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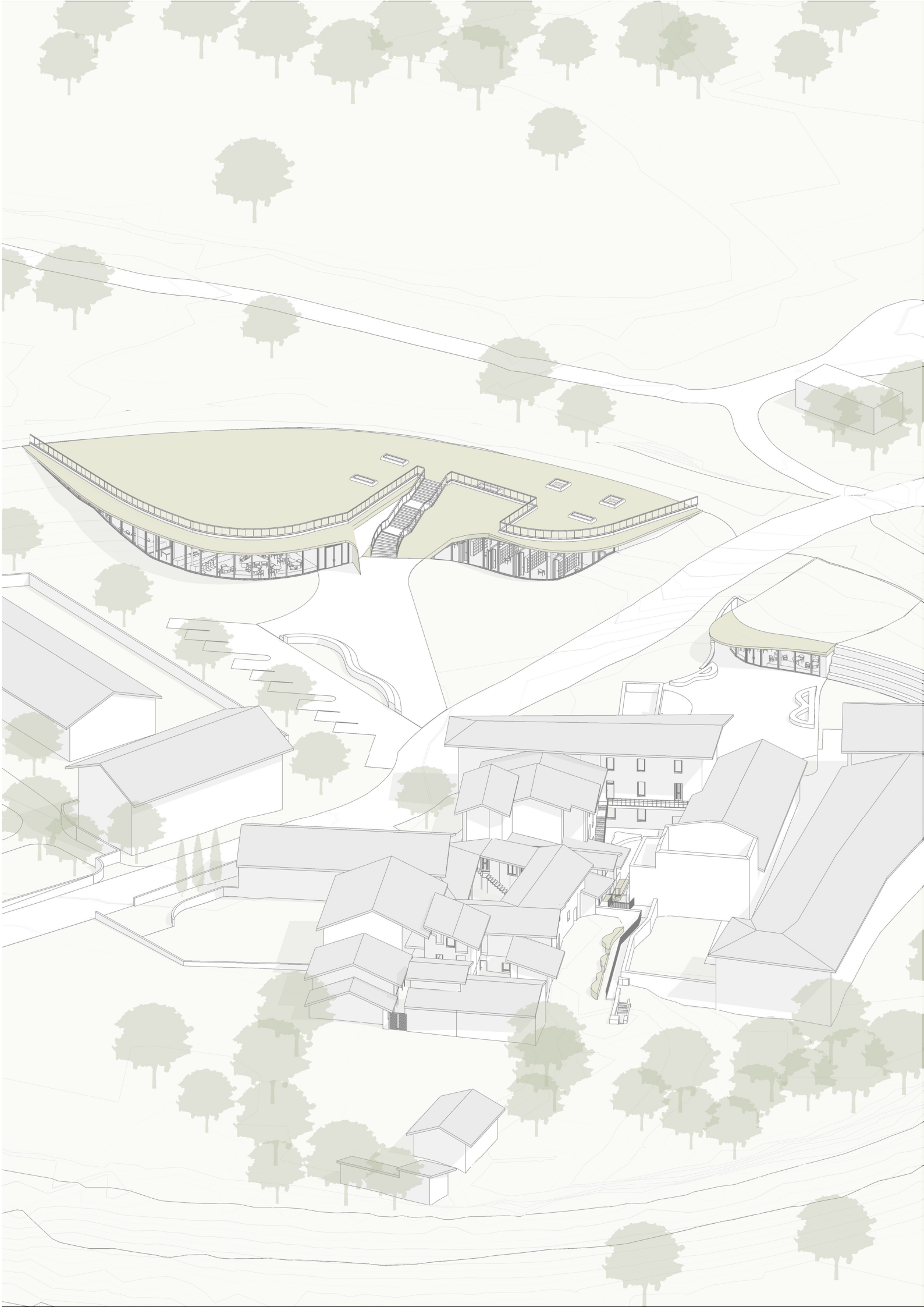
MASTER OF SCIENCE IN ARCHITECTURE AND URBAN DESIGN

**REINTERPRETING PRODUCTION. ADAPTIVE REUSE
OF THE GURONE MILLS THROUGH A CREATIVE
AND PUBLIC PRODUCTIVE HUB**

AUTHOR: POLINA SAFONOVA

**SUPERVISOR: PROF. FRANCESCO AUGELLI
COSUPERVISOR: PROF. BRANKA CUCA**

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KEYWORDS

Adaptive reuse, industrial heritage, Gurone Mills, Olona Valley, productive architecture, public space, creative production, architectural regeneration, survey, digital reconstruction

ABSTRACT

This thesis investigates the adaptive reuse of the Gurone Mills complex, a historic industrial settlement located along the Olona River in the Province of Varese, Italy. The complex used to be part of a broader network of water-powered productive sites. However, the site has progressively lost its original productive function. Today the site presents a heterogeneous condition in which residential use coexists with abandoned and underutilized buildings.

The research thus combines historical investigation, territorial analysis, survey activities and architectural design to explore strategies for the contemporary regeneration of industrial heritage. A significant part of the study examined the relationship between survey outcomes and design development. Existing documentation, point cloud data, photographic documentation and terrain modelling were integrated into a digital reconstruction of the site. As a result, a reliable basis was built for both analytical interpretation and project decision-making.

The project proposes transforming the Gurone Mills into a creative, public and productive hub. The proposal introduces a diversified program combining creative production, educational activities, hospitality, food-related functions and public spaces. This approach not only responds to the site's historical productive identity, but also introduces new uses that support its long-term activation.

The architectural strategy focuses on the preserving and adapting the historic fabric. All the contemporary additions are carefully positioned and integrated with the existing topography. In particular, it establishes a coherent relationship among heritage, landscape and contemporary use.

Beyond the specific case of Gurone, the thesis explores a broader strategy for the regeneration of former mill settlements along the Olona River. The proposal is conceived as a pilot intervention informing future transformations of similar sites. Hence, it demonstrates how productive public architecture can contribute to the revitalisation of industrial heritage sites while maintaining their cultural significance and connection to local communities.

METHODOLOGY

This research adopts an interdisciplinary methodology that combines historical investigation, territorial analysis, architectural survey, and design development to explore strategies for the adaptive reuse of industrial heritage. The approach is informed by the Dublin Principles, developed by TICCIH and ICOMOS, which emphasise integrating historical research, site surveys, landscape analysis, and documentary sources into the study and conservation of industrial heritage sites.

The first stage of the research focused on the historical development of Gurone and its surrounding territory. Historical sources, archival documentation, and cartographic materials were analysed to reconstruct the evolution of the settlement and to understand the role of the Gurone Mills within the broader historical context of the area. This phase provided the basis for identifying the site's cultural significance and its relationship to the landscape.

The second stage examined the contemporary condition of the project area. The analysis expanded from the scale of the Gurone Mills complex to the wider Olona Valley, investigating the network of historic mills that developed along the river and their current conditions. Particular attention was given to existing uses, accessibility, environmental characteristics, heritage values and regulatory constraints. This phase helped identify both opportunities and limitations that will influence future intervention strategies.

The third stage involved analysing adaptive reuse case studies. Former mill complexes in Italy and abroad, together with selected UNESCO industrial heritage sites, were examined to understand different approaches to conservation, functional transformation, and long-term site activation. The comparison of these examples supported the definition of a programmatic and architectural strategy appropriate to Gurone's specific conditions.

The fourth stage focused on geometric survey and digital reconstruction. Existing documentation, point cloud data, photographic documentation and terrain data were collected, verified and integrated into a coherent digital model of the site. Additional survey activities were undertaken to complete missing documentation and improve understanding of the site's architectural and topographical characteristics. The resulting material provided a reliable basis for both analysis and design development.

The final stage translated the analytical outcomes into an adaptive reuse proposal. Design decisions were developed through continuous interaction among historical research, territorial analysis, case study evaluation, and survey results. The proposal combines the preservation and adaptive reuse of the historic site with contemporary interventions intended to support creative production, educational activities, hospitality and public use. Through this process, the project explores how industrial heritage can be reactivated for productive, community-oriented uses while maintaining its historical identity and its relationship with the surrounding landscape.

As a result, the proposal is conceived as a pilot intervention that can inform future regeneration strategies for other former mill settlements along the Olona River.

C *HAPTER 1*

BACKGROUND AND HISTORY

- 1.1 MALNATE
- 1.2 GURONE
- 1.3 TIMELINE
- 1.4 REFERENCES

1.1 MALNATE



FIGURE 1.1.1 - CURRENT STATE OF GURONE MILLS
SOURCE: CASAMATTAGURONE.WORDPRESS.COM

The Gurone Mills are located in the Lombardy region, in northern Italy. The complex is a part of the locality of Gurone. It's located in the modest municipality of Malnate in the Province of Varese. Therefore, the chapter begins with a brief overview of Malnate to provide the historical and territorial context in which the settlement developed. Thus, in the following chapters, the thesis will examine the details of the Gurone area.

Particularly, Malnate is currently home to 16513 residents. It's considered slightly higher than earlier figures, around 16486, at the end of 2021¹. The analysis revealed that it is one of the most populated municipalities in the province, located about 8 km from the city of Varese.

In addition to its main urban centre, the municipality itself includes several smaller localities. Among them, there are Villa Rossi, Folla, Rovera, Monte Morone, Baraggia, San Salvatore, and Gurone.² Above all, Gurone has a significant feature. It occupies a strategic position with a picturesque view of the Olona Valley. Another aspect is climate. Following this, the area is characterised by a temperate subcontinental climate, with warm, moderately humid summers, cold winters, and frequent fog during the mid-seasons.

Moving forward to the origin of the name "Malnate", it may derive from marna. It is a clay-rich rock found in the area. Combined with the Celtic suffix -ate, meaning "district", the name of the area appeared. According to tradition, it was allegedly coined by Queen Theodelinda to describe the local population. The name appears in documents from the eleventh century, first as Melnate and, from 1089, as Malnate.

1.1 MALNATE

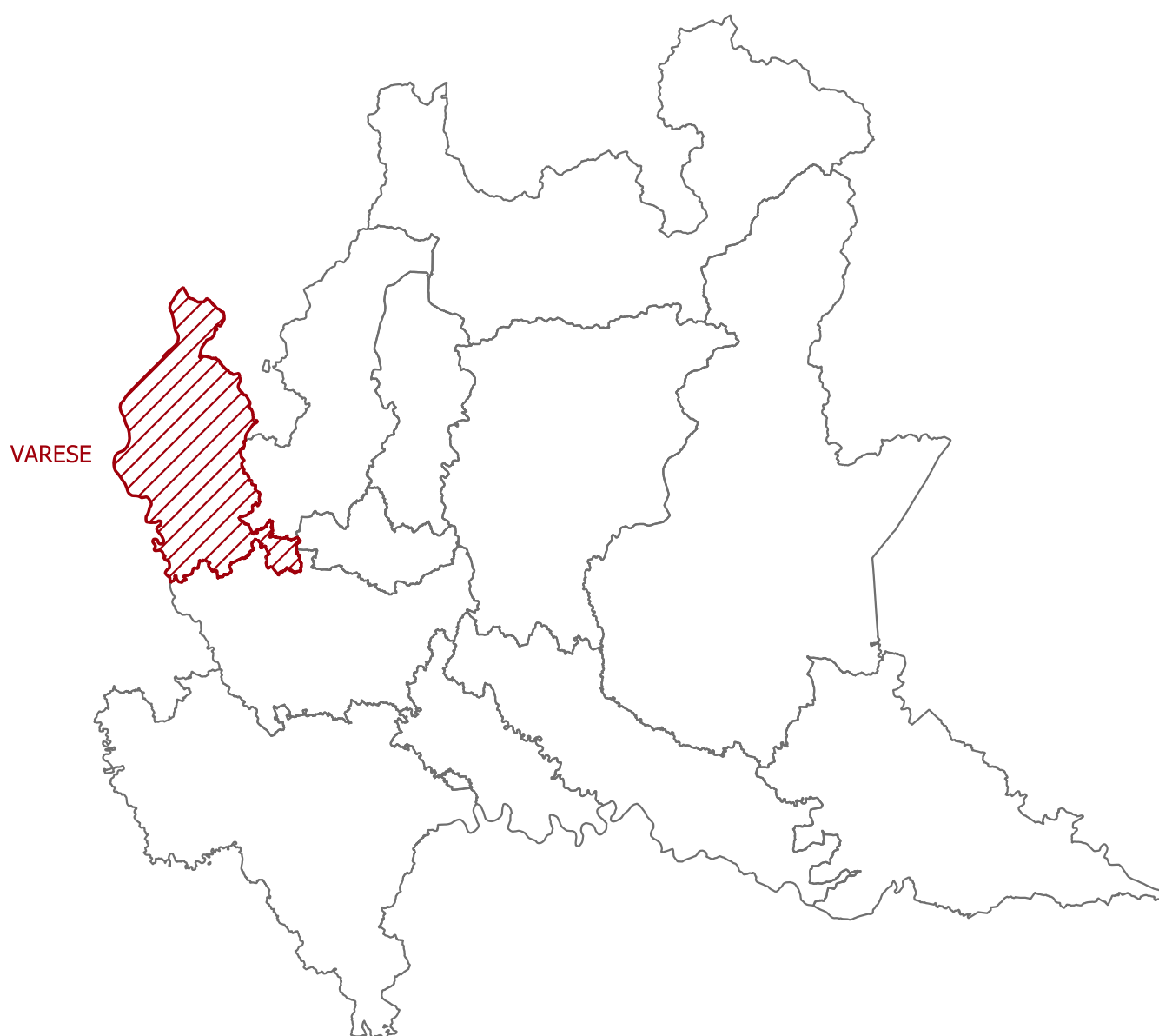


FIGURE 1.1.2 - OVERVIEW OF VARESE PROVINCE IN LOMBARDY

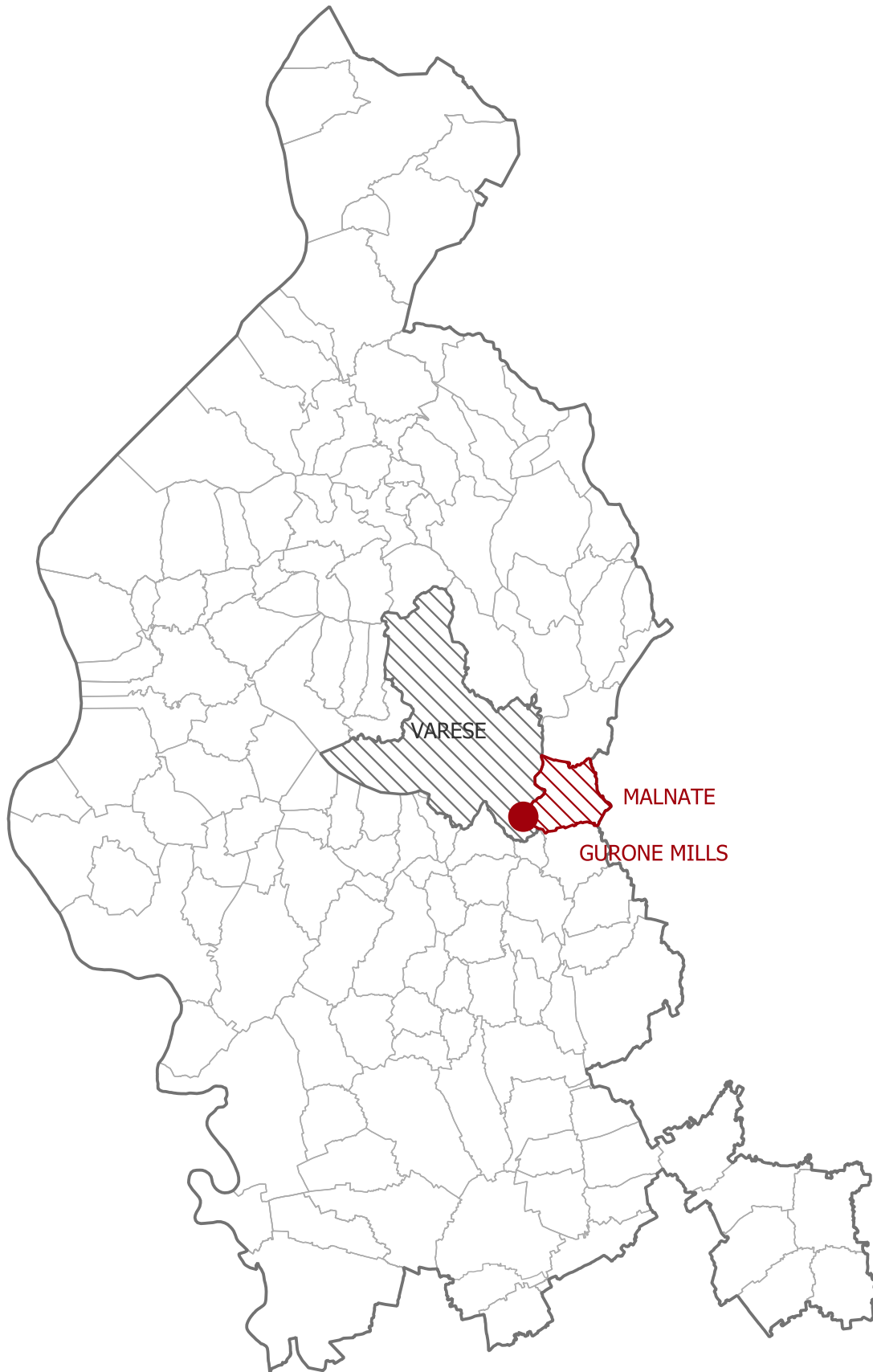


FIGURE 1.1.3 - OVERVIEW OF GURONE MILLS IN VARESE PROVINCE

1.1 MALNATE

The municipality of Malnate was officially granted the honorary title of «City» with the Resolution of the Municipal Council No. 27 of 14 July 2015. In addition, it follows a favourable opinion by the Prefecture of Verona, based on the town's historical and cultural significance.

To begin with, Malnate dates back to pre-Roman times. Particularly, Celtic tombs were discovered in the Rogoredo area in 1889, among them a sword with an anthropomorphic hilt. Further evidence of Roman presence includes tiles found in the Rovera area and the tower of Monte Morone. The orthogonal layout of Malnate's historic center, where traces of the *cardo* and *decumanus* are still visible, suggests it may have developed from a Roman *castrum* (military camp) intended to guard the valleys below.

Following the fall of the Western Roman Empire, Malnate endured invasions by the Ostrogoths and Lombards. The beginning of feudalism in 774, with the rise of Charlemagne, marked a new era, during which local territories like Malnate began to assert greater autonomy.

Malnate is mentioned in historical documents dating back to the 12th century. For instance, some of these resources note that the town had its own system of weights and measures.³ Therefore, it suggested a degree of administrative independence. During the wars between Frederick Barbarossa and the Lombard League, Malnate was reportedly sacked twice by imperial troops moving from Como toward Varese.

Moving further, Malnate passed through the hands of several noble families between the 1500s and 1700s, being part of the Duchy of Milan. These families included the Visconti, Visconti Borromeo, and Litta Visconti Arese. In 1511, the town suffered another raid by Swiss mercenaries under Cardinal Schinner, sent by Pope Julius II to counter French troops.

Subsequently, Cardinal Carlo Borromeo appointed Malnate's first parish priest in 1564. Notably, he did a personal visit to the town in 1574. He funded the restoration of San Martino Church. And approximately 40 years later, Cardinal Federico Borromeo also visited the city, continuing restoration work and providing aid for the needy.

At the end of the sixteenth century, Malnate had around 760 inhabitants. It was stated in a census conducted in 1597. Following the Peace of Utrecht in 1712, the Duchy of Milan came under Austrian rule. As a result, the reforms introduced during this period contributed to Lombardy's social and economic development. It also influenced the city of Malnate. During the eighteenth century, the municipality became officially known as «Comune di Malnate con Monte Morone e San Salvatore». Thus, it reflected the integration of the neighbouring settlements.⁴

During the Cisalpine Republic, Malnate was part of the Department of Lario and belonged to the district and canton of Varese. Between 1817 and 1854, the municipality was administered by a municipal deputation. However, it followed the temporary removal of the mayoral office. The Habsburg administration promoted industrial and demographic development - Malnate nearly doubled its population in this period.

The wars of Italian independence brought more turmoil. On May 26, 1859, during the Battle of Varese, Garibaldi's volunteers clashed with Austrian troops near Folla and San Salvatore. Malnate also contributed its share of sacrifices in both World Wars. Between 1943 and 1945, the area witnessed partisan resistance activities against fascist forces.

From the mid-19th century, Malnate began to industrialise, especially in paper and silk manufacturing and in sandstone extraction, used both for construction and for millstone production for rice husking.

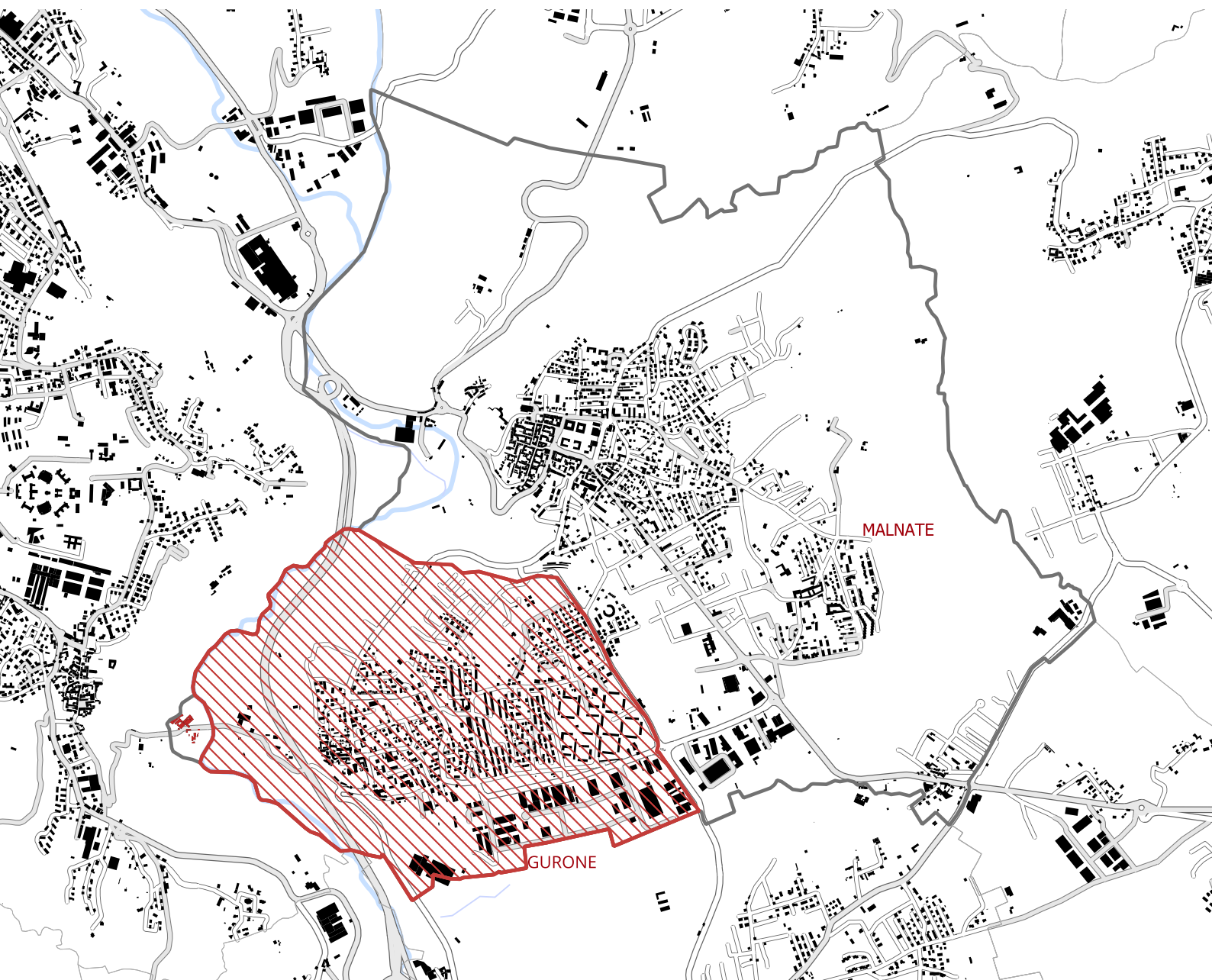
In 1927, with the fascist reform of local governments, Malnate was incorporated into the newly established Province of Varese, having previously belonged to the Province of Como.⁵

1.2 GURONE

Moving to the details of the project site itself, Gurone is a hamlet of Malnate in the Insubric region, located in the agricultural Olona Valley. Situated in the southern part of the municipality, it encompasses the Mills of Gurone, the lowest point in Malnate. The settlement lies in the floodplain of the Olona River. It has ancient origins, with land transactions documented as early as the first century CE, likely connected to the exploitation of river currents for productive activities.

From the early thirteenth century, the Olona Valley became increasingly dotted with mills, including Gurone. Over time, the site housed an oil press, a carpentry workshop, a tavern, and other enterprises. In this way, all these made the Mills of Gurone an important local hub for both economic and social life. Its strategic position near the Valmorea railway further reinforced its role as a passage point between Malnate, Bizzozero, and Varese.

FIGURE 1.1.4 - OVERVIEW OF GURONE IN MALNATE



The development of Gurone must be analysed together with the history of the Olona Valley. The river shaped not only the area's landscape but also its economic activities. As a result, it provided the hydraulic power that supported a dense network of mills and productive settlements. To better understand the role of the Gurone Mills within this system, the study examined the Valley.

Therefore, the Olona Valley has an ancient tradition of water-powered industry, with mills historically forming the backbone of local economic activity. In Gurone, these mills played a central role, for instance, in grain processing, oil extraction, and later, textile production.

Moving further to the project site, the earliest documented reference to a mill in Gurone dates to 1608, when Eng. Barca recorded a facility for Luigi Bizzozero with multiple hydraulic wheels (rodigini) for flour, cloth production, and rice cleaning.⁶ Initially, these wheels were simple wooden mechanisms. Later on, they were replaced by iron wheels or turbines with curved paddles. Thus, technological advancements are reflected in industrial milling.

By the 18th century, records show the presence of two mills, one of which powered an oil press, likely for rapeseed. Land registries of the period also note associated residential buildings and ovens, underscoring the mills' role in local production and taxation systems. The 19th century brought further diversification: alongside traditional grain mills, cotton spinning plants emerged, such as the Varenna factory, marking the transition from small-scale milling to early industrial manufacturing. Documents from the Olona River Consortium and the Chamber of Commerce highlight these developments, including machinery upgrades and the gradual obsolescence of older facilities.

The mills continued operations through the 20th century. However, the last traditional mill ceased functioning in 1970. Subsequently, former textile facilities were repurposed for chemical fertiliser production by companies such as Pagani and later Vitalba, reflecting the broader trend of adaptive reuse in the region.⁷

1.3 GURONE MILLS

Within the broader historical development of Gurone, the mills played a central role in shaping the local economy and landscape. For this reason, a closer examination of their evolution provides valuable insight into the transformation of both the settlement and the wider Olona Valley.

Nowadays, only one mill remains in Gurone, though it has not been in operation since 1970. Archival records trace its history back to 1608, when it was registered under Luigi Bizzozero, with four hydraulic wheels for flour, a fulling mill for cloth, and a rice hulling track. By 1772, the Land Registry recorded a “double mill” with seven wheels owned by Gaspare Bizzozero, one of which powered an oil press.⁸

Throughout the 18th and 19th centuries, the structure expanded in function, combining grain milling with oilseed processing, while also housing ovens taxed under the “ground grain tax” system. The Industrial Statistics of Varese (1873) further documented diversification: in addition to traditional grain milling, a cotton spinning plant operated with modest production, later confirmed by the Olona River Consortium in 1850 and subsequent reports by Eng. Mazzocchi.⁹

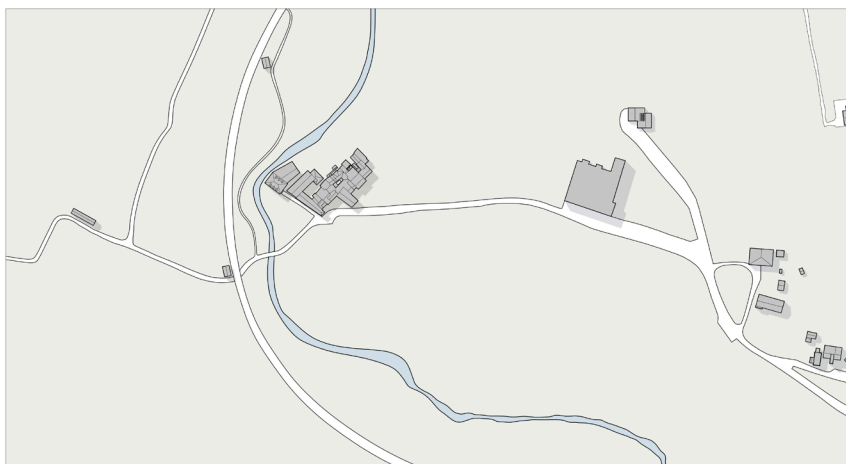
Over time, ownership and use shifted from the Varenna family to several other enterprises, including Figari & Bixio, Avigno, Monti Marco, and Foresti. In the 20th century, the site was converted into a fertiliser factory by the Pagani company, which later acquired it. Thus, the Gurone mills illustrate the broader trajectory of the Olona Valley’s industrial heritage: originating as a hydraulic grain mill, later adapted to textile production, and eventually transformed into the chemical industry before its final closure in the late 20th century.¹⁰



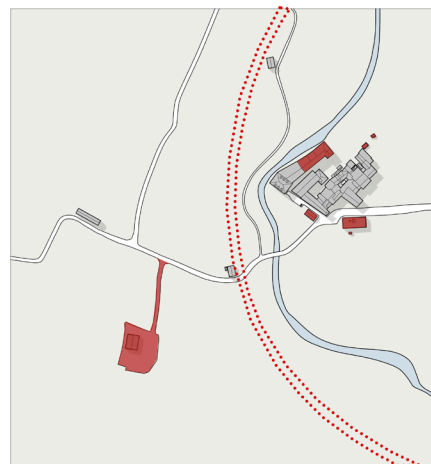
FIGURE 1.1.5 A AND B -
HISTORICAL PHOTO OF
GURONE MILLS
SOURCE:
CASAMATTAGURONE.
WORDPRESS.COM

1.3 GURONE MILLS

1954



1975



2007



2008

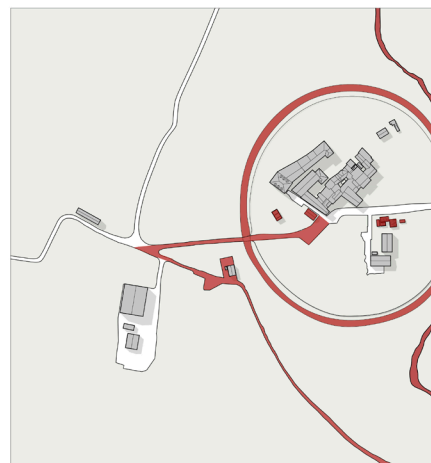
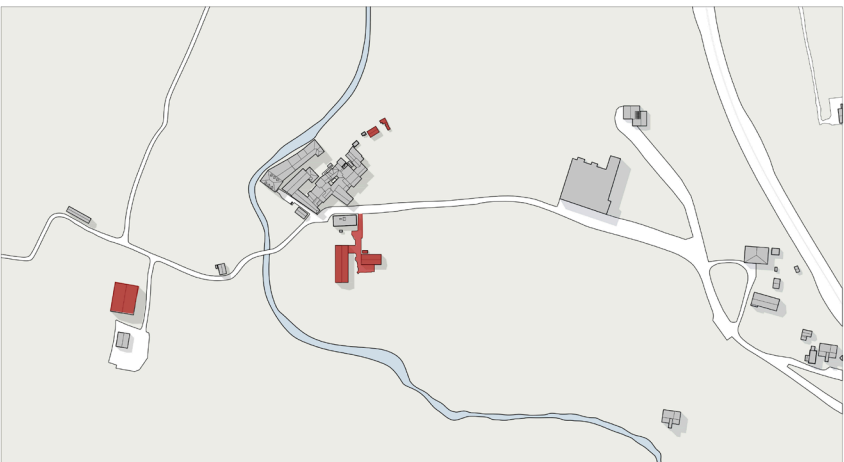


FIGURE 1.1.6 - EVOLUTION OF THE GURONE MILLS OVER TIME

1998



2025



1.4 TIMELINE

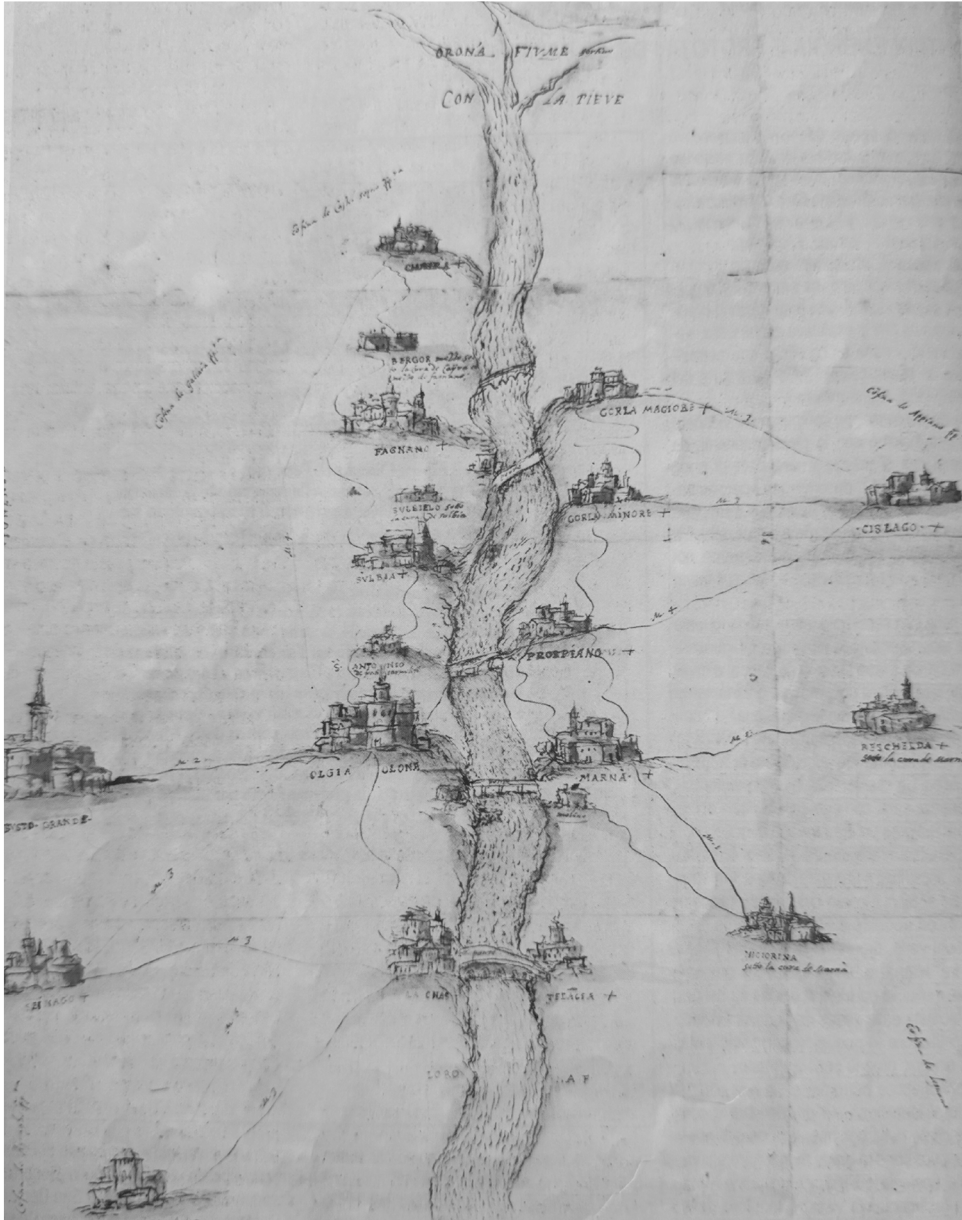


FIGURE 1.1.5 - HISTORIC DRAWING

SOURCE: LA FABBRICA RITROVATA: MOSTRA DI ARCHEOLOGIA INDUSTRIALE NELLA VALLE OLONA, VARESE, 1990



FIGURE 1.1.6 - HISTORICAL PHOTOGRAPH OF THE GURONE MILLS
SOURCE: BALZAN, L., "L'ATTIVITÀ AGRICOLA DEI MULINI", IL VARESOTTO, NO. 3, BIBLIOTECA MALNATE,
FEBRUARY 1987

1.4 TIMELINE



FIRST HALF 1000

First confirmation of mills existence along the Olona river

1573

Presence of millers in the status animarum of Malnate

1600

Gurone Mills are inhabited and cultivated

1608

Land registry of Olona River Consortium records four water wheels mill, textile factory, hydraulic pile

1700

Agricultural expansion, irrigation of Olona river

1722

Teresiano Land Register lists Sonzino and Speroni as tenants of double mill with 7 water wheels known as Gurone Mills



1922

Valmorea Railway tracks in Italian territory are extended to Swiss border

1928

Passenger traffic on Valmorea Railway is interrupted, and officially suspended in 1952

1970

Last mill in Gurone officially ceases to function, industrial decline. Construction of gas plant to supply areas of Varese

1977

Last train travels along Valmorea railway before its closure

1985

Beginning of embankment work to defend Mills from floods, then interruption for unknown reasons



2007

After winning pollution lawsuit, funds were reinvested in Malnate - Legambiente's beginning

2008

Deviation of river and presence of ring road in Gurone

2009

Dam capable of regulating flow of river to protect areas from flooding, comes into operation

2014

Flooding of Olona that turns Mills into sland in the middle of water

2017

Full text of "L'anello sul Fiume" developed by Legambiente for conservation of Valley is presented to press



LEGAMBIENTE



EARLY 1800s

Olona mills are under radical transformation of production line, Malnate becomes center of cotton industry

1873

Owners of Gurone mill install carpentry business with machinery moved by water wheel

EARLY 1900s

Analyses are carried out on Olona's waters due to pollution produced by industries along Olona

1902

Royal Decree no. 21 grants the Concession for construction of Valmorea Railway

1913

Valmorea Railway is prolonged until Malnate (Cairate Valmorea section), Gurone Mills is central transport knot



1987

There is only one mill left in Malnate. Launch of agritourism Goccia D'Oro Ranch located close to Gurone mills

1993

Portion of Valmorea railway is restored for tourist purposes. Malnate-Mendrisio railway line was reactivated till 2014

1995-2002

Heavy floods of Olona cause ennesimes ravages making it essential to proceed with dam construction

2001-2002

Valle del Lanza Park is established. Lombardy region recognizes it as protected area

2004

Work begins on construction of Gurone dam



2019

Casamatta project is initiated. Renovation of parts of Casamatta complex is carried out

2021

Redevelopment of Casamatta becomes objective of thesis laboratories at Politecnico di Milano

2023

TI-CICLISMO-VIA bicycle road connecting Varese, Italy and cantone Ticino, Switzerland is built

2025

Bicycle road connecting Malnate to Castiglione Olona and Castellanza to Legnano is constructed

2025-2027

Improvement of Parco dei Molini with focus on water quality, ecological restoration and community enhancement

1.4 TIMELINE

CONCLUSION

Based on these findings, the development of the mills along the Olona River is an effect of a continuous process of adaptation. For example, a variety of changes were presented, including social, technological, and environmental factors. The earliest evidence of milling activity dates to the early Middle Ages. In particular, the abundant flow of the Olona provided ideal conditions for hydropower at the time. By the sixteenth and seventeenth centuries, the area had become a dense, productive corridor. Notably, numerous watermills supported agricultural processing, flour production, and local craftsmanship. During the Industrial Revolution, many mills were mechanised and expanded, marking a transition from purely agrarian use to early industrial manufacturing.

The twentieth century saw both new inventions and a decrease in some areas at the same time. The Valmorea Railway was built in the early 1900s to link the mills to larger trade routes. Unfortunately, new technologies and economic changes left the railway slowly unused by the middle of the century. Floods, growing cities, and environmental damage also worsened the sites. However, towards the end of the 1900s, growing concern for the environment and the increasing focus on preserving heritage sparked a gradual rediscovery of the past. The mills in Gurone and the broader Olona area are now seen not just as old places where things were made, but as important parts that help bring back culture, nature, and community life.

1.5 REFERENCES

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- ⁴ Ibid
- ⁵ Comune di Malnate. Museo di Scienze Naturali Mario Realini – Storia. Available at: <https://comune.malnate.va.it/museo-di-scienze-naturali-mario-realini/storia/> (Accessed: June 2026).
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- ⁷ Ibid
- ⁸ Ibid
- ⁹ Comune di Malnate. Storia del Museo di Scienze Naturali Mario Realini. Available at: <https://comune.malnate.va.it/museo-di-scienze-naturali-mario-realini/storia/> (accessed June 2025).
- ¹⁰ La fabbrica ritrovata: mostra di archeologia industriale nella Valle Olona. Varese: Università Popolare, Amministrazione Provinciale, Comune di Varese, 1990.

C *HAPTER 2*

PROJECT SITE NOWADAYS

- 2.1 OLONA VALLEY
- 2.2 GURONE
- 2.3 GURONE MILL
- 2.4 LEGAMBIENTE AND CASAMATTA
- 2.5 PROTECTION LEVEL OF SITE
- 2.6 FREEDOM AND RESTRICTIONS
- 2.7 REFERENCES

2.1 OLONA VALLEY

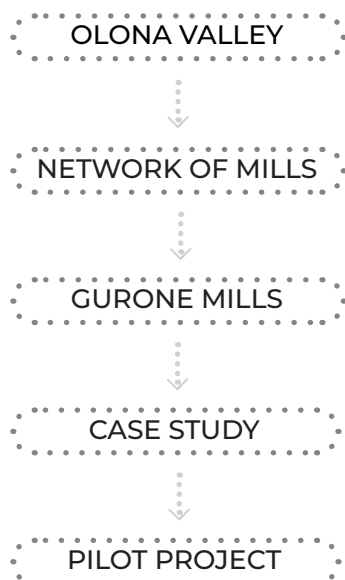
INTRODUCTION

The Olona River has historically shaped the development of numerous settlements and industrial activities across northern Lombardy. From the seventeenth century, its hydraulic system supported a dense network of mills and productive landscapes. As a result, this significantly contributed to the region's economic growth.

Today, many of these industrial structures have lost their original function and remain abandoned. Nevertheless, they continue to represent an important cultural and territorial resource.

Located within this broader network, the Gurone Mills complex occupies a strategic position in the upper Olona Valley. In particular, the site was selected as a case study to investigate how adaptive reuse can contribute not only to the regeneration of a single heritage asset, but also to the wider revitalisation of industrial landscapes along the river corridor.

The project is conceived as a pilot intervention that can inform future regeneration strategies for other abandoned mill settlements along the Olona River.



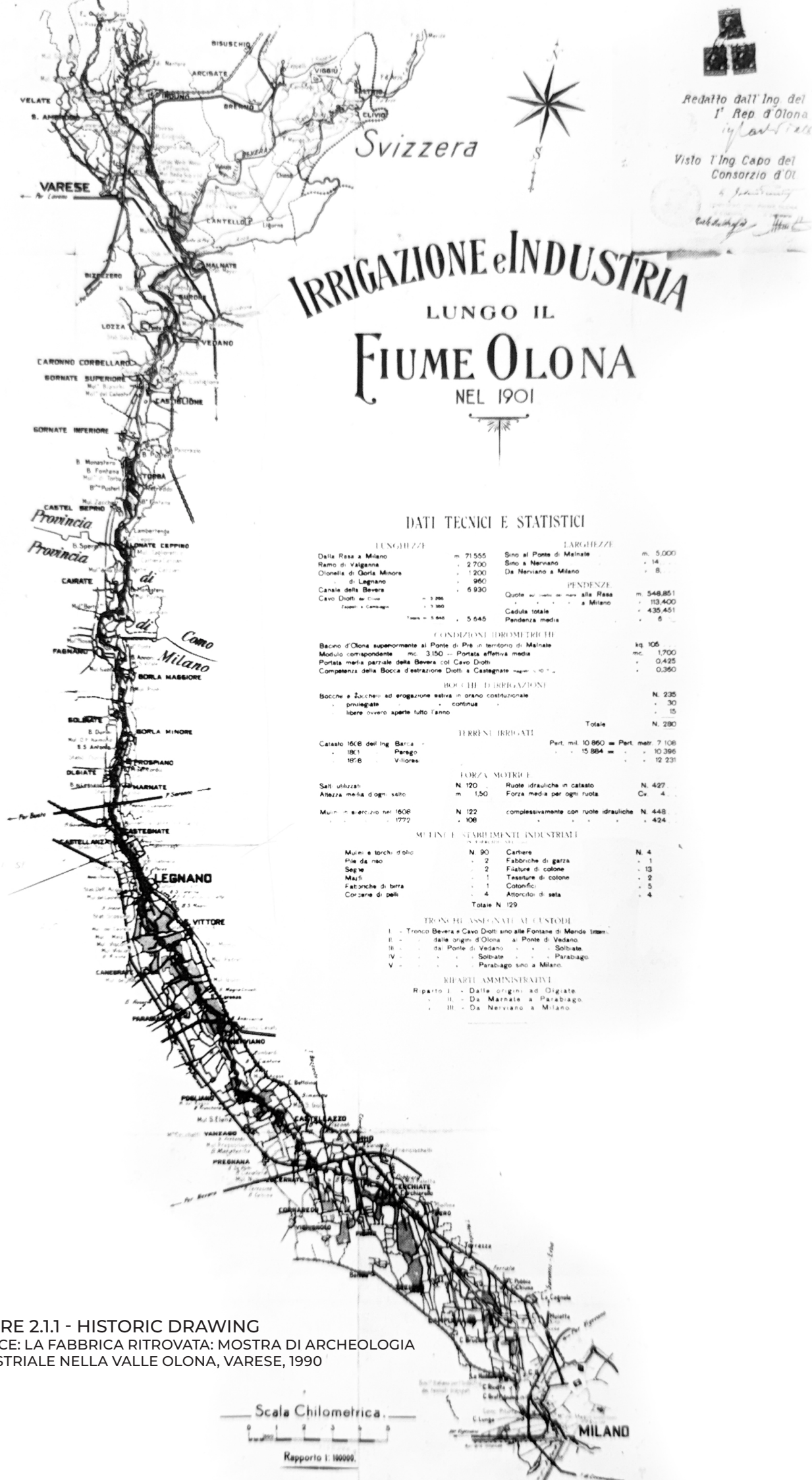


FIGURE 2.1.1 - HISTORIC DRAWING
SOURCE: LA FABBRICA RITROVATA: MOSTRA DI ARCHEOLOGIA
INDUSTRIALE NELLA VALLE OLONA, VARESE, 1990



FIGURE 2.1.2 - MILLS DISTRIBUTION IN OLONA VALLEY

2.1 OLONA VALLEY

Moving into the details of the site, the Olona Valley (Valle Olona) is where industry and nature have long coexisted, forging the region's unique character. Stretching from the Alpine foothills across northern Lombardy through Varese, Como, and Milan, the valley follows the path of the Olona River, a modest but historically significant watercourse.

From the 18th to the early 20th century, this region had been the heart of Italy's industrialisation. Thanks to the river's reliable flow and gradient, countless water mills used for grinding grain, pressing oil, and textile processing, sprang up along its banks. By 1608, 116 mills powering around 463 water wheels (rodigini) were recorded, alongside forges, fulling mills, and oil presses.¹

These humble water mills evolved into modern industries. By the mid-19th century, the valley was home to many industries, including cotton and silk manufacturing, tanneries, paper mills, and dye plants. Unfortunately, the majority of these industrial sites were later updated with more efficient turbines.

Throughout this period, the Olona Valley became one of the most dynamic industrial hubs in northern Italy, though it paid the price in environmental damage. The river eventually earned a reputation as one of the most polluted in the country.

2.1 OLONA VALLEY

In this thesis, a significant consideration was given to the mills located along the Olona River within the Province of Varese. In particular, the analysis of the mills stretching from the Swiss border to the outskirts of Milan was conducted. This section of the river is especially significant because it represents the earliest and most concentrated phase of industrial development in the valley. Above all, the mills here illustrate the evolution from pre-industrial water-powered structures to modern factories. Therefore, the analysed mills show the social and economic transformations affecting local communities for many decades. As a result, by narrowing the scope to this modest portion of the river, the analysis allows for a more detailed exploration of adaptive reuse and the ongoing challenges of preserving industrial identity in a speedily changing landscape.



1. MAGLIO (MAUL) DI GHIRLA

CURRENT OCCUPATION - EDUCATION

One of the most ancient and well-preserved in the province. Equipped with three wheels, it dates back to the 18th century and remained operational until 1991. Since 1996, the structure has been owned and managed by the Comunità Montana del Piambello, which has worked on and is continuing to restore it. Today it is often open for educational visits.²

SOURCE: AIAMS (ASSOCIAZIONE ITALIANA AMICI DEI MULINI STORICI), MAGLIO DI GHIRLA, AIAMS HISTORICAL MILLS ARCHIVE



2. MULINO RIGAMONTI

CURRENT OCCUPATION - WORKING MILL

It is a watermill situated along the Margorabbia River. Today, it is still working; it produces flour, bran and polenta flour. Regione Lombardia recognises it as a historical shop, and visits can be organised.³

SOURCE: COMUNE DI MALNATE, MUSEO CIVICO DI SCIENZE NATURALI MARIO REALINI

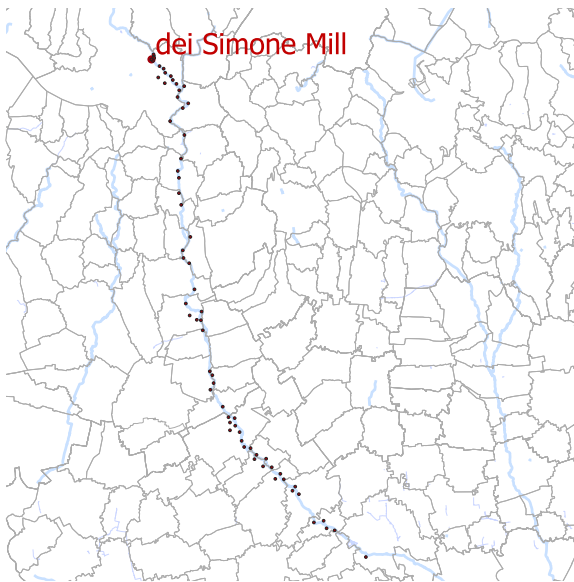


3. MULINO GOTTARDO

CURRENT STATE - DEMOLISHED

The Mill with one wheel was already grinding grain in 1608, when it belonged to Cristoforo Vela. In 1772, it was recorded as Molino del Frate and owned by Don Francesco Bianchi, who also held the nearby Simone mill. The name Gotthardo appeared only in the 19th century, when the site operated as both a grain mill and an oil press. By 1881, under Bassano Piatti, it was expanded to two wheels. Still active in 1901, the mill later ceased operation and was demolished.⁴

SOURCE: LA FABBRICA RITROVATA: MOSTRA DI ARCHEOLOGIA INDUSTRIALE NELLA VALLE OLONA, VARESE, 1990



4. MULINO DEL SIMONE

CURRENT OCCUPATION - RESIDENTIAL

In 1608, when recorded by Barca as the property of Gaspare Porcara, the mill was grinding grain with two millstones. By 1772, their number had increased to four. The current settlement, composed of two rectangular, two-story buildings, remains simple in form and is constructed of brick and stone. Today, the structure serves as a residential dwelling.⁵



5. MULINO MOLINETTO

CURRENT OCCUPATION - ABANDONED

First half of the XVIII century, abandoned and partly destroyed.⁶

SOURCE: LOMBARDIA BENI CULTURALI, EX COTONIFICIO, ARCHITECTURAL HERITAGE DATABASE



6. MULINO GRASSI

CURRENT OCCUPATION - INDUSTRIAL COMPLEX

Founded in 1934, Molino Grassi began with common wheat for bread-making before expanding into semolina production in the 1960s. Today, Molino Grassi operates a state-of-the-art industrial complex that grinds about 400 tonnes of wheat daily transforming over 140,000 tonnes annually into pasta, bread, pizza, and confectionery products.⁷

SOURCE: MOLINO GRASSI, LA STORIA

2.1 OLONA VALLEY

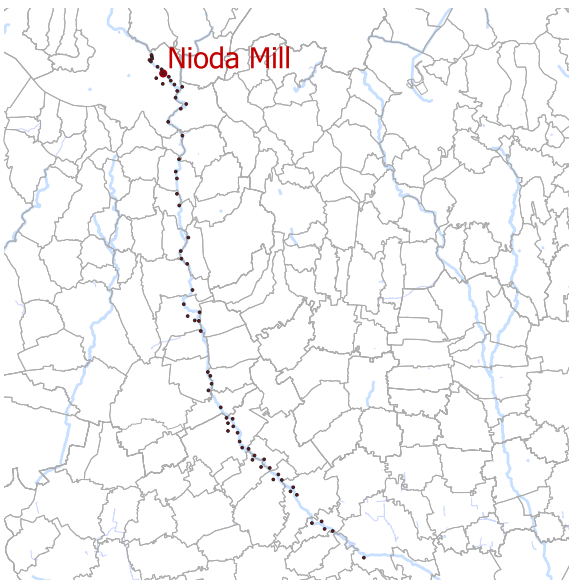


7. MULINO FOLLA DI INDUNO

CURRENT OCCUPATION - WORKING MILL

The only active mill in the Lanza Valley dates back to 1722. Its rural structure, with stone and brick walls, has preserved its original layout. Apart from a small packing machine, the process remains entirely manual - faithfully maintained by miller Bernasconi.⁸

SOURCE: TALAMONA, PARCO VALLE DEL LANZA - I MULINI DELLA VALLE



8. MULINO NIODA

CURRENT OCCUPATION - UNKNOWN



9. MULINO PAVESE

CURRENT OCCUPATION - RESIDENTIAL

In 1717, Antonio Molina owned a small mill with a copper hammer that produced significant output. The Molina family kept it until after 1857, when it passed to Luigi Cremona. Powered by the Pavese bridge, the site was recorded in 1881 as a rural house. Copper processing ended in the 20th century, though grain milling continued after WWII. Today, it serves as housing and a warehouse.⁹

SOURCE: LA FABBRICA RITROVATA: MOSTRA DI ARCHEOLOGIA INDUSTRIALE NELLA VALLE OLONA, VARESE, 1990



10. MULINO TROTTI

CURRENT OCCUPATION - RESIDENTIAL

The first record of the mill dates to 1592, when it operated with three grinding wheels; by 1722, it had expanded to include a sawmill and an oil press.

Today, the site has been partly restored, retaining the appearance of a small rural hamlet, with some original grain-grinding equipment still preserved inside.¹⁰

SOURCE: TALAMONA, PARCO VALLE DEL LANZA

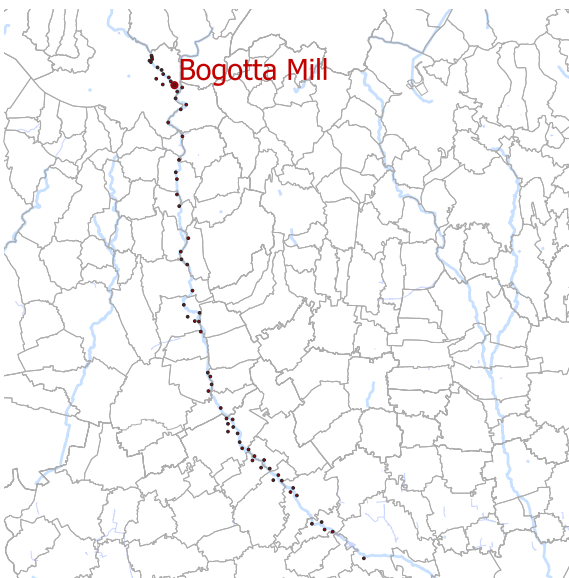


11. MULINO DELL'ABBAZIA

CURRENT OCCUPATION - COUNTRY RESORT

Near the Abbey of Morimondo, the Mulino dell'Abbazia is a medieval watermill that once serving Cistercian monks for grain and farm processing. Restored in recent years, it now functions as a museum, educational centre, and hotel, showcasing traditional milling and rural heritage in a picturesque Lombard setting.¹¹

SOURCE: PLANET OF HOTELS, MULINO DELL'ABBAZIA COUNTRY RESORT



12. MULINO BOGOTTA

CURRENT OCCUPATION - UNKNOWN

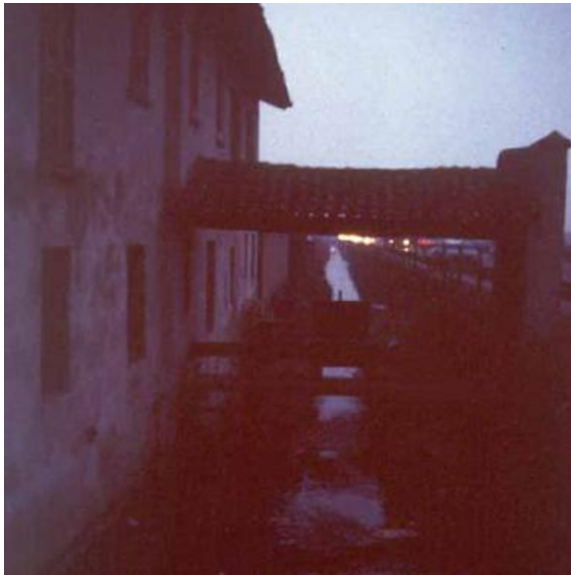


2.1 OLONA VALLEY

13. MULINO ABATE PESTONI

CURRENT OCCUPATION - UNKNOWN

In 1881, the mill in Induno was officially recorded as having three operating wheels.¹²



14. MULINO MOLINAZZO

CURRENT OCCUPATION - RESIDENTIAL

Dating back to the 15th century, this privately owned mill—situated upstream from the Pre Bridge and known as the Tallacchini Mill—once drew power from a waterfall on its namesake canal. By 1898, the hydraulic system and buildings were used by Prada & C. for the production of oxygenated water and tannin used in leather tanning. Today the site survives in a poor state of preservation.¹³

SOURCE: LA FABBRICA RITROVATA: MOSTRA DI ARCHEOLOGIA INDUSTRIALE NELLA VALLE OLONA, VARESE, 1990



15. MULINO SETTE MOLE

CURRENT OCCUPATION - MUSEUM

The Mill, located upstream along the historic road from Varese to Como, dates back to the 18th century. It produced flour and rice and operated a fulling plant, passing through the hands of families such as Pessina, Sottocasa, and Taglioretti. Today, the restored complex hosts the Museum of Peasant Art and offers guided educational tours. The site, including a 17th-century chestnut and corn mill, an olive oil mill, and a miller's house, immerses visitors in centuries of rural and industrial heritage.¹⁴

SOURCE: SANTUARIO NOSTRA SIGNORA DI MONTALLEGRO, VALLE DEI SETTE MULINI



16. MULINO BERNASCONI (EX MULINO ALLA FOLLA)

CURRENT OCCUPATION - WORKING MILL

The Mulino della Folla (current Bernasconi) is the best known and the only one to have maintained up to the present day the production structure in place. It has been owned by the Bernasconi family since 1951.¹⁵

SOURCE: PARCO VALLE DEL LANZA, ARCHEOLOGIA INDUSTRIALE

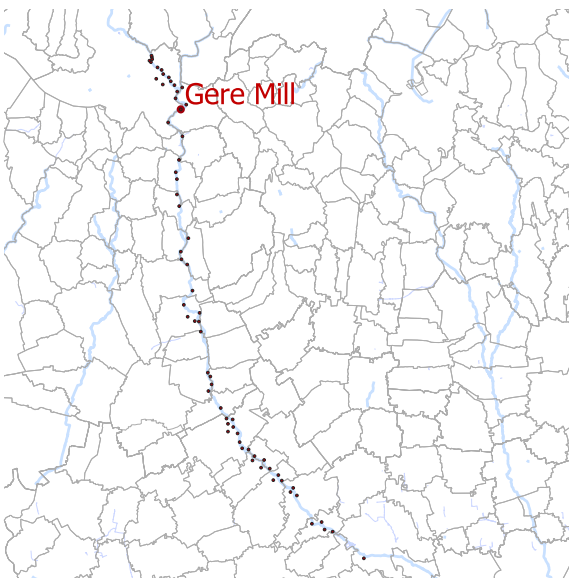


17. MULINO DEI RATTI

CURRENT OCCUPATION - ABANDONED

The decommissioned ex Siome building (the old rat mill, converted in 1827 into a cotton factory by Schoch, then, after the unification of Italy, belonging to the Introini di Busto cotton factory, and then completely transformed at the end of the 19th century into a mechanical company).¹⁶

SOURCE: VARESENEWS, EX SIOME, UN TEMPIO DI PADANIALAND



18. MULINO GERE

CURRENT OCCUPATION - UNKNOWN

The Gere Mill was located near the homonymous locality. There is no further information except the position and attestation from the second half of 1700. In the early 1800s, it was probably incorporated into the Maggi silk-spinning mill.¹⁷

2.1 OLONA VALLEY

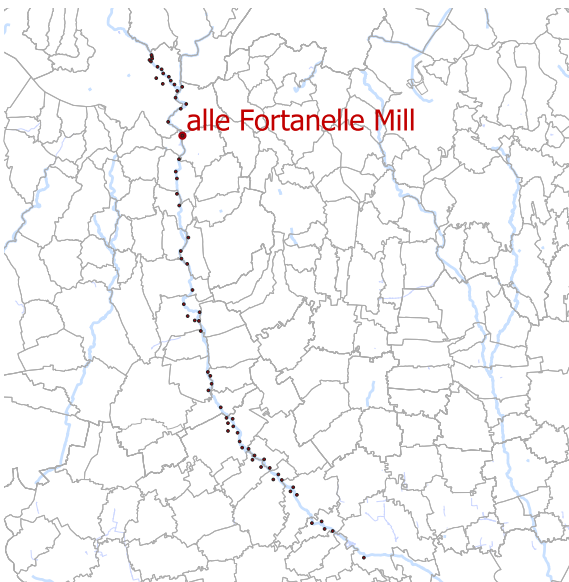


19. MULINO SONZINI

CURRENT OCCUPATION - RESIDENTIAL

This irregularly shaped building complex was documented in 1772, when Raggi recorded it as the property of the Bizzozzero counts. Today, it functions as residential complex while still preserving 19th-century equipment. The architectural features, together with the surviving relics of the past, make this mill complex a site of considerable historical and monumental interest.¹⁸

SOURCE: LA FABBRICA RITROVATA: MOSTRA DI ARCHEOLOGIA INDUSTRIALE NELLA VALLE OLONA, VARESE, 1990



20. MULINO ALLE FONTANELLE

CURRENT OCCUPATION - ABANDONED

The Mill is located in Vedano Olona. It was already in existence by 1772 with a grain millstone and a press. It was first abandoned in the 1920s, later restored in the 1970s, and then abandoned again in the following decade.¹⁹



21. MULINO CATTANEO

CURRENT OCCUPATION - DEMOLISHED

This old mill, active in the 18th century, was once owned by the Duke of Bracciano. In February 1833, it was purchased by Giovanni Schoch, who planned to establish a new cotton-spinning factory. A few years later, as the mill was no longer needed for production, it was converted into housing for factory workers. Today, the Mazzucchelli factory is located there.²⁰

SOURCE: LA FABBRICA RITROVATA: MOSTRA DI ARCHEOLOGIA INDUSTRIALE NELLA VALLE OLONA, VARESE, 1990

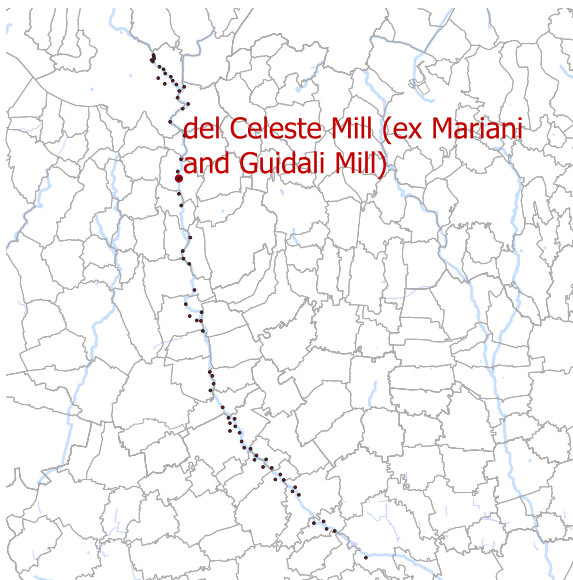


22. MULINO BIANCHI

CURRENT OCCUPATION - WORKING MILL, FOOD FARMING INNOVATION CLUSTER

Founded in 1840 by Eugenio Bianchi, Molino Bianchi was modernised in 1911 by his son Giuseppe Francesco with electric-powered millstones. For generations, the company has been known for high-quality soft wheat flours, serving bakers, confectioners, pizza makers, chefs, and pasta producers with consistent performance and reliability.²¹

SOURCE: AGRIFOOD MARCHE, MOLINO BIANCHI PADIGLIONE



23. MULINO DEL CELESTE

CURRENT OCCUPATION - RESIDENTIAL

In Gornate Superior, the village of Castiglione Olona, there is the Celeste mill. Previously, Mulino Mariani in 1772 and Mulino Guidali in 1857 were incorporated under their current name in 1881. It had oil presses and a grain millstone. Since 1930, it has been adapted to private housing.²²



24. MULINO DI SAN PANCRAZIO

CURRENT OCCUPATION - RESIDENTIAL

In Gornate Olona there are peat mills and San Pancrazio. Both existing before 1772, they assumed the names of their respective hamlets of 1857. Molinatory activities ceased in the middle of the century. They are mostly used for housing.²³

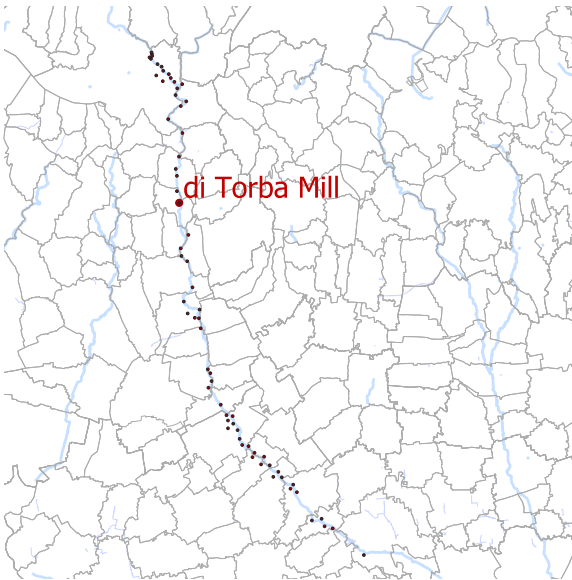
SOURCE: WIKIPEDIA CONTRIBUTORS, MULINI AD ACQUA SUL FIUME OLONA

2.1 OLONA VALLEY

25. MULINI DI TORBA

CURRENT OCCUPATION - RESIDENTIAL

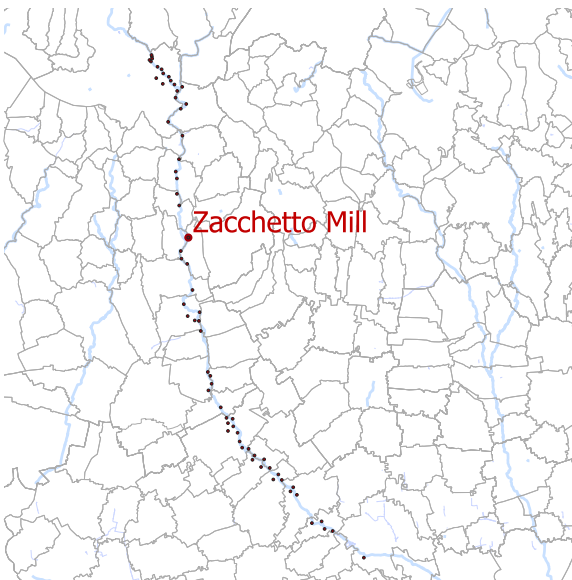
Documented in 1772 the Mills remained active until the mid-20th century. By 1881, they were owned by the Fontana family. The small complex, arranged around a rural courtyard and built of brick and stone, still preserves millstones and wheel supports inside. Today the buildings are used as private residences. ²⁴



26. MULINO ZACCHETTO

CURRENT OCCUPATION - ABANDONED

The complex, now in disuse, is composed of a mill and 2-storey courtyard buildings with plastered brick and stone structures, plastered wooden floors, and multi-pitched tile roofs. 2-storey residential buildings, brick and stone structure, wooden floors, double-pitched tile roof. power plant with a rectangular single-storey building with exposed brick and stone structure, double-pitched roof in Marseille tiles. ²⁵



27. MULINO LEPORI

CURRENT OCCUPATION - HISTORICAL LANDMARK

The Molini Lepori, established in the early 18th century, evolved from water-powered mills into a complex of industrial buildings. Over time, companies such as Pettinificio Clerici (1920), Alfieri (1924), Bozzo Tintoria (1945), and finally Tintoria Zerbi (1957) utilised the site, leading to the partial dismantling of older structures. Today, only the east facade remains, while the area serves as a cycle-pedestrian path, preserving the traditional industrial landscape. ²⁶

SOURCE: ECOMUSEO DELLA VALLE OLONA, MULINO LEPORI



28. MULINO TAGLIORETTI

CURRENT OCCUPATION - RESIDENTIAL

The Molino Taglioretti, an 18th-century watermill in Lonate Ceppino, evolved from grain milling to paper production before being abandoned in the 1980s. Today, its yellow and brick-red buildings blend with the wooded landscape, adjacent to the Olona River, the Valmorea cycle path, and the RTO trail, illustrating the historical coexistence of industry and nature in the valley.²⁷

SOURCE: ECOMUSEO DELLA VALLE OLONA, MULINO TAGLIORETTI

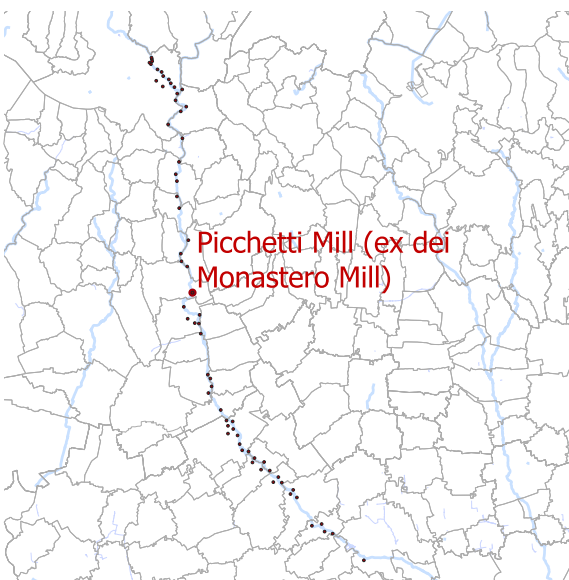


29. MULINO PUSTERLA

CURRENT OCCUPATION - RESIDENTIAL

The long-unused mill was acquired by the municipality in 1878, along with a canal supplying the public bath pool known as the Fossa Baths. Nearby, early 20th-century developments included the Pusterla Glacier skating area, the Osteria Forte Di Macaglia (demolished 1935), and tobacco sheds (1924). The street was later expanded and paved, and today the area serves primarily as a residential zone, with the 3 V trail beginning nearby.²⁸

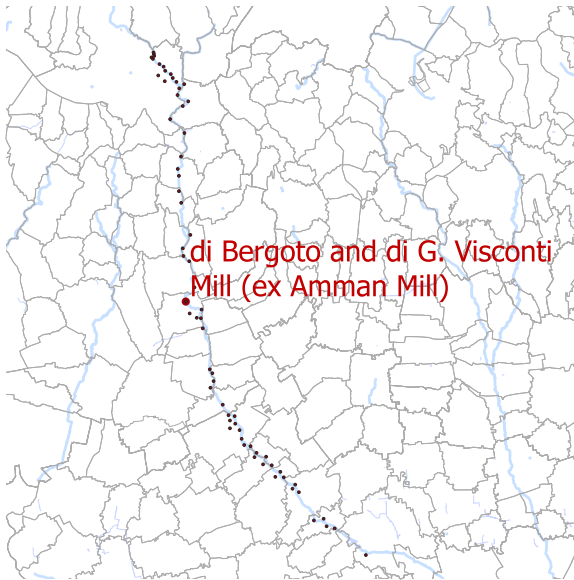
SOURCE: ENCICLOPEDIA BRESCIANA, PUSTERLA



30. MULINI PICCHETTI (EX MULINI DEL MONASTERO)

CURRENT OCCUPATION - UNKNOWN

These mills were located on the left bank of the Olona River. The mill was divided into two branches, supplying power to two factories with a total of seven wheels.²⁹



2.1 OLONA VALLEY

31. MULINO DI BERGORO E DI G. VISCONTI

CURRENT OCCUPATION - DEMOLISHED

An 18th-century mill, purchased in 1857 by Giuseppe Piantanida (previously owned by G. Visconti), who adapted its facilities to power a cotton factory. Today, the complex is unused.³⁰



32. MULINO BOSETTI

CURRENT OCCUPATION - HALF-ABANDONED, HALF-WAREHOUSE

The BOSETTI Mill retains traces of generations of milling, including water-powered mechanisms and control systems, though the building has never been fully restored. Managed by the Bosetti family until the 1960s, the grain mill was decommissioned in the 1970s due to industrialisation and river pollution. Today, parts of the complex serve as residences and storage, while the milling structures remain abandoned.³¹

SOURCE: ATE INSUBRIA OLONA, IL MULINO BOSETTI SALMOIRAGHI A FAGNANO OLONA



33. MULINO SAN VITALE

CURRENT OCCUPATION - ABANDONED

The Vitale Mill, originally owned by the Visconti family, evolved from milling to textile production and later became part of an industrial zone, including the Candiani cotton mill, which closed in 1970. Today, only a brick chimney and a façade remain, while a modernised section previously housed Medio Ambiente 2000 for hazardous waste treatment, closed in 2010.³²

SOURCE: ARCHIVIO STORICO DEL COMUNE DI GORLA MAGGIORE, MULINI DI SAN VITALE

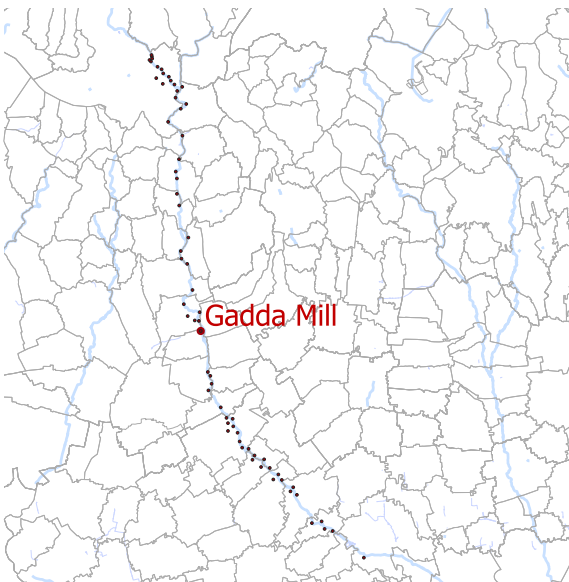


34. MULINO PONTI - SCANDROGLIO

CURRENT OCCUPATION - RESIDENTIAL

Archival sources reveal little about this small 19th-century bleaching facility on the banks of the Olona in Fagnano. Confirmed in operation between 1834 and 1842, it struggled financially, as noted in a protest letter by Luigi Scandroglio to the Olona River Consortium. Beyond its location near the Ponti Mill, no further details of its structure or form are known.³³

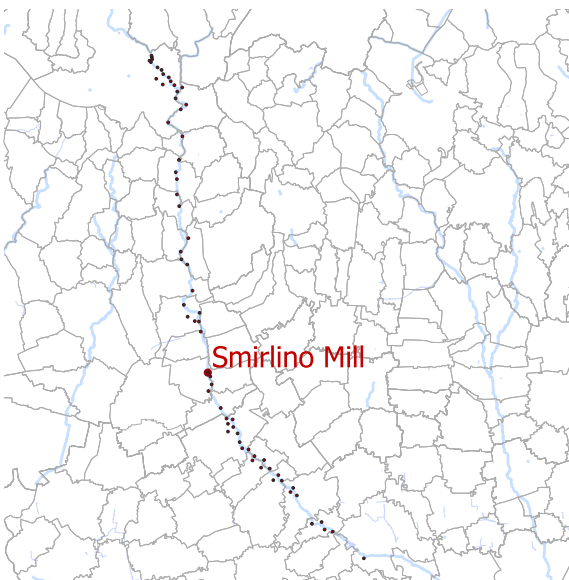
SOURCE: LA FABBRICA RITROVATA: MOSTRA DI ARCHEOLOGIA INDUSTRIALE NELLA VALLE OLONA, VARESE, 1990



35. MULINO GADDA

CURRENT OCCUPATION - FARM

Along the Strona River, rural activity gave rise to several mills. In Arsago Seprio, the Boggione Mill (also "Mulino del Gadda") has been renovated as a farmhouse, with its wheel still in place. At the same time the Peschiera Mill, once active until 1960, survives only in ruins.³⁴



36. MULINO SMIRLINO

CURRENT OCCUPATION - UNKNOWN

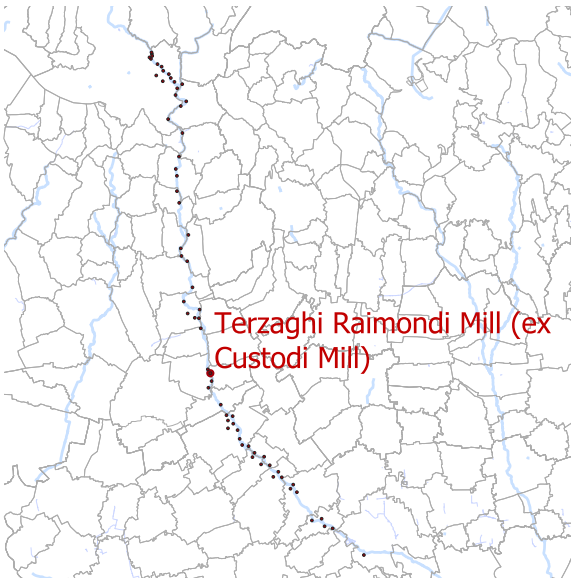
This 19th-century mill, owned by the Croci family, was located beside the Salmoiraghi mill. It was registered in 1920 with three wheels and operated on a 1.40 m drop.³⁵

2.1 OLONA VALLEY

37. MULINO TERZAGHI RAIMONDI

CURRENT OCCUPATION - DEMOLISHED

It was purchased in 1837 by Francesco Bombaglio and continued operating for several years with its four wheels. In 1842, it was still listed in the Olona River Consortium records as an agricultural mill. Later, a cotton factory, the Cotonificio di Sant'Antonio, was built on the site. Archival evidence first records it on the 1857 cadastral map as a cotton spinning and weaving mill.³⁶

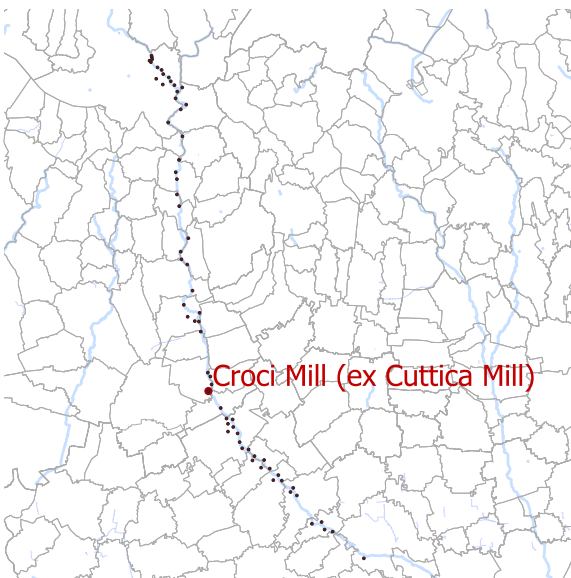


38. MULINO DEL SASSO O BIANCHI

CURRENT OCCUPATION - RESIDENTIAL

It was an ancient mill already existing in the 18th century that was purchased by Giovanni Schoch in 1833. Subsequently, it was transformed into residential houses.³⁷

SOURCE: ARCHIVIO STORICO DEL COMUNE DI GORLA MAGGIORE, FIUME OLONA I



39. MULINO CROCI (EX MULINO CUTTICA)

CURRENT OCCUPATION - ABANDONED

The Cuttica Mill dates to at least 1469, changing hands from the Balbi family to Gio Batta Cuttica in 1608, and later to the Isimbardi family in 1797. By 1842, it was operated by Comm. Tommaso Robaglia with four rods and surrounding meadows.³⁸



40. MULINO BALBI

CURRENT OCCUPATION - ABANDONED

The old Balbi mill existed in 1469 and was owned by the Balbi family until 1566. Later, the mill passed to 3 more families and, finally, to the Giovanni Candiani plant. It worked until the end of the 1920s. Next to it, there were some public washhouses. Today, it is in a state of complete abandonment. A public park has recently been equipped next to it.³⁹

SOURCE: ARCHIVIO STORICO DEL COMUNE DI GORLA MAGGIORE, FIUME OLONA I

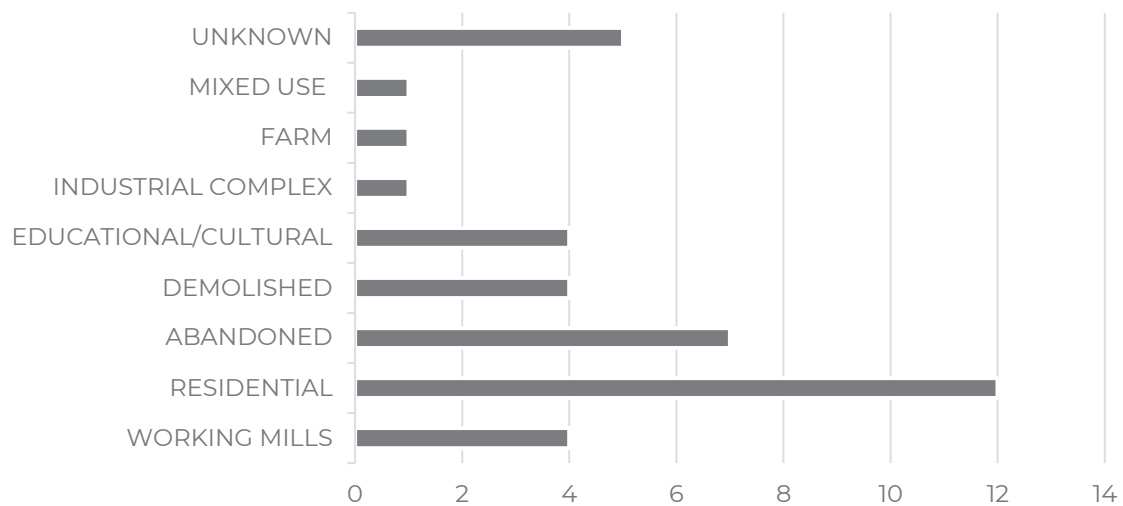
GENERAL CONCLUSION

The mills of the Olona Valley illustrate a wide range of adaptive reuse. While some continue to operate, others have been converted into residences and farms. A number remain abandoned or demolished, reflecting industrial decline, while a few have been integrated into educational, touristic, or innovative industrial uses. Together, they form a layered testimony of the valley's industrial heritage and its ongoing transformation.

The following table provides a comprehensive overview of the mills in the Province of Varese, classified by current use. This division highlights the variety of adaptive reuses and states of preservation - from residential conversions and working mills still in operation, to abandoned structures, cultural landmarks, and sites of industrial transformation - offering a clear picture of how the historical milling heritage of the Olona Valley has evolved.

2.1 OLONA VALLEY

WORKING MILLS	MULINO RIGAMONTI MULINO FOLLA DI INDUNO MULINO BERNASCONI (EX MULINO ALLA FOLLA) MULINO BIANCHI (ALSO INNOVATION CLUSTER)
RESIDENTIAL	MULINO DEL SIMONE MULINO PAVESE MULINO TROTTI MULINO MOLINAZZO MULINO SONZINI MULINO DEL CELESTE MULINO DI SAN PANCRAZIO MULINI DI TORBA MULINO TAGLIORETTI MULINO PUSTERLA MULINO PONTI – SCANDROGLIO MULINO DEL SASSO O BIANCHI
ABANDONED	MULINO MOLINETTO MULINO DEI RATTI MULINO ALLE FONTANELLE MULINO ZACCHETTO MULINO SAN VITALE MULINO CROCI (EX CUTTICA) MULINO BALBI
DEMOLISHED	MULINO GOTTARDO MULINO CATTANEO MULINO DI BERGORO E DI G. VISCONTI MULINO TERZAGHI RAIMONDI
EDUCATIONAL/ CULTURAL	MULINO DELL'ABBAZIA (COUNTRY RESORT & MUSEUM) MULINO SETTE MOLE (MUSEUM OF PEASANT ART) MULINO LEPORI (HISTORICAL LANDMARK) MAGLIO (MAUL) DI GHIRLA
INDUSTRIAL COMPLEX	MULINO GRASSI
FARM	MULINO GADDA
MIXED USE	MULINO BOSETTI (HALF ABANDONED / WAREHOUSE)
UNKNOWN	MULINO NIODA MULINO BOGOTTA MULINO ABATE PESTONI MULINO GERE MULINO SMIRLINO MULINI PICCHETTI (EX MULINI DEL MONASTERO)



For greater clarity, the following chart illustrates the mills of the Province of Varese, presenting their current usage by numerical distribution. This visualisation makes it possible to immediately grasp the relative proportions between categories - such as residential conversions, abandoned sites, demolished structures, and those still functioning - thus offering a more comprehensive understanding of the present condition of the region's milling heritage.

Complementing the chart, the map provides a spatial representation of the mills in the Province of Varese by their current use. By locating each site within the landscape, the map highlights patterns of distribution - showing, for instance, the concentration of residential conversions in certain areas, the clustering of abandoned or demolished mills along specific river stretches, and the position of those preserved as cultural landmarks. This geographic perspective adds an essential dimension to the analysis, linking functional categories with their territorial context.



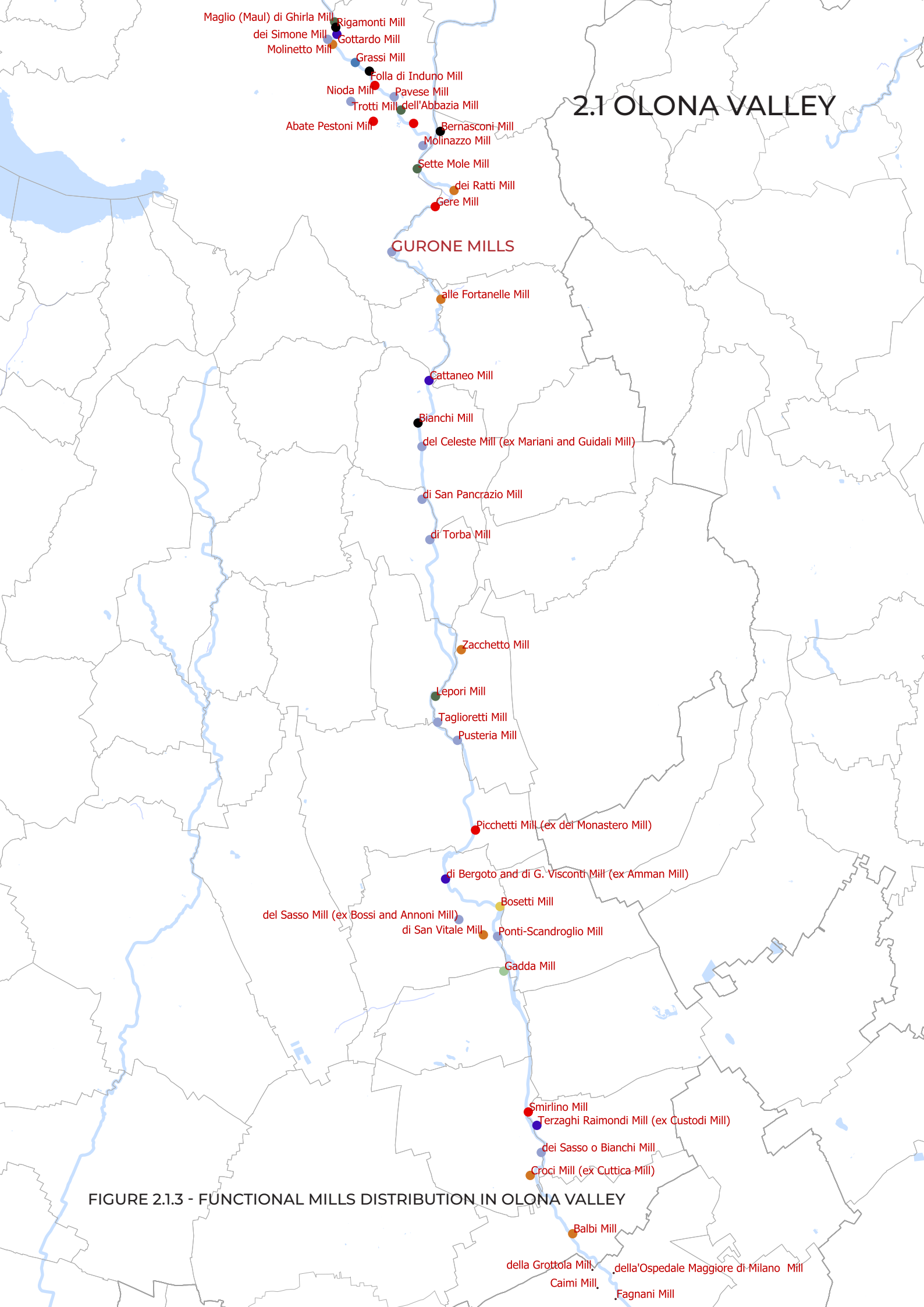
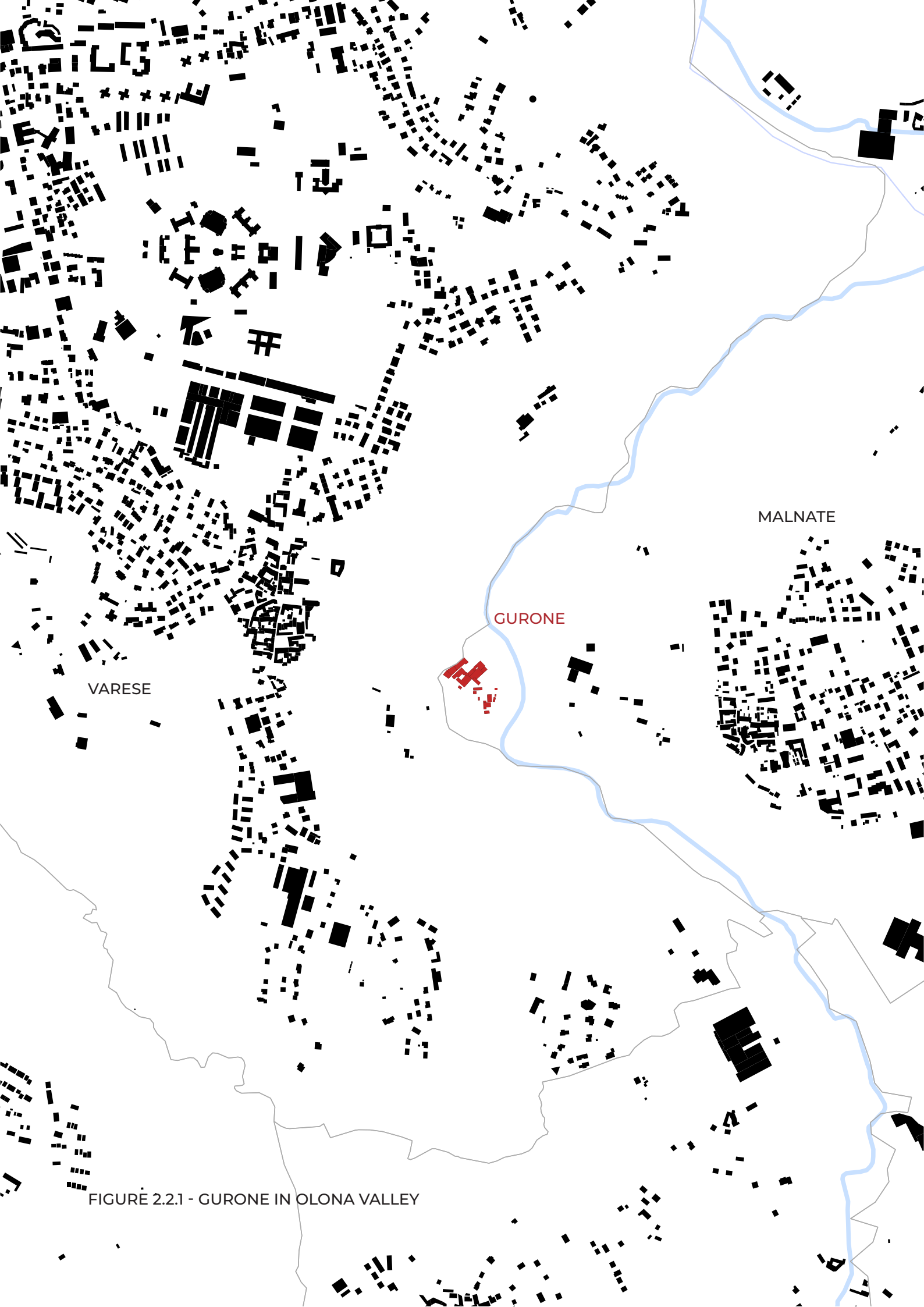


FIGURE 2.1.3 - FUNCTIONAL MILLS DISTRIBUTION IN OLONA VALLEY



VARESE

MALNATE

GURONE

FIGURE 2.2.1 - GURONE IN OLONA VALLEY

2.2 GURONE

INTRODUCTION. SURROUNDINGS AND CONNECTORS

The analysis of the Olona Valley provides a broader territorial overview of the development of the Gurone Mills. In particular, it was part of a dense network of settlements and productive sites distributed along the river. Therefore, Gurone shared many of the economic and infrastructural dynamics that shaped the valley over the years. At the same time, its specific geographical position and historical development give it an important role in this spread system. Taking everything stated into consideration, it makes this a relevant case study for further investigation.

Gurone is positioned in the southern part of Varese Province. It lies close to several towns and villages that historically shared economic, social, cultural and infrastructural connections. In addition, its location along the river and near historic trade and transit routes allowed Gurone to maintain connections. Thus, Gurone is connected not only with Malnate and Varese but also with neighbouring settlements. Among them there are the following: Cantello, Valmorea, Castiglione, the cross-border areas of Switzerland and other small villages. This peripheral and strategic location later contributed to its long-standing role as a site of milling and industrial activity.

CONNECTION TO VARESE AND MALNATE

The relationship between Gurone, Varese and Malnate has been particularly significant. Gurone functioned as a productive outpost for Malnate, while also serving as a passage for goods and people travelling between Varese and Bizzozero. Its mills benefited from this proximity to urban markets and transport links, including the Valmorea railway, which reinforced Gurone's role as a node in regional trade and mobility. ⁴⁰ Today the hamlet remains tied to Malnate administratively and spatially, while Varese continues to provide the wider urban framework within which Gurone is integrated, shaping both its historical trajectory and its contemporary identity. However, the place remains territorially separated from Varese due to inadequate infrastructure maintenance.

2.2 GURONE

SURROUNDINGS AND CONNECTORS

As stated before, Gurone today is placed in a broader landscape that balances historical heritage with contemporary strategies for sustainable mobility. In addition, the Olona Valley is characterised by its close relationship between industry and nature. Notably, it currently represents a corridor for green infrastructure and recreational networks. Thus, the valley modification is already underway.

A central element of this transformation is the **CICLOVIA OLONA-LURA**. In particular, it is a continuous cycling route that follows the courses of the Olona and Lura rivers. Thus, it connects Malnate with Milan while integrating smaller settlements into the wider regional framework.⁸ Therefore, one of these settlements is Gurone. As a result, by extending southward towards the metropolitan area of Milan and linking with other local and transboundary routes, the Ciclovía Olona Lura enhances accessibility, supports multimodal commuting, contributes to ecological continuity across the valley and encourages recreational use of the river landscape.

Another key component of this network is the **TI-CICLISMO-VIA** project. Similarly, it is a transboundary cycle-pedestrian route linking Malnate to Cantone Ticino in Switzerland. Officially it was initiated on December 14, 2018, and completed on April 13, 2023. As a result, this initiative demonstrates a long-term commitment to integrated mobility planning across the Olona valley.

The core of the TI-CICLISMO-VIA project comprises:

- 7,5 km of dedicated provincial cycle-pedestrian infrastructure, running through the Olona valley between Malnate (Folla locality) and Cantello (Valico del Gaggiolo at the Swiss border).
- 18 km of supplementary light mobility routes, signposted and integrated into local roadways, connecting smaller municipalities such as Roderò, Solbiate con Cagno, Valmorea and Bizzarone to the main valley path.

To sum up stated above, this infrastructure significantly fosters inter-municipal and cross-border cycling. Moreover, it encourages residents and commuters to shift from car dependence to more sustainable and low-impact forms of mobility.⁴¹

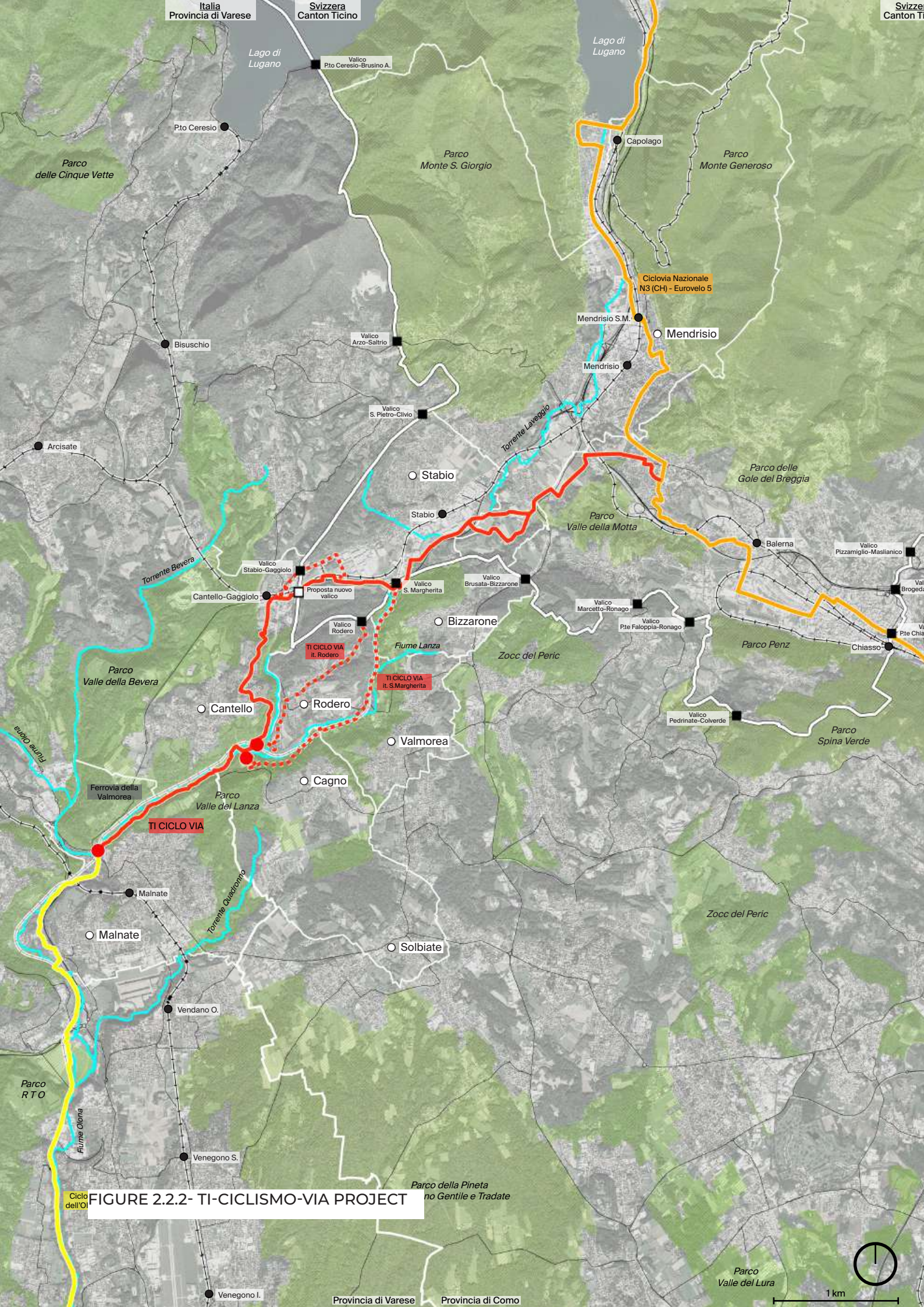


FIGURE 2.2.2- TI-CICLISMO-VIA PROJECT

2.2 GURONE

TERRITORY ANALYSIS

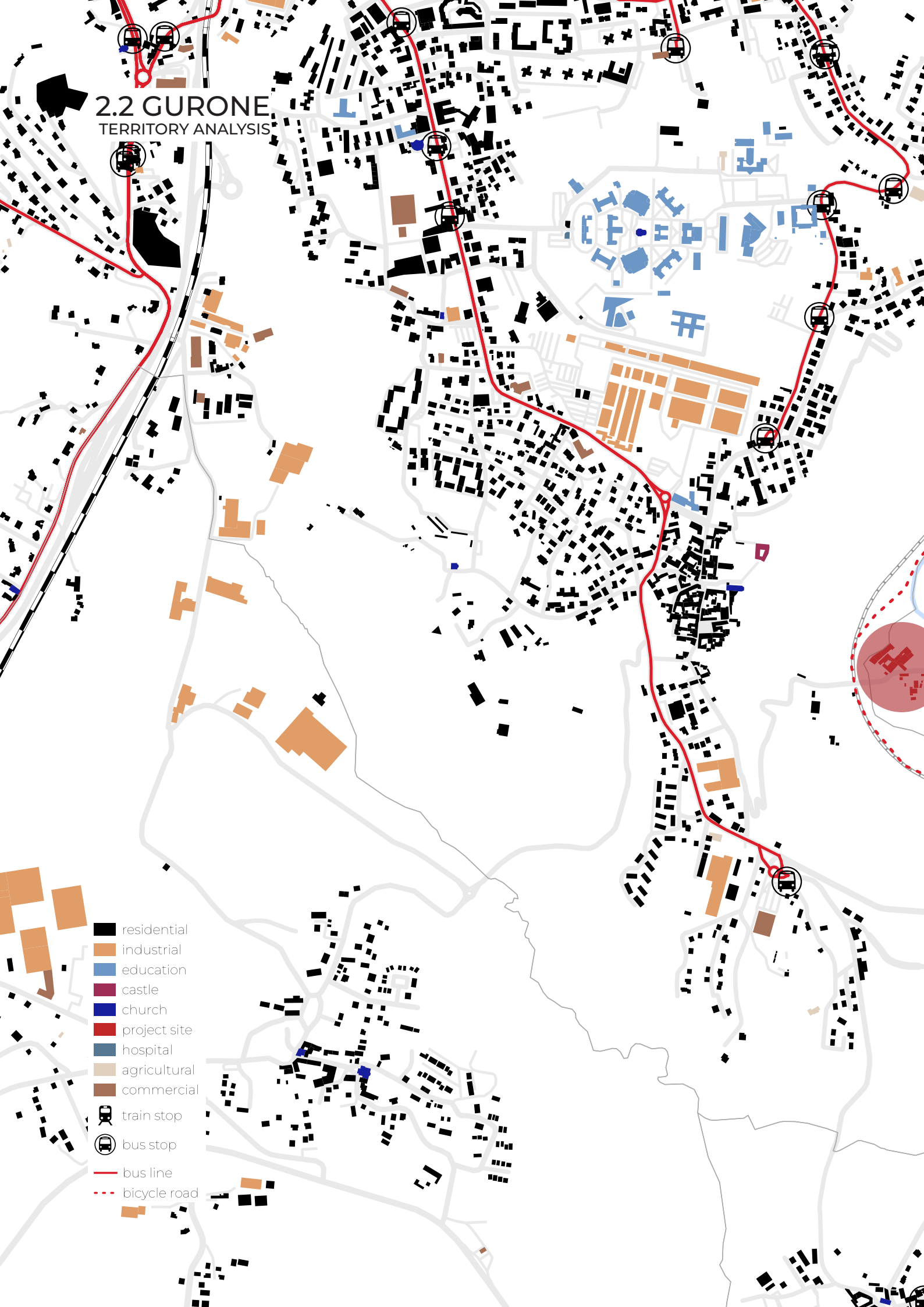




FIGURE 2.2.3- TERRITORY ANALYSIS

2.2 GURONE

DEMOGRAPHIC ANALYSIS

While the territorial analysis provides an overview of the environmental and infrastructural context of Gurone, it does not explain who currently inhabits and uses the surrounding area. For this reason, the investigation is complemented by a demographic analysis, which helps to identify the social characteristics of the local population and better understand the potential users of the site.

The demographic analysis focuses on the population structure of the area surrounding Gurone Mills since there are no available data on the village, with particular attention to population size, age distribution, and gender balance. These indicators help to understand who lives in the territory today and which groups are potentially involved in everyday use of the site. By reading demographic data together with territorial conditions, the analysis supports the definition of realistic target users and informs programmatic and spatial decisions.

FIGURE 2.2.4 - MALNATE. POPULATION TREND

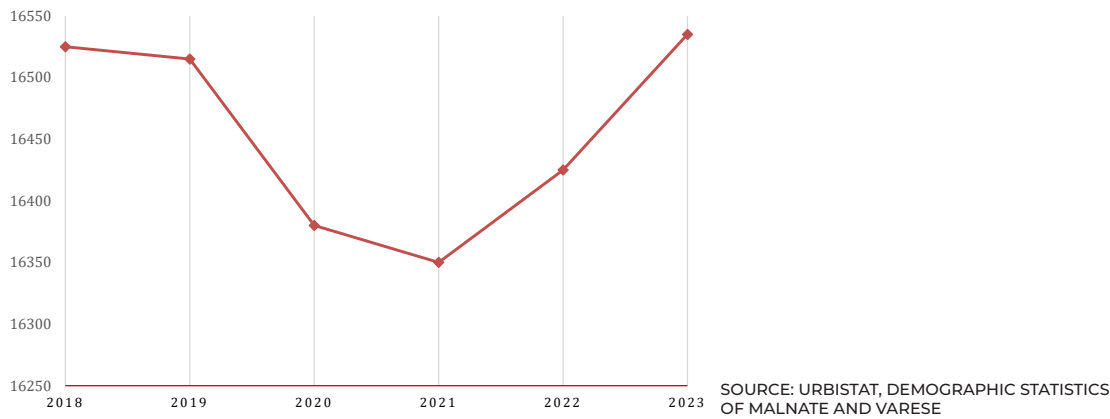


FIGURE 2.2.5 - VARESE. POPULATION TREND

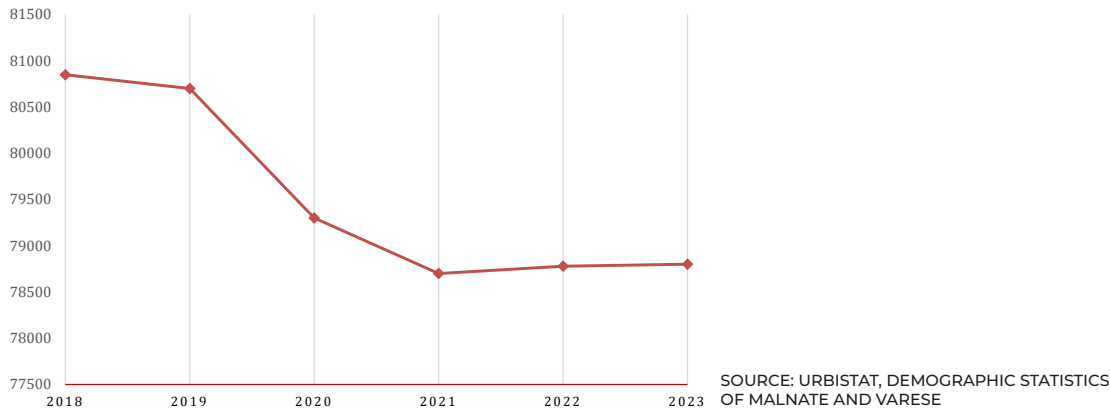


FIGURE 2.2.6 - MALNATE AND VARESE. AGE CLASSES

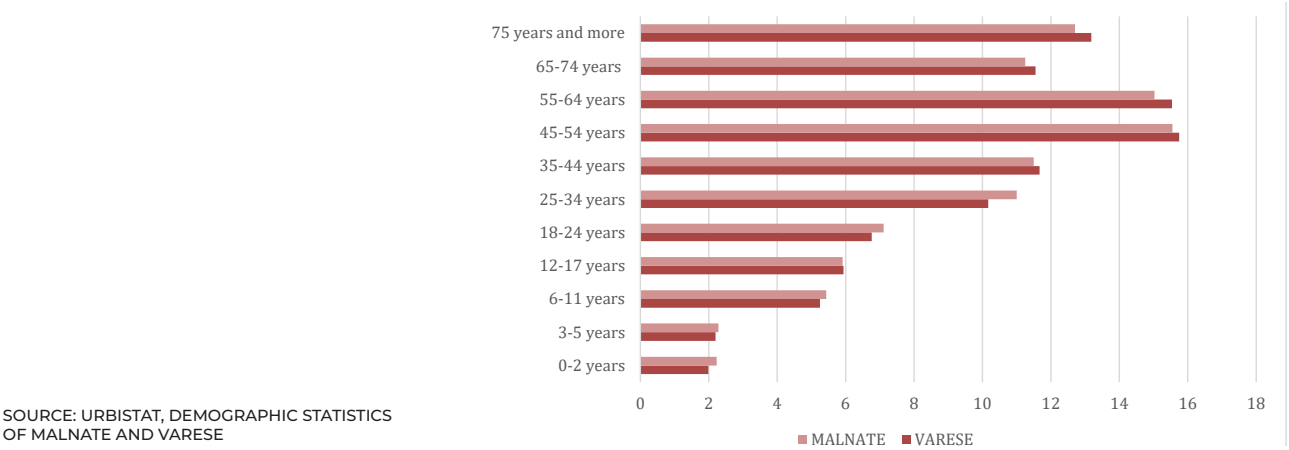
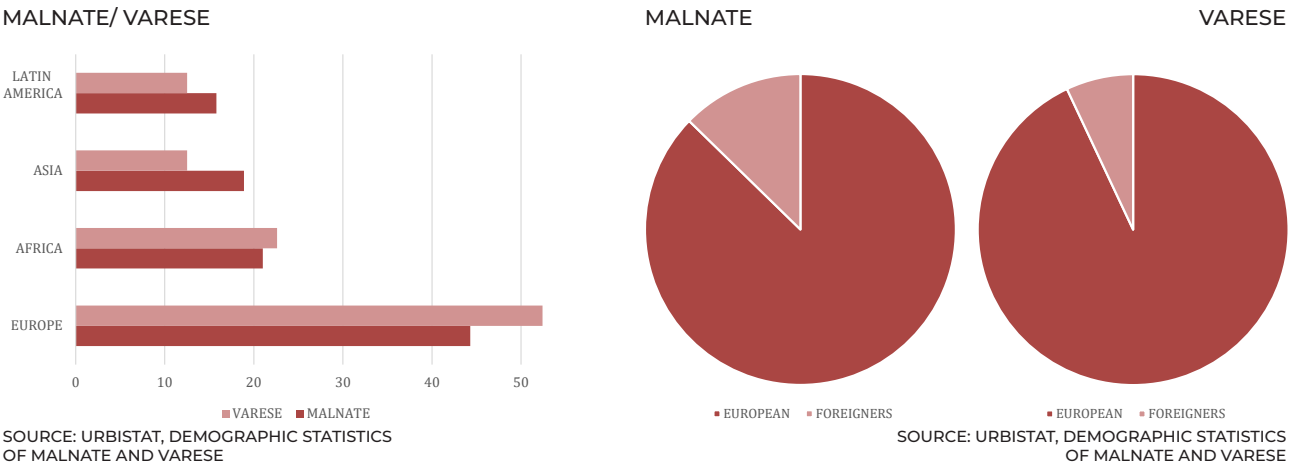


FIGURE 2.2.7 A AND B - MALNATE AND VARESE. NATIONALITIES



To conclude, Malnate and Varese show a stable population trend, where the majority is an adult and ageing demographic structure 42. Moreover, the data highlights a local community with medium diversity and limited population growth, especially among younger age groups. At the same time, the close strategic position to larger urban centres and regional mobility networks suggest the opportunity to attract visitors and users from beyond the immediate area. These conditions underscore the importance of creating accessible, flexible environments that serve residents. However, the site should remain attractive to a broader audience as well. 43

2.3 GURONE MILLS

While the previous analysis examined Gurone within its broader territorial context, a closer understanding of the project area requires an assessment of the site itself. The current condition of the Gurone Mills reflects the gradual transformation of a former productive settlement, where residential uses, agricultural activities and abandoned structures coexist within the same historic complex. Examining the present-day occupation and physical state of the site provides a basis for identifying its constraints, potentials and future development opportunities.

Nowadays, the small fraction of the Molini di Gurone counts a limited number of inhabitants, just 29 divided into 12 families, who reside exclusively in the part of the building north of the Via dei Mulini, while in the southern part, there are a series of buildings mainly intended for productive use, with the presence of some greenhouses, sheds and land intended for grazing farm animals. There is also land for vegetable gardens for the inhabitants' use, as well as space for beekeeping. Inside the ring are also present 3 buildings not usable, of which one in condition of completely inaccessible ruin.



FIGURE 2.3.1 A AND B -
HISTORICAL PHOTO OF
GURONE MILLS
SOURCE:
CASAMATTAGURONE.
WORDPRESS.COM



FIGURE 2.3.2 HISTORICAL PHOTO OF
GURONE MILLS
SOURCE: CASAMATTAGURONE.WORDPRESS.COM



FIGURE 2.3.2 - GURONE MILLS NOWADAYS

2.3 GURONE MILLS

The following data provide an overview of the current condition of the Gurone Mills settlement. Unfortunately, there is no comprehensive and up-to-date statistical documentation available for the site. Thus, the information was compiled through field observations, direct surveys, interviews with locals during site visits and analysis of available documentation. The figures should be considered indicative rather than exact. At the time of the survey, ongoing construction was also observed. For example, the reconstruction of one residential building and the complete renovation of another, reflecting the gradual transformation of the settlement.

TOTAL AREA: 29,000 M2

NUMBER OF INHABITANTS: up to 29

DIVIDED INTO: 12 families of up to 4 members

INHABITANTS OVER 60: 8

BUILDING AREA: 3,929 m2

BUILDING STOCK: 6 detached buildings, 1 interconnected mill complex and several small agricultural outbuildings

BUILDINGS OUTSIDE THE RING: 2

NUMBER OF STOREYS: 1-3

UNUSABLE BUILDINGS : 1

PARLially UNUSABLE BUILDINGS: 1

The remaining are classed as residential construction and agricultural use (farm)

GREEN AREA: 17,850 M2

Of which 4,150 m2 intended for urban greenery and private garden
Area used for honey production functions: 3,200 m2

2.3 GURONE MILLS



FIGURE 2.3.4 - GURONE MILLS. ENTRANCE TO HISTORIC CORE



FIGURE 2.3.5 - GURONE MILLS. HISTORIC CORE



FIGURE 2.3.6 - GURONE MILLS. BUILDING UNDER CONSTRUCTION

FIGURE 2.3.7 - GURONE
MILLS. VIEW FROM THE
MAIN ROAD

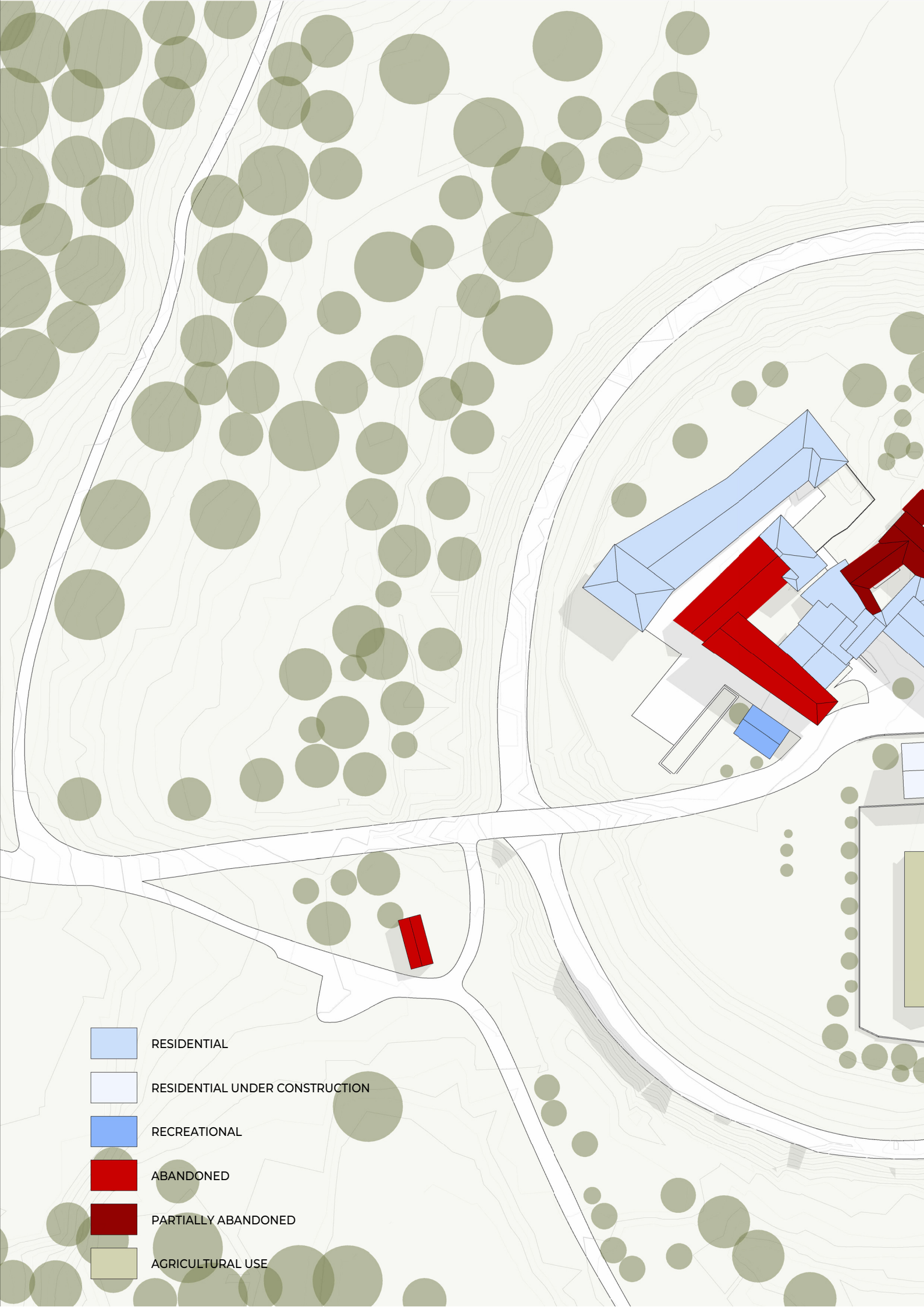


FIGURE 2.3.7 - GURONE
MILLS. BUILDINGS
UNDER RENOVATION



FIGURE 2.3.7 - GURONE
MILLS. ABANDONED
BUILDING





RESIDENTIAL



RESIDENTIAL UNDER CONSTRUCTION



RECREATIONAL



ABANDONED



PARTIALLY ABANDONED



AGRICULTURAL USE

2.3 GURONE MILLS

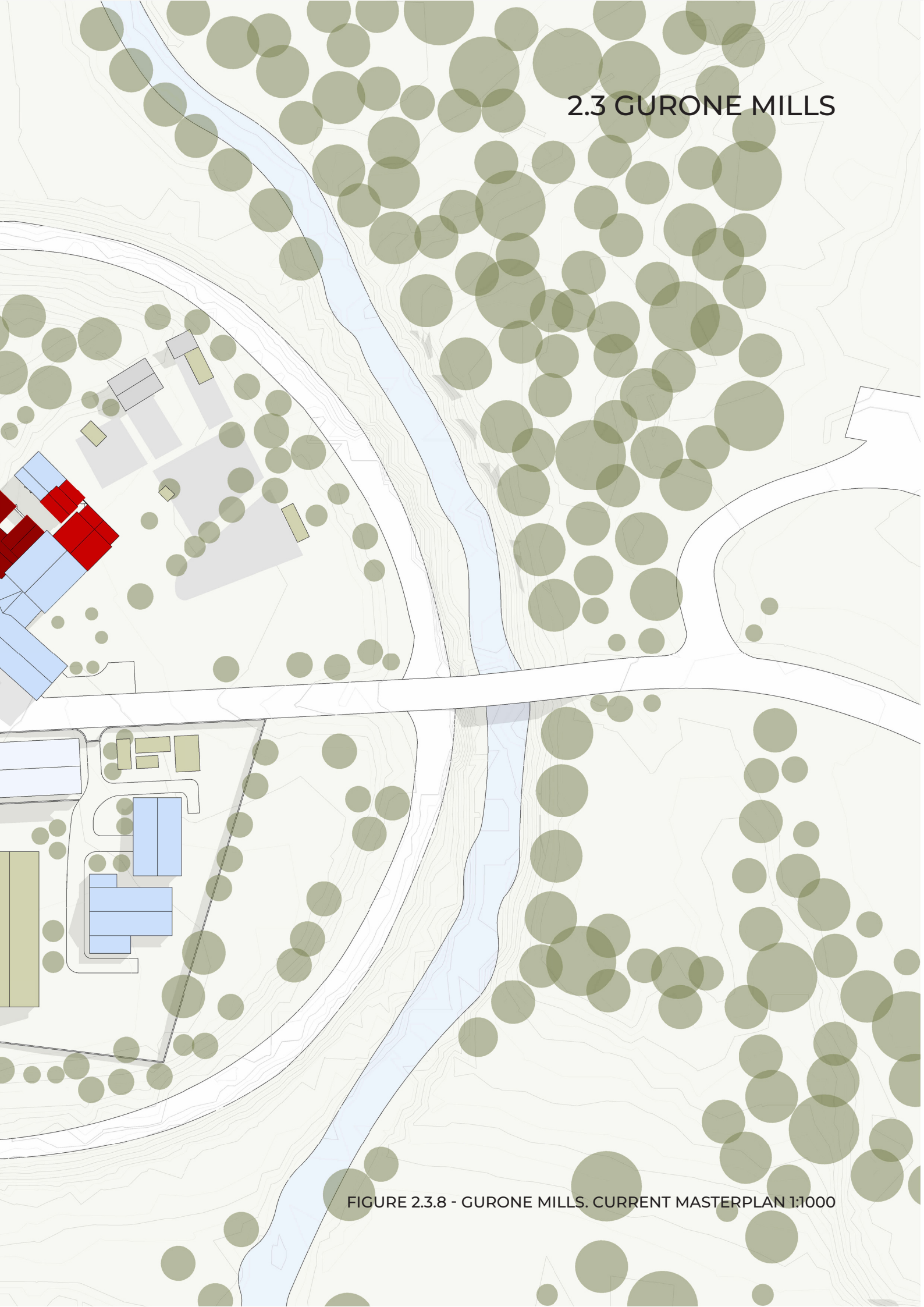


FIGURE 2.3.8 - GURONE MILLS. CURRENT MASTERPLAN 1:1000

2.4 LEGAMBIENTE AND CASAMATTA

When discussing the environmental and cultural transformation of the Olona Valley, particularly the Gurone mills, it is essential to acknowledge Legambiente's role. It is Italy's most prominent environmental organisation, founded in 1980. Legambiente has become a key factor in promoting ecological awareness, sustainable development, the protection of historical landscapes and the reuse of various materials. Its initiatives differ from national campaigns on renewable energy and waste reduction to local projects aimed at safeguarding biodiversity and revaluing cultural heritage. ⁴⁴

For Gurone, Legambiente's presence is particularly significant. Especially because the legacy of water-powered mills intersects with current challenges in river management, post-industrial reuse, sustainable mobility, and construction sites. Therefore, the association has been directly involved in projects along the Olona River, focusing on ecological restoration and the promotion of green infrastructure, including cycle paths and public spaces. ⁴⁵

Moreover, Legambiente is a non-profit citizens' association dedicated to protecting the environment and improving the quality of life. It operates as a massive movement driven by volunteerism and civic participation, aiming to bring about change toward a sustainable future. In addition, the association's mission combines activism with science. Consequently, it relies on extensive data collection to support every campaign and proposal. Notably, for over 40 years, Legambiente has fought pollution, illegal activities, environmental degradation, and other ecological problems. Of particular relevance is Legambiente's work to safeguard natural beauty and social well-being. Today, it is represented by 18 regional offices, 1000 local groups and more than 115000 members and supporters.

Moving forward, Legambiente Varese aims to enhance this picturesque village, transforming it into a place of meeting, aggregation, and socio-cultural promotion, to involve not only the communities of Gurone and Malnate, but also all interested parties in the broadest sense. Community participation, in fact, is here more fundamental than ever, thanks to the presence and action of volunteers and the collaboration with local companies that procure recoverable waste materials, which lay the foundations for the creation of tools to give life to cultural, educational and social initiatives.

The project is developing organically and clearly reflects the need to provide Casamatta with flexible spaces adaptable to various activities: educational, associative, laboratory, and informative. Casamatta therefore wants to be a point of reference, a practical example of an alternative economy, a territorial garrison, and a living, welcoming space. The three key words, therefore, are: environment, in the sense of attention to the territory; sustainability, understood as the use of recycled and recovered materials; and society.



FIGURE 2.3.9 - LOGO OF LEGAMBIENTE
SOURCE: CASAMATTA, CASAMATTA GURONE

LEGAMBIENTE

2.4 LEGAMBIENTE AND CASAMATTA

The objectives of Legambiente volunteers are a clear statement of intent, imbued with a deep social and ecological commitment:

- Renovate a part of the property: The heart of the project becomes the transformation of a portion of the heritage into a dynamic centre for environmental volunteering. Thus, this is a place where the community can gather, share knowledge, take care of the environment and participate in local productive activities.
- Develop tools and spaces: From the vegetable garden to the communal oven, from the former Valmorea railway toll booth to the mill, each element is designed to be a driver of cultural, educational, social and artisanal activities. An infrastructure that supports the cultural and social ecosystem of the community, offering flexible spaces and resources for initiatives.
- Enhance the village as a centre: the intention is to make the village of Casamatta shine as a place of meeting, aggregation and socio-cultural promotion. These initiatives are not limited to the local community alone, but seek to involve anyone who wants to take part.



FIGURE 2.3.10 -
DAILY ACTIVITIES OF
LEGAMBIENTE
SOURCE: CASAMATTA,
CASAMATTA GURONE

Diving into the details of the site of Gurone mills, Casamatta is a community project. Particularly, it was founded in 1994 by Legambiente and local volunteers. It revitalises abandoned industrial buildings along the Olona River through sustainable reuse and self-built interventions.

Thus, key features of the association there include a variety of activities. Among them are community workshops, shared facilities such as a kitchen and living spaces, a small museum of local artisan traditions, and event spaces that promote social and cultural engagement. Casamatta demonstrates and proves how collective efforts can turn abandoned spaces into environmentally and socially vibrant hubs.

FIGURE 2.3.11 - DAILY
ACTIVITIES OF
LEGAMBIENTE
SOURCE: CASAMATTA,
CASAMATTA GURONE



FIGURE 2.3.12 - DAILY
ACTIVITIES OF
LEGAMBIENTE
SOURCE: CASAMATTA,
CASAMATTA GURONE



2.5 PROTECTION LEVEL OF SITE

The Gurone Mills are protected through a combination of environmental, cultural, economic and community tools. For example, flood-control infrastructure protects the site and surrounding areas from high waters. It includes a 2010 embankment and a 2007 upstream dam. In terms of culture, the 16th-century mills are recognised as part of Malnate's industrial heritage and are located within the protected landscape of Parco Valle del Lanza. In addition, community initiatives further ensure ongoing restoration, monitoring, stewardship and usage. Legambiente and the Casamatta volunteer centre lead them. Together, these efforts provide a layered framework for preserving the site for future generations.

ENVIRONMENTAL AND FLOOD PROTECTION

- The site has been physically protected by a flood-control embankment and basin built along the Olona River since 2010. This turns the mills into an "island" during high water events, safeguarding them from flood damage.
- A dam constructed in 2007 upstream regulates water flow to reduce flood risk - not only preserving the site but also preventing downstream damage.

HERITAGE AND CULTURAL PROTECTION

- The Gurone Mills, with origins dating back to the 16th century, are acknowledged as part of Malnate's cultural heritage, though no specific regional or national historic monument designation has been confirmed. UPEL Cultura (local cultural heritage documentation) confirms the mills' continuous use from the 16th century until approximately 1970, listing them among Malnate's notable historical industrial sites
- They are located within the Parco Valle del Lanza and near the "Anello sul fiume" ecological corridor, which subjects them to the local protected landscape status under environmental planning regulations (in-lombardia.it).

COMMUNITY AND NGO INITIATIVES

- Legambiente has been actively involved since the 1990s, raising funds, campaigning, and partnering with public bodies (Province, Comune, Fondazione Cariplo) for restoration, environmental monitoring, and adaptive reuse (varesenews.it).
- The establishment of an environmental volunteer centre (Casamatta) is underway to ensure ongoing community involvement and stewardship.

FIGURE 2.3.13 - GURONE MILLS
SOURCE: CASAMATTA, CASAMATTA
GURONE



2.6 FREEDOM AND RESTRICTIONS

MAP OF FREEDOM AND RESTRICTIONS. BUILDINGS

Before proposing an adaptive reuse strategy for Gurone Mills, it is essential to understand which buildings and spaces must be preserved, which can be adapted, and which may be demolished if needed. To clarify these possibilities, the Map of Restrictions and Freedoms was developed, a tool that evaluates each structure's historical and qualitative value, condition, and current use, guiding informed design decisions and the placement of new interventions on the site.

The map defines where and how intervention is possible at Gurone Mills, highlighting buildings suitable for adaptive reuse.

LEVEL 1 - MAXIMUM RESTRICTION (CONSERVATION AND DELICATE RESTORATION)

includes protected historical buildings that are currently in use and retain a high degree of authenticity. Interventions are limited to conservation, maintenance and delicate restoration, with minimal modification inside for better use and the compatible updating of the utilities.

LEVEL 2 - CONTROLLED ADAPTIVE REUSE (FUNCTIONAL TRANSFORMATION)

This category applies to abandoned historical buildings that retain architectural and structural value but require new uses. Adaptive reuse is permitted through internal transformations and limited contemporary insertions, provided that the original volume, materiality, and legibility of historical layers are preserved.

LEVEL 3 - RECONSTRUCTION / CRITICAL RESTORATION (RECONSTRUCTION OF LOST ELEMENTS)

This level addresses partially ruined historical structures. Architectural intervention allows reconstruction and reinterpretation of missing elements through contemporary design strategies. New additions are conceived as clearly readable interventions that avoid imitation while completing the existing fabric.



FIGURE 2.313 - WORK OF STUDENTS OF POLIMI 2024-2025



FIGURE 2.314 - CITY LIBRARY. SOURCE: ARCHDAILY, CITY LIBRARY HET PREDIKHEREN



FIGURE 2.315 - WORK OF STUDENTS OF POLIMI 2024-2025



FIGURE 2.3.16 - DEMOLITION OF THE GENERAL POST OFFICE BUILDING IN MANCHESTER, APRIL 1967. SOURCE: NP ESTATES, LOST BUILDINGS OF MANCHESTER

LEVEL 4 - TRANSFORMATIONAL FREEDOM (DEMOLITION AND NEW CONSTRUCTION ALLOWED)

Buildings included in this category have no historical or architectural value. They allow the highest degree of freedom, including demolition and replacement with new architectural volumes. This level enables the introduction of new structures deemed essential to the site's functional and spatial reorganisation.



FIGURE 2.3.17 - GENERATED CRITICAL UPGRADING WORK

LEVEL 5 - CRITICAL UPGRADING (REMOVAL OF NON-AUTHENTIC ELEMENTS AND FACADE UPGRADING)

This category refers to historically valuable buildings that have undergone poor-quality renovations. Interventions focus on removing incompatible facade designs, upgrading facades, and restoring architectural coherence to improve design quality and ensure proper integrity between old and new buildings.



FIGURE 2.3.18 - GENERATED CRITICAL CORRECTION WORK

LEVEL 6 - CRITICAL CORRECTION (INTERRUPTION AND ARCHITECTURAL REDESIGN)

This level applies to buildings currently undergoing renovation processes that risk compromising architectural quality. Intervention allows the interruption or revision of ongoing works, the removal of inadequate solutions, and the redefinition of the project through a more coherent architectural strategy.



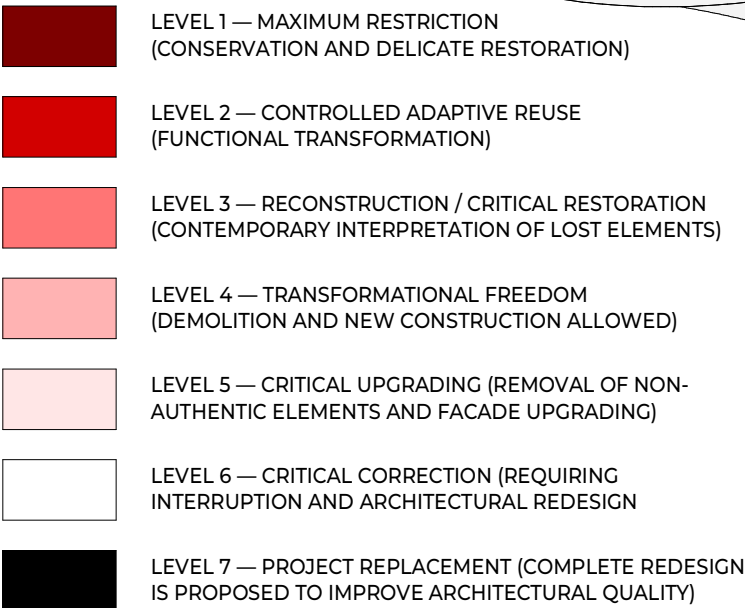
FIGURE 2.3.19 - PHOTO FROM THE SITE

LEVEL 7 - PROJECT REPLACEMENT (COMPLETE REDESIGN TO IMPROVE ARCHITECTURAL QUALITY)

This category concerns new constructions replacing demolished buildings, where the proposed projects lack architectural quality or contextual sensitivity. A complete redesign is proposed, allowing a new architectural solution that better responds to the site, landscape, and overall masterplan vision.

2.6 FREEDOM AND RESTRICTIONS

MAP OF FREEDOM AND RESTRICTIONS. BUILDINGS



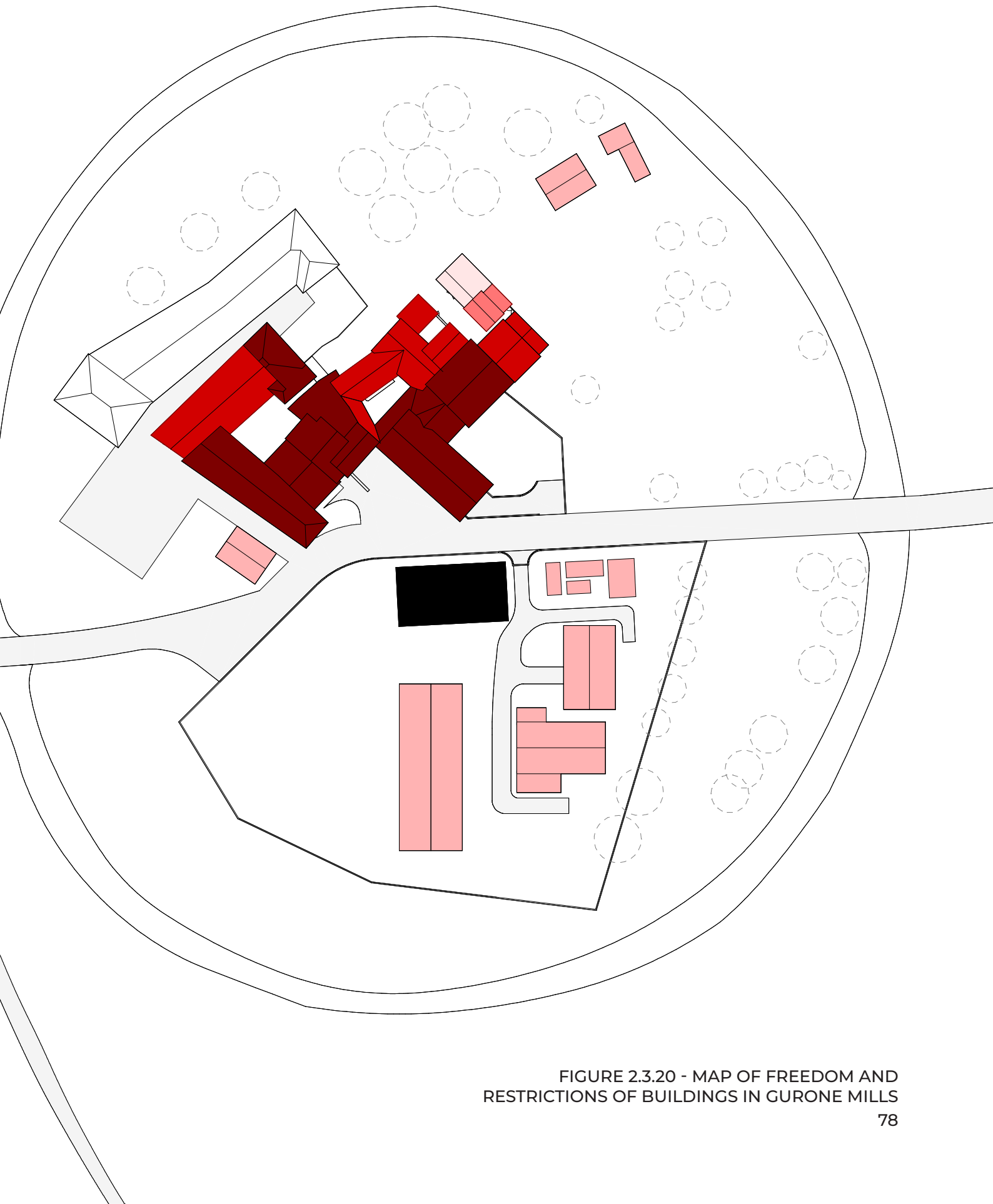


FIGURE 2.3.20 - MAP OF FREEDOM AND RESTRICTIONS OF BUILDINGS IN GURONE MILLS

2.6 FREEDOM AND RESTRICTIONS

MAP OF FREEDOM AND RESTRICTIONS. SPACES

In parallel with the classification of buildings, open spaces are organised according to their historical role, spatial quality, degree of use, and transformation potential. Particular attention is given to historically functional areas - such as courtyards, gardens (hortages), and cultivated plots - which, like the historic buildings, require preservation and careful reuse.

This layered reading allows the project not only to protect valuable landscape elements but also to recognise open spaces as part of the site's historical structure, ensuring that future interventions reinforce rather than erase their functional and spatial identity.

OPEN SPACE LEVEL 1 - PRESERVED OPEN SPACES (SPATIAL VALUE AND CONTINUITY)

These are areas defined primarily by vegetation and natural elements, without a specific programmatic function. They are protected and ecologically preserved, functioning as a landscape backdrop rather than as actively programmed project spaces. Vegetation growth in these areas is controlled.

OPEN SPACE LEVEL 2 - EXISTING GREEN AREAS (LANDSCAPE AS BACKGROUND)

These are areas defined primarily by vegetation and natural elements, without a specific programmatic function. They are protected and ecologically preserved, functioning as landscape backdrop rather than as actively programmed project spaces. Vegetation growing of these areas are controlled.

OPEN SPACE LEVEL 3 - GREEN SPACES WITH POTENTIAL (LATENT SPATIAL RESOURCE)

This category includes underused or undefined green areas with potential for future activation. Interventions remain soft and reversible, allowing temporary or seasonal uses while maintaining openness and flexibility.

OPEN SPACE LEVEL 4 - PRIVATE AND COMMUNITY GARDENS (LOCALLY USED SPACES)

These spaces are cultivated or appropriated by residents and small community groups. The project respects and protects these uses, avoiding architectural intervention and clearly recognising existing boundaries and ownership.

OPEN SPACE LEVEL 5 - TRANSFORMABLE OPEN SPACES (RESIDUAL AND PROJECT-DRIVEN AREAS)

Residual and technical areas, such as parking zones, service roads, and unused voids, fall into this category. They allow a high degree of transformation, including spatial reorganisation, landscape redesign or integration of new architectural elements aligned with the masterplan strategy.

OPEN SPACE LEVEL 6 - MOBILITY AND ACCESS NETWORKS (VEHICULAR AND PEDESTRIAN ROUTES)

This level includes all circulation routes within the site. The intervention reorganises and hierarchises mobility, prioritising pedestrian movement, improving accessibility, reducing vehicle conflicts, and potentially relocating parking or redefining road sections to create a clearer spatial structure.

2.6 FREEDOM AND RESTRICTIONS

MAP OF FREEDOM AND RESTRICTIONS. SPACES

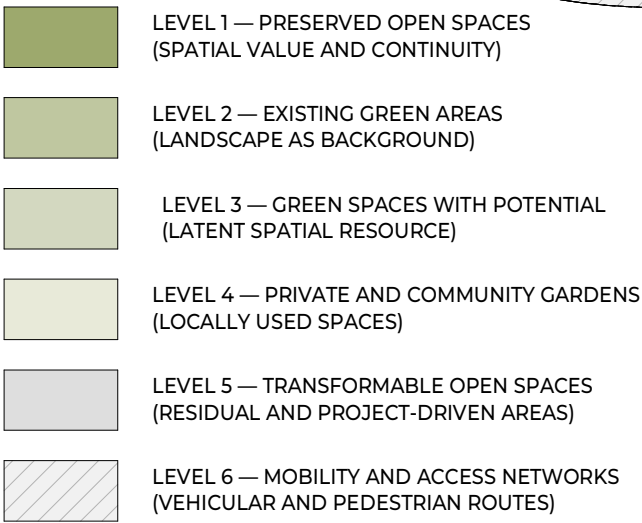




FIGURE 2.3.21 - MAP OF FREEDOM AND RESTRICTIONS OF SPACES IN GURONE MILLS

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C

HAPTER 3

CASE STUDIES

- 3.1 ADAPTIVE REUSE OF MILLS IN ITALY
- 3.2 ADAPTIVE REUSE OF MILLS ABROAD
- 3.3 UNESCO SITES
- 3.4 REFERENCES

3.1 ADAPTIVE REUSE OF MILLS IN ITALY

The adaptive reuse of historic mills offers an important opportunity to conserve cultural heritage while simultaneously responding to contemporary needs. Across Italy, numerous projects prove how industrial buildings in disuse can be transformed into museums, cultural centres, residences, or mixed-use facilities. These transformations ensure their survival within today's social and economic context. This chapter presents a selection of such projects, highlighting the strategies adopted to conserve architectural integrity, reinterpret historical identity, and integrate new functions, bringing new life to these complexes. The chapter identifies recurring themes and approaches that inspire the redevelopment of Gurone Mills by examining diverse examples, ranging from small watermills to large textile factories.

ROSA ROSAE IN TREVISO

CURRENT OCCUPATION – COUNTRYSIDE RESORT

Rosa Rosae is a restored historic mill, located in San Bartolomeo di Breda di Piave in the province of Treviso. It is currently functioning as a countryside resort. The structure has documented origins dating back to 1570 and represents centuries of local rural tradition. The site benefits from a landscape of agricultural and cultural significance, as the mills are placed between the Prosecco hills to the north and the lagoon city of Venice to the south. Today, Rosa Rosae offers four guest rooms, designed to restore the character and atmosphere of its past. Overall, it is a great example of the mill project, where hospitality and heritage preservation have been successfully combined. ¹



SOURCE: VENETO SECRETS,
LOCANDA ROSA ROSAE

3.1 ADAPTIVE REUSE OF MILLS IN ITALY

PAPER MILL MUSEUM IN PESCIA

CURRENT OCCUPATION – MUSEUM

The Pescia Paper Museum was created within a historic paper mill, reflecting the long-standing tradition of paper production that has characterised this Tuscan area since the 15th century. The museum is managed by the ETS Paper Museum Association, an organisation comprising private individuals, associations, and public institutions. It emerged as a direct continuation of the site's original function. The museum's mission is to safeguard and transmit the artisanal knowledge of handmade paper manufacturing, while also raising awareness of the craft's cultural and economic significance and its evolution over time. By transforming an industrial site into a cultural institution, the Pescia Paper Museum preserves both the material heritage of papermaking and the intangible heritage of the skills and practices associated with it. ²



SOURCE: MUSEO DELLA CARTA.
MUSEO DELLA CARTA DI
PESCIA

SILK MILL OF CARAGLIO IN PIEDMONT

CURRENT OCCUPATION – MUSEUM

The Piedmont region was a pioneer in the factory production of silk and influenced aspects of the development of the factory system worldwide. Established by Count Galleani in 1678, the Caraglio mill is the oldest surviving silk factory in Europe. Production continued for over 250 years and ended in 1936. Over time, the building became derelict, but restoration began in 1999, and it now houses a museum of the silk industry. The building is on three levels, and it resembles a palace, with grand staircase towers at the corners and courtyards on the inside. The museum carefully recreated the factory's original equipment, as it was used in the 17th and 18th centuries. This also includes five wooden waterwheels in the basement. With information panels, you can follow the production of silk from the arrival of the silk cocoons through winding onto reels and twisting the thread.³



SOURCE: VISIT CUNESE,
CARAGLIO AND ITS ANCIENT
SILK MILL

3.1 ADAPTIVE REUSE OF MILLS IN ITALY

RUATTI WATER MILL MUSEUM

CURRENT OCCUPATION – MUSEUM

The Molino Ruatti watermill, located at the entrance of Pracorno in Val di Rabbi, is one of the last functioning watermills in northern Italy. Powered by the Rabbiés stream, the mill historically combined production spaces with the miller's domestic quarters, including a stube, kitchen, barn, and cellar, all within its characteristic stone structure and large wooden wheel. The mill was recently restored and converted into a museum that preserves the original machinery and spaces. Guided tours on traditional milling and rural life in the valley are now offered here. Original furnishings and tools are on display and the museum also houses a fresco depicting the Madonna of Caravaggio and Saint Catherine of Alexandria. These elements greatly add to its cultural value, making Molino Ruatti a heritage landmark and a centre for learning about the agricultural traditions of Val di Rabbi. ⁴



SOURCE: MULINO RUATTI
MUSEUM, VAL DI RABBI,
TRENTINO, ITALY

CASSINA BARAGGIA TEXTILE MILL IN BRUGHERIO

CURRENT OCCUPATION – RESIDENTIAL

The Cassina Baraggia textile mill, built in the early 20th century as a silk-spinning facility, is a significant example of Lombardy's industrial heritage. The original layout was conceived around a closed courtyard. This type of configuration, which integrated production areas with worker housing, reflects both the functional and social dimensions of the period's industrial settlements. Recently, the complex has undergone refurbishment and adaptive reuse. The former mill was transformed into a mixed residential compound characterised by apartments and storage units. Even after industrial activity ceased, the redevelopment preserved key elements of the site's spatial organisation. In particular, the courtyard structure was maintained and continues to shape the complex's collective identity. The intervention demonstrates a balance between conservation and contemporary needs, ensuring the continued relevance of the site within Brugherio's urban fabric. ⁵



SOURCE: LOMBARDIA BENI
CULTURALI, FILANDA DI
FRAZIONE BARAGGIA

3.1 ADAPTIVE REUSE OF MILLS IN ITALY

CANTONI COTTON MILL IN LEGNANO

CURRENT OCCUPATION – INDUSTRIAL HUB

The Cantoni Cotton Mill in Legnano stands as one of the most distinctive industrial complexes along the Olona River. Particularly, it reflects the city's prominence in textile production during the late 19th and early 20th centuries. Unfortunately, a significant portion of the complex has been demolished, but several key pavilions and structural elements remain, preserving the scale and character of the original mill. The surviving buildings maintain their volumetric presence, offering a valuable link to the industrial landscape that once defined the area. Current efforts are directed toward adaptive reuse and broader restoration strategies that integrate the remaining structures into the urban fabric. The preservation of these elements is architectural and cultural, ; therefore, they embody the legacy of Legnano's industrial heritage and its role within Lombardy's cotton industry. To conclude, the Cantoni site represents a fragment of the past and a resource for future urban regeneration, where historical identity and contemporary functions can coexist. ⁶



SOURCE: CITY OF LEGNANO,
COTONIFICIO CANTONI

The case studies emphasise that successful adaptive reuse of mills relies on finding the right balance between heritage preservation and new uses that can support long-term sustainability. On the one hand, projects such as Rosa Rosae or Ruatti Water Mill highlight cultural and touristic functions, while others, such as Cassina Baraggia or the Cantoni Cotton Mill, demonstrate how industrial heritage can be reintegrated into the urban fabric through residential or mixed-use redevelopment. Based on these findings, common strategies include retaining distinctive architectural elements, enhancing spatial identity, and embedding the sites within broader cultural or environmental networks.

For the Gurone Mills project, these lessons highlight the importance of respecting the site's historical and architectural character while identifying functions that ensure economic viability and community relevance. Following these insights, Gurone Mills can surely be reimagined as a reminder of the past and a resource for the future.

3.2 ADAPTIVE REUSE OF MILLS ABROAD

The adaptive reuse of historic mills is not limited to Italy but is a broader European phenomenon, in which former industrial sites have been creatively reimagined for new purposes. This chapter explores several international examples from France, Ireland, and the United Kingdom. The objective is to showcase diverse strategies for preserving heritage while introducing contemporary functions. These projects demonstrate how mills can be transformed into residential buildings, museums, production sites and educational centres, often integrating novel technologies and community-oriented activities. Examining these international practices provides further inspiration and comparative insight for the Gurone Mills project.

RENOVATION OF AN OLD MILL IN MOSELLE, FRANCE

CURRENT OCCUPATION – RESIDENTIAL

Long abandoned, this building sits on a floodplain in an attractive area. Originally, the site was a mill and later became an ironwork workshop - the large brick fireplace is evidence of this. Today, it has become a farm. The old structure was poorly built and was neglected over time, requiring extensive renovation. Past attempts at refurbishment had been abandoned due to their size and complexity, as a large budget was required to proceed. To reduce flood risk, the new main living areas, such as the living room, kitchen, bathroom, and terrace, are located on the upper floor. ⁷



SOURCE: ARCHDAILY,
RENOVATION OF AN OLD MILL /
STUDIOLADA ARCHITECTS

3.2 ADAPTIVE REUSE OF MILLS ABROAD

CAVAN WATER MILL IN CAVAN, IRELAND

CURRENT OCCUPATION – MUSEUM

Formerly known as the Lifeforce Mill, this 1846 water mill is notable for its MacAdam turbine. It operated for over a century and served as a key local centre for grain processing and the production of wholemeal flour. The mill was closed in the 1960s. The reason for that is still unknown, but most probably it happened due to an industrial shift towards larger processing facilities. Thus, after many years of disuse, it was restored in the 1990s. The repurposed function was a museum and visitor attraction. Once the restoration was completed, it resumed operation shortly. Today, the museum operates on a limited schedule to preserve the building. The Cavan Water Mill remains a notable example of 19th-century industrial architecture in Ireland and a further example of cultural refurbishment, becoming a museum.⁸



SOURCE: NATIONAL INVENTORY
OF ARCHITECTURAL HERITAGE,
LIFEFORCE MILL

HERON CORN MILL IN CUMBRIA, ENGLAND

CURRENT OCCUPATION – WORKING MILL + EDUCATIONAL CENTRE

The Heron Corn Mill dates back to the 18th century. It is an important example of traditional industrial architecture. The mill's restoration was started in 2013. Today, it operates as a fully functional corn mill and educational centre. Therefore, the site still produces flour and also hosts workshops and community events, engaging the public with both its history and its ongoing operations. To sum up, it is another great example of how historic industrial sites can be adapted to modern-day needs and serve educational purposes. ⁹



SOURCE: HERON CORN MILL,
HERON MILL

3.2 ADAPTIVE REUSE OF MILLS ABROAD

DUNSTER WORKING WATERMILL IN SOMERSET, ENGLAND

CURRENT OCCUPATION – WORKING MILL + EDUCATIONAL CENTRE

Today, this 18th-century watermill is fully restored and offers insight into the region's industrial heritage and traditions. The mill played a key role in grinding flour and other grains for the local community surrounding the river Avill. It is one of the few remaining working watermills in the Somerset region. The mill has been preserved to maintain most of its original features. Today, visitors can experience guided tours of the mill, observe demonstrations of water-driven machinery, explore interactive exhibits illustrating the milling process and visit the centre's gift shop, which offers locally sourced products, including flour directly from the mill itself. In this case, while there was no real repositioning of the mill's purpose, the community maintained its relevance in the local space by offering educational tours and local products.¹⁰



SOURCE: DUNSTER VILLAGE,
DUNSTER WORKING
WATERMILL

SACREWELL WATERMILL IN PETERBOROUGH, UK

CURRENT OCCUPATION – EDUCATIONAL CENTRE

Sacrewell Watermill is a Victorian watermill. The building represents an important example of 19th-century industrial architecture and engineering, even retaining much of its original structure and machinery to this day. After its restoration, the mill was removed from the «Heritage at Risk» register and repurposed as a learning centre and local attraction. Today it serves educational and cultural functions, offering active milling exhibitions and opportunities for visitors to engage with traditional milling techniques. Moreover, the site showcases a hydroelectric power installation that illustrates the integration of industrial heritage with contemporary sustainable technology.¹¹



SOURCE: THE MESSENGER,
SACREWELL MILL,
CAMBRIDGESHIRE

3.2 ADAPTIVE REUSE OF MILLS ABROAD

The case studies abroad reveal the versatility of adaptive reuse in addressing diverse cultural contexts, building typologies, and community needs. Projects such as the residential conversion in Moselle illustrate how even heavily deteriorated structures can be given new life. At the same time, Cavan Water Mill and Dunster Watermill demonstrate the potential of restoring historic production functions as cultural attractions. Heron Corn Mill and Sacrewell Watermill further underline the value of coupling heritage preservation with education and public engagement.

These examples emphasise that successful adaptive reuse projects outside of Italy balance historical authenticity with contemporary relevance. For Gurone Mills in particular, they suggest the importance of integrating heritage conservation with functional diversity. New uses may vary across residential, cultural, and educational sectors, but environmental challenges and opportunities for sustainable innovation must also be considered.

3.3 UNESCO SITES

The recognition of mills as UNESCO World Heritage Sites highlights their global cultural and historical significance. These sites are living examples of industrial and social development. They represent technological innovation and community development. Thus, this chapter presents two important examples. The first one is the Derwent Valley Mills in England, known as the birthplace of the modern factory system. While the second one is Verla Mill in Finland. It is a rare survival of a small-scale rural industrial complex. Both mills demonstrate how preservation of industrial heritage, can achieve international recognition and drive contemporary approaches to adaptive reuse. The study of these sites provides a broader framework of values and strategies that can inspire the regeneration of industrial heritage along the Olona River.

DERWENT VALLEY MILLS

LOCATION: DERBYSHIRE,
ENGLAND

**UNESCO WORLD HERITAGE
SITE SINCE:** 2001

Derwent Valley Mills is widely regarded as the birthplace of the modern factory system. It is located along the River Derwent in Derbyshire. Moreover, it includes several 18th and 19th-century cotton mills. The most famous is Cromford Mill, which pioneered the use of water power in large-scale textile production.

The site also includes preserved worker housing and community facilities. This makes it a great showcase of early industrial society. Today, several buildings have been restored and repurposed for tourism, education and small businesses. On the contrary, some buildings serve as museums and cultural heritage centres, offering insight into the origins of industrialisation. The extensive refurbishment and multiple new uses of the site are part of what made it a UNESCO World Heritage Site.¹²

SOURCE: UNESCO WORLD
HERITAGE CENTRE, DERWENT
VALLEY MILLS



3.3 UNESCO SITES



VERLA GROUNDWOOD AND BOARD MILL

LOCATION: KYMI RIVER VALLEY, FINLAND

UNESCO WORLD HERITAGE SITE SINCE: 1996

The Verla Mill is a rare, well-preserved example of a small-scale rural industrial complex from the late 19th century. Situated in Finland's Kymi River Valley, the site includes a groundwood and board mill with original machinery, as well as worker housing and support buildings, reflecting the social and industrial environment of the pulp and board industry at the time. Today, Verla operates as a museum and cultural site. Visitors can explore the historic production facilities, view original equipment, and learn about the lives of mill workers. The museum offers a unique glimpse into Finland's early industrial history in a rural setting.¹³



SOURCE: UNESCO WORLD HERITAGE CENTRE. VERLA GROUNDWOOD AND BOARD MILL

The examples of Derwent Valley Mills and Verla Mill illustrate how former industrial sites can be preserved and revalorised as cultural, educational and tourist assets of global importance. The two sites highlight key principles: maintaining authenticity of structures and machinery, and safeguarding the social context by preserving the worker housing and community facilities.

For the mills along the Olona River, these insights underscore the importance of valuing the architectural remains and the wider cultural, social, and environmental setting. While they may not hold UNESCO designation, applying similar principles - integrating conservation with new functions, fostering community involvement and promoting cultural tourism - can enhance their relevance and sustainability. In this way, the Olona mills can be repositioned as significant heritage assets that contribute to both local identity and broader narratives of industrial history.

3.4 REFERENCES

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- ⁵ Lombardia Beni Culturali. Filanda di Frazione Baraggia. <https://www.lombardiabeniculturali.it/>
- ⁶ Città di Legnano. Cotonificio Cantoni. <https://comune.legnano.mi.it/luoghi/1868301/cotonificio-cantoni>
- ⁷ ArchDaily. Renovation of an Old Mill / StudioLADA Architects. <https://www.archdaily.com/901282/renovation-of-an-old-mill-studiolada-architects>
- ⁸ National Inventory of Architectural Heritage (NIAH). Liferforce Mill, Cavan. <https://www.buildingsofireland.ie/buildings-search/building/40001069/liferforce-mill-mill-rock-river-street-lurganboy-upper-loughtee-by-cavan-cavan>
- ⁹ Heron Corn Mill. Heron Corn Mill. <https://heronmill.org/>
- ¹⁰ Dunster Village. Dunster Working Watermill. <https://www.dunster.org.uk/see-do/dunster-working-watermill/>
- ¹¹ The Messenger. Sacrewell Mill, Cambridgeshire. <https://www.messengerbcr.co.uk/news/articles/sacrewell-mill-cambridgeshire-article/>
- ¹² UNESCO World Heritage Centre. Derwent Valley Mills. <https://whc.unesco.org/en/list/1030/>
- ¹³ UNESCO World Heritage Centre. Verla Groundwood and Board Mill. <https://whc.unesco.org/en/list/751/>

C

HAPTER 4

GEOMETRIC SURVEY AND DIGITAL RECONSTRUCTION

- 4.1 INTRODUCTION
- 4.2 SOURCES AND IDENTIFICATION OF GAPS
- 4.3 METHODOLOGICAL FRAMEWORK
- 4.4 NEW DRAWINGS AND DIGITAL RECONSTRUCTION
- 4.5 CONCLUSIONS
- 4.6 REFERENCES

4.1 INTRODUCTION

The recording of historic buildings is a fundamental step in the processes of conservation, documentation, and valorisation of cultural heritage. Before any intervention or design strategy can be developed, it is necessary to obtain accurate and reliable geometric information describing the site's existing condition. In the case of the Gurone Mills complex, the survey helps understand the buildings' spatial organisation, their construction logic, and the transformations that have occurred over time. For this reason, architectural recording should not be considered only a technical operation, but also a way of interpreting and reading the built environment as a historical document.

International conservation principles underline the importance of documentation and recording as essential tools for responsible heritage management. Accurate geometric data enables analysis of a building's current state, comparison with historical information, and support for informed decisions on conservation and adaptive reuse. As highlighted in international conservation guidelines, systematic documentation plays a key role in safeguarding cultural heritage and transmitting knowledge about historic structures to future generations.¹

Within this broader framework, the geometrical survey developed for the Gurone Mills site aims to establish a reliable geometric basis for both the analytical and design phases of the thesis. The work integrates inherited drawings, point cloud data, and additional geometric interpretation. Particular attention was given to verifying existing documentation through direct site observation and comparing multiple sources of geometric information. In line with contemporary practices in heritage documentation, the survey process is organised in three main stages: data acquisition, data elaboration, and data representation. The approach is based on an experimented and consolidated practice of teaching surveying technologies to students of architecture.² The approach is based on an experimented and consolidate practice of teaching surveying technologies to students of architecture.³ Through this process, the collected information is translated into a coherent set of drawings and models that support a deeper understanding of the Gurone Mills complex and provide the geometric basis for the adaptive reuse proposal developed in this thesis.⁴



4.2 SOURCES AND IDENTIFICATION OF GAPS

To clarify the structure of the available material, the datasets used in the geometric survey are summarised in Table 4.2.1. The table organises the documentation by output type, distinguishing between raw datasets, survey documentation, processed datasets, analytical material, and design-support documentation. For each category, the table specifies the data type, the technology or method used, the material's origin, the survey date, and the file format.

This overview provides a clearer understanding of the different sources contributing to geometric documentation and their roles within the research workflow, before moving to a more detailed description of the recording, processing, and representation phases.

TABLE 4.2.1 - AVAILABLE SOURCES

Type of output	Type of data	Technology/ Method employed	Origin	Date of survey	Format
Raw datasets	Point cloud data	TLS (Terrestrial Laser Scanning)	Previous survey campaigns and academic documentation	a.y. 2024–25 (March)	.rcp
Survey documentation	Photographic documentation	Direct survey, photographic survey	Field survey during the course activities	a.y. 2024–25 (March, October)	.jpg, .png
Processed datasets	Rectified elevation images, verified technical in-scale drawings	Image rectification, CAD verification	Processing of survey data and existing drawings	a.y. 2024–25 (March, October)	.dwg, .tif
Analytical material	Territorial analysis boards, adaptive reuse proposals	Graphic analysis and interpretation	Semester analytical work	a.y. 2024–25 (March, October)	.pdf, .indd, .psd
Design-support documentation	Integrated 3D model and updated technical in-scale drawings	3D modelling, CAD integration	Thesis development	a.y. 2024–25 (March, October)	.rvt, .dwg, .3dm

The geometric survey of the Gurone Mills is based on a collection of reference materials provided by Professor Augelli and Professor Cuca. These sources originate from previous academic works developed on the same site and constitute the primary foundation for the present research.

A substantial part of the available material derives from course projects carried out by students of Politecnico di Milano during the academic year 2024–2025, involving 14 student groups of Bachelor degree and 12 groups of the Master Degree ⁵. All groups worked on the same site addressed by this thesis; however, their activities were primarily conceived as training exercises rather than as comprehensive surveys of the entire building complex.

Most students had limited prior experience in managing the recording, verification, and representation of complete architectural organisms. As a result, the produced documentation, although developed with rigorous methods, often focuses on selected portions of the historic mill and varies in accuracy and completeness. This condition does not depend on the duration of the work, but rather on the didactic nature of the exercise, whose main objective was understanding and acquisition of a methodological process that can later be autonomously applied and refined in different contexts, rather than the production of a final, exhaustive survey documentation.

The collected material includes territory analysis boards, scale-based geometric surveys, material mapping, decay mapping, master plans and adaptive reuse proposals, as well as written reports and material and decay cards. While these documents provide valuable insights into specific architectural elements and conditions, they do not constitute a complete or unified geometric representation of the site.

In addition, Professor Augelli provided access to master's theses developed at Politecnico di Milano for the academic years 2021–2022, 2022–2023, and 2023–2024, all focused on the Gurone Mills site. ⁶ Unlike the semester projects, these theses culminated in the realisation of small-scale built interventions using recycled materials directly on site. For these works, only booklets and presentation boards were available, which primarily supported contextual understanding rather than precise geometric reconstruction.

4.2 SOURCES AND IDENTIFICATION OF GAPS

SOURCES

Further reference material was obtained from the Casamatta project by Legambiente, presented through documentation supplied by Professor Augelli. This material contributed to the broader cultural and environmental reading of the site.

From Professor Cuca, the available sources included a point cloud data collected during an advanced survey field campaign of the Gurone Mills, covering part of the historic buildings. The data acquisition campaign for Casamatta was conducted in March 2025 (a.y. 2024-25) within the Architectural Preservation Studio course taught by Professors Cuca and Augelli. The building aggregation presents a complex spatial distribution with accesses at different levels and of significant extension. It required 39 scans to capture both the external facades and the interior rooms. The survey was carried out with a Faro Focus 3D S70 terrestrial laser scanner, with each scan completed in under five minutes. For registration, a scan-to-scan approach was employed using ReCAP Pro software (educational licence).

The specific objective of geometric documentation is the internal courtyard of the historic core, capturing its spatial configuration, proportions, wall thicknesses, and relationships with the surrounding façades. Although the dataset does not cover the entire site, it provides a highly reliable geometric reference for the complex's central area. The data was further cleaned, decimated, and exported as a single point cloud so that it could be managed by students on their personal workstations, with potentially lower computational capacity. Finally, the original files of in-scale technical drawings of floor plans and sections were provided, serving as an initial geometric reference for verification and further information integration.

Together, these heterogeneous sources formed a fragmented but essential starting point for the geometric survey, highlighting the need for on-site verification, integration and through a consistent methodological framework.

4.2 SOURCES AND IDENTIFICATION OF GAPS

IDENTIFICATION OF ADDITIONAL MATERIAL USEFUL FOR THE WORK OF THIS THESIS

To facilitate reading of the following sections, a brief recap of the spatial configuration of the Gurone Mills site is presented, along with a short overview of its historical development.

The historic settlement developed around a water canal that once powered the mill machinery. Although the canal no longer exists today, its trace remains a key spatial element structuring the site and defining the relationship between the industrial buildings and the surrounding landscape. This relation is shown in Figure 4.2.1.

The complex comprises a heterogeneous group of historic buildings, organised around two internal courtyards and a series of open spaces that developed incrementally over time. This layered configuration reflects the historical evolution of the milling activities and the gradual transformation of the site. Today, the spatial organisation shown in Figure 4.2.1 appears partially fragmented, with abandoned buildings, renovated structures, and open areas that are not clearly defined. For this reason, understanding the site's geometric structure and its main spatial elements is a fundamental step for both documentation and design development.



FIGURE 4.2.1 -
CURRENT STATE
OF GURONE MILLS

4.2 SOURCES AND IDENTIFICATION OF GAPS

IDENTIFICATION OF ADDITIONAL MATERIAL USEFUL FOR THE WORK OF THIS THESIS



①
0 12.5 25 50 m

FIGURE 4.2.2 - ORTHOPHOTO OF GURONE MILLS IN 2021 1:1000
SOURCE: GEOPORTALE DELLA LOMBARDIA, REGIONAL ORTHOPHOTO DATABASE
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The key plan shown in Figure 4.2.3 summarises the current state of the geometric documentation of the Gurone Mills site. Existing sections and elevations derived from previous surveys are indicated in green, while the black lines identify the additional sections and facades produced within the scope of this thesis. This graphic distinction clarifies both the extent of available documentation and the specific contributions of the present research, highlighting the areas where new drawings were required to complete and consolidate the overall geometric framework.

The analysis of the collected survey material revealed several integrations that are necessary for a consistent geometric documentation of the Gurone Mills site. A comparison between the available drawings and the key plan c shows that the longitudinal facade along the former mill canal is absent from the inherited documentation. Beyond its relevance for understanding the historical relationship between the mill and its water infrastructure, this facade is essential for the continuation of the design process, as it directly informs the spatial definition, scale and architectural language of the proposed interventions.

In addition to the facade towards the mill ridge, the geometric documentation of Courtyard 1 was found to be incomplete because it wasn't subject of survey for the two teaching activities previously cited. This courtyard, illustrated in Figure 4.2.3, represents one of the key spatial nodes within the adaptive reuse proposal, acting as an important transitional and collective space within the future circulation system of the complex. For this reason, the documentation of this space requires the production of two additional facades – Elevations “Courtyard 1. West elevation” and “Courtyard 1. South elevation” - complementing the longitudinal facade along the former mill ridge, because the absence of reliable survey information for this area limited the possibility of fully understanding the existing spatial relationships and topographical transitions within the site.

4.2 SOURCES AND IDENTIFICATION OF GAPS

IDENTIFICATION OF ADDITIONAL MATERIAL USEFUL FOR THE WORK OF THIS THESIS



0 12.5 25
FIGURE 4.2.3 - KEY PLAN IN SCALE 1:500

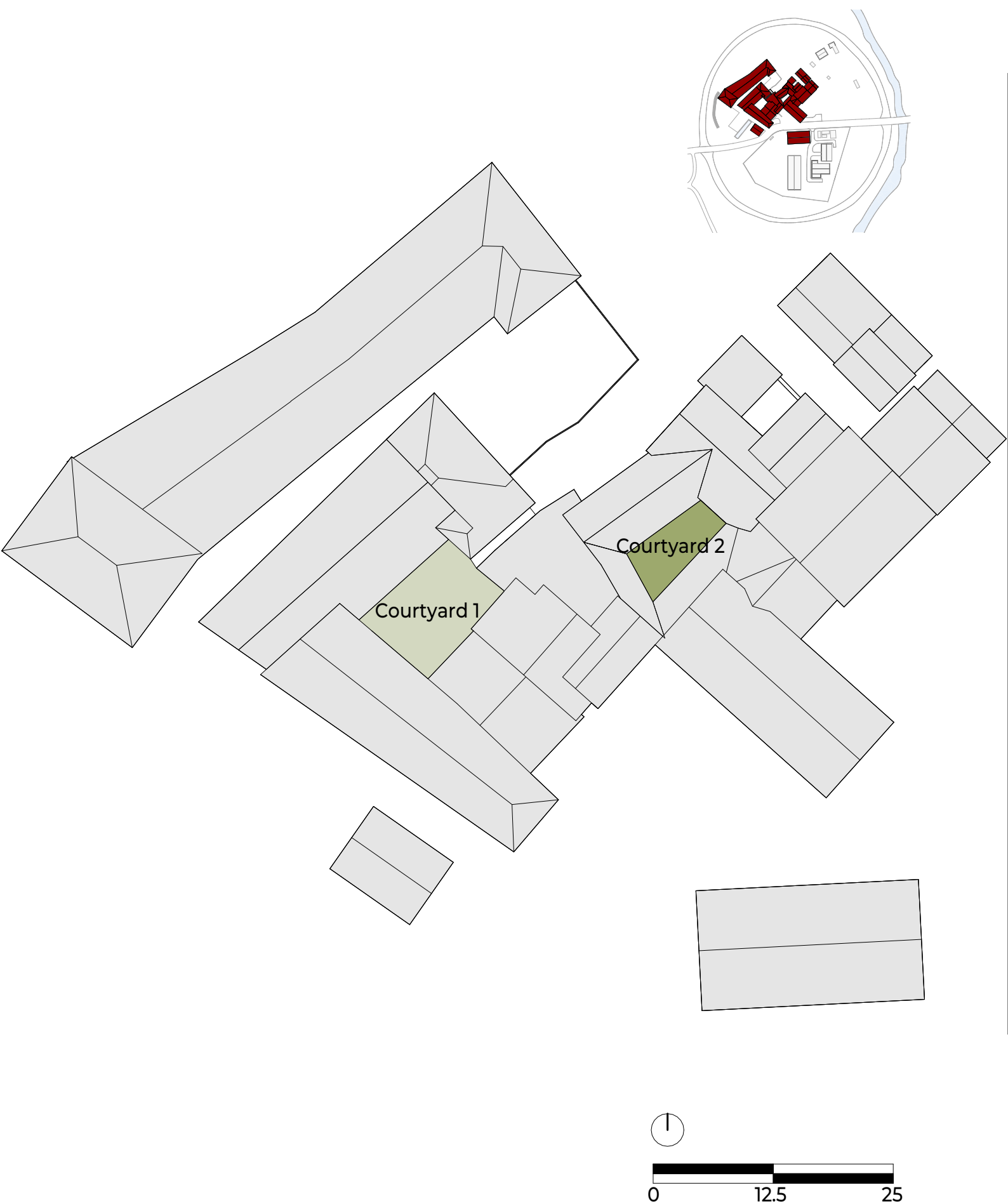


FIGURE 4.2.4 - KEY PLAN OF COURTYARDS 1:500

4.2 SOURCES AND IDENTIFICATION OF GAPS

IDENTIFICATION OF ADDITIONAL MATERIAL USEFUL FOR THE WORK OF THIS THESIS

To produce the necessary technical drawings, an additional site visit was organised in April 2026, together with Professor Cuca and Arch. Li Li. The purpose of the visit was to complete the missing geometric documentation through direct on-site observation, photographic recording and additional measurements, with particular attention given to the former canal facade and Courtyard 1, both of which constitute fundamental elements of the thesis proposal.

As a result of this supplementary survey activity, additional photographic documentation, measurements, and geometric references were collected to complete the missing architectural drawings of the complex. The material obtained during the site visit made it possible to produce the new longitudinal elevation referred to as “Canal. Longitudinal Elevation”, as well as the additional drawings “Courtyard 1. West Elevation” and “Courtyard 1. South Elevation”. These drawings completed essential portions of the geometric documentation required for both the analytical phase and the subsequent development of the adaptive reuse proposal.



FIGURES 4.2.5 A
AND B - SITE VISIT.
PHOTOGRAPHIC
DOCUMENTATION AND
MEASUREMENTS

4.2 SOURCES AND IDENTIFICATION OF GAPS

IDENTIFICATION OF ADDITIONAL MATERIAL USEFUL FOR THE WORK OF THIS THESIS

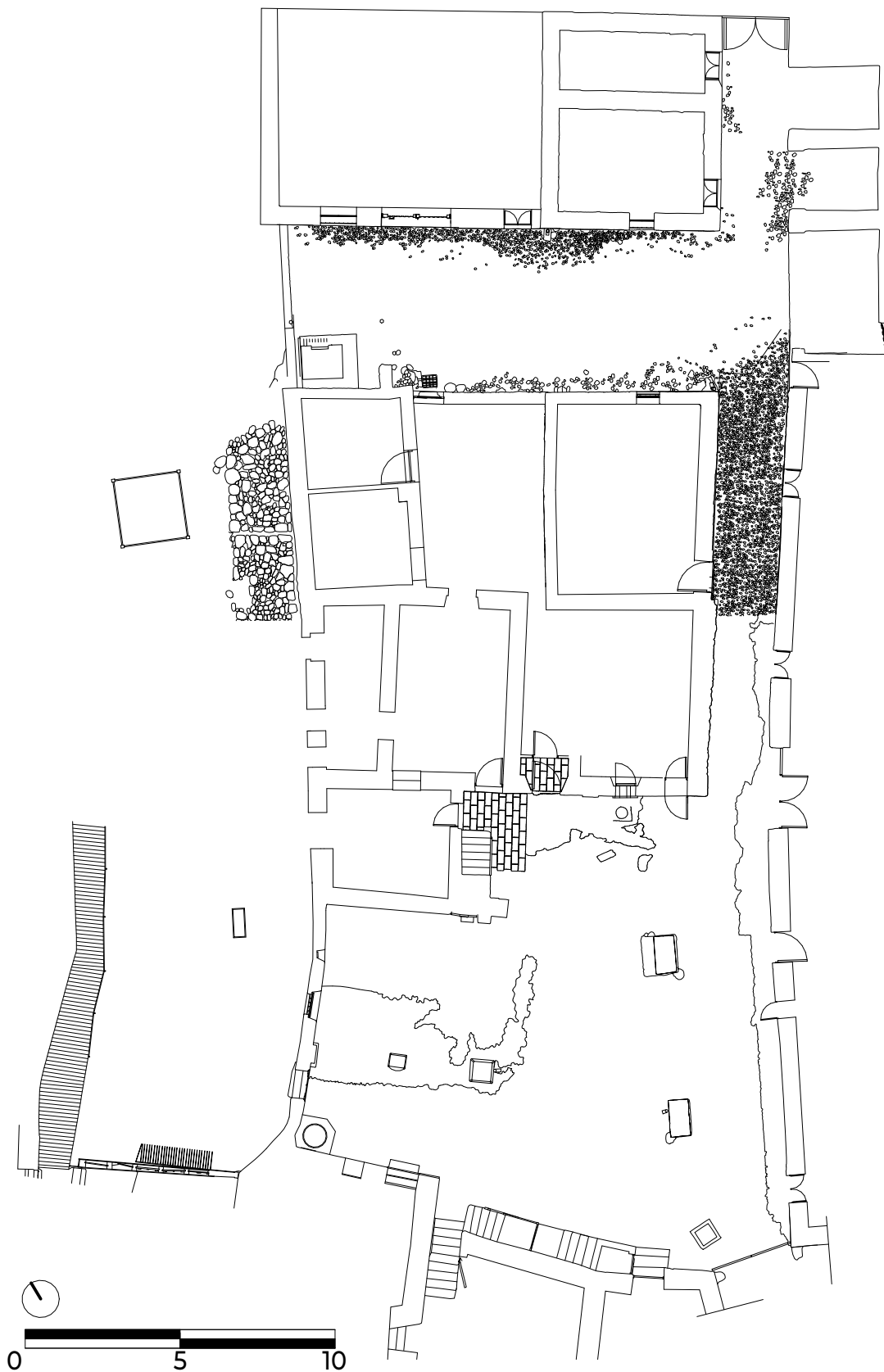


FIGURE 4.2.6 - GROUND FLOOR PLAN OF COURTYARD 2 ELABORATED IN SCALE 1:50
SOURCE: STUDENTS OF MASTER DEGREE COURSE (AA. 2024-2025, PROFF. AUGELLI, CUCA)

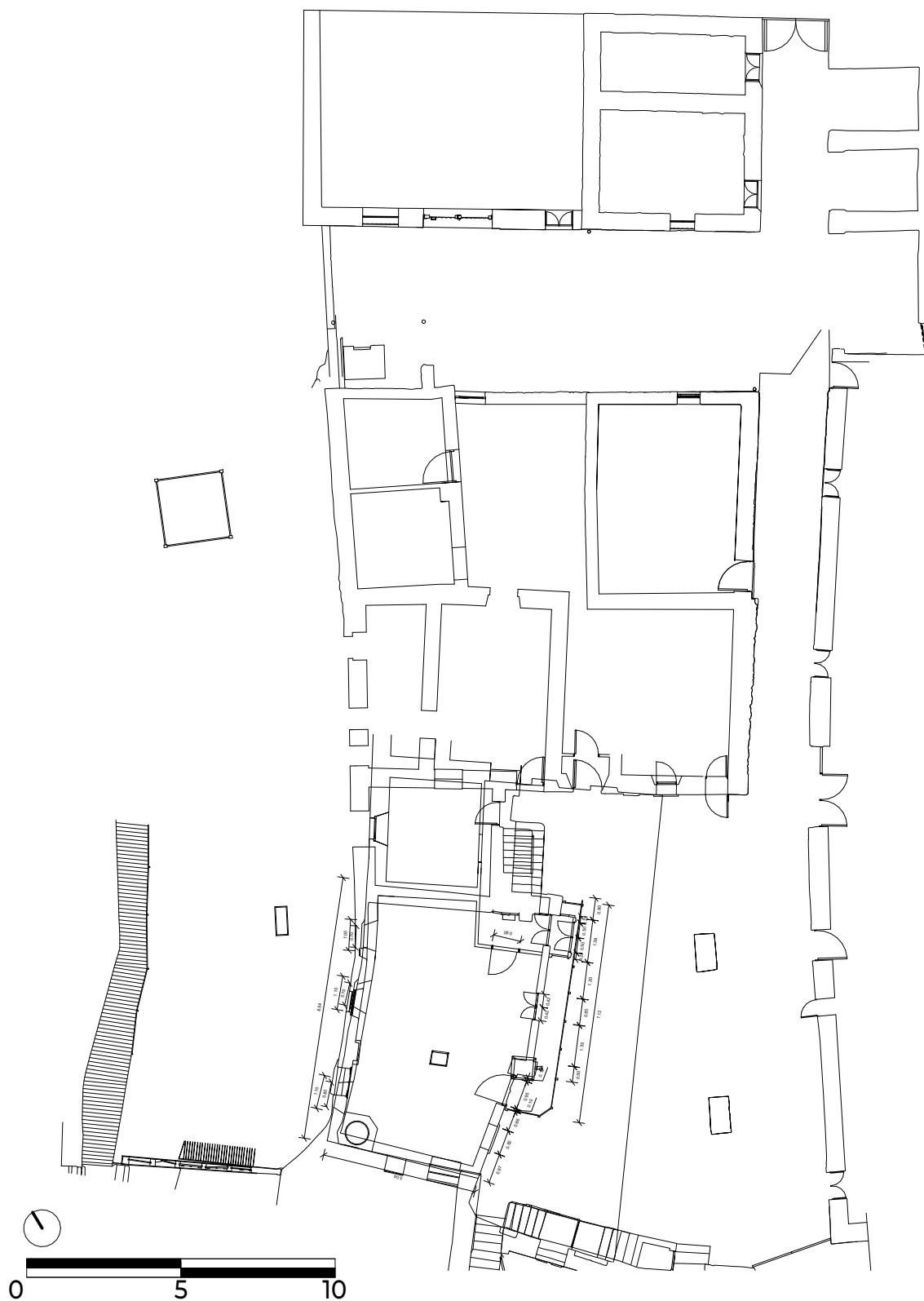


FIGURE 4.2.7 - FIRST FLOOR PLAN OF COURTYARD 2 ELABORATED IN SCALE 1:50
SOURCE: STUDENTS OF MASTER DEGREE COURSE (AA. 2024-2025, PROFF. AUGELLI, CUCA)

4.2 SOURCES AND IDENTIFICATION OF GAPS

IDENTIFICATION OF ADDITIONAL MATERIAL USEFUL FOR THE WORK OF THIS THESIS

The review of the existing floor plans (Figures 4.2.6-7) confirms that the primary focus of the previous survey work was courtyard 2, which was documented in greater detail than the surrounding areas. The absence of complete floor plans for other parts of the complex does not constitute a critical limitation, as the present thesis does not involve detailed architectural intervention in those buildings. The design work is instead concentrated on abandoned structures, for which targeted, selective geometric documentation is both sufficient and appropriate (Figure 4.2.5A). These identified gaps therefore define a precise and necessary scope for additional survey work, focused on supporting the architectural development of the project rather than exhaustive documentation of the entire site.

To summarise the analysis of the available documentation, Table 4.2.2 presents an overview of the existing elaborations together with the drawings and materials that will be produced within the scope of this thesis.

Table 4.2.2 - TABLE OF AVAILABLE ELABORATES AND ELABORATES TO PRODUCE BY THE THESIS WORK

	Name	Type	Format
Available material	Partial 3D models	3D model	.rvt, .3dm
	Elevations "AA", "BB", "CC", "DD", "EE", north and south elevation	Technical drawings	.dwg
	Floor plans of analyzed area	Technical drawings	.dwg
Material to produce	Comprehensive 3D model	3D model	.rvt
	Elevations: Canal, Longitudinal, Courtyard 1, West, Courtyard 1, South	Technical drawings	.dwg
	Floor plans of site	Technical drawings	.rvt

4.2 SOURCES AND IDENTIFICATION OF GAPS

FROM SURVEY DOCUMENTATION TO THE DIGITAL MODEL

The completion and integration of the geometric survey drawings represented a fundamental step in developing the adaptive reuse proposal. The production of additional elevations, sections and corrected survey material was not conceived as an isolated documentation exercise, but as a necessary process for constructing a reliable three-dimensional digital model of the Gurone Mills complex.

Due to the fragmented condition of the inherited survey documentation, several parts of the site could not be understood with sufficient geometric precision at first. Missing facades, unresolved courtyard relationships, and incomplete topographical transitions significantly limited the ability to interpret the complex's spatial organisation accurately. Without a coherent digital reconstruction, it would not have been possible to develop a consistent architectural proposal that could respond to the site's existing morphology, spatial hierarchy, and historical stratification.

For this reason, the survey and digital modelling processes developed simultaneously and became deeply interconnected. The production of missing drawings directly informed the construction of the three-dimensional model. In contrast, the model itself became an instrument for verifying proportions, spatial continuity, circulation systems and relationships between the existing structures and the proposed interventions.

The resulting digital model therefore functioned not only as a representation of the existing condition, but as a fundamental design tool for the thesis proposal. It enabled the evaluation of new insertions within the historic fabric, the study of spatial sequences and courtyards, and the integration of the new productive-public architecture within the complex topography of the Gurone Mills site.

Particular attention was given to the definition of different Levels of Detail (LOD) within the geometric digital model. The degree of geometric representation was intentionally differentiated according to the availability and reliability of the survey data, the architectural relevance of each building fragment and its significance within the adaptive reuse proposal.

4.2 SOURCES AND IDENTIFICATION OF GAPS

FROM SURVEY DOCUMENTATION TO THE DIGITAL MODEL

LOD 0 - Approximate Contextual Massing

The first level consists of approximate contextual masses based primarily on satellite imagery and Google Earth data, used to reconstruct the surrounding built environment and establish the territorial framework of the site. These elements were represented through simplified walls and roof geometries without architectural detailing.

LOD 1 - Verified Geometric Volumes

The second level includes geometrically verified volumetric reconstructions based on point cloud data. At this stage, buildings were modelled with accurate proportions, roof inclinations and overall morphology derived from the survey information, while still excluding detailed architectural elements such as openings and facade articulation.

LOD 2 - Detailed Architectural Survey Model

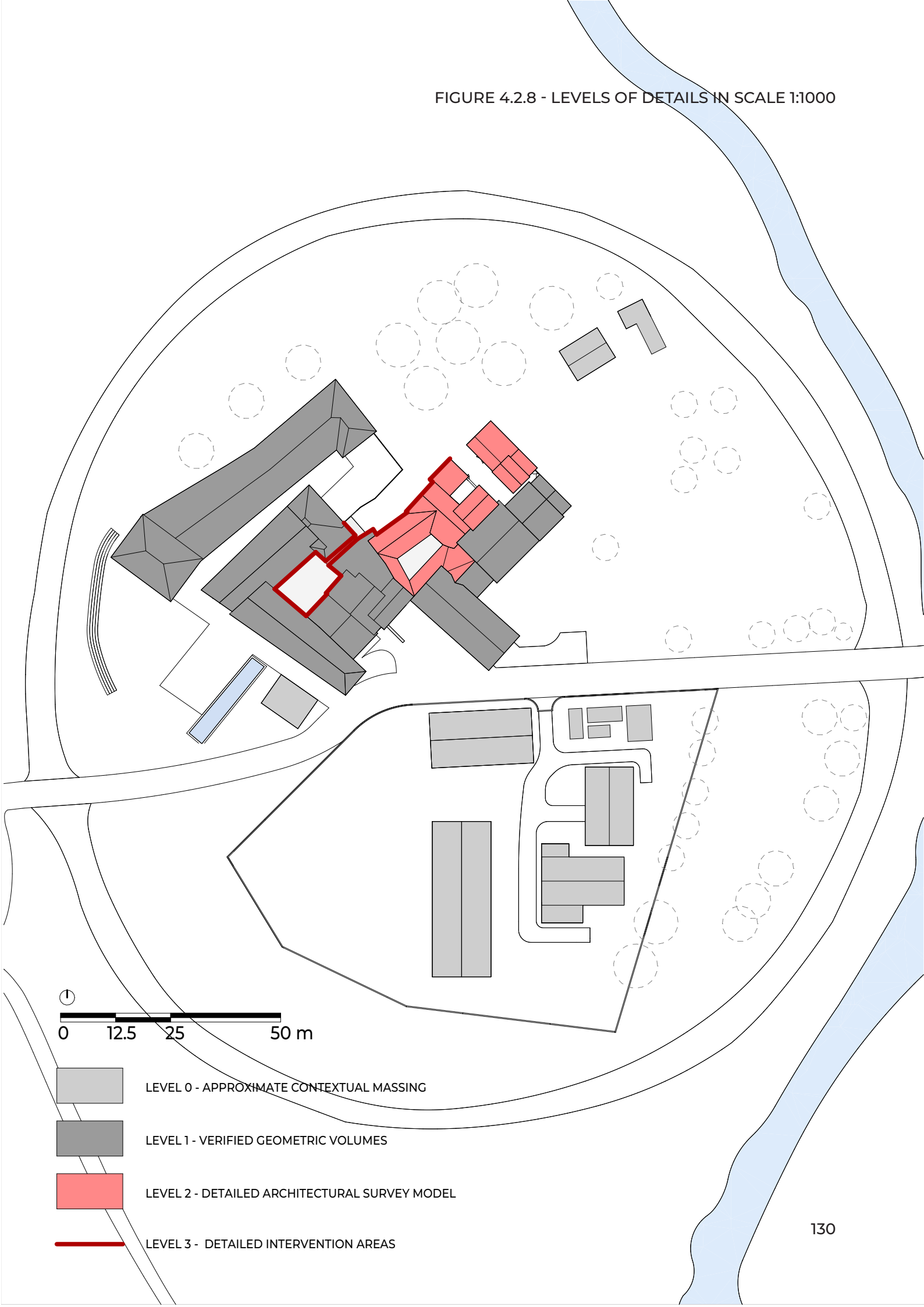
The third level corresponds to the detailed architectural survey model, developed through a more precise interpretation of the point cloud and supplementary survey material. These areas include detailed facade reconstruction, including openings, doors, roof elements, circulation systems, and other architectural components necessary for the spatial and morphological understanding of the complex.

LOD 3 - Detailed Intervention Areas

The fourth level includes the areas directly involved in the adaptive reuse proposal and architectural intervention. These portions of the model required the highest degree of geometric precision and spatial definition to support the development of new architectural insertions and their integration into the historic fabric and landscape structure of the Gurone Mills complex.

The following diagram (Figure 4.2.8) illustrates the distribution of Levels of Detail within the digital reconstruction process and clarifies the relationship between survey reliability, modelling precision, and architectural significance.

FIGURE 4.2.8 - LEVELS OF DETAILS IN SCALE 1:1000



4.3 METHODOLOGICAL FRAMEWORK

The methodological framework adopted for the geometric survey of Gurone Mills is based on the same data-processing workflow developed during the Architectural Preservation studio in 2023-2024.

The method proposed for the thesis applies an established, tested survey process, structured into three main phases: Data Acquisition, Data Elaboration, and Data Representation.

This approach allows the integration of different survey techniques, such as terrestrial laser scanning, direct survey and photogrammetry, into a coherent geometric dataset, suitable for both analytical purposes and subsequent architectural design development.

4.3 METHODOLOGICAL FRAMEWORK

DATA ACQUISITION

Data acquisition was carried out through a combination of photogrammetric survey and direct survey. The main camera used was a Canon XXX, reflex.

On-site, multiple photographs of each facade were taken at approximately 10 meters to capture the entire elevation from ground to roofline. Photographs were taken both with and without a white reference paper to allow correct white balance calibration and to minimise distortions caused by lighting conditions.

The available point cloud, produced earlier through terrestrial laser scanning, provided a three-dimensional reference framework for the historic buildings, with particular accuracy for the internal courtyard areas and main structural volumes. Together, these datasets constitute the raw geometric input for further processing.

4.3 METHODOLOGICAL FRAMEWORK

DATA ELABORATION

The elaboration phase focused on the processing, verification, and geometric interpretation of the acquired data.

Photographs were first corrected and white-balanced using Adobe Photoshop. Subsequently, in AutoCAD, a local UCS was defined for each facade, and key geometric points (openings, architectural details) were identified.

These points were georeferenced using QGIS and matched with the point cloud coordinates, enabling image rectification. Rectified images were then reimported into AutoCAD, where they were used as a calibrated geometric base for drawing.

During this phase, the drawings previously developed by the students were systematically checked against the point cloud in order to verify dimensions, align geometries, and resolve inconsistencies. Interpretation played a key role, especially where data gaps or partial information required critical reading of architectural logic and construction systems.

4.3 METHODOLOGICAL FRAMEWORK

DATA REPRESENTATION AND OUTCOME

The final phase concerns the representation of the processed data through coherent 2D drawings. Plans, sections, and elevations were produced in AutoCAD, with a consistent level of detail and graphic conventions aligned with the scale of representation.

Line types and line weights were used to clearly distinguish between structural elements, openings, surfaces, and secondary components, ensuring legibility and technical clarity. The resulting drawings aim at exhaustive detail at a requested scale 1:50, and at a controlled and communicative representation, suitable for geometric analysis, comparison, and integration into the 3D model.

The outcome of this workflow is a verified and coherent set of in-scale technical drawings, derived from the integration of TLS data, photogrammetric survey, and direct measurements and interpretation. This dataset forms the geometric foundation for the subsequent 3D modelling phase and supports the architectural design decisions developed in the thesis. It consists of the Board called: «Geometric survey».

4.4 NEW DRAWINGS AND DIGITAL RECONSTRUCTION

ADDITIONAL ELEVATION + PHOTO RECTIFICATION

The production of new technical drawings and the construction of the 3D model were conceived as operative tools to support the reading, verification, and interpretation of the geometric data of the Gurone Mills site. This dataset forms the geometric foundation for the subsequent 3D modeling phase and supports the architectural design decisions developed in the thesis and it consists of the following Board: Geometric Survey.

The production of new technical drawings and the construction of the 3D model were conceived as operative tools to support the reading, verification, and interpretation of the geometric data of the Gurone Mills site.

Verification of the survey material provided by the academic team revealed several gaps in the available documentation. While the majority of the complex had already been surveyed and represented through technical drawings, portions of the site remained undocumented or required further verification. In particular, the longitudinal facade facing the former canal and additional facades of the courtyard 1 required the production of new drawings.

The geometric reconstruction of these elevations was primarily based on the available TLS point cloud, which served as the primary source of dimensional and spatial information. However, in several areas characterised by vegetation, shadow conditions or incomplete point cloud coverage, the interpretation of architectural elements required additional verification.

To support this process, photographic documentation was rectified using a workflow that combined reference points extracted from the TLS survey and georeferencing procedures in QGIS. The resulting orthographic images were not used as a primary source for drawing production, but rather as a complementary tool for validating geometrical interpretation and improving the readability of architectural details that were difficult to identify directly within the point cloud.

The integration of TLS data and rectified imagery enabled more reliable interpretation of the surveyed structures. They supported the production of additional elevations, resulting in a more complete and coherent set of technical documentation for the Gurone Mills complex.

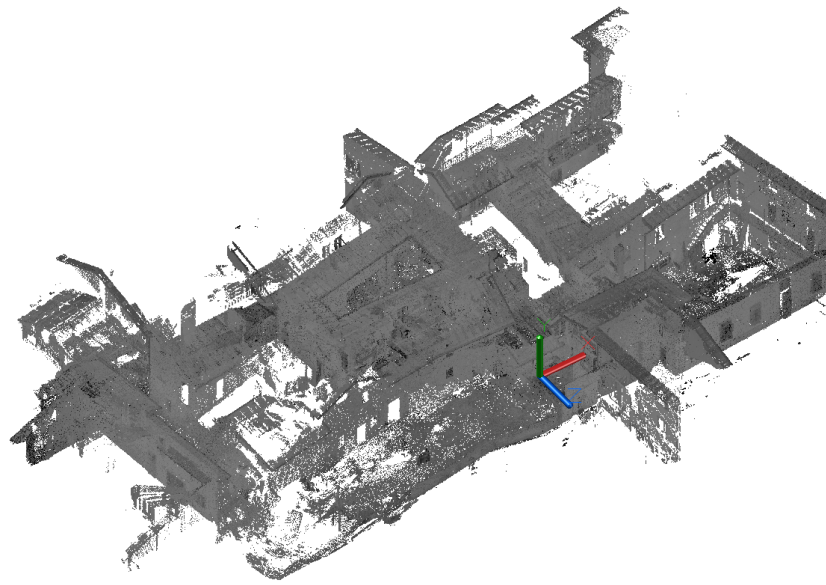


Figure 4.4.1 - TLS point cloud



Figure 4.4.2 - Photographic documentation

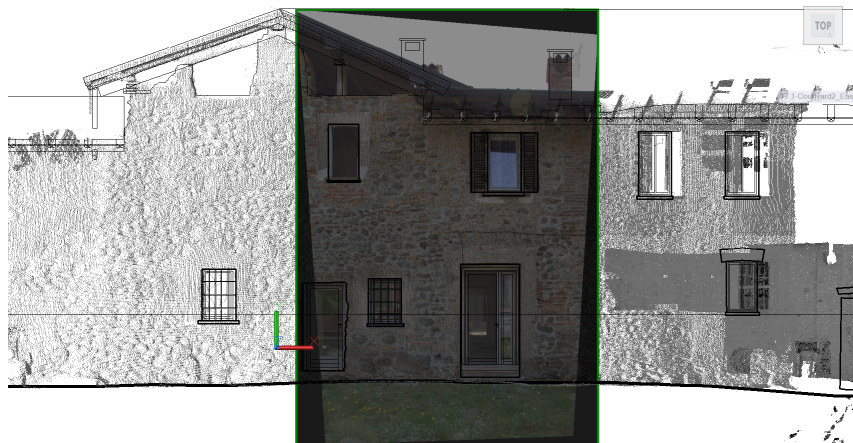


Figure 4.4.3 - Geometric interpretation

4.4 NEW DRAWINGS AND DIGITAL RECONSTRUCTION

ADDITIONAL ELEVATION + PHOTO RECTIFICATION

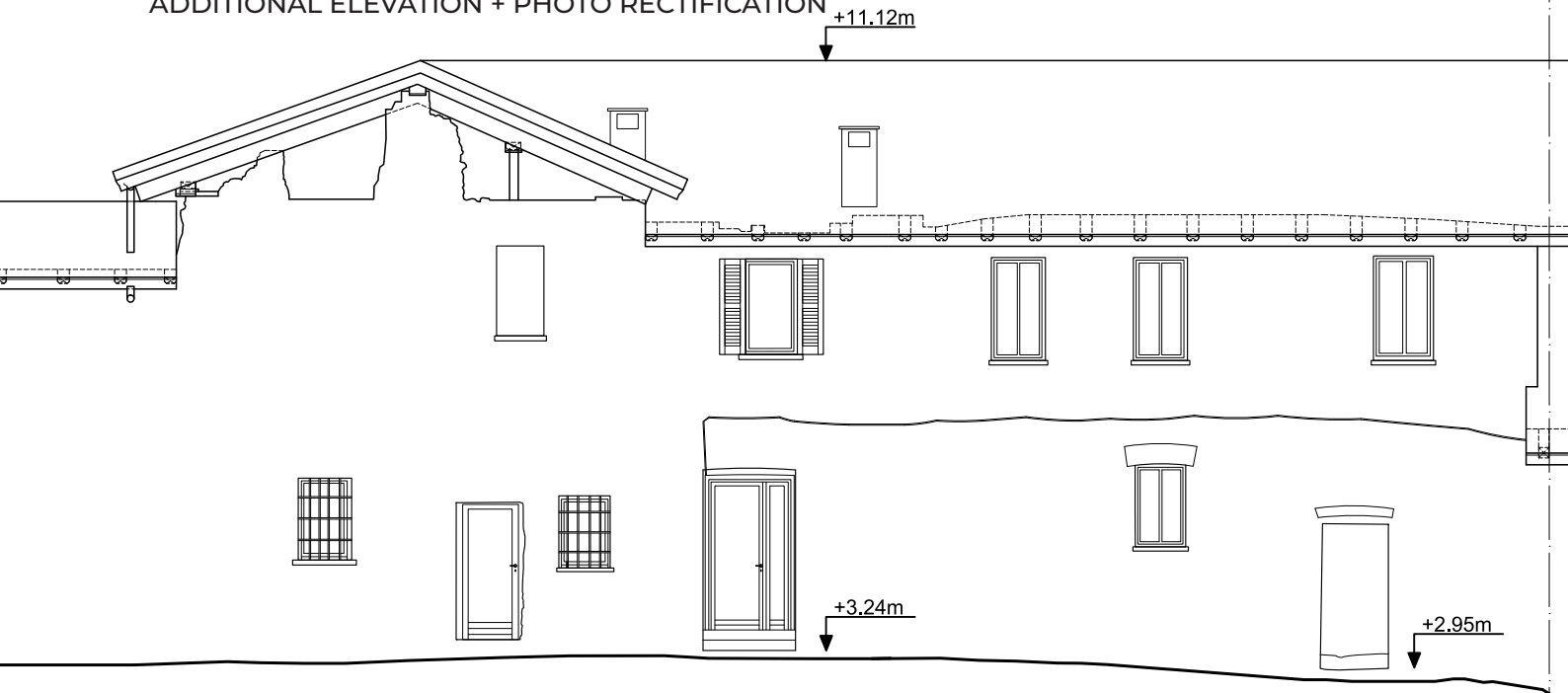


Figure 4.4.4 - Canal. Longitudinal elevation drawing in scale 1:100

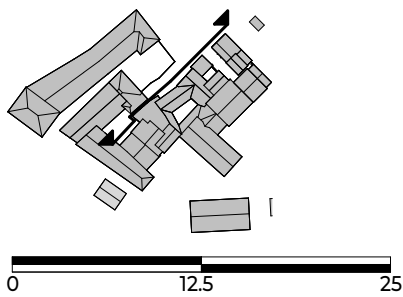
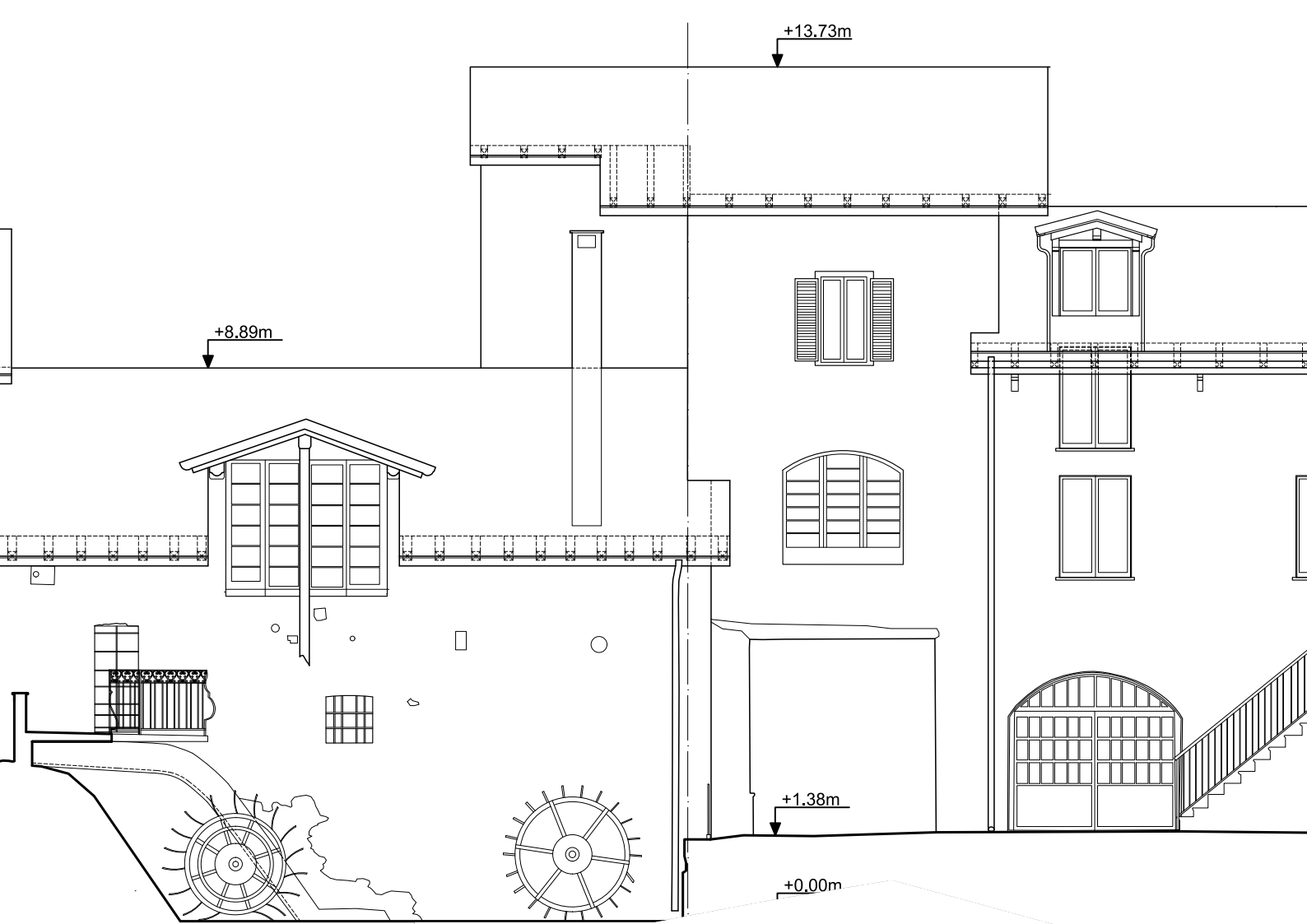


Figure 4.4.5 - Canal. Longitudinal elevation rectified imagery in scale 1:100



4.4 NEW DRAWINGS AND DIGITAL RECONSTRUCTION

TERRAIN MODELLING

In parallel with the production of the additional elevations, the terrain was reconstructed in order to understand the topographical conditions of the Gurone Mills site. This step was particularly important for the development of the proposal, as the project strongly depends on the relationship between the existing settlement, the embankment, the former mill canal area and the newly introduced architectural volumes. The influence of these topographical conditions on the design strategy is discussed in detail in the following Chapter 5, where the architectural proposal is presented.

The terrain reconstruction was based on the Digital Terrain Model (DTM 5×5 m) provided by the Geoportale della Lombardia ⁷. The dataset was processed in QGIS, where the study area was isolated and transformed into a contour system with a 0.5 m interval. The resulting contours were subsequently verified and integrated into AutoCAD and Revit (Polimi educational licence), where the final terrain model was developed.



Figure 4.4.6 - Clipped raster in QGIS

Throughout the process, several tests were carried out to evaluate the consistency and readability of the topographical information. During this verification, an inconsistency was identified within a specific portion of the terrain. The issue was already visible in the original raster dataset and became more evident after the generation of contour lines and the first stages of terrain reconstruction. The morphology represented by the DTM appeared inconsistent with the actual conditions visible from satellite imagery and regional orthophotos, suggesting that the anomaly originated from the source dataset rather than from the modelling process itself.

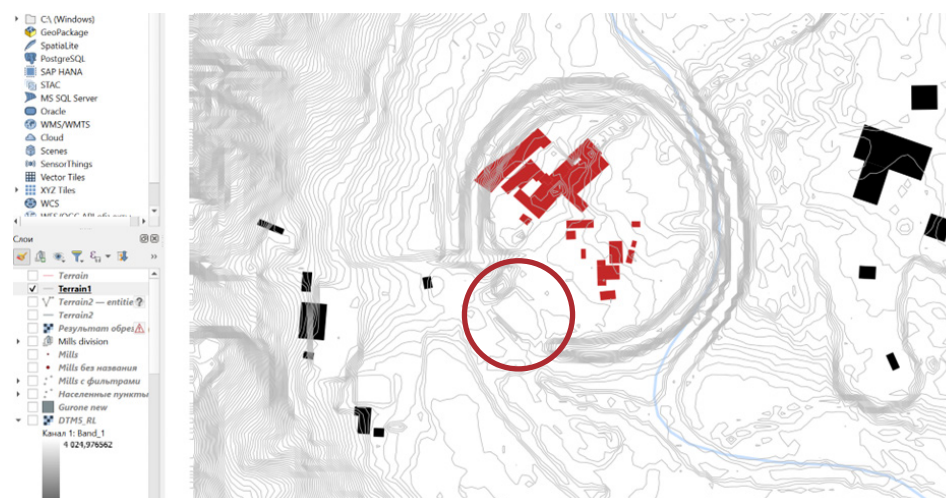


Figure 4.47 - Problematic portion highlighted

4.4 NEW DRAWINGS AND DIGITAL RECONSTRUCTION

TERRAIN MODELLING

To verify this observation, multiple sources of information were compared, including the official DTM, Regione Lombardia orthophotos, Google Earth imagery and direct observations collected during the site visit. Since the DTM was generated through the processing of LiDAR data acquired from aerial surveys, the discrepancy may be related to local surface conditions or temporary obstacles present during data acquisition.

The site visit conducted in April 2026 with Professor Cuca and Arch. Li Li provided additional photographic documentation and direct visual confirmation of the existing terrain conditions. This verification supported the correction of the identified anomaly and allowed the terrain model to be refined through the critical integration of digital and on-site survey information.



Figure 4.4.8 - Site visit photos of the area that presents inconsistency in DTM

The resulting terrain model provided a more reliable representation of the site's morphology and its relationship with the built environment. In particular, it improved the understanding of the height differences between the settlement, the embankment and the surrounding landscape. Beyond its role as a geometric reconstruction, the model became an important design tool, supporting the positioning of new architectural interventions, the definition of access strategies, the development of landscape connections and the integration of the proposal within the existing topographical structure of the Gurone Mills site.

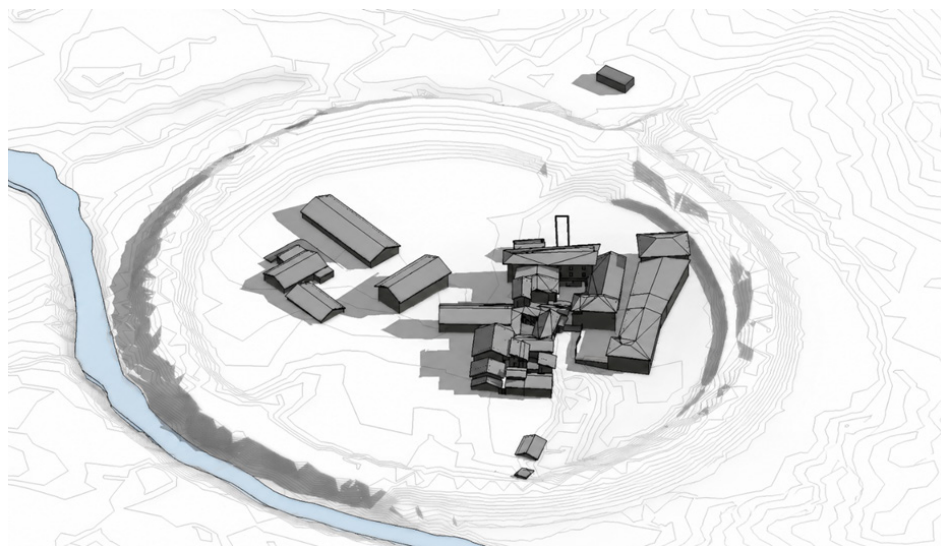


Figure 4.4.9 - Corrected terrain model in Revit

4.4 NEW DRAWINGS AND DIGITAL RECONSTRUCTION

3D RECONSTRUCTION

The updated survey documentation, additional elevations, and terrain model were integrated into a comprehensive three-dimensional reconstruction of the Gurone Mills complex. The model combined the material produced during previous survey campaigns with the newly elaborated documentation, resulting in a coherent digital representation of the site.

Thus, the model served as an analytical tool for understanding the spatial relationships between buildings, courtyards, circulation routes and landscape elements. In addition, it has an important role as a geometric reconstruction. The integration of architectural and topographical information enabled a more accurate interpretation of the settlement structure and its interaction with the surrounding environment.

The digital model also provided the geometric foundation for the subsequent design phase, supporting the evaluation of spatial opportunities, the testing of design scenarios, and the integration of new interventions within the existing fabric.

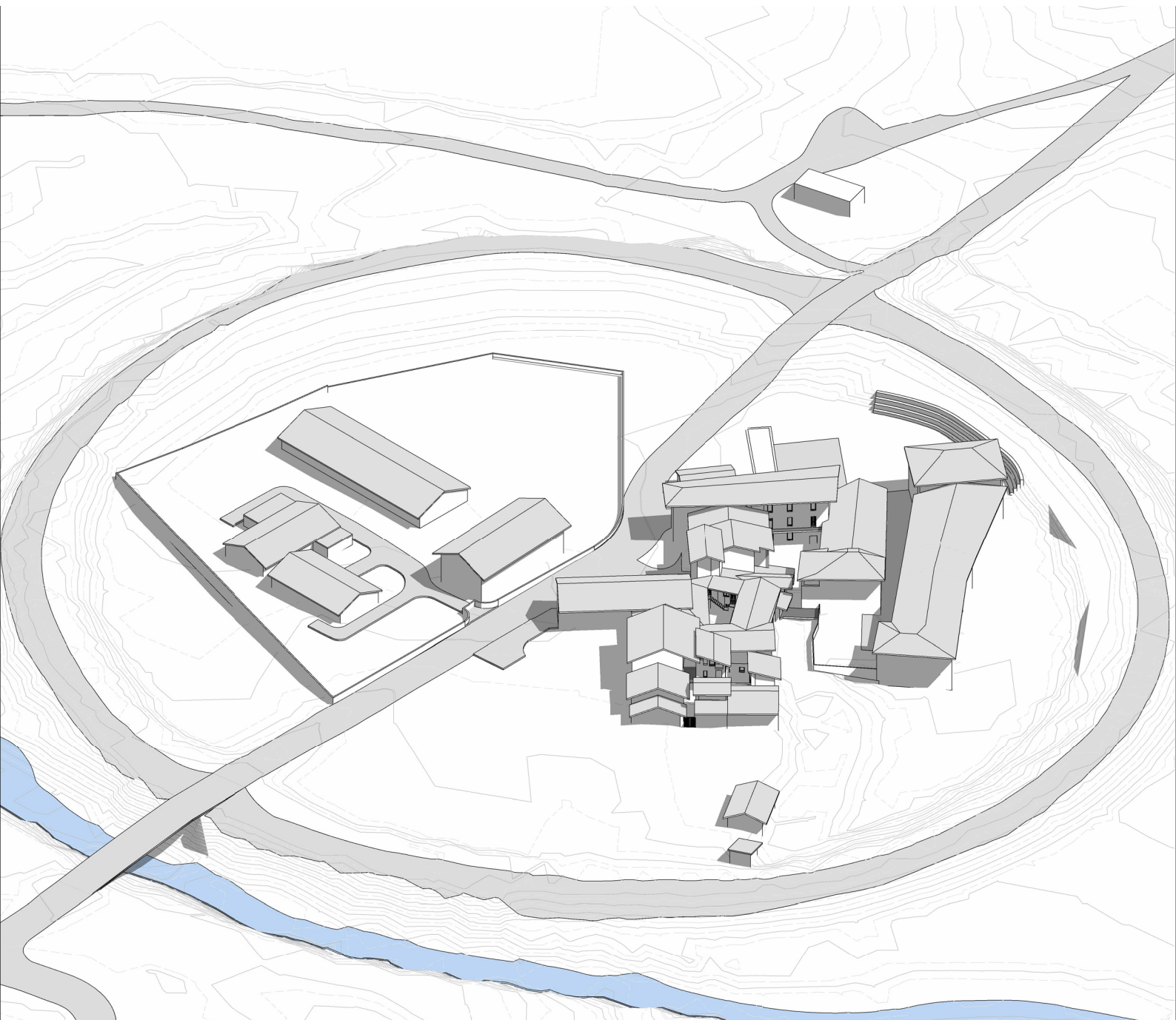


Figure 4.4.10 - Model of current state in Revit

SETTLEMENT
STRUCTURE



Understanding
building hierarchy and
spatial organisation.

TOPOGRAPHICAL
RELATIONSHIPS



Analysis of terrain
and accessibility
conditions.

DESIGN
SUPPORT



Geometric basis for
the adaptive reuse
proposal.

4.4 NEW DRAWINGS AND DIGITAL RECONSTRUCTION

SURVEY OUTCOMES FOR SITE ANALYSIS

The survey outputs significantly improved the understanding of the spatial and morphological characteristics of the Gurone Mills complex. In particular, they supported the identification of key site conditions that later informed the analytical framework of the thesis.

Survey output	Contribution to Site Analysis
Terrain Model	Identification of level differences, accessibility constraints and relationships between the settlement and the surrounding landscape.
Additional elevations	Improved understanding of building conditions, façade composition and architectural continuity within the historic fabric.
3D Reconstruction	Analysis of spatial hierarchies, courtyard systems and relationships between buildings and open spaces.
Integrated survey documentation	Identification of areas affected by abandonment, transformation and discontinuities within the settlement.

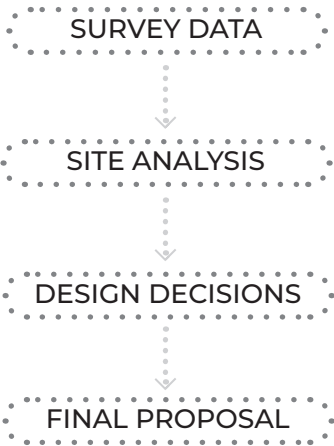
Together, these outputs provided a reliable basis for the definition of site constraints and spatial potentials presented in the analytical chapters of the thesis.

4.4 NEW DRAWINGS AND DIGITAL RECONSTRUCTION

SUPPORT TO DESIGN DEVELOPMENT

Beyond supporting site analysis, the survey documentation directly informed a number of design decisions developed through out the project.

Survey finding	Design Implication
Significant topographical differences across the site	Integration of architecture within the terrain and development of accessible roofscapes.
Fragmented circulation network	Introduction of a new pedestrian bridge and improved public accessibility.
Existing courtyard hierarchy	Preservation and enhancement of courtyard-based public spaces.
Spatial relationships between historic buildings	Organisation of new interventions within the existing settlement structure.
Landscape morphology and embankment conditions	Positioning of new volumes and development of landscape connections.



In this way, survey documentation functioned not only as a recording tool but also as an active design resource, linking the analytical phase of the research with the development of the final architectural proposal.

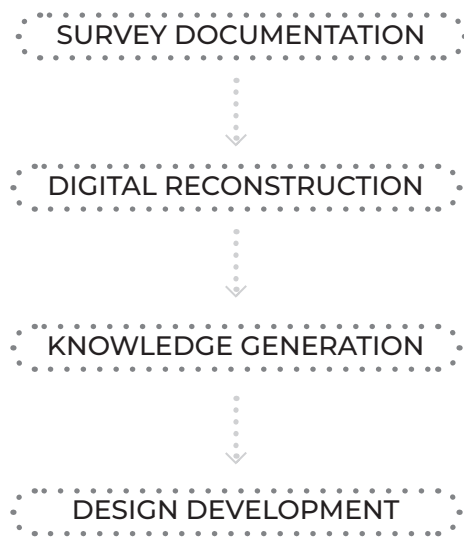
The integration of survey data, terrain modelling, photo rectification and three-dimensional reconstruction provided a comprehensive understanding of the Gurone Mills complex. Beyond documenting the existing condition, these outputs supported the identification of site constraints and opportunities and informed key design decisions throughout the project. The survey process therefore served not only as a means of recording the site, but also as an active component of the analytical and design methodology adopted in this thesis.

4.5 CONCLUSION

The work carried out within the geometrical survey phase extended beyond the production of technical drawings and digital models. Through the integration of archival documentation, terrestrial laser scanning data, photographic records and terrain modelling, a coherent digital representation of the Gurone Mills complex was developed.

The process demonstrated the importance of combining different sources of information in order to improve the understanding of complex heritage sites and address gaps within existing documentation. The resulting dataset provided a reliable basis for subsequent analytical and design investigations while ensuring consistency between the recorded condition and the proposed interventions.

The survey therefore represents not only a documentation exercise, but also a methodological framework capable of supporting the interpretation, preservation and future transformation of historic built environments.



4.6 REFERENCES

¹ International Council on Monuments and Sites (ICOMOS), International Charters for Conservation and Restoration, chap. 12, “Recording, Documentation and Information Management for the Conservation of Heritage Places” (Paris: ICOMOS, 2004).

<https://publ.icomos.org/publicomos/jlbSai?html=Bur&base=technica&ref=44121&file=2819.pdf>

² Cuca, B.: Teaching geomatics to architecture students: low-cost modelling approach for critical interpretation of architectural design context, *Int. Arch. Photogramm.*

Remote Sens. Spatial Inf. Sci., XLVIII-2/W8-2024, 109–116, <https://doi.org/10.5194/isprs-archives-XLVIII-2-W8-2024-109-2024>, 2024. isprs-archives-XLVIII-2-W8-2024-109-2024.pdf

³ The available material was prepared by the students of Master Degree course (AA. 2024-2025, Proff. Augelli, Cuca), composed of the following Groups: Group_01: Qiu Shouzheng, Kuzmina Emiliia, Zhou Xiao, Agazzi Alessandro; Group_02: Basu Salona, Li Kaige, Gafarzada Aymasey, Zhang Qingyi; Group_03: Parducci Giorgio, Eugenio Marc; Kalkashliev Mila; Kacper Pietrzak; Group_04: Azadmanesh Peyvand, Yao Li, Hernandez Jessica, Krylova Maryia; Group_05: Jiang Lulu, Zhao Chenchen, Smadilo Nika, Emili Šimonović; Group_06: Vasilescu Andra, Ozturk Ilayda, Kuttilla Mei Lin, Dubinskaia Zoia; Group_07: Chen Xuanfan, Fu Yusi, Tadevosyan Suren, Zhang Liang; Group_08: Iannuzzi Angelica, Wong Tsz Yan, Ghisi Samuele, Areska Patrikas; Group_09: Petkova Valesa, Padilla Patricia, Ramos Sebastian, Dragoti Romina; Group_10: Debattista David, De Franca Correia Montesanti Henrique, Dugorepec Lorena, Majic Marta; Group_11: Khaibullina Yasmin, Drandeva Aleksandra, Mikhailova Alena, Yang Conglin; Group_12: Lombardi Luca, Kuzevska Marija, Temenuga Konstantinova, Czaja Iga Julia

⁴ C. Achille, F. Fassi, L. Fregonese, and A. Adami, “Surveying and Representation of Cultural Heritage: Integration of Photogrammetry and Laser Scanning for Documentation and Restoration,” *The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences* XLII-2/W3 (2017): 503–510.

<https://isprs-archives.copernicus.org/articles/XLII-2-W3/503/2017/>

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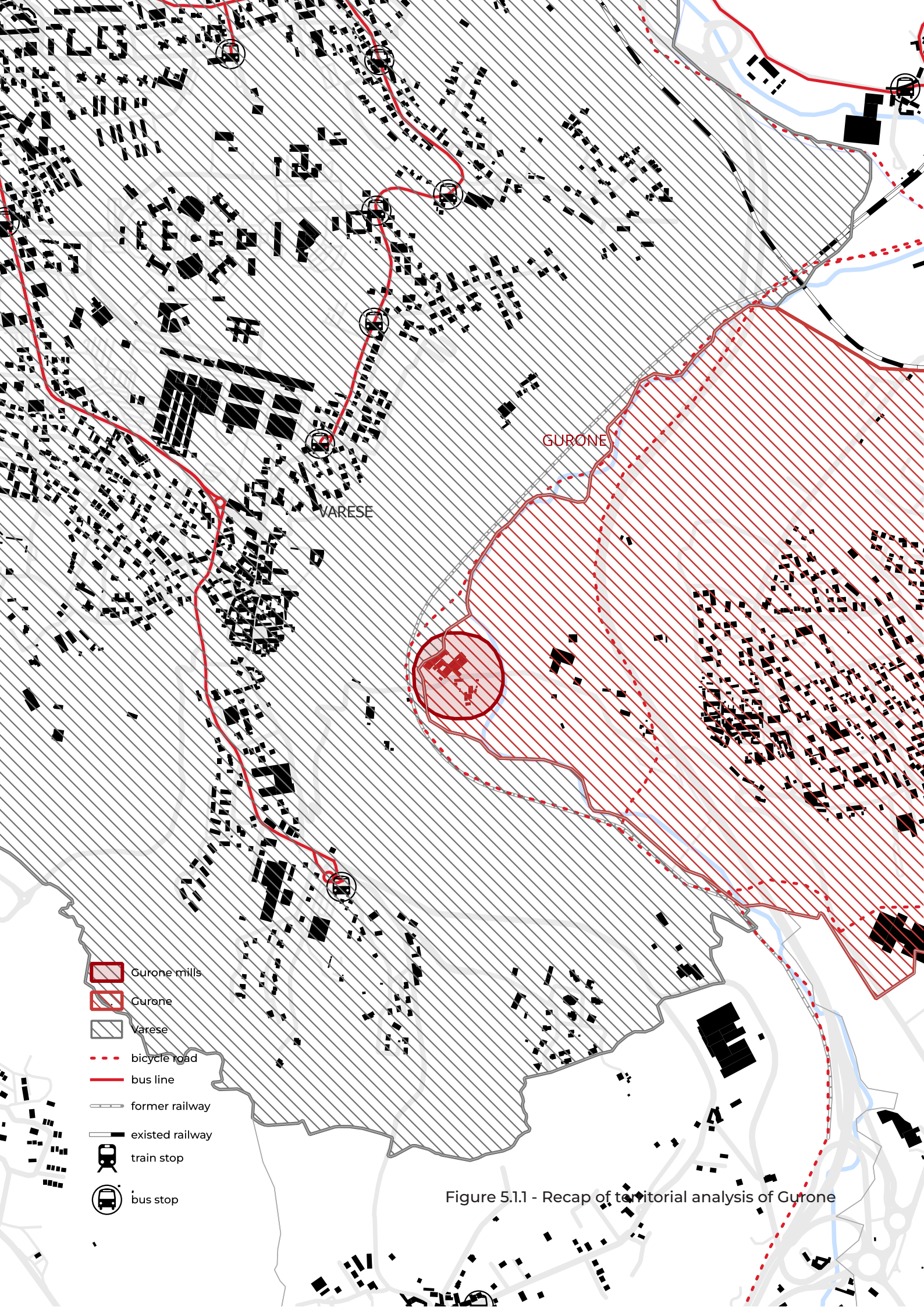
⁶ Master degree theses: Melis F., Cortes F., Gatti T. Architecture Goes into Reverse. Master's Degree Thesis, School of Architecture Urban Planning Construction Engineering (AUIC), Politecnico di Milano, Academic Year 2020–2021. Leccia J., Neri B., Viscomi F. Costruire un dialogo tra passato e futuro. Master's Degree Thesis, School of Architecture Urban Planning Construction Engineering (AUIC), Politecnico di Milano, Academic Year 2021–2022. Panzeri L., Riva N. Casamatta tra passato e futuro. Master's Degree Thesis, School of Architecture Urban Planning Construction Engineering (AUIC), Politecnico di Milano, Academic Year 2021–2022. Manio P., Schiavon A. Progettare costruendo Casamatta: un laboratorio a cielo aperto. Master's Degree Thesis, School of Architecture Urban Planning Construction Engineering (AUIC), Politecnico di Milano, Academic Year 2023–2024. Feng Y., Liang T. Component Universe. Master's Degree Thesis, School of Architecture Urban Planning Construction Engineering (AUIC), Politecnico di Milano, Academic Year 2023–2024. Baccetti G. Lo scarto che vale. Master's Degree Thesis, School of Architecture Urban Planning Construction Engineering (AUIC), Politecnico di Milano, Academic Year 2023–2024.

⁷ Geoportale della Lombardia. DTM 5X5 - Modello digitale del terreno (ed. 2015) – WMS. accessed March 2026, https://www.geoportale.regione.lombardia.it/metadata?p_p_id=detailSheetMetadata_WAR_gptmetadataportlet&p_p_lifecycle=0&p_p_state=normal&p_p_mode=view&_detailSheetMetadata_WAR_gptmetadataportlet_identifier=r_lombar%3Ac6fc2a85-5f22-4ecf-8cf1-264e692183cc&jsfBridgeRedirect=true

C *HAPTER 5*

DESIGN CONCEPT AND ADAPTIVE REUSE PROPOSAL

- 5.1 FROM ANALYSIS TO DESIGN STRATEGY
- 5.2 EVALUATION OF EXISTING PROPOSALS
- 5.3 REAL NEEDS OF THE INHABITANTS AND
TERRITORIAL DEMANDS
- 5.4 SWOT ANALYSIS
- 5.5 PROJECT FRAMEWORK
- 5.6 MASTERPLAN PROPOSAL
- 5.7 ARCHITECTURAL PROPOSAL
- 5.8 SPATIAL EXPERIENCE AND VISITORS
SCENARIOS
- 5.9 SUSTAINABILITY STRATEGY
- 5.10 CONCLUSION
- 5.11 REFERENCES



- Gurone mills
- Gurone
- Varese
- bicycle road
- bus line
- former railway
- existed railway
- train stop
- bus stop

Figure 5.1.1 - Recap of territorial analysis of Gurone

5.1 FROM ANALYSIS TO DESIGN STRATEGY

SHORT RECAP

The analytical phase clarified the main conditions that will influence the future transformation of the Gurone Mills complex, defining the spatial, architectural and territorial relationships that characterise the site today. The most notable points are that the settlement cannot be read as an isolated architectural ensemble and it belongs to a wider landscape structure, which is tied to the Olona Valley, the former canal system and the slow-mobility networks that cross the area today.

Contrasting conditions coexist within the complex. Several buildings still hold a strong historical and spatial identity, while other parts of the site are abandoned, fragmented or only partly accessible. The survey that was completed also showed uneven levels of preservation and architectural integrity. In addition, alongside it also highlighted open spaces that are currently underused but hold real potential for public reactivation.

From a territorial point of view, the closeness of cycling routes, pedestrian paths, historic core and ecological corridors suggests that the site could be reconnected to broader systems of movement and public access. At the architectural scale instead, four elements stand out as the basis for a new adaptive reuse strategy: the courtyard structure, the relationship between buildings and landscape and how the terrain itself is articulated.

These observations, formed the basis for the proposal that follows, marking the shift from documentation and interpretation to an architectural intervention centred on collective use, creative activity and landscape integration.

5.1 FROM ANALYSIS TO DESIGN STRATEGY

EXISTING CONSTRAINTS

Once the analytical phase had been synthesised, it became necessary to pin down the conditions shaping the future transformation of the Gurone Mills complex. The project, it turned out, is constrained not only by the architectural qualities of the existing settlement but also by a set of spatial, topographical and infrastructural limits that directly affect what kind of intervention and reuse is possible.

FRAGMENTED PRESERVATION CONDITION

One of the main challenges within the complex is the uneven state of preservation of the existing fabric. Some buildings retain clear historical and spatial qualities, while others are partly abandoned, altered or deteriorated. This unevenness called for a differentiated strategy, one that balances conservation, adaptive reuse and selective transformation depending on the value and physical condition of each individual building.

TOPOGRAPHICAL COMPLEXITY

The morphology of the site is another major constraint. The relationship between the elevated embankment, the lower courtyard system and the surrounding landscape produces sharp level changes and breaks in accessibility. Given these terrain conditions, introducing an autonomous building disconnected from the existing morphology was never really an option; the design had to engage directly with the topography instead.

FRAGMENTED ACCESSIBILITY AND CIRCULATION

Several interruptions emerged within the existing circulation system. Some areas of the complex are spatially isolated, and pedestrian connections between buildings and open spaces are often fragmented or simply unclear. Without continuous public routes, different portions of the settlement remain separated, weakening the relationship between the complex and the wider territorial networks around it.

UNDERUSED OPEN SPACES

Although the existing courtyard system constitutes one of the most valuable spatial elements of the settlement, several exterior spaces currently remain inactive or underutilized. The absence of collective functions and public activities has gradually reduced the social role of these areas, transforming them into residual spaces rather than active components of the architectural system.

PRESERVATION OF SPATIAL IDENTITY

An additional constraint derives from the necessity to preserve the visual and spatial identity of the historic settlement. The compact scale of the existing buildings, the hierarchy of courtyards and the relationship between architecture and landscape impose limitations on the dimensions, positioning and architectural language of the new interventions. Therefore, rather than reproducing historical forms, the proposal requires a contemporary architectural approach capable of integrating within the existing layout while maintaining the recognizability of the original settlement structure.

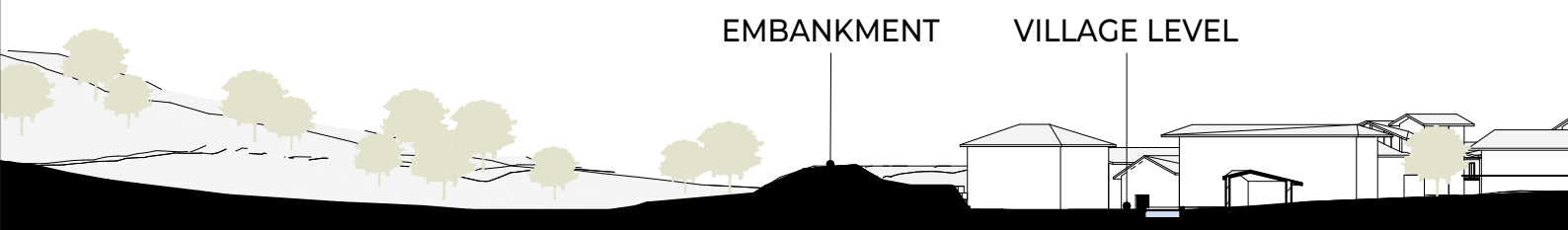
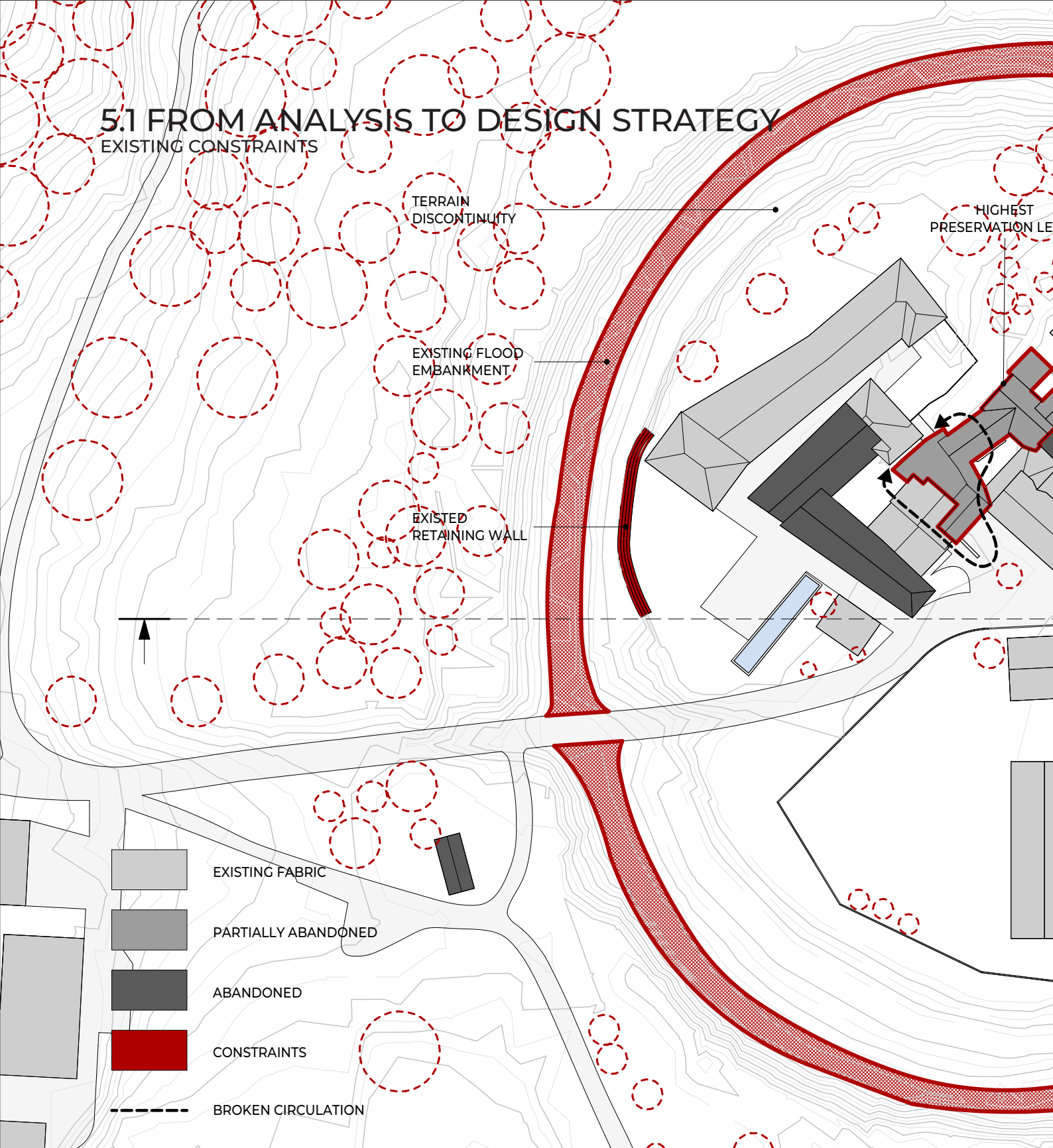
These conditions established the framework within which the proposal was developed, transforming existing limitations into active parameters guiding the strategy of the project, both architecturally and spatially.

CONCLUSION

In summary, the analysis revealed that the main constraints affecting future interventions are represented by the flood embankment, terrain discontinuities, fragmented circulation and the preservation requirements of the original core.

5.1 FROM ANALYSIS TO DESIGN STRATEGY

EXISTING CONSTRAINTS



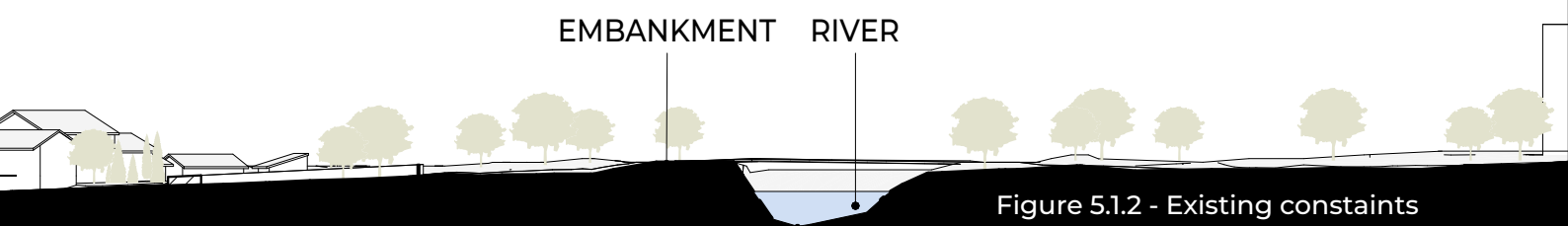
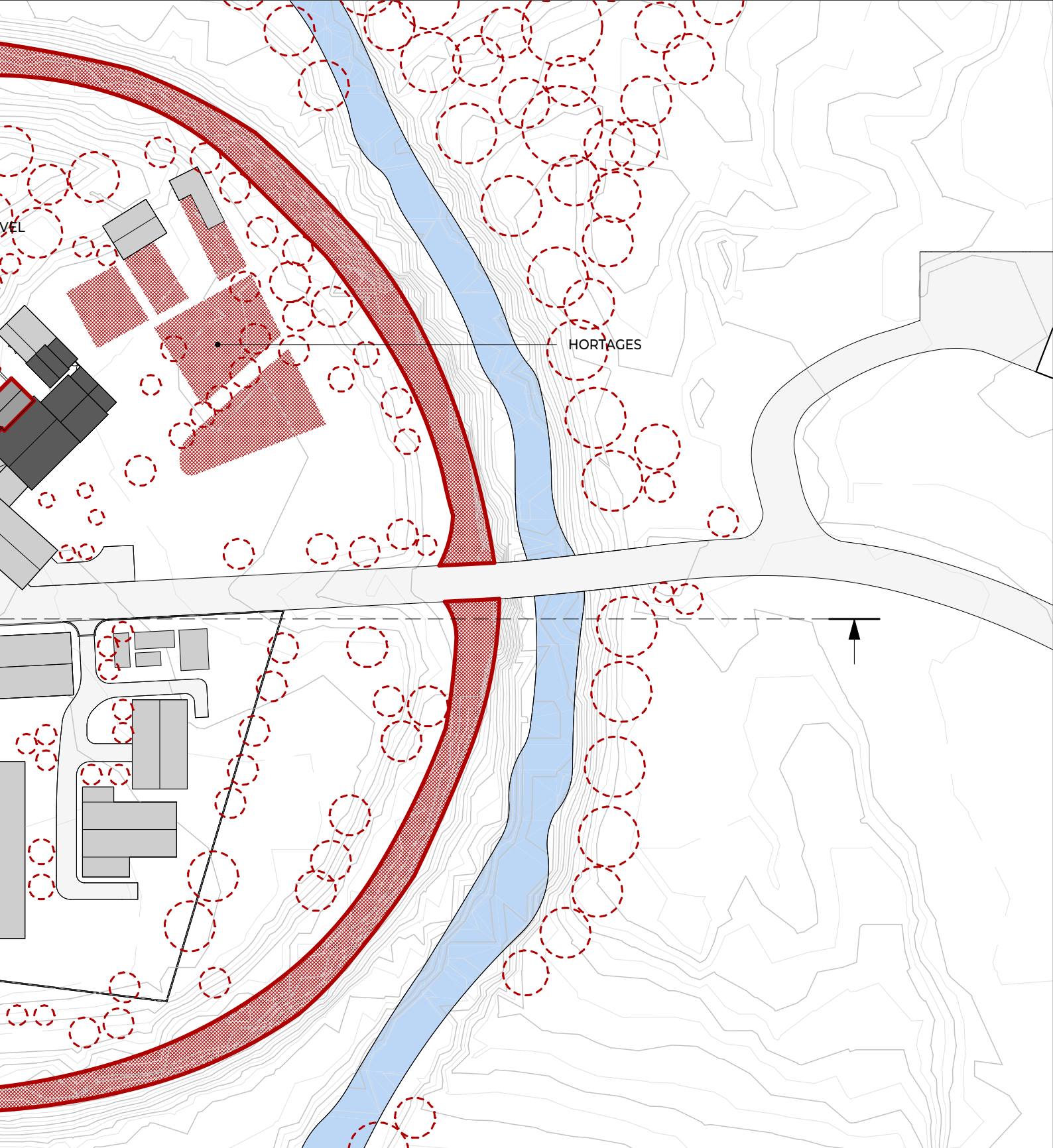


Figure 5.1.2 - Existing constraints

5.1 FROM ANALYSIS TO DESIGN STRATEGY

SPATIAL POTENTIALS

Alongside the constraints identified during the analytical phase, the Gurone Mills complex revealed a series of spatial qualities capable of supporting its future transformation. Rather than being generated through the introduction of entirely new conditions, the adaptive reuse strategy emerged from the reinterpretation and activation of existing architectural, landscape and territorial resources.

STRATEGIC LANDSCAPE POSITION

The settlement's location within the Olona Valley is one of its most valuable assets. The proximity to the river corridor, the surrounding natural landscape, and the village's elevated position establish strong visual and ecological connections with the wider geographical setting. These conditions create opportunities for the development of recreational, educational, cultural and even business-related activities linked to the landscape.

EXISTING COURTYARD SYSTEM

The network of courtyards constitutes one of the most distinctive spatial characteristics of the complex. Historically functioning as spaces of circulation, production, and social interaction, these areas retain the potential to become contemporary collective environments capable of hosting public events, informal gatherings, and outdoor activities.

CONNECTIVITY THROUGH SLOW MOBILITY

Existing pedestrian and cycling routes already cross the territory around the site today. However, they are only weakly connected to the settlement. Nonetheless, they offer a real opportunity to integrate the complex into a wider slow-mobility system, improving accessibility and strengthening its role as a local destination.

TOPOGRAPHY AS SPATIAL RESOURCE

The terrain morphology is surely a challenge for accessibility, but it is also a spatial opportunity. The relationship between the embankment and the village level allows for new viewpoints, public routes, architectural interventions, and green areas that work with the existing topography rather than fighting it.

ADAPTABLE EXISTING FABRIC

The variety of the existing building stock provides a flexible framework for adaptive reuse. Structures of varying sizes and spatial configurations allow the introduction of a wide range of complementary functions without compromising the identity of the historic settlement.

Taken together, these spatial potentials laid the foundation for the design strategy that follows, shaping a proposal aimed at reconnecting architecture, landscape and community within one coherent reuse framework.

5.1 FROM ANALYSIS TO DESIGN STRATEGY

SPATIAL POTENTIALS



Figure 5.1.3 -
LANDSCAPE
INTEGRATION



Figure 5.1.4 -
COLLECTIVE
OUTDOOR SPACES

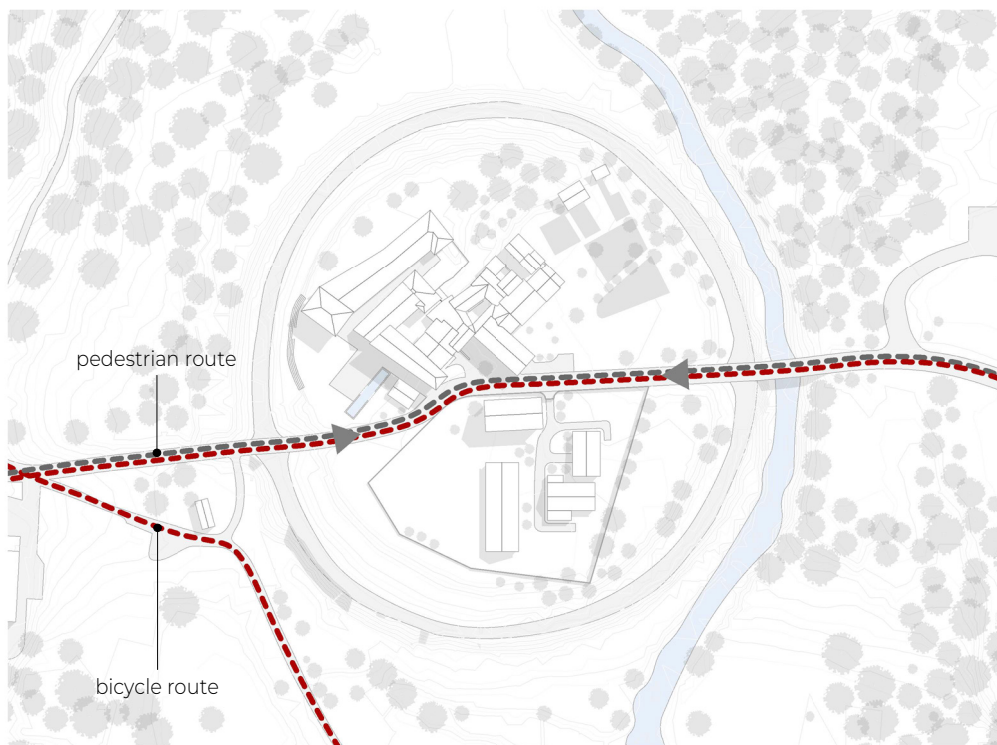


Figure 5.1.5 -
ACCESSIBILITY AND
CONNECTIVITY

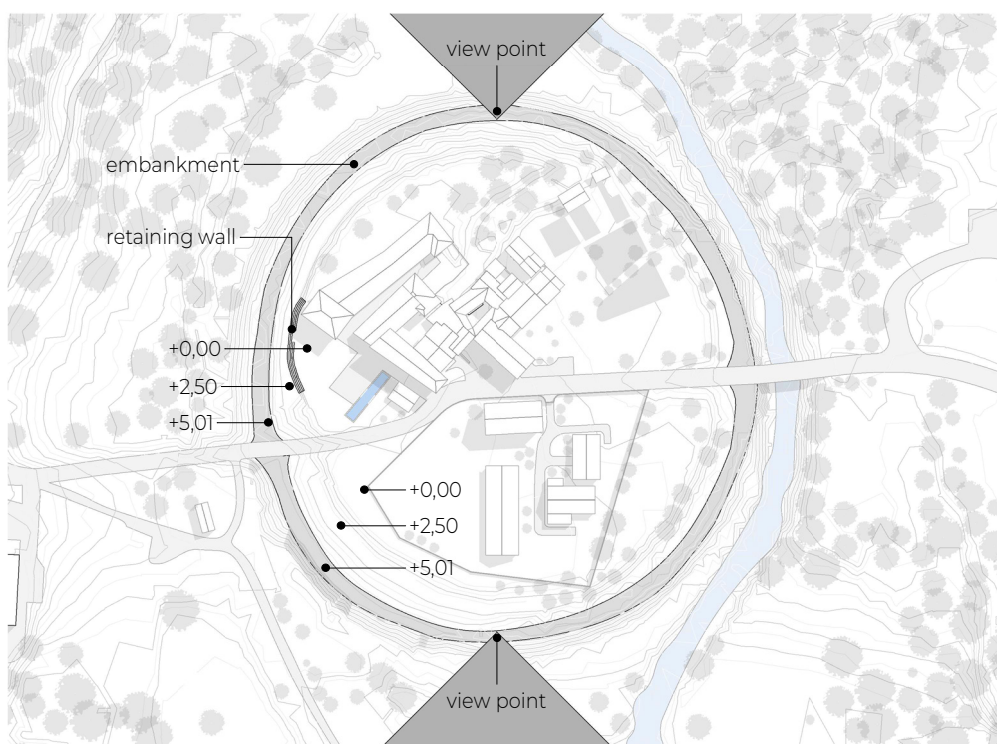


Figure 5.1.6 -
TOPOGRAPHY AS A
DESIGN RESOURCE

5.2 EVALUATION OF EXISTING PROPOSALS

ANALYSIS OF EXISTING ADAPTIVE REUSE SCENARIOS

The Gurone Mills site has been the subject of numerous academic projects developed within different educational formats at Politecnico di Milano, including 26 semester-based coursework and 5 master's theses. Although all these proposals address the same physical context, they differ significantly in terms of scale, duration, depth of investigation, and design objectives.

Semester projects typically focus on partial areas of the site and explore adaptive reuse strategies within a limited timeframe. Master's theses, in contrast, often adopt more experimental or hands-on approaches, frequently resulting in small-scale built interventions or temporary installations.¹

Within this already rich design context, the aim of the present analysis is not to evaluate individual projects, but to identify recurring functional tendencies, dominant themes, and unresolved gaps. The analysis is intentionally thematic and function-oriented, as its primary objective is to support the definition of a new, site-specific function capable of ensuring long-term activation and relevance of the Gurone Mills.

This critical reading of existing proposals therefore serves as a conceptual filter, allowing the thesis to position itself clearly while building on and extending previous interpretations of the site.

The review of student projects and master's theses for the Mulini di Gurone reveals diverse adaptive reuse strategies alongside shared functional themes. Despite differences in scale and focus, most proposals envision Casamatta as a hybrid space that combines heritage conservation, ecological renewal, social engagement, and slow tourism.



1. COMMUNITY AND CULTURAL HUBS

Projects propose Casamatta as a collective and cultural space with shared facilities and workshops, fostering social interaction and local engagement.

PROJECTS: SpinLab and Mill of Time



2. HOSPITALITY AND SLOW TOURISM

Several proposals introduce small-scale, sustainable accommodation linked to cultural routes and slow tourism practices.

PROJECTS: Mill of Time and Component Universe



3. FOOD AND PRODUCTIVE LANDSCAPES

Some projects focus on reviving traditional food production and productive landscapes as cultural and economic resources.

PROJECTS: Bakery and Beekeeping



4. EDUCATION AND ART

Casamatta is envisioned as a site for exhibitions, workshops, and educational activities within wider cultural networks.

PROJECTS: SpinLab and Component Universe



5. EXPERIMENTAL AND CIRCULAR ARCHITECTURE

Several master's theses focus on hands-on and Master's theses explore modular, reused, and temporary architectural systems, positioning Casamatta as a testing ground for circular practices.

PROJECTS: The value of the waste and Component Universe

5.2 EVALUATION OF EXISTING PROPOSALS

CONCLUSIONS

This thematic overview shows the richness and consistency of the proposed functional scenarios, but it also opens up a more critical reading of their limitations. Comparing recurring strategies across projects surfaces unresolved issues and vulnerabilities, exposing gaps between concept and long-term real-life feasibility. These recurring weaknesses are not tied to individual proposals but rather emerge from shared assumptions about programmatic density, accessibility, and economic viability, and therefore require specific attention before advancing toward a new site-specific vision.

RECURRING WEAKNESSES

Despite their differences, most projects share similar limitations:

- **OVER-PROGRAMMING:**
Combining too many functions at once risks creating unmanageable complexity.
- **ACCESSIBILITY CONSTRAINTS:**
The site is still semi-isolated, flood-prone and poorly connected to urban flows.
- **ECONOMIC FRAGILITY:**
Relying on seasonal tourism, volunteer work or one-off events does not guarantee long-term sustainability.

The comparative analysis suggests that the most resilient functional strategy for Casamatta is a layered and incremental approach. This would be both more feasible and effective when compared to a single-use program or a large-scale transformation:

1. PRIMARY ANCHOR (EVERYDAY USES)

Community and educational functions, ensuring year-round relevance for residents, resulting in continuous engagement and local presence. Areas such as multipurpose halls and gardens are the foundation of daily life. Culinary spaces can also serve as hubs for locals and visitors alike.

2. SECONDARY LAYER (PRODUCTIVE USES)

Food-related activities (beekeeping, bread, cultivation, markets) that reinforce heritage while providing revenue. This would also connect the site to eco-tourism, increasing participation.

3. TERTIARY LAYER (CULTURAL AND EXPERIMENTAL USES)

Artistic residencies, exhibitions, and workshops to link Casamatta with regional and academic networks.

4. SUPPORTIVE LAYER (MODEST HOSPITALITY)

Small-scale hostel or dormitories for students, cyclists, or volunteers, supporting other functions without overshadowing them. Also, creating a further stream of revenue.

The real potential of Casamatta lies not in a large one-off transformation, but in incremental, adaptable reuse. By combining community, ecology, food, education, and moderate tourism, the site can evolve into a resilient hub that both respects its layered history and responds to today's challenges of sustainability, resilience and involvement of the local community.

5.3 REAL NEEDS OF THE INHABITANTS AND TERRITORIAL DEMANDS

LOCAL COMMUNITY NEEDS

Beyond academic visions and careful studies, any transformation of Gurone Mills must primarily benefit the people who live there. The local community is not asking for radical change. Still, it has expectations for improvement, for something that preserves the village's character and identity while strengthening its vitality over time.

The territorial analysis and on-site observations identified several concrete needs that should guide the area's future development.

1. IMPROVED ACCESSIBILITY (WITHOUT INCREASING PRESSURE)

The site still lacks a real connection to the regional network, especially from the Varese side, where an existing road has been abandoned and is now in poor condition. Rehabilitating it would improve safety and accessibility without adding new infrastructure or excessive traffic.

A local bus stop would strengthen public transport connections, reducing car dependency and helping integrate the site into the broader Varese and Milano metropolitan areas. The goal of improving accessibility is not to attract more visitors, but to make it easier for residents and everyday users alike to reach the site.

2. INCREMENTAL RATHER THAN RADICAL TRANSFORMATION

Residents care about the scale and identity of Gurone, and large-scale or highly intensive interventions risk upsetting the settlement's delicate balance.

What the site needs is a gradual, layered approach, where new functions complement rather than replace the spatial qualities already there. The objective is not to introduce a new destination, but to reinforce local life through carefully integrated activities that support everyday use and community involvement.

3. LONG-TERM CARE AND MAINTENANCE

Many earlier proposals rely on temporary initiatives, seasonal events or volunteer-based activation. These can generate short-term interest, but they often lack the organisational and economic structure needed for long-term management.

The future of Gurone depends on continuous care, regular maintenance, and realistic operational models that can support the site over time. Durable and manageable functions are therefore more beneficial than spectacular but short-lived interventions.

4. CONTINUOUS ACTIVITY AND COMMUNITY ENGAGEMENT

Looking beyond the physical conservation of the settlement, the long-term vitality of Gurone depends on its ability to attract regular users and support everyday activities. At present, the village lacks spaces capable of hosting year-round educational and community-oriented programs.

The site requires functions that encourage recurring use and incentivise social interaction; it cannot rely exclusively on occasional events for its social and economic sustainability. The introduction of spaces dedicated to creative work, learning and collective activities offers an opportunity to establish a stable presence within the settlement, reinforcing its role as a living part of the local territory rather than a destination visited only sporadically.

5. RECONNECTION WITH THE RIVER

Although the Olona River runs alongside the settlement, it currently remains inaccessible and underutilised. There are no defined spaces from which to approach, observe or experience the water.

Recreational platforms, resting areas and controlled access points could re-establish the relationship between inhabitants and the river, transforming it from a background element into an active landscape resource. Such interventions would also expand the limited range of public outdoor spaces currently available within the village.

As previously mentioned, the analysis demonstrates that the future development of Gurone depends not on large-scale transformation, but on the careful activation of its existing spatial and landscape qualities.

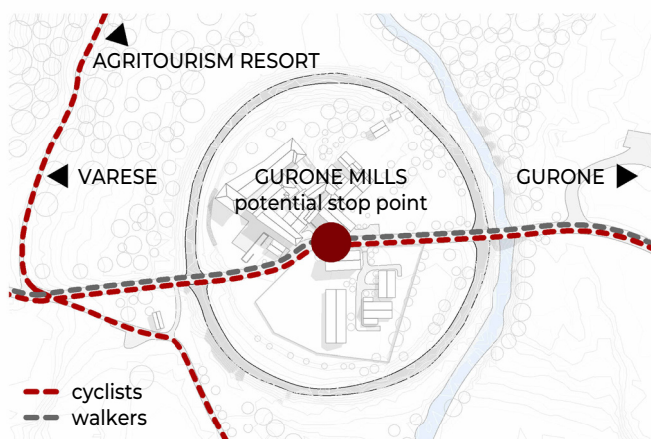


Figure 5.2.1 -
CYCLING TOURISM
AND SLOW
MOBILITY



Figure 5.2.2 -
LOCAL FOOD AND
CRAFT IDENTITY



Figure 5.2.3 -
ECOLOGICAL AND
RECREATIONAL
NETWORKS

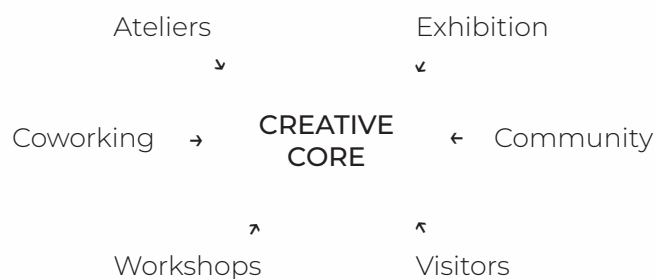


Figure 5.2.4 -
POTENTIAL
FOR CREATIVE
PRODUCTION

5.3 REAL NEEDS OF THE INHABITANTS AND TERRITORIAL DEMANDS

TERRITORIAL AND ECONOMIC POTENTIALS

The Gurone Mills are strategically located within a wider network of available landscape resources. Beyond its architectural value, the site holds several territorial assets that can support its long-term regeneration.

1. CYCLING TOURISM AND SLOW MOBILITY

Cycling and pedestrian routes offer an opportunity to integrate the settlement into a broader slow-mobility network, strengthening accessibility and attracting visitors without increasing car dependency or traffic.

2. LOCAL FOOD AND CRAFT IDENTITY

The site's historical relationship with productive activity is an important cultural resource. Industrial production itself has disappeared, but the memory of craftsmanship, exchange, and local production remains embedded in the place's identity.

3. ECOLOGICAL AND RECREATIONAL NETWORKS

The ecological infrastructure and river corridor enhance the site's environmental value and open up opportunities for recreation, education, and outdoor activities.

4. POTENTIAL FOR CREATIVE PRODUCTION

The existing buildings and open spaces offer a suitable framework for contemporary creative work, knowledge exchange and collaborative activity, the kind that can keep the site occupied throughout the year.

CONCLUSION

These territorial assets, together, create favourable conditions for a regeneration strategy grounded in landscape integration, community engagement and contemporary forms of creative production.

5.4 SWOT ANALYSIS

The SWOT analysis synthesises the findings of the previous chapters and identifies the key factors influencing the future regeneration of Gurone Mills. The assessment serves as a bridge between the analytical phase and the definition of the project's design strategy.

S *TRENGTHS*

EXCEPTIONAL LANDSCAPE CONTEXT

Strong relationship with the Olona River, greenery, and open spaces

RICH ARCHITECTURAL STRATIFICATION

Historic industrial buildings and courtyards are suitable for adaptive reuse

EXISTING COMMUNITY ENGAGEMENT

Local associations demonstrate an active interest in environmental, cultural and social initiatives

STRATEGIC TERRITORIAL POSITION

Close to Malnate, Varese, and Milan, yet non-urban

STRONG IDENTITY

A recognisable place with a clear historical character

W *EAKNESSES*

FRAGMENTED SPATIAL ORGANIZATION

Disconnected buildings and unclear hierarchy

LIMITED ACCESSIBILITY AND VISIBILITY

Weak public transport and pedestrian connections

INCONSISTENT INTERVENTIONS

Past low-quality renovations affect architectural coherence

LACK OF A UNIFYING FUNCTION

No continuous program activating the site year-round

LACK OF CONTINUOUS ACTIVITY

Absence of stable year-round functions capable of supporting long-term occupation and maintenance

OPPORTUNITIES

UNIQUE REGIONAL ROLE

Potential to host functions that are missing in the surrounding territory

NEW ARCHITECTURAL CORE

A contemporary intervention can reconnect fragmented areas and establish a new spatial hierarchy

ACTIVATION OF OPEN SPACES

Courtyards and green areas can become active public spaces

SLOW MOBILITY AND TERRITORIAL NETWORKS

Connections with environmental, cultural, and creative networks

CREATIVE AND EDUCATIONAL COMMUNITIES

Potential to attract creatives, students, researchers and slow-mobility visitors

THREATS

UNCONTROLLED DEVELOPMENT

Incoherent renovations risk loss of architectural identity

AGEING POPULATION

Demographic ageing may weaken long-term social and economic vitality

ABANDONMENT

Lack of continuous use may lead to further neglect and deterioration

TOURISTIFICATION

Event-based or seasonal use could disrupt local quietness

MANAGEMENT & ENVIRONMENTAL CONSTRAINTS

River proximity and governance complexity require careful long-term control

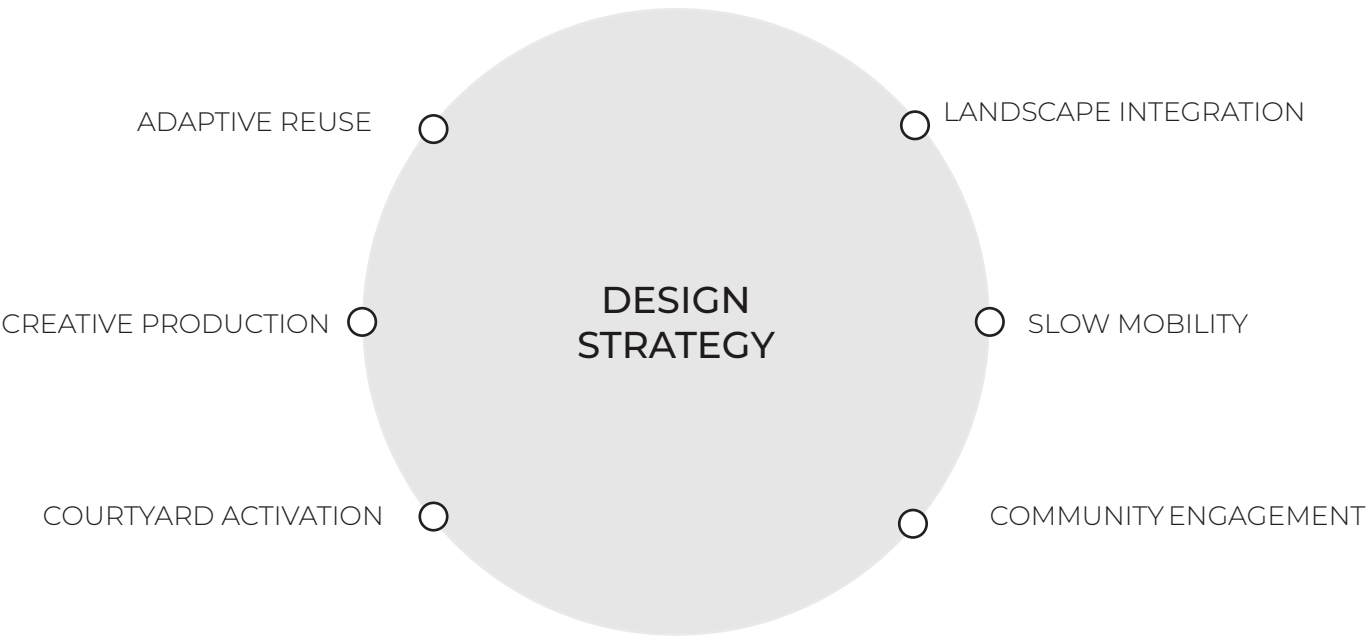
5.4 SWOT ANALYSIS

FROM SWOT TO DESIGN STRATEGY

The SWOT analysis aims at translating the findings of the previous chapters into a coherent design approach. The objective is to avoid addressing individual issues separately and instead to establish relationships between heritage, landscape and community. Above all, the final goal is to transform existing challenges or weaknesses into opportunities for regeneration.

This synthesis resulted in six strategic principles that guide the proposal at both architectural and territorial scales.

Figure 5.4.1 - SWOT SYNTHESIS



DESIGN DIRECTION

WEAKNESS

Fragmented circulation



RESPONSE

New bridge connection

WEAKNESS

Lack of activity



RESPONSE

Creative core

OPPORTUNITY

Cycling tourism



RESPONSE

Cyclist facilities and public programmes

OPPORTUNITY

Ecological networks



RESPONSE

Landscape-oriented public spaces

STRENGTH

Historic fabric



RESPONSE

Adaptive reuse strategy

Therefore, the proposal is a gradual regeneration process based on the activation of existing resources. Historic buildings are reused, underutilised spaces are reactivated and completely new interventions are introduced only where they strengthen connections between people and the area.

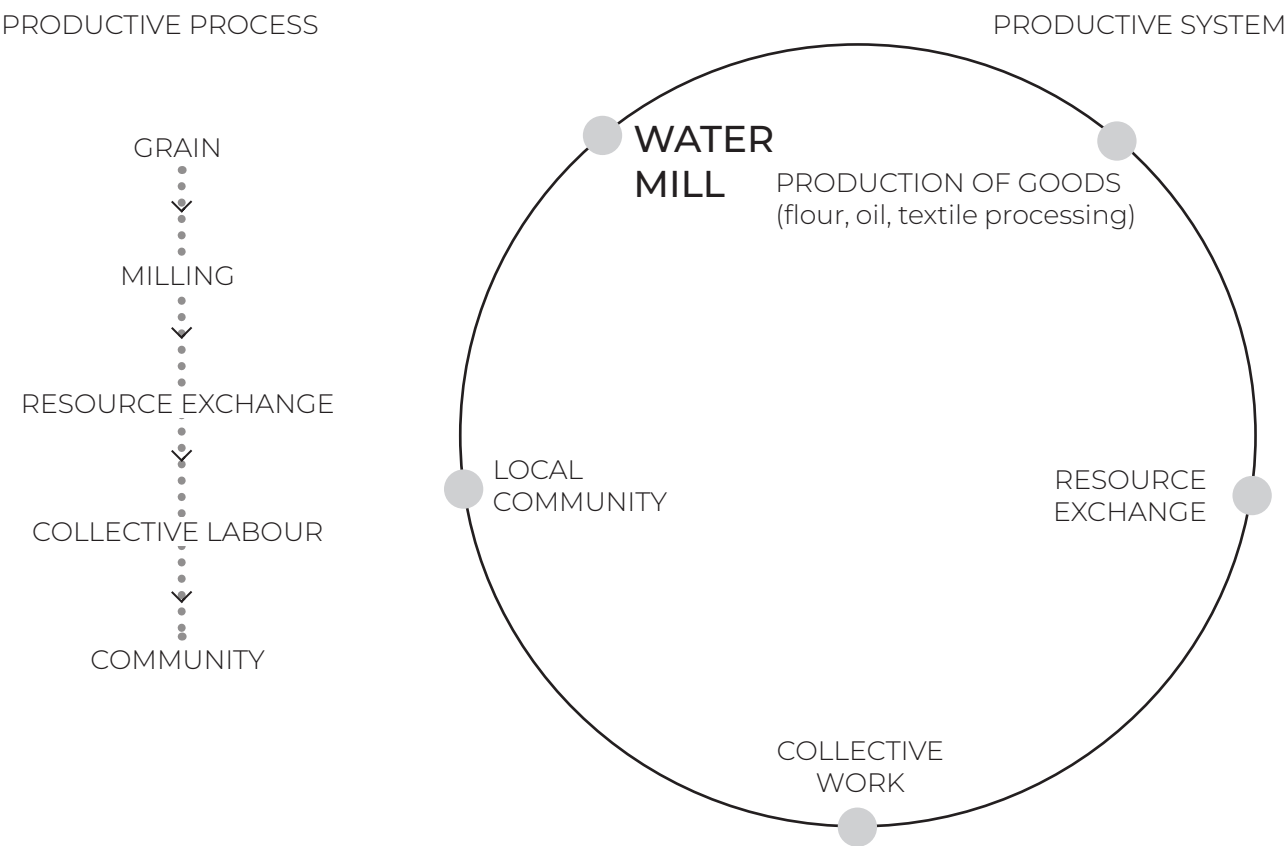
The project establishes a framework that supports long-term activity while preserving the identity and spatial character of the Gurone Mills settlement.

5.5 PROJECT FRAMEWORK

FROM INDUSTRIAL PRODUCTION TO CREATIVE PRODUCTION

THE FUNCTION CHANGES,

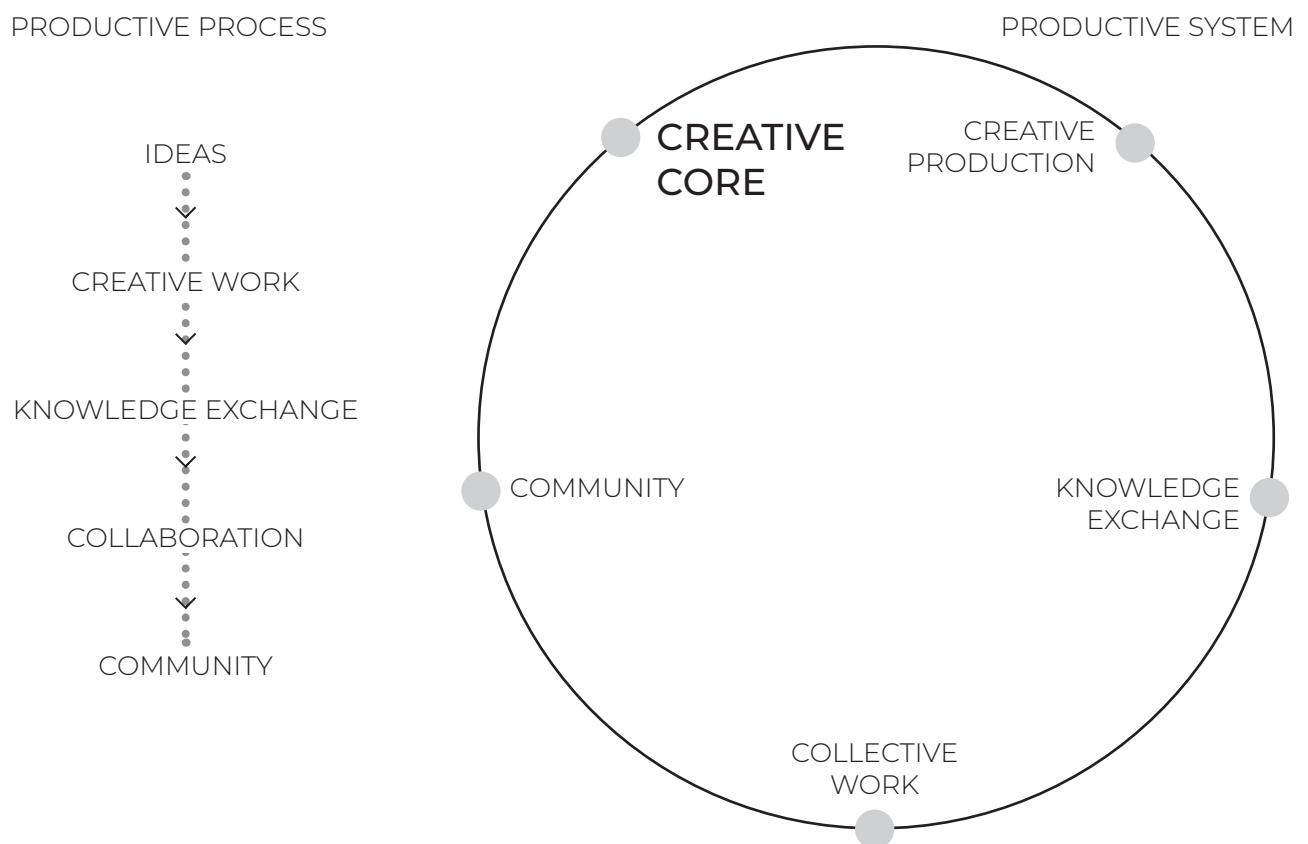
Figure 5.5.1 - HISTORICAL SYSTEM



Historically, the mill functioned as a place of production, resource exchange and collective labour. The proposed contemporary programme preserves this productive logic while reinterpreting it through spaces dedicated to creative production, learning, knowledge exchange and cultural activities.

THE PRODUCTIVE LOGIC REMAINS

Figure 5.5.2 - CONTEMPORARY SYSTEM

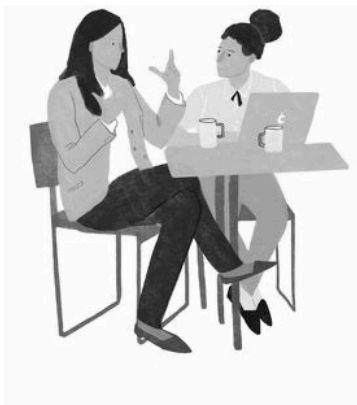


Rather than replicating the site's former industrial functions, the proposal reinterprets the mill's productive role through spaces dedicated to creativity, learning, collaboration, and knowledge exchange. The Creative Core becomes a contemporary counterpart to the historical mill, generating new forms of production rooted in community engagement.

5.5 PROJECT FRAMEWORK

TARGET USERS

Based on the site evaluation and SWOT analysis, defining target users is a key step in translating spatial potential into a concrete, realistic project framework. The following user groups reflect the intended balance between everyday life, creative practices, public accessibility, and low-impact territorial activation.



CREATORS AND MAKERS

Artists, designers, architects, craftspeople, and researchers working with material-based practices. They are the primary users of workshops and ateliers, ensuring continuous, everyday activity.



CULTURAL VISITORS

Visitors interested in local history, industrial heritage, and landscape. They use the museum and outdoor routes, connecting the project to collective memory without dominating the site



EVERYDAY USERS

Local residents and people from nearby towns. They use the trattoria, small market, and open spaces, anchoring the project in daily life.



CYCLISTS AND SLOW MOBILITY USERS

Cyclists and hikers use the Olona Valley and EuroVelo routes. They use the site as a resting stop, benefiting from services, outdoor spaces, and short stays.

5.5 PROJECT FRAMEWORK

PROJECT GOALS AND STRATEGIES

PROJECT GOALS

Building on the identification of target users and the SWOT analysis, the project goals define the main intentions guiding the architectural proposal. They translate site conditions and user needs into clear, operational objectives, directly connected to spatial organisation and design strategies.

GOAL 1 ESTABLISH A CLEAR SPATIAL HIERARCHY

Transform Gurone Mills into a recognisable and legible place through a clear spatial hierarchy and a new architectural core.

GOAL 2 SUPPORT CONTINUOUS YEAR-ROUND ACTIVITY

Ensure continuous daily activity by combining creative workspaces, temporary living, everyday public functions and culinary attractions.

GOAL 3 DEVELOP A CONTEMPORARY PRODUCTIVE IDENTITY

Develop a creative practice-based program that complements existing facilities in the territory without competing with them.

GOAL 4 REINFORCEMENT OF LANDSCAPE AND MOBILITY NETWORKS

Integrate buildings and paths into a coherent system linked to the Olona River and slow mobility networks. Create new ways of reaching the complex, especially via public transport.

GOAL 5 BENEFIT LOCAL INHABITANTS WHILE PRESERVING HERITAGE VALUE

Improve everyday life through accessible public spaces, small-scale services, and the careful reuse of existing buildings.

PROJECT STRATEGIES

The project strategies translate the defined goals into concrete spatial and architectural actions. They describe how the site is reorganised, how functions are distributed, and how the new intervention operates within the existing fabric of Gurone Mills.

STRATEGY 1 INTRODUCE A NEW ARCHITECTURAL CORE

Introduce one new dominant volume to structure the site, establish hierarchy, and create a clear spatial reference.

STRATEGY 2 CREATION OF A CREATIVE CORE

Place collective workshops and shared making spaces at the core of the project, while complementary functions occupy existing buildings.

STRATEGY 3 INTEGRATION OF WORK, LIVING, AND PUBLIC USE

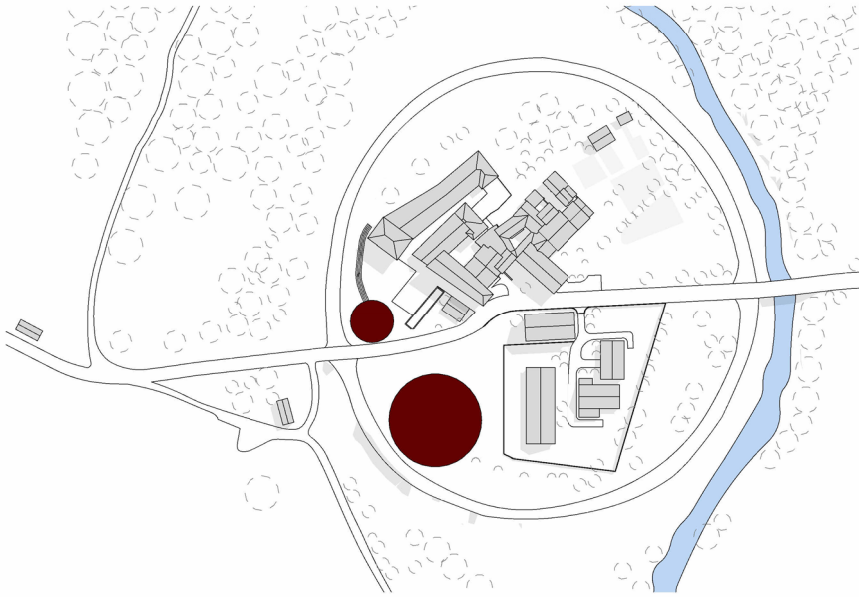
Combine workshops, temporary residences, and everyday public functions to support continuous, year-round activity.

STRATEGY 4 ACTIVATION OF LANDSCAPE AND MOBILITY

Reconnect buildings and open spaces through pedestrian and cycling paths linked to the Olona Valley and slow mobility networks.

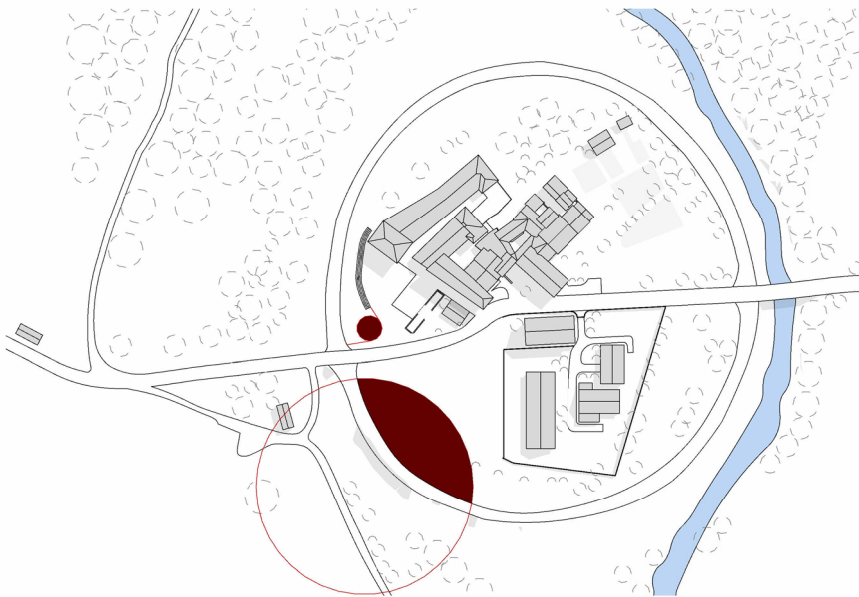
5.5 PROJECT FRAMEWORK

FORM GENERATION



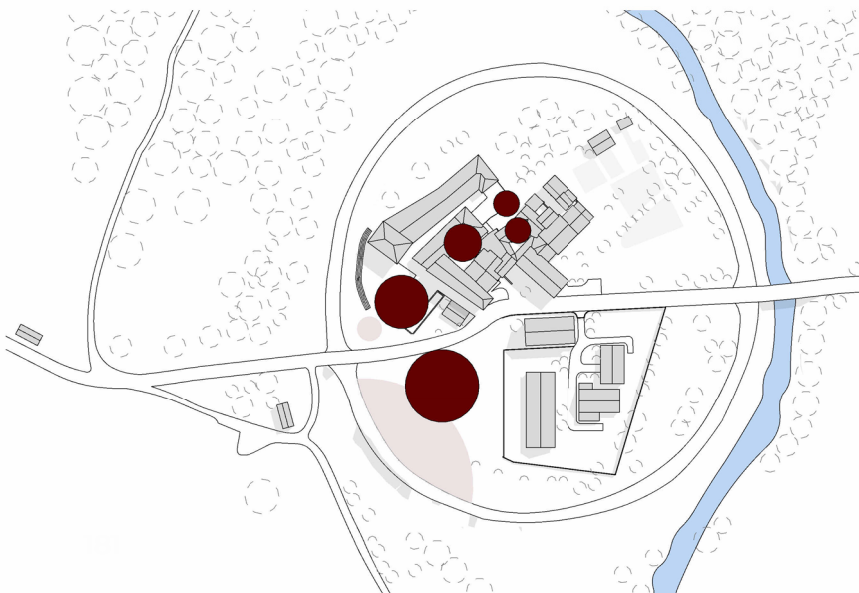
**Figure 5.5.3 -
PLACEMENT**

Definition of
areas for new
interventions



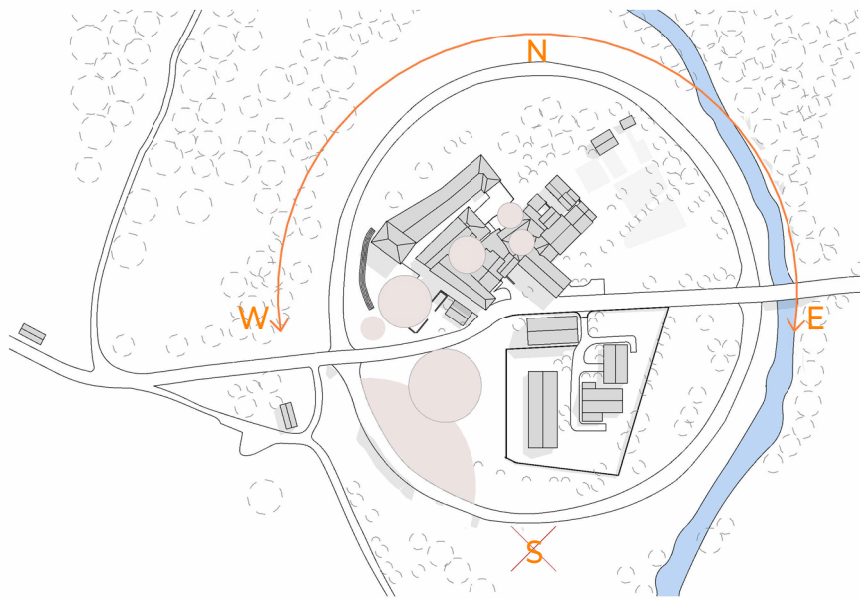
**Figure 5.5.4 -
SHAPE DEFINITION**

Taken inspiration
from the dam shape



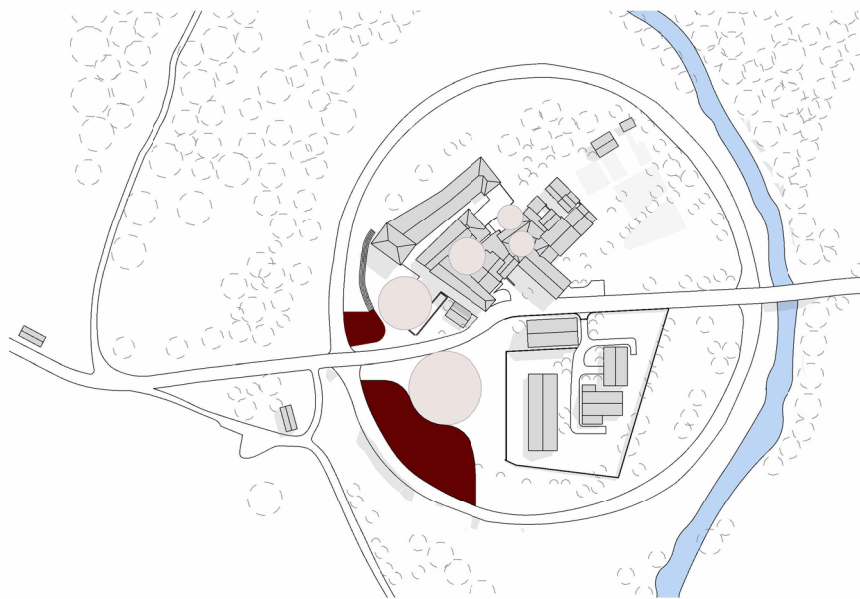
**Figure 5.5.5 -
COURTYARD
SYSTEM**

Continuity of internal
courtyards and
public spaces



**Figure 5.5.6 -
LIGHT STRATEGY**

Controlled natural
lighting, avoiding
direct southern
exposure



**Figure 5.5.7 -
SHAPE
ADAPTATION**

Interaction with the
courtyards
and existing
landscape



**Figure 5.5.8 -
STAIR INTEGRATION**

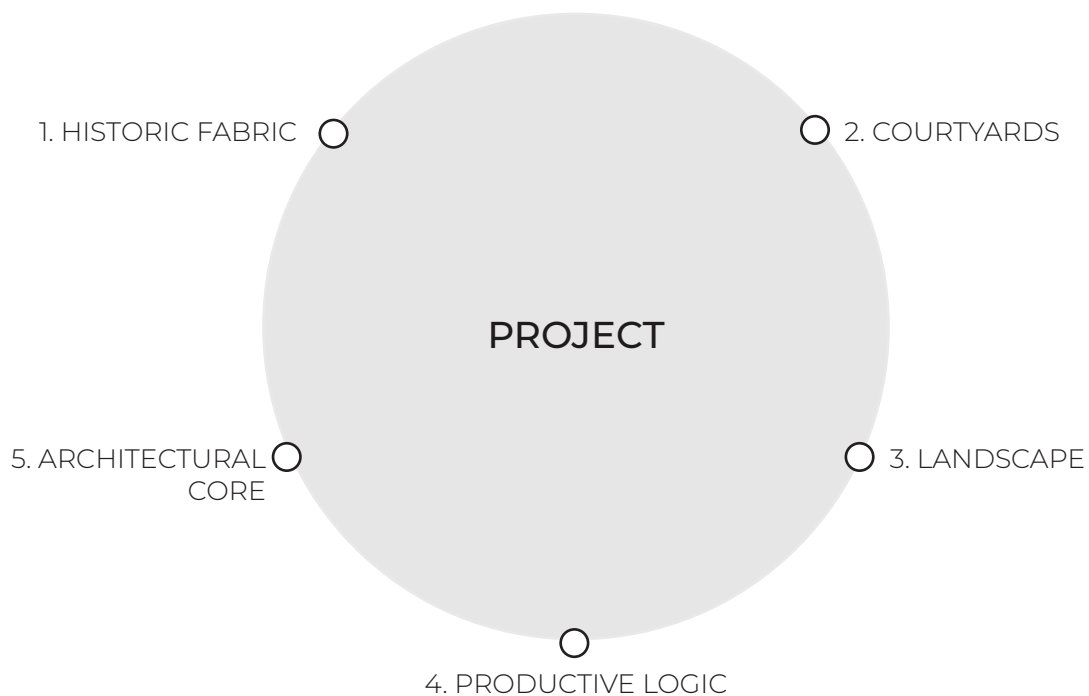
Integration with the
elevated ring

5.5 PROJECT FRAMEWORK

DESIGN DRIVERS

The architectural proposal is guided by a series of design drivers derived from the site's historical significance, spatial structure and territorial context. Rather than imposing a new autonomous object, the project seeks to establish a contemporary framework that reinforces existing qualities while introducing new forms of productive and public activity. These principles informed the spatial organisation, architectural language and placement of new interventions throughout the Gurone Mills complex.

Figure 5.5.9 - DESIGN DRIVERS



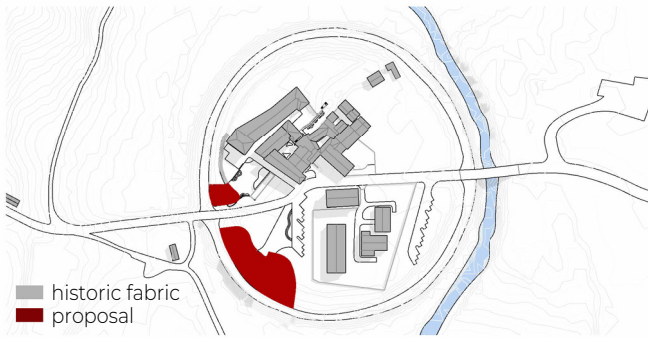


Figure 5.5.10 -
HISTORIC FABRIC



Figure 5.5.11 -
COURTYARDS



Figure 5.5.12 -
LANDSCAPE

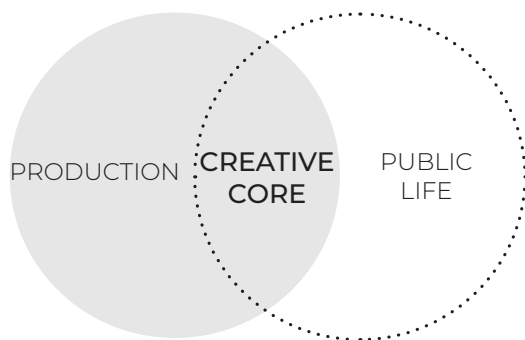


Figure 5.5.13 -
PRODUCTIVE LOGIC

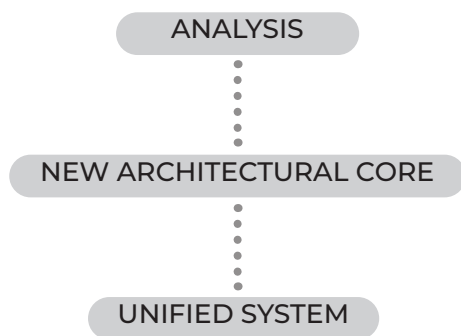


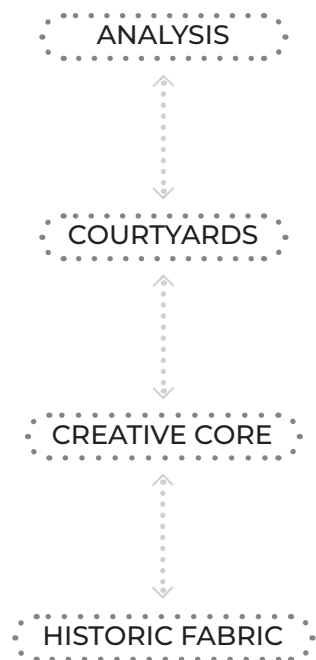
Figure 5.5.14 -
ARCHITECTURAL
CORE

5.5 PROJECT FRAMEWORK

CONCEPTUAL FRAMEWORK

The proposed intervention is based on the understanding of Gurone Mills as a productive landscape rather than an isolated architectural object. Historically, the settlement operated through the interaction of buildings, courtyards, circulation routes and the surrounding environment. The project seeks to preserve this relational structure while introducing a contemporary programme that can generate new forms of production and collective activity.

Instead of concentrating all functions within a single building, the proposal distributes activities across the existing spaces and new interventions. The historic buildings will be dedicated to ancillary programmes, while a new architectural core will host the primary creative and productive functions. Together, these elements form a harmonious ecosystem where heritage, landscape and contemporary use mutually reinforce one another.



The project is not conceived as a collection of isolated buildings, but as a system of mutually enhancing relationships. The following principles define the conceptual framework of the proposal and explain how the existing settlement is transformed into a coherent productive and public environment. They serve as the foundation for the architectural and spatial strategies developed in the following chapters.

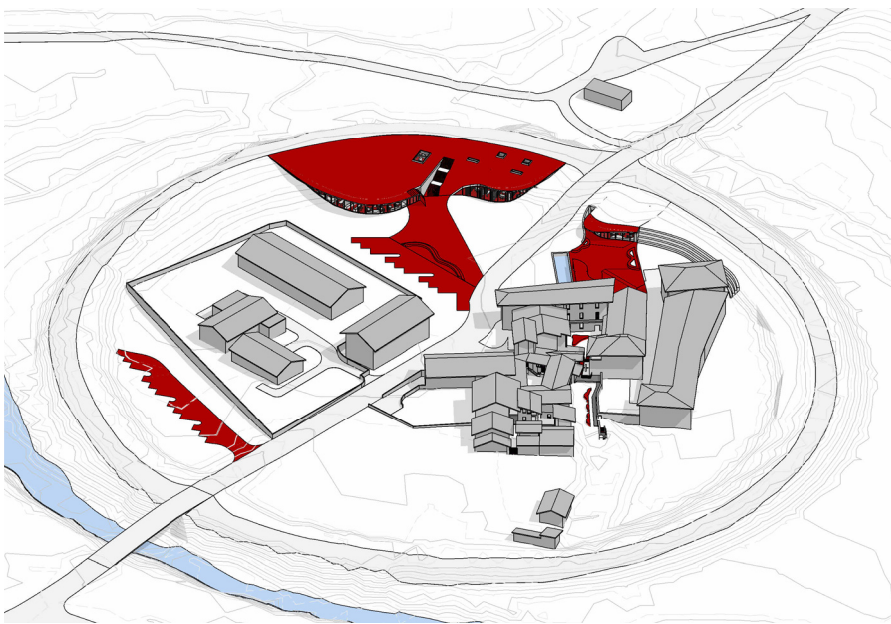


Figure 5.5.15 -
RELATIONSHIP
BETWEEN OLD AND
NEW

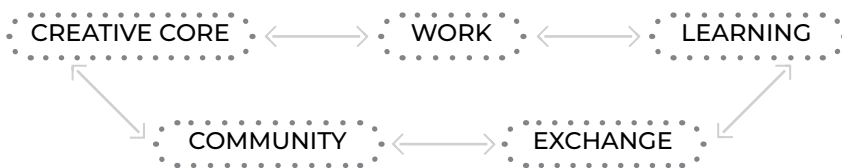


Figure 5.5.16 -
PRODUCTIVE
ECOSYSTEM

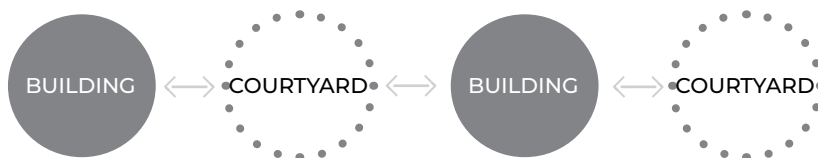


Figure 5.5.17 -
COURTYARD-
BASED STRUCTURE

Landscape is not background but organising structure



Figure 5.5.18 -
LANDSCAPE AS
FRAMEWORK

5.5 PROJECT FRAMEWORK

SCOPE OF ARCHITECTURAL INTERVENTION

The Gurone Mills project works at multiple scales, from territorial strategy and masterplan development down to detailed architectural design. The proposal defines a regeneration framework for the whole settlement, but the architectural investigation in this thesis focuses on a limited number of key interventions.

NEW PUBLIC-PRODUCTIVE BUILDING

The project's principal focus is the new public-productive building, conceived as the contemporary core of the proposal. Housing creative production, learning and collective activities, it acts as the main spatial and functional catalyst of the whole regeneration strategy.

NEW TRATTORIA BUILDING

A second area of detailed design is the new trattoria building. Integrated into the productive and public framework of the project, it functions as a social destination, connected both to the identity of the settlement and to its contemporary programme.

PEDESTRIAN BRIDGE

The new pedestrian bridge is designed to improve accessibility and reconnect fragmented areas of the site. Beyond its infrastructural role, it strengthens pedestrian continuity and links the different levels of the settlement together.

CENTRAL COURTYARD SYSTEM

Particular attention is also given to redesigning the central courtyard system. As the village's primary collective space, the courtyards are reimagined as a network of public environments supporting everyday use, informal gathering and social interaction.

MASTERPLAN FRAMEWORK

The remaining buildings are incorporated into the overall masterplan and functional strategy. Their future role and spatial relationships are defined, but they are not developed to the same degree of architectural and technical detail. This lets the project concentrate its design effort on the interventions considered most significant for the site's future activation.

Figure 5.5.19 - SCOPE OF ARCHITECTURAL INTERVENTION

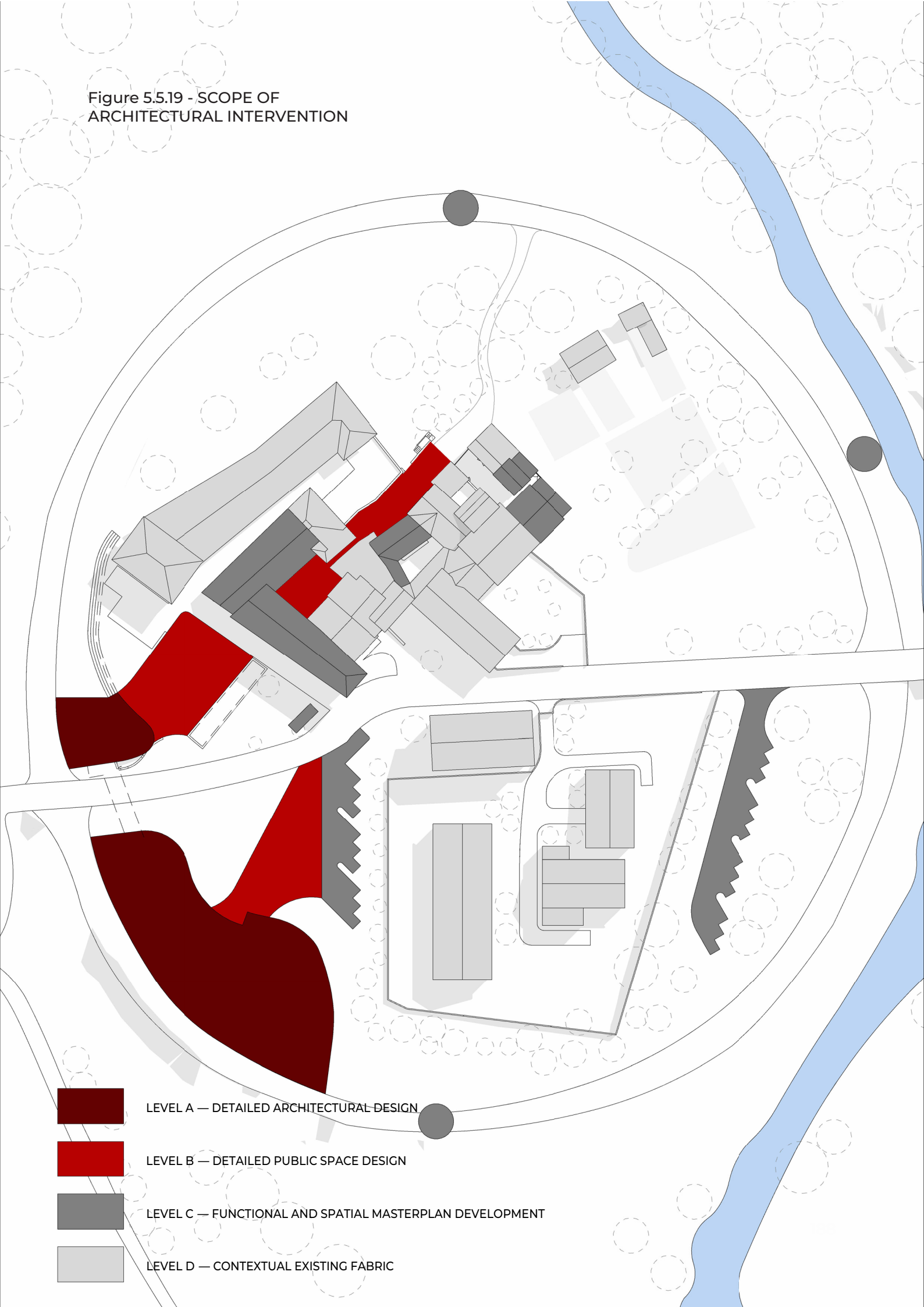




Figure 5.5.20 -
CONTEMPORARY
INTERVENTION²
SOURCE: DEZEEN,
MVRDV'S CASA
KWANTES FEATURES
UNDULATING GLAZING
AND BRICKWORK



Figure 5.5.21 -
VOLUMETRIC
FRAGMENTATION³
SOURCE: ARCHDAILY.
"THE NEW GLENSTONE
/ THOMAS PHIFER AND
PARTNERS"



Figure 5.5.22 -
ARCHITECTURE
AND LANDSCAPE⁴
SOURCE: AFASIA
ARCHZINE, BIG . JPE



Figure 5.5.23 -
ORGANIC
COLLECTIVE
SPACES⁵
SOURCE: PLANT
DESIGNS. DESIGN-
LED PLANTING AND
LANDSCAPE SOLUTIONS

5.5 PROJECT FRAMEWORK

ARCHITECTURAL LANGUAGE AND SPATIAL STRATEGY

The architectural language of the proposal is based on a contemporary interpretation of the Gurone Mills settlement rather than a direct reproduction of its historical forms. New interventions remain clearly identifiable while maintaining continuity through scale, spatial organisation and their relationship with the landscape.

CONTEMPORARY INTERVENTION

New additions are conceived as contemporary elements that coexist with the historic fabric without imitating it. This approach preserves the readability of the site's historical evolution while allowing new functions to be clearly expressed through architecture.

VOLUMETRIC FRAGMENTATION

Large programmes are divided into smaller volumes that respond to the scale of the settlement and reduce their visual impact. This strategy allows new architecture to integrate into the village while maintaining the existing spatial rhythm.

ARCHITECTURE AND LANDSCAPE

The project is conceived as an extension of the landscape and not as an isolated object. New buildings, circulation routes and public spaces are organised based on the existing topography and ecological context.

ORGANIC COLLECTIVE SPACES

The collective spaces focus on soft spatial boundaries and gradual transitions. Curved seating elements, integrated landscape features and informal gathering areas create a visual link between interior and exterior environments while encouraging social interaction.

These principles are able to define an architectural language that is contemporary in expression while remaining rooted in the spatial character of Gurone Mills.

5.6 MASTERPLAN PROPOSAL

GENERAL MASTERPLAN

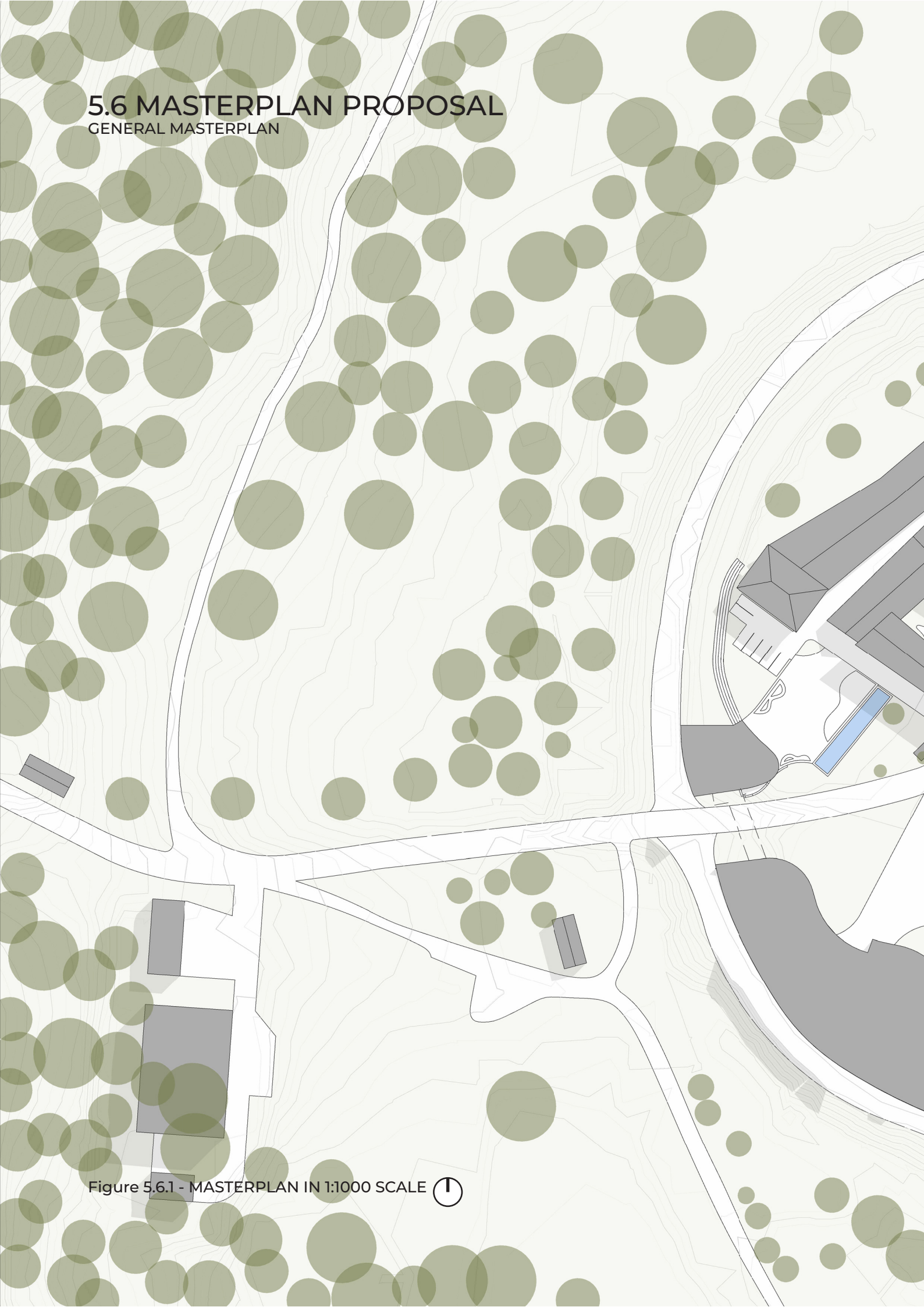


Figure 5.6.1 - MASTERPLAN IN 1:1000 SCALE ①



Direction to Agritourism resort

5.6 MASTERPLAN PROPOSAL

FUNCTIONAL ZONING

Existing elevated
pedestrian wall

Remains of former

Museum area

Bridge

Resident's parking

Material workshop area

Market and
Outdoor public space

Trattoria

Reactivated canal

Visitors residences

Bus stop

Bicycle pit stop

Creative practices hall

Former railway station

EXISTING BUILDINGS IN USE

ADAPTIVE REUSE PROPOSAL

NEW CONSTRUCTION

Pedestrian and bicycle route

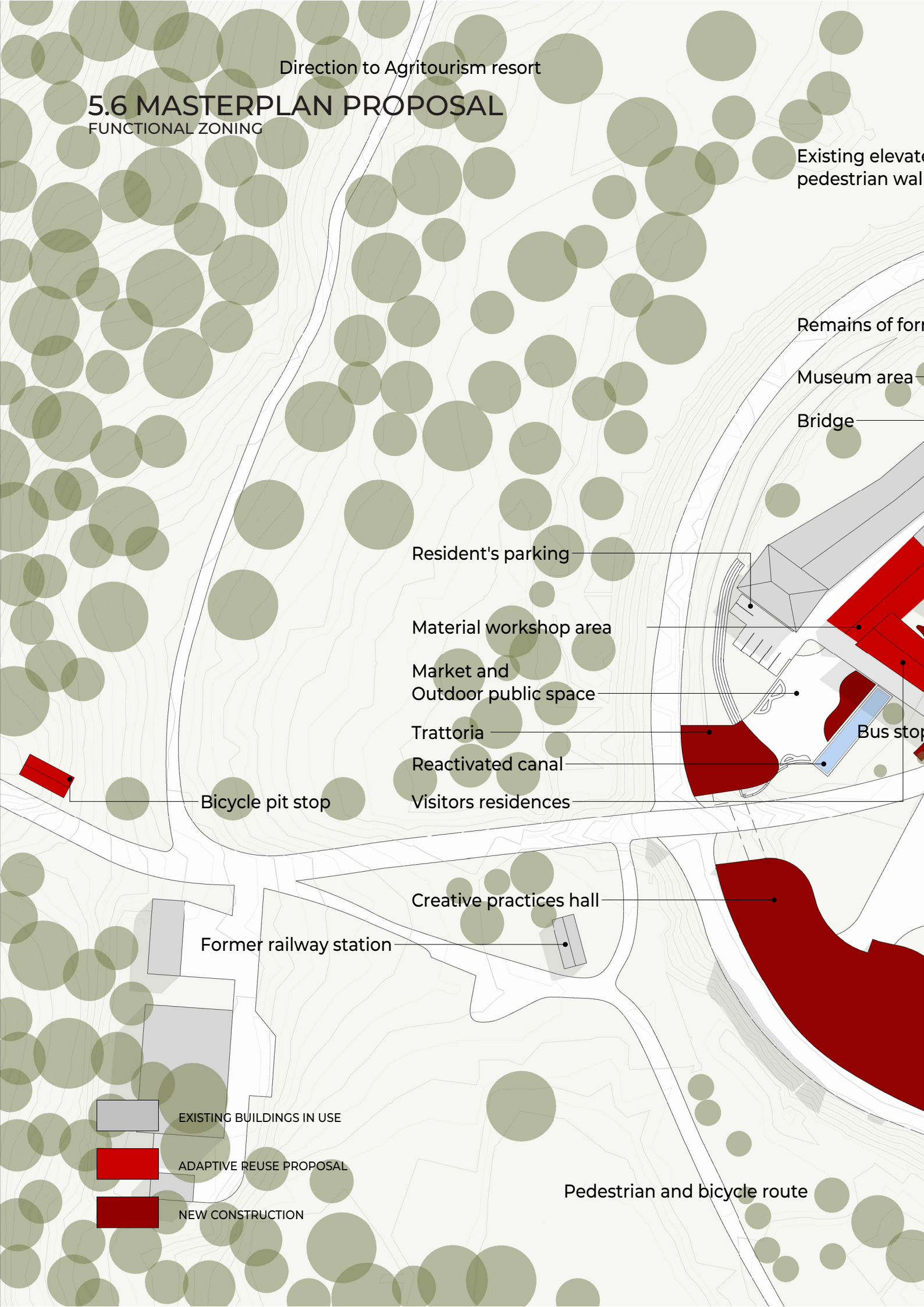


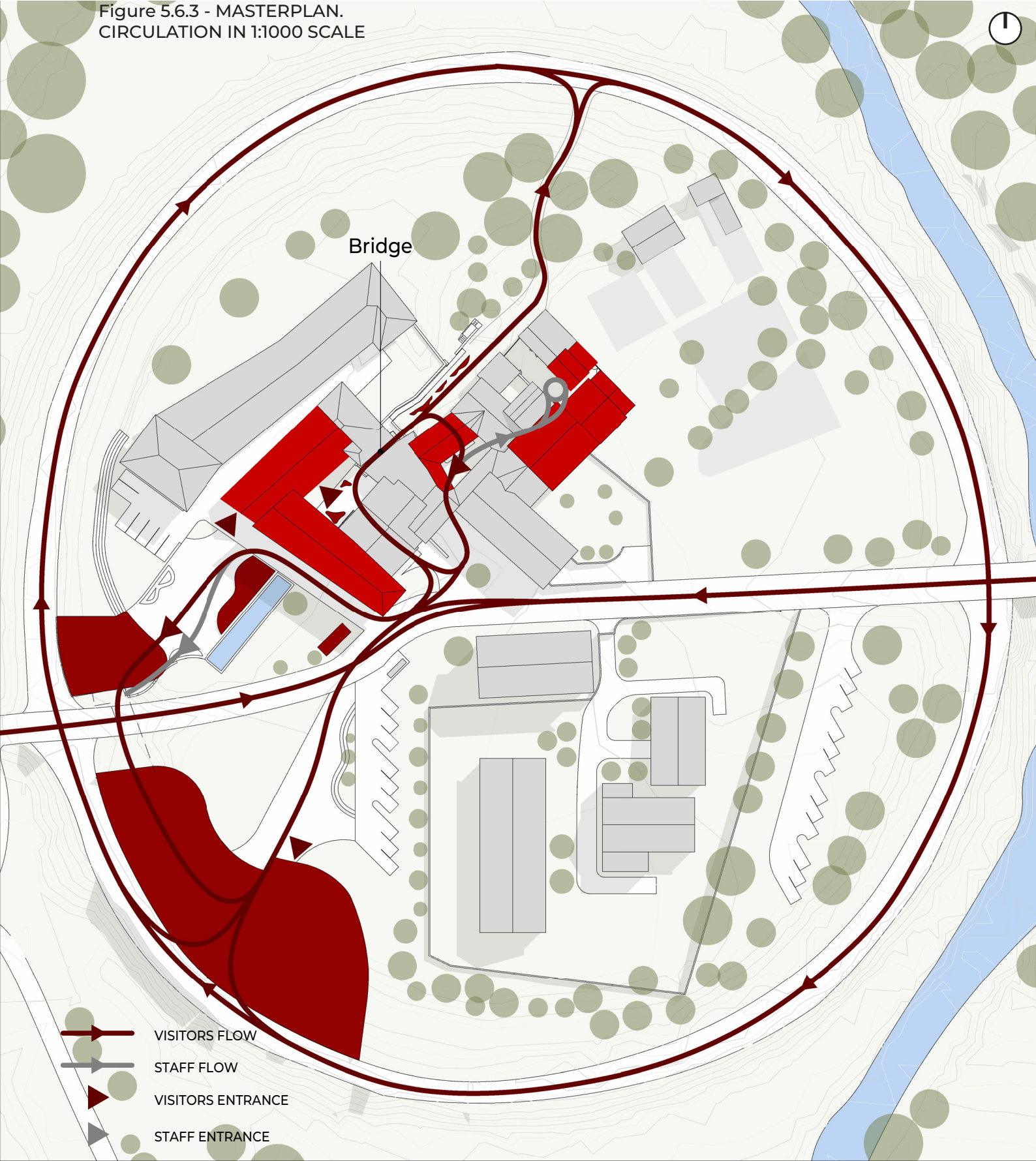
Figure 5.6.2 - MASTERPLAN. FUNCTIONAL ZONING IN 1:1000 SCALE



The masterplan is structured around a continuous pedestrian network that reconnects fragmented areas of the settlement and strengthens links with the surrounding landscape. Walking and cycling are prioritised through a system of paths, public spaces and slow-mobility connections.

The new pedestrian bridge, courtyard network and accessible roofscape form a sequence of interconnected routes that improve accessibility while encouraging exploration and everyday use of the site.

Figure 5.6.3 - MASTERPLAN.
CIRCULATION IN 1:1000 SCALE



5.6 MASTERPLAN PROPOSAL

CIRCULATION AND PUBLIC ACCESSIBILITY

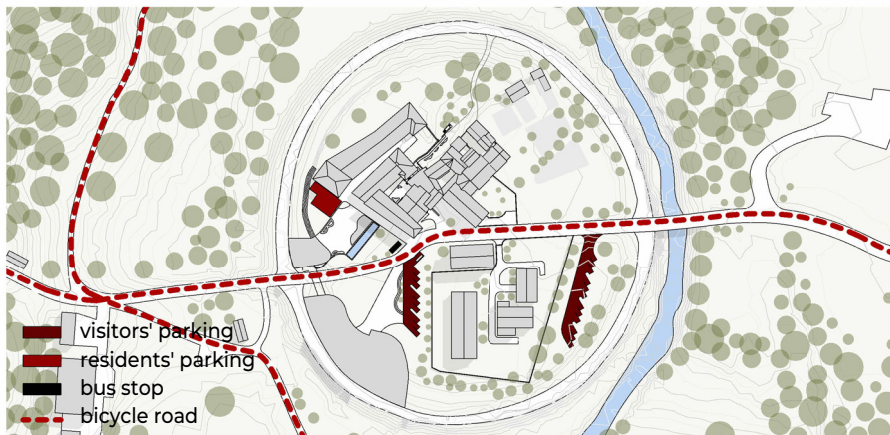


Figure 5.6.4 -
ARRIVAL POINTS

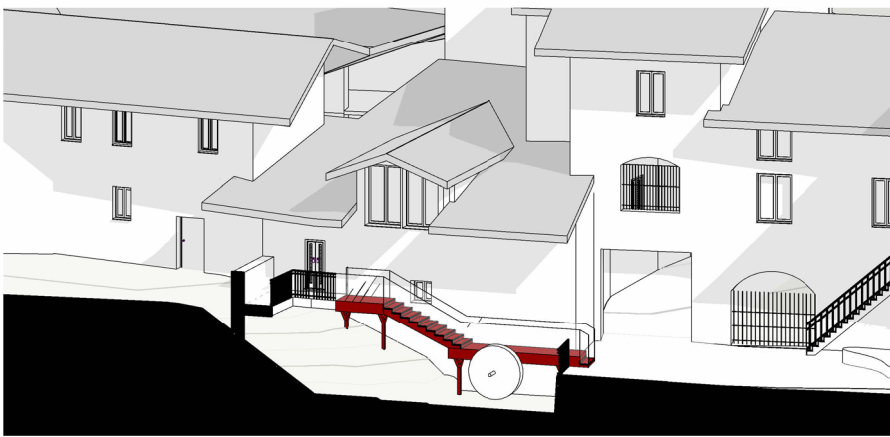


Figure 5.6.5 -
BRIDGE SYSTEM

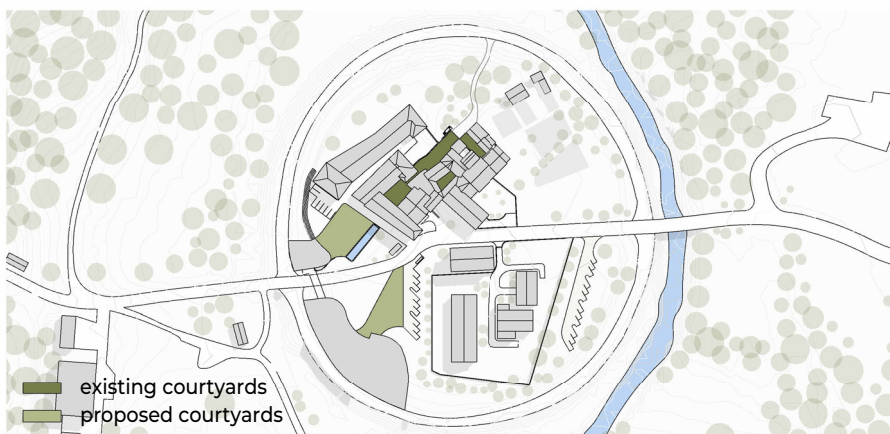


Figure 5.6.6 -
COURTYARD SYSTEM

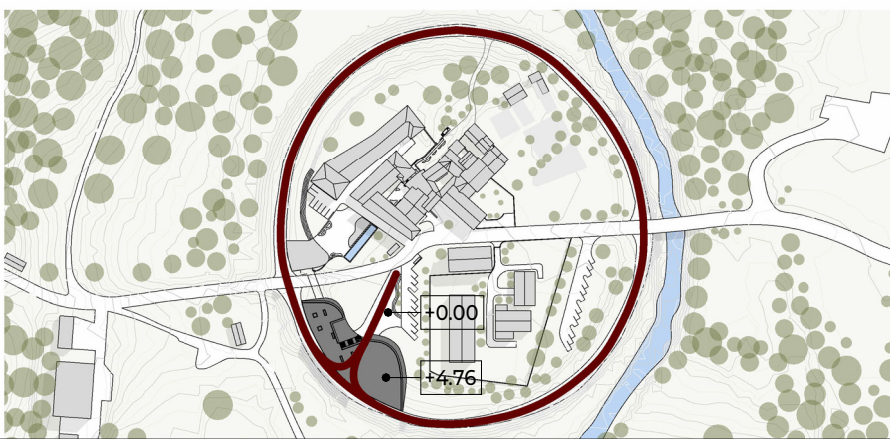


Figure 5.6.7 -
ROOFSCAPE ROUTE

5.6 MASTERPLAN PROPOSAL

RELATIONSHIP BETWEEN EXISTING AND NEW ARCHITECTURE

The masterplan seeks to establish a balanced relationship between preservation and transformation. The proposal focuses on utilizing the existing spatial structure of Gurone Mills at best. This will be done by using targeted interventions to reinforce connections and accommodate new programmes to support long-term activation of the site.

PRESERVATION STRATEGY

Historic buildings remain the primary carriers of the site's identity and continue to define the character of the settlement. The proposal prioritises their preservation and reuse, limiting demolition and avoiding unnecessary alterations to what already exists today.

INSERTION LOGIC

New interventions are introduced only where they can resolve existing discontinuities, strengthen accessibility or accommodate functions that cannot be integrated within the historic structures. This approach concentrates change while preserving the overall spatial organisation of the village.

ARCHITECTURAL LANGUAGE

The new volumes adopt a contemporary architectural expression while maintaining continuity with the existing settlement through proportion and spatial relationships. The dialogue between old and new tries to avoid imitation and is therefore based on contrast and complementarity.

VOLUMETRIC FRAGMENTATION

Large programmes are divided into smaller interconnected volumes that respond to the scale of the existing fabric. This strategy reduces visual impact, preserves important spatial relationships and creates a sequence of courtyards and public spaces throughout the site.

EXISTING

NEW

FRAGMENTED SITE

STRATEGIC INSERTIONS

CONNECTED SITE

OLD $\neq$ NEW

but

OLD + NEW = ONE
SYSTEM

BIG VOLUME

SMALLER
CONNECTED
VOLUMES

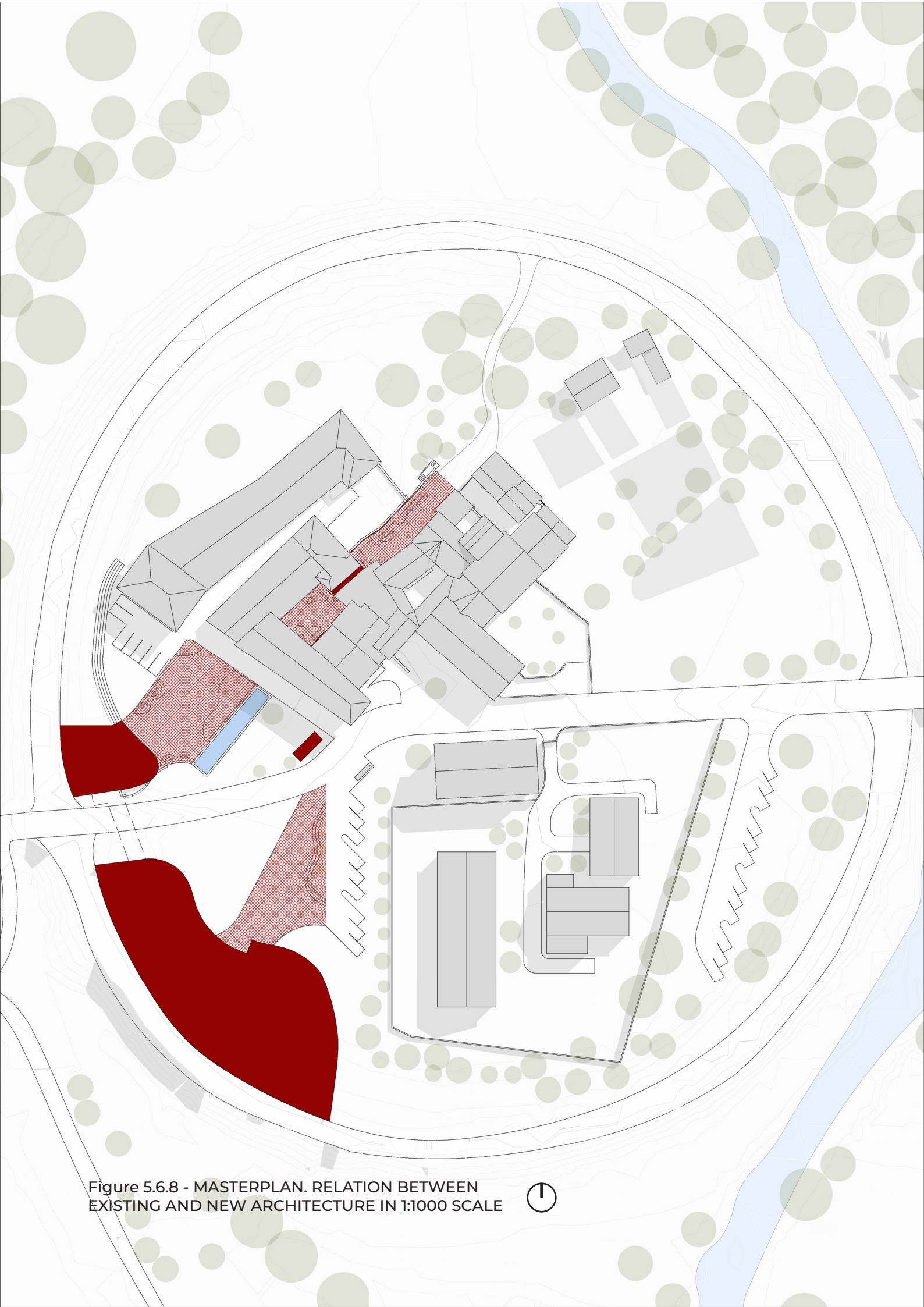
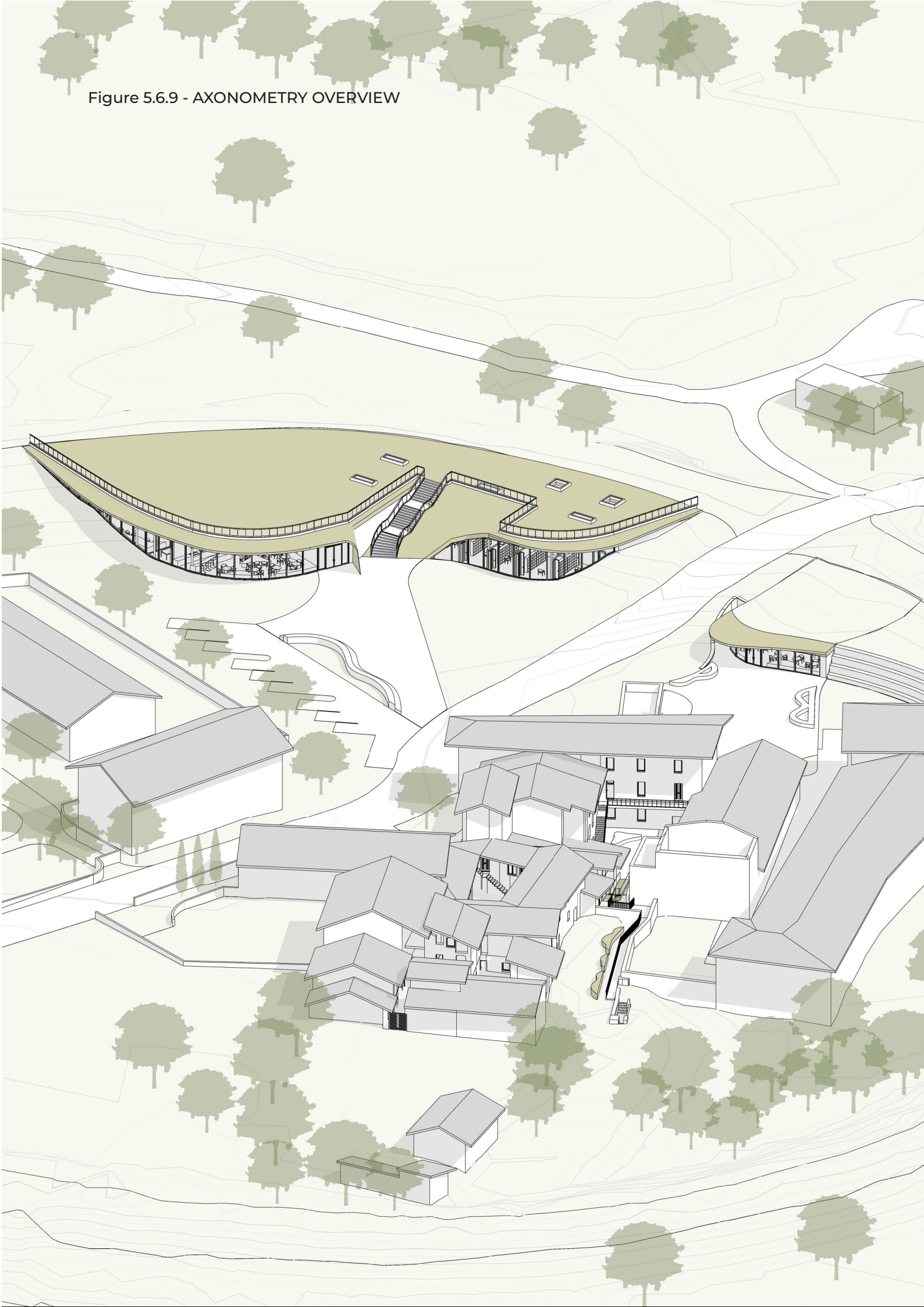


Figure 5.6.8 - MASTERPLAN. RELATION BETWEEN
EXISTING AND NEW ARCHITECTURE IN 1:1000 SCALE



Figure 5.6.9 - AXONOMETRY OVERVIEW



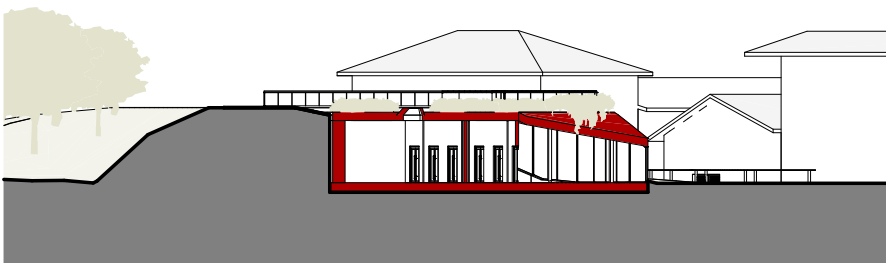
5.6 MASTERPLAN PROPOSAL

LANDSCAPE AND ROOFSCAPE STRATEGY



**Figure 5.6.10 -
ROOFSCAPE NETWORK**

Accessible roofs extend the public realm beyond ground level.



**Figure 5.6.11 -
TERRAIN INTEGRATION**

Architecture follows the existing topography rather than imposing a new geometry.



**Figure 5.6.12 -
LANDSCAPE CONTINUITY**

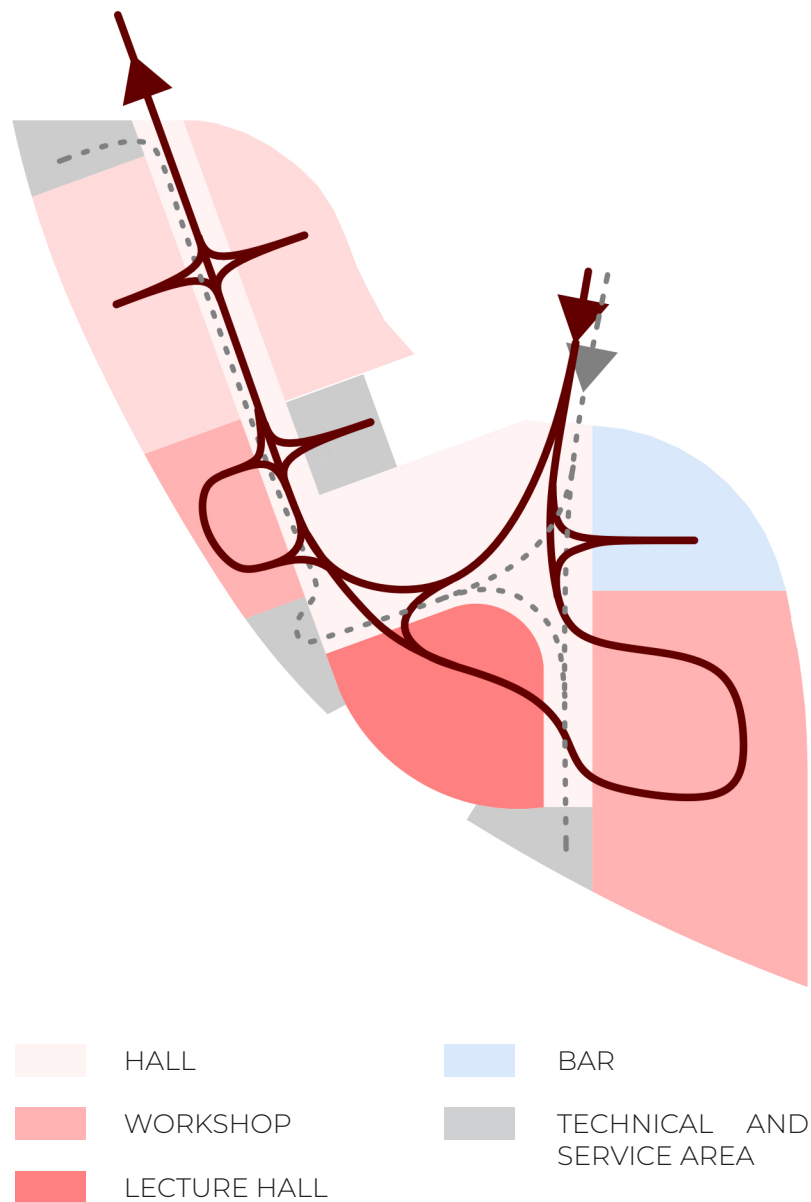
5.7 ARCHITECTURAL PROPOSAL

CREATIVE HALL

The Creative Hall is the principal public and productive core of the proposal. It is conceived as a space for creative work and collective activity, it brings workshops, shared workspaces, exhibition areas and educational facilities together within a single architectural framework.

The building does not want to stand out as a dominant object within the historic settlement and is therefore integrated into the existing topography. Its accessible roof extends the surrounding landscape and becomes part of the public circulation network, creating new viewpoints and connections across the site. Internally, the programme is organised around a central space that works as a social focus point, linking the different functions and encouraging interaction between people.

Figure 5.7.1 - FUNCTIONAL ZONING OF CREATIVE HALL



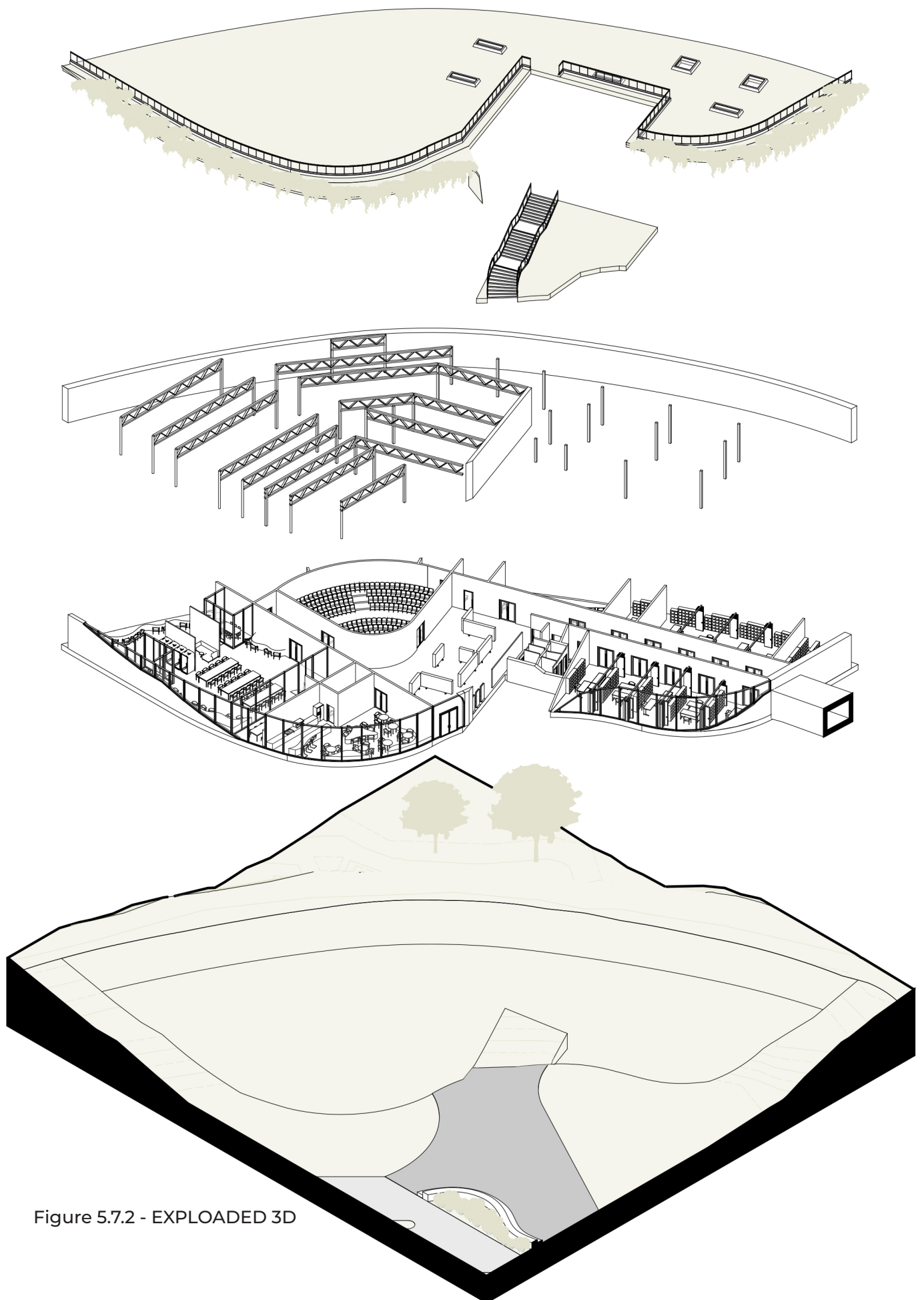


Figure 5.7.2 - EXPLODED 3D



Figure 5.7.3 - FLOOR PLAN OF CREATIVE HALL IN 1:200 SCALE



5.7 ARCHITECTURAL PROPOSAL

CREATIVE HALL



5.7 ARCHITECTURAL PROPOSAL

CREATIVE HALL



Figure 5.7.4 - SECTION 1-1 OF CREATIVE HALL IN 1:200 SCALE

The Creative Hall is partially integrated into the existing topography, reducing its visual impact and reinforcing the relationship between architecture and landscape. Rather than standing as an isolated object, the building becomes part of the terrain.

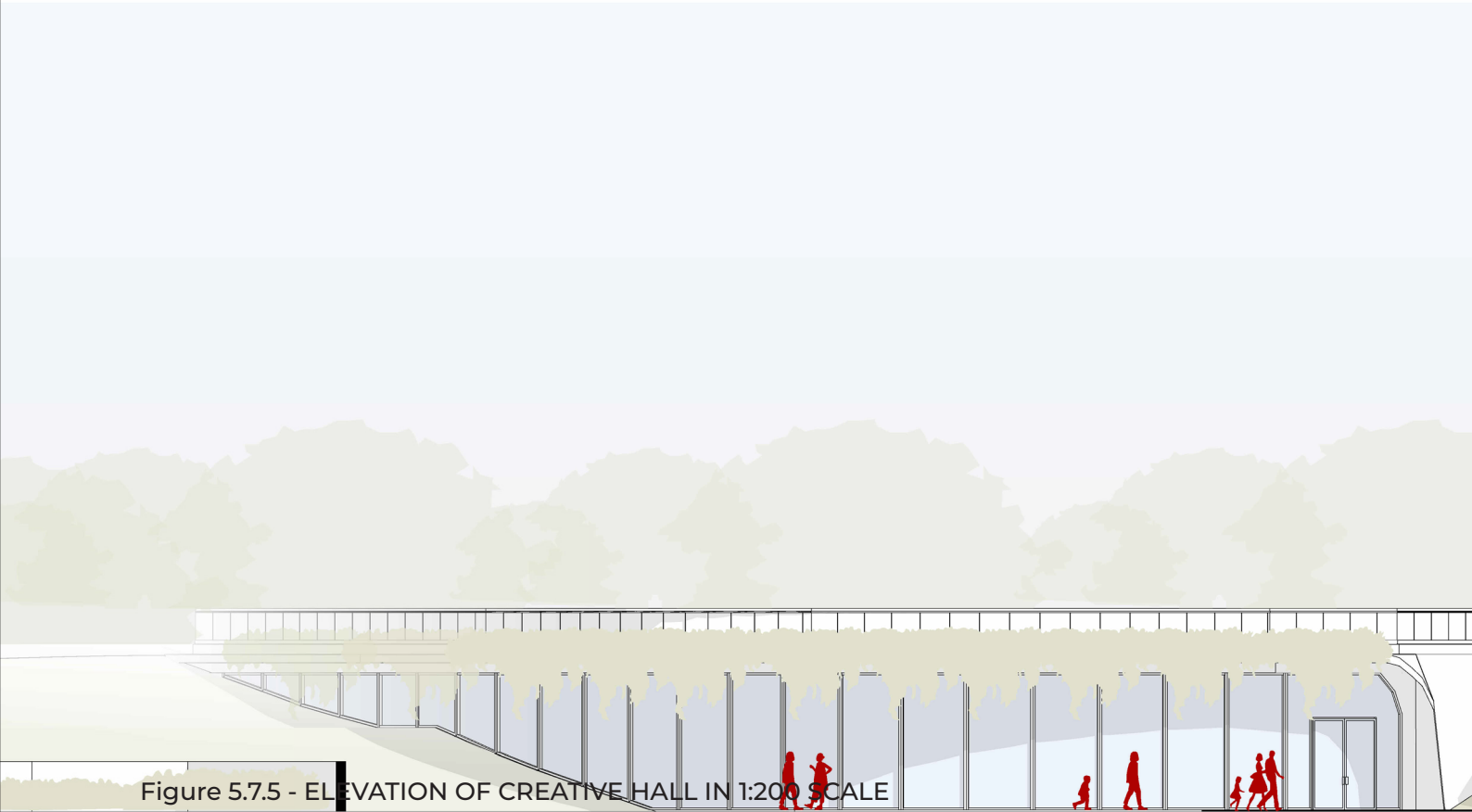
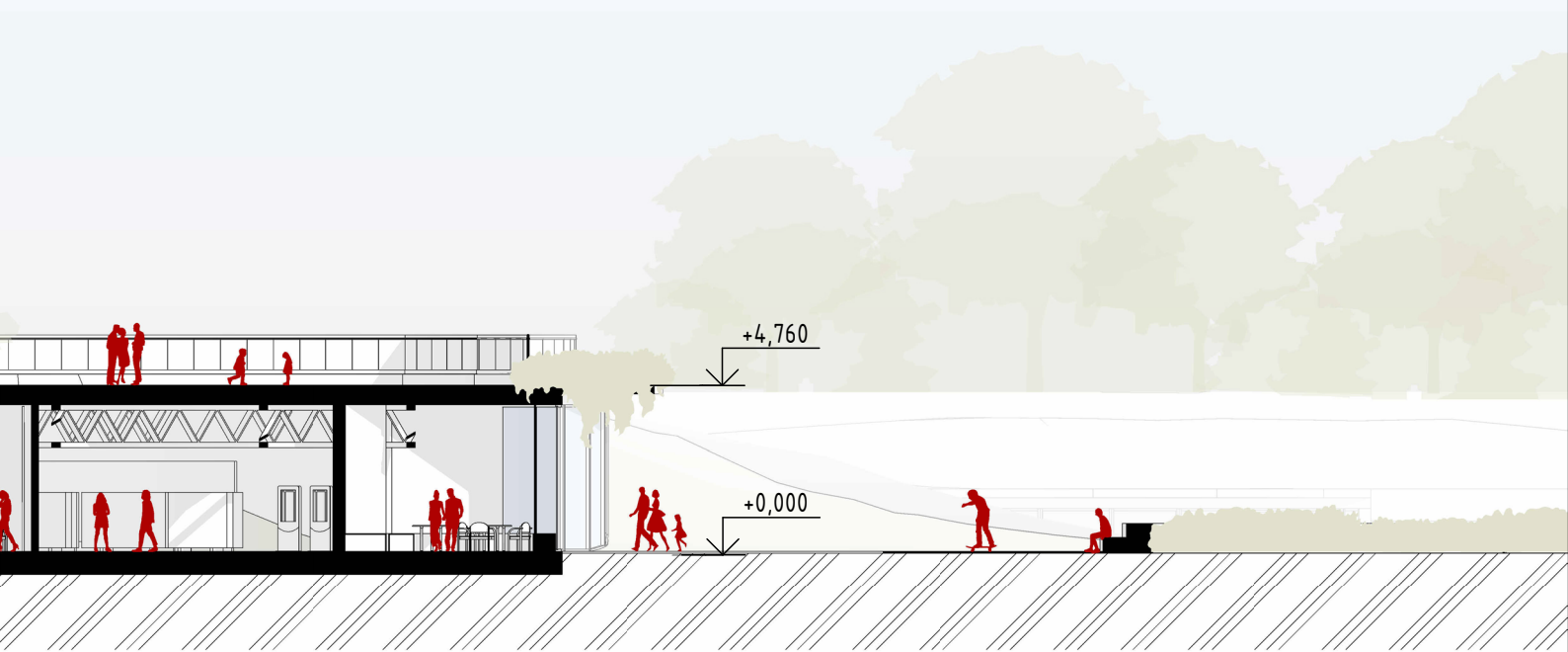
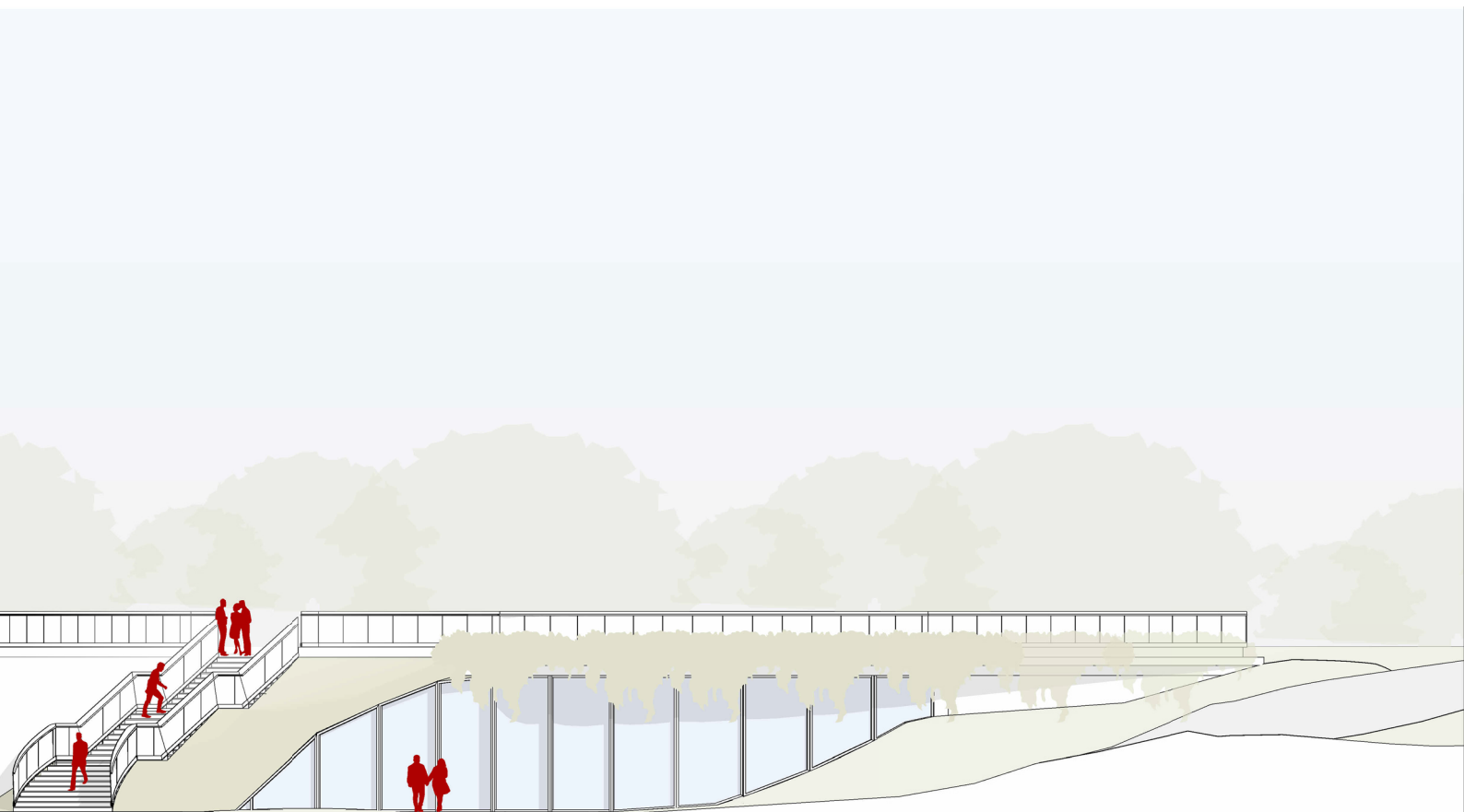


Figure 5.7.5 - ELEVATION OF CREATIVE HALL IN 1:200 SCALE



An accessible green roof extends the public realm beyond ground level, creating new opportunities for movement, gathering and observation. Together, the building and landscape form a continuous public environment that supports the broader regeneration strategy of Gurone Mills.



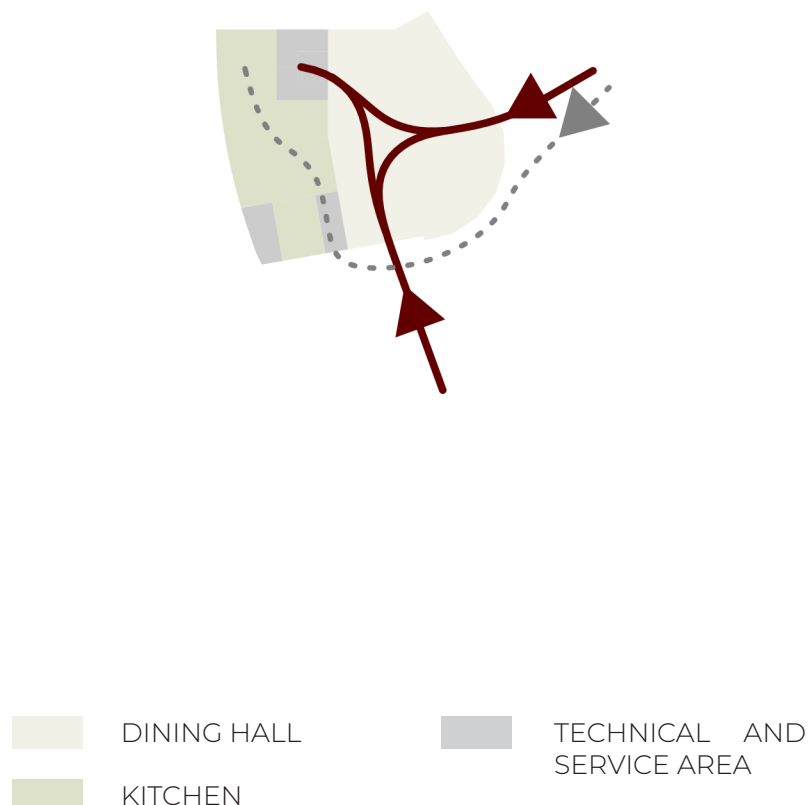
5.7 ARCHITECTURAL PROPOSAL

TRATTORIA

The trattoria functions as one of the key public destinations within the Gurone Mills masterplan. Positioned at the intersection between the historic settlement and the productive activities, it creates a space where social interaction and local identity converge. As the trattoria will offer unique culinary experiences it aims to attract locals and visitors alike.

Conceived as a contemporary intervention, the building complements the broader strategy of productive regeneration by providing a place for gathering, dining and community life. Together with the Creative Hall and the network of public spaces, the trattoria contributes to the activation of the site throughout the day and reinforces the relationship between visitors, residents and the cultural landscape of Gurone.

Figure 5.7.6 - FUNCTIONAL ZONING OF TRATTORIA



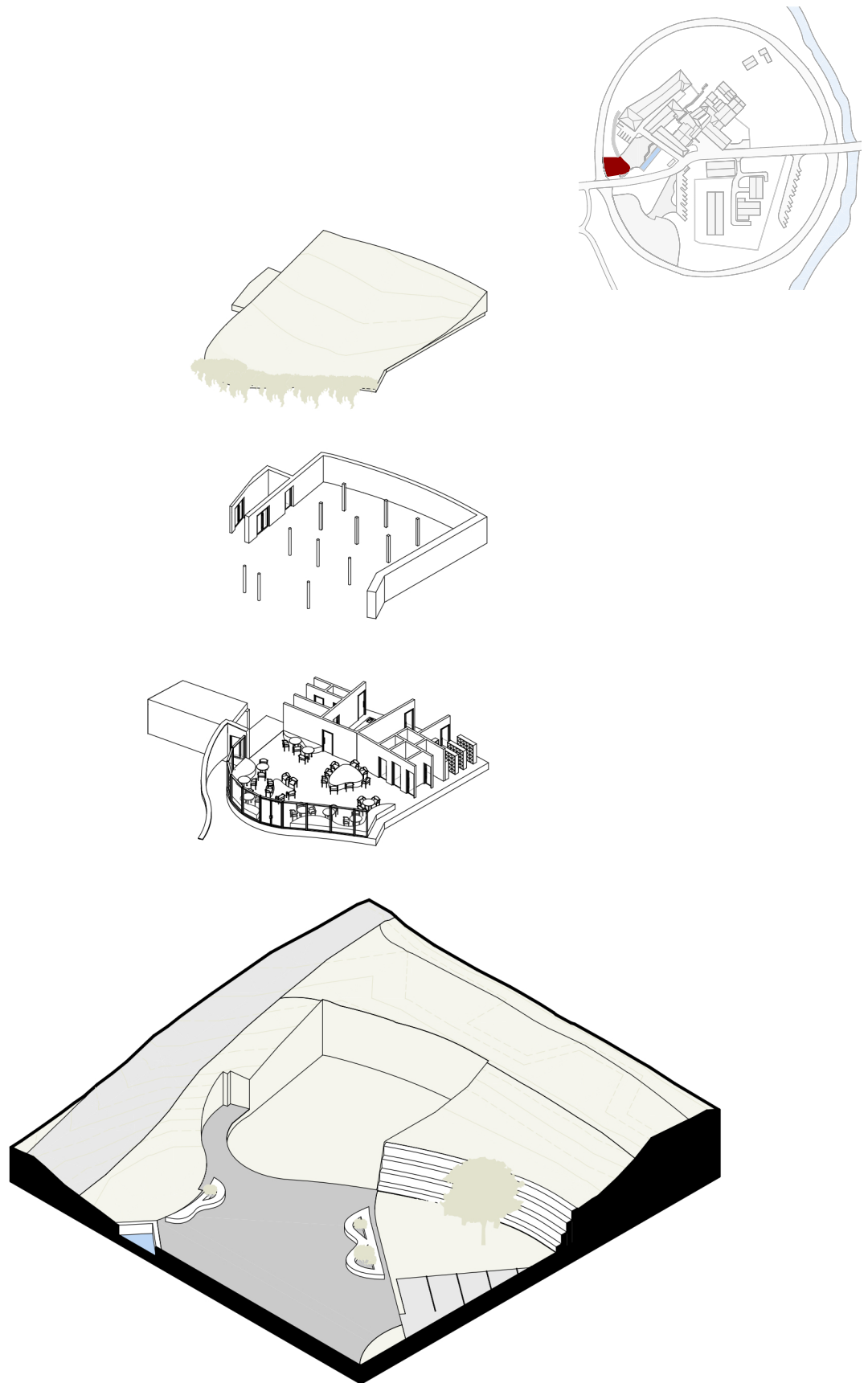


Figure 5.7.7 - EXPLOADED 3D

5.7 ARCHITECTURAL PROPOSAL
TRATTORIA

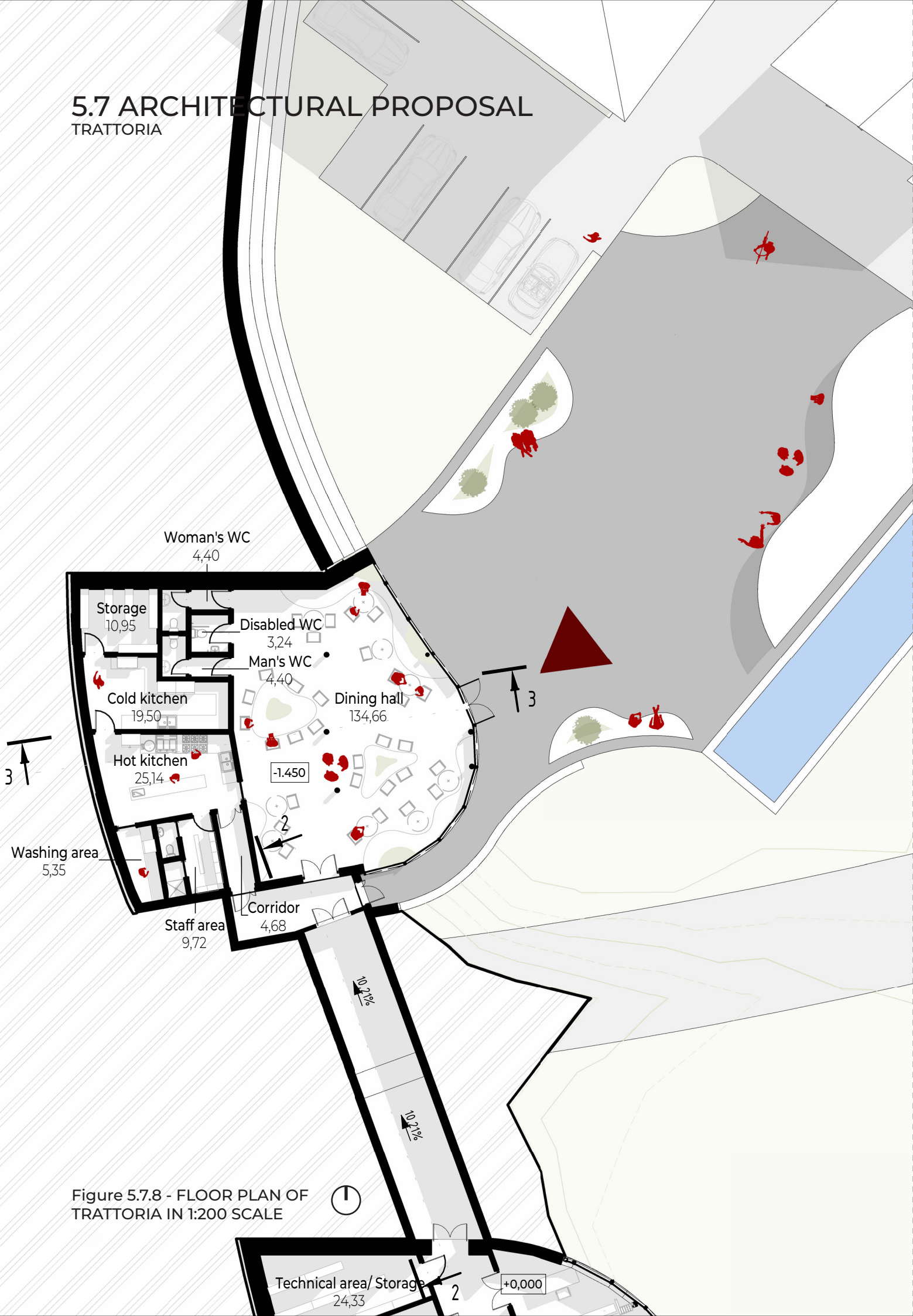
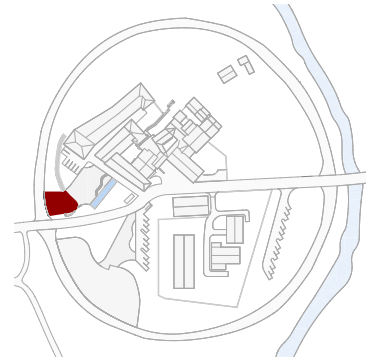


Figure 5.7.8 - FLOOR PLAN OF
TRATTORIA IN 1:200 SCALE



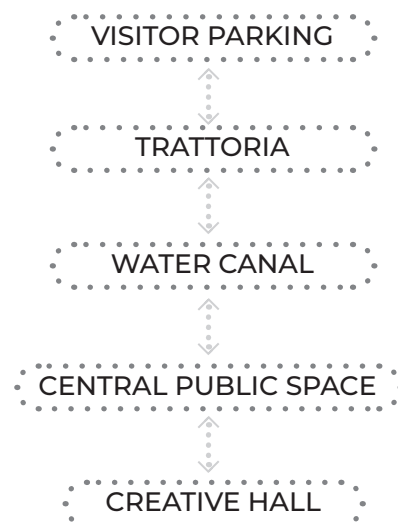
PROGRAMMATIC ORGANISATION

The trattoria is conceived as a small-scale public building positioned at the entrance of the regenerated settlement. Its location allows it to operate both as an independent destination and as part of the wider network of public and productive activities developed across the Gurone Mills complex.

The internal organisation follows a clear separation between public and service functions. The dining area is oriented towards the central public spaces and the surrounding landscape. The kitchen and support facilities are concentrated within a compact service core.

The adjacent covered public area extends the activity of the building outdoors, providing a flexible space for occurrences such as temporary markets, seasonal events and community gatherings. These functions contribute to the activation of the site and strengthen its role as a social destination within the masterplan.

Finally, during the site survey, the remains of the former mill water canal were identified adjacent to the building. The proposal envisages its restoration and partial reactivation as a water feature. By reintroducing water into the historic canal, this former piece of infrastructure becomes a scenic focal point that enhances the landscape setting of the trattoria and creates an attractive outdoor space for visitors.



5.7 ARCHITECTURAL PROPOSAL

TRATTORIA

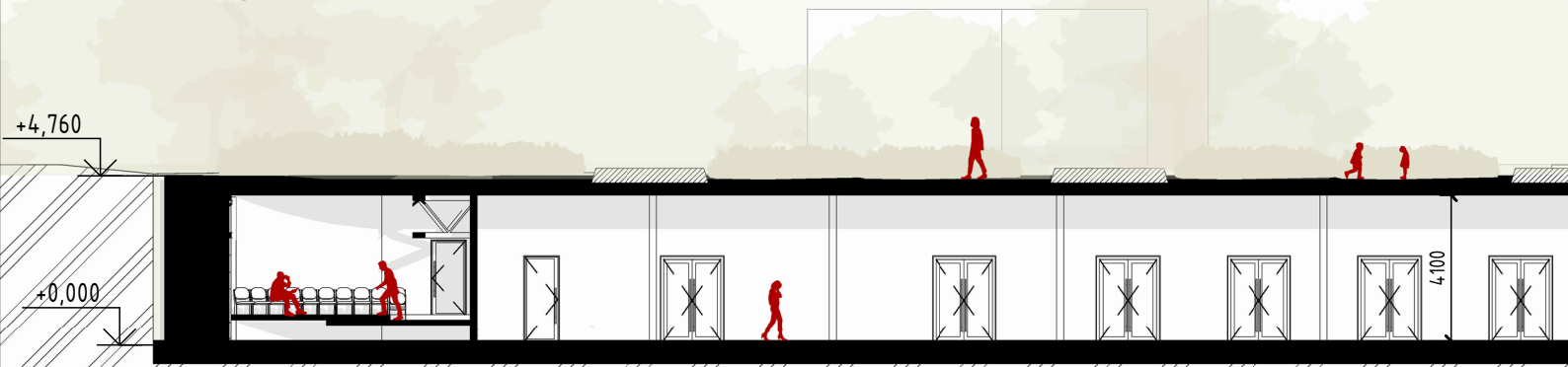


Figure 5.7.9 - SECTION 2-2 OF TRATTORIA IN 1:200 SCALE

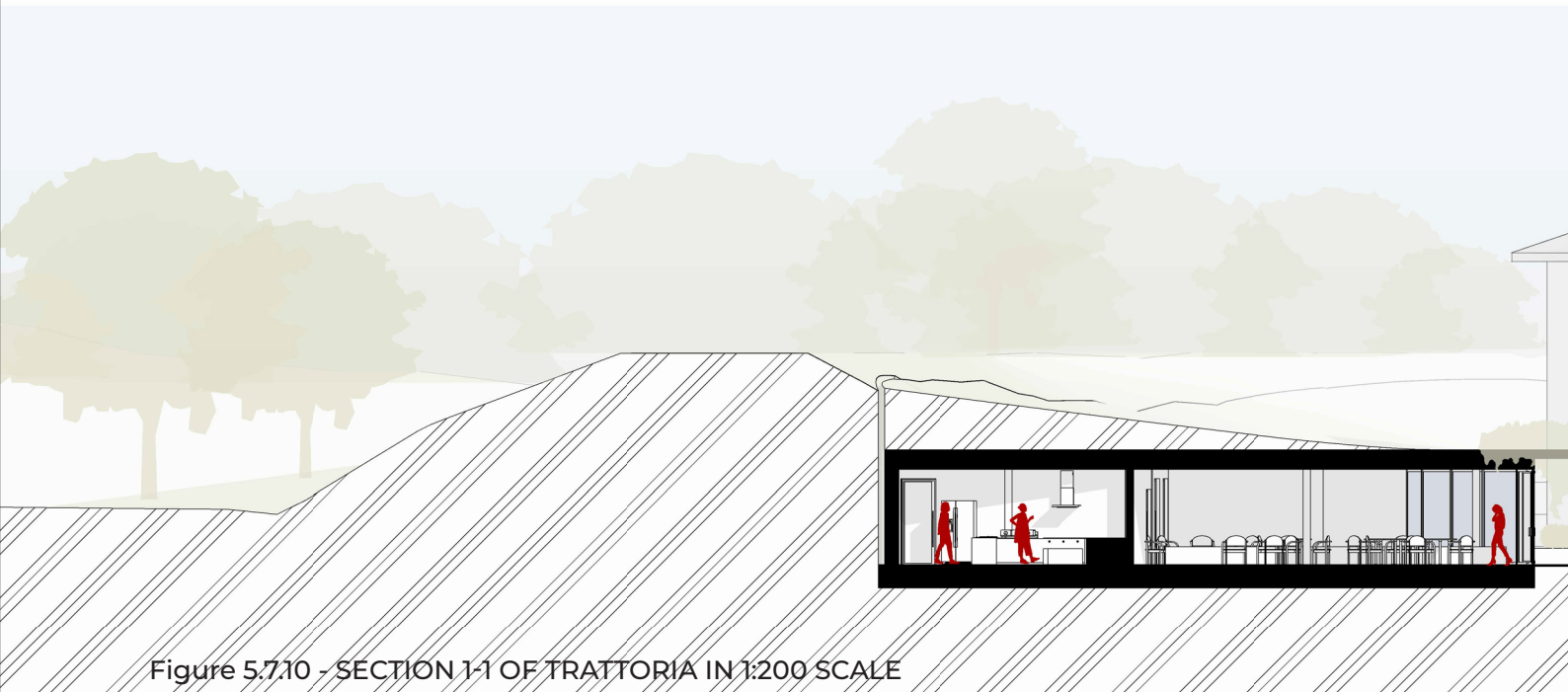


Figure 5.7.10 - SECTION 1-1 OF TRATTORIA IN 1:200 SCALE

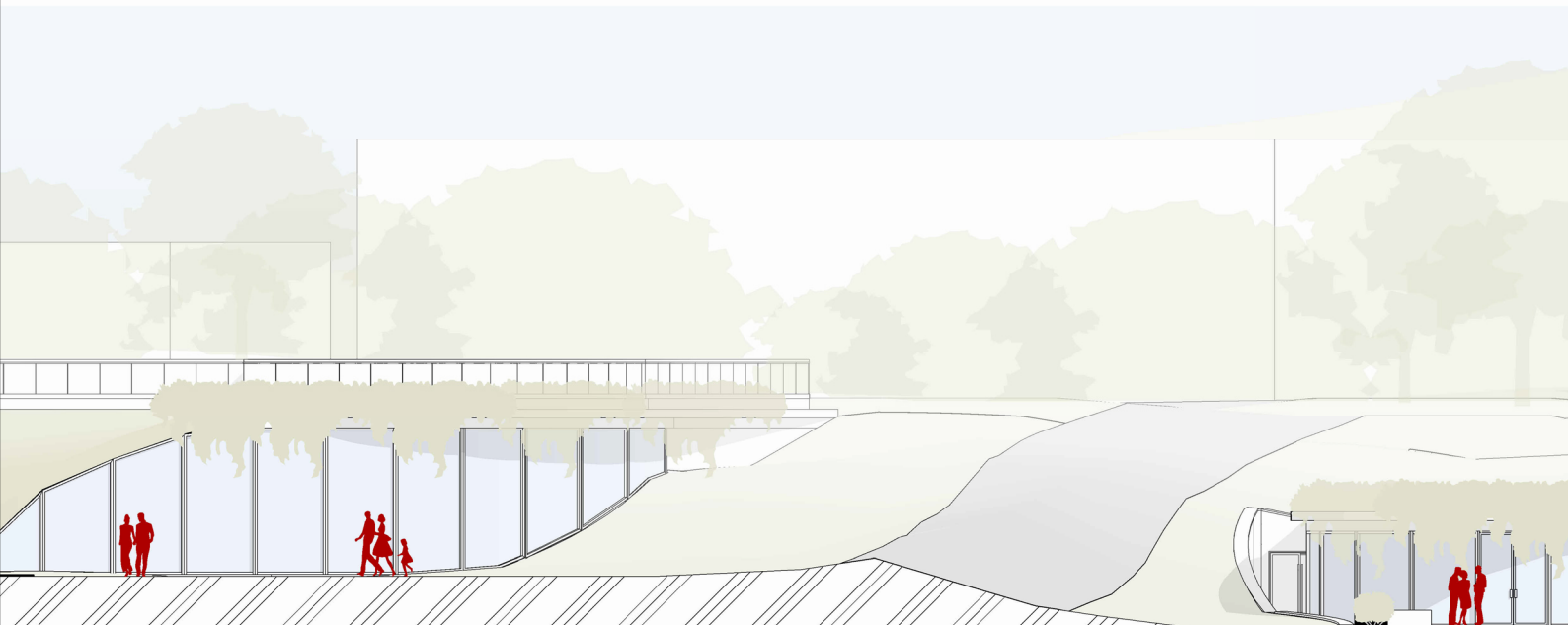
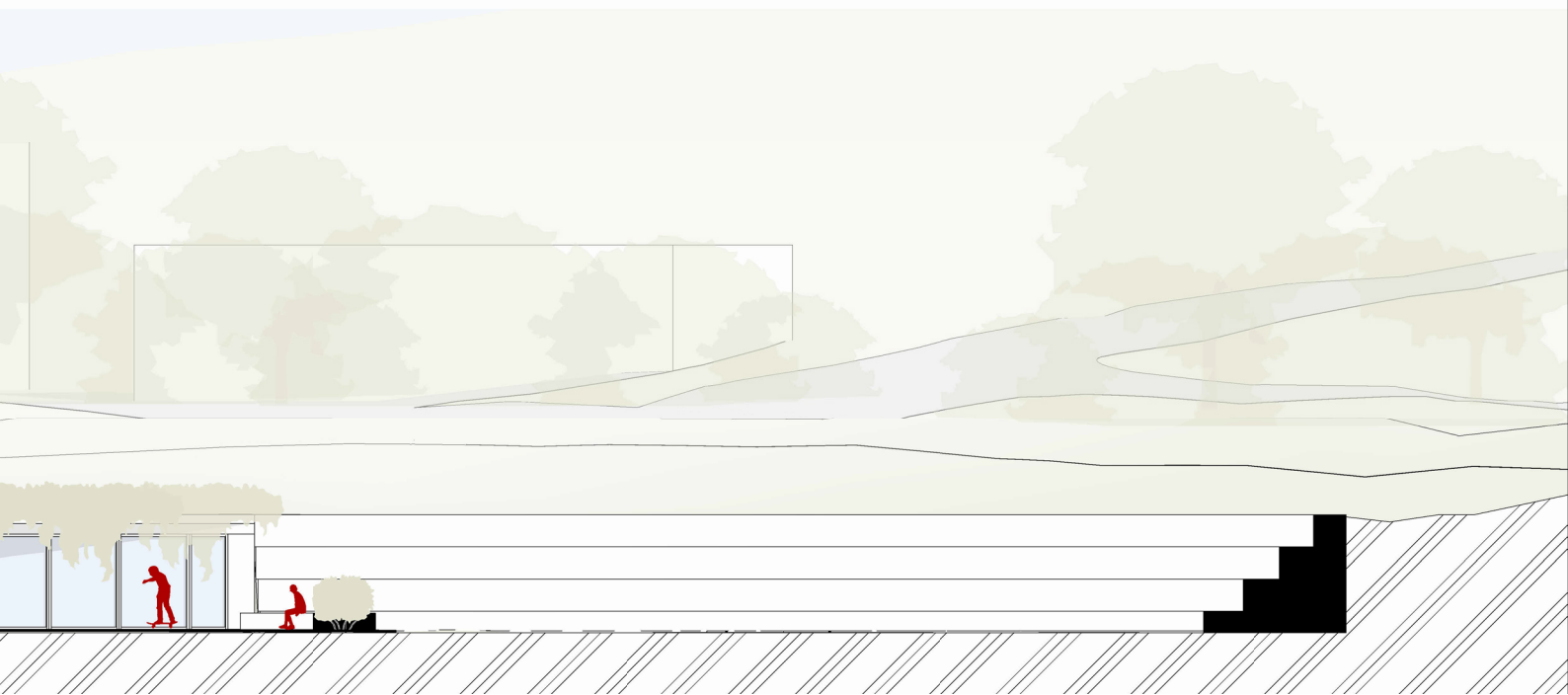
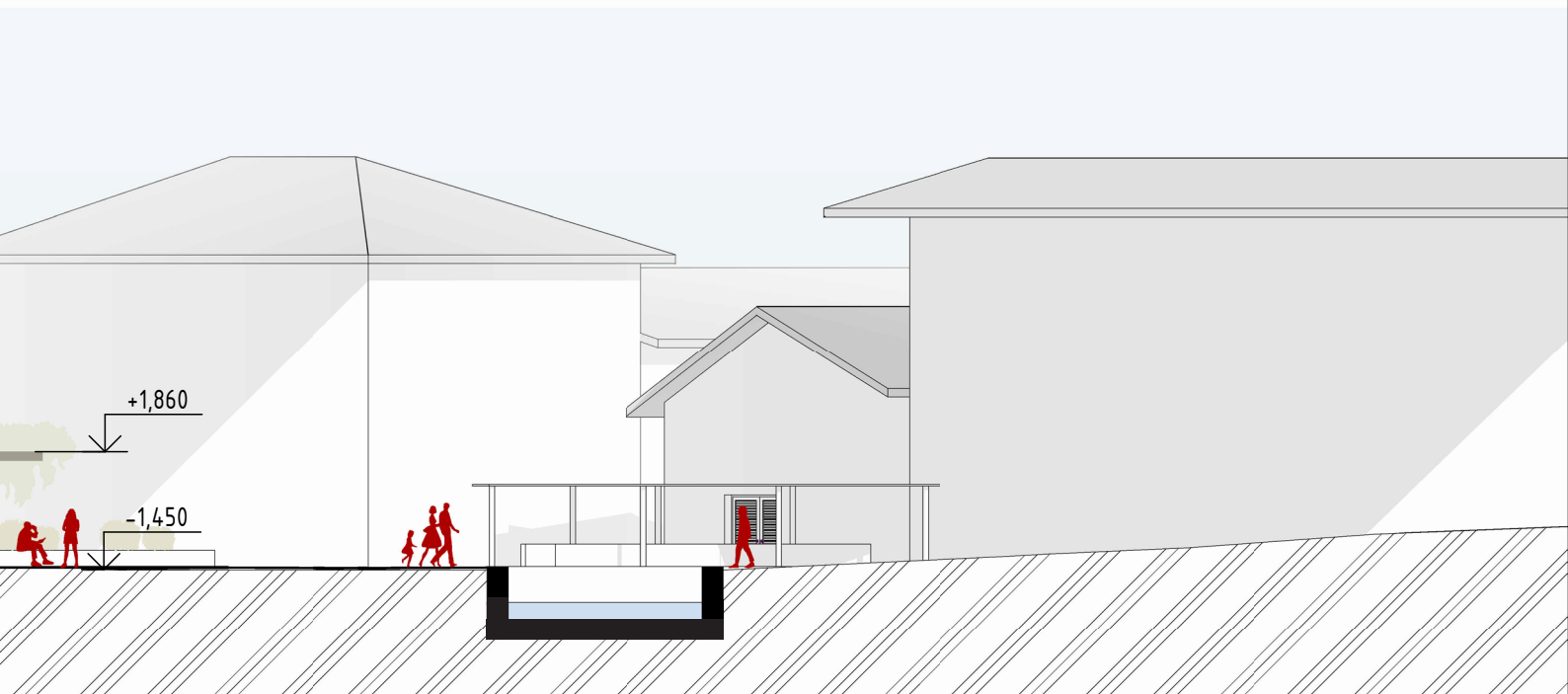
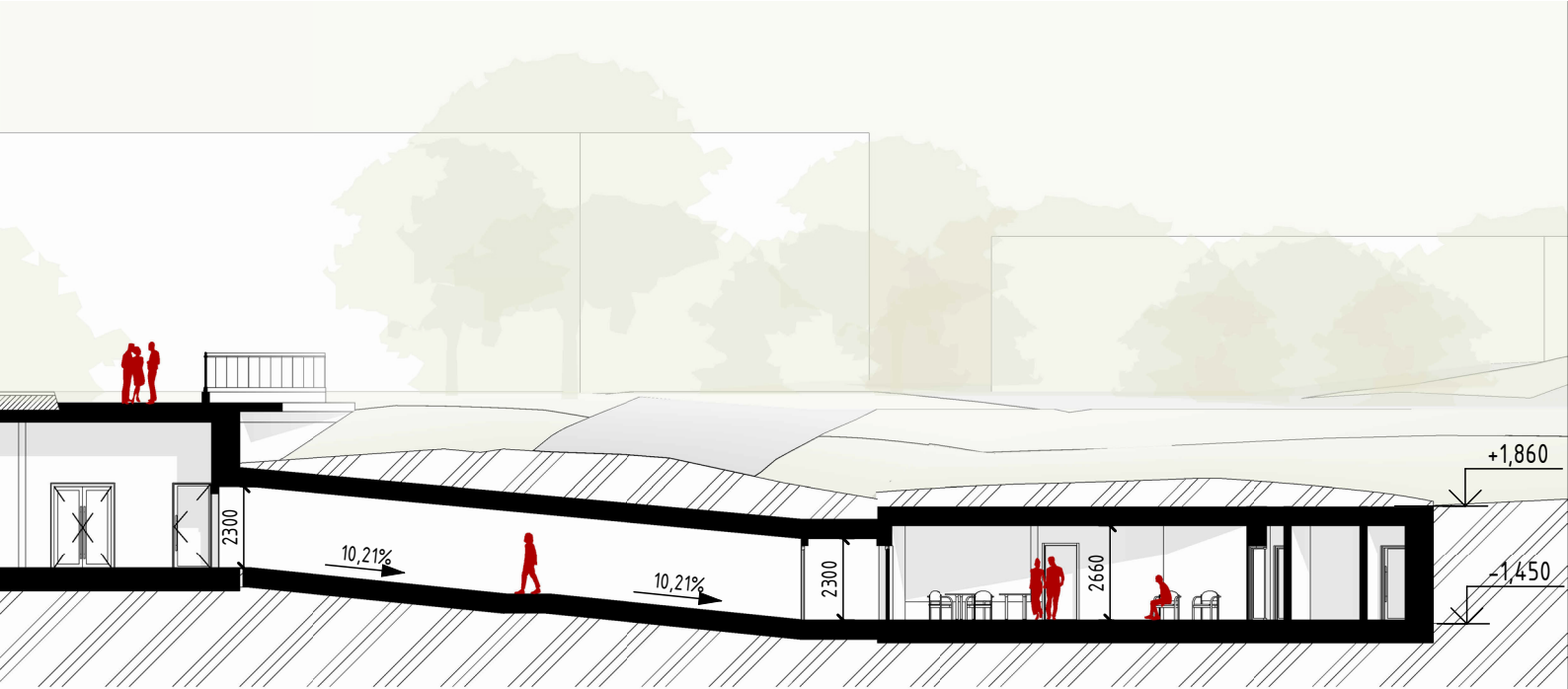


FIGURE 5.7.11 - Elevation of Trattoria in 1:200 scale



5.7 ARCHITECTURAL PROPOSAL

BRIDGE INTERVENTION

Since the objective is minimising impact on the historic environment, the bridge is conceived as a lightweight intervention designed to improve connectivity. The main objective is for it to operate as an unobtrusive connector between the different parts of the settlement.

The slender structure preserves visual continuity across the site. By increasing accessibility it strengthens the relationship between the landscape and the new public spaces introduced by the proposal.

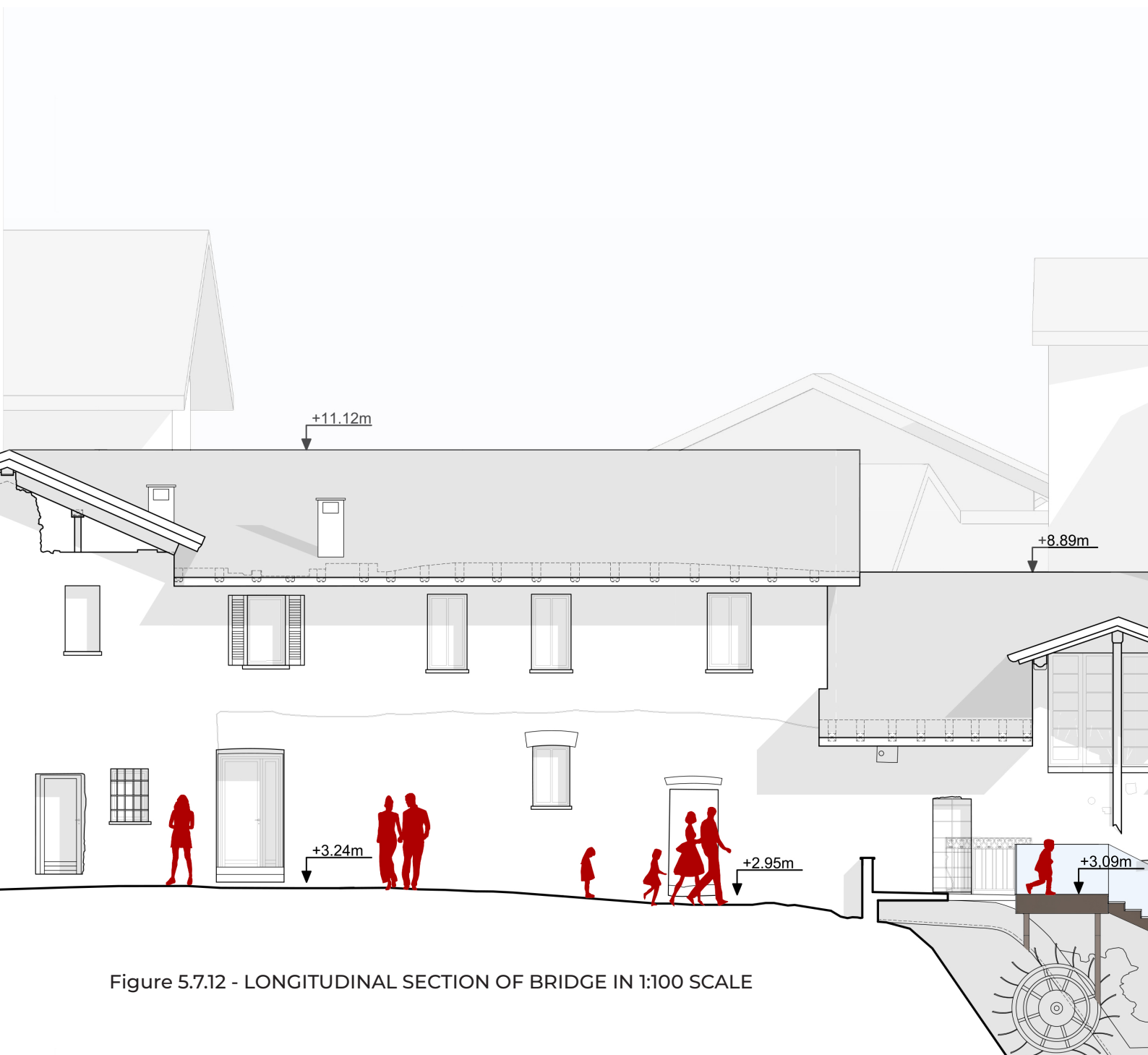


Figure 5.7.12 - LONGITUDINAL SECTION OF BRIDGE IN 1:100 SCALE

VISUAL PERMEABILITY



MINIMAL INTERVENTION

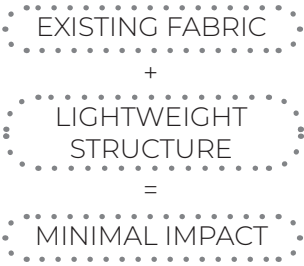




Figure 5.7.13 - 3D OF BRIDGE

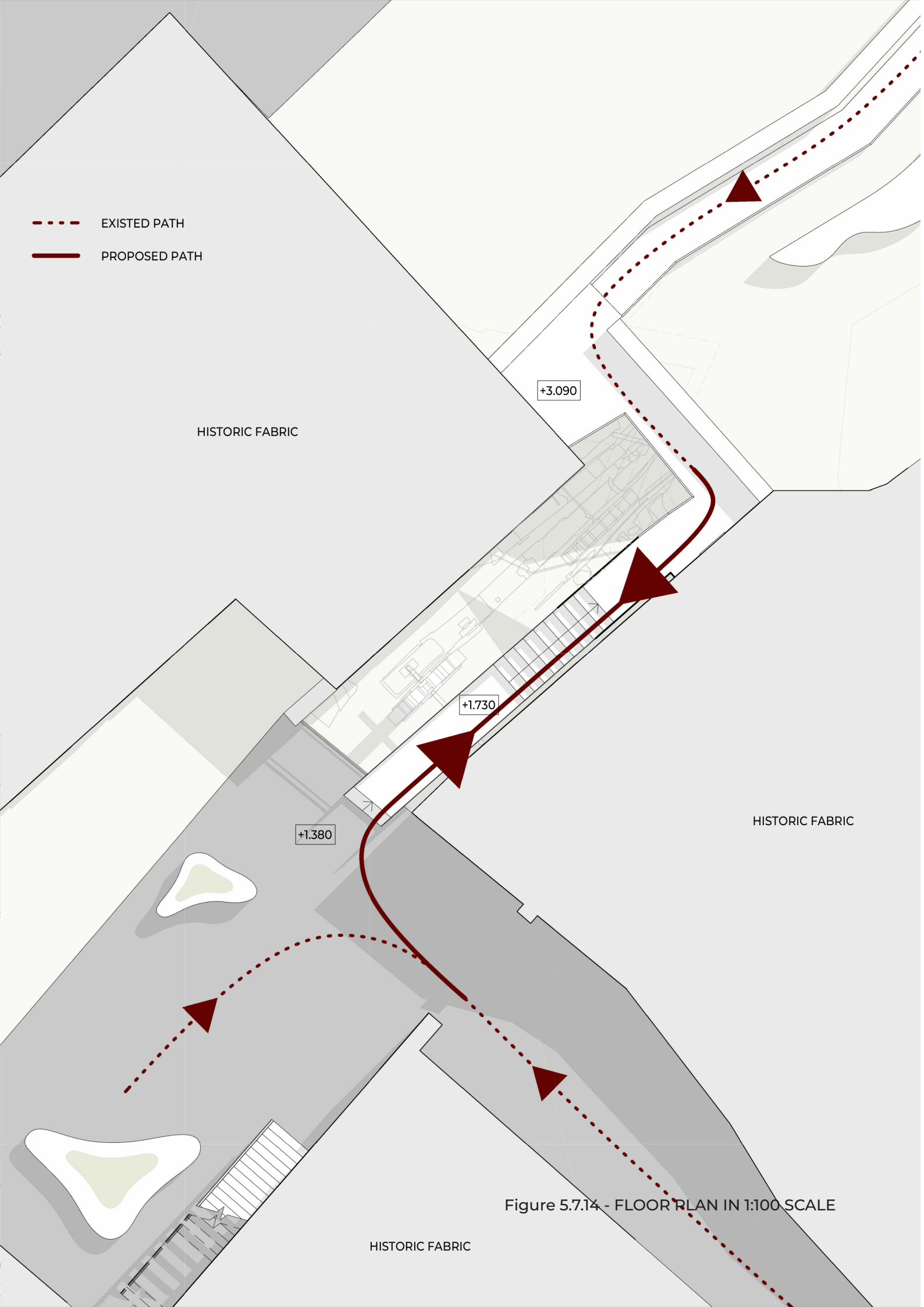


Figure 5.7.14 - FLOOR PLAN IN 1:100 SCALE

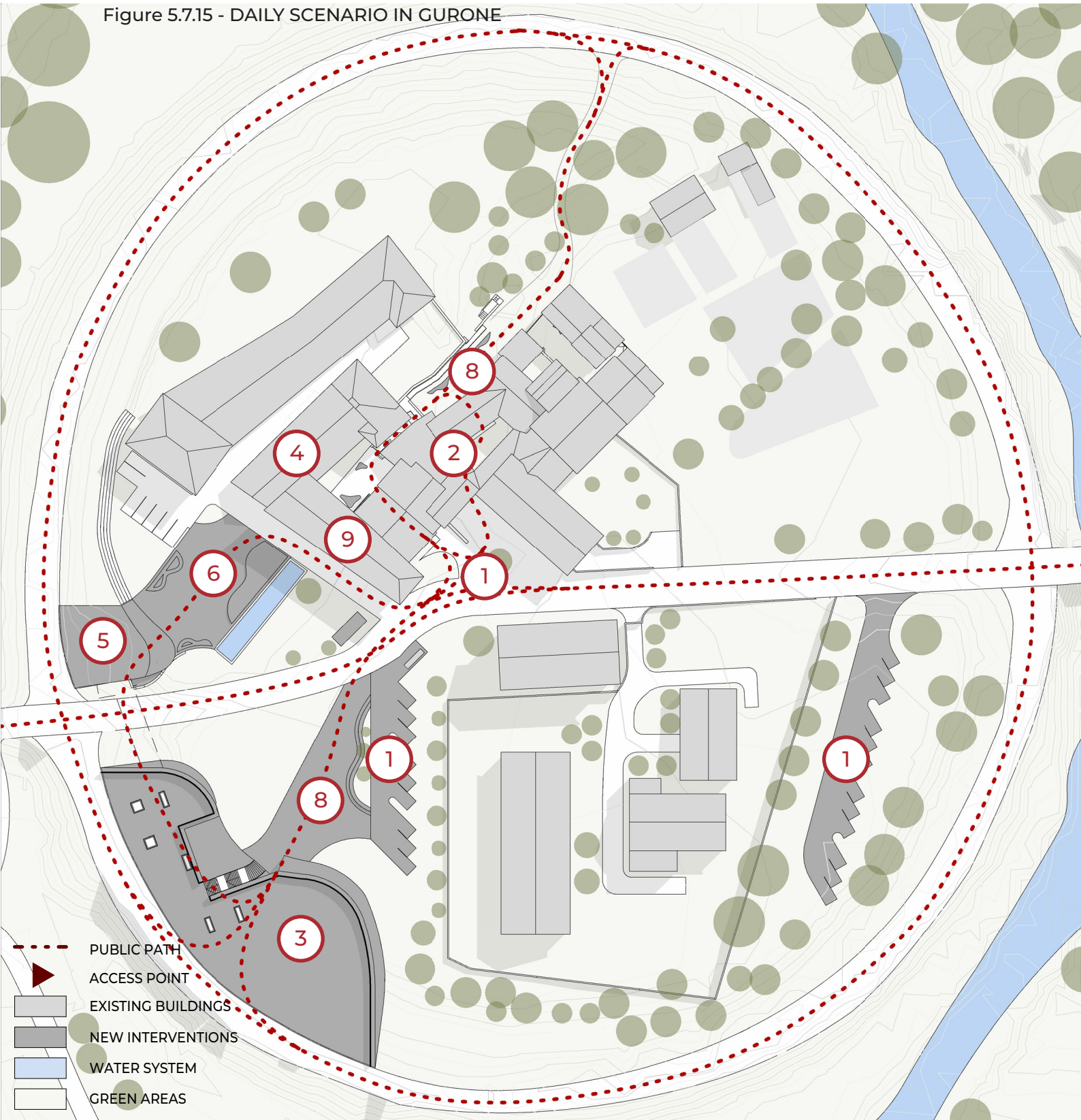
5.7 ARCHITECTURAL PROPOSAL

A DAY IN GORONE MILLS

The regenerated Gurone Mills complex is envisioned as an open and multifunctional destination that connects the historical layers of the site with contemporary public life. The scenario illustrates a possible sequence of experiences a visitor can have throughout the day, moving between culture, work nature and community.

The courtyards, the new public spaces, the former water system and the river create a coherent network of places that can adapt to different rhythms and uses. The complex becomes a living ecosystem that preserves memory while supporting new forms of social and economic exchange.

Figure 5.7.15 - DAILY SCENARIO IN GURONE



SITE SCENARIO

OVERVIEW



1. ARRIVAL

Morning

Visitors arrive by bus, foot, bicycle or car. The entrance plaza and information point introduce the history and identity of the Gurone Mills complex



2. MILL MUSEUM

Morning

The historical mill is preserved as a museum, presenting the industrial heritage of the Olona Valley and the evolution of the site through time



3. COWORKING & STUDY SPACES

Late morning

New volumes provide flexible workspaces for artists, students, remote workers and local entrepreneurs



4. WORKSHOPS & MAKER SPACES

Afternoon

Spaces dedicated to craftsmanship, education and small-scale production encourage interaction between residents, visitors and local makers.



5. TRATTORIA

Lunch/ dinner

The trattoria offers meals prepared with locally produced ingredients, creating a direct connection between food production, hospitality and the surrounding landscape.



6. MARKET

Weekend

The market showcases local farmers, artisans and producers, strengthening the local economy.



7. CANAL WALK & LANDSCAPE ROUTE

Throughout the Day

A pedestrian route follows the historical canal and connects the different parts of the complex, linking heritage, nature and public spaces.



8. COMMUNITY COURTYARDS

Afternoon/ evening

The courtyard system serves as the social heart of the project, supporting informal gathering, outdoor work, recreation and community interaction.



9. SEASONAL EVENTS & FESTIVALS

Throughout the Day

Markets, exhibitions, food festivals and cultural events activate the public spaces and attract visitors from the wider Olona Valley.



10. RESIDENCES & OVERNIGHT STAY

Night

The residential component accommodates short-term guests, artists and slow-tourism visitors, allowing the site to remain active beyond daytime activities.

5.7 ARCHITECTURAL PROPOSAL

COURTYARD SYSTEM

The courtyard network forms the primary public structure of the proposal, connecting historic buildings, new interventions and landscape elements into a consistent sequence of outdoor spaces. The courtyards are conceived as flexible public environments capable of accommodating different levels of activity throughout the year. This is done to avoid having them function solely as residual areas between buildings.

During everyday use, the courtyards provide spaces for recreation, informal gathering and outdoor work. On weekends, temporary markets can be hosted within the dedicated covered pavilion adjacent to the trattoria and the linear pavilion along the canal. During larger seasonal events and festivals, the courtyards expand into collective spaces for all kinds of activities.

Through the integration of seating, vegetation and adaptable open surfaces, the courtyard system supports a variety of uses while preserving the intimate scale of the existing settlement and reinforcing the social character of the regenerated Gurone Mills complex.

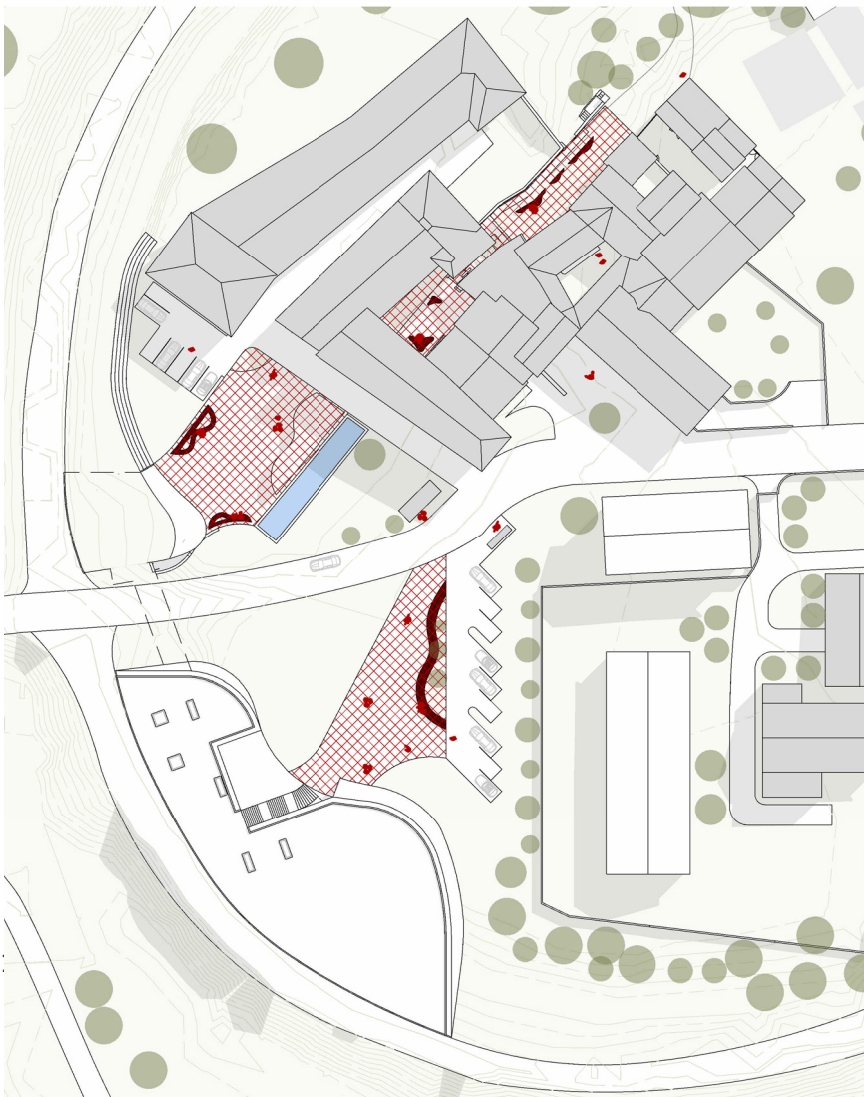


Figure 5.7.16 -
SCENARIO 01

EVERYDAY USE

Figure 5.7.17 -
SCENARIO 02

WEEKEND MARKET

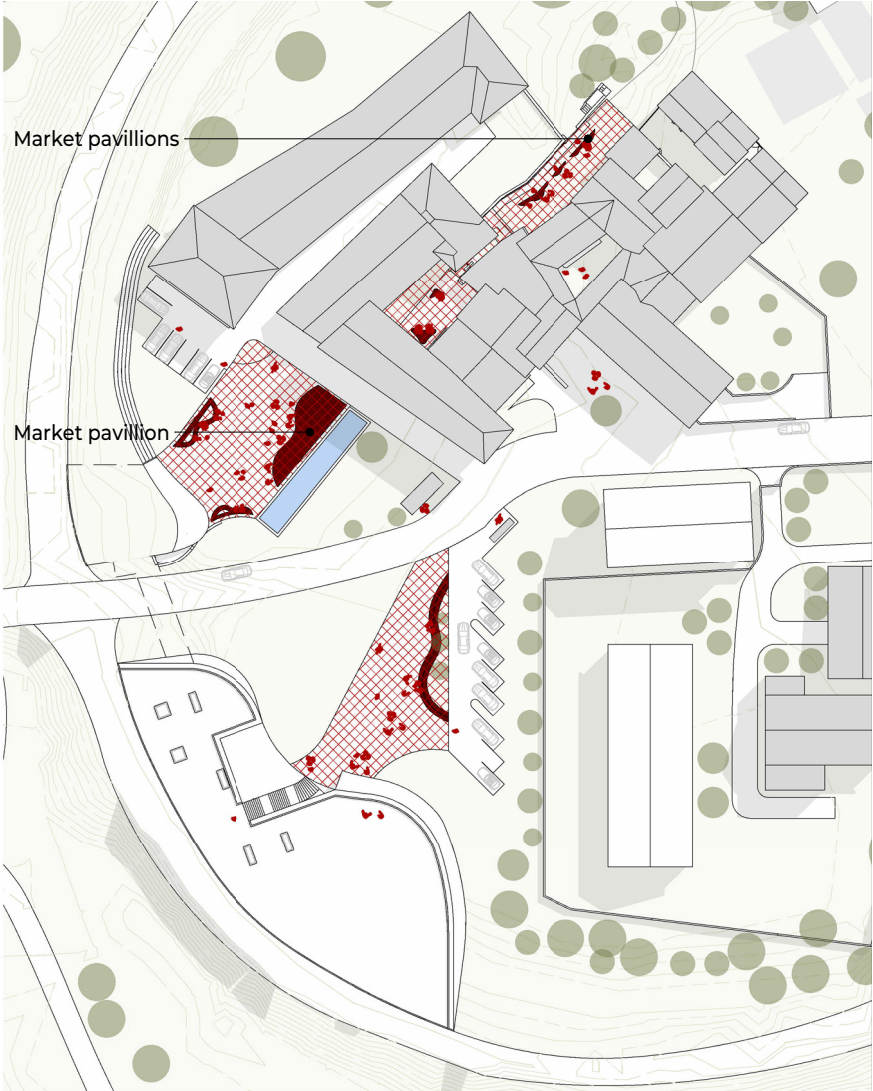
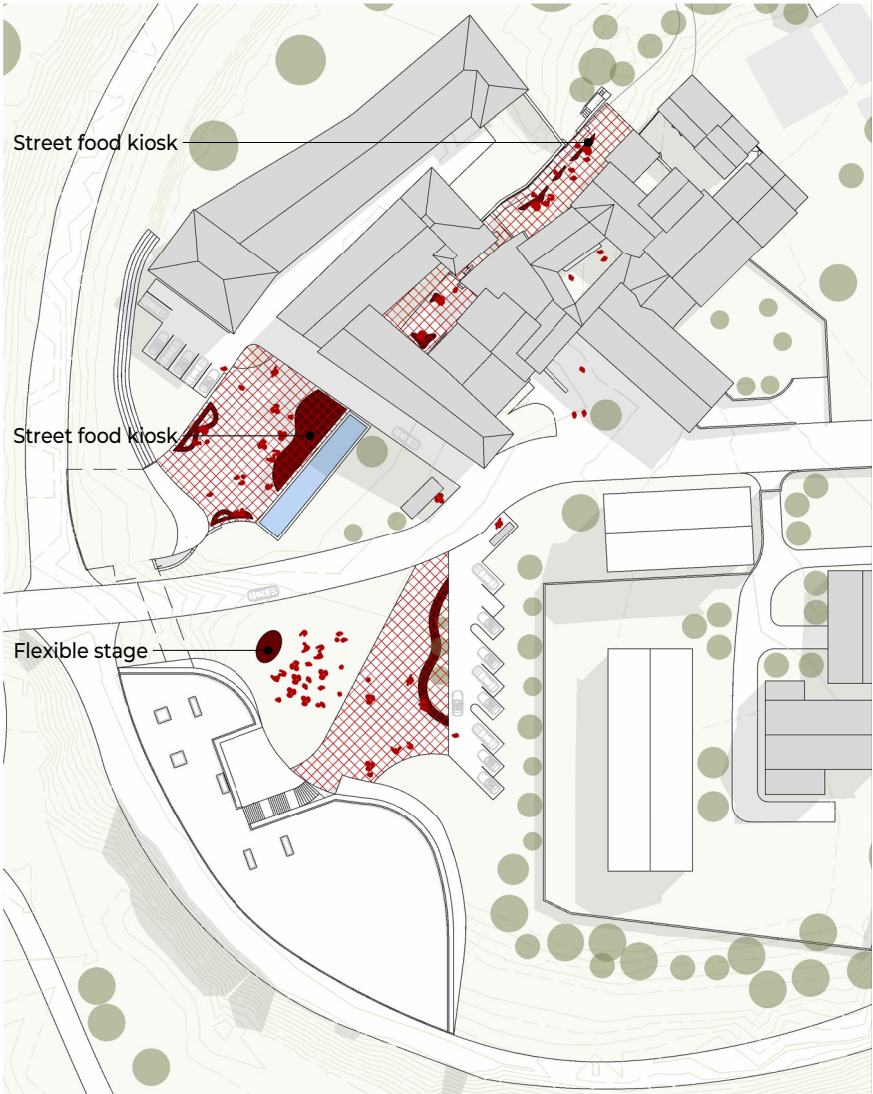


Figure 5.7.18 -
SCENARIO 03

SEASONAL
FESTIVAL



5.8 SPATIAL EXPERIENCE AND VISITOR SCENARIOS

EXTERIOR ATMOSPHERES



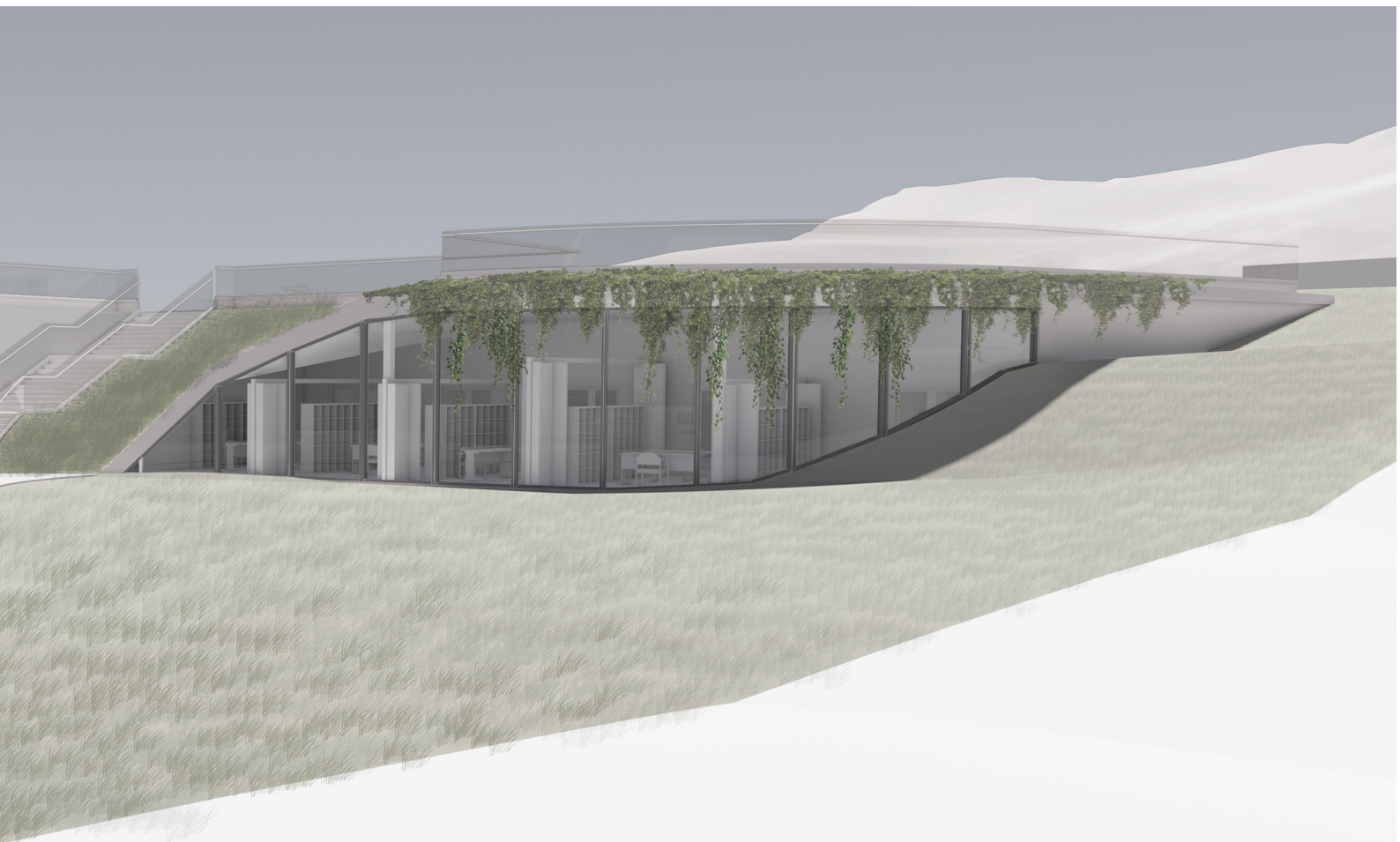
Figure 5.8.1 - TRATTORIA



Figure 5.8.2 - CREATIVE HALL



Figure 5.8.3 - BRIDGE



5.8 SPATIAL EXPERIENCE AND VISITOR SCENARIOS

INTERIOR ATMOSPHERES

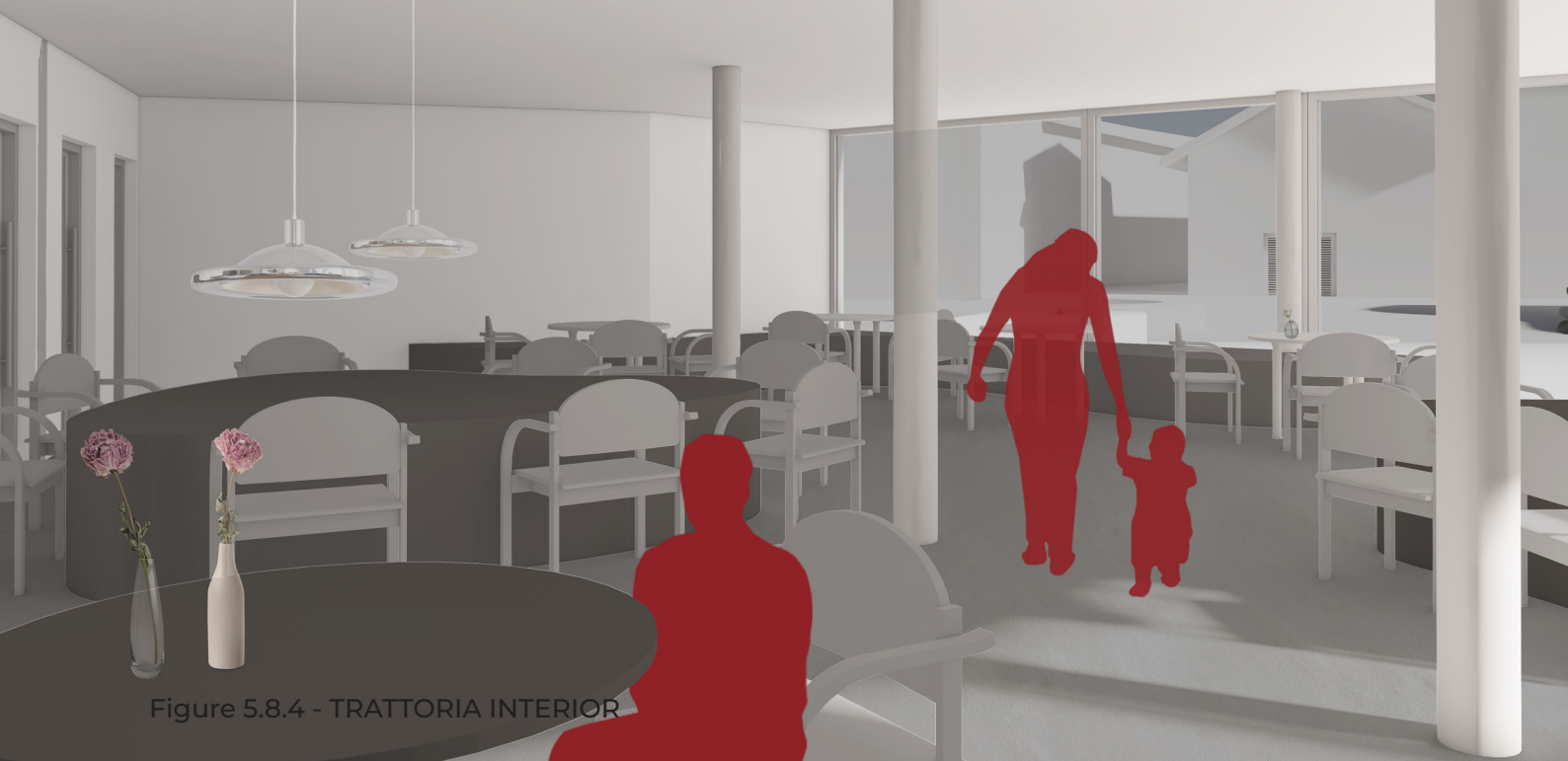


Figure 5.8.4 - TRATTORIA INTERIOR



Figure 5.8.5 - EXHIBITION SPACE



Figure 5.8.6 - WORKSHOP



5.9 SUSTAINABILITY STRATEGY

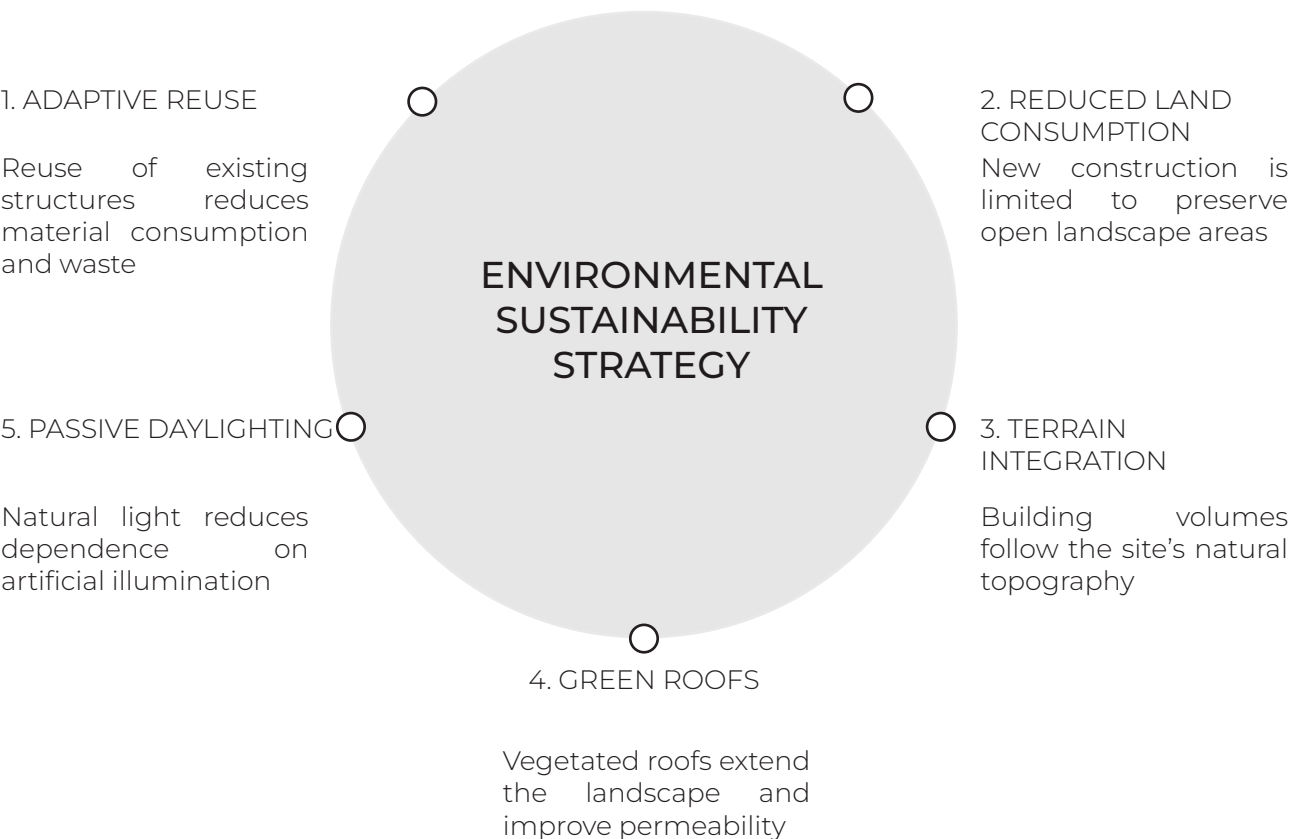
ENVIRONMENTAL SUSTAINABILITY

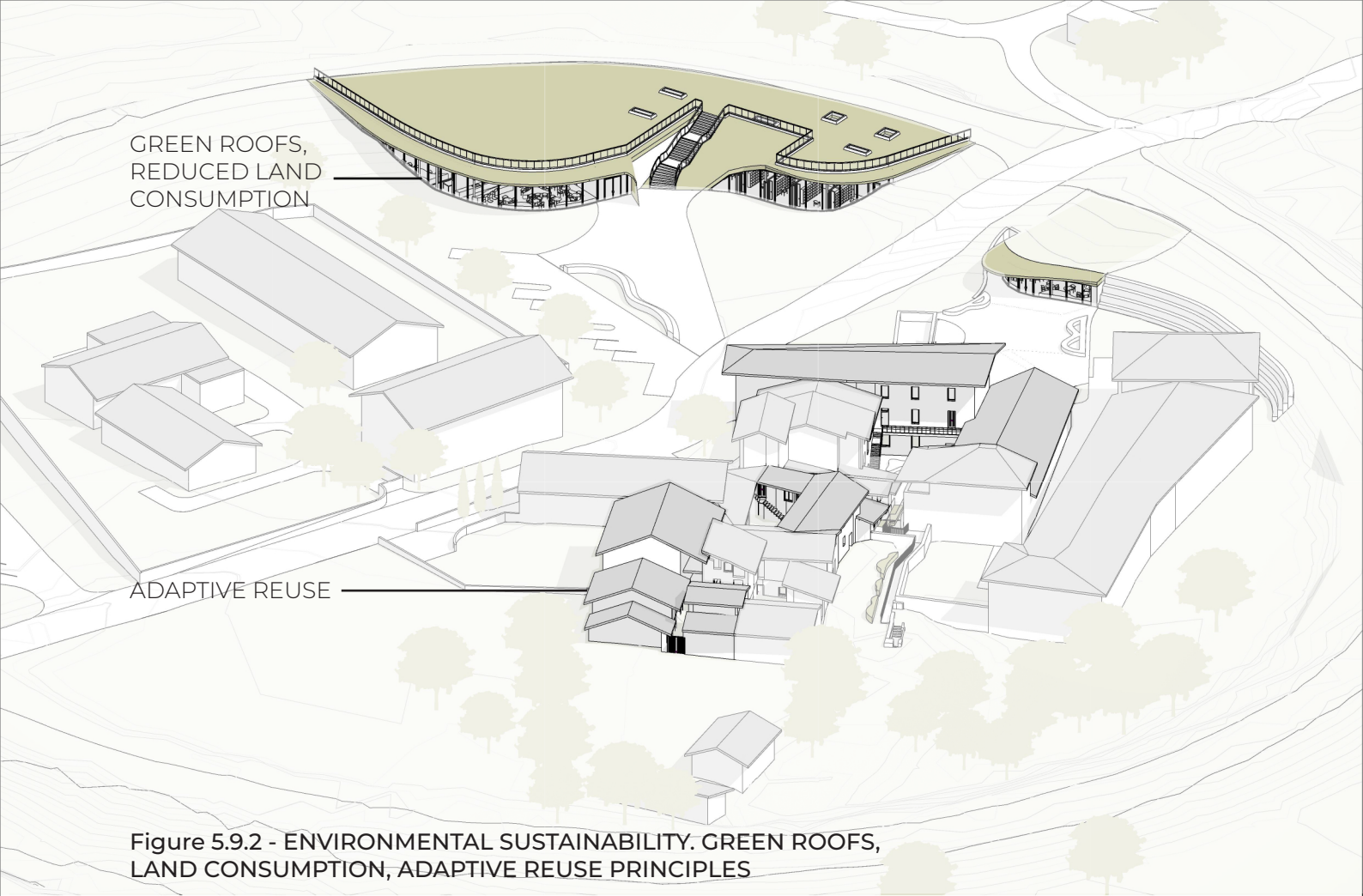
The final part of the thesis evaluates the proposal through the sustainability objective. This assessment considers how the project addresses the preservation of existing structures while tackling the aforementioned contemporary challenges in the environment, the economy, and connection.

The environmental dimension focuses on the responsible use of existing resources and the careful integration of new interventions in the landscape. To avoid relying primarily on technological solutions, the proposal adopts an approach based on adaptive reuse, reduced land consumption and long-term environmental management.

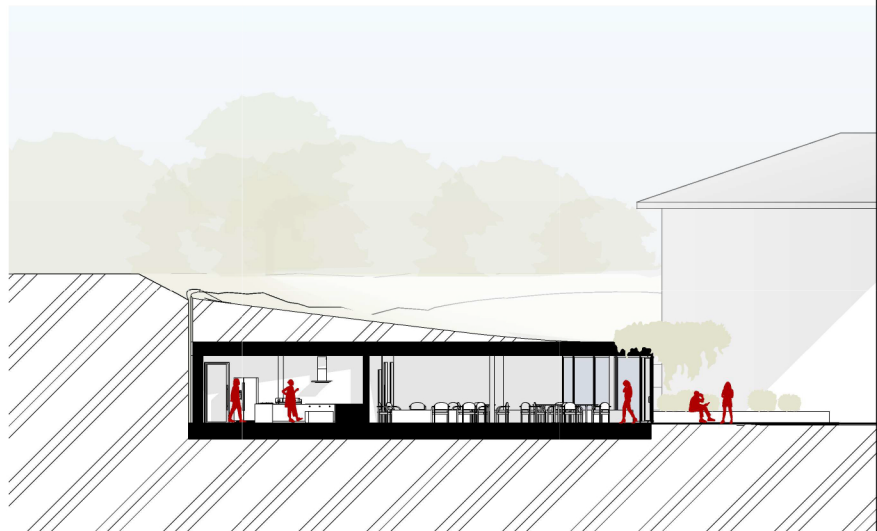
Environmental sustainability is further addressed with the introduction of accessible green roofs and the use of passive design strategies. These measures seek to minimise environmental impact, maximise public spaces, and maintain a connection to the site's heritage.

Figure 5.9.1 - ENVIRONMENTAL SUSTAINABILITY STRATEGY

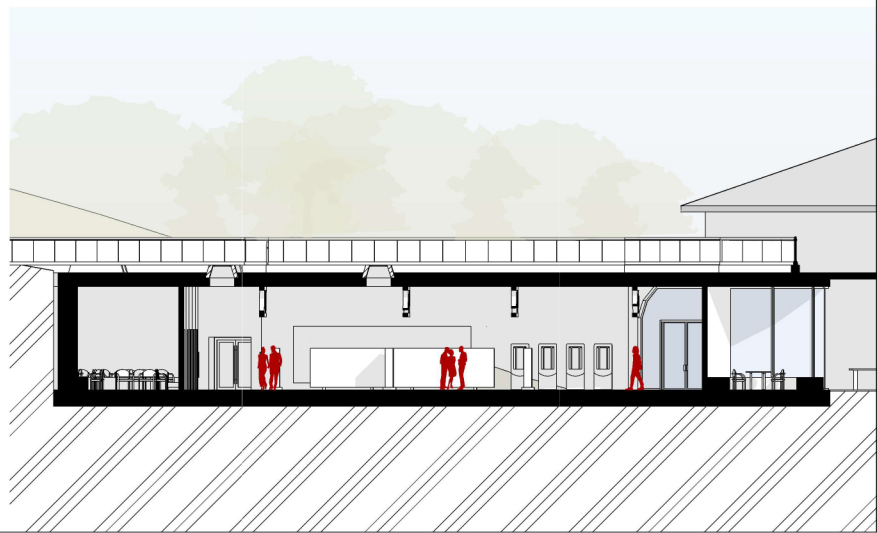




**Figure 5.9.3 - TERRAIN
INTEGRATION**



**Figure 5.9.4 - PASSIVE
DAYLIGHTING**



5.9 SUSTAINABILITY STRATEGY

SOCIAL SUSTAINABILITY

Considering the previous chapter, the focus is on three pillars: environmental sustainability, which addresses the responsible use of physical resources; social sustainability, which focuses on people, communities, and patterns of use that last over time; and economic sustainability, which is discussed in the following pages. The regeneration of the Gurone Mills complex seeks to preserve buildings and landscapes while also creating inclusive spaces that encourage interaction and collective participation.

The proposal aims to strengthen social connections and establish a vibrant, community-oriented destination that can support everyday life as well as larger cultural events.

Figure 5.9.5 - SOCIAL SUSTAINABILITY STRATEGY

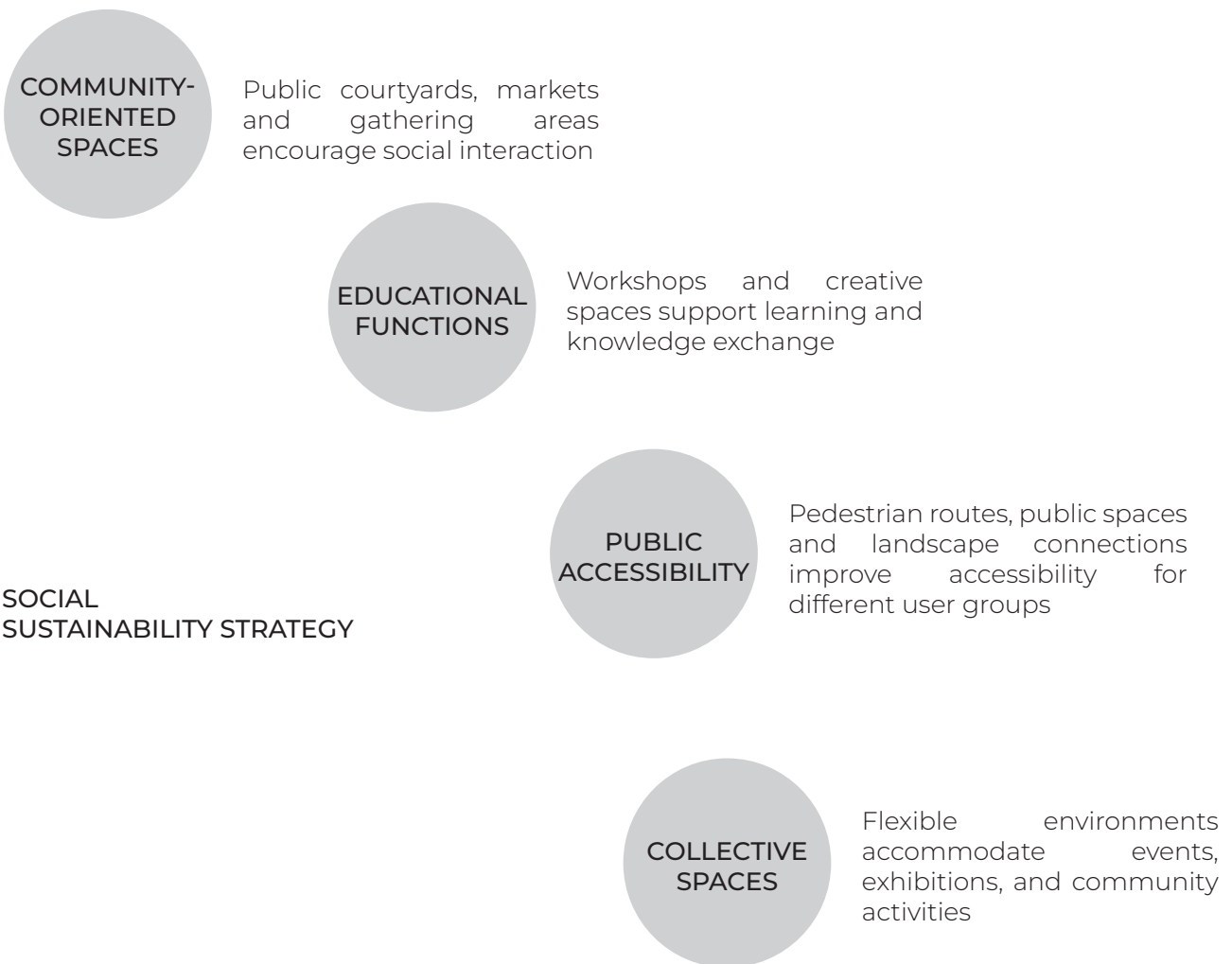
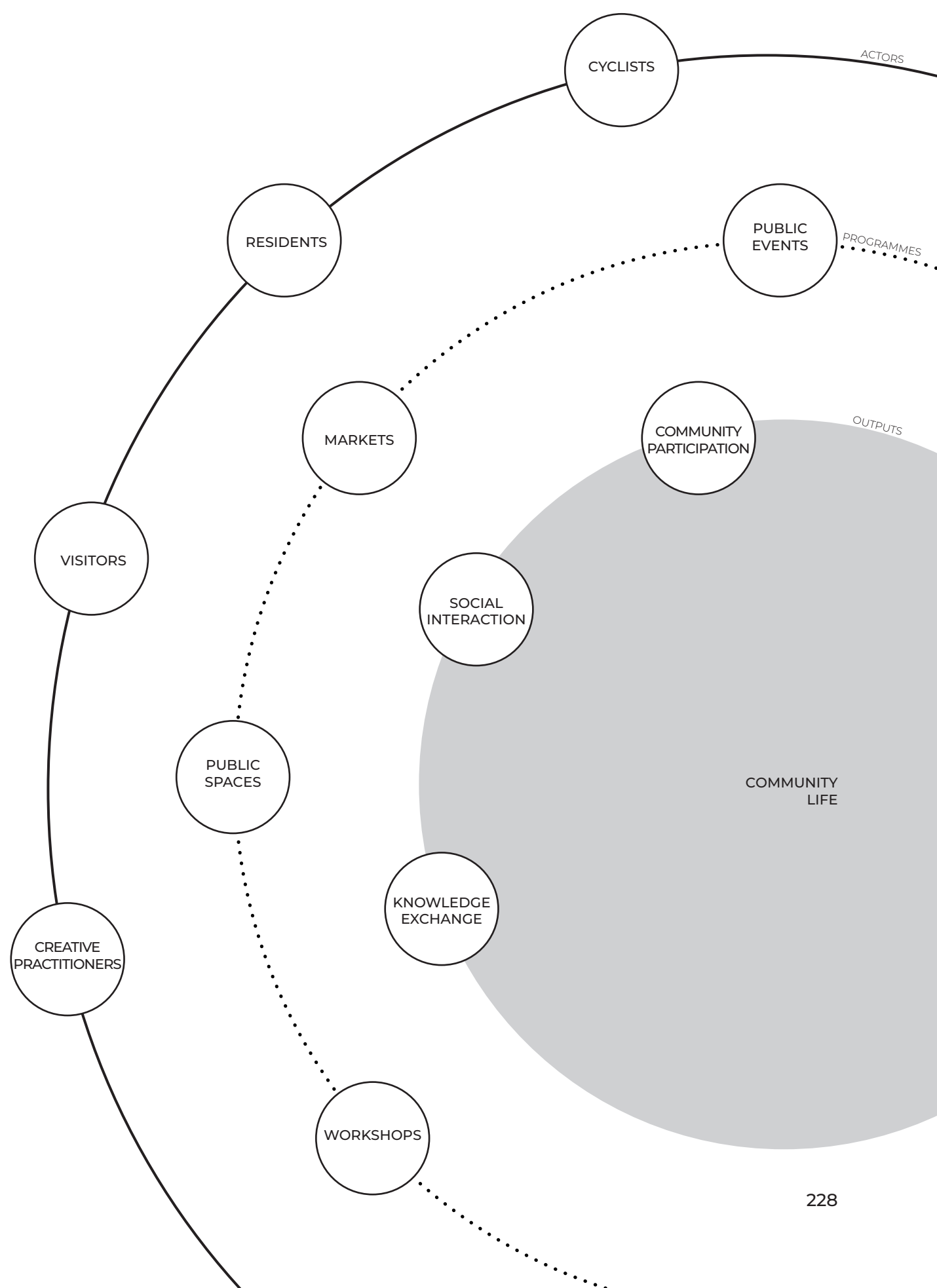


Figure 5.9.6 - SOCIAL ECOSYSTEM



5.9 SUSTAINABILITY STRATEGY

ECONOMIC SUSTAINABILITY

Beyond environmental and social considerations, the long-term success of the regeneration strategy depends on the project's ability to support sustainable economic activity. Therefore, this proposal combines educational and productive functions capable of generating continuous use, employment opportunities, local production and multiple sources of revenue.

With the integration of creative production, public programmes, hospitality, accessible outdoor environments, and food-related activities, the project seeks to build a resilient and self-sustaining economic model that contributes to the long-term maintenance and activation of the Gurone Mills complex.

Figure 5.9.7 - ECONOMIC SUSTAINABILITY STRATEGY

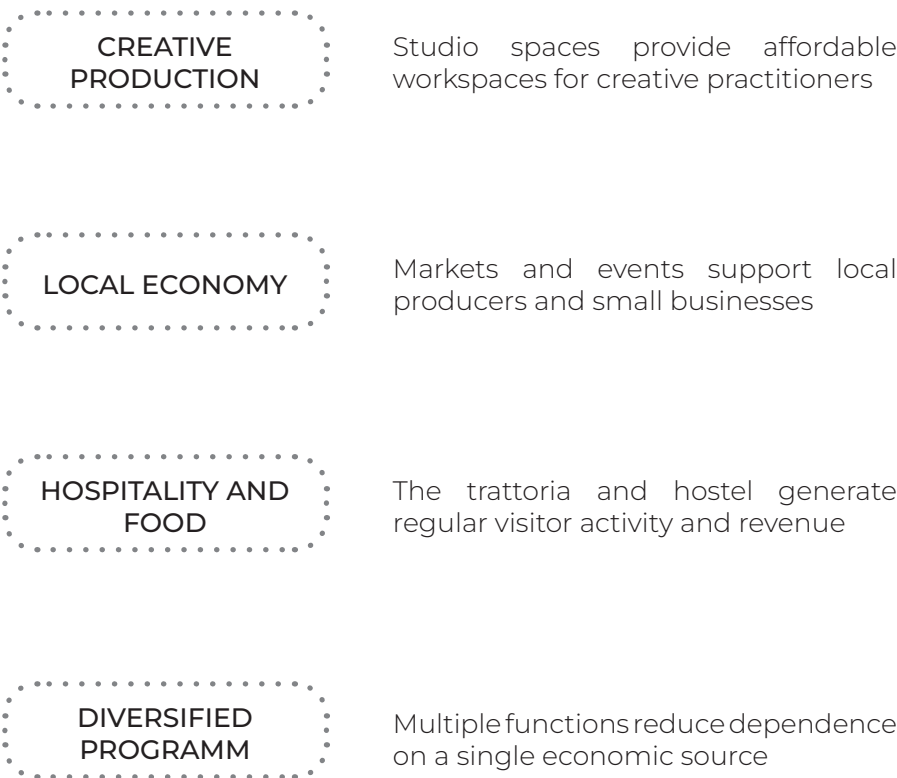
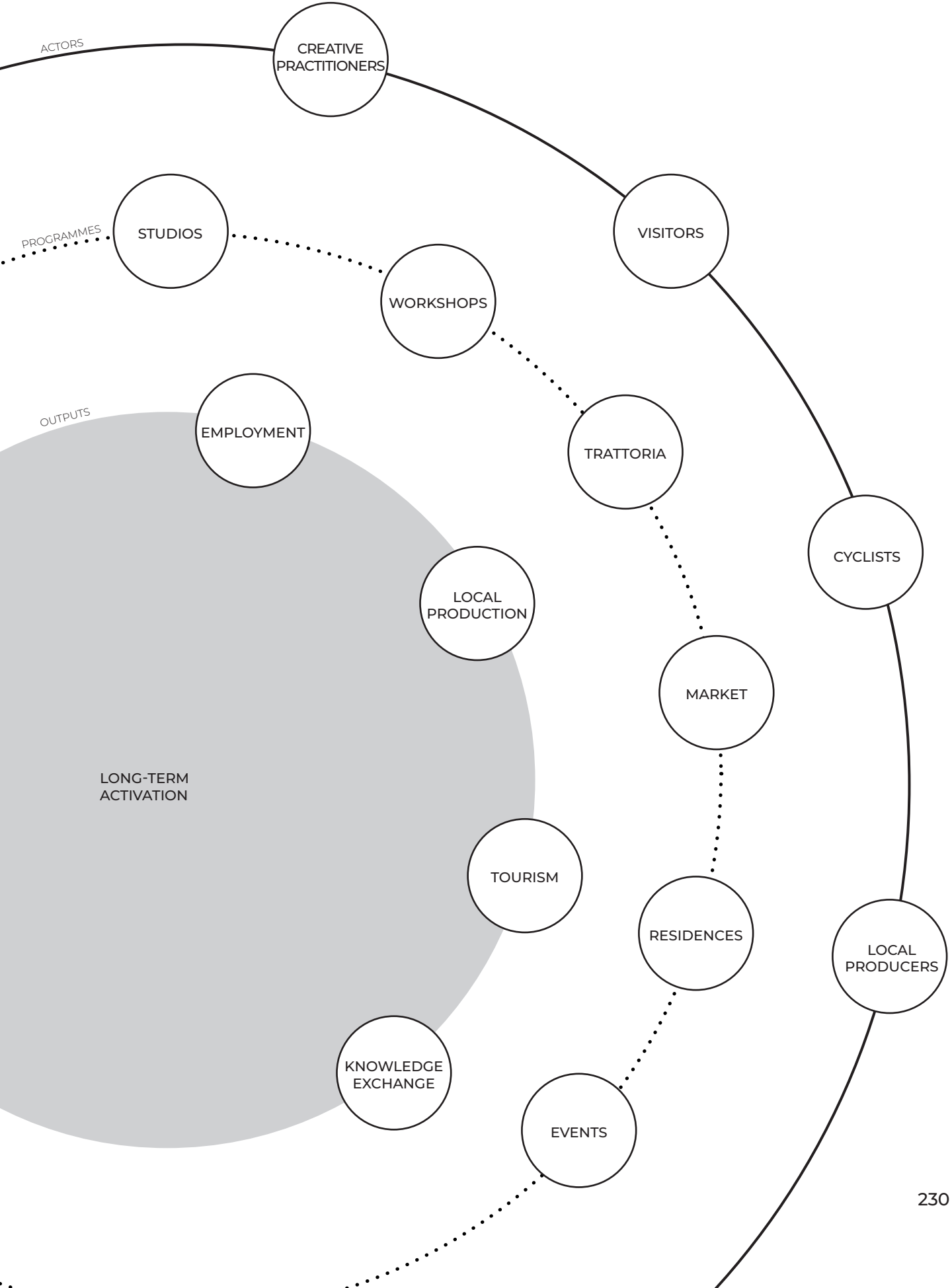


Figure 5.9.8 - ECONOMIC ECOSYSTEM



5.10 REFERENCES

¹ The available material was prepared by the students of Master Degree course (AA. 2024-2025, Proff. Augelli, Cuca), composed of the following Groups: Group_01: Qiu Shouzheng, Kuzmina Emiliia, Zhou Xiao, Agazzi Alessandro; Group_02: Basu Salona, Li Kaige, Gafarzada Aymasey, Zhang Qingyi; Group_03: Parducci Giorgio, Eugenio Marc; Kalkashliev Mila; Kacper Pietrzak; Group_04: Azadmanesh Peyvand, Yao Li, Hernandez Jessica, Krylova Maryia; Group_05: Jiang Lulu, Zhao Chenchen, Smadilo Nika, Emili Šimonović; Group_06: Vasilescu Andra, Ozturk Ilayda, Kuttilla Mei Lin, Dubinskaia Zoia; Group_07: Chen Xuanfan, Fu Yusi, Tadevosyan Suren, Zhang Liang; Group_08: Iannuzzi Angelica, Wong Tsz Yan, Ghisi Samuele, Areska Patrikas; Group_09: Petkova Valesa, Padilla Patricia, Ramos Sebastian, Dragoti Romina; Group_10: Debattista David, De Franca Correia Montesanti Henrique, Dugorepec Lorena, Majic Marta; Group_11: Khaibullina Yasmin, Drandeva Aleksandra, Mikhailova Alena, Yang Conglin; Group_12: Lombardi Luca, Kuzevska Marija, Temenuga Konstantinova, Czaja Iga Julia.

² Dezeen. MVRDV's Casa Kwantes Features Undulating Glazing and Brickwork. <https://www.dezeen.com/2017/03/13/mvrdv-casa-kwantes-house-undulating-glazing-brick-rotterdam-netherlands/>

³ ArchDaily. The New Glenstone / Thomas Phifer and Partners. <https://www.archdaily.com/902692/the-new-glenstone-thomas-phifer-and-partners>

⁴ Afasia Archzine. BIG . JPE. Adelaide Contemporary Museum Competition Proposal. <https://afasiaarchzine.com/2018/05/big-jpe/>

⁵ Plant Designs. Plant Designs – Design-Led Planting and Landscape Solutions. <https://plantdesigns.co.uk/>

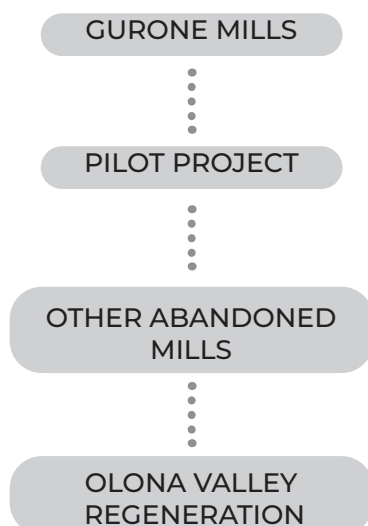
CONCLUSION

Therefore, the thesis demonstrates how adaptive reuse can move beyond preservation and become a significant tool for social and economic regeneration. Thus, through the transformation of the Gurone Mills complex, the project proposes a new relationship between heritage and public life, ensuring that the site remains both historically meaningful and actively used.

In particular, the project is built on a flexible program combining creative production, education, hospitality, and community-oriented activities. This diversified approach enhances the site's long-term ability to prosper. Ultimately, it creates the conditions for continuous use throughout the year.

Moreover, the thesis was specifically developed for the Gurone Mills complex. However, the project also explores a broader strategy for the regeneration of industrial heritage along the Olona River. The proposal is conceived as a pilot intervention that can inform the future transformation of other abandoned mill settlements. Based on these findings, it demonstrates how productive public architecture can reactivate underutilised heritage assets while responding to contemporary social, environmental and economic needs.

In this sense, the project is not only a site-specific response to the conditions of Gurone, but also a replicable model for the wider regeneration of the Olona Valley.

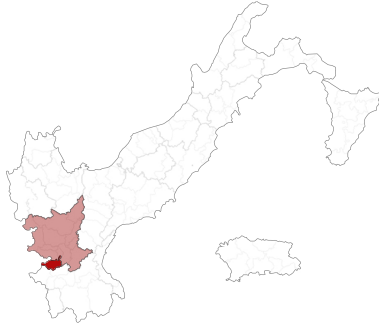


FROM INDUSTRIAL HERITAGE TO CONTEMPORARY
PUBLIC LANDSCAPE

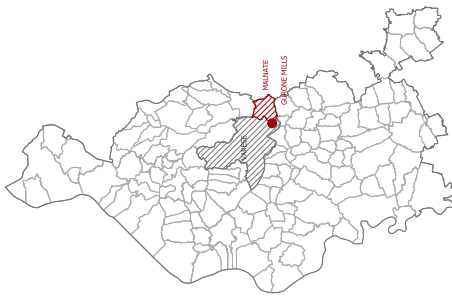


THE GURONE MILLS

REPRESENT A SIGNIFICANT EX-
AMPLE OF INDUSTRIAL ARCHAE-
OLOGICAL HERITAGE WITHIN THE
OLONA VALLEY, ONCE FORMING
PART OF A WIDER NETWORK OF
WATER-POWERED PRODUCTIVE
SETTLEMENTS. THE PROPOSAL
TRANSFORMS THE FORMER IN-
DUSTRIAL COMPLEX INTO A PRO-
DUCTIVE PUBLIC HUB, COMBIN-
ING HERITAGE CONSERVATION,
CREATIVE PRODUCTION, CULTUR-
AL ACTIVITIES AND PUBLIC SPACES
TO SUPPORT THE LONG-TERM RE-
GENERATION OF THE SITE WHILE
STRENGTHENING ITS 'RELATION-
SHIP WITH THE LOCAL COMMUNI-
TY AND THE LANDSCAPE



LOCATION IN ITALY

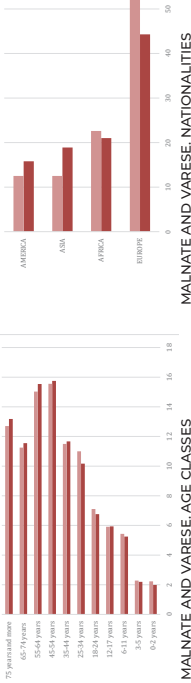


LOCATION IN VARESE PROVINCE

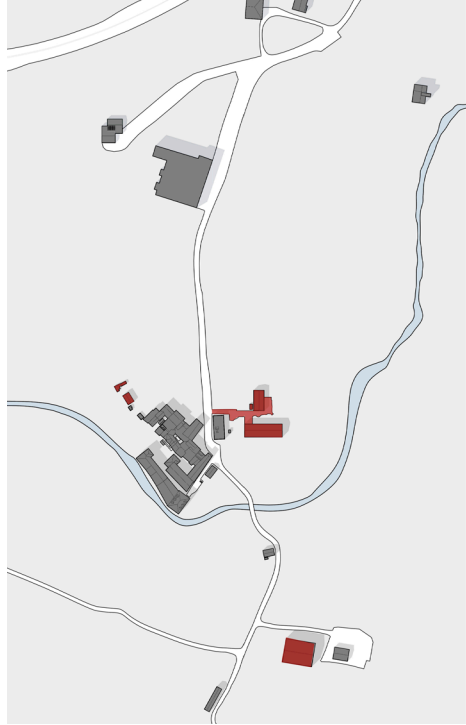
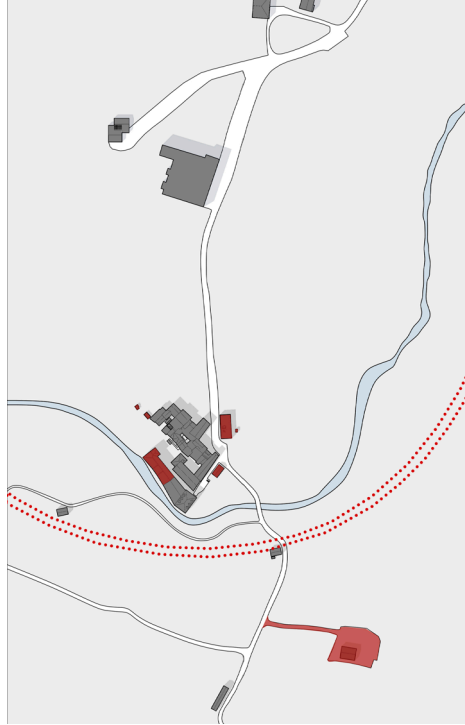
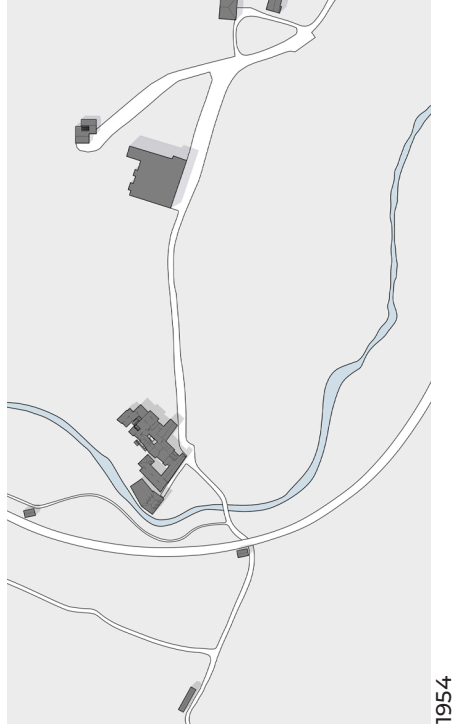


LOCATION IN LOMBARDY

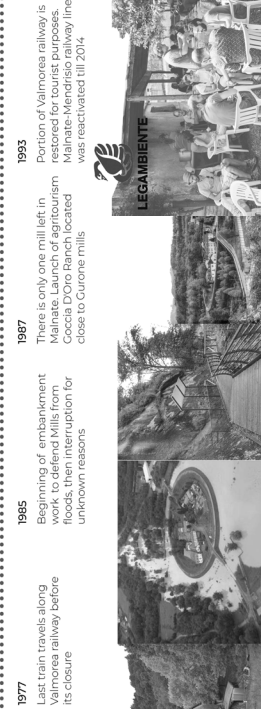
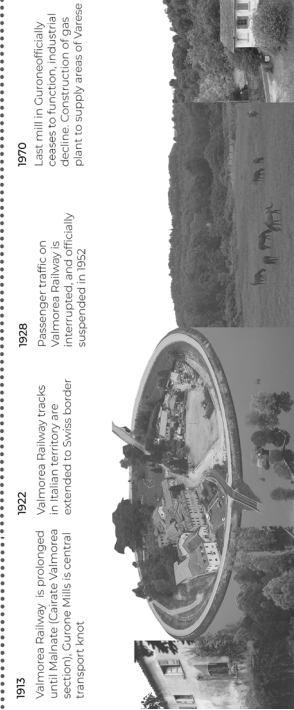
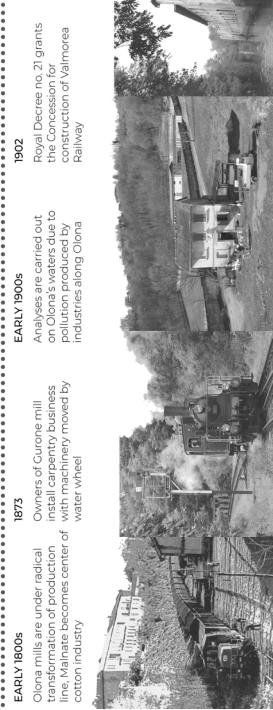
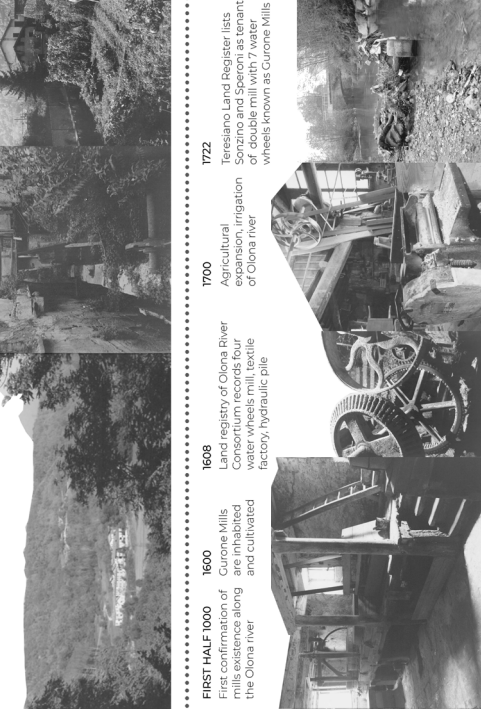
DEMOGRAPHIC ANALYSIS. MALNATE AND VARESE



SITE DEVELOPMENT



TIMELINE





MALNATE NATIONALITIES

VARESE NATIONALITIES

OVERVIEW OF GURONE

POPULATION

29 RESIDENTS
12 HOUSEHOLDS
8 RESIDENTS OVER 60

BUILDING CONDITION

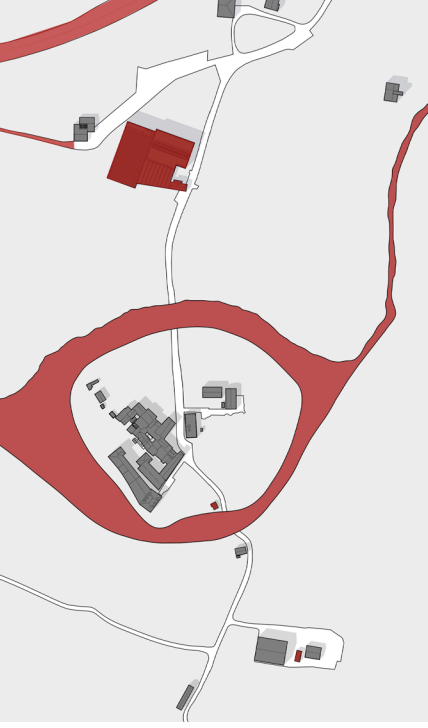
1 UNUSABLE BUILDING
1 PARTLY UNUSABLE BUILDING
2 BUILDINGS UNDER RENOVATION

BUILT ENVIRONMENT

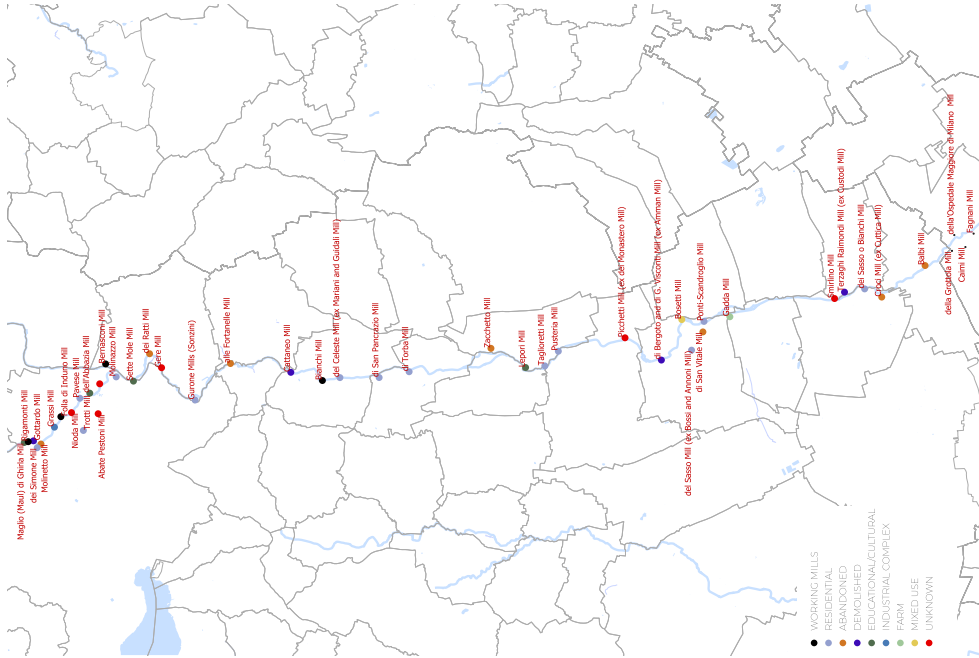
3,930 M² BUILT AREA
6 DETACHED BUILDINGS
1 HISTORIC MILL COMPLEX
2 BUILDINGS OUTSIDE THE RING
1-3 STOREYS

LANDSCAPE

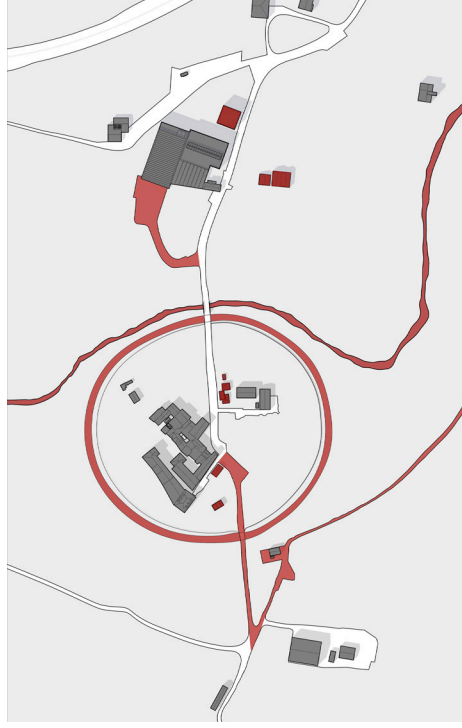
29,000 M² TOTAL SITE
17,850 M² GREEN AREA
4,150 M² GARDENS
3,200 M² HONEY PRODUCTION



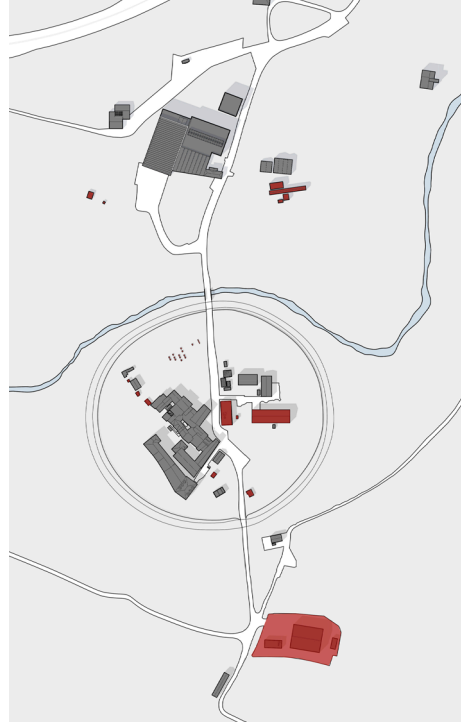
2007



MAP OF MILLS USAGE ALONG OLONA RIVER



2008



2025

2008 Deviation of river and presence of ring road in Gurone

2009 Dam capable of regulating flow of river to protect areas from flooding, comes into operation

2014 Flooding of Olona that turns Mills into island in the middle of water

2019 Casimatta project is initiated. Renovation of parts of Casimatta complex is carried out



2021 Redevelopment of Casimatta becomes objective of thesis in architecture at Politecnico di Milano

2023 Ti-CICLSMO-VIA bicycle road connecting Varese, Italy and Lugano, Switzerland is built

2025 Bicycle road connecting Malrate to Castiglione Olona and Malrate to Legnano is constructed

2025-2027 Improvement of Parco dei Molini with focus on water quality, ecological renovation and community enhancement



HISTORICAL PHOTO OF CANAL



HISTORICAL PHOTO OF MAIN COURTYARD



HISTORICAL PHOTO OF MAIN ENTRANCE



HISTORICAL PHOTO OF MILL

A large, vaulted interior space, likely a library or study hall, featuring high ceilings, arched windows, and rows of wooden tables and chairs. A person is visible in the background near a bookshelf.

**KEY TAKEAWAY - PRODUCTIVE HERITAGE
REMAINS VISIBLE**

SOURCE: MUSEO DELLA CARTA, MUSEO DELLA CARTA DI PESCIA

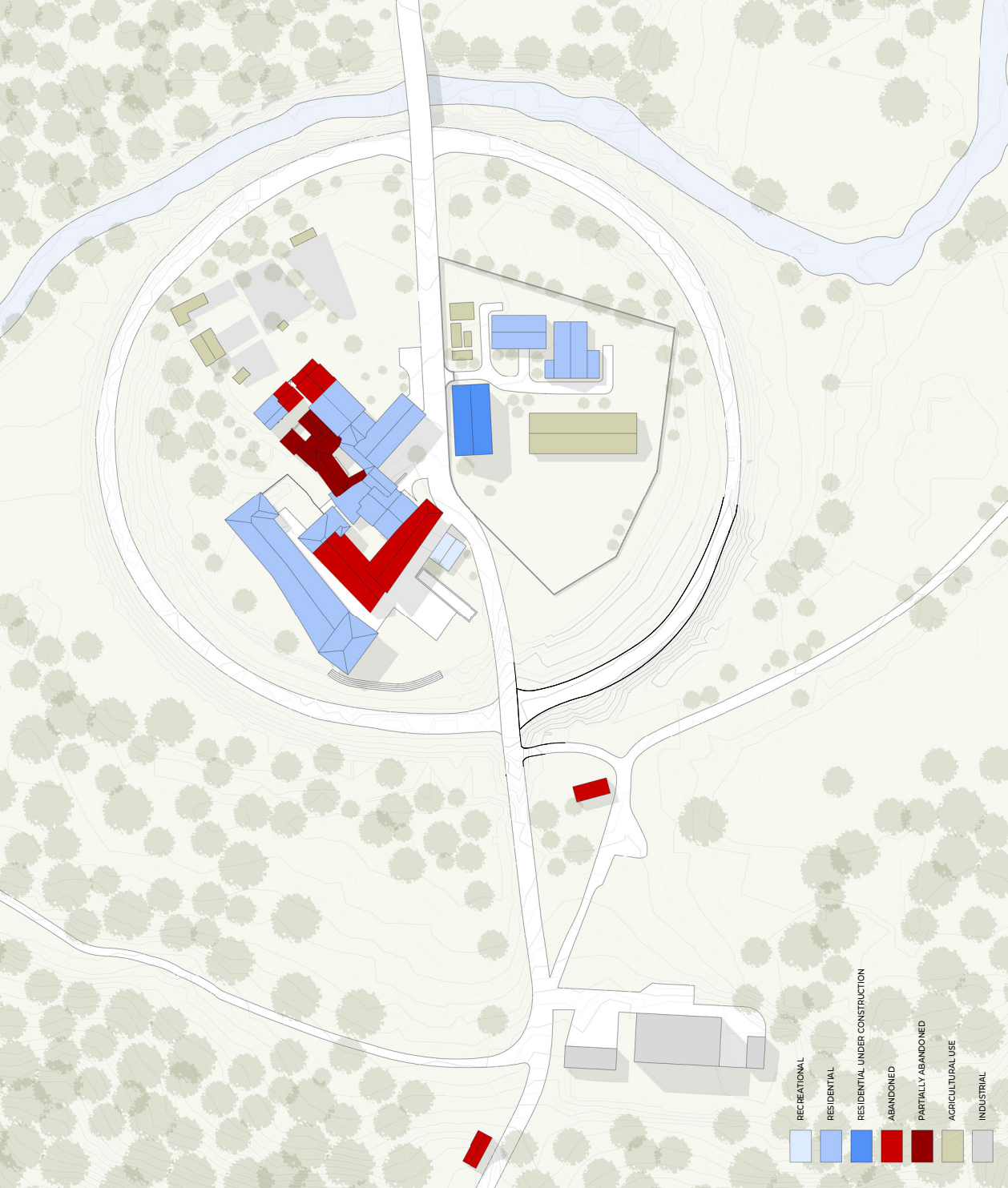
KEY TAKEAWAY - TRADITIONAL PRODUCTION BECOMES EDUCATIONAL EXPERIENCE

SOURCE: THE MESSENGER, SACREWELL MILL, CAMBRIDGESHIRE

KEYTAKEAWAY - INDUSTRIAL LANDSCAPE PRESERVED AS MUSEUM COMPLEX

SOURCE: UNESCO WORLD HERITAGE CENTRE,
VERLA GROUNDWOOD AND BOARD MILL





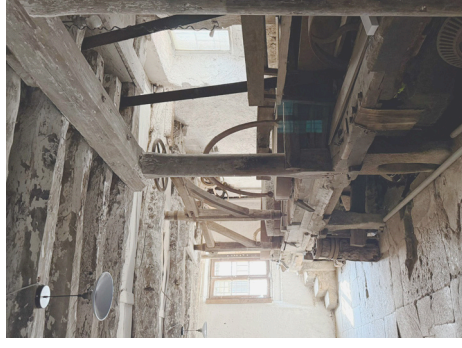
CURRENT STATE OF MILL RIDGE



CURRENT STATE OF MAIN COURTYARD



CURRENT STATE OF MAIN ENTRANCE



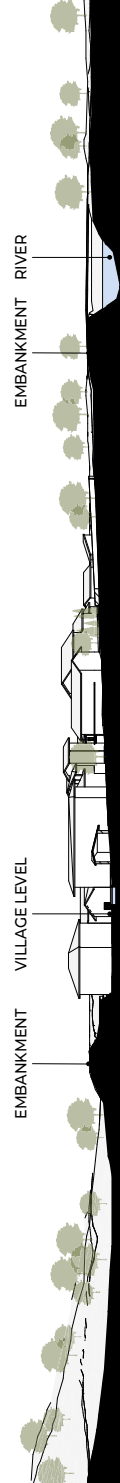
CURRENT STATE OF MILL



CURRENT STATE OF MILL RIDGE

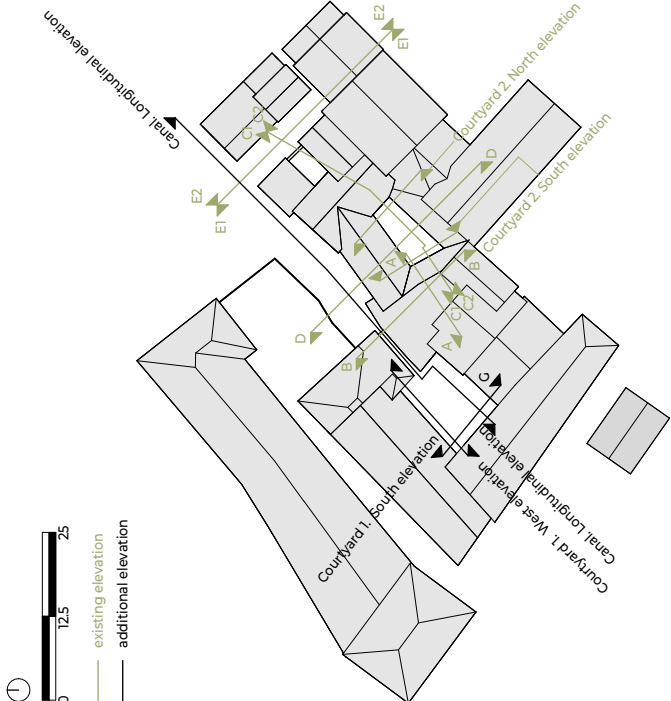


CURRENT STATE OF MILL RIDGE



SURVEY INTEGRATION AND DESIGN SUPPORT

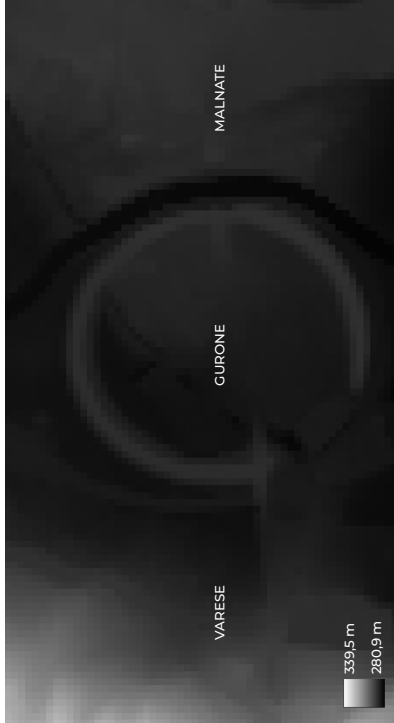
1. EXISTING DRAWINGS
EXISTING SURVEY DOCUMENTATION PROVIDED
BY PREVIOUS ACADEMIC CAMPAIGNS



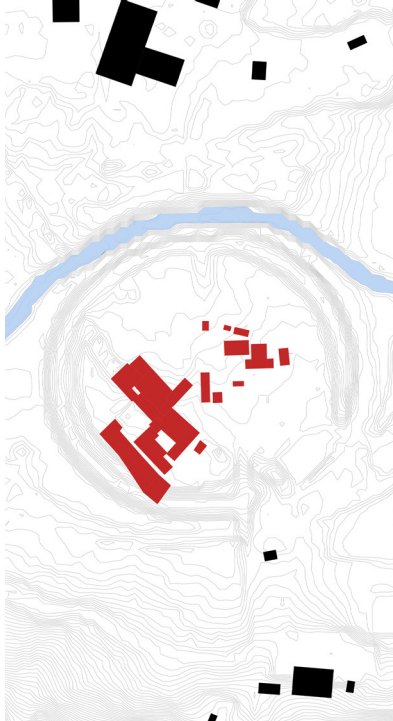
3. PHOTOGRAPHIC DOCUMENTATION
VISUAL DOCUMENTATION SUPPORTING THE INTERPRETATION OF
ARCHITECTURAL DETAILS



1. DTM
SOURCE TERRAIN DATASET OBTAINED FROM THE LOMBARDY GEOPORTALE



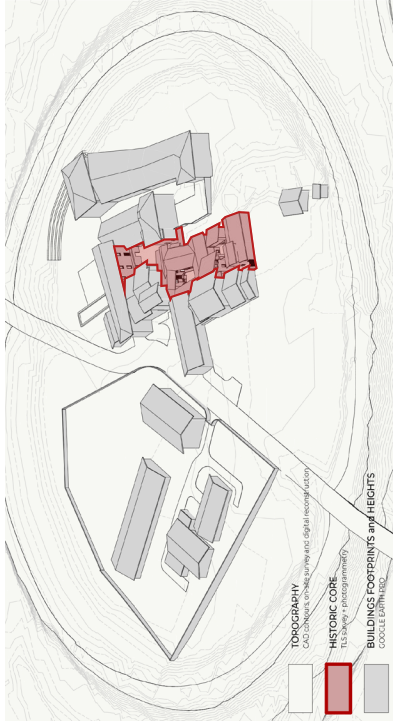
4. DTM
REGIONAL TERRAIN DATA USED FOR TOPOGRAPHICAL RECONSTRUCTION



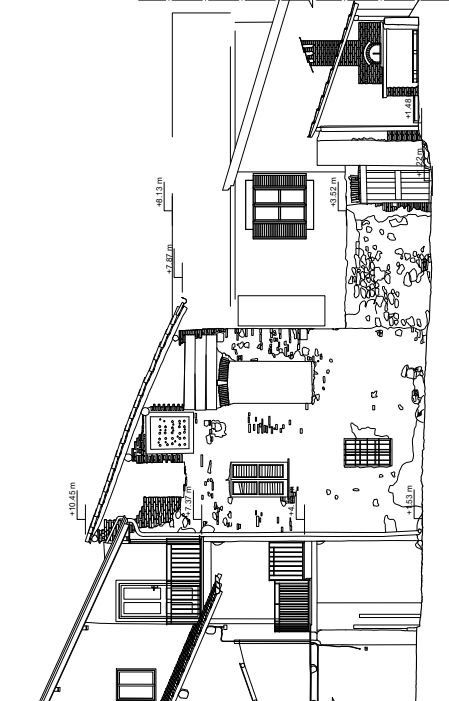
2. VERIFICATION
CROSS-VERIFICATION OF TERRAIN MORPHOLOGY THROUGH MULTIPLE SOURCES WITH
SPECIFIC ATTENTION TO SOUTH-WEST PART OF THE SITE



5. INTEGRATED DIGITAL MODEL
INTEGRATION OF MULTIPLE SURVEY DATASETS INTO A COHERENT DIGITAL MODEL



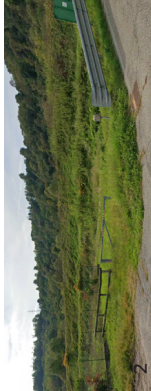
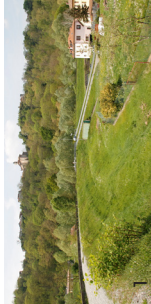
2. TLS POINT CLOUD
PRIMARY SOURCE OF GEOMETRIC INFORMATION

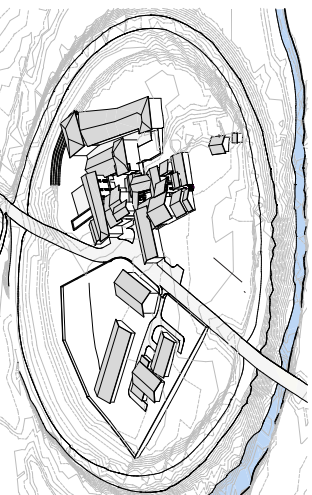
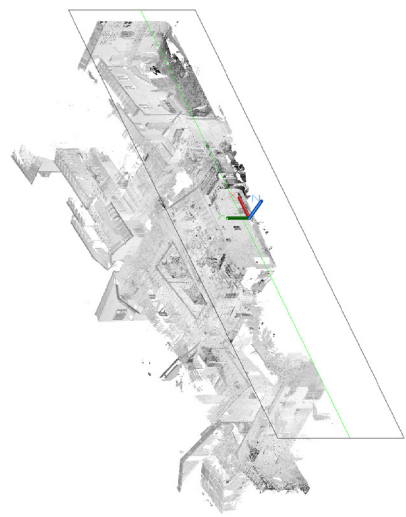


SECTION E-E IN SCALE 1:100

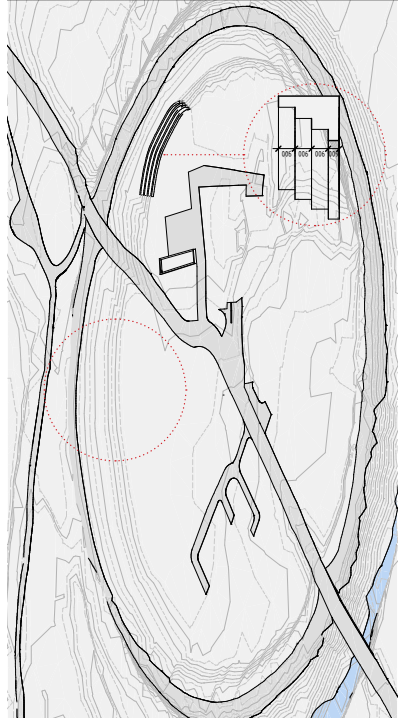
6. SURVEY OUTCOMES
ANALYTICAL INTERPRETATION OF THE DIGITAL SITE MODEL

3. TERRAIN MODEL
CONNECTED TERRAIN MODEL USED FOR ANALYSIS AND DESIGN DEVELOPMENT

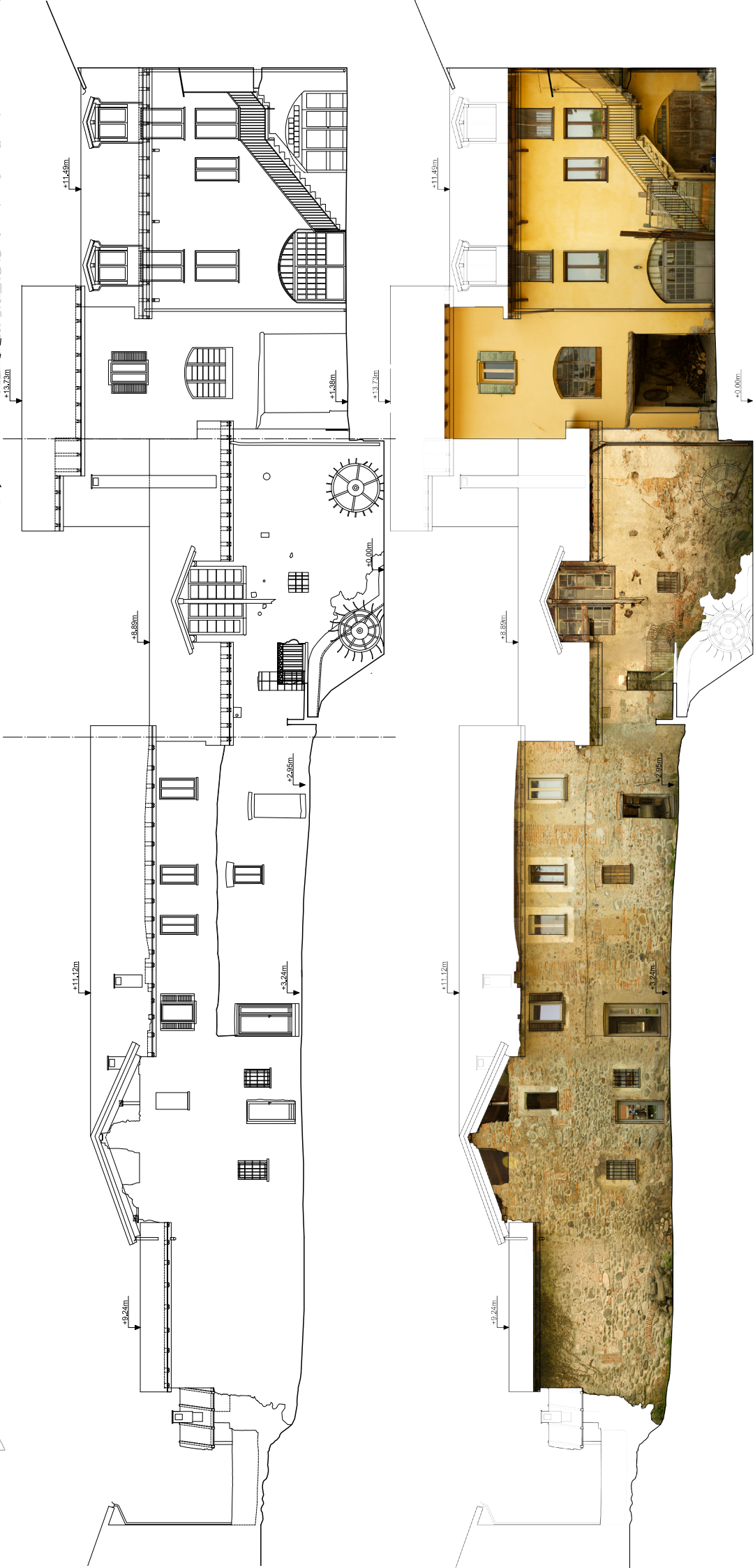




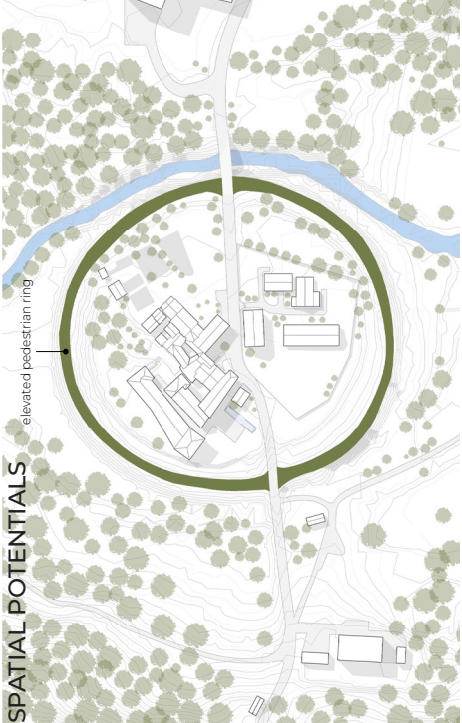
- BUILDING CONDITIONS
- FUNCTIONS
- RESTRICTIONS
- ACCESSIBILITY
- LANDSCAPE
- MASTERPLAN



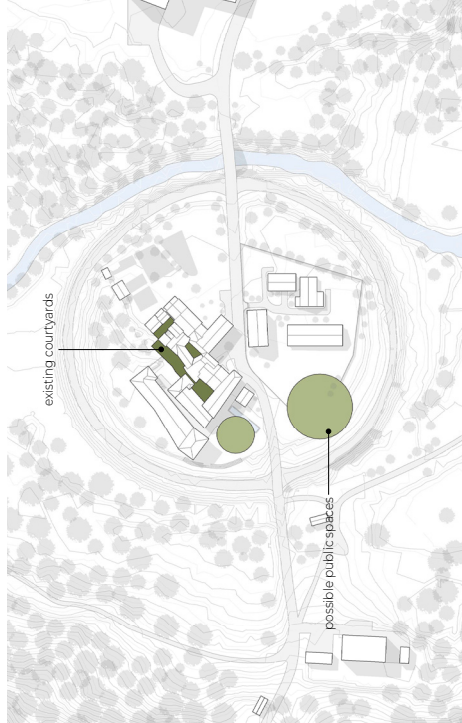
7. DESIGN DEVELOPMENT SURVEY-INFORMED ADAPTIVE REUSE PROPOSAL



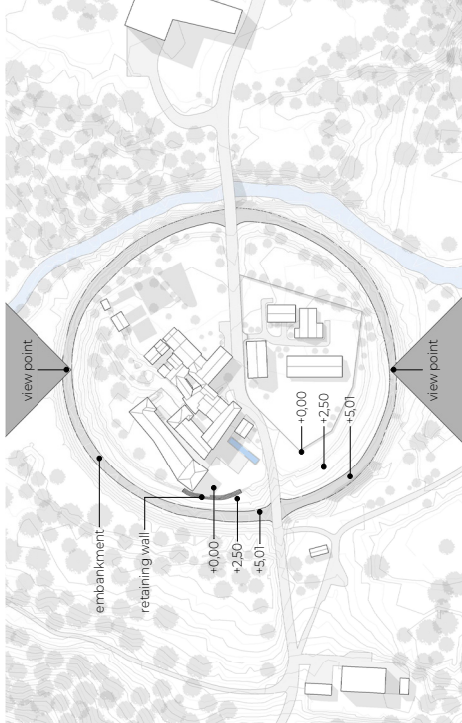
SPATIAL POTENTIALS



LANDSCAPE INTEGRATION

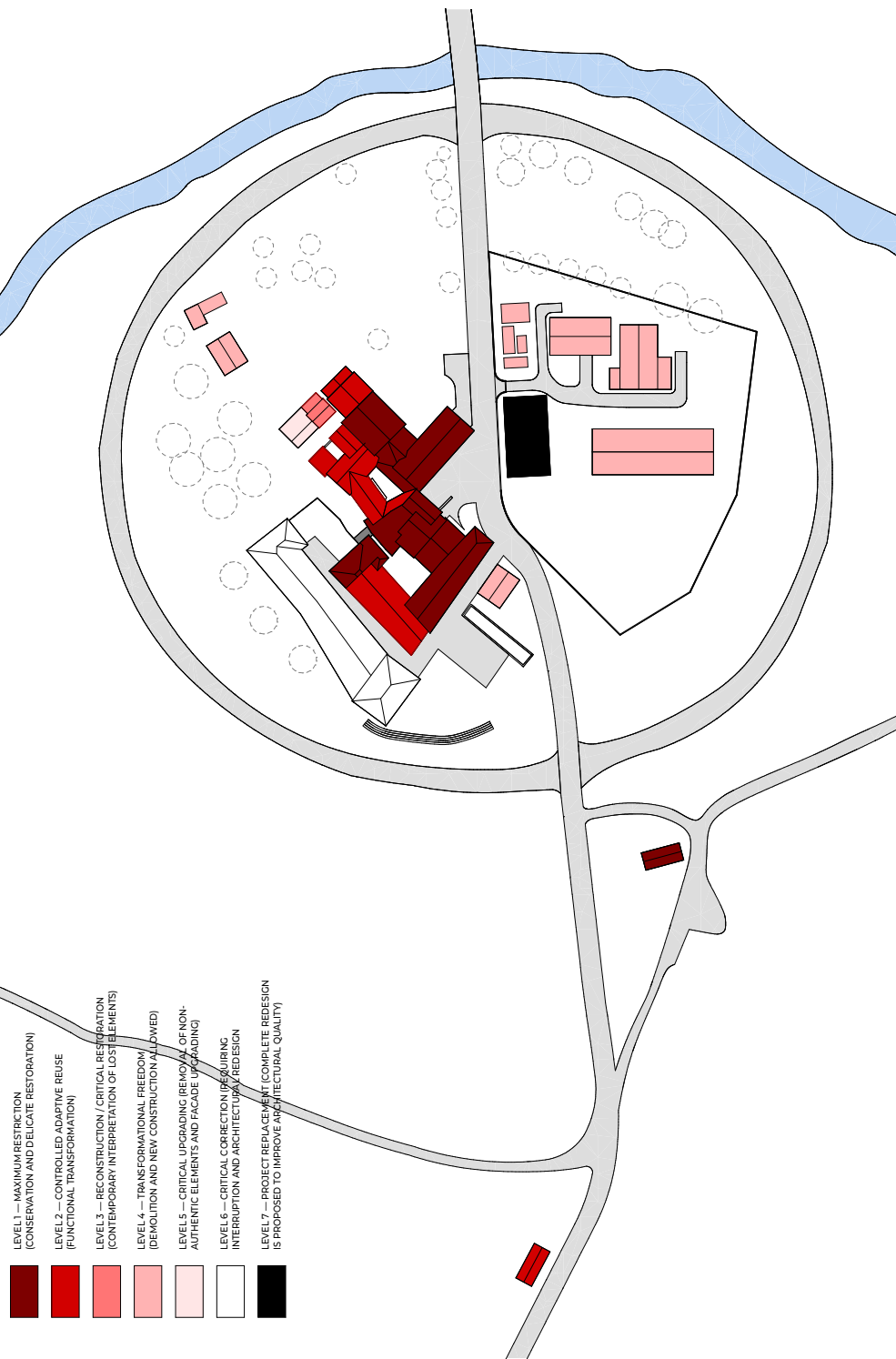


COLLECTIVE OUTDOOR SPACES

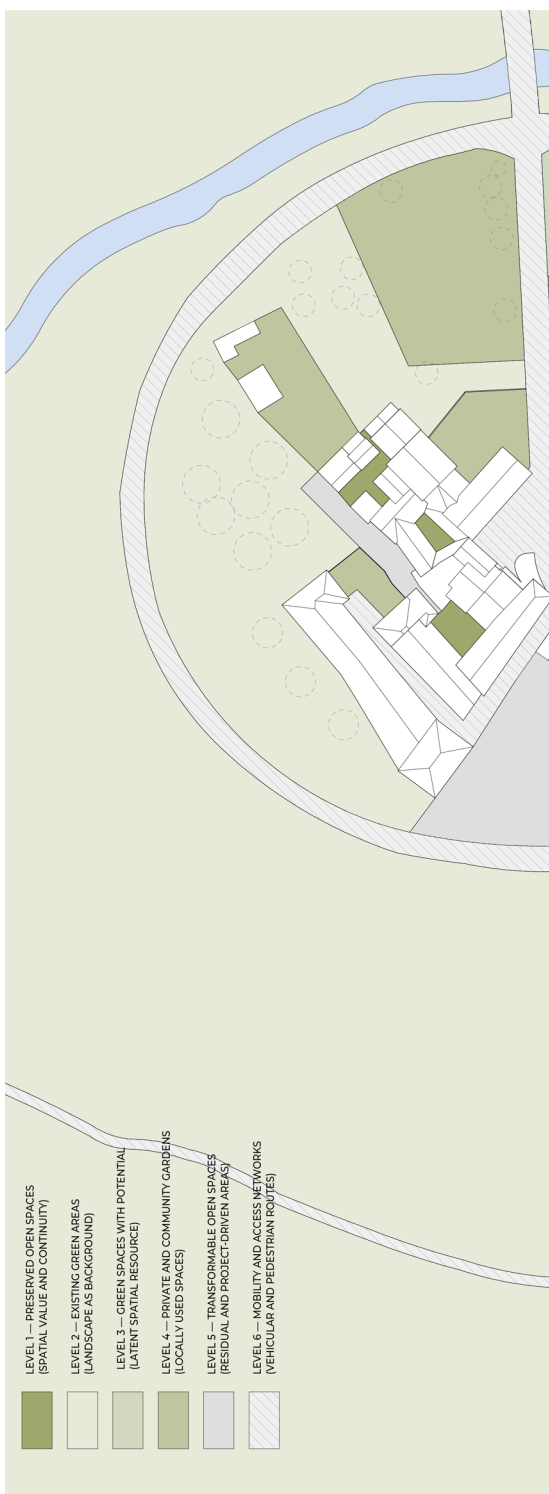


TOPOGRAPHY AS A DESIGN RESOURCE

HISTORICAL
CONTEMPORARY

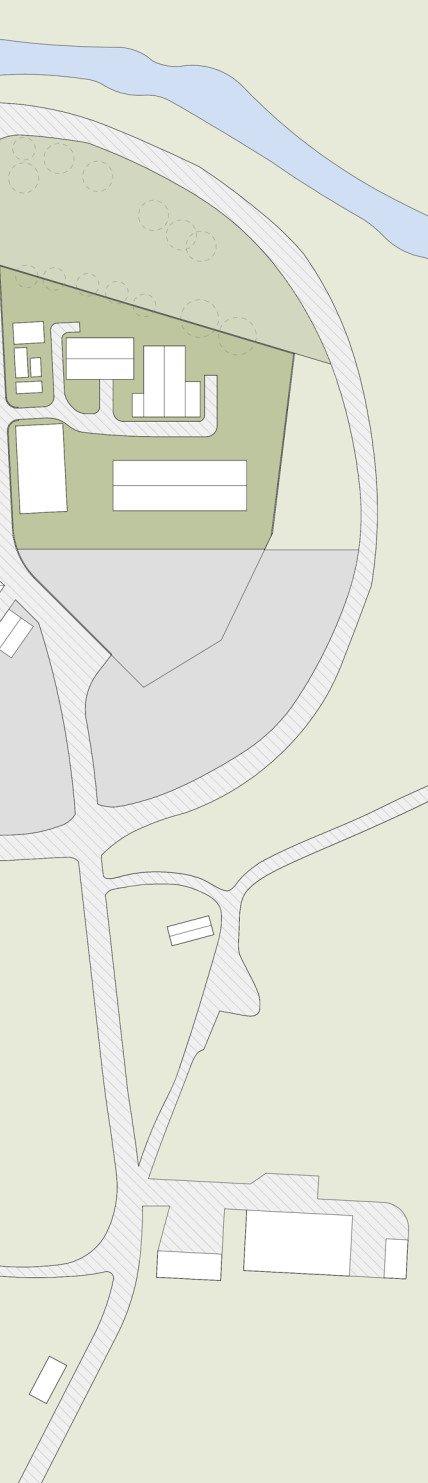


MAP OF FREEDOM AND RESTRICTIONS. BUILDINGS IN 1:1000 SCALE

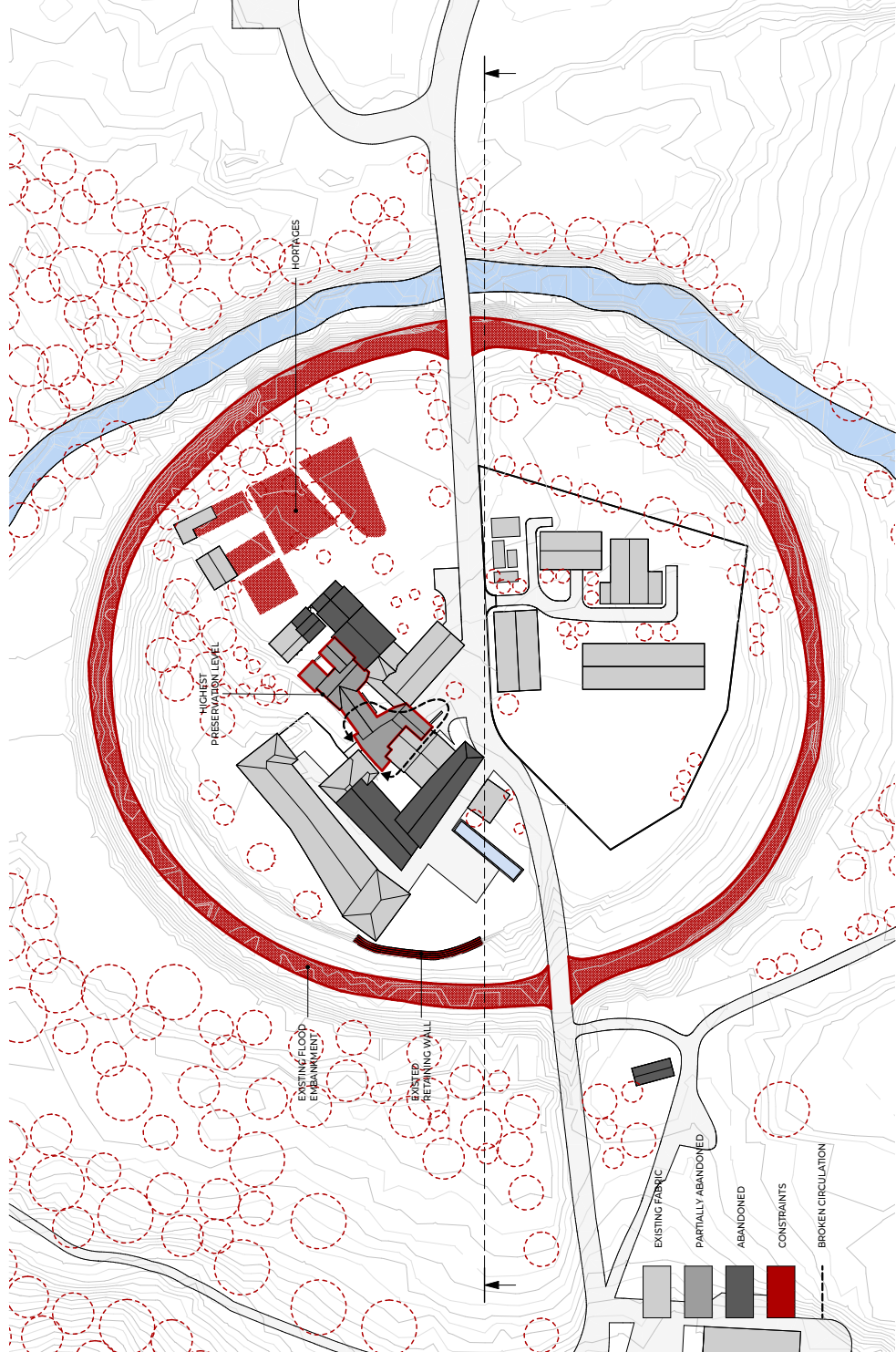


- LEVEL 1 — MAXIMUM RESTRICTION (CONSERVATION AND DELICATE RESTORATION)
- LEVEL 2 — CONTROLLED ADAPTIVE REUSE (FUNCTIONAL TRANSFORMATION)
- LEVEL 3 — RECONSTRUCTION / CRITICAL RESTORATION (CONTEMPORARY INTERPRETATION OF LOST ELEMENTS)
- LEVEL 4 — TRANSFORMATIONAL FREEDOM (DEMOLITION AND NEW CONSTRUCTION ALLOWED)
- LEVEL 5 — CRITICAL UPGRADING (REMOVAL OF NON-AUTHENTIC ELEMENTS AND FACADE UPGRADING)
- LEVEL 6 — CRITICAL CORRECTION (REQUIRING INTERRUPTION AND ARCHITECTURAL REDESIGN)
- LEVEL 7 — PROJECT REPLACE (COMPLETE REDESIGN IS PROPOSED TO IMPROVE ARCHITECTURAL QUALITY)

- LEVEL 1 — PRESERVED OPEN SPACES (SPATIAL VALUE AND CONTINUITY)
- LEVEL 2 — EXISTING GREEN AREAS (LANDSCAPE AS BACKGROUND)
- LEVEL 3 — GREEN SPACES WITH POTENTIAL (LATENT SPATIAL RESOURCE)
- LEVEL 4 — PRIVATE AND COMMUNITY GARDENS (LOCALLY USED SPACES)
- LEVEL 5 — TRANSFORMABLE OPEN SPACES (RESIDUAL AND PROJECT-DRIVEN AREAS)
- LEVEL 6 — MOBILITY AND ACCESS NETWORKS (VEHICULAR AND PEDESTRIAN ROUTES)

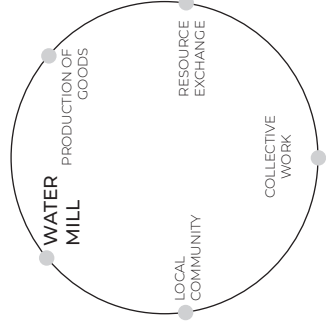


MAP OF FREEDOM AND RESTRICTIONS. SPACES IN 1:1000 SCALE

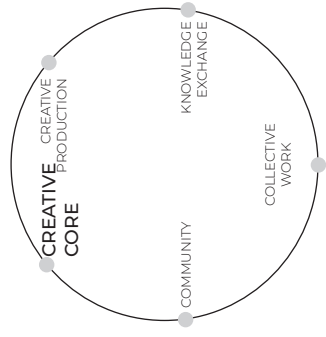


MAP OF EXISTING DESIGN CONSTRAINTS IN 1:1000 SCALE

PRODUCTIVE SYSTEM



PRODUCTIVE SYSTEM



DISIGN APPROACH

SWOT ANALYSIS

STRENGTHS

EXCEPTIONAL LANDSCAPE CONTEXT
RICH ARCHITECTURAL STRATIFICATION
EXISTING COMMUNITY ENGAGEMENT
STRATEGIC TERRITORIAL POSITION
STRONG IDENTITY

WEAKNESSES

FRAGMENTED SPATIAL ORGANIZATION
LIMITED ACCESSIBILITY AND VISIBILITY
INCONSISTENT INTERVENTIONS
LACK OF UNIFYING AND CONTINUOUS ACTIVITY

OPPORTUNITIES

UNIQUE REGIONAL ROLE
ARCHITECTURAL CORE
ACTIVATION OF OPEN SPACES
SLOW MOBILITY AND TERRITORIAL NETWORKS
CREATIVE EDUCATIONAL COMMUNITIES

THREATS

UNCONTROLLED DEVELOPMENT
AGEING POPULATION
ABANDONMENT
TOURISTIFICATION
MANAGEMENT & ENVIRONMENTAL CONSTRAINTS

TARGET USERS



CREATORS AND MAKERS

Artists, architects, designers, craftspersons, and researchers working with material-based practices. They are the primary users of workshops and ateliers and ensure continuous, everyday activity



CULTURAL VISITORS

Visitors interested in local history, industrial heritage, and landscape. They use the museum and outdoor routes, connecting the project to collective memory without dominating the site



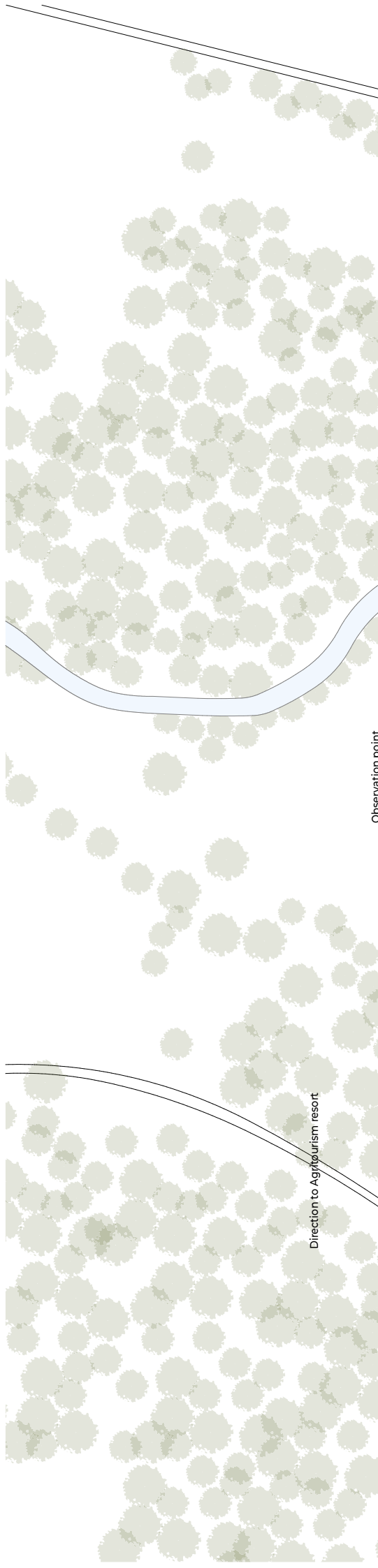
EVERYDAY USERS

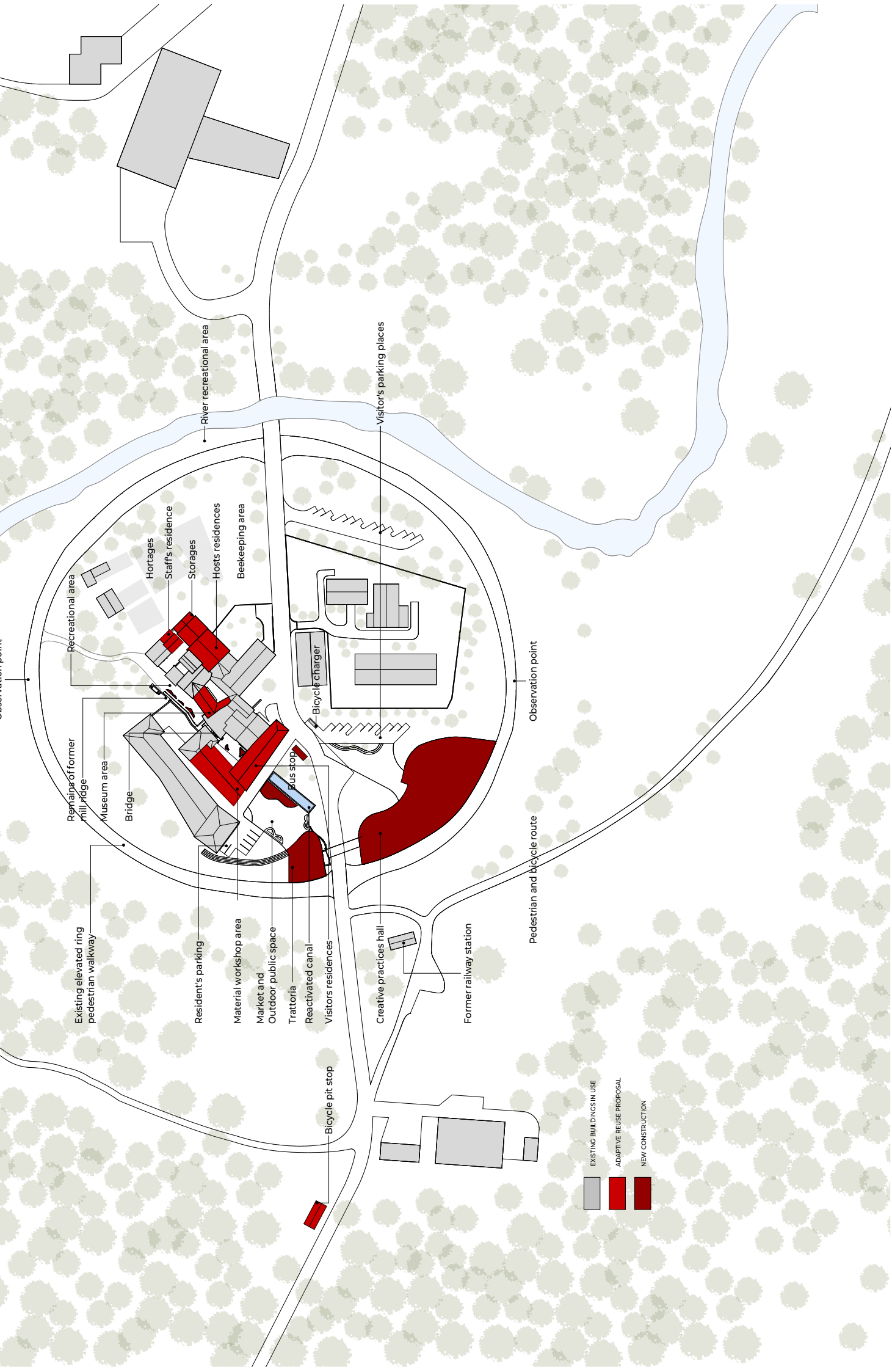
Local residents and people from nearby towns. They use the trattoria, small market, and open spaces, anchoring the project in daily life

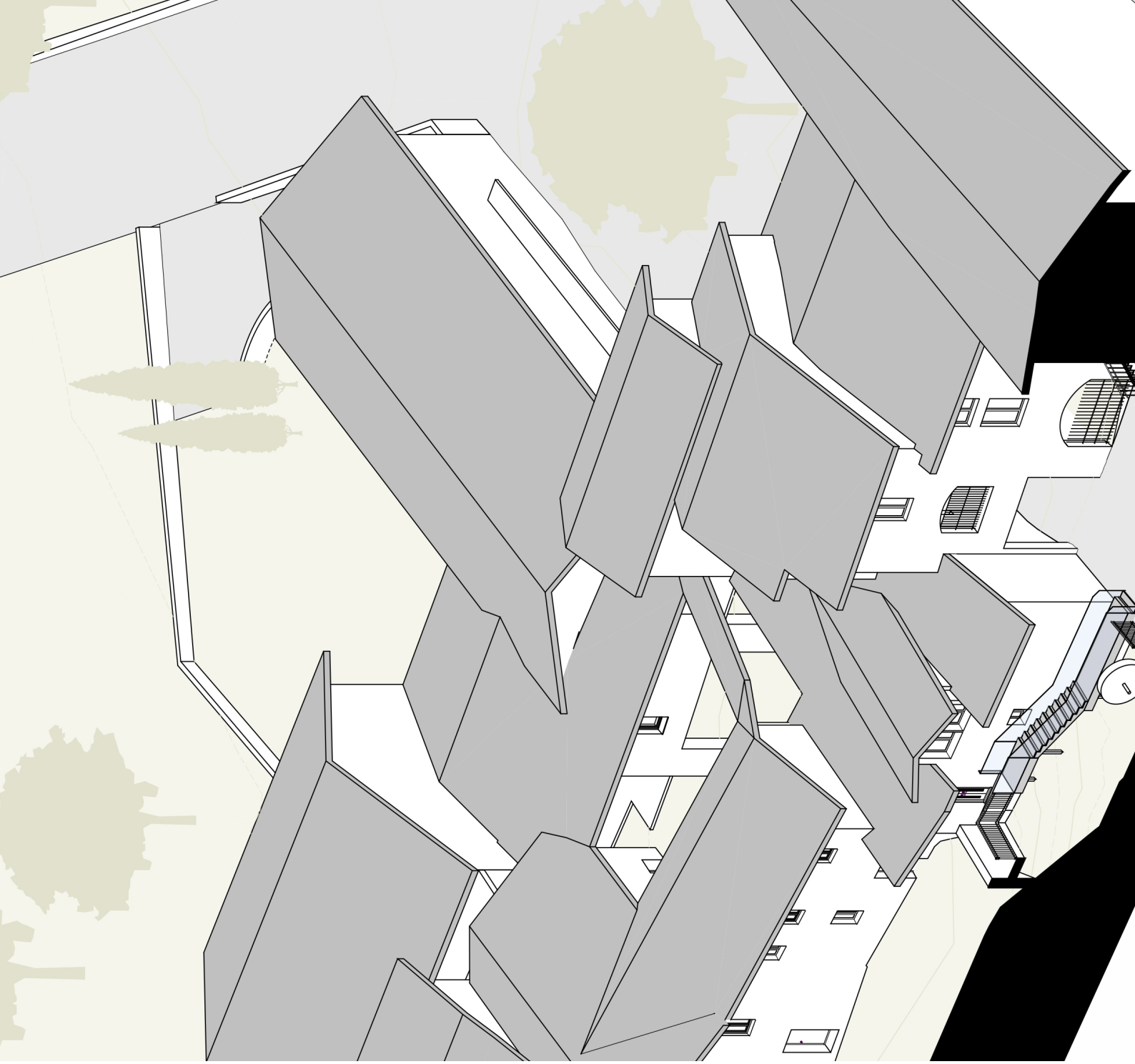


CYCLISTS AND SLOW MOBILITY USERS

Cyclists and hikers using the Olona Valley and EuroVelo routes. They use the site as a resting stop, benefiting from services, outdoor spaces, and short stays





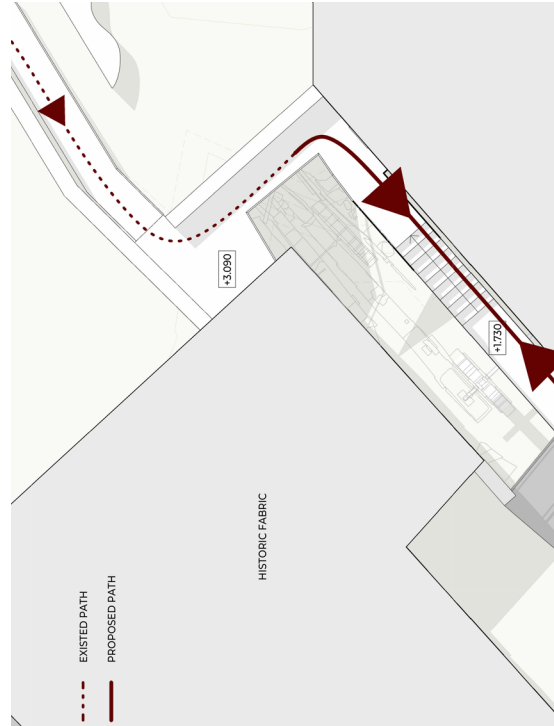


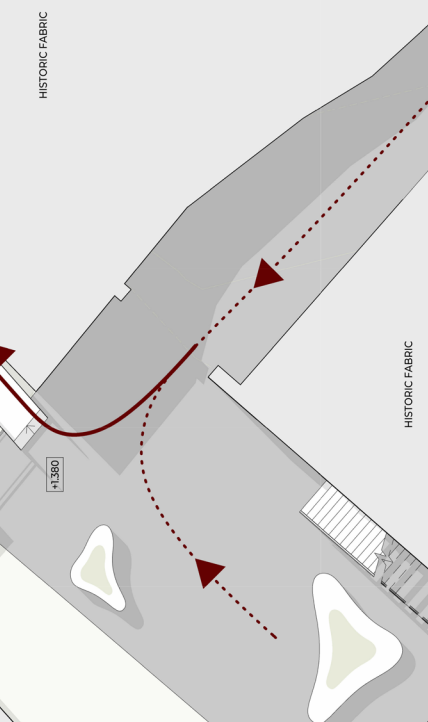
CURRENT STATE

THE NEW PEDESTRIAN BRIDGE RESTORES THE CONTINUITY OF PUBLIC CIRCULATION THROUGH THE HISTORIC CORE WHILE RESPECTING THE SITE'S INDUSTRIAL ARCHAEOLOGICAL HERITAGE THROUGH A LIGHT REVERSIBLE INTERVENTION



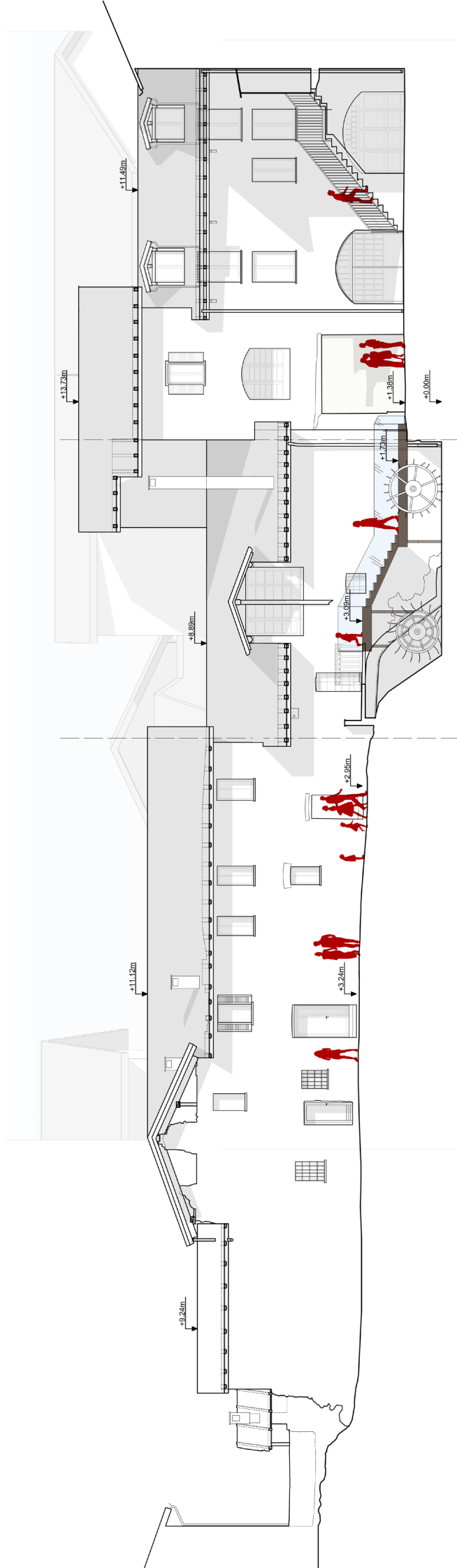
CURRENT STATE





NEW BRIDGE. GROUND FLOOR PLAN IN 1:100 SCALE

NEW BRIDGE. AXONOMETRY



NEW BRIDGE. ELEVATION IN 1:100 SCALE

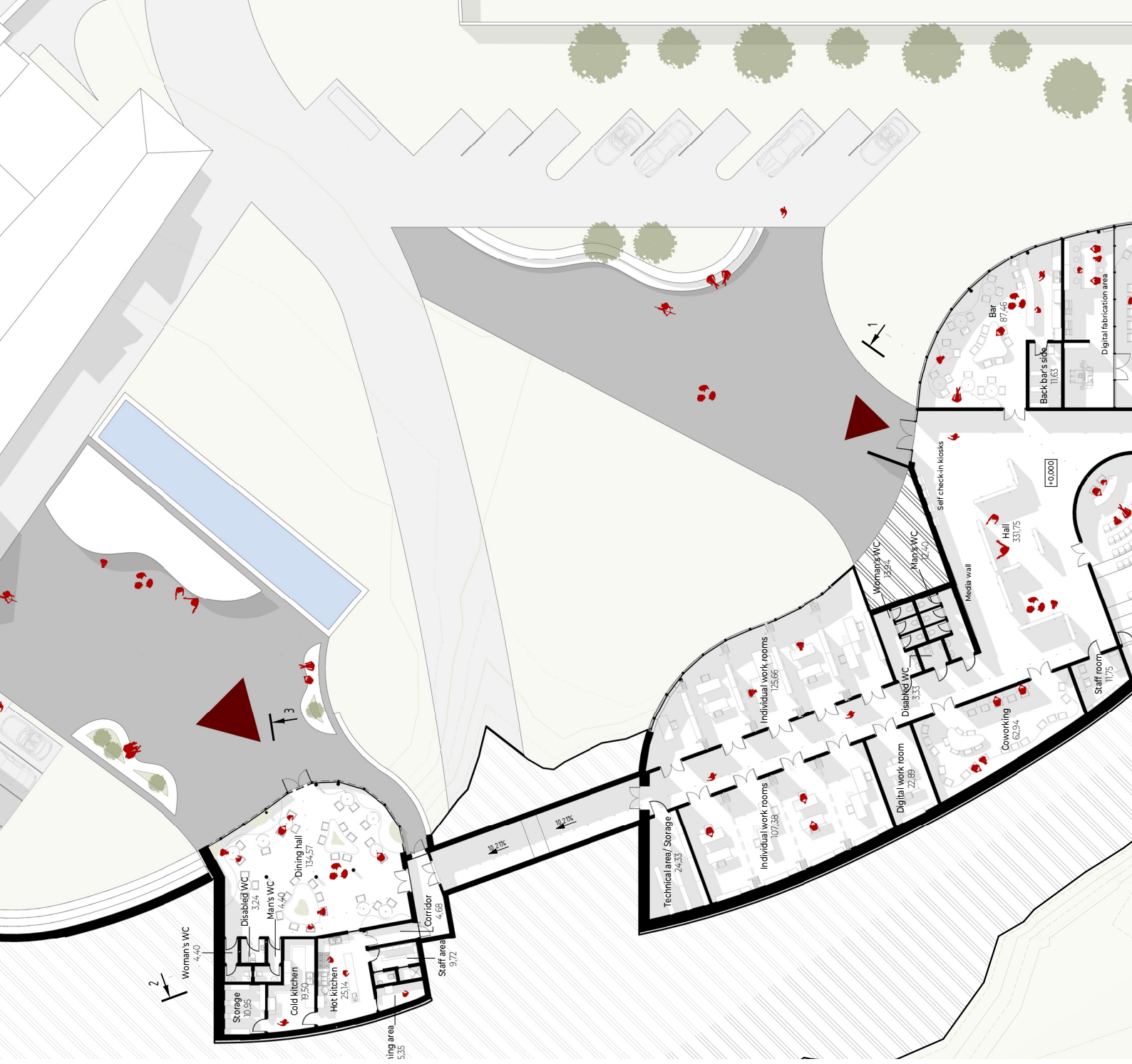
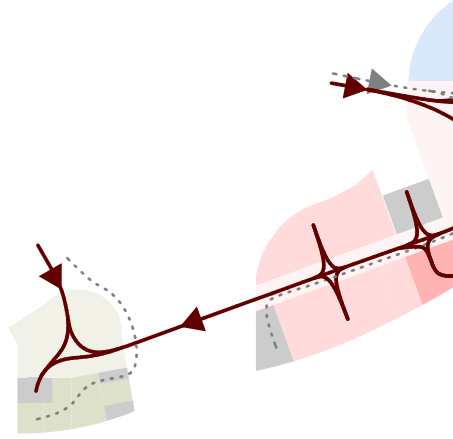
THE CREATIVE HALL AND TRATTORIA

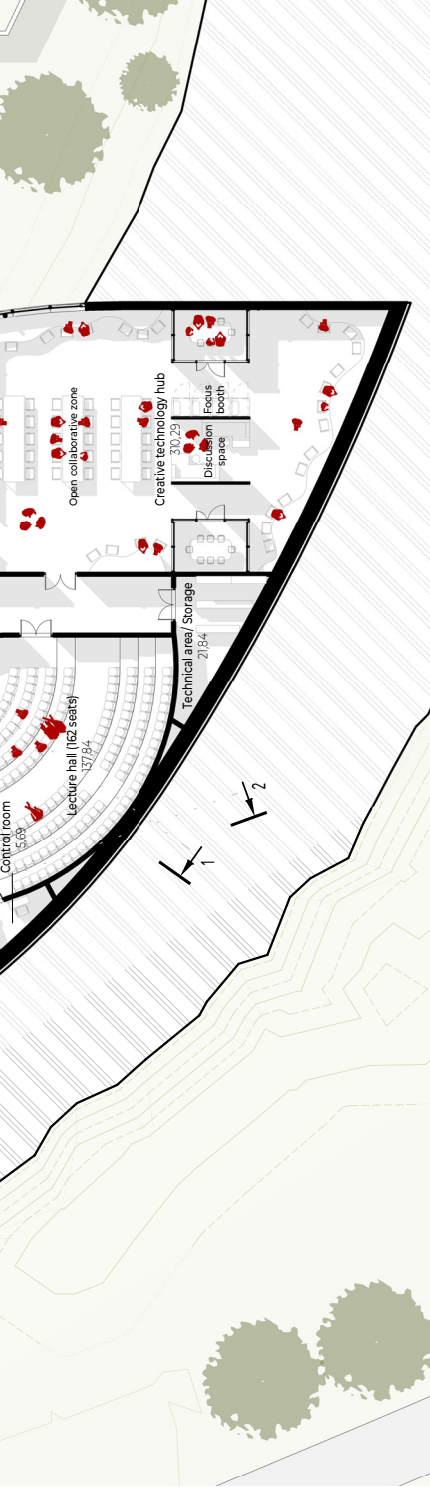
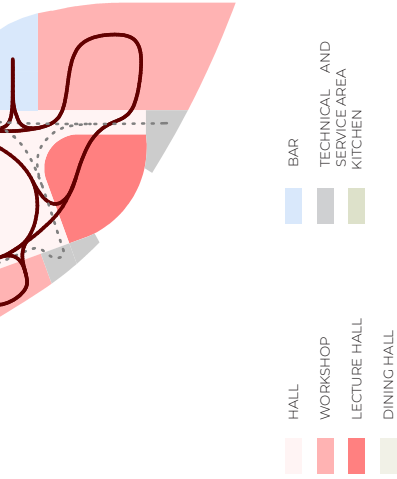


CURRENT STATE



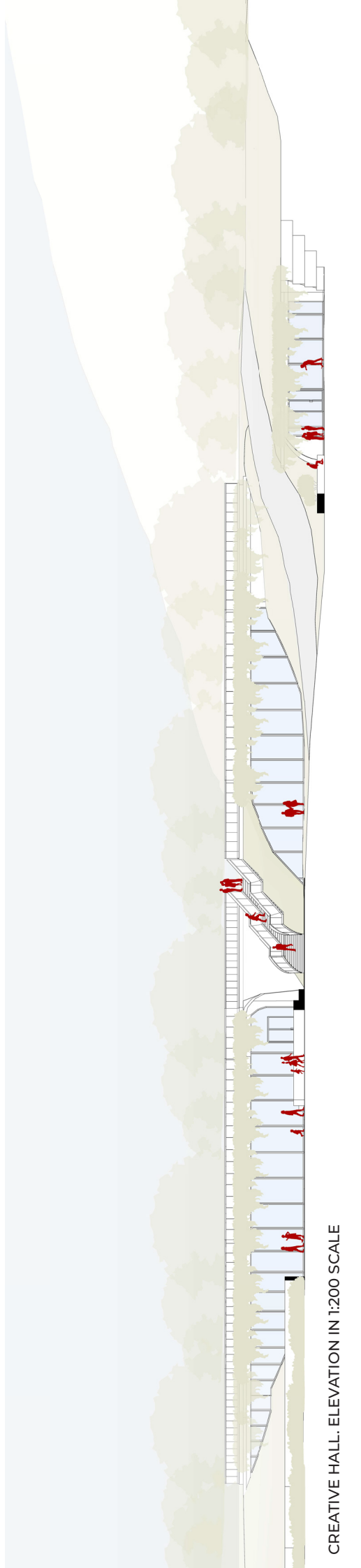
CURRENT STATE



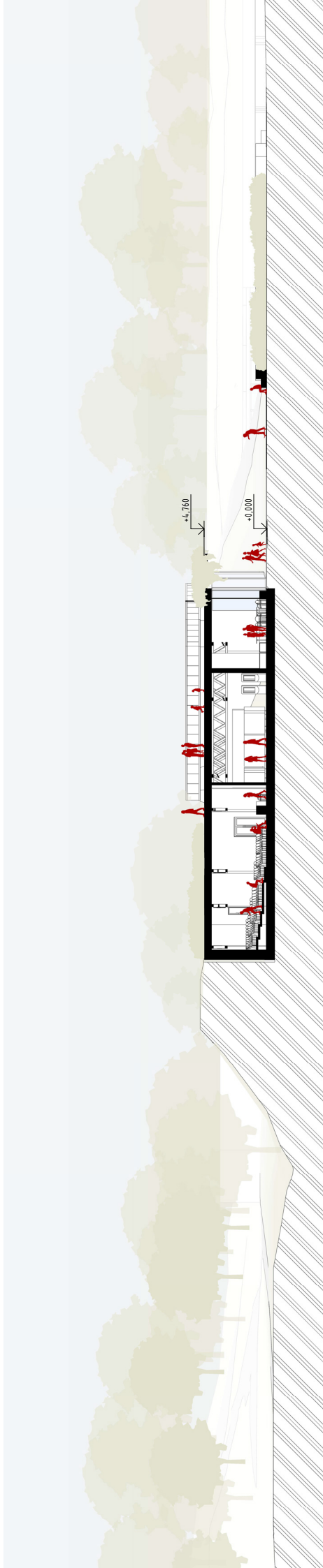


CREATIVE HALL + TRATTORIA. FUNCTIONAL ZONING

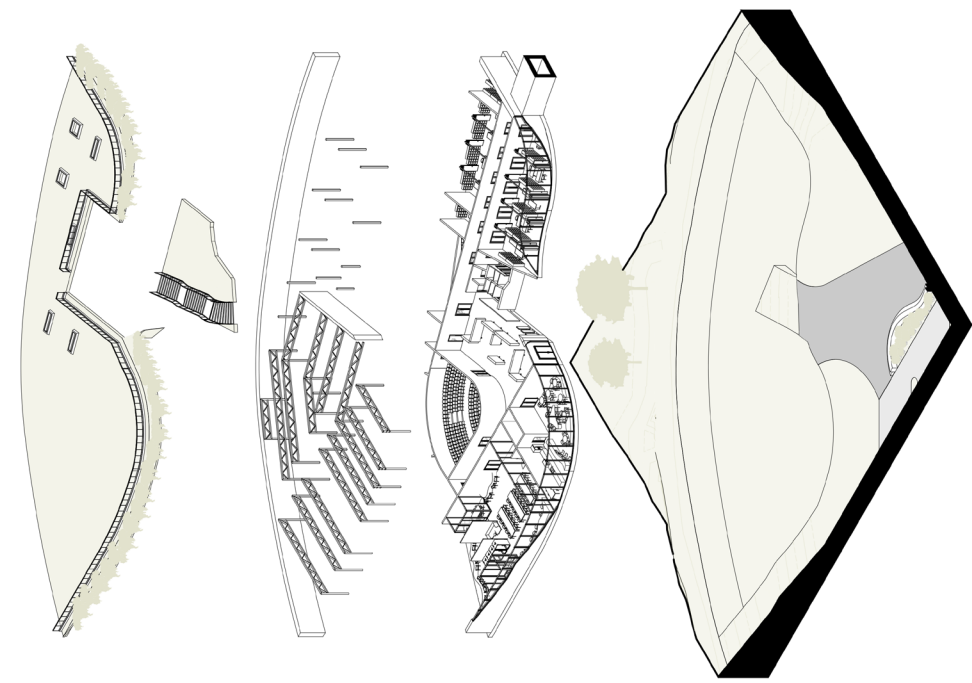
CREATIVE HALL AND TRATTORIA. GROUND FLOOR PLAN IN 1:200 SCALE



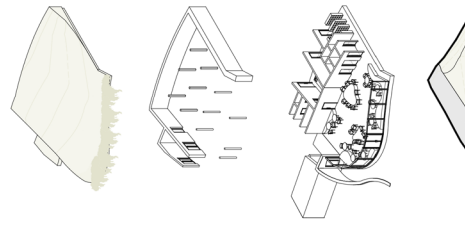
CREATIVE HALL. ELEVATION IN 1:200 SCALE

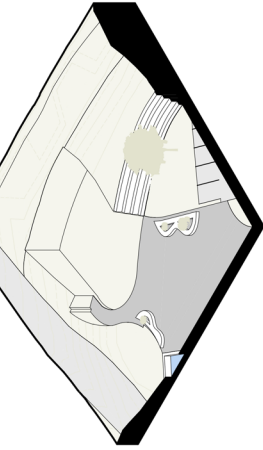


SECTION 1-1 IN 1:200 SCALE

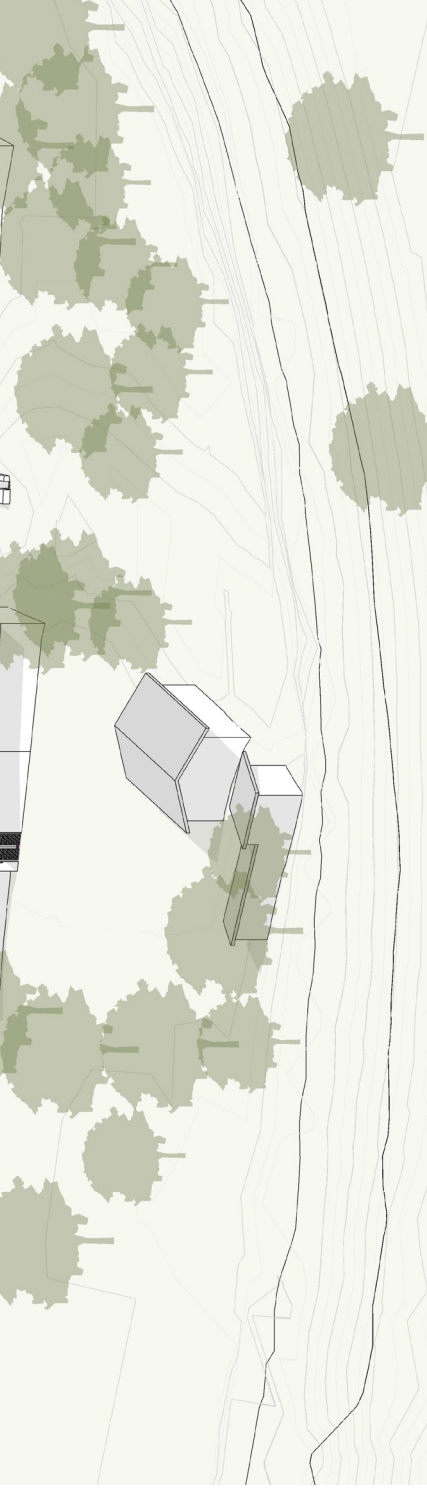


CREATIVE HALL. EXPLODED AXONOMETRY

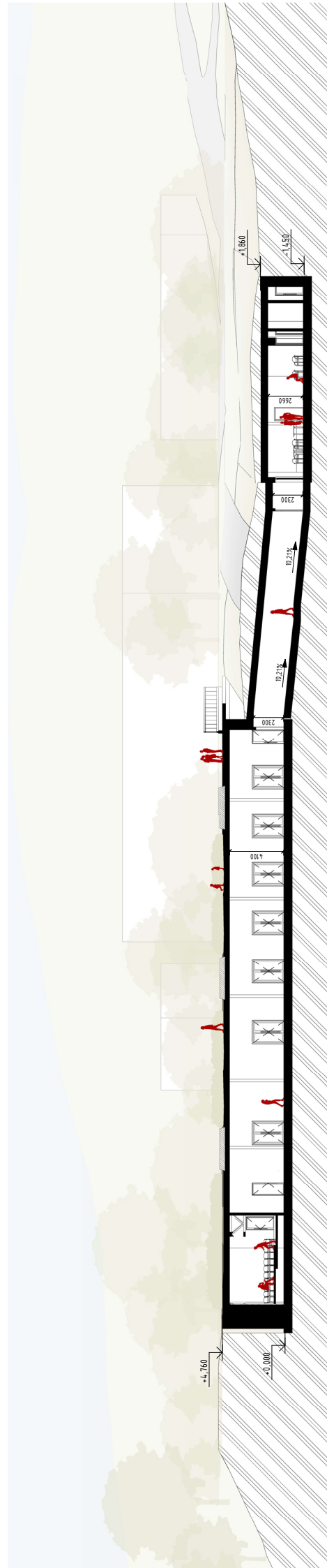




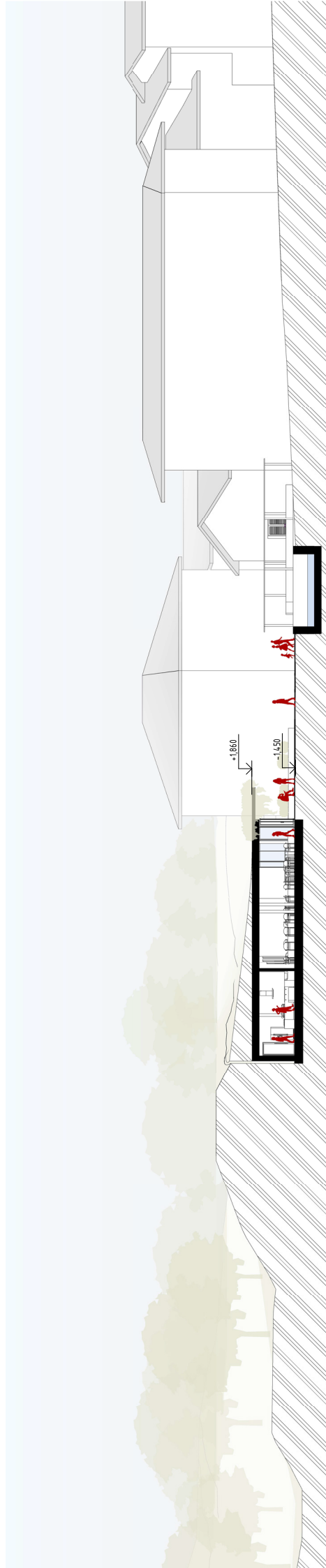
TRATTORIA. EXPLOADED AXONOMETRY



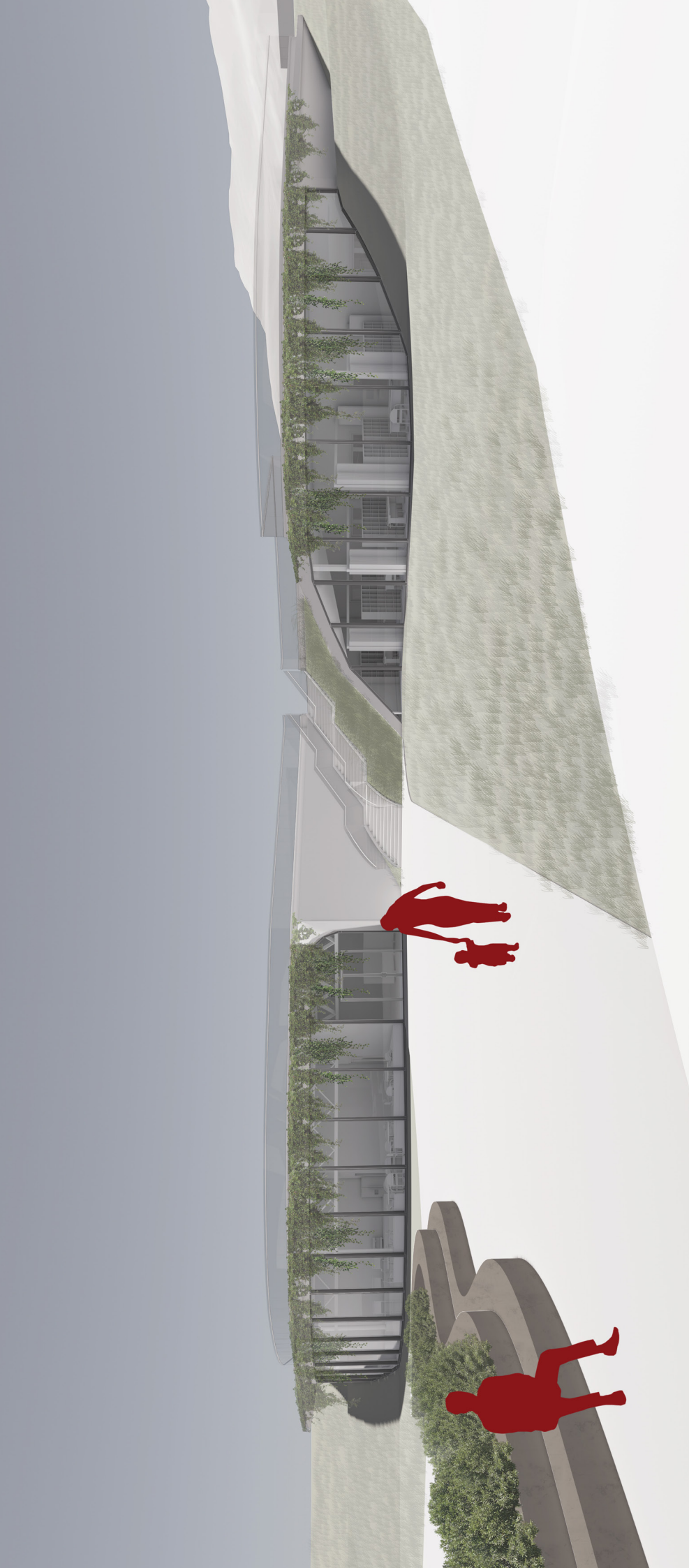
PROPOSAL AXONOMETRY



SECTION 2-2 IN 1:200 SCALE



SECTION 3-3 IN 1:200 SCALE



SUSTAINABILITY

