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26 February 2024

Leigh Elliott
Quarry Manager
Holcim (Australia) Pty Ltd
Mt. Shamrock Road

Pakenham, Victoria 3810

Dear Mr. Leigh Elliott

Mt. Shamrock Quarry - Toomuc Valley Slope Inspection, January 2024

1.0 Introduction and Scope

AECOM Australia Pty Ltd (AECOM) was requested by Holcim (Australia) Pty Ltd (Holcim) to undertake a site inspection at the Mt Shamrock Quarry in Pakenham. The purpose of the site inspection was to meet the monitoring requirements of the Mt Shamrock Quarry Environmental Management Plan (EMP), Section B, Sub-section 2.5.4 (Version 3, July 2021), which requires a "specialist consultant" to conduct visual inspection of:

- Vegetation planting.
- Groundwater springs.
- Land surface stability.

The scope of work completed by AECOM included a one-day site visit to the Mt. Shamrock Quarry to conduct the visual inspection as required by Sub-section 2.5.4 of the EMP.

This letter report presents the observations and findings from the inspection.

2.0 History of Landslips in the Toomuc Valley

The report by URS Australia prepared in 2005 as part of the approval process for expansion of the Mt. Shamrock Quarry presents good background discussion of the history of landslips in the Toomuc Valley, particularly of the eastern flank in the vicinity of the Mt. Shamrock Quarry. This report is also referenced in Section 10.0 of the EMP.

Information in the URS Australia (2005) report that is relevant to the January 2024 inspection is summarised below:

- Landslips observed on the eastern flanks of the Toomuc Valley in the vicinity of the Mt Shamrock Quarry are a natural occurrence and pre-date the opening of the quarry.
- Land clearance and rainfall are major contributors to the formation of the observed style of landslip, along with soil type and slope angle. Planting of deep rooting trees over the areas affected by landslips was proposed to improve stability.
- The report indicates that minor landslip activity "will continue in response to intense or prolonged rainfall".
- The occurrence of springs in the area "will lead to localised saturation and weakening of the soil in those areas, contributing to the instability". In particular, the report indicates that surface drainage is to be established "if any ponding water is evident".
- Establishment of surface drainage "in the vicinity of the landslips should minimise infiltration of rainfall-runoff".

3.0 January 2024 Site Inspection

The visual inspection was carried out by Adad Barkho (AECOM – Geotechnical Engineer) on January 16, 2024, under the escort of Leigh Elliott (Holcim – Quarry Manager).

The inspection comprised a site walkover of the slopes to the west and south of the Mt. Shamrock Quarry. The inspection route planning and the identification of slope masses and spring locations for inspection on site were led by Mr. Leigh Elliott.

The inspection involved visiting 17 masses (refer Section 5.0). The inspection commenced at 8 am and was completed by 3 pm.

The weather at the time of the inspection was mostly sunny, although the area received heavy rainfall over a period of one hour or so immediately prior to the start of the inspection on the same day. The days preceding the site inspection experienced mostly no rainfall with temperatures around mid-20°C.

Most of the slope ground surfaces were moist. The slope faces were typically covered with dense grass and, in some areas, with shrubs and trees as well.

4.0 Site Inspection Methodology

The following sub-sections describe the methodology that was adopted during the site inspection for each of the three EMP monitoring elements listed in Section 1.0.

4.1 Vegetation Planting

The methodology involved a review of recent aerial imagery and comparing the extents of visible planting to the areas nominated by URS Australia for landslip management (presented on Drawing L3a in Appendix 6 of the EMP).

The most recent aerial image available from Nearmap (October 2023) was used for this purpose.

4.2 Inspection of Springs

Inspection of the springs generally included making visual observations of the following:

- The location of the spring relative to the slope mass.
- The moisture condition (dry or wet) of the ground surface at the location of the spring.
- Whether groundwater was actively trickling through the ground surface at the location of the spring.

4.3 Land Surface Stability

The methodology involved visual inspection of the ground surface at the locations of the previously identified EMP masses (refer Attachment 3) for visual signs that could indicate recent ground movement, including observations of the presence of the following surface expressions:

- Tension cracking on the ground surface.
- Hummocky or disturbed ground surface.
- Scarp surfaces.
- Rotated tree trunks.
- Rotated fence lines.

5.0 Site Inspection Constraints and Limitations

The following constraints and limitations applicable to the January 2024 inspection are noted.

Constraints:

- Dense grass surface cover over much of the site may have concealed visual signs of recent ground movement in the areas inspected. In some areas of the site, dense tree and/or overgrown grass cover (refer Attachment 3) resulted in obstructed land surface visibility.
- Parts of Masses 8, 10, 12, 13 and 15 (refer Attachment 3) were not inspected as they are on inaccessible land.
- No parts of Masses 14, 16 and 20 were inspected as they are on inaccessible land.

Limitations:

- Visual inspection of vegetation planting did not include attempts to identify the species or type of the planted trees. If this is required to satisfy the requirements of Sub-section 2.5.4 of the EMP, it is recommended to consult specialists in this area for further advice.
- Only the areas directly along the route taken by the Holcim escorting personnel were inspected.

6.0 Site Inspection Findings

6.1 Vegetation Planting

Excerpts of Drawing L3a (EMP Appendix 6) are shown above the corresponding Nearmap aerial images from 2023 in Figure 2 and Figure 3 for slopes south and west of the Mt. Shamrock Quarry, respectively.

Figure 2 shows that whilst there is good vegetation planting progress made, parts of the slope remain unvegetated. These include the slope to the north of the farm dam shown on Figure 2 and the upper area near the southwestern boundary of the quarry site.

Figure 3 shows substantial planting progress in the corresponding areas of Drawing L3a.

On-site, tree saplings were protected with tree guards. At locations where the trees appeared to be more matured, such as shown in Figure 1 (Mass 2), they were generally of small to medium size.

Figure 1: Planted trees – Mass 2.

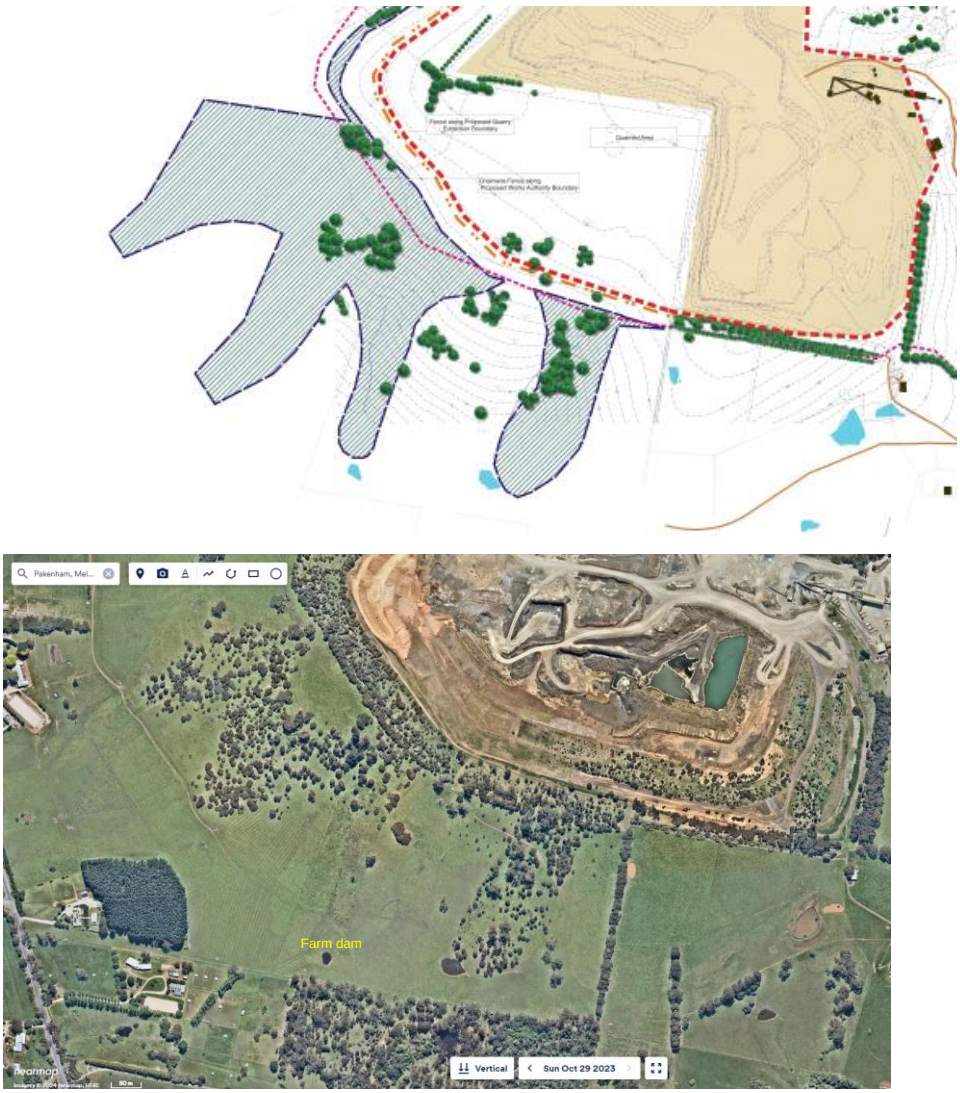

Figure 2: (Top – Drawing L3a (EMP, Appendix 6), Bottom – Nearmap, 2023). Southern slopes.

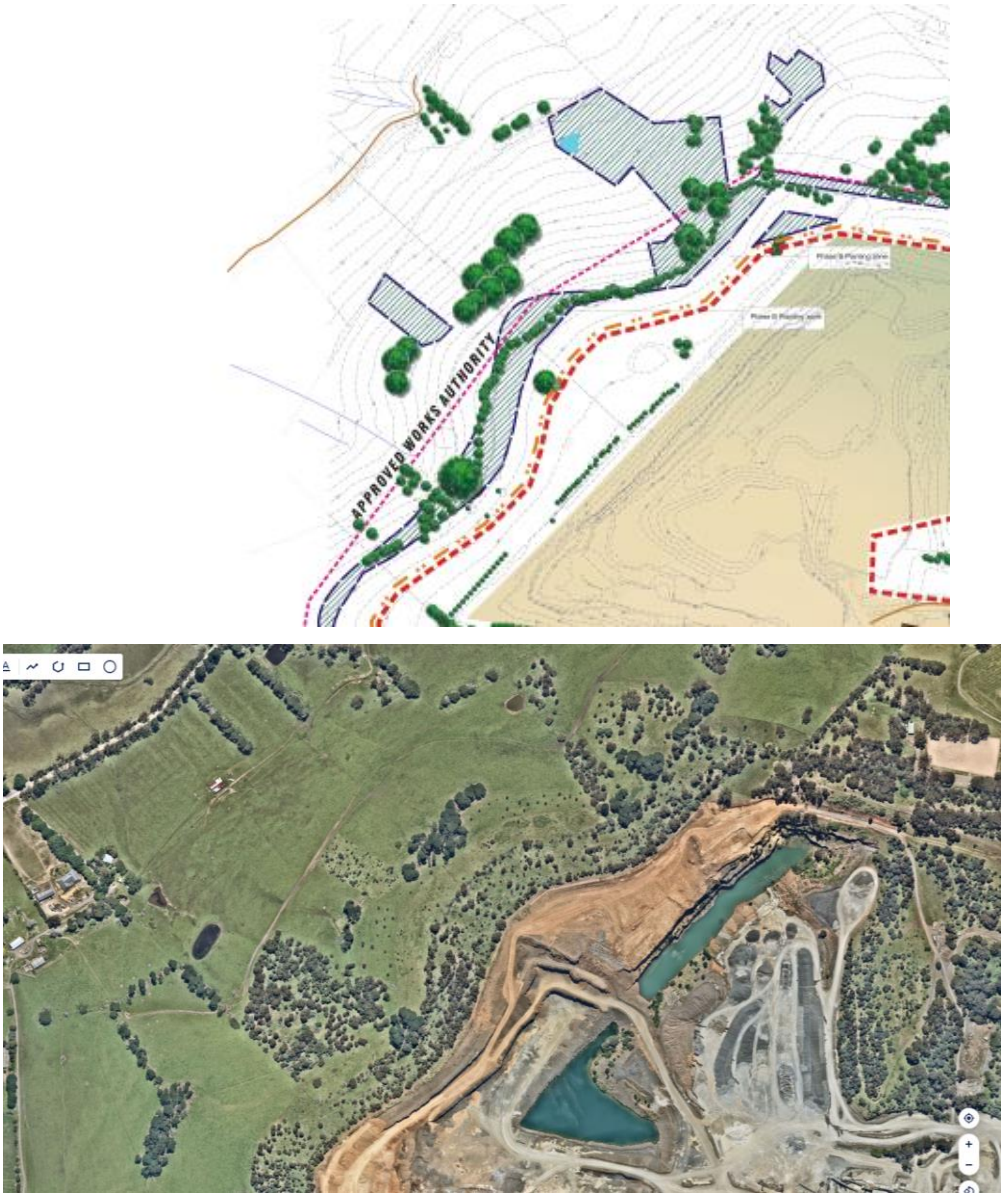

Figure 3: (Top – Drawing L3a (EMP, Appendix 6), Bottom – Nearmap, 2023). Western slopes.

6.2 Inspection of Springs

Of the eleven natural springs located around the Mt. Shamrock Quarry, the inspection route passed only near Springs 02 to 05. Refer Attachment 3 which shows the location of the inspected springs.

Table 1 below provides the observations from the inspection of the springs.

Table 1: January 2024 springs visual inspection

Spring ID	Site Observations	Location of Spring (Relative to Slope Mass)	Photo
Spring 01	Not inspected *		
Spring 02	Spring water impounded by embankment. Refer “Mass 2” entry in Attachment 1.	Within Mass 2, mid-upslope.	
Spring 03	Heavily vegetated. Plastic bin placed over spring. Ground surface appeared wet around bin.	Within Mass 19, upslope.	
Spring 04	Spring water impounded by embankment. Refer “Mass 15” entry in Attachment 1.	Within Mass 15, upslope.	
Spring 05	Dense grass cover. Ground surface moist. Groundwater was not observed to trickle through the ground surface.	West of Mass 5.	Photo not taken.

Spring ID	Site Observations	Location of Spring (Relative to Slope Mass)	Photo
Springs 06 – 10	Not inspected [+].		
Spring 11	Not inspected [T].		

*: Spring 01 was not inspected – not within the Holcim inspection route.

+ Springs 06 to 10 were not inspected because they are either on inaccessible land or near the eastern boundary of the quarry.

T: Spring 11 is a newly discovered spring (by Holcim, circa mid-2023). Whilst the spring location was in the vicinity of the Holcim inspection route, it was not known by the AECOM inspecting personnel that this was the location of Spring 11 as it had not yet been marked on site at the time of the 2024 inspection. As such, the spring location was not inspected directly. It is recommended to include inspection of the spring as part of future visual site inspections as required by the EMP.

6.3 Land Surface stability

Reference is made to Attachment 1 which contains observations of the slope masses from the January 2024 inspection. The observations should be read in conjunction with the inspection plan in Attachment 3, which contains important supplementary information.

The findings from the visual inspection of land surface stability within the areas inspected are broadly summarised as follows:

- **Masses 2, 4, 6, 7, 9, 11 – 13, 15 and 17 – 19:** no visual signs that could indicate recent ground movement were observed.
- **Mass 8:** backscarps were observed, which appeared to be associated with a localised area of historical slumping. In the remaining areas, no visual signs that could indicate recent ground movement were observed.
- **South (downslope) of Mass 5:** backscarps were observed within an area south of Mass 5 (outside of the Mass 5 extent, refer Attachment 3), which appeared to be associated with a localised area of historical slumping.
- **Masses 1, 3 and 10**: visual signs suggesting that recent ground movement has occurred were observed, which included:
    - **Mass 1**: rotated tree trunks.
    - **Mass 3**: rotated tree trunks.
    - **Mass 10**: rotated tree trunks and rotated fence line.

7.0 Recommendations

7.1 Land surface stability

The observed signs of ground movement within Masses 1, 3 and 10 are considered as being likely associated with the natural occurrence of minor landslip activity within the slopes adjacent to the Mt. Shamrock Quarry, which has been described in previous studies of the site (refer Section 2.0).

As such, our present recommendation is to continue to maintain regular documented inspections of all slope masses in accordance with the requirements of Sub-section 2.5.4 of the EMP.

Relating to the observed backscarps within Mass 8 and south of Mass 5, it is recommended to re-vegetate the backscarps to provide increased surface resistance to erosion by water, as follows:

- Revegetate behind the observed backscarps with deep root (but small canopy) shrubs/bushes and grasses.
- Revegetate the backscarps surface with grasses.

- Continue to monitor the vegetation to ensure that possible washouts by surface water do not inhibit re-vegetation progress.

7.2 Springs – management of water at the surface

Of the four springs that have been visually inspected during the January 2024 inspection, standing water was observed at three of those springs, Springs 02 – 04 (refer Section 6.2). In the case of Springs 02 – 04, these occur directly within the slope masses (refer attachment 3).

The URS Australia (2005) report indicates that surface drainage is to be established if any ponding water is evident. Water infiltrating into known landslide masses increases the risk of landslide re-mobilisation. If sufficient water enters a remobilised landslide mass, it is possible that the landslide may transition from a slow translational slip to a rapid moving debris slide or flow.

On this basis, it is recommended that Holcim investigates alternative ways to manage surface water from the springs at the locations where standing water is considered to present a risk to the slope. A primary consideration of this will be to establish good surface drainage to avoid standing water.

We recommend that Spring 11 is included as part of future visual site inspections in accordance with the requirements of Section 2.5.4 of the EMP. If standing or flowing water is observed at the location of Spring 11, it should be managed according to the comments above.

8.0 Supplementary Comments – Presence of Farm Dams

As part of the January 2024 inspection, the AECOM inspecting personnel was escorted by Holcim to three farm dams for inspection – the dam at the base of Mass 6, the dam southwest of Mass 5 and the dam immediately west of Mass 13. Attachment 3 shows the location of the three dams.

It is noted that the presence of dams within landslide-prone slopes presents risks, including:

- Water infiltration from standing water in dams increases the risk of landslide re-mobilisation.
- Movement of the slope may have adverse effects on the performance of the dam to effectively retain water.
- Deposition of re-mobilised landslide debris into the dam.

These risks and related considerations are best informed by a site-specific assessment of the dam. When considering the risks associated with dam failure, the downslope consequences need to be assessed. This is particularly the case when there is a possibility of dam failure impacting people and property beyond the Holcim site. Aerial photos indicate that there is at least one location where a house is located downslope of a landslide mass and accompanying dam.

It is our understanding that the monitoring requirements of Sub-section 2.5.4 of the EMP, which this report is intended to address, do not include inspection of the farm dams.

The risks associated with the impacts of dam failure should be investigated by Holcim. We draw your attention to the DELWP publication “Your dam: Your responsibility. A guide to managing the safety of small dams” for further details (https://www.water.vic.gov.au/__data/assets/pdf_file/0027/668610/your-dam-your-responsibility.pdf).

9.0 References

Holcim, 2015. *Pakenham Quarry, Environmental Management Plan*. Version 3.

URS Australia, 2005. *Mount Shamrock Quarry (Pakenham), Proposed Extension, Environment Effects Statement, Slope Stability*.

Department of Environment, Land, Water and Planning (DELWP) 2018. *Your dam: Your responsibility. A guide to managing the safety of small dams*. Authorised and published by the Victorian Government, 8 Nicholson Street East Melbourne 19/06/2018.

If there are any questions, comments, or queries on any of the content within this letter report, please do not hesitate to contact the undersigned.

Yours faithfully

Adad Barkho
Geotechnical Engineer
adad.barkho@aecom.com

Attachments
Attachment 1 – Site Observations – Masses 1 – 20
Attachment 2 – Site Observations – Farm Dams
Attachment 3 – Inspection Plan – January 2024
Attachment 4 – Site Photos

10.0 Standard Limitations

AECOM Services Pty Limited (AECOM) has prepared this report in accordance with the usual care and thoroughness of the consulting profession for the use of Holcim (Australia) Pty Ltd and only those third parties who have been authorised in writing by AECOM to rely on this Report.

It is based on generally accepted practices and standards at the time it was prepared. No other warranty, expressed or implied, is made as to the professional advice included in this Report.

It is prepared in accordance with the scope of work and for the purpose outlined in the contract dated 22 February 2021 (as extended in agreement with Holcim on 15 December 2022).

Where this Report indicates that information has been provided to AECOM by third parties, AECOM has made no independent verification of this information except as expressly stated in the Report. AECOM assumes no liability for any inaccuracies in or omissions to that information.

This Report was prepared between 17 January 2024 and 14 February 2024 and is based on the conditions encountered and information reviewed at the time of preparation. AECOM disclaims responsibility for any changes that may have occurred after this time.

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It is the responsibility of third parties to independently make inquiries or seek advice in relation to their particular requirements and proposed use of the site.

Any estimates of potential costs which have been provided are presented as estimates only as at the date of the Report. Any cost estimates that have been provided may therefore vary from actual costs at the time of expenditure.

Attachment 1 Site Observations – Masses 1 – 20

Reference	January 2024 Inspection – Observations
Mass 1	Overall, the land surface in this area is hummocky but well vegetated with dense grass cover and small to medium shrubs (Plate M01-A). Within the upslope area of the mass, medium to large trees are present (Plate M01-D). The trunks of multiple trees are rotated (Plate M01-B). Attachment 3 shows the location where this has been observed. The trunks are rotated generally in the west to southwest direction, by amounts up to about 10° (estimated visually). Fence posts along the existing informal access track appeared to stand upright (Plate M01-B).
Mass 2	Overall, the land surface in this area is hummocky but well vegetated with dense grass cover (often overgrown) and medium to large trees (Plates M02-B and M02-D). Spring 02 was observed within the mass (Plate M02-A). Standing water at the spring location was impounded by an earth embankment, which was heavily grass-covered. The water depth within the impoundment was estimated to be one to two feet deep where it could be sighted. Anecdotal information by Holcim indicate that an in-take pipe had been installed within the spring impoundment to supply water to an above-ground tank located downslope along Mass 2. A PVC pipe was present and served to divert overflows from the spring impoundment to a point about 2 – 3 m to the east of the adjoining fence line (Plate M02-C). The area around the pipe discharge point was dry and grass covered. A shallow backscarp was present upslope of the overflow pipe (Plate M02-C), estimated less than 1.5 – 2 m in length. The scarp surface was poorly vegetated, though grass roots were starting to develop.
Mass 3	Overall, the land surface in this area is hummocky but well vegetated with dense grass and dense tree cover (medium to large trees) (Plate M03-A). The trunks of multiple trees are rotated (Plates M03-A and M03-C). Attachment 3 shows the location where this has been observed. The trunks are rotated generally towards the downslope direction, by amounts less 5° (estimated visually)
Mass 4	Overall, the land surface in this area is hummocky but well vegetated with dense grass cover, small to medium shrubs and medium to large trees (mostly within the downslope area). The backscarp of an old slump was observed and was densely vegetated (Plate M04-A). Immediately overlying the scarp, a medium-sized tree was present with roots protruding into the scarp.
Mass 5	Overall, the land surface in this area is hummocky but well vegetated with dense grass cover and scattered medium to large trees (Plates M05-A and M05-B). At a location south (downslope) from Mass 5, backscarps of up to 1 – 1.5 m height were observed, which appeared to be associated with a localised area of historical slumping. Attachment 3 shows the location of where this has been observed. The backscarps were either bare or poorly vegetated. In some parts, mostly along the western flank of the slump, the backscarps were flattened and covered with dense grass (Plates M05-C and M05-D).
Mass 6	Overall, the land surface in this area is hummocky but well vegetated with dense grass cover and medium to large trees throughout (Plates M06-A to M06-D)

Reference	January 2024 Inspection – Observations
Mass 7	Overall, the land surface in this area is hummocky but well vegetated with dense grass cover and large trees throughout (Plates M07-A to M07-D).
Mass 8	Overall, the land surface in this area is hummocky but well vegetated with dense grass cover throughout (Plates M08-C and M08-D). Backscarps of up to about 0.5 – 1 m in height were observed (Plate M08-A), which appeared to be associated with a localised area of historical slumping. Approximately half of the backscarp were moderately to well-vegetated; the remaining half were either poorly vegetated or completely bare.
Mass 9	Overall, the land surface in this area is hummocky but well vegetated with dense grass cover, small to medium shrubs and medium to large trees throughout (Plates M09-A to M09-D).
Mass 10	Overall, the land surface in this area is hummocky but well vegetated with dense grass cover and dense cover of medium to large trees throughout (Plate M10-D). The trunks of multiple trees are rotated (Plates M10-A, M10-B). Attachment 3 shows the location where this has been observed. The trunks are rotated generally towards the downslope direction (west to southwest), by amounts between 5 - 10° (estimated visually). Near the location of Plate M10-D, the existing steel-post fence line located west of the existing access track was also rotated in the downslope direction, by an amount less than 5°. It is noted that the area of Mass 10 to the west of the access track could not be inspected (on inaccessible land).
Mass 11	Overall, the land surface in this area is hummocky but well vegetated with dense grass cover and medium to large trees.
Mass 12	Overall, the land surface in this area is hummocky but well vegetated with dense grass cover. It is noted that the northern half of the land surface of Mass 12 could not be inspected as it is on inaccessible land. Refer Attachment 3.
Mass 13	Overall, the land surface in this area is hummocky but well vegetated with dense grass cover and medium shrubs and trees throughout. It is noted that the northern part of Mass 13 could not be inspected as it is on inaccessible land. Refer Attachment 3.
Mass 14	Not accessible
Mass 15	Overall, the land surface in this area is hummocky but well vegetated with dense grass cover, small to medium shrubs and medium to large trees throughout. Spring 04 was observed within the mass (Plate M15-A). Standing water at the spring location was impounded by an earth embankment, which was heavily grass-covered. The water level within the impoundment appeared to be some 300 – 500 mm below the crest of the embankment. An animal burrow was observed at the surface (Plate M15-A), roughly 1.5 – 2 m away from the water edge and approximately 300 – 500 mm higher than the standing water surface. It is noted that the northern part of Mass 15 could not be inspected as it is on inaccessible land. Refer Attachment 3.
Mass 16	Not accessible.

Reference	January 2024 Inspection – Observations
Mass 17	Overall, the land surface in this area is hummocky but well vegetated with dense grass cover throughout (Plates M17-A to M17-C). A pipe culvert had been installed underneath the existing informal access (located around mid-slope of Mass 17).
Mass 18	Overall, the land surface in this area is hummocky but well vegetated with dense grass cover and small shrubs throughout (Plates M18-A to M18-C).
Mass 19	Overall, the land surface in this area is hummocky but well vegetated with dense grass cover. Spring 03 was observed within the mass. Refer to Section 6.2 of the report.
Mass 20	Not accessible.

Attachment 2 Site Observations – Farm Dams

Reference	January 2024 Inspection – Observations
Farm Dam South of Mass 5	Water was observed about 300 – 500 mm below the crest of the dam. The dam was on the verge of overflowing through a point at roughly where the embankment abuts the natural ground surface on the south (Plate M05DAM-D). The ground surface at the spill point was mostly grass covered. The upstream gully which drains into the dam is partially obstructed with building rubble (comprising fence posts and pipes) (Plate M05DAM-A). The crest of the dam was mostly grass covered. A trail of bare ground had formed on the crest, likely demarcating the path taken by animals. The downstream face of the embankment is well-vegetated. The northern and eastern sides of the dam (both upslope from the dam) were also well-vegetated. At the location of Plate M05DAM-C, animal movement appeared to have caused localised damage to the embankment.
Farm Dam at the Base of Mass 6	The water level within the dam was 400 – 500 mm below the crest. The dam was on the verge of overflow through a point at roughly where the embankment abuts the natural ground on the south. The ground surface at the overflow point was mostly grass covered. On the northeastern (upslope) side of the dam, erosion has occurred within the bare soil at changes of grade (Plate M06DAM-A). The dam crest appeared narrower in localised sections of the embankment (Plate M06DAM-B). Two localised slumps were present to the west of the spill point (Plate M06DAM-C). The slump surfaces were wet, possibly from rainfall on the day of inspection. Vegetation was starting to grow on the surfaces. Upslope from the dam, in the northwest area, animal movement has created a rugged and barren surface, which was wet (Plate M06DAM-D).
Farm Dam West of Mass 13	The dam water level was observed to be some 250 – 500 mm below the embankment crest. The crest surface was mostly bare (Plate M13DAM-A). The dam was on the verge of overflowing through a point at roughly where the embankment abuts the natural ground surface on the northeastern side. The ground surface at the point of discharge was rugged and wet. A shallow slump on the southern (upslope) side was present (Plate M13DAM-B). The slump surface was poorly vegetated. On the northeastern (upslope) side of the dam, a shallow slump in topsoil was present. Its scarp did not exceed 200 mm in height (Plate M13DAM-C). The dam crest appeared narrower in localised sections of the embankment, but by amounts not exceeding about 300 mm (Plate M13DAM-A). The downstream face of the embankment was well-vegetated with grass (Plate M13DAM-D).

AECOM

Attachment 3 Inspection Plan – January 2024

364000 364500 365000 365500 366000 366500 367000 367500

5791500 5791000 5790500 5790000 5789500

Not inspected - on inaccessible land

Not inspected - on inaccessible land

Area of Mass 15 not inspected - on inaccessible land

Area of Mass 13 not inspected - on inaccessible land

Area of Mass 12 not inspected - on inaccessible land

Not inspected - on inaccessible land

Area of Mass 10 no inspected - on inaccessible land

Mass 20

Mass 16

Mass 15

Mass 13

Mass 14

Mass 12

Mass 11

Mass 10

Spring 04 (Approx.)

Farm dam west of Mass 13

Spring 03 (Approx.)

Rotated tree trunks observed

Mass 18

Mass 9

Mass 1

Mass 3

Mass 2

Mass 4

Mass 17

Dense vegetation cover (trees and/or overgrown grass)

Not inspected

Spring 02 (Approx.)

Spring 05 (Approx.)

Mass 5

Mass 7

Mass 6

Mass 8

Backscarps south of Mass 5

Farm dam south of Mass 5

Farm dam at the base of Mass 6

Area of Mass 8 not inspected - inaccessible

100 120 130 150 210 180 140 160 110 90 80 220 230 240 200 190 170

PROJECT ID 60453195 (URS 43283833)
CREATED BY TM
LAST MODIFIED AB 13 Feb 2024

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DATUM GDA 1994, PROJECTION MGA ZONE 55

0 115 230 460
metres

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LEGEND

Indicative Historical Landslips (beyond identified EMP masses)

Landslip Areas (defined by EMP)

Inspection Plan - January 2024

Holcim (Australia) Pty. Ltd.
Mt. Shamrock Quarry - Toomuc Valley Slope Inspection - January 2024

95 Mount Shamrock Road, Pakenham

Figure
1

Map Document: (\\AUMEL1FP001.AU.AECOMNET.COM\Jobs\43283833\5 WIP\2020 Stability Assessment\Map\Map 2020 (Jan 2021)\F2_Site_ Plan_2020.mxd)

A3 size

Attachment 4 Site Photographs

Mass 01

Plate M01-A
Standing midslope and looking west towards existing structure

Plate M01-B
Standing midslope and looking north. Rotated trees

Plate M01-C
Standing midslope and looking towards Mass 10 base

Plate M01-D
Standing near base of Mass 10 and looking upslope

Mass 02

Plate M02-A
Spring 02 - overgrown grass

Plate M02-B
Standing near Spring 02 and looking downslope

Plate M02-C
PVC overflow line from Spring 02 and slump above

Plate M02-D
Standing near Spring 02 and looking upslope

Mass 03

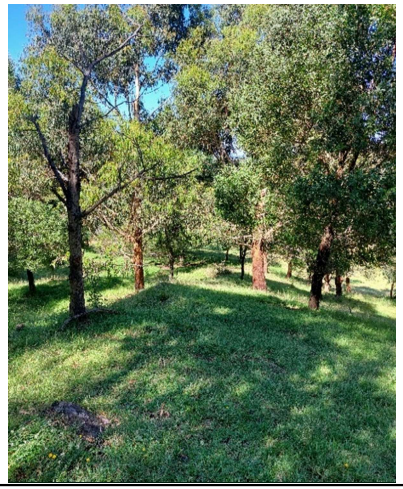

Plate M03-A
Looking downslope (south west)

Plate M03-B
Looking west towards existing structure

Plate M03-C
(Left) Looking north east, upslope. (Right - zoomed in) - trunks rotated in downslope direction

Mass 04

Plate M04-A
Grass covered scarp

Plate M04-B
Standing upslope and looking downslope

Plate M04-C
Standing midslope and looking downslope

Plate M04-D
Standing midslope and looking downslope

Mass 05

Plate M05-A
Looking west. Hummocky ground

Plate M05-B
Looking upslope. Hummocky ground

Plate M05-C
Scarp flattened along western flank. Looking north (upslope)

Plate M05-D
Scarp flattened along western flank. Looking west

Farm Dam South of Mass 5

Plate M05DAM-A
Upstream depression partially obstructed with rubble

Plate M05DAM-B
Looking west. Showing part of embankment

Plate M05DAM-C
Parts of embankment crest. Damage (right of photo)

Plate M05DAM-D
Looking downstream. Dam on brink of overflowing.

Mass 06

Plate M06-A
Looking west towards Mass 6. Farm dam to the left

Plate M06-B
Standing upslope and looking downslope

Plate M06-C
Standing midslope and looking north west

Plate M06-D
Standing midslope and looking towards farm dam

Farm Dam at Base of Mass 6

Plate M06DAM-A
Looking upslope (north east)

Plate M06DAM-B
Looking west

Plate M06DAM-C
Standing near spill point and looking west

Plate M06DAM-D
Looking south east towards spill point

Mass 07

Plate M07-A
Looking downslope (south)

Plate M07-B
Looking west towards existing informal track

Plate M07-C
Large tree canopy

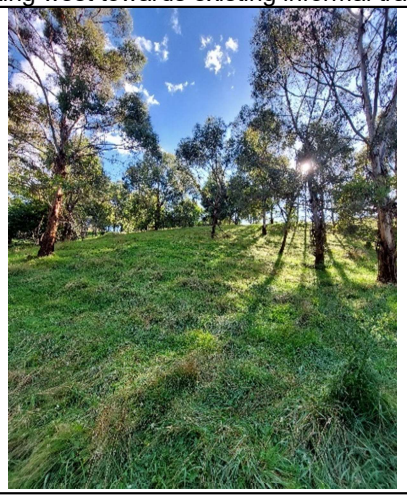

Plate M07-D
Looking upslope

Mass 08

Plate M08-A
Exposed scarp

Plate M08-B
Existing informal track

Plate M08-C
Looking south west

Plate M08-D
Looking south. Hummocky ground

Mass 09

Plate M09-A
Mass 9 typical conditions - heavy grass vegetation and trees

Plate M09-B
Standing upslope and looking downslope

Plate M09-C
Standing upslope and looking east

Plate M09-D
Mass 9 typical conditions - heavy grass vegetation and trees

Mass 10

Plate M10-A
Standing midslope and looking downslope towards dam at base of mass

Plate M10-B
Standing midslope and looking upslope

Plate M10-C
Standing on Mass 19 and looking south towards Mass 10

Plate M10-D
Steel post fence (right of photo) rotated. Trees with curved trunk

Mass 11

Plate M11-A
Looking downslope (north west)

Plate M11-B
Looking upslope (south east)

Plate M11-C
Looking north (away from Mass 11)

Mass 12

Plate M12-A
Looking downslope

Plate M12-B
Toppled tree

Plate M12-C
Mass 12 typical conditions

Mass 13

Plate M13-A
Standing near dam and lookinhg north east (upslope)

Plate M13-B
Standing near top of Mass 13 and looking west

Plate M13-C
Mass 13 typical conditions - grass and tree cover

Plate M13-D
Looking towards base of Mass 13 - inaccessible land in the distance

Farm Dam West of Mass 13

Plate M13DAM-A
Looking west

Plate M13DAM-B
Looking upslope

Plate M13DAM-C
Dam spill point left bottom corner

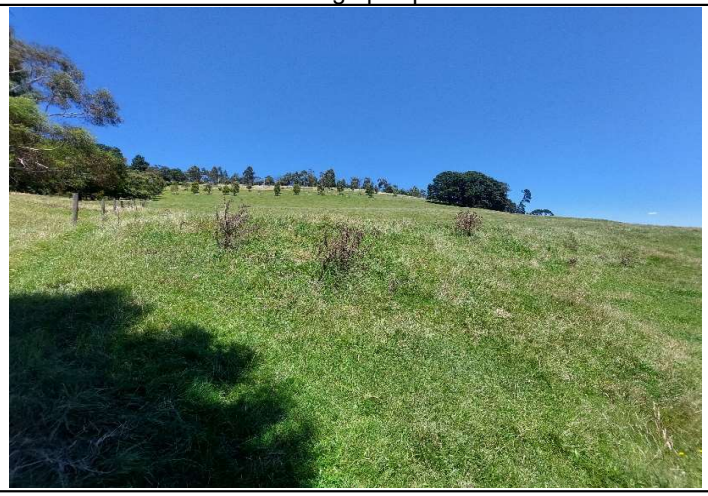

Plate M13DAM-D
Downstream face of embankment (looking upslope)

Mass 15

Plate M15-A
Spring 04

Plate M15-B
Looking downslope (north west)

Plate M15-C
Looking downslope (west). Spring 04 in the middle of the photo

Plate M15-D
Standing on track and looking upslope towards Spring 04

Mass 17

Plate M17-A
Standing midslope looking downslope (south west)

Plate M17-B
Standing midslope on existing track and looking south east

Plate M17-C
Looking upslope while standing on access track

Plate M17-D
Pipe culvert under access track

Mass 18

Plate M18-A
Looking upslope (east)

Plate M18-B
Looking north (along track near base of Mass 18)

Plate M18-C
Looking south (along track near toe of Mass 18)

Mass 19

Plate M19-A
Looking downslope (west)

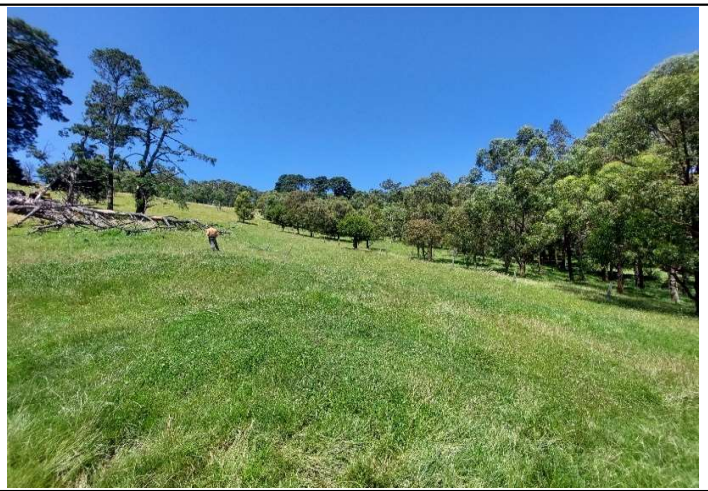

Plate M19-B
Looking south towards Mass 10

Plate M19-C
Looking north

Plate M19-D
Midslope looking downslope (west). Dam at toe of Mass 10 evident