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Corangamite Catchment Management Authority and the City of Greater Geelong

A.S. Miner Geotechnical

Case Study for Erosion and Landslides.

Rokewood-Skipton Rd

Report No: 356.3/02/06

INCOMPLETE

Prepared for Troy Clarkson

Department of Primary Industries

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Geelong, VIC 3220

and

Leigh Dennis

Corangamite Catchment Management Authority

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1. Site Description

1.1 Site I.D.

356.3/02

1.2 Site address

Rokewood-Skipton Road

1.3 Brief site description

The site lies within the property line and is adjacent to the Rokewood Skipton Rd. Drainage from an undetermined catchment to the south of the road is channel under the road via and culvert and taken into a concrete drop structure from where it discharges at the property fence line into the head of an extensive gully system.

1.4 Map datum/ Map projection/ Zone

MGA Zone 54 (GDA 94)

1.5 Easting

E 732090

1.6 Northing

N 5807460

1.7 Municipality

Golden Plains

1.8 CCMA landscape zone

Woady Yalloak

1.9 Previous ID

WF752

1.10 Previous Data Source

Warren Feltham (2005) CCMA landslide and Erosion Database. Version 2 The University of Ballarat. Geology Department July 2005. Contained in an MapInfo Table entitled “SW_erosion_landslides”

2. Hazard Description

2.1 Soil degradation type

Soil Erosion by Water

2.2 Soil degradation sub-class

Gully Erosion

2.3 Description of hazard present on site or threatening site from above or below

The main gully has a number of actively eroding headward inputs some of which extend beyond the property line and are now threatening the drop structure and the road. Sections of the ground beyond the fence are subsiding and caving in and this indicates sub surface movement of water and sediment and probable tunnelling around the drop structure. The gully extends into the property and appears to feed into a west –east trending drainage line which is probably the Moonlight creek or a tributary.

The extent and nature of the hazard mean it is impacting agricultural land, boundary fencing infrastructure, the existing concrete drop structure and culverts and has the potential to reach back as far as the road. Sediment loads must be occurring to the Moonlight creek as well as loss of viable agricultural land.

2.4 Dimensions of Hazard (width, length and depth if appropriate)

Approximately 70 m (W) x 300 m (L) with a depth of approximately 1.0 to 2.0 meters

2.5 Extent of Hazard (spatial area and volume if appropriate)

Approximately 2.0 ha

2.6 Magnitude of hazard (travel distance or rate of occurrence)

The rates of increase in gully erosion in the Illabarook area increased by 15% in 10 years from 1970 but the overall rate decreased to just over 5% for the 20 years from 1970 to 1990.

2.7 List previous reports or studies relevant to this site

Stockfield G 1992. An area plan for the control of land degradation in the Woady Yalloak catchment. Grad. Dip. Land Rehab. (unpublished). Dep. Biological & Chemical sciences, Ballarat University College.

2.8 Custodian of previous reports and studies

Pete Dahlhaus (Dahlhaus Environmental Geology P/L)

3. The Event Has Already Occurred

3.1 Date of first occurrence

To be determined

3.2 Date of most recent re-activation or acceleration

The erosion is currently active

3.3 Actual or postulated trigger event including magnitude and duration

Unknown

3.4 Frequency of Trigger Event if known

Unknown

3.5 What damage or impact occurred?

Extensive loss of agricultural land, some damage to concrete drop structure and probable sediment contribution to Moonlight creek

3.6 Was there a risk of injury or loss of life?

No risk currently but further retrogression of the head may result in subsidence and undermining to the road which could in turn collapse under vehicle traffic causing injury or even death in the most extreme scenario.

3.7 How important was it?

Given the fact that the hazard is starting to impact assets off site it is becoming more important to a number of stakeholders.

3.8 What asset classes were impacted?

Water Quality

Land Use

Infrastructure

3.9 What asset sub classes were impacted and what are the asset values?

Minor waterways through sediment deposition and water quality through increased turbidity =7.

Grazing land=5

Drainage infrastructure and possibly roads=5

3.10 How severely were assets impacted?

Water quality-unknown at this stage

Land use- appears to be significant

Infrastructure - minor impact on culverts and drop structure at this stage. No impact to fencing yet or roads

3.11 Estimated cost of impact (including qualitative and quantitative costs for loss of asset, investigations, remedial works, cultural, business and environment)

Ultimately may cause disruption to transport

4. Remediation Has Already Been Undertaken

4.1 What remediation option was used?

Drop structure at the head of the main gully and some rock shute/filling in isolated gullies adjacent to the main gully

4.2 How was the site initially assessed?

Unknown

4.3 How was the remediation designed and by Who?

Unknown

4.4 Did it require specialist equipment or subcontractors?

Unknown

4.5 How effective has the remediation been?

The site is still active hence effectiveness has been limited.

4.6 How was the effectiveness judged?

Visually to date

4.7 Would other treatments worked here?

Consult Troy here

4.8 Was it early intervention or reactive?

Definitely appears to be reactive

4.9 What was the cost of remediation (including design, construction and implementation)?

4.10 How was the remediation funded?

Unknown Shari to help fill in gaps

5. Ongoing Review and Monitoring Requirements

5.1 What is the likely ongoing monitoring and review strategy?

Unknown but assumed to be minimal (Consult with Shari after inspection)

5.2 What is the nature of future monitoring and maintenance?

Unknown

5.3 What are the likely costs of monitoring and maintenance?

Unknown

Photos

Photos

Photos

Sketches and Drawings