

2 A bridge with a view, a view with a bridge

Identifying design considerations for bridges to strengthen regional identity

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Scale 1:1000

In the previous chapter the research method of reviewing a design process through the four typical scale levels at which urbanists, architects, engineers and material experts bring their skills to practice, is discussed. The current chapter identifies bridge design considerations at the biggest scale level; that of the city and the landscape.

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Abstract

This paper discusses design considerations for creating high quality civil works with an emphasis on bridges. The authors pursue a design study and analysis approach to highlight the specifics of infrastructure design for regional identity, based on their own work on a series of bridges in the Dutch Zaanstreek region. Subsequently two highlights of the authors work, the award winning Juliana Bridge and the wildlife crossing in Rijssen, are used to illustrate how to create good infrastructure design in sensitive contexts, without making use of a neo-vernacular vocabulary.

Keywords: regional identity, architecture, bridge, wildlife crossing, Zaanstad, Dommel Bridge, Highway of the Future, Hoogtij Bridge, Zuidelijke Randweg Bridge, Butterfly Bridge, Prins Bernhard Bridge, Zaanbridge, Juliana Bridge, Rijssen wildlife crossing.

§ 2.1 Introduction

In his book *A view from the road* Donald Appleyard states: “*ugly roads are often wrongly taken to be the price of civilization, like sewers or police*”[1]. The boring, chaotic, disorientated roadscape seems to be the natural habitat of that useful but awkward monster, the automobile. Most infrastructure and civil structures that we pass on our daily journeys through our landscapes seem to have little or no connection to the landscape they traverse, be it urban or rural. This anonymity of civil structures along the highway leads to animosity among the users. This chapter analyses in depth the design decisions regarding a key type of civil structure in our infrastructure landscapes: bridges. Its point of departure is that designing bridges as part of an urbanized landscape should be a self-evident matter.

In this context this paper addresses the question: which design considerations allow us to design bridges that fit our social and cultural requirements? What does it take to make bridges contextually aware? How can bridges be designed in such a way that they are appreciated by their users as well as those who live nearby while contributing positively to the identity of place and region?

The second paragraph of this paper addresses the importance of strengthening regional identity by means of infrastructure design, and more specifically by means of civil structures such as bridges. Different approaches to designing bridges and other civil structures within a landscape, be it rural or urban, are discussed.

The third paragraph demonstrates the contribution of a regional approach to the identity of an area through some of our projects in the Zaan region, in the Netherlands. Together these bridges form an ensemble that provides a sense of regional belonging.

The fourth and fifth paragraphs analyse two of our projects to illustrate the outcome of the design approaches that are presented in this paper. Both projects differ in terms of typology, context and design approach. The Juliana Bridge responds to a world heritage site, while the wildlife crossing in Rijssen deals with an ecologically sensitive area and with differences between two landscape types in the Netherlands.

§ 2.2 Strengthening regional identity through means of infrastructural design

The on-going process of European integration seems to downplay the role of nation states while allowing regions to play a stronger role than before. The subsidiarity principle of the European Union states that no unnecessary centralization should take place and that tasks should be delegated if possible to lower tiers of government. This leads to a trend in which decisions on for instance spatial planning or infrastructure planning are increasingly delegated to regional authorities while in the past such decisions were taken nationally. This process strengthens the power of regional authorities and in parallel creates a need to develop or emphasize a newfound regional identity. While maintaining the socio-cultural characteristics of a region, administrators and politicians feel at the same time a need to underscore the economic value of their 'brand'.

When it comes to strengthening the identity of a region at the interface of infrastructure and (urban) landscapes, architects and engineers hold strong tools. Hundreds of thousands of travellers and commuters pass our local roads and highways daily. Users of bridges, roads and tunnels outnumber the number of visitors of our city halls, museums and music centres by a large margin. That is why the road with all its bridges, viaducts, tunnels and noise barriers can become a means to bestow character and identity to a region, if not standardized across the country.

As early as 1941, the Dutch designer ir. G.A. Overdijkink wrote in his book *Langs onze wegen* ('Along Our Roads'), that the character of a region must be expressed in road design [2]. By road design he meant the alignment, the planting, the width and lane configuration of the road. This adage should be extended to include the civil structures underneath, above and next to the road. If architects and engineers succeed in bringing across the feeling that a design is tailor made for a specific location, then ultimately these civil structures can contribute to the sense of pride and dignity that ties people to their region.

Of all civil structures along a road or highway, bridges are the main highlights in the route design. The presence of a bridge enhances the sense of orientation and gives an idea of the kind of place you are going through. A bridge is one of the few objects along a road or rail line that manifest itself to the traveller as an elevation with a facade. Traditionally the façade is the architectural element that articulates the design of the building, sometimes even becoming monumental like the front facades of cathedrals. Bridge design can be approached in a similar way, as an act of culture, bestowed with an identity that is contextually aware.

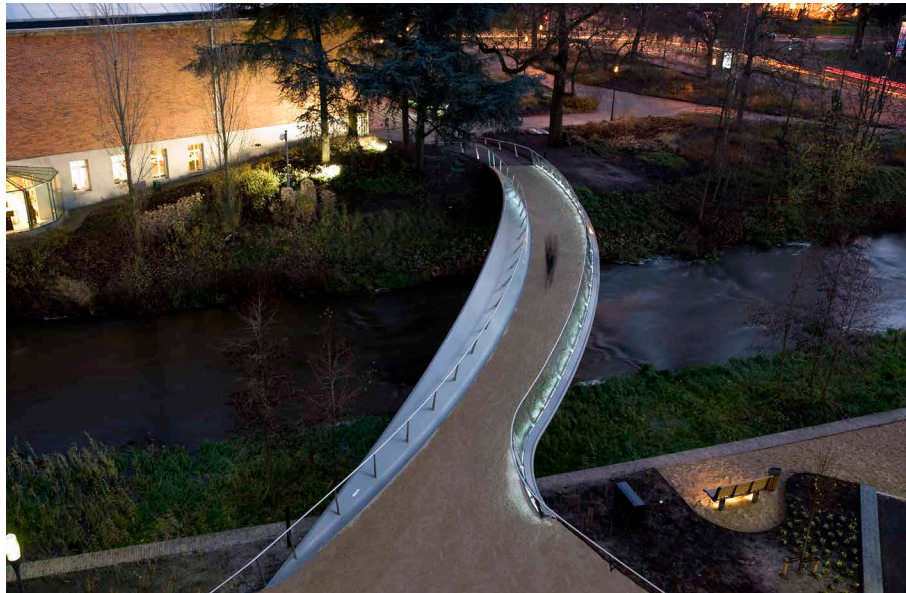


FIGURE 2.1 The Dommel Bridge. The identity of the city of Eindhoven as the cradle of both the Philips light bulb industry and the Design Academy is expressed in this bridge. Royal HaskoningDHV, Joris Smits et al. (2007), photo by Jan van Oevelen 2006.



FIGURE 2.2 Sustainability through innovation is the theme that stands at the base of the highway of the future in Oss, the Netherlands. Royal HaskoningDHV, Joris Smits et al. (2013). Photo by Jane van Raaphorst 2014.

When we look at the literature we can find many books and papers that treat the design of mobility on the larger scale of the highway and its surroundings [1-8]. However, the subject of the design of individual civil structures such as bridges is hardly subject of research. This is why the following theories are based on our own experience in our projects and on our observations in the field.

There are several approaches for creating infrastructure that is contextually aware. By and large we can say that there are two opposite ends in the appreciation of civil structures and the subsequent design approach. First there are those who are alarmed by the ugliness of the highway. They preach the repression of vice; their adage is to hide infrastructure or to melt it into the landscape. Scars of construction should be camouflaged by planting. In the best of cases the genius loci is interpreted as an elaboration on the historic idiom. On the other hand there are those who believe in the power of the design as a weapon against mediocrity. This calls for a more contemporary approach and a less literal interpretation of the characteristics of the place and the people that live there.

In *The Joyless Economy* Tibor Skitovsky states that an excess of standard goods, for example non-exceptional goods, will lead to increased social dissatisfaction, because the goods are devoid of real sensory stimulation for human beings [9]. If that is the case we must provide people with a satisfactory sensory and at the same time pluralistic experience for their everyday mobility. What better way than to raise the quality of design of our infrastructure? Can bridge design be an act of culture that creates value in the eyes of the beholder? According to Houben and Calabrese in their book *Mobility: A room with a view*, there is little discussion about turning the highway experience into a positive account. Show it off with pride, design it! Just as the polder landscape was designed [5] (figures 2.1, 2.2)

§ 2.3 Bridges in the Zaan region, the Netherlands

The award winning Juliana Bridge in the Zaan region by Joris Smits, demonstrates best practice in strengthening the regional identity through means of good design of infrastructure. What elements constitute the regional identity of the Zaan region and how is this reflected in the bridges that we designed and built in this region? This chapter describes how the character of the Zaan region was captured in the bridge design, through the use of local elements.



FIGURE 2.3 The Hoogtij Bridge for cyclists in the Westzanerpolder. Royal HaskoningDHV, Joris Smits et al. (2005). Photo by Bart Nijs 2006.



FIGURE 2.4 The pedestrian bridge in the Zuidelijke Randweg, Royal HaskoningDHV, Joris Smits et al. (2005). Photo by Joris Smits 2011.



FIGURE 2.5 The 'Butterfly Bridge' for buses spans road and water. Royal HaskoningDHV, Syb van Breda et al. (2003). Photo by Bart Nijs 2004.



FIGURE 2.6 The Prins Bernhard Bridge, a multi-layered bridge with access to the quays. Royal HaskoningDHV, Syb van Breda and Joris Smits et al. (2007). Photo by Jan van Oevelen 2008.

The Zaan region has always been a very industrious part of the Netherlands inhabited by a very industrious people. It was in the Zaan region that the first signs of industrialisation appeared along the river Zaan. That is why traditional values and state of the art industry have always gone hand in hand in the Zaan. The traditional wooden houses, spotlessly clean in shades of white and green, stand alongside the massive silhouettes of silos, among which the famous 36 meter tall Lassie silo that was Netherland's first concrete silo, built for the shipping of rice, cacao and coffee to and from the rest of the world. Nowadays the industrial heritage of the Zaan region is an important asset for tourism in the Zaan. We must not forget that the famous line-up of windmills at the Zaanse Schans was not designed for tourism but to process the wheat and the barley for the food industry. This region and its people have core values that reflect tidiness as well as a strong belief in modern technology.

How does one reflect such a regional identity into the design of a series of bridges? Some architects believe the answer lies in a neo-vernacular approach, a semi historical style with a very caricatural reference to an architecture of the past. This belief is most strongly advocated by the Dutch architect Sjoerd Soeters. Two of his recent designs in Zaanstad for the city town hall and an adjacent hotel are much discussed and quite controversial. We on the other hand believe that in the Zaan region contemporary solutions are needed that fit in with the industrious character of the location. In the design of the series of bridges for the Zaan region this approach is demonstrated. In a period of ten years, beginning in 2001, the architectural office of Royal HaskoningDHV was responsible for a series of six bridges, five of which have been built, the sixth being on the way. (figures 2.3 to 2.6).

Although they are all individual projects on different locations and designed for different authorities, there is a visual bond that ties them together and makes them belong to this region. For lack of a better word we will call this regional identity. All five bridges are modern in appearance and reflect state-of-the-art design. They have a consistent look and feel and are constructed from slender steel shapes. The use of steel reflects the many industrious cranes along the shores of the Zaan. The gentle curved shapes and arches mean that these bridges are not the iconic statements that modern bridges so often are: dominating shapes with a focus on their own presence and little relation to their surroundings. Rather the elegant arched silhouettes emphasise their binding function in the urban fabric, manifesting a strong connection with the ground level from which they emerge: rather earthly than stretching towards the skies. All five bridges have a uniform colour scheme in the local shade of white called 'Zaans wit' or Zaan white, a well-defined off-white, with a touch of another local colour: Zaan green. This specific colour scheme makes these bridges blend in harmoniously with the local architecture and with the green and blue colours of the Dutch landscape without them being neo-vernacular.

§ 2.4 The Juliana Bridge

The setting of the Juliana Bridge is unique. Adjacent to the UNESCO world heritage site of the Zaanse Schans (figure 2.7). The bridge design has been kept rather modest: undoubtedly a contemporary design, but one that respects its historical surroundings. The design is light-footed and transparent but also unpretentious. It offers plenty of space for tourists and cyclists by providing them with their own bridge deck. Maximum attention has been placed on experiencing the landscape, both from on the bridge and underneath the bridge. The panorama deck offers unhindered views of the Zaanse Schans to the north and the industrial heritage to the south. Even the shape of the lampposts, emerging from the void in between the two bridge decks, puts the emphasis on the outward view. The following section describes the design considerations that have been implemented to make the Juliana Bridge a fitting design in this delicate context.

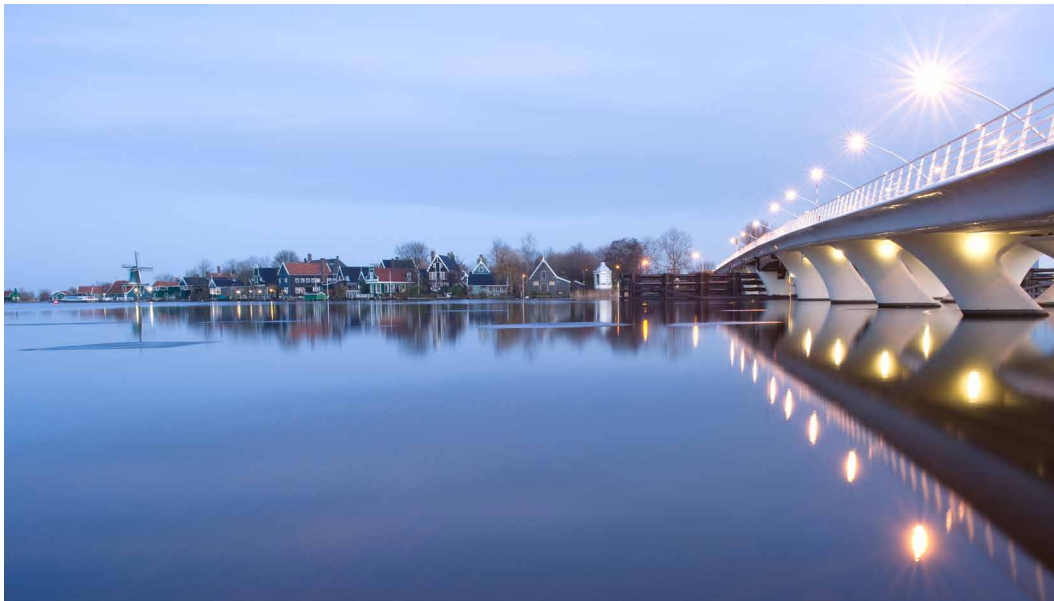


FIGURE 2.7 The Juliana Bridge, adjacent to the UNESCO world heritage site Zaanse Schans. Royal HaskoningDHV, Joris Smits et al. (2009). Photo by Jane van Raaphorst 2010.

§ 2.4.1 Rhythm and harmony

The most manifest design decision was that no obtrusive structure above the level of the deck was allowed, be it a lifting structure or a load bearing structure such as an arch or a cable stay. The Juliana Bridge is an opening bridge in a busily navigated channel, with an eighteen meter opening clearance within a total bridge length of 200 meters. Most lifting bridges in the Netherlands are of the traditional drawbridge typology (figure 2.8).



FIGURE 2.8 The Zaan Bridge in Wormer is of the traditional drawbridge typology. Approach spans and drawbridge form two different entities. Royal HaskoningDHV, Joris Smits et al. (2015).

But having such a prominent structure with towers and an overhead balance plate would start to compete with the windmills of Zaanse Schans and would make the design fall into three parts: two approach spans flanking a lifting part. Instead, we decided to go for a more harmonious approach (figure 2.9) and to have the counterweight integrated and almost invisible underneath the deck and to incorporate the span of the moving part into the rhythm and materialisation of the approach spans. By making ten spans roughly twenty meters apart we ensured an undisturbed rhythm of piers across the Zaan. Integrating the lifting part and the counterweight into this sequence was the next challenge. The lifting part is operated by a series of vertical hydraulic jacks that have been integrated into the actuator pier. For this reason the actuator pier needed to be much thicker than the other piers that are only supporting the approach spans. A solution was found in making each consecutive pier grow a little in size, until the required final width of two meters was reached in the actuator pier. This ‘growing’ of the thickness of the piers is accompanied with an increase in height, thus respecting the proportions of every individual pier.



FIGURE 2.9 The opening part of the Juliana Bridge is in harmony with the approach spans. Royal HaskoningDHV, Joris Smits et al. (2009). Photo by Jane van Raaphorst 2010.

The result is a natural sequence of supports that reaches its crescendo in the middle part of the bridge. The absence of an enclosed bascule volume and the resulting transparency underneath the bridge is much appreciated by the inhabitants of the historical housing on the shores of the Zaan. To quote one:

“What a beautiful bridge! So light and transparent; sitting on the sofa in my living room I can actually look right through it and see the landscape behind the bridge. The combination of modern design in a historical context works really well.”

§ 2.4.2 Layering and partitioning

Another decision taken early on in the design process was to untangle the hectic flow of motorised traffic from the more easy-going flow of pedestrians and cyclists, including the thousands of tourists that pass through every year. The old bridge was infamous for the frequent accidents that occurred when tourists stepped into the path of motorised traffic to take photographs of the Zaanse Schans and the general scenery. Considering the new bridge as a wide balcony with a panoramic view was a first step, and allocating pedestrians and cyclists a bridge of their own was the next (figure 2.10).



FIGURE 2.10 Pedestrians and cyclists have a bridge of their own. A void separates them from motorised traffic. Royal HaskoningDHV, Joris Smits et al. (2013). Photo by Luuk Kramer 2009.

The spatial consequences of splitting a rather wide deck into two slender decks and a void are significant. From the point of view of the traveller on the bridge, the visual contact with the landscape and the river is increased. As you are always close to an edge with a view of the water, people experience the bridge much more as a bridge. The void between the decks adds a dynamic quality to the experience of travelling across the bridge, offering exciting views of the sequence of piers emerging from the river. From a landscape point of view, the difference is perceptible in the amount of daylight underneath the bridge. Even though the actual width of the total structure increases with the extra width of two more edges with parapets, the amount of shadow on the water and on the piers decreases and the bridge is experienced as less of an obstacle. This has to do with the factor of ambient light that has access to the space underneath the bridge from all sides. This diffuse light supplements the direct sunlight and gives the substructure a less obscure and more pleasant feeling (figure 2.11).



FIGURE 2.11 Daylight underneath the bridge increases due to the void between the decks. Royal HaskoningDHV, Joris Smits et al. (2013). Photo by Elroy Blom 2012.

§ 2.4.3 Manifestation and articulation

There are two basic elements in the design of a multi-span bridge that determine the scale and the inner harmony of the bridge design. The first of these elements is the deck that manifests itself as a horizontal element of a larger scale level. The other element is the pier, or the series of piers, that are basically vertical elements of a smaller sub-scale.

In the design process the architect can choose to make the position and manifestation of the piers dominant over the deck, thus reducing the tectonic scale of the design to the size of each individual span and accentuating the vertical rhythm (figure 2.12). This first approach lends itself to an enclosed and dense urban setting where lots of visual stimuli and vertical elements predominate. The second approach would be to give the deck a more prominent position, thus accentuating the horizontality and the total length of the design in the larger scale of a landscape (figure 2.13).



FIGURE 2.12 Vertical accentuation of the piers in a design proposal for the new Sebastiaans Bridge in Delft. Royal HaskoningDHV, Joris Smits (2012).

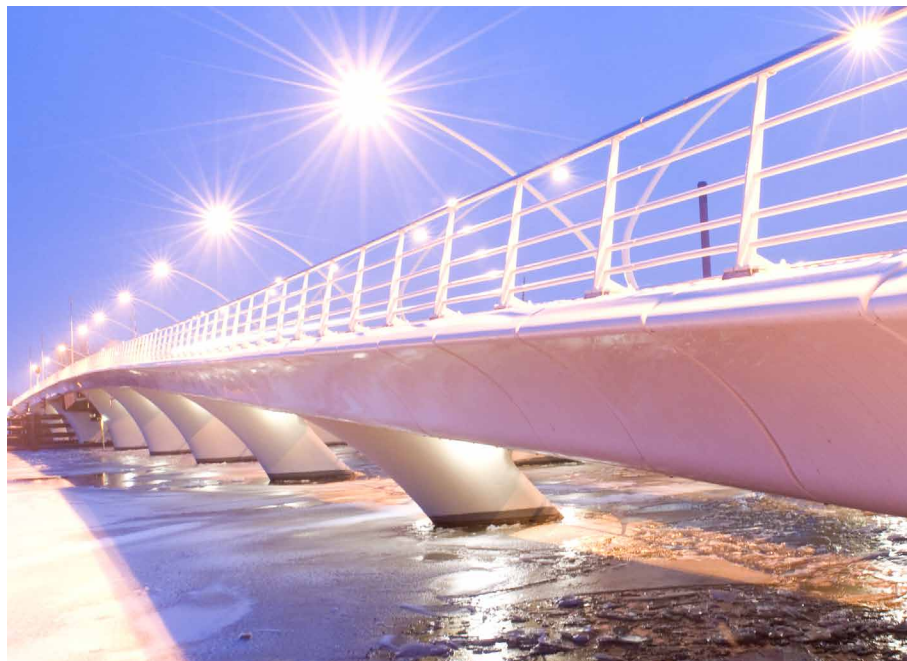


FIGURE 2.13 The horizontal manifestation of the deck with set-back of the piers puts the emphasis on the larger scale and blends into the landscape. Royal HaskoningDHV, Joris Smits et al. (2013). Photo by Jane van Raaphorst 2010.

In an open landscape with wide panoramic views the second approach is more suitable. The vertical line tends to blend in with the horizon in a calm way. Consequently the designer chose the second approach for the design of the Juliana Bridge. We designed a series of twin piers that emerge from the water underneath the central void, then cantilever sideways to support both decks. We gave the piers a setback from the edge where the pier meets the deck, thus putting the emphasis on the continuous line of the edge. This edge was manufactured out of fibre reinforced polymer segments in Zaan-white, a well-defined local shade of off-white, with a touch of this other local colour Zaan-green.

§ 2.4.4 Defined space and orientation

On the level of the deck the Juliana Bridge is free of structure. The only appearance from the traveller's perspective is the prominent sequence of curved light masts (figure 2.14). These are positioned along the inner void.



FIGURE 2.14 Light masts define the space and viewing directions. They emerge from the void in order not to obstruct the outward view. Royal HaskoningDHV, Joris Smits et al. (2013). Photo by Luuk Kramer 2009.

Research by Schöne and Coeterier (1997) on the way that drivers experience the highway demonstrates that drivers have a restricted field of vision. As they are largely preoccupied by watching traffic in front and behind, their field of vision is largely limited to the right side of the road. In the case of the Juliana Bridge the best views are experienced outwards, to the right of the driver. As the Juliana Bridge is foremost a bridge with a view, we did not want to obstruct that view by a repetition of a mast along the edge of the bridge. Rather we chose to let the masts define the space on top of the deck by opening up towards the panorama, thus directing the view outward. In a way the central position of the mast enhances the dynamic experience of the void between the two bridges. If you look closely you will see that the curve of the masts is a continuation of the inner shape of the piers.

To conclude regarding the design of the Juliana Bridge, we must remember that a bridge is foremost a facility for the people who use it or live nearby. During the construction of the bridge, and also after the completion of it, we had the chance to talk to many of them. It is worth noting that, when pressed to give their opinion on the aesthetic qualities of the design, most people living near this bridge are full of praise, with most mentioning the curved masts. Maybe it is a good sign that the bridge itself is so natural and uncontroversial in its presence that it is not notable to the public.

§ 2.4.5 Awards

The Juliana Bridge won both the Betonprijs in 2009 and the European Concrete Award in the category civil engineering in 2010, issued by the European Concrete Societies Network [10], demonstrating the value of this design approach. These awards are a clear recognition that the design work is outstanding and contributing to the body of knowledge in the field of civil engineering. Final praise came from the Dutch Ministry of Infrastructure and the Environment in the form of the 'Routepluim 2011', an award granted for exemplary integration of infrastructural artworks into their context.

§ 2.5 Wildlife crossing in Rijssen

If the design of a bridge in a historical urban area is all about capturing the character of the place and of the people who live there, then the design of a wildlife crossing is more a matter of listening to the scale, the morphology and the character of the landscape. How can we translate the intrinsic function and nature of a wildlife crossing in its design? And do the fragmented landscapes of Essen and Kampen require a different design approach than the open heathlands?



FIGURE 2.15 Wildlife crossing over the N350 between Rijssen and Wierden. Royal HaskoningDHV, Joris Smits et al. (2014). Photo by Jane van Raaphorst 2014.

§ 2.5.1 Experiencing a wildlife crossing

When we ask ourselves what the visual and emotional impact of a bridge design, or more specifically a wildlife crossing, implies in the eye of the beholder, we must distinguish three aspects: perceiving, experiencing and appreciating (Boekhorst, Couterier &

Hoeffnagel, 1986; Buijs & Kralingen, 2003). The first step, perceiving, is quite obvious. An overhead structure of this magnitude results in a perception that cannot be denied, nor do we have many means to influence the perception as the structure cannot be hidden or softened. It is in the second step, in the experience that our structure offers, that we as designers can offer something more. If we do our job well we can be rewarded by the appreciation of the people who pass our design or who live adjacent to it.

When seen through the eyes of a driver travelling along a road in a relatively open landscape, the passing of an overhead structure marks an important event in the trip. The structure will attach itself as a visual beacon in the awareness of the driver, marking a specific place along the route. The psychological impact of passing beneath an overpass, such as an ecoduct, is notable. On the visual and emotional impact of passing underneath an overpass when driving through a landscape, McCluskey states in his book *Roadform and Townscape*: “A notable event relating to contrasts occurs when the route encounters an overpass. The approach embankments to the overbridge block the view on either side of the main road and after passing through the gap spanned by the structure a feeling of release is enjoyed on sighting the uncontained view.”[6].

In the case of Rijssen the challenge for us, as the designers of the wildlife crossing, was to turn the event of passing underneath into a pleasant rather than an eerie experience.

§ 2.5.2 Typology

The wildlife crossing in Rijssen (figures 2.15, 2.16) stands apart from the vast bulk of wildlife crossings where the road is the ruling principle and the crossing itself is designed as a functional straight viaduct. Rather, the wildlife crossing in Rijssen stands in the tradition of that other notable wildlife crossing in the Netherlands: the ‘Woeste Hoeve’. Both crossings are primarily designed from the green perspective; here it is nature that has the supremacy, in the form of soil and vegetation, the road is just a perforation of the earth, a guest that is temporally tolerated underneath it (figures 2.17, 2.18). Such a grand gesture places nature above technology even though it is evidently a manmade structure (Nijenhuis & van Winden, 2007). The wildlife crossing in Rijssen is therefore a token of vigour, not so much of Dutch policy-making but more as an act of our ecological movement.



FIGURE 2.16 Artist impression of the wildlife crossing. On the foreground the open heathlands landscape, behind lies the fragmented Essen and Kampen landscape. Royal HaskoningDHV, Joris Smits et al. (2014).

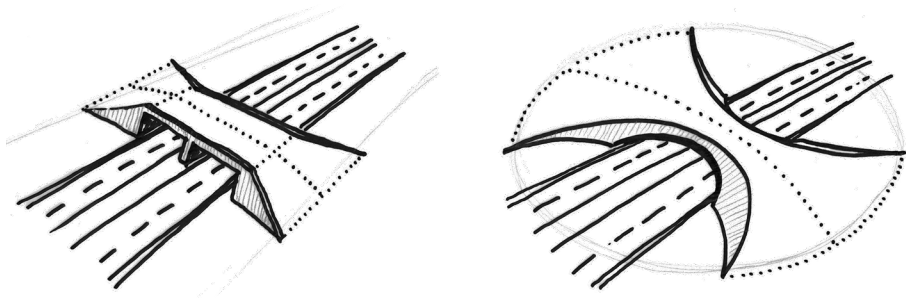


FIGURE 2.17 The highway as the ruling principle with a functional crossing (left), or nature as the ruling principle (right). Royal HaskoningDHV, Joris Smits et al. (2014).



FIGURE 2.18 The wildlife crossing at Rijssen. Nature has the supremacy, in the form of soil and vegetation; the road is just a perforation of the earth, a guest that is temporally tolerated underneath it. Royal HaskoningDHV, Joris Smits et al. (2014). Photo by Jane van Raaphorst 2014.

§ 2.5.3 Design approach

Having said that the landscape has the supremacy over the highway where they cross, that still does not answer the question of how to make the design fit into the landscape, or better, be a part of the landscape. After doing an analysis of the two types of landscape that are traversed when driving from Rijssen to Wierden, we decided on a twofold approach: on the larger scale we manipulated the overall shape of the wildlife crossing to react in an asymmetric way to the two very different characters of the two landscapes on either side of the crossing. And on the local scale we integrated the shape of the wildlife crossing to the extent that the alignment and the edges seem to come forth from the landscape in a natural way, reacting to existing lines in the landscape such as tree lanes and watercourses.

On the larger scale we distinguished two types of landscape (figure 2.19). On the west approach to the wildlife crossing we travel through a small-scale 'Essen and Kampen' landscape, a scenic landscape with an arbitrary sequence of smaller open spaces, patches of woodland and green lanes lined with trees. This landscape offers the driver a confined experience with restricted views and without any vistas. The wildlife crossing reacts to this landscape by capturing the driver into a crescent shape on the west approach as he nears the overpass, thus containing the view.

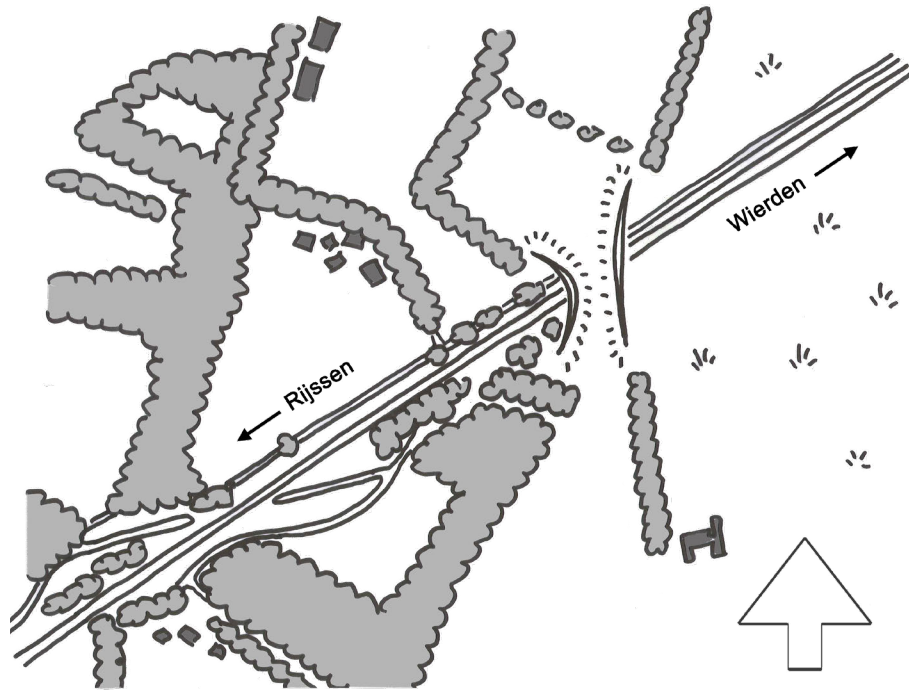


FIGURE 2.19 The asymmetric shape of the wildlife crossing reacts to the two different kinds of landscape on either side; a confined Essen-Kampen landscape to the west and an open landscape to the east. Royal HaskoningDHV, Joris Smits et al. (2014).

On the eastside the landscape is very different. Here we have a much younger and rational landscape consisting of heathlands and large land exploitations. The wildlife crossing therefore marks a boundary between those two landscapes: the confined versus the open. The eastern edge of the wildlife crossing reacts to this open landscape with a much wider opening that offers the driver a full panorama of the entire open landscape.

On the local scale the alignment of the edges of the wildlife crossing was carefully fine-tuned to match existing lines in the landscape such as tree lanes and watercourses. As it turned out this approach of reacting to the structure of the landscape also proved to be the best approach from the wildlife point of view. Animals have a strong tendency to move along lines in the landscape such as the edge of a wood or a brook. Thus having our funnel shape in line with those natural elements proved to match wildlife patterns.

From a drivers' point of view the funnel shape of the wildlife crossing seems to come forth from the landscape in one fluent motion, as a green carpet that is locally lifted up to make room for traffic, then blends back into the landscape on the other side. Instead

of retaining fences along the edges of the crossing we designed green ridges, steep on the inside to retain wildlife within the passage, but green and slanted on the outside were they that form the dominant gesture as they sweep across the road. Last but not least the experience that the wildlife crossing bestows on the traveller is determined by the actual event of passing underneath the structure (figure 2.20).



FIGURE 2.20 'Lifting the carpet' leaves a slit-like opening underneath the green structure. The low parts of the slit are filled with solid abutments with a set back from the edge. They are materialised in a dark grey colour in order to blend with the ground rather than with the crescent edge. This results in the impression of one long continuous edge. Royal HaskoningDHV, Joris Smits et al. (2014). Photo by Jane van Raaphorst 2014.

To turn this experience into a pleasant one we looked at the size, the shape and the partitioning of the overhead structure. The design approach of 'lifting the carpet' leaves a slit-like opening underneath the green structure. To reduce the span and the costs of the concrete deck, the low parts of the slit had to be filled with solid abutments. These abutments are set back from the edge of the carpet, and are materialised in a dark grey colour in order to blend with the ground rather than with the crescent edge. This results in the impression of one long continuous edge. To further increase the sensation of a single arch spanning the road, the soffit of the deck follows a vertical curvature just like the crescent edges and spans both lanes in one span. Inclined abutments further emphasise the dynamic gesture of an arch. Also notable in the design is the absence of the traditional middle pier. The use of a middle pier inevitably has a negative effect on our experience of spaciousness; the view of the beholder is partitioned right through the middle and the focus is diverted to this odd element rather than to the surrounding space. Using a middle pier is in that way comparable to building a pillar in the middle of the central nave of a church. Therefore the absence of a supporting structure in the middle turns the act of passing underneath into a spacious and panoramic experience with an unhindered view to what lies beyond (figure 2.21).

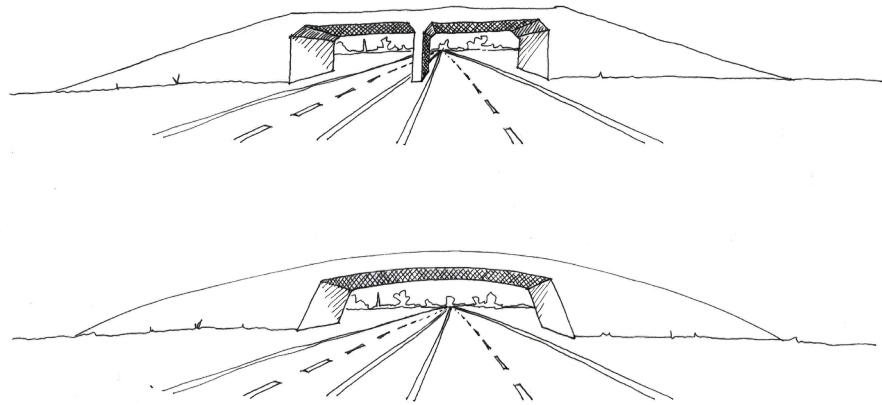


FIGURE 2.21 The use of a middle pier inevitably has a negative effect on our experience of spaciousness; the view of the beholder is partitioned right through the middle and the focus diverted to this odd element rather than to the surrounding space. Royal HaskoningDHV, Joris Smits et al. (2014).

§ 2.6 Conclusion

This chapter discusses ways to strengthen the regional identity through means of civil structures such as bridges. It is our experience that the best approach to designing bridges within a landscape is to start from the context without making use of neo-vernacular methods. Bridges are worth our attention as designers and give us powerful tools to strengthen the local identity. This adage is demonstrated through some of our projects in Zaanstad and in Rijssen. Properties as scale, orientation, rhythm, articulation, layering and partitioning of the design are our tools to make a design fit the context. To accomplish this we need to think from different perspectives, both literally and figuratively. The obvious perspectives are that of the driver, the cyclist, the pedestrian, the skipper or the badger that passes on or underneath our designs. But on a more abstract level we need to think from the point of view of the genius loci, the commissioning authorities, the tourists and most important of all, the people who live nearby. The proof that this is a fruitful approach lies in the many positive reactions that we get on all of our projects. This varies from the carpenter who complains about the difficulty in making the formworks but at the same time stresses how proud he is of being able to show his craftsmanship, the alderman who likes to show off with 'his' brand new bridge, or the lady who sees the improvement on the view from her backyard. This is the reason why we have such a rewarding profession.

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