Graduation Plan

Master of Science in Architecture, Urbanism & Building Sciences

MSc Landscape Architecture 2023 - 2024

[Xiaoqian Cheng]

Graduation Plan

I   Personal information

Full name	Xiaoqian Cheng
Student number	5816998

II   Studio / Lab information

Name / Theme	FLOWSCAPES-Landscape Architecture Principles Lab	
Main mentor	Eric Luiten	Landscape Architecture
Second mentor	Wido Quist	Heritage & Architecture
Argumentation of choice of the LA graduation lab	As early as Q1, I was impressed by the four landscape design principles—palimpsest, bodily experience, natural progress, and scale continuum, I think these four lenses interpret landscape design clearly from historical, cultural, natural, and social perspectives. This lab offers me an opportunity to gain a better understanding and design experience with these theories.	

III Graduation project

Title of the project	A railway journey to connect the past, present, and future: Reveal Chinese Railway Heritage through integration into an urban and rural landscape system

Context and aim of the project

Location (region / area / site)	China, Chinese Eastern Railway, Binsui section
Problem statement	The Chinese Eastern Railway, situated in the northeastern region of China, spans over two thousand kilometers across four provinces. It connects with the Trans-Siberian Railway and was constructed over a century ago by the Russians to strengthen their control over the northeastern part of China. At that time, the railway traversed the sparsely populated northeastern region, prompting the Russians to establish railway infrastructure and town amenities along the route. This initiative has facilitated the modernization and formation of the original villages and

towns in the region, with the remaining facilities and buildings becoming legacies of colonial heritage in a geopolitical context.

In the early 21st century, these railway facilities were recognized as significant examples of modern cultural heritage and began to receive protection and restoration. However, the reality is that the condition of the majority of these heritage sites is poor. Many of them are left idle, abandoned, or even demolished. In both urban and rural areas, Heritages make a neglected impression.

The neglected heritage not only signifies its poor physical condition but also indicates a gradual disconnection from the relationship between heritage and the urban environment, as well as with people. From the report about the Status of Preservation of Heritages along the CER, we can gain a clearer understanding of the poor state of heritage. The report shows nearly 90% of the heritage sites are in a state of abandonment and disuse. And among them, 23% of the heritages have structural issues.

There are a lot of reasons that contribute to the neglected phenomenon. Some are obsolete railway infrastructures, such as water towers and pump houses, rendering them non-functional. Certain heritage sites have been abandoned due to railway route changes or dismantling. Complex heritage property ownership makes direct supervision and management challenging

I summarize the reasons from four dimensions: Functionality, Spatial environment, Regulation, Social, and Cultural.

	Functionality: Due to railway evolution or urban development, heritage loses functions and no longer serves a purpose in societal life, gradually becomes forgotten and abandoned
	Spatial environment: Disconnection with spatial context makes people hard to perceive or understand heritages, promoting heritage to be forgotten and accelerating building damage
	Regulation: Inadequate management measures, lagging utilization planning, and single inappropriate utilization mode
	Social and cultural: People often fail to fully appreciate the cultural conservation and developmental value of heritage, leading to the perception of heritage as a symbol of outdated colonialism. Consequently, heritage lacks proper restoration and rational development.
	I mainly focus on the spatial issues heritages exhibit——Disconnection with Spatial Context. On an individual heritage level, some sites stand isolated in urban or rural areas, existing as heterogeneous entities lacking structural or functional connections with their surrounding spaces. Some heritage sites are disconnected from the environment due to rigid boundaries, such as being enclosed by walls and cottages. From the perspective of heritage clusters along the railway line, some sites within towns lack connections, presenting a fragmented state, while others in rural areas are abandoned, losing contact with other heritage clusters.
	In conclusion, the neglected heritage has manifested as a distinctive gap space within the spatial fabric—a fragmented, discontinuous collection isolated from the overall urban/rural

	context. The separation between the heritage collection and the spatial system drives them away from people's daily lives, makes it hard for people to perceive and understand the heritage, weakens the urban identity and cultural value of the heritage, progressively aggravating its state of abandonment and rendering it increasingly challenging to redevelop/reuse. The spatial issues directly or indirectly contribute to the exacerbation of problems in the other three dimensions.
Research question(s)	How can integrate the neglected heritages into the spatial context to reveal them from a landscape design perspective?
Design assignment	Through theoretical review, heritage can be regarded as a resource for urban development, integrated into the spatial development system. By reusing and redeveloping heritage, new mixed-use functions can be imparted, leading to the renewal of heritage areas. Beyond the architectural confines of the heritage entity, the broader context of heritage, including its natural environment, features, landscapes, topography, and related built environments such as above-ground and underground infrastructure, open spaces, gardens, and historical urban structures, should also be incorporated into the protective and spatial development system. From a landscape design perspective, a greater emphasis can be placed on the non-built environment around the heritage site. Efforts can be made to integrate them into the landscape system of spatial development. For instance, transforming open spaces around the heritage site into components of green infrastructure, public space systems, and cultural and recreation systems, including gardens, parks, squares, and cultural tourism routes. The presence and significance of

	heritage can be revealed by incorporating heritage sites into the urban and rural public landscape, making heritage perceptible, and enhancing urban characteristics to improve the quality of public spaces.
	Design principles:
	-breaking hard spatial boundaries, integrating heritage space into the surrounding context
	- pay attention to the public space design around heritage and enhance public space quality and cultural experience
	- creating added values to meet the needs and requirements of the current environment to promote new heritage use
	- restoring historic linkage between heritages and heritages, as well as cities and villages

IV   Graduation process

Method description

1. Landscape Architecture Four Principles: Palimpsest, Bodily Experience, Natural Process, Scale Continuum

Scale Continuum as a guiding method:
The concept of Scale Continuum facilitates the understanding of the Middle East Railway Heritage as a complex macro-system composed of smaller systems at different spatial scales. Each station on the railway route map represents a city/village system—an individual village or town. Within these towns, there exist systems at the architectural scale—heritage building clusters and historical districts. Each heritage building and even each station is not an isolated entity; they are intricately linked to the surrounding physical environment and the overall railway operational system, influencing each other.

This concept aids in narrowing down the complexity of the system and guides analysis and design through the spatial context of the heritage, particularly at the town level. Each designed heritage patch is connected by the railway, further enhancing the overall experiential integrity and continuity of the heritage on a broader scale.

Palimpsest, Bodily Experience, Natural Process :

These three principles can each contribute to the analysis and design from a historical perspective, human spatial experience, and ecological aspects. By analyzing each layer of information and traces of the heritage, historical and cultural values can be exhibited, providing references and inspiration for the restoration or transformation of the heritage. The human-scale spatial experience allows for the analysis of spatial issues related to the heritage, guiding detailed design considerations. Natural processes can be analyzed to understand the rewilding of the surrounding space after the heritage has been abandoned, determining how spontaneous green elements can be integrated into the design.

2. Literature review

First section: focusing on the understanding and approaches to the conservation and development of cultural heritage.

Joks, Eric, and Hans, Eva analyze the heritage conservation history in the Netherlands, outlining three models: Heritage as a spatial sector, a factor, and a vector. This progression ranges from isolating heritage as monuments to shield them from the impacts of spatial development, to comprehensive redevelopment for new functional meanings, and finally, incorporating intangible heritage and cultural customs as guides for spatial development.

This theoretical background aids in exploring the direction of integrating the isolated Middle East Railway Heritage collection into the spatial context. Instead of adopting an isolated monument-style preservation, the emphasis shifts towards redeveloping and transforming heritage, incorporating new functionalities to meet contemporary needs.

Building upon the review of the UNESCO Vienna Memorandum's Historic Urban Landscape Approach, a heightened awareness of protecting the overall heritage, including its wider context, is highlighted. "This wider context includes the site's topography, geomorphology and natural features; its built environment, both historic and contemporary; its infrastructures above and below ground; its open spaces and gardens; its land use patterns and spatial organization; its visual relationships, and all other elements of the urban structure." The spatial environment of non-heritage entities also plays a crucial role in the perception and experience of heritage. Based on this theory, the research on the Middle East Railway Heritage collection reveals a significant disconnection between heritage and urban spaces. Through the transformation of open spaces around heritage sites, integration them into urban structures such as parks, streets, and squares, heritage can be more effectively exposed to the public and interconnected with residents' daily lives. This approach aims to reveal the value of heritage and ultimately promote its utilization.

Second section: focusing on how to integrate heritage quality into practical public space design

Heritage-based design

Exploring how to design with heritage architecture as a carrier and applying this to public space design by analogy
1. Preservation of existing elements such as buildings or fragments (conservation/restoration of substance)→Preserving existing heritage elements, such as buildings, infrastructure, railways, and bridges, as integral components of the spatial design.
2. Redefining a structure or an architectural tradition (renewal within the morphological structure) →Reconstructing the spatial order of heritage sites, redefining the open space structure around the heritage.
3. The architectural interpretation or expression of intangible value (using mentality and intangible values as design theme). → Design with abstract morphological language expressing intangible value and memory of heritages

3.Typology Study
Based on the different spatial contexts of the line stations and heritage locations, they can be classified into four categories: city, town, village, and wild. Within each category, select one area for analysis, examining the current state of the heritage, the structure of the heritage site within its spatial context, and identifying open spaces around the heritage with potential for transformation.

4.Case Study
Through cases on transforming heritage spaces into public areas, such as parks and squares, and reusing abandoned railway tracks into hiking routes, the aim is to extract and consolidate design principles and methodologies. This will guide further detailed design processes.

Literature and more applied references

Bobbink, I. and de Wit, S. (2020) "Landscape architectural perspectives as an agent for generous design", Research in Urbanism Series, 6, pp. 129–150. doi: 10.7480/rius.6.97.

Janssen, Joks, et al. "Heritage as Sector, Factor and Vector: Conceptualizing the Shifting Relationship between Heritage Management and Spatial Planning." European Planning Studies, vol. 25, no. 9, 22 May 2017, pp. 1654–1672, https://doi.org/10.1080/09654313.2017.1329410.

Bandarin, Francesco, and Ron Van Oers. The Historic Urban Landscape : Managing Heritage in an Urban Century. Chichester England, Wiley-Blackwell, 2012.

Meurs, Paul. Heritage-Based Design. TU Delft, 1 Feb. 2016.

V   Reflection on the project proposal

1. What is the relation between your graduation topic, the lab topic, and your master track?

   The lab topic involves exploring four landscape architecture principles with a focus on the scale continuum as the primary guiding factor. An understanding of scales can refer to the landscape system: in many ways, a site is linked to larger systems that themselves operate at multiple scales. No site exists in isolation – it is influenced by and influences both its context and its components.

   This concept aids in comprehending my research subject—the Railway system, which is typically a complex system spanning spatial scales. The Middle East Railway Heritage System can be deconstructed into various spatial scales, with each railway station on the railway route map representing a city/village system—either a village or a town. Within these towns, there exist systems at the architectural scale—heritage building clusters and historical districts. Each heritage building and even each station is not an isolated entity; they are intricately linked to the surrounding physical environment and the overall railway operational system, influencing each other.

   Inspiration for my graduation topic also stems from the relationship between heritage and its wider spatial context. It starts with reconstructing the connections between individual heritage entities and their surrounding environments, then proceeds to restoring connections within heritage clusters at the town level. Finally, the revival of heritage within each urban patch contributes to a promising impact on the entire railway heritage route.

2. What is the relevance of your graduation work in the larger social, professional and scientific context?

   My graduation project explores the revitalization of neglected railway heritage sites by transforming the surrounding open spaces, making them perceptible and

integrated into urban/rural public spaces. This aims to reveal the presence and significance of these sites, facilitating their effective reuse and development. Similar railway heritage sites are prevalent not only in China but also in various countries worldwide. These heritage sites often span vast areas, exerting a profound influence on the characteristics and culture of towns in a region. However, due to their relatively brief history as industrial remnants, they may not receive the appropriate maintenance and development plan as well as the cultural recognition they deserve. The project serves as a new development paradigm for these gradually forgotten and abandoned modern heritage sites.

On a broader scale, it also promotes a fresh understanding of historical and cultural heritage development. As described in the Historical Urban Landscape Approach, there is a focus on the wider natural and urban environment. Heritage should not be isolated from urban development but needs to be integrated into spatial structures, brought back to the forefront, and incorporated into people's daily lives.