Figure5.1 Detention pond for excess roof water from The Towers roof space (Square One Landscape Architects 2017)

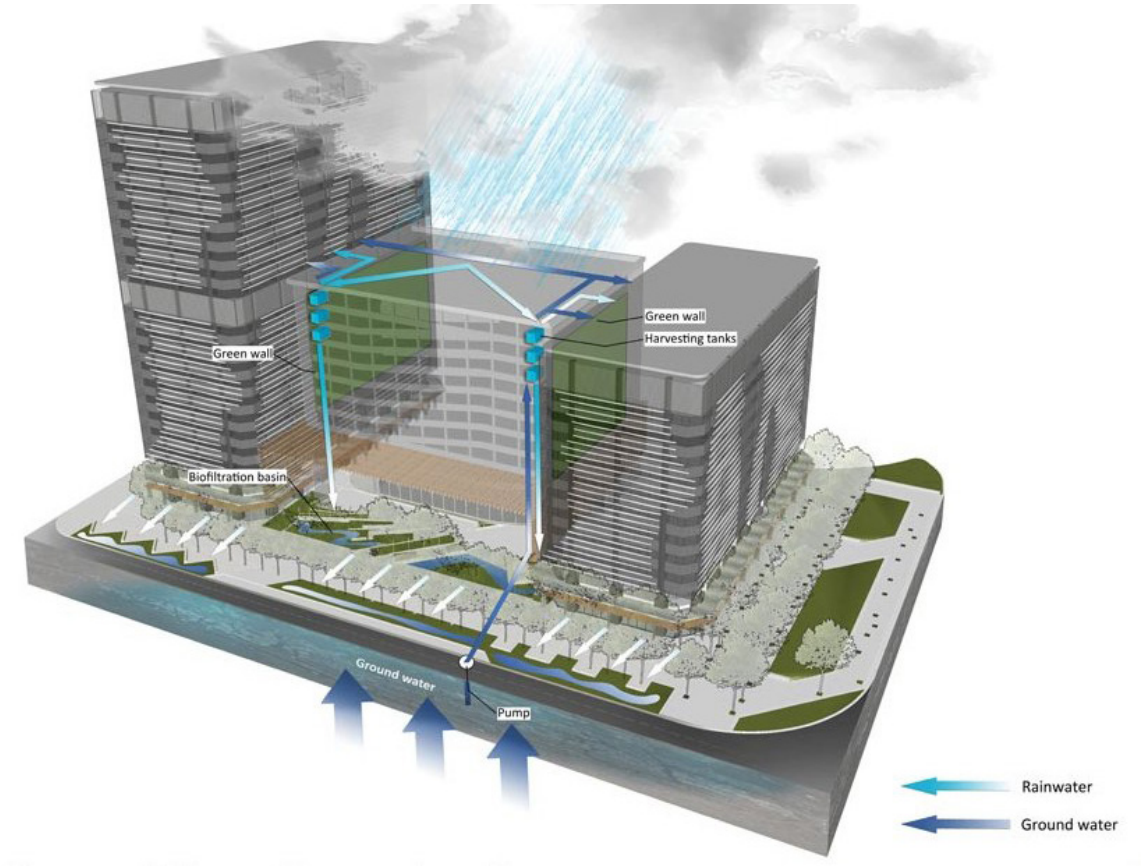

Figure5.2 Storm water systems to treat and replenish ground water at The Towers (Square One Landscape Architects 2017)

CHAPTER FIVE

Introduction

"Case study analysis is an effective way for landscape architecture to advance and mature as a profession, providing a promising tool for the profession to train students, develop a research base and improve practice" (Francis 2001).This chapter will analyse case studies to establish a project "look and feel", analyse projects that have a similar intention, and identify possible technical solutions as well as theoretical resolve.

5.1 Case studies

5.1.1 Contextual case study

The Towers & Merriam Square in Cape Town, South Africa by Square One: Landscape Architects

This project was planned by Square One in conjunction with an urban plan developed by the company that proposed the Foreshore. A network of green infrastructure and stormwater management strategies to soften the harsh urban environment was proposed(Square One 2015).

Stormwater is collected on the roof in tanks and used to irrigate the expansive green facades. Overflow runs into a rain garden at street level. The rain garden acts as a bio-filter, thereby improving the water quality, enabling it to be used as recharge to groundwater. The design is done in such a manner so as to facilitate space making and provide comfortable pedestrian movement on the pavement. The detail design components within the space evoke a sense of the wharf environment, the geology, and landscape that once existed in the Foreshore (Square One 2015).

The application of technology to resolve a real-world problem thereby integrating the user with technology is an example of possibilities for landscapes in South Africa. Eco-services and user considerations are merged in this approach.

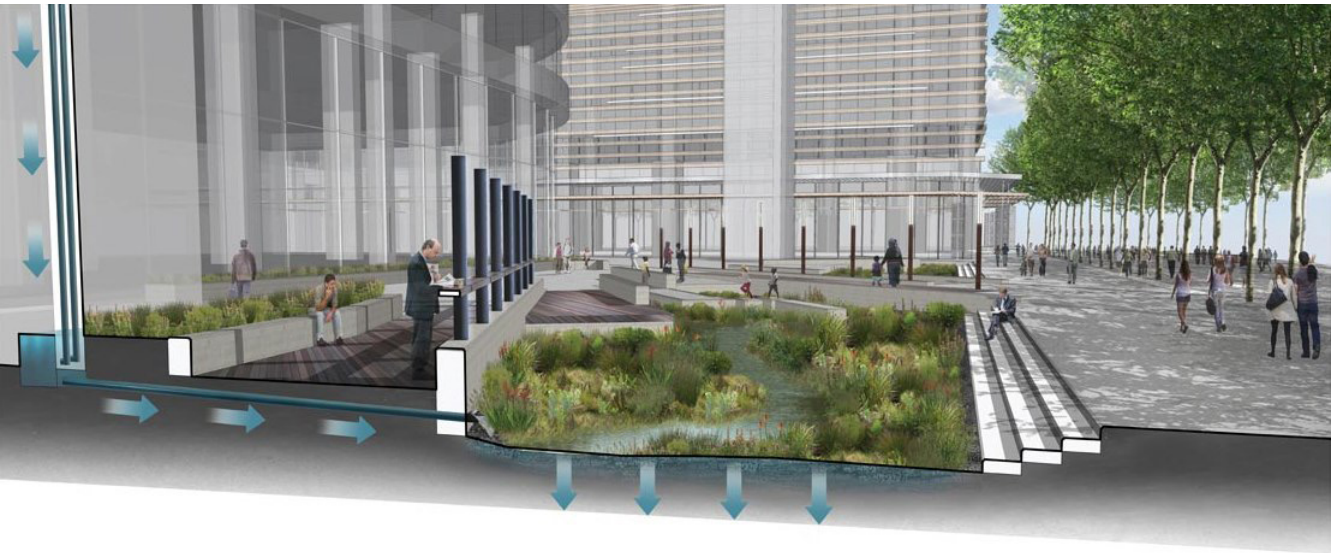

Figure5.3 Pedestrian interaction with detention facility (Square One Landscape Architects 2017)

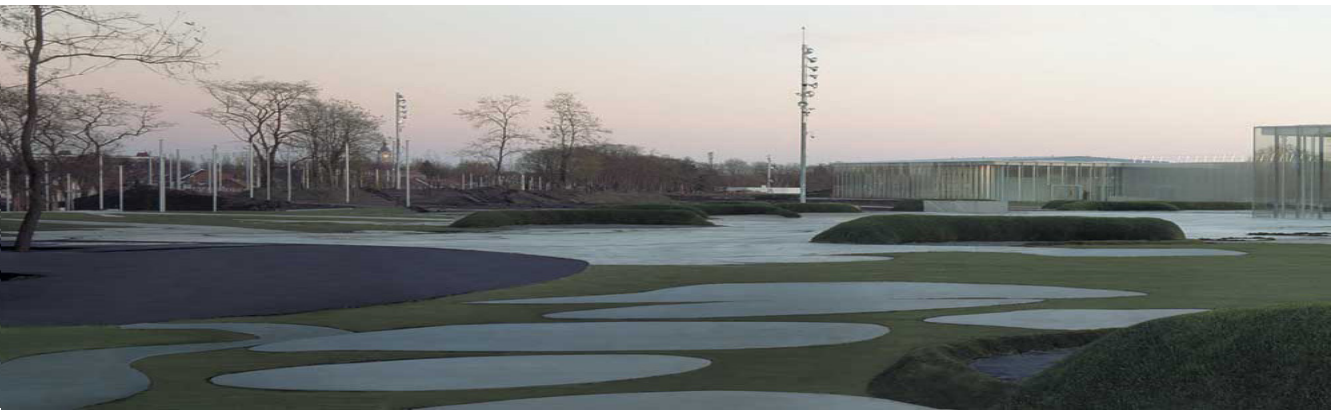

Figure5.4 Louvre Lens park (Landezine 2017)

5.1.2 Formal case study

Museum Park Louvre in Lens, France, by Mosbach Paysagistes

The 20-hectare park surrounding the new wing of the Louvre Museum in Lens is a thought-provoking project developed on an old mine site. Located only one hour by speed train from Paris, this museum and park will serve as event space and extend the exhibition space of the Louvre Museum. The park features grasslands, picnic areas, a forest, an esplanade in front of the building, and several promenades (Santiago 2015).

"Our strategy restores the disturbed link between skin (recording surface) and depth (resource of yesterday and tomorrow). It opens the door to future ages by introducing the art as mediator of all the ages and as bridges to new mentalities" (Landezine 2017).

The landscape serves as a place for gathering, a link between the museum and the city, and preserves memory of the history of the site. The park also adheres to environmental principles as well as extending the boundary of the museum with community involvement in the establishment and daily workings in the park. This ensures the park's role in the community as a recreational area with the community taking ownership (Landezine 2017). The landscape and its elements were designed as a performative landscape where the interventions cause the effect for landscape to start but the end results are unknown as the landscape transforms over time (Santiago 2015).

This park is an excellent merge of a functional-, poetic- and rehabilitation-driven park that merges these concepts. Like the Robinson Deep site, the visual quality of the mine tailings site and the emotive quality would be conserved in the new intervention. This will be done by retaining some of the key features. In the Louvre-Lens Park, the process of landscape was explored by creating a canvas for landscape to happen, for example, leaving cracks in the concrete floor so that vegetation can grow, thereby letting the pattern of nature take over and fill open areas.

Figure5. 5 Vegetation growing over hard surface (Landezine 2017)

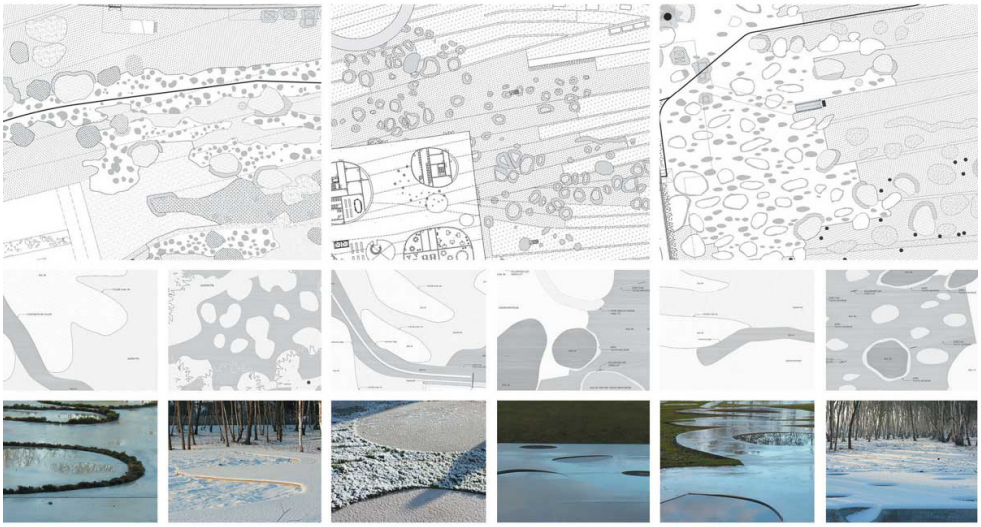

Figure5. 6 Patterns implemented in the park space (Landezine 2017)

Figure5. 6 Variety of intimate and vast spaces within the park (Landezine 2017)

Year 2011 one year after the stormwater park was built

Year 2014, 4 years after the wetland park was built; residential development was catlized by the stormwater park

Figure5. 7 Qunli strom water park progress photos (Turenscape 2017)

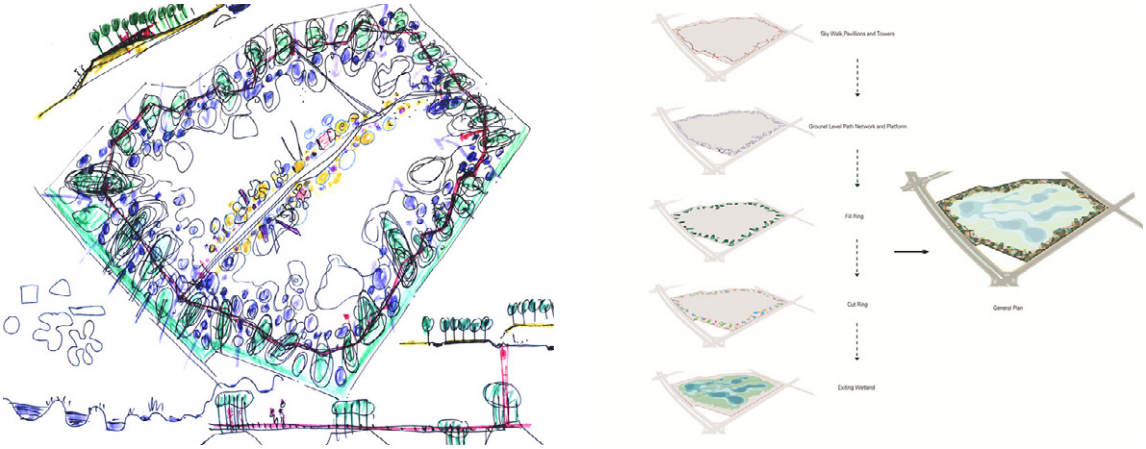

Figure5. 8 Pattern informants and pattern generator (Turenscape 2017)

5.1.3 Functional case study

Qunli Stormwater Park in Haerbin City, China by Turenscape

Turenscapes' founder, Kongjian Yu, has a passion for changing the perception of landscape in urban China from a superficial use of landscape to a more functional one, by implementing eco-services as a structure for the park (Ryerson Department of Architectural Sciences 2014).

The name of the firm, Turenscape, is broken down as follows: TU = earth, dirt or land and Ren = people, the man or human being. Together it means nature, man and spirit as one. The Turenscape office has developed concepts named Sponge City and Bigfoot Revolution with the aim of conceiving nature as construct in their landscapes and ensuring the longevity of their projects (Turenscape 2017).

Qunli Stormwater Park 'greenfield' planning started in 2006 on a new urban district. The 2 733 hectares of urban environment is centred around a 30-hectare park in an area historically known for its flooding and for being waterlogged. The stormwater from the surrounding new urban areas will drain into the wetland. The park is surrounded on four sides by roads. The landscape was planned and built with a simple cut-and-fill technique to form a ring of ponds with raised walkways. The centre of the park is left in a natural wetland state. The ring of ponds acts as a threshold for the urban to natural landscape. This water urbanism approach transformed the dying wetland to a stormwater park that serves the urban areas (Turenscape 2017) .

Figure5. 9 The meeting of urban and natural spaces (Turenscape 2017)

The main elements of this park are the water ponds (wetlands), walkways, viewing decks and skywalks. Walkways on different levels allow users to experience the landscape on different levels (Turenscape 2017).

The park and urban edge surrounding the park have a similarity with the Robinson Deep site as the proposed site development will see a growth in urban development in the area. There will also be an increase in the need for eco-services to relieve the stress on the current systems. The park's spatial organisation from a programmed to a less formal site with the functionality of the park as an eco-service works well to involve the user but also keeps the user on the safer edges.

The repetition of simple landscape "tools" make for an inconspicuous pattern that users can occupy in any way they want to. This pattern of field is formed by the simple need for ponds to process stormwater at certain points in the park where the stormwater daylights, access routes through the park on different levels, and viewing platforms so users can observe the processing of the water.

5.1.4 Technical case study

Vintondale AMD & Art Park, Vintondale, United State of America, Team SPLASH.

Team SPLASH was conceived in 1994 with the start of this project as a sustainable partnership of landscape architects, scientists and historians. The team was to address the after-effects of a worked out coal mine in Vintondale, Pennsylvania. The Acid Mine Drainage (AMD) from the site affects the micro-organisms that serve as the base of the food chain (AMD&ART 2016).

The solution was the creation of a series of pools that captures the AMD from a mine portal named Portal 6 and the water draining from the surrounding stockpiles into a series of ponds. This artificial wetland serves as the skeleton of the park that contains art exhibitions, picnic areas, and walkways. The other main interaction with the site is the educational aspects of the park.

Figure5. 10 Sketch plan of Vintodale AMD&ART (AMD&ART 2016)

Figure5. 11 View of the ponds at Vintondale AMD&ARTS (AMD&ART 2016)

Figure5. 12 Aeration pipe at the Vintondale AMD&ARTS park's pond 6 (AMD&ART 2016)

Infographic boards inform users how the system works and described the history of the site (AMD&ART 2016). This park is operated as an ongoing process, with a team continually testing and analysing variables such as water qualities, soil parameters etc. to ensure the landscape performance is kept at a high yield. The planting on-site was done with indigenous plants that speak to the process of water quality. Indigenous trees planted along the wetland ponds imitate the polluted red water that has been transformed to a green/blue colour (AMD&ART 2016).

The use of wetlands and recreational space to transform this industrial site to its previous, more natural state is evidence of the power of the landscape to heal itself. At Robinson Deep, the site is synthetic and man-made, completely surrounded by urban environment. The transformation of the site to previous natural state will be costly and cause the past identity of site to be lost.

The process of the wetland treatment used at Vintondale is, similar to the proposed AMD treatment system at the site. The heavy metals of both sites are similar, except that uranium and cyanide are also present at the Robinson Deep site. As stated before, this will be treated in a chemical process. The park's spatial organisation is reactive to the construction methods used and organised around the tailings of the old mine from where the AMD originates. This organisation led to a pattern that is resembled in the different spaces happening around these ponds.

5.2 Conclusion

The above case studies all included the application of a system to resolve the problem, be it movement on-site as at the Qunli Stormwater Park in China, to the Museum Louvre Lens Park that serves as a threshold to the museum interior and the museum that extends out into the landscape.

The local case study, The Towers & Merriam Square, takes stormwater, which is traditionally dealt with in hidden systems, to the surface so that the user can see and use the urban areas that the eco-service creates. In contrast, the Vintondale AMD&Art park strives for a "natural" landscape. Here the systematic requirement for the Robinson site will align to the Vintondale Park but have a more urban approach as that of the Towers project.

The Louvre Lens project attempts to create a sense of combined identity of what the site was and what it is now. The pattern at the Louvre Lens is pattern of figure in combination with pattern of field. With appropriate materials, the pattern creates a new identity for the site with a hint of what the site once was through the 'cracks' and openings in the walkways. This, combined identity, will also be one of the aims of the proposal at the Robinson Deep site.