[redacted]

[redacted]

9 April 2026
317819

[redacted]
Director, New Communities
Housing, Building and Land Delivery
Department of Transport and Planning

Via email: [redacted]

Dear [redacted]

RE: Submission on Amendment C109moor Merrimu PSP

Introduction

[redacted] continues to act for [redacted] part of the [redacted]

We commend the work completed by Department of Transport and Planning (DTP) (formerly the Victorian Planning Authority, VPA) to date and recognise the substantial progression of the PSP since it returned to the VPA Business Plan in 2024.

We have approached the PSP in a collaborative and facilitative manner. We commend DTP in doing the same. Given this, our expectation is that matters raised will be resolved following the conclusion of the consultation period.

This submission sets out our commentary on the documents prepared by DTP. It also summarises further work being undertaken by [redacted] under the third-party funding agreement, in response to DTP feedback, which primarily relates to transport and infrastructure project matters.

[redacted] on behalf of [redacted] has provided a detailed response to the Merrimu DSS which is also undergoing consultation. This response is included as Attachment 1. This should be read in conjunction with our comments on the strategic drainage content of the PSP.

Through direct engagement with the Head of Transport for Victoria (HTfV) and DTP, we have directly provided responses to matters relating to traffic and infrastructure.

We understand DTP is progressing further technical work relating to drainage and transport infrastructure, which will be finalised post-consultation. While we expect this work will address the issues raised, we reserve the right to provide further comment once the additional material has been made available.

[redacted]

[redacted]

[redacted]

[redacted]

Summary

To resolve the matters outlined above, we request that the following changes be made prior to finalisation of the PSP, DCP and associated controls:

State infrastructure and DCP

- Remove MM-RD-10 and MM-IN-11 from the PSP and DCP, as these provisional state infrastructure items have no defined scope, demonstrated need or nexus.
- Update DCP costings to reflect current cost escalation and replace benchmark estimates with project-specific costings where non-standard infrastructure is proposed.

Buckleys Road and internal road network

- Refine RD-02 (Buckleys Road) to adopt IDM and GAA standards and minimise earthworks, informed by the Creo Civil peer review.
- Amend Requirement 17 to require delivery of the north–south internal road connection prior to certification of any residential lots in Properties 39-42.

Bacchus Marsh Eastern Link Road (BMELR)

- Correct references to the BMELR to consistently describe it as a planned or concept project, not an existing or reserved feature.
- Delete Requirement 23 and retain an amended Requirement 24 that prevents encroachment on the alignment while allowing delivery of essential infrastructure.
- Amend acoustic requirements in the UGZ schedule so that acoustic treatments are only required once the BMELR is delivered, consistent with approaches in other PSPs.
- Amend Requirement 102 to provide for assessment of the need of RD-03 regardless of whether a future BMELR connection is delivered, at the time the BMELR is constructed recognising its importance to network performance and freight access.

Drainage

- Reference the Constructed Wetland and Retarding Basin Design Framework – Merrimu PSP in the UGZ schedule as an application requirement.
- Require IWMS submissions to be prepared in accordance with the framework, to provide clarity and certainty on drainage outcomes.

Ecology

- Apply the NVPP to [redacted]land, noting the demonstrated ability to meet offset obligations through the proposed first-party offset site with very limited additional offsets required.

PSP plan updates and land use refinements

- Remove the 'potential conservation site' designation from Property 26.
- Return SR-01 to its Draft PSP alignment to avoid inefficient and non-standard residential parcels.
- Reconsider the interface between SR-03 and the drainage basin to avoid constrained and unviable residential land.

[redacted]

[redacted]

[redacted]

[redacted]

- Return LP-15 to its Draft PSP location to retain and integrate established trees within the open space network.
- Reinstate the original alignment of the Government 7–12 Secondary School.

Discussion of Substantive Issues

Transport

State Infrastructure

The DCP has provisionally identified two state infrastructure items:

- RD-10, a provisional item for potential state road upgrades; and
- MM-IN-11, a provisional item for potential state intersection upgrades

Neither the PSP or the DCP identify any specific detail or justification for these items. Given this, we do not support the inclusion of these items. These items should be removed.

DTP's Infrastructure Contributions Plan Guidelines (March 2021) provides specific requirements for how infrastructure contributions should be identified, stating that infrastructure must:

be selected from the allowable items specified in the Ministerial Direction

comply with all other requirements in the Act and Ministerial Direction

be identified in a strategic plan as infrastructure that is required to service the whole community in the future

have a nexus with the new development to be levied.

Projects must meet all these criteria and demonstrate both a need and clear nexus to the PSP. Neither a need nor nexus has been established for these projects in the PSP material included to date.

Funding state infrastructure projects, such as upgrades to freeway interchanges and duplication of Gisborne Road, should be part of the improvement and development of the State arterial road network.

We agree with the approach taken for the Bacchus Marsh Eastern Link Road (BMELR), where state infrastructure is required to resolve existing or broader network constraints. This correctly identifies that these works should not be funded through DCP.

The inclusion of MM-RD-10 and MM-IN-11 is not justified. These items should be removed from the PSP and DCP.

Buckleys Road

Buckleys Road alignment is constrained by several factors, including site levels, dispersive soils, cultural heritage and vegetation. DTP engaged SMEC to prepare detailed designs for the E-W Buckleys Road connection (RD-02).

[redacted]has prepared a peer review of the SMEC road designs to consider the most efficient method to achieve the required traffic outcomes. A copy is provided at Attachment 2.

[redacted]design applied criteria from Moorabool Shire's Infrastructure Development Manual (IDM), and the Growth Areas Authority's (GAA) *Engineering and Construction Manual for Subdivision in Growth Areas* (April 2011).

[redacted]concept significantly reduces earthworks when compared to the SMEC design, reducing cut depth from 11.9m to 2.8m. Land required for batters has been limited to depth of 10.5m instead of 30m as suggested by SMEC.

[redacted]

[redacted]

[redacted] concept design demonstrates there is a substantial opportunity to reduce engineering works and reduce DCP project costs. RD-02 must be further refined to adopt the IDM and GAA standards relating to grade, and to require the least extent of earthworks and engineering as possible.

We submit that the [redacted] Concept is superior to those prepared by SMEC. It is the most efficient and deliverable outcome, providing the greatest community benefit.

Internal Network Connections

The PSP should prioritise the delivery of internal road connections north to south within the PSP.

There is no current road connection from north to south that can be relied on as development commences. Without a formal an internal connection there is no way to moderate local traffic impacts in the early stages of development. It also leaves development in the south with only a single exit in case of emergency.

The PSP currently includes Requirement 17:

The land connecting Flanagans Drive and Bences Road reserves must be vested at no cost to Council and maintained for the purpose of a road reserve in perpetuity to enable properties in this location to connect in to the broader precinct.

This requirement includes no detail of timing when the connection needs to be provided.

Requirement 17 should be amended to require the connection be provided before any lots south of this location are delivered.

The land connecting Flanagans Drive and Bences Road reserves must be vested at no cost to Council and maintained for the purpose of a road reserve in perpetuity prior to the certification of any residential lots within Properties 39-42 to enable properties in this location to connect in to the broader precinct.

An additional Objective should be included to reflect the intent to priorities early delivery of internal connections north to south within the precinct.

New Objective 17 at Table 6 - Safe, Accessible, and Well-connected

To support the delivery of internal road connections from north to south within the precinct as early as possible.

Treatment of the BMELR Alignment

The PSP includes inconsistent reference to the BMELR alignment.

Within various requirements of the PSP the BMELR is characterised as an 'existing precinct feature', land is variously referred to as being 'reserved' for the purpose of the BMELR and otherwise described as a 'planned' project.

It is important to ensure that the BMELR is described correctly in the PSP document. The BMELR is clearly not an existing precinct feature, it is not a declared state project and discussions with DTP has confirmed it is best charactered as a concept project. The preferred route has been identified and its appropriate that the PSP response to this. The land required for the route has not been formally reserved and will be subject to future acquisition processes.

To this end we have provided the refinements to relevant Requirements below.

Requirement 2:

Subdivision design must respond to the existing and planned precinct features and surrounding uses, in particular:

[redacted]

[redacted]

- Topographical features, slopes and break of slope
- Areas of ecological and cultural significance
- Any current and future Victorian Aboriginal Heritage Register places, objects and values
- Existing native vegetation, including but not limited to high and critical retention value trees
- Existing native fauna areas, including but not limited to Golden Sun Moths
- Existing and future drainage and waterway areas
- Existing landscape values and framed vistas
- Historic heritage, including existing structures and dry stone walls
- Existing rural residential lot layout
- Future arterial roads, including the planned Bacchus Marsh Eastern Link Road
- Rural interfaces
- Transmission easement
- Extractive Industry separation distances
- Bushfire threat

Requirement 23

Duplicates the intent of Requirement 24 and is not required. Additionally, it incorrectly refers to the land identified for the planned BMELR as being 'reserved'. We suggest it is deleted.

~~*Development must not encroach on land that has been reserved within the PSP for the future delivery of the Bacchus Marsh Eastern Link Road.*~~

Requirement 24

Should remain:

Subdivision and development must not encroach on the route and alignment of the planned Bacchus Marsh Eastern Link Road

Development within the BMELR Alignment

The PSP includes Requirement 23 and 24:

Development must not encroach on land that has been reserved within the PSP for the future delivery of the Bacchus Marsh Eastern Link Road.

Subdivision and development must not encroach on the route and alignment of the planned Bacchus Marsh Eastern Link Road

Notwithstanding the discussion above regarding the deletion of Requirement 23. The use of the general term 'development' creates potential for misinterpretation and application of the requirement. There are critical aspects of infrastructure that must be constructed across the proposed BMELR alignment. This includes roads, drainage outfalls and reticulated services.

Requirement 24 should be amended to avoid any misinterpretation and recognise delivery of infrastructure across the alignment.

[redacted]

[redacted]

[redacted]

[redacted]

Requirement 24

Subdivision and development must not encroach on the designated route and alignment of the planned Bacchus Marsh Eastern Link Road unless it is public infrastructure as directed by the PSP.

Bacchus Marsh Eastern Link Road Acoustic requirements

The draft UGZ schedule includes application requirements relating to acoustic treatments for dwellings within 300m of the Western Freeway and the planned BMLER.

It is unreasonable to require acoustic treatments to a potential noise source that does not yet exist. The BMELR is not a declared transport project and has no funding allocated. Its delivery is still uncertain. If the BMELR is delivered in the future it will be the 'agent of change' and the project will be required to ensure appropriate noise attenuation is provided to existing dwellings.

PSP's adjacent to other planned state road infrastructure projects including the Outer Metropolitan Ringroad (OMR) include controls that recognise this and only require acoustic treatments be provided once the road is in place.

The Quandong PSP includes Requirement 48 which states:

Upon completion of any portion of the Outer Metropolitan Ring/E6 Transport Corridor (freeway or railway), any development in proximity to "the Transport Corridor", must respond to the VicRoads's Requirements of Developers - Noise Sensitive Uses document, the Passenger Rail Infrastructure Noise Policy (April 2013), or any required freight rail noise mitigation, to the satisfaction of the relevant transport bodies and responsible authority.

The draft UGZ schedule should be corrected to reflect the same approach.

Any application for use or development of land for Accommodation, Education centre (other than Tertiary institution and Employment training centre) or Hospital on land within 300 metres of the Western Freeway or ~~Planned~~ completed portion of the Bacchus Marsh Eastern Link Road or a Quarry buffer area shown on Plan 1 of this schedule must be accompanied by an acoustic assessment report prepared by a qualified acoustic consultant or other suitably skilled person to the satisfaction of the responsible authority which:

Ultimate requirement for RD-03

The PSP includes Requirement 102:

Upon delivery of the Bacchus Marsh Eastern Link Road – the connector road RD-03 must be discontinued where abutting the Bacchus Marsh Eastern Link Road unless otherwise approved by the Head, Transport for Victoria (Head, TfV) and the responsible authority

We note that DTP will be the authority which delivers the BMELR if it is funded and delivered. It will be responsible for any works or closures associated with the BMELR project. It's unclear what the intent of this requirement is or which party it is intended to provide direction to.

The requirement provides discretion for the RD-03 connector road to be retained but is framed to require its removal unless discretion is applied rather than a decision being made to best serve the community at that time.

We note that without RD-03 Buckleys Road would likely be required to accommodate 24,000vpd, in an arterial road format and in a wider reservation. It would require a larger and more costly IN-04 and contribute to congestion in the northern town centre.

[redacted]

[redacted]

[redacted]

[redacted]

Additionally, close spacing of IN-04 to BMELR makes a workable design difficult with likely traffic congestion spilling back onto ELR from IN-04 queues.

RD-03 should be maintained in future arrangements regardless of if a connection to BMELR is required in this location. It is logical for the road to provide access to the BMELR in the future for quarry trucks noting that achieving the requisite grade for the trucks is much easier to obtain at this location instead of at Buckleys Road.

Requirement 102 should be amended as follows:

Upon delivery of the Bacchus Marsh Eastern Link Road – the need for connector road RD-03 where abutting the Bacchus Marsh Eastern Link Road will be considered by the Head, Transport for Victoria (Head, TfV) and the responsible authority

Development Contribution Plan (DCP)

Infrastructure projects within the PSP have not been finalised. Further work, relating to south-eastern investigation area and its associated infrastructure constraints, and alternative road project designs for RD-02 (Buckleys Road) and IN-08 (Flanagans Drive / Lindsay Avenue) are being prepared.

In the absence of confirmed project scope and scale, cost estimates associated with the DCP cannot be confidently assessed.

We understand projects have been costed using standard benchmark rates for typical road and intersection works. This is only appropriate where projects specifications are consistent with the DTP Benchmarks.

The Arcadis intersection costings (March 2025) and road section costings (February 2026) must be updated to reflect cost escalation since their preparation.

We expect RD-02 and IN-08 will be of a non-standard specification, given constraints affecting both projects. New, non-standard infrastructure projects must also be supported by detailed cost estimates.

The PSP includes placeholder items MM-RD-10 and MM-IN-11 for provisional state infrastructure items. These projects have no defined scope, no demonstrated need, and no established nexus to the PSP. Both must be removed from the DCP.

Quarry Buffers

The PSP adopts a standard approach to buffers which applies 500m separation distances from quarry land. This is consistent with the *Planning Practice Note 92 (PPN): Managing buffers for land use compatibility* and *EPA Publication EPA Publication 1943 and 1961.2.*

We have worked closely with EPA, DTP and quarry operators to refine a common position that will provide the operators, residents, the Responsible Authority, landowners and EPA with certainty on the process and ensure the operators and future residents are not detrimentally affected.

We will continue to work collaboratively to make any refinements to the UGZ drafting to ensure a suitable process is provided.

Drainage

[redacted] has engaged with Melbourne Water on behalf of [redacted] throughout the development of the PSP and DSS.

[redacted]

[redacted]

[redacted] participated in the land owner workshop held on 1 April and has prepared a detailed commentary on drainage outcomes.

[redacted] has prepared the attached Draft PSP Response provided at Attachment 1.

The primary interested in the current drainage layouts is insuring the most efficient final locations and design. The final and most efficient locations and sizes of constructed wetlands, retarding basins, stormwater quality treatment infrastructure will require detailed geotechnical testing being completed by each land owner as part of detailed subdivision design.

Central to this will be the ability to locate assets within the 100m risk area buffer to the escarpment edge identified in the WSP peer review, 2025.

Requirement 107 provides for discretion to be applied when considering final designs of drainage infrastructure:

Final designs and boundaries of constructed wetlands, retarding basins, stormwater quality treatment infrastructure, and associated paths, boardwalks, bridges, and planting, must be to the satisfaction of both the responsible authority and Melbourne Water.

However, the requirement provides no guidance on the detail that will be considered in making these assessments. [redacted] has prepared 'Constructed Wetland and Retarding Basin Design Framework – Merrimu PSP' as a common source of parameters for confirming final location and design. A copy is provided at Attachment 3

This document establishes a mandatory, deemed-to-comply framework for the design of constructed wetlands and retarding basins within the Merrimu Precinct.

The framework:

- Defines a prescribed methodology for stormwater infrastructure design
- Removes discretionary interpretation of key design parameters
- Provides a clear basis for demonstrating compliance with the Merrimu PSP

The intention being that a design that satisfies the methodology and criteria in this document must be considered compliant with PSP requirements relating to stormwater management and drainage and must be accepted as meeting the requirement for approval to the satisfaction of Melbourne Water and the responsible authority.

This document will provide all PSP land owners, Council and Melbourne Water clear expectations on the process and requirements for confirming final locations and designs.

To address the uncertainty inherent in the geological conditions in the Merrimu PSP the UGZ schedule should make specific reference to the framework as an application requirement.

UGZ Schedule - Integrated Water Management – Application requirement

An application to subdivide land must be accompanied by an Integrated Water Management Strategy (IWMS). The IWMS must be prepared in accordance with Constructed Wetland and Retarding Basin Design Framework – Merrimu PSP and to the satisfaction of the Responsible Authority and Melbourne Water and include details of:

- *Drainage servicing, including assessment of the existing surface and subsurface drainage conditions on the site,*
- *The provision, staging and timing of stormwater drainage works in accordance with the applicable Melbourne Water Development Services Scheme(s)*
- *The provision, decommissioning, staging and timing of any temporary drainage works (including but not limited to outfall detention, treatment and / or volume control infrastructure),*

[redacted]

[redacted]

- *Flow rate and flow volume management measures to ensure no additional downstream inundation impacts, duration impacts and flood impacts are caused by the development, to the satisfaction of Melbourne Water.*

Ecology

[redacted] has reviewed the Native Vegetation Precinct Plan (NVPP) included in the public consultation. See Attachment 4.

The review identified several technical and drafting matters within the NVPP that require clarification and correction, though these are relatively minor and have no material consequence to the BMD landholding.

[redacted] s proposing to establish a first party offset site at [redacted] This area will provide almost all offsets associated with the [redacted] land holding. A minor deficit of 0.8 SHU for Small Golden Moth habitats would be required off site.

There are two options available to address this. The first would be retain one of two patches of Small Golden Moth habitat areas, reducing [redacted] offset obligation, which could then be met entirely by the offset site at 289 Bences Road.

Alternatively, a second offset site containing modelled habitat for the species, which meets the eligibility criteria for use as an offset site could be identified. The limited scale of the offset required, being only 0.8 SHU would be comfortably secured.

This demonstrates the ability to meet offset obligations within the [redacted] land. The NVPP must be applied to the [redacted] land. We are willing to discuss the best method to manage this outcome with DEECA.

PSP Plan Updates

Appendix 1 includes our commentary on the PSP and plans. The proposed changes are minor, address obvious errors, and are non-contentious in nature. The changes primarily relate to the themes of:

- Inappropriate designation of land uses
- Location and orientation of public open spaces
- Conflicts in the existing and proposed precinct features
- Refinement to proposed interfaces
- Accurately identifying constraints within the precinct.

We welcome the opportunity to discuss any aspects of this submission with you and the wider DTP project to support the timely completion of the PSP.

Sincerely,

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

Appendix 1 – Required Plan Updates

Comment	Suggested Action
Property 26 is identified in the Place-Based Plan as a potential conservation site. The landowner has confirmed they do not intend to establish this land as a conservation site. The "potential" conservation designation creates unnecessary uncertainty.	Amend the PSP to remove the 'potential conservation site' designation from Property 26.
SR-01 has moved south when compared to the draft PSP. This creates a challenging interface with Lot 7A, and an awkward triangle of residential land along Bences Road. The original location of SR-01 allowed for a local access street and a single row of dwellings to be constructed south of Lot 7A Property MM-28 and MM-30 are in [redacted]wnership. This means altering SR-01 to fit solely within MM-28 provides no benefit as fragmented ownership is not a consideration. Returning to its original location will provide an appropriate distance between the northern boundary of the open space and residential land to the north. This resolves the poor interface with Lot 7A and avoid inefficient, non-standard residential parcels along Bences Road.	Reinstate the original SR-01 alignment.
Residential land adjoining SR-03 is clearly constrained by the overlap of drainage basin land and SR-03. This provides an awkward slither of land to the east, which is unlikely to function effectively for a residential use. An obvious solution is to relocate the drainage basin to the southern end of the open space. This will provide a more efficient outfall location, as well improve dwelling delivery outcomes adjacent to the open space.	Relocate drainage basin to the southern end of open space.
LP-15 must be returned to its original location, further east, as shown in the Draft PSP. This location was intentionally selected to enable the retention and integration of a group of existing, established trees within the open space network. Relocating LP-15 undermines this outcome and is not supported.	Relocate the drainage basin to the southern end of the open space.

[redacted]

[redacted]

[redacted]

The Government 7–12 Secondary School should be returned to its original orientation. We understand the current DTP location is informed by DET's preference to avoid any land identified as having potential for contamination. Its current shape and location fails to recognise the impacts on existing properties to the east, or allow for local access streets and residential development within the remaining space provided east of the school. Reorientating the school in a square shape provides the following benefits: - Maximises separation distance from existing dwellings in Possumtail Run - Minimises school frontage to sole vehicle access to Possumtail Run - Maximises opportunity for local access streets to the east of the school, which will avoid a choke point in the primary north-south connector. In reality, Parcel 25 is only included in an area of *'medium potential for contamination'* in the Land Capability Assessment (Jacobs, 2018) in relation to the historic private airfield use. Aerial images included in the Jacobs report clearly demonstrate the area of potential contamination is in the north of the site, and not in any proximity to the school site. There is no basis for the identified, potential contamination to impact school location in the south of what is a very large land parcel. The original school location should be reinstated.	Reinstate the original school orientation in a more compact, square form.
All plans should be updated to confirm the BMELR project area around future Buckleys Road roundabout. this should ensure suitable land area is included in BMELR project for all possible outcomes and traffic volumes to Buckleys Road. We expect the project area layer does exist but has been overridden by other layers in the drawing that have taken priority.	Update all plans to clearly show the full BMELR project area around the Buckleys Road roundabout,

[redacted]

MERRIMU PRECINCT STRUCTURE PLAN – STORMWATER CONSIDERATIONS

[redacted]

Response to the VPA public consultation on draft amendment C109moor

[redacted]

[redacted]

1 Scope of this Document

[redacted] in partnership with [redacted] has been asked by [redacted] to specifically comment on the draft amendment C109moor and the associate Merrimu Precinct Structure Plan (PSP).

Our review was split into two main areas:

- Feedback on the proposed stormwater management and specifically "Plan 10 – Water" provided by the VPA.
- Feedback on the Integrated Water Management (IWM) components of the PSP.

2 Stormwater Management

2.1 History

[redacted] and [redacted] started investigations into stormwater management at Merrimu in 2020 which coincided with the commencement of ongoing discussions with Melbourne Water. Broadly, this work and consultation led to the development of a Stormwater Management Strategy (SWMS) for the Merrimu Precinct, which was largely used as a starting point for the Melbourne Water drainage scheme development. [redacted] and [redacted] thank Melbourne Water for their ongoing engagement with us on this project.

2.2 Review of the Draft DSS

[redacted] have reviewed the *Merrimu pre-PSP development phase 3: surface water and groundwater investigations* prepared by Alluvium Consulting 10th of February 2025 (referred herein as the Draft DSS). It is noted that the Draft DSS shows different solutions to that which are shown in the PSP. The following comments are made, solely based on what is within the Alluvium report and not within Plan 10 – Water presented by the VPA:

1) Section 2.1 discusses the Phase 1 investigations. We support a risk management approach to development at Merrimu, which should also include a risk management approach to the siting of wetlands and basins as outlined in Streamology's report. We believe that assets can be sighted close to the escarpment edge if site specific geotechnical investigation and advice support this.

2) With regards to the siting of assets, all of the assets shown by Alluvium have been located outside of the 100 m buffer zone presented by WSP. This is in contrast to several of the assets designed by [redacted] which are shown within this 100m area. We suggest (as supported by the Streamology review) that assets can be located within the 100m area (termed "temporary

investigation zone") (TIZ) subject to appropriate site-specific geotechnical investigations. It is noted that similar geotechnical investigations would likely be required no matter the location of the asset, and hence being designated a temporary investigation zone shouldn't automatically preclude assets from being located on those areas.

3) We note that there is discussion in Section 3.1 about fraction imperviousness, yet later in the report it is suggested that all developable areas were given an impervious fraction of 0.7 in both the MUSIC and RORB modelling. We would encourage Melbourne Water to use the current FUS to define and refine fraction impervious values more accurately throughout the catchment.

4) We note that the non-standard rainfall templates were used due to the need for sizing the storage ponds. We would recommend using the 2024 MUSIC guidelines in all areas, specifically the Little River template.

5) In Alluvium's RORB modelling, we note that the existing conditions fraction impervious allowed for is 0.0. This is not standard practice for DSS work and will result in overly conservative estimates of asset sizes and oversized land take. We would recommend the use of the values within the 2024 Melbourne Water MUSIC Guidelines instead.

6) Table 5 suggests the "Input variables adopted for RORB model" which do not match Table 7 "Summary of RORB input parameters", see Initial Losses.

7) Retardation and wetland sizes have not been reviewed by [redacted] in detail due to the mismatch in assumptions, but it is noted that catchment area to land take (in the BAU approach) are generally similar to what was calculated by Rain.

8) Subcatchment 1: We agree with the catchment delineation, although we suggest that this asset be removed with 1% AEP flows piped south along the eastern edge of the proposed ELR to meet the asset proposed for Subcatchment 2 (see Section 2.3.1.2 for more detail). This rationalises the number of outfalls, moving a significant portion of the area to the proposed outfall along Buckleys Road which can be delivered during the re-construction of Buckleys Road. This also allows for better staging of development as the current [redacted] proposal is to commence construction around the proposed town centre (Buckleys Road) in Stage 1.

9) Subcatchment 2: We would recommend that the BAU approach be followed here and the requirement for an infiltration/storage pond be removed. The [redacted] design shows a similar sized wetland/retarding basin asset, rotated 90 degrees to straddle Buckleys Road (balance pipe beneath) with the wetland better following the natural contours and not impacting the proposed town centre (see Future Urban Structure). This rotated design would significantly reduce the amount of cut required.

10) Subcatchment 3: Again, we would propose that the BAU approach be adopted, and the infiltration pond removed, with the proposed wetland/retarding basin moved east instead.

11) Subcatchment 4: Due to its small size, this asset would be a Council asset. Again, it is recommended that the BAU approach be followed here. We have met and discussed this with Council. The current [redacted] strategy shows the basin in a similar location, although it is further south-west in the preferred [redacted] design. It is further noted that the proposed location by [redacted] is in the location of an existing dam which appears to be operating well without erosion in its current form. It is understood that the location proposed by Alluvium is based on the buffer area proposed by WSP – we suggest that the approach recommended by Streamology to determine whether the asset can be located further towards the edge of the escarpment is utilised here. Furthermore, it is recommended that future updates to the draft DSS clearly

[redacted]

identify which assets are proposed to be Council assets versus Melbourne Water assets to assist in our ongoing liaison with Council.

Figure 1 Existing dam north of O'Connell Road in location of asset proposed by Rain (within investigation zone)

12) Subcatchment 5: Per Subcatchment 4, the asset is proposed to be further south, subject to the Streamology suggested approach. It is also again suggested that the BAU approach be adopted in this location.

13) Subcatchment 6: It is proposed that the asset be located further north, immediately north of Possumtail Run. This land is owned by [redacted] and hence can be completely delivered by [redacted] It is proposed that the asset run in a north-south direction following the existing contours. We have requested more information from Melbourne Water regarding the proposed waterway corridor and the requirement for this. It would be suggested that this is not required given the location of RAIN's proposed basin and the highly modified structure of the minor gully.

14) Subcatchment 7: This asset aligns well with the location proposed by [redacted] although the asset proposed by [redacted] is further west in the low point (marked as within the 100 m investigation zone). We again recommend that the Streamology approach be followed here, and development not be excluded from the investigation zone.

15) Subcatchment 8: The asset is in a similar location to that proposed by [redacted] but per Subcatchment 10, is shown within WSP's 100m buffer zone. We again recommend that the Streamology approach be followed here, and development should not be automatically excluded from this 100m investigation zone without being guided by site specific geotechnical investigations.

16) Subcatchment 9: This shows the asset in the far south of the PSP discharging via the existing outlets. Again, we suggest that this asset be located closer to the edge of the escarpment and be based on the Streamology report. Per all other basins, we suggest the BAU approach to be more suitable should a stable outlet be viable, and in this case, we believe the existing outlet will be a very suitable outfall.

17) Subcatchment 10: The eastern basin as shown by Alluvium drains to a difficult discharge point. Further work recently conducted by [redacted] suggests that it may be feasible to shift this basin further west to then allow it to discharge to the south of the site. We believe this will provide a more certain outfall. See Future Urban Structure for proposed location.

[redacted]

2.3 Proposed Assets

"Plan 10 – Water" shows the locations of proposed wetland/retarding basin assets along with indicative pipe alignments.

2.3.1 PROPOSED WETLAND/RETARDING BASINS

2.3.1.1 SIZING OF ALL WETLAND/RETARDING BASIN ASSETS

It is noted that, ultimately, all wetland/retarding basin assets shown on "Plan 10 – Water" are significantly oversized based on what we would expect to see.

[redacted] has completed further MUSIC and RORB modelling for WL02/03, WL04 and WL06. Further analysis of the other proposed assets was not completed due to time constraints. Land-take was estimated as 2x the surface area of the retarding basin, including a 300 mm freeboard and can hence be considered somewhat conservative.

The following was found:

WL2/WL3: For the purposes of modelling, the assets were joined per the original [redacted] strategy, straddling Buckleys Road. In the updated modelling, we assumed that WL1 would not be constructed, and hence all of WL1's catchment would drain to this asset.

"Plan 10 – Water" shows a combined land take of 12.77 ha across WL1, WL2 and WL3. The revised modelling by [redacted] shows a total land take of 4 ha for the combined asset, a decrease of approximately 68% when compared to the asset proposed in the draft documentation.

WL4: WL4 was modelled in a similar location as shown on "Plan 10 – Water" and assumes a free outfall towards the west. "Plan 10 – Water" shows a land-take of 6.75 ha with the updated modelling showing a land take of 4.64 ha, a decrease of approximately 31% when compared to the asset proposed in the draft documentation.

WLRB6: WL6 was modelled in a similar location as shown on "Plan 10 – Water" and assumes a free outfall towards the south. The modelling assumes the basin can be shifted further south. "Plan 10 – Water" shows a land-take of 5.145 ha with the updated modelling showing a land take of 2.0 ha, a decrease of approximately 61% when compared to the asset proposed in the draft documentation.

The above modelling is high-level, but includes new MUSIC and RORB modelling accounting for the land uses as shown in the PSP documentation. It suggests that all assets as currently shown are well oversized when compared to conservative estimates founded on this updated modelling.

We encourage Melbourne Water to re-assess the size of each of the wetland/retarding basin assets, taking into account the fraction impervious areas proposed by the PSP.

2.3.1.2 REMOVAL OF WL-01

Asset WL-01 in the north of the site was originally present prior to the Eastern Link Road (ELR) alignment being proposed. With the ELR in place, the catchment area draining towards the potential asset here is significantly reduced and is limited to approximately 7 ha.

It is requested that WL-01 be removed with all catchment area north of Buckleys Road and west of the ridge line (as shown in Figure 2

[redacted]

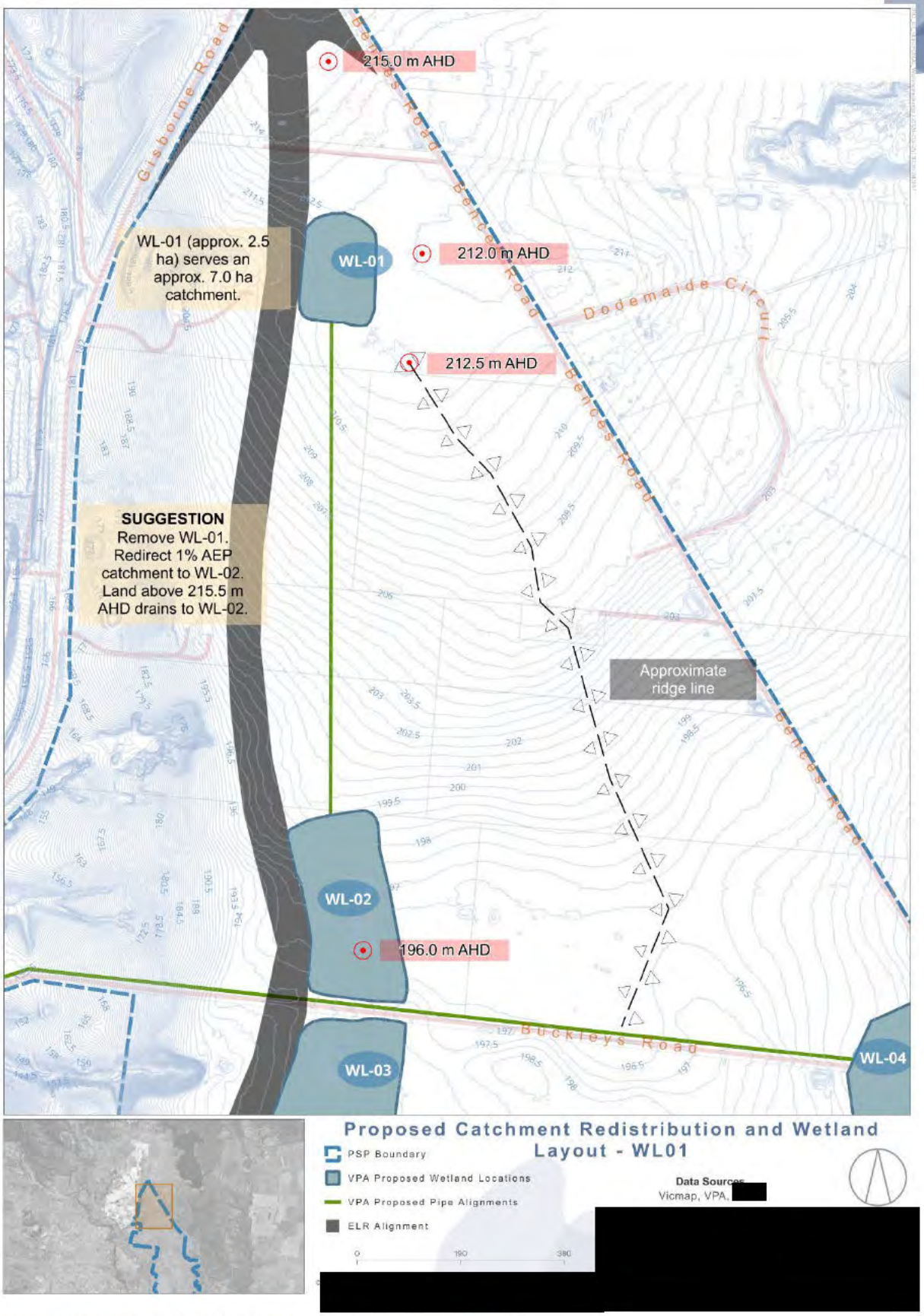


Figure 2 Proposed catchment redistribution and wetland layout – WL01

[redacted]

2.3.1.3 WL04 LOCATION

[redacted] is generally comfortable with the location of the proposed WL04. It is requested that the ultimate downstream side of the footprint follow Bences Road.

2.3.1.4 WL05 LOCATION

[redacted] is generally comfortable with the location of the proposed WL05. It is requested that the ultimate downstream side of the footprint be located slightly south of the location shown by the VPA, closer to the 184.0 m AHD contour as shown in Figure 3.

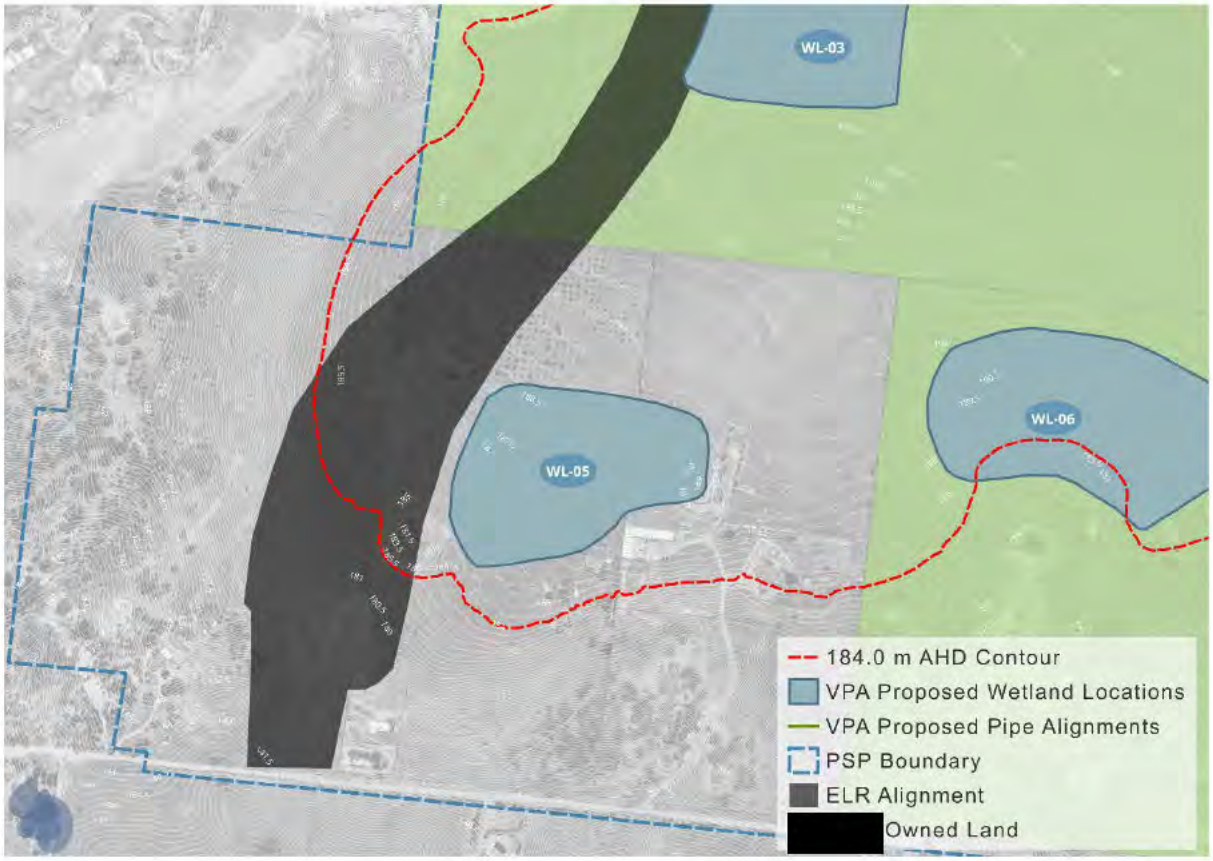


Figure 3 WL-05 in relation to 184.0 m AHD contour

2.3.1.5 WL06 LOCATION

[redacted] is generally comfortable with the location of the proposed WL06. It is requested that the ultimate downstream side of the footprint be located slightly south of the location shown by the VPA, closer to the existing dam as shown in Figure 4.

[redacted]

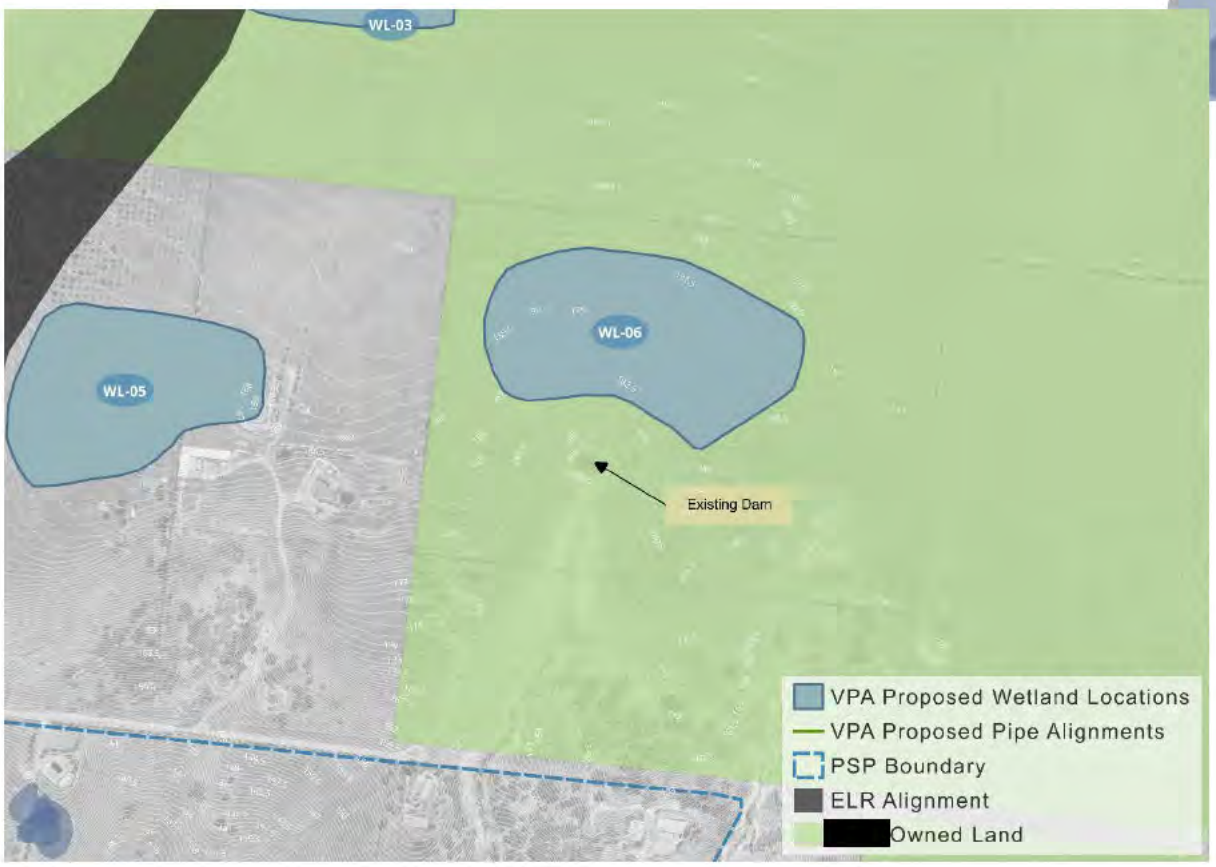


Figure 4 WL-06 in relation to existing dam

2.3.1.6 WL07 LOCATION

WL07 and WL09 are located in close proximity to each other. From the catchment that would drain to WL07, 100% is owned by BMD. If WL07 were to be removed, and the land drain to WL09, around 85% of the land draining to it would be BMD owned.

It is requested that WL07 is retained and solely services the [redacted] land to its north and north-west as shown in Figure 5. This would likely result in a smaller WL09 being required for the land to the south, although this has not been investigated further.

[redacted]

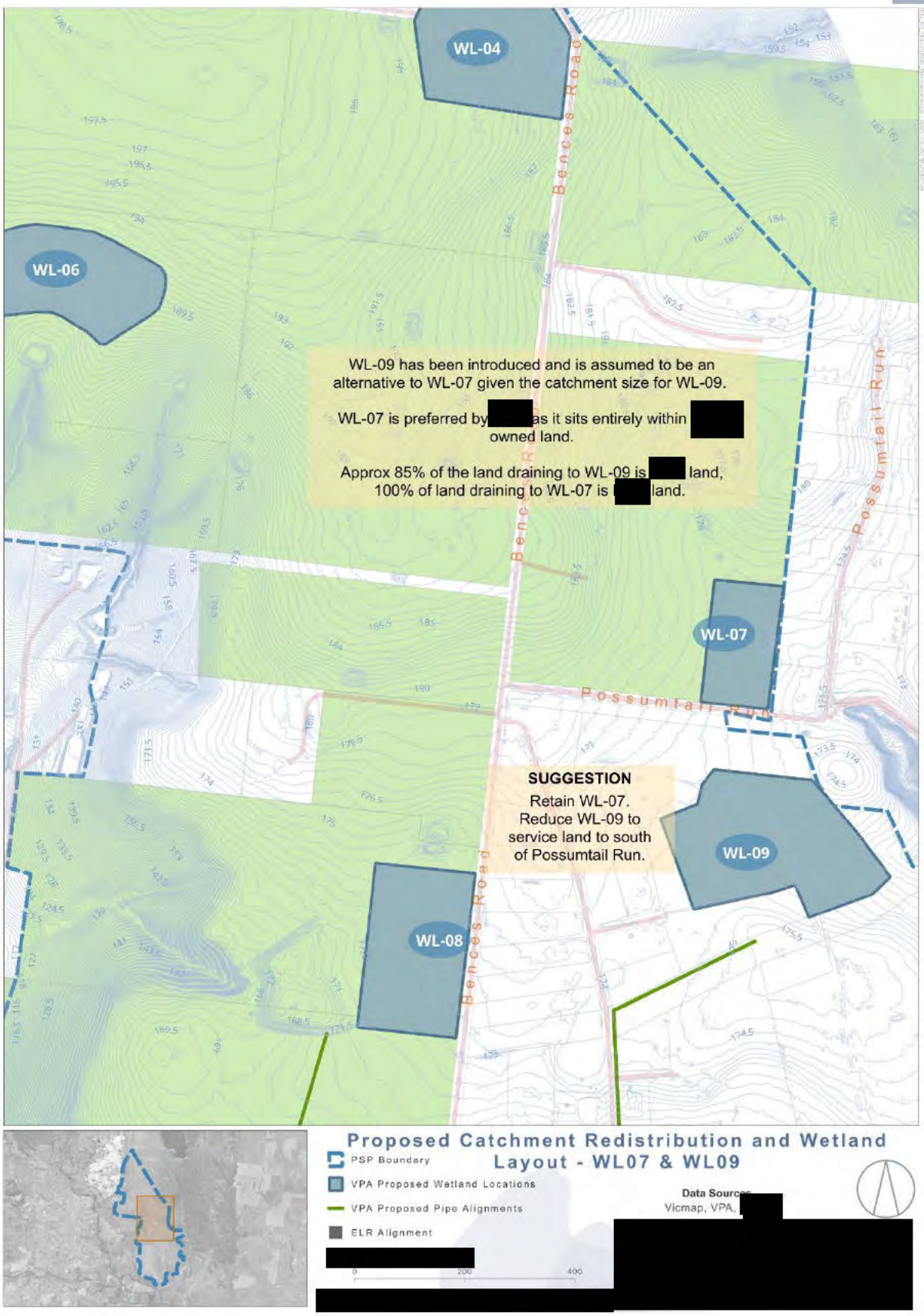


Figure 5 WL07 – Proposal to retain

[redacted]

2.3.1.7 WL08 LOCATION

[redacted] is generally comfortable with the location of the proposed WL08. It is however requested that the asset is moved in a south-westerly direction towards the existing dam, as shown in Figure 6.

2.3.1.8 WL12 LOCATION

WL12 is not within [redacted] land, although [redacted] have been asked to comment on its location and suitability in agreement with the land-owner.

It is suggested that WL12 could be moved further south to the southern side of the existing tributary as shown in Figure 7. This would allow a larger catchment to drain to the asset and would also provide alternate outfall option (to the south to combine with the WL-14 outfall). It is suggested that the ultimate footprint should sit on the eastern side of Bences Road.

[redacted]

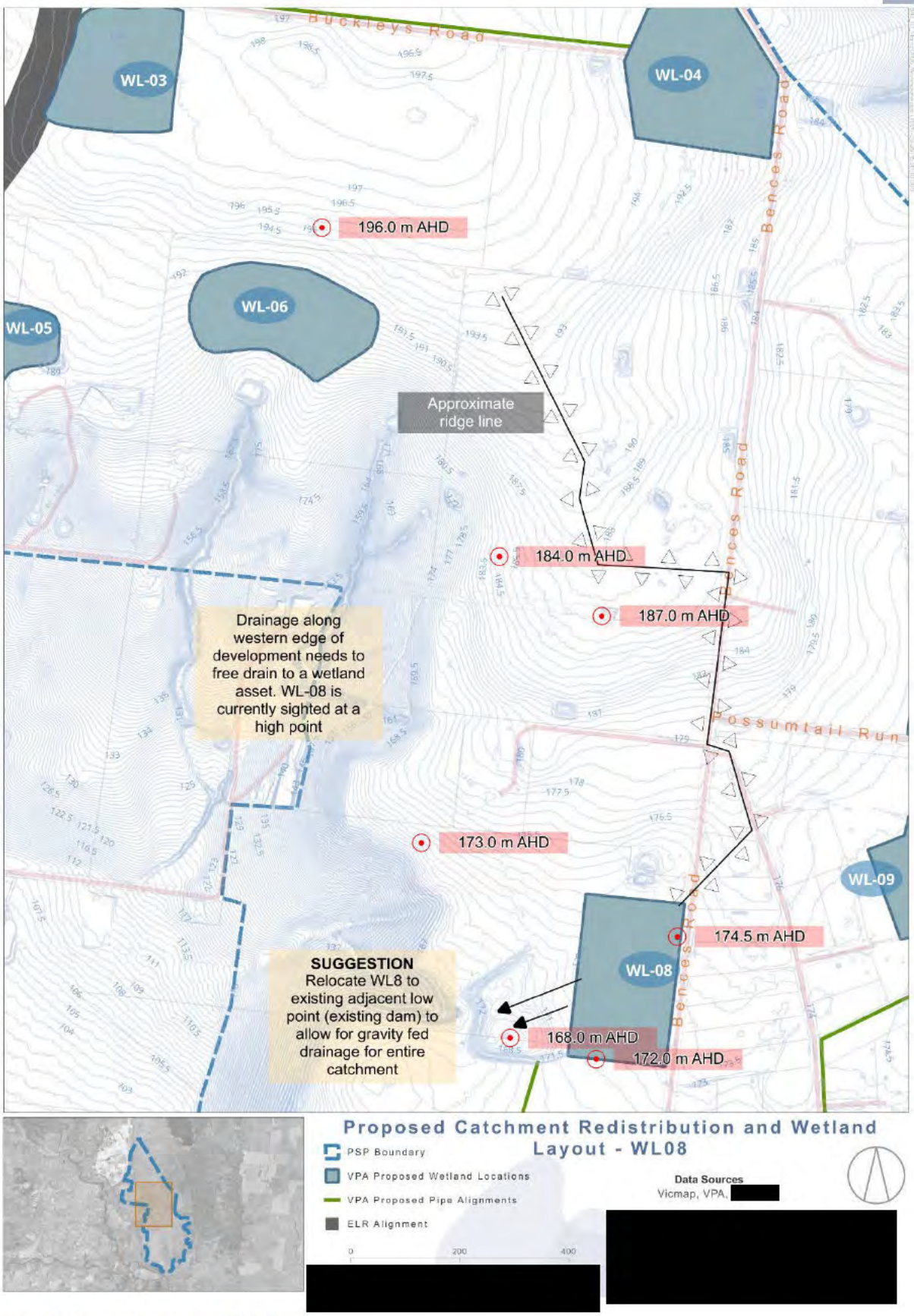


Figure 6 Proposed relocation of WL08

[redacted]

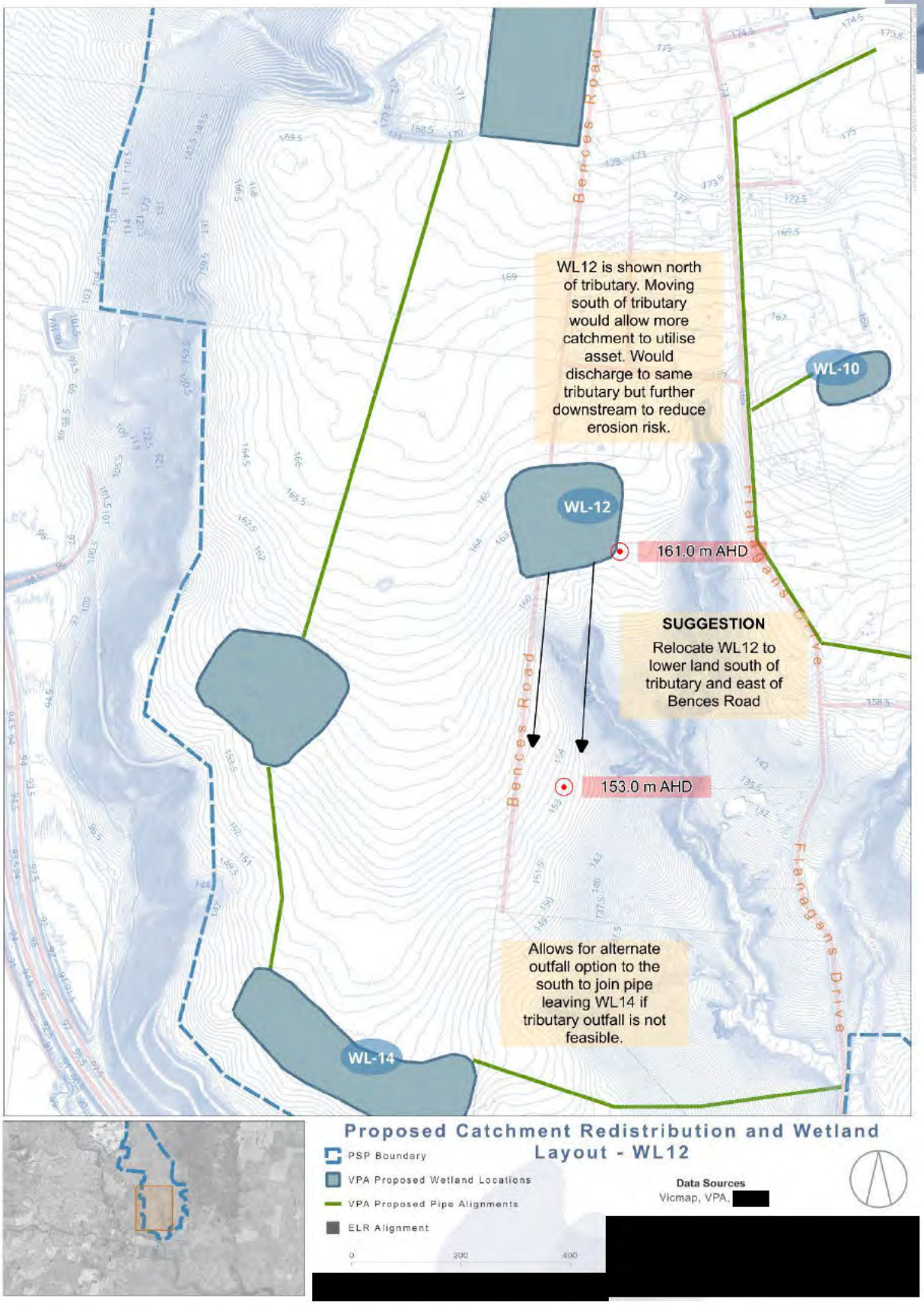


Figure 7 WL-12 Relocation

[redacted]

2.3.2 INDICATIVE PIPE ALIGNMENTS

We note the following:

- Plan 10 – Water shows "existing pipe alignments" in a solid green colour. It is specifically noted that all of these pipes do not currently exist and, where they do end up being included in the PSP, they should be indicated as "Indicative outfall alignments" or equivalent.
- WL-04 is now drained to the west which we understand is due to limitations of discharge to Pyrites Creek. We would like to suggest an alignment which is slightly north of the proposed alignment which will save on significant cut through a high point. This work is shown in the Creo Consultants asset outfall analysis completed for Melbourne Water.
- Given the above recommendations regarding the removal of asset WL-01, the pipe connecting WL-01 and WL-02 will not be required. It is envisaged that a 1% AEP scheme pipe will run in a southerly direction along the edge of the escarpment to discharge to WL-02.

3 Integrated Water Management

Water is a critical enabler of the liveability and environmental outcomes [redacted] envision for the Merrimu Precinct. We have reviewed the Draft Merrimu Precinct Structure Plan, and we are broadly supportive with the intended approach to address the water cycle. The following specifically addresses the Integrated Water Management (IWM) elements of the PSP.

3.1 PSP Outcomes

The Merrimu PSP Vision outlines a "distinctive, sustainable and high amenity environment for its future residents". Furthermore, "Incorporation of best-practice landscape architecture and urban design principles in natural landscape settings will deliver green and climate resilient locally distinctive precincts with a string sense of place".

[redacted] are supportive of the intent of these elements of the Vision and recognise the importance of Water Management in their realisation.

We are therefore also supportive of PSP Purpose 12, for "an integrated and sustainable approach to management of water that responds holistically to drainage considerations and prioritises sustainable consumption and blue-green infrastructure".

The place-based plan outlines a workable urban structure for the precinct. We look forward to working with VPA and water management authorities to implement the water management systems to realises these Outcomes.

3.2 Implementation

Of the seven 20-min neighbourhood hallmarks, water plays the most significant role in providing High Quality Public Realm. Under this hallmark, VPA identify two objectives, O43 and O44, which specifically address water management. These seek:

[redacted]

- **O43:** To develop sustainable water, drainage and wastewater systems that protect, conserve, and improve biodiversity, waterways and other natural resources and maintain or enhances the safety, health, and wellbeing of people and property.
- **O44:** To plan for an integrated water management system that reduces reliance on reticulated potable water, increases the reuse of alternative water through stormwater harvesting, water sensitive urban design, and other measures; contributing towards a sustainable and climate resilient environment.

These objectives align with [redacted]' approach to water supply, wastewater and drainage system design for the Merrimu Precinct, and are supported as articulated in the PSP.

From an IWM perspective, these objectives are supported by several requirements. These have been reviewed with the following positions:

- **R84:** Largely accepted. It should be noted that the meeting of the stormwater targets as outlined in the Urban Stormwater Management Guidelines (EPA Publication 1739.1, Jun 2021) can most likely only be met through new infrastructure types. [redacted] will work with the relevant authorities to design and implement reasonably practicable solutions to meet this requirement.
- **R86:** Accepted. [redacted] see value in well formulated and rigorous IWM planning and have started on the development of an IWM Plan with a focus on our proposed Stage 1. We are across the Werribee Catchment IWM Forum Strategic Directions Statement and IWM Plan and will be developing Merrimu Precinct IWM Plans to align. Regarding the Healthy Waterways Strategy Harvesting and Infiltration Targets, we understand these align with the EPA Urban Stormwater Management Guidelines targets, and we are comfortable exploring systems to meet these targets. We also acknowledge the position of the General Environmental Duty and are comfortable exploring reasonably practicable measures to meet these ambitious targets.

IWM exploration for the Precinct is further articulated through several Guidelines. Our position on these is as follows:

- **G68:** Largely accepted. This guideline identifies a preference of water supply (stormwater) to be provided through gravity to any pre-European wetland across the precinct. Should any pre-European wetlands be identified, we will endeavour to meet this guideline.
- **G69:** Accepted. The IWM Plan, Stormwater Management Strategy and Landscape Plan will be developed collaboratively amongst consultants and authorities.
- **G70:** Accepted. We will engage with these authorities to ensure we have the most up to date documentation to guide development of the IWM Plan.
- **G71:** Accepted
- **G72:** Accepted
- **G73:** Accepted. Estimated reductions will be quantified through the IWM Plan.
- **G74:** Accepted
- **G75**: Accepted
- **G76:** Accepted. All these options, and others, will be explored through the IWM Plan

[redacted] recognise the importance of collaborative planning in delivering any IWM initiatives identified through this analysis. We have initiated engagement with Melbourne Water, Greater Western Water, Moorabool Shire Council and Southern Rural Water to collaboratively develop this IWM Plan in an effort to ensure the identification of good initiatives will lead to delivery and ongoing operation.

[redacted]

The primary items we are looking to address are:

- Summary of the basin areas we expect will be required
- Any commentary on potential issues we can see with suggested locations and piping/ outfalls
- Commentary on location of RB 12 – we had this further south to allow it to be piped south, the Melbourne water location looks unworkable
- Is the enough flexibility to allow alterative designs to be developed with confidence Melbourne water will approve them?

  The PSP includes Requirement 107:

  - *Final designs and boundaries of constructed wetlands, retarding basins, stormwater quality treatment infrastructure, and associated paths, boardwalks, bridges, and planting, must be to the satisfaction of both the responsible authority and Melbourne Water.*

- Is the staging requirement workable?

  The PSP includes Requirement 97:

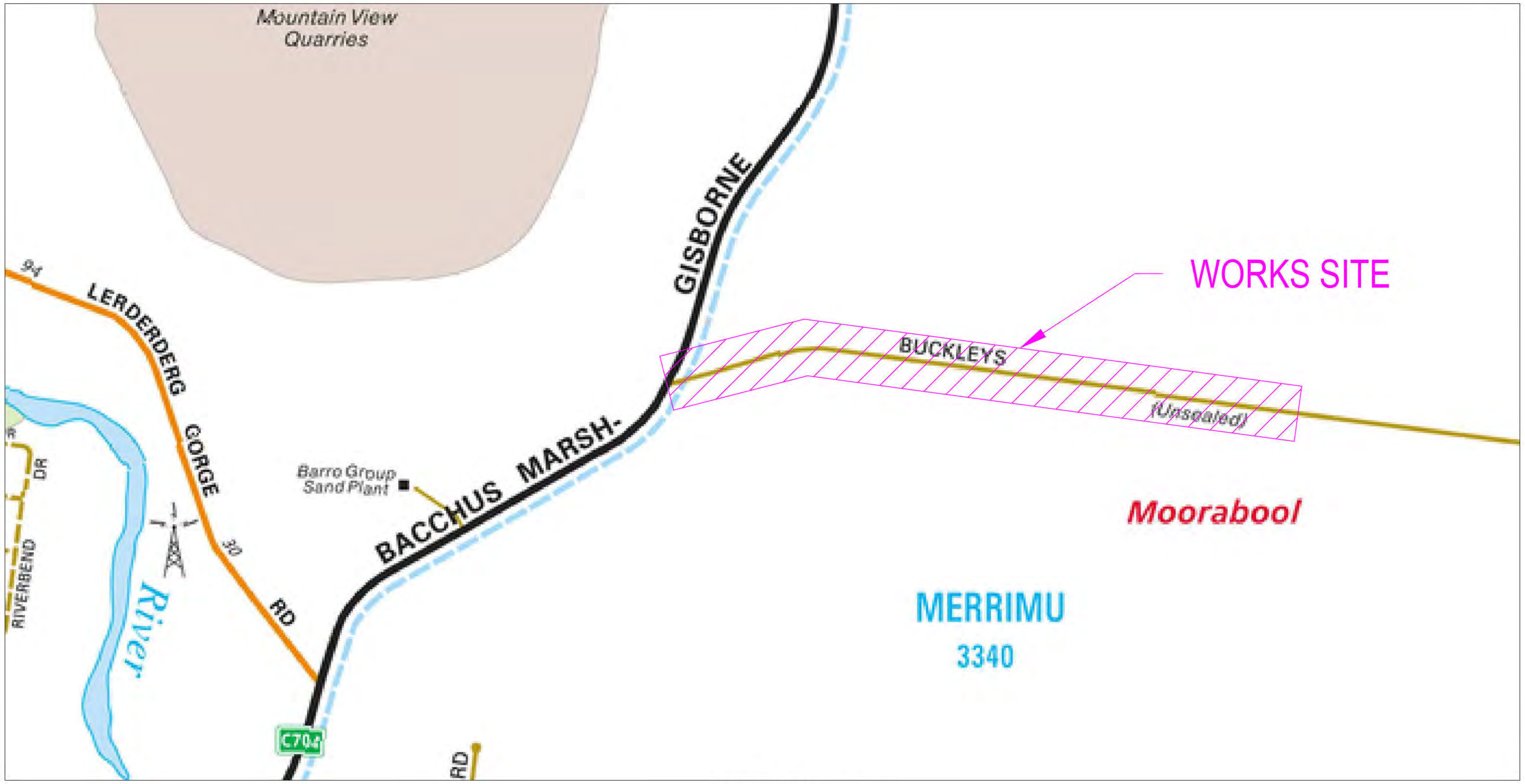
  - *Subdivision and development of land must not occur until at least one of the ultimate drainage outfalls identified on Plan 13 – Infrastructure and Development Staging is constructed to the satisfaction of Melbourne Water and the responsible authority.*

[redacted]

BUCKLEYS ROAD PRELIMINARY ROAD GRAI

MERRIMU

MOORABOOL SHIRE COUNCIL



LOCALITY PLAN

MELWAYS REF:328 D11

DRAWING
R100
R200
R400
R401
R402
R500
R501
R502
R503
R504
R505

REVISION	DATE	ISSUE DESCRIPTION	DRAWN	CHECKED	APPROVED
A	02/02/26	ISSUED FOR INFOMRATION	[redacted]	T.PALIOS	T.PALIOS

CLIENT
[redacted]

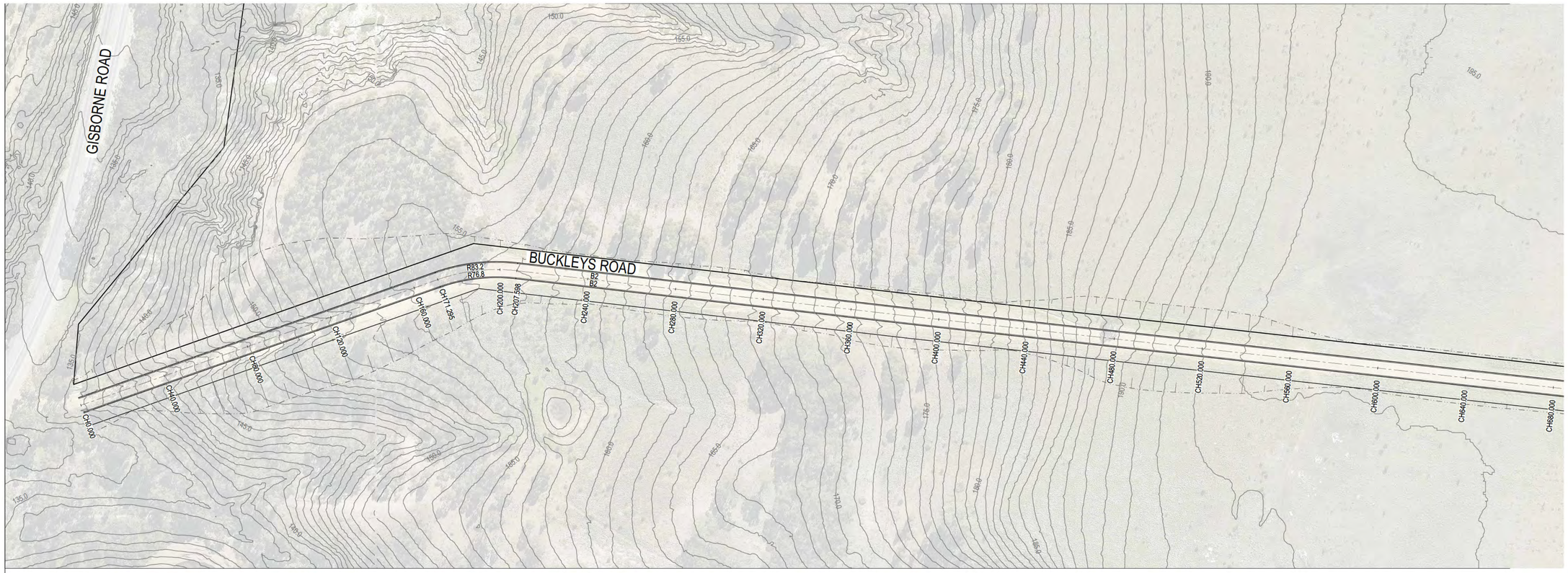
[redacted]

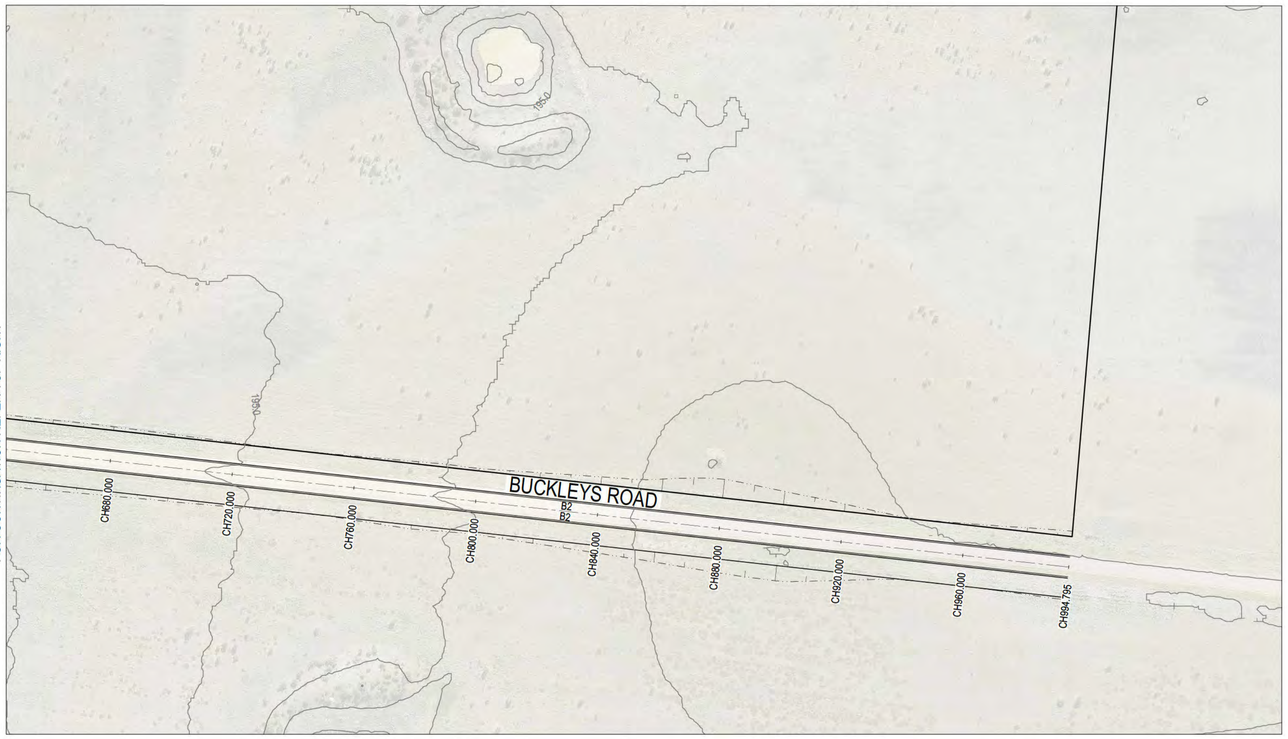
PROJECT
BUCKLEYS ROAD PRELIMINARY ROAD GRADING MERRIMU

DRAWING TITLE
MERRIMU - BUCKELYS ROAD COVER SHEET

STATUS
PRELIMINARY
NOT FOR CONSTRUCT

SCALE @ A1 :





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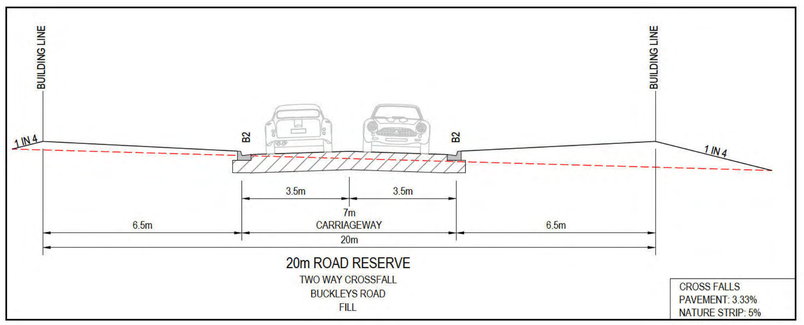
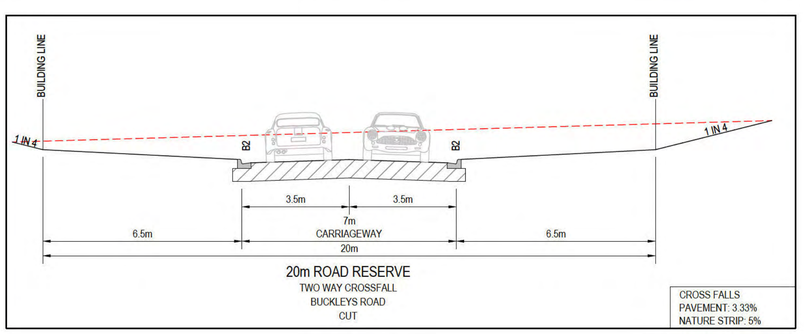


20m ROAD RESERVE
TWO WAY CROSSFALL
BUCKLEYS ROAD
FILL

CROSS FALLS
PAVEMENT: 3.33%
NATURE STRIP: 5%



20m ROAD RESERVE
TWO WAY CROSSFALL
BUCKLEYS ROAD
CUT

CROSS FALLS
PAVEMENT: 3.33%
NATURE STRIP: 5%

REVISION	DATE	ISSUE DESCRIPTION	DRAWN	CHECKED	APPROVED
A	02/02/26	ISSUED FOR INFOMRATION	[redacted]	T.PALIOS	T.PALIOS

CLIENT [redacted]

[redacted]

PROJECT
BUCKLEYS ROAD PRELIMINARY ROAD GRADING MERRIMU

DRAWING TITLE
MERRIMU - BUCKELYS ROAD LAYOUT PLAN

STATUS
PRELIMINARY
NOT FOR CONSTRUCT

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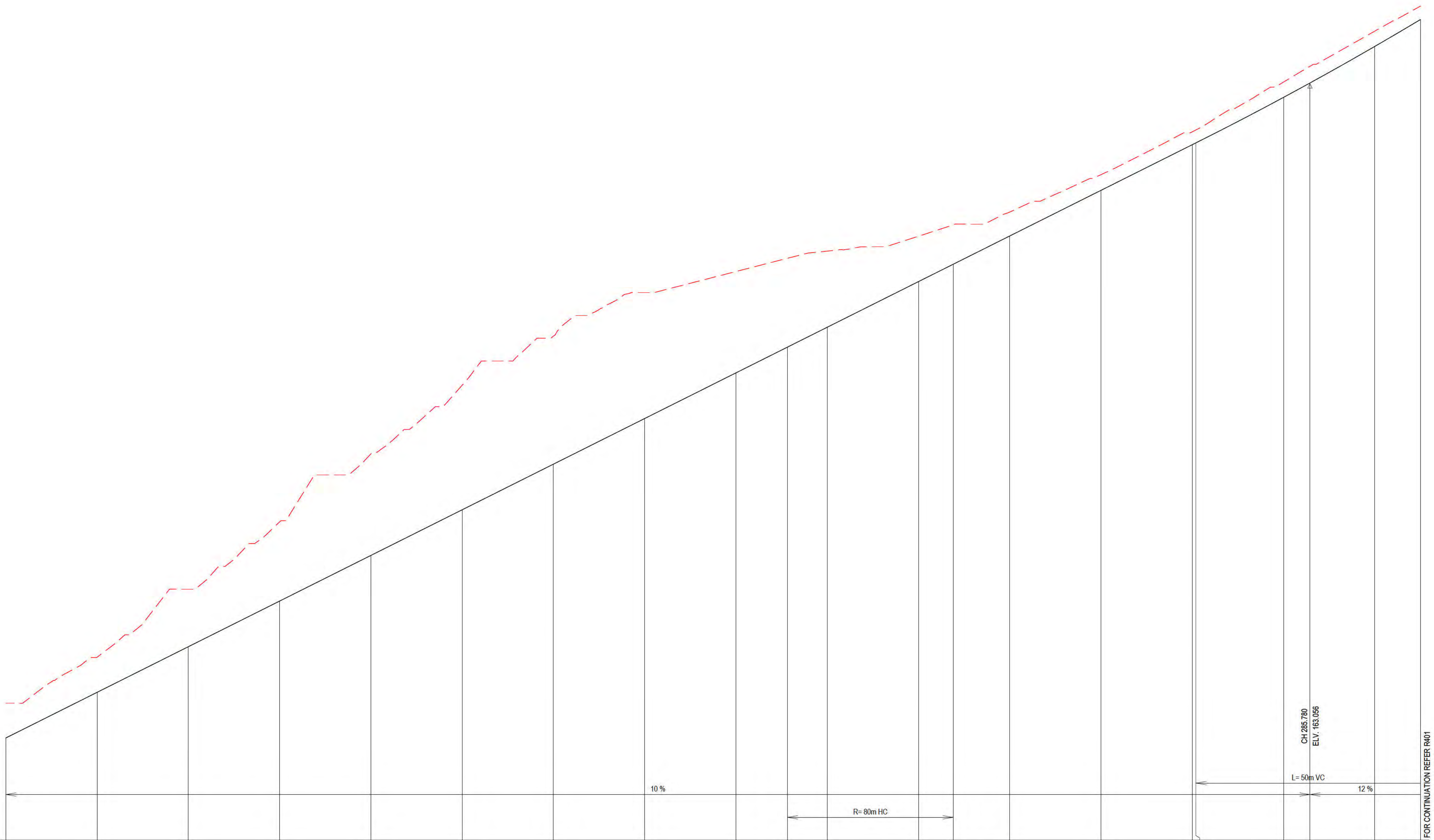
[redacted]

[redacted]



VERTICAL GEOMETRY

HORIZONTAL GEOMETRY

DATUM RL130

DESIGN CENTRELINE	134.477	136.477	138.477	140.477	142.477	144.477	146.477	148.477	150.477	151.607
RIGHT BACK OF KERB	134.480	136.480	138.480	140.480	142.481	144.481	146.481	148.481	150.481	151.610
LEFT BACK OF KERB	134.480	136.480	138.480	140.480	142.481	144.481	146.481	148.481	150.481	151.610
EXISTING SURFACE	136.000	138.017	141.000	143.947	146.930	149.938	152.091	154.000	154.920	155.501
CENTRELINE DEPTH	1.523	1.540	2.523	3.470	4.453	5.461	5.614	5.523	4.443	3.894
CHAINAGE	0.000	20.000	40.000	60.000	80.000	100.000	120.000	140.000	160.000	171.295

DESIGN CENTRELINE	152.477	154.477	155.237	156.477	158.477	160.478 160.555	162.551	163.181	164.785	165.962
RIGHT BACK OF KERB	152.481	154.481	155.241	156.481	158.481	160.481 160.559	162.555	163.185	164.789	165.965
LEFT BACK OF KERB	152.481	154.481	155.241	156.481	158.481	160.481 160.559	162.555	163.185	164.789	165.965
EXISTING SURFACE	155.814	156.466	156.963	157.527	159.166	161.043 161.123	163.223	163.914	165.456	166.551
CENTRELINE DEPTH	3.336	1.989	1.726	1.050	0.689	0.566 0.568	0.672	0.733	0.670	0.589
CHAINAGE	180.000	200.000	207.598	220.000	240.000	260.000 260.780	280.000	285.780	300.000	310.000

BUCKLEYS ROAD LONGITUDINAL SECTION

REVISION	DATE	ISSUE DESCRIPTION	DRAWN	CHECKED	APPROVED
A	02/02/26	ISSUED FOR INFOMRATION	[redacted]	T.PALIOS	T.PALIOS

CLIENT
[redacted]

[redacted]

PROJECT
BUCKLEYS ROAD PRELIMINARY ROAD GRADING MERRIMU

DRAWING TITLE
MERRIMU - BUCKELYS ROAD ROAD LONGITUDINAL SECTIONS - 01

STATUS
PRELIMINARY
NOT FOR CONSTRUCT

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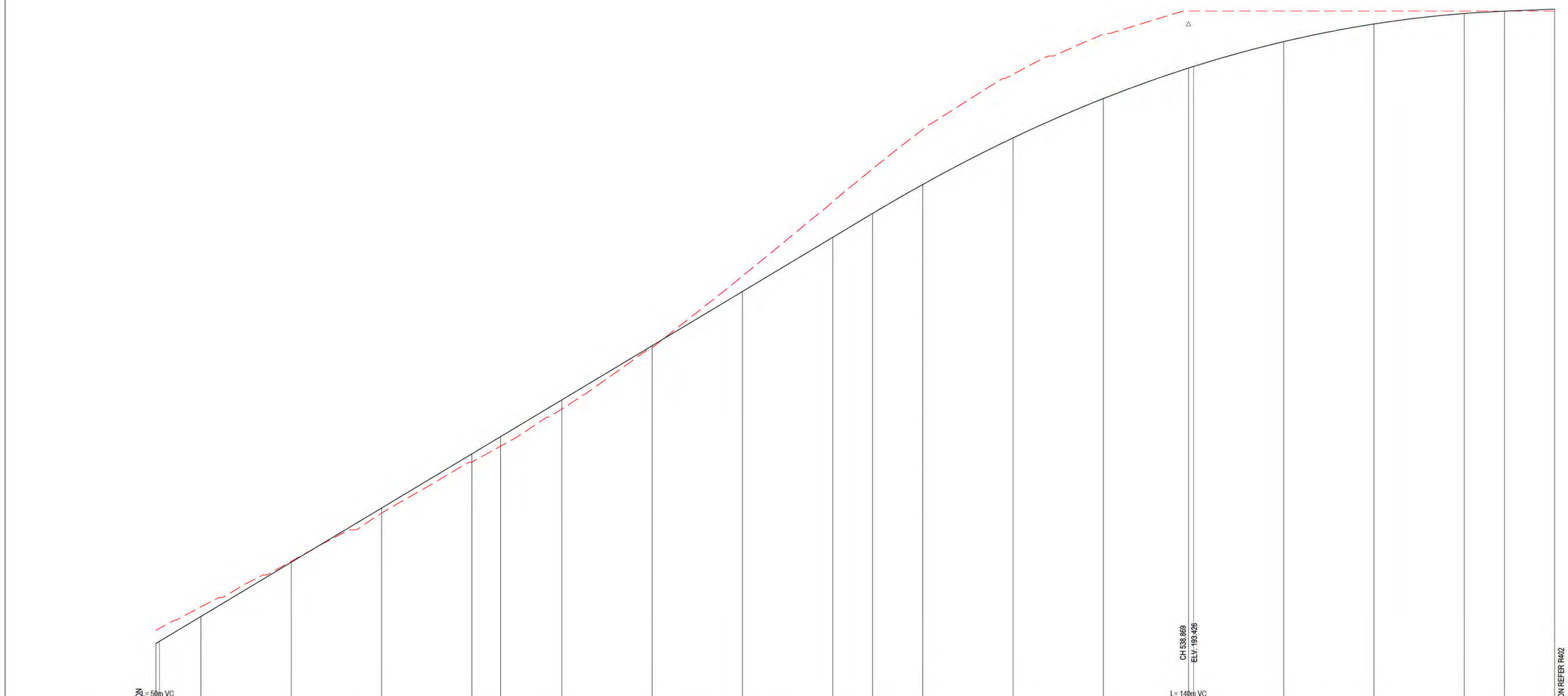
V 2 1 0 2 4

[redacted]

[redacted]



VERTICAL GEOMETRY																								
HORIZONTAL GEOMETRY																								
DATUM RL161																								
DESIGN CENTRELINE	165.962 166.056	167.162	169.562	171.962	174.362	175.125	176.762	179.162	181.562	183.962	185.026	186.312	188.374	190.116	191.466 191.538	192.840	193.422	193.884	193.986	194.076
RIGHT BACK OF KERB	165.965 166.059	167.165	169.565	171.965	174.365	175.131	176.765	179.165	181.565	183.965	185.030	186.316	188.378	190.120	191.468 191.542	192.643	193.425	193.887	193.990	194.079
LEFT BACK OF KERB	165.965 166.059	167.165	169.565	171.965	174.365	175.127	176.765	179.165	181.565	183.965	185.030	186.316	188.378	190.120	191.468 191.542	192.643	193.425	193.887	193.990	194.079
EXISTING SURFACE	166.551 166.634	167.588	169.605	171.738	174.000	174.704	176.358	179.073	182.245	185.535	187.000	188.748	191.192	192.967	194.000 194.000	194.000	194.000	194.000	194.000	194.000
CENTRELINE DEPTH	0.589 0.579	0.426	0.043	-0.224	-0.362	-0.421	-0.404	-0.089	0.683	1.573	1.974	2.436	2.817	2.851	2.534 2.462	1.360	0.578	0.116	0.014	-0.076
CHAINAGE	310.000 310.780	320.000	340.000	360.000	380.000	386.361	400.000	420.000	440.000	460.000	468.869	480.000	500.000	520.000	538.869 540.000	560.000	580.000	600.000	608.869	620.000

BUCKLEYS ROAD LONGITUDINAL SECTION

REVISION	DATE	ISSUE DESCRIPTION	DRAWN	CHECKED	APPROVED
A	02/02/26	ISSUED FOR INFOMRATION	[redacted]	T.PALIOS	T.PALIOS

CLIENT [redacted]

[redacted]

PROJECT
BUCKLEYS ROAD PRELIMINARY ROAD GRADING MERRIMU

DRAWING TITLE
MERRIMU - BUCKELYS ROAD ROAD LONGITUDINAL SECTIONS - 02

STATUS
PRELIMINARY
NOT FOR CONSTRUCT

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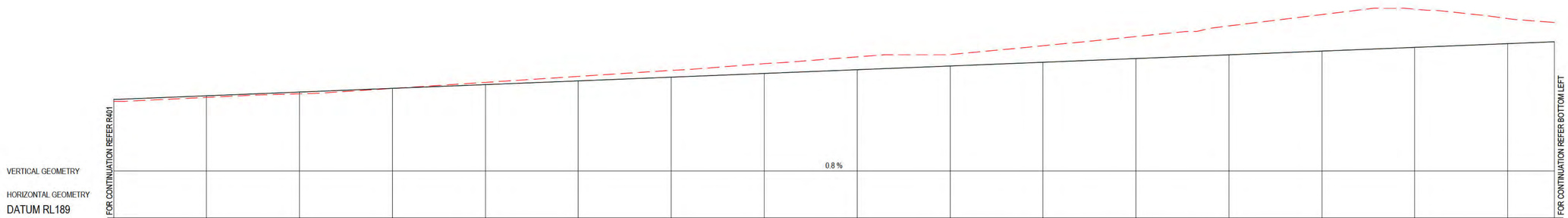
[redacted]

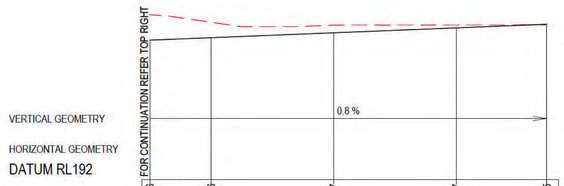
[redacted]



DATUM RL189

DESIGN CENTRELINE	194.076	194.236	194.396	194.556	194.716	194.876	195.036	195.196	195.356	195.516	195.676	195.836	195.996	196.156	196.316	196.476	196.556
RIGHT BACK OF KERB	194.079	194.239	194.399	194.559	194.719	194.879	195.039	195.199	195.359	195.519	195.679	195.840	196.000	196.160	196.320	196.480	196.560
LEFT BACK OF KERB	194.079	194.239	194.399	194.559	194.719	194.879	195.039	195.199	195.359	195.519	195.679	195.840	196.000	196.160	196.320	196.480	196.560
EXISTING SURFACE	194.000	194.167	194.322	194.553	194.812	195.070	195.328	195.617	195.910	196.008	196.388	196.783	197.238	197.727	197.958	197.553	197.389
CENTRELINE DEPTH	-0.076	-0.069	-0.073	-0.003	0.096	0.195	0.292	0.421	0.554	0.492	0.712	0.947	1.242	1.570	1.642	1.077	0.832
CHAINAGE	620.000	640.000	660.000	680.000	700.000	720.000	740.000	760.000	780.000	800.000	820.000	840.000	860.000	880.000	900.000	920.000	930.000

Buckleys Road LONGITUDINAL SECTION



DATUM RL192

DESIGN CENTRELINE	196.556	196.635	196.797	196.957	197.075
RIGHT BACK OF KERB	196.560	196.640	196.800	196.960	197.078
LEFT BACK OF KERB	196.560	196.640	196.800	196.960	197.078
EXISTING SURFACE	197.389	197.140	197.048	197.052	197.058
CENTRELINE DEPTH	0.832	0.504	0.251	0.096	-0.017
CHAINAGE	930.000	940.000	960.000	980.000	994.795

BUCKLEYS ROAD LONGITUDINAL SECTION

REVISION	DATE	ISSUE DESCRIPTION	DRAWN	CHECKED	APPROVED
A	02/02/26	ISSUED FOR INFOMRATION	[redacted]	T.PALIOS	T.PALIOS

CLIENT [redacted]

[redacted]

PROJECT

BUCKLEYS ROAD PRELIMINARY ROAD GRADING MERRIMU

DRAWING TITLE

MERRIMU - BUCKELYS ROAD ROAD LONGITUDINAL SECTIONS - 03

STATUS

PRELIMINARY
NOT FOR CONSTRUCT

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V 2 1 0 2 4

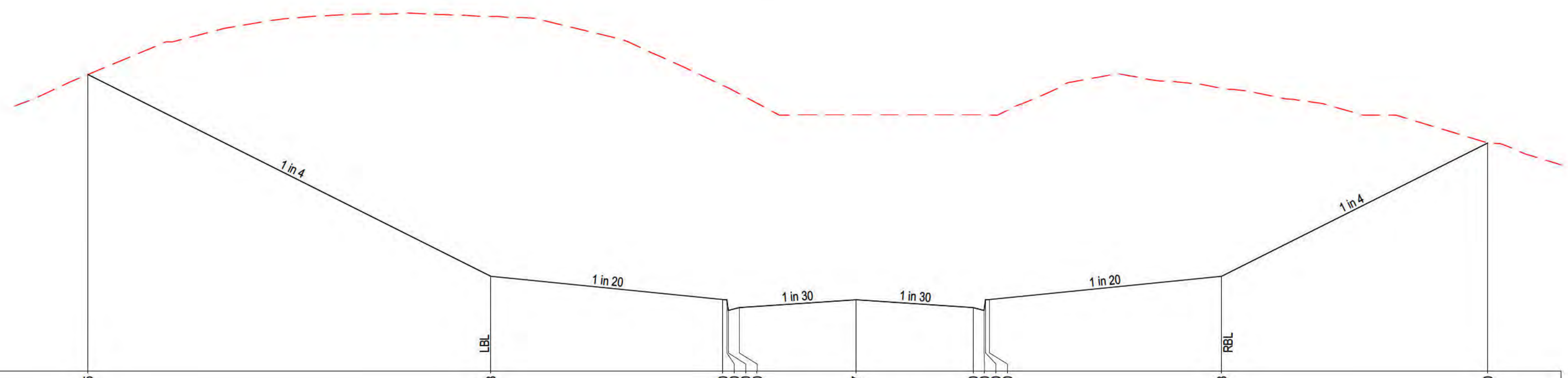
[redacted]

[redacted]

DATUM141.5

DESIGN SURFACE	148.461	142.798	142.481	142.481	142.331	142.371	142.477	142.371	142.331	142.481	142.481	142.798	147.494
EXISTING SURFACE	148.461	148.578	147.891	147.812	147.784	147.575	146.930	147.000	147.000	147.000	147.000	148.619	147.494
OFFSET	-32.651	-10.000	-3.650	-3.540	-3.500	-3.200	0.000	3.200	3.500	3.540	3.650	10.000	28.784

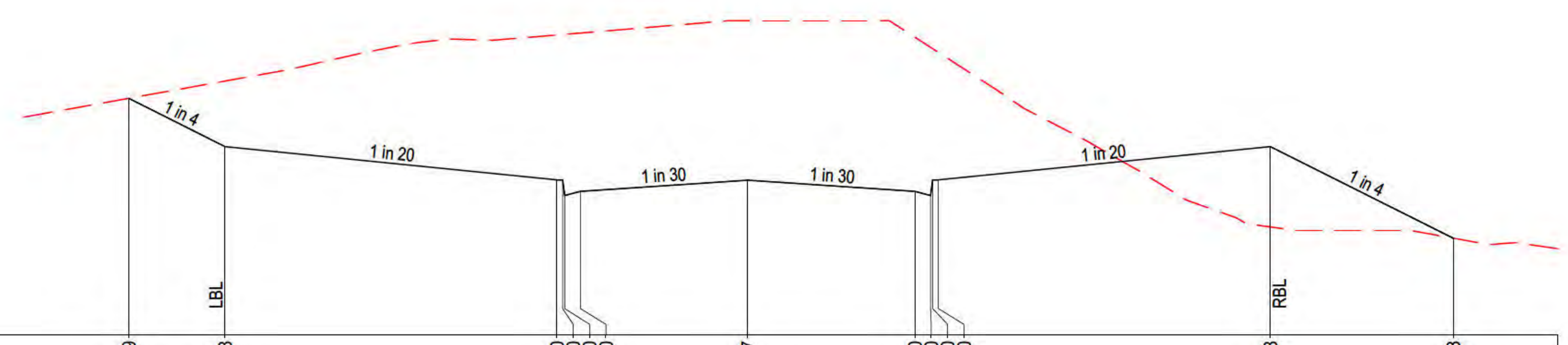
CH 80.000



DATUM137.5

DESIGN SURFACE	141.555	138.798	138.480	138.480	138.330	138.370	138.477	138.370	138.330	138.480	138.480	138.798	140.620
EXISTING SURFACE	141.555	142.346	141.406	141.381	141.372	141.292	141.000	141.000	141.000	141.000	141.000	141.366	140.620
OFFSET	-21.028	-10.000	-3.650	-3.540	-3.500	-3.200	0.000	3.200	3.500	3.540	3.650	10.000	17.288

CH 40.000



DATUM133.0

DESIGN SURFACE	135.259	134.798	134.480	134.480	134.330	134.370	134.477	134.370	134.330	134.480	134.480	134.798	133.923
EXISTING SURFACE	135.259	135.424	135.864	135.869	135.870	135.883	136.000	135.843	135.746	135.733	135.698	134.030	133.923
OFFSET	-11.843	-10.000	-3.650	-3.540	-3.500	-3.200	0.000	3.200	3.500	3.540	3.650	10.000	13.499

CH 0.000

REVISION	DATE	ISSUE DESCRIPTION	DRAWN	CHECKED	APPROVED
A	02/02/26	ISSUED FOR INFOMRATION	[redacted]	T.PALIOS	T.PALIOS

CLIENT
[redacted]

[redacted]

PROJECT
BUCKLEYS ROAD PRELIMINARY ROAD GRADING MERRIMU

DRAWING TITLE
MERRIMU - BUCKELYS ROAD ROAD CROSS SECTIONS - 01 BUCKELYS ROAD

STATUS
PRELIMINARY
NOT FOR CONSTRUCT

SCALE @ A1 : 1:100 (H) 1:50 (V)
H 2 1 0 2 4
V 1 0.5 0 1 2

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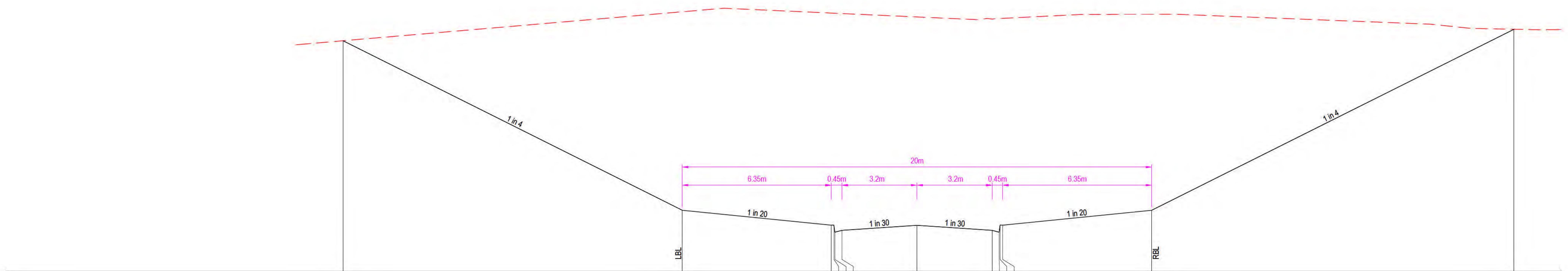
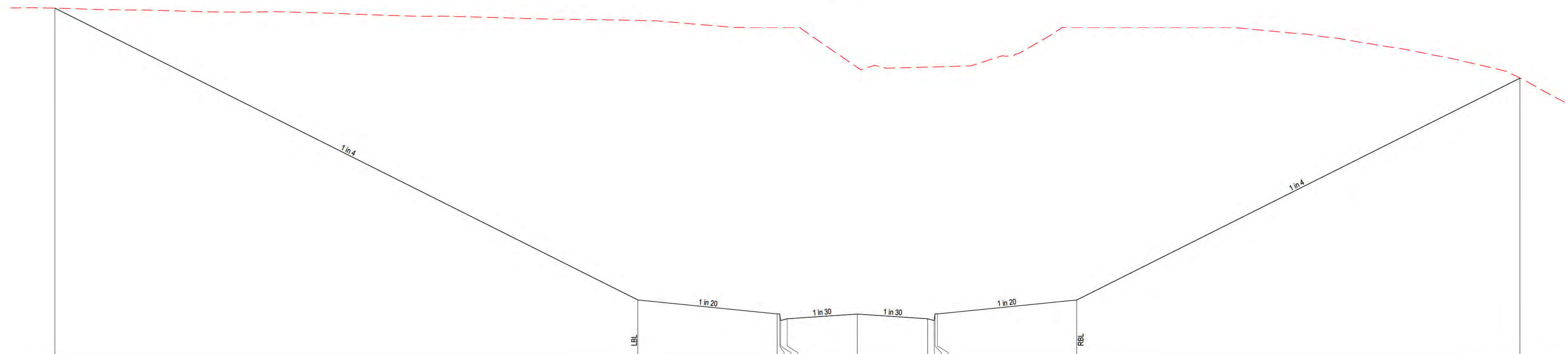


DATUM149.5

DESIGN SURFACE	154.412	150.798	150.481	150.481	150.331	150.371	150.477	150.371	150.331	150.481	150.481	150.798	154.657
EXISTING SURFACE	154.412	155.030	155.002	155.000	154.999	154.992	154.920	154.875	154.886	154.887	154.889	154.976	154.657
OFFSET	-24.457	-10.000	-3.650	-3.540	-3.500	-3.200	0.000	3.200	3.500	3.540	3.650	10.000	25.437

CH 160.000



DATUM145.5

DESIGN SURFACE	153.440	146.798	146.481	146.481	146.331	146.371	146.477	146.371	146.331	146.481	146.481	146.798	151.849
EXISTING SURFACE	153.440	153.161	153.000	153.000	153.000	153.000	152.091	152.099	152.103	152.104	152.105	153.000	151.849
OFFSET	-36.569	-10.000	-3.650	-3.540	-3.500	-3.200	0.000	3.200	3.500	3.540	3.650	10.000	30.202

CH 120.000

REVISION	DATE	ISSUE DESCRIPTION	DRAWN	CHECKED	APPROVED
A	02/02/26	ISSUED FOR INFOMRATION	[redacted]	T.PALIOS	T.PALIOS

CLIENT
[redacted]

[redacted]

PROJECT
BUCKLEYS ROAD PRELIMINARY ROAD GRADING MERRIMU

DRAWING TITLE
MERRIMU - BUCKELYS ROAD ROAD CROSS SECTIONS - 02 BUCKELYS ROAD

STATUS
PRELIMINARY
NOT FOR CONSTRUCT

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[redacted]

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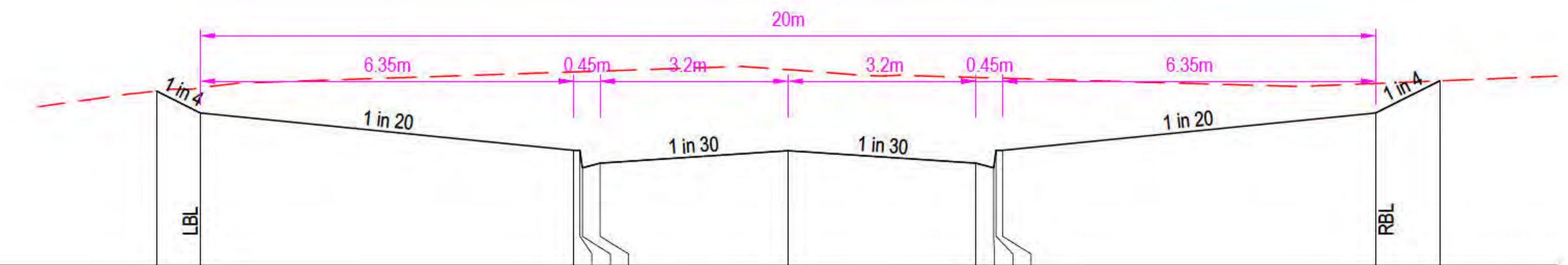
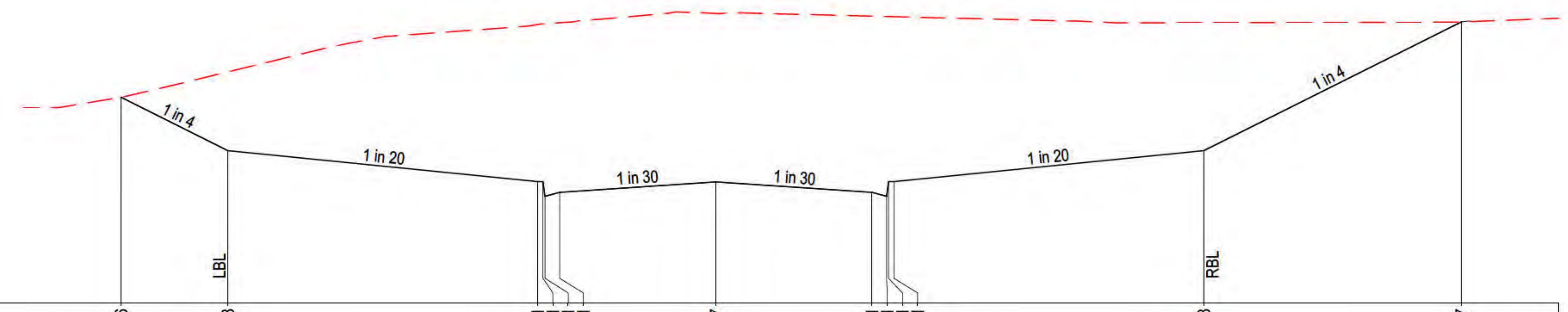


DATUM157.5

DESIGN SURFACE	158.985	158.798	158.481	158.481	158.331	158.371	158.477	158.371	158.331	158.481	158.481	158.798	159.071
EXISTING SURFACE	158.985	159.011	159.146	159.148	159.149	159.154	159.166	159.100	159.095	159.095	159.093	159.049	159.071
OFFSET	-10.745	-10.000	-3.650	-3.540	-3.500	-3.200	0.000	3.200	3.500	3.540	3.650	10.000	11.091

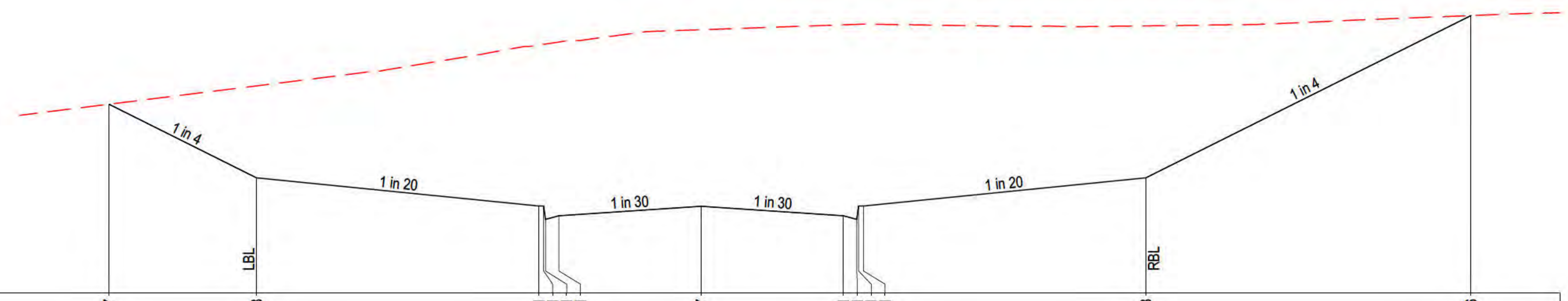
CH 240.000



DATUM154.0

DESIGN SURFACE	156.106	155.558	155.241	155.241	155.091	155.131	155.237	155.131	155.091	155.241	155.241	155.558	156.877
EXISTING SURFACE	156.106	156.365	156.850	156.857	156.858	156.869	156.963	156.936	156.933	156.932	156.931	156.869	156.877
OFFSET	-12.190	-10.000	-3.650	-3.540	-3.500	-3.200	0.000	3.200	3.500	3.540	3.650	10.000	15.277

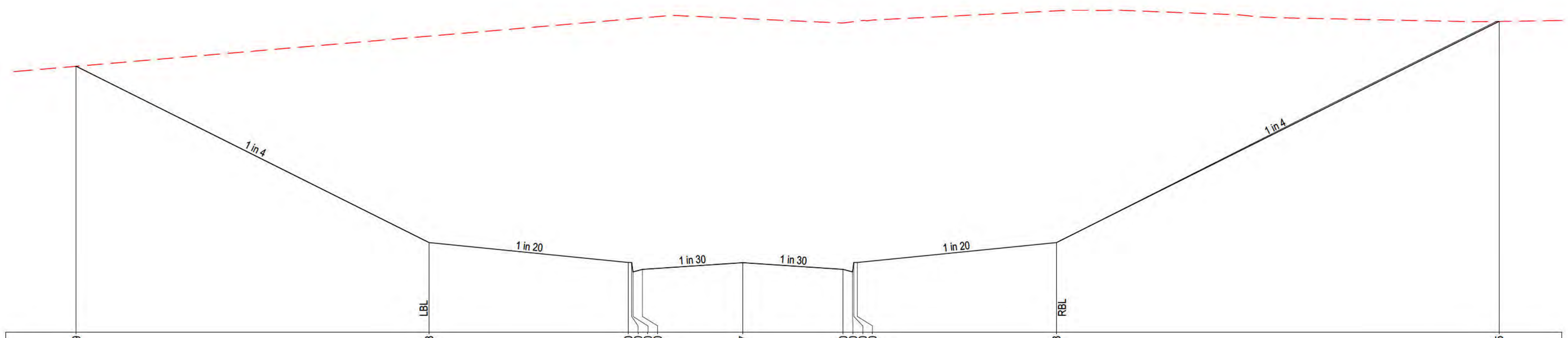
CH 207.598



DATUM153.5

DESIGN SURFACE	155.627	154.798	154.481	154.481	154.331	154.371	154.477	154.371	154.331	154.481	154.481	154.798	156.626
EXISTING SURFACE	155.627	155.834	156.294	156.303	156.306	156.328	156.466	156.522	156.527	156.528	156.530	156.510	156.626
OFFSET	-13.316	-10.000	-3.650	-3.540	-3.500	-3.200	0.000	3.200	3.500	3.540	3.650	10.000	17.312

CH 200.000



DATUM150.5

DESIGN SURFACE	154.739	151.928	151.610	151.610	151.460	151.500	151.607	151.500	151.460	151.610	151.610	151.928	155.455
EXISTING SURFACE	154.739	155.220	155.491	155.496	155.498	155.511	155.501	155.430	155.449	155.451	155.458	155.623	155.455
OFFSET	-21.246	-10.000	-3.650	-3.540	-3.500	-3.200	0.000	3.200	3.500	3.540	3.650	10.000	24.108

CH 171.295

REVISION	DATE	ISSUE DESCRIPTION	DRAWN	CHECKED	APPROVED
A	02/02/26	ISSUED FOR INFOMRATION	[redacted]	T.PALIOS	T.PALIOS

CLIENT
[redacted]

[redacted]

PROJECT
BUCKLEYS ROAD PRELIMINARY ROAD GRADING MERRIMU

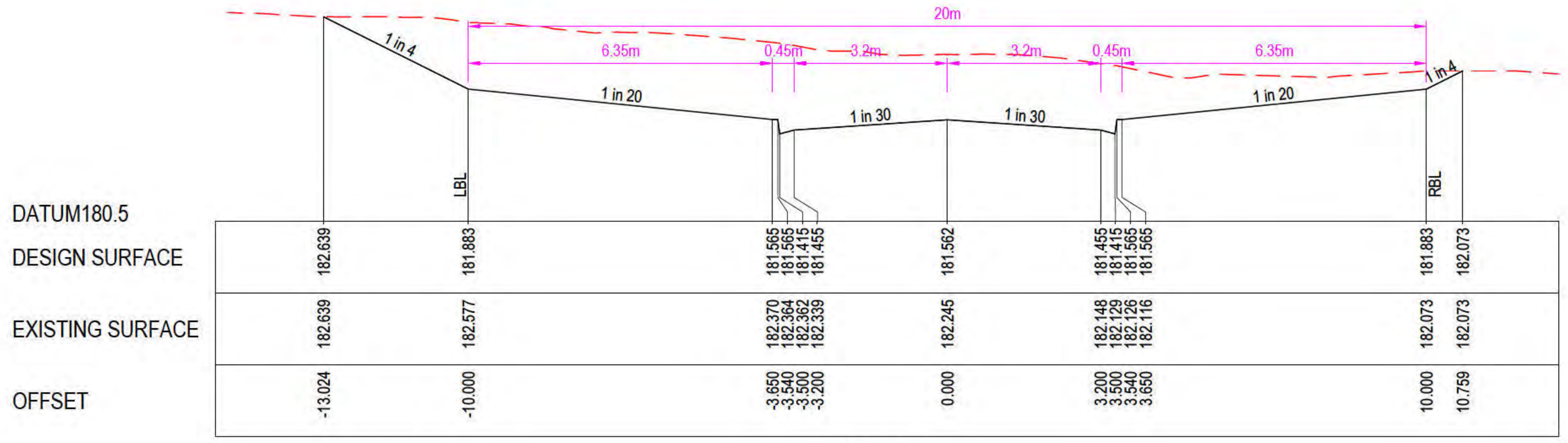
DRAWING TITLE
MERRIMU - BUCKELYS ROAD ROAD CROSS SECTIONS - 03 BUCKELYS ROAD

STATUS
PRELIMINARY
NOT FOR CONSTRUCT

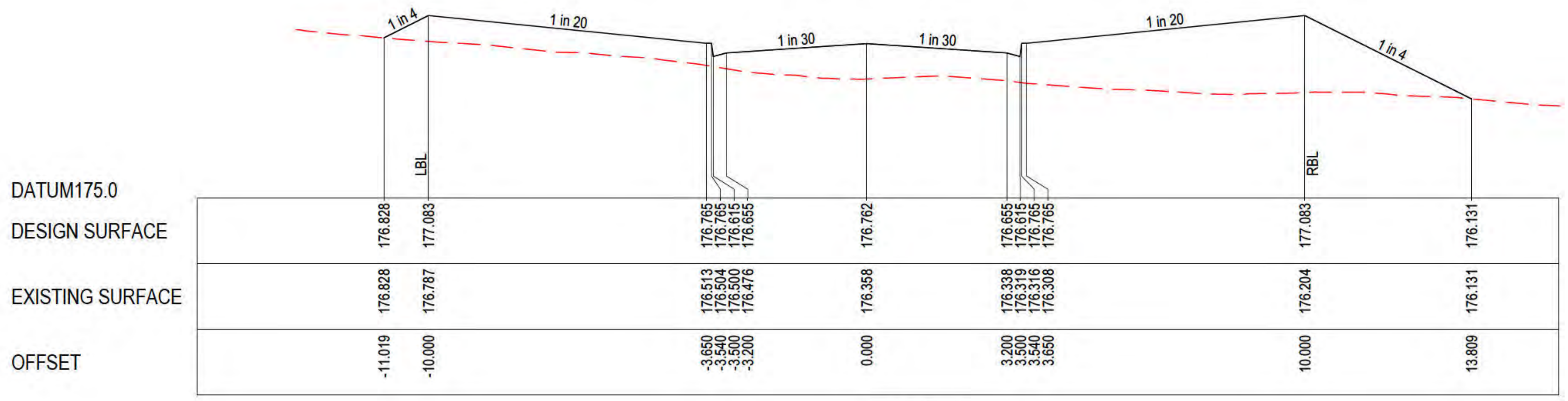
SCALE @ A1 : 1:100 (H) 1:50 (V)

H 2 1 0 2 4
V 1 0.5 0 1 2

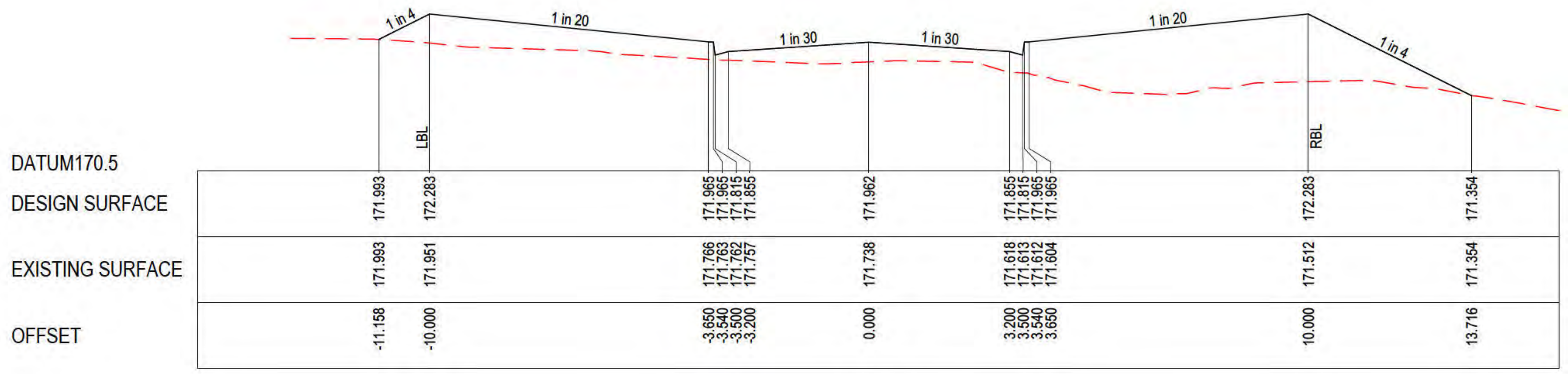
[redacted]



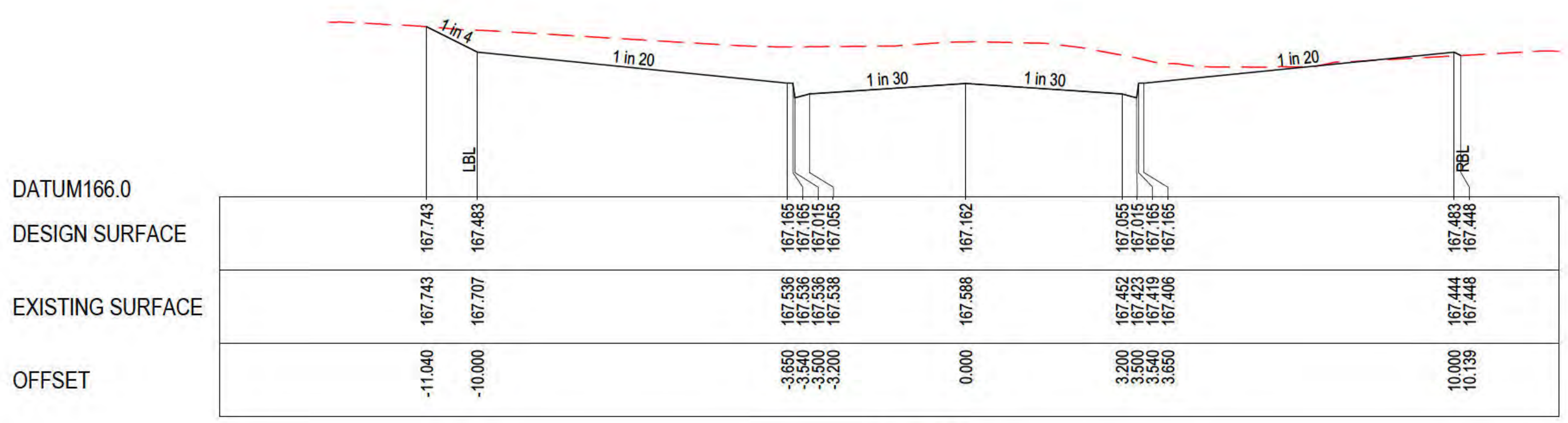
CH 440.000



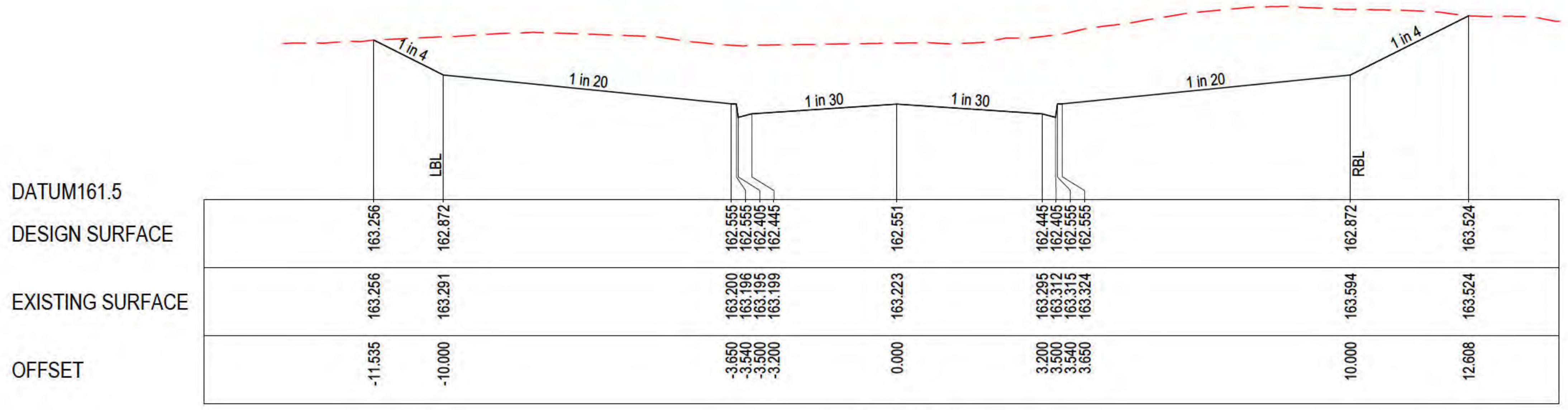
CH 400.000



CH 360.000



CH 320.000



CH 280.000

REVISION	DATE	ISSUE DESCRIPTION	DRAWN	CHECKED	APPROVED
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CLIENT

[redacted]

[redacted]

PROJECT

BUCKLEYS ROAD PRELIMINARY ROAD GRADING MERRIMU

DRAWING TITLE

MERRIMU - BUCKELYS ROAD ROAD CROSS SECTIONS - 04 BUCKELYS ROAD

STATUS

PRELIMINARY

NOT FOR CONSTRUCT

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V 1 0.5 0 1 2

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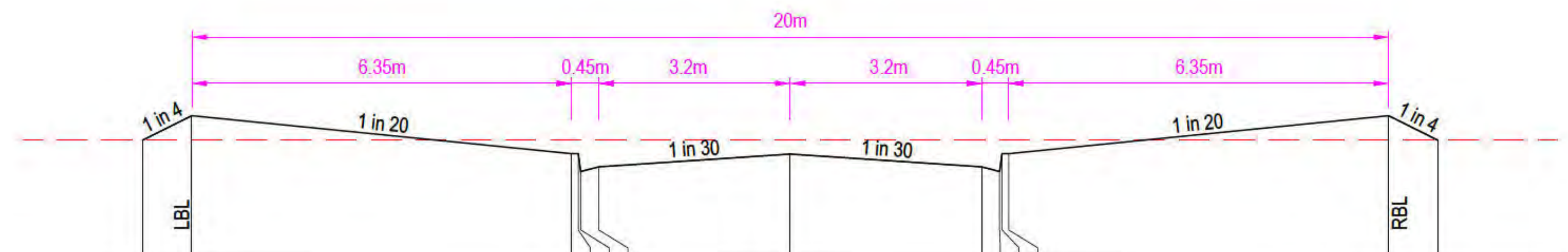
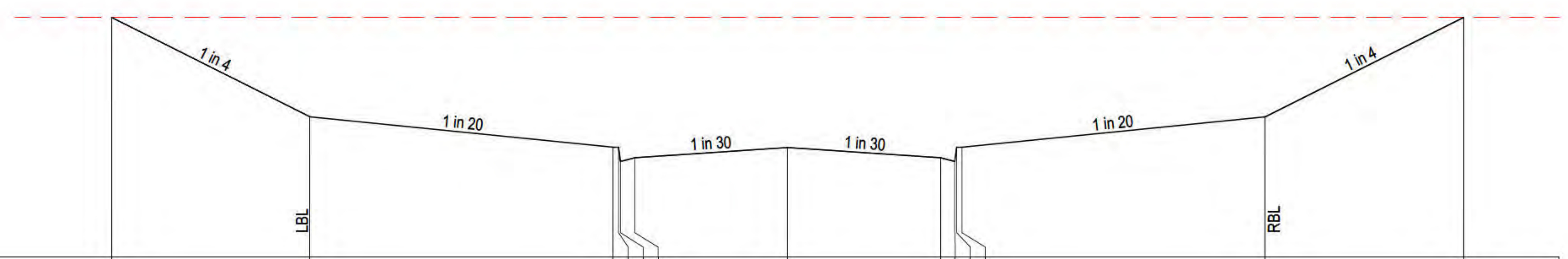


DATUM193.0

DESIGN SURFACE	194.000	194.205	193.887	193.887	193.737	193.777	193.884	193.777	193.737	193.887	193.887	194.205	194.000
EXISTING SURFACE	194.000	194.000	194.000	194.000	194.000	194.000	194.000	194.000	194.000	194.000	194.000	194.000	194.000
OFFSET	-10.819	-10.000	-3.650	-3.540	-3.500	-3.200	0.000	3.200	3.500	3.540	3.650	10.000	10.819

CH 600.000



DATUM191.5

DESIGN SURFACE	194.000	192.961	192.643	192.643	192.493	192.533	192.640	192.533	192.493	192.643	192.643	192.961	194.000
EXISTING SURFACE	194.000	194.000	194.000	194.000	194.000	194.000	194.000	194.000	194.000	194.000	194.000	194.000	194.000
OFFSET	-14.156	-10.000	-3.650	-3.540	-3.500	-3.200	0.000	3.200	3.500	3.540	3.650	10.000	14.156

CH 560.000

DATUM189.0

DESIGN SURFACE	192.472	190.437	190.120	190.120	189.970	190.010	190.116	190.010	189.970	190.120	190.120	190.437	193.024
EXISTING SURFACE	192.472	192.693	192.881	192.883	192.884	192.890	192.967	192.997	192.995	192.995	192.994	193.006	193.024
OFFSET	-18.138	-10.000	-3.650	-3.540	-3.500	-3.200	0.000	3.200	3.500	3.540	3.650	10.000	20.347

CH 520.000

DATUM185.5

DESIGN SURFACE	188.672	186.633	186.316	186.316	186.166	186.206	186.312	186.206	186.166	186.316	186.316	186.633	189.253
EXISTING SURFACE	188.672	188.924	188.746	188.747	188.748	188.741	188.748	188.756	188.766	188.766	188.773	189.044	189.253
OFFSET	-18.156	-10.000	-3.650	-3.540	-3.500	-3.200	0.000	3.200	3.500	3.540	3.650	10.000	20.477

CH 480.000

REVISION	DATE	ISSUE DESCRIPTION	DRAWN	CHECKED	APPROVED
A	02/02/26	ISSUED FOR INFOMRATION	[redacted]	T.PALIOS	T.PALIOS

CLIENT
[redacted]

[redacted]

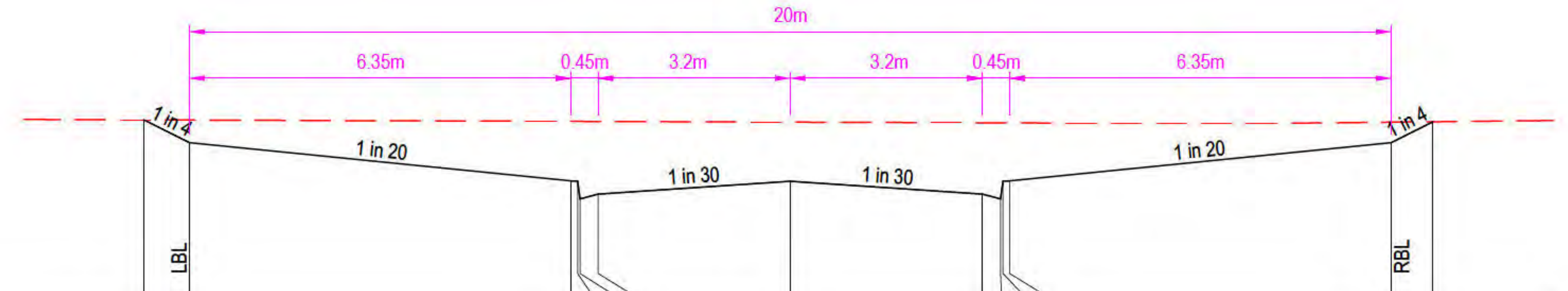
PROJECT
BUCKLEYS ROAD PRELIMINARY
ROAD GRADING
MERRIMU

DRAWING TITLE
MERRIMU - BUCKELYS ROAD
ROAD CROSS SECTIONS - 05
BUCKELYS ROAD

STATUS
PRELIMINARY
NOT FOR CONSTRUCT

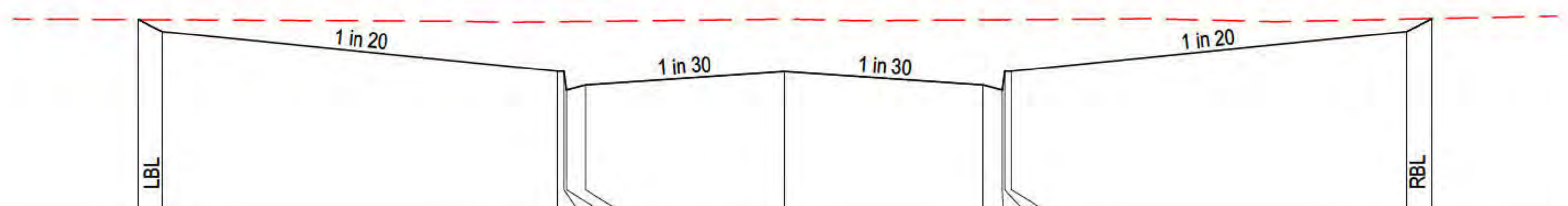
SCALE @ A1 : 1:100 (H) 1:50 (V)
H 2 1 0 2 4
V 1 0.5 0 1 2

[redacted]



DATUM194.5													
DESIGN SURFACE	196.026	195.837	195.519	195.519	195.369	195.409	195.516	195.409	195.369	195.519	195.519	195.837	196.011
EXISTING SURFACE	196.026	196.025	196.014	196.014	196.014	196.013	196.008	196.002	196.002	196.002	196.001	196.007	196.011
OFFSET	-10.757	-10.000	-3.650	-3.540	-3.500	-3.200	0.000	3.200	3.500	3.540	3.650	10.000	10.696

CH 800.000

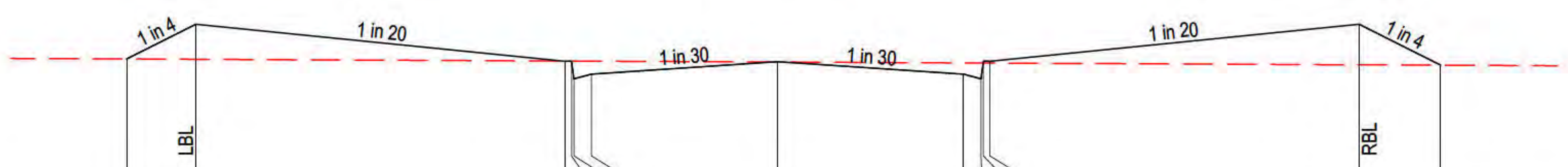


DATUM194.0													
DESIGN SURFACE	195.612	195.517	195.199	195.199	195.049	195.089	195.196	195.089	195.049	195.199	195.199	195.517	195.621
EXISTING SURFACE	195.612	195.611	195.596	195.596	195.597	195.598	195.617	195.611	195.612	195.612	195.613	195.617	195.621
OFFSET	-10.382	-10.000	-3.650	-3.540	-3.500	-3.200	0.000	3.200	3.500	3.540	3.650	10.000	10.416

CH 760.000

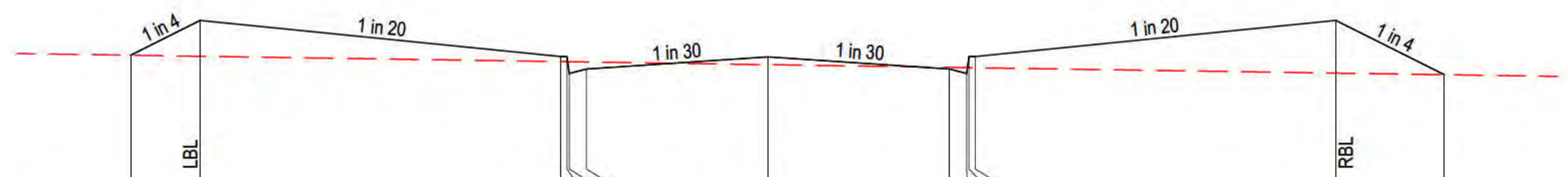
DATUM194.0													
DESIGN SURFACE	195.095	195.197	194.879	194.879	194.729	194.769	194.876	194.769	194.729	194.879	194.879	195.197	195.042
EXISTING SURFACE	195.095	195.094	195.079	195.079	195.079	195.078	195.070	195.063	195.062	195.062	195.062	195.049	195.042
OFFSET	-10.407	-10.000	-3.650	-3.540	-3.500	-3.200	0.000	3.200	3.500	3.540	3.650	10.000	10.617

CH 720.000



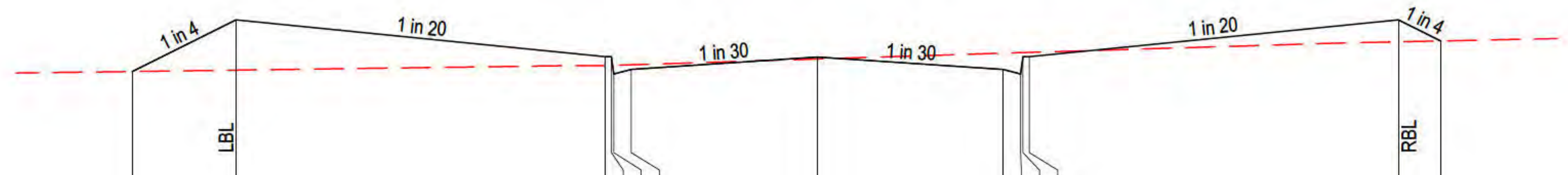
DATUM193.5													
DESIGN SURFACE	194.579	194.877	194.559	194.559	194.409	194.449	194.556	194.449	194.409	194.559	194.559	194.877	194.526
EXISTING SURFACE	194.579	194.576	194.561	194.561	194.561	194.560	194.553	194.545	194.545	194.545	194.544	194.529	194.526
OFFSET	-11.189	-10.000	-3.650	-3.540	-3.500	-3.200	0.000	3.200	3.500	3.540	3.650	10.000	11.402

CH 680.000



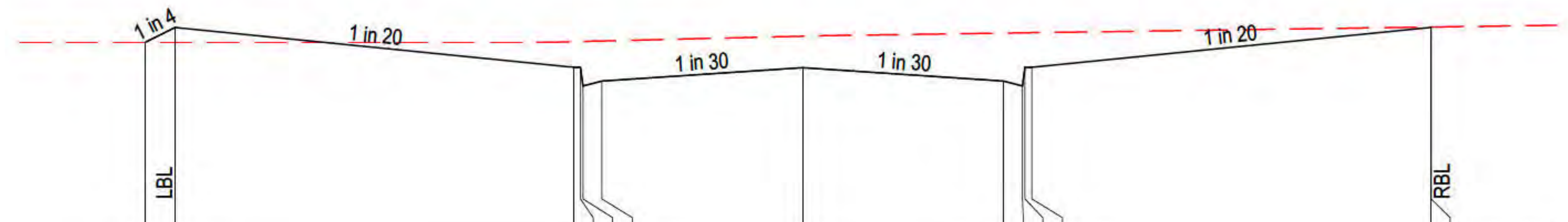
DATUM193.0													
DESIGN SURFACE	194.250	194.556	194.239	194.239	194.089	194.129	194.236	194.129	194.089	194.239	194.239	194.556	194.079
EXISTING SURFACE	194.250	194.241	194.194	194.193	194.193	194.191	194.167	194.143	194.141	194.141	194.140	194.093	194.079
OFFSET	-11.225	-10.000	-3.650	-3.540	-3.500	-3.200	0.000	3.200	3.500	3.540	3.650	10.000	11.911

CH 640.000



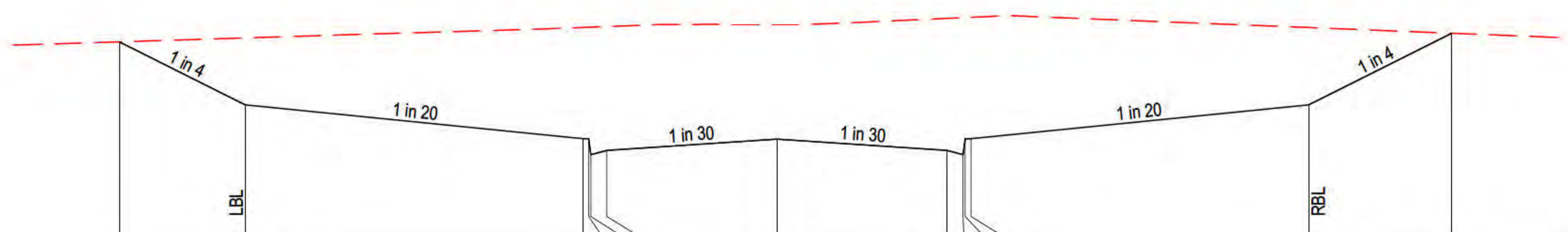
DATUM196.0													
DESIGN SURFACE	196.950	197.396	197.078	197.078	196.928	196.968	197.075	196.968	196.928	197.078	197.078	197.396	197.214
EXISTING SURFACE	196.950	196.962	197.001	197.003	197.003	197.008	197.058	197.108	197.113	197.113	197.115	197.206	197.214
OFFSET	-11.783	-10.000	-3.650	-3.540	-3.500	-3.200	0.000	3.200	3.500	3.540	3.650	10.000	10.728

CH 994.795



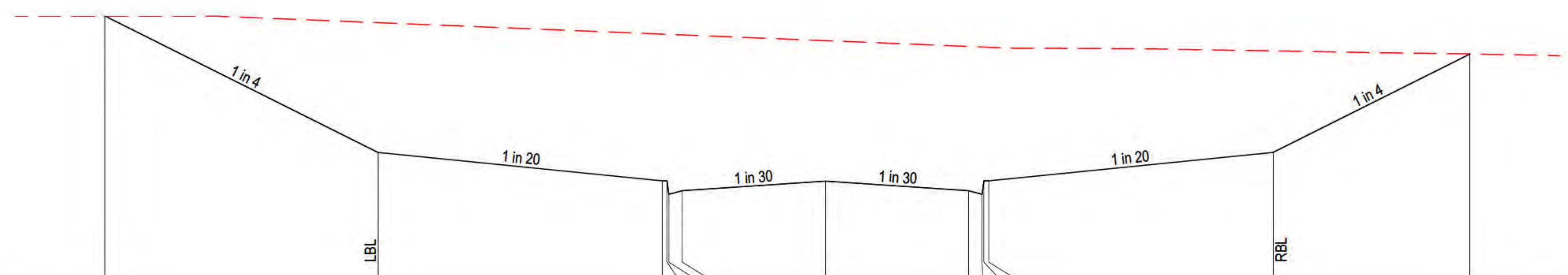
DATUM195.5													
DESIGN SURFACE	197.000	197.117	196.800	196.800	196.650	196.690	196.797	196.690	196.650	196.800	196.800	197.117	197.120
EXISTING SURFACE	197.000	197.000	197.004	197.005	197.005	197.009	197.048	197.072	197.074	197.075	197.075	197.120	197.120
OFFSET	-10.470	-10.000	-3.650	-3.540	-3.500	-3.200	0.000	3.200	3.500	3.540	3.650	10.000	10.012

CH 960.000



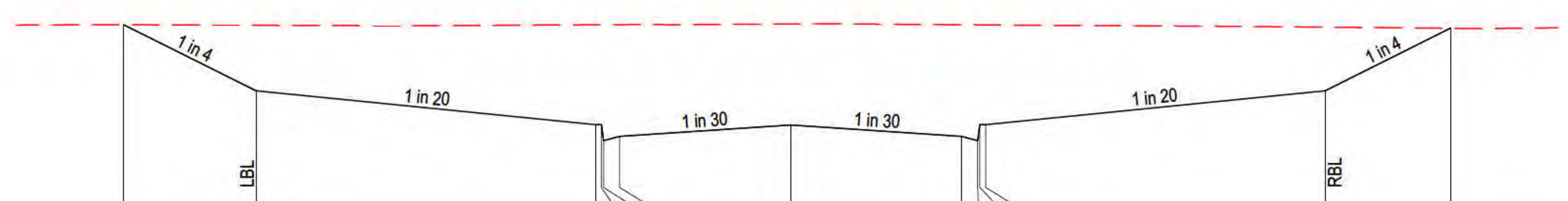
DATUM195.5													
DESIGN SURFACE	197.389	196.797	196.480	196.480	196.330	196.370	196.476	196.370	196.330	196.480	196.480	196.797	197.470
EXISTING SURFACE	197.389	197.426	197.524	197.526	197.527	197.532	197.553	197.609	197.616	197.617	197.619	197.523	197.470
OFFSET	-12.366	-10.000	-3.650	-3.540	-3.500	-3.200	0.000	3.200	3.500	3.540	3.650	10.000	12.690

CH 920.000



DATUM195.0													
DESIGN SURFACE	198.000	196.477	196.160	196.160	196.010	196.050	196.156	196.050	196.010	196.160	196.160	196.477	197.578
EXISTING SURFACE	198.000	197.928	197.800	197.798	197.797	197.791	197.727	197.662	197.656	197.655	197.653	197.612	197.578
OFFSET	-16.091	-10.000	-3.650	-3.540	-3.500	-3.200	0.000	3.200	3.500	3.540	3.650	10.000	14.404

CH 880.000



DATUM195.0													
DESIGN SURFACE	196.776	196.157	195.840	195.840	195.690	195.730	195.836	195.730	195.690	195.840	195.840	196.157	196.743
EXISTING SURFACE	196.776	196.772	196.776	196.777	196.777	196.778	196.783	196.776	196.775	196.775	196.775	196.753	196.743
OFFSET	-12.476	-10.000	-3.650	-3.540	-3.500	-3.200	0.000	3.200	3.500	3.540	3.650	10.000	12.345

CH 840.000

REVISION	DATE	ISSUE DESCRIPTION	DRAWN	CHECKED	APPROVED
A	02/02/26	ISSUED FOR INFOMRATION	[redacted]	T.PALIOS	T.PALIOS

CLIENT
[redacted]

[redacted]

PROJECT
BUCKLEYS ROAD PRELIMINARY ROAD GRADING MERRIMU

DRAWING TITLE
MERRIMU - BUCKELYS ROAD ROAD CROSS SECTIONS - 06 BUCKELYS ROAD

STATUS
PRELIMINARY
NOT FOR CONSTRUCT

SCALE @ A1 : 1:100 (H) 1:50 (V)
H 2 1 0 2 4
V 1 0.5 0 1 2

[redacted]
[redacted]

CONSTRUCTED WETLAND AND RETARDING BASIN DESIGN FRAMEWORK – MERRIMU PSP

[redacted]

A mandatory, deemed-to-comply framework for the design of constructed wetlands and retarding basins within the Merrimu Precinct.

[redacted]

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1 Methodology Summary

This framework establishes a clear, methodical process for the design of constructed wetlands and retarding basins, where sizing and siting are determined through defined modelling and investigation rather than assumption or discretion.

Wetland sizing is derived directly from MUSIC modelling to meet required water quality outcomes, while retarding basin volumes are established through hydrologic modelling to achieve no worsening of peak flows. Both are backed with hydraulic modelling and their design must avoid wasteful consumption of scarce land capable of development where demonstrated through technical investigation.

These outcomes are then translated into a physical layout that includes only the components necessary for function, with no allowances beyond those required to achieve demonstrated performance outcomes. The process is undertaken in accordance with established Melbourne Water guidelines, including the Wetland Design Manual and associated checklists, ensuring alignment with accepted design and approval pathways.

Siting of assets, including proximity to the escarpment, is and should be, determined through site-specific geotechnical assessment and risk-based evaluation, rather than relying on general fixed setbacks, ensuring that locations reflect actual ground conditions and what the location allows for with appropriate structural works, thus enabling and the best outcomes for the precinct.

By requiring each step to be demonstrated through modelling, calculation and site-specific investigation, the framework replaces subjective interpretation with a consistent, evidence-based approach to design and approval.

2 Purpose

This document establishes a mandatory, deemed-to-comply framework for the design of constructed wetlands and retarding basins within the Merrimu Precinct.

The framework:

- Defines a prescribed methodology for stormwater infrastructure design
- Removes discretionary interpretation of key design parameters
- Provides a clear basis for demonstrating compliance with the Merrimu PSP

A design that satisfies the methodology and criteria in this document must be considered compliant with PSP requirements relating to stormwater management and drainage and must be accepted as meeting the requirement for approval to the satisfaction of Melbourne Water and the responsible authority.

3 Statutory and PSP Alignment

Stormwater infrastructure must be designed in accordance with the Merrimu PSP, including:

- Achievement of stormwater treatment prior to discharge
- Consideration of soil type and land capability
- Integration of drainage infrastructure with environmental constraints
- Provision of flood protection and hydraulic performance

Stormwater infrastructure:

- Must maximise developable land
- Must be located as close as practicable to the escarpment edge
- Must respond to geotechnical and erosion risks

This framework defines the method by which these requirements are satisfied.

4 Definitions

For the purpose of this framework, the following definitions apply.

4.1 Compliance

Compliance means that a design:

- Follows the methodology defined in this document
- Demonstrates required outcomes through modelling, calculation and assessment
- Addresses all identified constraints

A compliant design is one that satisfies defined criteria and does not rely on or is influenced by subjective judgement.

4.2 Deemed-to-Comply

Deemed-to-comply refers to a design approach where:

- Prescribed methods and criteria are followed
- Required performance outcomes are achieved

A deemed-to-comply design must be accepted where all criteria are met.

Compliance with this framework constitutes satisfaction of the relevant drainage and stormwater requirements of the Merrimu PSP.

[redacted]

4.3 Functional Design

Functional design refers to the stage of design that:

- Confirms system layout and configuration
- Demonstrates hydraulic and water quality performance
- Responds to site constraints

This stage must be supported by modelling and technical assessment.

4.4 Detailed Design

Detailed design refers to the stage of design that:

- Finalises geometry, levels and structures
- Confirms constructability
- Defines maintenance requirements

Detailed design must be consistent with approved functional design.

4.5 Geotechnical Investigation

Geotechnical investigation means:

- Site-specific assessment of soil, slope and groundwater conditions
- Testing and analysis sufficient to assess stability and erosion risk
- Identification of dispersive or sodic soils

This investigation forms the basis for determining appropriate siting and setback distances.

4.6 Siting

Siting refers to the process of determining the location of wetlands and retarding basins based on:

- Catchment requirements
- Hydraulic performance
- Environmental constraints
- Geotechnical conditions

Siting must be based on investigation and analysis, not fixed offsets or subjective considerations.

4.7 Setback

Setback refers to the horizontal distance between infrastructure and a physical feature such as an escarpment.

Setbacks must:

- Be determined through site-specific assessment

- Reflect actual risk conditions
- Not be applied as fixed or default distances

4.8 Land Take

Land take refers to the total area required to accommodate stormwater infrastructure, including:

- Treatment areas
- Batters
- Maintenance access
- Hydraulic conveyance

Land take must be based on functional requirements and must not include arbitrary allowances.

4.9 Retarding Basin

A retarding basin is a stormwater management asset designed to:

- Temporarily store runoff
- Reduce peak flows
- Release flows at a controlled rate

4.10 Constructed Wetland

A constructed wetland is a stormwater treatment system designed to:

- Remove pollutants
- Improve water quality
- Provide hydraulic attenuation

5 Application of this Framework

5.1 General

The methodology within this framework defines the basis upon which compliance is assessed and removes reliance on subjective interpretation.

This framework applies to:

- Constructed wetlands
- Retarding basins
- Integrated wetland-basin systems

5.2 Deemed Compliance

A design:

- That follows the methodology in Sections 7, 8, 9, and 10, and
- is supported by required modelling and assessment

must not be subject to additional requirements beyond those necessary to demonstrate compliance with this framework with regards to:

- Wetland and retarding basin sizing
- Land take
- Setback distances
- System configuration

6 Referenced Documents

6.1 General

This design framework must be read in conjunction with the documents listed in this section.

These documents collectively define:

- Statutory planning requirements
- Stormwater quality performance objectives
- Wetland design criteria and approval pathways
- Site-specific constraints and opportunities

This framework does not replace these documents. Instead, it:

- Interprets how they apply to Merrimu
- Defines a consistent and prescriptive approach to implementation
- Removes ambiguity where multiple design pathways exist

Where inconsistency exists between this framework and referenced documents:

- This framework defines the method of application within the Merrimu Precinct
- Referenced documents define underlying technical requirements and standards

6.2 Statutory and Planning Documents

The following statutory planning documents apply:

Document Title	Authority	Reference
Merrimu Precinct Structure Plan (Draft for Public Consultation)	Victorian Planning Authority	(Victorian Planning Authority, 2026)
Moorabool Planning Scheme	Department of Transport and Planning	(Victorian Government, 2026)

Precinct Structure Planning Guidelines: New Communities in Victoria	Victorian Planning Authority	(Victorian Planning Authority, 2021)
Plan for Victoria – A Plan by Victorians, for Victorians	Victorian Government	(Victorian Government, 2025)

6.3 Melbourne Water Requirements

The following Melbourne Water documents apply:

Document Title	Authority	Reference
Wetland Design Manual: Part A1 – Vision, Core Outcomes and Aspirational Outcomes	Melbourne Water	(Melbourne Water, 2020a)
Wetland Design Manual: Part A2 – Deemed to Comply Design Requirements	Melbourne Water	(Melbourne Water, 2020b)
Wetland Design Manual: Part A3 – Design Considerations for Wetlands	Melbourne Water	(Melbourne Water, 2020c)
Wetland Design Manual: Part B – Design Acceptance Process	Melbourne Water	(Melbourne Water, 2020d)
Wetland Design Manual: Part C – Technical Design, Construction and Establishment Approach	Melbourne Water	(Melbourne Water, 2020e)
Wetland Design Manual – Supporting Document: Form and Function Manual	Melbourne Water	(Melbourne Water, 2020f)
Design, Construction and Establishment of Wetlands: Questions and Answers	Melbourne Water	(Melbourne Water, 2020g)
MUSIC Guideline	Melbourne Water	(Melbourne Water, 2024)

6.4 Water Quality and Environmental Standards

The following water quality and environmental standard documents apply:

Document Title	Authority	Reference
State Environment Protection Policy (Waters of Victoria)	EPA Victoria	(Environment Protection Authority Victoria, 2018)
Urban Stormwater Management Guidance	EPA Victoria	(Environment Protection Authority Victoria, 2021)
Urban Stormwater: Best Practice Environmental Management Guidelines	CSIRO	(CSIRO, 1999)

6.5 Technical Supporting Documents

The following technical supporting documents apply:

Document Title	Author	Reference
Merrimu Sodic Soil Peer Review	Streamology	(Streamology, 2025)
Merrimu Stormwater Management Strategy	Rain Consulting	(Rain Consulting, 2022)
Merrimu Stormwater Feasibility Investigation	Streamology	(Streamology, 2022)
Merrimu Urban Water Impact – Hydrogeological Review	CDM Smith	(CDM Smith, 2021)

[redacted]

6.6 Development Services Scheme (DSS)

The Development Services Scheme (DSS) for the Merrimu Precinct will define:

- Regional drainage infrastructure requirements
- Design flows and hydrologic assumptions
- Allowable discharge conditions

At the time of writing, the DSS has not been finalised.

Where DSS requirements are not yet defined:

- Design must adopt best practice hydrologic and hydraulic modelling consistent with ARR 2019 and Melbourne Water requirements.
- Assumptions must be clearly documented
- Designs must be updated when DSS requirements are confirmed

6.7 Interpretation

For the purpose of this framework:

- Referenced documents define technical requirements and objectives
- This framework defines a prescribed method of application
- Where referenced documents allow discretion, this framework defines a bounded approach

In the absence of DSS requirements, design criteria defined in this framework shall be used.

7 Design Philosophy

Designs must focus on efficient use of land resources, ensuring that infrastructure occupies only the area required to meet the demonstrated functional and performance outcomes.

All designs must be:

- Evidence-based
- Modelling-led
- Repeatable and auditable
- Not reliant on subjective judgement

Decisions must be:

- Supported by modelling, investigation or calculation
- Referenced to an accepted document
- Clearly documented

Where uncertainty exists:

- It must be addressed through investigation, not through assumptions that introduce unwarranted contingency

[redacted]

Excess land take beyond that required to achieve defined hydraulic and water quality performance represents an inefficient use of land resources and is not permitted.

8 Overall Design Methodology

All wetland and retarding basin design must follow the sequence below. No step may be omitted.

The design process may be undertaken iteratively; however, all components must be completed and demonstrated prior to confirmation of compliance.

8.1 Catchment Definition

Define:

- Catchment area
- Land use (in line with proposed development layout)
- Impervious fraction
- Drainage pathways

Inputs must be consistent with:

- PSP land use assumptions
- Stormwater strategy (Rain Consulting, 2022)

8.2 Hydrologic Modelling

Hydrologic modelling must:

- Be undertaken in accordance with ARR 2019 (Engineers Australia, 2019)
- Define design flows for all relevant events
- Establish pre- and post-development conditions
- Be undertaken using RORB (or equivalent)
- Be consistent with Development Services Scheme principles

8.3 Water Quality Modelling

Water quality modelling must:

- Be undertaken using MUSIC (Melbourne Water, 2024)
- Demonstrate compliance with pollutant reduction targets (Environment Protection Authority Victoria, 2021)
- Be based on representative rainfall data (Melbourne Water, 2024)

8.4 Hydraulic Modelling

Hydraulic modelling must:

- Demonstrate system performance under design conditions
- Confirm flood behaviour and storage performance
- Be undertaken using appropriate tools (e.g. TUFLOW)
- Demonstrate compliance with PSP flood protection requirements

8.5 Wetland Design

Wetlands must be designed in accordance with:

- Defined performance outcomes (Melbourne Water, 2020a)
- Deemed to comply criteria (Melbourne Water, 2020b)
- Functional requirements (Melbourne Water, 2020c)

Modelling must be completed in MUSIC and:

- Use a minimum 10-year rainfall dataset for the correct template (Little River must be adopted for the entire PSP area)
- Apply appropriate timestep and parameter selection

Wetland sizing must:

- Be derived directly from MUSIC modelling outputs
- Not rely on assumed area ratios or unwarranted contingencies

The required treatment area must be translated into a physical footprint including:

- Sediment pond
- Macrophyte zone
- Bypass system

8.5.1 SEDIMENT POND DESIGN

Sediment ponds must:

- Be located upstream of the treatment system
- Provide effective sediment capture
- Be accessible for maintenance
- Design must minimise excess footprint beyond functional requirements.

8.5.2 MACROPHYTE ZONE REQUIREMENTS

Macrophyte zones must:

- Provide effective treatment through vegetation density and residence time
- Avoid short-circuiting

Geometry must support:

- Even flow distribution
- Elongated flow paths

8.5.3 HIGH FLOW BYPASS

A bypass system must:

- Convey high flows around the treatment system
- Protect vegetation and prevent resuspension

8.6 Retarding Basin Design

Retarding basins must:

- Be designed to achieve hydrological performance requirements of reducing the developed 1% AEP peak flow rate back to the pre-developed 1% AEP peak flow rates, demonstrated at the outlet of the retarding basin.
- Be integrated with wetlands where appropriate
- Be vertically stacked where feasible

Designs must ensure:

- Compatibility with wetland function
- Maintain separation of:
    - Treatment volume
    - Extended detention
    - Flood storage

8.7 Land Take Determination

8.7.1 GENERAL

The total land requirement for each system must include:

- Treatment areas
- Batters
- Maintenance access
- Bypass corridors

Land take must:

- Be explicitly defined
- Be limited to functional requirements only

Land take must be calculated as the sum of the defined components in Section 8.

8.7.2 MANDATORY COMPONENTS

The following components must be included:

- Maintenance access track (continuous)
- Sediment pond access
- Batter slopes consistent with stability requirements

[redacted]

8.7.3 PROHIBITION ON UNWARRANTED CONTINGENCY

Land take must not include:

- Arbitrary buffers
- Unwarranted multipliers or contingency
- Duplication of treatment and flood storage areas

Allowances beyond those required to achieve demonstrated performance outcomes are not acceptable.

8.7.4 INTEGRATED SYSTEMS

Where wetlands and retarding basins are integrated:

- The same footprint must be used for both functions where feasible
- Land must not be double counted

9 Siting of Wetlands and Retarding Basins

9.1 Governing Requirement

Stormwater infrastructure must be located:

- As close as practicable to the escarpment edge, subject to geotechnical constraints.

9.2 General

Infrastructure must be located to:

- Respond to catchment layout
- Minimise environmental impact
- Enable maintenance and operation for the ultimate asset owner
- Wherever possible, located within one property parcel

9.3 Escarpment Interface (Critical Requirement)

Siting of wetlands and basins near the escarpment must be based on:

- Site-specific investigation
- Soil conditions
- Slope stability
- Groundwater behaviour
  (Streamology, 2025)

Fixed setback distances must not be applied which contradict site-specific geotechnical justification.

The previously adopted 100 m buffer:

- Represents a precautionary investigation zone
- Does not exclude development
(Streamology, 2025)

9.4 Required Approach

Setback distances must:

- Be determined through technical investigation
- Not assumed or fixed

Investigations must include:

- Soil testing (ESP, Emerson class)
- Assessment of dispersive soils
- Identification of Werribee Formation exposure
(Streamology, 2025)

9.5 Risk-Based Siting

Risk must be assessed based on:

- Slope (>15% high risk)
- Soil type
- Exposure of dispersive materials
(Streamology, 2025)

9.6 Groundwater Considerations

Setbacks must consider:

- Groundwater mounding potential
- Spatial variability of groundwater response

Uniform setbacks must not be applied. (Streamology, 2025)

10 Design Constraints and Controls

10.1 Erosion Risk

Design must ensure:

- No increase in erosion risk
- Protection of escarpment and waterways
(Streamology, 2025)

10.2 Stormwater Discharge

Design must:

- Avoid increasing runoff to sensitive areas
- Control discharge pathways
  (Streamology, 2025)

10.3 Sodic Soils

Where sodic soils are present:

- Controls must be implemented
- Measures must be appropriate to risk level
  (Streamology, 2025)

10.4 Required Controls

Must include where applicable and justified by technical investigations:

- Soil stabilisation
- Controlled drainage
- Vegetation establishment
- Construction controls
  (Streamology, 2025)

11 Functional Design Requirements

Functional design must include:

- MUSIC model
- Hydrologic model
- Hydraulic model (TUFLOW where required)
- Functional layout drawings
- Catchment definition
- Constraint response

12 Detailed Design Requirements

Detailed design must:

- Be consistent with approved functional design
- Include all structures, levels, and connections

- Address constructability and maintenance
- Land take must not increase beyond concept design unless justified.

13 Demonstration of Compliance

Compliance is achieved where:

- All steps in this framework are followed
- All required modelling is completed
- All constraints are assessed and addressed

Approval is based on:

- Demonstrated compliance
- Not subjective judgement

A wetland and retarding basin system:

- That satisfies the methodology in this document
- Demonstrates compliance with hydraulic and water quality requirements
- Responds to geotechnical and escarpment constraints

must be considered compliant for the purposes of the Merrimu PSP drainage and stormwater approval and must be accepted as meeting the requirement for approval to the satisfaction of Melbourne Water and the responsible authority.

No additional requirements relating to:

- Wetland size
- Land take
- Setbacks
- Configuration

may be imposed where compliance with this framework is demonstrated.

Demonstration of compliance in accordance with this framework shall not be unreasonably withheld.

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[redacted]

Merrimu Native Vegetation Precinct Plan: Impact and Offset Review

Date: 8th April 2026

Author: [redacted]

Ref: 10937

1 Background

Ecology and Heritage Partners Pty Ltd were engaged by [redacted] to provide a review of the Native Vegetation Precinct Plan (NVPP) (WSP 2026) with respect to the parcels that occur within land owned by [redacted] The primary scope for the review was to provide advice on the native vegetation offset requirements within [redacted] land, and the availability of offsets within the proposed first party offset site.

Assessment of offset obligations and offset availability for land located outside [redacted] land was not undertaken.

2 NVPP review

A Native Vegetation Precinct Plan (NVPP) has been prepared by WSP (2026) for the Merrimu Precinct Structure Plan, with the intent of being listed under Clause 52.16 of the Moorabool Planning Scheme. The NVPP outlines the native vegetation mapped within the study area, and provides detail on the patches that can be removed or that are to be retained, in line with the future development of the study area. For areas that are proposed to be removed, details on the offset requirements are provided.

A review of the NVPP was completed, with several items noted for consideration:

- Section 1.1. Clarify the nature of the proposed land use. Currently listed as industrial, but understood to be commercial and residential.
- Section 2, Table 2.1. Clarify why there are blank lines at the end of the table.
- Scale of Figure 2 in the NVPP does not allow clear understanding of the native vegetation to be removed / retained. Recommend that the scale is increased for clarity, and to ensure that all patches proposed to be removed are clearly shown and identified with a corresponding label that links to the Native Vegetation Removal report provided in the NVPP.
- Section 2.1.1.3. Paragraph referring to Striped Legless Lizard targeted surveys. Recommend summarising this section instead to refer to the reports prepared by EHP (2025) and AECOM (2023) regarding the location and extent of potential habitats for significant flora and fauna species. Further assessment of these species are not specifically relevant to the NVPP. Recommend adding overarching statement that consideration of EPBC Act listed matters should be undertaken by proponents seeking to develop land, to ensure compliance with the EPBC Act.
- Section 2.1.1.3 regarding Victorian Grassland Earless Dragon. Statement that the 2024 AECOM assessment for suitable habitat did not record any within the Long Forest Estate is incorrect. The report states that there are areas of potentially suitable habitat, albeit with a low likelihood of the

species occurring, but presence cannot be discounted due to the species cryptic nature and low detectability (AECOM 2024).

- Section 6, item 1: current text states that additional efforts to avoid and minimise impacts to native vegetation should be demonstrated at the permit stage. This would only be triggered for proposals that seek to remove native vegetation that is flagged as 'to be retained' in the NVPP and require a permit under Clause 52.16 due to not being in accordance with the NVPP. The removal of native vegetation that is flagged as 'to be removed' in the NVPP would not need a permit under Clause 52.16, due to being in accordance with the NVPP.
- Section 6, item 5a. Requirement to fence all retained native vegetation in the NVPP prior to the commencement of works or approved removal of native vegetation. This item is recommended to be amended to clarify that only retained vegetation that occurs within 15 metres of the proposed works is required to be fenced (i.e. native vegetation in proximity to the works, not the entire NVPP site for feasibility purposes).
- Section 6, item 7a. Regarding any native vegetation that 'appears' after approval of the NVPP (i.e. does not form part of the areas identified for retention / removal in the NVPP). Any native vegetation that 'appears' after approval of the NVPP and that is proposed to be removed would require assessment under Clause 52.16 of the planning scheme, due to the removal not being in accordance with the NVPP. The permit application must consider the decision guidelines of the *Guidelines for the removal, destruction or lopping of native vegetation* (DEECA 2025).
- Section 6, item 8. Regarding surveys for Striped Legless Lizard, Tussock Skink and Fat-tailed Dunnart. For Striped Legless Lizard, targeted surveys may be required in some areas of habitat prior to disturbance to ensure compliance with the EPBC Act. Recommend reviewing the language for the requirement to undertake salvage and translocation. The requirement to salvage and translocate should be subject to consultation with DEECA and species experts, to determine feasibility.
- Section 2 refers to a "Desktop Assessment Area", as shown on Figure 1. Figure 1 does not show a desktop assessment area. The term desktop assessment area is only referred to twice in the NVPP, both in Section 2. It is unclear what this refers to.
- EPBC Act implications: the NVPP over-reaches due to discussion and recommendations relating to nationally significant matters. The NVPP should focus on native vegetation matters relevant to State based legislation. We recommend that the brief paragraph highlighting potential EPBC Act approval obligations (Section 1.1.1) is sufficient to address EPBC Act matters, with the remainder of the NVPP focussed on the NVPP objectives.

3 Offset Obligations relevant to [redacted] Land

An estimate of the native vegetation offset requirements that would be generated based on the native vegetation clearing within [redacted] land as per the proposed NVPP are:

- 1.589 Species Habitat Units (SHUs) for Victorian Grassland Earless Dragon (VGED);
- 2.603 SHUs for Small Golden Moths;
- 3.096 SHUs of Fragrant Saltbush;

- 3.096 SHUs of Heath Spear-grass;
- 3.096 SHUs of Melbourne Yellow-gum; and,
- 3.074 SHUs of Bacchus Marsh Wattle.

[redacted] are proposing to establish an offset site on the parcel located at 289 Bences Road, Merrimu (Property MM-17 in the NVPP). Based on a preliminary assessment, the establishment of an offset site on this parcel would cover off on all of the above offset requirements, with the exception of Small Golden Moths, where there is approximately a 0.802 deficit (Section 4). At current, there are no registered or potential offset sites in the Native Vegetation Credit Register that contain the required Small Golden Moth offset requirement (DEECA 2026).

4 [redacted] Offset Availability

A preliminary analysis of the potential offset credits that could be generated through the establishment of an offset site on Property MM-17 has been undertaken, excluding the approximately 6.4 hectares designated for EPBC Act offset purposes. The offset requirements below are based on the [redacted] land only, not the overall NVPP.

The approximate available SHUs within the offset site are as follows:

- 5.816 SHUs for VGED, exceeding the 1.589 SHU requirement.
- 1.801 SHUs for Small Golden Moths, which is 69.19% of the required 2.603 SHUs.
- 7.401 SHUs of Fragrant Saltbush, exceeding the 3.096 SHU requirement.
- 7.401 SHUs of Heath Spear-grass, exceeding the 3.096 SHU requirement.
- 7.401 SHUs of Melbourne Yellow-gum, exceeding the 3.096 SHU requirement.
- 7.403 SHUs of Bacchus Marsh Wattle, exceeding the 3.074 SHU requirement.

Of the above, all but one of the required SHUs triggered for proposed removal within the [redacted] land could be satisfied with the establishment of the proposed offset site. Small Golden Moths is the exception, where further assessment of offset availability or opportunities to reduce impacts is required.

Retaining either patch PG2j (MM-27) or PG4g (MM-25) would reduce the offset obligation for Small Golden Moths to below 1.801 SHUs, meaning that [redacted] offset obligation could be met entirely within the offset site established on MM-17.

Alternatively, a second offset site would need to be located that contains modelled habitat for the species and meets the eligibility criteria for use as an offset site, entered into an on-title agreement and managed for conservation purposes in perpetuity.

5 Summary

[redacted] For the vegetation within the [redacted] land that is designated as to be removed within the Merrimu NVPP, offset obligations can be fully achieved with the exception of a deficit of 0.802 SHU for Small Golden Moths. Retention of either PG2j or PG4g would remove

this deficit, ensure that [redacted] are able demonstrate that their offset obligations can be fully achieved, and demonstrate further retention of ecological values at the local scale.

In this context, it is our opinion that the NVPP should be applied to the [redacted] land, given the demonstrated ability of [redacted] to meet their offset obligations in accordance with the Merrimu NVPP.

Kind Regards,

[redacted]

[redacted]

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