Lake Albert

Redevelopment Plan

Preface: An Overview of Lake Albert

Lake Albert is an artificial lake that was developed in Wagga Wagga during the 1950's. It covers an area of 1863 ha and holds approximately 520ML of water, which is the primary water source for the City. Lake Albert is surrounded by approximately one third of the urban streets and an additional 3.5km of the perimeter between the lake and the land. The main inflows into Lake Albert come from Crooked Creek, Wagga Wagga and four direct outfalls on the surrounding urban and rural areas. The demand for water from Lake Albert is increasing. Wagga Wagga, Lake Albert serves as a major irrigation hub for the surrounding community, providing a valuable water source which caters for the diverse needs of the community, from domestic use to the provision of irrigation facilities for local farmers.

Figure 1.2: This diagram shows the location of recreational areas and facilities around Lake Albert.

Contrasts

Preface - An Overview of Lake Albert

Section 1: The Problem - Lake Albert Control Gates

1. Introduction

2. Historical Overview

3. Internal Forces

4. External Forces

5. What Happened Next?

Section 2: Lake Albert’s Water Cycle - Reasons to act now

6. Water...

7. Oxygen...

8. Sediment...
The volume of water standing against the retaining wall applies a pressure for against the concrete wall. A value for the size of this force can be calculated using static analysis. Figure 1.3 depicts the forces acting on the retaining wall.

Hydraulic Pressure Force

The effective area of water that applies a pressure force on the retaining wall is a triangle, which is also referred to as the hydraulic pressure. The hydraulic pressure force can be expressed as a point load that acts at the centre of mass for the triangle. The height (H) is taken from the base. The specific weight (γ) of water is the product of its density (assumed to be 1000 kg/m³) and the force of gravity (9.81 m/s²):

\[ F = \frac{1}{2} \times \gamma \times H \]

This value is the pressure due to water acting at the base of the retaining wall. To determine the overall pressure, the height of the concrete wall must be considered:

\[ F = \frac{1}{2} \times (1000 \times 9.81) \times 5.57 \text{ m} \]

\[ F = 14475 \text{ N/m}^2 \]

Internal Forces

The internal forces acting inside the concrete will be determined by finding the area of vertical (C-V) of the retaining wall. The wall is fixed at both ends. The hydraulic pressure is equivalent to the compression of a horizontal strut (C-V). The force of gravity will be considered by the compressive stress of water acting on the strut:

\[ F = \frac{1}{2} \times \gamma \times H \]

Tensile Cracking

Cracking is a common occurrence in concrete and can indicate that a critical structural problem is present. Concrete structures do not have a true tensile strength, often due to microcracking and other tension-sensitive failure mechanisms. The tensile strength of concrete is considered to be the point of failure. Tensile stress values are induced into the member large tension cracks form prior to failure. Cracking occurs within the concrete member, when the induced tensile stresses exceed the tensile strength of the concrete. As illustrated in Figure 1.4, there is evidence of a large tensile crack on the external surface of the structure. At the contact, a crack surface is observed. Inside the concrete, numerous cracks are distributed in the concrete member. The tensile forces are concentrated. The rebar within the member and the rebar reinforcement are stressed. The rebar reinforcement is stressed. This means that the tensile forces are resisted in the concrete. The rebar reinforcement is stressed. The tensile forces are concentrated. The rebar reinforcement is stressed. The tensile forces are concentrated.

What happens now?

One of the two main structural supports of the central gate exhibits a significant level of tensile cracking, which has compromised the overall safety and integrity of Lake Albert. As the central gate will likely have a load of approximately 200,000 kg of water, it is essential to prevent any further cracking from occurring. One of the several causes of this failure would be the temporary closure of the site for full-time monitoring and other structural tests. However, the presence of water in Lake Albert will ensure the safety of the site, as the structure will continue to improve with time. If the structure remains safe, it will continue to improve with time. As the structure continues to improve with time, the site will be secure and the structure will continue to improve with time. If the structure remains safe, it will continue to improve with time.

The image below shows the potential damages caused by the failure of the Lake Albert spillway. The spillway in Lake Albert will result in significant damage. This will lead to the failure of the spillway, which will be critical for the safety of the site. The spillway in Lake Albert will result in significant damage. If the structure remains safe, it will continue to improve with time. As the structure continues to improve with time, the site will be secure and the structure will continue to improve with time.

The tension in the concrete wall is of particular significance to the overall structural integrity of the central gate. A significant concrete wall would have a compressive strength of 230MN/m². However, it would only have a tensile strength of 20MN/m². This means that the concrete is designed with steel rods, which can increase the tensile strength to 230MN/m². Figure 1.5 shows that the steel bars are connected to the top of the retaining wall at an angle. The tension is designed to absorb the tensile load created by the weight of the water.