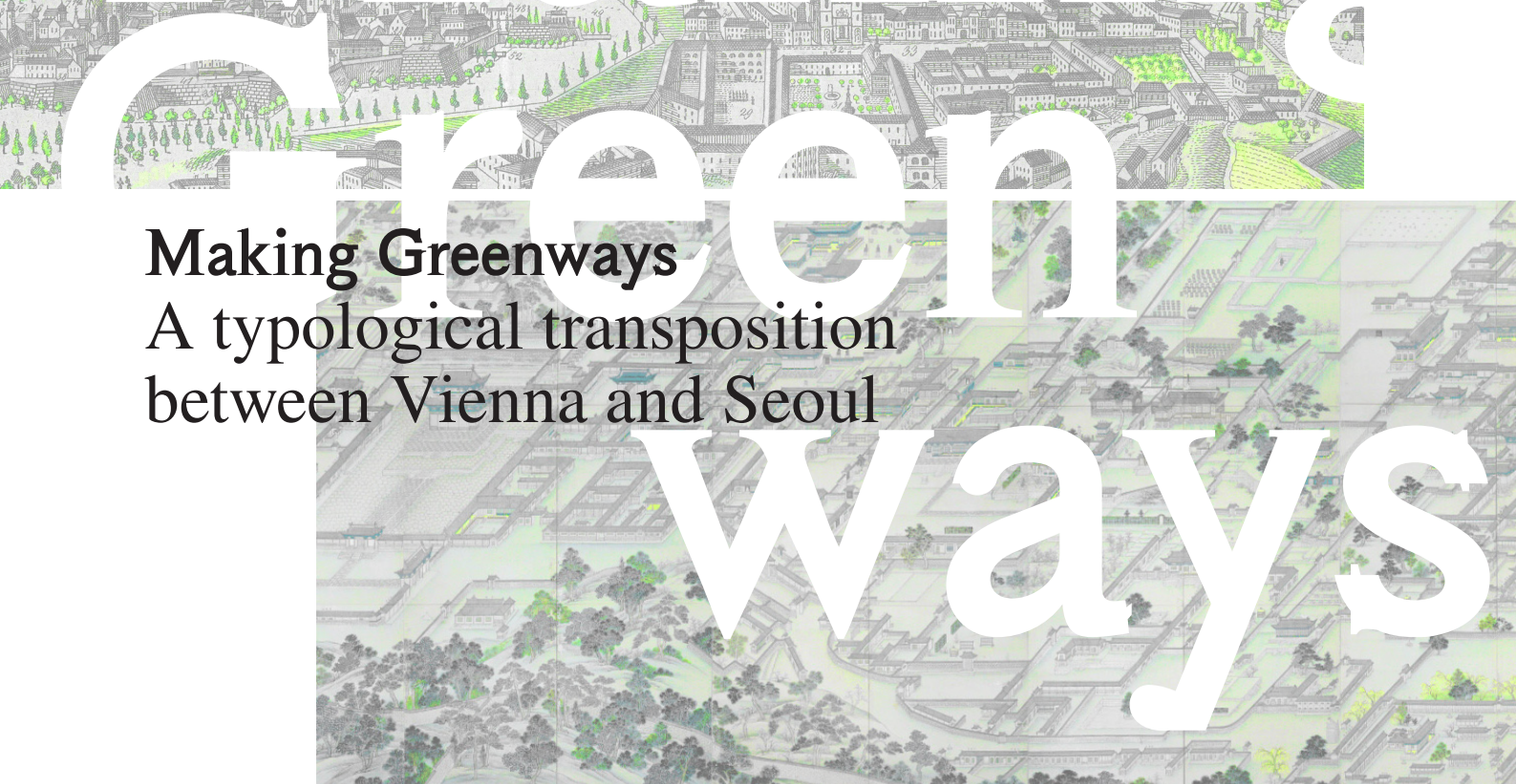




Making Greenways
A typological transposition
between Vienna and Seoul

Studio Report

Making Greenways :

A typological transposition

between Vienna and Seoul

Students	Program	Scale	Site
Alfons Mairhofer Julian Sonnleitner Kathrin Maneval Michael Krammer Thomas Buchsteiner Greta Bastian Stella Morgenstern Alexander Hövel Andreas Baumann Niko Ugljanin Isidora Stevanovic Luisa Moser Katrina Herre Daniel Kith Lena Peisser Pia Larcher	River restauration with landscape and urban design	masterplan 1:1000 to details 1:100	Wienfluss, from outlet to 10 km upstream

Instructors

Philipp Urech, Guest Prof.
Susann Ahn, Univ. Prof.

Survey

Boris Salak

Support

Dominik Schmidt

Guests

Katarina Steul Zatkova
Julian Raffetseder
Norbert Trolf
Thomas E. Hauck

Cities have undergone significant changes over the centuries due to geopolitics and innovations. As we face the uncertainties of a changing climate, cities will need to adapt to remain livable, safe and attractive. Drawing inspiration from successful greenway projects, this design studio aimed at developing greenway typologies in Vienna, focusing on the valley formed by the Wien River. The developed visions contribute to a city-wide vegetation strategy and enhance open spaces by creating community-based and aesthetically pleasing urban landscapes, capable to establish blue-green infrastructure as a compelling Baukultur of the city. This approach not only fosters a more comfortable urban climate but also improves the quality of human and non-human life, while promoting better active mobility.

Precision modeling methods were taught and incrementally implemented through didactic exercises and video tutorials, enabling students to adopt a mindset of digital prototyping for large-scale landscape design. Students also engaged in hands-on photogrammetry to capture and digitize portions of both the Cheonggyecheon River in Seoul and the Vienna River. These digital assets formed the basis for experimental spatial compositions, where students used 3D reassembly techniques to explore and reimagine riverine environments. Over the 15-week duration of the studio, students applied these methods to develop design proposals focused on the last 10 kilometers of the Vienna River. These proposals integrated site-specific analyses and adaptive design strategies, continuing the studio's objective to foster resilient urban habitats responsive to climatic, urban and socio-economic pressures.

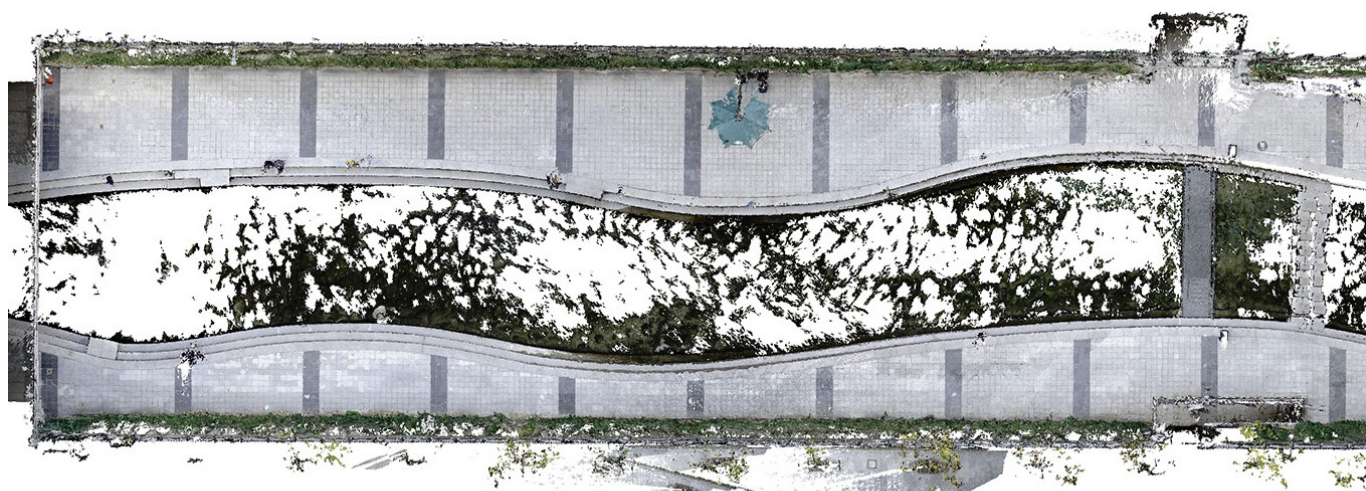


Composite design proposal for the restoration of the Vienna River, featuring Karlsplatz in the foreground and the Hietzing district in the background.

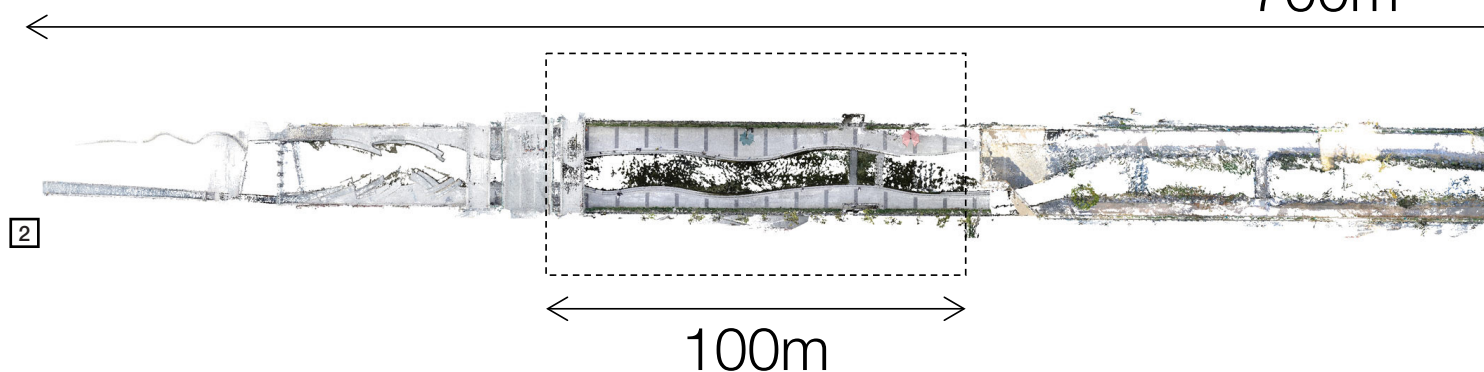
Design Approach

The studio set out to design blue and green infrastructures for river restoration, focusing on the multi-coding of open channels and riverbeds with vegetation and open space systems. This approach aimed to increase ecological diversity, improve the quality of life for urban residents, and encourage modal shifts in mobility behavior. Despite the fundamentally positive ambition of establishing a city-wide network of green-blue infrastructure, challenges remained in the quality and usability of these spaces—particularly in integrating pedestrian and cycling routes with water and vegetation systems, as observed along the 7-kilometer urban path of the Wien River.

To inspire the creation of a more attractive and ecologically rich river corridor in Vienna, the studio investigated successful greenway typologies implemented in South Korea. Since the early 2000s, Seoul has steadily advanced the ecological transformation of its rivers and urban spaces. Beyond the widely known Cheonggyecheon River and Gyeongui Line Forest Park, a series of diverse case studies—ranging from restored riverbeds and adaptive reuse of infrastructure to large-scale urban forests and waterfront parks such as the Yeouido Hangang Park ^[1] and the Seoul Forest Park—offered valuable insights into the integration of ecological restoration and public life. These projects demonstrated how blue and green



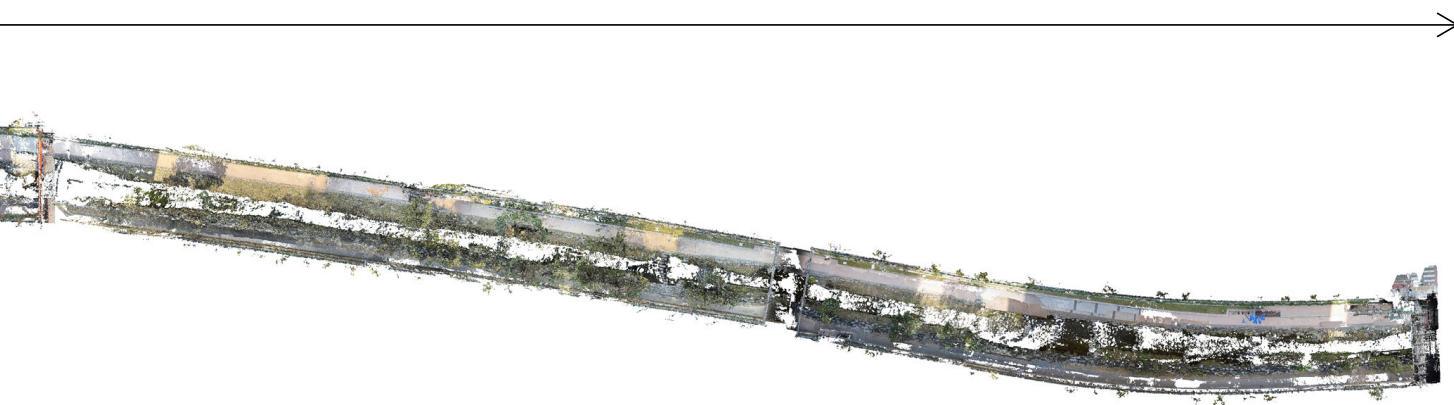
700m



infrastructures can form a coherent urban network that restores ecological functions while enhancing everyday usability.

In comparing Vienna and Seoul, the studio sought to improve the quality of green-blue infrastructure by addressing not only climatic and ecological functions but also the social dimensions of these spaces for both human and non-human stakeholders. Through the method of digital reassembly, students explored and transposed typologies of linear parks across both cities to generate new spatial insights and broaden the potential of riverine design. The work emphasized careful site reading, cultural reflection, and an understanding of Asian-European spatial concepts, combined with detailed site analyses and the application of digital techniques as a pathway to design.

As part of this broader inquiry, a joint workshop was held in Seoul to deepen intercultural exchange and provide hands-on experience with the tools and typologies explored in the studio. This workshop served as a platform for students from Vienna and Seoul to directly engage with one another and experiment with digital design methods in the context of the Cheonggyecheon River, that was digitized along the first 700 meters as a group exercise [2].

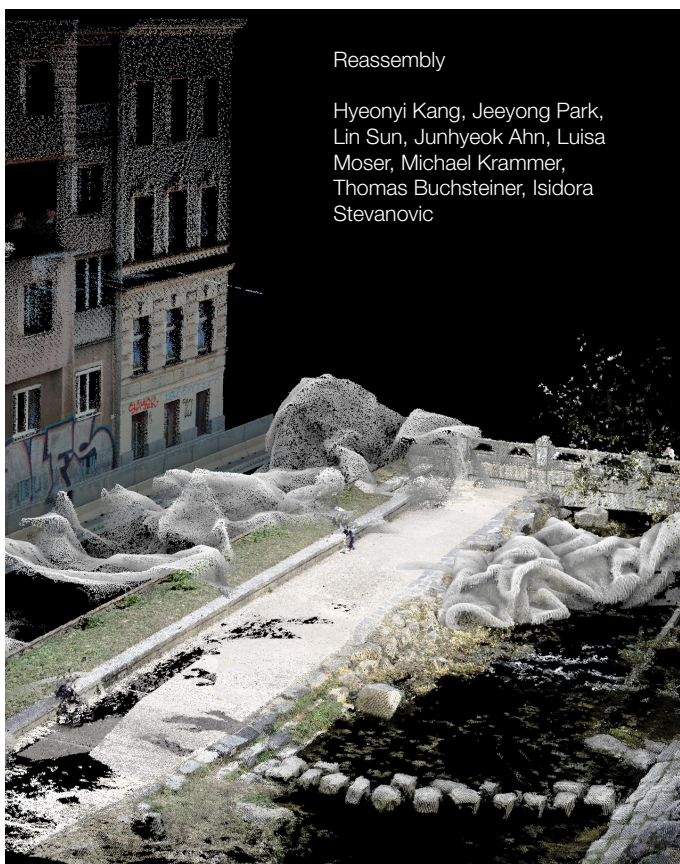


Seoul Workshop

The Greenways Exploration workshop brought together students from Seoul National University (SNU) and Vienna University of Technology (TU Wien) to collaboratively explore urban river systems as potential green infrastructures. Hosted in Seoul from November 3 to 4, 2024, the workshop aimed to foster intercultural exchange while investigating linear greenway typologies and imagining inclusive spaces for both human and non-human inhabitants. A shared interest in ecological transformation and digital design methods formed the foundation of this collaboration.

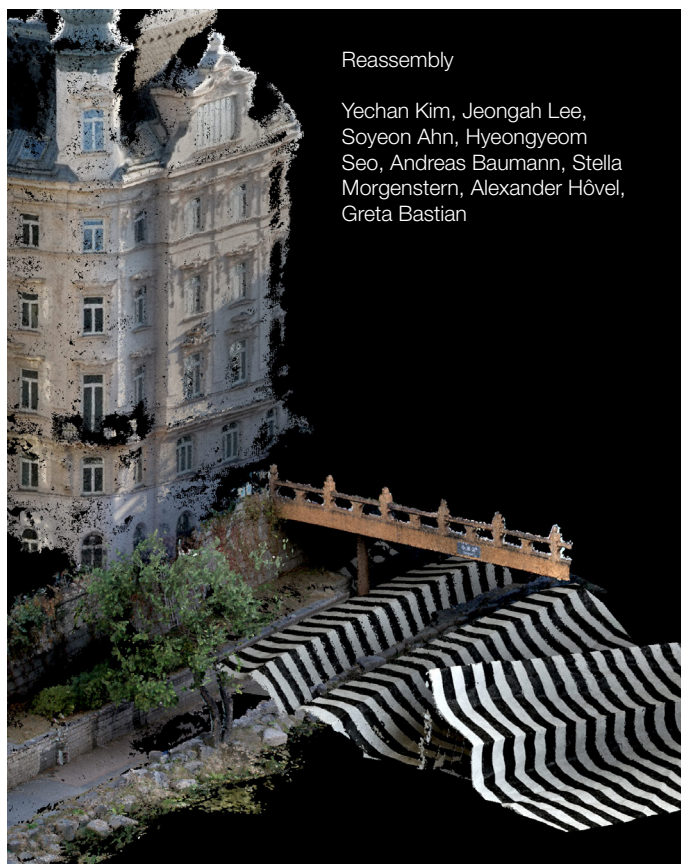
The program started with a photogrammetric digitalization along the Cheonggyecheon River ^[2]. In mixed groups of eight, combining four students from each university, students gathered photographic data for the generation of a photogrammetry-based 3D model of the riverbed. On the second day, students engaged in an intensive imaginative session where they translated their research and digital models into spatial speculations. The workshop concluded with an informal presentation session, where groups shared their spatial reassembly as rendered visuals and live 3D walkthroughs, sparking discussions on the role of digital fabrication and intercultural dialogue in shaping resilient, adaptive greenways.

[3]



Reassembly

Hyeonyi Kang, Jeeyong Park,
Lin Sun, Junhyeok Ahn, Luisa
Moser, Michael Krammer,
Thomas Buchsteiner, Isidora
Stevanovic



Reassembly

Yechan Kim, Jeongah Lee,
Soyeon Ahn, Hyeongyeom
Seo, Andreas Baumann, Stella
Morgenstern, Alexander Hôvel,
Greta Bastian

Participants were tasked with developing fictional spaces through the technique of digital reassembly. Their assignment was to compose spatial fragments—digitized from the Cheonggyecheon riverbed, material articulations such as folded paper and cloth, and urban elements from Vienna's open mobile LiDAR datasets—into new spatial compositions [3]. These digital landscapes were further enriched by field-recorded ambient sounds and expressive media, including sketches, texts, and videos.

On the invitation of Prof. Yumi Lee, a series of special lectures accompanied the workshop, providing theoretical grounding in cultural, ecological, and topological perspectives. Prof. Susann Ahn introduced the Cultural Laboratory Seoul, Dr. Boris Salak discussed landscape preferences, and Guest-Prof. Philipp RW Urech presented on topology as a design approach. These inputs framed the students' design thinking and supported the development of their narrative environments.

Throughout the workshop, the combination of fieldwork, digital modeling, and interdisciplinary lectures created a dynamic environment for reimagining urban river systems not only as ecological corridors but also as evolving cultural spaces [4].

SNU Instructors

Yumi Lee, Prof.

SNU Students

Hyeonyi Kang
Jeeyong Park
Lin Sun
Junhyeok Ahn
Yechan Kim
Jeongah Lee
Soyeon Ahn
Hyeongyeom Seo
Jooyoung Lee
Jieun Lee
Minha Jung
Gunyeung Park
Dawon
Mihye
Junho
Jayeon

Lectures in Seoul

Susann Ahn:
Cultural Laboratory Seoul

Philipp Urech:
Topological Design

Boris Salak:
Landscape Preferences

Kangil Ji and Namjoo Kim:
Studio Dohgam Architects

[4]



Lecture Exchange in Seoul

As part of the ongoing effort to foster international and interdisciplinary exchange, a series of lectures was organized in Seoul, bringing together perspectives from architecture, urban studies and landscape research.

One highlight was a lecture by Studio Dohgam Architects, featuring Namjoo Kim (김남주), Assistant Professor at the University of Seoul and Kangil Ji (지강일), Assistant Professor at the Korea National University of Arts. Their presentations offered valuable insights into contemporary architectural practices in Korea and sparked engaging discussions with the international guests.

A second lecture event took place at Seoul National University (GSES), hosted by Prof. Yumi Lee (이유미), and featured contributions from Guest Professor Dr. sc. Philipp RW Urech on “Topological Design”. Prof. Dr. sc. Susann Ahn presented her research on the “Cultural Laboratory Seoul”, and Dr. Boris Salak discussed his work on “Landscape Preferences”.

Together, these events enabled an enriching dialogue between Korean and Austrian academics and professionals, strengthening mutual understanding and laying the groundwork for future collaborations across disciplines and national contexts.



In parallel to the Design Studio, a study explored public perceptions of urban river park restorations in Korea, focusing on the Cheonggye Stream in Seoul. While this restoration project had been widely analyzed from ecological and economic perspectives, less was known about how people interpret and value such spaces.

The Research Unit of Landscape Architecture and Landscape Planning at TU Wien conducted a pilot survey along the Cheonggye Stream. Students and researchers collected responses from around 100 participants over the course of nine days. The study applied a culturally adapted version of the Swiss WAMOS questionnaire to assess abstract landscape preferences, attitudes toward nature and infrastructure, visiting habits, and favored park features.

Preliminary findings revealed shared landscape preferences across cultures, but also clear cultural differences in the perception of infrastructure and the purpose of urban river parks. These insights highlighted the importance of culturally sensitive design in urban nature spaces, balancing ecological objectives with everyday social use.

The study was selected for presentation at the IALE 2025 European Landscape Ecology Congress, held from 2–5 September 2025 in Bratislava, Slovakia.



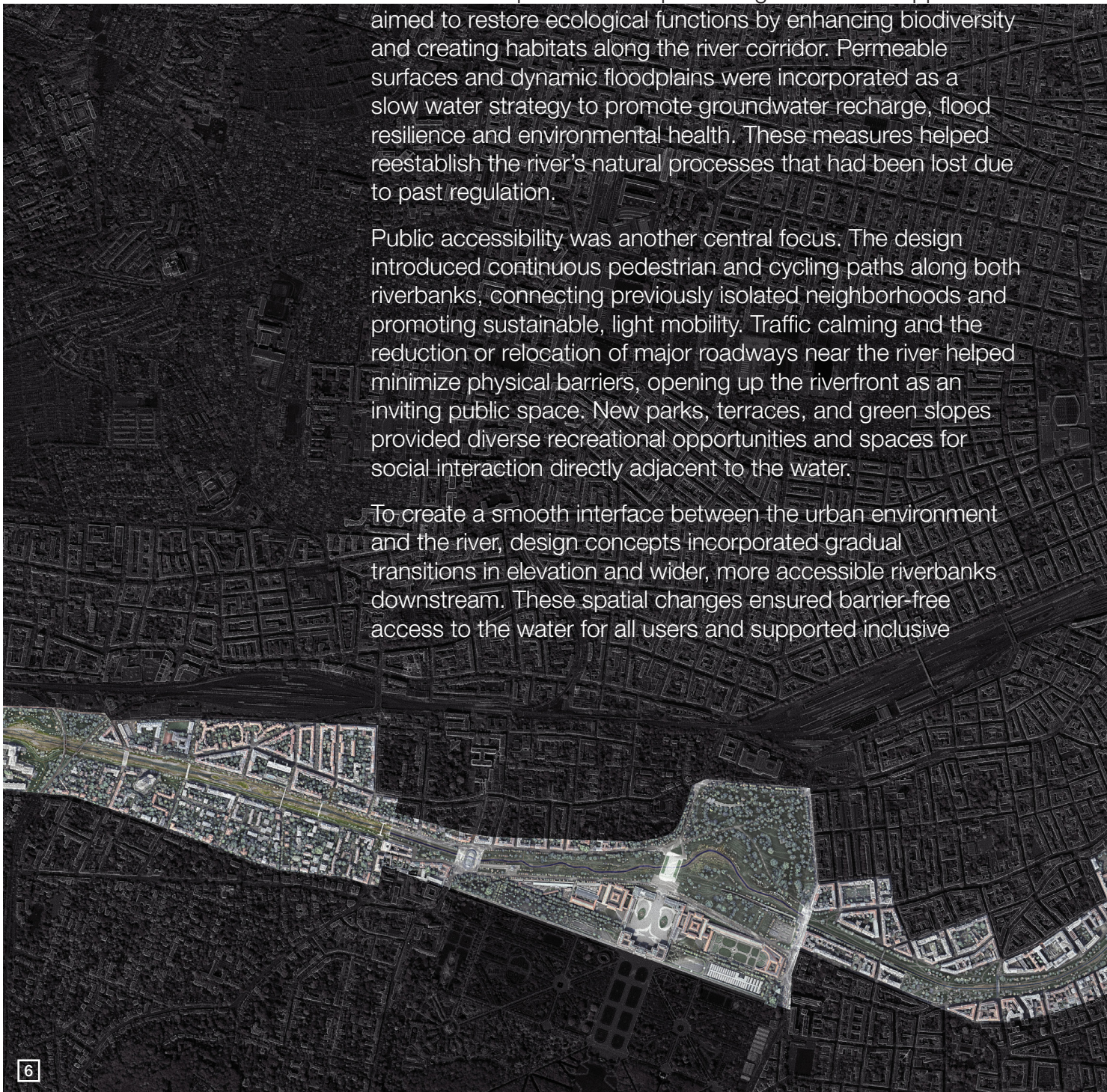
Designing the Vienna River

The design strategies developed by the students for the Wien River focused on transforming a heavily engineered and channelized urban waterway into a multifunctional green corridor that balances flood control, ecological restoration, and public accessibility. Since the river's flow can quickly change from low volumes (1.3 m³/s) during dry periods to sudden surges (e.g., 10'000 m³/s during storm Boris in September 15th 2024 [5] nearing the channel's capacity limit), the proposals addressed these fluctuations through naturalized flood management techniques. This involved widening and reshaping sections of the riverbed to better accommodate water volume changes and reduce flood risks.

A key strategy was replacing rigid concrete embankments with natural banks planted with riparian vegetation. This approach aimed to restore ecological functions by enhancing biodiversity and creating habitats along the river corridor. Permeable surfaces and dynamic floodplains were incorporated as a slow water strategy to promote groundwater recharge, flood resilience and environmental health. These measures helped reestablish the river's natural processes that had been lost due to past regulation.

Public accessibility was another central focus. The design introduced continuous pedestrian and cycling paths along both riverbanks, connecting previously isolated neighborhoods and promoting sustainable, light mobility. Traffic calming and the reduction or relocation of major roadways near the river helped minimize physical barriers, opening up the riverfront as an inviting public space. New parks, terraces, and green slopes provided diverse recreational opportunities and spaces for social interaction directly adjacent to the water.

To create a smooth interface between the urban environment and the river, design concepts incorporated gradual transitions in elevation and wider, more accessible riverbanks downstream. These spatial changes ensured barrier-free access to the water for all users and supported inclusive



use. Additionally, the expanded green spaces contributed to mitigating urban heat island effects and improving the microclimate in surrounding neighborhoods.

6 **7** The developed visions don't settle for generic solutions. Instead, they break new ground by fusing cultural understanding with situated digital design methods. Precision modeling leverages cutting-edge technologies to expand the design repertoire and prompting designers to rethink how urban rivers can be reclaimed, reimagined, and reshaped from the ground up, in Vienna's distinctive topological context.

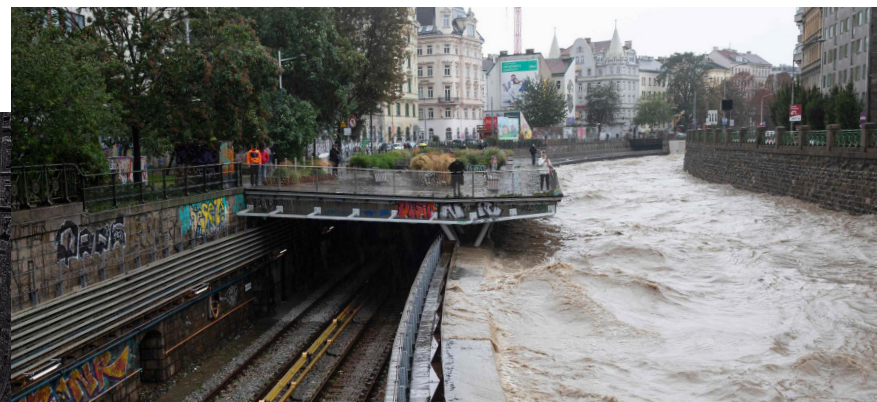


Photo: APA AFP Alex Halada





Making Greenways / Studio Rebo

Transformed Riverbed

Design perimeter framed in white, colored by elevation (meters above sea level)



155 205



500 m



**Hietzing -
Penzing**

Lena Peisser
Pia Larcher
Daniel Kith

**Schönbrunn
Palace**

Katrina Herre
Isidora Stevanovic
Luisa Moser



**Sechshaus -
Untermeidling**

Baumann Andreas
Ugljanin Niko

**Margareten -
Mariahilf**

Greta Bastian
Alexander Hövel
Stella Morgenstern

Making Green



**Naschmarkt -
Karlsplatz**

Thomas
Buchsteiner
Michael Krammer

**Stadtpark -
Wienfluss
mouth**

Alfons Mairhofer
Kathrin Maneval
Julian Sonnleitner

Precision Modeling

The design approach integrates site-specific data with imaginative composition, allowing designers to work directly within the spatial and topographic realities of a place. Rather than treating modeling as a neutral representation, this method emphasizes the active role of prospective digital methods—such as point cloud modeling, reassembling and depth mapping—in shaping design thinking. By combining observation, analysis, and invention within the same workflow, this modeling culture fosters a continuous dialogue between existing conditions and speculative futures.

Digitalization. The modeling process began with on-site photogrammetry surveys along the Vienna River [8]. The personal surveys were combined with publicly available aerial and mobile laser scan data from the City of Vienna. This step required students to master the modeling operations of scaling, registration, geolocation, and coloration by projecting aerial orthophotos, as well as the editing of scalar indexes. Digitalization is the initial modeling task that documents an existing state used for analysis and design development.

River Space Segmentation. Each studio group defined the perimeter of the river space relevant to their transformative process. This included adjacent green areas, side streams, hardscaped surfaces slated for retrofitting, and nearby urban blocks. Segmentation of the “river space” was performed directly on the aerial point cloud model containing all the topographic information to be manipulated through design [9].

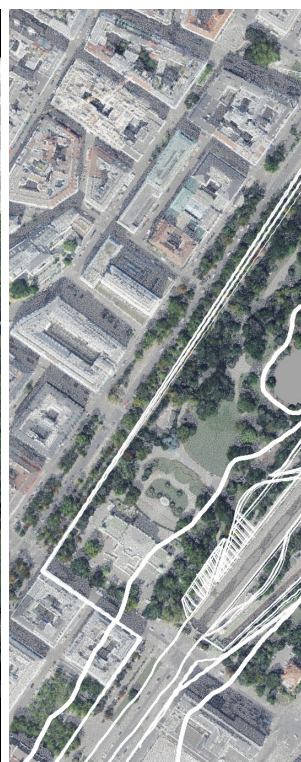
[8]



[9]



[10]

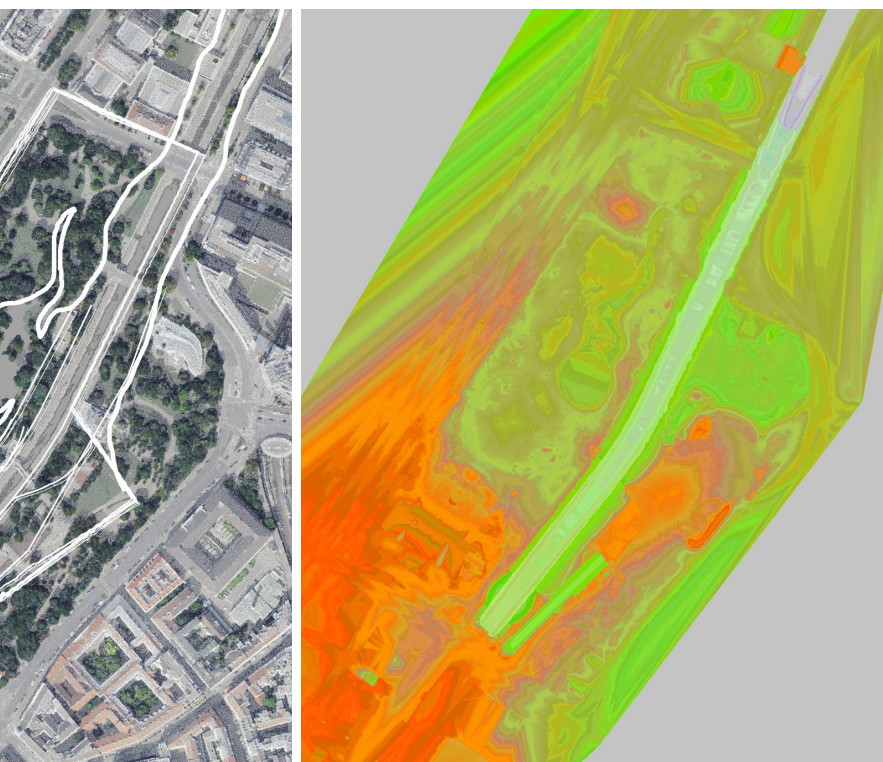


Overlay Sketching. Once the river space was segmented, the resulting point cloud model became a support for situated imagination. The measured points acted as spatial anchors to overlay both historic or prospective drawings. Students printed their models at scale in planimetric, axonometric, or sectional views, produced hand sketches and scanned these drawings to overlay them onto the digital model ^[10], creating a dialogue between the measured site and their speculative ideas.

Depth Mapping. By classifying and filtering point cloud models to retain only ground points, students generated georeferenced elevation maps, or “depth maps”. These were color-coded for scientific visualization, highlighting the topographic signature of the site ^[11]. The depth maps are manipulated by gradient drawing, allowing designers to merge their own topographic language with the topographic signature, resulting in a composite between site features and topographic inventions.

3D Reassembling. Since LiDAR point cloud models are inherently scaled in meters, students could directly juxtapose and rearrange scanned elements at true scale, encouraging experimentation with new compositions ^[12]. Site features can thus be grafted to other places. This process was further facilitated by a normalization step that temporarily set the base of all above-ground elements to elevation zero, allowing precise and deliberate compositions before repositioning them within the transformed topography.

[11]



[12]

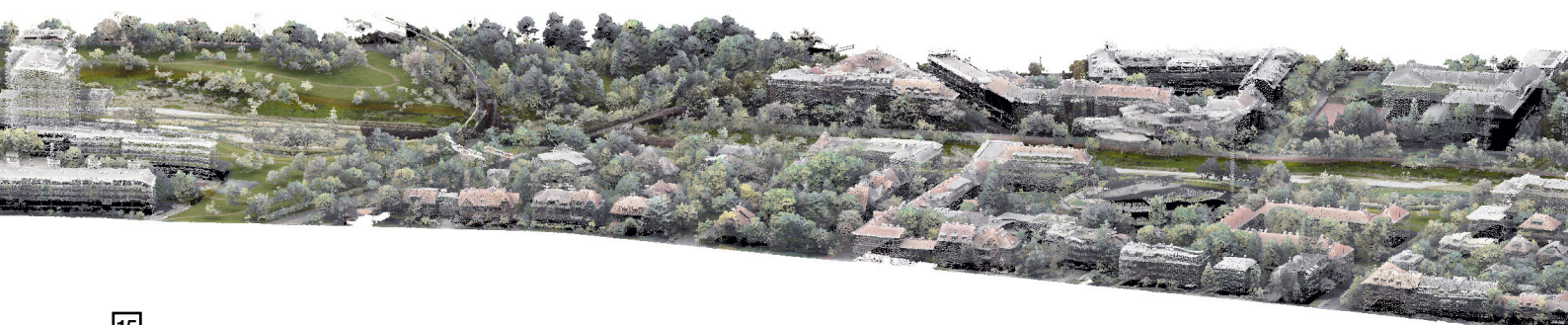


Hietzing - Penzing

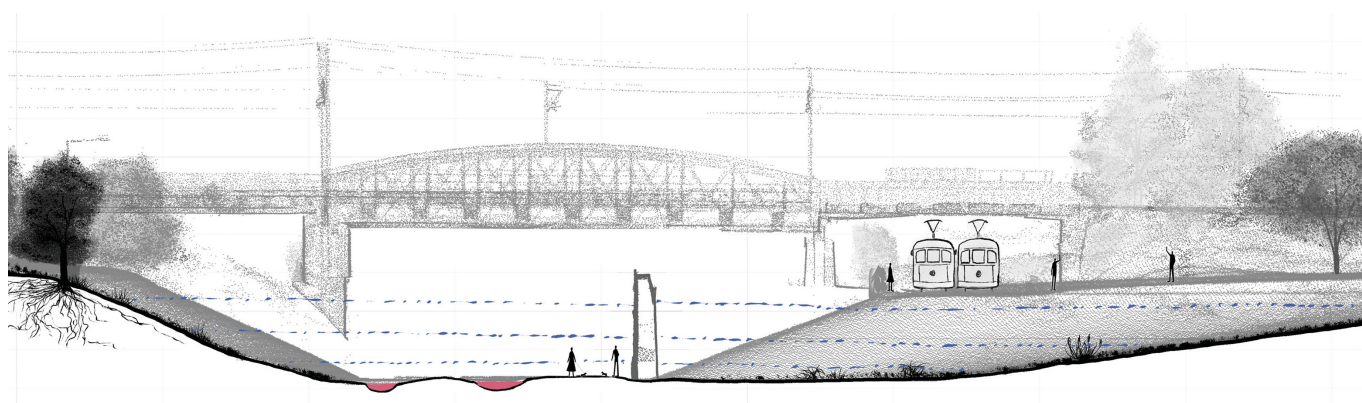
Lena Peisser
Pia Larcher
Daniel Kith

This proposal addresses the need to overcome the river's rigid linear structure and introduce greater spatial diversity. The site is divided into four sectors, each defined by specific environmental and spatial strategies ^[13]. In the outer sectors, the design emphasizes natural landscapes with reduced human intervention, enhancing ecological processes and habitat quality. Closer to the city center, the focus shifts toward structured ecological restoration and improved public accessibility, integrating the river landscape into the urban fabric. Sections of the river's original meandering form are restored to break the monotony of the straightened channel and support diverse aquatic and riparian habitats ^[14].

[13]

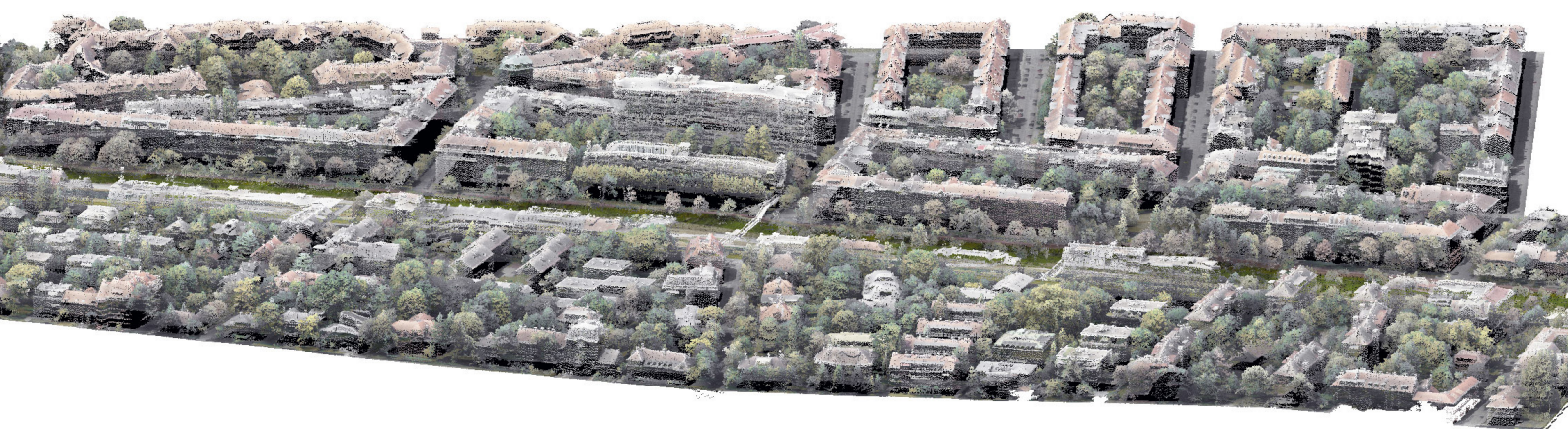
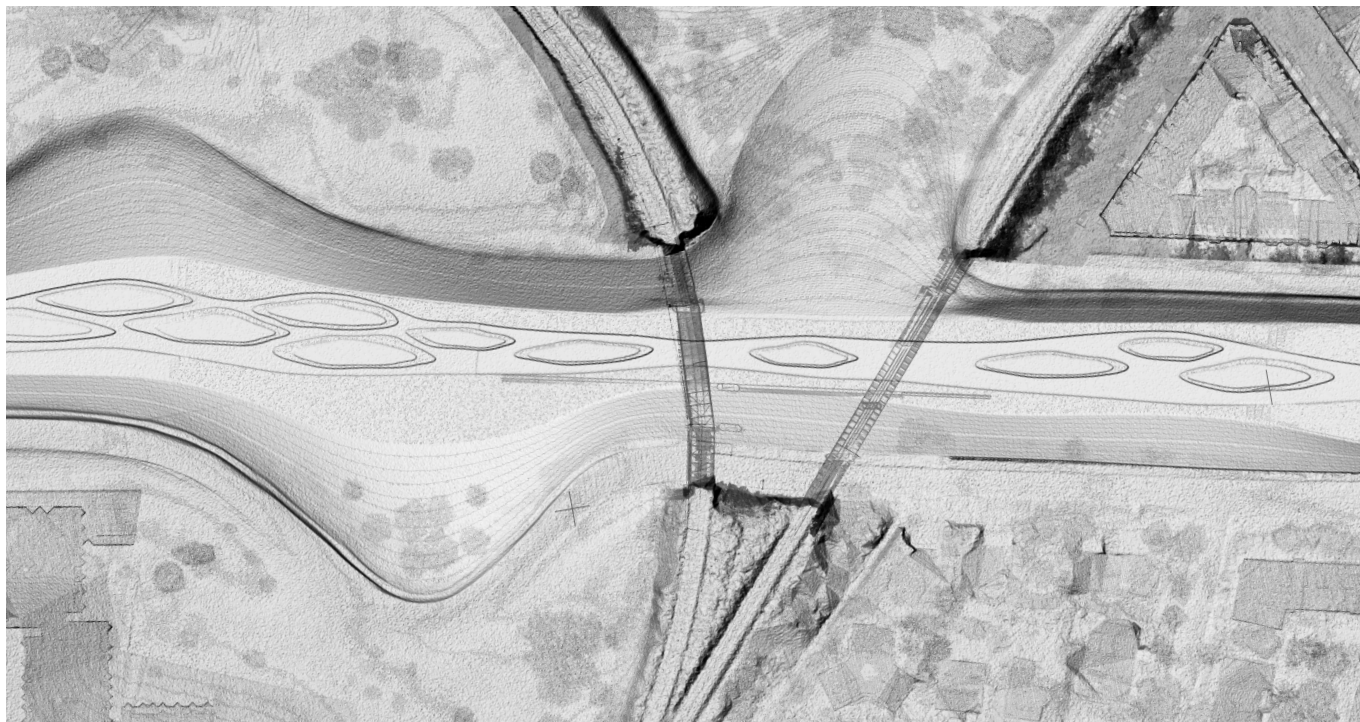


[15]



Hard surfaces are removed while the channel geometry is modified to improve water flow and allow for more varied spatial experiences. The overall strategy combines ecological restoration with urban landscape design, improving the interface between water, nature, and city. By diversifying landscape zones—ranging from riparian vegetation corridors to public open spaces—the project addresses both flood management and recreational use. These measures establish a multifunctional river corridor capable of supporting ecological health and urban mobility, adapting to changing water levels while providing accessible green infrastructure to the neighborhood ¹⁵.

14

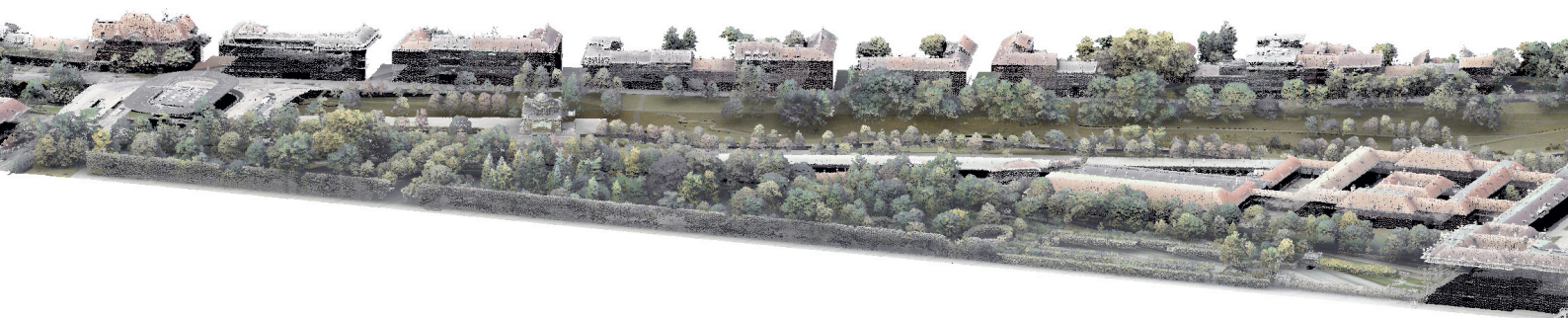


Schönbrunn Palace

Katrina Herre
Isidora Stevanovic
Luisa Moser

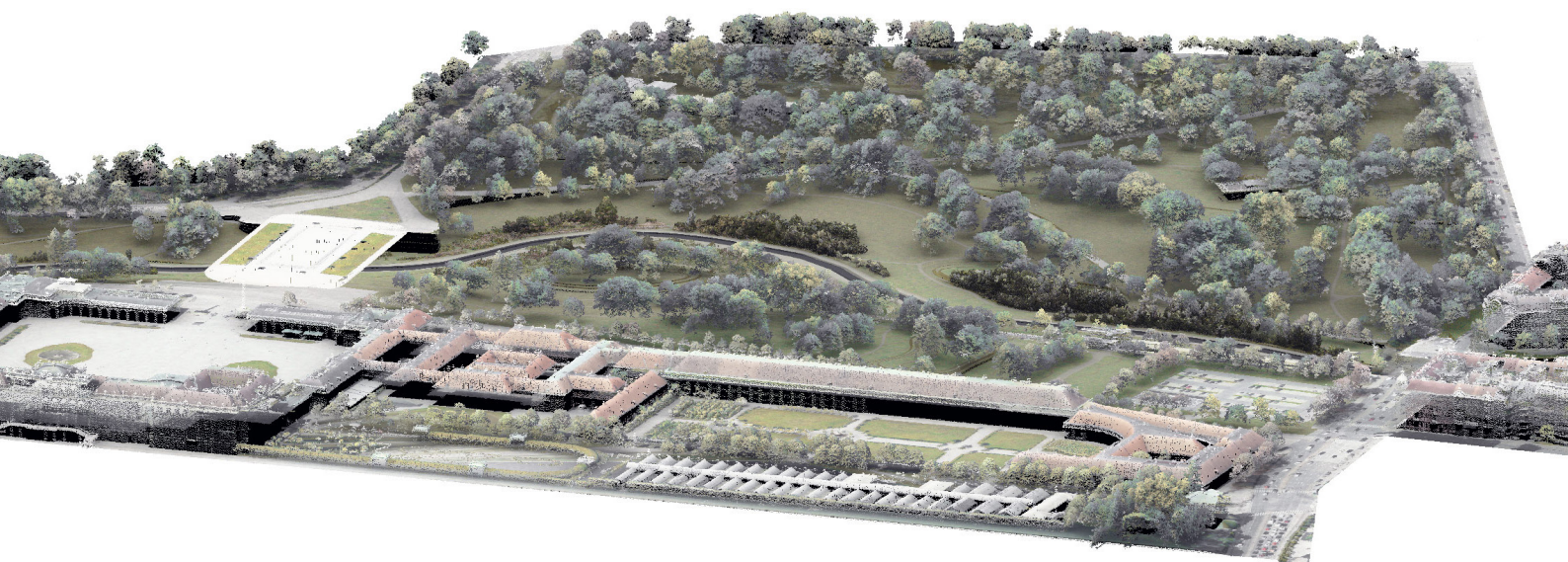
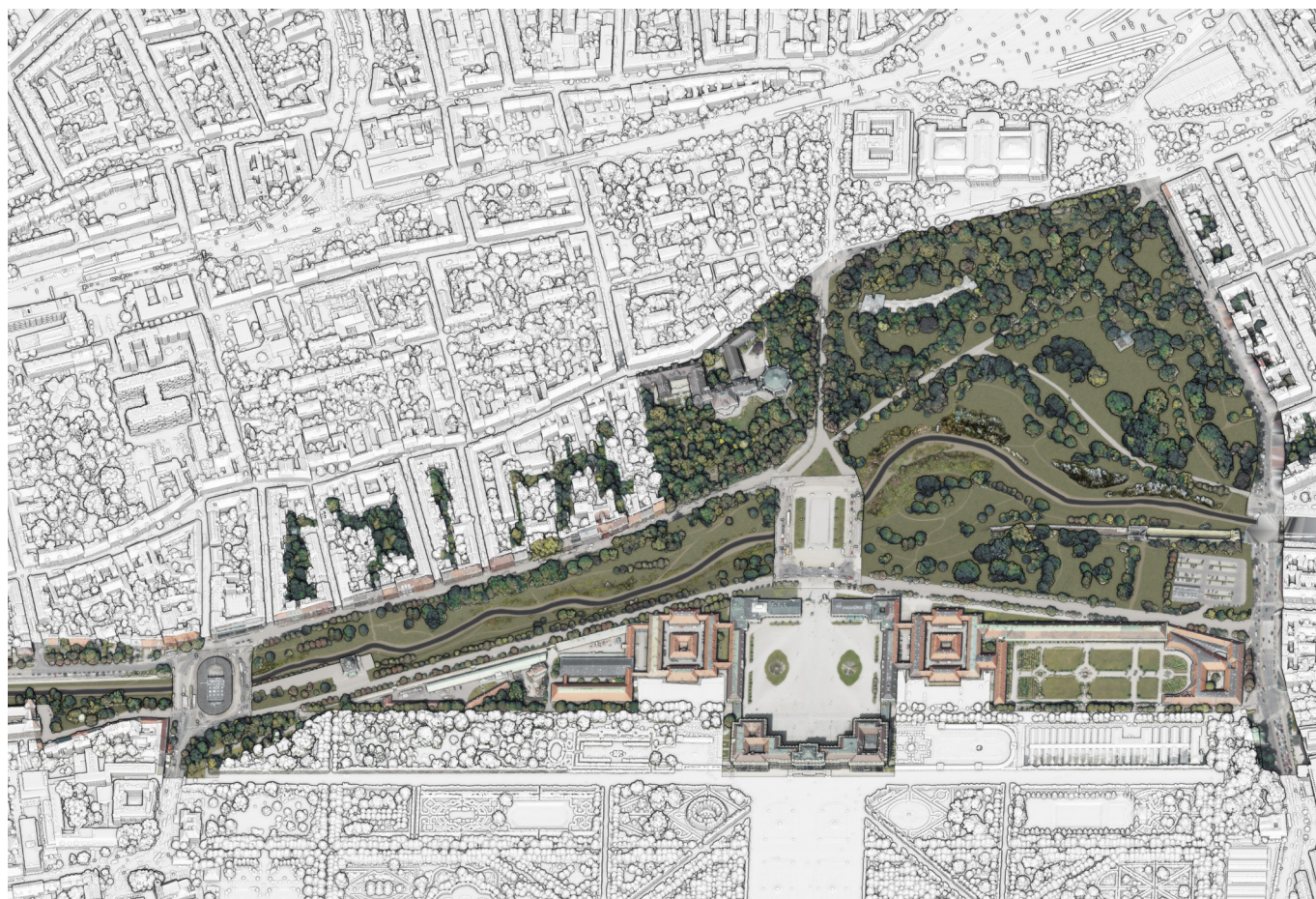
This project on the Wien River corridor near Schönbrunn Palace restores ecological processes and creates new public spaces connected to the river. The former parking area south of the river becomes green space, linking Auer-Welsbach Park and Hadikpark into a continuous landscape ¹⁶. The straightened river channel is reworked with a more natural geometry and integrated flood retention basins that maintain flood protection. New terraces, riverbank access points, stepping stones, and bridges allow people to experience the water at different levels while enhancing ecological connectivity.

16



The proposal responds to Vienna's Mobility Master Plan 2030 by reducing car dominance and expanding space for walking, cycling, and nature. Car traffic is rerouted onto Penzinger Strasse, enabling the creation of a pedestrian zone around the Schönbrunn Bridge and improving access to the riverbanks ¹⁷. These choices compose a landscape where recreation and biodiversity coexist, overcoming former barriers between the palace gardens and the urban parks north of the river. The Wien River regains an active role in Vienna's green infrastructure and urban life.

17

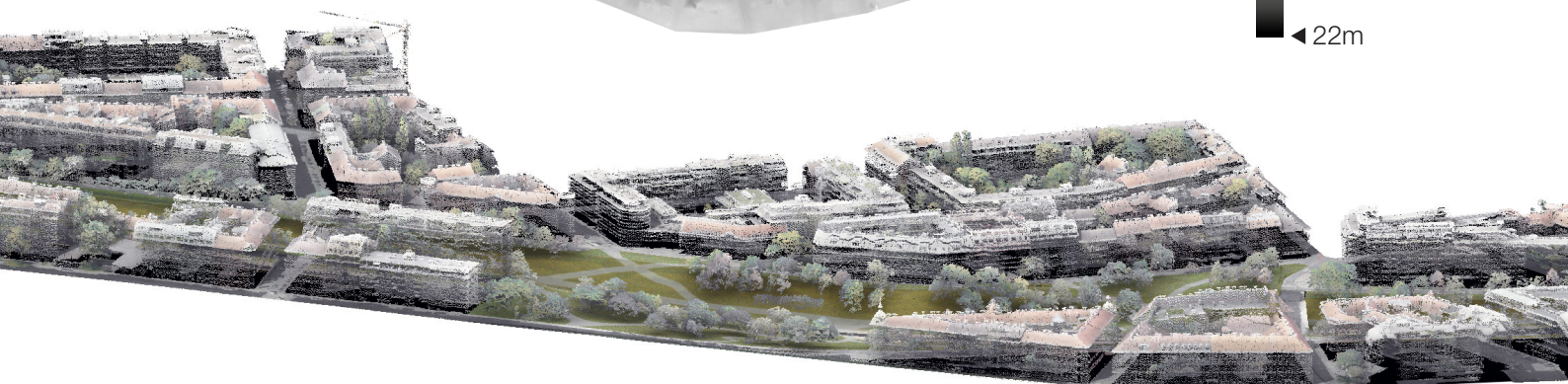
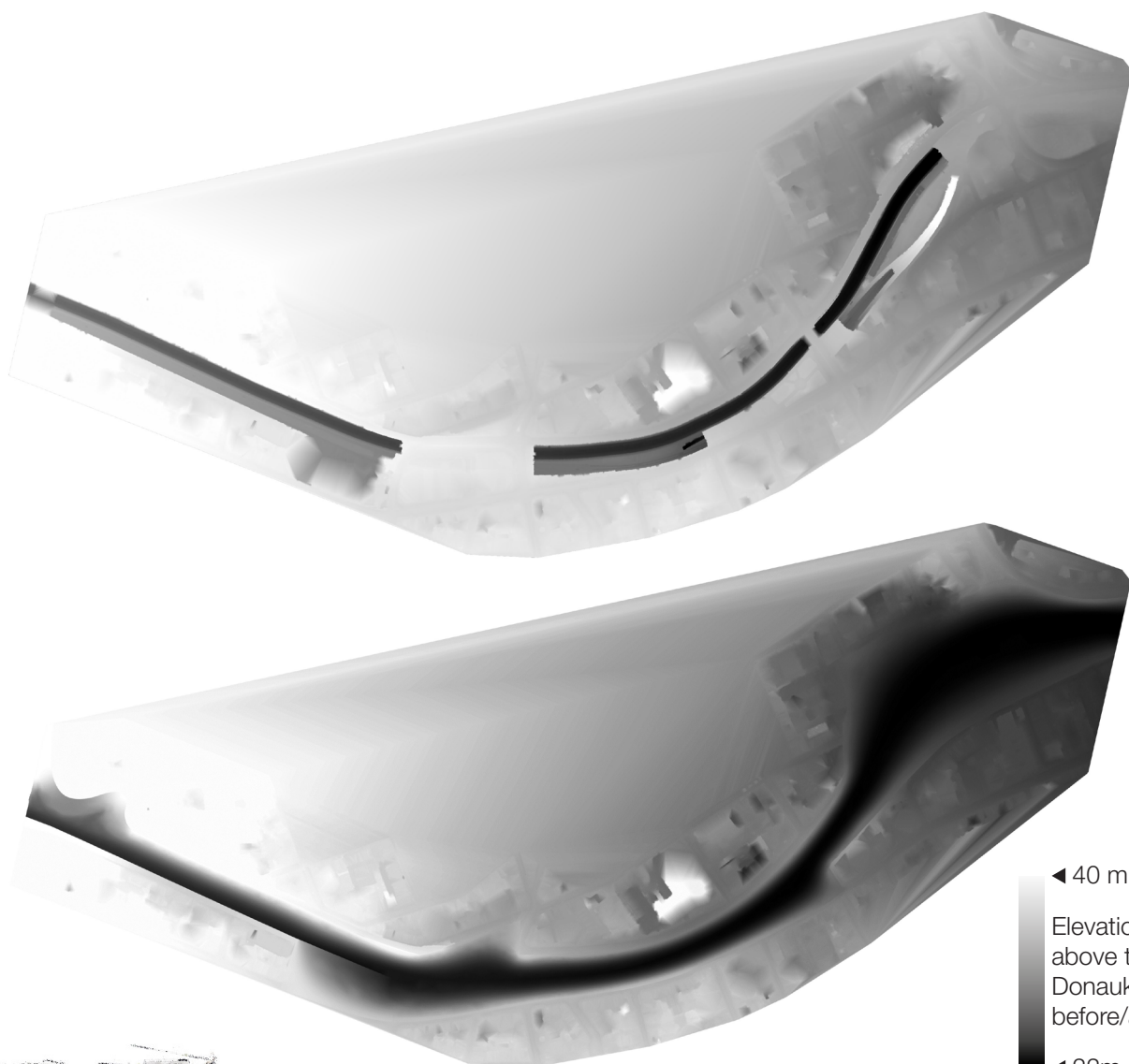


Sechshaus - Untermeidling

Baumann Andreas
Ugljanin Niko

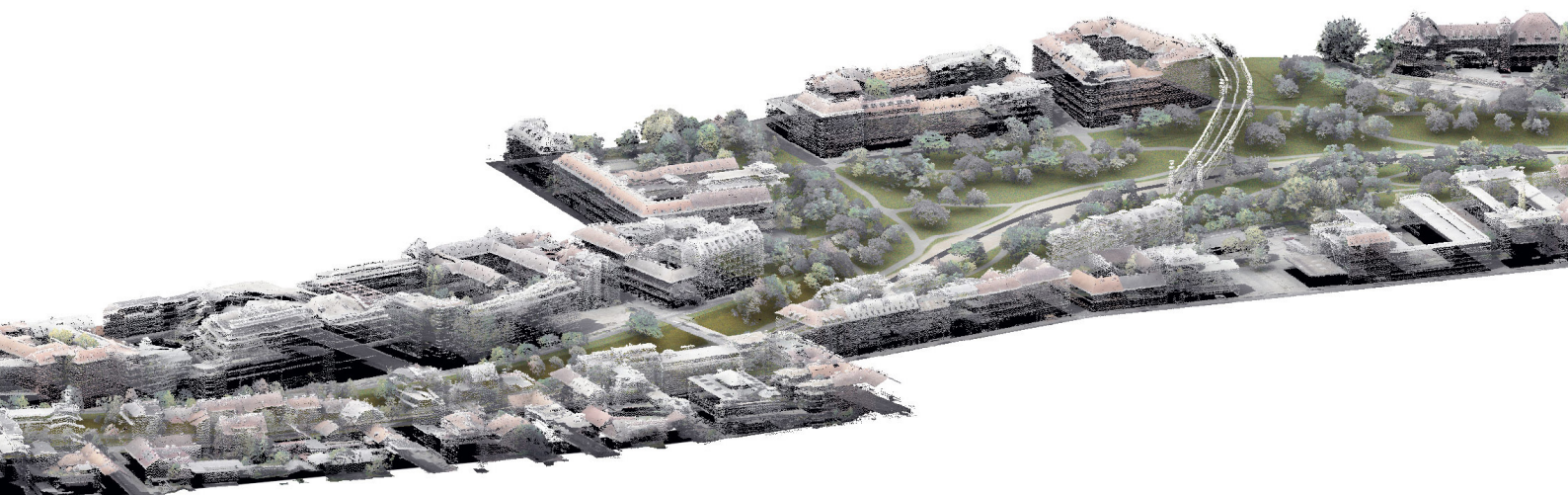
This design concept transforms the narrow urban channel from a constrained and inaccessible space into a connected public landscape. The design removes the linear barriers of roads and railways running parallel to the river, relocates the U4 metro underground, and reduces surrounding traffic. The channelized riverbed is widened, reintroducing gradual slopes and varied topographies that expand the riparian zone and create diverse spatial qualities ^[18]. In the densest urban sections, only one side of the river opens for access, while further downstream, the removal of outdated urban structures allows for a broader floodplain with soft transitions to the street level. These new areas create accessible riverbanks and continuous green

[18]



spaces. Specific interventions address the steep, canyon-like profile of the existing channel by replacing it with terraced landscapes and gently sloping embankments, making the river approachable at multiple points ¹⁹. The resulting landscape supports both ecological restoration and urban recreation. In some zones, the riverbank leans entirely toward Rudolfsheim-Fünfhaus, ensuring step-free access to the water. Toward the west, obsolete office spaces give way to an expanded floodplain capable of absorbing high water levels, creating a dynamic river landscape that adapts to changing environmental conditions.

19

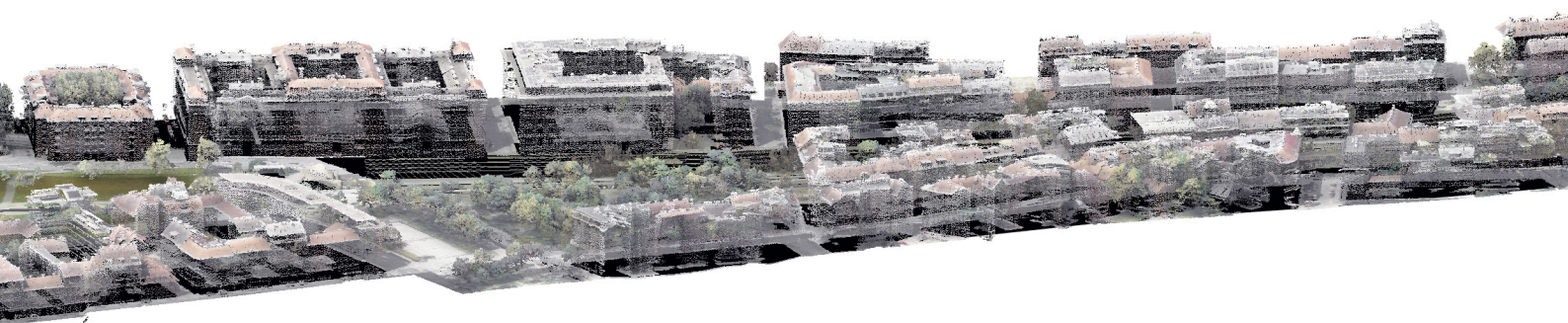


Margareten - Mariahilf

Greta Bastian
Alexander Hövel
Stella Morgenstern

This proposal reimagines the Wien River as an urban greenway integrating flood protection, ecological restoration, and public space. By rerouting the Neue Rechte and Linke Wienzeile streets, the design expands the riverbed and replaces hard infrastructure with natural embankments, creating a fluid transition between city and landscape. The widened corridor accommodates both ecological processes and human activities, reconnecting the river with its surrounding urban context [20]. Central to the design are three distinct courtyard typologies—private, semi-public, and public—each offering tailored environments for retreat, neighborhood interaction, and social gatherings [21]. These spaces draw inspiration from Korean precedents, adapting their organizational logic to the Viennese context to support diverse forms of urban life along the river. The project establishes a layered urban landscape where ecological restoration and community spaces coexist. Free-form slopes soften the river's edges, enabling biodiversity and improving access [22]. The greenway provides new pathways, gathering spaces, and vegetated areas, fostering a dynamic and adaptable river landscape. By integrating technical and spatial strategies, the design redefines the Wien River as a central public space within Vienna's urban ecology.

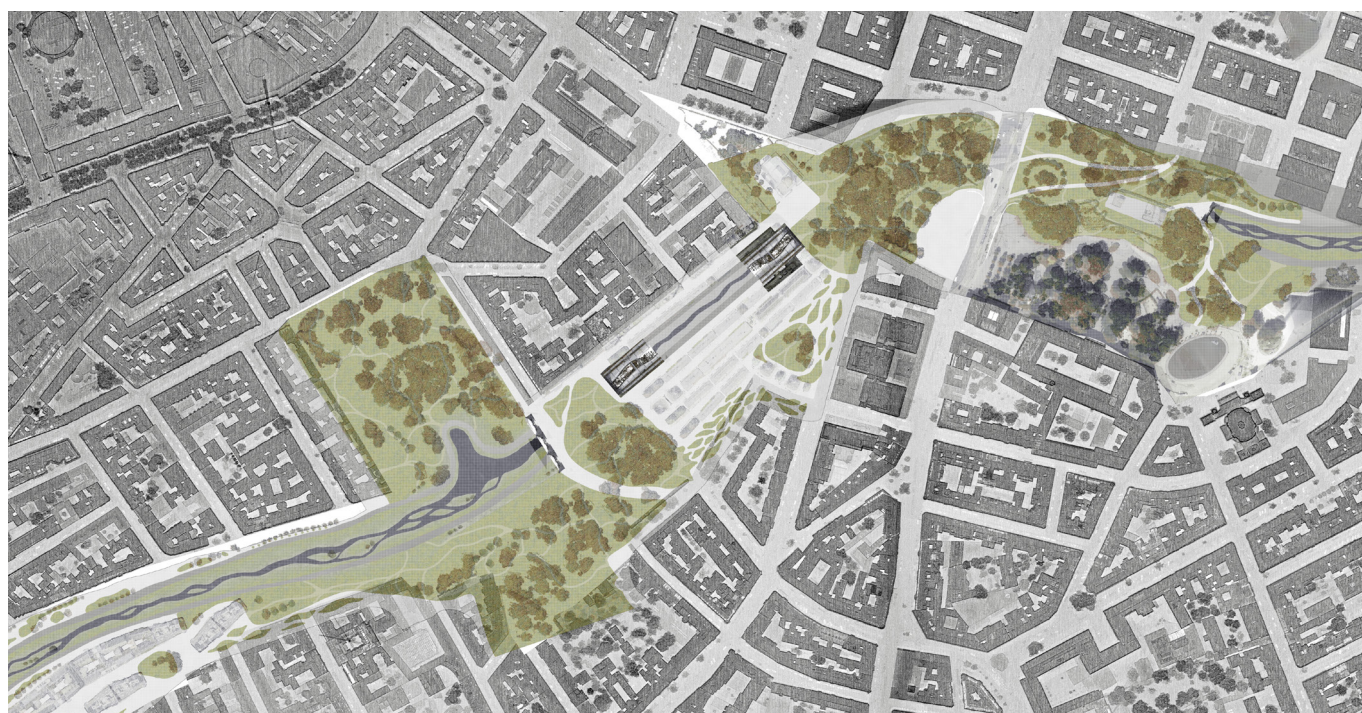
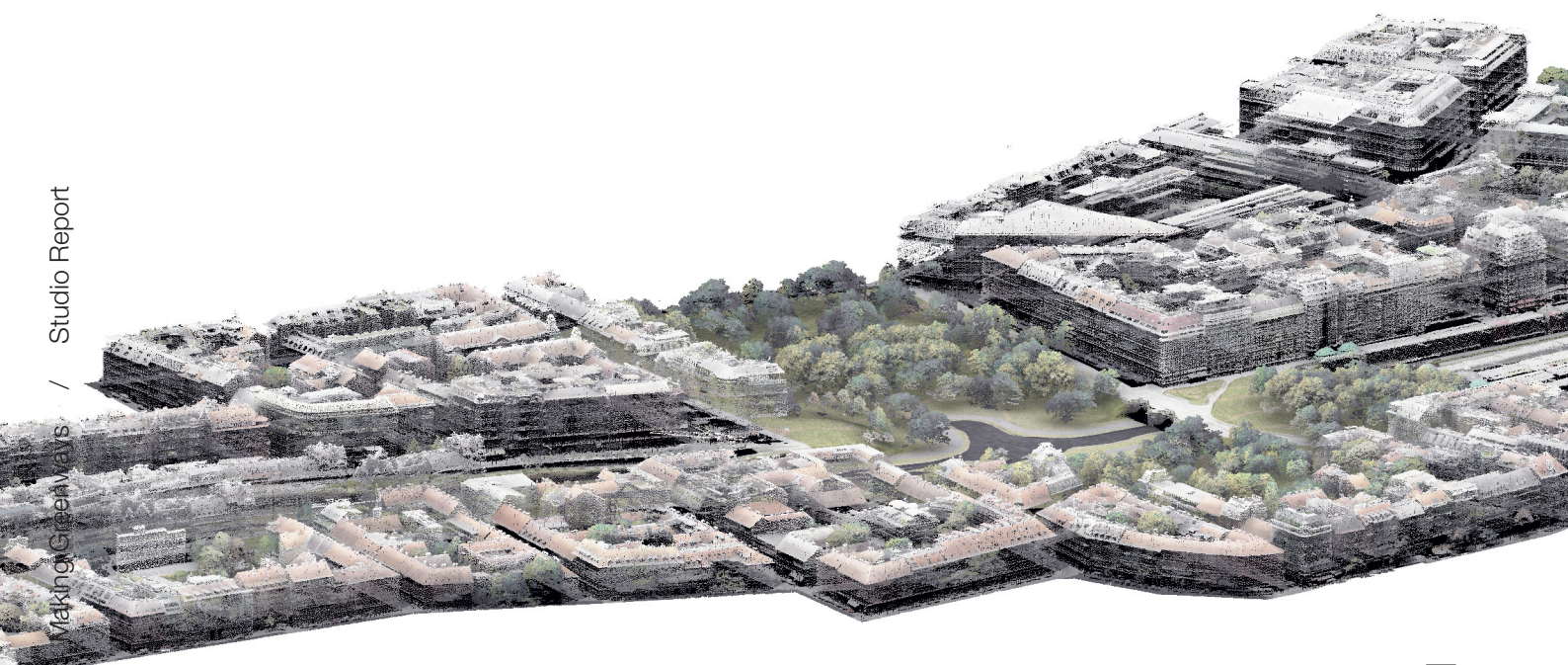
[22]



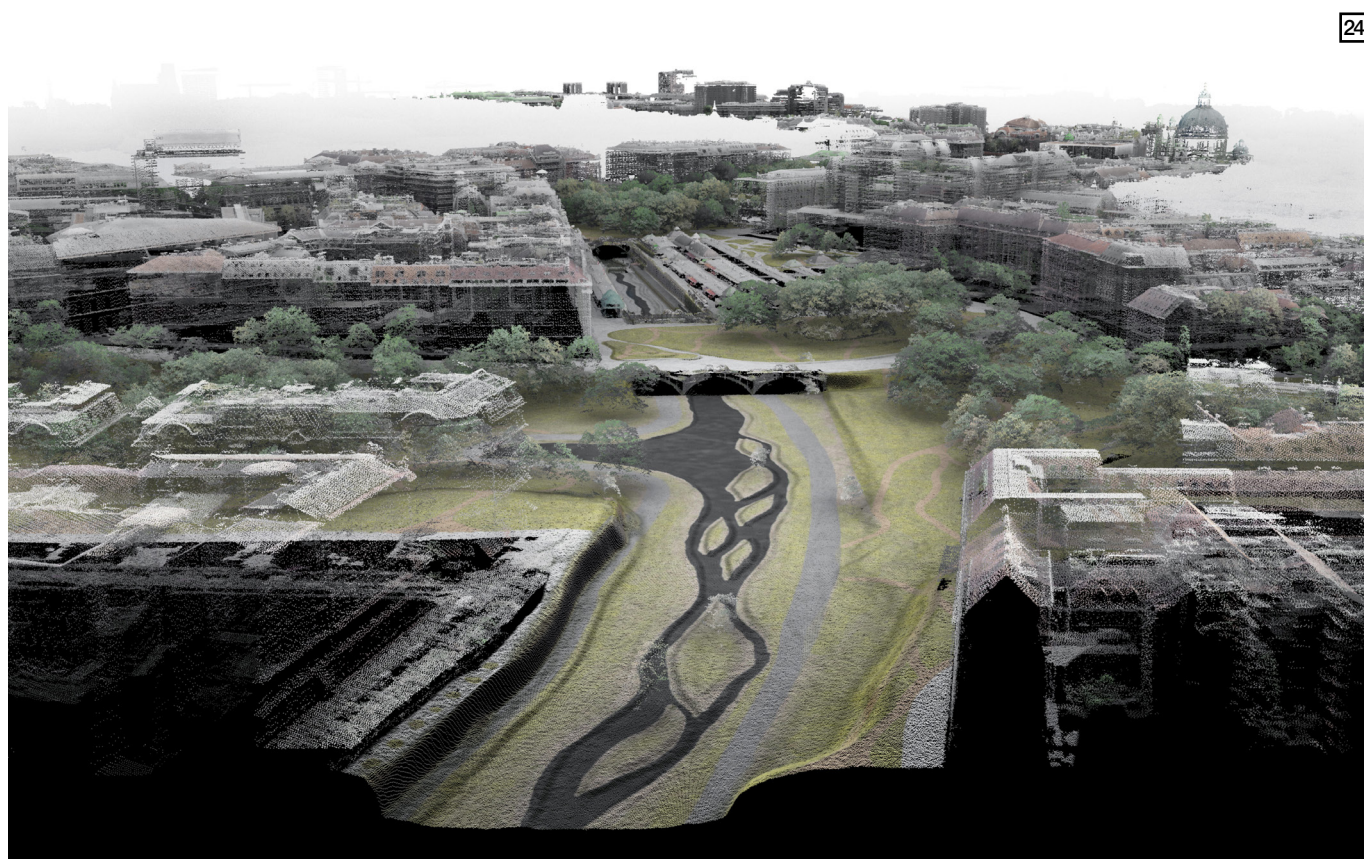
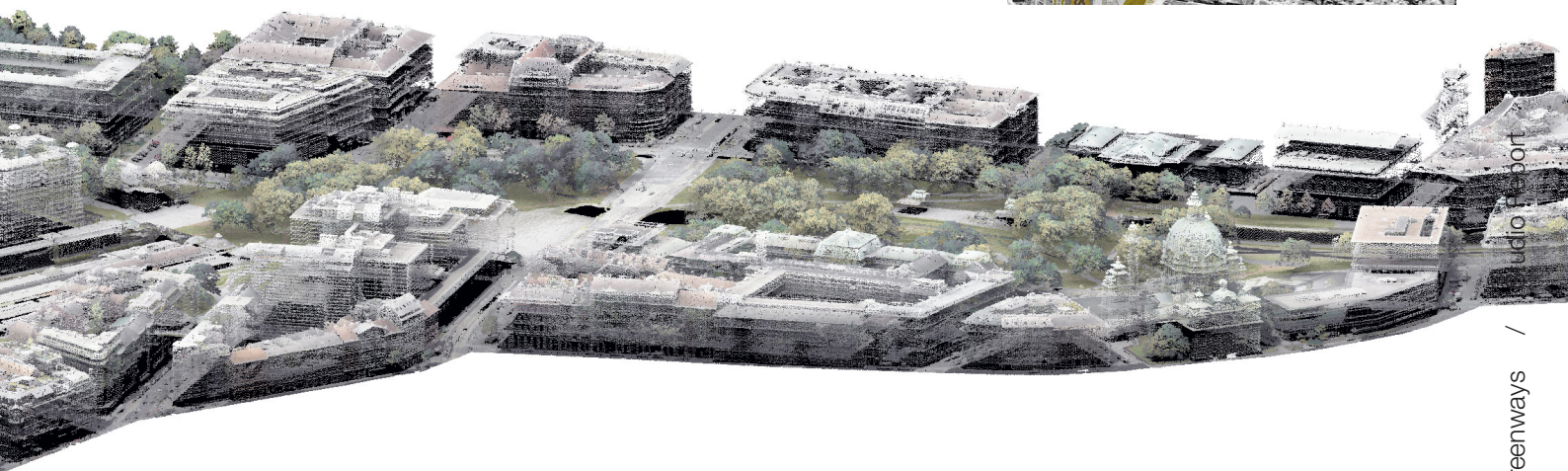
Naschmarkt - Karlsplatz

Thomas Buchsteiner
Michael Krammer

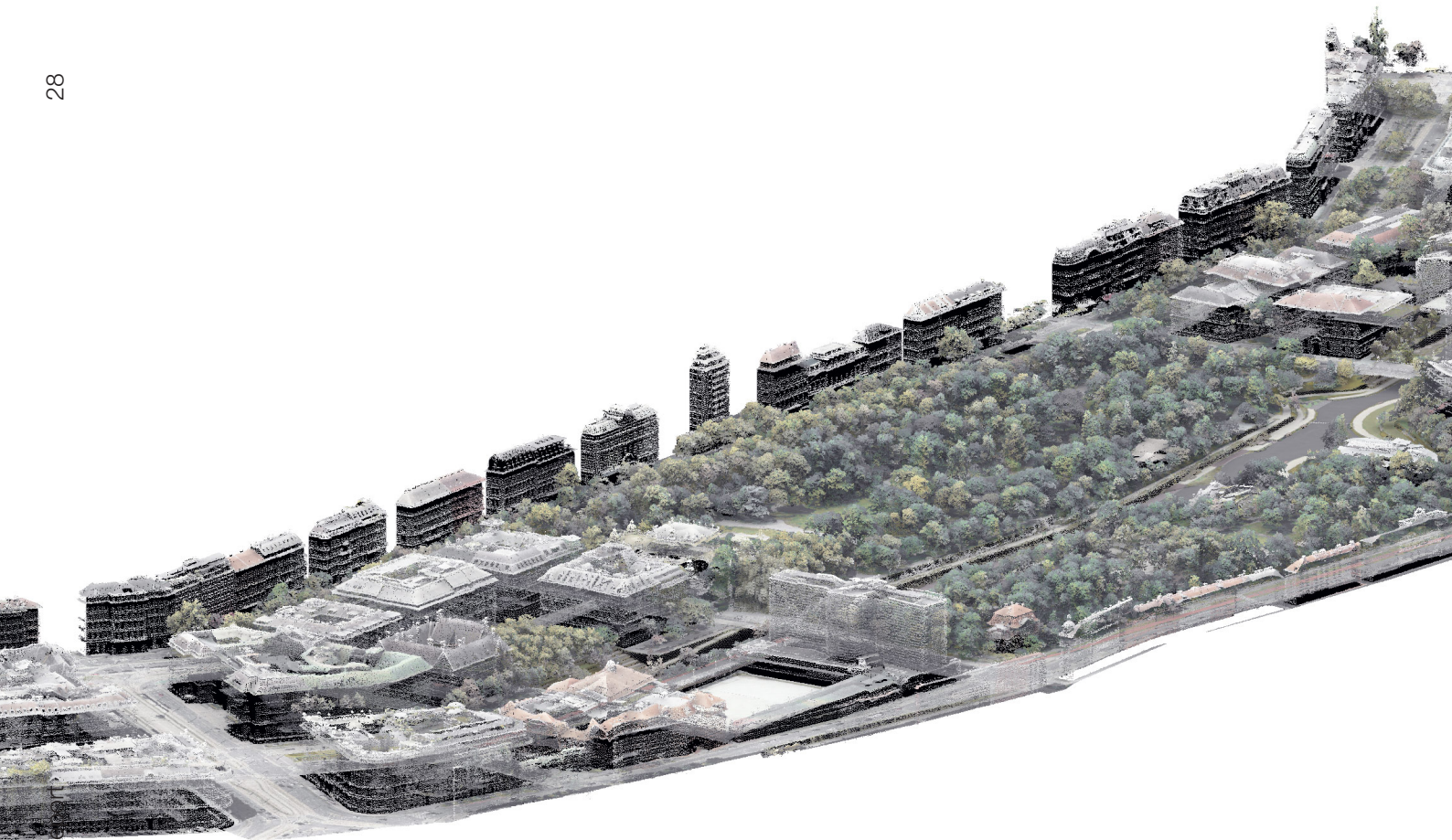
The hypothesis of this project is to retrofit the Wien River corridor and Naschmarkt area into a contemporary urban boulevard that responds to today's ecological and social challenges. Otto Wagner once envisioned this space as a grand promenade lined with monumental facades. Over time, the market has remained vibrant, but its urban context lost coherence and presence. The design reinterprets Wagner's vision as a continuous "green carpet" leading from the Vienna Woods to the city center, connecting Schönbrunn's historic gardens, the Wien River, and the Stadtpark into an integrated ecological network [20].



The project opens up the dense urban fabric, questioning existing uses and forms. Through the widening of the Wien River corridor and the removal of excessive hard surfaces, the design creates new public spaces and reintroduces nature into the heart of the city. Inspired by Seoul's Cheonggyecheon restoration, the proposal enhances the microclimate by adding extensive greenery and open water areas, reducing heat stress and improving urban resilience. The project replaces sealed surfaces with permeable landscapes, creating adaptable and inclusive public spaces that invite people to gather, move, and pause along the revitalized river [24].



[24]



Stadtpark - Wienfluss mouth

Alfons Mairhofer
Kathrin Maneval
Julian Sonnleitner

The design reintroduces the Wien River as a continuous public landscape, reconnecting fragmented green spaces and transforming neglected spaces into vibrant ecological corridors. Along its course from Heumarkt to the Donaukanal, the project opens up the river with new access points, making the water visible and accessible ^[24]. A continuous pathway runs along the river, providing barrier-free connections and linking expanded green spaces into a unified system, as shown in the longitudinal section ^[25]. Topographic transitions soften the boundary between city and water: as people approach the river, rigid urban edges dissolve into fluid and terraced forms ^[26]. This gradual shift in terrain reflects the idea of the river reshaping the city's hard surfaces over time. The design creates diverse spaces along the water—quiet areas for rest, social places for gathering, and ecological zones for habitat regeneration. By reshaping the channel and integrating new floodplain areas, the project improves environmental resilience while creating an inviting, human-scaled public realm where natural and urban dynamics coexist.

[25]

