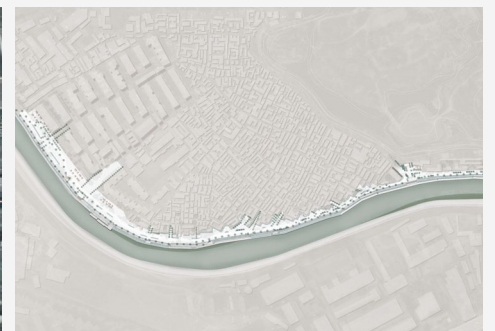


Urbanization and Locality in the City of Tianjin



MARTIN PROMINSKI &
FANG WANG (EDITORS)

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INTRODUCTION

In 2016, Peking University and Leibniz University of Hanover established the Sino-German Joint Laboratory on Urbanization and Locality Research (Project Leaders: Prof. Dr. Fang WANG and Prof. Dr. Martin Prominski). The laboratory deals with the question of identity in urban areas. The ongoing research-project "Urbanization and Locality: Preserving and developing identity in large-scale urbanization processes with urban landscapes along canals as case studies" examines the characteristics and preservation of locality in rapid urbanization areas along urban canal landscapes in Germany and China*. This project starts from the assumption that current urbanization projects look more and more the same. They do not address the local character of the site (genius loci) which leads to urban areas with a low identity. Those new districts make them difficult for the inhabitants to identify with their environment, which decreases the quality of living. The project aims to develop alternatives and asks: What are the characteristics for locality in urban areas? What are characteristics of a dynamic understanding of locality, avoiding museumization? How can these characteristics be addressed in the planning and design process to achieve a balance between locality and rapid urbanization?



▲ Fig. 1: Group photo taken in the Tianjin Cultural Park, October 2016

To address these questions, urban canal landscapes are chosen as the subject for studying the dynamic relation between urbanization and locality because they have a specific character by rich historical layers, at the same time they are currently facing a high pressure by urban transformation processes with the risk of uniformity. To develop applicable principles for future urbanization projects with a high identity, case studies from Germany and China are chosen because both countries represent the different phases of mature versus rapid urbanization. This leads to different urbanization approaches, which supports the creation of research results with a wide applicability.

In China, the Grand Canal from Beijing to Hangzhou is chosen as case study area because so many culturally and naturally diverse cities along its 1776-kilometer stretch are confronted with a change towards a more and more uniform appearance. By studying different concepts of locality in two case study cities in North (Tianjin) and South China (Wuxi), principles which are applicable to planning and design processes were developed. They will support future projects to achieve an urbanization which preserves and develops the local character.

This brochure focusses on the City of Tianjin. The research team visited Tianjin in October 2016 and was supported in an excellent way by the Tianjin Planning Bureau (Special thanks to the Vice Director Ph.D. Shen Lei), where the team got a presentation of the history and the ongoing projects along the Grand Canal in Tianjin.

The brochure starts by analyzing the history of the Grand Canal of China and the urbanization process of Tianjin. After a guided bus tour which covered the Northern and the Southern part of the Grand Canal in Tianjin, the team documented the different spatial character of the canal and its adjacent buildings and open spaces in 15 sections. Based on this spatial analysis, a "Locality Matrix" has been developed to document the found characteristics of locality along the Canal in an abstracted and transferable way. These "typologies" illustrate the urban layout and relations between open and build space along the Grand Canal as well as the proportions and characteristics of canal banks.

On the basis of the Locality Matrix, this brochure presents three different designs for two case study areas in Tianjin which were developed by Master Thesis students in Landscape Architecture, all studying at the Leibniz University of Hanover and guided by the research team. The first chosen project area is situated north of the city center, in between the South Canal and Tianjin West Railway Station. The second site is located between the North Canal and Xigu Park. The working task aims to find different approaches and strategies for designing locality along the Grand Canal by creating a balance of open and built space, while considering the high urbanization pressure and local characteristics.

The aim of the following three design-proposals is not to be "realistic" by integrating all economic, legal or other constraints. Instead, they should serve as a generator of ideas for creating a new urban area which is in harmony with the Grand Canal. The three proposals develop relations between the canal and the built space which are specific for Tianjin, expressing a way to transform Tianjin's great history of the Grand Canal into the future.

We hope this is inspiring, please enjoy the read.

Martin Prominski

** This project is funded by the Sino-German Center for Research Promotion in Beijing, a joint-venture of the National Natural Science Foundation of China (NSFC) and the German Science Foundation (DFG). Project partners are Peking University (Prof. Dr. Fang WANG, Prof. Dr. Bihu WU, Prof. Dr. Shuangcheng LI) and Leibniz University of Hanover (Prof. Dr. Martin Prominski, Prof. Carl Herwarth von Bittenfeld, Prof. Dr. Rüdiger Prasse).*

URBANIZATION

Historically, China has always been an agricultural society with only few large cities (Ren 2013, 13). When Mao Zedong took over the political power in 1949, only 10 percent of the Chinese population lived in urban areas. Thirty years later, this number increased to slightly less than 20 percent, so that the society in 1979 consisted of 80 percent rural residents (Ibid.).

With the decease of Mao Zedong in 1976, the following reformation of the Chinese economy and the increasing openness to trade in 1978, an unstoppable process of never seen industrialization has begun (Campanella 2008, 281). After a period of prioritizing the development of villages, the Chinese government shifted its course towards the destruction of old towns and the extensive construction of high-rise cities with wide traffic arteries (Münch 2004, 44).



▲ Fig. 2: Construction site in Beijing

Within four decades, the share of the urban population as part of the total population increased from less than 20 percent in 1978 to more than 55 percent today (United Nations 2016). The urban population increased by 450 million people during this time. This means, that currently 750 million people are living in Chinese cities today – until 2050, this number is expected to increase by further 250 million people to above one billion people (Ibid.).

From the 1990s onward, driven by foreign direct investments, countless factories were established in the Chinese cities, which attracted the surrounding rural population (Ren 2013, 25). Searching for jobs and a better life in general, parts of the rural population migrated to the cities, thus bringing urbanization to a new level. This enormous urban development is not only noticeable among the mega cities like Beijing or Shanghai. Even though the largest Chinese cities experienced high growth and already evolved to global metropolises, it is much rather the smaller cities, relatively unknown outside of China, that make up the highest part of the entire Chinese population.

Probably every Chinese city has deeply changed due to the urbanization over the last 20 years. Yet, in contrast to other fast growing cities, especially in Africa and South America, Chinese cities do not grow in an informal way. China does have enough resources to create living space of more or less high quality. Therefore, Chinese cities are not characterized by poverty but rather by an architectonic poorness, non-placeness and a disparity of living space and public space offside the city centers (Sheperd 2016).

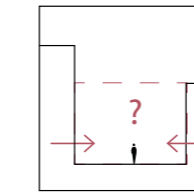
Ipsen identified five significant results of the Chinese urbanism of the last 30 years (Ipsen 2004, 28–29). First, a specific relationship of centre and periphery with high income disparities which causes large-scale migration from the countryside to the cities (Ibid.). Second, a social segmentation of city dwellers and rural population, even after the latter have moved to the cities (Ibid.). Third, a fragmentation of the cities with enclosed rural islands as a result of communist land-ownership structures (Ibid.). Fourth, wide roads as spaces of circulation and fifth, a placelessness caused by generic cities (Ibid.).

Münch argued that this new urbanism, with its gated communities which seem generic and

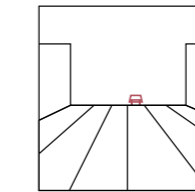
westernized, is still based upon traditional Chinese urban form and social structures (Münch 2004, 44). Chinese cities of the imperial period did not legally differ from villages (Ibid.). They were organized in "cells" of families living in walled courtyard houses, which again were bundled as walled quarters (Ibid.). Everything inside was space and everything outside non-space (Ibid.). According to Hassenpflug, this distinction is still preferable to the western distinction of private space and public space for reading Chinese cities (Hassenpflug 2009, 31–32). He argues that the western public space is characterized by a civil society, democratic processes and participation, which in China are less developed than local communities and their dichotomy of inside–open and outside–non–open (Ibid.). This is still apparent in gated communities, which are closed to the inside but provide communal functions and a strong sense of community and identity to the inside, just like their predecessor models of courtyard houses (Ibid. 58).

Fences, walls and exclusion have always been a tradition in Chinese cities. The most well-known example is the ‚Forbidden City‘ in Beijing – the prototype of exclusive living space. Also the traditional residential building, the ‚Siheyuan‘, delimited its inner space through its inwards directed construction from the public – additionally, multiple of these houses were united to a quarter and walled in (Huang und Low 2008, 185). The fencing of residential quarters thus still creates a sense of community among the residents in China. Today it is obviously less a question of excluding people than creating a common identity among the inhabitants of the respective neighborhood by the symbolism of the enclosed internal space. Due to the physical demarcation to the outside world, residential districts can also be marketed as a specific brand. With the help of a more or less ‚concise‘ english-speaking name, charged with exoticism and positive visions, a strong and promising image is generated and the ‚product‘ is advertised. Apartments are no longer merely housing, but presenting a viable lifestyle at the same time. Thus, every new residential area becomes a separate brand and creates a collective identity shared by the inhabitants of the specific housing complex (Hassenpflug, 2009, 75).

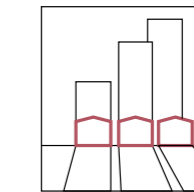
The concept of the inner courtyard is of great importance in China and has traditionally ensured social cohesion in the neighborhood (Ibid. 72). Even today, neighborhood courtyards



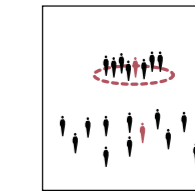
no concept of public space, housing extended into open space



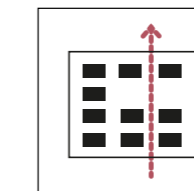
wide roads reflect the dream of car ownership



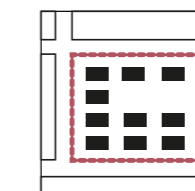
city and its »society« are based upon village communities



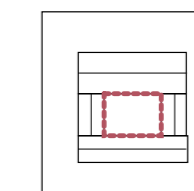
communities stronger than society



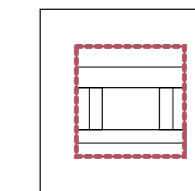
north-south orientation of buildings



identifiable neighborhoods (gated communities)



introverted spaces: courtyards



blind facades to the outside

▲ Fig. 3: Chinese urban patterns

within the gated communities have a strong social integration force and support the formation of neighbourly identities (Ibid. 71). Nevertheless they are exclusive and thus dividing the Chinese society into many small and separated units.

Another consequence of the open – non–open dichotomy is the uninhibited appropriation of street space by the population, which really is just an extension of housing functions into the open space vacuum, creating proto–public spaces (Hassenpflug 2009, 31–32). Typical for Chinese urbanism, both in traditional courtyard houses, but even more in modern gated communities, is the orientation of the apartment blocks and towers to the South, for reasons of light and air (Ibid. 52–53). The massive roads in between the gated communities, seen from a Chinese cultural standpoint, are not a problem, since they are outside of the community and within the non–space (Münch 2004, 45). Hassenpflug mentions that using public space outside of housing areas has actually no tradition in China (Hassenpflug 2009, 101). Only ‚infrastructural constraints‘ such as bridges or crossroads were used in the former Chinese city as what we today understand as public spaces: places of social contact and everyday life (Zhang 2004, 102f). Furthermore, the enclosed residential areas of the Chinese middle class are also a hindrance to lively public spaces (Ibid. 128). These quarters offer their residents an exclusive green space, comparable to a small park. If these courtyards additionally include furniture such as gym equipment or playgrounds, there is no more need to leave these areas to pursue appropriate activities.

NEW URBAN GUIDELINES

Although the Chinese Urbanism of the last 30 years is still based upon traditional societal values, it caused several issues. The streets, despite their enormous dimensions, are still often clogged because traffic is bundled in only few roads (Shepard 2016). The sidewalks along gated communities have no street life (Ibid.). Buildings are built quickly, cheaply and energy–inefficient (Ibid.). Their generic appearance caused a loss of city character (Ibid.). Other problems include unlimited expansion and environmental degradation. To counter these pro-

blems, different guidelines were proposed. One set of 12 guidelines, called “Green and Smart Urban Development Guidelines and Smart Urban Development Guidelines”, was published by the China Development Bank Capital (Shepard, 2016). With a similar ambition China’s State Council proposed 30 urbanization guidelines. They include the creation of a denser street network by opening gated communities, setting urban growth boundaries, building more mixed–use areas, increasing public transport and public green space, improving construction quality and creating more resource efficient structures (Shepard, 2016).

GUIDELINES OF ECO-CITY PLANNING

The China Academy of Urban Planning and Design and some other relevant institutions were commissioned by the Ministry of Housing and Urban–Rural Development of the PR China (MOHURD) to draw up the “Technical Guidelines of Eco-City planning”. The guidelines were published on the Chinese Eco-City Website as a draft in April 2016 (CSUS 2016). These guidelines intend to promote the construction of Eco-Cities in China, to explore the mode of sustainable cities, and to provide some instructions for further urban planning and urban design. They include guidelines for “green spaces”, “green infrastructure” and “green humanity”. Several land–use standards for the macro and micro level of the city are given and should be implemented in future city development.

Future land–use standards on the macro level:

The development area should be restricted to limit the expansion of the city while the urban layout should be compact (CAUPD et al. 2016). The density of the district should be decided in dependance of the capacity of public transportation. The city should establish transit oriented areas. 50% of the citizen should live in transit oriented areas in the future, in order to decrease the dependency on private mobiles (CAUPD et al. 2016). Big mono–functional areas are inadvisable. The residential area in the city should be mixed with commercial use, recreational uses and office spaces (CAUPD et al. 2016).

Future land–use standards on the micro level:

The block–structure should be at a smaller scale and appropriate for pedestrians. Residential and commercial mixed–used areas, smaller than 2 ha, should make 70% of the city. Commercial and office mixed–used areas should not be larger than 1 ha. Residential areas should ideally not be bigger than 2 ha, and should in no case be larger than 5 ha. The roads inside big blocks should be opened for the public (CAUPD et al. 2016).

Each residential area should have one commercial point and one kindergarten within 300 meters distance, a clinic, a primary school, a supermarket and a playground within 500 meters and a middle school and a food market within 1000 meters. All these facilities could be combined with the buildings in the residential areas (CAUPD et al. 2016).

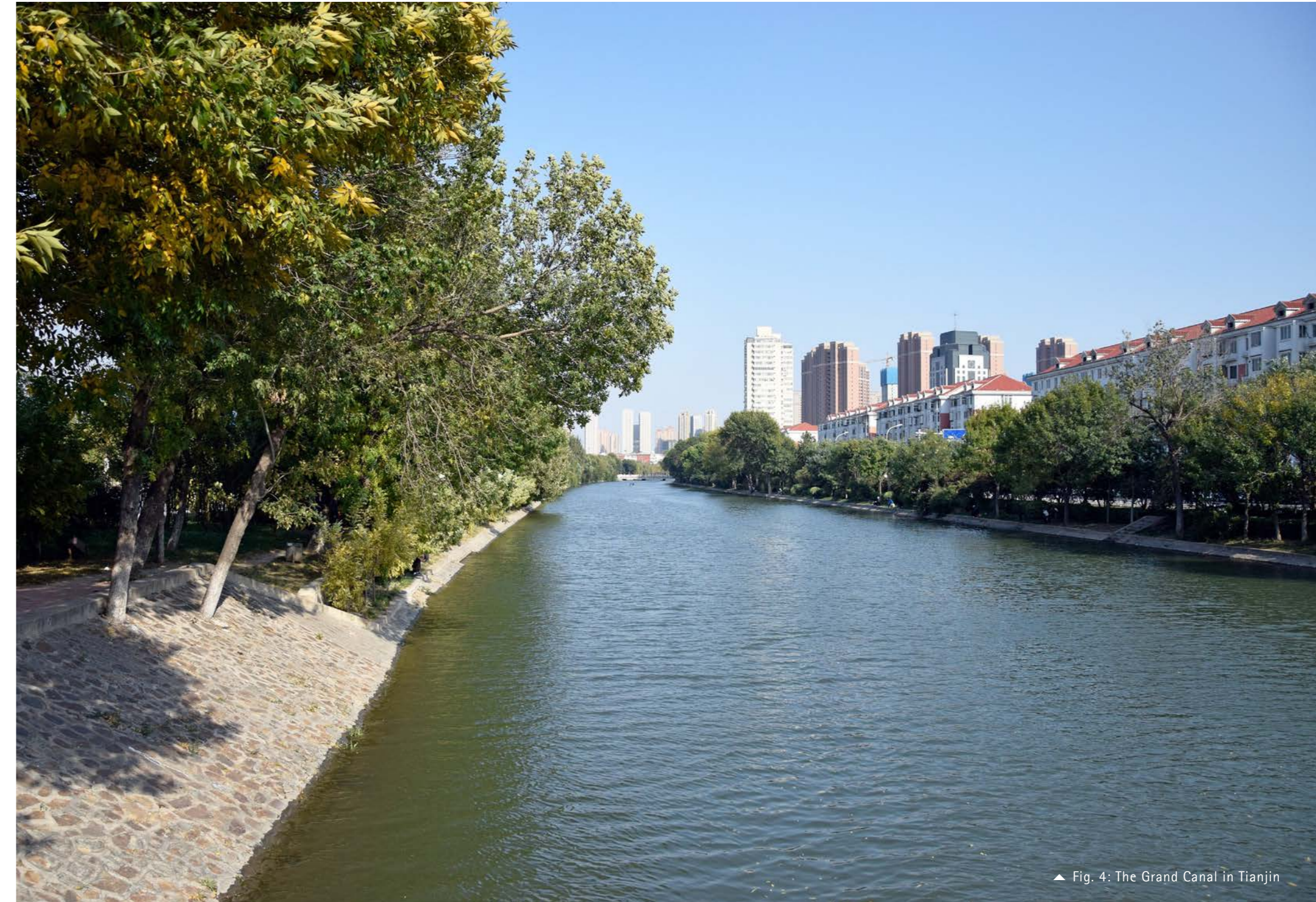
In summary, all these new guidelines call for major changes in regard to future Chinese urbanization projects, where the preservation of historical structures as well as the enforcement of city character and locality in future projects play a crucial role within these processes.

HISTORY OF THE GRAND CANAL OF CHINA

The Grand Canal of China was constructed since 605 BC onwards (Unesco 2017). With its overall length of 1800 kilometers it is the longest artificial waterway in the world and connects Beijing in the North with Hangzhou in the South (Ibid.). The canal has always been a route to transport commodities from one town to another, yet it had a cultural function as well: Chinese emperors often used the canal to visit distant towns and to discover its local customs and practices (Johnson 2014). Many cities along the Canal rose, grew and developed, such as Tianjin, Dezhou, Cangzhou, Jining, Wuxi, Yangzhou and Hangzhou (Chen 2013, 3). All these cities were reliant on the Grand Canal, whose expansion also was adapted to the local water transportation and different water systems. Thus the Grand Canal generated a variety of different city characteristics (Ibid.).

With the rapid urbanization of China, the canal and its waterfronts have changed a lot. Old buildings along the canal have been demolished, isolated and huge residential buildings with fences around have taken their place. What once was the pulse of the city is now nothing more than sterile scenery (Johnson 2014). But still there are some smaller spots left where locality can be found. Analyzing these existing potentials and adopting them for future urban design proposals is the major task of the research project group.

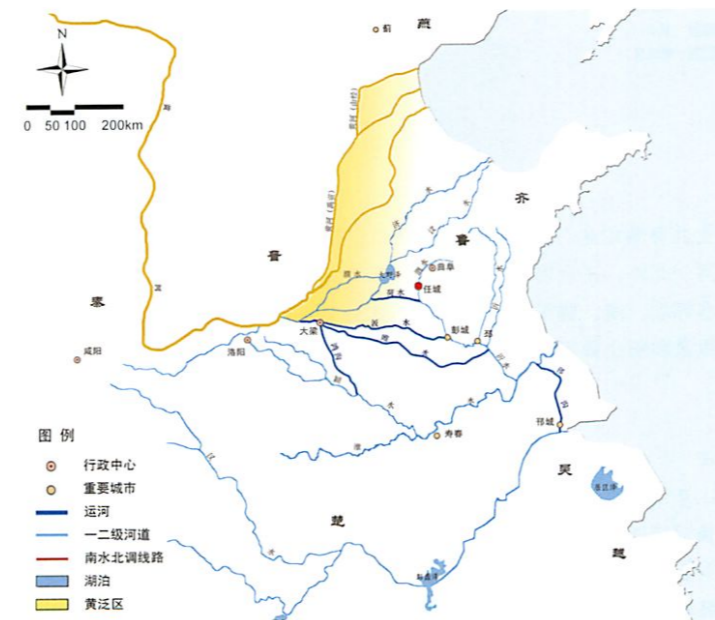
On the following pages a description of the historical genesis of the Grand Canal is given.



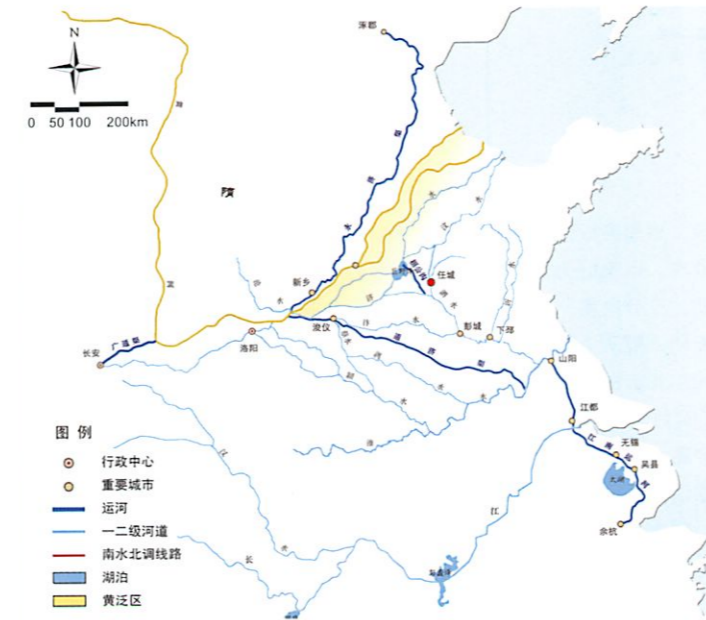
▲ Fig. 4: The Grand Canal in Tianjin

THE HAN CANAL UNDER WU

The first sections of what later became the Grand Canal of China were built during the late Spring and Autumn period in the Kingdom of Wu (Harrington 1974, 17). Confucius (551-479 B.C.) reports in his writings about the construction of this first section (Gandar 1903, 8). The digging of the Han Gou (邗沟, Canal of the Han) aimed to connect the Yangtze River at Zhenjiang with the Huai River and was started in 486 B.C. (Ibid.). Its purpose was the transport of goods and war junks (Harrington 1974, 21).



▲ Fig. 5: The Grand Canal under Wu



▲ Fig. 6: The Grand Canal during the Sui Dynasty

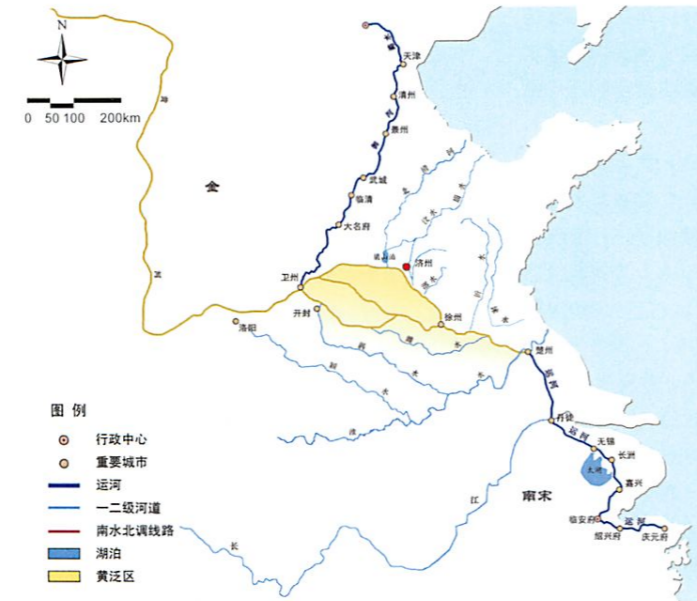
SUI DYNASTY

During the Sui dynasty under the reign of Yang Jian (541-604 A.C.) and his son Yang Guang (569-518), an extensive canal network was constructed, for the first time connecting Beijing to China's South (Ibid., 26-27). Around the year 605, Yang Guang ordered the construction of the Tongji Canal, which connected Luoyang with the Yellow River and the Huai River, as well as the reconstruction of the Han Canal (Ibid.). To protect the river banks and to provide shade, large amounts of willow trees were planted along the new canals (Ibid., 27-28). In 608, he ordered the construction of the Yongji Canal to connect from the Yellow River to the North, approximately where Beijing is now situated.

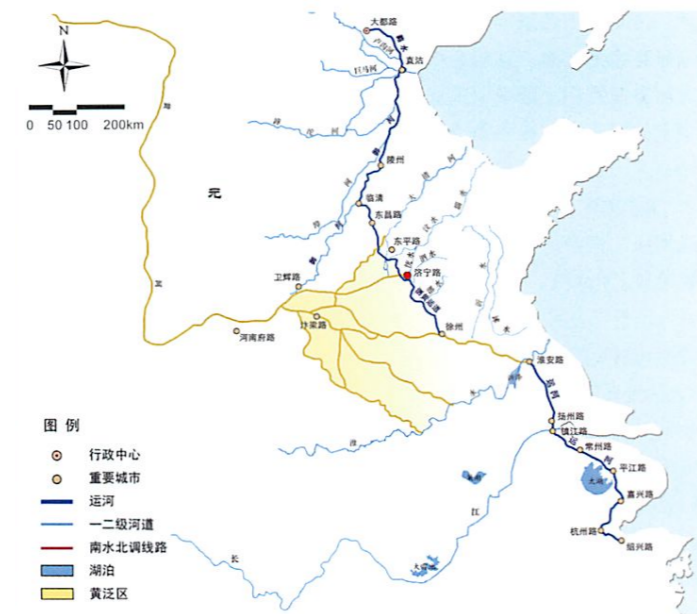
Also during this time, the Canal was extended further to the ocean in the South (Gandar 1903, 12).

TANG, SONG AND YUAN DYNASTIES

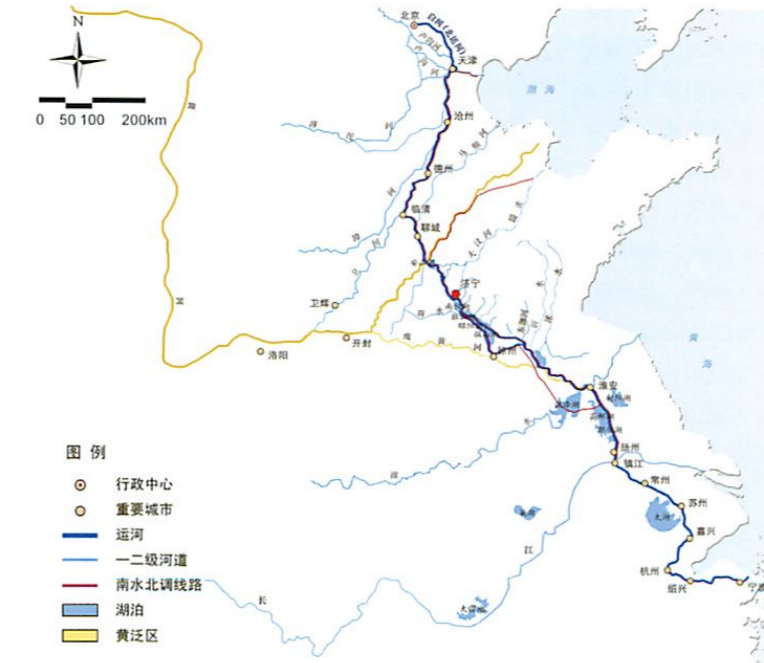
During the Song dynasty, Hangzhou on the Chientang was the capital of the empire (Gandar 1903, 12). This changed with Kublai Khan and his Mongol armies conquering China and moving its political center to Beijing (Harrington 1974, 34). As a consequence, the Grand Canal was rebuilt and especially the northern section re-routed (Ibid.). The yellow river had changed its course radically in 1194 and made a new route for the canal necessary (Ibid., 36). The new canal went from Beijing southwards, crossing the Yellow River and joined the old waterway near Huai'an (Ibid.). Construction was completed in 1289 (Ibid.). A road parallel to the canal ran along its whole course (Ibid.). This was the first time in history that there was a canal connecting Beijing to Hangzhou directly along a north-south axis. (Ibid.) It was also during this time that Marco Polo travelled China (Ibid.).



▲ Fig. 7: The Grand Canal during the Song Dynasty



▲ Fig. 8: The Grand Canal during the Yuan Dynasty



▲ Fig. 9: The Grand Canal during the Ming Dynasty

MING AND QING DYNASTY AND 20th CENTURY

In 1414, during the Ming Dynasty the Canal was renovated almost entirely, it was deepened and 15 locks were installed. (Harrington 1974, 34). In the mid-17th century, China was conquered by the Manchus, who established the Qing dynasty (1644-1912) (Ibid., 41). During this time, Tianjin became an important port for international trade (Ibid.).

From 1800 on, the Grand Canal and the Yellow River were neglected as a result of corruption and inefficiency (Ibid., 45). From 1851 to 1855 the Yellow River changed its course once again radically, damaging sections of the Canal (Ibid.). Its condition deteriorated further due to ongoing neglect (Ibid.). Low water levels, silted up sections and malfunctioning locks made the canal less attractive for trade, and dealers started to prefer shipping by sea (Ibid., 45-46). The building of railways lessened the importance of the canal further (Ibid.). The southern sections of the Canal which are situated on a plain were not affected as much by these problems as the northern parts. The canals of Suzhou, Wuxi and Shanghai remained in use and these cities became industrialized (Ibid., 47).

During the politically troubled years from 1912 to 1949, the canal remained neglected (Ibid.). The bad situation of the canal only changed with the founding of the People's Republic of China and the communist regime, starting in 1949 (Ibid.). The waterways of China were subsequently renovated and improved (Ibid.).

In 2014, the Grand Canal of China was listed as a UNESCO World Heritage Site (UNESCO 2017).

HISTORY OF TIANJIN

Tianjin is one of the four province-level municipalities in China, which are under the direct control of the state council. It is the fifth largest city of China with a population of 15.47 million (data from 2015). Tianjin is located in the north of China, 120 km southeast from Beijing (TMBS et al. 2016). The City is the industrial base and economic center of northern China (Jiang 2010).

Compared with some other Chinese cities, Tianjin's importance has risen relatively late. In the process of the development of Tianjin, water conservancy was a significant restricting factor. Contrary to that, the development of water transport has played a pivotal role for the prosperity of Tianjin. (Jiang 2010)

The following will explain the relation between the changes of the water system of Tianjin and the urban development.



Fig. 10: Historical painting of the Grand Canal

BEFORE 1404

Before Qin Dynasty (211-207 BC), two settlements were set as counties. They were the earliest counties in the Tianjin area and were named Quanzhou and Dongshuping (Niu 2011, 76).

At the end of the Eastern Han Dynasty (206 BC-213 AD), three canals (Caoqu Canal, Pingluqu Canal and Quanzhouqu Canal) had been built in this area successively, in order to connect the natural rivers with each other. These three canals were parallel to the coast line, so that the river transportation could replace the shipping of goods across the sea. Afterwards more and more small settlements were established alongside the canals (Jiang 2010).

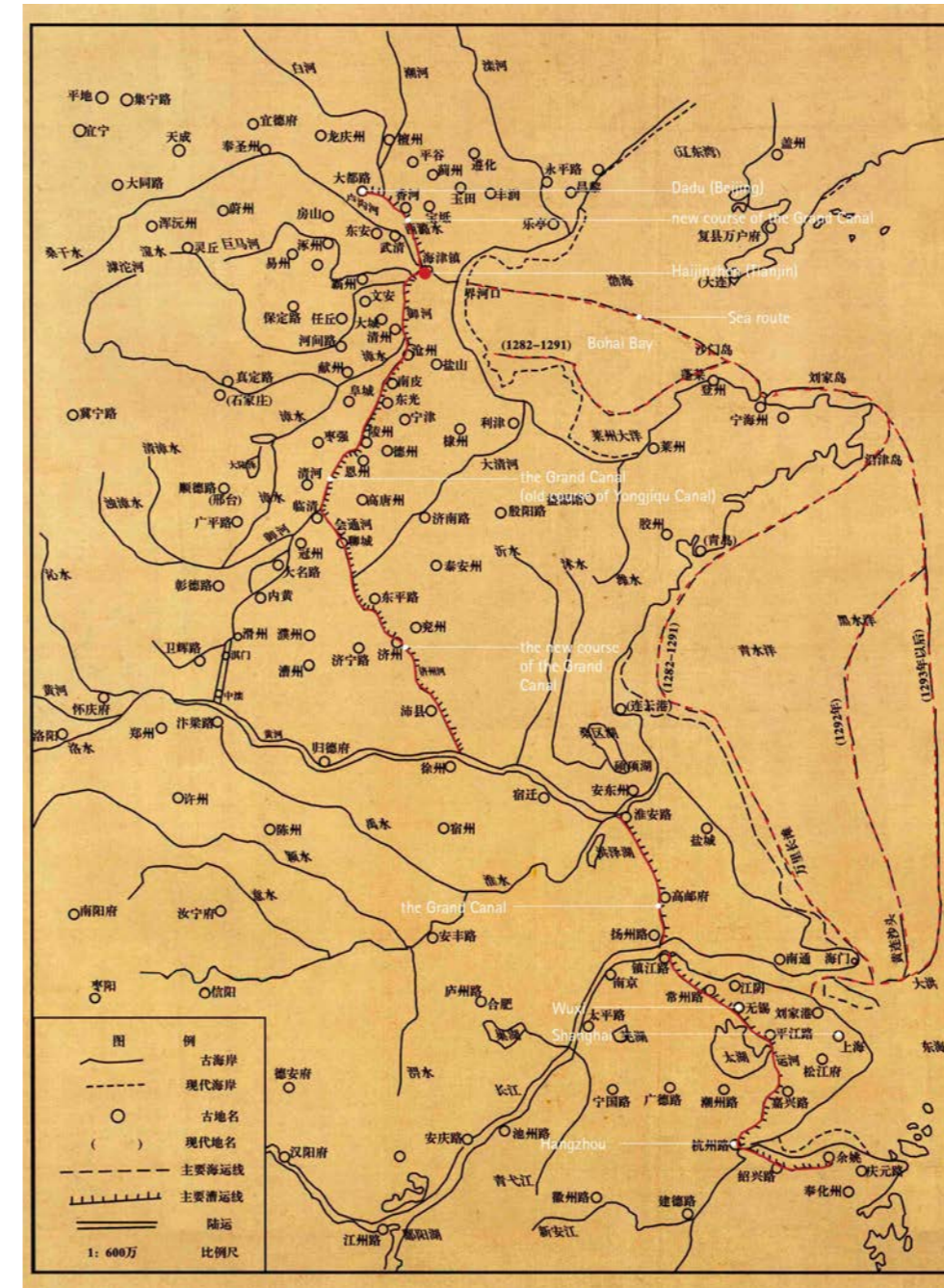
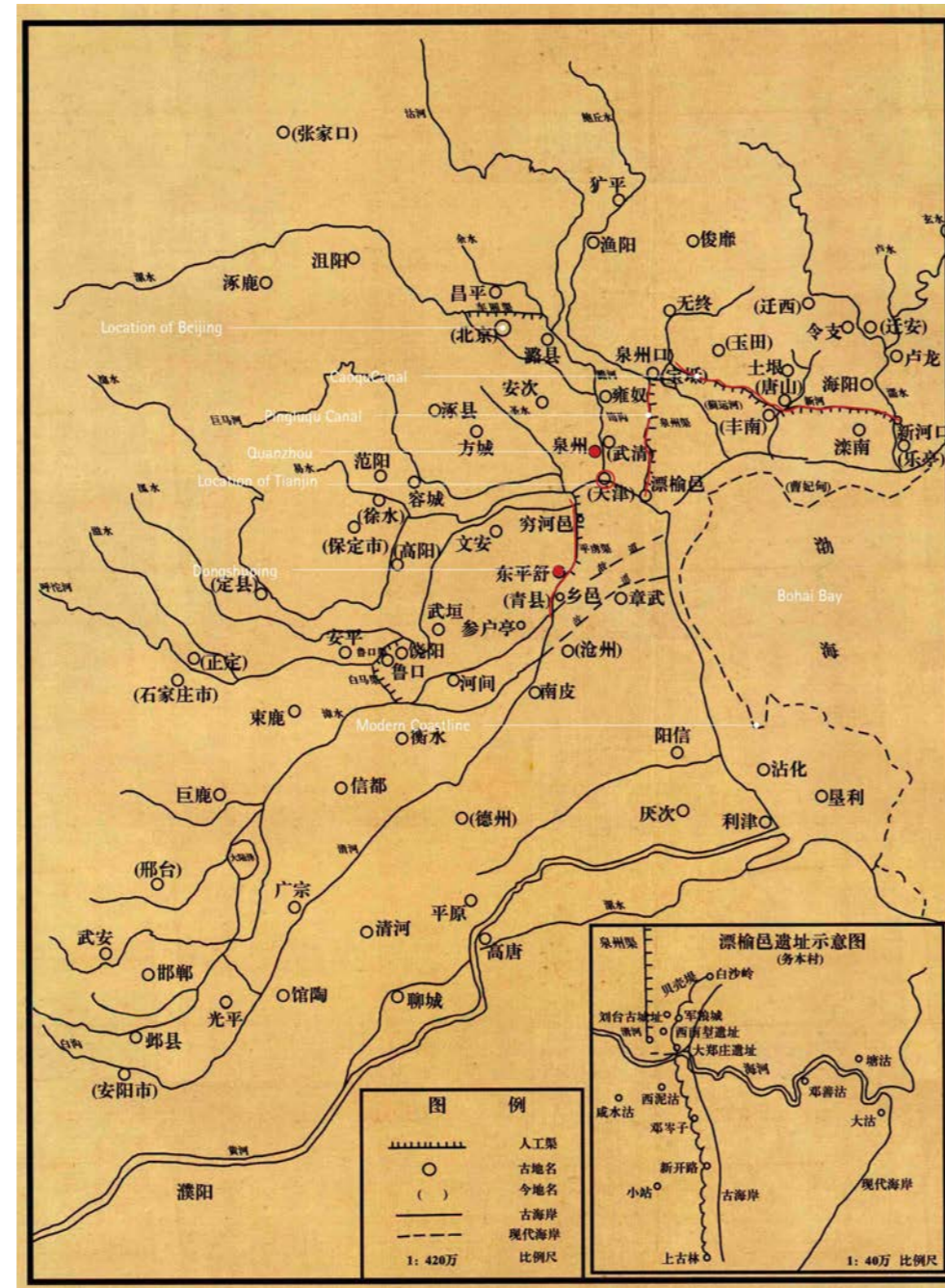
In Sui Dynasty (581-618), the Yongjiqu Canal, which was the extension of Pingluqu Canal, and Tongjiqu Canal were built. The capital city Luoyang was connected with Jicheng (Beijing) in the North and Hangzhou in the South by these two canals (Jiang 2010).

During the Tang Dynasty, some branch canals were built alongside the Tianjin section of Yongjiqu Canal, so that canals in the Tianjin area together formed a network. They were not only used for transportation or military purpose, but also for the irrigation (Niu 2011, 79).

In the Northern Song Dynasty (960-1127), the Hai River was wider than today. Along its southern bank, the Northern Song had established some military fortresses. This was another form of the settlement in Tianjin area (Niu 2011, 79). After the Northern Song Empire fell, the Jin took over this area. The first settlement on the position of today's Tianjin city center had been built and was named Zhigu Fortress. The purpose of this fortress was to protect the transportation and the canal (Niu 2011, 80).

During the Yuan era, Beijing became the capital city and almost all the needs of the capital were transported on the canal (Jiang 2010). Because Luoyang or Chang'an were not the political centers anymore, and in order to shorten the water way between Beijing and the South, the northern and southern parts of the Yongjiqu canal were abandoned and replaced by the new one.

Nevertheless, in 1282 sea shipping had been enabled. The materials coming from sea were transferred into small boats in Zhigu Fortress and then sailed through today's North Canal to



Beijing. No matter which kind of water transportation, all the ships had to pass through this fortress in Tianjin. Therefore more and more people were gathering here and Zhigu Fortress had been upgraded as a town, named Haijinzhen (TMBPHR 2004, 28).

1404-1859

After Yuan Dynasty, Ming State had reused the canals for transport. Also the transport across the sea had been abandoned due the risk of sea shipping (Jiang 2010). In 1404, the second king of Ming Dynasty had decided to establish a city with walls in Tianjin (Niu 2011, 85).

This was the first city that appeared in this area. The main reason for its existence was the control of the water transport and the transfer of the goods between the North Canal and the South Canal. At that time, goods from the sea or from the South Canal had been stored in Tianjin at first, and then were loaded onto small boats and transported to Beijing through the North Canal. Therefore lots of warehouses, especially in the North of the city, were built (Niu 2011, 87).

Since the establishment of Tianjin city, the whole city area was protected by flood-discharge canals, which had successively built in Ming and Qing Dynasty and were located outside the city (Jiang 2010).

◀ Fig. 12: The Grand Canal during the Yuan Dynasty

◀◀ Fig. 11: The Grand Canal at the end of the Eastern Han Dynasty

1860-1949

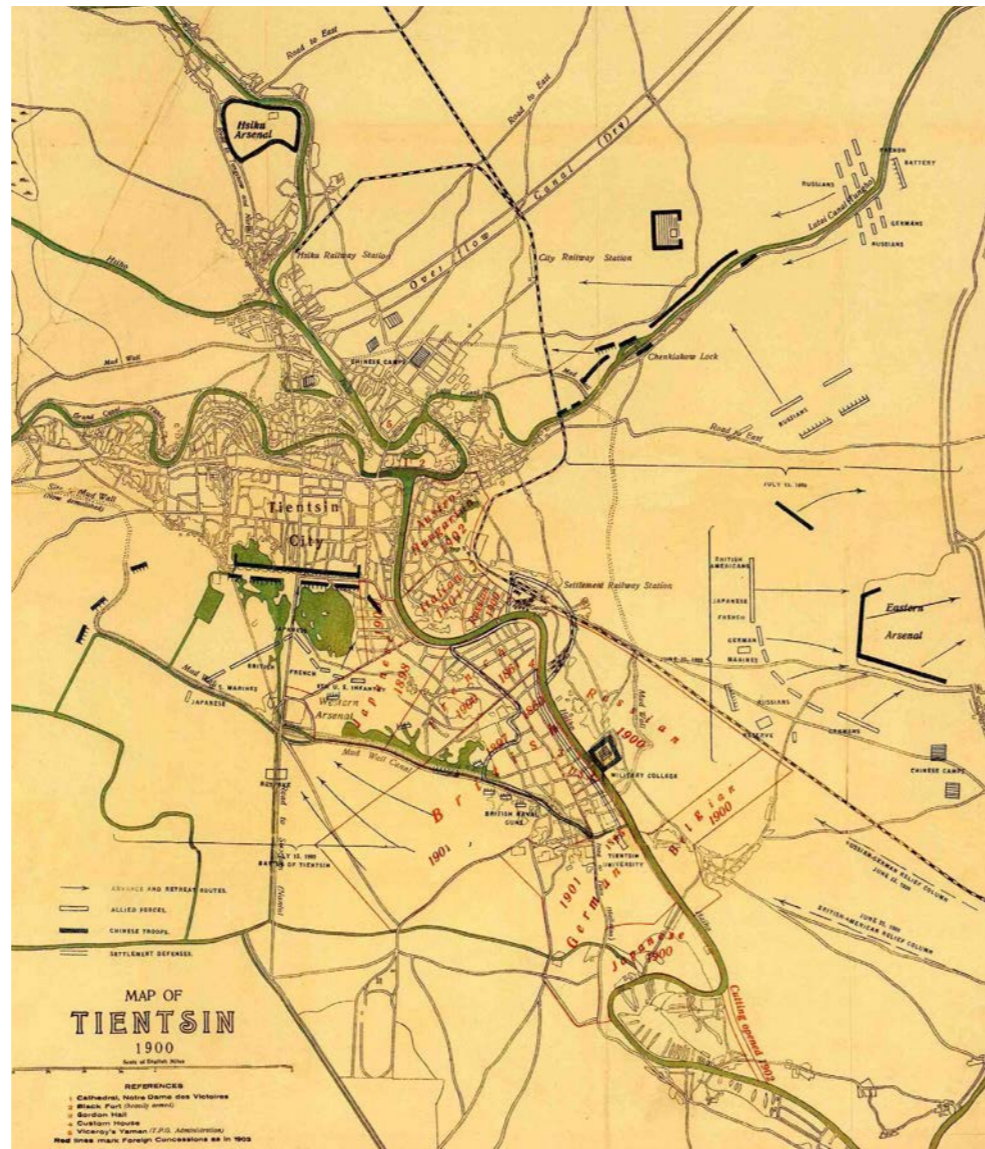
After the first part of the Second Opium War in 1858, Tianjin was opened to foreign trade. In 1860 Tianjin was formally forced to open to Great Britain and France, and thus to the outside world. After the walls of the city fell, the concessions were established outside the city, which were owned by nine countries. Also the square city grid was directly transplanted from the western world into Tianjin. At that time, the City entered a period of rapid development (Yin 2011, 26).

Hai River played an important role in the import trade. Thus the concessions were built beside it, they took the Hai River as an axis and developed towards southeast (Yin 2011, 26). From 1902 to 1948, the channel of Hai River was straightened five times (in total 26.3 km), what resulted in one hour of saved time to ship from one end to the other (Jiang 2010).

The new railway system and the new highway system slowly made the Grand Canal insignificant, so that the districts and settlements along the South Canal and the North Canal were no longer developing. The city center had been moved to the district of concession (Jin and Liu 2010, 24).

During the period of the first world war, Tianjin kept expanding, especially southwards alongside the Hai River. Until 1948, the built area was 53km², 3.2 times as in 1911. Tianjin at this time had become the biggest market place in Northern China (Jin and Liu 2010, 24).

Because of the limited transport capacities of Hai River, the Japanese built a new port directly in the estuary of Hai River in 1939. The goods from the foreign countries were transferred to the countryside outside the city. Consequently, this area started to be governed by the administration of Tianjin.



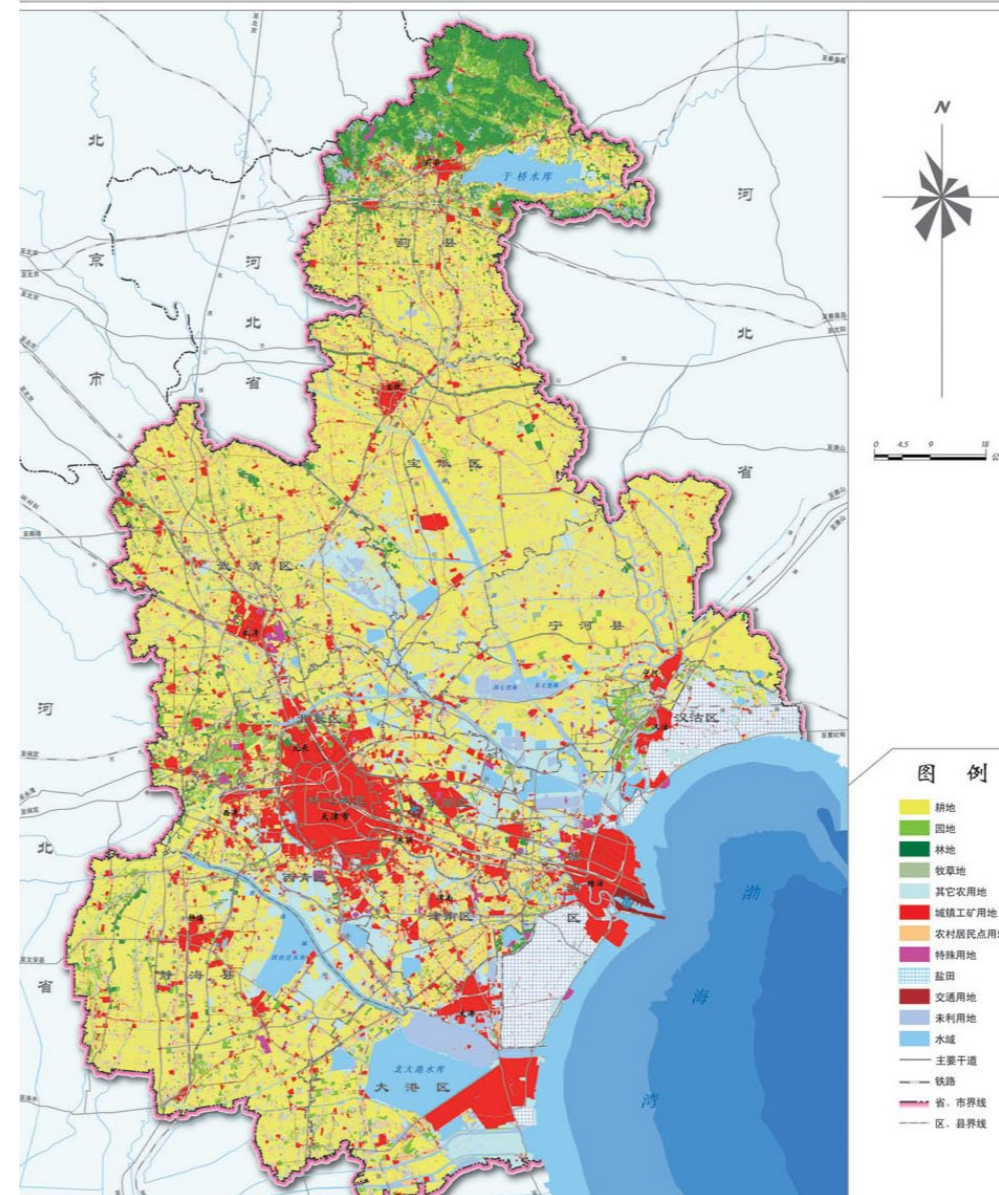
▲ Fig. 13: Map of Tianjin (1900)

▶ Fig. 14: Masterplan of Tianjin (2006 - 2020)

▶▶ Fig. 15: Masterplan of Tianjin (1996 - 2010)

天津市土地利用总体规划 (2006-2020年)

土地利用现状图(2005年)



AFTER 1949

After the People's Republic of China had been founded, the number of industries in Tianjin was still increasing, which led to a rapid development. Based on the old Port in the estuary of the Hai River, a new Port was built, called Tianjin Port. Lots of shipping lines across the sea were opened, but at the same time the ports along the Hai River inside the city were gradually abandoned. From that time the city no longer developed along the Hai River (Jin and Liu 2010, 25). In 1979, the "three rings and 14 radiations" road networks had been proposed, while the development mode of concentric circles was enhanced. After 1985, Tianjin Port was developed as a new city center and the "Dual Core City" concept was established (Yin 2011, 27). The Municipality of Tianjin and the Coast City Area both are cores and are connected by the Hai River. This strategy is shown in each edition of the Masterplan of Tianjin Urban Planning until now.



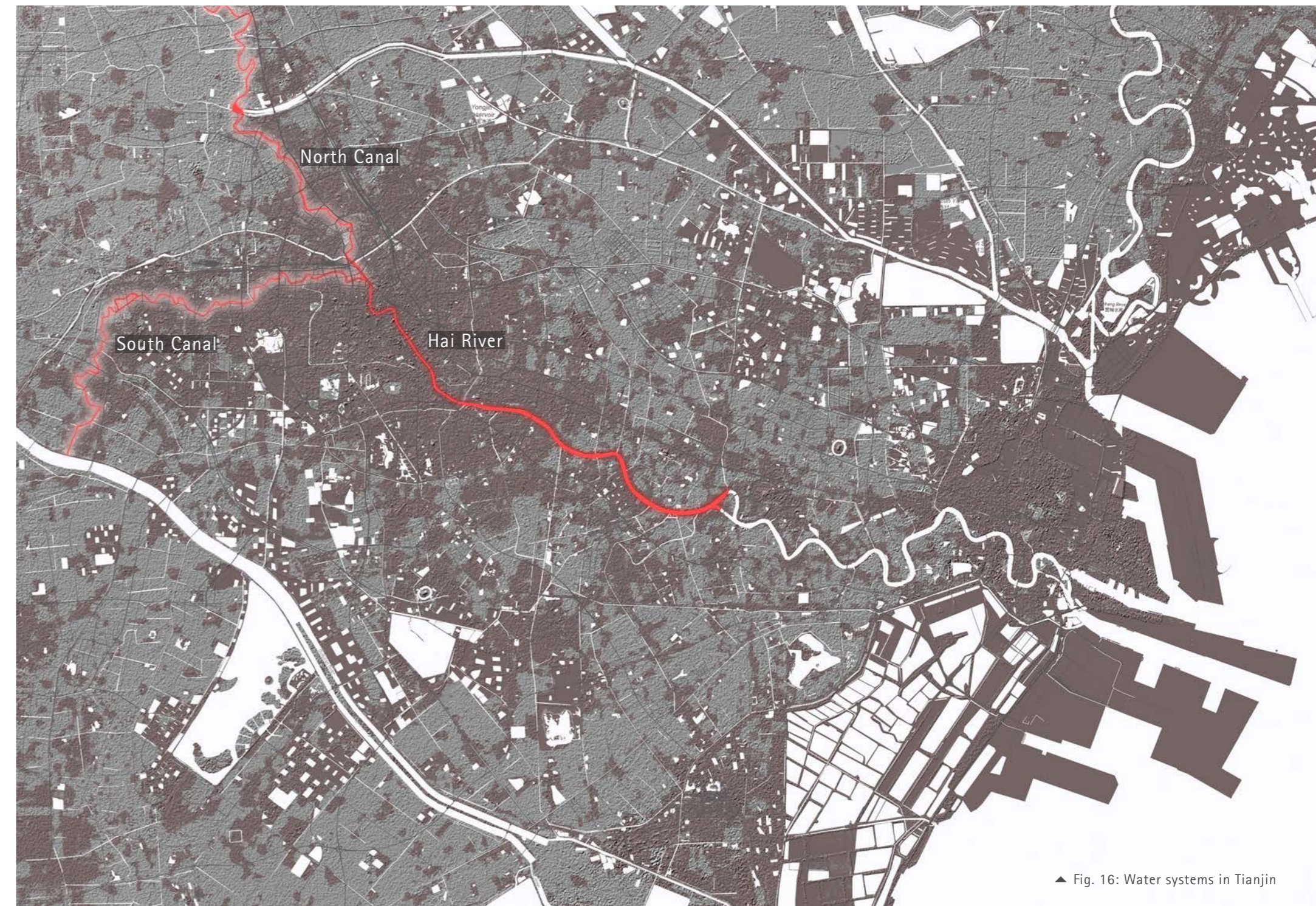
LOCALITY

One of the objectives of the new guidelines for urban developments in China is to enhance the city character, or in other words, the city's locality.

This can be achieved by preserving and converting existing site qualities and by integrating the design within the bigger urban and geographical context (Prominski 2016, 24-25). While both of these strategies are useful, this publication focuses on a third one, which is the adaptation of traditional local building patterns.

During a field trip to Tianjin in October 2016, a wide spectrum of situations along different sections of the Grand Canal was collected. They were simplified, distilled and broken down. Negative and positive aspects along the different canal sections were also discussed and are shown in several sections of the canals and its surroundings.

The final result is a "locality matrix" with schematic diagrams of typical situations and patterns, which was then used during the design process of each proposal for the chosen new urbanization sites in Tianjin.



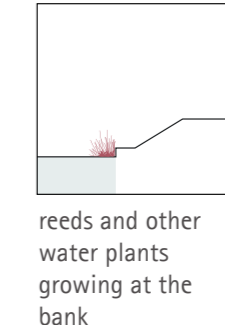
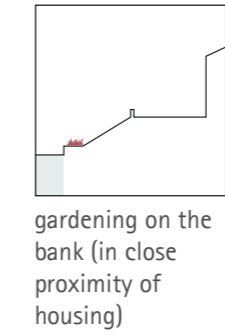
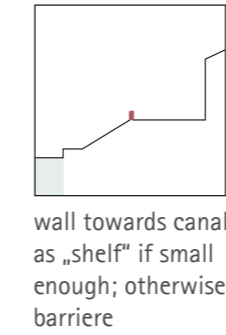
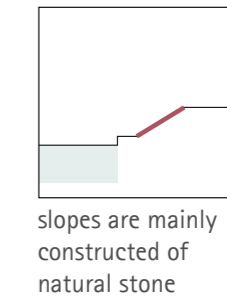
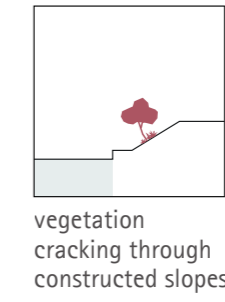
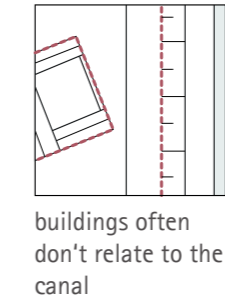
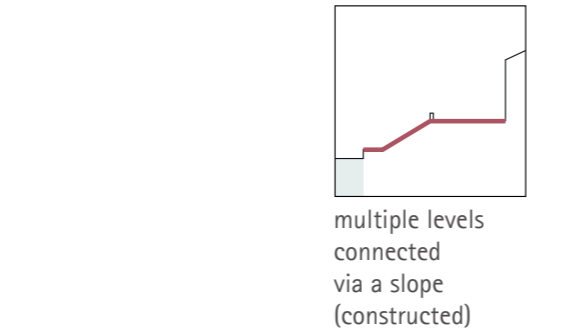
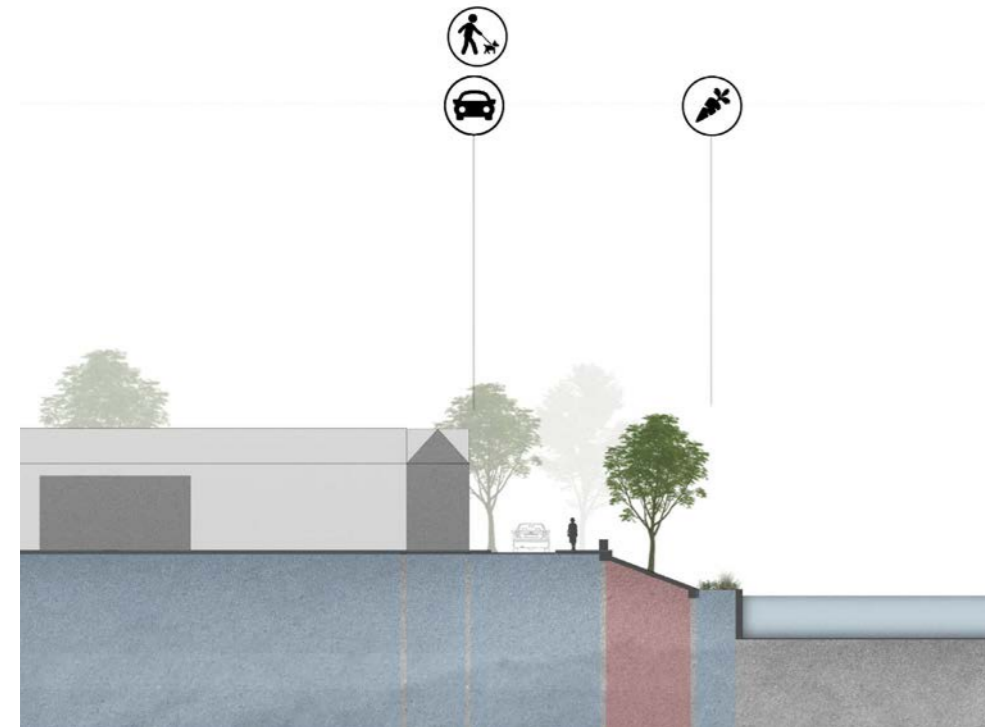
▲ Fig. 16: Water systems in Tianjin

THE URBAN AREA ALONG THE NORTH CANAL

The waterfront space of the North Canal is always connected to the canal by a slope. At the bottom is a narrow space close to the water, which is used by fishermen, although it lacks formal accessibility. Along stretches with traditional houses, people planted vegetable gardens on this lower path.

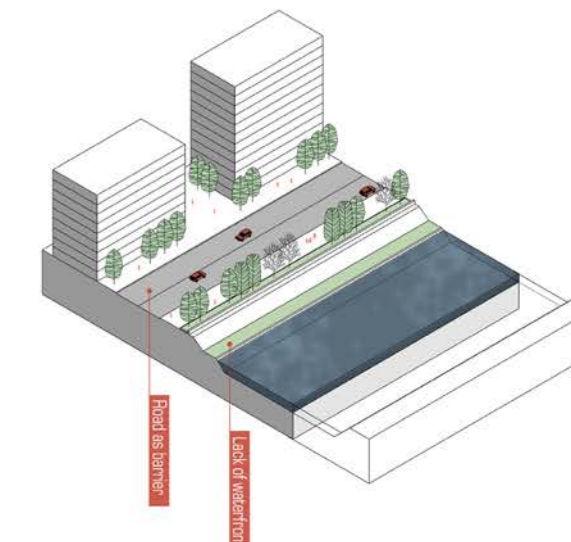
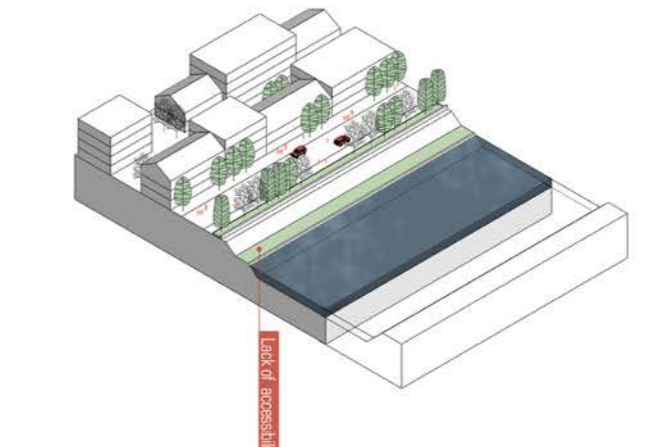
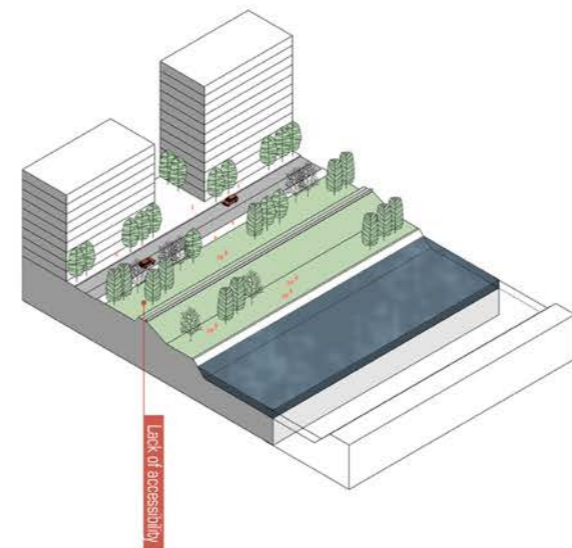
► Fig. 17, 18, 19: Traditional housing along the north canal

▼ Fig. 20: Section of a typical area at the north canal



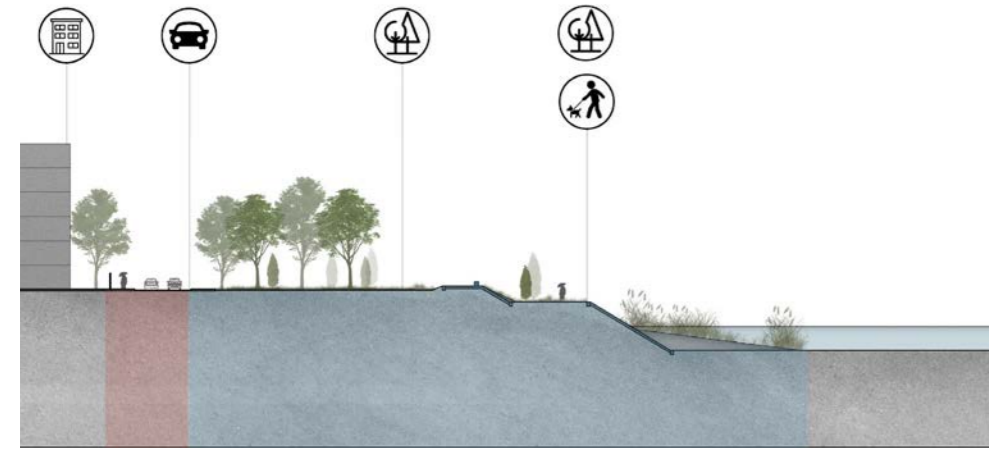
▲ Fig. 21: Local urban patterns along the North Canal

▼ Fig. 22: Axonometric drawings of the given conditions along the north canal



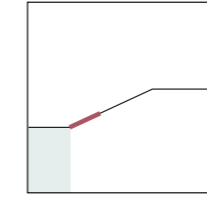
THE URBAN AREA ALONG THE SOUTH CANAL

The waterfront spaces of the South Canal are always also connected to the canal by a slope. But these slopes are more gentle and almost always covered with grass and planted with several rows of trees, which sometimes obstruct the visual contact to the canal.

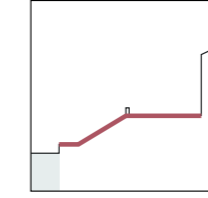


▲ ▼ Fig. 23, 24: Sections of typical areas at the south canal

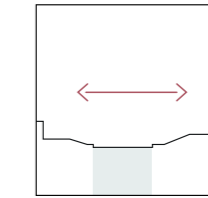
▶ Fig. 25, 26, 27: Impressions of typical situations along the south canal



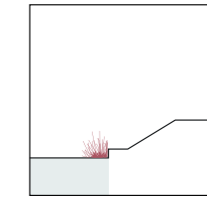
slope as water access



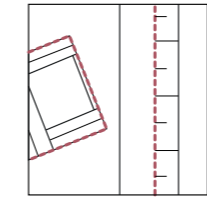
multiple levels connected via a slope (constructed or with vegetation)



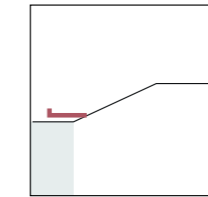
vast, generous spaces



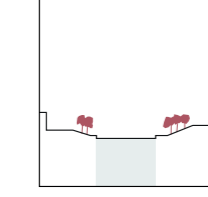
reeds and other water plants growing at the bank



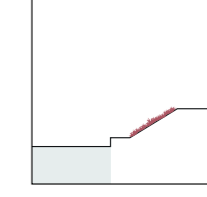
buildings often don't relate to the canal



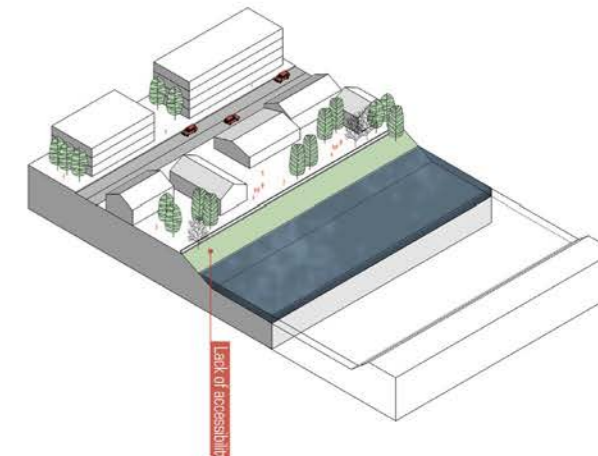
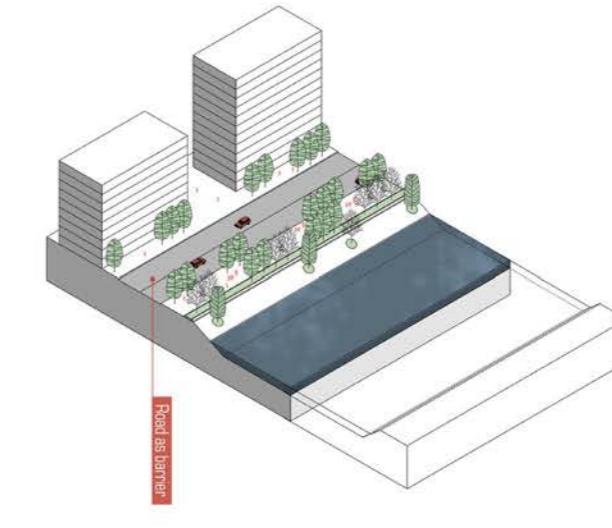
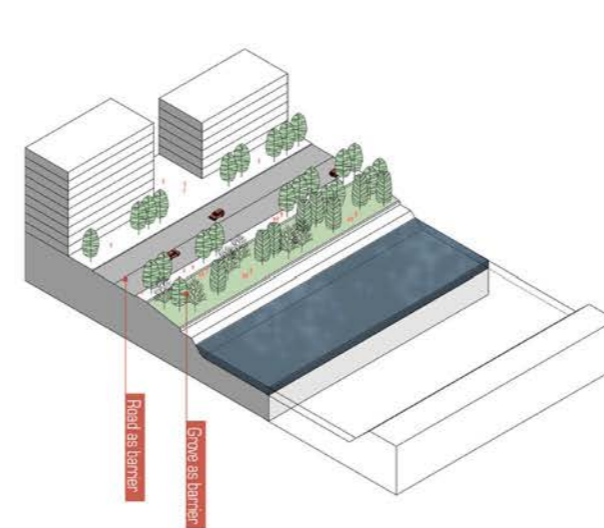
(non-linear) platforms to the canal



high number of trees, often in several rows



slopes are mainly greened



▲ Fig. 28: Local urban patterns along the South Canal

▼ Fig. 29: Axonometric drawings of the given conditions along the south canal

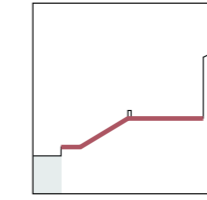
THE URBAN AREA ALONG THE HAI RIVER

The waterfront space of the North Canal always connects to the canal by a slope. At the bottom is a narrow space close to the water, which is used by fishers, although it lacks formal accessibility. Along stretches with traditional houses, people planted vegetable gardens on this lower path.

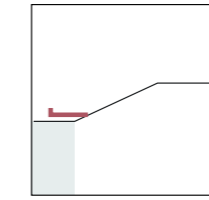


► Fig. 30, 31, 32: Impressions of typical situations along the Hai River

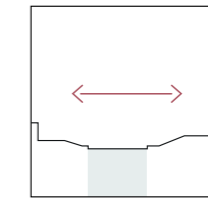
▼ Fig. 33: Section of a typical area along the Hai River



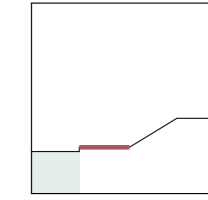
multiple levels connected via a slope (constructed)



(non-linear) platforms to the canal



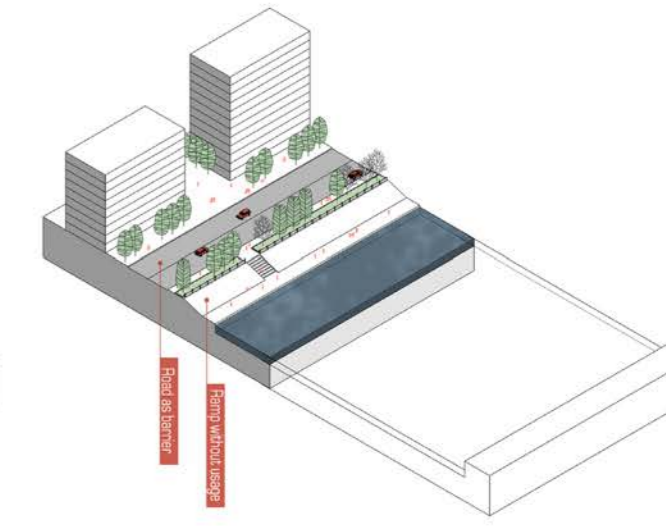
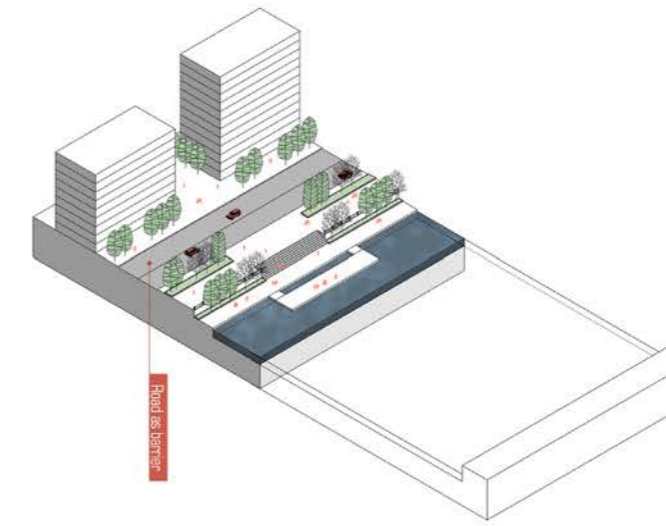
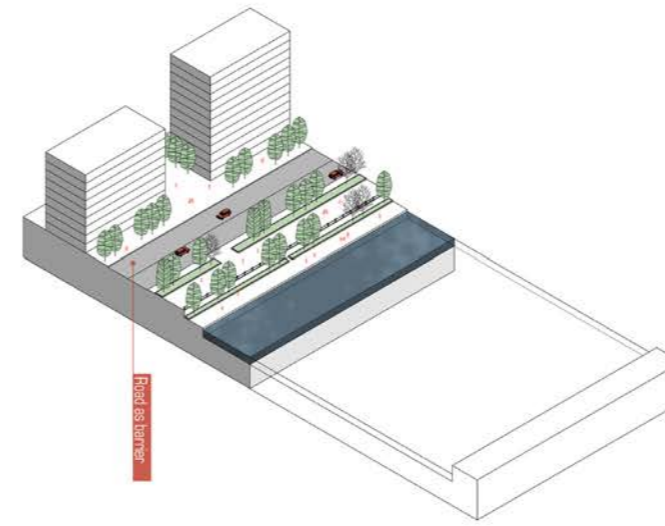
vast, generous spaces



promenades right next to the river

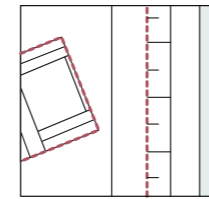
▲ Fig. 34: Local urban patterns along the Hai River

▼ Fig. 35: Axonometric drawings of the given conditions along the Hai River

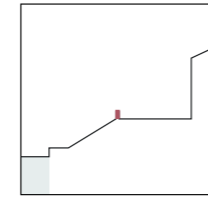


LOCALITY MATRIX

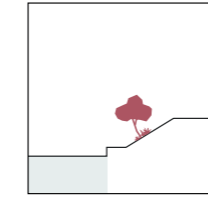
All local patterns that were collected during the field trip in October 2016 are summarized here. As mentioned before, each single pattern can be found at various spots along North Canal, Hai River and South Canal. Not every local pattern principally has to be positive, so it is important to think about how and why to adopt local patterns to a design proposal.



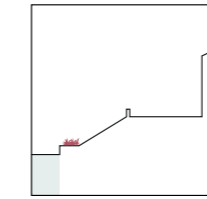
buildings often don't relate to the canal



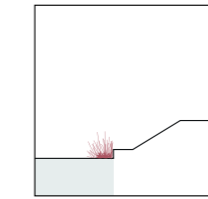
wall towards canal as „shelf“ if small enough; otherwise barriere



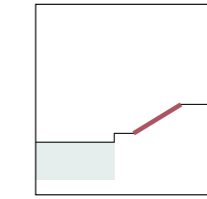
vegetation cracking through constructed slopes



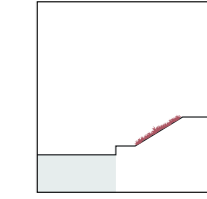
gardening on the bank (in close proximity of housing)



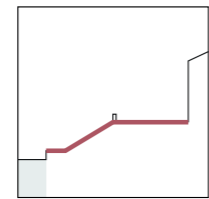
reeds and other water plants growing at the bank



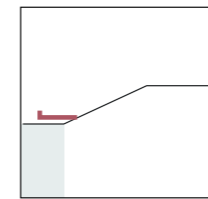
slopes are mainly constructed of natural stone



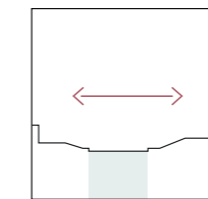
slopes are mainly greened



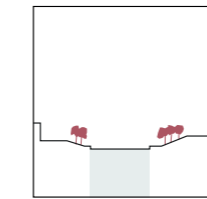
multiple levels connected via a slope (constructed or with vegetation)



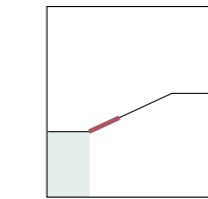
(non-linear) platforms to the canal



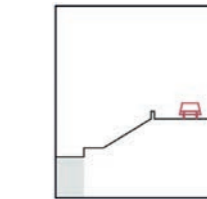
vast, generous spaces



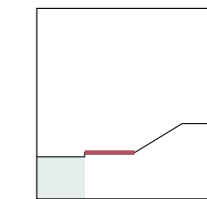
high number of trees, often in several rows



slope as water access



roads directly along the canal



promenades right next to the river

▲ Fig. 36: Locality matrix

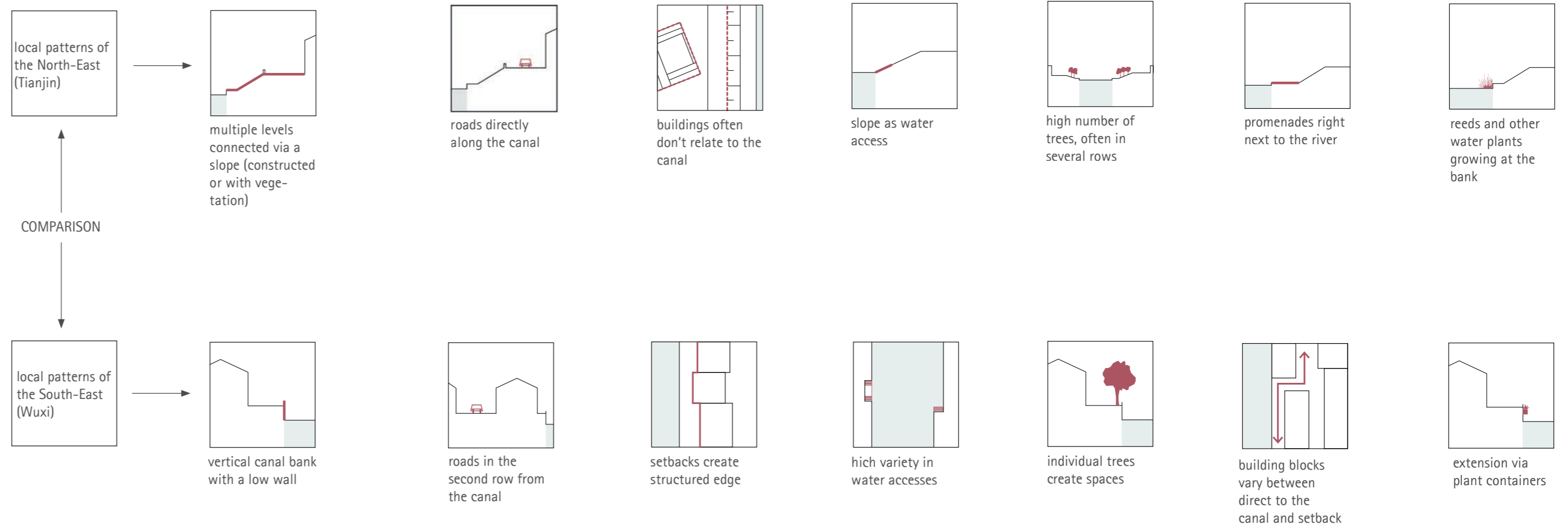
DESIGNING WITH LOCALITY - THE INTENTION BEHIND IT

During the field trip in October 2016, the Chinese cities Tianjin and Wuxi have been visited to collect and study the different characteristics of locality along the Grand Canal in both cities. All these local patterns and typologies along the Grand Canal were abstracted and depicted in the locality matrix (as shown before).

With this matrix, the project group got the tool to compare canal typologies of the North-East of China with the South-East and could develop several designs with a specific local character for each of the two cities.

According to the intention of the research project, some of the local patterns of Wuxi and Tianjin can be declared as clearly contrary, while others are more subtle and not that obvious. But if all local patterns are taken into account, a wide spectrum of definite differences of canal typologies between the North-East and the South-East of China can be determined.

As this brochure wants to convey, designing with locality may be a key factor in future urban design practices in China. It could help to prevent Chinese cities from looking the same everywhere, in favor of keeping and even strengthening the unique characteristics and local patterns of Chinese cities in general.



▲ Fig. 37: Comparison between canal patterns of the North-East and the South-East of China (extracts)

INTRODUCTION SITE A

Project site A is situated north of the city center and directly south of the Tianjin West Railway Station, which is an important high-speed link to Beijing and Shanghai. It was designed by GMP Architects and construction was finished in 2011 (GMP Architekten 2017).

The square in front of the train station is built above an underpass and consequently is about 3 meters higher than the adjacent site.

The biggest area of the site with its 204.000 m² extension is a wasteland with a meadow, which is informally used for leisure activities like flying kites. In the center of the meadow is a small pond.



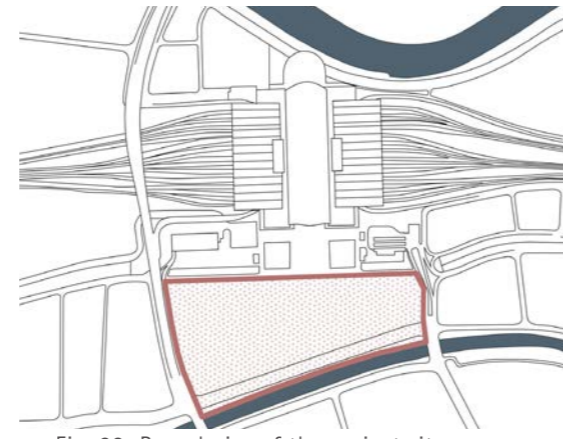
▲ Fig. 38: Site A right in front of the West Railway Station

SITE ANALYSIS

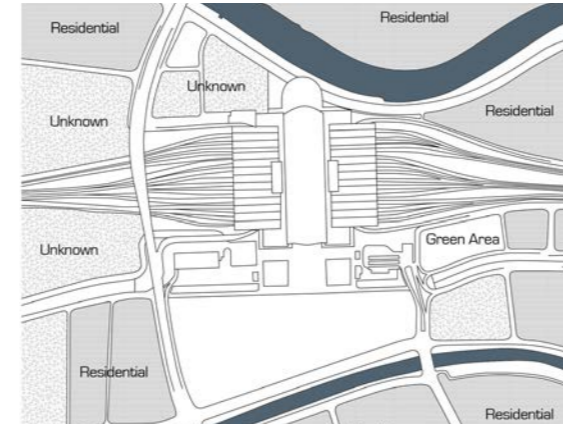
The South Canal marks the southern border of the site. An eight-lane road lies almost directly along the canal, leaving only a narrow, densely vegetated canal bank, similar to the opposite canal bank.

South of the canal, mid-rise apartment blocks with an average height of six to seven floors define the urban footprint. To the east and west, the urban structures are more diverse and consist of apartment blocks in different shapes and remnants of the old city structure with small buildings. Scattered on the site are some remaining buildings.

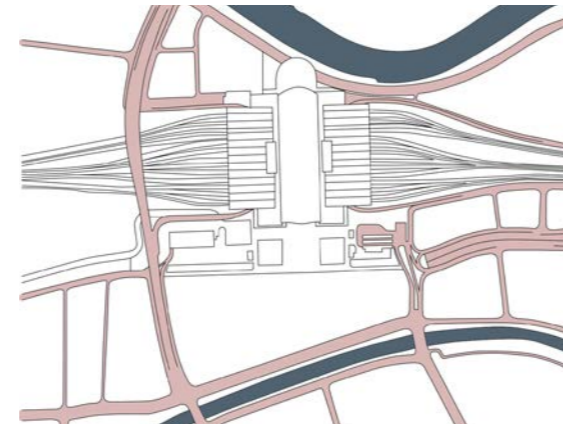
The big potential of the site is to create a new link from the railway station to the Grand Canal. The axis of the train station might be extended as a street which connects Hai River and the South Canal, which at the moment is hindered by various obstacles: the step in topography, the building structures on the site, the wide road, and last but not least the trees planted in three rows along the canal bank, which also inhibit a visual contact with the canal.



▲ Fig. 39: Boundaries of the project site



▲ Fig. 40: Current land use



▲ Fig. 41: Street network



▲ Fig. 42: Collage of the current Situation



▲ Fig. 43: Map of Tianjin and location of site A

INTRODUCTION SITE B

Project site B is situated north of the city center of Tianjin. In contrast to many areas of Tianjin, traditional housing patterns and low story-buildings can be found here. Most houses probably were built informal, so an exceptional diversity of housing and open space patterns is existent in the area.

A narrow street, shared by pedestrians, bikes and cars, runs between the first line of houses and the North Canal. A small wall beside the street segregates the housing area and street from the canal. Nevertheless, people use the slope of the riverbank to grow vegetables. In addition to that, even the small wall is used to dry harvest.

Besides growing vegetables at its slope, the canal is not used at all. It seems that the canal and potential qualities have become forgotten by the people living around.

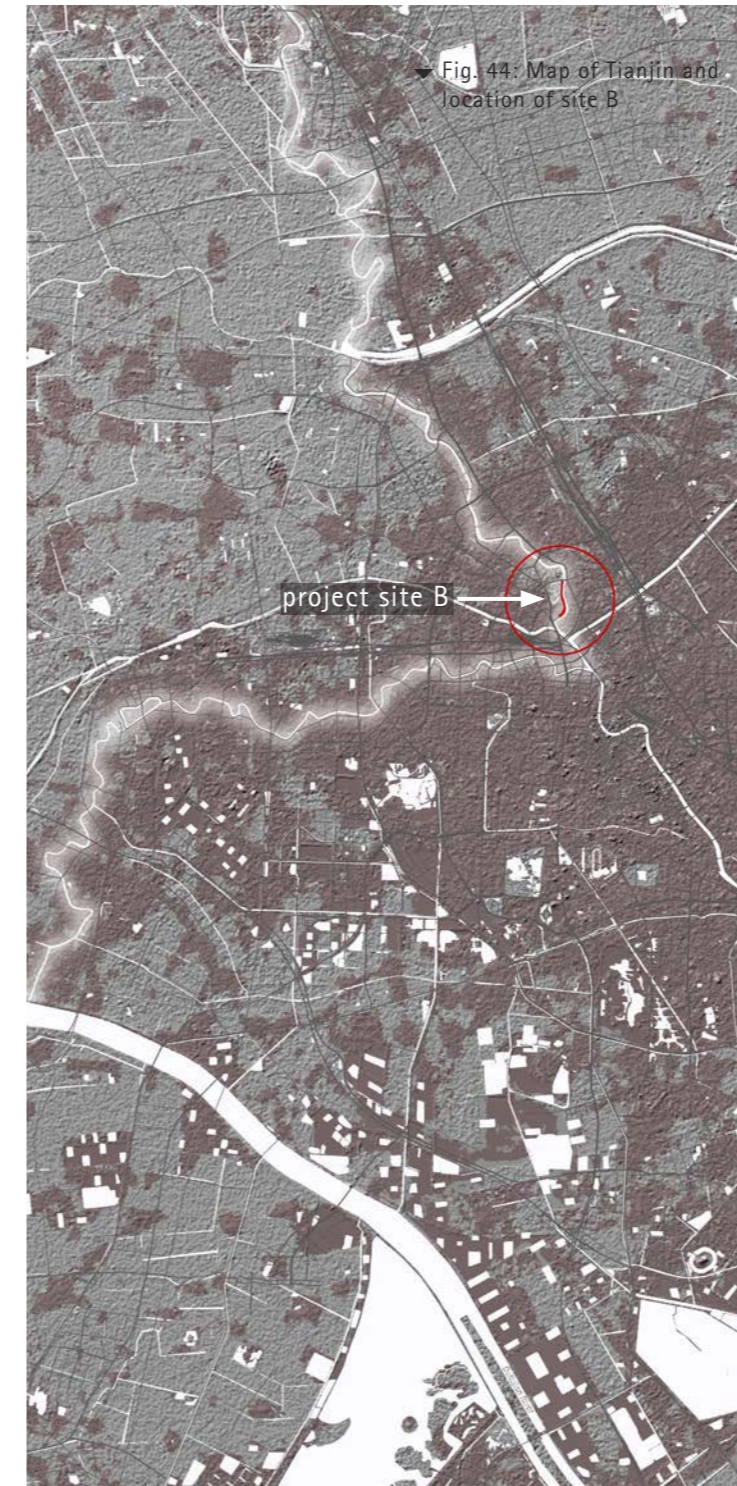


Fig. 44: Map of Tianjin and location of site B

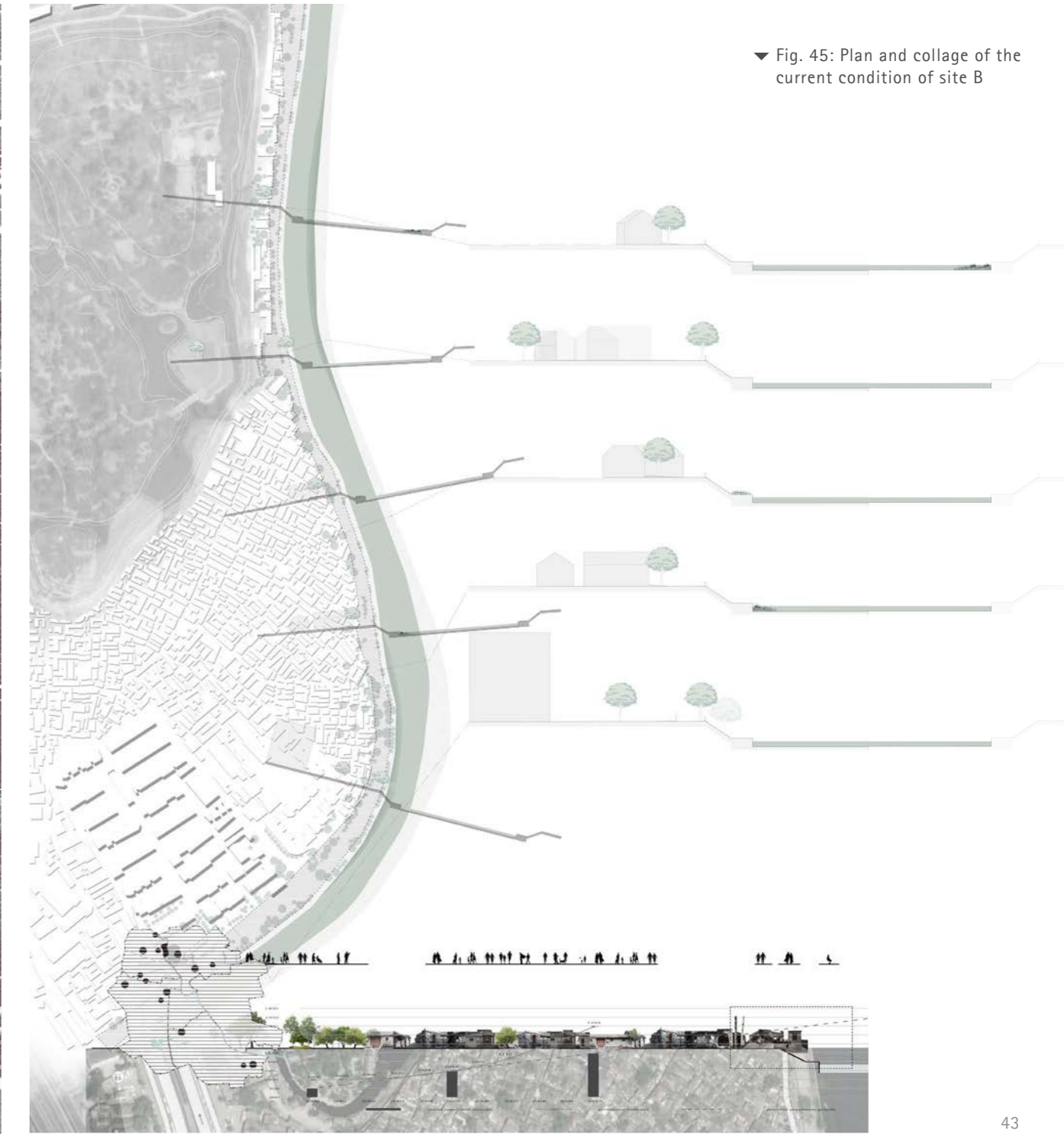


Fig. 45: Plan and collage of the current condition of site B

DESIGN

On the following pages, three design proposals are shown. Each of these proposals was made within the research project 'Urbanization and Locality along the Grand Canal of China' and have been master theses in the field of Landscape Architecture.

Master theses (only extracts are shown here):

Navigating Urbanization - by Han Mai (Supervisors: Prof. Dr. Martin Prominski, M.Sc. Kendra Busche)

Patterns of Particularity - by David Obernberger (Supervisors: Prof. Dr. Martin Prominski, M.Sc. Kendra Busche)

Urbanization and Locality along the Grand Canal of China - by Siyu Lin (Supervisors: Prof. Dr. Martin Prominski, M.Sc. Kendra Busche)



URBAN TRANSFER TIANJIN (Proposal for site A)

By David Obernberger

The aim of this master thesis was to propose new modes of designing urban developments along the Grand Canal of China under consideration of locality.

It is in the interest of the Chinese government to reinforce the cities characters. To be able to do this, it is necessary to understand what contributes to the local character.

By the comparison of the sections of the Grand Canal in Tianjin, we could identify the differences and concluded that they make the local character. In Tianjin, canal banks are always slopes, whereas in other cities along the Grand Canal there are often vertical edges. It makes sense to use these patterns of slopes in new design proposals to strengthen their local character.

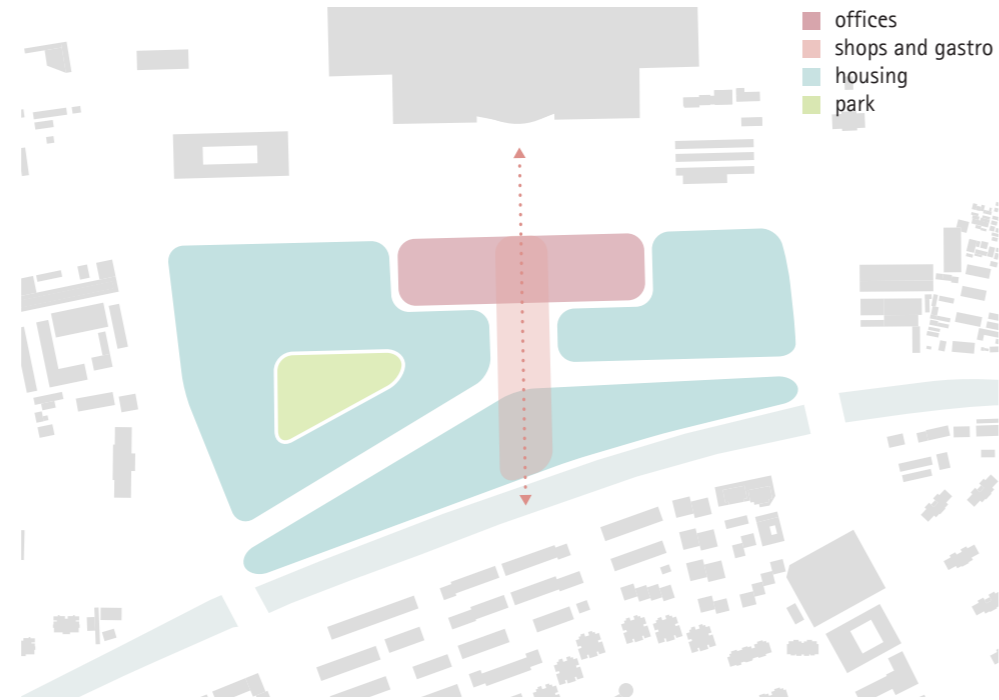
The design proposal expresses how the adaptation of building patterns could be used to strengthen the local character of new urban developments.



▲ Fig. 46: Masterplan

The major design intention is to provide space for housing directly along the canal by curving the road that now runs along the canal up north. A pedestrian zone with restaurants and commerce links the train station to the canal. The area directly in front of the train station with its exposed location is reserved for offices and commercial structures.

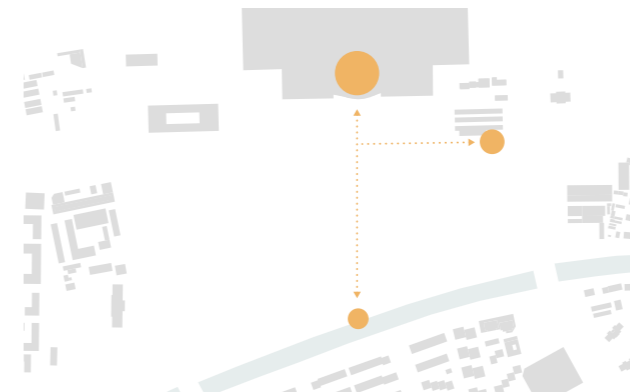
Because of the site's position at a major railway station, the design strives for high density. The site should become a moderately high-density housing area with open spaces of high quality, which are inspired by local patterns especially along the canal. The meadow area which now lies within one of the resulting housing areas becomes a small park.



▲ Fig. 47: Diagram of design intentions



◀ Fig. 48: Curving the road up north

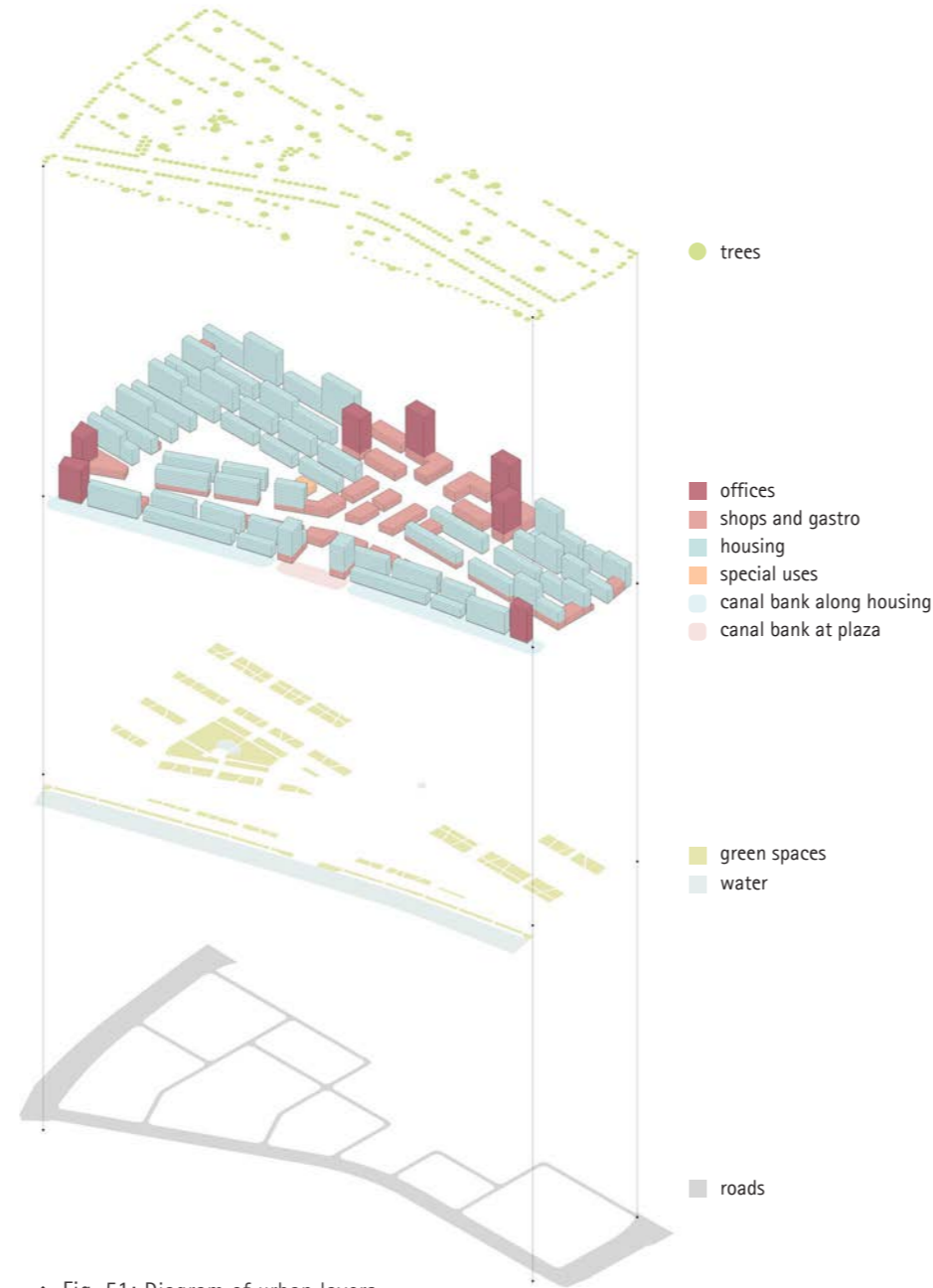


◀ Fig. 49: Public transit network

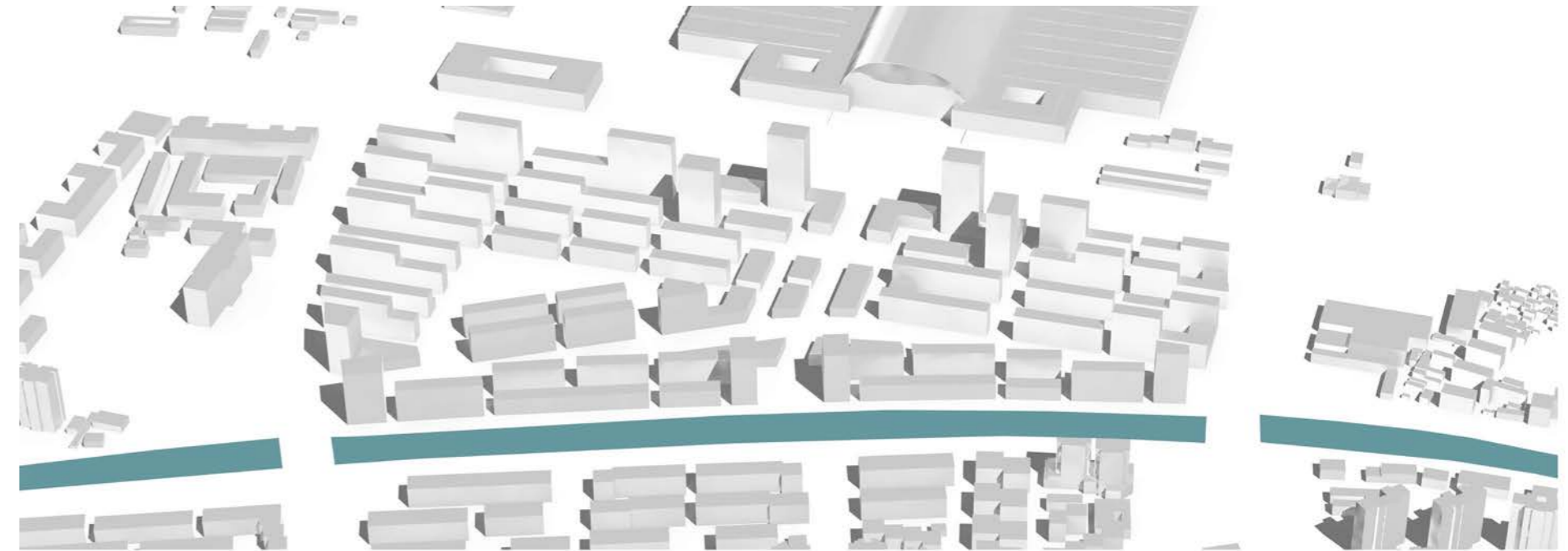


◀ Fig. 50: Wasteland becomes a park

The building typology follows the example of the areas south of the canal. Apartment blocks with similar building heights are arranged along the canal. Towards the train station building height increases. Towards the streets, the blocks are closed pairwise with low rise building slabs, where public infrastructures and small commerce are located. In front of the train station, towers for offices are based upon commercial buildings with a lower number of floors. The blocks have communal courts which are complemented by a small district park with a pond in the place where the existing water hole can be found. Ponds and small lakes like this exist in high numbers in Tianjin and are typical for the city (Yin 2011, 68). The streets are organized in such a way that they are only used by residents and for business, but not for transit traffic. The canal bank is designed in two patterns, one along the housing blocks and the other one at the place where the pedestrian axis from the train station meets the canal. They are described in greater detail on the following pages.



▲ Fig. 51: Diagram of urban layers

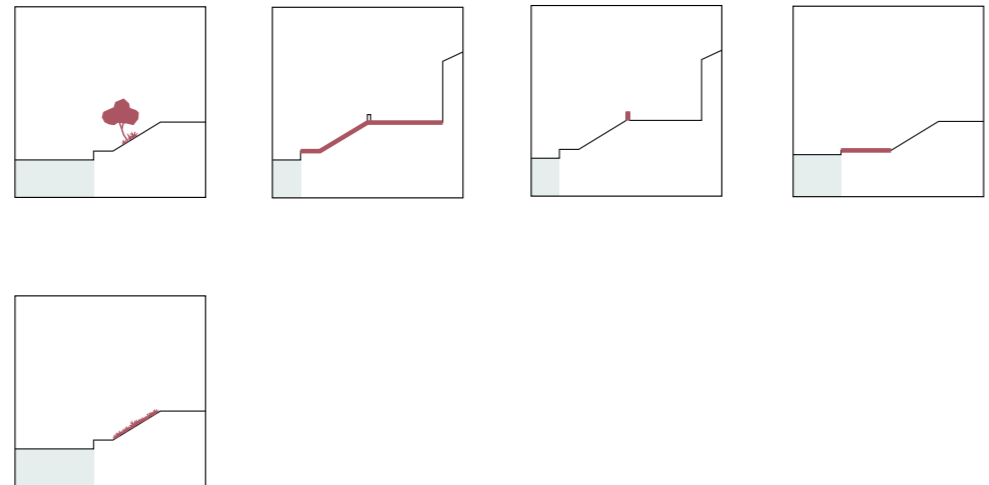


▲ Fig. 52: Bird's eye view of the urban design proposal

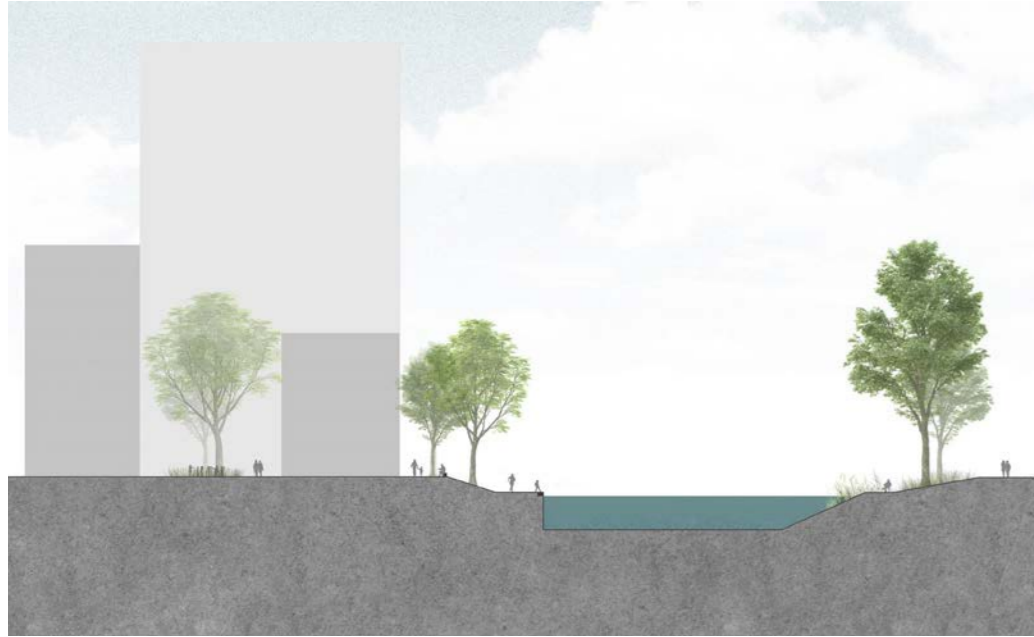
DETAIL 1: HOUSING ALONG THE CANAL

Along the housing blocks, the design employs a basic profile that was historically typical for the houses along the Tianjin section of the Grand Canal. A path as a shared space along the building blocks connects via a slope to a lower level directly along the canal. It also can be appropriated for different uses since it does not need to be walkable along the whole stretch.

A wall, low enough to be able to sit on it, together with trees that are planted in irregular distances, creates spatial niches along the upper level. The slope is made of natural stone in bonded construction, which is typical for the canal banks in Tianjin.



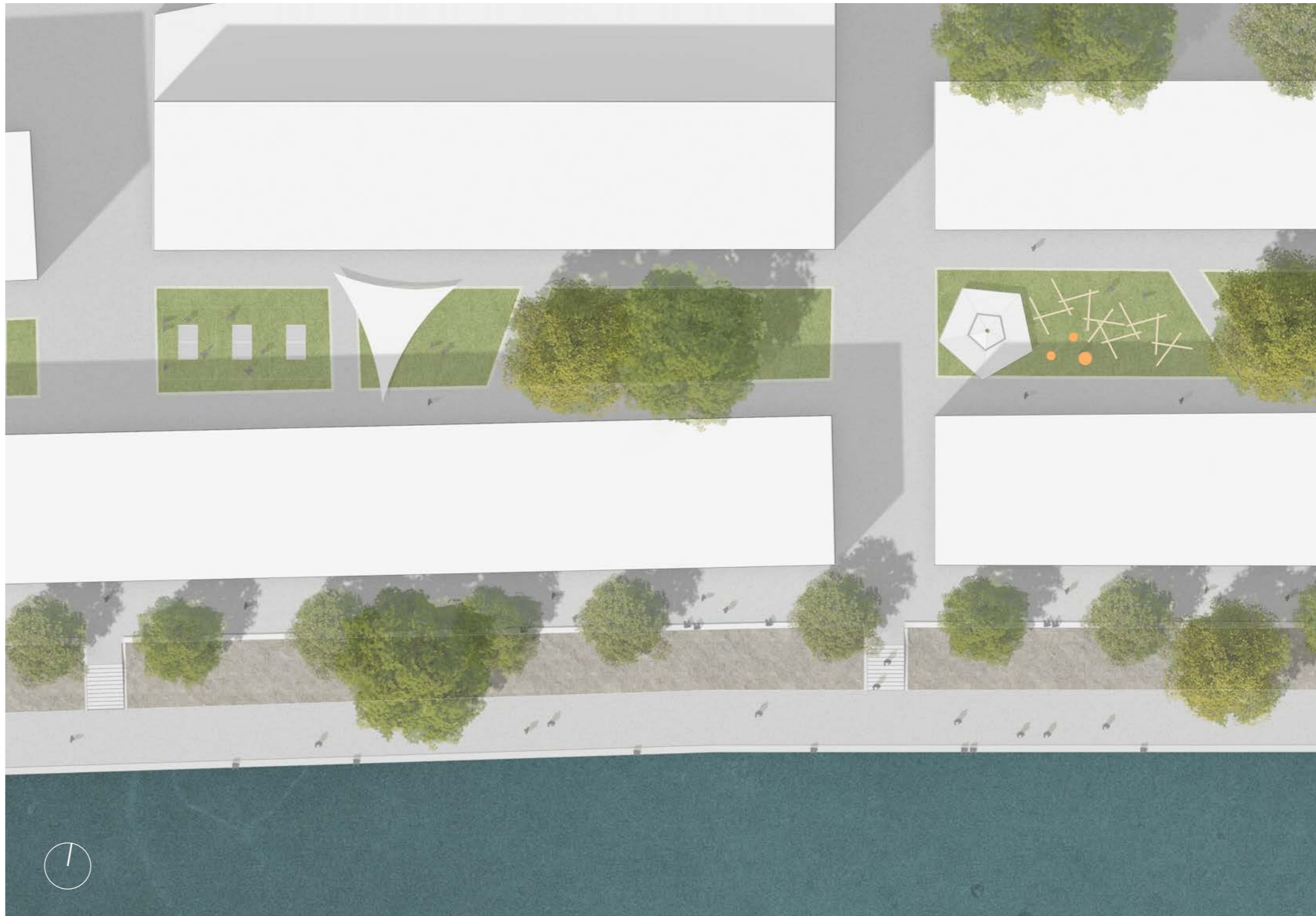
▲ Fig. 53: Local patterns adapted for the design



▲ Fig. 54: Section of detail area 1



▲ Fig. 55: Perspective of detail area 1

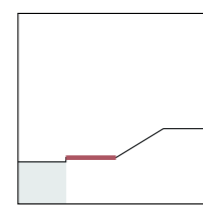
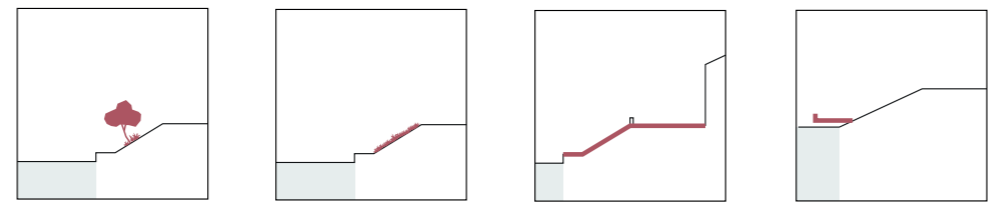


▶ Fig. 56: Map of detail area 1

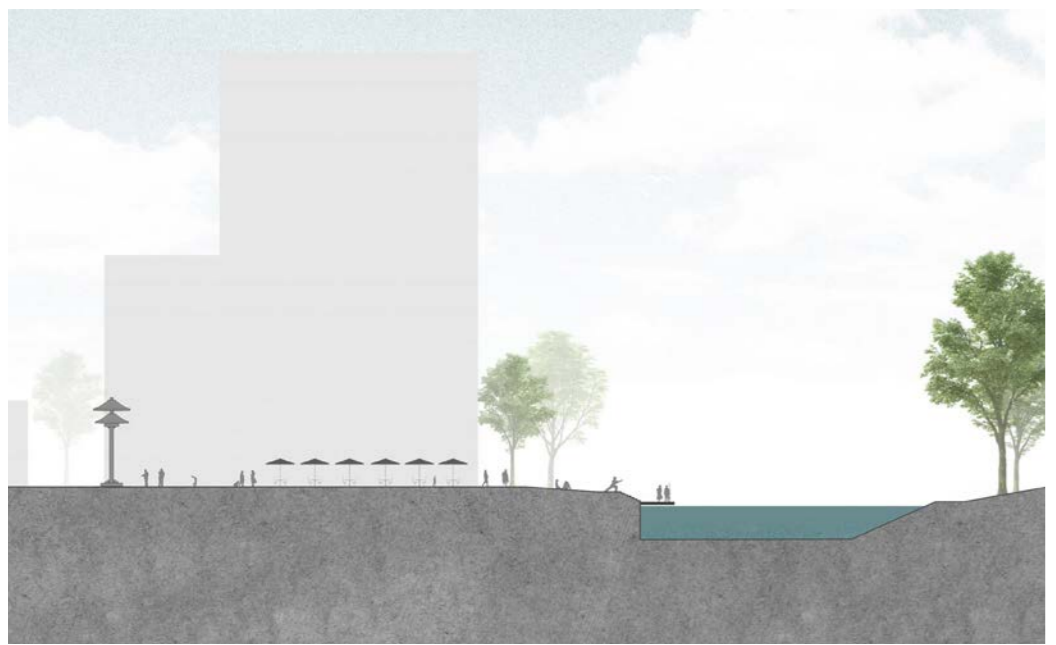
DETAIL 2: PLAZA AT THE CANAL

At the end of the axis, where it meets the canal, is a small plaza. A precedent could not be found during the field trip in Tianjin, but in a historical depiction. The square is marked by a Paifang (typical Chinese gate). The landing stage, made from natural stone, extends into the plaza. It is organized on two levels and with a slope of seven percent, which is ideal to sit on.

The lower floor levels of the buildings on the square are used by small commerce and mainly restaurants.



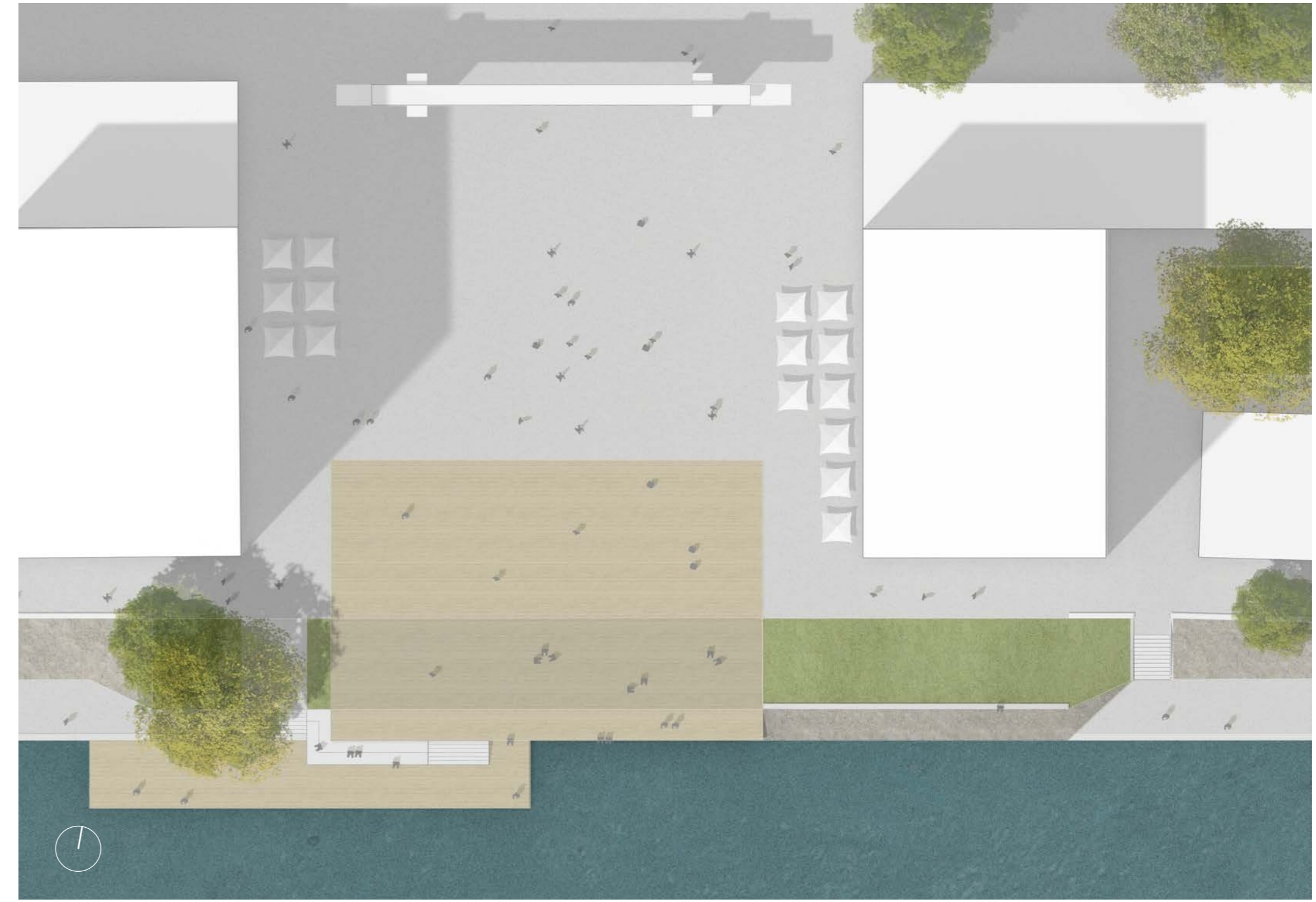
▲ Fig. 57: Local patterns adapted for the design



▲ Fig. 58: Section of detail area 2



▲ Fig. 59: Perspective of detail area 2



▶ Fig. 60: Map of detail area 2

NAVIGATING URBANIZATION (Proposal for site A)

By Han Mai

This master thesis proposes new urban patterns along the Grand Canal, which adopt the local character of the city, in order to reverse the alienated relationship between the people and the Grand Canal.

By activating the Grand Canal through a newly established water bus system, the urban area alongside will receive the prosperity like in old times, so that the lost Grand Canal will be brought back to the daily life of the people. The water transport system is established according to the water network of the city. The new urban design is following the new and old local urban patterns. The waterfront space design is according to the analysis of the sections of the Grand Canal in Tianjin.

By comparing the locality in the city and by transferring it to the design, the local characters will be shown more clearly and it could strengthen the impression of the site.



▲ Fig. 61. Masterplan

About 22% of the Tianjin's area is covered by water and the city has rich water resources as well (TMBS et al. 2015). The North Canal, the South Canal, the Ziya River and the Hai River intersect near the city center before the water runs through the Hai River into the sea. In addition to these main rivers, some wide canals can be seen on the map of Tianjin. These are flood-discharge canals which take water from the Grand Canal and the Hai River to protect the city from flooding.

Today, water transport in Tianjin is not allowed because of the shallow water level of some channels. But there are still cruise ships on the Hai River and six marinas along it. One of them is beside the main train station of Tianjin, according to the website of Haihe Cruises. At the meeting in Tianjin with Tianjin Municipal Bureau of Urban Planning on October 12th, 2016, the deputy secretary Mr. Shen Lei presented the preservation and the development planning of the Grand Canal in Tianjin for the next 5 years. At that time he mentioned, that the cruise tour will be allowed on the Grand Canal as well, in order to improve the tourism along this ancient Canal. The existing locks and sluices on it will be demolished. Therefore, a water bus system could be proposed for Tianjin.

These water buses could substitute the cruise ships for the city tour and could also provide the citizens of Tianjin with a conveniently integrated public transport network, with existing subway lines, bus lines and intercity railway networks.

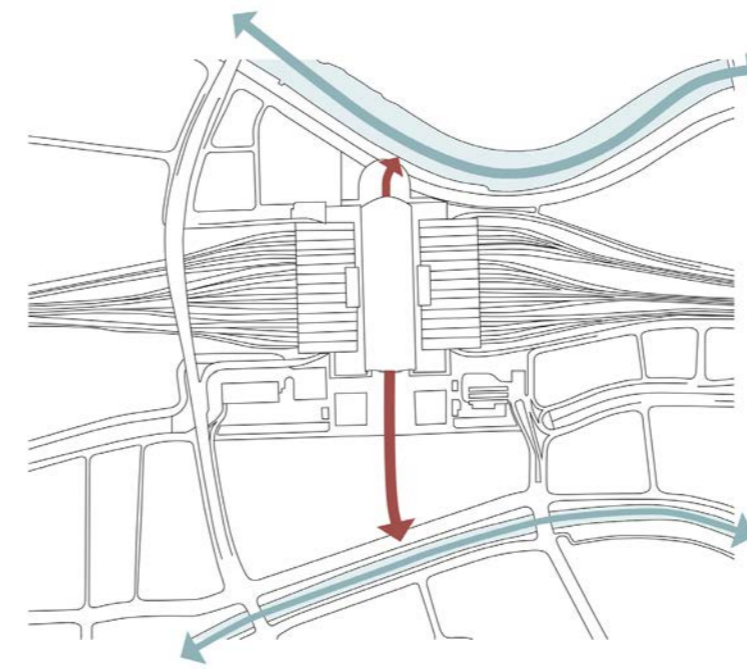
The old route of Hai River Tour was already connected to the main train station, so the new one could connect to the West Railway Station, creating an additional connection of the public water transport system with the other transport networks. The area in front of the West Railway Station could become a transit hub, where the water bus route, the subway line and the intercity railway intersect. The development of this urban district could be influenced by the new public water transport.



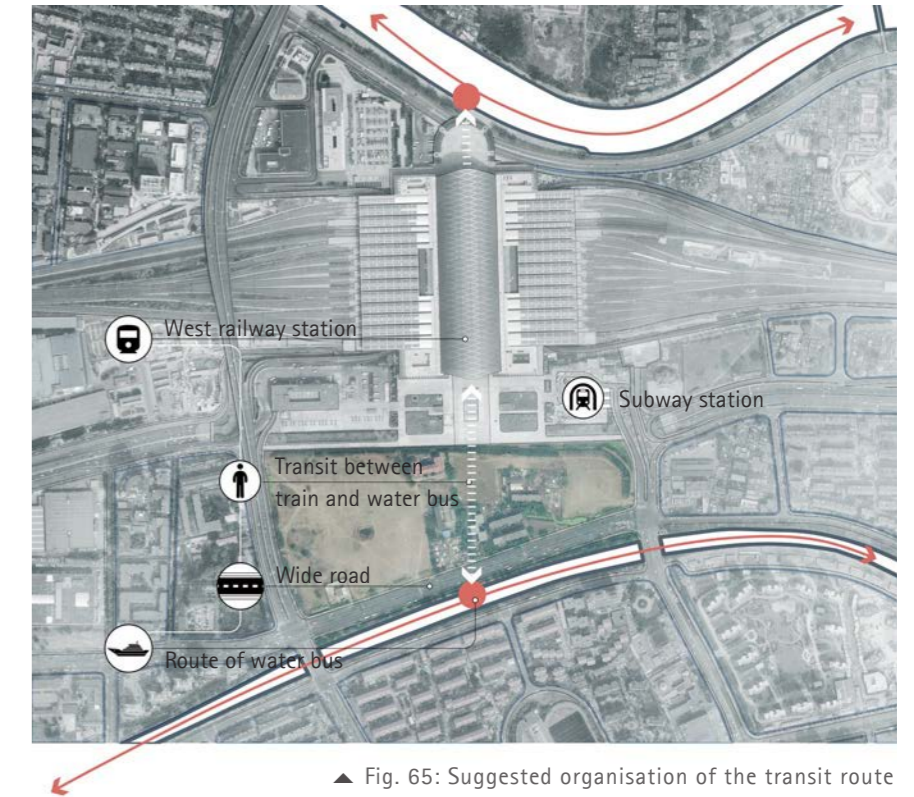
▲ Fig. 62: Existing water transport network



▲ Fig. 63: Proposed water transport network



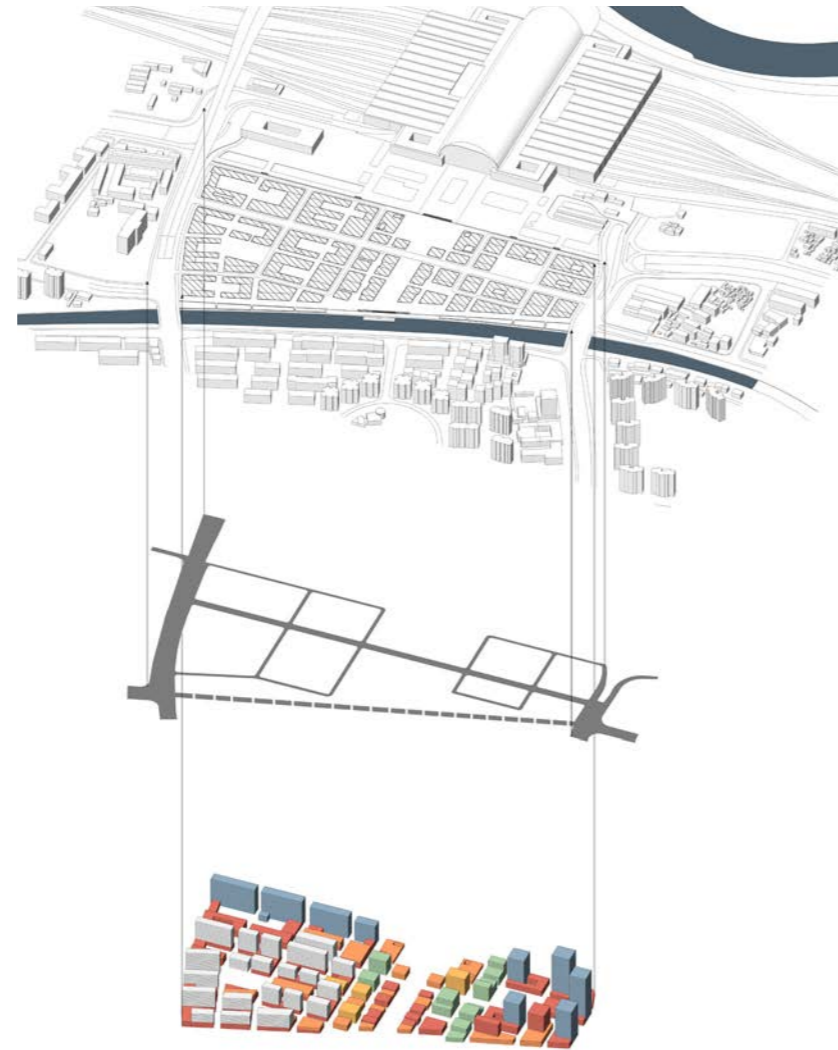
▲ Fig. 64: The proposed main transit axis connects both water transport systems



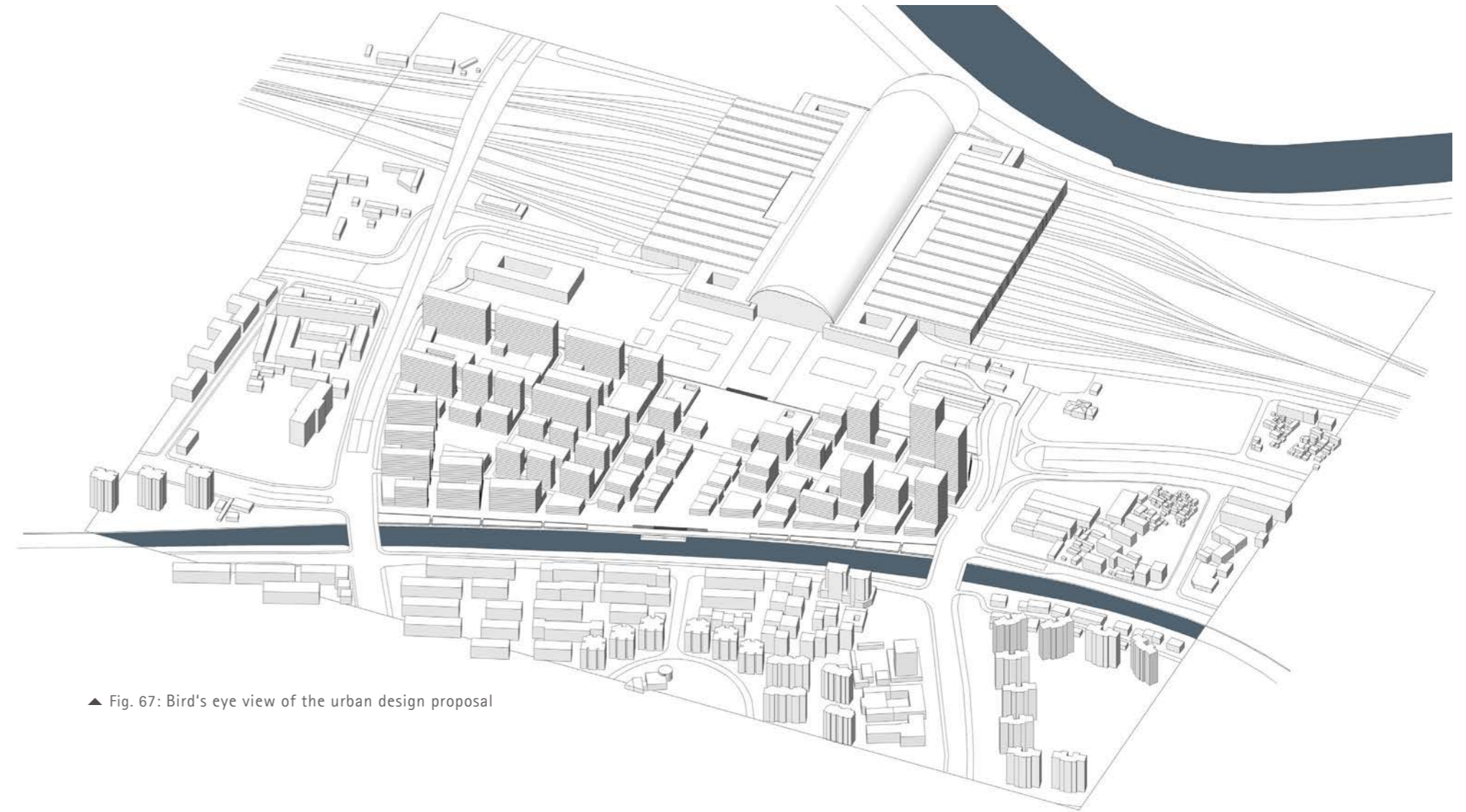
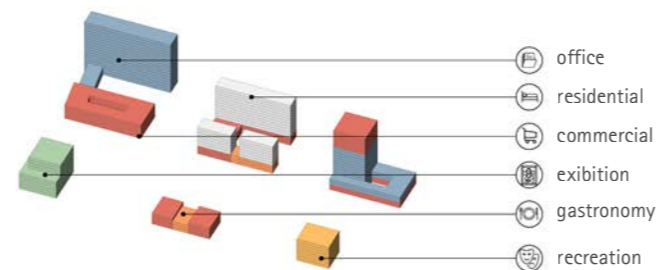
▲ Fig. 65: Suggested organisation of the transit route

Peter Calthorpe has proposed 3 basic models of TOD communities: urban transit village TOD, neighborhood transit village TOD and community transit village TOD (Calthorpe 1993, 77). The scales of them depend on the capacity of the transportation. Around the transport station the commercial center and office area should be located. Next to these areas the residential areas should be located (ibid.). Many urban designers have developed these models, making them adapt to the Chinese cities. They include "mode of commercial-office urban TOD transit village", "mode of residential urban TOD transit village" and "mode of neighborhood urban TOD transit village" (ibid., 154-155). The site in Tianjin could refer to the first mode.

The layout of the land use on the project site will adapt to the TOD models and the typologies of the buildings could comply with the guidelines of the eco-city (see chapter 'Urbanization'). The urban design contains lots of different programs for the daily life. While fulfilling their daily life, people can use the water public transport or the pedestrian priority footpaths.



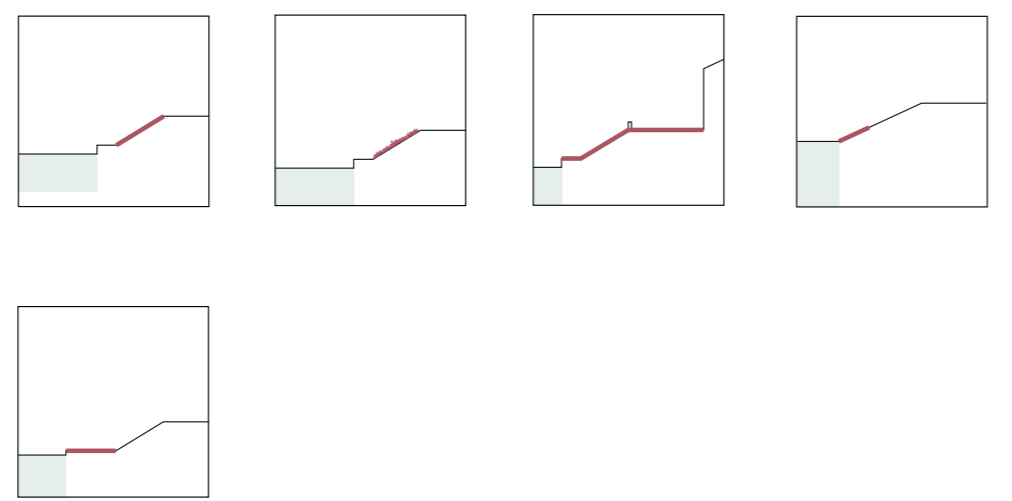
► Fig. 66: Diagram of urban layers



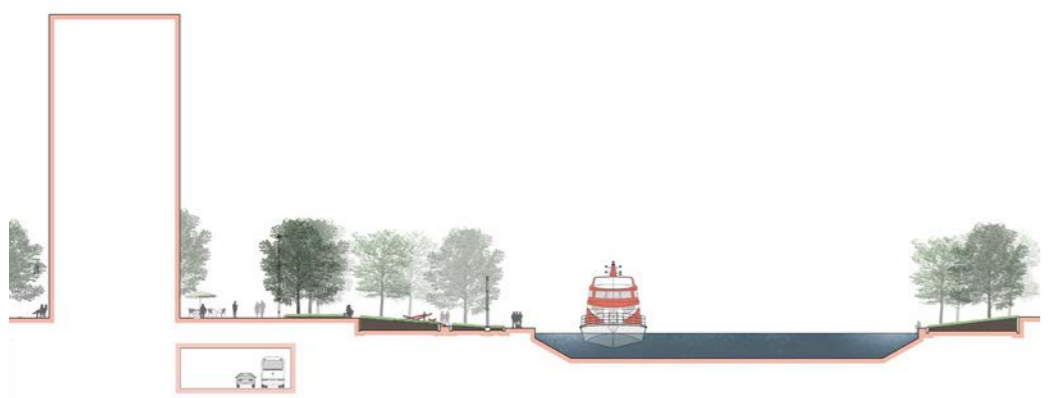
▲ Fig. 67: Bird's eye view of the urban design proposal

DETAIL 1: WATERFRONT SPACE ALONG THE SOUTH CANAL

This bank design adapts the bank type of the South Canal, which is connected with a slope to the water. Grass or groves are growing on these slopes. Originally, this slope is full of trees and shrubs, which block visual contact to the river. Thus, the trees on it will be reduced. A long bank on the top of the slope is proposed, which adapts the embankment of the North Canal. On the bottom of the slope is a small path, which can also be seen at the Hai River. The grass slope is a small park for the residents.



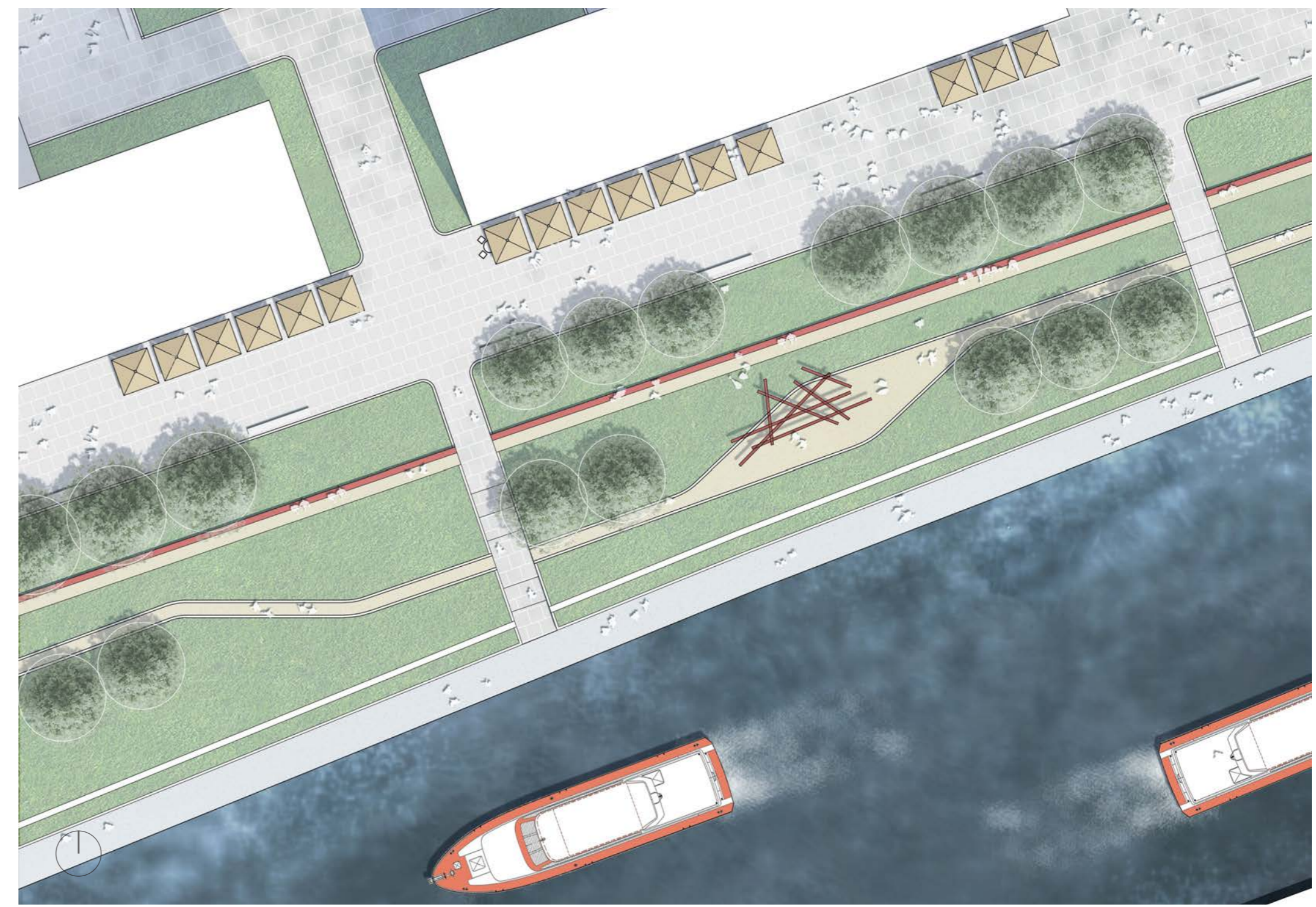
▲ Fig. 68: Local patterns adapted for the design



▲ Fig. 69: Section of detail area 3



▲ Fig. 70: Perspective of detail area 2

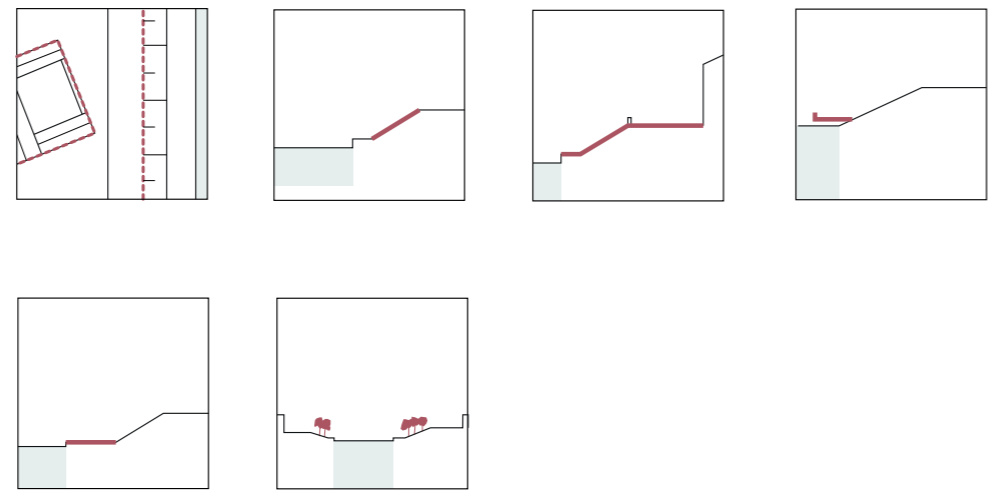


▶ Fig. 71: Map of detail area 1

DETAIL 2: MARINA ALONG THE SOUTH CANAL

This waterfront space marks the end of the axis of the district and the beginning of the commercial street.

The marina is a floating platform, which connects to the lower level of the bank. A big staircase leads people to go up to the street and the district. This square and the bank are the front door for this district, pulling the passenger out of the water bus into the new urban area and offering a walk to the train station. The form of the bank and the marina refers to the bank type of the Hai River, which already accommodates boats.



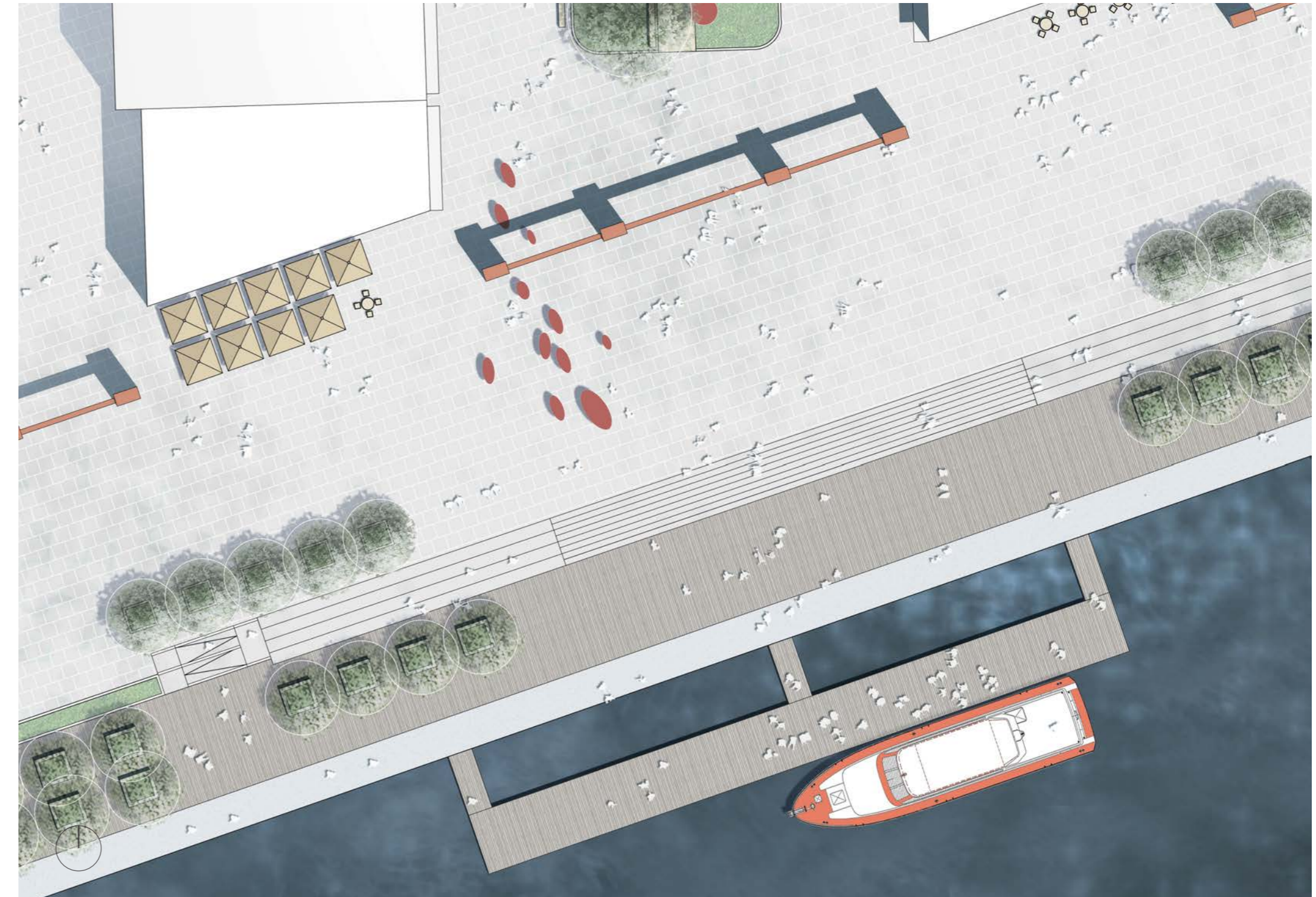
▲ Fig. 72: Local patterns adapted for the design



▲ Fig. 73: Axonometric view of detail area 2



▲ Fig. 74: Perspective of detail area 2



▶ Fig. 75: Map of detail area 2

URBANIZATION AND LOCALITY ALONG THE GRAND CANAL OF CHINA (Proposal for site B)

By Siyu Lin

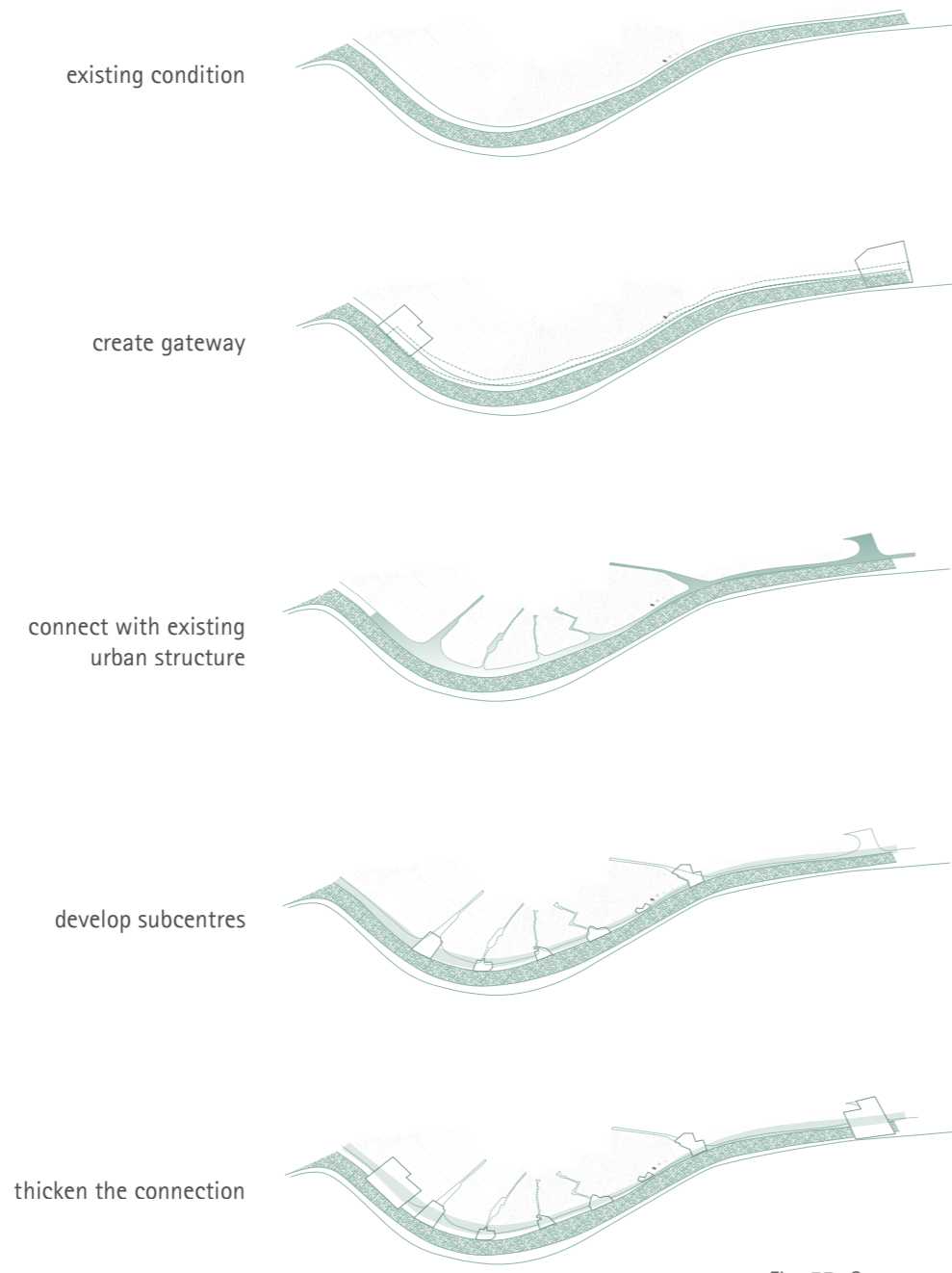
This master thesis addresses the dynamic process of locality and adapts it to the design proposal.

The project site is integrated into the existing urban and water context and local characteristics from existing structures are taken advantage of and were used within the design process. Additional issues are also combined with local characteristics, such as stormwater management or a shared space concept for the streets.

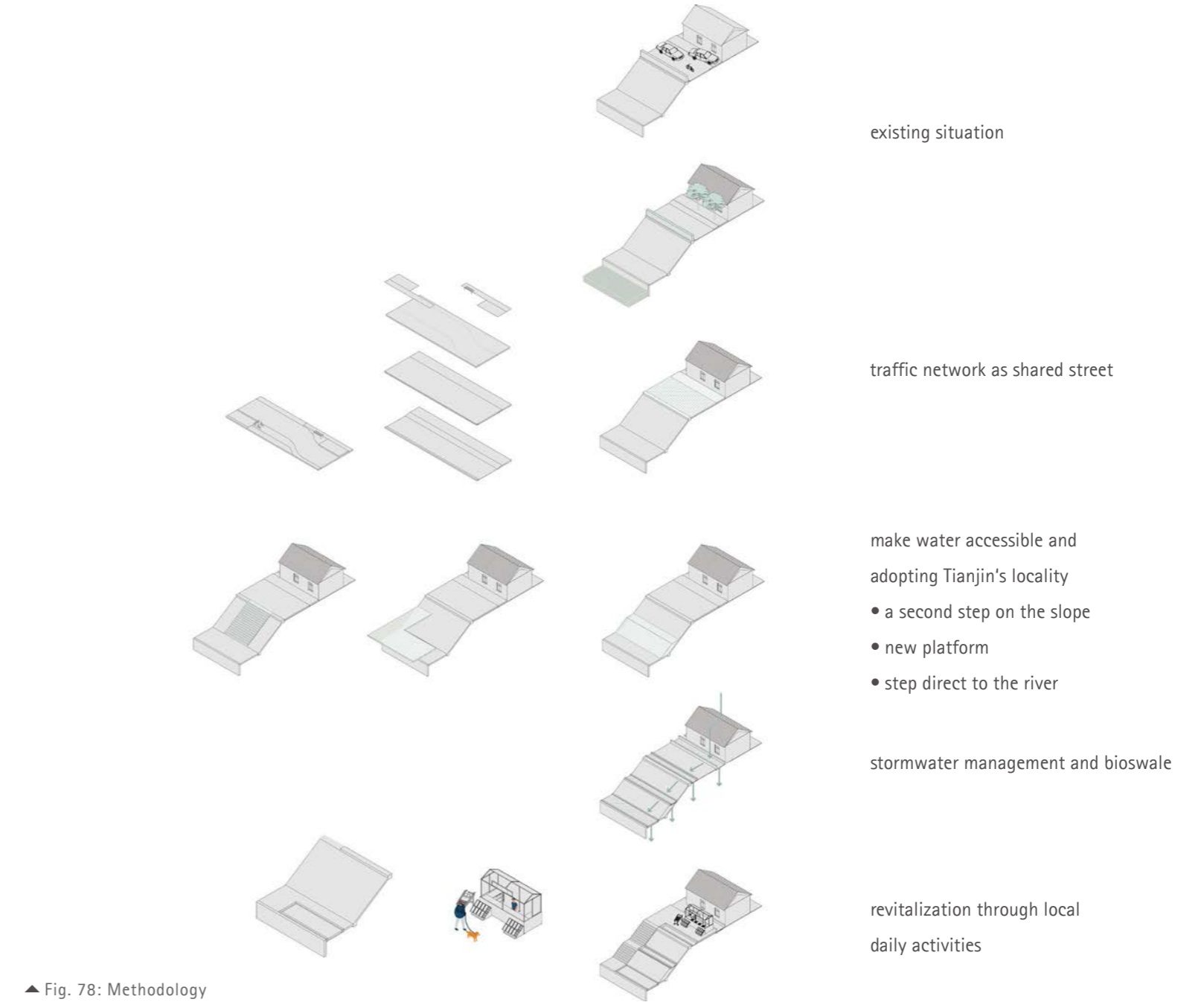
Through strengthening and adopting local patterns, the people of Tianjin should be able to recognize the Grand Canal once again. Various activities are encouraged and take place in the multifunctional waterfront open space. As a result, locality, which has disappeared in times of the rapid urbanization, is revitalized by people's activities in the public open spaces.



▲ Fig. 76: Masterplan

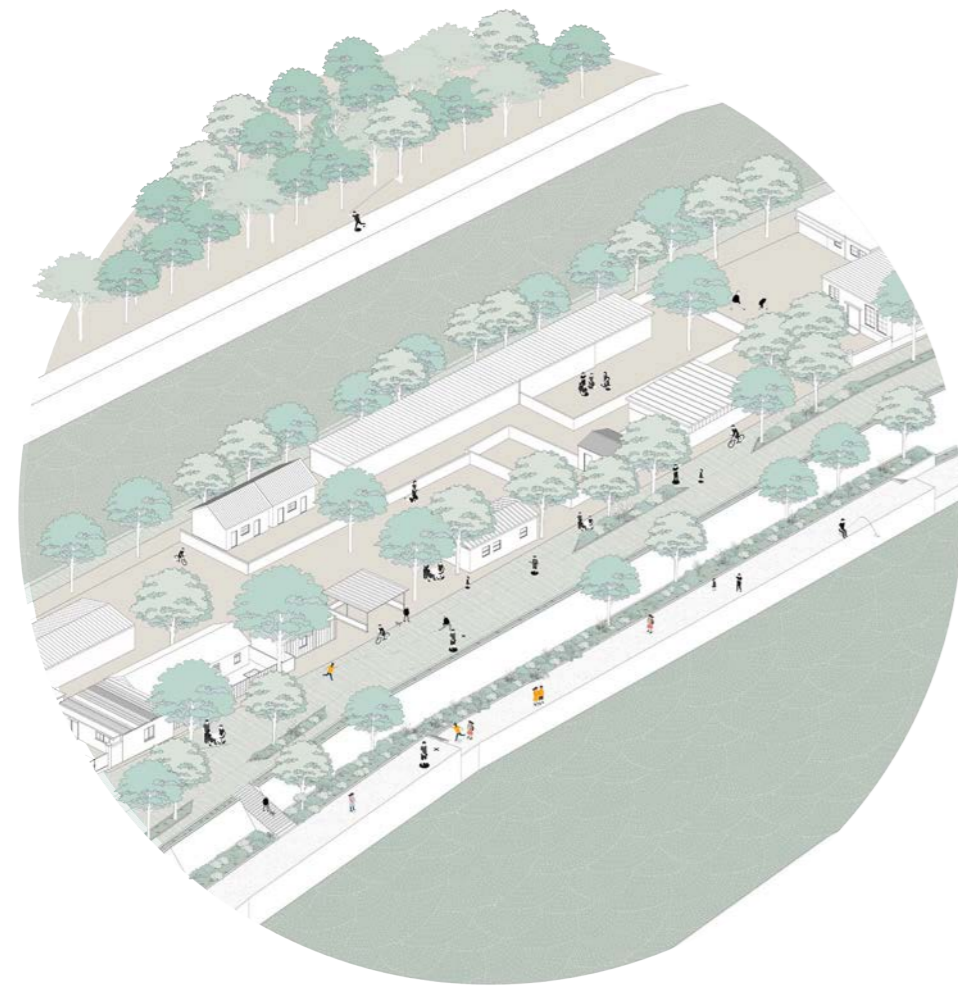


▲ Fig. 77: Concept

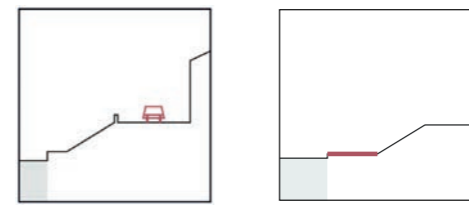
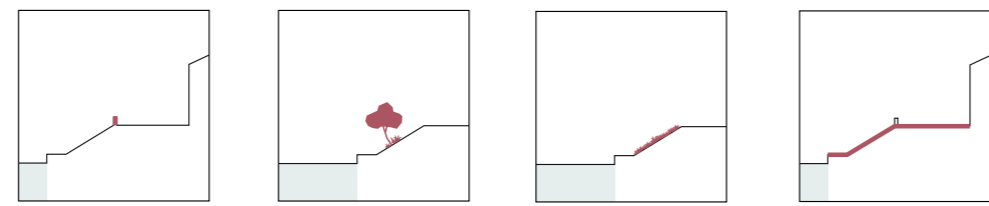


▲ Fig. 78: Methodology

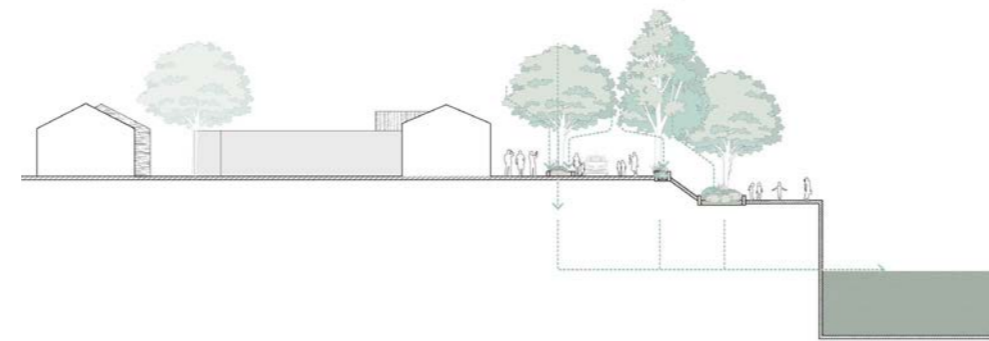
DETAIL 1



▲ Fig. 80: Axonometric view of detail area 1

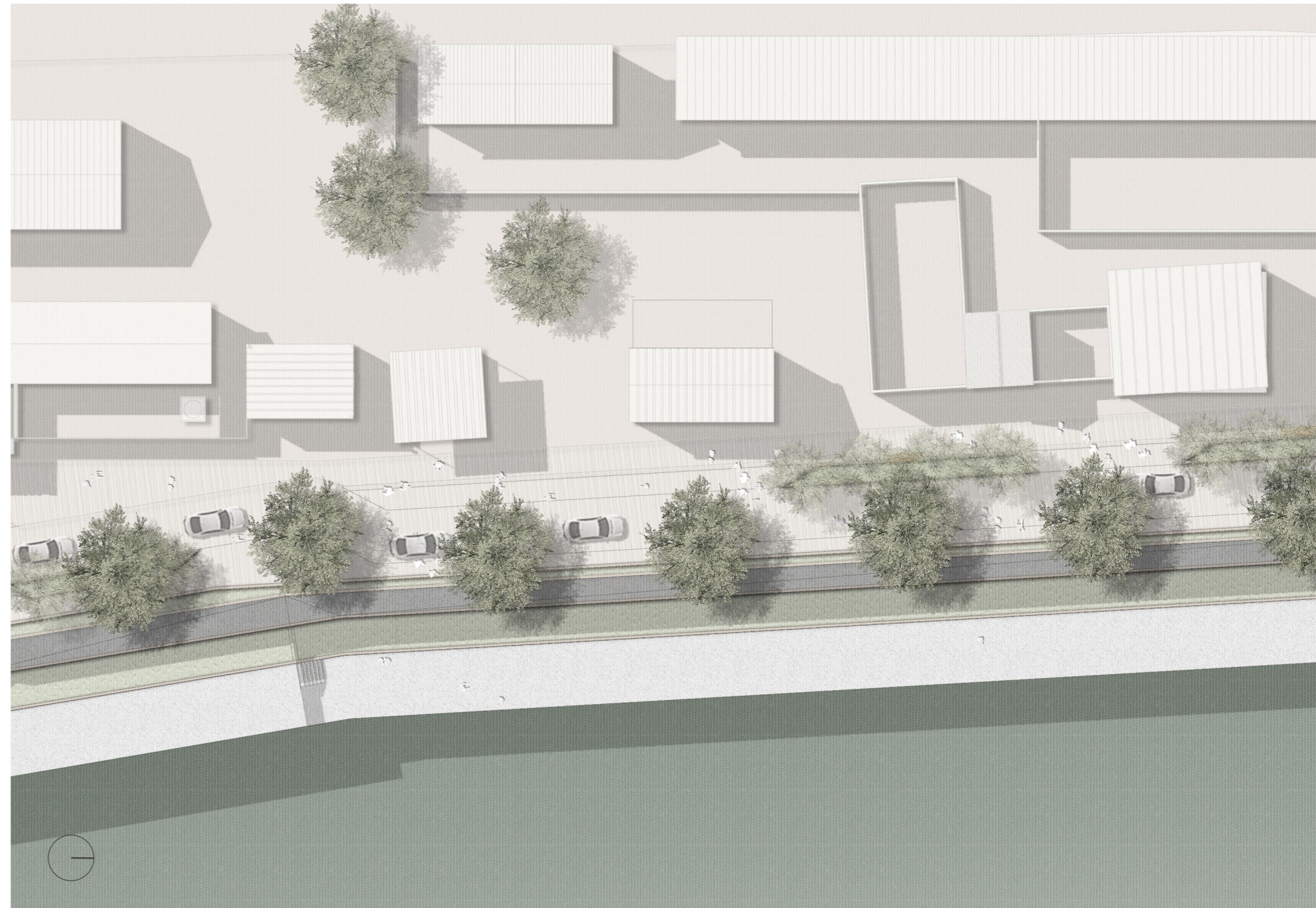


▲ Fig. 79: Local patterns adapted for the design



▲ Fig. 81: Section of detail area 1

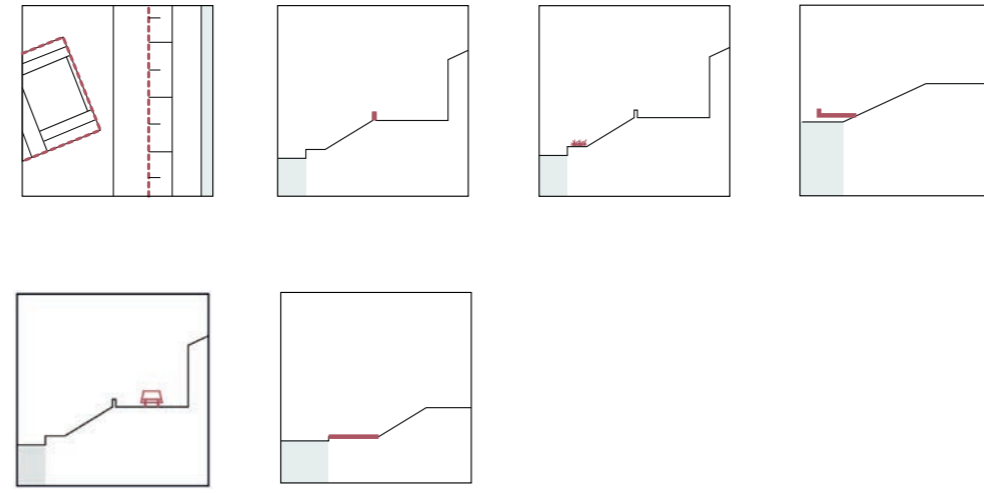
▶ Fig. 82: Map of detail area 1



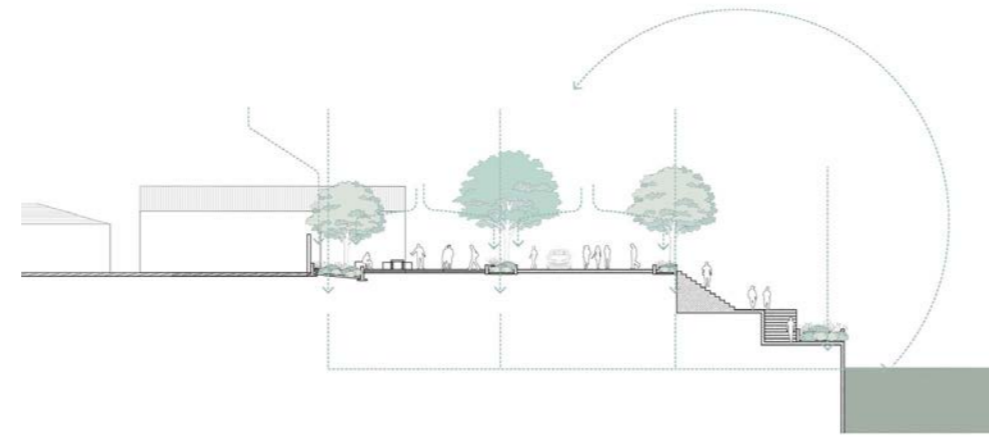
DETAIL 2



▲ Fig. 84: Axonometric view of detail area 2

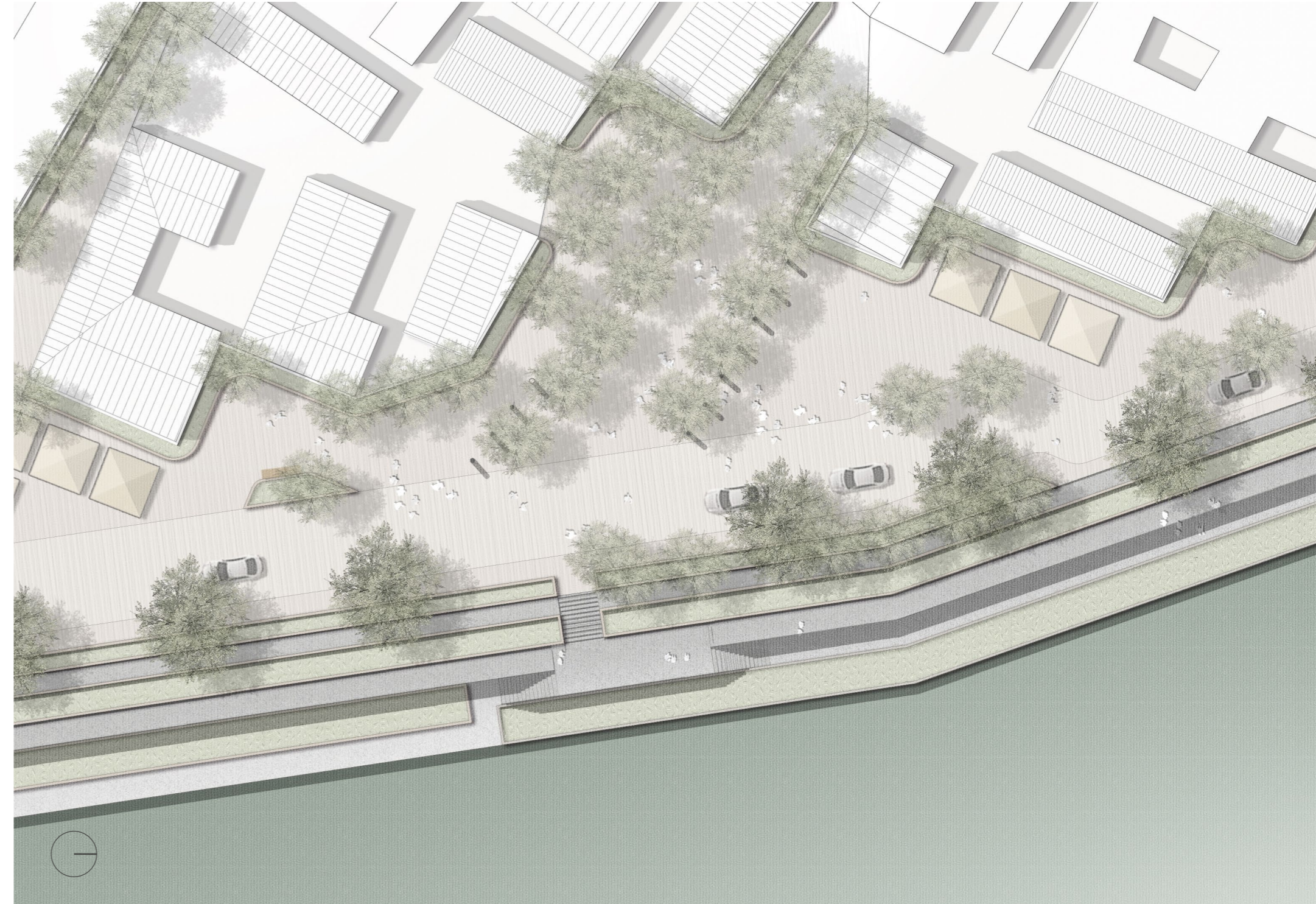


▲ Fig. 83: Local patterns adapted for the design

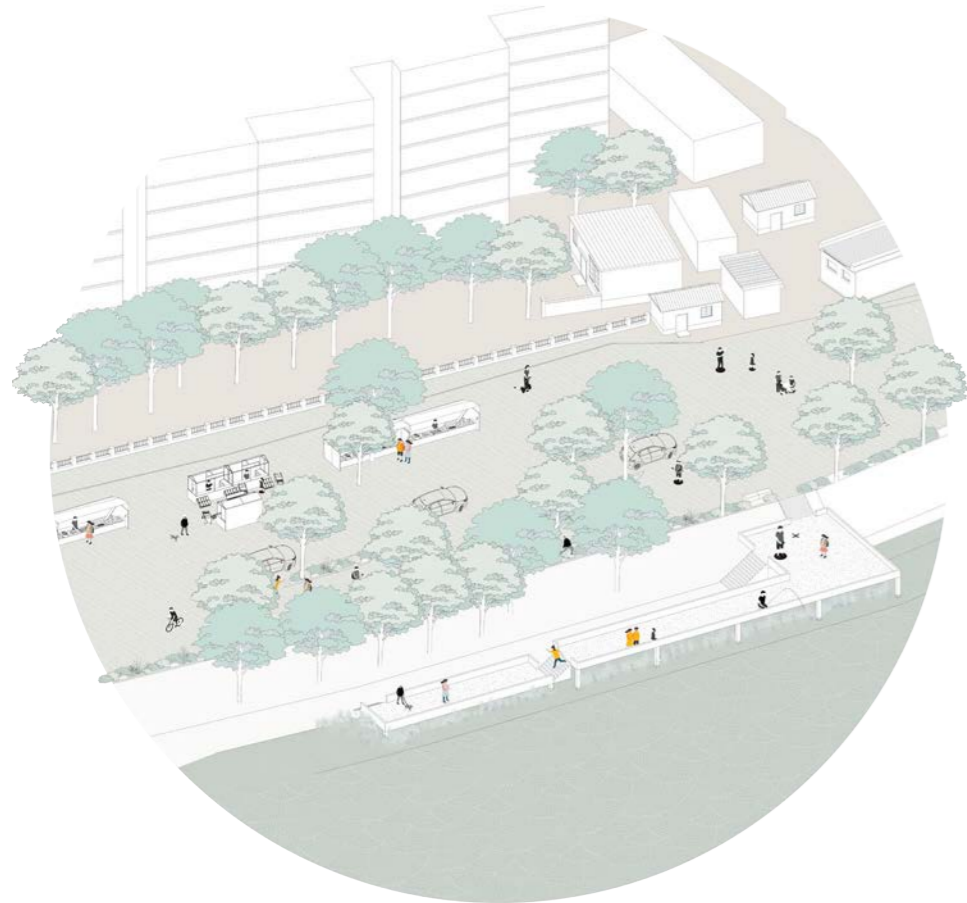


▲ Fig. 85: Section of detail area 2

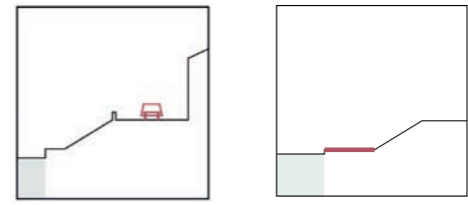
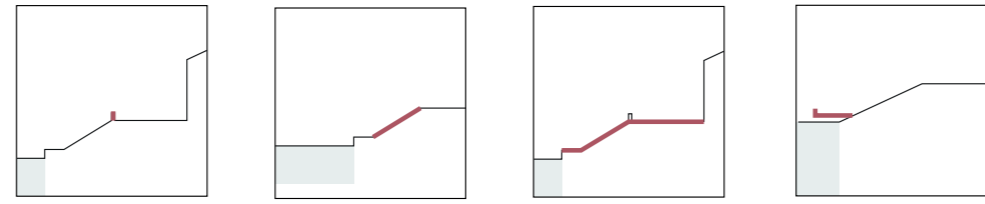
▶ Fig. 86: Map of detail area 2



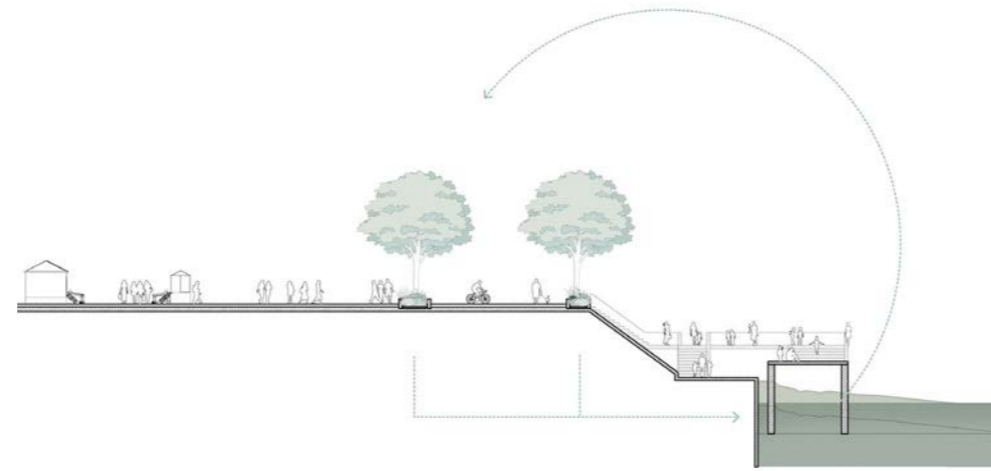
DETAIL 3



▲ Fig. 88: Axonometric view of detail area 3



▲ Fig. 87: Local patterns adapted for the design



▲ Fig. 89: Section of detail area 3

▶ Fig. 90: Map of detail area 3

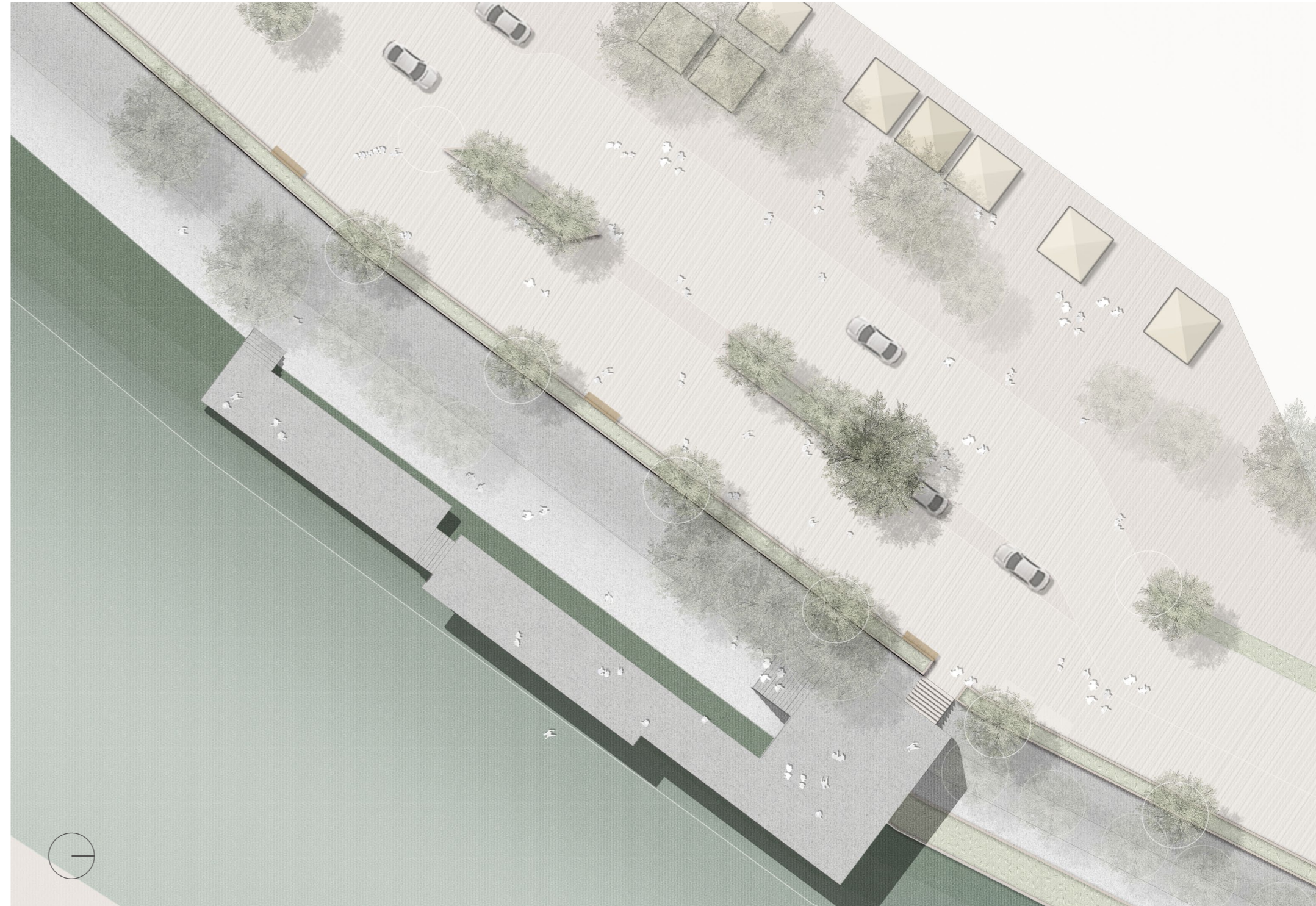


TABLE OF FIGURES

All figures except the following are made by the project group.

Fig. 3: Drawing by project group, based on: Hassenpflug, Dieter. 2009; Ipsen, Detlev. 2004;

Huang, Youqin, und Low, Setha M.. 2008; Münch, Barbara. 2004.

Fig. 5: Xi 2012: 31

Fig. 6: Xi 2012: 32

Fig. 7: Xi 2012: 32

Fig. 8: Xi 2012: 32

Fig. 9: Xi 2012: 32

Fig. 9: Foto taken in Tianjin, October 2016

Fig. 11: TMBPHR 2004: 19

Fig. 12: TMBPHR 2004: 29

Fig. 13: TMBPHR 2004: 79

Fig. 14: Tianjin Municipal Bureau of Planning天津市规划局. 2005. Accessed on March 2,

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Fig. 15: Army Map Service, U.S. Army 1945. Accessed on March 2, 2017. [https://upload.wiki-](https://upload.wiki-media.org/wikipedia/commons/2/24/Karte_der_Konzessionsgebiete_in_Tientsin.jpg)

[media.org/wikipedia/commons/2/24/Karte_der_Konzessionsgebiete_in_Tientsin.jpg](https://upload.wiki-media.org/wikipedia/commons/2/24/Karte_der_Konzessionsgebiete_in_Tientsin.jpg)

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