National Recovery and Resilience Plan (NRRP) - Mission 4 “Education and Research” - Component 2 “From Research to Business” - Investment 1.2 “Funding projects presented by young researchers” and the European Union - NextGenerationEU — Land-In-Pro | Landscapes of Industrial Production - Documenting and Assessing 20th century (post)Industrial Landscapes as Resources– 100027-2022-FP-PNRR-YR_MSCA_0000005 - CUP No. D33C22001630001 – M2 – WP2

Pilot Site Mapping

Project Acronym:

Land-In-Pro

Project Title:

- Landscapes of Industrial Production –
Documenting and Assessing 20th century (post)Industrial Landscapes as Resources

100027-2022-FP-PNRR-YR_MSCA_0000005

This milestone is part of the project that has received funding from the Ministry of University and Research General Directorate for Internationalisation and Communication – National Recovery and Resilience Plan (NRRP) - Mission 4 “Education and Research” - Component 2 “From Research to Business” - Investment 1.2 “Funding projects presented by young researchers” and the European Union - NextGenerationEU
Project no. 100027-2022-FP-PNRR-YR_MSCA_0000005
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Start date of the project:
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36 months

Authors:
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Dr Sara Mauri, Postdoctoral Researcher

Dissemination Level:
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Document track details

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Host Institution:	University of Genoa Department of Architecture and Design – DAD Stradone Sant'Agostino 37 16123 Genova (GE) Tel: +39 010 209 5904.		
Start Date:	December 20, 2022	**End date:**	December 19, 2025

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Milestone No.:	M2
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Dissemination level	PU - Public
Work Package No.:	WP2
Author(s)	Federica Pompejano (Principal Investigator) – **FP** Sara Mauri (Postdoctoral Researcher) – **SM**
Contributor(s)	Marta Casanova (Laboratory MARSC: Analytical Methods for the Restoration and History of the Built Environment, DAD, UniGe) - **MC**
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Brief description	This report is a formal output of the Land-In-Pro project and constitute a technical-scientific document that describes the Land-In-Pro's Pilot Site Mapping. It includes original unpublished work except where clearly indicated otherwise. Previously published material and the contributions of others have been duly recognized through suitable citation, quotation, or both.
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Acknowledgement	The Land-In-Pro pilot site mapping is an outcome of a project that has been funded with support from the European Union Next Generation EU and the Italian National Recovery and Recovery and Resilience Plan (NRRP) - Mission 4 “Education and Research” - Component 2 “From Research to Business” - Investment 1.2 “Funding projects presented by young researchers” – Ministry of University and Research - MUR (Project no. 100027-2022-FP-PNRR-YR_MSCA_0000005).
Disclaimer	The content of this report reflects only the authors’ views. The authors, the Ministry of University and Research and the European Commission are not responsible for any use that may be made of the information it contains.

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1. Introduction

This technical scientific report meets the requirements set out in the Public Notice no. 247, August 19, 2022, Art. 13, comma 3, letter f) corresponding to promoting the exploitation of research results and ensuring wide open access to research results and related data according to the principles of "Open science" and "FAIR Data". It provides information on the pilot site mapping activities carried out at the partially decommissioned industrial site of Ferrania, located in the Municipality of Cairo Montenotte (Savona), within the broader territorial context of the Bormida Valley in north-western Liguria. The collected data were organised into a GIS project, conceived as an accessible tool offering a first integrated representation of the site that documents the physical traces of industrialisation and deindustrialisation processes.

2. Land-In-Pro Pilot Site Mapping

The Land-In-Pro project is committed to identifying, investigating, interpreting and assessing (post)industrial landscapes and heritage as resources, critically unfolding new perspectives on conservation and reuse strategies. The Pilot Site Mapping is a formal output of the research activities envisaged in *Work Package 2 - In-depth investigation in a representative (pilot) case study* (WP2[1]). Land-In-Pro researchers collected a consistent corpus of data through fieldwork campaigns, surveys, and on-site GIS mapping activities on the pilot site of Ferrania, documenting the main components of the (post)industrial landscape: factory buildings, housing facilities and infrastructures. These activities were complemented by the archival and bibliographical research (see the Land-In-Pro Literature Collection – M1) conducted in the previous WP1[2], which provided additional context and supported site-based evidence. Together, they led to the creation of a GIS project conceived as a broad and consistent dataset that documents the transformations of the site over time up to its current conditions.

3. Purposes of the Pilot Site Mapping

The objective of the Land-In-Pro Pilot Site Mapping is to provide a structured and accessible corpus of critically processed information and data on the partially decommissioned industrial site of Ferrania within Bormida Valley, chosen as pilot case study. The dataset, obtained though fieldwork, survey, on-site mapping and the elaboration of archival and bibliographical resources at the pilot site level, is conceived as both a scientific tool for scholars, researchers (all levels) and students, and as a reference for a wider audience interested in the history and present condition of the (post)industrial site of Ferrania.

The main characteristics of the Land-In-Pro Pilot Site Mapping are the following:

- It **contributes directly to the overall Land-In-Pro research outcomes**, providing essential inputs for the next phases of the project, namely WP3 (processing and harmonisation of collected data into the webGIS) and WP4 (interpretation and evaluation of data for the development of the Assessment Tool).
- It offers an **integrated and comprehensive representation of the pilot site**, documenting the physical traces of industrialisation and deindustrialisation processes and laying the groundwork for comparisons across different phases of transformation (WP3).
- It is conceived as a dataset **accessible to external stakeholders**, addressed not only to researchers and scholars but also to local institutions, cultural organisations, and the wider public in general. The

[1] Details on WP2 research activities are contained in the deliverable D2.1.
[2] *Work Package 1 – Inventorying the tangible: investigating, identifying and mapping.*

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resource is published in the Land-In-Pro Community on Zenodo[3], where it can be freely downloaded.

3.1. Methodology

The methodology adopted for collecting the pilot site data combined field-based investigation with archival and bibliographical research, linking physical evidence and visual data with historical sources to achieve a comprehensive understanding of the main components of the (post)industrial landscape of Ferrania and their transformations over time.

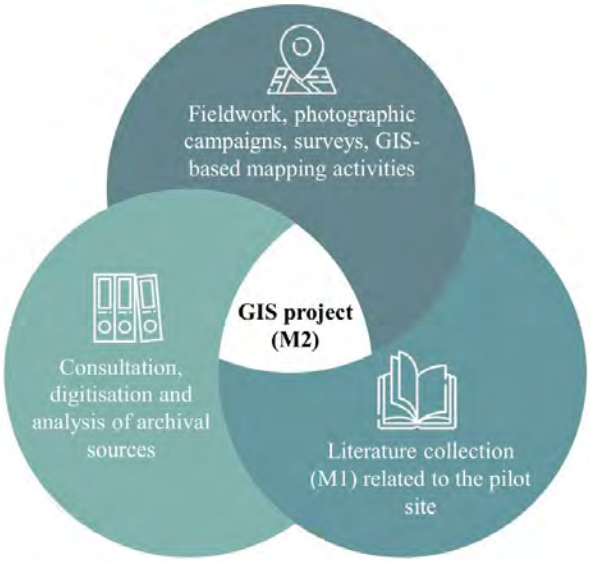

Figure 1 - Land-In-Pro pilot site mapping activities workflow. © Land-In-Pro, 2022-2025.

The workflow began with a series of on-site fieldwork activities and surveys aimed at GIS-based mapping of physical evidence. These activities were carried out using an open-source mobile application (Qfield) integrated with a desktop GIS (QGIS), ensuring a smooth transfer of information from field to desk and simplifying both data collection and subsequent post-processing. Photographic campaigns were also undertaken with cameras and drones to record visual data, producing extensive photo and video documentation. The surveyed area covered the entire district of Ferrania, approximately corresponding to the urban expansion that followed the establishment of the industrial complex, as determined through the first results of archival research and insights provided by local residents. This approach made it possible to capture and georeference major building typologies, architectural features, and spatial components, resulting in a detailed overview of the current conditions of the pilot site and its surroundings.

In parallel, archival and bibliographical sources (see the Land-In-Pro Literature Collection – M1) related to Ferrania were consulted, analysed, and digitised in order to complement field observations and add historical depth.

All collected information was then organised and harmonised during desk-based processing in GIS environment (QGIS). The mapped components were represented as point features positioned on a Google Satellite base map and linked to an attribute table containing information integrating field, photographic and

[3] See: https://zenodo.org/communities/landinpro-unige?q=&l=list&p=1&s=10&sort=newest

archival/bibliographical data. For demolished buildings, which are no longer visible on the satellite imagery, a support layer with georeferenced geometries was created to correctly position their points within the same dataset. In addition, a vector layer was created to delimit sub-areas within the Ferrania district, defined through a combined analysis of regulatory plans and historical maps. A further layer was dedicated to views mapping, selected viewpoints across Ferrania district. Together, these layers provide a structured and coherent representation of the site.

3.2. Tools

The on-site mapping activities were carried out with open-source software, ensuring transparency, accessibility, and continuity between fieldwork and data processing. The GIS project was developed with QGIS[4] (v.3.34 Prizren) as the desktop environment and QField[5] (v.3.4) as its mobile extension for on-site surveys, compatible with Android devices. This integration allowed Land-In-Pro researchers to prepare a simplified project in QGIS, use it in QField during fieldwork, and then synchronise the collected information back into the desktop software, ensuring a coherent data flow. The mapped information was then systematised and imported into a new QGIS project, which constitutes Milestone 2 (M2).

This workflow provided a consistent and comprehensive dataset, reinforcing the project’s commitment to open science and the FAIR principles. The dataset is openly accessible and can be downloaded through the Land-In-Pro Community on Zenodo.

3.3. Description of the QGIS project

The QGIS project provided as Milestone 2 (M2) has been structured to ensure usability for both expert GIS users and non-specialist audiences. The project was set in the Roma40 reference system and Gauss–Boaga cartographic projection (EPSG:3003), and it is organised into three main layers with attribute tables containing information available in both Italian and English languages. These are: *buildings_mapping*, a vector point layer documenting the mapped components; *zoning*, a vector polygon layer defining the sub-areas within the Ferrania district; and *views_mapping*, a vector point layer recording selected viewpoints across Ferrania district. The *buildings_demolished* layer, by contrast, is a support vector layer used only for spatial reference: it provides indicative geometries to georeference demolished buildings, while their related data is stored in the attribute table of the *buildings_mapping* layer.

The following table summarises for each layer: the name, the type, the attribute table fields, and a description of each field with its corresponding sources.

LAYER	TYPE	ATTRIBUTE TABLE FIELDS	FIELDS DESCRIPTION
buildings_mapping	Vector (point)	Survey Form no./Scheda n.	Progressive number of the survey form used to uniquely identify each mapped component.
		Building Code/Codice dell’edificio	Unique alphanumeric code (e.g., fer01, fer02 etc.) assigned within the Land-In-Pro project to identify each mapped component in the Ferrania pilot site.

[4] More information on QGIS can be accessed here: https://qgis.org/it/site/ (accessed, September 2025).
[5] More information on Qfield can be accessed here: https://qfield.org/ (accessed, September 2025).

LAYER	TYPE	ATTRIBUTE TABLE FIELDS	FIELDS DESCRIPTION
		Surveyor/Operatore	Name of the researcher who conducted the field survey.
		Depositor/Depositante	Name of researchers who entered or validated the survey data in the GIS project.
		Date/Data	Date of the field survey for the mapped component (source: field survey).
		Accessibility/Accessibilità	Degree of accessibility of the mapped component during the survey (source: field survey).
		Zone/Denominazione di zona	Sub-area of the Ferrania district where the mapped component is located (sources: regulatory plan, historical maps).
		Zone Type/Tipologia di zona	Functional character of the sub-area (e.g., industrial, residential, rural etc.) (sources: regulatory plan, historical maps, field survey).
		Description/Descrizione	Type of mapped component (sources: archival materials from the Ferrania Film Museum, municipal building records from the Municipal Archive of Building Practices of the Municipality of Cairo Montenotte, historical cadastral maps from the State Archives of Savona, literature collection – M1).
		Construction Year/Anno di costruzione	Year of construction of the mapped component (sources: archival materials from the Ferrania Film Museum, municipal building records from the Municipal Archive of Building Practices of the Municipality of Cairo Montenotte, historical cadastral maps from the State Archives of Savona, literature collection – M1).
		Current conditions/Condizioni attuali	Physical state of the mapped component (existing, in ruins, partially demolished, demolished) (source: field survey).
		Use condition/Condizioni d’uso	Functional state of the mapped component (in use, partially in

LAYER	TYPE	ATTRIBUTE TABLE FIELDS	FIELDS DESCRIPTION
			use, disused) (source: field survey).
		Photo/Immagine	Photographic documentation of the mapped component (sources: field survey, Google Street View screenshots).
		Notes/Annotazioni	Additional descriptive information on the mapped component (sources: archival materials from the Ferrania Film Museum, municipal building records from the Municipal Archive of Building Practices of the Municipality of Cairo Montenotte, historical cadastral maps from the State Archives of Savona, literature collection – M1).
		Information on documentation/Informazioni sulla documentazione	Information on documentation gathered during fieldwork and Google Street View for existing components (sources: field survey, Google Street View screenshots), and through georeferenced historical and cadastral plans for demolished components (sources: archival materials from the Ferrania Film Museum, historical cadastral maps from the State Archives of Savona, literature collection – M1).
		Copyright License/Licenza di copyright	Type of license applied to images and data, defining conditions of reuse (source: Land-In-Pro Data Management Plan).
		Copyright note/Nota sul copyright	Funding acknowledgement and license terms (source: Land-In-Pro Data Management Plan)
		Tags	Keywords.
		Data Category/Categoria Dati	Information on data category (source: Land-In-Pro Data Management Plan).
		Data Conservation/Conservazione dati	Provides the link to the dataset in the Land-In-Pro Zenodo Community (source: Land-In-Pro Data Management Plan).
		Disclaimer	Legal responsibility statement (source: Land-In-Pro Data Management Plan).

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LAYER	TYPE	ATTRIBUTE TABLE FIELDS	FIELDS DESCRIPTION
zoning	Vector (polygon) and non-spatial table	Zone no./N. zona	Numeric identifier linked to the zone type.
		Zone Type/Tipologia di zona	Same definitions as in the *buildings_mapping* layer (see above).
		Zone/Denominazione di zona	
views_mapping	Vector (point)	Survey Form no./Scheda n.	Progressive number of the survey form used to uniquely identify each mapped view.
		View ID/ID Vista	Unique identifier assigned to each mapped view.
		Surveyor/Operatore	Same definitions as in the *buildings_mapping* layer (see above).
		Depositor/Depositante	
		Date/Data	Date of the field survey for the mapped view (source: field survey).
		Description/Descrizione	Description of components and zones visible from the mapped view.
		Photo/Immage	Photographic documentation of the mapped view (sources: field survey).
		Technical information/Informazioni tecniche	Details on the device used to capture the mapped view.
		Information on Documentation/Informazioni sulla documentazione	Information on documentation gathered during fieldwork (source: field survey).
		Copyright License/Licenza di copyright	Same definitions as in the *buildings_mapping* layer (see above).
		Copyright Note/Nota sul copyright	
		Tags	
		Data Category/Categoria dati	
		Data conservation/Conservazione dati	
		Disclaimer	
buildings_demolished	Vector (polygon)	No attribute table.	Support geometry to georeference demolished buildings; descriptive data stored in the attribute table of the buildings_mapping layer.

Table 1 – Description of QGIS project layers. © Land-In-Pro, 2025.

For optimal use of the project, it is recommended to add a base map (e.g., Google Satellite or Bing Maps Satellite Imagery) within QGIS. This provides a clear cartographic background that facilitates orientation and interpretation of the mapped data.

Photographs linked to the attribute tables are stored in dedicated folders within the dataset: the folder *b_photos* contains the images connected to the field *Photo/Immagine* in the attribute table of the *buildings_mapping* layer, while the folder *v_photos* contains those associated with the same field in the *views_mapping* layer. Because the links depend on the user’s local file path, they may not work when the project is opened on a different computer. If this occurs, the paths must be updated so that they point to the local folder where the images are stored. This can be done directly in QGIS by editing the field values in the attribute table. This step ensures that photographs are displayed correctly in QGIS when interacting with the attribute tables.

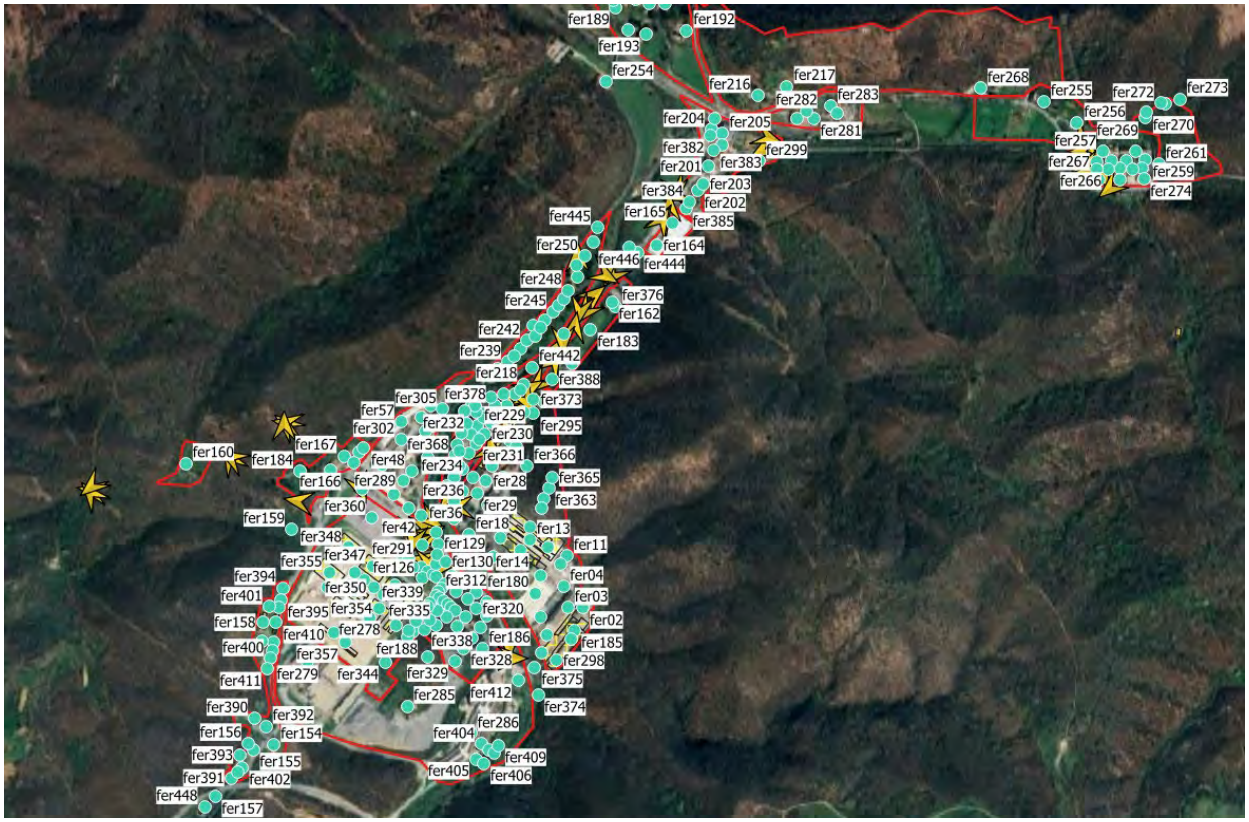

Figure 2 – Screenshot of the QGIS interface displaying the M2 GIS project. © Land-In-Pro, 2025.

4. Pilot Site Mapping dataset information

Land-In-Pro project pursues a FAIR (findable, accessible, interoperable, and reusable) management of data following EU guidelines.

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The following table describes the information compiled for the Land-In-Pro Pilot Site Mapping dataset deposited in the Land-In-Pro's Zenodo Community[6] and it is identified by DOI 10.5281/zenodo.17194982.

Dataset identifier	100027-2022-FP-PNRR-YR_MSCA_0000005_Land-In-Pro_WP2-M2_PilotSiteMapping_1.0
DOI	10.5281/zenodo.17194982
Dataset name	WP2-M2_PilotSiteMapping
Dataset description	This dataset contains a set of data related to processed information deriving from fieldwork activities and elaboration of archival information and literature (v. Cat 3, Cat 4, Cat 6 Deliverable D6.2, DMP) collected, accessed, and consulted during the WP1 and WP2 research activities. It constitutes a fundamental part that supports the Land-In-Pro spatial and territorial analysis in WP3, which encompasses activities aimed at informing a webGIS that visualises the transformations the selected context/site have undergone over the years in the pilot site, capturing its former and current conditions and configurations, whilst allowing the definition of indicators for the development of the Land-In-Pro Assessment Tool. The Land-In-Pro Pilot Site Mapping GIS project has been structured to ensure usability for both expert GIS users and non-specialist audiences. The project has been set up by using the open-source mobile application Qfield (v.3.4) during fieldwork, and QGIS (v.3.34 Prizren) during the data processing phase. Set in the Roma40 reference system and Gauss–Boaga cartographic projection (EPSG:3003), it is organised into three main layers (zoning, buildings_mapping, views_mapping) with attribute tables containing information available in both Italian and English languages. The *buildings_demolished* layer is a support vector layer used only for spatial reference: it provides indicative geometries to georeference demolished buildings. For optimal use of the project, it is recommended to add a base map (e.g., Google Satellite or Bing Maps Satellite Imagery) within QGIS. This provides a clear cartographic background that facilitates the orientation and interpretation of the mapped data. This dataset has been curated by Dr Federica Pompejano and Dr Sara Mauri. It relates to: ▪ WP2 ▪ Version 1.0; created on October 2, 2023; published on October 2, 2025. ▪ Federica Pompejano, Principal Investigator, RTD-A, Department Architecture and Design (DAD), Università di Genova (UniGe), federica.pompejano@unige.it (creator and depositor). ▪ Sara Mauri, Postdoctoral researcher, Department Architecture and Design (DAD), Università di Genova (UniGe), sara.mauri@edu.unige.it (depositor) ▪ Data originates from the collection of spatial data during fieldwork activities and from the processing of archival sources and literature. ▪ Keywords: NextGenerationEU, NextGenEu, Ministero dell'Università e della Ricerca, MUR, PNRR, UniGe, DAD, MSCA_0000005, Land-In-Pro, Post-industrial landscape, Industrial heritage, Landscape studies, Architectural conservation, Heritage studies, Fieldwork, Photo survey, Data processing, Architetture, Strutture, Paesaggio. Architecture, Landscape, Structures

[6] See: https://zenodo.org/communities/landinpro-unige?q=&l=list&p=1&s=10&sort=newest

	▪ Link: https://landinpro.unige.it/pilotsitemapping ▪ This dataset is part of the Land-In-Pro project, which has received funding from the Ministry of University and Research, General Directorate for Internationalisation and Communication – National Recovery and Resilience Plan (PNRR) - Mission 4 "Education and Research" - Component 2 "From Research to Business" - Investment 1.2 "Funding projects presented by young researchers" and the European Union – Next Generation EU. ▪ The content of this database reflects only the authors' views. The authors, Host Institution, Ministry of University and Research and the European Commission are not responsible for any use that may be made of the information it contains.
Metadata	The metadata are contained in a markdown README file (.txt, .xml). Metadata are compiled using the online tool DataCite Metadata Generator - Kernel 4.4 provided by DataCite Metadata Working Group. (2021). DataCite Metadata Schema Documentation for the Publication and Citation of Research Data and Other Research Outputs. Version 4.4. DataCite e.V. https://doi.org/10.14454/3w3z-sa82.
File format(s)	This dataset contains a QGIS project (.qgz) along with supporting files including PDFs (.pdf), images (.jpg), text (.txt), XML metadata (.xml), and QGIS packages (.qpkg).
Data sharing	Land-In-Pro Pilot Site Mapping © 2025 by Land-In-Pro Project - Federica Pompejano and Sara Mauri, Department Architecture and Design (DAD), Università di Genova (UniGe) is licensed under Attribution-NonCommercial 4.0 International (CC BY-NC 4.0). If not otherwise indicated, images were acquired by researchers during fieldwork and mapping activities conducted under Land-In-Pro research project's WP2 and WP3 within the territorial context of the pilot site (Ferrania, Cairo Montenotte, Savona, Italy). The information contained in each form is the result of a combined processing of raw fieldwork data and the elaboration of heterogeneous historical sources, including: archival materials (currently under inventory process) from the Ferrania Film Museum in Cairo Montenotte (SV); municipal building records (Municipal Archive of Building Practices, Municipality of Cairo Montenotte, Savona); and historical cadastral maps (Cadastral Map Collection, State Archives of Savona). All consultation permits were previously acquired. Consulted archive materials are available for on site consultation under each archive's rules and conditions.
Archiving and Preservation	The storage and preservation of data contained in this dataset is ensured and guarantee during and after the project implementation by the server facility provided by the Lab. MARSC at the Department of Architecture and Design (DAD), University of Genoa and in the PI's institutional external SSD. A copy is stored in the Open Access repository Zenodo, Land-In-Pro Community: https://zenodo.org/communities/landinpro-unige?q=&l=list&p=1&s=10&sort=newest

Table 2 - Land-In-Pro literature collection - Dataset description template

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