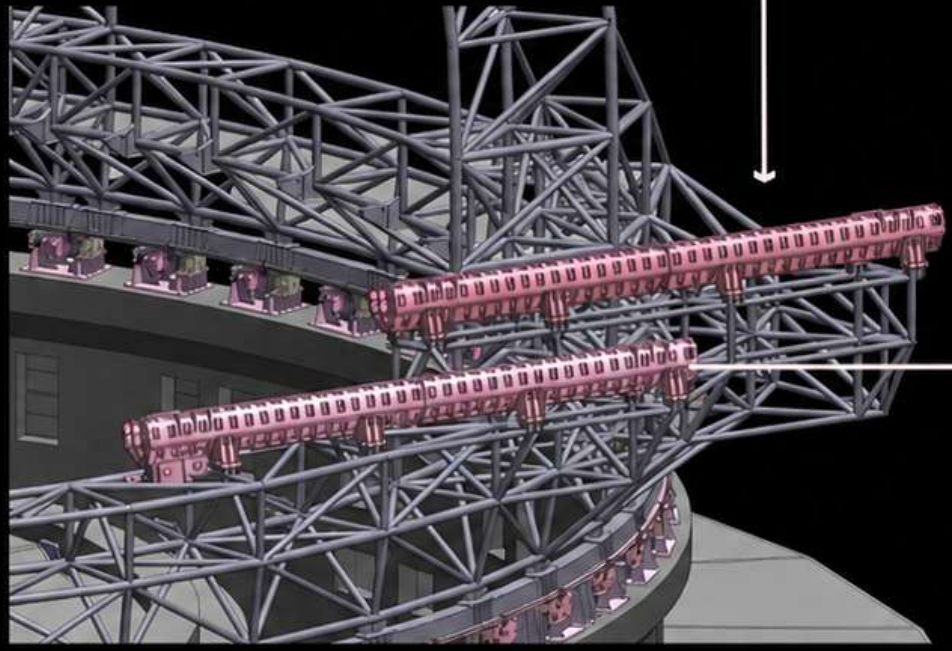
The cladding is mounted on trusses placed on this secondary structure.

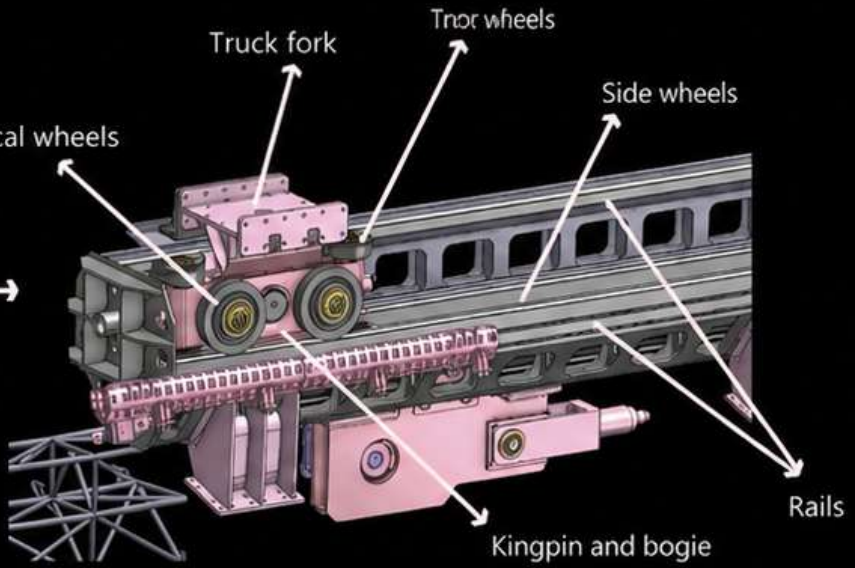
The two slotted beams and the ridge beam support the tracks on which the doors slide. The door support is not isostatic, as it would require larger bearings and potentially greater deflections at the tips of the cantilevered beams.

The door bogies provide support at four points.

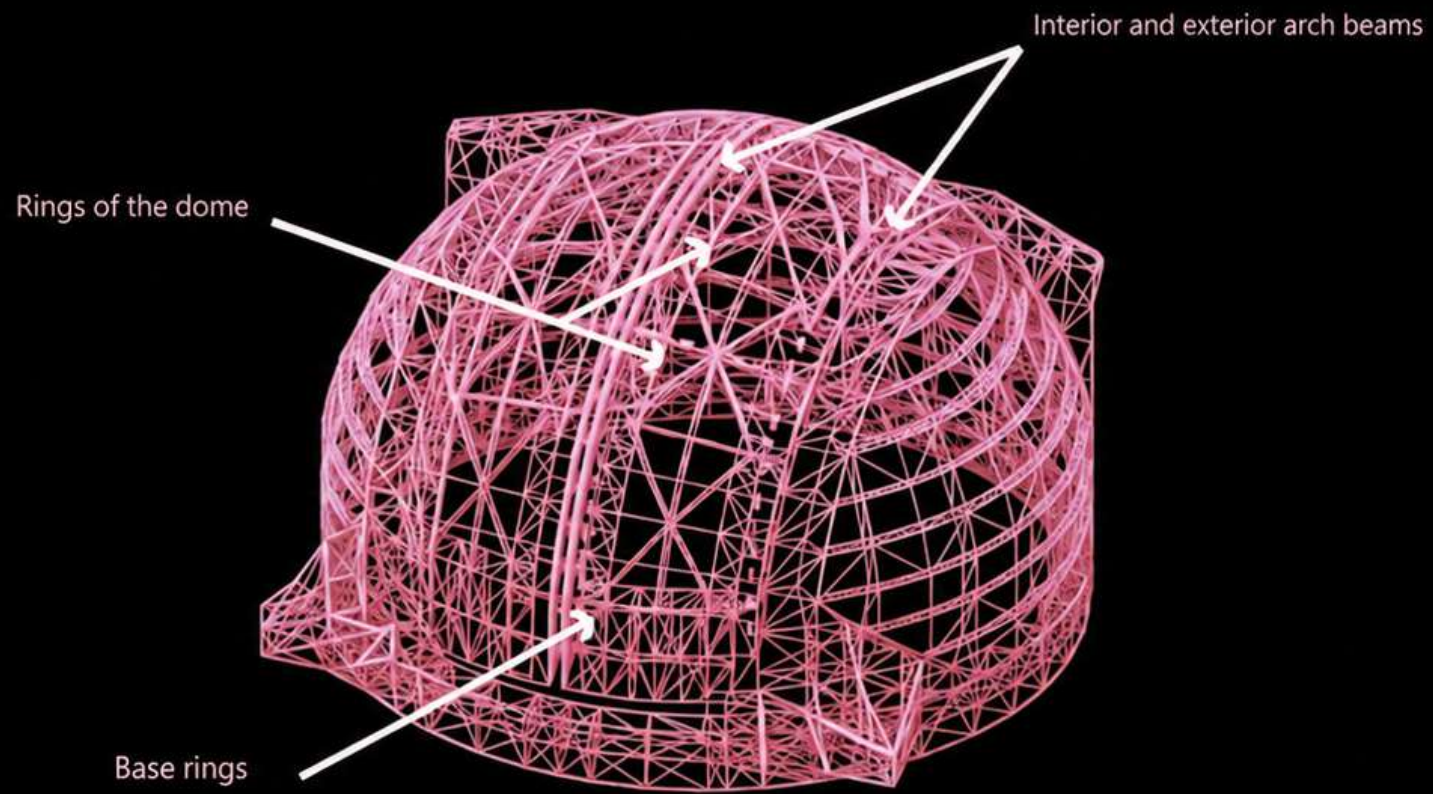
The analysis has taken into account the relative flexibility of the large doors, and it has been determined that the system is stable.

The door structure is based on two arched beams that extend from the upper to the lower rails, connected horizontally by a series of trusses.





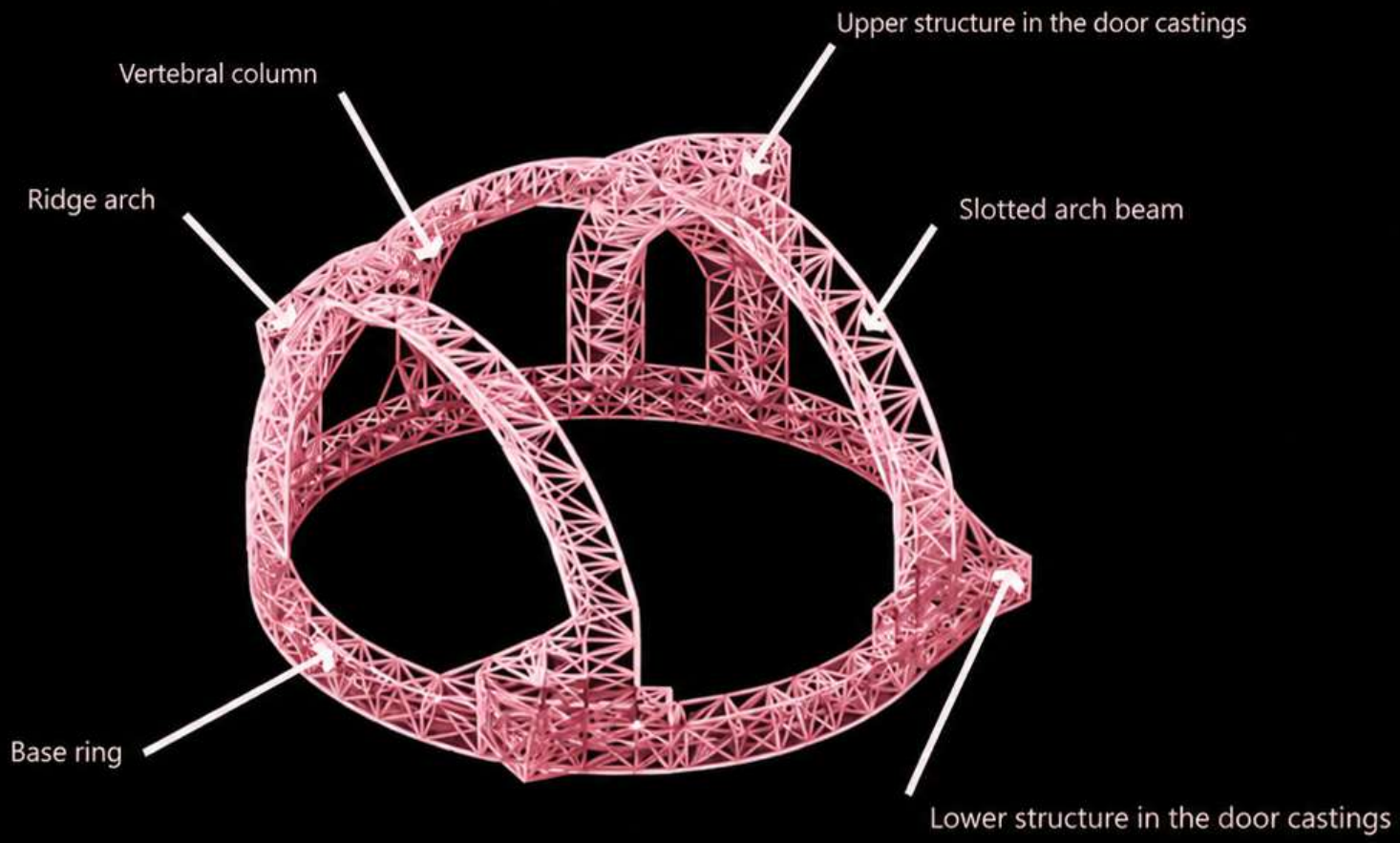
DOME STRUCTURE



The dome provides its own foundations, as well as a reinforced concrete ring beam that supports the azimuthal structure of the telescope.

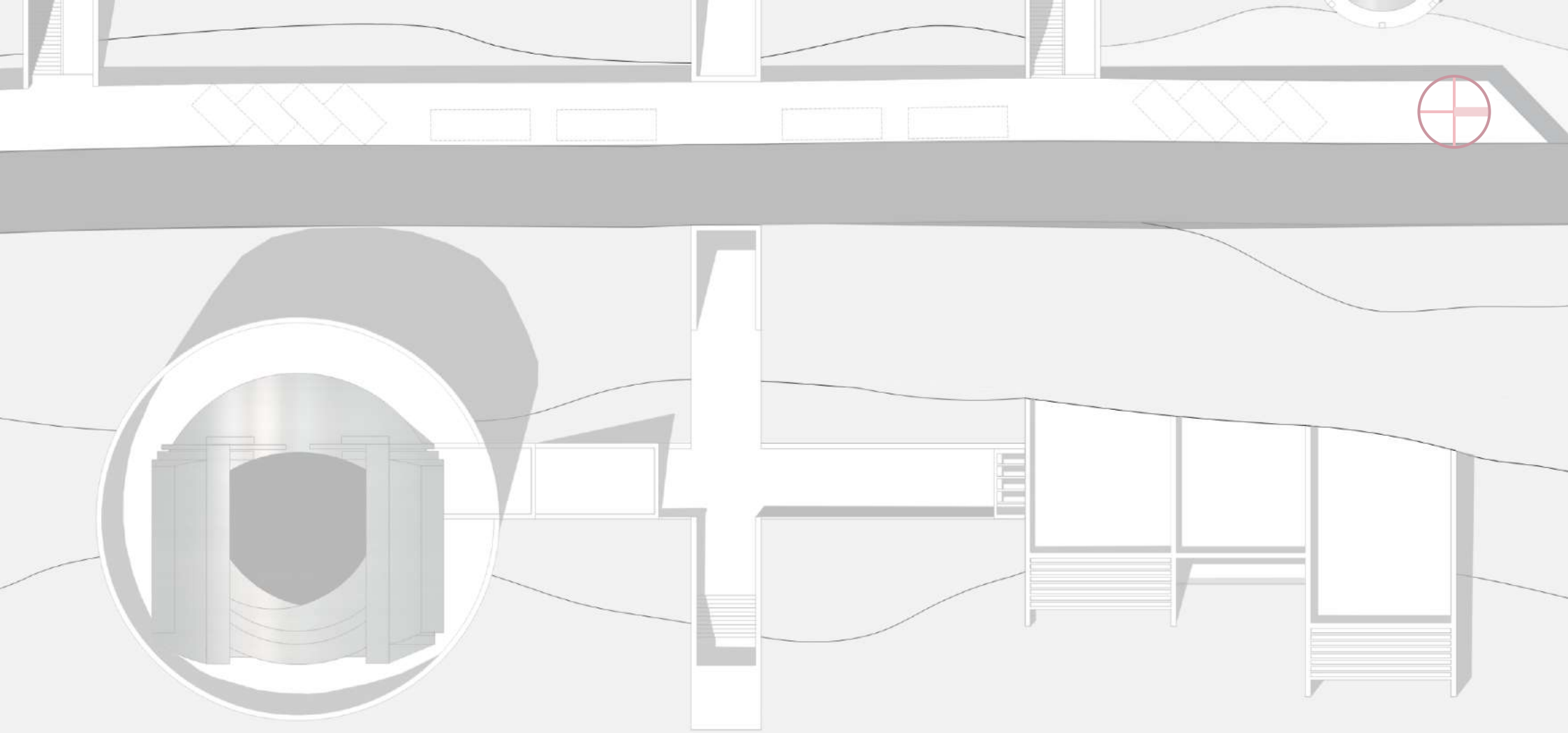
A hemispherical dome with curved doors that open laterally and rotate on a concrete column that houses the telescope.

The dome allows complete freedom of movement, allowing the telescope to be positioned inside it, both open and closed, and is designed to be airtight to both air and water.



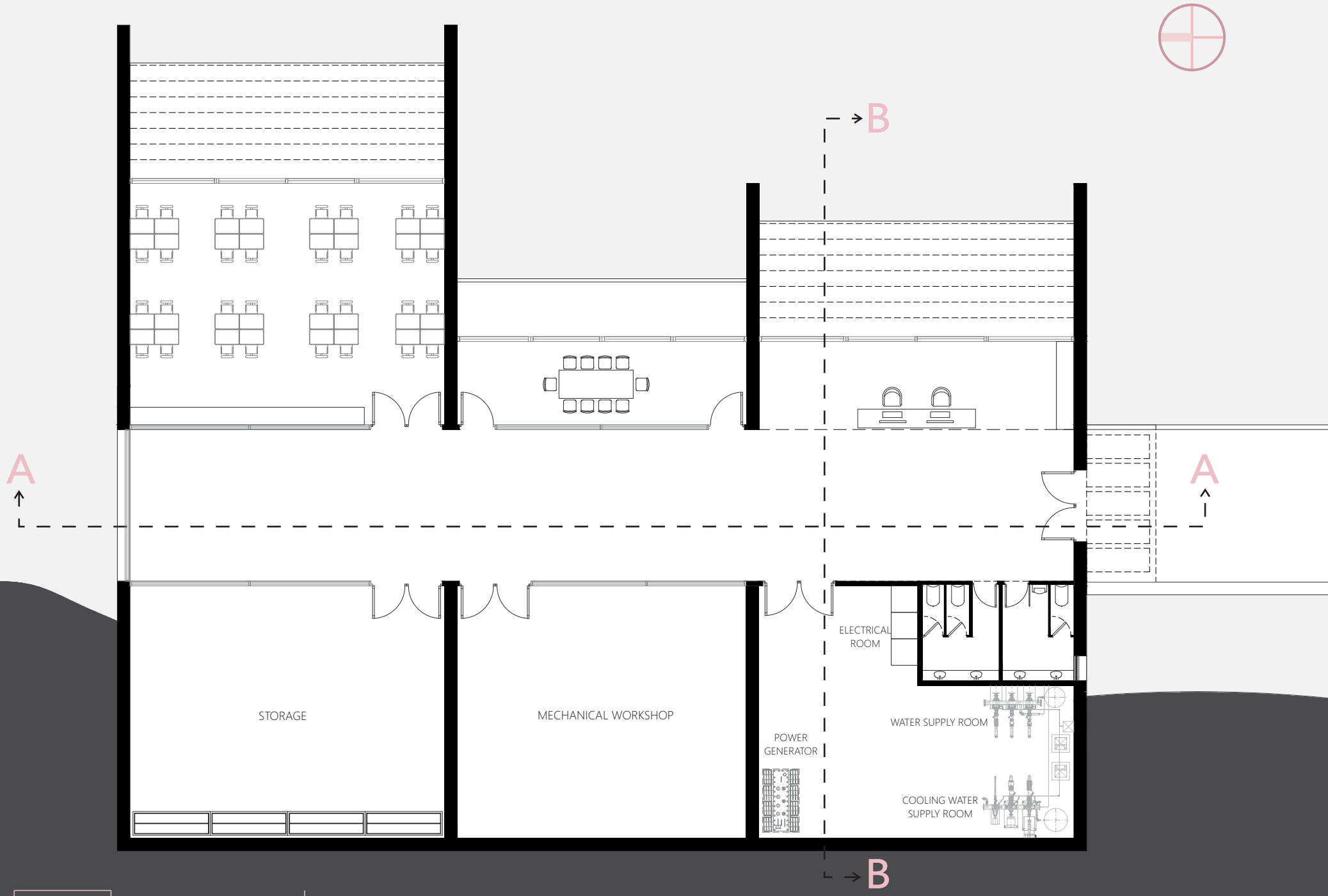
The main structure of the dome is made up of two cast arch beams: a ridge arch / inner arch and a column arch, both supported on a base ring, and the cast arches are located at the edge of the opening.

The ridge arch provides stability at the rear of the dome, while the column arch provides additional support for the door tracks.



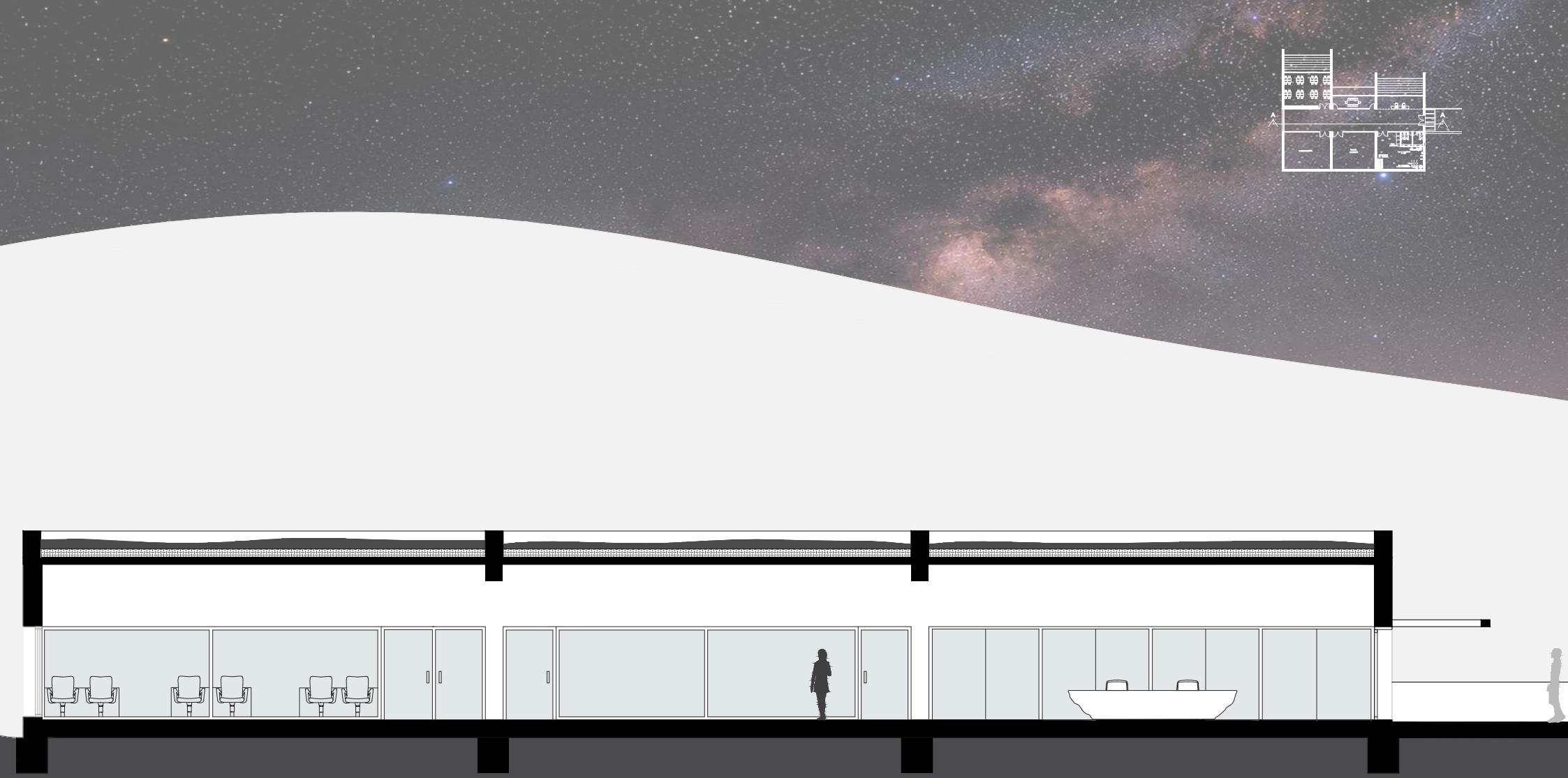
ROOF PLAN – A.N.D.R.E.A.


COSMOS
GALAXIES



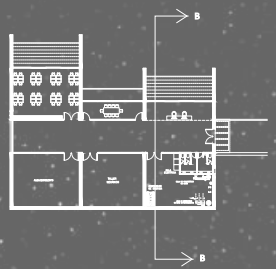
FLOOR PLAN – OBSERVATORY TECHNICAL AREA.

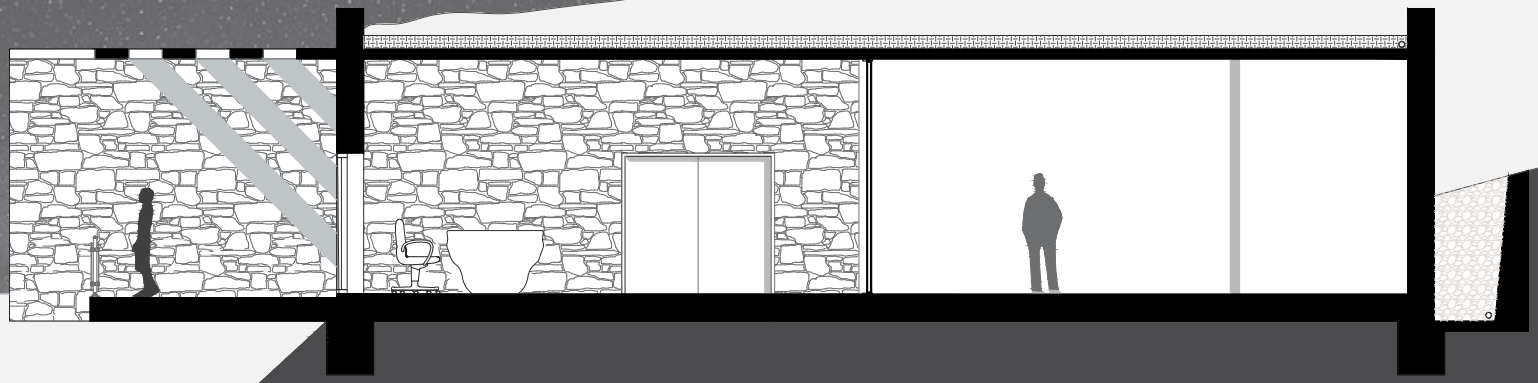

A.N.D.R.E.A



0 2 4

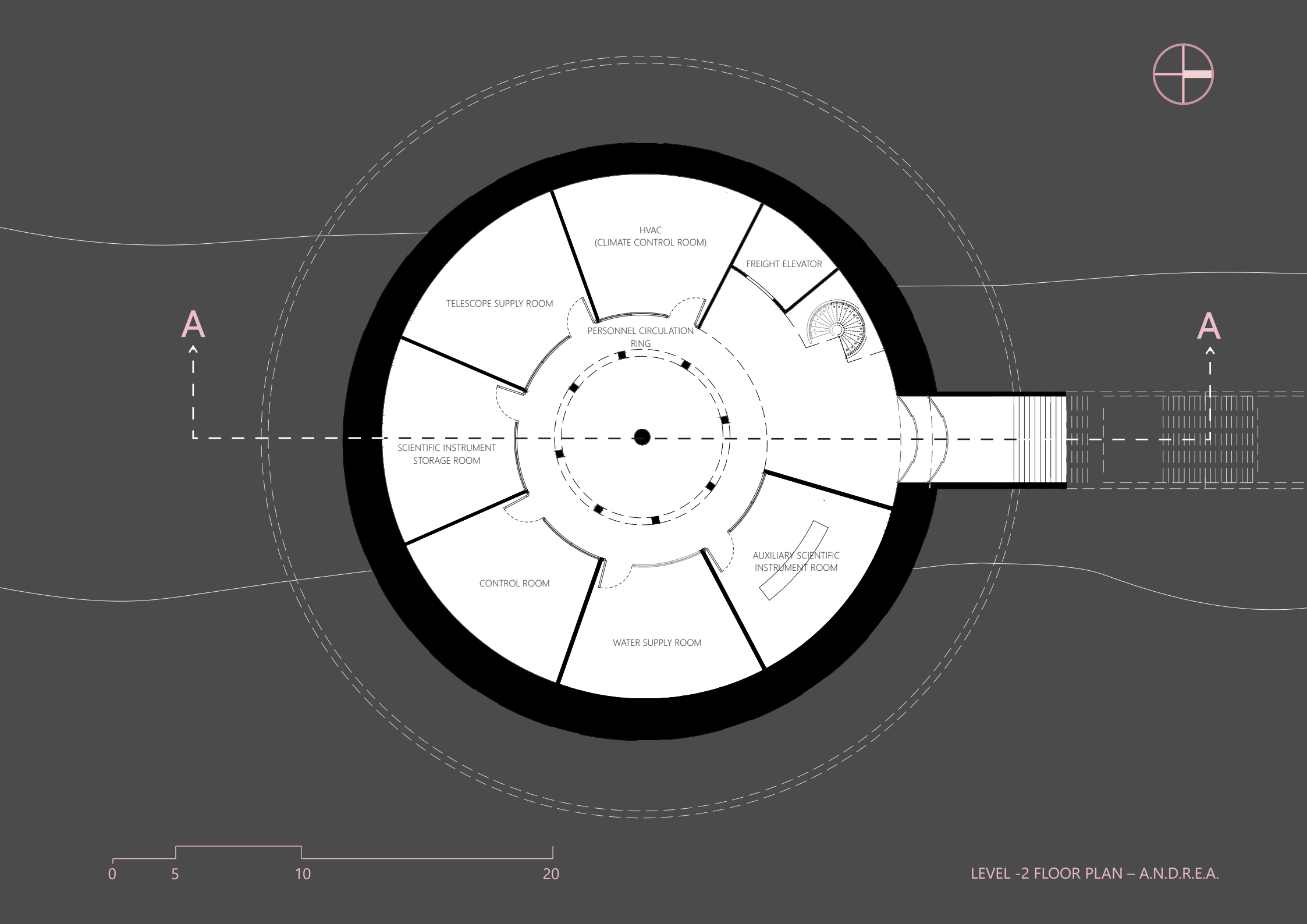
SECTION A–A – OBSERVATORY TECHNICAL AREA.



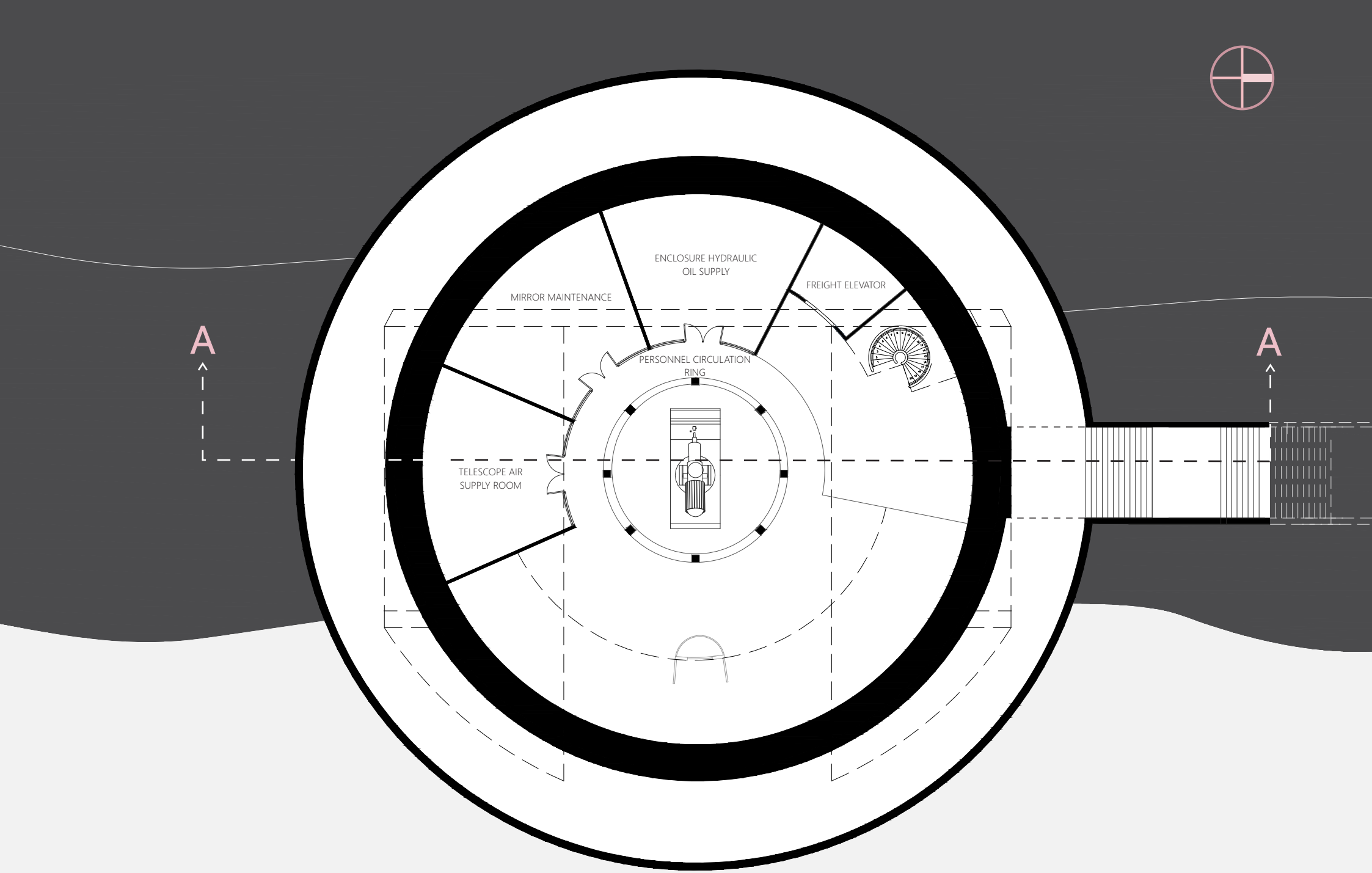


SECTION B–B – OBSERVATORY TECHNICAL AREA. 0 2 4

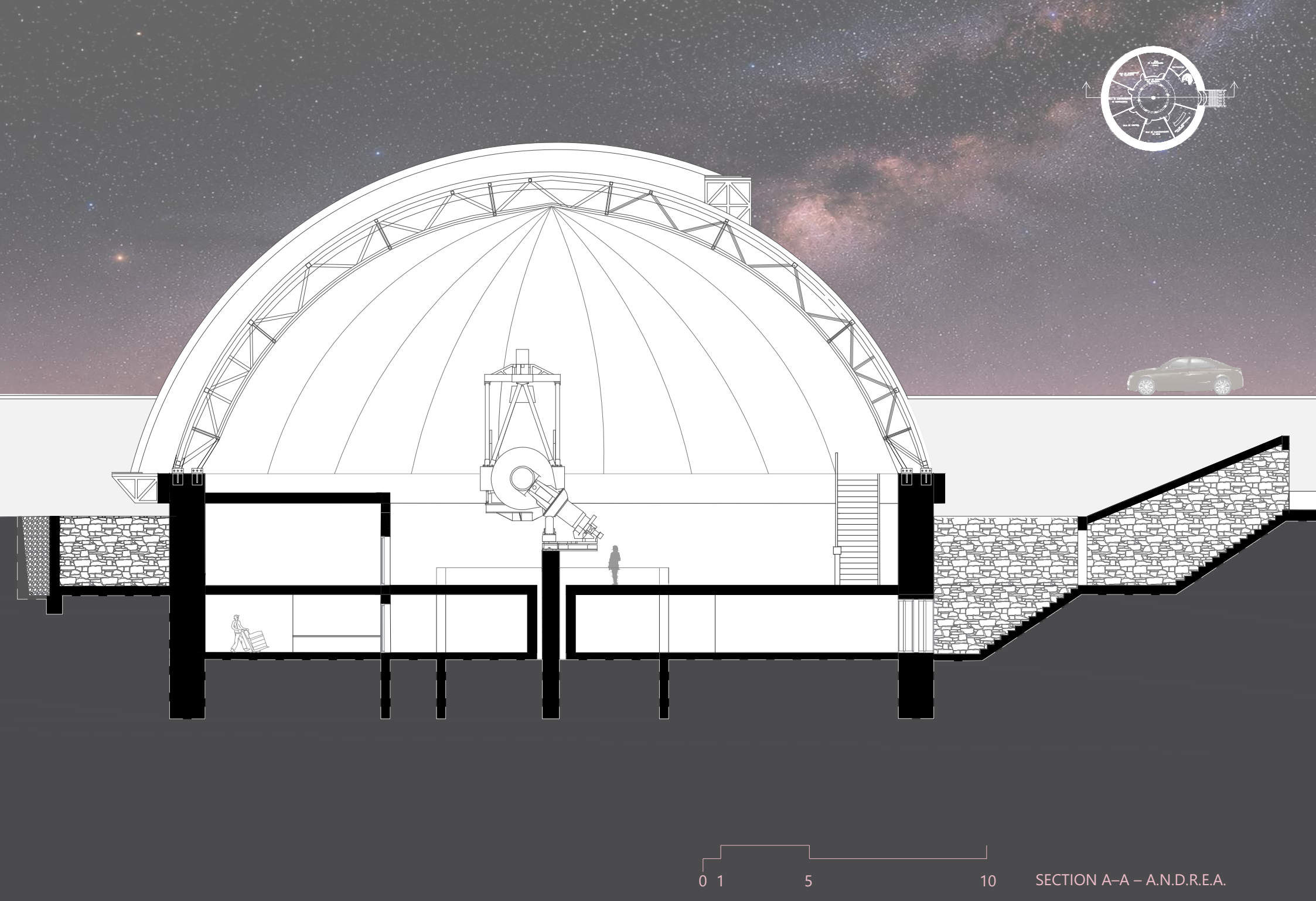

A.N.D.R.E.A



LEVEL -2 FLOOR PLAN – A.N.D.R.E.A.



LEVEL -1 FLOOR PLAN – A.N.D.R.E.A.



SECTION A–A – A.N.D.R.E.A.

.06

CONCLUSION

Proyect Synthesis.


A.N.D.R.E.A

“THE SKY IS NO LONGER A LIMIT WHEN ARCHITECTURE BECOMES EXPERIENCE, MEMORY, AND CONTEMPLATION.”