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URBAN REDEVELOPMENT PROJECT: Benefits and Barriers of Reusing Post-industrial Sites in the Netherlands

Paper presented at the RUEG2016 Annual Conference - Regional Urbanism in the Era of Globalisation
Held at the University of Huddersfield, 3rd - 5th Feb, 2016

Garrett Klamer, Jiayi Jin

Abstract:

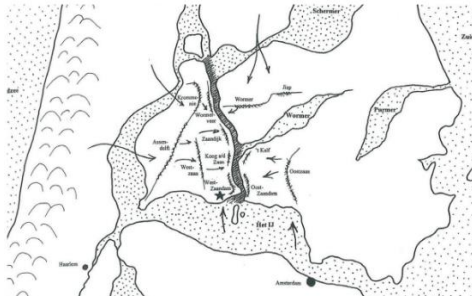
Generally located in advantageous locations along waterfronts or near the city or supported by existing infrastructure, post-industrial landscapes constitute environmentally impaired resources that need to be returned to productive uses, and reintegrated into the surrounding community. However, the complexity of any post-industrial redevelopment project, evident in the number of different ways in which it is described both in the literature and by designers and developers who work and/or analyse these landscapes make post-industrial redevelopment difficult to accomplish. This design project is focused around seven locations in the Zaan District, Netherlands with carefully plan to reconnect the urban tissue interrupted in time by the industrial development; considering the purpose of the present research, it was necessary to use several methods throughout the investigation, including quantitative and qualitative research methods divided in two main sections: literature reviews and the case study research. Considering the collected data and the performed statistical analysis, it is possible to conclude that, though there are strong relationships between several of the identified benefits and barriers, the survey revealed distinct perceptions about the benefits and the barriers associated to post-industrial redevelopment, idea which is of utmost importance considering that designers tend to be primarily focused on aesthetics, leaving society's other main goals to secondary status, and that planning and landscape redevelopment activities are increasingly becoming less the result of design and more the expression of economic and sociocultural forces.

Keywords:

Urban Design; Post-industrial Sites; Urban Transformation; Benefits and Barriers; Urban Infrastructure

Introduction:

The city of Amsterdam wants to grow (Structuurvisie, 2040) but does not have the ability to expand within its city limits; therefore the growth could also take place in surrounding villages and cities. Rather than the Randstad as a whole, the city-council has documented the Amsterdam region with grow potential as 'Metropolis of Amsterdam.' The city structure of Amsterdam is noted by its 'fingers' into the green zone around it, additional to these 'fingers' Zaanstad, Haarlem and Almere are part of the 'Structuurvisie.' With trying to achieve the regions to be more connected with Amsterdam, the densification of the railways is an important key element of the plan. All regions have a good connection with the city already, but the intensity should be higher.



Map of the dyke structures and the natural lakes in the area

18th Century Zaan

Figure1: the 18th Century Zaan

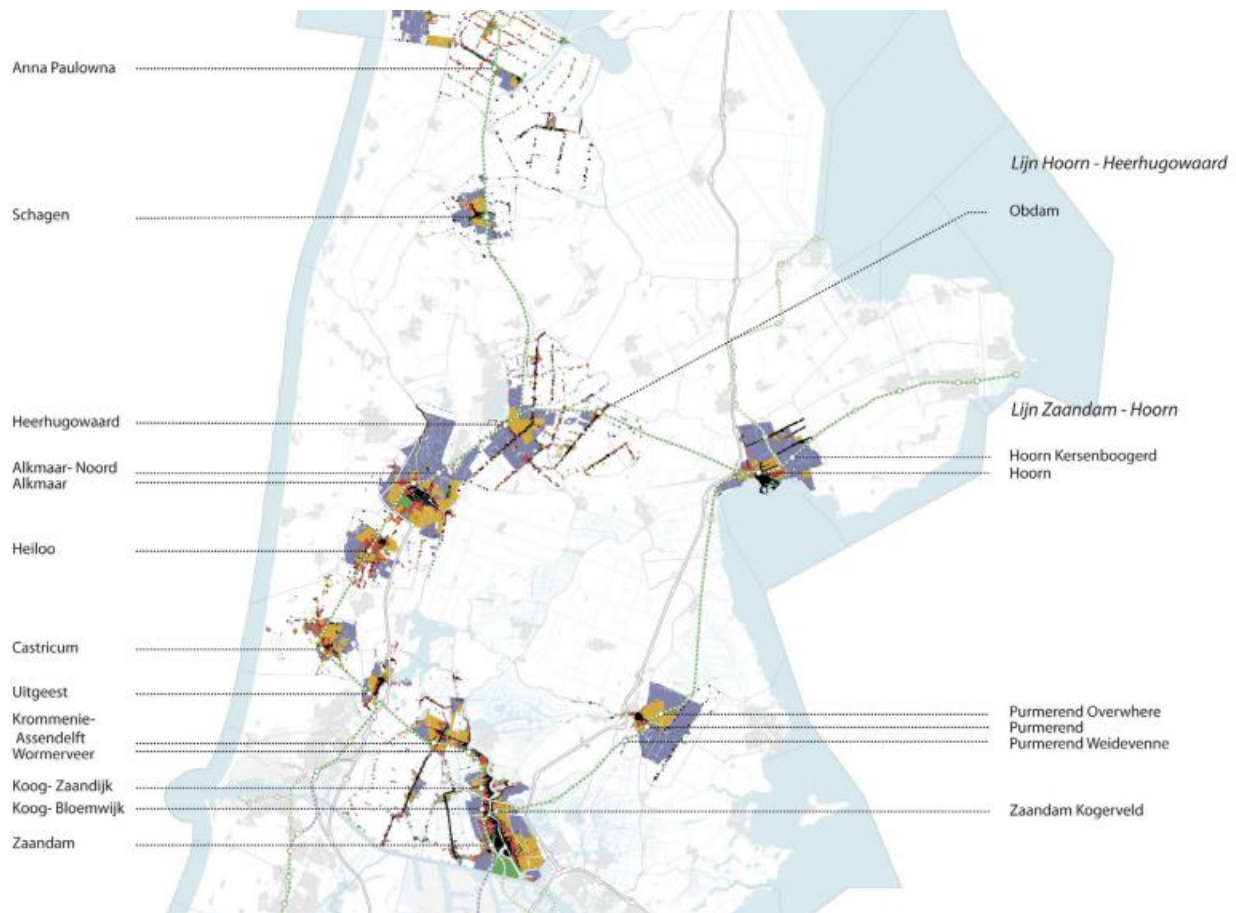


Figure2: The Zaan district

The region through which the river runs is called the Zaan district (Dutch: Zaanstreek ['za:nstre:k]). It comprises the current municipalities of Zaanstad, Oostzaan, and most of Wormerland.

Most of the non-protected open space is already build full, so in line of 'Urban Renewal, What's Next?' what next is now the densification of the urbanised tissue (rather than urban tissue). This poses problems because very little unused space exists, therefore interventions in the existing tissue are needed to reach this goal. What intrigues us is that it is not just building something to build, but it is actually researching and analysing the area to formulate hypothesis of what can become of the area in the future. This study is hooking on to several current architectural debates; stations, how to treat villages rather than cities to maintain its character and industrial heritage which is largely present in the location.

Historically speaking, the Zaan district is the 'Food Shed' of the Netherlands, the development of the area has known its similarities with the development of the rest of the country, but especially it had its own and unique development as well. Structure wise the area doesn't differ that much from the rest of the low parts of the Netherlands with 'Polder' structures, but the way it happened is somewhat different. Building wise the similarities can be seen less. The lint structures which developed here are less common for the country. In Groningen and Drenthe there are also these types of development, but not in the scale as in the Zaan district. Because of these structures, the natural size of the settlements were not big and only few actual cities developed out of them. In the Zaan district there are several municipalities; Zaanstad is one of these which incorporates several villages and one city. In the municipality of Wormerland, which is located just North of the Zaan district, there is no city at all, only consists out of villages.

Development of the industry was also different; several mills and industrial applications were invented in these areas and naturally a big part of the development. The industrial revolution came on late and needed till 1875 to be able to compete with the mills for productivity. Because in this area there were loads of possibilities for agriculture with its own processing facilities. Later also with trade for goods, which were processed here as well, the area started to become important for its food industry which is till this day one of the key elements of the region. Next to this industry the ship building industry was settled here as well, but this eventually disappeared.

By building the Railway line between 1867 and 1878 the area was connected better to the nation. This system started as a small element in the area with larger buildings and was located in the midst of the polder parallel to the Zaan rather than next to the lint structures. Eventually this changed when the area started to build up to the tracks and abandoned the original village structures. It took up till around 1950 to start building at the other side of the tracks as well. Currently the area has a lot of inhabitants commuting to Amsterdam. The system of public transport has become much more important than envisioned so the system needs to be upgraded. Small interventions in this line are done currently to keep it running, but much more needs to be done to eventually maintain the connection.

Problem Statement:

The locations are diverse yet singular. All 800 meter radiuses have more or less similar conditions, so it is the specific context which could be chosen. We are intrigued by several debates in the architectural practice, from which some are present at these locations. Main current debates which are clearly present at these locations are; 1) urban densification, which is the general theme of the study; 2) industrial heritage, which is present at most locations; 3) the role of the station within the city. All of these issues has to do with the fact that the number of people who live near the stations is declining rather than rising. The number of inhabitants at all stations have decreased from 3.3 inhabitants per household in 1970 to 2.3 inhabitants per household in 2010. How will this figure drop in the future?

"The study of nine cities in the Randstad revealed that the decrease in home occupation, which since 1970 even more so, had and will have a big impact for the urban land use. The density of occupancy - the

number of inhabitants per hectare - is, therefore, greatly reduced. This intensification of land use must have had effect on the supporting base and accessibility of all facilities." (Engel and De Waaijer, 2011)

"It is shown that the twelve municipalities in NoordHolland from the 22 stations in 1970 together had 354,375 inhabitants. Thereof 156,364 were living within a radius of 800 m around the existing railway. The coverage was 44%. Thirty years later, in 2000, had twelve municipalities together 560,591 inhabitants. Of these, 164,598 were living within a radius of 800 m around the existing railway stations. The coverage was dropped to 29% and decline has continued in the past ten years, although less strong (research report from 2010), put up by the current 27%." (Engel and De Waaijer, 2011)

Koog-Zaandijk has several sites in the 800 meter radius which were given by the province to be potential redevelopment areas. The time span of this redevelopment is from now till about 2040 or even a bit later. Most of the current factories have no desire yet to leave the locations, but there has been a cut in the amount in the last twenty years. It is the question whether intervening in these locations is prudent, but none the less it is about to become a necessity. The problem with most of these locations is that they are in the midst of the urban tissue and 'block' several areas from interacting.

The locations we were drawn to instinctively were KoogZaandijk and Wormerveer. After analysing several locations Koog-Zaandijk came out to be the most interesting for authors. Because all three debates are present at this location, and dealing with industrial heritage within cities is one of the general themes, which seems will become a popular area for architectural practice within few years. Koog-Zaandijk has a large location next to the station, one even larger southward and two smaller ones at the north, as well as a location across the Zaan which is also within the 800-meter radius. Interestingly the one next to the station is the only one in the whole The Zaan district which interferes with the flow of people to and from the station towards their destinations. Because of the large location within the urbanized fabric which acts as a separator for the area and has the benefit of a (small) connection with the Zaan, can be connected with the station directly, is a tourist route towards the Zaanse Schans and can become a trigger for an urban redevelopment plan for KoogZaandijk, the ADM factory is the location for this study.

The goal for this study is make a possible way to connect the industry with the station, for this to be possible ADM has to leave the location. ADM is an American multinational and has desire to expand the area. It also has a location in Wormer. This company has little intent for the architecture and preservation of the area. The same has happened to 'De Adelaar' in Wormerveer, which is converted into the design office of Vanilla clothing. The tour from the architect H. Rikken of the redevelopment of this building gave a clear idea of the way that these companies treat their obsolete building stock. This building used to be in the procession of the factory Loders Croklaan, which was taken over in 2002 by the Malaysian company IOI Group. This building was of no value for them and with much hassle this changed owner. If not this building would possible have to be demolished because of structural failures which would be inevitable over time.

The architectural discussions we want to join in with this project are focussed on several themes. The first and most important theme is the urban densification, or in this project rather referred as the urbanised densification. This theme is most vague and hard to describe because there is no clear definition about it and how to approach. Because it is not an urban tissue which needs to be densified but an urbanised tissue, the goals are similar but a little different. The size of the buildings should not be created with the same dimensions as within Amsterdam for example. Though the city council of Zaanstad has allowed the creation of several projects (which some already have been realized) which are neither in the style nor dimension of the existing dwelling stock. Three questions have to be answered: 1) what is the appropriate next move in creating new housing stock for new inhabitants and which dimension should these get; 2) which target group should be addressed and what are their requirements and 3) what is going to be important in the future of dwellings? This last question can only be answered with a hypothesis and an estimation, either based on dwelling research from the past what might be the next logical step and the

other way is to implement a non-dwelling-based hypothesis. For example about experience of space, role of the society and connectivity amongst as well as adaptability.

The second is the station and its role within the urban fabric. Looking to history the role has changed a lot in this country and most of the stations have sobered in architecture and function; looking to the initial buildings, many station have changed in the last century from a landmark in the city with several functions to a platform on which you only have to wait a short period of time before you leave again. What could be the next step for the station? Is it to become even less important as an element and more as a mode of transport for the inhabitants, rather than alternative ways of transport or is it to regain its role as an element in which several things will happen (referred to old functions and possible new functions not commonly put into stations). There are several key points with equal crossings along the Zaanlijn which need to be solved, especially if there will be an intensification of the rail traffic.

Industrial heritage is the third major theme which not all locations have to deal with, but especially Koog-Zaandijk has a large variety of these locations within the 800 meter radius. Most of the industry at the ADM location next to the station is from between 1910 and 1975, so the character of the locations is more authentic than for example at the Kogerveld location, built from the 1960s. The advantage is that these buildings were not built with large industrial activities and are more easily converted into other functions because all the necessary amenities needed for this are already present in one way or another. Which of the buildings can actually be reused? Which of the buildings are important for the character of the area?

What this site has in contrast the other locations is a possibility for a direct connection with the station, at the other locations this is located further, the station and is of less importance to the station. The entrance to the station is surrounded by a fence which is the only physical separation between these two elements. The tissue of the location has changes a lot over the years and the dwellings which used to be at the borders at the north (Guisweg, Zaandijk) and south (Stationsstraat, Koog aan de Zaan) are being demolished slowly by ADM to make more of the limited available space for the factory. This creates serrated edges in the fabric of the factory and unclear lines in the structures of the street. The location has many buildings that have some perspective to redeveloped into other functions. The character of the area is heavily industrial and needs to be maintained, yet it does not have to be preserved like a museum. The industry is of vital importance to the history, so maintaining part of this character is important. Secondly the importance of the industry is not apparent to the tourist. Though they will represent only a small part of the goal of this graduation plan, the team see them as an important element if only by the route they need to take to get to the Zaanse Schans. According to Siem Kroeze, who operates the cacao museum in Koog aan de Zaan and whom we visited to learn more about the factory, he tried to convince ADM about his plans to add elements to the fences to both let tourist in on more history of the industry and the importance to the region, as well as guide them to the Zaanse Schans and conceal part of the 'lost' spaces which are very apparent. ADM apparently has agreed to this, but has not taken many steps to realize this yet.



Figure3: the The Zaan district-build area and demarcation of the different villages

Research Approaches:

A saddening fact is, that this study is purely hypothetical and there will not be a realisation of these plans, phenomenology for me is a way to structure these spaces and hypothesise about the potential use and the conduct related these are expected to get if you would actually build this. Next to this much perceptual analysis has been done to understand and interpret the location and formulate analyses. Variants were to test this analysis with the previously mentioned hypothesizing.

To find the answers of the research questions one in particular is most important; looking at the possibilities of preserving the 'genius loci' (Norberg-Schulz, 1979) of the context or try to change this when improvements can be made through change. The research regarding is wide and is described into several chapters throughout the report. The general method which is used here is observation; observing practices, details of the areas and the building stock. By trying to find unique elements in the area (Lynch, 1960) the generic becomes of less importance. This is not useful when trying to find the vernacular of the area, but it is important for designing the master plan of the building itself. The analysis also showed that the building is one of the key elements in the area and therefore should not be neglected into the process as just another building. The project revolves around a region with a specific and significant context. It used to be one of the most important regions but it has become a suburb. The expression of the area will be explained further on in the report. The fact remains that the suburb is one not visible element in which the design takes place.

Architecture as an Art

We see architecture as a 'quantifiable' study as well as an 'exact' art. 'Art' should not be understood as a direct translation, but the artistic part of the profession is equally important to research. With 'exact' rather than 'fine,' we want to note that architecture is comprehensive and not just getting somewhere on good luck. 'Quantifiable' is the academic part, without research the design is based on little. 'Quantifiable' is one way but the design process and especially the methods and analysis have also to be verifiable. With this paper we have tried to clarify the extent of the research and all the steps involved to make it into a reality. It is an interwoven process.

Analysing the City

Organising urban spaces and buildings in such a way that these will 'guide' has similarities with the ideas of Lynch and Norberg-Schulz. Their work is based on mapping and categorising the environment and giving clear guide lines, based on practical experience and years in the field. Their findings are what we can link to the design proposals. We structured the context by mapping the elements present; the structures, paths, edges, nodes and districts. This method allows looking past the perceptual analysis and pointing on the elements present, which were previously not thought of. This method is together with the perceptual and map based analysis are the basis for the entire plan. Via drawings and models these current conditions can be made visible and the variations on the spaces are apparent.

Phenomenology is also linked with the perception as a user, how the location is perceived. There is a difference in users, as architecture student the locations is differently perceived than for any of the target groups. This in the design this has led to several alterations of the urban plan. The perceptual analysis from the perspective of the user is most important because this allows the difference between designed scheme and the implications this will have.

The research regarding the morphological identity of the area is closely related to the phenomenological research. This was also done through perceptual analysis together with the available maps from the area. It was done from history till present where the difference in morphologies and their interrelation could be researched. The criteria of the morphological analysis were taken from the book 'Het ontwerpen van

woningen (design homes),’ which has different urban typologies categorized. These criteria from the book fit the area almost perfectly, but there are exceptions. For these exceptions there had to be made an additional categorisation. This type of analysis is a good way to have a decent categorisation of the area. If this is placed next to a figure ground analysis, not only show the build masses will be shown and explained, but also the open spaces which can be categorised as well.

Two other forms of typological analysis have been done. The first is the analysis of dwellings and stations. For the stations this has been done by mapping all transportation related amenities per station. The selection of these stations for research were done with three different criteria; 1) within the analysis of the current stations of the Zaanlijn, 2) train lines with similarities and 3) stations with an equal amount of passengers. This research showed different solutions and shortcomings in the current situations.

Within the dwelling analysis there could be tested how that the research was done had effect on the process of design. This was done by stating that not the morphological but the typological analysis would be leading for this research. There typologies were made ‘quantifiable’ and within a matrix we could see the effects of these typologies on the available space and quality of the surrounding space by testing them morphologically. By doing this solutions were tested in the research rather than researched what kind of solutions would be suitable for the hypothesis. More variants have been tested on their effects which later in the design has proven more useful.

The second typological analysis was done by categorising via sections (of crossings). This form of analysis cannot be made quantifiable with matrixes as easily as the previous ones. But this analysis is useful for a more subjective comparable analysis based on facts and perceptual analysis. Studying the actual use within these sections would be a praxeology study and could therefore not be done within the time span.

For defining the spaces possible for the master plan we had made, the method was ‘scenarios,’ hypothesising what the different effects the chosen scenarios would have on the plan. The scenarios were made according to the available space in the The Zaan district and the densification this area needs. With these findings we could determine several criteria for the location which lead to the choice of density for each area. Doing this proves to be most useful for the further development of the design and the choice of the location.

These methods of research have been used by implementing these directly on to the questions derived from the problem statement. This design is to test these different methods in how not only using these methods will give more insight into the location, but also how that the design has been affected by the choices of these episteme. The design will be a reflection to these researches, but the missing link here is the connection to architecture.

Science

Designing industrial heritage as main architectural assignment has some other factors to consider contrary to designing from scratch. The context in the second is the only determining factor besides the regulations. The context of heritage is larger as the building already is part of the context. This makes it more difficult to figure out what is important for the building or the design of the area. By knowing (scien, Latin) the limitations of the project become clear. This might be logically but it takes a lot of effort to understand the existing completely. All problems of the building need to be mapped out before the design process can start. Mapping these out during the process only create frustrating moments of setbacks.

Analysing all limitations and potentials of the building, the weaknesses began to surface. This data is quantifiable and key to the further process. These weaknesses can be resolved and coupled with the strengths of the existing building to create a final comprehensive design.

System

“The problem, for architecture, is the correspondence between the construction system and the character of the building [...]. We have already seen that a construction is not directly architecture; for it to become architecture, it must establish a dual relationship: with the building typology on the one hand and the decoration on the other. These three notions - type, construction and decoration - are three inseparable notions in architectural design.” (Monestrioli, p. 73).

As this is an existing building in which the construction remains the only original element, this part of the system is known. The difficulty question with heritage is to find answers to the two others. The building is no monument, therefore the requisite of the architectural language does not exist and can be maintained if deemed necessary. The façade of the building has little to do with the construction, but the grid it is based on does. The decoration of the building is limited to the simplicity of the scheme.

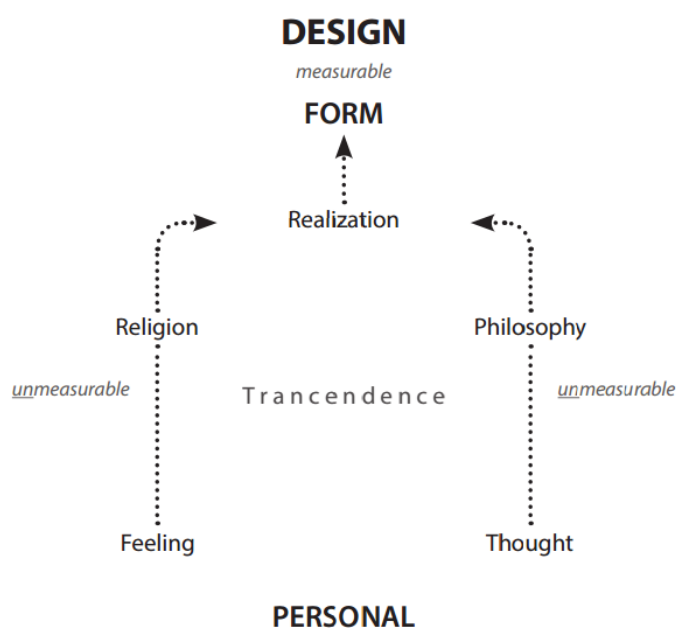
‘Conatumology’

This term does not exist. Conatum means effort, inclination, struggle, exertion, undertaking, trial; it equals the practice of architecture in its beautiful process from first line on paper to realisation. This part of the process can only partly be placed on paper. It is a shame that the term doesn't, as this is one of the most important methods we use, as well as many other architects. However the name will be given, designing is trying and trial by error. Every analysis in the world cannot make a design, but with the knowledge of these analyses a design can be created to be more suitable than creating something confronting. As an architect, Kahn drew out this process and acknowledged the existence of what he called the ‘unmeasurable’.

Referencing

The problem with implementing Kahn as main architecture reference is that it is not an apparent link. His architecture is very geometrical. This architecture as a direct reference has a debatable role for this graduation project within this study. Yet, the link can be made. With redeveloping industrial heritage one of the main problems is; what type of material and language the extension and or adaptations should get. Materiality is one of Kahn's strong points in architecture. His way of seeing materials is different than with many other architects. “You must honour and glorify [...] instead of short-changing it and giving it an inferior job to do in which case it loses its character” (Lobell p.40). This way of looking at materials has

little to do with the project at this moment, but this is another way of looking at the final materiality in MSc4.



The second common element is that it has been addressed about the way he works. Within his design process Kahn has noted himself that he does not operate completely rational, but admits that several non-quantifiable elements in the design process are at least as important to the architecture as the quantifiable elements. His process has dualities which in the end work out as a whole. The dualities are based on his perception of space; phenomenology. His dualities in design are ‘Silence and Light’ and the ‘Measurable and Immeasurable,’ these are means for his design process. The main method for design is ‘Order.’ His design

The areas turned into a swamp. In the 10th and 11th century the next 'colonists' reclaimed the land, this was done by digging trenches towards the large water structures to try to get the land usable. The problem with the area was that the reclaimed land sunk slowly because of the lack of water within the soil and these areas started to flood again making them unusable.

Parts were protected by manmade dikes and 'koog;' several natural dyke structures created by the sediment of the rivers. The interesting thing about this name, which is extremely commonly used in this area, is that Koog is plural, not singular, the singular name is Kaag. This continued until the entire area above was claimed by the settlers whom had poldered everything. The settlements were mostly done above the dykes and started because of the shape in stretched forms with a single road in the middle; lint structures.

The area was still connected with the sea; the Zuiderzee, not the North Sea, which connection didn't exist yet. The area was blank, it had a combination of fresh water and sea water with its tides. Parts of the polder structures were destroyed because of the water and small streams turned into larger water structures.

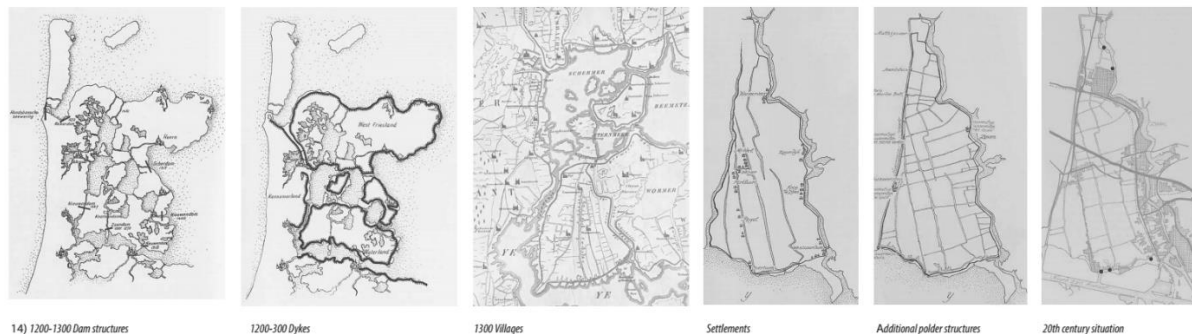


Figure6: the historical map of the Zaan district from 1200AD.to 21th century

If people hadn't intervened in the 13th century it might had become a large lake. The area was fortified with dykes, locks were placed and dams were installed. In Jisp (Wormerland) an invention was done in 1321; the creation of the windmill. At the beginning it was used to help with the farmers, later it was used to help pump out the excess water out. in the 14th and 15th century the agricultural activities were halted mostly and livestock came in its place, next to this fishing was an activity largely exercised in this region, not only on the Zaan and several other lakes, but also with ships which went to the Noordzee. When the season for fishing was over these ships were used for trading with other cities and later also with other countries. Loads of ships were used and an entire industry of ship building was erected around Jisp, Wormer and Oostzaan. Loads of fisherman fulfilled occupations as sailor with their own ships and also became traders themselves.

During the eighty-year war the Zaan region was a battle ground. The villages were burned down between in 1573 and 1574. Several improvements were made with the reconstructing the villages. The industry didn't stay where it used to be, but spread out over the entire region. In 1592 the sawmill was invented in Uitgeest. Fifty years later the amount of sawmills was enlarged to 52 where Amsterdam did not have any yet, and in 1731 the Zaan district had 256 and Amsterdam only 30. Several other goods were treated in the mills, as can also be seen on old maps. There was a rich diversity of oil mills, peeling mills, mills for wheats, paints mills, cacao mills etcetera.

The big difference between the rests of the country was that most of the trade and industry was based on North Europe'. Kleij gives the clarification by stating that this has to do most because of the highly religious and village-minded mentality which interfered with the ideas the country had about the far colonies.

In the 19th century the economic crisis had caused the area to be cleared of ship building activities. Most of the saw mills had lost their businesses and began to disappear. Although the region was hit, it still was an important part of the industry in the country and several processes remained to be important, especially for the food industry.

The industrial revolution was not a part of the development of the area till 1833, when the first steam machine was build, next to several other failed attempts in the next fifty years, the in Wormer build steam machine in 1846 was the first lucky attempt to re-revolutionise the industry. Up till 1875 the windmills were favorably competing with the new machines, after that the new type of industry took over rapidly.



Figure 7: Monuments in the Koog Bloemwijk area near the former Zaanbrug station

Koog aan de Zaan / Zandijk

The historical lint (ribbon) structure offers little monumental buildings. Koog aan de Zaan developed from the north to the south, therefore most of the monuments and history of Koog (now Oud Koog) are in the study area of Koog-Zandijk. The villages was already on the maps in the 13th century, in the 800 meter radius of Koog Bloemwijk research area, but the initial growth of the village was greatest on the north side near Zandijk (above the A8), the south side which resided most inhabitants at this moment, flourished in the beginning of the 20th century, therefore the station along the Zaanlijn was created half way into the 20th century rather than around 1869 like the other stations.

In particular, the city of Zaandam and the village of Wormerveer greatly profited from this growth. The village of Zandijk also profited, but the village of Koog, which was later renamed Koog aan de Zaan, was left somewhat behind. To this day, the part of Koog aan de Zaan in the 800 meter radius of the Bloemwijk station lacks most of the rich history and houses only a few of the region's characteristic buildings.

At the time of the construction of the railway line, the villages of Koog (aan de Zaan) and Zandijk were not large enough, nor separated far enough from each other to warrant their own stations, therefore the station was placed between both villages; KoogZandijk. A few years later, around 1883, a new railway line was built towards the city of Purmerend, which branched off halfway between the current Koog Bloemwijk and Zaandam stations across the Zaan.

The location around the new railway line had some industrial activities, next to the presence of these industries, enough dwellers warranted a small station, built in 1884. This station, called Zaanbrug, consisted of only one platform. This platform was located on the tracks towards Amsterdam, as most passengers and cargo would move in that direction. Not long after that, in 1890, a small building was built next to this platform which would be Koog aan de Zaan's first station building.

With this station, Koog aan de Zaan slightly grew towards the railway line heading east. Plans were made for expansion, when the other villages grew too large from the 1900's to the 1920's. In 1931, a new

station was opened near the location where the current Koog Bloemwijk station is located. The old Zaanbrug station was closed. The Koog Bloemwijk station was heavily bombed in the second world war, with rebuilding the line the stations middle platform was demolished and two side platforms were created. The station developed several times in phases, every time first in the direction of Amsterdam, years later in the other direction.

In 1850 there already was a large developed area in the north of Koog aan de Zaan at the present location of Tate & Lyle. The development in Zaandijk was still limited to the lint structure parallel to the Zaan. After the railway line was completed in 1869 the development started to grow westwards. Two streets developed and 'touched' the railway line in 1890; the Stationsstraat in Koog aan de Zaan and above the Prunuslaan in Zaandijk. Zaandijk has a more dense urbanisation towards the railway line and even has started the Rooswijk area in 1950 at the same time as the bridge across the Zaan was build extended to the Guisweg, making this street the most important next the street parallel to the tracks; the Provinciale weg. Koog had a very scattered development still the 1980s at the north side, the south side was being developed more pragmatically. Partly this has to do with the A8 which was completed in the early '70s. The Prins Willem-Alexanderbrug and the Koog Bloemwijk station equally.

Organisation of spaces

The connections at the location are created for fast motorized traffic. The Provincialeweg (N203) crossing with the Guisweg (N515) is one of the busiest in the whole area. The crossing was designed to get the traffic flow as smooth as possible. The only problem is the crossing at the west side of the Provincialeweg, which is closed for the majority of the hour because of the amount of trains. The slow traffic connection from north to south is possible on both sides of the Provincialeweg, it is only better developed for cyclists at the side of the tracks and for pedestrians at the Oud Koog/Zaandijk areas. The perpendicular slow traffic connection is at the station itself, the tunnel is the only connection for pedestrians at the south side of the Guisweg. At the north side of the Guisweg there is a connected cycle path with pedestrian path. The Guisweg has no connection with the station platform although the distance between both is about six meters nor is there a sidewalks connecting both.

The slow traffic is connecting two dwelling areas; Rooswijk and Oud Koog. Dwellers from Oud Zaandijk need to walk around the factory to get to the Stationsstraat where the entrance of the station is located, making the usefulness of the station greatly reduced. Tourists towards the Zaanse Schans have a more direct connection via the Stationsstraat. Most tourists just walk from the train to the tunnel and take the exit, but there is no clear identity to the Stationsstraat which denotes the existence of the Zaanse Schans other than a dispenser of free maps.

Fast traffic has a clearer route to all areas with more connections perpendicular to the Guisweg to Zaandijk. The Provincialeweg is connected with all areas as this street was created decades after the railway line. The Wilhelmina bridge was rebuild in 2008 and the Guisweg was restructured in the end of 2011 till half of 2012, therefore we have had little actual notion of the use by car of this road. There are few traffic light present, the crossings Guisweg/ Provincialeweg and Guisweg/Lagedijk have them.

Expected is that the amount of traffic currently using the N203 will be less when the A8 extension to Assendelft is finished in the near future. Most traffic from these locations will take the N road. During the lecture from Jan Goedhart we also got the notion that the second Coentunnel will also contribute to the intensity of use of the A8.

The diversity of functions along both the fast and slow traffic routes is an exemplary part of the character of the Zaan district. The difference in the character of the areas is something that needs to be maintained for the design. The industry also limits the possibility for people getting from north to south. Though this is not a main necessity, it is something which needs to be consideration.

Architectural Appearance

The factory is a loose element within the area. The development of the location was very slow. The lint structure at the Lagedijk/Hoogstraat develop early, but until the 1850s there was little development regarding dwelling further from the Zaan. Some mills were built next to the inner water structure which were still present till around 1911 (see diagram). The area used to be mostly empty, as there was no clear program from either municipality for the site. Dwellings developed along the edges of the Guisweg and the Stationsstraat and partly at the lint structure.

The factory itself expanded from inside out, first near the inner water structure, later towards the south of the location. Cacao de Zaan started in Zaandijk and expanded towards Koog aan de Zaan, where the main office was created (1948) on top of the butter factory (1935), in 1975 the new office building was completed which finally defined the entrance at the Stationsstraat. The problem with all the expansions was that they all were done at the expense of the green structure between the houses and later at the expense of the dwellings. By demolishing many of the building stock at the Stationsstraat in the time span of about 60 years (1950-2010) the appearance of the street has altered drastically. The Stationsstraat turned from a dwelling street into an industrial site with some dwellings to the hard contrast at this moment, from the station at the left industry and at the right dwellings.

The new buildings from Cacao de Zaan were not based on equal urban structure as the dwellings; the edges of the site now have an uneven crenate structure. The street is only recognizable at the factory site by the steel fence; no architectural quality to be found.

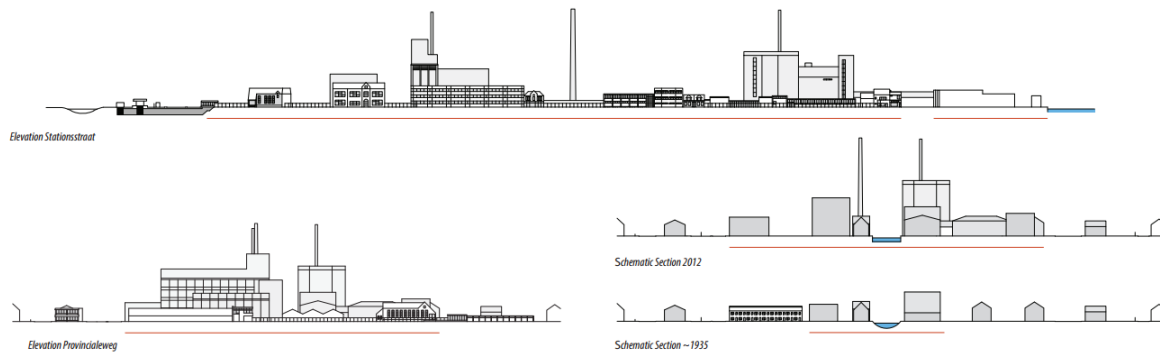


Figure 8: The designed new elevations

Discussion and Reflection:

Relationship between research and design

The reflection of this final project to the architectural debate has to do with the integration of various elements within the site and the way of treatment of the final architectural design project. This sort of approach will become more common in the next years as more industrial buildings will become available for redevelopment. Amsterdam is one of the most progressive cities in the country with these types of project because of their large industrial heritage. But these projects are still scarce in practice, as well as reallocate the existing building stock.

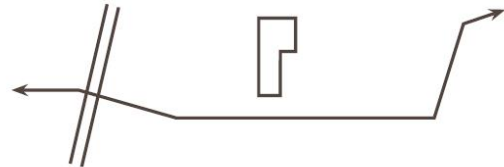
This paper focuses on the reuse of existing buildings and structures for public functions and new construction for the housing problem. This at a location that had no dense urban character but in essence is an urbanized countryside. In addition, this location is also an intermediate zone between two villages which have ever been physically connected with something else than a barrier. The focus of the architectural character is based on this context. As a result, it is important that not only the nature of the site will be maintained.

The essence and character of industrial buildings is threefold; 1) elevation, 2) construction and 3) type. The size of the building stock is small in comparison to industrial sites from Lasse or Tate & Lyle as

reference to the ADM site. All volumes of the Tate & Lyle factory are small and different but are connected creating the characteristic large volumes known throughout the Zaan district. Several other sites with these types of buildings are all less well connected nor ever could be this integrated to the public realm. Mainly the established size came forth out of the location near the water. As the ADM site has always been large and had water at three sides this requirement was limited.



Current main route
surroundings



Designed route and relation to the

Figure9: *The designed route and relation to the surroundings in this new design*

Relationship between the theme of the study and the subject/case study chosen by the student within this framework

This research is focussed on redevelopment of station areas, this project was one of the few project which was located this well into the fabric of the station. The area surrounding the station is in all cases ready for redevelopment, the assignment we have chosen is focussed on the most problematic part of the The Zaan district; the ADM factory. The main strategies needed within the assignment were based on connecting all the different areas, it followed the researches and for all locations this was determined to be most important. This strategy also determined the differentiation of the master plan design and the role of the final project into the area.

The public spaces along and the final decision to create active and quiet zones. Sub strategies could be designated to the several areas. The public station connected to the downgraded Provincialeweg to a lane structure, the park connecting the dwellings and the sports area and the market close to the station en route to the Zaanse Schans and integrated into the villages.

With the station, typological research was somewhat different in final solution. The results are less easily transferable to a design and when a decision was made many disadvantages were found that made it clear that this solution was less than optimal. The final solution of creating a over ground station and viaduct was done after the final decision was made to make an underground station was already taken. Reconsidering the final design the underground station would never have the advantages of being an urban element for the area.

Relationship between the methodical line of approach of the study and the method chosen by the student in this framework

During the design process we have been busy with the methodological line which mostly consisted of typological research; examination of dwelling typologies, station typologies and was of organising these in several settings. This helped me most with the design as was proven by the possibility of 523 dwellings in comparison to the 340 by the Zaan district master plan.

The difference between the research methodology and our own interpretation of the design assignment was that we have used more phenomenology alongside typology. Typology was useful for the master plan, but in the design process of the final architectural design it. Several strategies possible are to create a rim of buildings around the area and create in essence a superblock. One of the findings was that the

integration between the two villages and the area was as bad as it could be, creating a superblock does create integration potentials, but it still closes the area off. Continuing existing buildings and 'extending' the grid on which these were built into the area as ribbons is another, this will open the area more, but is also limiting from north to south as the natural orientation of the entire southern The Zaan district (South Wormerveer to the IJ) is east-west oriented. Complete reorganisation of the area through major reconstruction of the structure is also possible, but the question is if this would solve any of the problems more than it would cause. The limited number of road connections in the area would limit this success.

The final approach of this study was to say that one single strategy would never work. The difference between the area east of the Bijenkofstraat, between the Bijenkortstraat and the Provincialeweg, the road itself, the station, the adjacent area where we designed the park and the dwellings and the sports park all require such a different strategy that unifying these is very difficult.

The design of the station also was part of the design process further on than the master plan was developed to be able to finalise the intention of the route through the area and this building in its setting. The decision to make a station which has little functions integrated is also controversial to the assignment research. But the main difference with this station and the other ones is that the others do not have the advantage of an industrial area.

As many architects will concur with is the problem of integrating a program/building into the public realm. The strategies to do this also differ much. One of the main strategies was to maintain the buildings as much as possible but opening these up in such a way that the new program is to be apparent. By creating the route and public areas the buildings became part of the route rather than being somewhere lost inside the urban structure. The powder factory, the butter factory and the laboratory are most centrally located in the program and therefore also most suitable for a connection with the realm.

Designing the building to be reused with a different function also posed the problem of strategy. The first idea was to use several strategies for the building, regard the existing and the new to be two different elements into the building. This was also based on the fact that the addition to the building was not anymore part of the building and left a gap. The strategy for the existing facade was to refurbish it and simply insulate and therefore also change the proportions of the facade. This strategy got busted more than once when the question arose if simply insulating the facade was the best way. When the decision was made to use precast elements rather than work on site the strategy of the building also changed. The reason to remove the entire existing facade and rebuild it was also created the gap in logic that the part where the building was attached would still be visible in the facade. Eventually it was decided to recreate the facade even at places where it never existed to make an entity of the building and not a patchwork.

Within the architecture practice it is common to create an addition to an existing building which is distinctive and has another architectural language than the host is now accompanied by. The question we had and also drew out in several of the earlier attempts to create a new facade for the extension was that the sheer contrast can also work counterproductively to the architecture rather than complementary. One of the strategies was to create the extension on the same base as the existing, and the interesting language that came out of it was one of connectivity. It took many attempts to finalise the solution, but every time a deviation was made from this strategy the readability became less. Glass architecture is also provided the possible solution, but not as transparent as it could have been. The idea was that by creating mass in the extension it becomes complementary to the existing. By removing mass it will look replaceable. Mass also created the grid based on the existing, this might not be seen instantly to the viewer, as long as it will be noticed subconsciously it already reached its goal.

Relationship between the project and the wider social context

The social context of the assignment is that this project takes part of the current discussion of what to do with the existing building stock at times of recession. Although the funding for these types of projects is limited and the master plan is still unrealistic with the current economic situation, the question will still

be present when the situation will get better. With the density of the country building in unbuilt areas becomes more scared. It is also debatable if this approach of ignoring the existing although it has served its purpose will continue or that redevelopment will become the mainstream in the Dutch architectural practice. Dealing with commuters is also another task, the implications of redesigning an area like this are great and this research has tried to elaborate on the aspect of this change.

Final notions on personal reflection regarding the design process

For this research we was using one single method of designing the area, which is controversial in the field of urban regeneration as it blurs out the intention of the architect or urban planner. A single concept or design strategy can be the solution for an area, but we doubt whether this is true for an segmented area with many exceptions. The biggest problem with a single strategy is that the several monuments and industrial buildings will always cause a problem. We do question the decision to make the restructured façade out of concrete precast elements, and still wonder if this is the best solution for the building. On the other hand it created the single strategy for the building which we needed to create the final architectural form with and to only have two different façades rather than an inexhaustible amount; restructured and new, both based on the same value. From our perspectives, the architecture has had the ability of becoming as sober as intended and still has the finesse and character of the industrial building. The final design shows the quest and the process through 'conatumology,' although the design could be done differently, we believe that this design creates the most suitable elaboration to the research questions.

Bibliography:

Adams, D., & Watkins, C. (2002). *Greenfields, brownfields and housing development*. Oxford: Blackwell Science Ltd.

Alan Colquhoun. *Collected essays in architectural criticism*. (2014). London.

Alberini, A., Longo, A., Tonin, S., Trombetta, F., & Turvani, M. (2005). The role of liability, regulation and economic incentives in brownfield remediation and redevelopment: evidence from surveys of developers. *Regional Science and Urban Economics*, 35(4), 327e351.

Allen, B., & Linden, M. (Eds.). (2002). *De-industrialization: Social, cultural and political aspects*. Cambridge: University Press.

Amekudzi, A. (2004). Integrating brownfields redevelopment with transportation planning. *Journal of Urban Planning and Development*, 130(4), 204e212.

Backhaus, G., & Murungi, J. (Eds.). (2002). *Transformation of urban and suburban landscapes: Perspectives from philosophy, geography, and architecture*. New York: Lexington Books.

Bartsch, C., & Anderson, C. (1998). Matrix of brownfields programs by state. Retrieved April 10, 2015, from <http://www.nemw.org/bfmatrix.htm>.

Bartsch, C., Collaton, E., & Pepper, E. (1996). *Coming clean for economic development: A resource book on environmental cleanup and economic development opportunities*. Washington DC: Northeast-Midwest Institute.

BenDor, T., & Metcalf, S. (2005). Conceptual modeling and dynamic simulation of brownfield redevelopment. In *Proceedings of the 23rd International Conference of the System Dynamics Society*, July 17e21, 2005, Boston.

Bengston, D., Fletcher, J., & Nelson, K. (2004). Public policies for managing urban growth and protecting open space: policy instruments and lessons learned in the United States. *Landscape and Urban Planning*, 69(2e3), 271e286.

Brebbia, A., Almorza, D., & Klapperich, H. (2002). *Brownfield sites: Assessment, rehabilitation and development*. Southampton: WIT Press.

Brownlee, D. & De Long, D. (1997). *Louis I. Kahn*. New York, NY: Universe Pub. Cerutti, V., *Creative Factories*. (C2Publishing, Utrecht, the Netherlands, 2011)

Brueckner, J. (2000). Urban sprawl: diagnosis and remedies. *International Regional Science Review*, 23(2), 160e171.

Buchecker, M., Hunziker, M., & Kienast, F. (2003). Participatory landscape development: overcoming social barriers to public involvement. *Landscape and Urban Planning*, 64, 29e46.

Cairney, T. (1995). *The re-use of contaminated land: A handbook of risk assessment*. Chichester: John Wiley & Sons.

De Sousa, C. (2000). Brownfield redevelopment versus greenfield development: a private sector perspective on the costs and risks associated with brownfield redevelopment in the greater Toronto area. *Journal of Environmental Planning and Management*, 43(6), 831e853.

De Sousa, C. (2002). Brownfield redevelopment in Toronto: an examination of past trends and future prospects. *Land Use Policy*, 19, 297e309.

- De Sousa, C. (2003). Turning brownfields into green space in the city of Toronto. *Landscape and Urban Planning*, 62, 181e198.
- De Sousa, C. (2006). Unearthing the benefits of brownfield to greenspace projects: an examination of project use and quality of life impacts. *Local Environment*, 11(5), 577e600.
- Ekman, E. (2004). Strategies for reclaiming urban postindustrial landscapes. Master thesis. Massachusetts: Institute of Technology. Environmental Protection Agency (EPA). (1995). The brownfields economic redevelopment initiative: Application guidelines for demonstration projects. Retrieved March 12, 2016, from <http://www.epa.gov/swerosps/bf/pilot.htm>.
- Environmental Protection Agency (EPA). (2009). Superfund. Retrieved June 12, 2015, from <http://epa.gov/superfund/policy/cercla.htm>.
- European Council for Construction Research, Development and Innovation. (2001). Building the future. Luxembourg: Office for Official Publications of the European Communities.
- Francis, M. (1999). A case study method for landscape architecture. Washington DC: The Landscape Architecture Foundation.
- Gibbons, J., Attoh-Okine, N., & Laha, S. (1998). Brownfields redevelopment issues revisited. *International Journal of Environment and Pollution*, 10(1), 151e162.
- Johnson, M. (2001). Environmental impacts of urban sprawl: a survey of the literature and proposed research agenda. *Environment and Planning A*, 33(4), 717e735.
- Kahn, L., Cook, J., Klotz, H., Prown, J., & Denavit, K. Louis I. Kahn in conversation.
- Kaufman, D., & Cloutier, N. (2006). The impact of small brownfields and greenspaces on residential property values. *Journal of Real Estate Finance and Economics*, 33, 19e30.
- Leslie, T. & Kahn, L. (2005). Louis I. Kahn. New York: George Braziller.
- Lobell, J. & Kahn, L. (1979). *Between silence and light*. Boulder: Shambhala.
- Loures, L. (2011). Planning and design in post-industrial landscapes: East Bank Arade River e Lagoa, case study. Ph.D thesis. Portugal: University of Algarve.
- Lynch, K. (1960). *The image of the city*. Cambridge, Mass.: MIT Press.
- McCarthy, L. (2002). The brownfield dual land-use policy challenge: reducing barriers to private redevelopment while connecting reuse to broader community goals. *Land Use Policy*, 19(4), 287e296.
- McGrath, T. (2000). Urban industrial land redevelopment and contamination risk. *Journal of Urban Economics*, 47(3), 414e442.
- Meyer, P. (1998). Real estate appraisers and access to redevelopment finance. In C. Bartsch (Ed.), *Financing brownfield reuse* (pp. 21e28). Washington DC: Northeast-Midwest Institute.
- Meyer, P. (2000). Accounting for stigma on contaminated lands: the potential contributions of environmental insurance coverages. *Environmental Claims Journal*, 12(3), 33e55.
- Miller, K., Greenberg, M., Lowrie, K., & Mayer, H. (2001). Brownfields redevelopment fights sprawl. *New Jersey Municipalities*, 78(3), 26e29.
- Moudon, A. (2007). A catholic approach to organizing what urban designers should know. In M. Larice, & E. Macdonald (Eds.), *The urban design reader*. London and New York: Routledge.
- Norberg-Schulz, C. (1974). *Existence, Space and Architecture*. Praeger.

- Ozdil, T. (2006). Assessing the economic revitalization impact of urban design improvements: The Texas main street program. Doctoral dissertation. Texas: Texas A&M University.
- Paull, E. (2008). The environmental and economic impacts of brownfields redevelopment. Retrieved March 15, 2015, from <http://www.nemw.org/images/stories/documents/EnvironEconImpactsBFRedev.pdf>.
- Pediaditi, K., Wehrmeyer, W., & Chenoweth, J. (2005). Monitoring sustainability of brownfield redevelopment projects e the redevelopment assessment framework. *Land Contamination and Reclamation*, 13(2), 173e183.
- Pepper, E. (1997). *Lessons from the field*. Washington DC: Northeast-Midwest Institute.
- Portney, K. (2003). *Taking sustainable cities seriously: Economic development, the environment, and quality of life in American cities*. Cambridge: MIT Press.
- Rea, C. (1991). *Rethinking the industrial landscape: The future of the ford rouge complex*. Master thesis. Cambridge: Massachusetts Institute of Technology.
- Reed, P. (Ed.). (2005). *Groundwell: Constructing the contemporary landscape*. New York: The Museum of Modern Art. Secchi, B. (2007). Section 1: wasted and reclaimed landscapes: rethinking and redesigning the urban landscape. *Places*, 19(1), 6e11.
- Simons, R. (1998). *Turning brownfields into greenbacks: Redeveloping and financing environmentally contaminated urban real estate*. Washington DC: Urban Land Institute.
- Thayer, R. (1994). *Gray world, green heart*. New York: John Wiley. Tyman, S. (2008). *Gunpowder park: A case study of post-industrial reinhabitation*. Master thesis. Oregon: University of Oregon.
- Tymoff, M. (2001). *Reinterpreting the post-industrial landscape Athens' former manufactured gas plant*. Master thesis. Athens: University of Georgia.
- Urban Land Institute. (2004). *Barriers and solutions to land assembly for infill development*. Washington DC: The Urban Land Institute.
- Wall, A. (1999). Programming the urban surface. In J. Corner (Ed.), *Recovering landscape: Essays in contemporary landscape theory* (pp. 233e249). New York: Princeton Architectural Press.
- Willem, K. (2009). Taxing land for urban containment: reflections on a Dutch debate. *Land Use Policy*, 26(2), 233e241.
- Wright, J. (1997). *Risks and rewards of brownfield redevelopment*. Cambridge: Lincoln Institute of Land Policy.
- Yin, R. (1994). *Case study research: Design and methods*. London: Sage Publications.