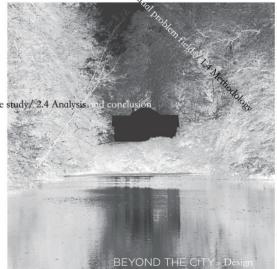
FROM THE CITY INTO THE CITY BEYOND THE CITY

Integrating the historical country estate into the Arnhem city as key components of an urban green structure

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INTO THE CITY - Research and analysis 2.1 Typology study/ 2.2 Site study/ 2.3 Case study/ 2.4 Analysis



3.1 A new Arnhem/ 3.2 Sonsbeek Trilogy



FROM

THE CITY

INTRODUCTION

I.I FASCINATION

between urban heritage with new-developed urban area -the discussion between past and future, is always an inte me. The location, position, attention and many other characters these cases, but no matter what, they are usually not built to adapt





spaces (Chang.T.C, Milne.S, Fallon.D, Pohlmann.C, 1996). Therefore, how to turn contradictions into opportunities is what we need to focus on.

The initial assignment of this project comes from the recreational and co-using demands of the historical country estates owners in Arnhem, Gelderland. But is this the true issue of these estates? What is hiding behind this demand? What makes the owners felt wrong? Do these estates integrate well with the newly developed urban environment? What are the positions of these estates in Arnhem city today? Since most of the country estates were located outside the city but had now surrounded by the urban area, what kind of contradictions and problems will be produced? And most importantly, what can I do for them?

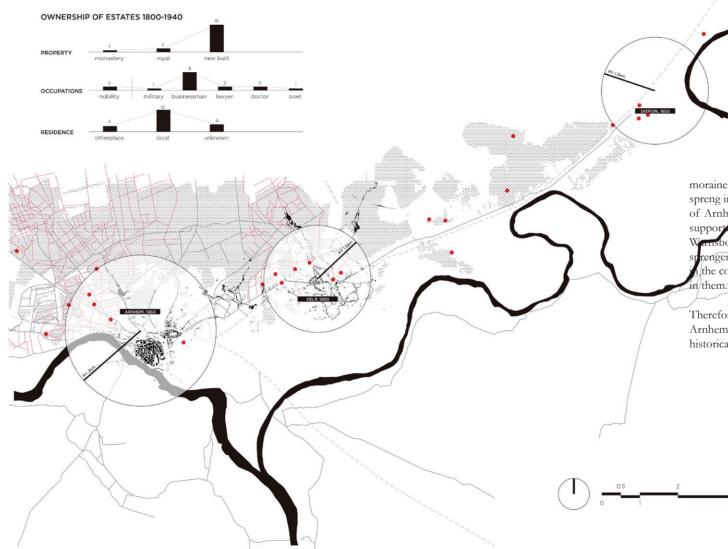
This is where I started

I.II BACKGROUND

Arnhem is an ancient city located in Gelderland province of the Netherlands. It has the Veluwe mountain terrain at the north and the Ijssel-Rijn river plain at the south. The mountain terrain in Veluwe we can see today is a typical moraine landform formed by crustal movement and wind erosion started from the ice age. Arnhem is located in the large sand plain which was created at the front of the ice by sediment from the melt water. The sand soil formed by moraine movement and the river clay soil formed by the river movement together determined the historical land use in Arnhem area. Such geological features are even visible in today from existing ditch patterns on the maps. (figure) The area with more wet soil on the map was always the agriculture land in history. It is also where the most historical country estates in Arnhem is located.

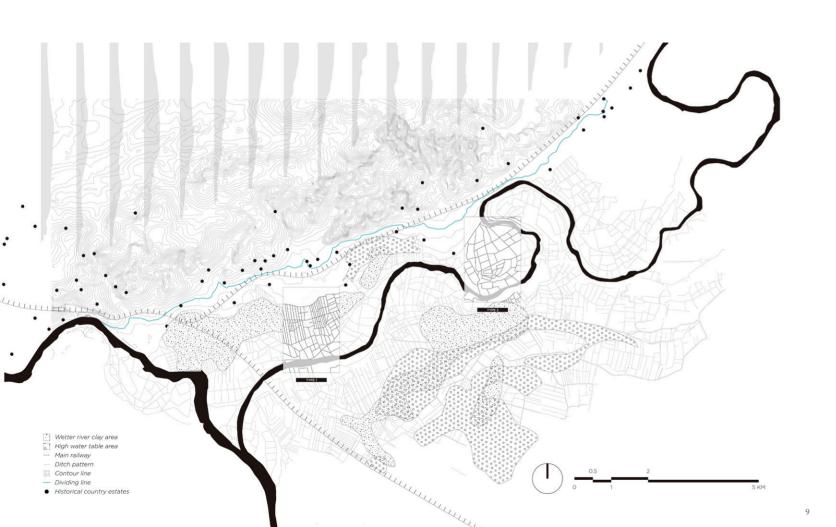
The historical country estates can be divided into different construction periods and were belong to different owners with different functional emphasis (figure). The estates in Arnhem city (Sonsbeek, Zypendaal, Warnsborn, Presikhaaf, Angerenstein, Klarenbeek and Bronbeek) were mostly built after year 1800, and used to be the properties owned by the new elite class at that time, built for escaping the noise of the city and getting closer to the Veluwe area for the nature and Arcadian life experience. Therefore, most of them are located at the north part of the city, in between the Veluwe and the old city area.

Another important landform feature of Arnhem are the sprengen. The sprengen are artificial streams formed in the early time. In the early days of Arnhem construction, people excavated the underground water from the



moraine o make it flow southward along the terrain, forming the oldest spreng in the city. These sprengens did not only support the development of Arnher by feeding the paper mills and brick factories, but also supported the survival of historical country estates. Sonsbeek, Zypendaal, Wansborn, Angerenstein and Bronbeek are all located nearby the sprengen. They did not only provide the daily needs of the agriculture life in the country estates, but also formed the beautiful and iconic landscapes

Therefore, the sprengen system forms the original urban structure of Arnhem. It is also the basis of the new green structure I designed. The historical country estates will have a deep connection with this green

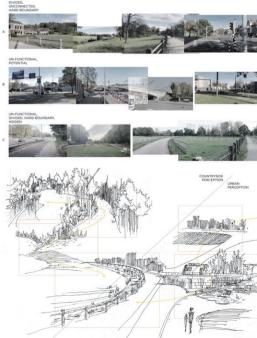


I.III INITIAL PROBBLEM FIELD

The initial assignment present the recreational demands form the estates owners. The government and the organization who is maintaining these estates required a more collaborative-used estate scenario, from which they could benefit more financial income, to support the increasing maintenance costs. What I can read from this assignment is their confusion about the estates' future. What is the future of these historical country estate? What roles can they play in Arnhem's future? There is no clear strategy for them. They felt the current situation is not good enough, but they could not find where the problem is.

However, this assignment itself is an intriguing contradiction. In fact, the historical country estate is already an important city attraction that can create tourism value and income. In the past, Arnhem has always used these estates as the cultural name cards of the city. If we pay attention to the current situation of these historical country estates, we may find that most of them are in a quite good maintenance state: the historical constructions have been well-restored, the landscapes have been carefully protected, and the new urban culture have been integrated (such as the Sonseek Art Exhibition). But why do the owners still think they are lacking of co-using and recreational functions? This is probably because the current presence of the historical country estate is still not strong enough. With the direction of this hypothesis, I conducted preliminary site research from the perspective of both historical country estates and the Arnhem city.

The conclusion is, the identity of historical country estate is weakened from the city nowadays. This is a result of multiple reasons – the problem cannot be simply attributed to either the estate or the city. From my study, I found both of the following urban issues have impact on this problem: the fragmentation and disconnection. The study about these issues would be described in the next chapter.

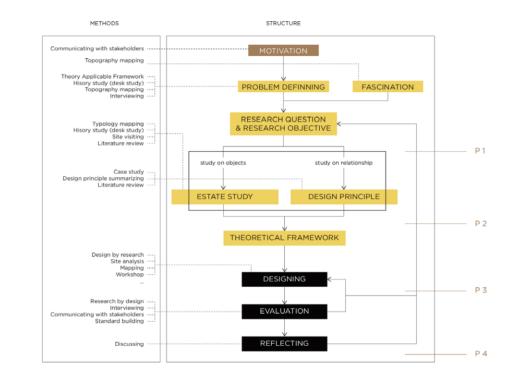


I.IV METHODOLOGY

I use the evaluation framework created by Carl Steinitz to guide my whole research-design process. It is a six-level framework that can help me keep testing whether the design strategy has achieved initial goal of assignment or not. With the 6 level inquiries, I can iteratively evaluate every step of my decision, from the problem analysis to the final design direction. This research logic is the basic reason that I turn the demands from assignment, which is only the recreational demands of the estates, into 'studying the relationship between estates and the city'. The demands from the assignment is only a superficial issue, the connection issue between estates and city is the real issue hiding behind. By solving this issue, we can bring the estates to a next level perspective.

(figure, whole research-design process structure)

During the research, I use the Kaplans' preference matrix and Halprin's experience score to study the current experience of the estates and city. It helps me to disassemble the complete experience into



METHODOLOGY STRUCTURE AND TIME SCHEDULE

measurable variables, and then evaluate the space quality. I also use typology mapping to study the relationship between estates. It helps me better understand the connection and lacking between each other.

The case studying is also runs through all the stages of the entire research and study process. How do these cases build a green structure in the city? How to enhance it? What influence would it bring to the city? What roles are they playing in the city? To answer these questions, I studied several urban planning cases in London, Netherland and Belgium

RESEARCH AND ANALYSIS

II.I TYPOLOGY STUDY

From my opinion, a basic study from general perspective to all the Gelderland historical country estates is needed before I focused on the study of Arnhem estates. Is there any common character between them? Are they connected to each other from some perspective? Which kind of these estates does the Arnhem estates belong to?

INTO THE CITY After a brief summarize, I found I can make 4 typologies of these estates. (figure) The four profiles are:

- The historical country estates with its buildings/ castle/ construction are disappeared – they have transformed into a part of city

- The historical country estates which are well reconstructed, restored, welly maintained or protected – they still kept the independence

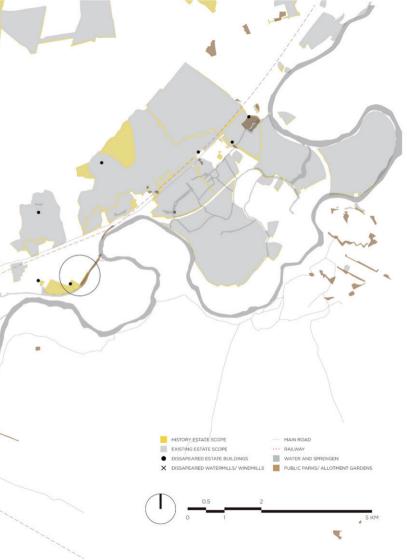
- The historical country estates which are closed or connected to urban greens, including parks, agriculture lands, allotment gardens

- The historical country estates which are strongly connected with the urban water systems

Interestingly, if we overlap these four maps, we could found the historical country estates have deepest color – which means they belong to most of these four types. It also means they have very strong relationship with the city. (figure $\Box \Box \Box$)

For example, the Sonsbeek and Zpydendaal used to be a much larger area in the history. Some part of them have transformed into urban residential areas nowadays. The existing part of them are well protected, restored and maintained, but also serve as urban park and open to the public. They are also





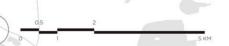




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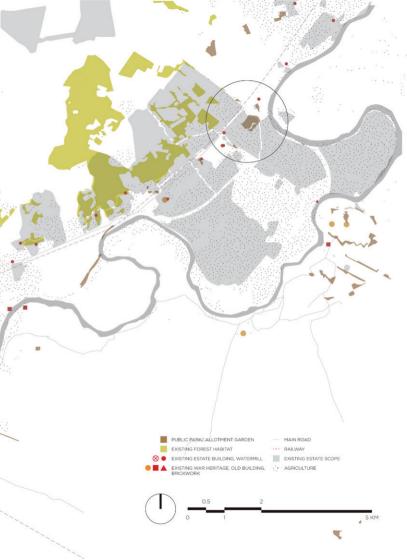
V





Estates connected with public green spaces have high potential to be integrated with urban area.

xisting and connected with public green spaces/ forest habitats



connected to the Veluwe habitat and also the sprengen system. The same situation happened to Presikaaf, except the estate building is no longer existing.

In order to evaluate my idea of building a green structure, the relationship between the estates is also been studied. Generally, there isn't much stable or strong connection between all Gelderland estates because of the distance between their locations. However, the estates in Arnhem still have connections. All the estates in Arnhem are belong to three sprengen systems. The sprengen are connected with underground water network and surface water. This feature made me consider the vertical sprengen structure as an important part of the large green structure in design process. They constitute the most important vertical connection in this structure. (figure DDD)

WATER SPRENGEN

HISTORICAL LANDFILL

DISSAPEARED WATERMILL

WATERCAPTURE AREA

EXISTING ESTATE BUILDING, WATERMI

RAILWAY

EXISTING ESTATE SCOPE

- DROUGHT SPRENGEN/ WATER

UNDERGROUND WATER USING AREA

Estate with strong connection with water could be cons as functional spots for ijsselriver water system.

Existing and connected with water network

II.II SITE STUDY

As mentioned above, the research is both focused on the historical country estates themselves and also the Arnhem city. Because as important urban heritage, the historical country estates in Arnhem have strong connection with the city. If there is a something happening on the estates, it won't be able to happen without the impact of the city. With such thinking, I visited the Sonsbeek, Zypendaal, Klarenbeek, Presikaaf, the area surrounded these estates, and also the old and new developed city area. During the site visiting, I found the identity of historical country estates is not as strong as the city advertises - or as I imagined from the desk researches. Interestingly, it is not because I had any bad experience in the estates, but is because I can rarely feel the estate's existence in the city. The reason that caused this situation, does not exist inside the historical country estates, but outside of them.

II.II.I Problem field from estates' perspective: The fragmentation and the weakened identity

With the expansion and development of Arnhem, the former agricultural land and the country side were annexed by the city. It means that the historical country estates also became a part of the city and no longer located in the 'country' anymore. They are now surrounded by the residential areas and the infrastructure networks, showing a complete difference from the past. The most obvious phenomenon caused by this change is that the position of the historical country estates in the city has become ambiguous and uncertain. This uncertainty is also weakening the identity of the estates and the related urban culture.

The relationship between the city and the historical country estate used to be more clear than it is now. It is because the estates used to be located in the countryside and far away from the city. When people are going there, they leave the urban area and reach these Arcadian landscapes by crossing the countryside landscape. However, although the estates still keep a different landscape from urban area, they are no longer located in the place that has the same landscape quality as they have. Ironically, although they are no longer rural landscapes, they are also incompatible with urban landscapes. Even if they are now located in the urban area, some of them still looks like they are located at the city boundary because of the fragmentation caused by the infrastructure networks.



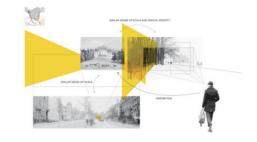


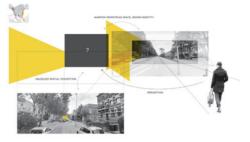
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The fragmentation also cut the connection between the estates themselves. This barrier not only exists in space, but also affects people's cognition. People in the city could no longer perceive a strong historical country estate culture anymore. As the most important recreational destinations in the city, the historical country estates have discretely formed some clusters in the city. But they did not work as a whole.

For example, when I was in the old Arnhem area, I would never know that there is also a garden-city area at the east side of the city. It is not only because of the far distance, but also because of the lack of experience connection. When people are walking in the city center, they cannot find any reason to go to the east. It is because they would never know it is possible to reach there, and also they can't recognize anything of the east side from the city center. The weird thing is, this shouldn't happen – the historical road structure is still there. The most ancient road Ketelstraat, Steenstraat and the Velperweg used to form the old city structure in the history. The Ketelstraat located in the old city area, the Steenstraat goes out of the old city and then become the Velperweg, connecting the old city area with the country estates in the east and the municipality of Velp nearby. For now, the Ketelstraat has become a commercial street full of old style architecture. The Steenstraat keeps the old Arnhem-style architecture. But the Velperweg is really different. The perception of the old Arnhem city just ends at the Steenstraat. The velperweg is a toatlly different new-built road. It still has old heritage buildings existing on its





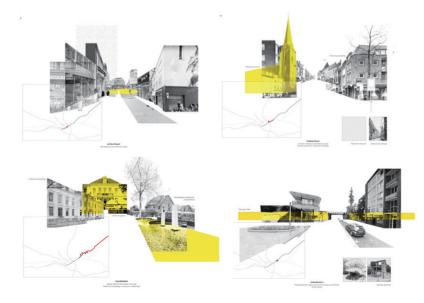
HOW TO PERCEIVE SONSBEEK FROM APELDOORNSWEG IN YEAR 1900

HOW TO PERCEIVE SONSBEEK FROM APELDOO



sides, but it has a larger scale and less density of the buildings. It also has new-built and large scaled buildings. At the end of Velperweg, the city have become a garden city type area. The residential areas are surrounded by parks, urban agriculture lands and also beautiful historical country estates. If the Steenstraat and Ketelstraat present the typical old Arnhem, the Velperweg then presents a different newly built Arnhem. Start from the Ketelstraat to the east end of Velperweg, the experience changing is: old – new – old. So, how can people recogize there is still an 'old 'area hiding behind the 'new' in between? How could the people in new-built city area recognize there are so many beautiful estates in the city?





II.II.II Problem field from city' perspective: The disconnection and the potentials

When I am studing the weakened estates' indentity, I also noticed that most of the issues are caused by caused by the mutual influence of the estate and the city. Therefore, I realized that the research for the urban issue is also nessasry.

There are disconnection problems in Arnhem city. The disconnection both happens on infrastructural and ecological networks.

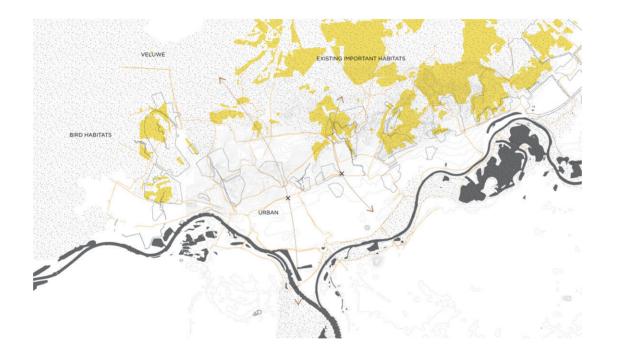
First, from the infrastructure perspective, there is no strong and attractive connection between the Arnhem city to the north Veluwe zone. The national park

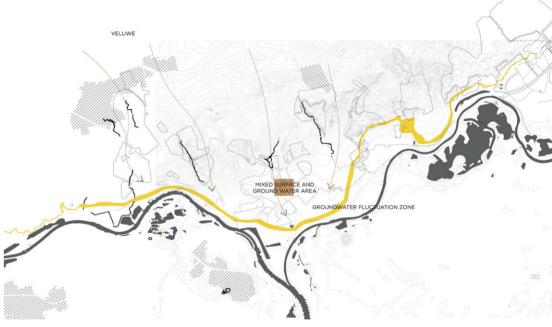
Veluwe is one of the most attractive recreation destination. Arnhem also often regards the Veluwe as an important component to enhance the attractiveness of the city to both tourists and citizen. However, there is lacking of a cyclefriendly route connecting the city and the north. North of Zpendaal, the road is designed to serve for vehicles instead of cicyling. When people are cycling to the north, they are passing by the beatiful historical country estate landscape, but they could not see it nor experience it.

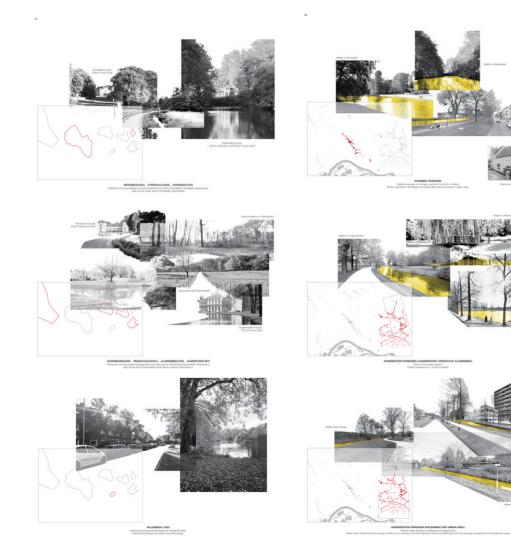
In history, Sonbeek, Zypendaal and Warnsborn used to be connected. Together they presented the Arcadian landscape at the north end of the city. But now they are separated. The great nature zone at the north in history, which was the combination of Sonsebeek, Zypendaal, Warnsborn and the whole Veluwe zone, was now divided by dewellings and infrastructure lines. Same situation also happened on other historical country estates. In the past some of them were existing as Arcadian landscape clusters, but now they are mostly divided by the streets, railways and highways. Because of the infrastructure lines, some spaces near them also become unattractive, abandoned or desolate.

The disconnection also happens on the ecological network. The habitats in Veluwe zoom cotinues to the south, end in Zypendaal, Sonbeek and Klarenbeek area. There are only few green spaces in Arnhem city could be seen as habitats. Therefore, the habitats are divided by the Arnhem city between Veluwe and the river plain. Although there are quite a lot of greens in the city area, most of them are only simple lawns which do not have enough ecological and recrational values. However, some of the esates are located on the current habitat structure. With a better design strategy, they have great potential to be considered as a part of the eco-structure in the future. The green can be derived from them and penetrate into the urban space by adding coherence green space.

The historical country estates are more or less related the above urban issues. Therefore, it is reasonable to consider the estates from the urban design perspective. The estates have great potential to contribute on solving urban issues. From this point of view, I can find out the more important meaning of estate for cities in the future.







II.III CASE STUDY

As mentioned above, the research is both focused on the historical country The case study of Regent's Park in London provided me with a lot of reference throughout my design process. The idea of constructing the green structure is somewhat similar to the structure of the London park system.

The regents park system was formed by different time periods. The final structure was designed by two great designers John Nash and Terry Farrell. In the early 1800 years, the London city was known as a scattered city. The urban area was separated by the private estates and agriculture lands. In 1843, John Nash did the famous 'grand design' for the Regent's park requested by the noble class. Yet he did not only focus in the Regent's park area, but also built a new street connecting the park with the south urban area, which formed the initiate shape of this structure. In 1994, Terry Parrell make the structure more complete by considering the Hyde

park area and the St. James park as a part of this system. (figure)

Before the park system was established, the London was known as the 'scattered city'. The urban space has fragmentation issues. The major parks



'SCATTERED CITY' 1800



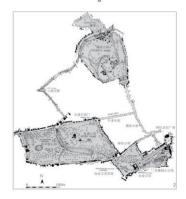
ARNHEM



LONDON



'GRAND DESIGN', JOHN NASH 1843



PARK SYSTEM, TERRY FAREL 1994

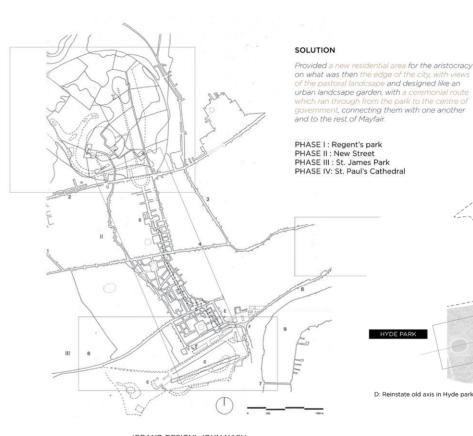
are only serving for the residents surround. It is a quite similar issue with the Arnhem city. Therefore, I think this case is valuable for reference.

Nash's grand design not only focused on the urban planning scale to make the connection, but also zoomed in the Regents park and improve the landscape there. Comparing with the other designer's option, Nash's design for Regents park didn't create a total new order for the park itself. The new plan was transformed from the topographic framework of the old park. He played with the ambiguity between 'seeing' and 'being seen', created new visual center and routes based on the old landscape framework. Almost all the new components were transformed from the old constructions. This design strategy was also used in my project in Sonsbeek zone. To keep the same landscape consequence in order to protect its identity, but make new stories on old memories. Not only that, Farrell is also a fan to this design strategy. At the south entrance of Regent's park, he recovered the old axis route to connect the regents park with new street. Such attempts can also be seen in his other design options in Greenwich park, in which he played a lot games about restoring historical axis for building new connections and stories. Together with Nash's design and Farrell's design,

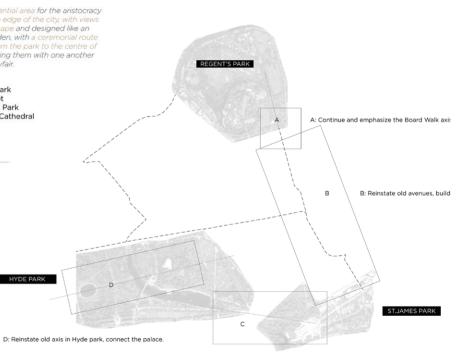
I summarized three main strategies they all used in their planning, which are:

- Form new landscape by transforming history topography inside the parks
- Build connections outside the parks (in urban area)
- Create more and more public realms

They implemented these strategies by some obviously spatial design approaches including. Building new promenades, reinstore history axis, build pedestrian friendly areas, build new visual center, develop water system, new story telling for old constructions, make new functional using for old components, build new visual directions, use coherence architectonic treatment, etc. No matter what, they all directed to a 'first top down planning, then implement to a precise and prudent spatial design' structure for the project. In my case, I use the same logic to process the design. The precise space design can only exist on the clear logic from urban perspective. Also, in both case we are all establishing connections for existing large green spaces. In the case of Regent's Park, most of the parks serve as recreational destinations. However, in my case, historical country estates are more than that.

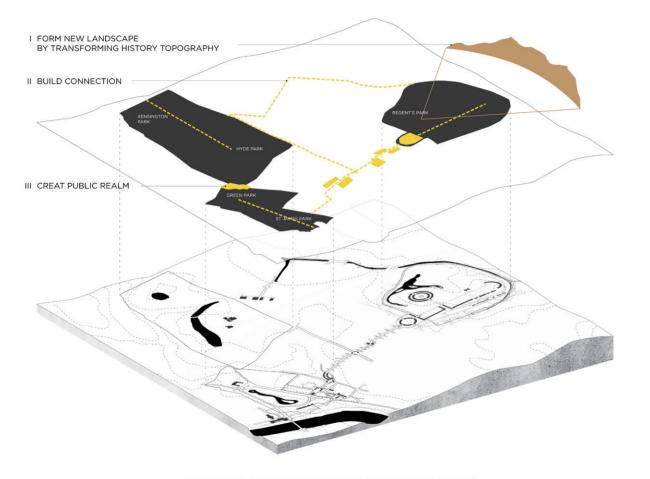


'GRAND DESIGN', JOHN NASH AIM: Develop a former royal game preserve.



C: Connect St. James park and Hyde Park, create pedastrian-friendly re

FARRELL'S PARK FRAME WROK



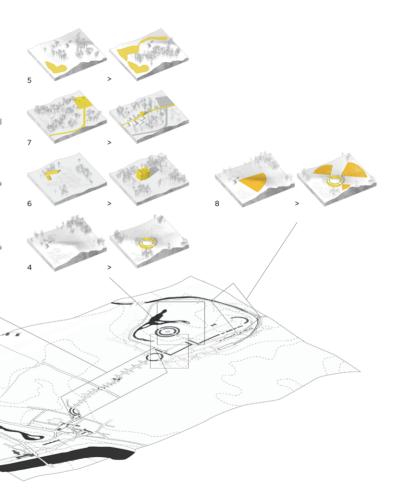
SUMMARIZED TOOL BOX

1. BUILD NEW PROMENADE 2. REINSTOATE HISTORY AXIS 3. BUILD PEDESTRIAN-FRIENDLY AREA 4. BUILD NEW VISUAL CENTER 5. DEVELOP WATERSYSTEM

7. NEW FUNCTION USING 8. BUILD NEW VISUAL DIRECTION

6. NEW STORY TELLING FOR OLD CONSTRUCTION

9. USE COHERENCE ARCHITECTONIC TREATMENT



II.IV ANALYSIS AND CONCLUSION

Now we come to our last question from the site study: why the identity of the historical country estates is weakened?

The perception of the identity of a space, comes directly from people's experience from this space. Therefore, the experience study is a powerful tool to analysis the space issue. I refer to Harplin's experience score to visualize the route from the center of Arnhem into Sonsbeek and finally to the northern section of Zypendaal. This route is exactly the same route from the old Arnhem area to the Sonsbeek estate. In this score, the variables evaluated include dynamic of space, light and shade, sound, fragrance, moment for staying and composed views. In the final diagram, it is clear to see 'rhythm' change in this route. From the conclusion of Halplin's score analysis, I found that:

- From the estates:

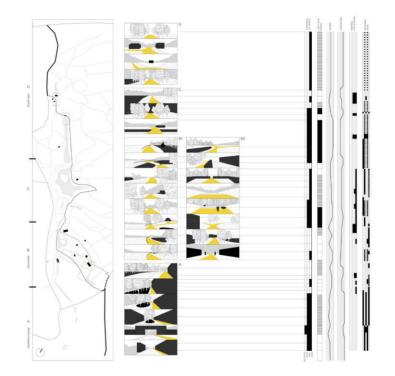
The experience in the estates are well-managed. It is mostly complete and full of the impression of the Arcadian landscape. It is also immersive. Although it is a totally different experience from outside, but it is not a problem.

- From the outside urban area:

It is a different experience from the estates (of course). From

one side, it is good for keeping the unique of the estates. But in the history, these estates located at the countryside. It means, the estates themselves and also the beautiful country side landscape they've located, together formed the traditional country estates perception. At the old time, people leave the urban area, cross the wide and open farmland, finally reach the estates. In other words, the experience of the country estates landscape has already begun when people are crossing the countryside, before they have reached the estates. People could perceive the existing of these estates not only from the countryside, but also from the urban area because of the formal, wide and eye-catching avenues which directly guides people out of the city. However, all of these experience and elements are no longer there. The urban area has no big issues in the spaces, it just lost the old spatial qualities.

Therefore, the answer of the last question is quite clear for me. People have great experience in the estates. There are also no big issues in the urban area. But there is a lacking between the estates and the urban area. There are no well-designed gradients, nor clever integrations. They are like fried eggs, the edge between egg yolk and egg white is way too clear. Of course, it is not a bad thing. But, if people can never notice the existing of the egg yolk when they are in the egg white, they would never notice that this is a whole egg. From my opinion, the appropriate scramble part is needed. If in some part we have a mix of egg white and egg yolk, people could easily reach the egg yolk from the egg white and also going



back to the egg white naturally. The scramble part needs to be carefully designed, to create both difference and coherence in experience. Therefore, the current primitive and hasty situation of the site not ideal. (figure $\Box \Box$)

This is starting point of my design. It is also the basic reason that most of my design happens at the connection parts between estates and urban, or between different featured urban areas. I am going to build a new experience to connect the estates and the city. I want to redesign or re-arrange the surprising experience and the coherence feeling. I want to make people easier to noticed the connection between estates and city. People do not need to recognize their existence from the tourist brochure, but can directly realize it from the space. Now, please follow my description, to experience the future of Arnhem and historical country estates in my vision.

The idea is to outline a clearer and stronger urban structure based on the current urban framework by enhance existing iconic urban element and add new story telling. I have always called it a green structure in the previous article, but in fact it not only includes the green space, but also includes the water system, infrastructure network and other urban elements. The historical country estates is undoubtedly one of the protagonists in this structure.

There are two goals for the urban design:

- From the city perspective: to make Arnhem a greener, more livable, more distinctive and development potential city, so it is more attractive to tourism, settlement and investment. (refers to the future plan from Arhem Government)

- From the historical country estates perspective: to make the estates more closely connect to the city. Not only to enhance their identity, but also make them serve the city from multiple perspectives.

It is a complete story includes the re-organizing of the urban structure, the ideally profile for specific urban areas, the precise space design actions for the core area, and the long-term development plan.

THE

BEYOND

CITY

DESIGN

III.I A NEW ARNHEM

To me, the urban structure of Arnhem is clear and strong enough. It has distinctive green, blue and infrastructure networks. However, in the past urbanization process, these urban contexts are gradually cannibalized.

The main road structure formed by Steenstraat, Keltelstraat and Velperweg is not only the most ancient road structure as mentioned above, but also the most important line to connect the old Arnhem city, new developed area and the west and east city areas. Therefore, I consider it as the main connection on the east-west direction. The public space transformed from the old city boundary, which I called 'the spine', is now locates in the middle of the old city area. It does not only links to the Sonsbeek zone and Veluwe zone in the north, but also links to the other side of Ijssel river plain. Therefore, I consider it as the main connection on the south-east direction. Also, if we see the three sprengen systems which flows from north to south as cores, there are three clusters surrounded them locate at the west, middle and east area of the city. The elements I mentioned in this paragraph, the Veluwe zone at the north and the Ijseel-Rijn river plain, together constituted my ideal green structure for Arnhem city. (figure)

There are three horizontal lines in the structure, which is the green line at the north, the urban context line in the middle and the river line at the south. Between the horizontal lines,



there are also three vertical lines goes across them, which are the sprengen lines. In these vertical sprengen lines and the surrounding historical country estates, agriculture lands, urban greens, surface water, road nets, public spaces, together connect the horizontal lines from ecological, water and recreational perspectives. Thus, the urban clusters from all the directions, the urban habitats and water systems, are all included and connected in this structure.

In order to connection, I proposed a series of design strategies to apply on different urban areas. They are all come from three perspectives: ecological, water and urban context:

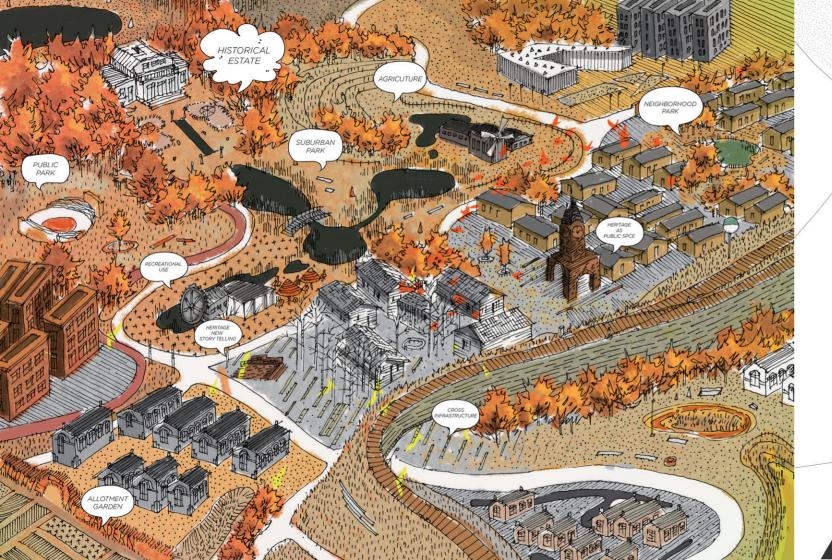
- To emphasize the urban heritage elements in order to enhance the history memory of the city (recreational)

- Establish different urban areas with distinctive characteristics (recreationa)

- Build more public spaces in the city (recreational)

- To create a more greener and more ecological living environment, restore the ecological elements from the history, such as water and green in the communities (recreational, ecology, water)

- Add green spaces with higher bio-diversity to connect the fragmented urban habitats (ecology)

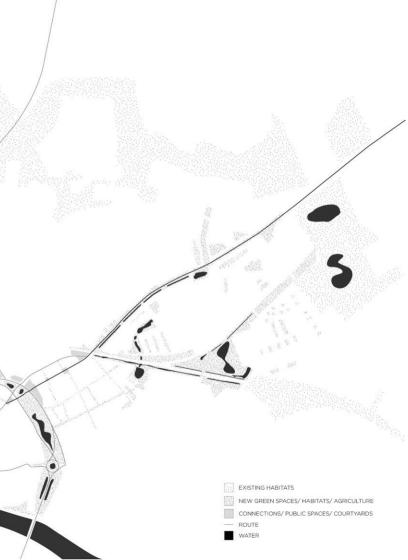


- Add more surface water area for a more resilience urban water system (water)

- Create more small water-from preed with entertainment functions (water, ecology, recreated al)

- Reorganize the infrastructure structure (recreational)

I applied the above strategies into different featured urban areas and finally come out with the following master plan. (figure) It can be understood form ecology, water and recreational perspective.



First, from ecology perspective, (figure) the habitat which continues from Veluwe to Sonsbeek oak forest now has been connected to the city due to the increased urban green spaces. The restored surface water in Molenbeek area and the re-greened abandoned land near infrastructure will together form a new large habitat node in the new developed urban area. More entertainment facilities would be designed in these water-front greens. In the past time, they were only unnoticed and fragmentized lawns in the city. In the future, they would become a green pearl surrounded by the green neighborhood. And this new green node, together with the green spaces established among the Velperweg, will create a habitat connection between the old city area and the east garden city area. In addition, more green courtyard will be added in the dwelling blocks in both old city and the newly developed city areas. All the above initiatives are aimed to make Arnhem become a city with more green, more livable environment and richer urban biodiversity.







From the water perspective, the current water system(figure) is overly dependent on the Angerenstein spregen. From the map we could find almost all the east city water system, which is a large and complicate water system, are all somehow dependent on this water sourse. It makes the whole water system becom vulnerable. If the Veluwe zone is facing a draught problem, the sprengens would be draught as well and affact the whole east city area. Therefore, I expand the water area in Angerenstein park and Presikhaaf park, transform the underground water flow to wider and larger suface watercourse, which connect the watersystem near the infrastructures. This action is for increasing the water storage capcacity and create more water habitats and waterfront parks. The Angereinstein water system, thus become an eco-friendly system and become able to entertain the residents surrounded. The Presikhaaf park area would also have water purification function for the system, because this is where the most surface water flows into the underground water system. The improvement does not only happens on this sprengen. For the Sonsbeek sprengen, the surface water will be restored for recovering the old sprengen connection. Therefore, the presence of sprengen culture could be enhanced in the city area. (figure)



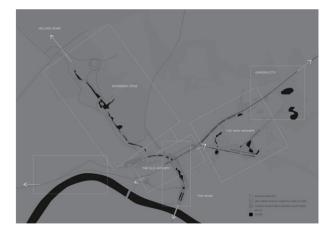
From the recreational prespective, the new structure brings a more clear urban context experience structure. The recreational structure could be divided into three themes. Each theme does not only have one single route, but are consist by multiple roads, spaces, routes and spots. (figure)

The blue color is the urban heritage experience. It starts from Kelterstraat in the old city area, directs to the north following the oldest road structure and ends at the east Arnhem. This expereince included the old city context from Kelterstraat and Keensstraat. Then it follows the Velpernweg to the east, together with the new created water landscape around Molenbeek area, provides a half old-half new urban landscape expeirence. At the end of this experience is the Presikhaaf, Bronbeek and Angerenstein area. It is the garden city area, in which the residental dwellings are surrounded by public greens and parks. In this route, more green and water space are restored. The idea is not only to enhance the infrastructure connection between east-west direction, but also build more green and blue connection between two sprengen systems.

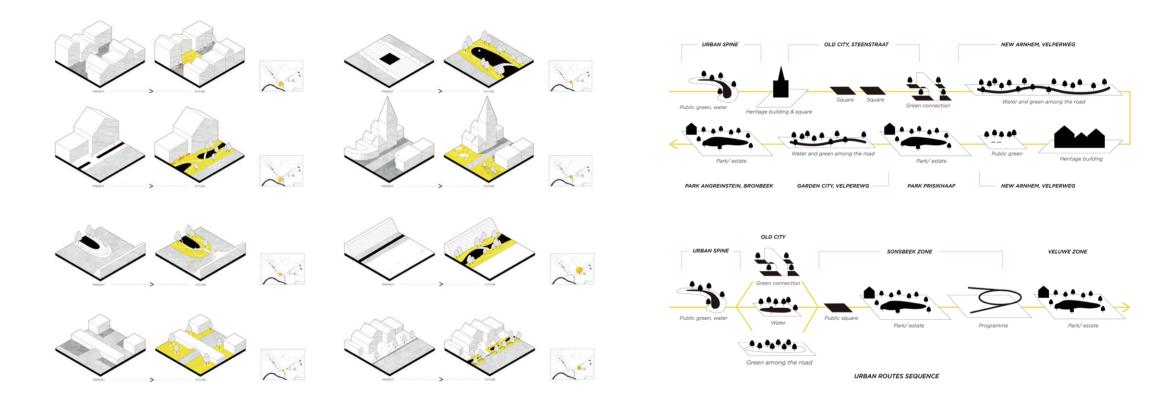
The brown color is the War heritage experience route. From the south old Arnhem area to the west and to the other river side, this route provide amount of war memories because of the war heritages, musuems and exhibitions.

The red color route shows the historical country estate and nature experience. It is the most important connection on

south-north direction. It connects the city area with the south river side, the Sonsbeek zone and the north Veluwe zone. On this route, more public green space are created, the historical sprengen is restored in the urban area, a new expeirence route which cross Sonsbeek and Zypendaal is created. The idea is to enhance the sprengen identity, and use it to provide the coherence percetion on this route.



The above three layers forms a more complete and divers urban structure. People can easily enter the green structure from anywhere of the city. The coherent public spcaes, greens and historical urban elements would help them to recognize the direction that this structure continues. Following the guidance of the green structure, they are able to experience the different featured city areas, to reach different historical country estates, to passby the beautiful newly built parks and green communities, to go to the other side of the Ijssel river and also to go to the Veluwe national park at the north. The green structure also provides more public recreatioanl spcae for the citizens who lives in the city, and a clearer and more distinctive expeirence logic for the visitors who comes from outside. As the most important green areas, the historical country estates do not only exist as important recreational destinations and part of the routes, but also provides strong connections on green and water. They connect the Ijssel-Rijn river with the sprengen system and urban water system. They also link the veluwe area to form a continued green zone surround the city, and become the starting points of the habitats that penetrates the city.



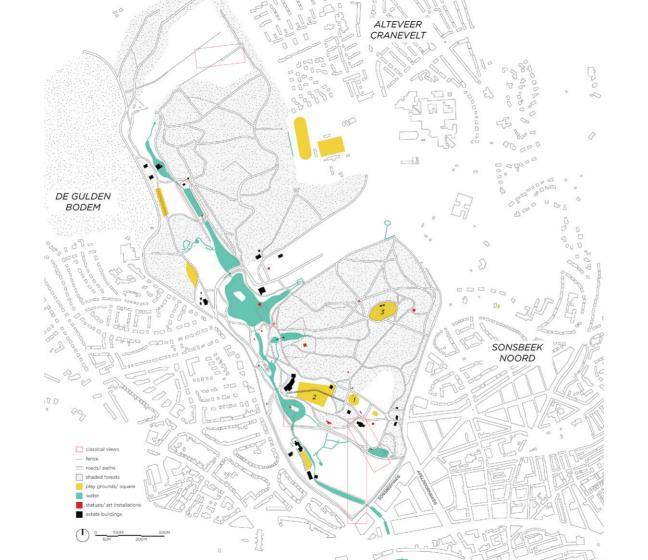
In the future, this structure with three vertical lines and three horizontal lines, will become the basic frame work for Arnhem's future development. It will provide a basic logic and rule for the urbanization. Among the horizontal lines, the green line at north and road structure line at the middle are all applied with design strategies in my design proposal. However, the south river line is still in a state to be revived. In addition, the sprengen system located at east is also lack of considering. Does anything need to happen between it and the Sonsbeek sprengen system? How does it connect to the north? These are all the questions worth considering in the future.

III.II SONSBEEK TRILOGY

After the urban desgining, I zoomed in different regoions to give more precise desgin strategeis for selected areas to show how to create such a green structure. Among them, the Sonbeek area is most focused. I offer an option to connect Sonsbeek with the north Veluwe area by creating a new route for ciclying and pedestrains. The landscape and spatial perception in Sonsbeek area would be expressed precisely, because this part of design is the epitome of my urban desgin concept.

The Sonsbeek and Zypdendaal are both well maintained and protected. They are now serving as urban parks. There is an art exhibition called Sonsbeek exhibition held in the park. The exhibition starts from World War II, and was expected to help Arnhem city to recover from the damage of the war by art culture. The art installations are scattered through out the park, either in the forest or by the water. The famous Sonsbeek sprengen origioned from park Zypendaa□ goes across the Sonsbeek park and finally flows to the urban area. Then it becomes the underground water and finally flows into the Ijssel river. It is the oldest sprengen, which supported the earlist industries in Arnhem such as paper mills and brick factories. It is thus a great city memory which worth to be restored.

To re-organize the circulation in Sonsbeek is important to my urban design because it locates on the main south-north



connection of the Green structure. For now, the Sonsbeek and Zypendaal looks like two pereals embeded on the urban context. They are shining, beautiful, but individual. They have very hard boundaries, divided from the city by the hedges and fenses. There is no gradient space between the estates and the city. When people are going to north from the old city area, they can only choose to go around outside the estates. (figure) In the other word, people can only bypassing them when they are cycling to the north instead of experience the landscape in estates. Because of the hard boundries, they could rarely see the scenery even the estates is on their side.

The experience analysis has also deepened my impression to the Sonsbeek – it is too isolated and the boundaries are too hard. Indeed, it is not a bad thing for a protected estates to be isolated from the urban area. But my question is, is it really necessary? From the analysis, the important experience can be summarised in two types in Sonsbeek. One is the classical and iconic view to the estate buildings. Another is to walking in the forest areas or inner estate areas and discovering the suprisely open spaces and art installations. From outside the estates, especially at the south corner of Sonsbeek, you could see the most classical and iconic arcadian landscape including the wide empty meadow and the beautiful white villa hidden in the trees. But for the people who wants get inside the estates, they enter from the entarnce at east or west.

From my study I found that actually people's deepest and closest ineraction with country estates most happens in the shaded forest areas. When people finished looking at the classical views from outside, they goes into the forest and follows the paths and the well designed landscape inside. That is the reason people always consider the country estates as an enclosed area. It is because the most experience happens in the places where you can not seen from outside – you would never noticed you are still located in the Arnhem city when you are visiting inside the estates. Shuttling through these forests you can find the ponds, the houses, the statues, the playgrounds, the botanical gardens. It is the richest expirence that the estate proveds. Although the views from outside at the south area are most famous and iconic, people actually have no interaction with the landscape. They can only see it from outside, and they won't stay there for long.

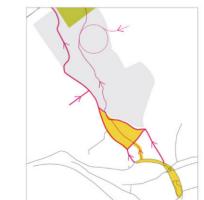
The expeirence in the forest area, from my opinion, is already well designed. It is a landscape formed by the

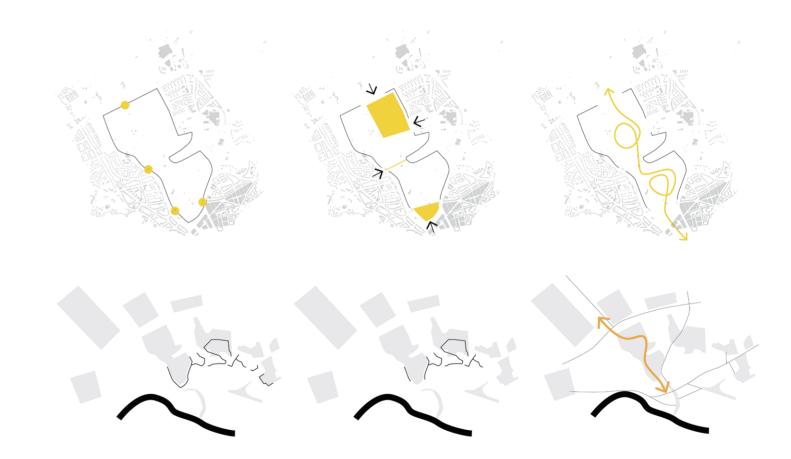
accumulation of time - the historical house, the new gardens, the old statues, the new art installations, are all in a harmony state from which I can't find any strong reason to redesign these areas.

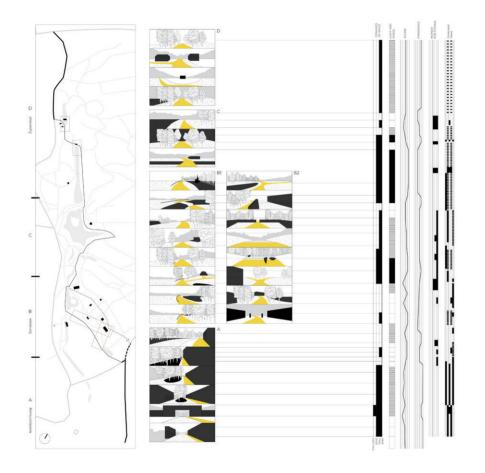
The following diagrams present my concept for the Sonsbeek zone. (diagram) The idea is same with my large urban planning, which is focus on building connection between south and north. For now, the esates is an enclosed and isolated whole. People can either go into the estaets to get away from the urban area, or they just bypassing. For the poeple going to north, they use the red route on the left diagram, which has totally no interaction with the historical country estates. It is definitly not a bad thing, because the enclosed and isolated estates can therefore keep their identity from urban area. But from my above analysis, not all areas need to be isolated by fense or hard boundary. The shaded forest and water area which presents the most of the estate expeirence, could still be isolated and protected to keep its identity. But the area at south and north, they could have more interaction with people and could have a more close relationship with the city. It is because for now they are only acting as a view point, which means people can not never into the landscape and have no interaction with it. They are not able to be participate in it, they can only see it from outside of the fence, which is unnessasry.

So with the new concept, which is the diagram on the right, when people are going to the north, they could cross the area with yellow color. They can still choose to bypassing the esataes, but they could also choose to go through it to the north. No matter which choice, they would always be able to get closer to the estates. Even the visitors are









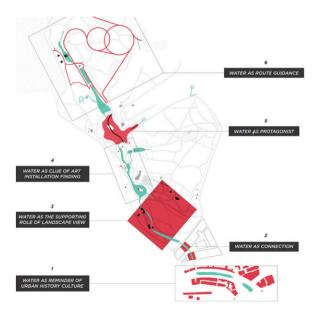
EXPERIENCE ANAYLSIS

not totally go deep into the Sonsbeek park, they could still have the chance to experience a part of its beautiful landscape. The same logic happens at the north Zypendaal area. New stories can happens there in order to create a better connection between the park and the surrounding urban areas.

In the past time, Sonsbeek and Zypendaal are the properties of nobility. They represented the wealth and power, so they presents an under-control arcadian landscape. It is why they are isolated in the history, because the people can not touch it. But now the Arnhem is a city with equal rights and freedom. It is a city reborn from the war, full of culture and art. Therefore, I think it is the time for Sonsbeek to present the interaction between people and the landscape. It should be an energetic public space. Why not allow people to get into this landscape and become a part of this landscape itself? The following diagram present a senario of my answer for the Sonsbeek future. It shows what can be changed and what can be protected.(figure)

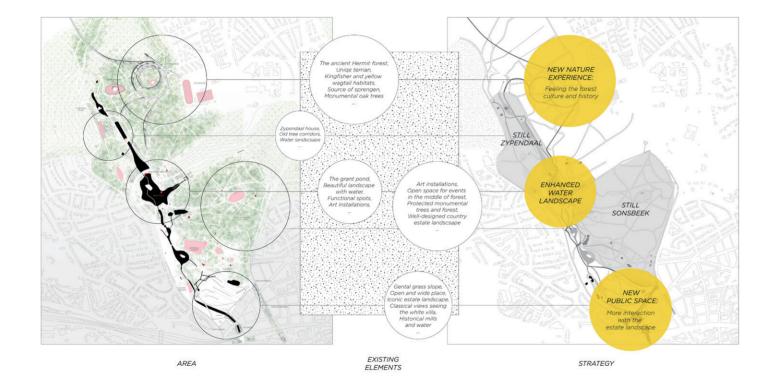
In my design, I do not only design for the inside estates area, but also the out side. I use water as the most important element along this route, because the Sonsbeek sprengen is one of the most unique and strong thing in the estate and also in history. (figure) In the history, people use this water as industry function. Nowdays, the water can play different roles in different location. First, in the urban spine area, the water act as a reminder of the urban history.

Then At the single, water is used to build connection between spine and the Sonsbeek area. Third, at the south area of Sonsbeek, its an totally open area. The water is the supporting role of the arcadian landscape view here. Then direct to the north, in this area almost all the art installation are related to water, so the water act as a clue for finding them. Then location five. There is a large pond here. The water is the most attractive view center. So I want to make the water act as protagonist here. The most interesting experience is based on this pond. Then at last, the water has strong directivity. It act as a kind of guidance, can direct people to the Zypendaal house or to the new facility I designed.



I named my design as 'the Sonsbeek trilogy'. It is because the design most happens on the three joint parts between Sonsbeek, Zypendaal and the urban area. I choose to maintain keep the exsiting situation and do no actions in the other areas in order to maintain the style of the estate to the greatest extent. The three joint parts are the south Sonsbeek agriculture land (and the entrance), the Grand pond between Sonsbeek and Zypendaal and the Hermit forest at Zpydendaal north. Although these three locations are all belong to sonsbeek park, they have completely different spatial characteristics and historical memories. Therefore, my design principle is to dig out more of their stories and to enhance the feature instead of creating too much new strong stories.



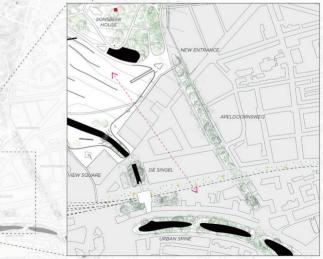




STRATEGY



Connect to east neighbourhood and north



Connect to south urban zone





The Sonsbeek State

The first act of the trilogy is Sonsbeek State, which locates at the south of Sonsbeek and is now the main way to enter the estate from the city. This is the first place people will see when they go to Sonsbeek. As the first act of the drama, I want it to be can be open, direct and attractive. I transform the Sonsbeekweg, which used to be a narrow motorway, into a pedestrain-only space to provide a larger public space for this area. It now has formed a hard-paving area including the small view squre at the south corner and the new entrance near Alpeldoornsweg. I keep the origional landscape terrain and vegetation here in order to keep the iconic classical view of the Sonsbeek from the history. A view frame is been add at the south corner to guide visitor's view. The direction of pavement is also been deisgned to give people some hints to walk and to watch into a proposed direction. Therefore, people can still see the same beautiful Arcadian landscape as it was in the history. To make a more open space here, I removed the fense at the boundary. However, I still want keep the wooden lines in the view, so I create sevral wooden strips with the same material inlaid on the slop following the terrain. The wooden strips can be used as low seats and also platforms for people's activities here such as picnicing. The entrance of Sonsbeek is also integraed here to recover the history expeirence on Alpeldoornsweg, so people can easier enter the estate from this historical avenue. The old gate is transformed into a secondary entrance by removing the gate construction. The same plan of the constructure is been designed to be showed on the new entrance pavement to shout out to the history. The cycle path goes across this area, crossing the beautiful meadow slop and bypassing the sprengen. The singel at south are now connected to the Sonsbeek to create a more coherence perception of Sonsbeek sprengen. When people arrived this area by following 'the spine' are, they could see the historical Arcadian landscape, the open publica space and big meadow slope, the coherence water way direct to the north and the new entrance square near them. They could either choose to get into the landscape directly from the open meadow and go into the estate from the new entrance square, or going to the north following the path across this area. No matter which choice they make, they would always be able to enjoy the great scenery here. (figure)

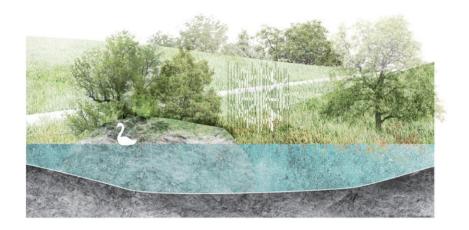






The Wave Path

The second act is the Wave Path, which locates at Grand pond area between Sonsbeek and Zypendaal. The idea is to create a more 'into landscape' route here for the connection. The Wave path is a floating bridge which allows people walk and cycle. The original route going to the north does not cross this area. The water landscape in Grand pond is gorgeous, but it was hidden by the dense plant hedge at the edge. Therefore, people can never see it when they cycling passby. This is why I come up with the idea to invite people to go into this water landscape. The surface of the floating bridge is lower than the water surface. It has a reflective mirror stainless steel edge. The direction of the bridge is also carefully designed. (figure) When people are looking at the pond from the view point at the shore, they would see a vaguely bridge line floating in the water instead of a big and obvious element destorying the scenery. In the sunny weather, the stainless steel edge will reflect the sonlight, creating a sparkling wave effect when the bridge is floating. At the end of this route, there used to located the Naberman watermill in the history, which is one of the oldest industry construction in Arnhem but has now dissapeared. I want to use a flexible design language to evoke the memory here. I designed an art installation constructed by thin transparency poles but filled in the right place to form an outline of the watermill shape. People can see this white watermill illustration from the view point at the other side of the pond same as in the history, but won't find a strong and solid construction when they get closer. People who comes from South Sonseek can cross the Wave path and then enter the Zypendaal area. (figure)





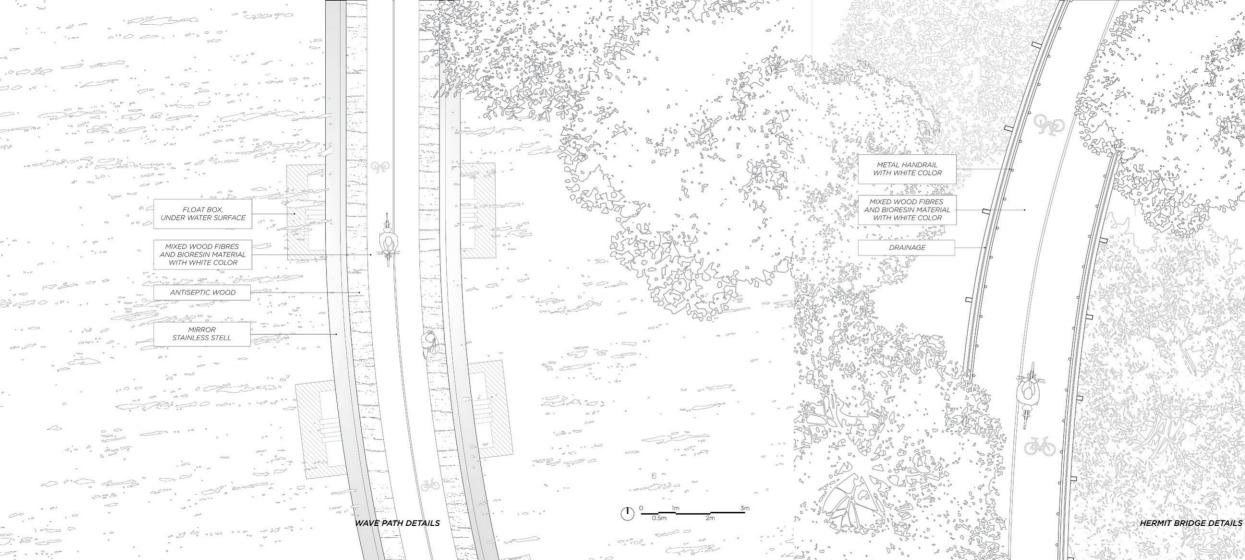


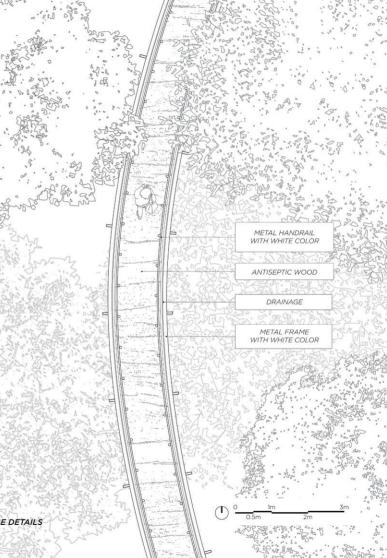
The Hermit Bridge

The third act is the Hermit Bridge. There is an old oak forest named Hermit forest locates at Zypendaal north. Although it's hard to find the relevant historical stories about this forest now, the name of the forest is still intriguing. In this forest, there is huge height difference and also the source of Sonsbeek sprengen. However, the expirence for visitors is a bit too monotonous here. From the Harplin's experience score analysis, there is almost no change of rhythems in this area. The connection between this area with the city is also hard. Therefore, I create a bridge cross the forest. I keep the origional small paths in the forest so people can walk around at the ground level and enjoy the songs of birds in the new-designed forest theater. In the middle of the forest, I create a small empty space with a mirror on the ground. When people are walking through the high oak tree forest, they might arrive here suprisely. When they look to the ground, they will noticed the tree tops and a small piece of sky reflected by the mirror, which would increase a bit more mysterious sense for this forest. A same mirror is been added at the end of the blind walking route in forest theater area. When people goes through the shaded forest with their eyes closed, they will arrive at this open space. When they suddenly open their eyes, they will see the flower meadow and the mirror reflecting the sky in the middle of the flowers. This is an expression of the glacier of ice age in Veluwe. When people enter the bridge, they can perceive more about the terrain. In some part of the bridge people can touch the top of the trees, but in some part they goes back to the ground floor. A view point platform is designed at the edge of Hermit forest, from where people can see the wide open agriculture land and the wood cabin with hundred year history. At the east, the bridge is connect to the residential area nearby. The residents can thus enter the Zypendaal forest direct from the entrance near the community playground instead of detour to the south to enter. The north end of the bridge leads to the rout which direct to the north. The north Zypendaal area thus have a better connection with the Veluwe zone and the nearby neighbourhoods.

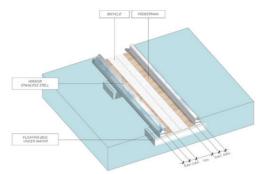


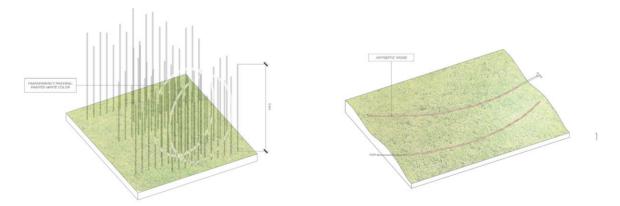














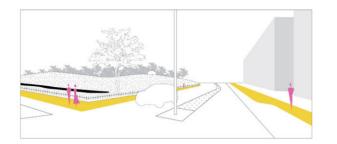
I mainly used three materials above design: wood, mirro metal and white color material (such as white concrete). They all comes from my first imression of the Sonsbeek park – the wood material refers from the forest and wooden fese, the mirror metal material refers from the reflective water surface and steel installations, the white color material refers from the white villa and the whit color statues in the park. I want to use the existing material from the park to create harmony instead of adding brand new elements to the landscape and make it strange.

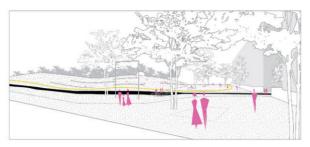


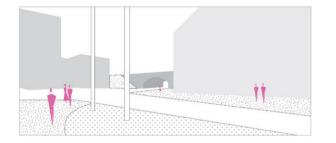


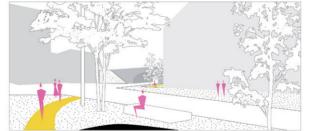


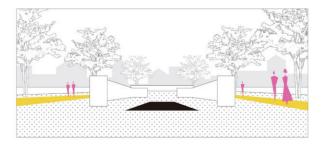


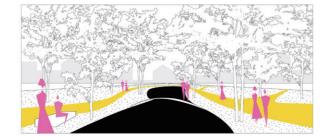






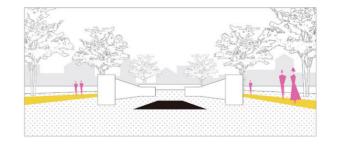




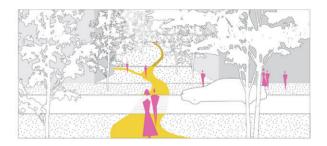


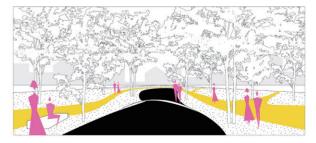


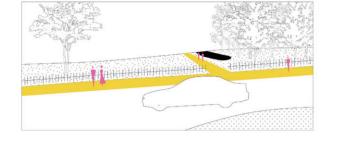


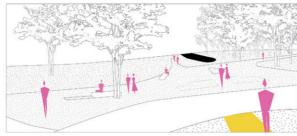




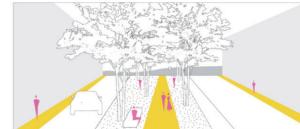


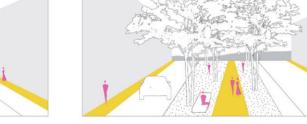




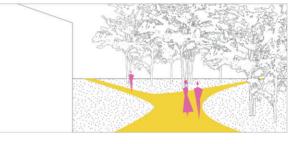


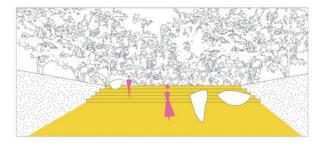




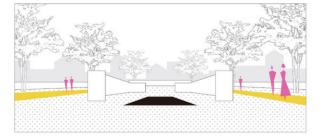




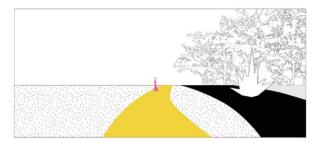


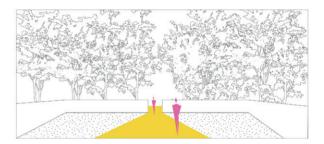




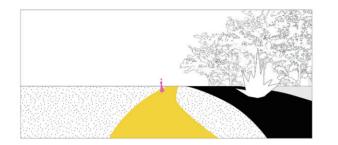


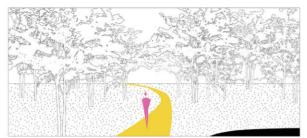




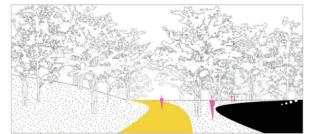


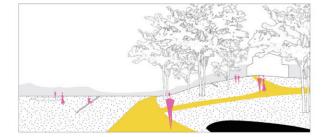


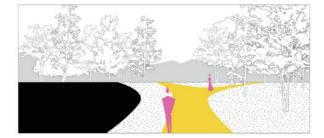




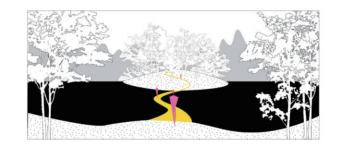


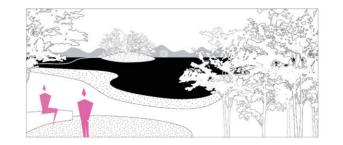


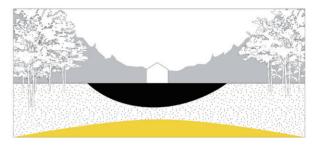


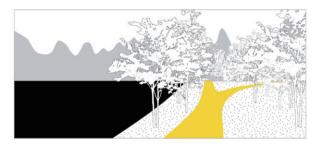


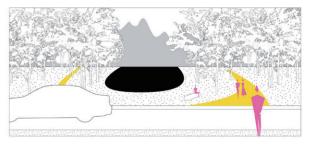


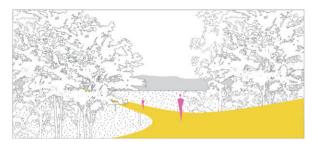


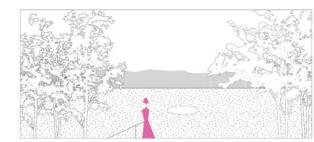




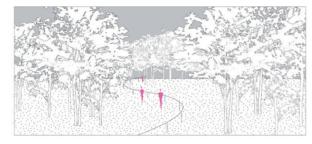
















I hope the Sonsbeek trilogy can not only create a better estate experience for the visitors, but also can create a better cycling route links to the north, to build a closer relationship between Arnhem city and the Veluwe zone. Because of the time, I only comlete the precise design in Sonsbeek zone. However, it does not means there is no need to design for the other areas in the newly designed green structure. Instead, there are probably a lot more joint areas in the city need to be percisely analyzed and carefully designed. For me, the design proposal for Sonsbeek zone is a projection of my urban plan thinking. It gives a detailed example to explain how the connections in the green structure can be implement to the real space.

REFLECTION

In the project, I tried to integrate the historical country estates into the city by creating a large scaled green structure. During the whole process of research and design, I continued to iteratively think and evaluate my research and design methods - does these methods works? Do I have an answer for the research question I came up with, which is 'how to integrate historical country estates to the city'? Does my project have any reference significance for the general urban heritages? All the urban elements could be transformed into the urban heritages as time flows - how should we treat them? The urban design is mostly discussing about the future, but how should we view the past? Last but not least, have the methods and theories of landscape design that I understand been challenged and changed in this project? This reflection chapter contains my thoughts, answers, and reviews of the above-mentioned questions.

Research and design methods

Before I started this project, I always have a dialectical thinking about the common methods and the scope of the issue discussion in the subject of landscape design. I was deeply affected by the theory of Landscape Urbanism. Thus I believe the ultimate goal of landscape designing is always to save the urban issues. The education I took in TUD and the internship I did in Delva Landscape Architecture have given me the opportunity to be involved in varies of Urban design projects as a landscape student. With such experience, a conclusion (or hypothesis) gradually appeared in my mind that is, landscape design and urban design can never be separated from each other. No matter what kind of project it is, there is always a relationship between it and a higher-level system and it is always possible to review it from the perspective in another scale. Therefore, the connection between different scales needs to be considered during the whole design process. This connection could help designers to find more possibilities when they are lacking of ideas, and can also help them to evaluate the feasibility and completeness of their design. I

started my project with this thinking.

Therefore, it is so frequently for me to jump between different scales in the process. Of course, there is no meaning to have separated moves on different scales - the key point is to evaluate them with each other. For me, I cannot accept the way to come up an idea from nowhere. It is only acceptable when the idea comes from a reasonable logic, such a conclusion from a reliable analysis. In this case, the design was naturally determined by the mutual evaluation on different scales. This method strongly supported the most of my actions. For example, the landscape design for Sonsbeek zone is actually a result from the urban design. The Sonsbeek trilogy is there because a connection between the north and city is needed in this area from the green structure. It is not because I subjectively choose the Sonsbeek as a site for designing, it is because of the demands from another scale.

I was also strongly affected by the framework created by Carl Steinitz. Strictly speaking, it is more an evaluation system for design education than a design tool. But I have learned a lot form its iterative thinking. In my case, the iterative thinking is not only used on the evaluate from different scales, but also reviews on every research and design steps I took. In my opinion, it is the strong part of my project. Every design move in my case was refers from a direction comes from the research conclusion. Every research I did was refers from an issue that I discovered. Every issue I discovered was refers from my evaluation on current (included mine) design. I have also fallen into a dead end, struggling with a small issue and could hardly solve it. But when I start to study from another scale, the issues are often solved naturally and leads me to a new direction. This is how I step by step cleaned up all the confused demands from assignment and the dazzling problems on the site, and finally find out the core issue - the fragmentation and disconnection issues in Arnhem city. Therefore, my design actions are solid from my opinion. I am glad to see they did not come from hasty decisions.

However, there is weakness part on theoretical framework. Although I used the Halplin's analysing score, Kaplan's evaluation method and did the case studies, they all seem to be superficial and did not contribute a lot to my design or produced an irreplaceable push for my design. In other words, the conclusion I come up from these analysis methods seems to be a bit simple. It is usually similar with my first impression from the site. I think it is probably because I did not use them deeply, and the analysis I did still can be more precise. Also, it maybe because I was being too subjective to the site. The weakness on theory leads a lacking of support in spatial design. Although as I mentioned above, the main idea of the landscape design comes from the urban design strategy, there is still reliable logic lacking in the precisely design process. In the certain scope, I could not sure whether the constructions I designed is reasonable enough or not. For example, I created the hermit bridge at Zpydenaal north. But I always doubt if it is an overly strong action for the forest. This is a question that I can never answer. From one hand, it did achieve the goal from the urban strategy which is to enrich the experience and to make a better connection with surrounding. However, there might be still other possible options. Did I take the best option? I have no idea. Because I cannot evaluate it, and also cannot find a strong theory to help on evaluation.

Research question and conclusion

During the whole design process, I was asking myself: Can this case become a general solution or reference for the urban heritage discussion? My answer is yes. In my opinion, it is always necessary to start from the urban perspective when we are discussing about urban heritage.

It is true that the historical country estate is a specific type of urban heritage. However, I consider them more as an urban element during design rather than a heritage. In another word, I used a general research and design process to study them. I did not treat them differently from other urban elements. It can help me analyze them more completely, without ignoring their basic characteristics as urban elements because of their unique features. People usually perceive the urban heritage from two dimensions: psychological and spatial. The psychological dimension includes the culture perceptions, historical memories, etc. It is usually related to the urban context. From spatial perspective, the urban heritages could be seen as dots, lines or surfaces. No matter what, they belong to the urban space. Therefore, no matter we are discussing their future, solving their problems or giving them more possibilities, we can never do it without considering the urban system.

From my research question, I asked how can we integrate the historical country estate into the city? Or on a higher perspective: how can we integrate the urban heritages from general meanings, into the city? To answer this question, I came up with the design idea which is to build a green structure for helping. However, is this a general solution to the research question? Obviously, it is not. But the design thinking is worth to refer. In this specific solution, the main idea is 'to consider the estates as a part of the green structure.' We can also under this idea as 'do not consider the estate as an individual thing, but a part of the system.' I think this idea is suitable for most of the cases. To build a new urban structure is just one of the most understandable way to implement this idea. For me it is necessary to integrate the urban heritage with the city. There can be thousands of ways to make the integration happens, and my case only provide one option among them. Therefore, my conclusion is not so much as 'we can integrate the urban heritage by consider them as a part of the green structure', it is better to say that 'it is possible to use urban heritage as a backbone for the urban structure'. In other word, I think my design option offers a possible solution. Whether this solution is applicable, of course, still needs to be judged according to specific cases. However, when people are struggling how to deal with the urban heritage in their city, or they are struggling if they should keep them or remove them, open them or close them, I hope my case could give them an example and tell them: 'Hey, you actually still have this option, which can make the heritage and the city mutually beneficial as a win-win.'

Academic relevance

As I mentioned before, I kept feeling the in-separately connection between landscape design and urban design. However, I could feel the weakness of both these two disciplines because of my multiple experience during my graduation year. For example, the designers who only studied landscape design, usually lack of a large-scaled relevance thinking. The traditional landscape education in Bachelor is still more focused on the garden-kind design. Most of the practical landscape project is also usually separated from urban design in the assignment period. On the other hand, the urban designers usually lack of design approaches on landscape scales. They are able to plan, but not to implement their design strategies into the real space. Although they do not need to do the spatial design, I still think this weakness would have negative effect for their planning. Therefore, in my opinion, I still can't understand the education way to separate the landscape design and urban design. In my work experience, most of the good urban designers I met have a multiple background. My project leader used to tell me what he felt to his works: '...I often feel that my knowledge is not enough. Even though I have a lot experience on urbanism, I still cannot do the calculations. I do not have enough experience on how dens the buildings should be, I can only ask my colleges who has architecture degree. I do not know how exactly the activities happens in the site. I do not know a lot things, but I still have to design everything. Many problems may arise where I didn't realize it. However, it is hard to predict it and evaluate it in design periods.' This is a very thought-provoking topic. In my project, when I review my research iteratively, a small-scale issue can easily eventually become an urban issue. In recently years, we can see not only the landscape designers but also more and more architects are discussing about urbanism topics. This is a symptom of the gradual emergence demand for integration between these disciplines. Therefore, I

At last, I would like to express my deep gratitude to my first mentor Saskia de Wit and my second mentor Taneha Bacchin. They have given me strong supports on theoretic framework, design suggestion, research methods, and many other fields. It is my honor to be their student. I would also like to appreciate all the friends and families who was standing with me during my master career. I can never make this without your support.

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