Parking the storm

Sabine Humblé, Nicolai Maratchouk

d'Oultremontcollege Drunen, The Netherlands, p.vankempen@doultremontcollege.nl

Abstract

Once every hundred years an extremely big storm rages through Holland. This storm causes almost all of the rivers to flood. One of those rivers is 'de Maas' and its cannels. When it is storming like this, the water will rise to the point where an important industrial area (Groenewoud), next to the d'Oultremontcollege will be flooded. To stop this from happening the city council needs to store the water somewhere. The goal is to make a beautiful design for a park where the city can store not only the excessive water from the big storm but from other storms as well.

This park is a place where people can learn about the value of water in a playful way. It will be suitable for all ages. This park is a place where biodiversity will gradually increase and a place where people and animals can have fun with water.

Keywords

Awareness, flood, park, biodiversity

Introduction

In September 2015 we started our investigation. Our city council contacted us and told us about the flooding problem near our school, we came to the conclusion that the perfect way to store all the excess water would be a park where people would be able to learn about the importance of water. We made an inventory of all the demands that we would have to pursue in our design and we based our investigation on those demands.

Content

1 The purpose of the investigation

The water from the storm will rise to the point where an important industrial area ((Groenewoud) which you can see in Fig.1) next to the d'Oultremontcollege, will be flooded. The purpose of our project/investigation is to design a park where the excess water can be stored. It's important that the park can be used by everybody and that it will be able to teach people about the importance of water. The park will have to be able to store at least 20.000 m^3 water. While designing this park we will have to pay attention to a lot of factors like, biodiversity and pollution.

Figure 1: Groenewoud overview

2 Method of the investigation

Our method to investigate the demands for the park was very simple. We had a lot of meetings with our city council. We looked at reports about the soil in our area. We looked at maps of our area and we made our looked up the information that we needed accordingly to the demands the city council made.

3 Results of the investigation

3.1 The water

3.1.1 Origins of the water

On the map in fig. 2 the red arrow indicates the water reservoir that will overflow during a big storm. From this exact spot the water will have to be guided to the other side of the road where the park will be.

Figure 2: water reservoirs in Drunen

3.1.2 Amount of water

The amount of excess water that has to be stored is 20.000 m^3.

3.1.3 Waterworks

To get the water to the park there will have to be waterworks placed underneath the road separating the park and the water reservoir. Fig. 3 is a sketch of the waterworks. To pump al the water from the reservoir to the park there will be a need for a very powerful pump.

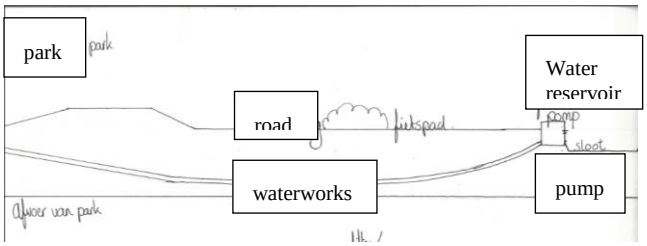


Fig. 3: the waterworks

3.2 The area

3.2.1 The soil/pollution

The soil where the park will be build is polluted with copper and zinc. The soil that is heavily polluted can not be moved. The soil that is moderately or slightly polluted can be dug into and moved. We used this information to re-use all of the ground that we dug up to make room for the river. This will be presented on the conference in June. In fig. 4 is indicated where the soil is polluted. Red is heavily polluted, green moderately and blue slightly polluted.

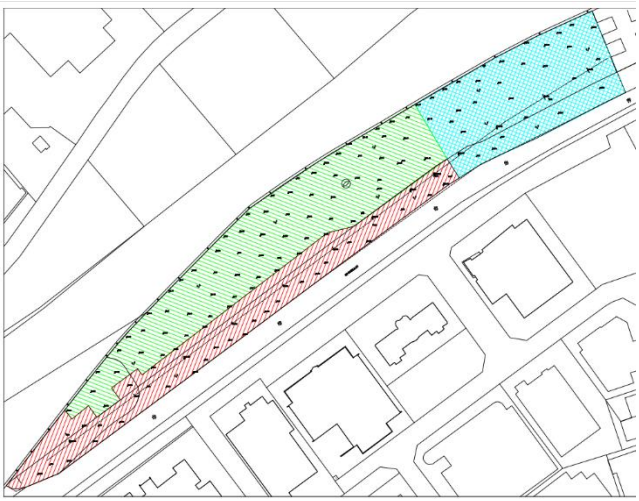


Fig. 4: Pollution

3.2.2 The view

A big demand from the industrial area was that the shops needed to be seen from the other side of the park (the highway). That demand made it impossible to plant a lot of trees without a good plan.

3.3 The biodiversity

The park needed to be able to store a lot of water. Therefore the park would become a very wet environment. We researched plant, trees and animals that can survive best in a wet environment.

From this research we concluded that we wanted to place 'paddepoelen' in our design. Paddepoelen are puddles with a lot of plants where a lot of animals like toads, insects and fish live together.

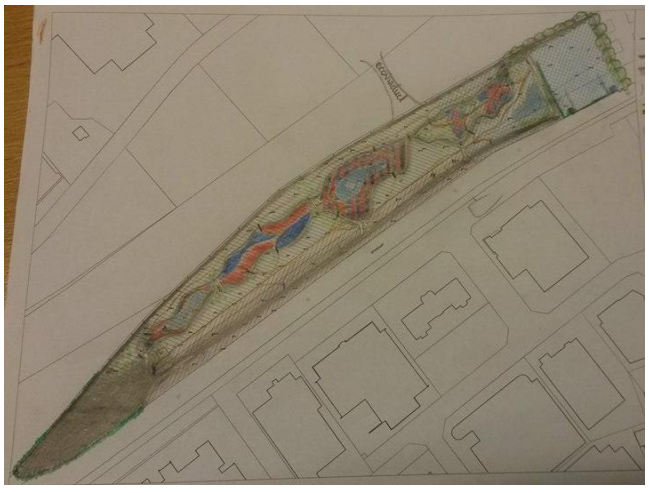
Examples of trees that would survive in a very wet environment are willows and *Alnus glutinosa* (fig.5).

Fig. 5:*Alnus glutinosa*

4 Conclusion

The conclusion is the design for a beautiful park which will be presented on the conference. Fig 6. Shows the map of the park. Fig. 7 shows a picture from the model of the middle part of the park.

Fig. 6: map



design of the park

Fig. 7: model of the park

Further investigations could be how to raise awareness about the importance of water through playground equipment. This investigation will be our project the next couple of months, it will be integrated into the design of the park and presented on the conference.