CANTERBURY ENVIROSOLUTIONS

Who Are Canterbury Environmental Solutions

Garry (Gutsy) Aitken
Managing Director

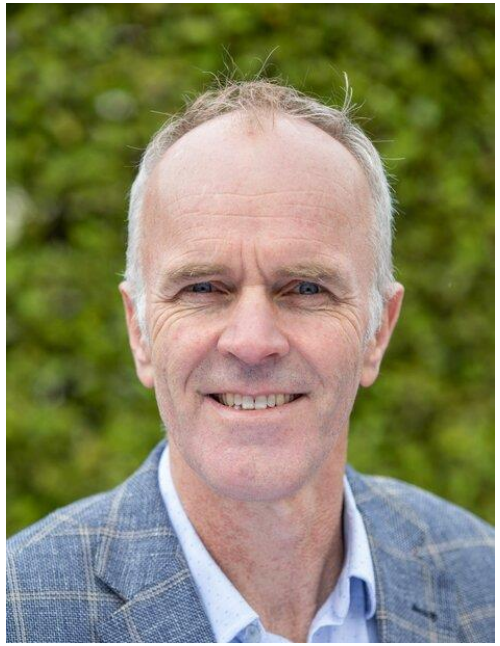
Background is logistics and transport

Specialist in networking, building teams and an amazing strategic thinker

The Perfect Site would not have happened without his courage and single mindedness to see this through

TEMUKA TRANSPORT

GHC CONSULTING LTD



Dave Hanan
Managing Director

Background is landfills and all aspects related to the waste sector

Dave worked with Garry to firstly develop a soil remediation facility. This naturally flowed to discussing and the possibility of developing a landfill.

Further discussions ensued leading to identifying potentially “The Perfect Site”

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The future is in our hands
27–30 MAY 2024
CLAUDELANDS, HAMILTON

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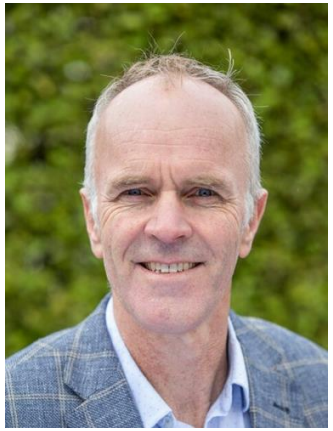
Our Team Representing

Canterbury Environmental Solutions at this Conference
Available for a Discussion at Any time During This Conference

Garry Aitken



Dave Hanan

James Langston

Toby McClenaghan

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Our Mission:

What we can all do together

Objective:

To provide our clients with an environmentally and scientifically robust process to assess, treat, and dispose of contaminated soil.

What we do...

We bring the right people together to offer our clients the complete solution for soil which requires special handling and management.

Our team...

Includes specialist contractors and consultants with the relevant experience, can do attitude, attention to detail, yet efficient and effective

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LOGISTICS

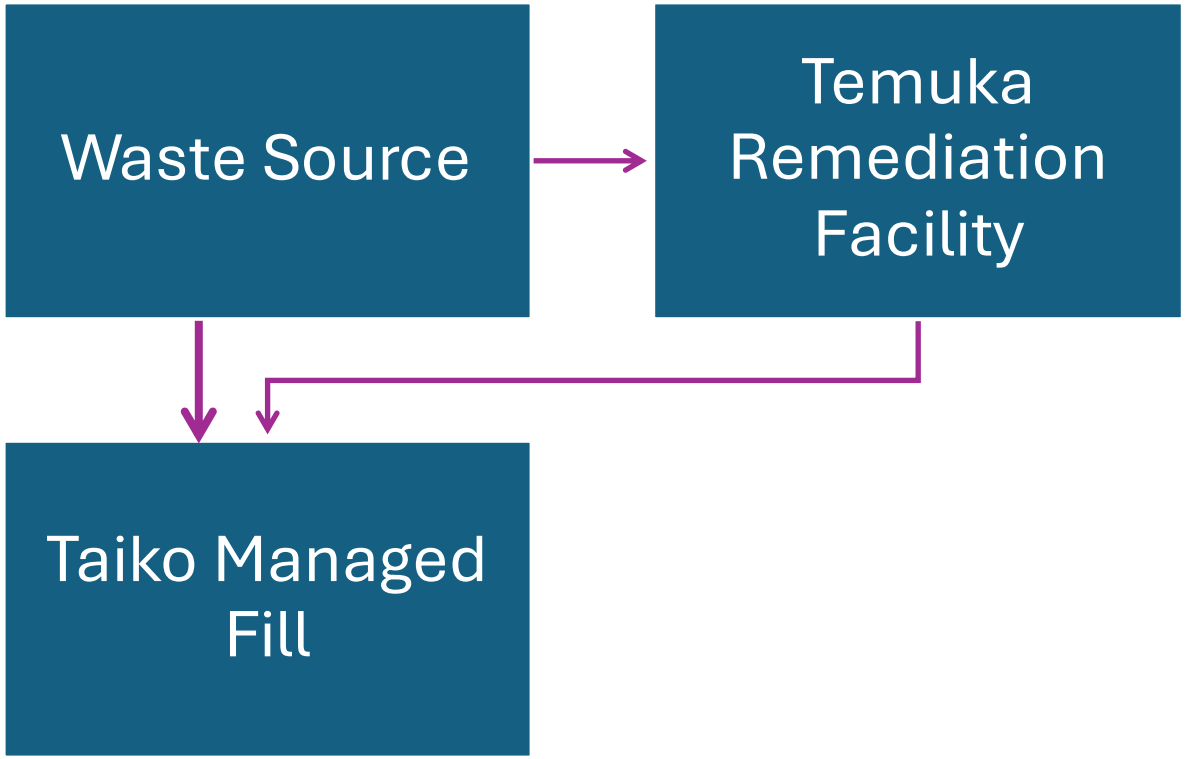
- Road, rail, ship options

TREATMENT

- Existing facility
- Consented/operational
- Treat as required

DISPOSAL

- Taiko Managed Fill
- Under Construction


Waste Source
Temuka Remediation Facility
Taiko Managed Fill

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TREATMENT

Soil remediation facility:

- Temuka (South Canterbury)
- Engineered for containment
- Secure and safe
- Loads tracked and traced
- Supported by independent, qualified environmental professionals

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Taiko: What makes this the perfect site

The pillars of landfilling:

1) Good Location
2) Good, if not great Geology
3) Good Hydrogeology
4) Iwi Support
5) Community Support – the Aitken family are held in huge regard within the South Canterbury Community
6) Good design
7) Ideally can't be seen

Ideally there needs to be a story of restoration and rehabilitation as landfills fundamentally damage land for decades.

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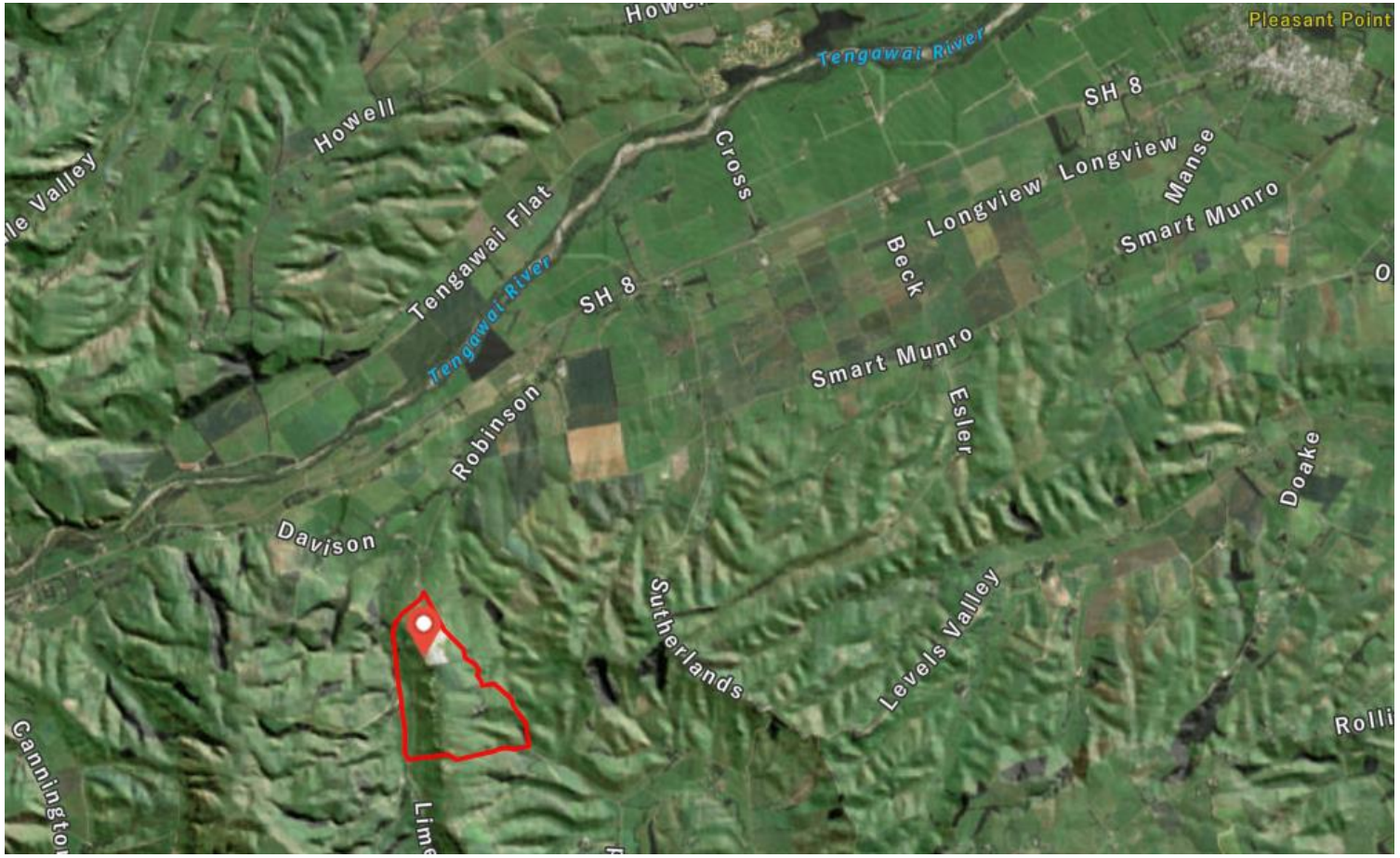
Taiko's location

Accessible but isolated.

3 houses within 1 km of the site.

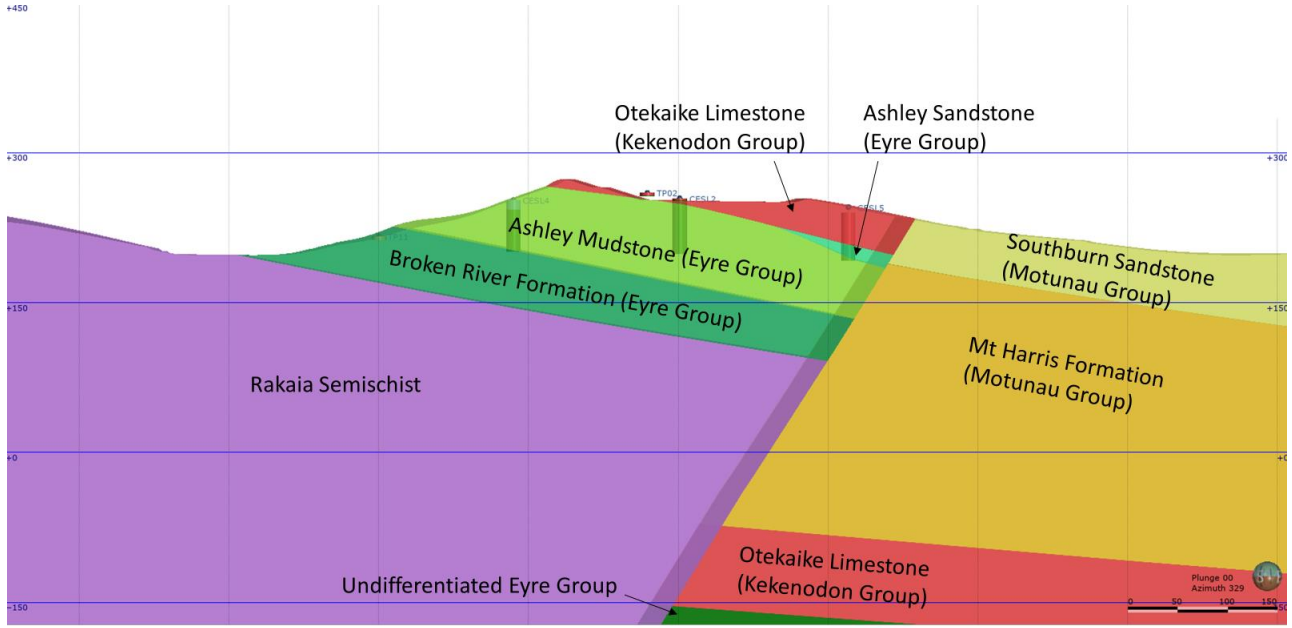
2 houses approximately 500 m from the Site

Nearest settlement Cave 5.2 km
Timaru 20 km



Geology

This site has lime outcrop on ridge overlying a low permeability mudstone of considerable depth directly beneath the landfill



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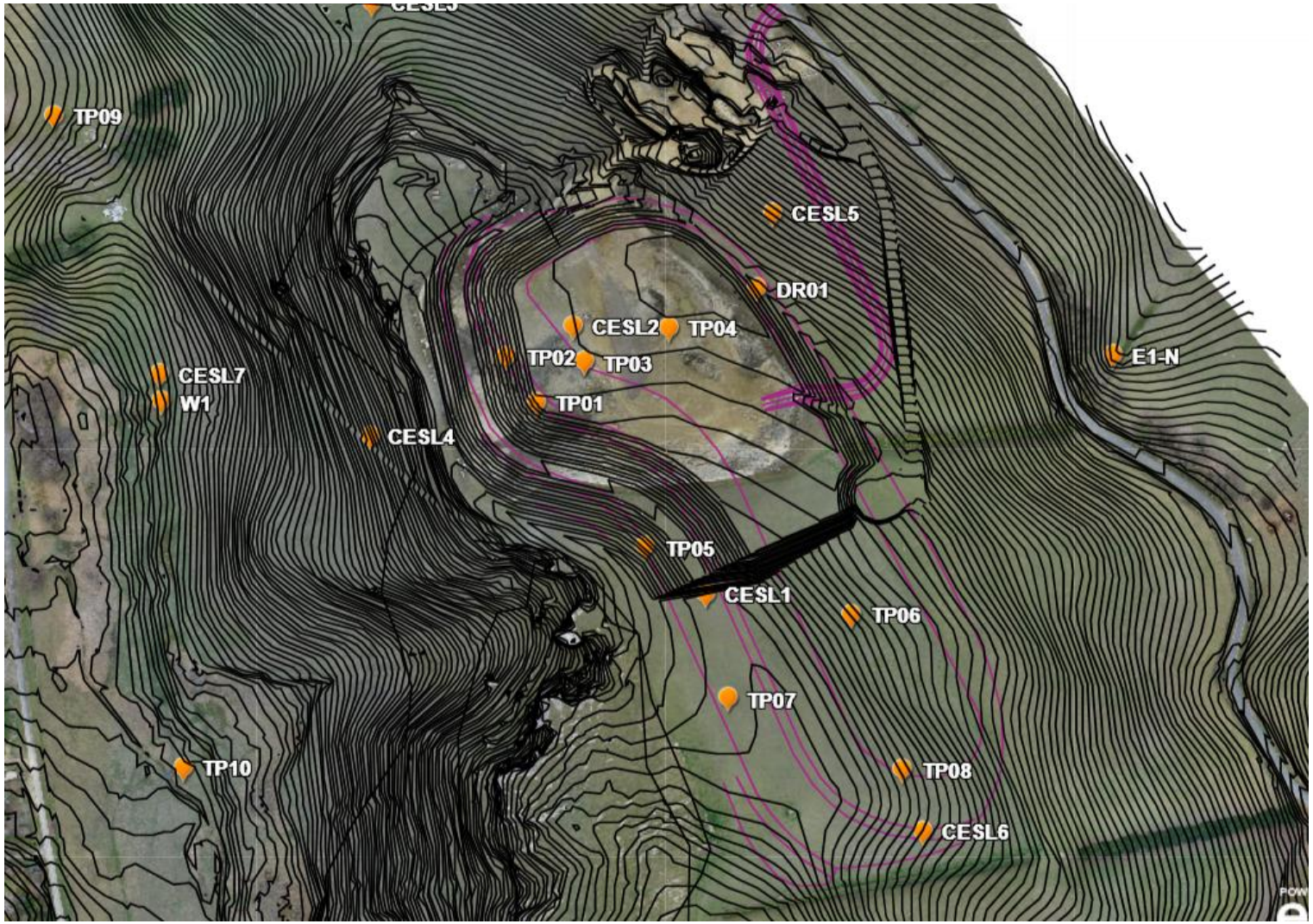
Hydrogeology

Extensive Hydrogeological and Hydrologic investigations Undertaken

Low rainfall climate

9 Cored drill logs
10 Test Pits
3 Surface water sample site



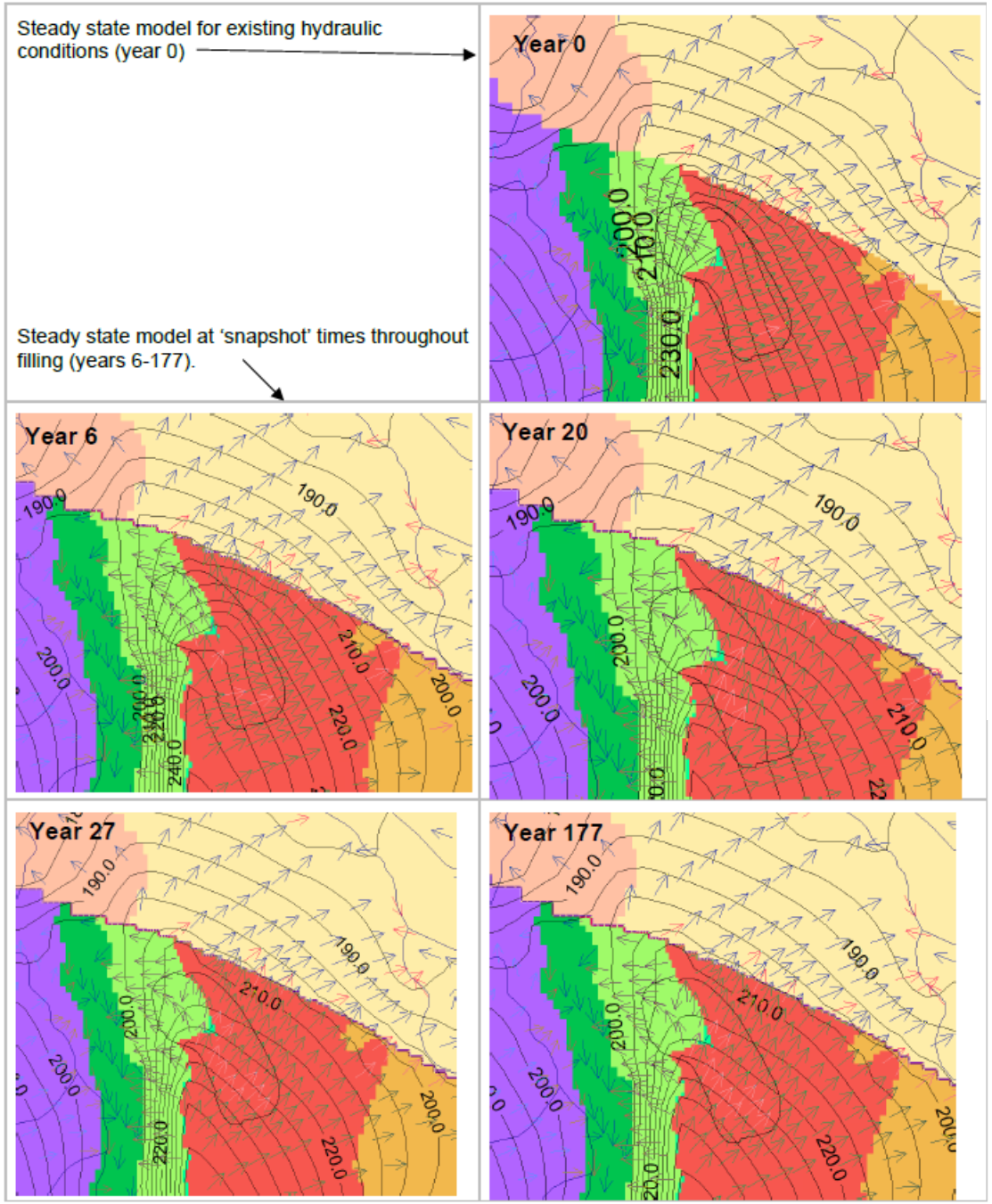


Figure 29: Change in groundwater flow directions with progressive landfilling and quarrying operations (See Figure 3 for legend).

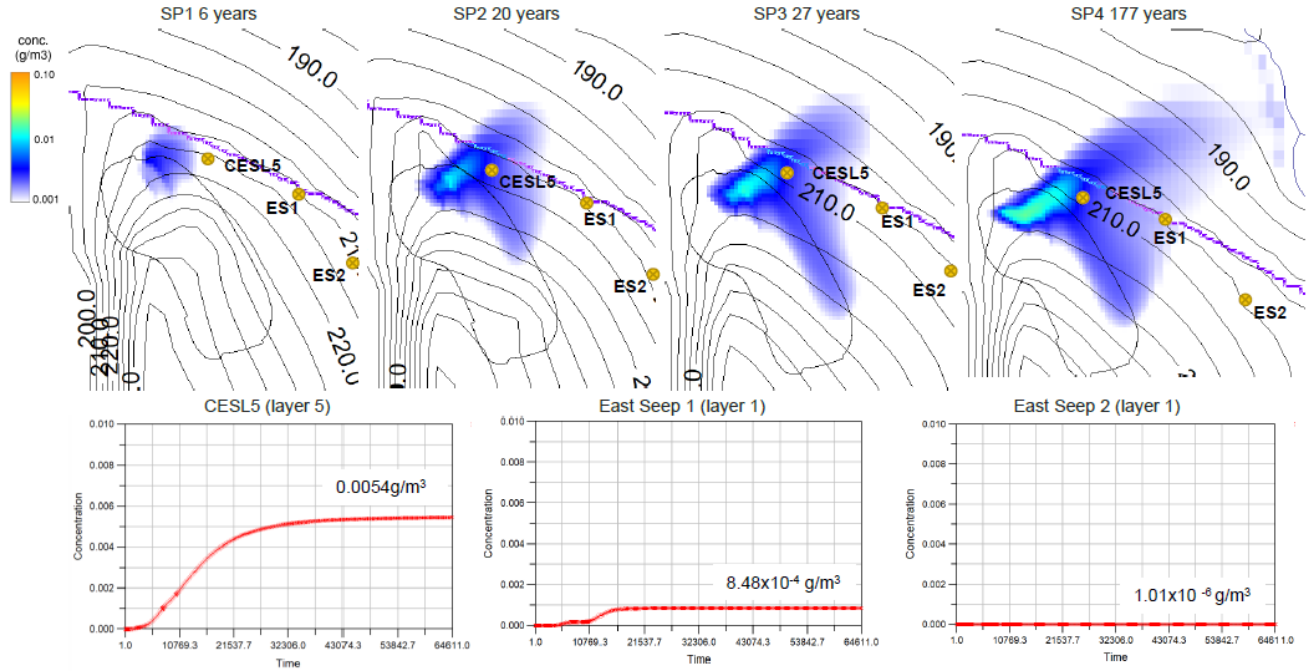


Figure 30: Plan contour concentration plume (in layer 2), and concentration arrival of the generic contaminant at CESL5, East Seep 1 & 2, for the normal operation leachate leakage case. Y axis in g/m^3, x axis in days.

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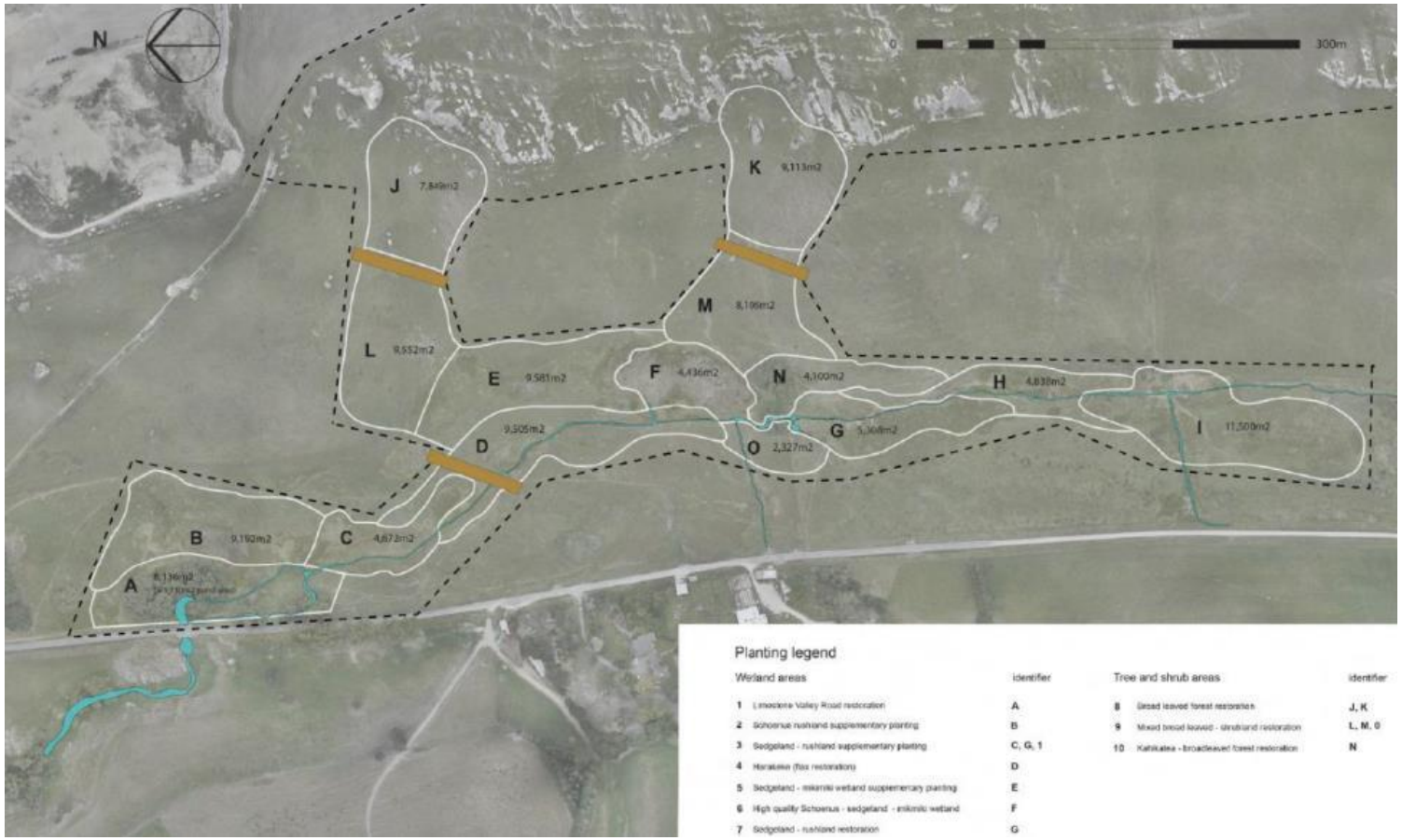
Landscape offset

Wetland offset

A 100,000 m2 development requiring 75,000 plants. Planted by the Arowhenua Runanga



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Minimal Visual Operational Impact

Simulated Visual before and after shots

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Minimal Visual Operational Impact

One cannot actually see the scale of the operation from any surrounding viewpoint.

Foreground is the leachate sump shaded blue For effect

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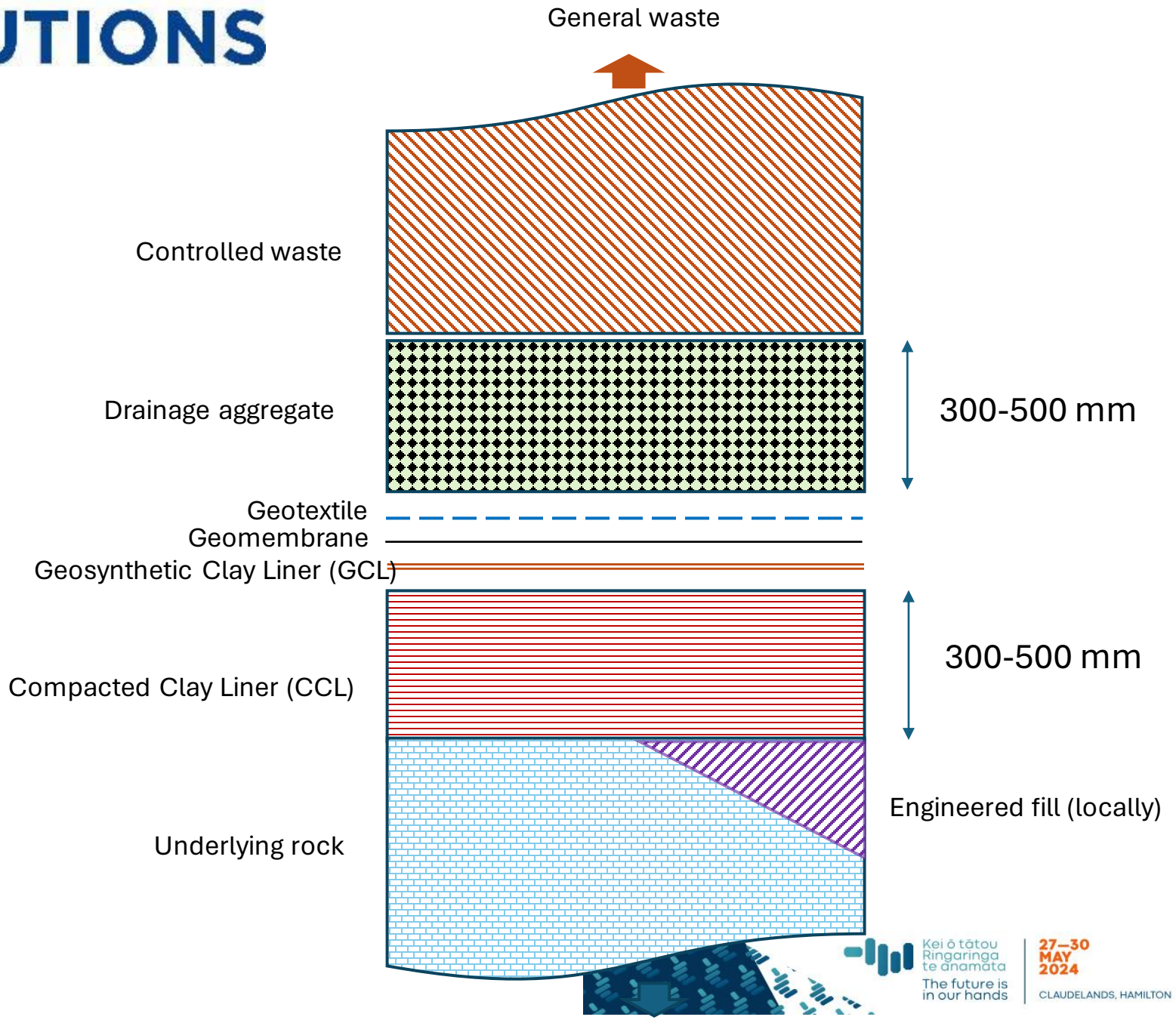
Containment Design



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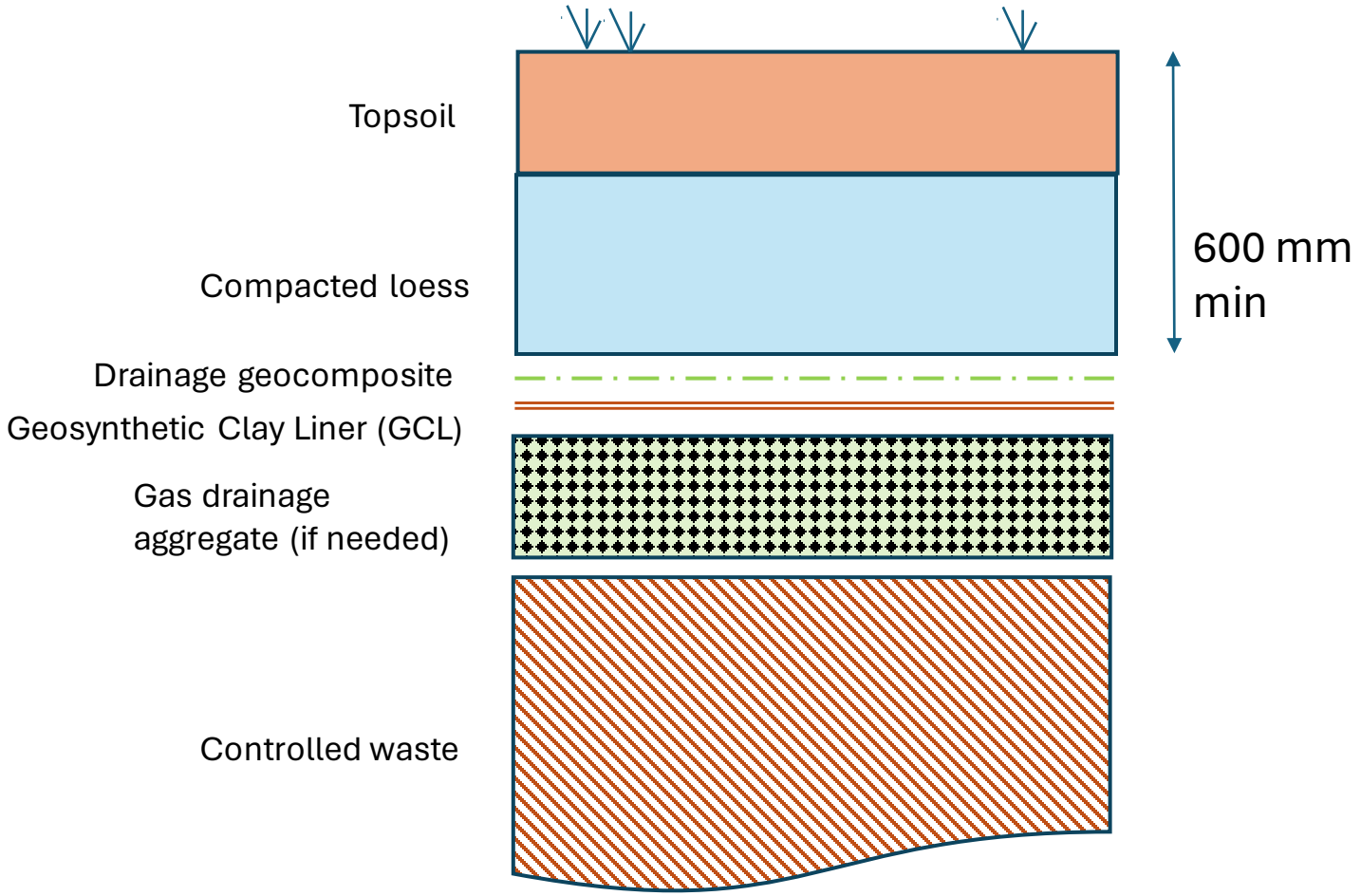
Cap Design



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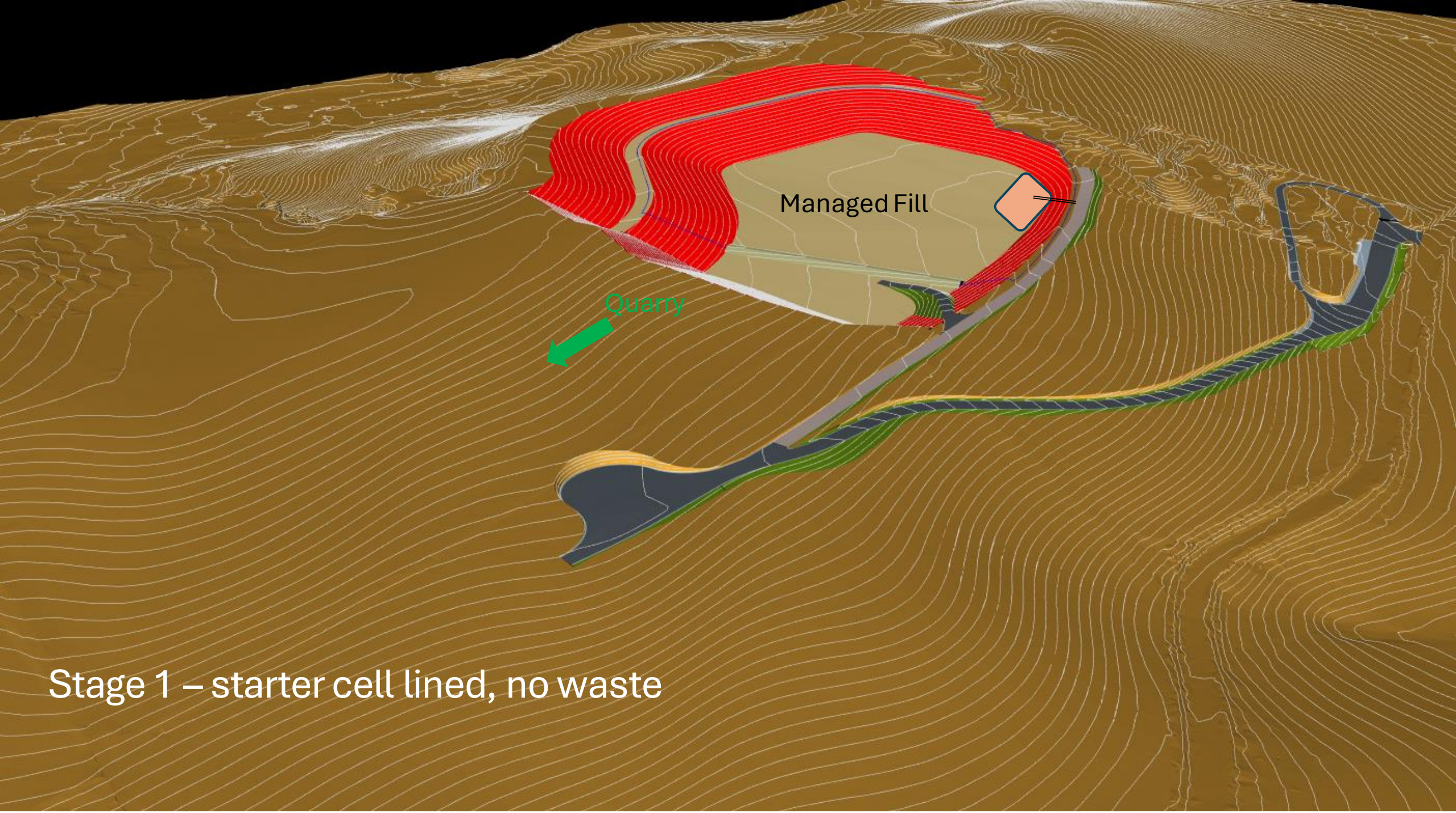
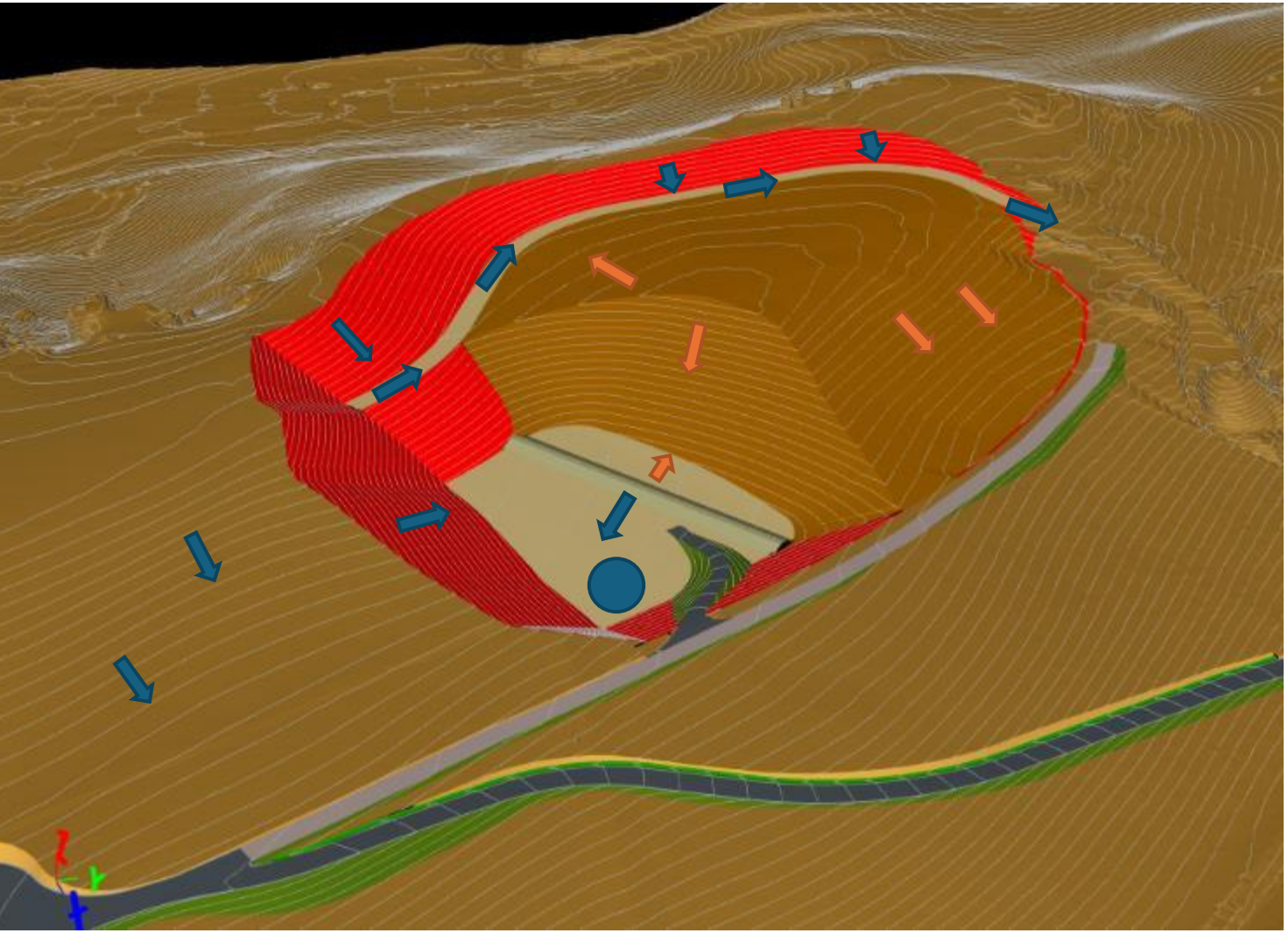
The story of land rehabilitation After 100 years of Quarrying Lime the land will be restored as if the Lime Quarry never existed



Stage 1 – starter cell lined, no waste

Stage 2 | **Starter pit shell, Initial liner area full of waste**



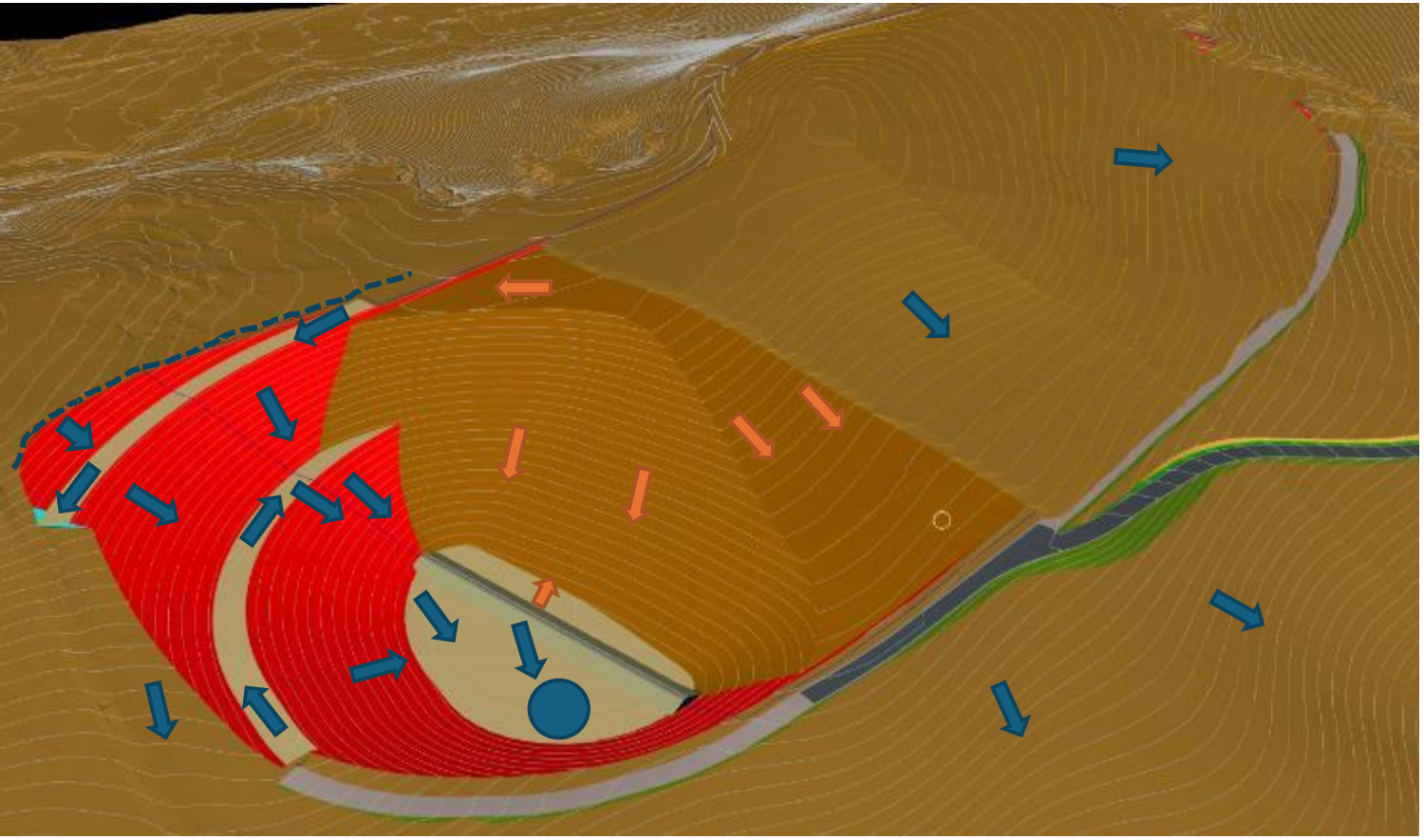
Key features

- Separation bund on pit floor to delineate landfill and quarry operations, and to separate waters
- 3.95ha lined
- Leachate sump (below liner) established
- 325,000 m^3 of waste
- Clean-water cut-off on bench, using bench graded into pit face

Risk considerations

- Maintaining separation of clean-water and fill runoff around perimeter of lift – requires setbacks
- Overflow from bench drain in large rainfall events

Stage 3 | **Ongoing waste fill, with pit at full extent**

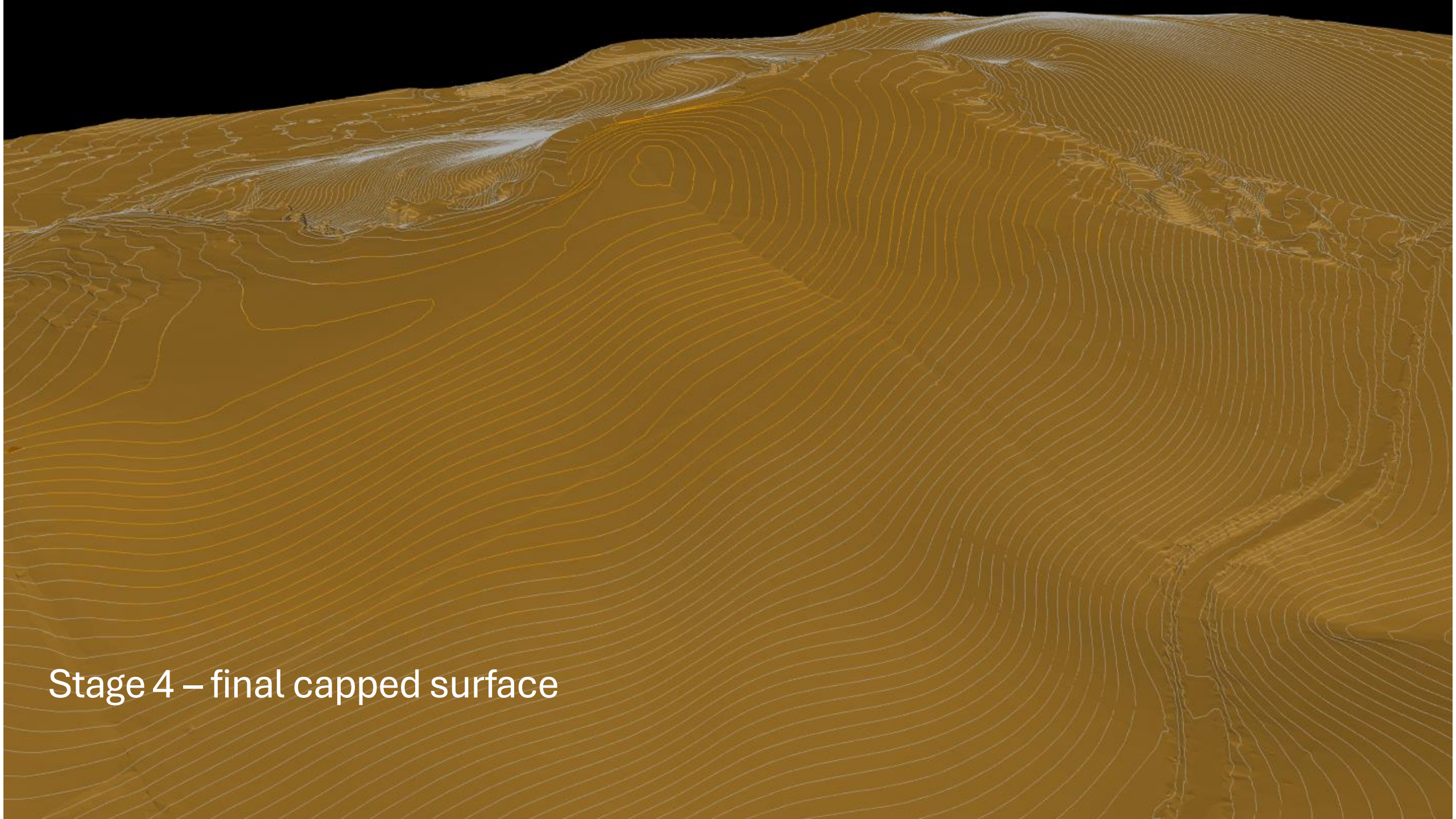


Key features

- Separation bund on pit floor to delineate landfill and quarry operations, and to separate waters
- 12.6ha lined
- Leachate sump (below liner) established
- Clean-water cut-off on benches, using bench graded into pit face. Lower bench discharges to quarry floor
- Clean water bund around south-west corner

Risk considerations

- Maintaining separation of clean-water and fill runoff around perimeter of lift – requires setbacks
- Overflow from bench drain in large rainfall events


Stage 4 – final capped surface

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Credit to the Taiko Consultancy Team

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- Opportunities to help expedite the remediation of contaminated sites
- The offer of a secure Landfill with state of the art environment protection
- The offer to work with you to provide a quality environmental outcome
- The knowledge there will be no lasting legacy issues

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